



**ΠΑΡΑΡΤΗΜΑ ΠΡΩΤΟ**  
**ΤΗΣ ΕΠΙΣΗΜΗΣ ΕΦΗΜΕΡΙΔΑΣ ΤΗΣ ΔΗΜΟΚΡΑΤΙΑΣ**  
 Αρ. 3816 της 5ης ΜΑΡΤΙΟΥ 2004  
**ΝΟΜΟΘΕΣΙΑ**

**ΜΕΡΟΣ ΙΙΙ**

**Ο περί της Ευρωπαϊκής Συμφωνίας για τις Διεθνείς Οδικές Μεταφορές Επικίνδυνων Εμπορευμάτων (ADR) (Κυρωτικός) Νόμος του 2004 εκδίδεται με δημοσίευση στην Επίσημη Εφημερίδα της Κυπριακής Δημοκρατίας σύμφωνα με το Άρθρο 52 του Συντάγματος.**

Αριθμός 9(III) του 2004

**ΝΟΜΟΣ ΠΟΥ ΚΥΡΩΝΕΙ ΤΗΝ ΕΥΡΩΠΑΪΚΗ ΣΥΜΦΩΝΙΑ  
 ΓΙΑ ΤΙΣ ΔΙΕΘΝΕΙΣ ΟΔΙΚΕΣ ΜΕΤΑΦΟΡΕΣ  
 ΕΠΙΚΙΝΔΥΝΩΝ ΕΜΠΟΡΕΥΜΑΤΩΝ (ADR)**

Για σκοπούς συμμόρφωσης της Δημοκρατίας προς τις υποχρεώσεις της έναντι της Ευρωπαϊκής Ένωσης στα πλαίσια του Κεφαλαίου 9 (Πολιτική Μεταφορών) του Κοινοτικού Κεκτημένου, για τις Διεθνείς Οδικές Μεταφορές Επικίνδυνων Εμπορευμάτων (ADR),

Η Βουλή των Αντιπροσώπων ψηφίζει ως ακολούθως:

**1.** Ο παρών Νόμος θα αναφέρεται ως ο περί της Ευρωπαϊκής Συμφωνίας για τις Διεθνείς Οδικές Μεταφορές Επικίνδυνων Εμπορευμάτων (ADR) (Κυρωτικός) Νόμος του 2004. Συνοπτικός τίτλος.

**2.** Στον παρόντα Νόμο, εκτός εάν από το κείμενο προκύπτει διαφορετικά— Εμπνεύα.

«Συμφωνία» σημαίνει την Ευρωπαϊκή Συμφωνία για τις Διεθνείς Οδικές Μεταφορές Επικίνδυνων Εμπορευμάτων (ADR), η οποία συννομολογήθηκε στη Γενεύη στις 30 Σεπτεμβρίου 1957 και περιλαμβάνει τις τροποποιήσεις της μέχρι την 31η Δεκεμβρίου 2002.

**3.—(1)** Η Συμφωνία, στην οποία με την Απόφαση του Υπουργικού Συμβουλίου με ημερομηνία 2 Φεβρουαρίου 2004, αποφασίσθηκε όπως προσχωρήσει η Δημοκρατία, κυρώνεται με τον παρόντα Νόμο. Κύρωση.

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Νοείται ότι, σε περίπτωση αντίθεσης μεταξύ των δύο αυτών κειμένων υπερισχύει το κείμενο στο αγγλικό πρωτότυπο. Πίνακας. Μέρος I. Μέρος II.

**4.** Οι διατάξεις της Συμφωνίας εφαρμόζονται σε συνάρτηση με τον περί Οδικής Μεταφοράς Επικίνδυνων Εμπορευμάτων Νόμο του 2004. Εφαρμογή. 29(1) του 2004.

Κανονισμοί.

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Έναρξη  
της ισχύος  
του παρόντος  
Νόμου.

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ΠΙΝΑΚΑΣ  
(Άρθρο 3)



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ΠΙΝΑΚΑΣ  
(Άρθρο 3)

159

MEPOΣ I

ECE/TRANS/160 (Vol. I)

Economic Commission for Europe  
Inland Transport Committee

Restructured

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# ADR

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applicable as from 1 January 2003

**European Agreement**  
Concerning the International Carriage  
of Dangerous Goods by Road

**Volume I**



UNITED NATIONS  
New York and Geneva, 2002

**NOTE**

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ECE/TRANS/160 (Vol. I)
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## FOREWORD

### General

The European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) was done at Geneva on 30 September 1957 under the auspices of the United Nations Economic Commission for Europe, and it entered into force on 29 January 1968. The Agreement itself was amended by the Protocol amending article 14 (3) done at New York on 21 August 1975, which entered into force on 19 April 1985.

According to article 2 of the Agreement, dangerous goods barred from carriage by Annex A shall not be accepted for international transport, while international transport of other dangerous goods shall be authorized subject to compliance with:

- the conditions laid down in Annex A for the goods in question, in particular as regards their packaging and labelling; and
- the conditions laid down in Annex B, in particular as regards the construction, equipment and operation of the vehicle carrying the goods in question.

Nevertheless, according to article 4, each Contracting Party shall retain the right to regulate or prohibit, for reasons other than safety during carriage, the entry of dangerous goods into its territory. Contracting Parties also retain the right to arrange, by bilateral or multilateral agreements, that certain dangerous goods which are prohibited from carriage by Annex A be internationally carried, subject to certain conditions, on their territories, or that dangerous goods authorized to be carried internationally according to Annex A be carried on their territories under conditions less stringent than those specified in Annexes A and B.

Annexes A and B have been regularly amended and updated since the entry into force of ADR.

### Structure of Annexes A and B

The Working Party on the Transport of Dangerous Goods (WP.15) of the Economic Commission for Europe's Inland Transport Committee decided, at its fifty-first session (26-30 October 1992), to restructure Annexes A and B, on the basis of a proposal by the International Road Transport Union (TRANS/WP.15/124, paras. 100-108). The main objectives were to make the requirements more accessible and more user-friendly so that they could be applied more easily not only to international road transport operations under ADR, but also to domestic traffic in all European States through national or European Community legislation, and ultimately to ensure a consistent regulatory framework at European level. It was also considered necessary to identify more clearly the duties of the various participants in the transport chain, to group more systematically the requirements concerning these various participants, and to differentiate the legal requirements of ADR from the European or international standards that could be applied to meet such requirements.

The restructured ADR adopted by WP.15 is consistent with the United Nations *Recommendations on the Transport of Dangerous Goods, Model Regulations*, the *International Maritime Dangerous Goods Code (IMDG Code)*, the International Civil Aviation Organization's *Technical Instructions for the Safe Transport of Dangerous Goods by Air*, and is fully harmonized with the *Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)*.

The structure has been split into nine parts, but still grouped under two annexes to align with the wording of article 2 of the Agreement itself. The layout is as follows:

**Annex A: General provisions and provisions concerning dangerous articles and substances**

Part 1	General provisions
Part 2	Classification
Part 3	Dangerous goods list, special provisions and exemptions related to dangerous goods packed in limited quantities
Part 4	Packing and tank provisions
Part 5	Consignment procedures
Part 6	Requirements for the construction and testing of packagings, intermediate bulk containers (IBCs), large packagings and tanks
Part 7	Provisions concerning the conditions of carriage, loading, unloading and handling

**Annex B: Provisions concerning transport equipment and transport operations**

Part 8	Requirements for vehicle crews, equipment, operation and documentation
Part 9	Requirements concerning the construction and approval of vehicles

Part 1, which contains general provisions and definitions, is an essential part, since it contains all definitions for terms used throughout the other parts, and it defines precisely the scope and applicability of ADR, including the possibility of exemptions, as well as the applicability of other regulations. It also contains provisions concerning training, derogations and transitional measures, as well as provisions defining the respective safety obligations of the various participants in a chain of transport of dangerous goods. Provisions concerning checks and other support measures to ensure compliance with safety requirements, including requirements for safety advisers, have also been included.

Central to the use of the restructured ADR is table A of Chapter 3.2 which contains the dangerous goods list in the numerical order of UN numbers. Once the UN number of a specific dangerous substance or article has been determined, the table provides cross-references to specific requirements to be applied for the carriage of that substance or article, and to the chapters or sections where these specific requirements may be found. Nevertheless, it should be borne in mind that the general requirements or class specific requirements of the various Parts have to be applied in addition to specific requirements, as relevant.

An alphabetical index which indicates the UN number assigned to specific dangerous goods has been prepared by the secretariat and added as table B of Chapter 3.2 to facilitate the access to table A when the UN number is unknown. This table B is not an official part of ADR and has been added in the publication for easy reference only.

When goods which are known or suspected to be dangerous cannot be found by name in any of tables A or B, they have to be classified in accordance with Part 2, which contains all relevant procedures and criteria to determine whether such goods are deemed to be dangerous or not and which UN number should be assigned.

**Legal texts**

The first version of the restructured annexes, as proposed by the Government of Portugal to all Contracting Parties in accordance with the amendment procedure of article 14 of ADR (Depositary Notification C.N.1078.2000.TREATIES-3 of 1 January 2001) became legally applicable on 1 July 2001 (Depositary Notification C.N.282.2001.TREATIES-1 (Reissued) of 17 April 2001).

It was published under symbol ECE/TRANS/140, Vol. I and II. Paragraph 1.6.1.1 of Chapter 1.6 of this first version contains transitional provisions according to which the requirements of ADR applicable up to 30 June 2001 may continue to be applied until 31 December 2002, unless otherwise provided.

Since then, WP.15 adopted a number of corrections to the original text of the first version of the restructured annexes, which have also become legally applicable, and which are contained in the following documents (corrections to the English text):



TRANS/WP.15/165/Add.2 (See Depositary notifications C.N.870.2001 TREATIES-4 of 18 September 2001 and C.N.1454.2001 TREATIES-5 of 18 December 2001);

TRANS/WP.15/167/Add.3 (See Depositary notifications C.N.316.2002.TREATIES-1 of 5 April 2002 and C.N.675.2002.TREATIES-2 of 5 July 2002);

TRANS/WP.15/170/Add.1 (Legal procedure of correction under way at the time of writing this foreword).

These corrections to the English version are also reflected in documents ECE/TRANS/140/Corr.1, -/Corr.4 and -/Corr.6.

In addition, WP.15 has adopted new amendments to Annexes A and B of ADR, mainly intended to align them with the twelfth revised edition of the United Nations *Recommendations on the Transport of Dangerous Goods, Model Regulations*. These amendments are reflected in documents TRANS/WP.15/168 and TRANS/WP.15/168/Add.1 and have been proposed by the Government of Portugal to all Contracting Parties in accordance with article 14 of ADR (Depositary Notification C.N.666.2002.TREATIES-1 of 1 July 2002) (Procedure of acceptance under way at the time of writing this foreword).

This second edition of the restructured ADR ("Restructured ADR 2003") incorporates all corrections and amendments listed above.

#### **Applicability of the restructured ADR 2003 and limits of validity of previous editions published by the United Nations**

Notwithstanding the transitional measures provided for in this publication, which allow compliance with certain requirements contained in previous editions, the editions of ADR published by the United Nations which may be used for compliance are as follows:

Until 31 December 2002:	1999 edition (ECE/TRANS/130, Vol. I and II, and corrigendum 2) (except for the carriage of radioactive material); or
	2001 edition (ECE/TRANS/140, Vol. I and II, and corrigenda 1, 2, 4 and 6);
From 1 January 2003 until 30 June 2003:	2001 edition (ECE/TRANS/140, Vol. I and II, and corrigenda 1, 2, 4 and 6); or
	2003 edition (ECE/TRANS/160, Vol. I and II, and any corrigenda later published);
As from 1 July 2003:	2003 edition (ECE/TRANS/160, Vol. I and II, and any corrigenda or amendment later published).

### **Territorial applicability**

ADR is an Agreement between States, and there is no overall enforcing authority. In practice, highway checks are carried out by Contracting Parties, and non-compliance may then result in legal action by national authorities against offenders in accordance with their domestic legislation. ADR itself does not prescribe any penalties. At the time of publishing, those Contracting Parties are Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Kazakhstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Morocco, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, Ukraine, United Kingdom, Yugoslavia.

ADR applies to transport operations performed on the territory of at least two of the above-mentioned Contracting Parties. In addition, it should be noted that, in the interest of uniformity and free trading across the European Union (EU), Annexes A and B of ADR have also been adopted by EU Member States as the basis for regulation of the carriage of dangerous goods by road within and between their territories (Council directive 94/55/EC of 21 November 1994 on the approximation of the laws of the Member States with regard to the transport of dangerous goods by road, as amended). A number of non-EU countries have also adopted Annexes A and B of ADR as the basis for their national legislation.

### **Additional practical information**

For easy reference, the secretariat has included in this publication an appendix to Part 1 which contains the list of competent authorities of all Contracting Parties to ADR, up to date on 1 July 2002. Any query concerning the application of ADR should be directed to the relevant competent authority. Additional information may also be found on the UNECE Transport Division web site on the following page:

[http://www.unece.org/trans/danger/publi/adr/adr\\_e.html](http://www.unece.org/trans/danger/publi/adr/adr_e.html)

This information, updated on a continuous basis, concerns:

- the status of ADR;
- Depository notifications (e.g.: new Contracting Parties, amendments or corrections to legal texts);
- Publication details (corrections to the publication, new publications);
- List and details of competent authorities;
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<b>Chapter 9.7</b>	<b>Additional requirements concerning fixed tanks (tank-vehicles), battery-vehicles and complete or completed vehicles used for the carriage of dangerous goods in demountable tanks with a capacity greater than 1 m<sup>3</sup> or in tank-containers, portable tanks or MEGCs of a capacity greater than 3 m<sup>3</sup> (FL, OX and AT vehicles) .....</b>



**EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL  
CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR)**

**THE CONTRACTING PARTIES,**

**DESIRING** to increase the safety of international transport by road,

**HAVE AGREED** as follows:

**Article 1**

For the purpose of this Agreement,

- (a) the term "vehicle" shall mean motor vehicles, articulated vehicles, trailers and semi-trailers, as defined in article 4 of the Convention on Road Traffic of 19 September 1949, other than vehicles belonging to or under the orders of the armed forces of a Contracting Party;
- (b) the term "dangerous goods" shall mean those substances and articles the international carriage by road of which is prohibited by, or authorized only on certain conditions by, Annexes A and B;
- (c) the term "international transport" shall mean any transport operation performed on the territory of at least two Contracting Parties by vehicles defined in (a) above.

**Article 2**

1. Subject to the provisions of article 4, paragraph 3, dangerous goods barred from carriage by Annex A shall not be accepted for international transport.
2. International transport of other dangerous goods shall be authorized subject to compliance with:
  - (a) the conditions laid down in Annex A for the goods in question, in particular as regards their packaging and labelling, and
  - (b) the conditions laid down in Annex B, in particular as regards the construction, equipment and operation of the vehicle carrying the goods in question, subject to the provisions of article 4, paragraph 2.

**Article 3**

The Annexes to this Agreement shall form an integral part thereof.

**Article 4**

1. Each Contracting Party shall retain the right to regulate or prohibit, for reasons other than safety during carriage, the entry of dangerous goods into its territory.
2. Vehicles in service on the territory of a Contracting Party at the time of entry into force of this Agreement or brought into service on such territory within two months after its entry into force shall be allowed, for a period of three years from such entry into force, to perform the international transport of dangerous goods even if their construction and equipment do not entirely conform to the requirements laid down in Annex B for the transport operation in question. Under special clauses of Annex B, however, this period may be reduced.

3. The Contracting Parties shall retain the right to arrange, by special bilateral or multilateral agreements, that certain of the dangerous goods which under this Agreement are barred from all international transport may, subject to certain conditions, be accepted for international transport on their territories, or that dangerous goods which under this Agreement are acceptable for international transport only on specified conditions may be accepted for international transport on their territories under conditions less stringent than those laid down in the Annexes to this Agreement. The special bilateral or multilateral agreements referred to in this paragraph shall be communicated to the Secretary-General of the United Nations, who shall communicate them to the Contracting Parties which are not signatories to the said agreements.

#### Article 5

The transport operations to which this Agreement applies shall remain subject to national or international regulations applicable in general to road traffic, international road transport and international trade.

#### Article 6

1. Countries members of the Economic Commission for Europe and countries admitted to the Commission in a consultative capacity under paragraph 8 of the Commission's terms of reference may become Contracting Parties to this Agreement.

- (a) by signing it;
- (b) by ratifying it after signing it subject to ratification;
- (c) by acceding to it.

2. Such countries as may participate in certain activities of the Economic Commission for Europe in accordance with paragraph 11 of the Commission's terms of reference may become Contracting Parties to this Agreement by acceding to it after its entry into force.

3. The Agreement shall be open for signature until 15 December 1957. Thereafter, it shall be open for accession.

4. Ratification or accession shall be effected by the depositing of an instrument with the Secretary-General of the United Nations.

#### Article 7

1. This agreement shall enter into force one month after the date on which the number of countries mentioned in article 6, paragraph 1, which have signed it without reservation of ratification or have deposited their instruments of ratification or accession has reached a total of five. However, the Annexes thereto shall not apply until six months after the entry into force of the Agreement itself.

2. For any country ratifying or acceding to this Agreement after five of the countries referred to in article 6, paragraph 1, have signed it without reservation of ratification or have deposited their instruments of ratification or accession, this Agreement shall enter into force one month after the said country has deposited its instrument of ratification or accession and the Annexes thereto shall apply for the said country either on the same date, if they are already in force by that date, or, if they are not in force by that date, on the date on which they apply under the provisions of paragraph 1 of this article.

#### Article 8

1. Any contracting Party may denounce this Agreement by so notifying the Secretary-General of the United Nations.

2. Denunciation shall take effect twelve months after the date of receipt by the Secretary-General of the notification of denunciation.

#### Article 9

1. This Agreement shall cease to have effect if, after its entry into force, the number of Contracting Parties is less than five during twelve consecutive months.

2. In the event of the conclusion of a worldwide agreement for the regulation of the transport of dangerous goods, any provision of this Agreement which is contrary to any provision of the said worldwide agreement shall, from the date on which the latter enters into force, automatically cease to apply to relations between the Parties to this Agreement which become parties to the worldwide agreement, and shall automatically be replaced by the relevant provision of the said worldwide agreement.

#### Article 10

1. Any country may, at the time of signing this Agreement without reservation of ratification or of depositing its instrument of ratification or accession or at any time thereafter, declare by notification addressed to the Secretary-General of the United Nations that this Agreement shall extend to all or any of the territories for the international relations of which it is responsible. The Agreement and the annexes thereto shall extend to the territory or territories named in the notification one month after it is received by the Secretary-General.

2. Any country which has made a declaration under paragraph 1 of this article extending this Agreement to any territory for whose international relations it is responsible may denounce the Agreement separately in respect of the said territory in accordance with the provisions of article 8.

#### Article 11

1. Any dispute between two or more Contracting Parties concerning the interpretation or application of this Agreement shall so far as possible be settled by negotiation between them.

2. Any dispute which is not settled by negotiation shall be submitted to arbitration if any one of the Contracting Parties in dispute so requests and shall be referred accordingly to one or more arbitrators selected by agreement between the Parties in dispute. If within three months from the date of the request for arbitration the Parties in dispute are unable to agree on the selection of an arbitrator or arbitrators, any of those Parties may request the Secretary-General of the United Nations to nominate a single arbitrator to whom the dispute shall be referred for decision.

3. The decision of the arbitrator or arbitrators appointed under paragraph 2 of this article shall be binding on the Contracting Parties in dispute.

#### Article 12

1. Each Contracting Party may, at the time of signing, ratifying, or acceding to, this Agreement, declare that it does not consider itself bound by article 11. Other Contracting Parties shall not be bound by article 11 in respect of any Contracting Party which has entered such a reservation.

2. Any Contracting Party having entered a reservation as provided for in paragraph 1 of this article may at any time withdraw such reservation by notifying the Secretary-General of the United Nations.

#### Article 13

1. After this Agreement has been in force for three years, any Contracting Party may, by notification to the Secretary-General of the United Nations, request that a conference be convened for the purpose of reviewing the text of the Agreement. The Secretary-General shall notify all Contracting Parties of the request and a review conference shall be convened by the Secretary-General if, within a period of four months following the date of

notification by the Secretary-General, not less than one-fourth of the Contracting Parties notify him of their concurrence with the request.

2. If a conference is convened in accordance with paragraph 1 of this article, the Secretary-General shall notify all the Contracting Parties and invite them to submit within a period of three months such proposals as they may wish the Conference to consider. The Secretary-General shall circulate to all Contracting Parties the provisional agenda for the conference, together with the texts of such proposals, at least three months before the date on which the conference is to meet.

3. The Secretary-General shall invite to any conference convened in accordance with this article all countries referred to in article 6, paragraph 1, and countries which have become Contracting Parties under article 6, paragraph 2.

#### Article 14<sup>1</sup>

1. Independently of the revision procedure provided for in article 13, any Contracting Party may propose one or more amendments to the Annexes to this Agreement. To that end it shall transmit the text thereof to the Secretary-General of the United Nations. The Secretary-General may also propose amendments to the Annexes to this Agreement for the purpose of ensuring concordance between those Annexes and other international agreements concerning the carriage of dangerous goods.

2. The Secretary-General shall transmit any proposal made under paragraph 1 of this article to all Contracting Parties and inform thereof the other countries referred to in article 6, paragraph 1.

3. Any proposed amendment to the Annexes shall be deemed to be accepted unless, within three months from the date on which the Secretary-General circulates it, at least one-third of the Contracting Parties, or five of them if one-third exceeds that figure, have given the Secretary-General written notification of their objection to the proposed amendment. If the amendment is deemed to be accepted, it shall enter into force for all the Contracting Parties, on the expiry of a further period of three months, except in the following cases:

- (a) In cases where similar amendments have been or are likely to be made to the other international agreements referred to in paragraph 1 of this article, the amendment shall enter into force on the expiry of a period the duration of which shall be determined by the Secretary-General in such a way as to allow, wherever possible, the simultaneous entry into force of the amendment and those that have been made or are likely to be made to such other agreements; such period shall not, however, be of less than one month's duration;
- (b) The Contracting Party submitting the proposed amendment may specify in its proposal, for the purpose of entry into force of the amendment, should it be accepted, a period of more than three months' duration.

4. The Secretary-General shall, as soon as possible, notify all Contracting Parties and all the countries referred to in article 6, paragraph 1, of any objection which may be received from the Contracting Parties to a proposed amendment.

5. If the proposed amendment to the Annexes is not deemed to be accepted, but if at least one Contracting Party other than the Contracting Party which proposed the amendment has given the Secretary-General written notification of its agreement to the proposal, a meeting of all the Contracting Parties and all the countries referred to in article 6, paragraph 1, shall be convened by the Secretary-General within three months after the expiry of the period of three months within which, under paragraph 3 of this article, notification must be given of objection to the amendment. The Secretary-General may also invite to such meeting representatives of:

<sup>1</sup> *The text of Article 14, paragraph 3 incorporates a modification which entered into force on 19 April 1985 in accordance with a Protocol transmitted to Contracting Parties under cover of Depositary Notification C.N.229.1975.TREATIES-8 of 18 September 1975.*

- (a) intergovernmental organizations which are concerned with transport matters;
- (b) international non-governmental organizations whose activities are directly related to the transport of dangerous goods in the territories of the Contracting Parties.

6. Any amendment adopted by more than half the total number of Contracting Parties at a meeting convened in accordance with paragraph 5 of this article shall enter into force for all Contracting Parties in accordance with the procedure agreed at such meeting by the majority of the Contracting Parties attending it.

#### Article 15

In addition to the notifications provided for in articles 13 and 14, the Secretary-General of the United Nations shall notify the countries referred to in article 6, paragraph 1, and the countries which have become Contracting Parties under article 6, paragraph 2, of

- (a) signatures, ratifications and accessions in accordance with article 6;
- (b) the dates on which this Agreement and the Annexes thereto enter into force in accordance with article 7;
- (c) denunciations in accordance with article 8;
- (d) the termination of the Agreement in accordance with article 9;
- (e) notifications and denunciations received in accordance with article 10;
- (f) declarations and notifications received in accordance with article 12, paragraphs 1 and 2;
- (g) the acceptance and date of entry into force of amendments in accordance with article 14, paragraphs 3 and 6.

#### Article 16

1. The Protocol of Signature of this Agreement shall have the same force, effect and duration as the Agreement itself, of which it shall be considered to be an integral part.

2. No reservation to this Agreement, other than those entered in the Protocol of Signature and those made in accordance with article 12, shall be permitted.

#### Article 17

After 15 December 1957, the original of this Agreement shall be deposited with the Secretary-General of the United Nations, who shall transmit certified true copies thereof to each of the countries referred to in article 6, paragraph 1.

**IN WITNESS WHEREOF** the undersigned, being duly authorized thereto, have signed this Agreement.

**DONE** at Geneva, this thirtieth day of September one thousand nine hundred and fifty-seven, in a single copy, in the English and French languages for the text of the Agreement proper, and in the French language for the Annexes, each text being equally authentic for the Agreement proper.

The Secretary-General of the United Nations is requested to prepare an authoritative translation of the Annexes in the English language and attach it to the certified true copies referred to in article 17.

**PROTOCOL OF SIGNATURE**

**PROTOCOL OF SIGNATURE**

**TO THE EUROPEAN AGREEMENT ON THE INTERNATIONAL  
CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR)**

On proceeding to sign the European Agreement on the International Carriage of Dangerous Goods by Road (ADR) the undersigned, duly authorized,

1. **CONSIDERING** that the conditions governing the carriage of dangerous goods by sea to or from the United Kingdom differ basically from those set forth in Annex A to ADR and that it is impossible to modify them so as to conform to the latter in the near future;

**HAVING REGARD** to the undertaking given by the United Kingdom to submit as an amendment to the said Annex A a special appendix containing special provisions for road-sea carriage of dangerous goods between the Continent and the United Kingdom;

**HAVE AGREED** that, until the entry into force of such special appendix, dangerous goods carried under ADR to or from the United Kingdom shall comply with the provisions of Annex A to ADR and also with the United Kingdom conditions for the carriage of dangerous goods by sea;

2. **TAKE NOTE OF** a declaration by the representative of France to the effect that the Government of the French Republic reserves the right, notwithstanding the provisions of article 4, paragraph 2, to refuse to allow vehicles in service on the territory of another Contracting Party, whatever the date on which they were put into service, to be used for the carriage of dangerous goods on French territory unless such vehicles comply either with the conditions laid down for such carriage in Annex B or with the conditions laid down for the carriage of the goods in question in the French regulations governing the carriage of dangerous goods by road;

3. **RECOMMEND** that, before submission in accordance with article 14, paragraph 1, or article 13, paragraph 2, proposed amendments to this Agreement or its Annexes shall as far as possible first be discussed at meetings of experts of the Contracting Parties and, if necessary, of the other countries mentioned in article 6, paragraph 1, of the Agreement and of the international organizations mentioned in article 14, paragraph 5, of the Agreement.



**ANNEX A**

**GENERAL PROVISIONS AND PROVISIONS CONCERNING  
DANGEROUS SUBSTANCES AND ARTICLES**

## **PART 1**

### **General provisions**

## CHAPTER 1.1

## SCOPE AND APPLICABILITY

## 1.1.1 Structure

Annexes A and B of ADR are grouped into nine parts. Annex A consists of Parts 1 to 7, and Annex B of Parts 8 and 9. Each part is subdivided into chapters and each chapter into sections and sub-sections. Within each part the number of the part is included with the numbers of the chapters, sections and sub-sections, for example Part 4, Chapter 2, Section 1 is numbered "4.2.1".

## 1.1.2 Scope

## 1.1.2.1 For the purposes of Article 2 of ADR, Annex A specifies:

- (a) dangerous goods which are barred from international carriage;
- (b) dangerous goods which are authorized for international carriage and the conditions attaching to them (including exemptions) particularly with regard to:
  - classification of goods, including classification criteria and relevant test methods;
  - use of packagings (including mixed packing);
  - use of tanks (including filling);
  - consignment procedures (including marking and labelling of packages and placarding and marking of means of transport as well as documentation and information required);
  - provisions concerning the construction, testing and approval of packagings and tanks;
  - use of means of transport (including loading, mixed loading and unloading).

## 1.1.2.2 Annex A contains certain provisions which, according to Article 2 of ADR, pertain to Annex B or to both Annexes A and B, as follows:

- 1.1.1 Structure
- 1.1.2.3 (Scope of Annex B)
- 1.1.2.4
- 1.1.3.1 Exemptions related to the nature of the transport operation
- 1.1.3.6 Exemptions related to quantities carried per transport unit
- 1.1.4 Applicability of other regulations
- 1.1.4.5 Carriage other than by road
- 1.2 Definitions and units of measurements
- 1.3 Training of persons involved in the carriage of dangerous goods
- 1.4 Safety obligations of the participants
- 1.5 Derogations
- 1.6 Transitional measures
- 1.8 Checks and other support measures to ensure compliance with safety requirements
- 1.9 Transport restrictions by the competent authorities

## Chapter 3.1

Chapter 3.2 columns (1), (2), (14), (15) and (19) (application of provisions of Parts 8 and 9 to individual substances or articles).

1.1.2.3 For the purposes of Article 2 of ADR, Annex B specifies the conditions regarding the construction, equipment and operation of vehicles carrying dangerous goods authorized for carriage:

- requirements for vehicle crews, equipment, operation and documentation;
- requirements concerning the construction and approval of vehicles.

1.1.2.4 In Article 1(c) of ADR, the word "vehicles" need not refer to one and the same vehicle. An international transport operation may be performed by several different vehicles provided that the operation takes place on the territory of at least two Contracting Parties to ADR between the consignor and the consignee indicated in the transport document.

### 1.1.3 Exemptions

#### 1.1.3.1 *Exemptions related to the nature of the transport operation*

The provisions laid down in ADR do not apply to:

- (a) the carriage of dangerous goods by private individuals where the goods in question are packaged for retail sale and are intended for their personal or domestic use or for their leisure or sporting activities provided that measures have been taken to prevent any leakage of contents in normal conditions of carriage. Dangerous goods in IBCs, large packagings or tanks are not considered to be packaged for retail sale;
- (b) the carriage of machinery or equipment not specified in this Annex and which happen to contain dangerous goods in their internal or operational equipment, provided that measures have been taken to prevent any leakage of contents in normal conditions of carriage;
- (c) the carriage undertaken by enterprises which is ancillary to their main activity, such as deliveries to building or civil engineering sites, or in relation to surveying, repairs and maintenance, in quantities of not more than 450 litres per packaging and within the maximum quantities specified in 1.1.3.6. Measures shall be taken to prevent any leakage of contents in normal conditions of carriage. These exemptions do not apply to Class 7.  
Carriage undertaken by such enterprises for their supply or external or internal distribution does not fall within the scope of this exemption;
- (d) the carriage undertaken by, or under the supervision of, the emergency services, in particular by breakdown vehicles carrying vehicles which have been involved in accidents or have broken down and contain dangerous goods;
- (e) emergency transport intended to save human lives or protect the environment provided that all measures are taken to ensure that such transport is carried out in complete safety.

**NOTE:** For radioactive material see 2.2.7.1.2.

### 1.1.3.2 *Exemptions related to the carriage of gases*

The provisions laid down in ADR do not apply to the carriage of:

- (a) gases contained in the tanks of a vehicle, performing a transport operation and destined for its propulsion or for the operation of any of its equipment (e.g. refrigerating equipment);
- (b) gases contained in the fuel tanks of vehicles transported. The fuel cock between gas tank and engine shall be closed and the electric contact open;
- (c) gases of Groups A and O (according to 2.2.2.1), if the pressure of the gas in the receptacle or tank at a temperature of 15 °C does not exceed 200 kPa (2 bar) and if the gas is completely in the gaseous state during carriage. This includes every kind of receptacle or tank, e.g. also parts of machinery and apparatus;
- (d) gases contained in the equipment used for the operation of the vehicle (e.g. fire extinguishers or inflated pneumatic tyres, even as spare parts or as a load);
- (e) gases contained in the special equipment of vehicles and necessary for the operation of this special equipment during transport (cooling systems, fish-tanks, heaters, etc.) as well as spare receptacles for such equipment or uncleaned empty exchange receptacles, transported in the same transport unit;
- (f) uncleaned empty fixed pressure tanks which are carried on condition that they are hermetically closed; and
- (g) gases contained in foodstuffs or beverages.

### 1.1.3.3 *Exemptions related to the carriage of liquid fuels*

The provisions laid down in ADR do not apply to the carriage of:

- (a) fuel contained in the tanks of a vehicle performing a transport operation and destined for its propulsion or for the operation of any of its equipment.  
The fuel may be carried in fixed fuel tanks, directly connected to the vehicle's engine and/or auxiliary equipment, which comply with the pertinent legal provisions, or may be carried in portable fuel containers (such as jerricans).  
The total capacity of the fixed tanks shall not exceed 1500 litres per transport unit and the capacity of a tank fitted to a trailer shall not exceed 500 litres. A maximum of 60 litres per transport unit may be carried in portable fuel containers. These restrictions shall not apply to vehicles operated by the emergency services;
- (b) fuel contained in the tanks of vehicles or of other means of conveyance (such as boats) which are carried as a load, where it is destined for their propulsion or the operation of any of their equipment. Any fuel cocks between the engine or equipment and the fuel tank shall be closed during carriage unless it is essential for the equipment to remain operational. Where appropriate, the vehicles or other means of conveyance shall be loaded upright and secured against falling.

**1.1.3.4** *Exemptions related to special provisions or to dangerous goods packed in limited quantities*

*NOTE: For radioactive material see 2.2.7.1.2.*

1.1.3.4.1 Certain special provisions of Chapter 3.3 exempt partially or totally the carriage of specific dangerous goods from the requirements of ADR. The exemption applies when the special provision is referred to in Column (6) of Table A of Chapter 3.2 against the dangerous goods entry concerned.

1.1.3.4.2 Certain dangerous goods packed in limited quantities may be subject to exemptions provided that the conditions of Chapter 3.4 are met.

**1.1.3.5** *Exemptions related to empty uncleaned packagings*

Empty uncleaned packagings (including IBCs and large packagings) which have contained substances of Classes 2, 3, 4.1, 5.1, 6.1, 8 and 9 are not subject to the conditions of ADR if adequate measures have been taken to nullify any hazard. Hazards are nullified if adequate measures have been taken to nullify all hazards of Classes 1 to 9.

**1.1.3.6** *Exemptions related to quantities carried per transport unit*

1.1.3.6.1 For the purposes of this sub-section, dangerous goods are assigned to transport categories 0, 1, 2, 3, or 4, as indicated in Column (15) of Table A of Chapter 3.2. Empty uncleaned packagings having contained substances assigned to transport category "0" are also assigned to transport category "0". Empty uncleaned packagings having contained substances assigned to a transport category other than "0" are assigned to transport category "4".

1.1.3.6.2 Where the quantity of dangerous goods carried on a transport unit does not exceed the values indicated in column (3) of the table in 1.1.3.6.3 for a given transport category (when the dangerous goods carried in the transport unit belong to the same category) or the value calculated in accordance with 1.1.3.6.4 (when the dangerous goods carried in the transport unit belong to different transport categories), they may be carried in packages in one transport unit without application of the following provisions:

- Chapter 5.3;
- Section 5.4.3;
- Chapter 7.2, except for 7.2.3, V5, V7 and V8 of 7.2.4;
- CV1 of 7.5.11;
- Part 8 except for 8.1.2.1 (a) and (c),  
8.1.4.2 to 8.1.4.5,  
8.2.3,  
8.3.4,  
Chapter 8.4,  
S1(3) and (6),  
S2(1),  
S4 and  
S14 to S21 of Chapter 8.5;
- Part 9;

*NOTE: For the information in the transport document see 5.4.1.1.10.*

1.1.3.6.3 Where the dangerous goods carried in the transport unit belong to the same category, the maximum total quantity per transport unit is indicated in column (3) of the table below.

Transport category  (1)	Substances or articles packing group or classification code/group or UN No.  (2)	Maximum total quantity per transport unit  (3)
0	Class 1: 1.1A/1.1L/1.2L/1.3L/1.4L and UN No. 0190 Class 3: UN No. 3343 Class 4.2: Substances belonging to packing group I Class 4.3: UN Nos. 1183, 1242, 1295, 1340, 1390, 1403, 1928, 2813, 2965, 2968, 2988, 3129, 3130, 3131, 3134, 3148 and 3207 Class 6.1: UN Nos. 1051, 1613, 1614 and 3294 Class 6.2: UN Nos. 2814 and 2900 (risk groups 3 and 4) Class 7: UN Nos. 2912 to 2919, 2977, 2978 and 3321 to 3333 Class 9: UN Nos. 2315, 3151, 3152 and equipment containing such substances or mixtures and empty uncleaned packagings having contained substances classified in this transport category	0
1	Substances and articles belonging to packing group I and not classified in transport category 0 and substances and articles of the following classes: Class 1: 1.1B to 1.1J <sup>a</sup> /1.2B to 1.2J/1.3C/1.3G/1.3H/1.3J/1.5D <sup>a</sup> Class 2: groups T, TC <sup>a</sup> , TO, TF, TOC and TFC aerosols: groups C, CO, FC, T, TF, TC, TO, TFC and TOC Class 4.1: UN Nos. 3221 to 3224 and 3231 to 3240 Class 5.2: UN Nos. 3101 to 3104 and 3111 to 3120	20
2	Substances or articles belonging to packing group II and not classified in transport categories 0, 1 or 4 and substances of the following classes: Class 1: 1.4B to 1.4G and 1.6N Class 2: group F aerosols: group F Class 4.1: UN Nos. 3225 to 3230 Class 5.2: UN Nos. 3105 to 3110 Class 6.1: substances and articles belonging to packing group III Class 6.2: UN Nos. 2814 and 2900 (risk group 2) Class 9: UN No. 3245	333
3	Substances and articles belonging to packing group III and not classified in transport categories 0, 2 or 4 and substances and articles of the following classes: Class 2: groups A and O aerosols: groups A and O Class 8: UN Nos. 2794, 2795, 2800 and 3028 Class 9: UN Nos. 2990 and 3072	1 000
4	Class 1: 1.4S Class 4.1: UN Nos. 1331, 1345, 1944, 1945, 2254 and 2623 Class 4.2: UN Nos. 1361 and 1362 packing group III Class 7: UN Nos. 2908 to 2911 Class 9: UN No. 3268 and empty, uncleaned packagings having contained dangerous goods, except for those classified in transport category 0	unlimited

<sup>a</sup> For UN Nos. 0081, 0082, 0084, 0241, 0331, 0332, 0482, 1005 and 1017, the total maximum quantity per transport unit shall be 50 kg.

In the above table, "maximum total quantity per transport unit" means:

- for articles, gross mass in kilograms (for articles of Class 1, net mass in kg of the explosive substance);
- for solids, liquefied gases, refrigerated liquefied gases and dissolved gases, net mass in kilograms;
- for liquids and compressed gases, nominal capacity of receptacles (see definition in 1.2.1) in litres.

1.1.3.6.4 Where dangerous goods of different transport categories are carried in the same transport unit, the sum of

- the quantity of substances and articles of transport category 1 multiplied by "50",
- the quantity of substances and articles of transport category 1 referred to in Note a to the table in 1.1.3.6.3 multiplied by "20";
- the quantity of substances and articles of transport category 2 multiplied by "3", and
- the quantity of substances and articles of transport category 3

shall not exceed "1 000".

1.1.3.6.5 For the purposes of this sub-section, dangerous goods exempted in accordance with 1.1.3.2 to 1.1.3.5 shall not be taken into account.

#### 1.1.4 **Applicability of other regulations**

1.1.4.1 *(Reserved)*

#### 1.1.4.2 *Carriage in a transport chain including maritime or air carriage*

1.1.4.2.1 Packages, containers, portable tanks and tank-containers, which do not entirely meet the requirements for packing, mixed packing, marking, labelling of packages or placarding and orange plate marking, of ADR, but are in conformity with the requirements of the IMDG Code or the ICAO Technical Instructions shall be accepted for carriage in a transport chain including maritime or air carriage subject to the following conditions:

- (a) If the packages are not marked and labelled in accordance with ADR, they shall bear markings and danger labels in accordance with the requirements of the IMDG Code or the ICAO Technical Instructions;
- (b) The requirements of the IMDG Code or the ICAO Technical Instructions shall be applicable to mixed packing within a package;
- (c) For carriage in a transport chain including maritime carriage, if the containers, portable tanks or tank-containers are not marked and placarded in accordance with Chapter 5.3 of this Annex, they shall be marked and placarded in accordance with Chapter 5.3 of the IMDG Code. In such case, only 5.3.2.1.1 of this Annex is applicable to the marking of the vehicle itself. For empty, uncleaned portable tanks and tank-containers, this requirement shall apply up to and including the subsequent transfer to a cleaning station.



This derogation does not apply in the case of goods classified as dangerous goods in classes 1 to 8 of ADR and considered as non-dangerous goods according to the applicable requirements of the IMDG Code or the ICAO Technical Instructions.

- 1.1.4.2.2 For carriage in a transport chain including maritime or air carriage, the information required under 5.4.1 and 5.4.2 and under any special provision of Chapter 3.3 may be substituted by the transport document and information required by the IMDG Code or the ICAO Technical Instructions respectively.

*NOTE: For the information in the transport document see 5.4.1.1.7; for the container packing certificate, see 5.4.2.*

**1.1.4.3 *Use of portable tanks approved for maritime transport***

Portable tanks which do not meet the requirements of Chapters 6.7 or 6.8, but which have been built and approved before 1 January 2003 in accordance with the provisions (including transitional provisions) of the IMDG Code (Amdt. 29-98) may be used until 31 December 2009 provided they are found to meet the applicable inspection and test provisions of the IMDG Code (Amdt. 29-98) and that the instructions referred to in Columns (12) and (14) of Chapter 3.2 of the IMDG Code (Amdt. 30-00) are fully complied with. They may continue to be used after 31 December 2009 if they meet the applicable inspection and test provisions of the IMDG Code, but provided that the instructions of Columns (10) and (11) of Chapter 3.2 of ADR and of Chapter 4.2 are complied with.

*NOTE: For the information in the transport document, see 5.4.1.1.8.*

**1.1.4.4 *(Reserved)***

**1.1.4.5 *Carriage other than by road***

- 1.1.4.5.1 If the vehicle carrying out a transport operation subject to the requirements of ADR is conveyed over a section of the journey otherwise than by road haulage, then any national or international regulations which, on the said section, govern the carriage of dangerous goods by the mode of transport used for conveying the road vehicle shall alone be applicable to the said section of the journey.

- 1.1.4.5.2 In the cases referred to in 1.1.4.5.1 above, the involved ADR Contracting Parties may agree to apply the requirements of ADR to the section of a journey where a vehicle is conveyed otherwise than by road haulage, supplemented, if they consider it necessary, by additional requirements, unless such agreements between the involved ADR Contracting Parties would contravene clauses of the international conventions governing the carriage of dangerous goods by the mode of transport used for conveying the road vehicle on the said section of the journey, e.g. the International Convention for the Safety of Life at Sea (SOLAS), to which these ADR Contracting Parties would also be contracting parties.

These agreements shall be notified by the Contracting Party which has taken the initiative thereof to the Secretariat of the United Nations Economic Commission for Europe which shall bring them to the attention of the Contracting Parties.

- 1.1.4.5.3 In cases where a transport operation subject to the provisions of ADR is likewise subject over the whole or a part of the road journey to the provisions of an international convention which regulates the carriage of dangerous goods by a mode of transport other than road carriage by virtue of clauses extending the applicability of that convention to certain motor-vehicle services, then the provisions of that international convention shall apply over the journey in question concurrently with those of ADR which are not incompatible with them; the other clauses of ADR shall not apply over the journey in question.

## CHAPTER 1.2

## DEFINITIONS AND UNITS OF MEASUREMENT

## 1.2.1

**Definitions**

*NOTE: This section contains all general or specific definitions.*

For the purposes of ADR:

**A**

*"Aerosol or aerosol dispenser"* means any non-refillable receptacle meeting the requirements of 6.2.2, made of metal, glass or plastics and containing a gas, compressed, liquefied or dissolved, with or without a liquid, paste or powder, and fitted with a release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste or powder or in a liquid state or in a gaseous state;

**B**

*"Bag"* means a flexible packaging made of paper, plastics film, textiles, woven material or other suitable material;

*"Battery-vehicle"* means a vehicle containing elements which are linked to each other by a manifold and permanently fixed to a transport unit. The following elements are considered to be elements of a battery-vehicle: cylinders, tubes, bundles of cylinders (also known as frames), pressure drums as well as tanks destined for the carriage of gases of Class 2 with a capacity of more than 450 litres;

*"Body"* (for all categories of IBC other than composite IBCs) means the receptacle proper, including openings and closures, but does not include service equipment;

*"Box"* means a packaging with complete rectangular or polygonal faces, made of metal, wood, plywood, reconstituted wood, fibreboard, plastics or other suitable material. Small holes for purposes of ease of handling or opening or to meet classification requirements, are permitted as long as they do not compromise the integrity of the packaging during carriage;

*"Bundle of cylinders"* means an assembly of cylinders that are fastened together and which are interconnected by a manifold and carried as a unit. The total water capacity shall not exceed 3 000 litres except that bundles intended for the carriage of toxic gases of Class 2 (groups starting with letter T according to 2.2.2.1.3) shall be limited to 1 000 litres water capacity;

**C**

*"Calculation pressure"* means a theoretical pressure at least equal to the test pressure which, according to the degree of danger exhibited by the substance being carried, may to a greater or lesser degree exceed the working pressure. It is used solely to determine the thickness of the walls of the shell, independently of any external or internal reinforcing device (see also *"Discharge pressure"*, *"Filling pressure"*, *"Maximum working pressure (gauge pressure)"* and *"Test pressure"*);

*NOTE: For portable tanks, see Chapter 6.7.*

*"Carriage"* means the change of place of dangerous goods, including stops made necessary by transport conditions and including any period spent by the dangerous goods in vehicles,

tanks and containers made necessary by traffic conditions before, during and after the change of place.

This definition also covers the intermediate temporary storage of dangerous goods in order to change the mode or means of transport (transshipment). This shall apply provided that transport documents showing the place of dispatch and the place of reception are presented on request and provided that packages and tanks are not opened during intermediate storage, except to be checked by the competent authorities;

*"Carriage in bulk"* means the carriage of unpackaged solids or articles in vehicles or containers. The term does not apply to packaged goods nor to substances carried in tanks;

*"Carrier"* means the enterprise which carries out the transport operation with or without a transport contract;

*"Closed container"* means a totally enclosed container having a rigid roof, rigid side walls, rigid end walls and a floor. The term includes containers with an opening roof where the roof can be closed during transport;

*"Closed vehicle"* means a vehicle having a body capable of being closed;

- *"Closure"* means a device which closes an opening in a receptacle;

*"Collective entry"* means an entry for a well defined group of substances or articles (see 2.1.1.2, B, C and D);

*"Combination packaging"* means a combination of packagings for transport purposes, consisting of one or more inner packagings secured in an outer packing in accordance with 4.1.1.5;

**NOTE:** The *"inners"* of *"combination packagings"* are always termed *"inner packagings"* and not *"inner receptacles"*. A glass bottle is an example of such an *"inner packaging"*.

*"Combustion heater"* means a device directly using liquid or gaseous fuel and not using the waste heat from the engine used for propulsion of the vehicle;

*"Competent authority"* means the authority or authorities or any other body or bodies designated as such in each State and in each specific case in accordance with domestic law;

*"Compliance assurance"* (radioactive material) means a systematic programme of measures applied by a competent authority which is aimed at ensuring that the requirements of ADR are met in practice;

*"Composite IBC with plastics inner receptacle"* means an IBC comprising structural equipment in the form of a rigid outer casing encasing a plastics inner receptacle together with any service or other structural equipment. It is so constructed that the inner receptacle and outer casing once assembled form, and are used as, an integrated single unit to be filled, stored, transported or emptied as such;

**NOTE:** *"Plastics"*, when used in connection with inner receptacles for composite IBCs, is taken to include other polymeric materials such as rubber, etc.

*"Composite packaging (plastics material)"* is a packaging consisting of an inner plastics receptacle and an outer packaging (made of metal, fibreboard, plywood, etc.). Once assembled such a packaging remains thereafter an inseparable unit; it is filled, stored, despatched and emptied as such;

**NOTE:** See **NOTE** under "*Composite packagings (glass, porcelain or stoneware)*".

*"Composite packaging (glass, porcelain or stoneware)"* is a packaging consisting of an inner glass, porcelain or stoneware receptacle and an outer packaging (made of metal, wood, fibreboard, plastics material, expanded plastics material, etc.). Once assembled, such a packaging remains thereafter an inseparable unit; it is filled, stored, despatched and emptied as such;

**NOTE:** The *"inners"* of *"composite packagings"* are normally termed *"inner receptacles"*. For example, the *"inner"* of a 6HA1 (composite packaging, plastics material) is such an *"inner receptacle"* since it is normally not designed to perform a containment function without its *"outer packaging"* and is not therefore an *"inner packaging"*.

*"Consignee"* means the consignee according to the contract for carriage. If the consignee designates a third party in accordance with the provisions applicable to the contract for carriage, this person shall be deemed to be the consignee within the meaning of ADR. If the transport operation takes place without a contract for carriage, the enterprise which takes charge of the dangerous goods on arrival shall be deemed to be the consignee.

*"Consignment"* means any package or packages, or load of dangerous goods, presented by a consignor for carriage;

*"Consignor"* means the enterprise which consigns dangerous goods either on its own behalf or for a third party. If the transport operation is carried out under a contract for carriage, consignor means the consignor according to the contract for carriage;

*"Container"* means an article of transport equipment (lift van or other similar structure):

- of a permanent character and accordingly strong enough to be suitable for repeated use;
- specially designed to facilitate the carriage of goods, by one or more means of transport, without breakage of load;
- fitted with devices permitting its ready stowage and handling, particularly when being transloaded from one means of transport to another;
- so designed as to be easy to fill and empty (see also *"Closed container"*, *"Large container"*, *"Open container"*, *"Sheeted container"* and *"Small container"*).

A swap body is a container which, in accordance with European Standard EN 283 (1991 edition) has the following characteristics:

- from the point of view of mechanical strength, it is only built for carriage on a wagon or a vehicle on land or by roll-on roll-off ship;
- it cannot be stacked;
- it can be removed from vehicles by means of equipment on board the vehicle and on its own supports, and can be reloaded;

**NOTE:** The term *"container"* does not cover conventional packagings, IBCs, tank-containers or vehicles.

"*Control temperature*" means the maximum temperature at which the organic peroxide or the self-reactive substance can be safely carried;

"*CSC*" means the International Convention for Safe Containers (Geneva, 1972) as amended and published by the International Maritime Organization (IMO), London;

"*Crate*" means an outer packaging with incomplete surfaces;

"*Critical temperature*" means the temperature above which the substance cannot exist in the liquid state;

"*Cryogenic receptacle*" means a transportable thermally insulated pressure receptacle for refrigerated liquefied gases of a water capacity of not more than 1 000 litres;

"*Cylinder*" means a transportable pressure receptacle of a water capacity not exceeding 150 litres (see also "*Bundle of cylinders*");

## D

"*Dangerous goods*" means those substances and articles the carriage of which is prohibited by ADR, or authorized only under the conditions prescribed therein;

"*Dangerous reaction*" means:

- (a) combustion or evolution of considerable heat;
- (b) evolution of flammable, asphyxiant, oxidizing or toxic gases;
- (c) the formation of corrosive substances;
- (d) the formation of unstable substances; or
- (e) dangerous rise in pressure (for tanks only);

"*Demountable tank*" means a tank, other than a fixed tank, a portable tank, a tank-container or an element of a battery-vehicle or a MEGC which has a capacity of more than 450 litres, is not designed for the carriage of goods without breakage of load, and normally can only be handled when it is empty;

"*Discharge pressure*" means the maximum pressure actually built up in the tank when it is being discharged under pressure (see also "*Calculation pressure*", "*Filling pressure*", "*Maximum working pressure (gauge pressure)*" and "*Test pressure*");

"*Drum*" means a flat-ended or convex-ended cylindrical packaging made out of metal, fibreboard, plastics, plywood or other suitable materials. This definition also includes packagings of other shapes, e.g. round, taper-necked packagings or pail-shaped packagings. Wooden barrels and jerricans are not covered by this definition;

## E

"*EC Directive*" means provisions decided by the competent institutions of the European Community and which are binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and methods;

*"ECE Regulation"* means a regulation annexed to the Agreement concerning the adoption of uniform technical prescriptions for wheeled vehicles equipment and parts which can be fitted and or used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions (1958 Agreement, as amended);

*"Emergency temperature"* means the temperature at which emergency procedures shall be implemented in the event of loss of temperature control;

*"Enterprise"* means any natural person, any legal person, whether profit-making or not, any association or group of persons without legal personality, whether profit-making or not, or any official body, whether it has legal personality itself or is dependent upon an authority that has such personality;

## F

*"Fibreboard IBC"* means a fibreboard body with or without separate top and bottom caps, if necessary an inner liner (but no inner packagings), and appropriate service and structural equipment;

*"Filler"* means any enterprise which loads dangerous goods into a tank (tank-vehicle, demountable tank, portable tank or tank-container) and/or into a vehicle, large container or small container for carriage in bulk, or into a battery-vehicle or MEGC;

*"Filling pressure"* means the maximum pressure actually built up in the tank when it is being filled under pressure (see also *"Calculation pressure"*, *"Discharge pressure"*, *"Maximum working pressure (gauge pressure)"* and *"Test pressure"*);

*"Filling ratio"* means the ratio of the mass of gas to the mass of water at 15 °C that would fill completely a pressure receptacle fitted ready for use;

*"Fixed tank"* means a tank having a capacity of more than 1 000 litres which is permanently attached to a vehicle (which then becomes a tank-vehicle) or is an integral part of the frame of such vehicle;

*"Flammable component"* (for aerosols and gas cartridges) means a gas which is flammable in air at normal pressure or a substance or a preparation in liquid form which has a flash-point less than or equal to 100 °C;

*"Flash-point"* means the lowest temperature of a liquid at which its vapours form a flammable mixture with air;

*"Flexible IBC"* means a body constituted of film, woven fabric or any other flexible material or combinations thereof, and if necessary, an inner coating or liner, together with any appropriate service equipment and handling devices;

*"Full load"* means any load originating from one consignor for which the use of a vehicle or of a large container is exclusively reserved and all operations for the loading and unloading of which are carried out in conformity with the instructions of the consignor or of the consignee;

**NOTE:** The corresponding term for Class 7 is "exclusive use", see 2.2.7.2.

**G**

"Gas" means a substance which:

- (a) at 50 °C has a vapour pressure greater than 300 kPa (3 bar); or
- (b) is completely gaseous at 20 °C under standard pressure of 101.3 kPa;

"Gas cartridge" means any non-refillable receptacle containing, under pressure, a gas or a mixture of gases. It may be fitted with a valve;

**H**

"Handling device" (for flexible IBCs) means any sling, loop, eye or frame attached to the body of the IBC or formed from the continuation of the IBC body material;

"Hermetically closed tank" means a tank whose openings are hermetically closed and which is not equipped with safety valves, bursting discs or other similar safety devices. Tanks having safety valves preceded by a bursting disc shall be deemed to be hermetically closed;

**I**

"IBC", see "Intermediate bulk container";

"ICAO Technical Instructions" means the Technical Instructions for the Safe Transport of Dangerous Goods by Air, which complement Annex 18 to the Chicago Convention on International Civil Aviation (Chicago 1944), published by the International Civil Aviation Organization (ICAO) in Montreal;

"IMDG Code" means the International Maritime Dangerous Goods Code, for the implementation of Chapter VII, Part A, of the International Convention for the Safety of Life at Sea, 1974 (SOLAS Convention), published by the International Maritime Organization (IMO), London;

"Inner packaging" means a packaging for which an outer packaging is required for carriage;

"Inner receptacle" means a receptacle which requires an outer packaging in order to perform its containment function;

"Inspection body" means an independent inspection and testing body approved by the competent authority;

"Intermediate bulk container" (IBC) means a rigid, or flexible portable packaging, other than those specified in Chapter 6.1, that:

- (a) has a capacity of:
  - (i) not more than 3 m<sup>3</sup> for solids and liquids of packing groups II and III;
  - (ii) not more than 1.5 m<sup>3</sup> for solids of packing group I when packed in flexible, rigid plastics, composite, fibreboard and wooden IBCs;
  - (iii) not more than 3 m<sup>3</sup> for solids of packing group I when packed in metal IBCs;
  - (iv) not more than 3 m<sup>3</sup> for radioactive material of Class 7;

- (b) is designed for mechanical handling;
- (c) is resistant to the stresses produced in handling and transport as determined by the tests specified in Chapter 6.5 (see also "*Composite IBC with plastics inner receptacle*", "*Fibreboard IBC*", "*Flexible IBC*", "*Metal IBC*", "*Rigid plastics IBC*" and "*Wooden IBC*");

*NOTE 1: Portable tanks or tank-containers that meet the requirements of Chapter 6.7 or 6.8 respectively are not considered to be intermediate bulk containers (IBCs).*

*NOTE 2: Intermediate bulk containers (IBCs) which meet the requirements of Chapter 6.5 are not considered to be containers for the purposes of ADR.*

*"Remanufactured IBC"* means a metal, rigid plastics or composite IBC that:

- (a) is produced as a UN type from a non-UN type; or
- (b) is converted from one UN design type to another UN design type.

Remanufactured IBCs are subject to the same requirements of ADR that apply to new IBCs of the same type (see also design type definition in 6.5.4.1.1);

*"Repaired IBC"* means a metal, rigid plastics or composite IBC that, as a result of impact or for any other cause (e.g. corrosion, embrittlement or other evidence of reduced strength as compared to the design type) is restored so as to conform to the design type and to be able to withstand the design type tests. For the purposes of ADR, the replacement of the rigid inner receptacle of a composite IBC with a receptacle conforming to the original manufacturer's specification is considered repair. However, routine maintenance of IBCs is not considered repair. The bodies of rigid plastics IBCs and the inner receptacles of composite IBCs are not repairable;

*"Routine maintenance of IBCs"* means the routine performance on metal, rigid plastics or composite IBCs of operations such as:

- (a) Cleaning;
- (b) Removal and reinstallation or replacement of body closures (including associated gaskets), or of service equipment, conforming to the original manufacturer's specifications, provided that the leaktightness of the IBC is verified; or
- (c) Restoration of structural equipment not directly performing a dangerous goods containment or discharge pressure retention function so as to conform to the design type (e.g. the straightening of legs or lifting attachments) provided that the containment function of the IBC is not affected;

*"Intermediate packaging"* means a packaging placed between inner packagings or articles, and an outer packaging;

## J

*"Jerrican"* means a metal or plastics packaging of rectangular or polygonal cross-section with one or more orifices;



## L

"Large container" means

- (a) a container having an internal volume of more than 3 m<sup>3</sup>;
- (b) in the meaning of the CSC, a container of a size such that the area enclosed by the four outer bottom corners is either
  - (i) at least 14 m<sup>2</sup> (150 square feet) or
  - (ii) at least 7 m<sup>2</sup> (75 square feet) if fitted with top corner fittings;

*NOTE: For radioactive material see 2.2.7.1.2.*

"Large packaging" means a packaging consisting of an outer packaging which contains articles or inner packagings and which

- (a) is designed for mechanical handling;
- (b) exceeds 400 kg net mass or 450 litres capacity but has a volume of not more than 3 m<sup>3</sup>;

"Leakproofness test" means a test to determine the leakproofness of a tank, a packaging or an IBC and of the equipment and closure devices;

*NOTE: For portable tanks, see Chapter 6.7.*

"Light-gauge metal packaging" means a packaging of circular, elliptical, rectangular or polygonal cross-section (also conical) and taper-necked and pail-shaped packaging made of metal, having a wall thickness of less than 0.5 mm (e.g. tinplate), flat or convex bottomed and with one or more orifices, which is not covered by the definitions for drums or jerricans;

"Liner" means a tube or bag inserted into a packaging, including large packagings or IBCs, but not forming an integral part of it, including the closures of its openings;

"Liquid" means a substance which at 50 °C has a vapour pressure of not more than 300 kPa (3 bar), which is not completely gaseous at 20 °C and 101.3 kPa, and which

- (a) has a melting point or initial melting point of 20 °C or less at a pressure of 101.3 kPa, or
- (b) is liquid according to the ASTM D 4359-90 test method or
- (c) is not pasty according to the criteria applicable to the test for determining fluidity (penetrometer test) described in 2.3.4;

*NOTE: "Carriage in the liquid state", for the purpose of tank requirements, means:*

- *Carriage of liquids according to the above definition, or*
- *Solids handed over for carriage in the molten state.*

"Loader" means any enterprise which loads dangerous goods into a vehicle or large container;

## M

"*Manual of Tests and Criteria*" means the third revised edition of the United Nations Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, published by the United Nations Organization (ST/SG/AC.10/11/Rev.3 as amended by document ST/SG/AC.10/11/Rev.3/Amend.1);

"*Mass of package*" means gross mass of the package unless otherwise stated. The mass of containers and tanks used for the carriage of goods is not included in the gross mass;

"*Maximum capacity*" means the maximum inner volume of receptacles or packagings including intermediate bulk containers (IBCs) and large packagings expressed in cubic metres or litres;

"*Maximum net mass*" means the maximum net mass of contents in a single packaging or maximum combined mass of inner packagings and the contents thereof expressed in kilograms;

"*Maximum permissible gross mass*"

- (a) (for all categories of IBCs other than flexible IBCs) means the mass of the IBC and any service or structural equipment together with the maximum net mass;
- (b) (for tanks) means the tare of the tank and the heaviest load authorized for carriage;

**NOTE:** For portable tanks, see Chapter 6.7.

"*Maximum permissible load*" (for flexible IBCs) means the maximum net mass for which the IBC is intended and which it is authorized to carry;

"*Maximum working pressure (gauge pressure)*" means the highest of the following three pressures:

- (a) the highest effective pressure allowed in the tank during filling (maximum filling pressure allowed);
- (b) the highest effective pressure allowed in the tank during discharge (maximum discharge pressure allowed); and
- (c) the effective gauge pressure to which the tank is subjected by its contents (including such extraneous gases as it may contain) at the maximum working temperature.

Unless the special requirements prescribed in Chapter 4.3 provide otherwise, the numerical value of this working pressure (gauge pressure) shall not be lower than the vapour pressure (absolute pressure) of the filling substance at 50 °C.

For tanks equipped with safety valves (with or without bursting disc), the maximum working pressure (gauge pressure) shall however be equal to the prescribed opening pressure of such safety valves (see also "*Calculation pressure*", "*Discharge pressure*", "*Filling pressure*" and "*Test pressure*");

**NOTE:** For portable tanks, see Chapter 6.7.

"*MEGC*", see "*Multiple-element gas container*";

"*Metal IBC*" means a metal body together with appropriate service and structural equipment;

"Mild steel" means a steel having a minimum tensile strength between 360 N/mm<sup>2</sup> and 440 N/mm<sup>2</sup>;

**NOTE:** For portable tanks, see Chapter 6.7.

"Multiple-element gas container" (MEGC) means a unit containing elements which are linked to each other by a manifold and mounted on a frame. The following elements are considered to be elements of a multiple-element gas container: cylinders, tubes, pressure drums and bundles of cylinders as well as tanks for the carriage of gases of Class 2 having a capacity of more than 450 litres;

**NOTE:** For UN certified MEGCs, see Chapter 6.7.

## N

"Nominal capacity of the receptacle" means the nominal volume of the dangerous substance contained in the receptacle expressed in litres. For compressed gas cylinders the nominal capacity shall be the water capacity of the cylinder;

"N.O.S. entry (not otherwise specified entry)" means a collective entry to which substances, mixtures, solutions or articles may be assigned if they:

- (a) are not mentioned by name in Table A of Chapter 3.2, and
- (b) exhibit chemical, physical and/or dangerous properties corresponding to the Class, classification code, packing group and the name and description of the n.o.s. entry;

## O

"Open container" means an open top container or a platform based container;

"Open vehicle" means a vehicle the platform of which has no superstructure or is merely provided with side boards and a tailboard;

"Outer packaging" means the outer protection of the composite or combination packaging together with any absorbent materials, cushioning and any other components necessary to contain and protect inner receptacles or inner packagings;

"Overpack" means an enclosure used by a single consignor to contain one or more packages, consolidated into a single unit easier to handle and stow during carriage.

Examples of overpacks:

- (a) a loading tray such as a pallet, on which several packages are placed or stacked and secured by a plastic strip, shrink or stretch wrapping or other appropriate means; or
- (b) an outer protective packaging such as a box or a crate;

## P

"Package" means the complete product of the packing operation, consisting of the packaging or large packaging or IBC and its contents prepared for dispatch. The term includes receptacles for gases as defined in this section as well as articles which, because of their size, mass or configuration may be carried unpackaged or carried in cradles, crates or handling

devices. The term does not apply to goods which are carried in bulk, nor to substances carried in tanks.

**NOTE:** For radioactive material, see 2.2.7.2.

"Packaging" means the receptacle and any other components or materials necessary for the receptacle to perform its containment function (see also "Combination packaging", "Composite packaging (plastics material)", "Composite packaging (glass, porcelain or stoneware)", "Inner packaging", "Intermediate bulk container (IBC)", "Intermediate packaging", "Large packaging", "Light-gauge metal packaging", "Outer packaging", "Reconditioned packaging", "Remanufactured packaging", "Reused packaging", "Salvage packaging" and "Sift-proof packaging");

**NOTE:** For radioactive material, see 2.2.7.2.

"Packer" means any enterprise which puts dangerous goods into packagings, including large packagings and intermediate bulk containers (IBCs) and, where necessary, prepares packages for carriage;

"Packing group" means a group to which, for packing purposes, certain substances may be assigned in accordance with their degree of danger. The packing groups have the following meanings which are explained more fully in Part 2:

Packing group I: Substances presenting high danger;  
 Packing group II: Substances presenting medium danger; and  
 Packing group III: Substances presenting low danger;

**NOTE:** Certain articles containing dangerous goods are assigned to a packing group.

"Portable tank" means a multimodal tank having a capacity of more than 450 litres in accordance with the definitions in Chapter 6.7 or the IMDG Code and indicated by a portable tank instruction (T-Code) in Column (10) of Table A of Chapter 3.2;

"Portable tank operator", see "Tank-container/portable tank operator";

"Pressure drum" means a welded transportable pressure receptacle of a water capacity exceeding 150 litres and of not more than 1 000 litres, (e.g. cylindrical receptacles equipped with rolling hoops, spheres on skids);

"Pressure receptacle" means a collective term that includes cylinders, tubes, pressure drums, closed cryogenic receptacles and bundles of cylinders;

"Pressurized gas cartridge", see "Aerosol or aerosol dispenser";

"Protected IBC" (for metal IBCs) means an IBC provided with additional protection against impact, the protection taking the form of, for example, a multi-layer (sandwich) or double-wall construction, or a frame with a metal lattice-work casing;

## Q

"Quality assurance" means a systematic programme of controls and inspections applied by any organization or body which is aimed at providing confidence that the safety prescriptions in ADR are met in practice;

## R

"*Receptacle*" (Class 1) includes boxes, bottles, cans, drums, jars and tubes, including any means of closure used in the inner or intermediate packaging;

"*Receptacle*" means a containment vessel for receiving and holding substances or articles, including any means of closing. This definition does not apply to shells (see also "*Cryogenic receptacle*", "*Inner receptacle*", "*Pressure receptacle*", "*Rigid inner receptacle*" and "*Gas cartridge*");

"*Reconditioned packaging*" means in particular

- (a) metal drums that are:
  - (i) cleaned to original materials of construction, with all former contents, internal and external corrosion, and external coatings and labels removed;
  - (ii) restored to original shape and contour, with chimes (if any) straightened and sealed and all non-integral gaskets replaced; and
  - (iii) inspected after cleaning but before painting, with rejection of packagings with visible pitting, significant reduction in the material thickness, metal fatigue, damaged threads or closures or other significant defects;
- (b) plastics drums and jerricans that:
  - (i) are cleaned to original materials of construction, with all former contents, external coatings and labels removed;
  - (ii) have all non-integral gaskets replaced; and
  - (iii) are inspected after cleaning with rejection of packagings with visible damage such as tears, creases or cracks, or damaged threads or closures or other significant defects;

"*Recycled plastics material*" means material recovered from used industrial packagings that has been cleaned and prepared for processing into new packagings;

"*Reel*" (Class 1) means a device made of plastics, wood, fibreboard, metal or other suitable material comprising a central spindle with, or without, side walls at each end of the spindle. Articles and substances can be wound onto the spindle and may be retained by side walls;

"*Reference steel*" means a steel with a tensile strength of 370 N/mm<sup>2</sup> and an elongation at fracture of 27%;

"*Remanufactured IBC*", see "*Intermediate Bulk Container (IBC)*";

"*Remanufactured packaging*" means in particular

- (a) metal drums that:
  - (i) are produced as a UN type complying with the requirements of Chapter 6.1 from a non-UN type;
  - (ii) are converted from one UN type complying with the requirements of Chapter 6.1 to another UN type; or

- (iii) undergo the replacement of integral structural components (such as non-removable heads);
- (b) plastics drums that:
  - (i) are converted from one UN type to another UN type (e.g. 1H1 to 1H2); or
  - (ii) undergo the replacement of integral structural components.

Remanufactured drums are subject to the requirements of Chapter 6.1 which apply to new drums of the same type;

*"Repaired IBC"*, see *"Intermediate Bulk Container (IBC)"*;

*"Reused packaging"* means a packaging which has been examined and found free of defects affecting the ability to withstand the performance tests. The term includes those which are refilled with the same or similar compatible contents and are carried within distribution chains controlled by the consignor of the product;

*"RID"* means Regulations concerning the International Carriage of Dangerous Goods by Rail [Annex 1 to Appendix B (Uniform Rules Concerning the Contract for International Carriage of Goods by Rail) (CIM) of COTIF (Convention concerning international carriage by rail)];

*"Rigid inner receptacle"* (for composite IBCs) means a receptacle which retains its general shape when empty without its closures in place and without benefit of the outer casing. Any inner receptacle that is not "rigid" is considered to be "flexible";

*"Rigid plastics IBC"* means a rigid plastics body, which may have structural equipment together with appropriate service equipment;

*"Routine maintenance of IBC"*, see *"Intermediate Bulk Container (IBC)"*;

## S

*"Safety valve"* means a spring-loaded device which is activated automatically by pressure the purpose of which is to protect the tank against unacceptable excess internal pressure;

*"SADT"* see *"Self-accelerating decomposition temperature"*;

*"Salvage packaging"* means a special packaging into which damaged, defective or leaking dangerous goods packages, or dangerous goods that have spilled or leaked are placed for purposes of carriage for recovery or disposal;

*"Self-accelerating decomposition temperature" (SADT)*, means the lowest temperature at which self-accelerating decomposition may occur with substance in the packaging as used during carriage. Provisions for determining the SADT and the effects of heating under confinement are contained in Part II of the Manual of Tests and Criteria;

*"Service equipment"*

- (a) of the tank means filling and emptying, venting, safety, heating and heat insulating devices and measuring instruments;
- (b) of the elements of a battery-vehicle or of a MEGC means filling and emptying devices, including the manifold, safety devices and measuring instruments;

- (c) of an IBC means the filling and discharge devices and any pressure-relief or venting, safety, heating and heat insulating devices and measuring instruments;

*NOTE: For portable tanks, see Chapter 6.7.*

"*Settled pressure*" means the pressure of the contents of a pressure receptacle in thermal and diffusive equilibrium;

"*Sheeted container*" means an open container equipped with a sheet to protect the goods loaded;

"*Sheeted vehicle*" means an open vehicle provided with a sheet to protect the load;

"*Shell*" means the sheathing containing the substance (including the openings and their closures);

*NOTE 1: This definition does not apply to receptacles.*

*NOTE 2: For portable tanks, see Chapter 6.7.*

"*Sift-proof packaging*" means a packaging impermeable to dry contents, including fine solid material produced during carriage;

"*Small container*" means a container having an internal volume of not less than 1 m<sup>3</sup> and not more than 3 m<sup>3</sup>;

*NOTE: For radioactive material, see 2.2.7.2.*

"*Small receptacle containing gas*", see "*Gas cartridge*";

"*Solid*" means:

- (a) a substance with a melting point or initial melting point of more than 20 °C at a pressure of 101.3 kPa, or
- (b) a substance which is not liquid according to the ASTM D 4359-90 test method or which is pasty according to the criteria applicable to the test for determining fluidity (penetrometer test) described in 2.3.4;

"*Structural equipment*"

- (a) for tanks of a tank-vehicle or demountable tank, means the external or internal reinforcing, fastening, protective or stabilizing members of the shell;
- (b) for tanks of a tank-container, means the external or internal reinforcing, fastening, protective or stabilizing members of the shell;
- (c) for elements of a battery-vehicle or an MEGC means the external or internal reinforcing, fastening, protective or stabilizing members of the shell or receptacle;
- (d) for IBCs other than flexible IBCs means the reinforcing, fastening, handling, protective or stabilizing members of the body (including the base pallet for composite IBCs with plastics inner-receptacle);

*NOTE: For portable tanks, see Chapter 6.7.*

"Swap-body", see "Container";

## T

"Tank" means a shell, including its service and structural equipment. When used alone, the term tank means a tank-container, portable tank, demountable tank or fixed tank as defined in this Part, including tanks forming elements of battery-vehicles or MEGCs (see also "Demountable tank", "Fixed tank", "Portable tank" and "Multiple-element gas container");

*NOTE: For portable tanks, see 6.7.4.1.*

"Tank-container" means an article of transport equipment meeting the definition of a container, and comprising a shell and items of equipment, including the equipment to facilitate movement of the tank-container without significant change of attitude, used for the carriage of gases, liquid, powdery or granular substances and having a capacity of more than 0.45 m<sup>3</sup> (450 litres);

*NOTE: IBCs which meet the requirements of Chapter 6.5 are not considered to be tank-containers.*

"Tank-container/portable tank operator" means any enterprise in whose name the tank-container/portable tank is registered;

"Tank swap body" is considered to be a tank-container;

"Tank-vehicle" means a vehicle built to carry liquids, gases or powdery or granular substances and comprising one or more fixed tanks. In addition to the vehicle proper, or the units of running gear used in its stead, a tank-vehicle comprises one or more shells, their items of equipment and the fittings for attaching them to the vehicle or to the running-gear units;

"Technical name" means a recognized chemical name, if relevant a biological name, or other name currently used in scientific and technical handbooks, journals and texts (see 3.1.2.8.1.1);

"Test pressure" means the required pressure applied during a pressure test for initial or periodic inspection (see also "Calculation pressure", "Discharge pressure", "Filling pressure" and "Maximum working pressure (gauge pressure)");

*NOTE: For portable tanks, see Chapter 6.7.*

"Transport unit" means a motor vehicle without an attached trailer, or a combination consisting of a motor vehicle and an attached trailer;

"Tray" (Class 1) means a sheet of metal, plastics, fibreboard or other suitable material which is placed in the inner, intermediate or outer packaging and achieves a close-fit in such packaging. The surface of the tray may be shaped so that packagings or articles can be inserted, held secure and separated from each other;

"Tube" (Class 2) means a seamless transportable pressure receptacle of a water capacity exceeding 150 litres and of not more than 3 000 litres;

## U

"Undertaking", see "Enterprise";



*"UN Model Regulations"* means the Model Regulations annexed to the twelfth revised edition of the Recommendations on the Transport of Dangerous Goods published by the United Nations (ST/SG/AC.10/1/Rev.12);

*"UN number"* means the four-figure identification number of the substance or article taken from the UN Model Regulations;

## V

*"Vacuum-operated waste tank"* means a fixed tank, demountable tank, tank-container or tank swap body primarily used for the carriage of dangerous wastes, with special constructional features and/or equipment to facilitate the loading and unloading of wastes as specified in Chapter 6.10. A tank which fully complies with the requirements of Chapter 6.7 or 6.8 is not considered to be a vacuum-operated waste tank;

*"Vacuum valve"* means a spring-loaded device which is activated automatically by pressure the purpose of which is to protect the tank against unacceptable negative internal pressure;

*"Vehicle"* see *"Battery-vehicle"*, *"Closed vehicle"*, *"Open vehicle"*, *"Sheeted vehicle"* and *"Tank-vehicle"*;

## W

*"Wastes"* means substances, solutions, mixtures or articles for which no direct use is envisaged but which are transported for reprocessing, dumping, elimination by incineration or other methods of disposal;

*"Wooden barrel"* means a packaging made of natural wood, of round cross-section, having convex walls, consisting of staves and heads and fitted with hoops;

*"Wooden IBC"* means a rigid or collapsible wooden body, together with an inner liner (but no inner packaging) and appropriate service and structural equipment;

*"Working pressure"* means the settled pressure of a compressed gas at a reference temperature of 15 °C in a full pressure receptacle;

**NOTE:** For tanks, see *"Maximum working pressure"*.

*"Woven plastics"* (for flexible IBCs) means a material made from stretch tapes or monofilaments of suitable plastics material.

## 1.2.2 Units of measurement

1.2.2.1 The following units of measurement <sup>a</sup> are applicable in ADR:

Measurement of	SI Unit <sup>b</sup>	Acceptable alternative unit	Relationship between units
Length	m (metre)	-	-
Area	m <sup>2</sup> (square metre)	-	-
Volume	m <sup>3</sup> (cubic metre)	l <sup>c</sup> (litre)	1 l = 10 <sup>-3</sup> m <sup>3</sup>
Time	s (second)	min. (minute)	1 min. = 60 s
		h (hour)	1 h = 3 600 s
		d (day)	1 d = 86 400 s
Mass	kg (kilogram)	g (gramme)	1 g = 10 <sup>-3</sup> kg
		t (ton)	1 t = 10 <sup>3</sup> kg
Mass density	kg/m <sup>3</sup>	kg/l	1 kg/l = 10 <sup>3</sup> kg/m <sup>3</sup>
Temperature	K (kelvin)	°C (degree Celsius)	0 °C = 273.15 K
Temperature difference	K (kelvin)	°C (degree Celsius)	1 °C = 1 K
Force	N (newton)	-	1 N = 1 kg.m/s <sup>2</sup>
Pressure	Pa (pascal)	-	1 Pa = 1 N/m <sup>2</sup>
		bar (bar)	1 bar = 10 <sup>5</sup> Pa
Stress	N/m <sup>2</sup>	N/mm <sup>2</sup>	1 N/mm <sup>2</sup> = 1 MPa
Work		kWh (kilowatt hours)	1 kWh = 3.6 MJ
Energy	J (joule)		1 J = 1 N.m = 1 W.s
Quantity of heat		eV (electronvolt)	1 eV = 0.1602 × 10 <sup>-18</sup> J
Power	W (watt)	-	1 W = 1 J/s = 1 N.m/s
Kinematic viscosity	m <sup>2</sup> /s	mm <sup>2</sup> /s	1 mm <sup>2</sup> /s = 10 <sup>-6</sup> m <sup>2</sup> /s
Dynamic viscosity	Pa.s	mPa.s	1 mPa.s = 10 <sup>-3</sup> Pa.s
Activity	Bq (becquerel)		
Dose equivalent	Sv (sievert)		

<sup>a</sup> The following round figures are applicable for the conversion of the units hitherto used into SI Units:

### Force

$$1 \text{ kg} = 9.807 \text{ N}$$

$$1 \text{ N} = 0.102 \text{ kg}$$

### Stress

$$1 \text{ kg/mm}^2 = 9.807 \text{ N/mm}^2$$

$$1 \text{ N/mm}^2 = 0.102 \text{ kg/mm}^2$$

### Pressure

$$1 \text{ Pa} = 1 \text{ N/m}^2 = 10^{-5} \text{ bar} = 1.02 \times 10^{-5} \text{ kg/cm}^2 = 0.75 \times 10^{-2} \text{ torr}$$

$$1 \text{ bar} = 10^5 \text{ Pa} = 1.02 \text{ kg/cm}^2 = 750 \text{ torr}$$

$$1 \text{ kg/cm}^2 = 9.807 \times 10^4 \text{ Pa} = 0.9807 \text{ bar} = 736 \text{ torr}$$

$$1 \text{ torr} = 1.33 \times 10^2 \text{ Pa} = 1.33 \times 10^{-3} \text{ bar} = 1.36 \times 10^{-3} \text{ kg/cm}^2$$

### Energy, Work, Quantity of heat

$$1 \text{ J} = 1 \text{ N.m} = 0.278 \times 10^{-6} \text{ kWh} = 0.102 \text{ kgm} = 0.239 \times 10^{-3} \text{ kcal}$$

$$1 \text{ kWh} = 3.6 \times 10^6 \text{ J} = 367 \times 10^3 \text{ kgm} = 860 \text{ kcal}$$

$$1 \text{ kgm} = 9.807 \text{ J} = 2.72 \times 10^{-6} \text{ kWh} = 2.34 \times 10^{-3} \text{ kcal}$$

$$1 \text{ kcal} = 4.19 \times 10^3 \text{ J} = 1.16 \times 10^{-3} \text{ kWh} = 427 \text{ kgm}$$

### Power

$$1 \text{ W} = 0.102 \text{ kgm/s} = 0.86 \text{ kcal/h}$$

$$1 \text{ kgm/s} = 9.807 \text{ W} = 8.43 \text{ kcal/h}$$

$$1 \text{ kcal/h} = 1.16 \text{ W} = 0.119 \text{ kgm/s}$$

### Kinematic viscosity

$$1 \text{ m}^2/\text{s} = 10^4 \text{ St (Stokes)}$$

$$1 \text{ St} = 10^{-4} \text{ m}^2/\text{s}$$

Dynamic viscosity

$$\begin{aligned}
 1 \text{ Pa}\cdot\text{s} &= 1 \text{ N}\cdot\text{s}/\text{m}^2 &= 10 \text{ P (poise)} &= 0.102 \text{ kg}\cdot\text{s}/\text{m}^2 \\
 1 \text{ P} &= 0.1 \text{ Pa}\cdot\text{s} &= 0.1 \text{ N}\cdot\text{s}/\text{m}^2 &= 1.02 \times 10^{-2} \text{ kg}\cdot\text{s}/\text{m}^2 \\
 1 \text{ kg}\cdot\text{s}/\text{m}^2 &= 9.807 \text{ Pa}\cdot\text{s} &= 9.807 \text{ N}\cdot\text{s}/\text{m}^2 &= 98.07 \text{ P}
 \end{aligned}$$

<sup>b</sup> The International System of Units (SI) is the result of decisions taken at the General Conference on Weights and Measures (Address: Pavillon de Breteuil, Parc de St-Cloud, F-92 310 Sèvres).

<sup>c</sup> The abbreviation "L" for litre may also be used in place of the abbreviation "l" when a typewriter cannot distinguish between figure "1" and letter "l".

The decimal multiples and sub-multiples of a unit may be formed by prefixes or symbols, having the following meanings, placed before the name or symbol of the unit:

<u>Factor</u>		<u>Prefix</u>	<u>Symbol</u>
1 000 000 000 000 000 000	= 10 <sup>18</sup>	quintillion	E
1 000 000 000 000 000	= 10 <sup>15</sup>	quadrillion	P
1 000 000 000 000	= 10 <sup>12</sup>	trillion	T
1 000 000 000	= 10 <sup>9</sup>	billion	G
1 000 000	= 10 <sup>6</sup>	million	M
1 000	= 10 <sup>3</sup>	thousand	k
100	= 10 <sup>2</sup>	hundred	h
10	= 10 <sup>1</sup>	ten	da
0.1	= 10 <sup>-1</sup>	tenth	d
0.01	= 10 <sup>-2</sup>	hundredth	c
0.001	= 10 <sup>-3</sup>	thousandth	m
0.000 001	= 10 <sup>-6</sup>	millionth	μ
0.000 000 001	= 10 <sup>-9</sup>	billionth	n
0.000 000 000 001	= 10 <sup>-12</sup>	trillionth	p
0.000 000 000 000 001	= 10 <sup>-15</sup>	quadrillionth	f
0.000 000 000 000 000 001	= 10 <sup>-18</sup>	quintillionth	a

**NOTE:** 10<sup>9</sup> billion is United Nations usage in English. By analogy, so is 10<sup>9</sup> = 1 billionth.

## 1.2.2.2

Unless expressly stated otherwise, the sign "%" in ADR represents:

- In the case of mixtures of solids or of liquids, and also in the case of solutions and of solids wetted by a liquid, a percentage mass based on the total mass of the mixture, the solution or the wetted solid;
- In the case of mixtures of compressed gases, when filled by pressure, the proportion of the volume indicated as a percentage of the total volume of the gaseous mixture, or, when filled by mass, the proportion of the mass indicated as a percentage of the total mass of the mixture;
- In the case of mixtures of liquefied gases and dissolved gases, the proportion of the mass indicated as a percentage of the total mass of the mixture.

## 1.2.2.3

Pressures of all kinds relating to receptacles (such as test pressure, internal pressure, safety valve opening pressure) are always indicated in gauge pressure (pressure in excess of atmospheric pressure); however, the vapour pressure of substances is always expressed in absolute pressure.

1.2.2.4 Where ADR specifies a degree of filling for receptacles, this is always related to a reference temperature of the substances of 15 °C, unless some other temperature is indicated.

## CHAPTER 1.3

### TRAINING OF PERSONS INVOLVED IN THE CARRIAGE OF DANGEROUS GOODS

#### 1.3.1 Scope and applicability

Persons employed by the participants referred to in Chapter 1.4, whose duties concern the carriage of dangerous goods, shall receive training in the requirements governing the carriage of such goods appropriate to their responsibilities and duties.

*NOTE 1: With regard to the training for the safety adviser, see 1.8.3.*

*NOTE 2: With regard to the training of the vehicle crew, see Chapter 8.2.*

#### 1.3.2 Nature of the training

The training shall take the following form, appropriate to the responsibility and duties of the individual concerned.

##### 1.3.2.1 General awareness training

Personnel shall be familiar with the general requirements of the provisions for the carriage of dangerous goods.

##### 1.3.2.2 Function-specific training

Personnel shall receive detailed training, commensurate directly with their duties and responsibilities in the requirements of the regulations concerning the carriage of dangerous goods.

Where the carriage of dangerous goods involves a multimodal transport operation, the personnel shall be made aware of the requirements concerning other transport modes.

##### 1.3.2.3 Safety training

Commensurate with the degree of risk of injury or exposure arising from an incident involving the carriage of dangerous goods, including loading and unloading, personnel shall receive training covering the hazards and dangers presented by dangerous goods.

The training provided shall aim to make personnel aware of the safe handling and emergency response procedures.

##### 1.3.2.4 Training for Class 7

For the purpose of Class 7, personnel shall receive appropriate training concerning the radiation hazards involved and the precautions to be observed in order to ensure restriction of their exposure and that of other persons who might be affected by their actions.

#### 1.3.3 Documentation

Details of all the training undertaken shall be kept by both the employer and the employee and shall be verified upon commencing a new employment. The training shall be periodically supplemented with refresher training to take account of changes in regulations.

## CHAPTER 1.4

## SAFETY OBLIGATIONS OF THE PARTICIPANTS

## 1.4.1 General safety measures

1.4.1.1 The participants in the carriage of dangerous goods shall take appropriate measures according to the nature and the extent of foreseeable dangers, so as to avoid damage or injury and, if necessary, to minimize their effects. They shall, in all events, comply with the requirements of ADR in their respective fields.

1.4.1.2 When there is an immediate risk that public safety may be jeopardized, the participants shall immediately notify the emergency services and shall make available to them the information they require to take action.

1.4.1.3 ADR may specify certain of the obligations falling to the various participants.

If a Contracting Party considers that no lessening of safety is involved, it may in its domestic legislation transfer the obligations falling to a specific participant to one or several other participants, provided that the obligations of 1.4.2 and 1.4.3 are met. These derogations shall be communicated by the Contracting Party to the Secretariat of the United Nations Economic Commission for Europe which will bring them to the attention of the Contracting Parties.

The requirements of 1.2.1, 1.4.2 and 1.4.3 concerning the definitions of participants and their respective obligations shall not affect the provisions of domestic law concerning the legal consequences (criminal nature, liability, etc.) stemming from the fact that the participant in question is e.g. a legal entity, a self-employed worker, an employer or an employee.

## 1.4.2 Obligations of the main participants

1.4.2.1 *Consignor*

1.4.2.1.1 The consignor of dangerous goods is required to hand over for carriage only consignments which conform to the requirements of ADR. In the context of 1.4.1, he shall in particular:

- (a) ascertain that the dangerous goods are classified and authorized for carriage in accordance with ADR;
- (b) furnish the carrier with information and data and, if necessary, the required transport documents and accompanying documents (authorizations, approvals, notifications, certificates, etc.), taking into account in particular the requirements of Chapter 5.4 and of the tables in Part 3;
- (c) use only packagings, large packagings, intermediate bulk containers (IBCs) and tanks (tank-vehicles, demountable tanks, battery-vehicles, MEGCs, portable tanks and tank-containers) approved for and suited to the carriage of the substances concerned and bearing the markings prescribed by ADR;
- (d) comply with the requirements on the means of dispatch and on forwarding restrictions;
- (e) ensure that even empty uncleaned and not degassed tanks (tank-vehicles, demountable tanks, battery-vehicles, MEGCs, portable tanks and tank-containers) or empty uncleaned vehicles and large and small bulk containers are appropriately marked and labelled and that empty uncleaned tanks are closed and present the same degree of leakproofness as if they were full.

1.4.2.1.2 If the consignor uses the services of other participants (packer, loader, filler, etc.), he shall take appropriate measures to ensure that the consignment meets the requirements of ADR. He may, however, in the case of 1.4.2.1.1 (a), (b), (c) and (e), rely on the information and data made available to him by other participants.

1.4.2.1.3 When the consignor acts on behalf of a third party, the latter shall inform the consignor in writing that dangerous goods are involved and make available to him all the information and documents he needs to perform his obligations.

#### 1.4.2.2 *Carrier*

1.4.2.2.1 In the context of 1.4.1, where appropriate, the carrier shall in particular:

- (a) ascertain that the dangerous goods to be carried authorized for carriage in accordance with ADR;
- (b) ascertain that the prescribed documentation is on board the transport unit;
- (c) ascertain visually that the vehicles and loads have no obvious defects, leakages or cracks, missing equipment, etc.;
- (d) ascertain that the date of the next test for tank-vehicles, battery-vehicles, demountable tanks, portable tanks, tank-containers and MEGCs has not expired;
- (e) verify that the vehicles are not overloaded;
- (f) ascertain that the danger labels and markings prescribed for the vehicles have been affixed;
- (g) ascertain that the equipment prescribed in the written instructions for the driver is on board the vehicle.

Where appropriate, this shall be done on the basis of the transport documents and accompanying documents, by a visual inspection of the vehicle or the containers and, where appropriate, the load.

1.4.2.2.2 The carrier may, however, in the case of 1.4.2.2.1 (a), (b), (e) and (f), rely on information and data made available to him by other participants.

1.4.2.2.3 If the carrier observes an infringement of the requirements of ADR, in accordance with 1.4.2.2.1, he shall not forward the consignment until the matter has been rectified.

1.4.2.2.4 If, during the journey, an infringement which could jeopardize the safety of the operation is observed, the consignment shall be halted as soon as possible bearing in mind the requirements of traffic safety, of the safe immobilisation of the consignment, and of public safety. The transport operation may only be continued once the consignment complies with applicable regulations. The competent authority(ies) concerned by the rest of the journey may grant an authorization to pursue the transport operation.

In case the required compliance cannot be achieved and no authorization is granted for the rest of the journey, the competent authority(ies) shall provide the carrier with the necessary administrative assistance. The same shall apply in case the carrier informs this/these competent authority(ies) that the dangerous nature of the goods carried was not communicated to him by the consignor and that he wishes, by virtue of the law applicable in particular to the contract of carriage, to unload, destroy or render the goods harmless.

### 1.4.2.3 *Consignee*

1.4.2.3.1 The consignee has the obligation not to defer acceptance of the goods without compelling reasons and to verify, after unloading, that the requirements of ADR concerning him have been complied with.

In the context of 1.4.1, he shall in particular:

- (a) carry out in the cases provided for by ADR the prescribed cleaning and decontamination of the vehicles and containers;
- (b) ensure that the containers once completely unloaded, cleaned and decontaminated, no longer bear danger markings conforming to Chapter 5.3.

1.4.2.3.2 If the consignee makes use of the services of other participants (unloader, cleaner, decontamination facility, etc.) he shall take appropriate measures to ensure that the requirements of ADR have been complied with.

1.4.2.3.3 If these verifications bring to light an infringement of the requirements of ADR, the consignee shall return the container to the carrier only after the infringement has been remedied.

### 1.4.3 *Obligations of the other participants*

A non-exhaustive list of the other participants and their respective obligations is given below. The obligations of the other participants flow from section 1.4.1 above insofar as they know or should have known that their duties are performed as part of a transport operation subject to ADR.

#### 1.4.3.1 *Loader*

1.4.3.1.1 In the context of 1.4.1, the loader has the following obligations in particular:

- (a) he shall hand the dangerous goods over to the carrier only if they are authorized for carriage in accordance with ADR;
- (b) he shall, when handing over for carriage packed dangerous goods or uncleaned empty packagings, check whether the packaging is damaged. He shall not hand over a package the packaging of which is damaged, especially if it is not leakproof, and there are leakages or the possibility of leakages of the dangerous substance, until the damage has been repaired; this obligation also applies to empty uncleaned packagings;
- (c) he shall, when loading dangerous goods in a vehicle, or a large or small container, comply with the special requirements concerning loading and handling;
- (d) he shall, after loading dangerous goods into a container comply with the requirements concerning danger markings conforming to Chapter 5.3;
- (e) he shall, when loading packages, comply with the prohibitions on mixed loading taking into account dangerous goods already in the vehicle or large container and requirements concerning the separation of foodstuffs, other articles of consumption or animal feedstuffs.

1.4.3.1.2 The loader may, however, in the case of 1.4.3.1.1 (a), (d) and (e), rely on information and data made available to him by other participants.



## 1.4.3.2

**Packer**

In the context of 1.4.1, the packer shall comply with in particular:

- (a) the requirements concerning packing conditions, or mixed packing conditions and,
- (b) when he prepares packages for carriage, the requirements concerning marking and labelling of the packages.

## 1.4.3.3

**Filler**

In the context of 1.4.1, the filler has the following obligations in particular:

- (a) he shall ascertain prior to the filling of tanks that both they and their equipment are technically in a satisfactory condition;
- (b) he shall ascertain that the date of the next test for tank-vehicles, battery-vehicles, demountable tanks, portable tanks, tank-containers and MEGCs has not expired;
- (c) he shall only fill tanks with the dangerous goods authorized for carriage in those tanks;
- (d) he shall, in filling the tank, comply with the requirements concerning dangerous goods in adjoining compartments;
- (e) he shall, during the filling of the tank, observe the maximum permissible degree of filling or the maximum permissible mass of contents per litre of capacity for the substance being filled;
- (f) he shall, after filling the tank, check the leakproofness of the closing devices;
- (g) he shall ensure that no dangerous residue of the filling substance adheres to the outside of the tanks filled by him;
- (h) he shall, in preparing the dangerous goods for carriage, ensure that the orange plates and placards or labels prescribed are affixed on the tanks, on the vehicles and on the large and small containers for carriage in bulk in accordance with the requirements.

## 1.4.3.4

**Tank-container/portable tank operator**

In the context of 1.4.1, the tank-container/portable tank operator shall in particular:

- (a) ensure compliance with the requirements for construction, equipment, tests and marking;
- (b) ensure that the maintenance of shells and their equipment is carried out in such a way as to ensure that, under normal operating conditions, the tank-container/portable tank satisfies the requirements of ADR until the next inspection;
- (c) have an exceptional check made when the safety of the shell or its equipment is liable to be impaired by a repair, an alteration or an accident.

## 1.4.3.5

**(Reserved)**

## CHAPTER 1.5

## DEROGATIONS

## 1.5.1 Temporary derogations

- 1.5.1.1 For the purpose of adapting the requirements of ADR to technological and industrial developments, the competent authorities of the Contracting Parties may agree directly among themselves to authorize certain transport operations in their territories by temporary derogation from the requirements of ADR, provided that safety is not compromised thereby. The authority which has taken the initiative with respect to the temporary derogation shall notify such derogations to the Secretariat of the United Nations Economic Commission for Europe which shall bring them to the attention of the Contracting Parties <sup>1</sup>.

*NOTE: "Special arrangement" in accordance with 1.7.4 is not considered to be a temporary derogation in accordance with this section.*

- 1.5.1.2 The period of validity of the temporary derogation shall not be more than five years from the date of its entry into force. The temporary derogation shall automatically cease as from the date of the entry into force of a relevant amendment to ADR.
- 1.5.1.3 Transport operations on the basis of temporary derogations shall constitute transport operations in the sense of ADR.

1.5.2 *(Reserved)*

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<sup>1</sup> Note by the Secretariat: The special agreements concluded under this Chapter may be consulted on the web site of the Secretariat of the United Nations Economic Commission for Europe (<http://www.unece.org/trans/danger/danger.htm>).

**CHAPTER 1.6****TRANSITIONAL MEASURES****1.6.1 General**

1.6.1.1 Unless otherwise provided, the substances and articles of ADR may be carried until 30 June 2003 in accordance with the requirements of ADR applicable up to 31 December 2002.

1.6.1.2 The danger labels which until 31 December 1998 conformed to the models prescribed up to that date may be used until stocks are exhausted.

1.6.1.3 Substances and articles of Class 1, belonging to the armed forces of a Contracting Party, that were packaged prior to 1 January 1990 in accordance with the requirements of ADR in effect at that time may be carried after 31 December 1989 provided the packagings maintain their integrity and are declared in the transport document as military goods packaged prior to 1 January 1990. The other requirements applicable as from 1 January 1990 for this class shall be complied with.

1.6.1.4 Substances and articles of Class 1 that were packaged between 1 January 1990 and 31 December 1996 in accordance with the requirements of ADR in effect at that time may be carried after 31 December 1996, provided the packagings maintain their integrity and are declared in the transport document as goods of Class 1 packaged between 1 January 1990 and 31 December 1996.

1.6.1.5 *(Reserved)*

**1.6.2 Receptacles for Class 2**

1.6.2.1 Receptacles built before 1 January 1997 and which do not conform to the requirements of ADR applicable as from 1 January 1997, but the carriage of which was permitted under the requirements of ADR applicable up to 31 December 1996, may continue to be transported after that date if the periodic test requirements in packing instructions P200 and P203 are complied with.

1.6.2.2 Cylinders in accordance with the definition in 1.2.1 which were submitted to an initial inspection or periodic inspection before 1 January 1997 may be transported empty and uncleaned without a label until the date of the next refilling or the next periodic inspection.

1.6.2.3 Receptacles intended for the carriage of Class 2 substances constructed before 1 January 2003, may continue to bear, after 1 January 2003, the markings conforming to the requirements applicable until 31 December 2002.

**1.6.3 Fixed tanks (tank-vehicles), demountable tanks and battery-vehicles**

1.6.3.1 Fixed tanks (tank-vehicles), demountable tanks and battery-vehicles built before the entry into force of the requirements applicable as from 1 October 1978 may be kept in service if the equipment of the shell meets the requirements of Chapter 6.8. The thickness of the shell wall, except in the case of shells intended for the carriage of refrigerated liquefied gases of Class 2, shall be appropriate to a calculation pressure of not less than 0.4 MPa (4bar) (gauge pressure) in the case of mild steel or of not less than 200 kPa (2 bar) (gauge pressure) in the case of aluminium and aluminium alloys. For other than circular cross-sections of tanks, the diameter to be used as a basis for calculation shall be that of a circle whose area is equal to that of the actual cross-section of the tank.

- 1.6.3.2 The periodic tests for fixed tanks (tank-vehicles), demountable tanks and battery-vehicles kept in service under these transitional requirements shall be conducted in accordance with the requirements of 6.8.2.4 and 6.8.3.4 and with the pertinent special requirements for the various classes. Unless the earlier requirements prescribed a higher test pressure, a test pressure of 200 kPa (2 bar) (gauge pressure) shall suffice for aluminium shells and aluminium alloy shells.
- 1.6.3.3 Fixed tanks (tank-vehicles), demountable tanks and battery-vehicles which meet the transitional requirements in 1.6.3.1 and 1.6.3.2 may be used until 30 September 1993 for the carriage of the dangerous goods for which they have been approved. This transitional period shall not apply to fixed tanks (tank-vehicles), demountable tanks and battery-vehicles intended for the carriage of substances of Class 2, or to fixed tanks (tank-vehicles), demountable tanks and battery-vehicles whose wall thickness and items of equipment meet the requirements of Chapter 6.8.
- 1.6.3.4 (a) Fixed tanks (tank-vehicles), demountable tanks and battery-vehicles constructed before 1 May 1985 in accordance with the requirements of ADR in force between 1 October 1978 and 30 April 1985 but not conforming to the requirements applicable as from 1 May 1985 may continue to be used after that date.
- (b) Fixed tanks (tank-vehicles), demountable tanks and battery-vehicles, constructed between 1 May 1985 and the entry into force of the requirements applicable as from 1 January 1988 which do not conform to those requirements but were constructed according to the requirements of ADR in force until that date, may continue to be used after that date.
- 1.6.3.5 Fixed tanks (tank-vehicles), demountable tanks and battery-vehicles, constructed before 1 January 1993 in accordance with the requirements in force up to 31 December 1992 but which do not conform to the requirements applicable as from 1 January 1993 may still be used.
- 1.6.3.6 (a) Fixed tanks (tank-vehicles), demountable tanks and battery-vehicles constructed between 1 January 1978 and 31 December 1984, if used after 31 December 2004, shall conform to the requirements of marginal 211 127(5), applicable as from 1 January 1990, concerning shell thickness and protection against damage.
- (b) Fixed tanks (tank-vehicles), demountable tanks and battery-vehicles constructed between 1 January 1985 and 31 December 1989, if used after 31 December 2010, shall conform to the requirements of marginal 211 127(5), applicable as from 1 January 1990, concerning shell thickness and protection against damage.
- 1.6.3.7 Fixed tanks (tank-vehicles), demountable tanks and battery-vehicles constructed before 1 January 1999 in accordance with the requirements in force up to 31 December 1998 but which do not, however, conform to the requirements applicable as from 1 January 1999 may still be used.
- 1.6.3.8 Fixed tanks (tank-vehicles) demountable tanks and battery-vehicles intended for the carriage of substances of Class 2, which were built prior to 1 January 1997, may carry markings conforming to the requirements applicable up to 31 December 1996, until the next periodic test.

When, because of amendments to ADR, some proper shipping names of gases have been modified, it is not necessary to modify the names on the plate or on the shell itself (see 6.8.3.5.2 or 6.8.3.5.3), provided that the names of the gases on the fixed tanks (tank-vehicles), demountable tanks and battery-vehicles or on the plates [see 6.8.3.5.6 (b) or (c)] are adapted at the first periodic test thereafter.

- 1.6.3.9 *(Reserved)*
- 1.6.3.10 Fixed tanks (tank-vehicles) and demountable tanks constructed before 1 January 1995, which were intended for the carriage of substances of UN No. 3256, but which do not, however, conform to the requirements applicable as from 1 January 1995, may still be used until 31 December 2004.
- 1.6.3.11 Fixed tanks (tank-vehicles) and demountable tanks constructed before 1 January 1997 in accordance with the requirements in force up to 31 December 1996 but which do not, however, conform to the requirements of marginals 211 332 and 211 333 applicable as from 1 January 1997, may still be used.
- 1.6.3.12 Fixed tanks (tank-vehicles) and demountable tanks intended for the carriage of UN No. 2401 piperidine constructed before 1 January 1999 in accordance with the requirements of marginal 211 322 in force up to 31 December 1998, but which do not, however, conform to the requirements applicable as from 1 January 1999, may continue to be used until 31 December 2004.
- 1.6.3.13 Fixed tanks (tank-vehicles) and demountable tanks intended for the carriage of substances of UN No. 3257 constructed before 1 January 1997 which do not however conform to the requirements applicable as from 1 January 1997, may continue to be used until 31 December 2006.
- 1.6.3.14 *(Reserved)*
- 1.6.3.15 Fixed tanks (tank-vehicles) and demountable tanks intended for the carriage of substances with the following UN Nos.: 1092, 1098, 1135, 1143, 1182, 1199, 1238, 1251, 1605, 1647, 1695, 1809, 2295, 2337, 2407, 2438, 2477, 2487, 2488, 2558, 2606, 2644, 2646, 2686, 3023, 3289 and 3290, constructed before 1 January 1997 in accordance with the requirements in force up to 31 December 1996, but which do not conform with the requirements applicable as from 1 January 1997 may continue to be used until 31 December 2002.
- 1.6.3.16 Battery-vehicles first registered before 1 July 1997 which do not meet the requirements of 9.2.2, may continue to be used until 31 December 2004.
- 1.6.3.17 *(Reserved)*
- 1.6.3.18 Fixed tanks (tank-vehicles), demountable tanks and battery-vehicles constructed before 1 January 2003 in accordance with the requirements in force up to 30 June 2001, but which do not, however, conform to the requirements applicable as from 1 July 2001, may still be used. Assignment to the tank code in the design type approvals and the relevant markings shall be carried out prior to 1 January 2009.
- 1.6.3.19 Fixed tanks (tank-vehicles) and demountable tanks constructed before 1 January 2003 in accordance with the requirements of 6.8.2.1.21 in force up to 31 December 2002 but which do not, however, conform to the requirements applicable as from 1 January 2003 may still be used.
- 1.6.3.20 Fixed tanks (tank-vehicles) and demountable tanks constructed before 1 July 2003 in accordance with the requirements in force up to 31 December 2002 but which do not, however, conform to the requirements of 6.8.2.1.7 and special provision TE15 of 6.8.4 (b) applicable as from 1 January 2003 may still be used.

**1.6.3.21** *Fibre-reinforced plastics (FRP) tanks*

FRP tanks which have been constructed before 1 July 2002 in conformity with a design type approved before 1 July 2001 in accordance with the requirements of Appendix B.1c which were in force until 30 June 2001 may continue to be used until the end of their lifetime provided that all the requirements in force up to 30 June 2001 have been and continue to be complied with.

However, as from 1 July 2001, no new design type may be approved in accordance with the requirements in force until 30 June 2001.

**1.6.4** **Tank-containers and MEGCs**

1.6.4.1 Tank-containers constructed before 1 January 1988 in accordance with the requirements in force up to 31 December 1987 but which do not, however, conform to the requirements applicable as from 1 January 1988, may still be used.

1.6.4.2 Tank-containers constructed before 1 January 1993 in accordance with the requirements in force up to 31 December 1992 but which do not, however, conform to the requirements applicable as from 1 January 1993, may still be used.

1.6.4.3 Tank-containers constructed before 1 January 1999 in accordance with the requirements in force up to 31 December 1998 but which do not, however, conform to the requirements applicable as from 1 January 1999, may still be used.

1.6.4.4 *(Reserved)*

1.6.4.5 Tank-containers intended for the carriage of substances of Class 2, which were constructed before 1 January 1997, may bear markings conforming to the requirements applicable up to 31 December 1996 until the next periodic test.

When, because of amendments to ADR, some proper shipping names of gases have been modified, it is not necessary to modify the names on the plate or on the shell itself (see 6.8.3.5.2 or 6.8.3.5.3), provided that the names of the gases on the tank-containers and MEGCs or on the plates [see 6.8.3.5.6 (b) or (c)] are adapted at the first periodic test thereafter.

1.6.4.6 Tank-containers which were intended for the carriage of substances of UN No. 3256, constructed before 1 January 1995, but which do not, however, conform with the requirements applicable as from 1 January 1995, may still be used until 31 December 2004.

1.6.4.7 Tank-containers constructed before 1 January 1997 in accordance with the requirements in force up to 31 December 1996 but which do not, however, conform to the requirements of marginals 212 332 and 212 333 applicable as from 1 January 1997, may still be used.

1.6.4.8 *(Reserved)*

1.6.4.9 Tank-containers intended for the carriage of UN No. 2401 piperidine, built before 1 January 1999 in accordance with the requirements of marginal 212 322 applicable up to 31 December 1998, but which do not, however, conform to the requirements applicable as from 1 January 1999, may continue to be used until 31 December 2003.

1.6.4.10 Tank-containers which were intended for the carriage of substances of UN No. 3257, built before 1 January 1997, but which do not conform, however, with the requirements applicable as from 1 January 1997, may still be used until 31 December 2006.

- 1.6.4.11 (Reserved)
- 1.6.4.12 Tank-containers and MEGCs constructed before 1 January 2003 in accordance with the requirements applicable up to 30 June 2001, but which do not, however, conform to the requirements applicable as from 1 July 2001, may still be used. Assignment to the tank codes in the design type approvals and the relevant markings shall be carried out prior to 1 January 2008.
- 1.6.4.13 Tank-containers constructed before 1 July 2003 in accordance with the requirements in force up to 31 December 2002 but which do not, however, conform to the requirements of 6.8.2.1.7 and special provision TE15 of 6.8.4 (b) applicable as from 1 January 2003 may still be used.
- 1.6.5 Vehicles**
- 1.6.5.1 Transport units intended for the carriage of tank-containers or portable tanks exceeding 3 000 litres capacity first registered before 1 July 1997 which do not comply with the requirements of 9.1.2 and 9.2.2 may continue to be used until 31 December 2004. These transport units shall be subject, until that date, to the provisions of marginal 10 283 which were in force until 31 December 1996, and may be issued with a certificate in accordance with the model shown in Appendix B.3 applicable up to 30 June 2001.
- 1.6.5.2 Vehicles carrying demountable tanks and vehicles intended for the carriage of tank-containers or portable tanks registered before 1 January 1995, which were used, before that date, for the carriage of substances of UN No. 3256 and which do not fully comply with the requirements of 9.2.2, 9.2.3, 9.2.5, and 9.7.6 may continue to be used until 31 December 2004.
- When a certificate of approval is required in accordance with 9.1.2.1.2, this certificate shall bear a mention indicating that the vehicle has been approved on the basis of 1.6.5.2.
- 1.6.5.3 Vehicles carrying demountable tanks and vehicles intended for the carriage of tank-containers or portable tanks registered before 1 January 1997, which were used, before that date, for the carriage of substances of UN No. 3257 and which do not fully comply with the requirements of 9.2.2, 9.2.3, 9.2.5, and 9.7.6 may continue to be used until 31 December 2006.
- When a certificate of approval is required in accordance with 9.1.2.1.2, this certificate shall bear a mention indicating that the vehicle has been approved on the basis of 1.6.5.3.
- 1.6.5.4 As regards the construction of base vehicles, the requirements of Part 9 in force up to 31 December 2002 may be applied until 30 June 2004.
- 1.6.5.5 Vehicles registered or entering into service before 1 January 2003 the electric equipment of which does not comply with the requirements of 9.2.2, 9.3.7 or 9.7.8 but complies with the requirements applicable until 30 June 2001 may still be used.
- 1.6.5.6 Transport units equipped with fire extinguishers in accordance with the provisions of 8.1.4 applicable until 31 December 2002 may continue to be used until 31 December 2007.

**1.6.6 Class 7****1.6.6.1 *Packages not requiring competent authority approval of design under the 1985 and 1985 (as amended 1990) editions of IAEA Safety Series No. 6***

Excepted packages, Industrial packages Type IP-1, Type IP-2 and Type IP-3 and Type A packages that did not require approval of design by the competent authority and which meet the requirements of the 1985 or 1985 (as amended 1990) Editions of IAEA Regulations for the Safe Transport of Radioactive Material (IAEA Safety Series No. 6) may continue to be used subject to the mandatory programme of quality assurance in accordance with the requirements of 1.7.3 and the activity limits and material restrictions of 2.2.7.7.

Any packaging modified, unless to improve safety, or manufactured after 31 December 2003, shall meet the requirements of ADR. Packages prepared for carriage not later than 31 December 2003 under the 1985 or 1985 (as amended 1990) Editions of IAEA Safety Series No. 6 may continue in transport. Packages prepared for carriage after this date shall meet the requirements of ADR.

**1.6.6.2 *Packages approved under the 1973, 1973 (as amended), 1985 and 1985 (as amended 1990) editions of IAEA Safety Series No. 6***

1.6.6.2.1 Packagings manufactured to a package design approved by the competent authority under the provisions of the 1973 or 1973 (as amended) Editions of IAEA Safety Series No. 6 may continue to be used, subject to: multilateral approval of package design, the mandatory programme of quality assurance in accordance with the applicable requirements of 1.7.3 and the activity limits and material restrictions of 2.2.7.7. No new manufacture of such packaging shall be permitted to commence. Changes in the design of the packaging or in the nature or quantity of the authorized radioactive contents which, as determined by the competent authority, would significantly affect safety shall require that the requirements of ADR be met. A serial number according to the provision of 5.2.1.7.5 shall be assigned to and marked on the outside of each packaging.

1.6.6.2.2 Packagings manufactured to a package design approved by the competent authority under the provisions of the 1985 or 1985 (as amended 1990) Editions of IAEA Safety Series No. 6 may continue to be used until 31 December 2003, subject to: the mandatory programme of quality assurance in accordance with the requirements of 1.7.3 and the activity limits and material restrictions of 2.2.7.7. After this date use may continue subject, additionally, to multilateral approval of package design. Changes in the design of the packaging or in the nature or quantity of the authorized radioactive contents which, as determined by the competent authority, would significantly affect safety shall require that the requirements of these Regulations be met. All packagings for which manufacture begins after 31 December 2006 shall meet the requirements of ADR.

**1.6.6.3 *Special form radioactive material approved under the 1973, 1973 (as amended), 1985 and 1985 (as amended 1990) Editions of IAEA Safety Series No. 6***

Special form radioactive material manufactured to a design which had received unilateral approval by the competent authority under the 1973, 1973 (as amended), 1985 or 1985 (as amended 1990) Editions of IAEA Safety Series No. 6 may continue to be used when in compliance with the mandatory programme of quality assurance in accordance with the applicable requirements of 1.7.3. All special form radioactive material manufactured after 31 December 2003 shall meet the requirements of ADR.



**CHAPTER 1.7****GENERAL REQUIREMENTS CONCERNING CLASS 7****1.7.1 General**

1.7.1.1 ADR establishes standards of safety which provide an acceptable level of control of the radiation, criticality and thermal hazards to persons, property and the environment that are associated with the carriage of radioactive material. These standards are based on the IAEA Regulations for the Safe Transport of Radioactive Material (ST-1), IAEA, Vienna (1996). Explanatory material on ST-1 can be found in "Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (1996 Edition)", Safety Standard Series No. ST-2, IAEA, Vienna (to be published).

1.7.1.2 The objective of ADR is to protect persons, property and the environment from the effects of radiation during the carriage of radioactive material. This protection is achieved by requiring:

- (a) Containment of the radioactive contents;
- (b) Control of external radiation levels;
- (c) Prevention of criticality; and
- (d) Prevention of damage caused by heat.

These requirements are satisfied firstly by applying a graded approach to contents limits for packages and vehicles and to performance standards applied to package designs depending upon the hazard of the radioactive contents. Secondly, they are satisfied by imposing requirements on the design and operation of packages and on the maintenance of packagings, including a consideration of the nature of the radioactive contents. Finally, they are satisfied by requiring administrative controls including, where appropriate, approval by competent authorities.

1.7.1.3 ADR applies to the carriage of radioactive material by road including carriage which is incidental to the use of the radioactive material. Carriage comprises all operations and conditions associated with and involved in the movement of radioactive material; these include the design, manufacture, maintenance and repair of packaging, and the preparation, consigning, loading, carriage including in-transit storage, unloading and receipt at the final destination of loads of radioactive material and packages. A graded approach is applied to the performance standards in ADR that is characterized by three general severity levels:

- (a) Routine conditions of carriage (incident free);
- (b) Normal conditions of carriage (minor mishaps);
- (c) Accident conditions of carriage.

**1.7.2 Radiation protection programme**

1.7.2.1 The carriage of radioactive material shall be subject to a Radiation protection programme which shall consist of systematic arrangements aimed at providing adequate consideration of radiation protection measures.

1.7.2.2 The nature and extent of the measures to be employed in the programme shall be related to the magnitude and likelihood of radiation exposures. The programme shall incorporate the

requirements in 1.7.2.3, and 1.7.2.4, CV33 (1.1) and (1.4) of 7.5.11 and applicable emergency response procedures. Programme documents shall be available, on request, for inspection by the relevant competent authority.

- 1.7.2.3 Protection and safety shall be optimized in order that the magnitude of individual doses, the number of persons exposed, and the likelihood of incurring exposure shall be kept as low as reasonably achievable, economic and social factors being taken into account, and doses to persons shall be below the relevant dose limits. A structured and systematic approach shall be adopted and shall include consideration of the interfaces between carriage and other activities.
- 1.7.2.4 For occupational exposures arising from transport activities, where it is assessed that the effective dose:
- (a) is most unlikely to exceed 1 mSv in a year, no special work patterns, detailed monitoring, dose assessment programmes or individual record keeping shall be required;
  - (b) is likely to be between 1 mSv and 6 mSv in a year, a dose assessment programme via work place monitoring or individual monitoring shall be conducted;
  - (c) is likely to exceed 6 mSv in a year, individual monitoring shall be conducted.

When individual monitoring or work place monitoring is conducted, appropriate records shall be kept.

### 1.7.3 Quality assurance

Quality assurance programmes based on international, national or other standards acceptable to the competent authority shall be established and implemented for the design, manufacture, testing, documentation, use, maintenance and inspection of all special form radioactive material, low dispersible radioactive material and packages and for carriage and in-transit storage operations to ensure compliance with the relevant provisions of ADR. Certification that the design specification has been fully implemented shall be available to the competent authority. The manufacturer, consignor or user shall be prepared to provide facilities for competent authority inspection during manufacture and use and to demonstrate to any cognizant competent authority that:

- (a) the manufacturing methods and materials used are in accordance with the approved design specifications; and
- (b) all packagings are periodically inspected and, as necessary, repaired and maintained in good condition so that they continue to comply with all relevant requirements and specifications, even after repeated use.

Where competent authority approval is required, such approval shall take into account and be contingent upon the adequacy of the quality assurance programme.

### 1.7.4 Special arrangement

- 1.7.4.1 Special arrangement shall mean those provisions, approved by the competent authority, under which consignments which do not satisfy all the requirements of ADR applicable to radioactive material may be transported.

*NOTE: Special arrangement is not considered to be a temporary derogation in accordance with 1.5.1.*

- 1.7.4.2 Consignments for which conformity with any provision applicable to Class 7 is impracticable shall not be transported except under special arrangement. Provided the

competent authority is satisfied that conformity with the Class 7 provisions of ADR is impracticable and that the requisite standards of safety established by ADR have been demonstrated through alternative means the competent authority may approve special arrangement transport operations for single or a planned series of multiple consignments. The overall level of safety in carriage shall be at least equivalent to that which would be provided if all the applicable requirements had been met. For international consignments of this type, multilateral approval shall be required.

#### **1.7.5**

##### **Radioactive material possessing other dangerous properties**

In addition to the radioactive and fissile properties, any subsidiary risk of the contents of the package, such as explosiveness, flammability, pyrophoricity, chemical toxicity and corrosiveness, shall also be taken into account in the documentation, packing, labelling, marking, placarding, stowage, segregation and carriage, in order to be in compliance with all relevant provisions for dangerous goods of ADR.

**CHAPTER 1.8****CHECKS AND OTHER SUPPORT MEASURES TO ENSURE COMPLIANCE  
WITH SAFETY REQUIREMENTS****1.8.1 Administrative controls of dangerous goods**

1.8.1.1 The competent authorities of the Contracting Parties may, on their national territory, at any time, conduct spot checks to verify whether the requirements concerning the carriage of dangerous goods have been met.

These checks shall, however, be made without endangering persons, property or the environment and without major disruption of road services.

1.8.1.2 Participants in the carriage of dangerous goods (Chapter 1.4) shall, without delay, in the context of their respective obligations, provide the competent authorities and their agents with the necessary information for carrying out the checks.

1.8.1.3 The competent authorities may also, for the purposes of carrying out checks on the premises of the enterprises participating in the carriage of dangerous goods (Chapter 1.4), make inspections, consult the necessary documents and remove samples of dangerous goods or packagings for examination, provided that safety is not jeopardized thereby. The participants in the carriage of dangerous goods (Chapter 1.4) shall also make the vehicles or parts of vehicles and the equipment and installations accessible for the purpose of checking where this is possible and reasonable. They may, if they deem necessary, designate a person from the enterprise to accompany the representative of the competent authority.

1.8.1.4 If the competent authorities observe that the requirements of ADR have not been met, they may prohibit a consignment or interrupt a transport operation until the defects observed are rectified, or they may prescribe other appropriate measures. Immobilization may take place on the spot or at another place selected by the authorities for safety reasons. These measures shall not cause a major disruption in road services.

**1.8.2 Mutual administrative support**

1.8.2.1 The Contracting Parties shall agree on mutual administrative support for the implementation of ADR.

1.8.2.2 When a Contracting Party has reasons to observe that the safety of the carriage of dangerous goods on its territory is compromised as a result of very serious or repeated infringements by an enterprise which has its headquarters on the territory of another Contracting Party, it shall notify the competent authorities of this Contracting Party of such infringements. The competent authorities of the Contracting Party on the territory of which the very serious or repeated infringements were observed may request the competent authorities of the Contracting Party on the territory of which the enterprise has its headquarters to take appropriate measures against the offender(s). The transmission of data referring to persons shall not be permitted unless it is necessary for the prosecution of very serious or repeated infringements.

1.8.2.3 The authorities notified shall communicate to the competent authorities of the Contracting Party on the territory of which the infringements were observed, the measures which have, if necessary, been taken with respect to the enterprise.

### 1.8.3 Safety adviser

1.8.3.1 Each undertaking, the activities of which include the carriage, or the related packing, loading, filling or unloading, of dangerous goods by road shall appoint one or more safety advisers for the carriage of dangerous goods, responsible for helping to prevent the risks inherent in such activities with regard to persons, property and the environment.

1.8.3.2 The competent authorities of the Contracting Parties may provide that these requirements shall not apply to undertakings:

- (a) the activities of which concern quantities in each transport unit smaller than those referred to in 1.1.3.6, 2.2.7.1.2 and in Chapters 3.3 and 3.4, or
- (b) the main or secondary activities of which are not the carriage or the related loading or unloading of dangerous goods but which occasionally engage in the national carriage or the related loading or unloading of dangerous goods posing little danger or risk of pollution.

1.8.3.3 The main task of the adviser shall be, under the responsibility of the head of the undertaking, to seek by all appropriate means and by all appropriate action, within the limits of the relevant activities of that undertaking, to facilitate the conduct of those activities in accordance with the requirements applicable and in the safest possible way.

With regard to the undertaking's activities, the adviser has the following duties in particular:

- monitoring compliance with the requirements governing the carriage of dangerous goods;
- advising his undertaking on the carriage of dangerous goods;
- preparing an annual report to the management of his undertaking or a local public authority, as appropriate, on the undertaking's activities in the carriage of dangerous goods. Such annual reports shall be preserved for five years and made available to the national authorities at their request.

The adviser's duties also include monitoring the following practices and procedures relating to the relevant activities of the undertaking:

- the procedures for compliance with the requirements governing the identification of dangerous goods being transported;
- the undertaking's practice in taking account, when purchasing means of transport, of any special requirements in connection with the dangerous goods being transported;
- the procedures for checking the equipment used in connection with the carriage, loading or unloading of dangerous goods;
- the proper training of the undertaking's employees and the maintenance of records of such training;
- the implementation of proper emergency procedures in the event of any accident or incident that may affect safety during the carriage, loading or unloading of dangerous goods;

- investigating and, where appropriate, preparing reports on serious accidents, incidents or serious infringements recorded during the carriage, loading or unloading of dangerous goods;
- the implementation of appropriate measures to avoid the recurrence of accidents, incidents or serious infringements;
- the account taken of the legal prescriptions and special requirements associated with the carriage of dangerous goods in the choice and use of sub-contractors or third parties;
- verification that employees involved in the carriage, loading or unloading of dangerous goods have detailed operational procedures and instructions,
- the introduction of measures to increase awareness of the risks inherent in the carriage, loading and unloading of dangerous goods;
- the implementation of verification procedures to ensure the presence on board means of transport of the documents and safety equipment which must accompany transport and the compliance of such documents and equipment with the regulations;
- the implementation of verification procedures to ensure compliance with the requirements governing loading and unloading.

1.8.3.4 The adviser may also be the head of the undertaking, a person with other duties in the undertaking, or a person not directly employed by that undertaking, provided that that person is capable of performing the duties of adviser.

1.8.3.5 Each undertaking concerned shall, on request, inform the competent authority or the body designated for that purpose by each Contracting Party of the identity of its adviser.

1.8.3.6 Whenever an accident affects persons, property or the environment or results in damage to property or the environment during carriage, loading or unloading carried out by the undertaking concerned, the adviser shall, after collecting all the relevant information, prepare an accident report to the management of the undertaking or to a local public authority, as appropriate. That report shall not replace any report by the management of the undertaking which might be required under any other international or national legislation.

1.8.3.7 An adviser shall hold a vocational training certificate, valid for transport by road. That certificate shall be issued by the competent authority or the body designated for that purpose by each Contracting Party.

1.8.3.8 To obtain a certificate, a candidate shall undergo training and pass an examination approved by the competent authority of the Contracting Party.

1.8.3.9 The main aims of the training shall be to provide candidates with sufficient knowledge of the risks inherent in the carriage of dangerous goods, of the laws, regulations and administrative provisions applicable to the modes of transport concerned and of the duties listed in 1.8.3.3.

1.8.3.10 The examination shall be organized by the competent authority or by an examining body designated by the competent authority.

The examining body shall be designated in writing. This approval may be of limited duration and shall be based on the following criteria:

- competence of the examining body;
- specifications of the form of the examinations the examining body is proposing;
- measures intended to ensure that examinations are impartial;
- independence of the body from all natural or legal persons employing safety advisers.

## 1.8.3.11

The aim of the examination is to ascertain whether candidates possess the necessary level of knowledge to carry out the duties incumbent upon a safety adviser as listed in 1.8.3.3, for the purpose of obtaining the certificate prescribed in sub-section 1.8.3.7, and it shall cover at least the following subjects:

- (a) Knowledge of the types of consequences which may be caused by an accident involving dangerous goods and knowledge of the main causes of accidents;
- (b) Requirements under national law, international conventions and agreements, with regard to the following in particular:
  - classification of dangerous goods (procedure for classifying solutions and mixtures, structure of the list of substances, classes of dangerous goods and principles for their classification, nature of dangerous goods transported, physical, chemical and toxicological properties of dangerous goods);
  - general packing provisions, provisions for tanks and tank-containers (types, code, marking, construction, initial and periodic inspection and testing);
  - marking and labelling, placarding and orange plates marking (marking and labelling of packages, placing and removal of placards and orange plates);
  - particulars in transport documents (information required);
  - method of consignment and restrictions on dispatch (full load, carriage in bulk, carriage in intermediate bulk containers, carriage in containers, carriage in fixed or demountable tanks);
  - transport of passengers;
  - prohibitions and precautions relating to mixed loading;
  - segregation of goods;
  - limitation of the quantities carried and quantities exemptions;
  - handling and stowage (loading and unloading - filling ratios -, stowage and segregation);
  - cleaning and/or degassing before loading and after unloading;
  - crews, vocational training;
  - vehicle documents (transport document, instructions in writing, vehicle approval certificate, driver training certificate, copies of any derogations, other documents);
  - instructions in writing (implementation of the instructions and crew protection equipment);

- supervision requirements (parking);
- traffic regulations and restrictions;
- operational discharges or accidental leaks of pollutants;
- requirements relating to transport equipment.

1.8.3.12 The examination shall consist of a written test which may be supplemented by an oral examination.

The written examination shall consist of two parts:

(a) Candidates shall receive a questionnaire. It shall include at least 20 open questions covering at least the subjects mentioned in the list in 1.8.3.11. However, multiple choice questions may be used. In this case, two multiple choice questions count as one open question. Amongst these subjects particular attention shall be paid to the following subjects:

- general preventive and safety measures;
- classification of dangerous goods;
- general packing provisions, including tanks, tank-containers, tank-vehicles, etc.;
- danger markings and labels;
- information in transport document;
- handling and stowage;
- crew, vocational training;
- vehicle documents and transport certificates;
- instructions in writing;
- requirements concerning transport equipment.

(b) Candidates shall undertake a case study in keeping with the duties of the adviser referred to in 1.8.3.3, in order to demonstrate that they have the necessary qualifications to fulfil the task of adviser.

1.8.3.13 The Contracting Parties may decide that candidates who intend working for undertakings specializing in the carriage of certain types of dangerous goods need only be questioned on the substances relating to their activities. These types of goods are:

- Class 1;
- Class 2;
- Class 7;
- Classes 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 8 and 9;
- UN Nos. 1202, 1203 and 1223.



The certificate prescribed in 1.8.3.7 shall clearly indicate that it is only valid for one type of the dangerous goods referred to in this sub-section and on which the adviser has been questioned under the conditions defined in 1.8.3.12.

- 1.8.3.14 The competent authority or the examining body shall keep a running list of the questions that have been included in the examination.
- 1.8.3.15 The certificate prescribed in 1.8.3.7 shall take the form laid down in 1.8.3.18 and shall be recognized by all Contracting Parties.
- 1.8.3.16 The certificate shall be valid for five years. The period of validity of a certificate shall be extended automatically for five years at a time where, during the final year before its expiry, its holder has followed refresher courses or passed an examination both of which shall be approved by the competent authority.
- 1.8.3.17 The requirements set out in 1.8.3.1 to 1.8.3.16 shall be considered to have been fulfilled if the relevant conditions of Council Directive 96/35/EC of 3 June 1996 on the appointment and vocational qualification of safety advisers for the transport of dangerous goods by road, rail and inland waterway<sup>1</sup> and of Directive 2000/18/EC of the European Parliament and of the Council of 17 April 2000 on minimum examination requirements for safety advisers for the transport of dangerous goods by road, rail or inland waterway<sup>2</sup> are applied.

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<sup>1</sup> *Official Journal of the European Communities, No. L145 of 19 June 1996, page 10.*

<sup>2</sup> *Official Journal of the European Communities, No. L118 of 19 May 2000, page 41.*

**1.8.3.18 Form of certificate**

**Certificate of training as safety adviser for the transport of dangerous goods**

Certificate No: .....

Distinguishing sign of the State issuing the certificate: .....

Surname: .....

Forename(s): .....

Date and place of birth: .....

Nationality: .....

Signature of holder: .....

Valid until ..... for undertakings which transport dangerous goods and for undertakings which carry out related loading or unloading:

- by road                       by rail                       by inland waterway

Issued by: .....

Date: ..... Signature: .....

Extended until: ..... By: .....

Date: ..... Signature: .....

#### 1.8.4 List of competent authorities and bodies designated by them

The Contracting Parties shall communicate to the Secretariat of the United Nations Economic Commission for Europe the addresses of the authorities and bodies designated by them which are competent in accordance with national law to implement ADR, referring in each case to the relevant requirement of ADR and giving the addresses to which the relevant applications should be made.

The Secretariat of the United Nations Economic Commission for Europe shall establish a list on the basis of the information received and shall keep it up-to-date. It shall communicate this list and the amendments thereto to the Contracting Parties<sup>3</sup>.

#### 1.8.5 Notifications of occurrences involving dangerous goods

1.8.5.1 If a serious accident or incident takes place during the carriage of dangerous goods on the territory of a Contracting Party, the carrier shall ascertain that a report conforming to the model prescribed in 1.8.5.4 is made to the competent authority of the Contracting Party concerned.

1.8.5.2 The Contracting Party shall in turn, if necessary, make a report to the Secretariat of the United Nations Economic Commission for Europe with a view to informing the other Contracting Parties.

1.8.5.3 An occurrence subject to report in accordance with 1.8.5.1 has occurred if dangerous goods were released or if there was an imminent risk of loss of product, if personal injury, material or environmental damage occurred, or if the authorities were involved and one or more of the following criteria has/have been met:

Personal injury means an occurrence in which death or injury directly relating to the dangerous goods carried has occurred, and where the injury

- (a) requires intensive medical treatment,
- (b) requires a stay in hospital of at least one day, or
- (c) results in the inability to work for at least three consecutive days.

Loss of product means the release of dangerous goods

- (a) of transport category 0 or 1 in quantities of 50 kg / 50 l or more,
- (b) of transport category 2 in quantities of 333 kg / 333 l or more, or
- (c) of transport category 3 or 4 in quantities of 1 000 kg / 1 000 l or more.

The loss of product criterion also applies if there was an imminent risk of loss of product in the above-mentioned quantities. As a rule, this has to be assumed if, owing to structural damage, the means of containment is no longer suitable for further carriage or if, for any other reason, a sufficient level of safety is no longer ensured (e.g. owing to distortion of tanks or containers, overturning of a tank or fire in the immediate vicinity).

<sup>3</sup> A list of the competent authorities (up-to date on 1 July 2002) can be found in the Appendix to Part 1.

If dangerous goods of Class 6.2 are involved, the obligation to report applies without quantity limitation.

In occurrences involving Class 7 material, the criteria for loss of product are:

- (a) Any release of radioactive material from the packages;
- (b) Exposure leading to a breach of the limits set out in the regulations for protection of workers and members of the public against ionizing radiation (Schedule II of IAEA Safety Series No. 115 – "International Basic Safety Standards for Protection Against Ionizing Radiation and for Safety of Radiation Sources"); or
- (c) Where there is reason to believe that there has been a significant degradation in any package safety function (containment, shielding, thermal protection or criticality) that may have rendered the package unsuitable for continued carriage without additional safety measures.

*NOTE: See the requirements of 7.5.11 CV33 (6) for undeliverable consignments.*

Material damage or environmental damage means the release of dangerous goods, irrespective of the quantity, where the estimated amount of damage exceeds 50,000 Euros. Damage to any directly involved means of carriage containing dangerous goods and to the modal infrastructure shall not be taken into account for this purpose.

Involvement of authorities means the direct involvement of the authorities or emergency services during the occurrence involving dangerous goods and the evacuation of persons or closure of public traffic routes (roads/railways) for at least three hours owing to the danger posed by the dangerous goods.

If necessary, the competent authority may request further relevant information.

#### 1.8.5.4

*Model for report on occurrences during the carriage of dangerous goods*

**Report on occurrences during the carriage of dangerous goods  
in accordance with RID/ADR section 1.8.5**

Carrier/Railway infrastructure operator: .....
Address: .....
Contact name: ..... Telephone: ..... Fax: .....

*(The competent authority shall remove this cover sheet before forwarding the report)*



6. Dangerous goods involved						
UN Number <sup>(1)</sup>	Class	Packing Group	Estimated quantity of loss of products (kg or l) <sup>(2)</sup>	Means of containment <sup>(3)</sup>	Means of containment material	Type of failure of means of containment <sup>(4)</sup>
<sup>(1)</sup> For dangerous goods assigned to collective entries to which special provision 274 applies, also the technical name shall be indicated.			<sup>(2)</sup> For Class 7, indicate values according to the criteria in 1.8.5.3.			
<sup>(3)</sup> Indicate the appropriate number 1 Packaging 2 IBC 3 Large packaging 4 Small container 5 Wagon 6 Vehicle 7 Tank-wagon 8 Tank-vehicle 9 Battery-wagon 10 Battery-vehicle 11 Wagon with demountable tanks 12 Demountable tank 13 Large container 14 Tank-container 15 MEGC 16 Portable tank			<sup>(4)</sup> Indicate the appropriate number 1 Loss 2 Fire 3 Explosion 4 Structural failure			
7. Cause of occurrence (if clearly known)						
<input type="checkbox"/> Technical fault <input type="checkbox"/> Load security <input type="checkbox"/> Operational cause (rail operation) <input type="checkbox"/> Other: ..... .....						
8. Consequences of occurrence						
<u>Personal injury in connection with the dangerous goods involved:</u> <input type="checkbox"/> Deaths (number: .....) <input type="checkbox"/> Injured (number: .....)  <u>Loss of product:</u> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Imminent risk of loss of product  <u>Material/Environmental damage</u> <input type="checkbox"/> Estimated level of damage ≤ 50,000 Euros <input type="checkbox"/> Estimated level of damage > 50,000 Euros  <u>Involvement of authorities:</u> <input type="checkbox"/> Yes <input type="checkbox"/> Evacuation of persons for a duration of at least three hours caused by the dangerous goods involved <input type="checkbox"/> Closure of public traffic routes for a duration of at least three hours caused by the dangerous goods involved <input type="checkbox"/> No						

*If necessary, the competent authority may request further relevant information.*

**CHAPTER 1.9****TRANSPORT RESTRICTIONS BY THE COMPETENT AUTHORITIES**

- 1.9.1 In accordance with Article 4, paragraph 1 of ADR, the entry of dangerous goods into the territory of Contracting Parties may be subject to regulations or prohibitions imposed for reasons other than safety during carriage. Such regulations or prohibitions shall be published in an appropriate form.
- 1.9.2 Subject to the provisions of 1.9.3, a Contracting Party may apply to vehicles engaged in the international carriage of dangerous goods by road on its territory certain additional provisions not included in ADR, provided that those provisions do not conflict with Article 2, paragraph 2 of the Agreement, and are contained in its domestic legislation applying equally to vehicles engaged in the domestic carriage of dangerous goods by road on the territory of that Contracting Party.
- 1.9.3 Additional provisions falling within the scope of 1.9.2 are as follows:
- (a) Additional safety requirements or restrictions concerning vehicles using certain structures such as bridges or tunnels, vehicles using combined transport modes such as ferries or trains, or vehicles entering or leaving ports or other transport terminals;
  - (b) Requirements for vehicles to follow prescribed routes to avoid commercial or residential areas, environmentally sensitive areas, industrial zones containing hazardous installations or roads presenting severe physical hazards;
  - (c) Emergency requirements regarding routeing or parking of vehicles carrying dangerous goods resulting from extreme weather conditions, earthquake, accident, industrial action, civil disorder or military hostilities;
  - (d) Restrictions on movement of dangerous goods traffic on certain days of the week or year.
- 1.9.4 The competent authority of the Contracting Party applying on its territory any additional provisions within the scope of 1.9.3 (a) and (d) above shall notify the Secretariat of the United Nations Economic Commission for Europe of the additional provisions, which Secretariat shall bring them to the attention of the Contracting Parties.



**CHAPTER 1.10**

***(RESERVED)***

## APPENDIX TO PART 1

LIST OF COMPETENT AUTHORITIES  
(up-to-date on 1 July 2002)

**NOTE 1:** This Appendix is not part of ADR. It has been included in this publication for information purposes.

**NOTE 2:** The list of competent authorities is periodically updated on the web site of the Secretariat of the United Nations Economic Commission for Europe (<http://www.unece.org/trans/danger/publi/adr/comp.htm>).

<p><b>AUSTRIA</b></p> <p>Bundesministerium für Verkehr, Innovation und Technologie Verwaltungsbereich Verkehr Abteilung II/B/9 Radetzkystrasse 2 A - 1030 VIENNA</p>	<p>Telephone: + 43 1 71 162 15 00 Telex: 111 800 Telefax: + 43 1 71 162 15 99 E-mail: <a href="mailto:gustav.kafka@bmv.gv.at">gustav.kafka@bmv.gv.at</a></p>
<p><b>AZERBAIJAN</b></p> <p>Azeravtonagliyyat Block 1054 Tbilisi av. 370602 BAKU</p>	<p>Telephone: + 899 22 98 56 09 + 899 22 31 91 11 Telefax: + 899 22 98 38 19</p>
<p><b>BELARUS</b></p> <p>Committee of the Republic of Belarus for ensuring the safe performance of work in Industry and Atomic Energy (Promatomnadzor) Ul. Kazintsa 86/1 SU - 220108 MINSK Président : Mr. Vladimir Ivanovich YATSEVICH</p> <p><i>Contact person:</i> <b>Mr. Ivan Ivanovic VLASOV</b> Chief of InternBranch Inspectorate for the safe carriage of dangerous goods by motor vehicle</p>	<p>Telephone: + 375 172 78 43 00 Telefax: + 375 172 78 43 02</p> <p>Telephone/Telefax: + 375 172 78 43 45</p>
<p><b>BELGIUM</b></p> <p>Ministère des Communications Administration de la Règlementation de la Circulation et de l'Infrastructure Service ADR Résidence Palace, Bloc C, 5ème étage Rue de la Loi 155, B-1000 BRUXELLES (Cont. on next page)</p>	<p>Telephone: + 32 2 287 44/93 to 99 Telex: TRANS B 23285 Telefax: + 32 2 287 4510</p>

<p><b>BELGIUM (cont'd)</b></p> <p><b>Goods of Class 1</b>  Ministère des Affaires économiques  Administration des Mines  Service des explosifs  Boulevard du Roi Albert II, 16  B - 1000 BRUXELLES</p> <p><b>Material of Class 7</b>  Ministère de la Santé Publique  Administration de l'hygiène publique  Service de la Protection contre les radiations ionisantes  Ravenstein 36  B - 1000 BRUXELLES</p>	<p>Telephone: + 32 2 206 48 01  Telefax: + 32 2 206 57 51</p> <p>Telephone: + 32 2 289 21 81  + 32 2 289 21 83  Telefax: + 32 2 289 21 82</p>
<p><b>BOSNIA AND HERZEGOVINA</b></p> <p>Ministry of Transport of Bosnia and Herzegovina  c/o Permanent Mission of the Republic of Bosnia and Herzegovina  22 bis, rue Lamartine  CH - 1203 GENEVA</p>	<p>Telephone: + 41 22 345 88 44  Telefax: + 41 22 345 88 89</p>
<p><b>BULGARIA</b></p> <p>Ministry of Transport and Communications  Road Transport Administration  5, Gurko Str.  BG - 1000 SOFIA</p> <p><b>Goods of Class 1</b>  Directorate of National Police  235 Slivnitsa Blvd  BG - 1202 SOFIA</p> <p><b>Material of Class 7</b>  Committee on the Use of Atomic Energy for Peace Purposes  69 Shipchensky Prokhod Blvd.  B - 1574 SOFIA</p>	<p>Telephone: + 359 2 930 88 40  Telefax: + 359 2 988 54 95  E-mail: <a href="mailto:btzenev@mtc.govern.bg">btzenev@mtc.govern.bg</a></p> <p>Telephone: + 359 2 982 22 31  Telefax: + 359 2 983 56 77</p> <p>Telephone: + 359 2 940 68 52  Telefax: + 359 2 940 68 89  E-mail: <a href="mailto:rumi-g@bnsa.bas.bg">rumi-g@bnsa.bas.bg</a></p>
<p><b>CROATIA</b></p> <p>Ministry of Transport  Ministarstvo prometa  Prisavlje 14,  HR - 41000 ZAGREB</p>	<p>Telephone: + 385 1 616 9111  Telefax: + 385 1 518 113</p>
<p><b>CZECH REPUBLIC</b></p> <p>Ministry of Transport and Communications  Nábř. Ludvíka Svobody 12  PO BOX 9  CZ - 110 15 PRAGUE 1 - Nové Město  (Cont. on next page)</p>	<p>Telephone: + 42 02 660 97 414  Telefax: + 42 02 660 97 417</p>

<p><b>CZECH REPUBLIC (cont'd)</b></p> <p><i>Material of Class 7</i>  State Office for Nuclear Safety  Senovážné náměstí 9  CZ - 110 00 PRAGUE 1</p>	<p>Telephone: + 42 2 216 24 111  Telefax: + 42 2 216 24 704</p>
<p><b>DENMARK</b></p> <p>Road Safety and Transport Agency  Adelgade 13  P.O. Box 9039  DK - 1304 COPENHAGEN K</p> <p><i>Material of Class 7</i>  National Institute of Radiation Hygiene  Knapholm 7  DK - 2730 HERLEV</p>	<p>Telephone: + 45 33 92 91 00  Telefax: + 45 33 93 22 92  E-mail: <a href="mailto:fstyr@fstyr.dk">fstyr@fstyr.dk</a></p> <p>Telephone: + 45 44 54 34 54  Telefax: + 45 44 54 34 50  E-mail: <a href="mailto:sis@sis.dk">sis@sis.dk</a></p>
<p><b>ESTONIA</b></p> <p>Ministry of Transport and Communications  Road Traffic Department  9, Viru Str.  EE - 15081 TALLINN</p>	<p>Telephone: + 372 6 313 687  Telefax: + 372 6 312 681</p>
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<p><b>FRANCE</b></p> <p>Ministère des transports  Mission du transport des  matières dangereuses  Arche Sud  F - 92055 PARIS LA DEFENSE CEDEX</p> <p><i>Material of Class 7</i>  Direction générale de la sûreté nucléaire et de la  radioprotection (DGSNR)  99, rue de Grenelle  F - 75353 PARIS 07 SP</p>	<p>Telephone: + 33 1 40 81 17 28  Telefax: + 33 1 40 81 10 65  E-mail: <a href="mailto:md.dtt@equipement.gouv.fr">md.dtt@equipement.gouv.fr</a></p> <p>Telephone: +33 1 43 19 32 17  Telefax: +33 1 43 19 39 24</p>
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**PART 2**  
**Classification**

## CHAPTER 2.1

## GENERAL PROVISIONS

## 2.1.1 Introduction

2.1.1.1 The classes of dangerous goods according to ADR are the following:

Class 1	Explosive substances and articles
Class 2	Gases
Class 3	Flammable liquids
Class 4.1	Flammable solids, self-reactive substances and solid desensitized explosives
Class 4.2	Substances liable to spontaneous combustion
Class 4.3	Substances which, in contact with water, emit flammable gases
Class 5.1	Oxidizing substances
Class 5.2	Organic peroxides
Class 6.1	Toxic substances
Class 6.2	Infectious substances
Class 7	Radioactive material
Class 8	Corrosive substances
Class 9	Miscellaneous dangerous substances and articles

2.1.1.2 Each entry in the different classes has been assigned a UN number. The following types of entries are used:

- A. Single entries for well defined substances or articles including entries for substances covering several isomers, e.g.:
- |             |                        |
|-------------|------------------------|
| UN No. 1090 | ACETONE                |
| UN No. 1104 | AMYL ACETATES          |
| UN No. 1194 | ETHYL NITRITE SOLUTION |
- B. Generic entries for a well defined group of substances or articles, which are not n.o.s. entries, e.g.:
- |             |                                   |
|-------------|-----------------------------------|
| UN No. 1133 | ADHESIVES                         |
| UN No. 1266 | PERFUMERY PRODUCTS                |
| UN No. 2757 | CARBAMATE PESTICIDE, SOLID, TOXIC |
| UN No. 3101 | ORGANIC PEROXIDE TYPE B, LIQUID   |
- C. Specific n.o.s. entries covering a group of substances or articles of a particular chemical or technical nature, not otherwise specified, e.g.:
- |             |                             |
|-------------|-----------------------------|
| UN No. 1477 | NITRATES, INORGANIC, N.O.S. |
| UN No. 1987 | ALCOHOLS, FLAMMABLE, N.O.S. |
- D. General n.o.s. entries covering a group of substances or articles having one or more dangerous properties, not otherwise specified, e.g.:
- |             |                                  |
|-------------|----------------------------------|
| UN No. 1325 | FLAMMABLE SOLID, ORGANIC, N.O.S. |
| UN No. 1993 | FLAMMABLE LIQUID, N.O.S.         |

The entries defined under B., C. and D. are defined as collective entries.

- 2.1.1.3 For packing purposes, substances other than those of Classes 1, 2, 5.2, 6.2 and 7, and other than self-reactive substances of Class 4.1 are assigned to packing groups in accordance with the degree of danger they present:

Packing group I: Substances presenting high danger;  
 Packing group II: Substances presenting medium danger;  
 Packing group III: Substances presenting low danger.

The packing group(s) to which a substance is assigned is (are) indicated in Table A of Chapter 3.2.

## 2.1.2 Principles of classification

- 2.1.2.1 The dangerous goods covered by the heading of a class are defined on the basis of their properties according to sub-section 2.2.x.1 of the relevant class. Assignment of dangerous goods to a class and a packing group is made according to the criteria mentioned in the same sub-section 2.2.x.1. Assignment of one or several subsidiary risk(s) to a dangerous substance or article is made according to the criteria of the class or classes corresponding to those risks, as mentioned in the appropriate sub-section(s) 2.2.x.1.
- 2.1.2.2 All dangerous goods entries are listed in Table A of Chapter 3.2 in the numerical order of their UN Number. This table contains relevant information on the goods listed, such as name, class, packing group(s), label(s) to be affixed, packing and carriage provisions<sup>1</sup>.
- 2.1.2.3 Dangerous goods which are listed or defined in sub-section 2.2.x.2 of each class are not to be accepted for carriage.
- 2.1.2.4 Goods not mentioned by name, i.e. goods not listed as single entries in Table A of Chapter 3.2 and not listed or defined in one of the above-mentioned sub-sections 2.2.x.2 shall be assigned to the relevant class in accordance with the procedure of section 2.1.3. In addition, the subsidiary risk (if any) and the packing group (if any) shall be determined. Once the class, subsidiary risk (if any) and packing group (if any) have been established the relevant UN number shall be determined. The decision trees in sub-sections 2.2.x.3 (list of collective entries) at the end of each class indicate the relevant parameters for selecting the relevant collective entry (UN number). In all cases the most specific collective entry covering the properties of the substance or article shall be selected, according to the hierarchy indicated in 2.1.1.2 by the letters B, C and D respectively. If the substance or article cannot be classified under entries of type B or C according to 2.1.1.2, then, and only then shall it be classified under an entry of type D.
- 2.1.2.5 On the basis of the test procedures of Chapter 2.3 and the criteria set out in sub-sections 2.2.x.1 of classes when it is so specified, it may be determined that a substance, solution or mixture of a certain class, mentioned by name in Table A of Chapter 3.2, does not meet the criteria of that class. In such a case, the substance, solution or mixture is deemed not to belong to that class.
- 2.1.2.6 For the purposes of classification, substances with a melting point or initial melting point of 20 °C or lower at a pressure of 101.3 kPa shall be considered to be liquids. A viscous substance for which a specific melting point cannot be determined shall be subjected to the ASTM D 4359-90 test or to the test for determining fluidity (penetrometer test) prescribed in 2.3.4.

<sup>1</sup> *An alphabetic list of these entries has been prepared by the secretariat and is reproduced in Table B of Chapter 3.2. This table is not an official part of the ADR.*

**2.1.3 Classification of substances, including solutions and mixtures (such as preparations and wastes), not mentioned by name**

2.1.3.1 Substances including solutions and mixtures not mentioned by name shall be classified according to their degree of danger on the basis of the criteria mentioned in sub-section 2.2.x.1 of the various classes. The danger(s) presented by a substance shall be determined on the basis of its physical and chemical characteristics and physiological properties. Such characteristics and properties shall also be taken into account when such experience leads to a more stringent assignment.

2.1.3.2 A substance not mentioned by name in Table A of Chapter 3.2 presenting a single hazard shall be classified in the relevant class under a collective entry listed in sub-section 2.2.x.3 of that class.

2.1.3.3 A solution or mixture containing only one dangerous substance mentioned by name in Table A of Chapter 3.2, together with one or more non-dangerous substance(s), shall be regarded as the dangerous substance listed by name, unless:

- (a) The solution or mixture is specifically mentioned by name in Table A of Chapter 3.2; or
- (b) It is quite clear from the entry for the dangerous substance that it is applicable only to the pure or technically pure substance; or
- (c) The class, physical state or packing group of the solution or mixture is different from that of the dangerous substance.

In the cases referred to under (b) or (c) above, the solution or mixture shall be classified as a substance not mentioned by name in the relevant class under a collective entry listed in sub-section 2.2.x.3 of that class taking account of the subsidiary risks presented by that solution or mixture, if any, unless the solution or mixture do not meet the criteria of any class, in which case they are not subject to ADR.

2.1.3.4 Solutions and mixtures containing one of the following substances mentioned by name shall always be classified under the same entry as the substance they contain, provided they do not have the hazard characteristics as indicated in 2.1.3.5:

- Class 3

UN No. 1921 PROPYLENEIMINE, STABILIZED; UN No. 2481 ETHYL ISOCYANATE; UN No. 3064 NITROGLYCERIN SOLUTION IN ALCOHOL with more than 1% but not more than 5% nitroglycerin;

- Class 6.1

UN No. 1051 HYDROGEN CYANIDE, STABILIZED, containing less than 3% water; UN No. 1185 ETHYLENEIMINE, STABILIZED; UN No. 1259 NICKEL CARBONYL; UN No. 1613 HYDROGEN CYANIDE, AQUEOUS SOLUTION (hydrocyanic acid), with not more than 20% hydrogen cyanide; UN No. 1614 HYDROGEN CYANIDE, STABILIZED, containing not more than 3% water and absorbed in a porous inert material; UN No. 1994 IRON PENTACARBONYL; UN No. 2480 METHYL ISOCYANATE; UN No. 3294 HYDROGEN CYANIDE, SOLUTION IN ALCOHOL, with not more than 45% hydrogen cyanide;

Class 8

UN No. 1052 HYDROGEN FLUORIDE, ANHYDROUS; UN No. 1744 BROMINE or UN No. 1744 BROMINE SOLUTION; UN No. 1790 HYDROFLUORIC ACID with more than 85% hydrogen fluoride; UN No. 2576 PHOSPHORUS OXYBROMIDE, MOLTEN;

Class 9

UN No. 2315 POLYCHLORINATED BIPHENYLS; UN No. 3151 POLYHALOGENATED BIPHENYLS, LIQUID or UN No. 3151 POLYHALOGENATED TERPHENYLS, LIQUID; UN No. 3152 POLYHALOGENATED BIPHENYLS, SOLID or UN No. 3152 POLYHALOGENATED TERPHENYLS, SOLID, unless they contain one of the substances of Class 3 or Class 6.1 or Class 8 listed above; in which case they shall be classified accordingly.

2.1.3.5 Substances not mentioned by name in Table A of Chapter 3.2, having more than one hazard characteristic and solutions or mixtures containing several dangerous substances shall be classified under a collective entry (see 2.1.2.4) and packing group of the appropriate class in accordance with their hazard characteristics. Such classification according to the hazard characteristics shall be carried out as follows:

2.1.3.5.1 The physical and chemical characteristics and physiological properties shall be determined by measurement or calculation and the substance, solution or mixture shall be classified according to the criteria mentioned in sub-section 2.2.x.1 of the various classes.

2.1.3.5.2 If this determination is not possible without disproportionate cost or effort (as for some kinds of wastes), the substance, solution or mixture shall be classified in the class of the component presenting the major hazard.

2.1.3.5.3 If the hazard characteristics of the substance, solution or mixture fall within more than one class or group of substances listed below then the substance, solution or mixture shall be classified in the class or group of substances corresponding to the major hazard on the basis of the following order of precedence:

- (a) Material of Class 7 (apart from radioactive material in excepted packages where the other hazardous properties take precedence);
- (b) Substances of Class 1;
- (c) Substances of Class 2;
- (d) Liquid desensitized explosives of Class 3;
- (e) Self-reactive substances and solid desensitized explosives of Class 4.1;
- (f) Pyrophoric substances of Class 4.2;
- (g) Substances of Class 5.2;
- (h) Substances of Class 6.1 or Class 3 which, on the basis of their inhalation toxicity, are to be classified under Packing group I [Substances meeting the classification criteria of Class 8 and having an inhalation toxicity of dust and mist (LC<sub>50</sub>) in the range of Packing group I and a toxicity through oral ingestion or dermal contact only in the range of Packing group III or less, shall be allocated to Class 8];
- (i) Infectious substances of Class 6.2.

- 2.1.3.5.4 If the hazard characteristics of the substance fall within more than one class or group of substances not listed in 2.1.3.5.3 above, the substance shall be classified in accordance with the same procedure but the relevant class shall be selected according to the precedence of hazards table in 2.1.3.9.
- 2.1.3.6 The most specific applicable collective entry (see 2.1.2.4) shall always be used, i.e. a general n.o.s. entry shall only be used if a generic entry or a specific n.o.s. entry cannot be used.
- 2.1.3.7 Solutions and mixtures of oxidizing substances or substances with an oxidizing subsidiary risk may have explosive properties. In such a case they are not to be accepted for carriage unless they meet the requirements for Class 1.
- 2.1.3.8 For the purposes of ADR, substances, solutions and mixtures (such as preparations and wastes) which cannot be assigned to Classes 1 to 8 or Class 9 entries other than UN Nos. 3077 and 3082, but which may be assigned to UN Nos. 3077 or 3082 on the basis of the test methods and criteria of section 2.3.5 shall be considered to be pollutant to the aquatic environment. Solutions and mixtures (such as preparations and wastes) for which no data conforming to the classification criteria are available shall be considered to be pollutant to the aquatic environment if the  $LC_{50}^2$  (see definitions in 2.3.5.1, 2.3.5.2 and 2.3.5.3) evaluated according to the following formula:

$$LC_{50} = \frac{LC_{50} \text{ of the pollutant} \times 100}{\text{percentage of the pollutant (by mass)}}$$

is equal to or lower than:

- (a) 1 mg/l; or
- (b) 10 mg/l if the pollutant is not readily biodegradable or, being biodegradable, has a  $\log P_{ow} \geq 3.0$  (see also 2.3.5.6).

<sup>2</sup> Lowest value of 96-hour  $LC_{50}$ , 48-hour  $EC_{50}$  or 72-hour  $IC_{50}$  as appropriate.

2.1.3.9 Table of precedence of hazards

Class and packing group	4.1, II	4.1, III	4.2, II	4.2, III	4.3, I	4.3, II	4.3, III	5.1, I	5.1, II	5.1, III	6.1, I DERMAL	6.1, I ORAL	6.1, III	8, I	8, II	8, III	9
3, I	SOL LIQ 4.1 3.1	SOL LIQ 4.1 3.1	SOL LIQ 4.2 3.1	SOL LIQ 4.2 3.1	4.3, I	4.3, I	4.3, I	SOL LIQ 5.1, I 3.1	SOL LIQ 5.1, I 3.1	SOL LIQ 5.1, I 3.1	3, I	3, I	3, I	3, I	3, I	3, I	3, I
3, II	SOL LIQ 4.1 3.1	SOL LIQ 4.1 3.1	SOL LIQ 4.2 3.1	SOL LIQ 4.2 3.1	4.3, I	4.3, II	4.3, II	SOL LIQ 5.1, I 3.1	SOL LIQ 5.1, I 3.1	SOL LIQ 5.1, I 3.1	3, I	3, II	3, II	8, I	3, II	3, II	3, II
3, III	SOL LIQ 4.1 3.1	SOL LIQ 4.1 3.1	SOL LIQ 4.2 3.1	SOL LIQ 4.2 3.1	4.3, I	4.3, III	4.3, III	SOL LIQ 5.1, I 3.1	SOL LIQ 5.1, I 3.1	SOL LIQ 5.1, III 3, III	6.1, I	6.1, II	3, III*	8, I	8, II	3, III	3, III
4.1, II			4.2, II	4.2, II	4.3, I	4.3, II	4.3, II	4.1, I	4.1, II	4.1, II	6.1, I	SOL LIQ 4.1, II 6.1, II	SOL LIQ 4.1, II 6.1, II	8, I	SOL LIQ 4.1, II 8, II	SOL LIQ 4.1, II 8, II	4.1, II
4.1, III			4.2, II	4.2, III	4.3, I	4.3, II	4.3, III	4.1, I	4.1, II	4.1, III	6.1, I	6.1, II	SOL LIQ 4.1, III 6.1, III	8, I	8, II	SOL LIQ 4.1, III 8, III	4.1, III
4.2, II			4.2, II		4.3, I	4.3, II	4.3, II	4.2, I	4.2, II	4.2, II	6.1, I	6.1, I	4.2, II	8, I	4.2, II	4.2, II	4.2, II
4.2, III					4.3, I	4.3, II	4.3, III	5.1, I	5.1, II	4.2, III	6.1, I	6.1, II	4.2, III	8, I	8, II	4.2, III	4.2, III
4.3, I					4.3, I	4.3, II	4.3, II	5.1, I	4.3, I	4.3, I	6.1, I	4.3, I	4.3, I	4.3, I	4.3, I	4.3, I	4.3, I
4.3, II					4.3, I	4.3, II	4.3, II	5.1, I	4.3, II	4.3, II	6.1, I	4.3, II	4.3, II	8, I	4.3, II	4.3, II	4.3, II
4.3, III					4.3, I	4.3, II	4.3, III	5.1, I	4.3, III	4.3, III	6.1, I	6.1, II	4.3, III	8, I	8, II	4.3, III	4.3, III
5.1, I											5.1, I	5.1, I	5.1, I	5.1, I	5.1, I	5.1, I	5.1, I
5.1, II											5.1, I	5.1, II	5.1, II	8, I	5.1, II	5.1, II	5.1, II
5.1, III											6.1, I	6.1, II	5.1, III	8, I	8, II	5.1, III	5.1, III
6.1, I DERMAL														SOL LIQ 6.1, I 8, I	6.1, I	6.1, I	6.1, I
6.1, I ORAL														SOL LIQ 6.1, I 8, I	6.1, I	6.1, I	6.1, I
6.1, II INHAL														SOL LIQ 6.1, I 8, I	6.1, II	6.1, II	6.1, II
6.1, II DERMAL														SOL LIQ 6.1, I 8, I	SOL LIQ 6.1, I 8, I	6.1, II	6.1, II
6.1, II ORAL														8, I	SOL LIQ 6.1, II	6.1, II	6.1, II
6.1, III														8, I	6.1, III 8, II	8, III	6.1, III
8, I														8, I	8, II	8, III	8, I
8, II																	8, II
8, III																	8, III

SOL = Solid substances and mixtures  
 LIQ = Liquid substances, mixtures and solutions  
 DERMAL = Dermal toxicity  
 ORAL = Oral toxicity  
 INHAL = Inhalation toxicity  
 \* Class 6.1 for pesticides



**NOTE 1: Examples to explain the use of the table****Classification of a single substance**

*Description of the substance to be classified:*

*An amine not mentioned by name meeting the criteria for Class 3, packing group II as well as those for Class 8, packing group I.*

*Procedure:*

*The intersection of line 3 II with column 8 I gives 8 I.*

*This amine has therefore to be classified in Class 8 under:*

*UN No. 2734 AMINES LIQUID, CORROSIVE, FLAMMABLE, N.O.S. or UN No. 2734 POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. packing group I*

**Classification of a mixture**

*Description of the mixture to be classified:-*

*Mixture consisting of a flammable liquid classified in Class 3, packing group III, a toxic substance in Class 6.1, packing group II and a corrosive substance in Class 8, packing group I.*

*Procedure*

*The intersection of line 3 III with column 6.1 II gives 6.1 II.*

*The intersection of line 6.1 II with column 8 I LIQ gives 8 I.*

*This mixture not further defined has therefore to be classified in Class 8 under:*

*UN No. 2922 CORROSIVE LIQUID, TOXIC, N.O.S. packing group I.*

**NOTE 2: Examples for the classification of mixtures and solutions under a class and a packing group:**

*A phenol solution of Class 6.1, (II), in benzene of Class 3, (II) is to be classified in Class 3, (II); this solution is to be classified under UN No. 1992 FLAMMABLE LIQUID, TOXIC, N.O.S., Class 3, (II), by virtue of the toxicity of the phenol.*

*A solid mixture of sodium arsenate of Class 6.1, (II) and sodium hydroxide of Class 8, (II) is to be classified under UN No. 3290 TOXIC SOLID, CORROSIVE, INORGANIC, N.O.S., in Class 6.1 (II).*

*A solution of crude or refined naphthalene of Class 4.1, (III) in petrol of Class 3, (II), is to be classified under UN No. 3295 HYDROCARBONS, LIQUID, N.O.S. in Class 3, (II).*

*A mixture of hydrocarbons of Class 3, (III), and of polychlorinated biphenyls (PCB) of Class 9, (II), is to be classified under UN No. 2315 POLYCHLORINATED BIPHENYLS in Class 9, (II).*

*A mixture of propyleneimine of Class 3, and polychlorinated biphenyls (PCB) of Class 9, (II), is to be classified under UN No. 1921 PROPYLENEIMINE, INHIBITED in Class 3.*

**2.1.4 Classification of samples**

2.1.4.1 When the class of a substance is uncertain and it is being carried for further testing, a tentative class, proper shipping name and UN number shall be assigned on the basis of the consignor's knowledge of the substance and application of:

- (a) the classification criteria of Chapter 2.2; and
- (b) the requirements of this Chapter.

The most severe packing group possible for the proper shipping name chosen shall be used.

Where this provision is used the proper shipping name shall be supplemented with the word "SAMPLE" (e.g., "FLAMMABLE LIQUID, N.O.S., SAMPLE"). In certain instances, where a specific proper shipping name is provided for a sample of a substance considered to meet certain classification criteria (e.g., GAS SAMPLE, NON-PRESSURIZED, FLAMMABLE, UN No. 3167) that proper shipping name shall be used. When an N.O.S. entry is used to carry the sample, the proper shipping name need not be supplemented with the technical name as required by special provision 274 of Chapter 3.3.

2.1.4.2 Samples of the substance shall be carried in accordance with the requirements applicable to the tentative assigned proper shipping name provided:

- (a) The substance is not considered to be a substance not accepted for carriage by sub-sections 2.2.x.2 of Chapter 2.2 or by Chapter 3.2;
- (b) The substance is not considered to meet the criteria for Class 1 or considered to be an infectious substance or a radioactive material;
- (c) The substance is in compliance with 2.2.41.1.15 or 2.2.52.1.9 if it is a self-reactive substance or an organic peroxide, respectively;
- (d) The sample is carried in a combination packaging with a net mass per package not exceeding 2.5 kg; and
- (e) The sample is not packed together with other goods.

## CHAPTER 2.2

## CLASS SPECIFIC PROVISIONS

## 2.2.1 Class 1 Explosive substances and articles

2.2.1.1 *Criteria*

## 2.2.1.1.1 The heading of Class 1 covers:

- (a) Explosive substances: solid or liquid substances (or mixtures of substances) capable by chemical reaction of producing gases at such a temperature and pressure and at such a speed as to cause damage to the surroundings.

Pyrotechnic substances: substances or mixtures of substances designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonating self-sustaining exothermic chemical reactions.

*NOTE 1: Substances which are not themselves explosive but which may form an explosive mixture of gas, vapour or dust are not substances of Class 1.*

*NOTE 2: Also excluded from Class 1 are: water- or alcohol-wetted explosives of which the water or alcohol content exceeds the limits specified and those containing plasticizers - these explosives are assigned to Class 3 or Class 4.1 - and those explosives which, on the basis of their predominant hazard, are assigned to Class 5.2.*

- (b) Explosive articles: articles containing one or more explosive or pyrotechnic substances.

*NOTE: Devices containing explosive or pyrotechnic substances in such small quantity or of such a character that their inadvertent or accidental ignition or initiation during carriage would not cause any manifestation external to the device by projection, fire, smoke, heat or loud noise are not subject to the requirements of Class 1.*

- (c) Substances and articles not mentioned above which are manufactured with a view to producing a practical effect by explosion or a pyrotechnic effect.

2.2.1.1.2 Any substance or article having or suspected of having explosive properties shall be considered for assignment to Class 1 in accordance with the tests, procedures and criteria prescribed in Part I, Manual of Tests and Criteria.

A substance or article assigned to Class 1 can only be accepted for carriage when it has been assigned to a name or n.o.s. entry listed in Table A of Chapter 3.2 and meets the criteria of the Manual of Tests and Criteria.

2.2.1.1.3 The substances and articles of Class 1 shall be assigned to a UN Number and a name or n.o.s. entry listed in Table A of Chapter 3.2. Interpretation of the names of substances and articles in Table A of Chapter 3.2 shall be based upon the glossary in 2.2.1.1.7.

Samples of new or existing explosive substances or articles carried for purposes including: testing, classification, research and development quality control, or as a commercial sample, other than initiating explosive, may be assigned to UN No. 0190 SAMPLES, EXPLOSIVE.

The assignment of explosive substances and articles not mentioned by name as such in Table A of Chapter 3.2 to an n.o.s. entry of Class 1 or UN No. 0190 SAMPLES, EXPLOSIVE as well as the assignment of certain substances the carriage of which is subject

to a specific authorization by the competent authority according to the special provisions referred to in Column (6) of Table A of Chapter 3.2 shall be made by the competent authority of the country of origin. This competent authority shall also approve in writing the conditions of carriage of these substances and articles. If the country of origin is not a Contracting Party to ADR, the classification and the conditions of carriage shall be recognized by the competent authority of the first country Contracting Party to ADR reached by the consignment.

2.2.1.1.4 Substances and articles of Class 1 shall have been assigned to a division in accordance with 2.2.1.1.5 and to a compatibility group in accordance with 2.2.1.1.6. The division shall be based on the results of the tests described in 2.3.0 and 2.3.1 applying the definitions in 2.2.1.1.5. The compatibility group shall be determined in accordance with the definitions in 2.2.1.1.6. The classification code shall consist of the division number and the compatibility group letter.

2.2.1.1.5 *Definition of divisions*

Division 1.1 Substances and articles which have a mass explosion hazard (a mass explosion is an explosion which affects almost the entire load virtually instantaneously).

Division 1.2 Substances and articles which have a projection hazard but not a mass explosion hazard.

Division 1.3 Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard:

(a) combustion of which gives rise to considerable radiant heat; or

(b) which burn one after another, producing minor blast or projection effects or both.

Division 1.4 Substances and articles which present only a slight risk of explosion in the event of ignition or initiation during carriage. The effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire shall not cause virtually instantaneous explosion of almost the entire contents of the package.

Division 1.5 Very insensitive substances having a mass explosion hazard which are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of carriage. As a minimum requirement they must not explode in the external fire test.

Division 1.6 Extremely insensitive articles which do not have a mass explosion hazard. The articles contain only extremely insensitive detonating substances and demonstrate a negligible probability of accidental initiation or propagation.

*NOTE: The risk from articles of Division 1.6 is limited to the explosion of a single article.*

2.2.1.1.6 *Definition of compatibility groups of substances and articles*

- A Primary explosive substance.
- B Article containing a primary explosive substance and not having two or more effective protective features. Some articles, such as detonators for blasting, detonator assemblies for blasting and primers, cap-type, are included, even though they do not contain primary explosives.
- C Propellant explosive substance or other deflagrating explosive substance or article containing such explosive substance.
- D Secondary detonating explosive substance or black powder or article containing a secondary detonating explosive substance, in each case without means of initiation and without a propelling charge, or article containing a primary explosive substance and having two or more effective protective features.
- E Article containing a secondary detonating explosive substance, without means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids).
- F Article containing a secondary detonating explosive substance with its own means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids) or without a propelling charge.
- G Pyrotechnic substance, or article containing a pyrotechnic substance, or article containing both an explosive substance and an illuminating, incendiary, tear- or smoke-producing substance (other than a water-activated article or one which contains white phosphorus, phosphides, a pyrophoric substance, a flammable liquid or gel or hypergolic liquids).
- H Article containing both an explosive substance and white phosphorus.
- J Article containing both an explosive substance and a flammable liquid or gel.
- K Article containing both an explosive substance and a toxic chemical agent.
- L Explosive substance or article containing an explosive substance and presenting a special risk (e.g. due to water activation or the presence of hypergolic liquids, phosphides or a pyrophoric substance) necessitating isolation of each type.
- N Articles containing only extremely insensitive detonating substances.
- S Substance or article so packed or designed that any hazardous effects arising from accidental functioning are confined within the package unless the package has been degraded by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder or prevent fire-fighting or other emergency response efforts in the immediate vicinity of the package.

*NOTE 1: Each substance or article, packed in a specified packaging, may be assigned to one compatibility group only. Since the criterion of compatibility group S is empirical, assignment to this group is necessarily linked to the tests for assignment of a classification code.*

*NOTE 2: Articles of compatibility groups D and E may be fitted or packed together with their own means of initiation provided that such means have at least two effective protective*

features designed to prevent an explosion in the event of accidental functioning of the means of initiation. Such packages shall be assigned to compatibility groups D or E.

**NOTE 3:** Articles of compatibility groups D and E may be packed together with their own means of initiation, which do not have two effective protective features (i.e. means of initiation assigned to compatibility group B), provided that they comply with mixed packing provision MP 21 of Section 4.1.10. Such packages shall be assigned to compatibility groups D or E.

**NOTE 4:** Articles may be fitted or packed together with their own means of ignition provided that the means of ignition cannot function during normal conditions of carriage.

**NOTE 5:** Articles of compatibility groups C, D and E may be packed together. Such packages shall be assigned to compatibility group E.

#### 2.2.1.1.7 Glossary of names

**NOTE 1:** The descriptions in the glossary are not intended to replace the test procedures, nor to determine the hazard classification of a substance or article of Class 1. Assignment to the correct division and a decision on whether Compatibility Group S is appropriate shall be based on testing of the product in accordance with the Manual of Tests and Criteria, Part I or by analogy with similar products which have already been tested and assigned in accordance with the procedures of the Manual of Tests and Criteria.

**NOTE 2:** The figures given after the names refer to the relevant UN numbers (Column 2 of Table A of Chapter 3.2). For the classification code, see 2.2.1.1.4.

**AIR BAG INFLATORS or AIR BAG MODULES or SEAT-BELT PRETENSIONERS:**  
UN No. 0503

Articles which contain pyrotechnic substances and are used as life-saving vehicle airbags or seat-belts.

**AMMUNITION, ILLUMINATING,** with or without burster, expelling charge or propelling charge: UN Nos. 0171, 0254, 0297

Ammunition designed to produce a single source of intense light for lighting up an area. The term includes illuminating cartridges, grenades and projectiles; and illuminating and target identification bombs.

**NOTE:** The following articles: *CARTRIDGES, SIGNAL; SIGNAL DEVICES HAND; SIGNALS, DISTRESS; FLARES, AERIAL; FLARES, SURFACE* are not included in this definition. They are listed separately.

**AMMUNITION, INCENDIARY,** liquid or gel, with burster, expelling charge or propelling charge: UN No. 0247

Ammunition containing liquid or gelatinous incendiary substance. Except when the incendiary substance is an explosive *per se*, it also contains one or more of the following: a propelling charge with primer and igniter charge; a fuze with burster or expelling charge.

AMMUNITION, INCENDIARY, WHITE PHOSPHORUS with burster, expelling charge or propelling charge: UN Nos. 0243, 0244

Ammunition containing white phosphorus as incendiary substance. It also contains one or more of the following: a propelling charge with primer and igniter charge; a fuze with burster or expelling charge.

AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge: UN Nos. 0009, 0010, 0300

Ammunition containing incendiary composition. Except when the composition is an explosive *per se*, it also contains one or more of the following: a propelling charge with primer and igniter charge; a fuze with burster or expelling charge.

AMMUNITION, PRACTICE: UN Nos. 0362, 0488

Ammunition without a main bursting charge, containing a burster or expelling charge. Normally it also contains a fuze and a propelling charge.

*NOTE: GRENADES, PRACTICE are not included in this definition. They are listed separately.*

AMMUNITION, PROOF: UN No. 0363

Ammunition containing pyrotechnic substances, used to test the performance or strength of new ammunition, weapon components or assemblies.

AMMUNITION, SMOKE, WHITE PHOSPHORUS, with burster, expelling charge or propelling charge: UN Nos. 0245, 0246

Ammunition containing white phosphorus as a smoke-producing substance. It also contains one or more of the following: a propelling charge with primer and igniter charge; a fuze with burster or expelling charge. The term includes grenades, smoke.

AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge: UN Nos. 0015, 0016, 0303

Ammunition containing a smoke-producing substance such as chlorosulphonic acid mixture or titanium tetrachloride; or a smoke-producing pyrotechnic composition based on hexachloroethane or red phosphorus. Except when the substance is an explosive *per se*, the ammunition also contains one or more of the following: a propelling charge with primer and igniter charge; a fuze with burster or expelling charge. The term includes grenades, smoke.

*NOTE: SIGNALS, SMOKE are not included in this definition. They are listed separately.*

AMMUNITION, TEAR-PRODUCING, with burster, expelling charge or propelling charge: UN Nos. 0018, 0019, 0301

Ammunition containing a tear-producing substance. It also contains one or more of the following: a pyrotechnic substance; a propelling charge with primer and igniter charge; a fuze with burster or expelling charge.

**ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES EEI): UN No. 0486**

Articles containing only extremely insensitive detonating substances (EIDS) which demonstrate a negligible probability of accidental initiation or propagation under normal conditions of transport, and which have passed Test Series 7.

**ARTICLES, PYROPHORIC: UN No. 0380**

Articles which contain a pyrophoric substance (capable of spontaneous ignition when exposed to air) and an explosive substance or component. The term excludes articles containing white phosphorus.

**ARTICLES, PYROTECHNIC, for technical purposes: UN Nos. 0428, 0429, 0430, 0431, 0432**

Articles which contain pyrotechnic substances and are used for technical purposes such as heat generation, gas generation, theatrical effects, etc.

*NOTE: The following articles: all ammunition; CARTRIDGES, SIGNAL; CUTTERS, CABLE, EXPLOSIVE; FIREWORKS; FLARES, AERIAL; FLARES, SURFACE; RELEASE DEVICES, EXPLOSIVE; RIVETS, EXPLOSIVE; SIGNAL DEVICES, HAND; SIGNALS, DISTRESS; SIGNALS, RAILWAY TRACK, EXPLOSIVES; SIGNALS, SMOKE are not included in this definition. They are listed separately.*

**BLACK POWDER (GUNPOWDER), COMPRESSED or BLACK POWDER (GUNPOWDER), IN PELLETS: UN No. 0028**

Substance consisting of a pelletized form of black powder.

**BLACK POWDER (GUNPOWDER), granular or as meal: UN No. 0027**

Substance consisting of an intimate mixture of charcoal or other carbon and either potassium nitrate or sodium nitrate, with or without sulphur.

**BOMBS, WITH FLAMMABLE LIQUID, with bursting charge: UN Nos. 0399, 0400**

Articles which are dropped from aircraft, consisting of a tank filled with inflammable liquid and bursting charge.

**BOMBS, PHOTO-FLASH: UN No. 0038**

Explosive articles which are dropped from aircraft to provide brief, intense illumination for photography. They contain a charge of detonating explosive without means of initiation or with means of initiation containing two or more effective protective features.

**BOMBS, PHOTO-FLASH: UN No. 0037**

Explosive articles which are dropped from aircraft to provide brief, intense illumination for photography. They contain a charge of detonating explosive with means of initiation not containing two or more effective protective features.

**BOMBS, PHOTO-FLASH: UN Nos. 0039, 0299**

Explosive articles which are dropped from aircraft to provide brief, intense illumination for photography. They contain a photo-flash composition.



**BOMBS with bursting charge: UN Nos. 0034; 0035**

Explosive articles which are dropped from aircraft, without means of initiation or with means of initiation containing two or more effective protective features.

**BOMBS with bursting charge: UN Nos. 0033, 0291**

Explosive articles which are dropped from aircraft, with means of initiation not containing two or more effective protective features.

**BOOSTERS WITH DETONATOR: UN Nos. 0225, 0268**

Articles consisting of a charge of detonating explosive with means of initiation. They are used to increase the initiating power of detonators or detonating cord.

**BOOSTERS without detonator: UN Nos. 0042, 0283**

Articles consisting of a charge of detonating explosive without means of initiation. They are used to increase the initiating power of detonators or detonating cord.

**BURSTERS, explosive: UN No. 0043**

Articles consisting of a small charge of explosive used to open projectiles or other ammunition in order to disperse their contents.

**CARTRIDGES, FLASH: UN Nos. 0049, 0050**

Articles consisting of a casing, a primer and flash powder, all assembled in one piece ready for firing.

**CARTRIDGES FOR WEAPONS, BLANK: UN Nos. 0326, 0413, 0327, 0338, 0014**

Ammunition consisting of a closed cartridge case with a centre or rim fire primer and a charge of smokeless or black powder but no projectile. It produces a loud noise and is used for training, saluting, propelling charge, starter pistols, etc. The term includes ammunition, blank.

**CARTRIDGES FOR WEAPONS, INERT PROJECTILE: UN Nos. 0328, 0417, 0339, 0012**

Ammunition consisting of a projectile without bursting charge but with a propelling charge with or without a primer. The articles may include a tracer, provided that the predominant hazard is that of the propelling charge.

**CARTRIDGES FOR WEAPONS with bursting charge: UN Nos. 0006, 0321, 0412**

Ammunition consisting of a projectile with a bursting charge without means of initiation or with means of initiation containing two or more effective protective features; and a propelling charge with or without a primer. The term includes fixed (assembled) ammunition, semi-fixed (partially assembled) ammunition and separate loading ammunition when the components are packed together.

**CARTRIDGES FOR WEAPONS with bursting charge: UN Nos. 0005, 0007, 0348**

Ammunition consisting of a projectile with a bursting charge with means of initiation not containing two or more effective protective features; and a propelling charge with or without

a primer. The term includes fixed (assembled) ammunition, semi-fixed (partially assembled) ammunition and separate loading ammunition when the components are packed together.

**CARTRIDGES, OIL WELL: UN Nos. 0277, 0278**

Articles consisting of a thin casing of fibreboard, metal or other material containing only propellant powder which projects a hardened projectile to perforate an oil well casing.

*NOTE: CHARGES, SHAPED are not included in this definition. They are listed separately.*

**CARTRIDGES, POWER DEVICE: UN Nos. 0275, 0276, 0323, 0381**

Articles designed to accomplish mechanical actions. They consist of a casing with a charge of deflagrating explosive and a means of ignition. The gaseous products of the deflagration produce inflation, linear or rotary motion or activate diaphragms, valves or switches or project fastening devices or extinguishing agents.

**CARTRIDGES, SIGNAL: UN Nos. 0054, 0312, 0405**

Articles designed to fire coloured flares or other signals from signal pistols, etc.

**CARTRIDGES, SMALL ARMS: UN Nos. 0417, 0339, 0012**

Ammunition consisting of a cartridge case fitted with a centre or rim fire primer and containing both a propelling charge and solid projectile. They are designed to be fired in weapons of calibre not larger than 19.1 mm. Shot-gun cartridges of any calibre are included in this description.

*NOTE: CARTRIDGES, SMALL ARMS, BLANK, are not included in this definition. They are listed separately. Some military small arms cartridges are not included in this definition. They are listed under CARTRIDGES FOR WEAPONS, INERT PROJECTILE.*

**CARTRIDGES, SMALL ARMS, BLANK: UN Nos. 0014, 0327, 0338**

Ammunition consisting of a closed cartridge case with a centre or rim fire primer and a charge of smokeless or black powder. The cartridge cases contain no projectiles. The cartridges are designed to be fired from weapons with a calibre of at most 19.1 mm and serve to produce a loud noise and are used for training, saluting, propelling charge, starter pistols, etc.

**CASES, CARTRIDGE, EMPTY, WITH PRIMER: UN Nos. 0379; 0055**

Articles consisting of a cartridge case made from metal, plastics or other non-inflammable material, in which the only explosive component is the primer.

**CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER: UN Nos. 0447, 0446**

Articles consisting of a cartridge case made partly or entirely from nitrocellulose.

**CHARGES, BURSTING, PLASTICS BONDED: UN Nos. 0457, 0458, 0459, 0460**

Articles consisting of a charge of detonating explosive, plastics bonded, manufactured in a specific form without a casing and without means of initiation. They are designed as components of ammunition such as warheads.

**CHARGES, DEMOLITION: UN No. 0048**

Articles containing a charge of a detonating explosive in a casing of fibreboard, plastics, metal or other material. The articles are without means of initiation or with means of initiation containing two or more effective protective features.

*NOTE: The following articles: BOMBS; MINES; PROJECTILES are not included in this definition. They are listed separately.*

**CHARGES, DEPTH: UN No. 0056**

Articles consisting of a charge of detonating explosive contained in a drum or projectile without means of initiation or with means of initiation containing two or more effective protective features. They are designed to detonate under water.

**CHARGES, EXPLOSIVE, COMMERCIAL without detonator: UN Nos. 0442, 0443, 0444, 0445**

Articles consisting of a charge of detonating explosive without means of initiation, used for explosive welding, jointing, forming and other metallurgical processes.

**CHARGES, PROPELLING, FOR CANNON: UN Nos. 0242, 0279, 0414**

Charges of propellant in any physical form for separate-loading ammunition for cannon.

**CHARGES, PROPELLING: UN Nos. 0271, 0272, 0415, 0491**

Articles consisting of a charge of a propellant charge in any physical form, with or without a casing, as a component of rocket motors or for reducing the drag of projectiles.

**CHARGES, SHAPED, without detonator: UN Nos. 0059, 0439, 0440, 0441**

Articles consisting of a casing containing a charge of detonating explosive with a cavity lined with rigid material, without means of initiation. They are designed to produce a powerful, penetrating jet effect.

**CHARGES, SHAPED, FLEXIBLE, LINEAR: UN Nos. 0237, 0288**

Articles consisting of a V-shaped core of a detonating explosive clad by a flexible sheath.

**CHARGES, SUPPLEMENTARY, EXPLOSIVE: UN No. 0060**

Articles consisting of a small removable booster placed in the cavity of a projectile between the fuze and the bursting charge.

**COMPONENTS, EXPLOSIVE TRAIN, N.O.S.: UN Nos. 0382, 0383, 0384, 0461**

Articles containing an explosive designed to transmit detonation or deflagration within an explosive train.

**CONTRIVANCES, WATER-ACTIVATED with burster, expelling charge or propelling charge: UN Nos. 0248, 0249**

Articles whose functioning depends upon physico-chemical reaction of their contents with water.

**CORD, DETONATING, flexible: UN Nos. 0065, 0289**

Article consisting of a core of detonating explosive enclosed in spun fabric and a plastics or other covering. The covering is not necessary if the spun fabric is sift-proof.

**CORD (FUSE) DETONATING, metal clad: UN Nos. 0102, 0290**

Article consisting of a core of detonating explosive clad by a soft metal tube with or without protective covering.

**CORD (FUSE) DETONATING, MILD EFFECT, metal clad: UN No. 0104**

Article consisting of a core of detonating explosive clad by a soft metal tube with or without a protective covering. The quantity of explosive substance is so small that only a mild effect is manifested outside the cord.

**CORD, IGNITER: UN No. 0066**

Article consisting of textile yarns covered with black powder or another fast burning pyrotechnic composition and of a flexible protective covering; or it consists of a core of black powder surrounded by a flexible woven fabric. It burns progressively along its length with an external flame and is used to transmit ignition from a device to a charge or primer.

**CUTTERS, CABLE, EXPLOSIVE: UN No. 0070**

Articles consisting of a knife-edged device which is driven by a small charge of deflagrating explosive into an anvil.

**DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting: UN Nos. 0360, 0361, 0500**

Non-electric detonators assembled with and activated by such means as safety fuse, shock tube, flash tube or detonating cord. They may be of instantaneous design or incorporate delay elements. Detonating relays incorporating detonating cord are included.

**DETONATORS, ELECTRIC for blasting: UN Nos. 0030, 0255, 0456**

Articles specially designed for the initiation of blasting explosives. These detonators may be constructed to detonate instantaneously or may contain a delay element. Electric detonators are activated by an electric current.

**DETONATORS FOR AMMUNITION: UN Nos. 0073, 0364, 0365, 0366**

Articles consisting of a small metal or plastics tube containing explosives such as lead azide, PETN or combinations of explosives. They are designed to start a detonation train.

**DETONATORS, NON-ELECTRIC for blasting: UN Nos. 0029, 0267, 0455**

Articles specially designed for the initiation of blasting explosives. These detonators may be constructed to detonate instantaneously or may contain a delay element. Non-electric detonators are activated by such means as shock tube, flash tube, safety fuse, other igniferous device or flexible detonating cord. Detonating relays without detonating cord are included.

**EXPLOSIVE, BLASTING, TYPE A: UN No. 0081**

Substances consisting of liquid organic nitrates such as nitroglycerine or a mixture of such ingredients with one or more of the following: nitrocellulose; ammonium nitrate or other

inorganic nitrates; aromatic nitro-derivatives, or combustible materials, such as wood-meal and aluminium powder. They may contain inert components such as kieselguhr, and additives such as colouring agents and stabilizers. Such explosives shall be in powdery, gelatinous or elastic form. The term includes dynamite; gelatine, blasting and gelatine dynamites.

**EXPLOSIVE, BLASTING, TYPE B: UN Nos. 0082, 0331**

Substances consisting of

- (a) a mixture of ammonium nitrate or other inorganic nitrates with an explosive such as trinitrotoluene, with or without other substances such as wood-meal and aluminium powder; or
- (b) a mixture of ammonium nitrate or other inorganic nitrates with other combustible substances which are not explosive ingredients. In both cases they may contain inert components such as kieselguhr, and additives such as colouring agents and stabilizers. Such explosives must not contain nitroglycerine, similar liquid organic nitrates or chlorates.

**EXPLOSIVE, BLASTING, TYPE C: UN No. 0083**

Substances consisting of a mixture of either potassium or sodium chlorate or potassium, sodium or ammonium perchlorate with organic nitro-derivatives or combustible materials such as wood-meal or aluminium powder or a hydrocarbon. They may contain inert components such as kieselguhr and additives such as colouring agents and stabilizers. Such explosives must not contain nitroglycerine or similar liquid organic nitrates.

**EXPLOSIVE, BLASTING, TYPE D: UN No. 0084**

Substances consisting of a mixture of organic nitrated compounds and combustible materials such as hydrocarbons and aluminium powder. They may contain inert components such as kieselguhr and additives such as colouring agents and stabilizers. Such explosives must not contain nitroglycerine, similar liquid organic nitrates, chlorates and ammonium nitrate. The term generally includes plastic explosives.

**EXPLOSIVES, BLASTING, TYPE E: UN Nos. 0241, 0332**

Substances consisting of water as an essential ingredient and high proportions of ammonium nitrate or other oxidizers, some or all of which are in solution. The other constituents may include nitro-derivatives such as trinitrotoluene, hydrocarbons or aluminium powder. They may contain inert components such as kieselguhr and additives such as colouring agents and stabilizers. The term includes explosives, emulsion, explosives, slurry and explosives, watergel.

**FIREWORKS: UN Nos. 0333, 0334, 0335, 0336, 0337**

Pyrotechnic articles designed for entertainment.

**FLARES, AERIAL: UN Nos. 0093, 0403, 0404, 0420, 0421;**

Articles containing pyrotechnic substances which are designed to be dropped from an aircraft to illuminate, identify, signal or warn.

**FLARES, SURFACE: UN Nos. 0092, 0418, 0419**

Articles containing pyrotechnic substances which are designed for use on the surface to illuminate, identify, signal or warn.

**FLASH POWDER: UN Nos. 0094, 0305**

Pyrotechnic substance which, when ignited, produces an intense light.

**FRACTURING DEVICES, EXPLOSIVE without detonator, for oil wells: UN No. 0099**

Articles consisting of a charge of detonating explosive contained in a casing without means of initiation. They are used to fracture the rock around a drill shaft to assist the flow of crude oil from the rock.

**FUSE, IGNITER, tubular, metal clad: UN No. 0103**

Article consisting of a metal tube with a core of deflagrating explosive.

**FUSE, NON-DETONATING: UN No. 0101**

Article consisting of cotton yarns impregnated with fine black powder (quickmatch). It burns with an external flame and is used in ignition trains for fireworks, etc.

**FUSE, SAFETY: UN No. 0105**

Article consisting of a core of fine grained black powder surrounded by a flexible woven fabric with one or more protective outer coverings. When ignited, it burns at a predetermined rate without any external explosive effect.

**FUZES, DETONATING: UN Nos. 0106, 0107, 0257, 0367**

Articles with explosive components designed to produce a detonation in ammunition. They incorporate mechanical, electrical, chemical or hydrostatic components to initiate the detonation. They generally incorporate protective features.

**FUZES, DETONATING with protective features: UN Nos. 0408, 0409, 0410**

Articles with explosive components designed to produce a detonation in ammunition. They incorporate mechanical, electrical, chemical or hydrostatic components to initiate the detonation. The detonating fuze must incorporate two or more effective protective features.

**FUZES, IGNITING: UN Nos. 0316, 0317, 0368**

Articles with primary explosive components designed to produce a deflagration in ammunition. They incorporate mechanical, electrical, chemical or hydrostatic components to start the deflagration. They generally incorporate protective features.

**GRENADES, hand or rifle, with bursting charge: UN Nos. 0284, 0285**

Articles which are designed to be thrown by hand or to be projected by a rifle. They are without means of initiation or with means of initiation containing two or more effective protective features.

GRENADES, hand or rifle, with bursting charge: UN Nos. 0292, 0293

Articles which are designed to be thrown by hand or to be projected by a rifle. They are with means of initiation not containing two or more effective protective features.

GRENADES, PRACTICE, hand or rifle: UN Nos. 0110, 0372, 0318, 0452

Articles without a main bursting charge which are designed to be thrown by hand or to be projected by a rifle. They contain the priming device and may contain a spotting charge.

HEXOTONAL: UN No. 0393

Substance consisting of an intimate mixture of cyclotrimethylene-trinitramine (RDX), trinitrotoluene (TNT) and aluminium.

HEXOLITE (HEXOTOL), dry or wetted with less than 15 % water, by mass: UN No. 0118

Substance consisting of an intimate mixture of cyclotrimethylene-trinitramine (RDX) and trinitrotoluene (TNT). The term includes "Composition B".

IGNITERS: UN Nos. 0121, 0314, 0315, 0325, 0454

Articles containing one or more explosive substances designed to produce a deflagration in an explosive train. They may be actuated chemically, electrically or mechanically.

*NOTE: The following articles: CORD, IGNITER; FUSE, IGNITER; FUSE, NON-DETONATING; FUZES, IGNITING; LIGHTERS, FUSE; PRIMERS, CAP TYPE; PRIMERS, TUBULAR are not included in this definition. They are listed separately.*

JET PERFORATING GUNS, CHARGED, oil well, without detonator: UN Nos. 0124, 0494

Articles consisting of a steel tube or metallic strip, into which are inserted shaped charges connected by detonating cord, without means of initiation.

LIGHTERS, FUSE: UN No. 0131

Articles of various design actuated by friction, percussion or electricity and used to ignite safety fuse.

MINES with bursting charge: UN Nos. 0137, 0138

Articles consisting normally of metal or composition receptacles filled with a detonating explosive, without means of initiation or with means of initiation containing two or more effective protective features. They are designed to be operated by the passage of ships, vehicles or personnel. The term includes "Bangalore torpedoes".

MINES with bursting charge: UN Nos. 0136, 0294

Articles consisting normally of metal or composition receptacles filled with a detonating explosive, with means of initiation not containing two or more effective protective features. They are designed to be operated by the passage of ships, vehicles or personnel. The term includes "Bangalore torpedoes".

**OCTOLITE (OCTOL)**, dry or wetted with less than 15 % water, by mass: UN No. 0266

Substance consisting of an intimate mixture of cyclotetramethylene-tetranitramine (HMX) and trinitrotoluene (TNT).

**OCTONAL**: UN No. 0496

Substance consisting of an intimate mixture of cyclotetramethylenetetranitramine (HMX), trinitrotoluene (TNT) and aluminium.

**PENTOLITE**, dry or wetted with less than 15 % water, by mass: UN No. 0151

Substance consisting of an intimate mixture of pentaerythrite tetranitrate (PETN) and trinitrotoluene (TNT).

**POWDER CAKE (POWDER PASTE), WETTED** with not less than 17 % alcohol, by mass;  
**POWDER CAKE (POWDER PASTE), WETTED** with not less than 25 % water, by mass:  
UN Nos. 0433, 0159

Substance consisting of nitrocellulose impregnated with not more than 60 % of nitroglycerine or other liquid organic nitrates or a mixture of these.

**POWDER, SMOKELESS**: UN Nos. 0160, 0161

Substance based on nitrocellulose used as propellant. The term includes propellants with a single base (nitrocellulose (NC) alone), those with a double base (such as NC and nitroglycerine/(NG)) and those with a triple base (such as NC/NG/nitroguanidine).

*NOTE: Cast, pressed or bag-charges of smokeless powder are listed under CHARGES, PROPELLING or CHARGES, PROPELLING, FOR CANON.*

**PRIMERS, CAP TYPE**: UN Nos. 0044, 0377, 0378

Articles consisting of a metal or plastics cap containing a small amount of primary explosive mixture that is readily ignited by impact. They serve as igniting elements in small arms cartridges and in percussion primers for propelling charges.

**PRIMERS, TUBULAR**: UN Nos. 0319, 0320, 0376

Articles consisting of a primer for ignition and an auxiliary charge of deflagrating explosive such as black powder used to ignite the propelling charge in a cartridge case for cannon, etc.

**PROJECTILES, inert with tracer**: UN Nos. 0345, 0424, 0425

Articles such as a shell or bullet, which are projected from a cannon or other gun, rifle or other small arm.

**PROJECTILES with burster or expelling charge**: UN Nos. 0346, 0347

Articles such as a shell or bullet, which are projected from a cannon or other gun. They are without means of initiation or with means of initiation containing two or more effective protective features. They are used to scatter dyes for spotting or other inert materials.



**PROJECTILES with burster or expelling charge: UN Nos. 0426, 0427**

Articles such as a shell or bullet, which are projected from a cannon or other gun. They are with means of initiation not containing two or more effective protective features. They are used to scatter dyes for spotting or other inert materials.

**PROJECTILES with burster or expelling charge: UN Nos. 0434, 0435**

Articles such as a shell or bullet, which are projected from a cannon or other gun, rifle or other small arm. They are used to scatter dyes for spotting or other inert materials.

**PROJECTILES with bursting charge: UN Nos. 0168, 0169, 0344**

Articles such as a shell or bullet, which are projected from a cannon or other gun. They are without means of initiation or with means of initiation containing two or more effective protective features.

**PROJECTILES with bursting charge: UN Nos. 0167, 0324**

Articles such as a shell or bullet, which are projected from a cannon or other gun. They are with means of initiation not containing two or more effective protective features.

**PROPELLANT, LIQUID: UN Nos. 0495, 0497**

Substance consisting of a deflagrating liquid explosive, used for propulsion.

**PROPELLANT, SOLID: UN Nos. 0498, 0499, 0501**

Substance consisting of a deflagrating solid explosive, used for propulsion.

**RELEASE DEVICES, EXPLOSIVE: UN No. 0173**

Articles consisting of a small charge of explosive with means of initiation and rods or links. They sever the rods or links to release equipment quickly.

**RIVETS, EXPLOSIVE: UN No. 0174**

Articles consisting of a small charge of explosive inside a metallic rivet.

**ROCKET MOTORS: UN Nos. 0186, 0280, 0281**

Articles consisting of a charge of explosive, generally a solid propellant, contained in a cylinder fitted with one or more nozzles. They are designed to propel a rocket or a guided missile.

**ROCKET MOTORS, LIQUID FUELLED: UN Nos. 0395, 0396**

Articles consisting of a liquid fuel within a cylinder fitted with one or more nozzles. They are designed to propel a rocket or a guided missile.

**ROCKET MOTORS WITH HYPERGOLIC LIQUIDS with or without expelling charge: UN Nos. 0322, 0250**

Articles consisting of a hypergolic fuel contained in a cylinder fitted with one or more nozzles. They are designed to propel a rocket or a guided missile.

**ROCKETS, LINE THROWING: UN Nos. 0238, 0240, 0453**

Articles consisting of a rocket motor which is designed to extend a line.

**ROCKETS, LIQUID FUELLED with bursting charge: UN Nos. 0397, 0398**

Articles consisting of a liquid fuel within a cylinder fitted with one or more nozzles and fitted with a warhead. The term includes guided missiles.

**ROCKETS with bursting charge: UN Nos. 0181, 0182**

Articles consisting of a rocket motor and a warhead without means of initiation or with means of initiation containing two or more effective protective features. The term includes guided missiles.

**ROCKETS with bursting charge: UN Nos. 0180, 0295**

Articles consisting of a rocket motor and a warhead with means of initiation not containing two or more effective protective features. The term includes guided missiles.

**ROCKETS with expelling charge: UN Nos. 0436, 0437, 0438**

Articles consisting of a rocket motor and a charge to expel the payload from a rocket head. The term includes guided missiles.

**ROCKETS with inert head: UN Nos. 0183, 0502**

Articles consisting of a rocket motor and an inert head. The term includes guided missiles.

**SAMPLES, EXPLOSIVE, other than initiating explosive UN No. 0190**

New or existing explosive substances or articles, not yet assigned to a name in Table A of Chapter 3.2 and carried in conformity with the instructions of the competent authority and generally in small quantities, *inter alia*, for the purposes of testing, classification, research and development, or quality control, or as commercial samples.

*NOTE: Explosive substances or articles already assigned to another name in Table A of Chapter 3.2 are not included in this definition.*

**SIGNAL DEVICES, HAND: UN Nos. 0191, 0373**

Portable articles containing pyrotechnic substances which produce visual signals or warnings. The term includes small surface flares such as highway or railway flares and small distress flares.

**SIGNALS, DISTRESS, ship: UN Nos. 0194, 0195**

Articles containing pyrotechnic substances designed to produce signals by means of sound, flame or smoke or any combination thereof.

**SIGNALS, RAILWAY TRACK, EXPLOSIVE: UN Nos. 0192, 0193, 0492, 0493**

Articles containing a pyrotechnic substance which explodes with a loud report when the article is crushed. They are designed to be placed on a rail.

**SIGNALS, SMOKE: UN Nos. 0196, 0197, 0313, 0487**

Articles containing pyrotechnic substances which emit smoke. In addition they may contain devices for emitting audible signals.

**SOUNDING DEVICES, EXPLOSIVE: UN Nos. 0374, 0375**

Articles consisting of a charge of detonating explosive, without means of initiation or with means of initiation containing two or more effective protective features. They are dropped from ships and function when they reach a predetermined depth or the sea bed.

**SOUNDING DEVICES, EXPLOSIVE: UN Nos. 0204, 0296**

Articles consisting of a charge of detonating explosive with means of initiation not containing two or more effective protective features. They are dropped from ships and function when they reach a predetermined depth or the sea bed.

**SUBSTANCES, EXPLOSIVE, VERY INSENSITIVE (Substances, EVI), N.O.S.: UN No. 0482**

Substances presenting a mass explosion hazard but which are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport, and which have passed Test Series 5.

**TORPEDOES, LIQUID FUELLED with inert head: UN No. 0450**

Articles consisting of a liquid explosive system to propel the torpedo through the water, with an inert head.

**TORPEDOES, LIQUID FUELLED with or without bursting charge: UN No. 0449**

Articles consisting of either a liquid explosive system to propel the torpedo through the water, with or without a warhead; or a liquid non-explosive system to propel the torpedo through the water, with a warhead.

**TORPEDOES with bursting charge: UN No. 0451**

Articles consisting of a non-explosive system to propel the torpedo through the water, and a warhead without means of initiation or with means of initiation containing two or more effective protective features.

**TORPEDOES with bursting charge: UN No. 0329**

Articles consisting of an explosive system to propel the torpedo through the water, and a warhead without means of initiation or with means of initiation containing two or more effective protective features.

**TORPEDOES with bursting charge: UN No. 0330**

Articles consisting of an explosive or non-explosive system to propel the torpedo through the water, and a warhead with means of initiation not containing two or more effective protective features.

**TRACERS FOR AMMUNITION: UN Nos. 0212, 0306**

Sealed articles containing pyrotechnic substances, designed to reveal the trajectory of a projectile.

**TRITONAL: UN No. 0390**

Substance consisting of trinitrotoluene (TNT) mixed with aluminium.

**WARHEADS, ROCKET with burster or expelling charge: UN No. 0370**

Articles consisting of an inert payload and a small charge of detonating or deflagrating explosive, without means of initiation or with means of initiation containing two or more effective protective features. They are designed to be fitted to a rocket motor to scatter inert material. The term includes warheads for guided missiles.

**WARHEADS, ROCKET with burster or expelling charge: UN No. 0371**

Articles consisting of an inert payload and a small charge of detonating or deflagrating explosive, with means of initiation not containing two or more effective protective features. They are designed to be fitted to a rocket motor to scatter inert material. The term includes warheads for guided missiles.

**WARHEADS, ROCKET with bursting charge: UN Nos. 0286, 0287**

Articles consisting of a detonating explosive, without means of initiation or with means of initiation containing two or more effective protective features. They are designed to be fitted to a rocket. The term includes warheads for guided missiles.

**WARHEADS, ROCKET with bursting charge: UN No. 0369**

Articles consisting of a detonating explosive, with means of initiation not containing two or more effective protective features. They are designed to be fitted to a rocket. The term includes warheads for guided missiles.

**WARHEADS, TORPEDO with bursting charge: UN No. 0221**

Articles consisting of a detonating explosive, without means of initiation or with means of initiation containing two or more effective protective features. They are designed to be fitted to a torpedo.

**2.2.1.2 *Substances and articles not accepted for carriage***

2.2.1.2.1 Explosive substances which are unduly sensitive according to the criteria of the Manual of Tests and Criteria, Part I, or are liable to spontaneous reaction, as well as explosive substances and articles which cannot be assigned to a name or n.o.s. entry listed in Table A of Chapter 3.2, shall not be accepted for carriage.

2.2.1.2.2 Articles of compatibility group K shall not be accepted for carriage (1.2K, UN No. 0020 and 1.3K, UN No. 0021).

2.2.1.3 *List of collective entries*

Classification code (see 2.2.1.1.4)	UN No.	Name of the substance or article
1.1A	0473	SUBSTANCES, EXPLOSIVE, N.O.S.
1.1B	0461	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
1.1C	0474	SUBSTANCES, EXPLOSIVE, N.O.S.
	0497	PROPELLANT, LIQUID
	0498	PROPELLANT, SOLID
	0462	ARTICLES, EXPLOSIVE, N.O.S.
1.1D	0475	SUBSTANCES, EXPLOSIVE, N.O.S.
	0463	ARTICLES, EXPLOSIVE, N.O.S.
1.1E	0464	ARTICLES, EXPLOSIVE, N.O.S.
1.1F	0465	ARTICLES, EXPLOSIVE, N.O.S.
1.1G	0476	SUBSTANCES, EXPLOSIVE, N.O.S.
1.1L	0357	SUBSTANCES, EXPLOSIVE, N.O.S.
	0354	ARTICLES, EXPLOSIVE, N.O.S.
1.2B	0382	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
1.2C	0466	ARTICLES, EXPLOSIVE, N.O.S.
1.2D	0467	ARTICLES, EXPLOSIVE, N.O.S.
1.2E	0468	ARTICLES, EXPLOSIVE, N.O.S.
1.2F	0469	ARTICLES, EXPLOSIVE, N.O.S.
1.2L	0358	SUBSTANCES, EXPLOSIVE, N.O.S.
	0248	CONTRIVANCES, WATER-ACTIVATED with burster, expelling charge or propelling charge
	0355	ARTICLES, EXPLOSIVE, N.O.S.
1.3C	0132	DEFLAGRATING METAL SALTS OF AROMATIC NITRO-DERIVATIVES, N.O.S.
	0477	SUBSTANCES, EXPLOSIVE, N.O.S.
	0495	PROPELLANT, LIQUID
	0499	PROPELLANT, SOLID
	0470	ARTICLES, EXPLOSIVE, N.O.S.
1.3G	0478	SUBSTANCES, EXPLOSIVE, N.O.S.
1.3L	0359	SUBSTANCES, EXPLOSIVE, N.O.S.
	0249	CONTRIVANCES, WATER-ACTIVATED with burster, expelling charge or propelling charge
	0356	ARTICLES, EXPLOSIVE, N.O.S.
1.4B	0350	ARTICLES, EXPLOSIVE, N.O.S.
	0383	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
1.4C	0479	SUBSTANCES, EXPLOSIVE, N.O.S.
	0501	PROPELLANT, SOLID
	0351	ARTICLES, EXPLOSIVE, N.O.S.

Classification code (see 2.2.1.1.4)	UN No.	Name of the substance or article
1.4D	0480	SUBSTANCES, EXPLOSIVE, N.O.S.
	0352	ARTICLES, EXPLOSIVE, N.O.S.
1.4E	0471	ARTICLES, EXPLOSIVE, N.O.S.
1.4F	0472	ARTICLES, EXPLOSIVE, N.O.S.
1.4G	0485	SUBSTANCES, EXPLOSIVE, N.O.S.
	0353	ARTICLES, EXPLOSIVE, N.O.S.
1.4S	0481	SUBSTANCES, EXPLOSIVE, N.O.S.
	0349	ARTICLES, EXPLOSIVE, N.O.S.
	0384	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
1.5D	0482	SUBSTANCES, EXPLOSIVE, VERY INSENSITIVE (SUBSTANCES, EVI) N.O.S.
1.6N	0486	ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES, EEI)
	0190	SAMPLES, EXPLOSIVE other than initiating explosive <i>NOTE: Division and Compatibility Group shall be defined as directed by the competent authority and according to the principles in 2.2.1.1.4.</i>

## 2.2.2 Class 2 Gases

### 2.2.2.1 Criteria

2.2.2.1.1 The heading of Class 2 covers pure gases, mixtures of gases, mixtures of one or more gases with one or more other substances and articles containing such substances.

A gas is a substance which:

- (a) at 50 °C has a vapour pressure greater than 300 kPa (3 bar); or
- (b) is completely gaseous at 20° C at the standard pressure of 101.3 kPa .

**NOTE 1:** UN No. 1052 HYDROGEN FLUORIDE is nevertheless classified in Class 8.

**NOTE 2:** A pure gas may contain other components deriving from its production process or added to preserve the stability of the product, provided that the level of these components does not change its classification or its conditions of carriage, such as filling ratio, filling pressure, test pressure.

**NOTE 3:** N.O.S. entries in 2.2.2.3 may cover pure gases as well as mixtures.

**NOTE 4:** Carbonated beverages are not subject to the provisions of ADR.

2.2.2.1.2 The substances and articles of Class 2 are subdivided as follows:

1. *Compressed gas:* a gas which when packaged under pressure for carriage is entirely gaseous at -50 °C; this category includes all gases with a critical temperature less than or equal to -50 °C;
2. *Liquefied gas:* a gas which when packaged under pressure for carriage is partially liquid at temperatures above -50 °C. A distinction is made between:
  - High pressure liquefied gas:* a gas with a critical temperature above -50 °C and equal to or below +65 °C; and
  - Low pressure liquefied gas:* a gas with a critical temperature above +65 °C;
3. *Refrigerated liquefied gas:* a gas which when packaged for carriage is made partially liquid because of its low temperature;
4. *Dissolved gas:* a gas which when packaged under pressure for carriage is dissolved in a liquid phase solvent;
5. Aerosol dispensers and receptacles, small, containing gas (gas cartridges);
6. Other articles containing gas under pressure;
7. Non-pressurized gases subject to special requirements (gas samples).

2.2.2.1.3 Substances and articles (except aerosols) of Class 2 are assigned to one of the following groups according to their hazardous properties, as follows:

- A asphyxiant;
- O oxidizing;

- F flammable;
- T toxic;
- TF toxic, flammable;
- TC toxic, corrosive;
- TO toxic, oxidizing;
- TFC toxic, flammable, corrosive;
- TOC toxic, oxidizing, corrosive.

For gases and gas mixtures presenting hazardous properties associated with more than one group according to the criteria, the groups designated by letter T take precedence over all other groups. The groups designated by letter F take precedence over the groups designated by letters A or O.

**NOTE 1:** *In the UN Model Regulations, the IMDG Code and the ICAO Technical Instructions, gases are assigned to one of the following three divisions, based on the primary hazard:*

- Division 2.1: flammable gases (corresponding to the groups designated by the capital letter F);*
- Division 2.2: non-flammable, non-toxic gases (corresponding to the groups designated by the capital letters A or O);*
- Division 2.3: toxic gases (corresponding to the groups designated by the capital letter T (i.e. T, TF, TC, TO, TFC and TOC).*

**NOTE 2:** *Receptacles, small containing gas (UN No. 2037) shall be assigned to the groups A to TOC according to the hazard of the contents. For aerosols (UN No. 1950), see 2.2.2.1.6.*

**NOTE 3:** *Corrosive gases are considered to be toxic, and are therefore assigned to the group TC, TFC or TOC.*

**NOTE 4:** *Mixtures containing more than 21% oxygen by volume shall be classified as oxidizing.*

2.2.2.1.4 If a mixture of Class 2 mentioned by name in Table A of Chapter 3.2 meets different criteria as mentioned in 2.2.2.1.2 and 2.2.2.1.5, this mixture shall be classified according to the criteria and assigned to an appropriate N.O.S. entry.

2.2.2.1.5 Substances and articles (except aerosols) of Class 2 which are not mentioned by name in Table A of Chapter 3.2 shall be classified under a collective entry listed in 2.2.2.3 in accordance with 2.2.2.1.2 and 2.2.2.1.3. The following criteria shall apply:

***Asphyxiant gases***

Gases which are non-oxidizing, non-flammable and non-toxic and which dilute or replace oxygen normally in the atmosphere.



**Flammable gases**

Gases which at 20 °C and a standard pressure of 101.3 kPa:

- (a) are ignitable when in a mixture of 13% or less by volume with air; or
- (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit.

Flammability shall be determined by tests or by calculation, in accordance with methods adopted by ISO (see ISO 10156:1996).

Where insufficient data are available to use these methods, tests by a comparable method recognized by the competent authority of the country of origin may be used.

If the country of origin is not a Contracting Party to ADR these methods shall be recognized by the competent authority of the first country Contracting Party to ADR reached by the consignment.

**Oxidizing gases**

Gases, which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does. Oxidizing ability is determined either by tests or by calculation methods adopted by ISO (see ISO 10156:1996).

**Toxic gases**

*NOTE: Gases meeting the criteria for toxicity in part or completely owing to their corrosivity are to be classified as toxic. See also the criteria under the heading "Corrosive gases" for a possible subsidiary corrosivity risk.*

Gases which:

- (a) are known to be so toxic or corrosive to humans as to pose a hazard to health; or
- (b) are presumed to be toxic or corrosive to humans because they have a LC<sub>50</sub> value for acute toxicity equal to or less than 5 000 ml/m<sup>3</sup> (ppm) when tested in accordance with 2.2.61.1.

In the case of gas mixtures (including vapours of substances from other classes) the following formula may be used:

$$LC_{50} \text{ Toxic (mixture)} = \frac{1}{\sum_{i=1}^n \frac{f_i}{T_i}}$$

where  $f_i$  = mole fraction of the  $i^{\text{th}}$  component substance of the mixture;

$T_i$  = toxicity index of the  $i^{\text{th}}$  component substance of the mixture.  
The  $T_i$  equals the LC<sub>50</sub> value as found in packing instruction P200 of 4.1.4.1.

When no LC<sub>50</sub> value is listed in packing instruction P200 of 4.1.4.1, a LC<sub>50</sub> value available in scientific literature shall be used.

When the LC<sub>50</sub> value is unknown, the toxicity index is determined by using the lowest LC<sub>50</sub> value of substances of similar physiological and chemical effects, or through testing if this is the only practical possibility.

### *Corrosive gases*

Gases or gas mixtures meeting the criteria for toxicity completely owing to their corrosivity are to be classified as toxic with a subsidiary corrosivity risk.

A gas mixture that is considered to be toxic due to the combined effects of corrosivity and toxicity has a subsidiary risk of corrosivity when the mixture is known by human experience to be destructive to the skin, eyes or mucous membranes or when the LC<sub>50</sub> value of the corrosive components of the mixture is equal to or less than 5 000 ml/m<sup>3</sup> (ppm) when the LC<sub>50</sub> is calculated by the formula:

$$\text{LC}_{50} \text{ Corrosive (mixture)} = \frac{1}{\sum_{i=1}^n \frac{f_{ci}}{T_{ci}}}$$

where  $f_{ci}$  = mole fraction of the  $i^{\text{th}}$  corrosive component substance of the mixture;

$T_{ci}$  = toxicity index of the  $i^{\text{th}}$  corrosive component substance of the mixture.

The  $T_{ci}$  equals the LC<sub>50</sub> value as found in packing instruction P200 of 4.1.4.1.

When no LC<sub>50</sub> value is listed in packing instruction P200 of 4.1.4.1, a LC<sub>50</sub> value available in scientific literature shall be used.

When the LC<sub>50</sub> value is unknown the toxicity index is determined by using the lowest LC<sub>50</sub> value of substances of similar physiological and chemical effects, or through testing if this is the only practical possibility.

### 2.2.2.1.6 *Aerosols*

Aerosols (UN No. 1950) are assigned to one of the following groups according to their hazardous properties, as follows:

- A asphyxiant;
- O oxidizing;
- F flammable;
- T toxic;
- C corrosive;
- CO corrosive, oxidizing;
- FC flammable, corrosive;

TF	toxic, flammable;
TC	toxic, corrosive;
TO	toxic, oxidizing;
TFC	toxic, flammable, corrosive
TOC	toxic, oxidizing, corrosive.

The classification depends on the nature of the contents of the aerosol dispenser.

*NOTE: Gases, which meet the definition of toxic gases according to 2.2.2.1.5 or of pyrophoric gases according to packing instruction P200 in 4.1.4.1, shall not be used as a propellant in an aerosol dispenser. Aerosols with contents meeting the criteria for packing group I for toxicity or corrosivity shall not be accepted for carriage (see also 2.2.2.2.2).*

The following criteria shall apply:

- (a) Assignment to group A shall apply when the contents do not meet the criteria for any other group according to sub-paragraphs (b) to (f) below;
- (b) Assignment to group O shall apply when the aerosol contains an oxidizing gas according to 2.2.2.1.5;
- (c) Assignment to group F shall apply if the contents include more than 45% by mass, or more than 250 g of flammable components. Flammable components are gases which are flammable in air at normal pressure or substances or preparations in liquid form which have a flash point less than or equal to 100 °C;
- (d) Assignment to group T shall apply when the contents, other than the propellant of aerosol dispensers to be ejected, are classified as class 6.1, packing groups II or III;
- (e) Assignment to group C shall apply when the contents, other than the propellant of aerosol dispensers to be ejected, meet the criteria for Class 8, packing groups II or III;
- (f) When the criteria for more than one group amongst groups O, F, T, and C are met, assignment to groups CO, FC, TF, TC TO, TFC or TOC shall apply, as relevant.

## 2.2.2.2 *Gases not accepted for carriage*

2.2.2.2.1 Chemically unstable substances of Class 2 shall not be accepted for carriage, unless the necessary steps have been taken to prevent all possibility of a dangerous reaction e.g. decomposition, dismutation or polymerisation under normal conditions during transport. To this end particular care shall be taken to ensure that receptacles and tanks do not contain any substances liable to promote these reactions.

2.2.2.2.2 The following substances and mixtures shall not be accepted for carriage:

- UN No. 2186 HYDROGEN CHLORIDE, REFRIGERATED LIQUID;
- UN No. 2421 NITROGEN TRIOXIDE;
- UN No. 2455 METHYL NITRITE;

- Refrigerated liquefied gases which cannot be assigned to classification codes 3A, 3O or 3F;
- Dissolved gases which cannot be classified under UN Nos. 1001, 2073 or 3318;
- Aerosols where gases which are toxic according to 2.2.2.1.5 or pyrophoric according to packing instruction P200 in 4.1.4.1 are used as propellants;
- Aerosols with contents meeting the criteria for packing group I for toxicity or corrosivity (see 2.2.61 and 2.2.8);
- Receptacles, small, containing gases which are very toxic (LC<sub>50</sub> lower than 200 ppm) or pyrophoric according to packing instruction P200 in 4.1.4.1.

### 2.2.2.3 List of collective entries

Compressed gases		
Classification code	UN No.	Name of the substance or article
1 A	1979	RARE GASES MIXTURE, COMPRESSED
	1980	RARE GASES AND OXYGEN MIXTURE, COMPRESSED
	1981	RARE GASES AND NITROGEN MIXTURE, COMPRESSED
	1956	COMPRESSED GAS, N.O.S.
1 O	3156	COMPRESSED GAS, OXIDIZING, N.O.S.
1 F	1964	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.
	1954	COMPRESSED GAS, FLAMMABLE, N.O.S.
1 T	1955	COMPRESSED GAS, TOXIC, N.O.S.
1 TF	1953	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.
1 TC	3304	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.
1 TO	3303	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.
1 TFC	3305	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.
1 TOC	3306	COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.

Liquefied gases		
Classification code	UN No.	Name of the substance or article
2 A	1058	LIQUEFIED GASES, non-flammable, charged with nitrogen, carbon dioxide or air
	1078	REFRIGERANT GAS, N.O.S. such as mixtures of gases, Indicated by the letter R., which as:  Mixture F1, have a vapour pressure at 70 °C not exceeding 1.3 MPa (13 bar) and a density at 50 °C not lower than that of dichlorofluoromethane (1.30 kg/l);  Mixture F2, have a vapour pressure at 70 °C not exceeding 1.9 MPa (19 bar) and a density at 50 °C not lower than that of dichlorodifluoromethane (1.21 kg/l);  Mixture F3, have a vapour pressure at 70 °C not exceeding 3 MPa (30 bar) and a density at 50 °C not lower than that of chlorodifluoromethane (1.09 kg/l).  <i>NOTE: Trichlorofluoromethane (Refrigerant gas R 11), 1,1,2-trichloro-1,2,2-trifluoroethane (Refrigerant gas R 113), 1,1,1-trichloro-2,2,2-trifluoroethane (Refrigerant gas R 113a), 1-chloro-1,2,2-trifluoroethane (Refrigerant gas R 133) and 1-chloro-1,1,2-trifluoroethane (Refrigerant gas R 133b) are not substances of Class 2. They may, however, enter into the composition of mixtures F1 to F3.</i>
	1968	INSECTICIDE GAS, N.O.S.
	3163	LIQUEFIED GAS, N.O.S.
2 O	3157	LIQUEFIED GAS, OXIDIZING, N.O.S.
2 F	1010	Mixtures of 1,3-BUTADIENE AND HYDROCARBONS, STABILIZED, having a vapour pressure at 70 °C not exceeding 1.1 MPa (11 bar) and a density at 50 °C not lower than 0.525 kg/l.  <i>NOTE: 1,2-butadiene, stabilized and 1,3-butadiene, stabilized are classified under UN No. 1010, see Table A of chapter 3.2.</i>
	1060	METHYLACETYLENE AND PROPADIENE MIXTURE, STABILIZED such as mixtures of methylacetylene and propadiene with hydrocarbons, which as:  Mixture P1, contain not more than 63% methylacetylene and propadiene by volume and not more than 24% propane and propylene by volume, the percentage of C <sub>4</sub> - saturated hydrocarbons being not less than 14% by volume; and as  Mixture P2, contain not more than 48% methylacetylene and propadiene by volume and not more than 50% propane and propylene by volume, the percentage of C <sub>4</sub> - saturated hydrocarbons being not less than 5% by volume, as well as mixtures of propadiene with 1 to 4% methylacetylene.

Liquefied gases (cont'd)		
Classification code	UN No.	Name of the substance or article
2 F (cont'd)	1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S such as mixtures, which as: Mixture A, have a vapour pressure at 70 °C not exceeding 1.1 MPa (11 bar) and a density at 50 °C not lower than 0.525 kg/l; Mixture A01, have a vapour pressure at 70 °C not exceeding 1.6 MPa (16 bar) and a relative density at 50 °C not lower than 0.516 kg/l; Mixture A02, have a vapour pressure at 70 °C not exceeding 1.6 MPa (16 bar) and a relative density at 50 °C not lower than 0.505 kg/l; Mixture A0, have a vapour pressure at 70 °C not exceeding 1.6 MPa (16 bar) and a density at 50 °C not lower than 0.495 kg/l; Mixture A1, have a vapour pressure at 70 °C not exceeding 2.1 MPa (21 bar) and a density at 50 °C not lower than 0.485 kg/l; Mixture B1 have a vapour pressure at 70 °C not exceeding 2.6 MPa (26 bar) and a relative density at 50 °C not lower than 0.474 kg/l; Mixture B2 have a vapour pressure at 70 °C not exceeding 2.6 MPa (26 bar) and a relative density at 50 °C not lower than 0.463 kg/l; Mixture B, have a vapour pressure at 70 °C not exceeding 2.6 MPa (26 bar) and a density at 50 °C not lower than 0.450 kg/l; Mixture C, have a vapour pressure at 70 °C not exceeding 3.1 MPa (31 bar) and a relative density at 50 °C not lower than 0.440 kg/l;  <i>NOTE 1: In the case of the foregoing mixtures, the use of the following names customary in the trade is permitted for describing these substances: for mixtures A, A01, A02 and A0: BUTANE; for mixture C: PROPANE.</i>  <i>NOTE 2: UN No. 1075 PETROLEUM GASES, LIQUEFIED may be used as an alternative entry for UN No. 1965 HYDROCARBON GAS MIXTURE LIQUEFIED, N.O.S. for carriage prior to or following maritime or air carriage.</i>
	3354	INSECTICIDE GAS, FLAMMABLE, N.O.S.
	3161	LIQUEFIED GAS, FLAMMABLE, N.O.S.
2 T	1967	INSECTICIDE GAS, TOXIC, N.O.S.
	3162	LIQUEFIED GAS, TOXIC, N.O.S.
2 TF	3355	INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S.
	3160	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.
2 TC	3308	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.
2 TO	3307	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.
2 TFC	3309	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.
2 TOC	3310	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.

<b>Refrigerated liquefied gases</b>		
<b>Classification code</b>	<b>UN No.</b>	<b>Name of the substance or article</b>
3 A	3158	GAS, REFRIGERATED LIQUID, N.O.S.
3 O	3311	GAS, REFRIGERATED LIQUID, OXIDIZING, N.O.S.
3 F	3312	GAS, REFRIGERATED LIQUID, FLAMMABLE, N.O.S.

<b>Dissolved gases</b>		
<b>Classification code</b>	<b>UN No.</b>	<b>Name of the substance or article</b>
4		Only substances listed in Table A of Chapter 3.2 are to be accepted for carriage.

<b>Aerosols and receptacles, small, containing gas</b>		
<b>Classification code</b>	<b>UN No.</b>	<b>Name of the substance or article</b>
5	1950	AEROSOLS
	2037	RECEPTACLES, SMALL CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable

<b>Other articles containing gas under pressure</b>		
<b>Classification code</b>	<b>UN No.</b>	<b>Name of the substance or article</b>
6A	3164	ARTICLES, PRESSURIZED, PNEUMATIC (containing non-flammable gas) or
	3164	ARTICLES, PRESSURIZED, HYDRAULIC (containing non-flammable gas)
6F	3150	DEVICES, SMALL, HYDROCARBON GAS POWERED or
	3150	HYDROCARBON GAS REFILLS FOR SMALL DEVICES, with release device

<b>Gas samples</b>		
<b>Classification code</b>	<b>UN No.</b>	<b>Name of the substance or article</b>
7 F	3167	GAS SAMPLE, NON-PRESSURIZED, FLAMMABLE, N.O.S., not refrigerated liquid
7 T	3169	GAS SAMPLE, NON-PRESSURIZED, TOXIC, N.O.S., not refrigerated liquid
7 TF	3168	GAS SAMPLE, NON-PRESSURIZED, TOXIC, FLAMMABLE, N.O.S., not refrigerated liquid

## 2.2.3 Class 3 Flammable liquids

### 2.2.3.1 Criteria

2.2.3.1.1 The heading of Class 3 covers substances and articles containing substances of this Class which:

- are liquids according to subparagraph (a) of the definition for "liquid" in 1.2.1;
- have at 50 °C a vapour pressure of not more than 300 kPa (3 bar) and are not completely gaseous at 20 °C and at standard pressure of 101.3 kPa; and
- have a flash-point of not more than 61 °C (see 2.3.3.1 for the relevant test).

The heading of Class 3 also covers liquid substances and molten solid substances with a flash-point of more than 61°C and which are carried or handed over for carriage whilst heated at temperatures equal to or higher than their flash-point. These substances are assigned to UN No. 3256.

The heading of Class 3 also covers liquid desensitized explosives. Liquid desensitized explosives are explosive substances which are dissolved or suspended in water or other liquid substances, to form an homogeneous liquid mixture to suppress their explosive properties. Such entries in Table A of Chapter 3.2 are UN Nos. 1204, 2059, 3064, 3343 and 3357.

*NOTE 1: Substances having a flash-point above 35 °C, non-toxic and non-corrosive, which do not sustain combustion according to the criteria of sub-section 32.2.5 of Part III of the Manual of Tests and Criteria, are not substances of Class 3; if, however, these substances are handed over for carriage and carried whilst heated at temperatures equal to or higher than their flash-point, they are substances of Class 3.*

*NOTE 2: By derogation from paragraph 2.2.3.1.1 above, diesel fuel, gasoil, heating oil (light) having a flash-point above 61 °C and not more than 100 °C shall be deemed substances of Class 3, UN No. 1202.*

*NOTE 3: Liquids which are highly toxic on inhalation, having a flash-point below 23 °C and toxic substances, having a flash-point of 23 °C or above are substances of Class 6.1 (see 2.2.61.1).*

*NOTE 4: Flammable liquid substances and preparations used as pesticides, which are highly toxic, toxic or slightly toxic and have a flash-point of 23 °C or above are substances of Class 6.1 (see 2.2.61.1).*

*NOTE 5: Corrosive liquids having a flash-point of 23 °C or above are substances of Class 8 (see 2.2.8.1).*

*NOTE 6: UN No. 2734 AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S., UN No. 2734 POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. and UN No. 2920 CORROSIVE LIQUID, FLAMMABLE, N.O.S., highly corrosive and having a boiling point or an initial boiling point exceeding 35 °C, are substances of Class 8 (see 2.2.8.1).*



2.2.3.1.2 The substances and articles of Class 3 are subdivided as follows:

- F Flammable liquids, without subsidiary risk:
  - F1 Flammable liquids having a flash-point of or below 61 °C;
  - F2 Flammable liquids having a flash-point above 61 °C which are carried or handed over for carriage at or above their flash-point (elevated temperature substances);
- FT Flammable liquids, toxic:
  - FT1 Flammable liquids, toxic;
  - FT2 Pesticides;
- FC Flammable liquids, corrosive;
- FTC Flammable liquids, toxic, corrosive;
- D Liquid desensitized explosives.

2.2.3.1.3 Substances and articles classified in Class 3 are listed in Table A of Chapter 3.2. Substances not mentioned by name in Table A of Chapter 3.2 shall be assigned to the relevant entry of 2.2.3.3 and the relevant packing group in accordance with the provisions of this section. Flammable liquids shall be assigned to one of the following packing groups according to the degree of danger they present for carriage:

- Packing group I: *substances presenting high danger*: flammable liquids having a boiling point or initial boiling point not exceeding 35 °C, and flammable liquids having a flash-point below 23 °C, which are either highly toxic according to the criteria of 2.2.61.1 or highly corrosive according to the criteria of 2.2.8.1;
- Packing group II: *substances presenting medium danger*: flammable liquids having a flash-point below 23 °C which are not classified under packing group I, with the exception of substances of 2.2.3.1.4;
- Packing group III: *substances presenting low danger*: flammable liquids having a flash-point of 23 °C to 61 °C inclusive and substances of 2.2.3.1.4.

2.2.3.1.4 Liquid or viscous mixtures and preparations, including those containing no more than 20% nitrocellulose with a nitrogen content not exceeding 12.6% (by dry mass), shall be assigned to packing group III only if the following requirements are met:

- (a) the height of the separated layer of solvent is less than 3 % of the total height of the sample in the solvent-separation test (see Manual of Tests and Criteria, Part III, sub-section 32.5.1); and
- (b) the viscosity<sup>3</sup> and flash-point are in accordance with the following table:

<sup>3</sup> *Viscosity determination: Where the substance concerned is non-Newtonian, or where a flow cup method of viscosity determination is otherwise unsuitable, a variable shear-rate viscometer shall be used to determine the dynamic viscosity coefficient of the substance, at 23 °C, at a number of shear rates. The values obtained are plotted against shear rate and then extrapolated to zero shear rate. The dynamic viscosity thus obtained, divided by the density, gives the apparent kinematic viscosity at near-zero shear rate.*

Kinematic viscosity (extrapolated) v (at near-zero shear rate) mm <sup>2</sup> /s at 23 °C	Flow time t in accordance with ISO 2431:1993		Flash-point in °C
	in s	Jet diameter in mm	
20 < v ≤ 80	20 < t ≤ 60	4	above 17
80 < v ≤ 135	60 < t ≤ 100	4	above 10
135 < v ≤ 220	20 < t ≤ 32	6	above 5
220 < v ≤ 300	32 < t ≤ 44	6	above -1
300 < v ≤ 700	44 < t ≤ 100	6	above -5
700 < v	100 < t	6	-5 and below

**NOTE:** Mixtures containing more than 20% but not more than 55% nitrocellulose with a nitrogen content not exceeding 12.6% by dry mass are substances assigned to UN No. 2059.

Mixtures having a flash-point below 23 °C and containing:

- more than 55 % nitrocellulose, whatever their nitrogen content; or
- not more than 55 % nitrocellulose with a nitrogen content above 12.6 % by dry mass,

are substances of Class 1 (UN Nos. 0340 or 0342) or of Class 4.1 (UN Nos. 2555, 2556 or 2557).

2.2.3.1.5 Non-toxic and non-corrosive solutions and homogeneous mixtures having a flash-point of 23 °C or above (viscous substances, such as paints or varnishes, excluding substances containing more than 20 % nitrocellulose) packed in receptacles of less than 450 litres capacity, are not subject to ADR if, in the solvent-separation test (see Manual of Tests and Criteria, Part III, sub-section 32.5.1), the height of the separated layer of solvent is less than 3 % of the total height, and if the substances at 23 °C have, in the flow cup conforming to ISO 2431:1993 having a jet 6 mm in diameter, a flow time of:

- (a) not less than 60 seconds, or
- (b) not less than 40 seconds and contain not more than 60 % of substances of Class 3.

2.2.3.1.6 If substances of Class 3, as a result of admixtures, come into categories of risk different from those to which the substances mentioned by name in Table A of Chapter 3.2 belong, these mixtures or solutions shall be assigned to the entries to which they belong on the basis of their actual degree of danger.

**NOTE:** For the classification of solutions and mixtures (such as preparations and wastes) see also 2.1.3.

2.2.3.1.7 On the basis of the test procedures in accordance with 2.3.3.1 and 2.3.4, and the criteria set out in 2.2.3.1.1, it may also be determined whether the nature of a solution or a mixture mentioned by name or containing a substance mentioned by name is such that the solution or mixture is not subject to the provisions for this Class (see also 2.1.3).

### 2.2.3.2 Substances not accepted for carriage

2.2.3.2.1 Substances of Class 3 which are liable to form peroxides easily (as happens with ethers or with certain heterocyclic oxygenated substances) shall not be accepted for carriage if their peroxide content, calculated as hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), exceeds 0.3%. The peroxide content shall be determined as indicated in 2.3.3.2.

2.2.3.2.2 The chemically unstable substances of Class 3 shall not be accepted for carriage unless the necessary steps have been taken to prevent their dangerous decomposition or polymerization during carriage. To this end, it shall be ensured in particular that receptacles and tanks do not contain any substance liable to promote these reactions.

2.2.3.2.3 Liquid desensitized explosives other than those listed in Table A of Chapter 3.2 shall not be accepted for carriage as substances of Class 3.

2.2.3.3 *List of collective entries*

<p>Flammable liquids</p>	<p>F1</p>	<p>1133 ADHESIVES containing flammable liquid  1136 COAL TAR DISTILLATES, FLAMMABLE  1139 COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle undercoating, drum or barrel lining)  1169 EXTRACTS, AROMATIC, LIQUID  1197 EXTRACTS, FLAVOURING, LIQUID  1210 PRINTING INK, flammable or  1210 PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable  1263 PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or  1263 PAINT RELATED MATERIAL (including paint thinning or reducing compound)  1266 PERFUMERY PRODUCTS with flammable solvents  1293 TINCTURES, MEDICINAL  1306 WOOD PRESERVATIVES, LIQUID  1866 RESIN SOLUTION, flammable  1999 TARS, LIQUID, including road asphalt and oils, bitumen and cut backs  3065 ALCOHOLIC BEVERAGES  3269 POLYESTER RESIN KITS  1224 KETONES, LIQUID, N.O.S.  1268 PETROLEUM DISTILLATES, N.O.S. or  1268 PETROLEUM PRODUCTS, N.O.S.  1987 ALCOHOLS, N.O.S.  1989 ALDEHYDES, N.O.S.  2319 TERPENE HYDROCARBONS, N.O.S.  3271 ETHERS, N.O.S.  3272 ESTERS, N.O.S.  3295 HYDROCARBONS, LIQUID, N.O.S.  3336 MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or  3336 MERCAPTANS MIXTURE, LIQUID, FLAMMABLE, N.O.S.  1993 FLAMMABLE LIQUID, N.O.S.</p>
<p>Without subsidiary risk</p> <p>F</p>	<p>F2  elevated temperature</p>	<p>3256 ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S., with flash-point above 61 °C, at or above its flash-point</p>

(cont'd)

## 2.2.3.3

## List of collective entries (cont'd)

	<p>1228 MERCAPTANS, LIQUID, FLAMMABLE, TOXIC, N.O.S. or  1228 MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, TOXIC, N.O.S.  1986 ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.  1988 ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.  2478 ISOCYANATES, FLAMMABLE, TOXIC, N.O.S. or  2478 ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S.  3248 MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S.  3273 NITRILES, FLAMMABLE, TOXIC, N.O.S.  1992 FLAMMABLE LIQUID, TOXIC, N.O.S.</p>
<p><b>Toxic</b>  <b>FT</b></p> <p><b>FT2</b>  pesticide  (f.p &lt; 23 °C)</p>	<p>2758 CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC  2760 ARSENICAL PESTICIDE, LIQUID, FLAMMABLE, TOXIC  2762 ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC  2764 TRIAZINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC  2772 THIOCARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC  2776 COPPER BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC  2778 MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC  2780 SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, FLAMMABLE, TOXIC  2782 BIPYRIDILUM PESTICIDE, LIQUID, FLAMMABLE, TOXIC  2784 ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC  2787 ORGANOTIN PESTICIDE, LIQUID, FLAMMABLE, TOXIC  3024 COUMARIN DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC  3346 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC  3350 PYRETHROID PESTICIDE, LIQUID, FLAMMABLE TOXIC  3021 PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S.</p> <p><i>NOTE : The classification of a pesticide under an entry shall be effected on the basis of the active ingredient, of the physical state of the pesticide and any subsidiary risks it may exhibit.</i></p>
<p><b>Corrosive</b></p> <p><b>FC</b></p>	<p>2733 AMINES, FLAMMABLE, CORROSIVE, N.O.S. or  2733 POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.  2985 CHLOROSILANES, FLAMMABLE, CORROSIVE, N.O.S.  3274 ALCOHOLATES SOLUTION, N.O.S., in alcohol  2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S.</p>
<p><b>Toxic,  corrosive</b></p> <p><b>FTC</b></p>	<p>3286 FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.</p>
<p><b>Liquid  desensitised  explosive</b></p> <p><b>D</b></p>	<p>3343 NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, FLAMMABLE, N.O.S. with not more than 30% nitroglycerin by mass  3357 NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, N.O.S. with not more than 30% nitroglycerin by mass  (No other collective entry available. For other substances, only those listed in Table A of Chapter 3.2 are to be accepted for carriage as substances of Class 3.)</p>

**2.2.41 Class 4.1 Flammable solids, self-reactive substances and solid desensitized explosives****2.2.41.1 Criteria**

2.2.41.1.1 The heading of Class 4.1 covers flammable substances and articles, desensitized explosives which are solids according to subparagraph (a) of the definition "solid" in 1.2.1 and self-reactive liquids or solids.

The following are assigned to Class 4.1:

- readily flammable solid substances and articles (see paragraphs 2.2.41.1.3 to 2.2.41.1.8);
- self-reactive solids or liquids (see paragraphs 2.2.41.1.9 to 2.2.41.1.17);
- solid desensitized explosives (see 2.2.41.1.18);
- substances related to self-reactive substances (see 2.2.41.1.19).

2.2.41.1.2 The substances and articles of Class 4.1 are subdivided as follows:

F Flammable solids, without subsidiary risk:

- F1 Organic;
- F2 Organic, molten;
- F3 Inorganic;

FO Flammable solids, oxidizing;

FT Flammable solids, toxic:

- FT1 Organic, toxic;
- FT2 Inorganic, toxic;

FC Flammable solids, corrosive:

- FC1 Organic, corrosive;
- FC2 Inorganic, corrosive;

D Solid desensitized explosives without subsidiary risk;

DT Solid desensitized explosives, toxic;

SR Self-reactive substances:

- SR1 Not requiring temperature control;
- SR2 Requiring temperature control.

**Flammable solids***Definition and properties*

2.2.41.1.3 *Flammable solids* are readily combustible solids and solids which may cause fire through friction.

*Readily combustible solids* are powdered, granular, or pasty substances which are dangerous if they can be easily ignited by brief contact with an ignition source, such as a burning match, and if the flame spreads rapidly. The danger may come not only from the fire but also from toxic combustion products. Metal powders are especially dangerous because of the difficulty of extinguishing a fire since normal extinguishing agents such as carbon dioxide or water can increase the hazard.

*Classification*

2.2.41.1.4 Substances and articles classified as flammable solids of Class 4.1 are listed in Table A of Chapter 3.2. The assignment of organic substances and articles not mentioned by name in Table A of Chapter 3.2 to the relevant entry of sub-section 2.2.41.3 in accordance with the provisions of Chapter 2.1 can be based on experience or on the results of the test procedures in accordance with Part III, sub-section 33.2.1 of the Manual of Tests and Criteria. The assignment of inorganic substances not mentioned by name shall be based on the results of the test procedures in accordance with Part III, sub-section 33.2.1 of the Manual of Tests and Criteria; experience shall also be taken into account when it leads to a more stringent assignment.

2.2.41.1.5 When substances not mentioned by name are assigned to one of the entries listed in 2.2.41.3 on the basis of the test procedures in accordance with the Manual of Tests and Criteria, Part III, sub-section 33.2.1, the following criteria apply:

- (a) With the exception of metal powders or powders of metal alloys, powdery, granular or pasty substances shall be classified as readily flammable substances of Class 4.1 if they can be easily ignited by brief contact with an ignition source (e.g. a burning match), or if, in the event of ignition, the flame spreads rapidly, the burning time is less than 45 seconds for a measured distance of 100 mm or the rate of burning is greater than 2.2 mm/s.
- (b) Metal powders or powders of metal alloys shall be assigned to Class 4.1 if they can be ignited by a flame and the reaction spreads over the whole length of the sample in 10 minutes or less.

Solids which may cause fire through friction shall be classified in Class 4.1 by analogy with existing entries (e.g. matches) or in accordance with any appropriate special provision.

2.2.41.1.6 On the basis of the test procedure in accordance with the Manual of Tests and Criteria, Part III, Section 33.2.1 and the criteria set out in 2.2.41.1.4 and 2.2.41.1.5, it may also be determined whether the nature of a substance mentioned by name is such that the substance is not subject to the provisions for this Class.

2.2.41.1.7 If substances of Class 4.1, as a result of admixtures, come into different categories of risk from those to which the substances mentioned by name in Table A of Chapter 3.2 belong, these mixtures shall be assigned to the entries to which they belong on the basis of their actual degree of danger.

**NOTE:** For the classification of solutions and mixtures (such as preparations and wastes), see also 2.1.3.

*Assignment of packing groups*

2.2.41.1.8 Flammable solids classified under the various entries in Table A of Chapter 3.2 shall be assigned to packing groups II or III on the basis of test procedures of the Manual of Tests and Criteria, Part III, sub-section 33.2.1, in accordance with the following criteria:

- (a) Readily flammable solids which, when tested, have a burning time of less than 45 seconds over a measured distance of 100 mm shall be assigned to:

Packing group II: if the flame passes the wetted zone;

Packing group III: if the wetted zone stops the flame for at least four minutes;

- (b) Metal powders or powders of metal alloys shall be assigned to:

Packing group II: if, when tested, the reaction spreads over the whole length of the sample in five minutes or less;

Packing group III: if, when tested, the reaction spreads over the whole length of the sample in more than five minutes.

For solids which may cause fire through friction, the packing group shall be assigned by analogy with existing entries or in accordance with any special provision.

*Self-reactive substances**Definitions*

2.2.41.1.9 For the purposes of ADR, *self-reactive substances* are thermally unstable substances liable to undergo a strongly exothermic decomposition even without participation of oxygen (air). Substances are not considered to be self-reactive substances of Class 4.1, if:

- (a) they are explosives according to the criteria of Class 1;
- (b) they are oxidizing substances according to the assignment procedure of Class 5.1 (see 2.2.51.1);
- (c) they are organic peroxides according to the criteria of Class 5.2 (see 2.2.52.1);
- (d) their heat of decomposition is less than 300 J/g; or
- (e) their self-accelerating decomposition temperature (SADT) (see NOTE 2 below) is greater than 75 °C for a 50 kg package.

**NOTE 1:** *The heat of decomposition can be determined using any internationally recognised method e.g. differential scanning calorimetry and adiabatic calorimetry.*

**NOTE 2:** *The self-accelerating decomposition temperature (SADT) is the lowest temperature at which self-accelerating decomposition may occur with a substance in the packaging as used during carriage. Requirements for the determination of the SADT are given in the Manual of Tests and Criteria, Part II, Chapter 20 and section 28.4.*

**NOTE 3:** *Any substance which shows the properties of a self-reactive substance shall be classified as such, even if this substance gives a positive test result according to 2.2.42.1.5 for inclusion in Class 4.2.*

*Properties*

- 2.2.41.1.10 The decomposition of self-reactive substances can be initiated by heat, contact with catalytic impurities (e.g. acids, heavy-metal compounds, bases), friction or impact. The rate of decomposition increases with temperature and varies with the substance. Decomposition, particularly if no ignition occurs, may result in the evolution of toxic gases or vapours. For certain self-reactive substances, the temperature shall be controlled. Some self-reactive substances may decompose explosively, particularly if confined. This characteristic may be modified by the addition of diluents or by the use of appropriate packagings. Certain self-reactive substances burn vigorously. Self-reactive substances are, for example, some compounds of the types listed below:

aliphatic azo compounds (-C-N=N-C-);  
 organic azides (-C-N<sub>3</sub>);  
 diazonium salts (-CN<sub>2</sub><sup>+</sup> Z<sup>-</sup>);  
 N-nitroso compounds (-N-N=O); and  
 aromatic sulphohydrazides (-SO<sub>2</sub>-NH-NH<sub>2</sub>).

This list is not exhaustive and substances with other reactive groups and some mixtures of substances may have similar properties.

*Classification*

- 2.2.41.1.11 Self-reactive substances are classified into seven types according to the degree of danger they present. The types of self-reactive substances range from type A, which is not accepted for carriage in the packaging in which it is tested, to type G, which is not subject to the provisions for self-reactive substances of Class 4.1. The classification of types B to F is directly related to the maximum quantity allowed in one packaging. The principles to be applied for classification as well as the applicable classification procedures, test methods and criteria and an example of a suitable test report are given in Part II of the Manual of Tests and Criteria.
- 2.2.41.1.12 Substances which have already been classified and assigned to the appropriate collective entry are listed in 2.2.41.4 together with the applicable UN number, packing method and, where appropriate, control and emergency temperatures.

The collective entries specify:

- self-reactive substances types B to F, see 2.2.41.1.11 above;
- physical state (liquid/solid); and
- temperature control (when required), see 2.2.41.1.17 below.

The classification of the self-reactive substances listed in 2.2.41.4 is based on the technically pure substance (except where a concentration of less than 100% is specified).

- 2.2.41.1.13 Classification of self-reactive substances or formulations of self-reactive substances not listed in 2.2.41.4 and assignment to a collective entry shall be made by the competent authority of the country of origin on the basis of a test report. The statement of approval shall contain the classification and the relevant conditions of carriage. If the country of origin is not a Contracting Party to ADR, the classification and the conditions of carriage shall be recognized by the competent authority of the first country Contracting Party to ADR reached by the consignment.



- 2.2.41.1.14 Activators, such as zinc compounds, may be added to some self-reactive substances to change their reactivity. Depending on both the type and the concentration of the activator, this may result in a decrease in thermal stability and a change in explosive properties. If either of these properties is altered, the new formulation shall be assessed in accordance with the classification procedure.
- 2.2.41.1.15 Samples of self-reactive substances or formulations of self-reactive substances not listed in 2.2.41.4, for which a complete set of test results is not available and which are to be carried for further testing or evaluation, shall be assigned to one of the appropriate entries for self-reactive substances type C provided the following conditions are met:
- the available data indicates that the sample would be no more dangerous than self-reactive substances type B;
  - the sample is packaged in accordance with packing method OP2 and the quantity per transport unit is limited to 10 kg;
  - the available data indicate that the control temperature, if any, is sufficiently low to prevent any dangerous decomposition and sufficiently high to prevent any dangerous phase separation.

#### *Desensitization*

- 2.2.41.1.16 In order to ensure safety during carriage, self-reactive substances are in many cases desensitized by use of a diluent. Where a percentage of a substance is stipulated, this refers to the percentage by mass, rounded to the nearest whole number. If a diluent is used, the self-reactive substance shall be tested with the diluent present in the concentration and form used in carriage. Diluents which may allow a self-reactive substance to concentrate to a dangerous extent in the event of leakage from a packaging shall not be used. Any diluent shall be compatible with the self-reactive substance. In this regard, compatible diluents are those solids or liquids which have no detrimental influence on the thermal stability and hazard type of the self-reactive substance. Liquid diluents in formulations requiring temperature control (see 2.2.41.1.14) shall have a boiling point of at least 60 °C and a flash-point not less than 5 °C. The boiling point of the liquid shall be at least 50 °C higher than the control temperature of the self-reactive substance.

#### *Temperature control requirements*

- 2.2.41.1.17 Certain self-reactive substances may only be carried under temperature controlled conditions. The control temperature is the maximum temperature at which the self-reactive substance can be safely carried. It is assumed that the temperature of the immediate surroundings of a package only exceeds 55 °C during carriage for a relatively short time in a 24 hour period. In the event of loss of temperature control, it may be necessary to implement emergency procedures. The emergency temperature is the temperature at which such procedures shall be implemented. The control and emergency temperatures are derived from the SADT (see table 1). The SADT shall be determined in order to decide whether a substance shall be subjected to temperature control during carriage. Provisions for the determination of the SADT are given in the Manual of Tests and Criteria, Part II, Chapter 20 and Section 28.4.

**Table 1: Derivation of control and emergency temperatures**

Type of receptacle	SADT <sup>a</sup>	Control temperature	Emergency temperature
Single packagings and IBCs	20 °C or less	20 °C below SADT	10 °C below SADT
	over 20 °C to 35 °C	15 °C below SADT	10 °C below SADT
	over 35 °C	10 °C below SADT	5 °C below SADT
Tanks	below 50 °C	10 °C below SADT	5 °C below SADT

<sup>a</sup> SADT of the substance as packaged for carriage.

Self-reactive substances with an SADT not greater than 55 °C shall be subject to temperature control during carriage. Where applicable, control and emergency temperatures are listed in 2.2.41.4. The actual temperature during carriage may be lower than the control temperature but shall be selected so as to avoid dangerous separation of phases.

***Solid desensitized explosives***

- 2.2.41.1.18 Solid desensitized explosives are substances which are wetted with water or alcohols<sup>4</sup> or are diluted with other substances to suppress their explosive properties. Such entries in Table A of Chapter 3.2 are: UN Nos. 1310, 1320, 1321, 1322, 1336, 1337, 1344, 1347; 1348, 1349, 1354, 1355, 1356, 1357, 1517, 1571, 2555, 2556, 2557, 2852, 2907, 3317, 3319, 3344, 3364, 3365, 3366, 3367, 3368, 3369, 3370 and 3376.

***Substances related to self-reactive substances***

- 2.2.41.1.19 Substances that:

- (a) have been provisionally accepted into Class 1 according to Test Series 1 and 2 but exempted from Class 1 by Test Series 6;
- (b) are not self-reactive substances of Class 4.1; and
- (c) are not substances of Classes 5.1 or 5.2

are also assigned to Class 4.1. UN Nos. 2956, 3241, 3242 and 3251 are such entries.

**2.2.41.2 *Substances not accepted for carriage***

- 2.2.41.2.1 The chemically unstable substances of Class 4.1 shall not be accepted for carriage unless the necessary steps have been taken to prevent their dangerous decomposition or polymerization during carriage. To this end, it shall in particular be ensured that receptacles and tanks do not contain any substance liable to promote these reactions.

- 2.2.41.2.2 Flammable solids, oxidizing, assigned to UN No. 3097 shall not be accepted for carriage unless they meet the requirements for Class 1 (see also 2.1.3.7).

2.2.41.2.3 The following substances shall not be accepted for carriage:

- Self-reactive substances of type A [see Manual of Tests and Criteria, Part II, paragraph 20.4.2 (a)];
- Phosphorus sulphides which are not free from yellow and white phosphorus;
- Solid sensitized explosives other than those listed in Table A of Chapter 3.2;
- Inorganic flammable substances in the molten form other than UN No. 2448 SULPHUR, MOLTEN.

## 2.2.41.3 List of collective entries

Flammable solids	without subsidiary risk	organic	F1	3175 SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S. 1353 FIBRES IMPREGNATED WITH WEAKLY NITRATED NITROCELLULOSE, N.O.S. or 1353 FABRICS IMPREGNATED WITH WEAKLY NITRATED NITROCELLULOSE, N.O.S. 1325 FLAMMABLE SOLID, ORGANIC, N.O.S.
		organic molten	F2	3176 FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S.
		inorganic	F3	3089 METAL POWDER, FLAMMABLE, N.O.S. <sup>a b</sup> 3181 METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S. 3182 METAL HYDRIDES, FLAMMABLE, N.O.S. <sup>c</sup> 3178 FLAMMABLE SOLID, INORGANIC, N.O.S.
	oxidizing	FO	3097 FLAMMABLE SOLID, OXIDIZING, N.O.S. (not allowed, see para. 2.2.41.2.2)	
	toxic FT	organic	FT1	2926 FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.
		inorganic	FT2	3179 FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S.
		organic	FC1	2925 FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S.
		inorganic	FC2	3180 FLAMMABLE SOLID, CORROSIVE, INORGANIC, N.O.S.
	Solid desensitized explosives	without subsidiary risk	D	3319 NITROGLYCERIN MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 2% but not more than 10% nitroglycerin by mass 3344 PENTAERYTHRIT TETRANITRATE MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 10% but not more than 20% PETN by mass (No other collective entry available. For other substances, only those listed in Table A of Chapter 3.2 are to be accepted for carriage as substances of Class 4.1.)
			DT	Table A of Chapter 3.2 are to be accepted for carriage as substances of Class 4.1
toxic		DT	Table A of Chapter 3.2 are to be accepted for carriage as substances of Class 4.1	
Self-reactive substances SR	not requiring temperature control	SRI	SELF-REACTIVE LIQUID TYPE A SELF-REACTIVE SOLID TYPE A 3221 SELF-REACTIVE LIQUID TYPE B 3222 SELF-REACTIVE SOLID TYPE B 3223 SELF-REACTIVE LIQUID TYPE C 3224 SELF-REACTIVE SOLID TYPE C 3225 SELF-REACTIVE LIQUID TYPE D 3226 SELF-REACTIVE SOLID TYPE D 3227 SELF-REACTIVE LIQUID TYPE E 3228 SELF-REACTIVE SOLID TYPE E 3229 SELF-REACTIVE LIQUID TYPE F 3230 SELF-REACTIVE SOLID TYPE F SELF-REACTIVE LIQUID TYPE G SELF-REACTIVE SOLID TYPE G } Not accepted for carriage, sec 2.2.41.2.3 } Not subject to the provisions applicable to Class 4.1, see 2.2.41.1.1.11	
		SR2	3231 SELF-REACTIVE LIQUID TYPE B, TEMPERATURE CONTROLLED 3232 SELF-REACTIVE SOLID TYPE B, TEMPERATURE CONTROLLED 3233 SELF-REACTIVE LIQUID TYPE C, TEMPERATURE CONTROLLED 3234 SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED 3235 SELF-REACTIVE LIQUID TYPE D, TEMPERATURE CONTROLLED 3236 SELF-REACTIVE SOLID TYPE D, TEMPERATURE CONTROLLED 3237 SELF-REACTIVE LIQUID TYPE E, TEMPERATURE CONTROLLED 3238 SELF-REACTIVE SOLID TYPE E, TEMPERATURE CONTROLLED 3239 SELF-REACTIVE LIQUID TYPE F, TEMPERATURE CONTROLLED 3240 SELF-REACTIVE SOLID TYPE F, TEMPERATURE CONTROLLED	
	requiring temperature control	SR2	3231 SELF-REACTIVE LIQUID TYPE B, TEMPERATURE CONTROLLED 3232 SELF-REACTIVE SOLID TYPE B, TEMPERATURE CONTROLLED 3233 SELF-REACTIVE LIQUID TYPE C, TEMPERATURE CONTROLLED 3234 SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED 3235 SELF-REACTIVE LIQUID TYPE D, TEMPERATURE CONTROLLED 3236 SELF-REACTIVE SOLID TYPE D, TEMPERATURE CONTROLLED 3237 SELF-REACTIVE LIQUID TYPE E, TEMPERATURE CONTROLLED 3238 SELF-REACTIVE SOLID TYPE E, TEMPERATURE CONTROLLED 3239 SELF-REACTIVE LIQUID TYPE F, TEMPERATURE CONTROLLED 3240 SELF-REACTIVE SOLID TYPE F, TEMPERATURE CONTROLLED	

<sup>a</sup> Metals and metal alloys in powdered or other flammable form, liable to spontaneous combustion, are substances of Class 4.2.

<sup>b</sup> Metals and metal alloys in powdered or other flammable form, which in contact with water, emit flammable gases, are substances of Class 4.3.

<sup>c</sup> Metals hydrides which, in contact with water, emit flammable gases, are substances of Class 4.3. Aluminium borohydride or aluminium borohydride in devices are substances of Class 4.2, UN No. 2870.

## 2.2.41.4 List of self-reactive substances

**NOTE 1:** The classification given in this table is based on the technically pure substance (except where a concentration of less than 100 % is specified). For other concentrations, the substance may be classified differently following the procedures given in Part II of the Manual of Tests and Criteria and in 2.2.41.1.17.

**NOTE 2:** The codes "OP1" to "OP8" shown in the "Packing method" column refer to packing methods in packing instruction P520; (see also 4.1.7.1).

SELF-REACTIVE SUBSTANCE	Concentration (%)	Packing method	Control temperature (°C)	Emergency temperature (°C)	UN generic entry	Remarks
AZODICARBONAMIDE FORMULATION TYPE B, TEMPERATURE CONTROLLED	< 100	OP5			3232	(1) (2).
AZODICARBONAMIDE FORMULATION TYPE C	< 100	OP6			3224	(3)
AZODICARBONAMIDE FORMULATION TYPE C, TEMPERATURE CONTROLLED	< 100	OP6			3234	(4)
AZODICARBONAMIDE FORMULATION TYPE D	< 100	OP7			3226	(5)
AZODICARBONAMIDE FORMULATION TYPE D, TEMPERATURE CONTROLLED	< 100	OP7			3236	(6)
2,2'-AZODI(2,4-DIMETHYL-4-METHOXYVALERONITRILE)	100	OP7	-5	+5	3236	
2,2'-AZODI(2,4-DIMETHYL-VALERONITRILE)	100	OP7	+10	+15	3236	
2,2'-AZODI(ETHYL-2-METHYLPROPIONATE)	100	OP7	+20	+25	3235	
1,1-AZODI(HEXAHYDROBENZONITRILE)	100	OP7			3226	
2,2'-AZODI(ISOBUTYRONITRILE)	100	OP6	+40	+45	3234	
2,2'-AZODI(ISOBUTYRONITRILE) as a water based paste	≤ 50%	OP6			3224	
2,2'-AZODI(2-METHYLBUTYRONITRILE)	100	OP7	+35	+40	3236	
BENZENE-1,3-DISULPHONYL HYDRAZIDE, as a paste	52	OP7			3226	
BENZENE SULPHONYL HYDRAZIDE	100	OP7			3226	
4-(BENZYL(ETHYL)AMINO)-3-ETHOXYBENZENEDIAZONIUM ZINC CHLORIDE	100	OP7			3226	
4-(BENZYL(METHYL)AMINO)-3-ETHOXYBENZENEDIAZONIUM ZINC CHLORIDE	100	OP7	+40	+45	3236	
3-CHLORO-4-DIETHYLAMINO BENZENE-DIAZONIUM ZINC CHLORIDE	100	OP7			3226	
2-DIAZO-1-NAPHTHOL-4-SULPHONYL CHLORIDE	100	OP5			3222	(2)
2-DIAZO-1-NAPHTHOL-5-SULPHONYL CHLORIDE	100	OP5			3222	(2)
2-DIAZO-1-NAPHTHOL SULPHONIC ACID ESTER MIXTURE, TYPE D	< 100	OP7			3226	(9)

SELF-REACTIVE SUBSTANCE	Concentration (%)	Packing method	Control temperature (°C)	Emergency temperature (°C)	UN generic entry	Remarks
2,5-DIBUTOXY-4-(4-MORPHOLINYL)-BENZENEDIAZONIUM, TETRACHLOROZINCATE (2:1)	100	OP8			3228	
2,5-DIETHOXY-4-MORPHOLINO-BENZENEDIAZONIUM ZINC CHLORIDE	67-100	OP7	+35	+40	3236	
2,5-DIETHOXY-4-MORPHOLINO-BENZENEDIAZONIUM ZINC CHLORIDE	66	OP7	+40	+45	3236	
2,5-DIETHOXY-4-MORPHOLINO-BENZENEDIAZONIUM TETRAFLUOROBORATE	100	OP7	+30	+35	3236	
2,5-DIETHOXY-4-(4-MORPHOLINYL)-BENZENEDIAZONIUM SULPHATE	100	OP7			3226	
2,5-DIETHOXY-4-(PHENYLSULPHONYL)-BENZENEDIAZONIUM ZINC CHLORIDE	67	OP7	+40	+45	3236	
DIETHYLENEGLYCOL BIS (ALLYL CARBONATE) + DI-ISOPROPYLPEROXYDICARBONATE	≥ 88 + ≤ 12	OP8	-10	0	3237	
2,5-DIMETHOXY-4-(4-METHYL-PHENYLSULPHONYL)BENZENE-DIAZONIUM ZINC CHLORIDE	79	OP7	+40	+45	3236	
4-(DIMETHYLAMINO)-BENZENEDIAZONIUM TRICHLOROZINCATE (-1)	100	OP8			3228	
4-DIMETHYLAMINO-6-(2-DIMETHYL-AMINOETHOXY) TOLUENE-2-DIAZONIUM ZINC CHLORIDE	100	OP7	+40	+45	3236	
N,N'-DINITROSO-N,N'- DIMETHYL TEREPHTHALAMIDE, as a paste	72	OP6			3224	
N,N'-DINITROSOPENTAMETHYLENE-TETRAMINE	82	OP6			3224	(7)
DIPHENYLOXIDE-4,4'-DISULPHONYL HYDRAZIDE	100	OP7			3226	
4-DIPROPYLAMINO BENZENE-DIAZONIUM ZINC CHLORIDE	100	OP7			3226	
2-(N,N-ETHOXYCARBONYL-PHENYLAMINO)-3-METHOXY-4-(N-METHYL-N-CYCLOHEXYLAMINO) BENZENEDIAZONIUM ZINC CHLORIDE	63-92	OP7	+ 40	+ 45	3236	
2-(N,N-ETHOXYCARBONYL-PHENYLAMINO)-3-METHOXY-4-(N-METHYL-N-CYCLOHEXYLAMINO) BENZENEDIAZONIUM ZINC CHLORIDE	62	OP7	+ 35	+ 40	3236	
N-FORMYL-2-(NITROMETHYLENE)-1,3-PERHYDROTHIAZINE	100	OP7	+45	+50	3236	
2-(2-HYDROXYETHOXY)-1-(PYRROLIDIN-1-YL)BENZENE-4-DIAZONIUM ZINC CHLORIDE	100	OP7	+ 45	+ 50	3236	
3-(2-HYDROXYETHOXY)-4-(PYRROLIDIN-1-YL)BENZENE DIAZONIUM ZINC CHLORIDE	100	OP7	+40	+45	3236	

SELF-REACTIVE SUBSTANCE	Concentration (%)	Packing method	Control temperature (°C)	Emergency temperature (°C)	UN generic entry	Remarks
2-(N,N-METHYLAMINOETHYL-CARBONYL)-4-(3,4-DIMETHYL-PHENYLSULPHONYL)BENZENE-DIAZONIUM HYDROGEN SULPHATE	96	OP7	+45	+50	3236	
4-METHYLBENZENESULPHONYL-HYDRAZIDE	100	OP7			3226	
3-METHYL-4-(PYRROLIDIN-1-YL) BENZENEDIAZONIUM TETRAFLUOROBORATE	95	OP6	+45	+50	3234	
4-NITROSOPHENOL	100	OP7	+35	+40	3236	
SELF-REACTIVE LIQUID, SAMPLE		OP2			3223	(8)
SELF-REACTIVE LIQUID, SAMPLE, TEMPERATURE CONTROLLED		OP2			3233	(8)
SELF-REACTIVE SOLID, SAMPLE		OP2			3224	(8)
SELF-REACTIVE SOLID, SAMPLE, TEMPERATURE CONTROLLED		OP2			3234	(8)
SODIUM 2-DIAZO-1-NAPHTHOL-4-SULPHONATE	100	OP7			3226	
SODIUM 2-DIAZO-1-NAPHTHOL-5-SULPHONATE	100	OP7			3226	
TETRAMINE PALLADIUM (II) NITRATE	100	OP6	+30	+35	3234	

#### Remarks

- (1) Azodicarbonamide formulations which fulfil the criteria of paragraph 20.4.2 (b) of the Manual of Tests and Criteria. The control and emergency temperatures shall be determined by the procedure given in 2.2.41.1.17.
- (2) "EXPLOSIVE" subsidiary risk label required (Model No. 1, see 5.2.2.2.2).
- (3) Azodicarbonamide formulations which fulfil the criteria of paragraph 20.4.2 (c) of the Manual of Tests and Criteria.
- (4) Azodicarbonamide formulations which fulfil the criteria of paragraph 20.4.2 (c) of the Manual of Tests and Criteria. The control and emergency temperatures shall be determined by the procedure given in 2.2.41.1.17.
- (5) Azodicarbonamide formulations which fulfil the criteria of paragraph 20.4.2 (d) of the Manual of Tests and Criteria.
- (6) Azodicarbonamide formulations which fulfil the criteria of paragraph 20.4.2 (d) of the Manual of Tests and Criteria. The control and emergency temperatures shall be determined by the procedure given in 2.2.41.1.17.
- (7) With a compatible diluent having a boiling point of not less than 150 °C.
- (8) See 2.2.41.1.15.
- (9) This entry applies to mixtures of esters of 2-diazo-1-naphthol-4-sulphonic acid and 2-diazo-1-naphthol-5-sulphonic acid which fulfil the criteria of paragraph 20.4.2 (d) of the *Manual of Test and Criteria*.

**2.2.42 Class 4.2 Substances liable to spontaneous combustion****2.2.42.1 Criteria**

2.2.42.1.1 The heading of Class 4.2 covers:

- *Pyrophoric substances* which are substances, including mixtures and solutions (liquid or solid), which even in small quantities ignite on contact with air within five minutes. These are the Class 4.2 substances the most liable to spontaneous combustion; and
- *Self-heating substances and articles* which are substances and articles, including mixtures and solutions, which, on contact with air, without energy supply, are liable to self-heating. These substances will ignite only in large amounts (kilogrammes) and after long periods of time (hours or days).

2.2.42.1.2 The substances and articles of Class 4.2 are subdivided as follows:

S Substances liable to spontaneous combustion, without subsidiary risk:

- S1 Organic, liquid;
- S2 Organic, solid;
- S3 Inorganic, liquid;
- S4 Inorganic, solid;

SW Substances liable to spontaneous combustion, which, in contact with water, emit flammable gases;

SO Substances liable to spontaneous combustion, oxidizing;

ST Substances liable to spontaneous combustion, toxic:

- ST1 Organic, toxic, liquid;
- ST2 Organic, toxic, solid;
- ST3 Inorganic, toxic, liquid;
- ST4 Inorganic, toxic, solid;

SC Substances liable to spontaneous combustion, corrosive:

- SC1 Organic, corrosive, liquid;
- SC2 Organic, corrosive, solid;
- SC3 Inorganic, corrosive, liquid;
- SC4 Inorganic, corrosive, solid.

**Properties**

2.2.42.1.3 Self-heating of these substances, leading to spontaneous combustion, is caused by reaction of the substance with oxygen (in the air) and the heat developed not being conducted away rapidly enough to the surroundings. Spontaneous combustion occurs when the rate of heat production exceeds the rate of heat loss and the auto-ignition temperature is reached.



*Classification*

2.2.42.1.4 Substances and articles classified in Class 4.2 are listed in Table A of Chapter 3.2. The assignment of substances and articles not mentioned by name in Table A of Chapter 3.2 to the relevant specific N.O.S. entry of 2.2.42.3 in accordance with the provisions of Chapter 2.1 can be based on experience or the results of the test procedures in accordance with the Manual of Tests and Criteria, Part III, Section 33.3. Assignment to general N.O.S. entries of Class 4.2 shall be based on the results of the test procedures in accordance with the Manual of Tests and Criteria, Part III, section 33.3; experience shall also be taken into account when it leads to a more stringent assignment.

2.2.42.1.5 When substances or articles not mentioned by name are assigned to one of the entries listed in 2.2.42.3 on the basis of the test procedures in accordance with the Manual of Tests and Criteria, Part III, section 33.3, the following criteria shall apply:

- (a) Solids liable to spontaneous combustion (pyrophoric) shall be assigned to Class 4.2 when they ignite on falling from a height of 1 m or within five minutes;
- (b) Liquids liable to spontaneous combustion (pyrophoric) shall be assigned to Class 4.2 when:
  - (i) on being poured on an inert carrier, they ignite within five minutes, or
  - (ii) in the event of a negative result of the test according to (i), when poured on a dry, indented filter paper (Whatman No. 3 filter), they ignite or carbonize it within five minutes;
- (c) Substances in which, in a 10 cm sample cube, at 140 °C test temperature, spontaneous combustion or a rise in temperature to over 200 °C is observed within 24 hours shall be assigned to Class 4.2. This criterion is based on the temperature of the spontaneous combustion of charcoal, which is at 50 °C for a sample cube of 27 m<sup>3</sup>. Substances with a temperature of spontaneous combustion higher than 50 °C for a volume of 27 m<sup>3</sup> are not to be assigned to Class 4.2.

*NOTE 1: Substances carried in packages with a volume of not more than 3 m<sup>3</sup> are exempted from Class 4.2 if, tested with a 10 cm sample cube at 120 °C, no spontaneous combustion nor a rise in temperature to over 180 °C is observed within 24 hours.*

*NOTE 2: Substances carried in packages with a volume of not more than 450 litres are exempted from Class 4.2 if, tested with a 10 cm sample cube at 100 °C, no spontaneous combustion nor a rise in temperature to over 160 °C is observed within 24 hours.*

2.2.42.1.6 If substances of Class 4.2, as a result of admixtures, come into different categories of risk from those to which the substances mentioned by name in Table A of Chapter 3.2 belong, these mixtures shall be assigned to the entries to which they belong on the basis of their actual degree of danger.

*NOTE: For the classification of solutions and mixtures (such as preparations and wastes), see also 2.1.3.*

2.2.42.1.7 On the basis of the test procedure in the Manual of Tests and Criteria, Part III, section 33.3 and the criteria set out in 2.2.42.1.5, it may also be determined whether the nature of a substance mentioned by name is such that the substance is not subject to the provisions for this Class.

*Assignment of packing groups*

2.2.42.1.8 Substances and articles classified under the various entries in Table A of Chapter 3.2 shall be assigned to packing groups I, II or III on the basis of test procedures of the Manual of Tests and Criteria, Part III, section 33.3, in accordance with the following criteria:

- (a) Substances liable to spontaneous combustion (pyrophoric) shall be assigned to packing group I;
- (b) Self-heating substances and articles in which, in a 2.5 cm sample cube, at 140 °C test temperature, spontaneous combustion or a rise in temperature to over 200 °C is observed within 24 hours, shall be assigned to packing group II;

Substances with a temperature of spontaneous combustion higher than 50 °C for a volume of 450 litres are not to be assigned to packing group II;

- (c) Slightly self-heating substances in which, in a 2.5 cm sample cube, the phenomena referred to under (b) are not observed, in the given conditions, but in which in a 10 cm sample cube at 140 °C test temperature spontaneous combustion or a rise in temperature to over 200 °C is observed within 24 hours, shall be assigned to packing group III.

2.2.42.2 *Substances not accepted for carriage*

The following substances shall not be accepted for carriage:

- UN No. 3255 tert-BUTYL HYPOCHLORITE; and
- Self-heating solids, oxidizing, assigned to UN No. 3127 unless they meet the requirements for Class I (see 2.1.3.7).

## 2.2.42.3 List of collective entries

Substances liable to spontaneous combustion	organic	liquid	S1	2845 PYROPHORIC LIQUID, ORGANIC, N.O.S. 3183 SELF-HEATING LIQUID, ORGANIC, N.O.S.
		solid	S2	1373 FIBRES or FABRICS, ANIMAL or VEGETABLE or SYNTHETIC, N.O.S. with oil 2006 PLASTICS, NITROCELLULOSE-BASED, SELF-HEATING, N.O.S. 3313 ORGANIC PIGMENTS, SELF HEATING 2846 PYROPHORIC SOLID, ORGANIC, N.O.S. 3088 SELF-HEATING SOLID, ORGANIC, N.O.S.
inorganic	liquid			S3
	S	solid	S4	1383 PYROPHORIC METAL, N.O.S. or 1383 PYROPHORIC ALLOY, N.O.S. 1378 METAL CATALYST, WETTED with a visible excess of liquid 2881 METAL CATALYST, DRY 3189 <sup>a</sup> METAL POWDER, SELF-HEATING, N.O.S. 3205 ALKALINE EARTH METAL ALCOHOLATES, N.O.S. 3200 PYROPHORIC SOLID, INORGANIC, N.O.S. 3190 SELF-HEATING SOLID, INORGANIC, N.O.S.
Water-reactive				SW
Oxidizing			SO	3127 SELF-HEATING SOLID, OXIDIZING, N.O.S. (not allowed, see 2.2.42.2)

(cont'd)

<sup>a</sup> Dust and powder of metals, non toxic in a non-spontaneous combustible form which nevertheless, in contact with water, emit flammable gases, are substances of Class 4.3.

<sup>b</sup> Metal hydrides other than UN No. 2870 in flammable form are substances of Class 4.1.

<sup>c</sup> Metal hydrides which, in contact with water, emit flammable gases, are substances of Class 4.3.

<sup>d</sup> Flammable solutions with organometallic compounds which are not liable to spontaneous combustion and, in contact with water, do not emit flammable gases, are substances of Class 3. Organometallic compounds and their solutions which are liable to spontaneous combustion but, in contact with water, emit flammable gases, are substances of Class 4.3.

## 2.2.42.3

*List of collective entries (cont'd)*

Toxic ST	organic	liquid	ST1	3184 SELF-HEATING LIQUID, TOXIC, ORGANIC, N.O.S.
		solid	ST2	3128 SELF-HEATING SOLID, TOXIC, ORGANIC, N.O.S.
	inorganic	liquid	ST3	3187 SELF-HEATING LIQUID, TOXIC, INORGANIC, N.O.S.
		solid	ST4	3191 SELF-HEATING SOLID, TOXIC, INORGANIC, N.O.S.
Corrosive SC	organic	liquid	SC1	3185 SELF-HEATING LIQUID, CORROSIVE, ORGANIC, N.O.S.
		solid	SC2	3126 SELF-HEATING SOLID, CORROSIVE, ORGANIC, N.O.S.
	inorganic	liquid	SC3	3188 SELF-HEATING LIQUID, CORROSIVE, INORGANIC, N.O.S.
		solid	SC4	3206 ALKALI METAL ALCOHOLATES, SELF-HEATING, CORROSIVE, N.O.S. 3192 SELF-HEATING SOLID, CORROSIVE, INORGANIC, N.O.S.

**2.2.43 Class 4.3 Substances which, in contact with water, emit flammable gases**

**2.2.43.1 *Criteria***

2.2.43.1.1 The heading of Class 4.3 covers substances which react with water to emit flammable gases liable to form explosive mixtures with air, and articles containing such substances.

2.2.43.1.2 Substances and articles of Class 4.3 are subdivided as follows:

W Substances which, in contact with water, emit flammable gases, without subsidiary risk, and articles containing such substances:

- W1 Liquid;
- W2 Solid;
- W3 Articles;

WF1 Substances which, in contact with water, emit flammable gases, liquid, flammable;

WF2 Substances which, in contact with water, emit flammable gases, solid, flammable;

WS Substances which, in contact with water, emit flammable gases, solid, self-heating;

WO Substances which, in contact with water, emit flammable gases, oxidizing, solid;

WT Substances which, in contact with water, emit flammable gases, toxic:

- WT1 Liquid;
- WT2 Solid;

WC Substances which, in contact with water, emit flammable gases, corrosive:

- WC1 Liquid;
- WC2 Solid;

WFC Substances which, in contact with water, emit flammable gases, flammable, corrosive.

*Properties*

2.2.43.1.3 Certain substances in contact with water may emit flammable gases that can form explosive mixtures with air. Such mixtures are easily ignited by all ordinary sources of ignition, for example naked lights, sparking handtools or unprotected light bulbs. The resulting blast wave and flames may endanger people and the environment. The test method referred to in 2.2.43.1.4 below is used to determine whether the reaction of a substance with water leads to the development of a dangerous amount of gases which may be flammable. This test method shall not be applied to pyrophoric substances.

*Classification*

2.2.43.1.4 Substances and articles classified in Class 4.3 are listed in Table A of Chapter 3.2. The assignment of substances and articles not mentioned by name in Table A of Chapter 3.2 to the relevant entry of 2.2.43.3 in accordance with the provisions of Chapter 2.1 shall be based on the results of the test procedure in accordance with the Manual of Tests and Criteria, Part III, Section 33.4; experience shall also be taken into account when it leads to a more stringent assignment.

2.2.43.1.5 When substances not mentioned by name are assigned to one of the entries listed in 2.2.43.3 on the basis of the test procedure in accordance with the Manual of Tests and Criteria, Part III, Section 33.4, the following criteria shall apply:

A substance shall be assigned to Class 4.3 if:

- (a) spontaneous ignition of the gas emitted takes place in any step of the test procedure; or
- (b) there is an evolution of flammable gas at a rate greater than 1 litre per kilogramme of the substance to be tested per hour.

2.2.43.1.6 If substances of Class 4.3, as a result of admixtures, come into different categories of risk from those to which the substances mentioned by name in Table A of Chapter 3.2 belong, these mixtures shall be assigned to the entries to which they belong on the basis of their actual degree of danger.

*NOTE: For the classification of solutions and mixtures (such as preparations and wastes) see also 2.1.3.*

2.2.43.1.7 On the basis of the test procedures in accordance with the Manual of Tests and Criteria, Part III, Section 33.4, and the criteria set out in paragraph 2.2.43.1.5, it may also be determined whether the nature of a substance mentioned by name is such that the substance is not subject to the provisions for this Class.

*Assignment of packing groups*

2.2.43.1.8 Substances and articles classified under the various entries in Table A of Chapter 3.2 shall be assigned to packing groups I, II or III on the basis of test procedures of the Manual of Tests and Criteria, Part III, section 33.4, in accordance with the following criteria:

- (a) Packing group I shall be assigned to any substance which reacts vigorously with water at ambient temperature and generally demonstrates a tendency for the gas produced to ignite spontaneously, or one which reacts readily with water at ambient temperatures such that the rate of evolution of flammable gas is equal to or greater than 10 litres per kilogramme of substance over any one minute period;
- (b) Packing group II shall be assigned to any substance which reacts readily with water at ambient temperature such that the maximum rate of evolution of flammable gas is equal to or greater than 20 litres per kilogramme of substance per hour, and which does not meet the criteria of packing group I;
- (c) Packing group III shall be assigned to any substance which reacts slowly with water at ambient temperature such that the maximum rate of evolution of flammable gas is greater than 1 litre per kilogramme of substance per hour, and which does not meet the criteria of packing groups I or II.

2.2.43.2 *Substances not accepted for carriage*

Water-reactive solids, flammable, assigned to UN No. 3132, water-reactive solids, oxidizing, assigned to UN No. 3133 and water-reactive solids, self-heating, assigned to UN No. 3135 shall not be accepted for carriage unless they meet the requirements for Class 1 (see also 2.1.3.7).

## 2.2.43.3 List of collective entries

Substances which, in contact with water, emit flammable gases	liquid	W1	1391 ALKALI METAL DISPERSION or 1391 ALKALINE EARTH METAL DISPERSION 1421 ALKALI METAL ALLOY, LIQUID, N.O.S. 3148 WATER-REACTIVE LIQUID, N.O.S.
	solid	W2 <sup>a</sup>	1389 ALKALI METAL AMALGAM 1390 ALKALI METAL AMIDES 1392 ALKALINE EARTH METAL AMALGAM 1393 ALKALINE EARTH METAL ALLOY, N.O.S. 1409 METAL HYDRIDES, WATER-REACTIVE, N.O.S. 3170 ALUMINIUM SMELTING BY-PRODUCTS or 3170 ALUMINIUM REMELTING BY-PRODUCTS 3208 METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S. 2813 WATER-REACTIVE SOLID, N.O.S.
Without subsidiary risk			
W	articles	W3	3292 BATTERIES, CONTAINING SODIUM or 3292 CELLS, CONTAINING SODIUM
Liquid, flammable		WF1 <sup>b</sup>	3207 ORGANOMETALLIC COMPOUND, WATER-REACTIVE, FLAMMABLE, N.O.S., or 3207 ORGANOMETALLIC COMPOUND SOLUTION, WATER-REACTIVE, FLAMMABLE, N.O.S. or 3207 ORGANOMETALLIC COMPOUND DISPERSION, WATER-REACTIVE, FLAMMABLE, N.O.S.
Solid, flammable		WF2	3372 ORGANOMETALLIC COMPOUND, SOLID, WATER-REACTIVE, FLAMMABLE, N.O.S. 3132 WATER-REACTIVE SOLID, FLAMMABLE, N.O.S. (not allowed, see 2.2.43.2)
Solid, self-heating		WS <sup>c</sup>	3209 METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S. 3135 WATER-REACTIVE SOLID, SELF-HEATING, N.O.S. (not allowed, see 2.2.43.2)
Solid, oxidizing		WO	3133 WATER-REACTIVE SOLID, OXIDIZING, N.O.S. (not allowed, see 2.2.43.2)
Toxic	liquid	WT1	3130 WATER-REACTIVE LIQUID, TOXIC, N.O.S.
WT	solid	WT2	3134 WATER-REACTIVE SOLID, TOXIC, N.O.S.
Corrosive	liquid	WC1	3129 WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.
WC	solid	WC2	3131 WATER-REACTIVE SOLID, CORROSIVE, N.O.S.
Flammable, corrosive		WFC <sup>d</sup>	2988 CHLOROSILANES, WATER-REACTIVE, FLAMMABLE, CORROSIVE, NO.S. (No other collective entry with this classification code available, if need be, classification under a collective entry with a classification code to be determined according to the table of precedence of hazard in 2.1.3.9.)

<sup>a</sup> Metals and metal alloys which, in contact with water, do not emit flammable gases and are not pyrophoric or self-heating, but which are readily flammable, are substances of Class 4.1. Alkaline-earth metals and alkaline-earth metal alloys in pyrophoric form are substances of Class 4.2. Dust and powders of metals in pyrophoric form are substances of Class 4.2. Metals and metal alloys in pyrophoric form are substances of Class 4.2. Compounds of phosphorus with heavy metals such as iron, copper, etc. are not subject to the provisions of ADR.

<sup>b</sup> Flammable solutions with organometallic compounds in concentrations which, in contact with water, neither emit flammable gases in dangerous quantities, or ignite spontaneously, are substances of Class 3. Organometallic compounds and their solutions, which ignite spontaneously, are substances of Class 4.2.

<sup>c</sup> Metals and metal alloys in pyrophoric form are substances of Class 4.2.

<sup>d</sup> Chlorosilanes, having a flash-point of less than 23 °C and which, in contact with water, do not emit flammable gases, are substances of Class 3. Chlorosilanes, having a flash-point equal to or greater than 23 °C and which, in contact with water, do not emit flammable gases, are substances of Class 8.

**2.2.51 Class 5.1 Oxidizing substances****2.2.51.1 Criteria**

2.2.51.1.1 The heading of Class 5.1 covers substances which, while in themselves not necessarily combustible, may, generally by yielding oxygen, cause or contribute to the combustion of other material, and articles containing such substances.

2.2.51.1.2 The substances of Class 5.1 and articles containing such substances are subdivided as follows:

O Oxidizing substances without subsidiary risk or articles containing such substances:

- O1 Liquid;
- O2 Solid;
- O3 Articles;

OF Oxidizing substances, solid, flammable;

OS Oxidizing substances, solid, self-heating;

OW Oxidizing substances, solid which, in contact with water, emit flammable gases;

OT Oxidizing substances, toxic:

- OT1 Liquid;
- OT2 Solid;

OC Oxidizing substances, corrosive:

- OC1 Liquid;
- OC2 Solid;

OTC Oxidizing substances, toxic, corrosive.

2.2.51.1.3 Substances and articles classified in Class 5.1 are listed in Table A of Chapter 3.2. The assignment of substances and articles not mentioned by name in Table A of Chapter 3.2 to the relevant entry of 2.2.51.3 in accordance with the provisions of Chapter 2.1 can be based on the tests, methods and criteria in paragraphs 2.2.51.1.6-2.2.51.1.9 below and the Manual of Tests and Criteria, Part III, Section 34.4. In the event of divergence between test results and known experience, judgement based on known experience shall take precedence over test results.

2.2.51.1.4 If substances of Class 5.1, as a result of admixtures, come into different categories of risk from those to which the substances mentioned by name in Table A of Chapter 3.2 belong, these mixtures or solutions shall be assigned to the entries to which they belong on the basis of their actual degree of danger.

*NOTE: For the classification of solutions and mixtures (such as preparations and wastes), see also Section 2.1.3.*

2.2.51.1.5 On the basis of the test procedures in the Manual of Tests and Criteria, Part III, Section 34.4 and the criteria set out in 2.2.51.1.6 to 2.2.51.1.9 it may also be determined whether the nature of a substance mentioned by name in Table A of Chapter 3.2 is such that the substance is not subject to the provisions for this class.



*Oxidizing solids**Classification*

- 2.2.51.1.6 When oxidizing solid substances not mentioned by name in Table A of Chapter 3.2 are assigned to one of the entries listed in 2.2.51.3 on the basis of the test procedure in accordance with the Manual of Tests and Criteria, Part III, sub-section 34.4.1, the following criteria shall apply:

A solid substance shall be assigned to Class 5.1 if, in the 4:1 or the 1:1 sample-to-cellulose ratio (by mass) tested, it ignites or burns or exhibits mean burning times equal to or less than that of a 3:7 mixture (by mass) of potassium bromate and cellulose.

*Assignment of packing groups*

- 2.2.51.1.7 Oxidizing solids classified under the various entries in Table A of Chapter 3.2 shall be assigned to packing groups I, II or III on the basis of test procedures of the Manual of Tests and Criteria, Part III, sub-section 34.4.1, in accordance with the following criteria:

- (a) Packing group I: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time less than the mean burning time of a 3:2 mixture, by mass, of potassium bromate and cellulose;
- (b) Packing group II: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 2:3 mixture (by mass) of potassium bromate and cellulose and the criteria for packing group I are not met;
- (c) Packing group III: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 3:7 mixture (by mass) of potassium bromate and cellulose and the criteria for packing groups I and II are not met.

*Oxidizing liquids**Classification*

- 2.2.51.1.8 When oxidizing liquid substances not mentioned by name in Table A of Chapter 3.2 are assigned to one of the entries listed in sub-section 2.2.51.3 on the basis of the test procedure in accordance with the Manual of Tests and Criteria, Part III, sub-section 34.4.2, the following criteria shall apply:

A liquid substance shall be assigned to Class 5.1 if, in the 1:1 mixture, by mass, of substance and cellulose tested, it exhibits a pressure rise of 2070 kPa gauge or more and a mean pressure rise time equal to or less than the mean pressure rise time of a 1:1 mixture, by mass, of 65% aqueous nitric acid and cellulose.

*Assignment of packing groups*

- 2.2.51.1.9 Oxidizing liquids classified under the various entries in Table A of Chapter 3.2 shall be assigned to packing groups I, II or III on the basis of test procedures of the Manual of Tests and Criteria, Part III, section 34.4.2, in accordance with the following criteria:

- (a) Packing group I: any substance which, in the 1:1 mixture, by mass, of substance and cellulose tested, spontaneously ignites; or the mean pressure rise time of a 1:1 mixture, by mass, of substance and cellulose is less than that of a 1:1 mixture, by mass, of 50% perchloric acid and cellulose;
- (b) Packing group II: any substance which, in the 1:1 mixture, by mass, of substance and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture, by mass, of 40% aqueous sodium chlorate solution and cellulose; and the criteria for packing group I are not met;
- (c) Packing group III: any substance which, in the 1:1 mixture, by mass, of substance and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture, by mass, of 65% aqueous nitric acid and cellulose; and the criteria for packing groups I and II are not met.

### 2.2.51.2 *Substances not accepted for carriage*

2.2.51.2.1 The chemically unstable substances of Class 5.1 shall not be accepted for carriage unless the necessary steps have been taken to prevent their dangerous decomposition or polymerization during carriage. To this end it shall in particular be ensured that receptacles do not contain any material liable to promote these reactions.

2.2.51.2.2 The following substances and mixtures shall not be accepted for carriage:

- oxidizing solids, self-heating, assigned to UN No. 3100, oxidizing solids, water-reactive, assigned to UN No. 3121 and oxidizing solids, flammable, assigned to UN No. 3137, unless they meet the requirements for Class 1 (see also 2.1.3.7);
- hydrogen peroxide; not stabilized or hydrogen peroxide, aqueous solutions, not stabilized containing more than 60 % hydrogen peroxide;
- tetranitromethane not free from combustible impurities;
- perchloric acid solutions containing more than 72 % (mass) acid, or mixtures of perchloric acid with any liquid other than water;
- chloric acid solution containing more than 10 % chloric acid or mixtures of chloric acid with any liquid other than water;
- halogenated fluor compounds other than UN Nos. 1745 BROMINE PENTAFLUORIDE; 1746 BROMINE TRIFLUORIDE and 2495 IODINE PENTAFLUORIDE of Class 5.1 as well as UN Nos. 1749 CHLORINE TRIFLUORIDE and 2548 CHLORINE PENTAFLUORIDE of Class 2;
- ammonium chlorate and its aqueous solutions and mixtures of a chlorate with an ammonium salt;
- ammonium chlorite and its aqueous solutions and mixtures of a chlorite with an ammonium salt;
- mixtures of a hypochlorite with an ammonium salt;
- ammonium bromate and its aqueous solutions and mixtures of a bromate with an ammonium salt;

- ammonium permanganate and its aqueous solutions and mixtures of a permanganate with an ammonium salt;
- ammonium nitrate containing more than 0.2 % combustible substances (including any organic substance calculated as carbon) unless it is a constituent of a substance or article of Class 1;
- fertilizers having an ammonium nitrate content (in determining the ammonium nitrate content, all nitrate ions for which a molecular equivalent of ammonium ions is present in the mixture shall be calculated as ammonium nitrate) or a content in combustible substances exceeding the values specified in special provision 307 except under the conditions applicable to Class 1;
- ammonium nitrite and its aqueous solutions and mixtures of an inorganic nitrite with an ammonium salt;
- mixtures of potassium nitrate, sodium nitrite and an ammonium salt.

2.2.51.3 *List of collective entries*

<b>Oxidizing substances</b>	<b>liquid</b>	<b>O1</b>	3210 CHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. 3211 PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. 3213 BROMATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. 3214 PERMANGANATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. 3216 PERSULPHATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. 3218 NITRATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. 3219 NITRITES, INORGANIC, AQUEOUS SOLUTION, N.O.S. 3139 OXIDIZING LIQUID, N.O.S.
<b>Without subsidiary risk</b>	<b>solid</b>	<b>O2</b>	1450 BROMATES, INORGANIC, N.O.S 1461 CHLORATES, INORGANIC, N.O.S. 1462 CHLORITES, INORGANIC, N.O.S. 1477 NITRATES, INORGANIC, N.O.S 1481 PERCHLORATES, INORGANIC, N.O.S. 1482 PERMANGANATES, INORGANIC, N.O.S. 1483 PEROXIDES, INORGANIC, N.O.S 2627 NITRITES, INORGANIC, N.O.S. 3212 HYPOCHLORITES, INORGANIC, N.O.S. 3215 PERSULPHATES, INORGANIC, N.O.S. 1479 OXIDIZING SOLID, N.O.S.
<b>O</b>	<b>articles</b>	<b>O3</b>	3356 OXYGEN GENERATOR, CHEMICAL
<b>Solid, flammable</b>		<b>OF</b>	3137 OXIDIZING SOLID, FLAMMABLE, N.O.S. (not allowed, see 2.2.51.2)
<b>Solid, self-heating</b>		<b>OS</b>	3100 OXIDIZING SOLID, SELF-HEATING, N.O.S. (not allowed, see 2.2.51.2)
<b>Solid, water reactive</b>		<b>OW</b>	3121 OXIDIZING SOLID, WATER REACTIVE, N.O.S. (not allowed, see 2.2.51.2)
<b>Toxic</b>	<b>liquid</b>	<b>OT1</b>	3099 OXIDIZING LIQUID, TOXIC, N.O.S.
<b>OT</b>	<b>solid</b>	<b>OT2</b>	3087 OXIDIZING SOLID, TOXIC, N.O.S.
<b>Corrosive</b>	<b>liquid</b>	<b>OC1</b>	3098 OXIDIZING LIQUID, CORROSIVE, N.O.S.
<b>OC</b>	<b>solid</b>	<b>OC2</b>	3085 OXIDIZING SOLID, CORROSIVE, N.O.S.
<b>Toxic, corrosive</b>		<b>OTC</b>	(No collective entry with this classification code available; if need be, classification under a collective entry with a classification code to be determined according to the table of precedence of hazard in 2.1.3.9.)

**2.2.52 Class 5.2 Organic peroxides**

**2.2.52.1 Criteria**

2.2.52.1.1 The heading of Class 5.2 covers organic peroxides and formulations of organic peroxides.

2.2.52.1.2 The substances of Class 5.2 are subdivided as follows:

- P1 Organic peroxides, not requiring temperature control;
- P2 Organic peroxides, requiring temperature control.

*Definition*

2.2.52.1.3 *Organic peroxides* are organic substances which contain the bivalent -O-O- structure and may be considered derivatives of hydrogen peroxide, where one or both of the hydrogen atoms have been replaced by organic radicals.

*Properties*

2.2.52.1.4 Organic peroxides are liable to exothermic decomposition at normal or elevated temperatures. The decomposition can be initiated by heat, contact with impurities (e.g. acids, heavy-metal compounds, amines), friction or impact. The rate of decomposition increases with temperature and varies with the organic peroxide formulation. Decomposition may result in the evolution of harmful, or flammable, gases or vapours. For certain organic peroxides the temperature shall be controlled during carriage. Some organic peroxides may decompose explosively, particularly if confined. This characteristic may be modified by the addition of diluents or by the use of appropriate packagings. Many organic peroxides burn vigorously. Contact of organic peroxides with the eyes is to be avoided. Some organic peroxides will cause serious injury to the cornea, even after brief contact, or will be corrosive to the skin.

*NOTE: Test methods for determining the flammability of organic peroxides are set out in the Manual of Tests and Criteria, Part III, sub-section 32.4. Because organic peroxides may react vigorously when heated, it is recommended to determine their flash-point using small sample sizes such as described in ISO 3679:1983.*

*Classification*

2.2.52.1.5 Any organic peroxide shall be considered for classification in Class 5.2 unless the organic peroxide formulation contains:

- (a) Not more than 1.0 % available oxygen from the organic peroxides when containing not more than 1.0 % hydrogen peroxide;
- (b) Not more than 0.5 % available oxygen from the organic peroxides when containing more than 1.0 % but not more than 7.0 % hydrogen peroxide.

*NOTE: The available oxygen content (%) of an organic peroxide formulation is given by the formula*

$$16 \times \sum (n_i \times c_i / m_i)$$

where:

- $n_i$  = number of peroxygen groups per molecule of organic peroxide  $i$ ;
- $c_i$  = concentration (mass %) of organic peroxide  $i$ ; and
- $m_i$  = molecular mass of organic peroxide  $i$ .

2.2.52.1.6 Organic peroxides are classified into seven types according to the degree of danger they present. The types of organic peroxide range from type A, which is not accepted for carriage in the packaging in which it is tested, to type G, which is not subject to the provisions of Class 5.2. The classification of types B to F is directly related to the maximum quantity allowed in one packaging. The principles to be applied to the classification of substances not listed in 2.2.52.4 are set out in the Manual of Tests and Criteria, Part II.

2.2.52.1.7 Organic peroxides and formulations of organic peroxides which have already been classified and assigned to the appropriate generic entry are listed in 2.2.52.4 together with the applicable UN number, packing method and where appropriate, control and emergency temperatures.

These generic entries specify:

- the type (B to F) of organic peroxide (see 2.2.52.1.6 above);
- physical state (liquid/solid); and
- temperature control (when required), see 2.2.52.1.15 to 2.2.52.1.18.

Mixtures of these formulations may be classified as the same type of organic peroxide as that of the most dangerous component and be carried under the conditions of carriage given for this type. However, as two stable components can form a thermally less stable mixture, the self-accelerating decomposition temperature (SADT) of the mixture shall be determined and, if necessary, the control and emergency temperatures derived from the SADT in accordance with 2.2.52.1.16.

2.2.52.1.8 Classification of organic peroxides, formulations or mixtures of organic peroxides not listed in 2.2.52.4 and assignment to a collective entry shall be made by the competent authority of the country of origin. The statement of approval shall contain the classification and the relevant conditions of carriage. If the country of origin is not a Contracting Party to ADR, the classification and conditions of carriage shall be recognized by the competent authority of the first country Contracting Party to ADR reached by the consignment.

2.2.52.1.9 Samples of organic peroxides or formulations of organic peroxides not listed in 2.2.52.4, for which a complete set of test results is not available and which are to be carried for further testing or evaluation, shall be assigned to one of the appropriate entries for organic peroxides type C provided the following conditions are met:

- the available data indicate that the sample would be no more dangerous than organic peroxides type B;
- the sample is packaged in accordance with packing method OP2 and the quantity per transport unit is limited to 10 kg;
- the available data indicate that the control temperature, if any, is sufficiently low to prevent any dangerous decomposition and sufficiently high to prevent any dangerous phase separation.

#### *Desensitization of organic peroxides*

2.2.52.1.10 In order to ensure safety during carriage, organic peroxides are in many cases desensitized by organic liquids or solids, inorganic solids or water. Where a percentage of a substance is stipulated, this refers to the percentage by mass, rounded to the nearest whole number. In general, desensitization shall be such that, in case of spillage, the organic peroxide will not concentrate to a dangerous extent.

2.2.52.1.11 Unless otherwise stated for the individual organic peroxide formulation, the following definition(s) shall apply to diluents used for desensitization:

- diluents type A are organic liquids which are compatible with the organic peroxide and which have a boiling point of not less than 150 °C. Type A diluents may be used for desensitizing all organic peroxides.
- diluents type B are organic liquids which are compatible with the organic peroxide and which have a boiling point of less than 150 °C but not less than 60 °C and a flash-point of not less than 5 °C.

Type B diluents may be used for desensitization of all organic peroxides provided that the boiling point of the liquid is at least 60 °C higher than the SADT in a 50 kg package.

2.1.52.1.12 Diluents, other than type A or type B, may be added to organic peroxide formulations as listed in 2.2.52.4 provided that they are compatible. However, replacement of all or part of a type A or type B diluent by another diluent with differing properties requires that the organic peroxide formulation be re-assessed in accordance with the normal acceptance procedure for Class 5.2.

2.2.52.1.13 Water may only be used for the desensitization of organic peroxides which are listed in 2.2.52.4 or in the competent authority decision according to 2.2.52.1.8 as being "with water" or "as a stable dispersion in water". Samples of organic peroxides or formulations of organic peroxides not listed in 2.2.52.4 may also be desensitized with water provided the requirements of 2.2.52.1.9 are met.

2.2.52.1.14 Organic and inorganic solids may be used for desensitization of organic peroxides provided that they are compatible. Compatible liquids and solids are those which have no detrimental influence on the thermal stability and hazard type of the organic peroxide formulation.

#### *Temperature control requirements*

2.2.52.1.15 Certain organic peroxides may only be carried under temperature-controlled conditions. The control temperature is the maximum temperature at which the organic peroxide can be safely carried. It is assumed that the temperature of the immediate surroundings of a package only exceeds 55 °C during carriage for a relatively short time in a 24 hour period. In the event of loss of temperature control, it may be necessary to implement emergency procedures. The emergency temperature is the temperature at which such procedures shall be implemented.

2.2.52.1.16 The control and emergency temperatures are derived from the SADT which is defined as the lowest temperature at which self-accelerating decomposition may occur with a substance in the packaging as used during carriage (see Table 1). The SADT shall be determined in order to decide whether a substance shall be subjected to temperature control during carriage. Provisions for the determination of the SADT are given in the Manual of Tests and Criteria, Part II, Sections 20 and 28.4.

**Table 1: Derivation of control and emergency temperatures**

Type of receptacle	SADT <sup>a</sup>	Control temperature	Emergency temperature
Single packagings and IBCs	20 °C or less	20 °C below SADT	10 °C below SADT
	over 20 °C to 35 °C	15 °C below SADT	10 °C below SADT
	over 35 °C	10 °C below SADT	5 °C below SADT
Tanks	below 50 °C	10 °C below SADT	5 °C below SADT

<sup>a</sup> *SADT of the substance as packaged for carriage.*

2.2.52.1.17 The following organic peroxides shall be subject to temperature control during carriage:

- organic peroxides types B and C with an SADT ≤ 50 °C;
- organic peroxides type D showing a medium effect when heated under confinement with an SADT ≤ 50 °C or showing a low or no effect when heated under confinement with an SADT ≤ 45 °C; and
- organic peroxides types E and F with an SADT ≤ 45 °C.

*NOTE: Provisions for the determination of the effects of heating under confinement are given in the Manual of Tests and Criteria, Part II, Section 20 and Sub-section 28.4.*

2.2.52.1.18 Where applicable, control and emergency temperatures are listed in 2.2.52.4. The actual temperature during carriage may be lower than the control temperature but shall be selected so as to avoid dangerous separation of phases.

#### 2.2.52.2 *Substances not accepted for carriage*

Organic peroxides, type A, shall not be accepted for carriage under the provisions of Class 5.2 [see Manual of Tests and Criteria, Part II, paragraph 20.4.3 (a)].



### 2.2.52.3 List of collective entries

Organic peroxides		ORGANIC PEROXIDE TYPE A, LIQUID	} Not accepted for carriage, see 2.2.52.2
		ORGANIC PEROXIDE TYPE A, SOLID	
	3101	ORGANIC PEROXIDE TYPE B, LIQUID	
	3102	ORGANIC PEROXIDE TYPE B, SOLID	
	3103	ORGANIC PEROXIDE TYPE C, LIQUID	
	3104	ORGANIC PEROXIDE TYPE C, SOLID	
	3105	ORGANIC PEROXIDE TYPE D, LIQUID	
	3106	ORGANIC PEROXIDE TYPE D, SOLID	
	3107	ORGANIC PEROXIDE TYPE E, LIQUID	
	3108	ORGANIC PEROXIDE TYPE E, SOLID	
		ORGANIC PEROXIDE TYPE F, LIQUID	} Not subject to the provisions applicable to Class 5.2, see 2.2.52.1.6
		ORGANIC PEROXIDE TYPE F, SOLID	
		ORGANIC PEROXIDE TYPE G, LIQUID	
		ORGANIC PEROXIDE TYPE G, SOLID	
Not requiring temperature control	P1		
		3111	ORGANIC PEROXIDE TYPE B, LIQUID, TEMPERATURE CONTROLLED
		3112	ORGANIC PEROXIDE TYPE B, SOLID, TEMPERATURE CONTROLLED
		3113	ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED
		3114	ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED
		3115	ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED
		3116	ORGANIC PEROXIDE TYPE D, SOLID, TEMPERATURE CONTROLLED
		3117	ORGANIC PEROXIDE TYPE E, LIQUID, TEMPERATURE CONTROLLED
		3118	ORGANIC PEROXIDE TYPE E, SOLID, TEMPERATURE CONTROLLED
		3119	ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED
		3120	ORGANIC PEROXIDE TYPE F, SOLID, TEMPERATURE CONTROLLED
Requiring temperature control	P2		

### 2.2.52.4 List of currently assigned organic peroxides

**NOTE:** In the following table, in the column "Packing method",

- The letters "OP" followed by a figure refer to the packing method (see 4.1.4.1, packing instruction P520 and 4.1.7.1);
- The letter "N" indicates that carriage in IBCs is authorized (see 4.1.4.2, packing instruction IBC520 and 4.1.7.2);
- The letter "M" indicates that carriage in tanks is authorized (see 4.2.1.13 and 4.2.5.2, portable tank instruction T23; 4.3.2 and 4.3.4.1.3 (e), tank code LABN for liquids and S4AN for solids).

## 2.2.52.4 List of currently assigned organic peroxides (cont'd)

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%)	Inert solid (%)	Water	Packing Method	Control temperature (°C)	Emergency temperature (°C)	Number (Generic entry)	Subsidiary risks and remarks
ACETYL ACETONE PEROXIDE	≤ 42	≥ 48			≥ 8	OP7			3105	2)
"	≤ 32 as a paste					OP7			3106	20)
ACETYL BENZOYL PEROXIDE	≤ 45	≥ 55				OP7			3105	
ACETYL CYCLOHEXANESULPHONYL PEROXIDE	≤ 82				≥ 12	OP4	-10	0	3112	3)
"	≤ 32		≥ 68			OP7	-10	0	3115	
tert-AMYL HYDROPEROXIDE	≤ 88	≥ 6			≥ 6	OP8			3107	
tert-AMYL PEROXYACETATE	≤ 62	≥ 38				OP8			3107	
tert-AMYL PEROXYBENZOATE	≤ 100					OP5			3103	
tert-AMYL PEROXY-2-ETHYLHEXANOATE	≤ 100					OP7	+20	+25	3115	
tert-AMYL PEROXY-2-ETHYLHEXYL CARBONATE	≤ 100					OP7			3105	
tert-AMYL PEROXYNEODECANOATE	≤ 77		≥ 23			OP7	0	+10	3115	
tert-AMYL PEROXYPIVALATE	≤ 77		≥ 23			OP5	+10	+15	3113	
tert-AMYL PEROXY-3,5,5-TRIMETHYLHEXANOATE	≤ 100					OP5			3101	3)
tert-BUTYL CUMYL PEROXIDE	> 42 - 100					OP7			3105	
"	≤ 42			≥ 58		OP7			3106	
n-BUTYL-4-4-DI-(tert-BUTYLPEROXY)VALERATE	> 52 - 100			≥ 48		OP5			3103	
"	≤ 52			≥ 48		OP7			3106	
"	≤ 42			≥ 58		OP8			3108	
tert-BUTYL HYDROPEROXIDE	> 79 - 90				≥ 10	OP5			3103	13)
"	≤ 80	≥ 20				OP7			3105	4) 13)
"	≤ 79				> 14	OP8			3107	13) 23)
"	≤ 72				≥ 28	OP8, N, M			3109	13)
tert-BUTYL HYDROPEROXIDE + DI-tert-BUTYLPEROXIDE	< 82 + > 9				≥ 7	OP5			3103	13)
tert-BUTYL MONOPEROXYMALEATE	> 52 - 100					OP5			3102	3)
"	≤ 52	≥ 48				OP6			3103	
"	≤ 52			≥ 48		OP8			3108	
"	≤ 52 as a paste					OP8			3108	
tert-BUTYL MONOPEROXYPHTHALATE	≤ 100					OP5			3102	3)
tert-BUTYL PEROXYACETATE	> 52 - 77	≥ 23				OP5			3101	3)
"	> 32 - 52	≥ 48				OP6			3103	
"	≤ 32	≥ 68				OP8, N			3109	
" (in tanks)	≤ 32		≥ 68			M	+30	+35	3119	
"	≤ 22		≥ 78			OP8			3109	25)

## 2.2.52.4 List of currently assigned organic peroxides (cont'd)

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%)	Intert solid (%)	Water	Packing Method	Control temperature (°C)	Emergency temperature (°C)	Number (Generic entry)	Subsidiary risks and remarks
tert-BUTYL PEROXYBENZOATE	> 77 - 100	< 22				OP5			3103	
"	> 52 - 77	≥ 23				OP7			3105	
"	≤ 52			≥ 48		OP7			3106	
tert-BUTYL PEROXYBUTYL FUMARATE	≤ 52	≥ 48				OP7			3105	
tert-BUTYL PEROXYCROTONATE	≤ 77	≥ 23				OP7			3105	
tert-BUTYL PEROXYDIETHYLACETATE	≤ 100					OP5	+20	+25	3113	
tert-BUTYL PEROXYDIETHYLACETATE + tert-BUTYL PEROXYBENZOATE	≤ 33 + ≤ 33	≥ 33				OP7			3105	
tert-BUTYL PEROXY-2-ETHYLHEXANOATE	> 52 - 100					OP6	+20	+25	3113	
"	> 32 - 52	≥ 48				OP8	+30	+35	3117	
"	≤ 52			≥ 48		OP8	+20	+25	3118	
"	≤ 32	≥ 68				OP8	+40	+45	3119	
" (in IBCs)	≤ 32	≥ 68				N	+30	+35	3119	
" (in tanks)	≤ 32	≥ 68				M	+15	+20	3119	
tert-BUTYL PEROXY-2-ETHYLHEXANOATE + 2,2-DI-(tert-BUTYLPEROXY)BUTANE	≤ 12 + ≤ 14	≥ 14		≥ 60		OP7			3106	
"	≤ 31 + ≤ 36	≥ 33				OP7	+35	+40	3115	
tert-BUTYL PEROXY-2-ETHYLHEXYLCARBONATE	≤ 100					OP7			3105	
tert-BUTYL PEROXYISOBUTYRATE	> 52 - 77	≥ 23				OP5	+15	+20	3111	3)
"	≤ 52	≥ 48				OP7	+15	+20	3115	
tert-BUTYLPEROXY ISOPROPYLCARBONATE	≤ 77	≥ 23				OP5			3103	
1-(2-tert-BUTYLPEROXY ISOPROPYL)-3-ISOPROPENYLBENZENE	≤ 77	≥ 23				OP7			3105	
"	≤ 42			≥ 58		OP8			3108	
tert-BUTYL PEROXY-2-METHYLBENZOATE	≤ 100					OP5			3103	
tert-BUTYL PEROXYNEODECANOATE	> 77 - 100					OP7	-5	+5	3115	
"	≤ 77	≥ 23				OP7	0	+10	3115	
" (in IBCs)	≤ 42 as a stable dispersion in water					N	-5	+5	3119	
"	≤ 52 as a stable dispersion in water					OP8	0	+10	3117	
"	≤ 42 as a stable dispersion in water					OP8	0	+10	3118	
"	≤ 42 as a stable dispersion in water					OP8,N	0	+10	3119	
tert-BUTYL PEROXYNEOHEPTANOATE	≤ 32	≥ 68				OP7	0	+10	3115	
3-tert-BUTYLPEROXY-3-PHENYLPHTHALIDE	≤ 77	≥ 23				OP7	0	+10	3115	
"	≤ 100					OP7			3106	

## 2.2.52.4 List of currently assigned organic peroxides (cont'd)

ORGANIC PEROXIDE	Concentration (%)	Diluent (%)		Intert solid (%)	Water	Packing Method	Control temperature (°C)	Emergency temperature (°C)	Number (Generic entry)	Subsidiary risks and remarks
		type A	type B							
tert-BUTYL PEROXYPIVALATE	> 67 - 77	≥ 23				OP5	0	+10	3113	
"	> 27 - 67	≥ 33				OP7	0	+10	3115	
"	≤ 27	≥ 73				OP8	+30	+35	3119	
" (in IBCs)	≤ 27	≥ 73				N	+10	+15	3119	
" (in tanks)	≤ 27	≥ 73				M	+5	+10	3119	
tert-BUTYL PEROXY STEARYLCARBONATE	≤ 100					OP7			3106	
tert-BUTYL PEROXY-3,5-TRIMETHYLHEXANOATE	> 32 - 100					OP7			3105	
"	≤ 32	≥ 68				OP8, N			3109	
" (in tanks)	≤ 32	≥ 68				M	+35	+40	3119	
3-CHLOROPEROXYBENZOIC ACID	> 57 - 86		≥ 14			OP1			3102	3)
"	≤ 57		≥ 3	≥ 40		OP7			3106	
"	≤ 77		≥ 6	≥ 17		OP7			3106	
CUMYL HYDROPEROXIDE	> 90 - 98	≤ 10				OP8			3107	13)
"	≤ 90	≥ 10				OP8, M, N			3109	13) 18)
CUMYL PEROXYNEODECANOATE	≤ 77		≥ 23			OP7	-10	0	3115	
"	≤ 52 as a stable dispersion in water					OP8	-10	0	3119	
" (in IBCs)	≤ 52 as a stable dispersion in water					N	-15	-5	3119	
CUMYL PEROXYNEOHEPTANOATE	≤ 77	≥ 23				OP7	-10	0	3115	
CUMYL PEROXYPIVALATE	≤ 77	≥ 23				OP7	-5	+5	3115	
CYCLOHEXANONE PEROXIDE(S)	≤ 91			≥ 9		OP6			3104	13)
"	≤ 72	≥ 28				OP7			3105	5)
"	≤ 72 as a paste					OP7			3106	5) 20)
"	≤ 32			≥ 68					Exempt	29)
DIACETONE ALCOHOL PEROXIDES	≤ 57	≥ 26		≥ 8		OP7	+40	+45	3115	6)
DIACETYL PEROXIDE	≤ 27	≥ 73				OP7	+20	+25	3115	7) 13)
Di-tert-AMYL PEROXIDE	≤ 100					OP8			3107	
1,1-Di-(tert-AMYLPEROXY)CYCLOHEXANE	≤ 82	≥ 18				OP6			3103	
DIBENZOYL PEROXIDE	> 51 - 100		≤ 48			OP2			3102	3)
"	> 77 - 94			≥ 6		OP4			3102	3)
"	≤ 77			≥ 23		OP6			3104	
"	≤ 62		≥ 28	≥ 10		OP7			3106	
"	> 52 - 62 as a paste					OP7			3106	20)
"	> 35 - 52		≥ 48			OP7			3106	
"	> 36 - 42	≥ 18		≤ 40		OP8			3107	
"	> 36 - 42	≥ 58				OP8			3107	

## 2.2.52.4 List of currently assigned organic peroxides (cont'd)

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%)	Interst solid (%)	Water	Packing Method	Control temperature (°C)	Emergency temperature (°C)	Number (Generic entry)	Subsidiary risks and remarks
DIBENZOYL PEROXIDE (cont'd)	≤ 56.5 as a paste			≥ 15		OP8			3108	
"	≤ 52 as a paste					OP8			3108	20)
"	≤ 42 as a stable dispersion in water					OP8, N			3109	
"	≤ 35			≥ 65					Exempt	29)
DIBENZYL PEROXYDICARBONATE	≤ 87			≥ 13		OP5	+25	+30	3112	3)
DI-(4-tert-BUTYL-CYCLOHEXYL) PEROXYDICARBONATE	≤ 100					OP6	+30	+35	3114	
"	≤ 42 as a stable dispersion in water					OP8, N	+30	+35	3119	
DI-tert-BUTYL PEROXIDE	> 32 - 100					OP8			3107	
" (in tanks)	≤ 52		≥ 48			OP8, N			3109	25)
DI-tert-BUTYL PEROXYAZELATE	≤ 32	≥ 68				M			3109	
2,2-DI-(tert-BUTYLPEROXY)BUTANE	≤ 52	≥ 48				OP7			3105	
1,1-DI-(tert-BUTYLPEROXY)CYCLOHEXANE	≤ 52	≥ 48				OP6			3103	
"	> 80 - 100					OP5			3101	3)
"	≤ 52 - 80	≥ 20				OP5			3103	
"	> 42 - 52	≥ 48				OP7			3105	
"	≤ 42	≥ 13		≥ 45		OP7			3106	
"	≤ 27	≥ 36				OP8			3107	21)
"	≤ 42	≥ 58				OP8, N			3109	
"	≤ 13	≥ 13				OP8			3109	
DI-n-BUTYL PEROXYDICARBONATE	> 27 - 52	≥ 13				OP7	-15	-5	3115	
"	≤ 27	≥ 48				OP8	-10	0	3117	
"	≤ 42 as a stable dispersion in water (frozen)	≥ 73				OP8	-15	-5	3118	
DI-sec-BUTYL PEROXYDICARBONATE	> 52 - 100					OP4	-20	-10	3113	
"	≤ 52		≥ 48			OP7	-15	-5	3115	
DI-(2-tert-BUTYLPEROXY)ISOPROPYL)BENZENE(S)	> 42 - 100			≤ 57		OP7			3106	
"	≤ 42		≥ 58						Exempt	29)
DI-(tert-BUTYLPEROXY) PHTHALATE	> 42 - 52	≥ 48				OP7			3105	
"	≤ 52 as a paste					OP7			3106	20)
"	≤ 42	≥ 58				OP8			3107	
2,2-DI-(tert-BUTYLPEROXY)PROPANE	≤ 52	≥ 48				OP7			3105	
"	≤ 42	≥ 13		≥ 45		OP7			3106	

## 2.2.52.4 List of currently assigned organic peroxides (cont'd)

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%)	Inert solid (%)	Water	Packing Method	Control temperature (°C)	Emergency temperature (°C)	Number (Generic entry)	Subsidiary risks and remarks
1,1-DI-(tert-BUTYLPEROXY)-3,3,5-TRIMETHYLCYCLOHEXANE	> 90 - 100					OP5			3101	3)
"	> 57 - 90	≥ 10				OP5			3103	
"	≤ 77		≥ 23			OP7			3105	
"	≤ 57			≥ 43		OP7			3106	
"	≤ 57	≥ 43				OP8			3107	
"	≤ 32	≥ 26	≥ 42			OP8			3107	
DICETYL PEROXYDICARBONATE	≤ 100					OP7	+30	+35	3116	
"	≤ 42 as a stable dispersion in water					OP8, N	+30	+35	3119	
DI-4-CHLOROBENZOYL PEROXIDE	≤ 77			≥ 23		OP5			3102	3)
"	≤ 52 as a paste					OP7			3106	20)
"	≤ 32			≥ 68					Exempt	29)
DICUMYL PEROXIDE	> 42 - 100			≤ 57		OP8, M			3110	12)
"	≤ 52			≥ 48					Exempt	29)
DICYCLOHEXYL PEROXYDICARBONATE	> 91 - 100					OP3	+5	+10	3112	3)
"	≤ 91			≥ 9		OP5	+5	+10	3114	
DIDECANOYL PEROXIDE	≤ 100					OP6	+30	+35	3114	
2,2-DI-(4,4-DI-(tert-BUTYLPEROXY)CYCLOHEXYL)PROPANE	≤ 42			≥ 58		OP7			3106	
"	≤ 22		≥ 78			OP8			3107	
DI-2,4-DICHLOROBENZOYL PEROXIDE	≤ 77				≥ 23	OP5			3102	3)
"	≤ 52 as a paste with silicon oil					OP7			3106	
DI-(2-ETHOXYETHYL) PEROXYDICARBONATE	≤ 52		≥ 48			OP7	-10	0	3115	
DI-(2-ETHYLHEXYL) PEROXYDICARBONATE	> 77 - 100					OP5	-20	-10	3113	
"	≤ 77		≥ 23			OP7	-15	-5	3115	
"	≤ 62 as a stable dispersion in water					OP8	-15	-5	3117	
" (in IBCs)	≤ 52 as a stable dispersion in water					N	-20	-10	3119	
"	≤ 52 as a stable dispersion in water					OP8	-15	-5	3119	
"	≤ 52 as a stable dispersion in water					OP8	-15	-5	3118	
"	≤ 42 as a stable dispersion in water (frozen)					OP8	-15	-5	3118	
DIETHYL PEROXYDICARBONATE	≤ 27		≥ 73			OP7	-10	0	3115	
2,2-DIHYDROPEROXYPROPANE	≤ 27			≥ 73		OP5			3102	3)

## 2.2.52.4 List of currently assigned organic peroxides (cont'd)

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%)	Intert solid (%)	Water	Packing Method	Control temperature (°C)	Emergency temperature (°C)	Number (Generic entry)	Subsidiary risks and remarks
DI-(1-HYDROXYCYCLOHEXYL) PEROXIDE	≤ 100					OP7			3106	
DIISOBUTYRYL PEROXIDE	> 32 - 52		≥ 48			OP5	-20	-10	3111	3)
"	≤ 32		≥ 68			OP7	-20	-10	3115	
DI-ISOPROPYLBENZENE DIHYDROPEROXIDE	≤ 82	≥ 5		≥ 5		OP7			3106	24)
DIISOPROPYL PEROXYDICARBONATE	> 52-100					OP2	-15	-5	3112	3)
"	≤ 52		≥ 48			OP7	-20	-10	3115	
"	≤ 28	≥ 72				OP7	-15	-5	3115	
DIISOTRIDECYL PEROXYDICARBONATE	≤ 100					OP7	-10	0	3115	
DILAURYL PEROXIDE	≤ 100					OP7			3106	
"	≤ 42 as a stable dispersion in water					OP8, N			3109	
DI-(3-METHOXYBUTYL) PEROXYDICARBONATE	≤ 52		≥ 48			OP7	-5	+5	3115	
DI-(2-METHYLBENZOYL) PEROXIDE	≤ 87				≥ 13	OP7	+30	+35	3112	3)
DI-(3-METHYLBENZOYL) PEROXIDE + BENZOYL (3-METHYLBENZOYL) PEROXIDE + DIBENZOYL PEROXIDE	≤ 20 + ≤ 18 + ≤ 4		≥ 58			OP7	+35	+40	3115	
DI-(4-METHYLBENZOYL) PEROXIDE	≤ 52 as a paste with silicon oil					OP7			3106	
2,5-DIMETHYL-2,5-DI-(BENZOYLPEROXY)HEXANE	> 82-100					OP5			3102	3)
"	≤ 82			≥ 18		OP7			3106	
"	≤ 82				≥ 18	OP5			3104	
2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE	> 52 - 100					OP7			3105	
"	≤ 52			≥ 48		OP7			3106	
"	≤ 47 as a paste					OP8			3108	
"	≤ 52	≥ 48				OP8			3109	
"	≤ 77			≥ 23		OP8			3108	
2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXYNE-3	> 52-86	≥ 14				OP5			3103	26)
"	≤ 52			≥ 48		OP7			3106	
"	> 86-100					OP5			3101	3)
2,5-DIMETHYL-2,5-DI-(2-ETHYLHEXANOYLPEROXY)HEXANONE	≤ 100					OP5	+20	+25	3113	
2,5-DIMETHYL-2,5-DIHYDROPEROXYHEXANONE	≤ 82				≥ 18	OP6			3104	

## 2.2.52.4 List of currently assigned organic peroxides (cont'd)

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%)	Intert solid (%)	Water	Packing Method	Control temperature (°C)	Emergency temperature (°C)	Number (Generic entry)	Subsidiary risks and remarks
2,5-DIMETHYL-2,5-DI-(3,5,5-TRIMETHYLHEXANOYL)PEROXY)HEXANE	≤ 77	≥ 23				OP7			3105	
1,1-DIMETHYL-3-HYDROXYBUTYL PEROXYNEOHEPTANOATE	≤ 52	≥ 48				OP8	0	+10	3117	
DIMYRISTYL PEROXYDICARBONATE	≤ 100					OP7	+20	+25	3116	
"	≤ 42 as a stable dispersion in water					OP8	+20	+25	3119	
" (in IBCs)	≤ 42 as a stable dispersion in water					N	+15	+20	3119	
DI-(2-NEODECANOYL)PEROXYISOPROPYL BENZENE	≤ 52	≥ 48				OP7	-10	0	3115	
DI-n-NONANOYL PEROXIDE	≤ 100					OP7	0	+10	3116	
DI-n-OCTANOYL PEROXIDE	≤ 100					OP5	+10	+15	3114	
DIPEROXY AZELAIC ACID	≤ 27			≥ 73		OP7	+35	+40	3116	
DIPEROXY DODECANE DIACID	> 13-42			≥ 58		OP5	+40	+45	3116	
"	≤ 13			≥ 87					Exempt	29)
DI-(2-PHENOXYETHYL) PEROXYDICARBONATE	> 85-100					OP5			3102	3)
"	≤ 85				≥ 15	OP7			3106	
DIPROPIONYL PEROXIDE	≤ 27	≥ 73				OP8	+15	+20	3117	
DI-n-PROPYL PEROXYDICARBONATE	≤ 100					OP3	-25	-15	3113	
"	≤ 77	≥ 23				OP5	-20	-10	3113	
DISTEARYL PEROXYDICARBONATE	≤ 87			≥ 13		OP7			3106	
DISUCCINIC ACID PEROXIDE	> 72-100					OP4	+10	+15	3102	3) 17)
"	≤ 72				≥ 28	OP7	0	+10	3115	
DI-(3,5,5-TRIMETHYLHEXANOYL) PEROXIDE	> 38-82	≥ 18				OP8, N	+10	+15	3119	
"	≤ 52 as a stable dispersion in water					OP7	0	+10	3115	
"	≤ 38	≥ 62				OP8	+20	+25	3119	
" (in IBCs)	≤ 38	≥ 62				N	+10	+15	3119	
" (in tanks)	≤ 38	≥ 62				M	0	+5	3119	
DI-(3,5,5-TRIMETHYL-1,2-DIOXOLANYL-3) PEROXIDE	≤ 52 as a paste					OP7	+30	+35	3116	20)
ETHYL 3,3-DI-(tert-AMYL)PEROXY)BUTYRATE	≤ 67	≥ 33				OP7			3105	
ETHYL 3,3-DI-(tert-BUTYL)PEROXY)BUTYRATE	> 77 - 100					OP5			3103	
"	≤ 77	≥ 23				OP7			3105	
"	≤ 52			≥ 48		OP7			3106	



2.2.52.4 List of currently assigned organic peroxides (cont'd)

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%)	Intert solid (%)	Water	Packing Method	Control temperature (°C)	Emergency temperature (°C)	Number (Generic entry)	Subsidiary risks and remarks
3,3,6,6,9-HEXAMETHYL-1,2,4,5-TETRAOXACYCLONONANE	> 52 - 100					OP4			3102	3)
"	≤ 52	≥ 48				OP7			3105	
tert-HEXYL PEROXYNEODECANOATE	≤ 52			≥ 48		OP7			3106	
tert-HEXYL PEROXYPIVALATE	≤ 71	≥ 29				OP7	0	+10	3115	
ISOPROPYL sec-BUTYL PEROXYDICARBONATE	≤ 72		≥ 28			OP7	+10	+15	3115	
+Di-sec-BUTYL PEROXYDICARBONATE	≤ 32 + ≤ 15 - 18	≥ 38				OP7	-20	-10	3115	
+DI-ISOPROPYL PEROXYDICARBONATE	≤ 12 - 15									
ISOPROPYL sec-BUTYL PEROXYDICARBONATE	≤ 52 + ≤ 28 + ≤ 22					OP5	-20	-10	3111	3)
+ Di-sec-BUTYL PEROXYDICARBONATE										
+ DI-ISOPROPYL PEROXYDICARBONATE										
ISOPROPYLCUMYL HYDROPEROXIDE	≤ 72	≥ 28				OP8, M, N			3109	13)
p-MENTHYL HYDROPEROXIDE	> 72 - 100	≥ 28				OP7			3105	13)
"	≤ 72					OP8, M, N			3109	27)
METHYLCYCLOHEXANONE PEROXIDE(S)	≤ 67	≥ 33				OP7	+35	+40	3115	
METHYL ETHYL KETONE PEROXIDE(S)	≤ 52	≥ 48				OP5			3101	3) 8) 13)
"	≤ 45	≥ 55				OP7			3105	9)
"	≤ 40	≥ 60				OP8			3107	10)
"	≤ 37	≥ 55			≥ 8	OP7			3105	9)
"	≤ 62	≥ 19				OP7			3105	22)
METHYL ISOBUTYL KETONE PEROXIDE(S)						OP2			3102	11)
ORGANIC PEROXIDE, LIQUID, SAMPLE						OP2			3113	11)
ORGANIC PEROXIDE, LIQUID, SAMPLE, TEMPERATURE CONTROLLED										
ORGANIC PEROXIDE, SOLID, SAMPLE						OP2			3104	11)
ORGANIC PEROXIDE, SOLID, SAMPLE, TEMPERATURE CONTROLLED						OP2			3114	11)
PEROXYACETIC ACID, DISTILLED, TYPE F, stabilized	≤ 41					M	+30	+35	3119	13) 30)
PEROXYACETIC ACID, TYPE D, stabilized	≤ 43					OP7			3105	13) 14) 19)
PEROXYACETIC ACID, TYPE E, stabilized	≤ 43					OP8			3107	13) 14) 19)
PEROXYACETIC ACID, TYPE F, stabilized	≤ 43					OP8, N			3109	13) 14) 19)
PINANYL HYDROPEROXIDE	56 - 100					OP7			3105	13)
"	< 56					OP8, M			3109	
"	≤ 100	> 44				OP7			3106	
TETRAHYDRONAPHTHYL HYDROPEROXIDE	≤ 100					OP7			3105	
1,1,3,3-TETRAMETHYLBUTYL HYDROPEROXIDE	≤ 100					OP7			3105	

2.2.52.4 List of currently assigned organic peroxides (cont'd)

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%)	Intert solid (%)	Water	Packing Method	Control temperature (°C)	Emergency temperature (°C)	Number (Generic entry)	Subsidiary risks and remarks
1,1,3,3-TETRAMETHYLBUTYL PEROXY-2 ETHYLHEXANOATE	≤ 100					OP7	+20	+25	3115	
1,1,3,3-TETRAMETHYLBUTYL PEROXYNEODECANOATE	≤ 72		≥ 28			OP7	-5	+5	3115	
"	≤ 52 as a stable dispersion in water					OP8, N	-5	+5	3119	
1,1,3,3-TETRAMETHYLBUTYL PEROXYPHENOACETATE	≤ 37		≥ 63			OP7	-10	0	3115	
3,6,9-TRIETHYL-3,6,9-TRIMETHYL-1,4,7 TRIPEROXONANE	≤ 42	≥ 58				OP7			3105	28)

**Remarks (refer to the last column of the Table in 2.2.52.4):**

- 1) Diluent type B may always be replaced by diluent type A.
- 2) Available oxygen  $\leq 4.7\%$ .
- 3) "EXPLOSIVE" subsidiary risk label required (Model No.1, see 5.2.2.2.2).
- 4) Diluent may be replaced by di-tert-butyl peroxide.
- 5) Available oxygen  $\leq 9\%$ .
- 6) With  $\leq 9\%$  hydrogen peroxide; available oxygen  $\leq 10\%$ .
- 7) Only non-metallic packagings allowed.
- 8) Available oxygen  $> 10\%$ .
- 9) Available oxygen  $\leq 10\%$ .
- 10) Available oxygen  $\leq 8.2\%$ .
- 11) See 2.2.52.1.9.
- 12) Up to 2000 kg per receptacle assigned to ORGANIC PEROXIDE TYPE F on the basis of large scale trials.
- 13) "CORROSIVE" subsidiary risk label required (Model No.8, see 5.2.2.2.2).
- 14) Peroxyacetic acid formulations which fulfil the criteria of the Manual of Tests and Criteria, paragraph 20.4.3 (d).
- 15) Peroxyacetic acid formulations which fulfil the criteria of the Manual of Tests and Criteria, paragraph 20.4.3 (e).
- 16) Peroxyacetic acid formulations which fulfil the criteria of the Manual of Tests and Criteria, paragraph 20.4.3 (f).
- 17) Addition of water to this organic peroxide will decrease its thermal stability.
- 18) No "CORROSIVE" subsidiary risk label (Model No.8, see 5.2.2.2.2) required for concentrations below 80%.
- 19) Mixtures with hydrogen peroxide, water and acid(s).
- 20) With diluent type A, with or without water.
- 21) With  $\geq 36\%$ , by mass, ethylbenzene in addition to diluent type A.
- 22) With  $\geq 19\%$ , by mass, methyl isobutyl ketone in addition to diluent type A.
- 23) With  $< 6\%$  di-tert-butyl peroxide.
- 24) With  $\leq 8\%$  1-isopropylhydroperoxy-4-isopropylhydroxybenzene.
- 25) Diluent type B with boiling point  $> 110\text{ }^{\circ}\text{C}$ .
- 26) With  $< 0.5\%$  hydroperoxides content.
- 27) For concentrations more than 56%, "CORROSIVE" subsidiary risk label required (Model No.8, see 5.2.2.2.2).
- 28) Available active oxygen  $\leq 7.6\%$  in diluent Type A having a 95% boil-off point in the range of 200 - 260  $^{\circ}\text{C}$ .
- 29) Not subject to the requirements of ADR for Class 5.2.
- 30) Formulation derived from distillation of peroxyacetic acid originating from peroxyacetic acid in concentration of not more than 41% with water, total active oxygen (Peroxyacetic acid+ $\text{H}_2\text{O}_2$ )  $\leq 9.5\%$ , which fulfils the criteria of the Manual of Tests and Criteria, paragraph 20.4.3 (f).

**2.2.61 Class 6.1 Toxic substances****2.2.61.1 Criteria**

2.2.61.1.1 The heading of Class 6.1 covers substances of which it is known by experience or regarding which it is presumed from experiments on animals that in relatively small quantities they are able by a single action or by action of short duration to cause damage to human health, or death, by inhalation, by cutaneous absorption or by ingestion.

2.2.61.1.2 Substances of Class 6.1 are subdivided as follows:

**T Toxic substances without subsidiary risk:**

- T1 Organic, liquid;
- T2 Organic, solid;
- T3 Organometallic substances;
- T4 Inorganic, liquid;
- T5 Inorganic, solid;
- T6 Liquid, used as pesticides;
- T7 Solid, used as pesticides;
- T8 Samples;
- T9 Other toxic substances;

**TF Toxic substances, flammable:**

- TF1 Liquid;
- TF2 Liquid, used as pesticides;
- TF3 Solid;

**TS Toxic substances, self-heating, solid;****TW Toxic substances, which, in contact with water, emit flammable gases:**

- TW1 Liquid;
- TW2 Solid;

**TO Toxic substances, oxidizing:**

- TO1 Liquid;
- TO2 Solid;

**TC Toxic substances, corrosive:**

- TC1 Organic, liquid;
- TC2 Organic, solid;
- TC3 Inorganic, liquid;
- TC4 Inorganic, solid;

**TFC Toxic substances, flammable, corrosive.**

*Definitions*

## 2.2.61.1.3 For the purposes of ADR:

*LD<sub>50</sub> for acute oral toxicity* is that dose of the substance administered which is most likely to cause death within 14 days in one half of both male and female young adult albino rats. The number of animals tested shall be sufficient to give a statistically significant result and be in conformity with good pharmacological practice. The result is expressed in milligrams per kg body mass;

*LD<sub>50</sub> for acute dermal toxicity* is that dose of the substance which, administered by continuous contact for 24 hours with the bare skin of albino rabbits, is most likely to cause death within 14 days in one half of the animals tested. The number of animals tested shall be sufficient to give a statistically significant result and be in conformity with good pharmacological practice. The result is expressed in milligrams per kg body mass;

*LC<sub>50</sub> for acute toxicity on inhalation* is that concentration of vapour, mist or dust which, administered by continuous inhalation to both male and female young adult albino rats for one hour, is most likely to cause death within 14 days in one half of the animals tested. A solid substance shall be tested if at least 10% (by mass) of its total mass is likely to be dust in a respirable range, e.g. the aerodynamic diameter of that particle-fraction is 10 µm or less. A liquid substance shall be tested if a mist is likely to be generated in a leakage of the transport containment. Both for solid and liquid substances more than 90% (by mass) of a specimen prepared for inhalation toxicity shall be in the respirable range as defined above. The result is expressed in milligrams per litre of air for dusts and mists or in millilitres per cubic metre of air (parts per million) for vapours.

*Classification and assignment of packing groups*

## 2.2.61.1.4 Substances of Class 6.1 shall be classified in three packing groups according to the degree of danger they present for carriage, as follows:

Packing group I:	highly toxic substances
Packing group II:	toxic substances
Packing group III:	slightly toxic substances.

## 2.2.61.1.5 Substances, mixtures, solutions and articles classified in Class 6.1 are listed in Table A of Chapter 3.2. The assignment of substances, mixtures and solutions not mentioned by name in Table A of Chapter 3.2 to the relevant entry of sub-section 2.2.61.3 and to the relevant packing group in accordance with the provisions of Chapter 2.1, shall be made according to the following criteria in 2.2.61.1.6 to 2.2.61.1.11.

## 2.2.61.1.6 To assess the degree of toxicity, account shall be taken of human experience of instances of accidental poisoning, as well as special properties possessed by any individual substances: liquid state, high volatility, any special likelihood of cutaneous absorption, and special biological effects.

2.2.61.1.7 In the absence of observations on humans, the degree of toxicity shall be assessed using the available data from animal experiments in accordance with the table below:

	Packing group	Oral toxicity LD <sub>50</sub> (mg/kg)	Dermal toxicity LD <sub>50</sub> (mg/kg)	Toxicity on inhalation of dusts and mists LC <sub>50</sub> (mg/l)
Highly toxic	I	≤ 5	≤ 40	≤ 0.5
Toxic	II	> 5-50	> 40 - 200	> 0.5-2
Slightly toxic	III <sup>a</sup>	solids: > 50-200 liquids: > 50-500	> 200 - 1000	> 2-10

<sup>a</sup> Tear gas substances shall be included in packing group II even if data concerning their toxicity correspond to packing group III criteria.

2.2.61.1.7.1 Where a substance exhibits different degrees of toxicity for two or more kinds of exposure, it shall be classified under the highest such degree of toxicity.

2.2.61.1.7.2 Substances meeting the criteria of Class 8 and with an inhalation toxicity of dusts and mists (LC<sub>50</sub>) leading to packing group I shall only be accepted for an allocation to Class 6.1 if the toxicity through oral ingestion or dermal contact is at least in the range of packing groups I or II. Otherwise an assignment to Class 8 shall be made if appropriate (see 2.2.8.1.5).

2.2.61.1.7.3 The criteria for inhalation toxicity of dusts and mists are based on LC<sub>50</sub> data relating to 1-hour exposure, and where such information is available it shall be used. However, where only LC<sub>50</sub> data relating to 4-hour exposure are available, such figures can be multiplied by four and the product substituted in the above criteria, i.e. LC<sub>50</sub> value multiplied by four (4 hour) is considered the equivalent of LC<sub>50</sub> (1 hour).

#### *Inhalation toxicity of vapours*

2.2.61.1.8 Liquids giving off toxic vapours shall be classified into the following groups where "V" is the saturated vapour concentration (in ml/m<sup>3</sup> of air) (volatility) at 20 °C and standard atmospheric pressure:

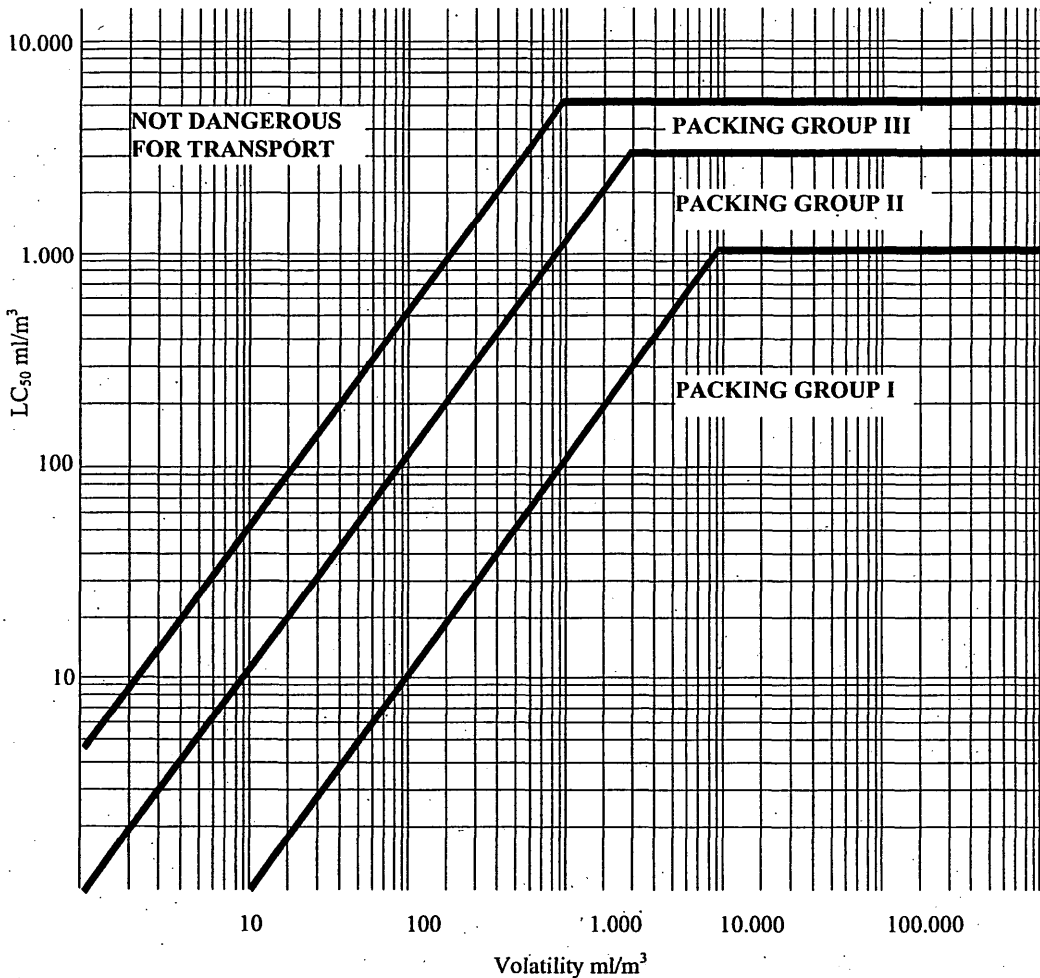
	Packing group	
Highly toxic	I	Where $V \geq 10 LC_{50}$ and $LC_{50} \leq 1\ 000\ \text{ml/m}^3$
Toxic	II	Where $V \geq LC_{50}$ and $LC_{50} \leq 3\ 000\ \text{ml/m}^3$ and the criteria for packing group I are not met
Slightly toxic	III <sup>a</sup>	Where $V \geq 1/5 LC_{50}$ and $LC_{50} \leq 5\ 000\ \text{ml/m}^3$ and the criteria for packing groups I and II are not met

<sup>a</sup> Tear gas substances shall be included in packing group II even if data concerning their toxicity correspond to packing group III criteria.

These criteria for inhalation toxicity of vapours are based on LC<sub>50</sub> data relating to 1-hour exposure, and where such information is available, it shall be used.

However, where only  $LC_{50}$  data relating to 4-hour exposure to the vapours are available, such figures can be multiplied by two and the product substituted in the above criteria, i.e.  $LC_{50}$  (4 hour)  $\times$  2 is considered the equivalent of  $LC_{50}$  (1 hour).

**Group borderlines inhalation toxicity of vapours**



In this figure, the criteria are expressed in graphical form, as an aid to easy classification. However, due to approximations inherent in the use of graphs, substances falling on or near group borderlines shall be checked using numerical criteria.

**Mixtures of liquids**

2.2.61.1.9 Mixtures of liquids which are toxic on inhalation shall be assigned to packing groups according to the following criteria:

2.2.61.1.9.1 If  $LC_{50}$  is known for each of the toxic substances constituting the mixture, the packing group may be determined as follows:

(a) calculation of the  $LC_{50}$  of the mixture:

$$LC_{50}(\text{mixture}) = \frac{1}{\sum_{i=1}^n \frac{f_i}{LC_{50i}}}$$

where  $f_i$  = molar fraction of constituent  $i$  of the mixture;

$LC_{50i}$  = average lethal concentration of constituent  $i$  in  $\text{ml/m}^3$ .

(b) calculation of volatility of each mixture constituent:

$$V_i = P_i \times \frac{10^6}{101.3} (\text{ml/m}^3)$$

where  $P_i$  = partial pressure of constituent  $i$  in kPa at 20 °C and at standard atmospheric pressure.

(c) calculation of the ratio of volatility to  $LC_{50}$ :

$$R = \sum_{i=1}^n \frac{V_i}{LC_{50i}}$$

(d) the values calculated for  $LC_{50}$  (mixture) and  $R$  are then used to determine the packing group of the mixture:

Packing group I  $R \geq 10$  and  $LC_{50}(\text{mixture}) \leq 1\,000 \text{ ml/m}^3$ ;

Packing group II  $R \geq 1$  and  $LC_{50}(\text{mixture}) \leq 3\,000 \text{ ml/m}^3$ , if the mixture does not meet the criteria for packing group I;

Packing group III  $R \geq 1/5$  and  $LC_{50}(\text{mixture}) \leq 5\,000 \text{ ml/m}^3$ , if the mixture does not meet the criteria of packing groups I or II.

2.2.61.1.9.2 In the absence of  $LC_{50}$  data on the toxic constituent substances, the mixture may be assigned to a group based on the following simplified threshold toxicity tests. When these threshold tests are used, the most restrictive group shall be determined and used for carrying the mixture.



2.2.61.1.9.3 A mixture is assigned to packing group I only if it meets both of the following criteria:

- (a) A sample of the liquid mixture is vaporized and diluted with air to create a test atmosphere of 1000 ml/m<sup>3</sup> vaporized mixture in air. Ten albino rats (5 male and 5 female) are exposed to the test atmosphere for 1 hour and observed for 14 days. If five or more of the animals die within the 14-day observation period, the mixture is presumed to have an LC<sub>50</sub> equal to or less than 1000 ml/m<sup>3</sup>;
- (b) A sample of vapour in equilibrium with the liquid mixture is diluted with 9 equal volumes of air to form a test atmosphere. Ten albino rats (5 male and 5 female) are exposed to the test atmosphere for 1 hour and observed for 14 days. If five or more of the animals die within the 14-day observation period, the mixture is presumed to have a volatility equal to or greater than 10 times the mixture LC<sub>50</sub>.

2.2.61.1.9.4 A mixture is assigned to packing group II only if it meets both of the following criteria, and does not meet the criteria for packing group I:

- (a) A sample of the liquid mixture is vaporized and diluted with air to create a test atmosphere of 3000 ml/m<sup>3</sup> vaporized mixture in air. Ten albino rats (5 male and 5 female) are exposed to the test atmosphere for 1 hour and observed for 14 days. If five or more of the animals die within the 14-day observation period, the mixture is presumed to have an LC<sub>50</sub> equal to or less than 3000 ml/m<sup>3</sup>;
- (b) A sample of the vapour in equilibrium with the liquid mixture is used to form a test atmosphere. Ten albino rats (5 male and 5 female) are exposed to the test atmosphere for 1 hour and observed for 14 days. If five or more of the animals die within the 14-day observation period, the mixture is presumed to have a volatility equal to or greater than the mixture LC<sub>50</sub>.

2.2.61.1.9.5 A mixture is assigned to packing group III only if it meets both of the following criteria, and does not meet the criteria for packing groups I or II:

- (a) A sample of the liquid mixture is vaporized and diluted with air to create a test atmosphere of 5000 ml/m<sup>3</sup> vaporized mixture in air. Ten albino rats (5 male and 5 female) are exposed to the test atmosphere for 1 hour and observed for 14 days. If five or more of the animals die within the 14-day observation period, the mixture is presumed to have an LC<sub>50</sub> equal to or less than 5000 ml/m<sup>3</sup>;
- (b) The vapour concentration (volatility) of the liquid mixture is measured and if the vapour concentration is equal to or greater than 1000 ml/m<sup>3</sup>, the mixture is presumed to have a volatility equal to or greater than 1/5 the mixture LC<sub>50</sub>.

*Methods for determining oral and dermal toxicity of mixtures*

2.2.61.1.10 When classifying and assigning the appropriate packing group to mixtures in Class 6.1 in accordance with the oral and dermal toxicity criteria (see 2.2.61.1.3), it is necessary to determine the acute LD<sub>50</sub> of the mixture.

2.2.61.1.10.1 If a mixture contains only one active substance, and the LD<sub>50</sub> of that constituent is known, in the absence of reliable acute oral and dermal toxicity data on the actual mixture to be carried, the oral or dermal LD<sub>50</sub> may be obtained by the following method:

$$\text{LD}_{50} \text{ value of preparation} = \frac{\text{LD}_{50} \text{ value of active substance} \times 100}{\text{percentage of active substance by mass}}$$

2.2.61.1.10.2 If a mixture contains more than one active constituent, there are three possible approaches that may be used to determine the oral or dermal LD<sub>50</sub> of the mixture. The preferred method is to obtain reliable acute oral and dermal toxicity data on the actual mixture to be carried. If reliable, accurate data is not available, then either of the following methods may be performed:

- (a) Classify the formulation according to the most hazardous constituent of the mixture as if that constituent were present in the same concentration as the total concentration of all active constituents; or
- (b) Apply the formula:

$$\frac{C_A}{T_A} + \frac{C_B}{T_B} + \dots + \frac{C_Z}{T_Z} = \frac{100}{T_M}$$

where:

- C = the percentage concentration of constituent A, B, ..., Z in the mixture;
- T = the oral LD<sub>50</sub> values of constituent A, B, ... Z;
- T<sub>M</sub> = the oral LD<sub>50</sub> value of the mixture.

*NOTE: This formula can also be used for dermal toxicities provided that this information is available on the same species for all constituents. The use of this formula does not take into account any potentiation or protective phenomena.*

#### *Classification of pesticides*

2.2.61.1.11 All active pesticide substances and their preparations for which the LC<sub>50</sub> and/or LD<sub>50</sub> values are known and which are classified in Class 6.1 shall be classified under appropriate packing groups in accordance with the criteria given in 2.2.61.1.6 to 2.2.61.1.9. Substances and preparations which are characterized by subsidiary risks shall be classified according to the precedence of hazard Table in 2.1.3.9 with the assignment of appropriate packing groups.

2.2.61.1.11.1 If the oral or dermal LD<sub>50</sub> value for a pesticide preparation is not known, but the LD<sub>50</sub> value of its active substance(s) is known, the LD<sub>50</sub> value for the preparation may be obtained by applying the procedures in 2.2.61.1.10.

*NOTE: LD<sub>50</sub> toxicity data for a number of common pesticides may be obtained from the most current edition of the document "The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification" available from the International Programme on Chemical Safety, World Health Organisation (WHO), 1211 Geneva 27, Switzerland. While that document may be used as a source of LD<sub>50</sub> data for pesticides, its classification system shall not be used for purposes of transport classification of, or assignment of packing groups to, pesticides, which shall be in accordance with the requirements of ADR.*

2.2.61.1.11.2 The proper shipping name used in the carriage of the pesticide shall be selected on the basis of the active ingredient, of the physical state of the pesticide and any subsidiary risks it may exhibit (see 3.1.2).

2.2.61.1.12 If substances of Class 6.1, as a result of admixtures, come into categories of risk different from those to which the substances mentioned by name in Table A of Chapter 3.2 belong, these mixtures or solutions shall be assigned to the entries to which they belong on the basis of their actual degree of danger.

*NOTE: For the classification of solutions and mixtures (such as preparations and wastes), see also 2.1.3.*

- 2.2.61.1.13 On the basis of the criteria of 2.2.61.1.6 to 2.2.61.1.11, it may also be determined whether the nature of a solution or mixture mentioned by name or containing a substance mentioned by name is such that the solution or mixture is not subject to the requirements for this Class.
- 2.2.61.1.14 Substances, solutions and mixtures, with the exception of substances and preparations used as pesticides, which do not meet the criteria of Directives 67/548/EEC<sup>4</sup> or 88/379/EEC<sup>5</sup> as amended and which are not therefore classified as highly toxic, toxic or harmful according to these directives, as amended, may be considered as substances not belonging to Class 6.1.
- 2.2.61.2 Substances not accepted for carriage**
- 2.2.61.2.1 Chemically unstable substances of Class 6.1 shall not be accepted for carriage unless the necessary steps have been taken to prevent their dangerous decomposition or polymerization during carriage. To this end, it shall in particular be ensured that receptacles and tanks do not contain any substance(s) likely to cause such a reaction.
- 2.2.61.2.2 The following substances and mixtures shall not be accepted for carriage:
- Hydrogen cyanide, anhydrous or in solution, which do not meet the descriptions of UN Nos. 1051, 1613, 1614 and 3294;
  - metal carbonyls, having a flash-point below 23 °C, other than UN Nos. 1259 NICKEL CARBONYL and 1994 IRON PENTACARBONYL;
  - 2,3,7,8-TETRACHLORODIBENZO-P-DIOXINE (TCDD) in concentrations considered highly toxic in accordance with the criteria in 2.2.61.1.7;
  - UN No. 2249 DICHLORODIMETHYL ETHER, SYMMETRICAL;
  - preparations of phosphides without additives inhibiting the emission of toxic flammable gases.

<sup>4</sup> Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (Official Journal of the European Communities No. L 196 of 16.08.1967, page 1).

<sup>5</sup> Council Directive 88/379/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous preparations (Official Journal of the European Communities No. L 187 of 16.07.1988, page 14).

2.2.61.3 *List of collective entries***Toxic substances without subsidiary risk(s)**

<b>Organic</b>	liquid <sup>a</sup>	T1	1583 CHLOROPICRIN MIXTURE, N.O.S.
			1602 DYE, LIQUID, TOXIC, N.O.S., or
			1602 DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S.
			1693 TEAR GAS SUBSTANCE, LIQUID, N.O.S.
			1851 MEDICINE, LIQUID, TOXIC, N.O.S.
			2206 ISOCYANATES, TOXIC, N.O.S. or
			2206 ISOCYANATE SOLUTION, TOXIC, N.O.S.
			3140 ALKALOIDS, LIQUID, N.O.S. or
			3140 ALKALOID SALTS, LIQUID, N.O.S.
			3142 DISINFECTANT, LIQUID, TOXIC, N.O.S.
			3144 NICOTINE COMPOUND, LIQUID, N.O.S. or
			3144 NICOTINE PREPARATION, LIQUID, N.O.S.
			3172 TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S.
			3276 NITRILES, TOXIC, N.O.S.
			3278 ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., liquid
2810 TOXIC LIQUID, ORGANIC, N.O.S.			
<b>Organometallic <sup>c,d</sup></b>	solid <sup>a,b</sup>	T2	1544 ALKALOIDS, SOLID, N.O.S. or
			1544 ALKALOID SALTS, SOLID, N.O.S.
			1601 DISINFECTANT, SOLID, TOXIC, N.O.S.
			1655 NICOTINE COMPOUND, SOLID, N.O.S., or
			1655 NICOTINE PREPARATION, SOLID, N.O.S.
			1693 TEAR GAS SUBSTANCE, SOLID, N.O.S.
			3143 DYE, SOLID, TOXIC, N.O.S. or
			3143 DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.
			3172 TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.
			3249 MEDICINE, SOLID, TOXIC, N.O.S.
			3278 ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., solid
			2811 TOXIC SOLID, ORGANIC, N.O.S.
<b>Organometallic <sup>c,d</sup></b>	solid <sup>a,b</sup>	T3	2026 PHENYLMERCURIC COMPOUND, N.O.S.
			2788 ORGANOTIN COMPOUND, LIQUID, N.O.S.
			3146 ORGANOTIN COMPOUND, SOLID, N.O.S.
			3280 ORGANOARSENIC COMPOUND, N.O.S., liquid or
			3280 ORGANOARSENIC COMPOUND, N.O.S., solid
			3281 METAL CARBONYLS, N.O.S., liquid or
			3281 METAL CARBONYLS, N.O.S., solid
			3282 ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., liquid or
3282 ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., solid			

(cont'd on next page)

<sup>a</sup> Substances and preparations containing alkaloids or nicotine used as pesticides shall be classified under UN No. 2588 PESTICIDES, SOLID, TOXIC, N.O.S., UN No. 2902 PESTICIDES, LIQUID, TOXIC, N.O.S. or UN No. 2903 PESTICIDES, LIQUID, TOXIC, FLAMMABLE, N.O.S.

<sup>b</sup> Active substances and triturations or mixtures of substances intended for laboratories and experiments and for the manufacture of pharmaceutical products with other substances shall be classified according to their toxicity (see 2.2.61.1.7 to 2.2.61.1.11).

<sup>c</sup> Self-heating substances, slightly toxic and spontaneously combustible organometallic compounds, are substances of Class 4.2.

<sup>d</sup> Water-reactive substances, slightly toxic, and water-reactive organometallic compounds, are substances of Class 4.3.

## 2.2.61.3 List of collective entries (cont'd)

## Toxic substances without subsidiary risk(s) (cont'd)

Inorganic	liquid <sup>e</sup> T4	1556 ARSENIC COMPOUND, LIQUID, N.O.S., inorganic including: Arsenates, n.o.s., Arsenites, n.o.s.; and Arsenic sulphides, n.o.s. 1935 CYANIDE SOLUTION, N.O.S. 2024 MERCURY COMPOUND, LIQUID, N.O.S. 3141 ANTIMONY COMPOUND, INORGANIC, LIQUID, N.O.S. 3287 TOXIC LIQUID, INORGANIC, N.O.S.
	solids <sup>e</sup> T5	1549 ANTIMONY COMPOUND, INORGANIC, SOLID, N.O.S. 1557 ARSENIC COMPOUND, SOLID, N.O.S., including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s. 1564 BARIUM COMPOUND, N.O.S. 1566 BERYLLIUM COMPOUND, N.O.S. 1588 CYANIDES, INORGANIC, SOLID, N.O.S. 1707 THALLIUM COMPOUND, N.O.S. 2025 MERCURY COMPOUND, SOLID, N.O.S. 2291 LEAD COMPOUND, SOLUBLE, N.O.S. 2570 CADMIUM COMPOUND 2630 SELENATES or 2630 SELENITES 2856 FLUOROSILICATES, N.O.S. 3283 SELENIUM COMPOUND, N.O.S. 3284 TELLURIUM COMPOUND, N.O.S. 3285 VANADIUM COMPOUND, N.O.S. 3288 TOXIC SOLID, INORGANIC, N.O.S.
Pesticides	liquid T6	2992 CARBAMATE PESTICIDE, LIQUID, TOXIC 2994 ARSENICAL PESTICIDE, LIQUID, TOXIC 2996 ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC 2998 TRIAZINE PESTICIDE, LIQUID, TOXIC 3006 THIOCARBAMATE PESTICIDE, LIQUID, TOXIC 3010 COPPER BASED PESTICIDE, LIQUID, TOXIC 3012 MERCURY BASED PESTICIDE, LIQUID, TOXIC 3014 SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC 3016 BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC 3018 ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC 3020 ORGANOTIN PESTICIDE, LIQUID, TOXIC 3026 COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC 3348 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC 3352 PYRETHROID PESTICIDE, LIQUID, TOXIC 2902 PESTICIDE, LIQUID, TOXIC, N.O.S.
(cont'd on next page)		

<sup>e</sup> Mercury fulminate, wetted with not less than 20% water, or mixture of alcohol and water by mass is a substance of Class 1, UN No. 0135.

<sup>f</sup> Ferricyanides, ferrocyanides, alkaline thiocyanates and ammonium thiocyanates are not subject to the provisions of ADR.

<sup>g</sup> Lead salts and lead pigments which, when mixed in a ratio of 1:1,000 with 0.07M hydrochloric acid and stirred for one hour at a temperature of 23 °C ± 2 °C, exhibit a solubility of 5% or less, are not subject to the provisions of ADR.

## 2.2.61.3 List of collective entries (cont'd)

Toxic substances without subsidiary risk(s) (cont'd)

## Pesticides (cont'd)

solid	T7	2757	CARBAMATE PESTICIDE, SOLID, TOXIC
		2759	ARSENICAL PESTICIDE, SOLID, TOXIC
		2761	ORGANOCHLORINE PESTICIDE, SOLID, TOXIC
		2763	TRIAZINE PESTICIDE, SOLID, TOXIC
		2771	THIOCARBAMATE PESTICIDE, SOLID, TOXIC
		2775	COPPER BASED PESTICIDE, SOLID, TOXIC
		2777	MERCURY BASED PESTICIDE, SOLID, TOXIC
		2779	SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC
		2781	BIPYRIDILUM PESTICIDE, SOLID, TOXIC
		2783	ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC
		2786	ORGANOTIN PESTICIDE, SOLID, TOXIC
		3027	COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC
		3048	ALUMINIUM PHOSPHIDE PESTICIDE
		3345	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC
		3349	PYRETHROID PESTICIDE, SOLID, TOXIC
		2588	PESTICIDE, SOLID, TOXIC, N.O.S.
		Samples	T8
Other toxic substances <sup>b</sup>	T9	3243	SOLIDS CONTAINING TOXIC LIQUID, N.O.S.

Toxic substances with subsidiary risk(s)

Liquid <sup>c1</sup>	TF1	3071	MERCAPTANS, LIQUID, TOXIC, FLAMMABLE, N.O.S. or	
		3071	MERCAPTAN MIXTURE, LIQUID, TOXIC, FLAMMABLE, N.O.S.	
		3080	ISOCYANATES, TOXIC, FLAMMABLE, N.O.S. or	
		3080	ISOCYANATE SOLUTION, TOXIC, FLAMMABLE, N.O.S.	
		3275	NITRILES, TOXIC, FLAMMABLE, N.O.S.	
		3279	ORGANOPHOSPHORUS COMPOUND, TOXIC, FLAMMABLE, N.O.S.	
		2929	TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.	
		2991	CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE	
Flammable TF	pesticides, liquid (flash- point not less than 23 °C)	TF2	2993	ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			2995	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			2997	TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			3005	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			3009	COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			3011	MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			3013	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			3015	BIPYRIDILUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			3017	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			3019	ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			3025	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			3347	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			3351	PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE
			2903	PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S.

Cont'd on next page

<sup>b</sup> Mixtures of solids which are not subject to the provisions of ADR and of toxic liquids may be carried under UN No. 3243 without first applying the classification criteria of Class 6.1, provided there is no free liquid visible at the time the substance is loaded or at the time the packaging, container or transport unit is closed. Each packaging shall correspond to a design type that has passed a leakproofness test at the packing group II level. This entry shall not be used for solids containing a packing group I liquid.

<sup>c1</sup> Highly toxic or toxic, flammable liquids having a flash-point below 23 °C excluding substances which are highly toxic on inhalation, i.e. UN Nos. 1051, 1092, 1098, 1143, 1163, 1182, 1185, 1238, 1239, 1244, 1251, 1259, 1613, 1614, 1695, 1994, 2334, 2382, 2407, 2438, 2480, 2482, 2484, 2485, 2606, 2929, 3279 and 3294 are substances of Class 3.

<sup>c2</sup> Flammable liquids, slightly toxic, with the exception of substances and preparations used as pesticides, having a flash-point between 23 °C and 61 °C inclusive, are substances of Class 3.

2.2.61.3 *List of collective entries (cont'd)**Toxic substances with subsidiary risk(s) (cont'd)*

Flammable TF (cont'd)	solid	TF3	1700	TEAR GAS CANDLES
2930			TOXIC SOLID, FLAMMABLE, ORGANIC, N.O.S.	
Solid, self-heating <sup>c</sup> TS			3124	TOXIC SOLID, SELF-HEATING, N.O.S.
Water-reactive <sup>d</sup> TW	liquid	TW1	3123	TOXIC LIQUID, WATER-REACTIVE, N.O.S.
	solid <sup>m</sup>	TW2	3125	TOXIC SOLID, WATER-REACTIVE, N.O.S.
Oxidizing <sup>k</sup> TO	liquid	TO1	3122	TOXIC LIQUID, OXIDIZING, N.O.S.
	solid	TO2	3086	TOXIC SOLID, OXIDIZING, N.O.S.
Corrosive <sup>l</sup> TC	liquid	TC1	3277	CHLOROFORMATES, TOXIC, CORROSIVE, N.O.S.
			3361	CHLOROSILANES, TOXIC, CORROSIVE, N.O.S.
			2927	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.
	solid	TC2	2928	TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.
liquid	TC3	3289	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.	
solid	TC4	3290	TOXIC SOLID, CORROSIVE, INORGANIC, N.O.S.	
Flammable, corrosive TFC			2742	CHLOROFORMATES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.
			3362	CHLOROSILANES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.
			(No other collective entry available; if need be, classification under a collective entry with a classification code to be determined according to the table of precedence of hazards in 2.1.3.9)	

<sup>c</sup> Self-heating substances, slightly toxic and spontaneously combustible organometallic compounds, are substances of Class 4.2.

<sup>d</sup> Water-reactive substances, slightly toxic, and water-reactive organometallic compounds, are substances of Class 4.3.

<sup>k</sup> Oxidizing substances, slightly toxic, are substances of Class 5.1.

<sup>l</sup> Substances slightly toxic and slightly corrosive, are substances of Class 8.

<sup>m</sup> Metal phosphides assigned to UN Nos. 1360, 1397, 1432, 1714, 2011 and 2013 are substances of Class 4.3.

## 2.2.62 Class 6.2 Infectious substances

### 2.2.62.1 Criteria

2.2.62.1.1 The heading of Class 6.2 covers infectious substances. Infectious substances are those substances known or reasonably expected to contain pathogens. Pathogens are defined as micro-organisms (including bacteria, viruses, rickettsia, parasites, fungi) or recombinant micro-organisms (hybrid or mutant), that are known or reasonably expected to cause infectious disease in animals or humans.

For the purposes of this Class, viruses, micro-organisms as well as articles contaminated with these shall be considered as substances of this Class.

*NOTE 1: Substances referred to above are not subject to the requirements applicable to this Class if they are unlikely to cause human or animal disease.*

*NOTE 2: Infectious substances are subject to the requirements applicable to this Class only if they are capable of spreading disease to humans or animals when exposure to them occurs.*

*NOTE 3: Genetically modified micro-organisms and organisms, biological products, diagnostic specimens and infected live animals shall be assigned to this Class if they meet the conditions for this Class.*

*NOTE 4: Toxins from plant, animal or bacterial sources which do not contain any infectious substances or organisms or which are not contained in them are substances of Class 6.1, UN No. 3172.*

2.2.62.1.2 Substances of Class 6.2 are subdivided as follows:

- I1 Infectious substances affecting humans;
- I2 Infectious substances affecting animals only;
- I3 Clinical waste;
- I4 Diagnostic specimens.

#### *Definitions and classification*

2.2.62.1.3 Infectious substances shall be classified in Class 6.2 and assigned to UN Nos. 2814 or 2900, as appropriate, on the basis of their allocation to one of three risk groups based on criteria developed by the World Health Organization (WHO) and published in the WHO "Laboratory Biosafety Manual, second edition (1993)". A-risk group is characterized by the pathogenicity of the organism, the mode and relative ease of transmission, the degree of risk to both an individual and a community, and the reversibility of the disease through the availability of known and effective preventive agents and treatment.

The criteria for each risk group according to the level of risk are as follows:

- (a) Risk group 4: a pathogen that usually causes serious human or animal disease and that can be readily transmitted from one individual to another, directly or indirectly, and for which effective treatment and preventive measures are not usually available (i.e., high individual and community risk).



- (b) **Risk group 3:** a pathogen that usually causes serious human or animal disease but does not ordinarily spread from one infected individual to another, and for which effective treatment and preventive measures are available (i.e. high individual risk and low community risk).<sup>o</sup>
- (c) **Risk group 2:** a pathogen that can cause human or animal disease but is unlikely to be a serious hazard, and, while capable of causing serious infection on exposure, for which effective treatment and preventive measures are available and the risk of spread of infection is limited (i.e. moderate individual risk and low community risk).

*NOTE: Risk group 1 includes micro-organisms that are unlikely to cause human or animal disease (i.e. no, or very low, individual or community risk). Substances containing only such micro-organisms are not considered infectious substances for the purposes of these provisions.*

2.2.62.1.4 Infectious substances affecting animals only (group I2 in 2.2.62.1.2) and of risk group 2 are assigned to packing group II.

2.2.62.1.5 *Biological products* are those products derived from living organisms, that are manufactured and distributed in accordance with the requirements of national governmental authorities which may have special licensing requirements, and are used either for prevention, treatment, or diagnosis of disease in humans or animals, or for development, experimental or investigational purposes related thereto. They include, but are not limited to, finished or unfinished products such as vaccines and diagnostic products.

For the purposes of ADR, biological products are divided into the following groups:

- (a) Those which contain pathogens in risk group 1; those which contain pathogens under such conditions that their ability to produce disease is very low to none; and those known not to contain pathogens. Substances in this group are not considered infectious substances for the purposes of ADR;
- (b) Those manufactured and packaged in accordance with the requirements of national governmental health authorities and carried for the purposes of final packaging or distribution, and use for personal health care by medical professionals or individuals. Substances in this group are not subject to the regulations applicable to Class 6.2;
- (c) Those known or reasonably expected to contain pathogens in risk groups 2, 3, or 4 and which do not meet the criteria of (b) above. Substances in this group shall be classified in Class 6.2 under UN Nos. 2814 or 2900, as appropriate.

*NOTE: Some licensed biological products may present a biohazard in certain parts of the world only. In that case competent authorities may require these biological products to comply with the requirements for infectious substances or may impose other restrictions.*

2.2.62.1.6 *Diagnostic specimens* are any human or animal material, including, but not limited to, excreta, secreta, blood and its components, tissue and tissue fluids being carried for diagnostic or investigation purposes, but excluding live infected animals.

Diagnostic specimens shall be assigned to UN No. 3373 unless the source patient or animal has or may have a serious human or animal disease which can be readily transmitted from one individual to another, directly or indirectly, and for which effective treatment and preventive measures are not usually available, in which case they shall be assigned to UN No. 2814 or UN No. 2900.

**NOTE 1:** *Blood which has been collected for the purpose of blood transfusion or for the preparation of blood products, and blood products and any tissues or organs intended for use in transplants are not subject to the provisions of ADR.*

**NOTE 2:** *Assignment to UN No. 2814 or UN No. 2900 shall be based on known medical history of the patient or animal, endemic local conditions, symptoms of the patient or animal, or professional judgement concerning individual circumstances of the patient or animal.*

2.2.62.1.7 *Genetically modified micro-organisms and organisms*<sup>6</sup> are micro-organisms and organisms in which the genetic material has been deliberately altered by technical methods or by means that cannot occur naturally in nature.

For the purposes of ADR, genetically modified micro-organisms and organisms are divided into the following groups:

- (a) Genetically modified micro-organisms which meet the definition of an infectious substance given in 2.2.62.1.1 shall be classified in Class 6.2 and assigned to UN Nos. 2814 or 2900;
- (b) Genetically modified organisms, which are known or suspected to be dangerous to humans, animals or the environment, shall be carried in accordance with conditions specified by the competent authority of the country of origin;
- (c) Animals which contain or are contaminated with genetically modified micro-organisms and organisms that meet the definition of an infectious substance shall be carried in accordance with conditions specified by the competent authority of the country of origin;
- (d) Except when authorized for unconditional use by the Governments of the countries of origin, transit and destination, genetically modified micro-organisms which do not meet the definition of infectious substances but which are capable of altering animals, plants or microbiological substances in a way not normally the result of natural reproduction shall be classified in Class 9 and assigned to UN No. 3245.

**NOTE:** *Genetically modified micro-organisms which are infectious within the meaning of this Class shall not be assigned to UN No. 3291.*

2.2.62.1.8 *Wastes* are wastes derived from the medical treatment of animals or humans or from bio-research where there is a relatively low probability that infectious substances are present. They shall be assigned to UN No. 3291. Wastes containing infectious substances which can be specified shall be assigned to UN Nos. 2814 or 2900 according to their degree of danger (see 2.2.62.1.3). Decontaminated wastes which previously contained infectious substances are considered non-dangerous unless the criteria of another class are met.

2.2.62.1.9 Clinical wastes assigned to UN No. 3291 are assigned to packing group II.

2.2.62.1.10 For the carriage of substances of this Class, the maintenance of a specified temperature may be necessary.

<sup>6</sup> See also Directive 90/219/EEC, Official Journal of the European Communities No. L 117 of 8 May 1990, page 1.

### 2.2.62.2 *Substances not accepted for carriage*

Live vertebrate or invertebrate animals shall not be used to carry an infectious agent unless the agent cannot be carried by any other means. Such animals shall be packed, marked, indicated, and carried in accordance with the relevant regulations governing the carriage of animals <sup>7</sup>.

### 2.2.62.3 *List of collective entries*

Effects on humans	11	2814 INFECTIOUS SUBSTANCE, AFFECTING HUMANS
Effects on animals only	12	2900 INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only
Clinical waste	13	3291 CLINICAL WASTE, UNSPECIFIED, N.O.S. <i>NOTE: The names (BIO) MEDICAL WASTE, N.O.S. or REGULATED MEDICAL WASTE, N.O.S. may be used as alternative designations for CLINICAL WASTE, UNSPECIFIED, N.O.S. for carriage prior to or following maritime or air carriage.</i>
Diagnostic specimens	14	3373 DIAGNOSTIC SPECIMENS

<sup>7</sup> Such regulations are contained in, e.g. Directive 91/628/EEC (Official Journal of the European Communities No. L 340 of 11 December 1991, p. 17) and in the Recommendations of the Council of Europe (Ministerial Committee) on the carriage of certain animal species.

## 2.2.7 Class 7 Radioactive material

### 2.2.7.1 Definition of Class 7

2.2.7.1.1 *Radioactive material* means any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values specified in 2.2.7.7.2.1 to 2.2.7.7.2.6.

2.2.7.1.2 The following radioactive materials are not included in Class 7 for the purposes of ADR:

- (a) Radioactive material that is an integral part of the means of transport;
- (b) Radioactive material moved within an establishment which is subject to appropriate safety regulations in force in the establishment and where the movement does not involve public roads or railways;
- (c) Radioactive material implanted or incorporated into a person or live animal for diagnosis or treatment;
- (d) Radioactive material in consumer products which have received regulatory approval, following their sale to the end user;
- (e) Natural material and ores containing naturally occurring radionuclides which are not intended to be processed for use of these radionuclides provided the activity concentration of the material does not exceed 10 times the values specified in 2.2.7.7.2.

### 2.2.7.2 Definitions

$A_1$  and  $A_2$

$A_1$  means the activity value of special form radioactive material which is listed in Table 2.2.7.7.2.1 or derived in 2.2.7.7.2 and is used to determine the activity limits for the requirements of ADR.

$A_2$  means the activity value of radioactive material, other than special form radioactive material, which is listed in Table 2.2.7.7.2.1 or derived in 2.2.7.7.2 and is used to determine the activity limits for the requirements of ADR.

#### Approval

*Multilateral approval* means approval by the relevant competent authority both of the country of origin of the design or shipment and of each country through or into which the consignment is to be carried.

*Unilateral approval* means an approval of a design which is required to be given by the competent authority of the country of origin of the design only. If the country of origin is not a Contracting Party to ADR, the approval shall require validation by the competent authority of the first country Contracting Party to ADR reached by the consignment (see 6.4.22.6).

*Confinement system* means the assembly of fissile material and packaging components specified by the designer and agreed to by the competent authority as intended to preserve criticality safety.

*Containment system* means the assembly of components of the packaging specified by the designer as intended to retain the radioactive material during carriage.

*Contamination:*

*Contamination* means the presence of a radioactive substance on a surface in quantities in excess of 0.4 Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters, or 0.04 Bq/cm<sup>2</sup> for all other alpha emitters.

*Non-fixed contamination* means contamination that can be removed from a surface during routine conditions of carriage.

*Fixed contamination* means contamination other than non-fixed contamination.

*Criticality safety index (CSI)* assigned to a package, overpack or container containing fissile material means a number which is used to provide control over the accumulation of packages, overpacks or containers containing fissile material.

*Design* means the description of special form radioactive material, low dispersible radioactive material, package or packaging which enables such an item to be fully identified. The description may include specifications, engineering drawings, reports demonstrating compliance with regulatory requirements, and other relevant documentation.

*Exclusive use* means the sole use, by a single consignor, of a vehicle or of a large container, in respect of which all initial, intermediate and final loading and unloading is carried out in accordance with the directions of the consignor or consignee.

*Fissile material* means uranium-233, uranium-235, plutonium-239, plutonium-241, or any combination of these radionuclides. Excepted from this definition is:

- (a) Natural uranium or depleted uranium which is unirradiated, and
- (b) Natural uranium or depleted uranium which has been irradiated in thermal reactors only.

*Large container* means a container which is not a small container according to the definitions of this Sub-section.

*Low dispersible radioactive material* means either a solid radioactive material or a solid radioactive material in a sealed capsule, that has limited dispersibility and is not in powder form.

**NOTE:** *Low dispersible radioactive material may be carried by air in Type B(U) or B(M) packages in quantities as authorised for the package design as specified in the certificate of approval. This definition is included here since such packages carrying low dispersible radioactive material may also be carried by road.*

*Low specific activity (LSA) material*, see 2.2.7.3.

*Low toxicity alpha emitters* are: natural uranium; depleted uranium; natural thorium; uranium-235 or uranium-238; thorium-232; thorium-228 and thorium-230 when contained in ores or physical and chemical concentrates; or alpha emitters with a half-life of less than 10 days.

*Maximum normal operating pressure* means the maximum pressure above atmospheric pressure at mean sea-level that would develop in the containment system in a period of one year under the conditions of temperature and solar radiation corresponding to environmental conditions in the absence of venting, external cooling by an ancillary system, or operational controls during carriage.

*Package* in the case of radioactive material means the packaging with its radioactive contents as presented for carriage. The types of packages covered by ADR, which are subject to the activity limits and material restrictions of 2.2.7.7 and meet the corresponding requirements, are:

- (a) Excepted package;
- (b) Industrial package Type 1 (Type IP-1);
- (c) Industrial package Type 2 (Type IP-2);
- (d) Industrial package Type 3 (Type IP-3);
- (e) Type A package;
- (f) Type B(U) package;
- (g) Type B(M) package;
- (h) Type C package.

Packages containing fissile material or uranium hexafluoride are subject to additional requirements (see 2.2.7.7.1.7 and 2.2.7.7.1.8).

*NOTE: For "packages" for other dangerous goods see definitions under 1.2.1.*

*Packaging* in the case of radioactive material means the assembly of components necessary to enclose the radioactive contents completely. It may, in particular, consist of one or more receptacles, absorbent materials, spacing structures, radiation shielding and service equipment for filling, emptying, venting and pressure relief; devices for cooling, absorbing mechanical shocks, handling and tie-down, thermal insulation; and service devices integral to the package. The packaging may be a box, drum or similar receptacle, or may also be a container, tank or intermediate bulk container (IBC).

*NOTE: For "packagings" for other dangerous goods see definitions under 1.2.1*

*Radiation level* means the corresponding dose rate expressed in millisieverts per hour.

*Radioactive contents* mean the radioactive material together with any contaminated or activated solids, liquids, and gases within the packaging.

*Shipment* means the specific movement of a consignment from origin to destination.

*Small container* means a container which has either any overall outer dimension less than 1.5 m, or an internal volume of not more than 3 m<sup>3</sup>.

*Special form radioactive material*, see 2.2.7.4.1.

*Specific activity of a radionuclide* means the activity per unit mass of that nuclide. The specific activity of a material shall mean the activity per unit mass or volume of the material in which the radionuclides are essentially uniformly distributed.

*Surface contaminated object (SCO)*, see 2.2.7.5.

*Transport index (TI) assigned to a package, overpack or container, or to unpackaged LSA-I or SCO-I*, means a number which is used to provide control over radiation exposure.

*Unirradiated thorium* means thorium containing not more than  $10^{-7}$  g of uranium-233 per gram of thorium-232.

*Unirradiated uranium* means uranium containing not more than  $2 \times 10^3$  Bq of plutonium per gram of uranium-235, not more than  $9 \times 10^6$  Bq of fission products per gram of uranium-235 and not more than  $5 \times 10^{-3}$  g of uranium-236 per gram of uranium-235.

*Uranium - natural, depleted, enriched* means the following:

*Natural uranium* means chemically separated uranium containing the naturally occurring distribution of uranium isotopes (approximately 99.28% uranium-238, and 0.72% uranium-235 by mass). *Depleted uranium* means uranium containing a lesser mass percentage of uranium-235 than in natural uranium. *Enriched uranium* means uranium containing a greater mass percentage of uranium-235 than 0.72%. In all cases, a very small mass percentage of uranium-234 is present.

### 2.2.7.3 *Low specific activity (LSA) material, determination of groups*

2.2.7.3.1 Radioactive material which by its nature has a limited specific activity, or radioactive material for which limits of estimated average specific activity apply, is termed low specific activity or LSA material. External shielding materials surrounding the LSA material shall not be considered in determining the estimated average specific activity.

2.2.7.3.2 LSA material shall be in one of three groups:

(a) LSA-I

- (i) uranium and thorium ores and concentrates of such ores, and other ores containing naturally occurring radionuclides which are intended to be processed for the use of these radionuclides;
- (ii) solid unirradiated natural uranium or depleted uranium or natural thorium or their solid or liquid compounds or mixtures;
- (iii) radioactive material for which the  $A_2$  value is unlimited, excluding fissile material in quantities not excepted under 6.4.11.2; or
- (iv) other radioactive material in which the activity is distributed throughout and the estimated average specific activity does not exceed 30 times the values for activity concentration specified in 2.2.7.7.2.1 to 2.2.7.7.2.6, excluding fissile material in quantities not excepted under 6.4.11.2.

(b) LSA-II

- (i) water with tritium concentration up to 0.8 TBq/l; or
- (ii) other material in which the activity is distributed throughout and the estimated average specific activity does not exceed  $10^{-4}$   $A_2/g$  for solids and gases, and  $10^{-5}$   $A_2/g$  for liquids;

(c) LSA-III - Solids (e.g. consolidated wastes, activated materials), excluding powders, in which:

- (i) the radioactive material is distributed throughout a solid or a collection of solid objects, or is essentially uniformly distributed in a solid compact binding agent (such as concrete, bitumen, ceramic, etc.);

- (ii) the radioactive material is relatively insoluble, or it is intrinsically contained in a relatively insoluble matrix, so that, even under loss of packaging, the loss of radioactive material per package by leaching when placed in water for seven days would not exceed  $0.1 A_2$ ; and
- (iii) the estimated average specific activity of the solid, excluding any shielding material, does not exceed  $2 \times 10^{-3} A_2/g$ .

2.2.7.3.3 LSA-III material shall be a solid of such a nature that if the entire contents of a package were subjected to the test specified in 2.2.7.3.4 the activity in the water would not exceed  $0.1 A_2$ .

2.2.7.3.4 LSA-III material shall be tested as follows:

A solid material sample representing the entire contents of the package shall be immersed for 7 days in water at ambient temperature. The volume of water to be used in the test shall be sufficient to ensure that at the end of the 7 day test period the free volume of the unabsorbed and unreacted water remaining shall be at least 10% of the volume of the solid test sample itself. The water shall have an initial pH of 6-8 and a maximum conductivity of 1 mS/m at 20 °C. The total activity of the free volume of water shall be measured following the 7 day immersion of the test sample.

2.2.7.3.5 Demonstration of compliance with the performance standards in 2.2.7.3.4 shall be in accordance with 6.4.12.1 and 6.4.12.2.

#### 2.2.7.4 *Requirements for special form radioactive material*

2.2.7.4.1 *Special form radioactive material* means either:

- (a) An indispersible solid radioactive material; or
- (b) A sealed capsule containing radioactive material that shall be so manufactured that it can be opened only by destroying the capsule.

Special form radioactive material shall have at least one dimension not less than 5 mm.

2.2.7.4.2 Special form radioactive material shall be of such a nature or shall be so designed that if it is subjected to the tests specified in 2.2.7.4.4 to 2.2.7.4.8, it shall meet the following requirements:

- (a) It would not break or shatter under the impact, percussion and bending tests 2.2.7.4.5 (a)(b)(c), 2.2.7.4.6 (a) as applicable;
- (b) It would not melt or disperse in the applicable heat test 2.2.7.4.5 (d) or 2.2.7.4.6 (b) as applicable; and
- (c) The activity in the water from the leaching tests specified in 2.2.7.4.7 and 2.2.7.4.8 would not exceed 2 kBq; or alternatively for sealed sources, the leakage rate for the volumetric leakage assessment test specified in ISO 9978:1992 "Radiation Protection - Sealed Radioactive Sources - Leakage Test Methods", would not exceed the applicable acceptance threshold acceptable to the competent authority.

2.2.7.4.3 Demonstration of compliance with the performance standards in 2.2.7.4.2 shall be in accordance with 6.4.12.1 and 6.4.12.2.

2.2.7.4.4 Specimens that comprise or simulate special form radioactive material shall be subjected to the impact test, the percussion test, the bending test, and the heat test specified in 2.2.7.4.5 or



alternative tests as authorized in 2.2.7.4.6. A different specimen may be used for each of the tests. Following each test, a leaching assessment or volumetric leakage test shall be performed on the specimen by a method no less sensitive than the methods given in 2.2.7.4.7 for indispersible solid material or 2.2.7.4.8 for encapsulated material.

2.2.7.4.5 The relevant test methods are:

- (a) Impact test: The specimen shall drop onto the target from a height of 9 m. The target shall be as defined in 6.4.14;
- (b) Percussion test: The specimen shall be placed on a sheet of lead which is supported by a smooth solid surface and struck by the flat face of a mild steel bar so as to cause an impact equivalent to that resulting from a free drop of 1.4 kg through 1 m. The lower part of the bar shall be 25 mm in diameter with the edges rounded off to a radius of  $(3.0 \pm 0.3)$  mm. The lead, of hardness number 3.5 to 4.5 on the Vickers scale and not more than 25 mm thick, shall cover an area greater than that covered by the specimen. A fresh surface of lead shall be used for each impact. The bar shall strike the specimen so as to cause maximum damage;
- (c) Bending test: The test shall apply only to long, slender sources with both a minimum length of 10 cm and a length to minimum width ratio of not less than 10. The specimen shall be rigidly clamped in a horizontal position so that one half of its length protrudes from the face of the clamp. The orientation of the specimen shall be such that the specimen will suffer maximum damage when its free end is struck by the flat face of a steel bar. The bar shall strike the specimen so as to cause an impact equivalent to that resulting from a free vertical drop of 1.4 kg through 1 m. The lower part of the bar shall be 25 mm in diameter with the edges rounded off to a radius of  $(3.0 \pm 0.3)$  mm;
- (d) Heat test: The specimen shall be heated in air to a temperature of 800°C and held at that temperature for a period of 10 minutes and shall then be allowed to cool.

2.2.7.4.6 Specimens that comprise or simulate radioactive material enclosed in a sealed capsule may be excepted from:

- (a) The tests prescribed in 2.2.7.4.5 (a) and 2.2.7.4.5 (b) provided the mass of the special form radioactive material is less than 200 g and they are alternatively subjected to the Class 4 impact test prescribed in ISO 2919:1980 "Radiation protection - Sealed radioactive sources - General requirements and classification"; and
- (b) The test prescribed in 2.2.7.4.5 (d) provided they are alternatively subjected to the Class 6 temperature test specified in ISO 2919:1980 "Radiation protection - Sealed radioactive sources - General requirements and classification".

2.2.7.4.7 For specimens which comprise or simulate indispersible solid material, a leaching assessment shall be performed as follows:

- (a) The specimen shall be immersed for 7 days in water at ambient temperature. The volume of water to be used in the test shall be sufficient to ensure that at the end of the 7 day test period the free volume of the unabsorbed and unreacted water remaining shall be at least 10% of the volume of the solid test sample itself. The water shall have an initial pH of 6-8 and a maximum conductivity of 1 mS/m at 20 °C;
- (b) The water with specimen shall then be heated to a temperature of  $(50 \pm 5)$  °C and maintained at this temperature for 4 hours;

- (c) The activity of the water shall then be determined;
- (d) The specimen shall then be kept for at least 7 days in still air at not less than 30 °C and relative humidity not less than 90%;
- (e) The specimen shall then be immersed in water of the same specification as in (a) above and the water with the specimen heated to  $(50 \pm 5)$  °C and maintained at this temperature for 4 hours;
- (f) The activity of the water shall then be determined.

## 2.2.7.4.8

For specimens which comprise or simulate radioactive material enclosed in a sealed capsule, either a leaching assessment or a volumetric leakage assessment shall be performed as follows:

- (a) The leaching assessment shall consist of the following steps:
  - (i) the specimen shall be immersed in water at ambient temperature. The water shall have an initial pH of 6-8 with a maximum conductivity of 1 mS/m at 20 °C;
  - (ii) the water and specimen shall be heated to a temperature of  $(50 \pm 5)$  °C and maintained at this temperature for 4 hours;
  - (iii) the activity of the water shall then be determined;
  - (iv) the specimen shall then be kept for at least 7 days in still air at not less than 30 °C and relative humidity of not less than 90%;
  - (v) the process in (i), (ii) and (iii) shall be repeated;
- (b) The alternative volumetric leakage assessment shall comprise any of the tests prescribed in ISO 9978:1992 "Radiation Protection - Sealed radioactive sources - Leakage test methods", which are acceptable to the competent authority.

## 2.2.7.5

***Surface contaminated object (SCO), determination of groups***

*Surface contaminated object (SCO)* means a solid object which is not itself radioactive but which has radioactive material distributed on its surfaces. SCO is classified in one of two groups:

- (a) SCO-I: A solid object on which:
  - (i) the non-fixed contamination on the accessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 4 Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters, or 0.4 Bq/cm<sup>2</sup> for all other alpha emitters; and
  - (ii) the fixed contamination on the accessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed  $4 \times 10^4$  Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters, or  $4 \times 10^3$  Bq/cm<sup>2</sup> for all other alpha emitters; and

- (iii) the non-fixed contamination plus the fixed contamination on the inaccessible surface averaged over  $300 \text{ cm}^2$  (or the area of the surface if less than  $300 \text{ cm}^2$ ) does not exceed  $4 \times 10^4 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $4 \times 10^3 \text{ Bq/cm}^2$  for all other alpha emitters;
- (b) SCO-II: A solid object on which either the fixed or non-fixed contamination on the surface exceeds the applicable limits specified for SCO-I in (a) above and on which:
- (i) the non-fixed contamination on the accessible surface averaged over  $300 \text{ cm}^2$  (or the area of the surface if less than  $300 \text{ cm}^2$ ) does not exceed  $400 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $40 \text{ Bq/cm}^2$  for all other alpha emitters; and
  - (ii) the fixed contamination on the accessible surface, averaged over  $300 \text{ cm}^2$  (or the area of the surface if less than  $300 \text{ cm}^2$ ) does not exceed  $8 \times 10^5 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $8 \times 10^4 \text{ Bq/cm}^2$  for all other alpha emitters; and
  - (iii) the non-fixed contamination plus the fixed contamination on the inaccessible surface averaged over  $300 \text{ cm}^2$  (or the area of the surface if less than  $300 \text{ cm}^2$ ) does not exceed  $8 \times 10^5 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $8 \times 10^4 \text{ Bq/cm}^2$  for all other alpha emitters.

## 2.2.7.6 *Determination of transport index (TI) and criticality safety index (CSI)*

### 2.2.7.6.1 *Determination of transport index*

2.2.7.6.1.1 The transport index (TI) for a package, overpack or container, or for unpackaged LSA-I or SCO-I, shall be the number derived in accordance with the following procedure:

- (a) Determine the maximum radiation level in units of millisieverts per hour (mSv/h) at a distance of 1 m from the external surfaces of the package, overpack, container, or unpackaged LSA-I and SCO-I. The value determined shall be multiplied by 100 and the resulting number is the transport index. For uranium and thorium ores and their concentrates, the maximum radiation level at any point 1 m from the external surface of the load may be taken as:
  - 0.4 mSv/h for ores and physical concentrates of uranium and thorium;
  - 0.3 mSv/h for chemical concentrates of thorium;
  - 0.02 mSv/h for chemical concentrates of uranium, other than uranium hexafluoride;
- (b) For tanks, containers and unpackaged LSA-I and SCO-I, the value determined in step (a) above shall be multiplied by the appropriate factor from Table 2.2.7.6.1.1;
- (c) The value obtained in steps (a) and (b) above shall be rounded up to the first decimal place (e.g. 1.13 becomes 1.2), except that a value of 0.05 or less may be considered as zero.

Table 2.2.7.6.1.1

**MULTIPLICATION FACTORS FOR LARGE DIMENSION LOADS**

Size of load <sup>a</sup>	Multiplication factor
size of load $\leq 1 \text{ m}^2$	1
$1 \text{ m}^2 < \text{size of load} \leq 5 \text{ m}^2$	2
$5 \text{ m}^2 < \text{size of load} \leq 20 \text{ m}^2$	3
$20 \text{ m}^2 < \text{size of load}$	10

<sup>a</sup> *Largest cross-sectional area of the load being measured.*

2.2.7.6.1.2 The transport index for each overpack, container, vehicle shall be determined as either the sum of the TIs of all the packages contained, or by direct measurement of radiation level, except in the case of non-rigid overpacks for which the transport index shall be determined only as the sum of the TIs of all the packages.

2.2.7.6.2 *Determination of criticality safety index (CSI)*

2.2.7.6.2.1 The criticality safety index (CSI) for packages containing fissile material shall be obtained by dividing the number 50 by the smaller of the two values of N derived in 6.4.11.11 and 6.4.11.12 (i.e.  $CSI = 50/N$ ). The value of the criticality safety index may be zero, provided that an unlimited number of packages is subcritical (i.e. N is effectively equal to infinity in both cases).

2.2.7.6.2.2 The criticality safety index for each consignment shall be determined as the sum of the CSIs of all the packages contained in that consignment.

2.2.7.7 *Activity limits and material restrictions*

2.2.7.7.1 *Contents limits for packages*

2.2.7.7.1.1 General

The quantity of radioactive material in a package shall not exceed the relevant limits for the package type as specified below.

2.2.7.7.1.2 Excepted packages

2.2.7.7.1.2.1 For radioactive material other than articles manufactured of natural uranium, depleted uranium or natural thorium, an excepted package shall not contain activities greater than the following:

- (a) Where the radioactive material is enclosed in or is included as a component part of an instrument or other manufactured article, such as a clock or electronic apparatus, the limits specified in columns 2 and 3 of Table 2.2.7.7.1.2.1 for each individual item and each package, respectively; and
- (b) Where the radioactive material is not so enclosed in or is not included as a component of an instrument or other manufactured article, the package limits specified in column 4 of Table 2.2.7.7.1.2.1.

Table 2.2.7.7.1.2.1

## ACTIVITY LIMITS FOR EXCEPTED PACKAGES

Physical state of contents	Instruments or article		Materials
	Item limits <sup>a</sup>	Package limits <sup>a</sup>	Package limits
<b>Solids</b>			
special form	$10^{-2} A_1$	$A_1$	$10^{-3} A_1$
other form	$10^{-2} A_2$	$A_2$	$10^{-3} A_2$
<b>Liquids</b>	$10^{-3} A_2$	$10^{-1} A_2$	$10^{-4} A_2$
<b>Gases</b>			
tritium	$2 \times 10^{-2} A_2$	$2 \times 10^{-1} A_2$	$2 \times 10^{-2} A_2$
special form	$10^{-3} A_1$	$10^{-2} A_1$	$10^{-3} A_1$
other forms	$10^{-3} A_2$	$10^{-2} A_2$	$10^{-3} A_2$

<sup>a</sup> For mixtures of radionuclides, see 2.2.7.7.2.4 to 2.2.7.7.2.6.

2.2.7.7.1.2.2 For articles manufactured of natural uranium, depleted uranium or natural thorium, an excepted package may contain any quantity of such material provided that the outer surface of the uranium or thorium is enclosed in an inactive sheath made of metal or some other substantial material.

#### 2.2.7.7.1.3 Industrial packages

The radioactive contents in a single package of LSA material or in a single package of SCO shall be so restricted that the radiation level specified in 4.1.9.2.1 shall not be exceeded, and the activity in a single package shall also be so restricted that the activity limits for a vehicle specified in 7.5.11, CV33 (2) shall not be exceeded.

#### 2.2.7.7.1.4 Type A packages

2.2.7.7.1.4.1 Type A packages shall not contain activities greater than the following:

- (a) For special form radioactive material -  $A_1$ ; or
- (b) For all other radioactive material -  $A_2$ .

2.2.7.7.1.4.2 For mixtures of radionuclides whose identities and respective activities are known, the following condition shall apply to the radioactive contents of a Type A package:

$$\sum_i \frac{B(i)}{A_1(i)} + \sum_j \frac{C(j)}{A_2(j)} \leq 1$$

where

B(i) is the activity of radionuclide i as special form radioactive material and  $A_1(i)$  is the  $A_1$  value for radionuclide i; and

C(j) is the activity of radionuclide j as other than special form radioactive material and  $A_2(j)$  is the  $A_2$  value for radionuclide j.

2.2.7.7.1.5 Type B(U) and Type B(M) packages

2.2.7.7.1.5.1 Type B(U) and Type B(M) packages shall not contain:

- (a) Activities greater than those authorized for the package design;
- (b) Radionuclides different from those authorized for the package design; or
- (c) Contents in a form, or a physical or chemical state different from those authorized for the package design;

as specified in their certificates of approval.

2.2.7.7.1.6 Type C packages

*NOTE: Type C packages may be transported by air carrying radioactive material in quantities exceeding either 3 000A<sub>1</sub> or 100 000A<sub>2</sub>, whichever is the lower for special form radioactive material, or 3 000A<sub>2</sub> for all other radioactive material. Whilst Type C packages are not required for carriage of radioactive material by road in such quantities (Type B(U) or Type B(M) packages suffice), the following requirements are presented since such packages may also be carried by road.*

Type C packages shall not contain:

- (a) Activities greater than those authorized for the package design;
- (b) Radionuclides different from those authorized for the package design; or
- (c) Contents in a form, or physical or chemical state different from those authorized for the package design;

as specified in their certificates of approval.

2.2.7.7.1.7 Packages containing fissile material

Packages containing fissile material shall not contain:

- (a) A mass of fissile material different from that authorized for the package design;
- (b) Any radionuclide or fissile material different from those authorized for the package design; or
- (c) Contents in a form or physical or chemical state, or in a spatial arrangement, different from those authorized for the package design;

as specified in their certificates of approval where appropriate.

2.2.7.7.1.8 Packages containing uranium hexafluoride

The mass of uranium hexafluoride in a package shall not exceed a value that would lead to an ullage smaller than 5% at the maximum temperature of the package as specified for the plant systems where the package shall be used. The uranium hexafluoride shall be in solid form and the internal pressure of the package shall be below atmospheric pressure when presented for carriage.

2.2.7.7.2 *Activity levels*

2.2.7.7.2.1 The following basic values for individual radionuclides are given in Table 2.2.7.7.2.1:

- (a)  $A_1$  and  $A_2$  in TBq;
- (b) Activity concentration for exempt material in Bq/g; and
- (c) Activity limits for exempt consignments in Bq.

Table 2.2.7.7.2.1

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Actinium (89)				
Ac-225 (a)	$8 \times 10^{-1}$	$6 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
Ac-227 (a)	$9 \times 10^{-1}$	$9 \times 10^{-5}$	$1 \times 10^{-1}$	$1 \times 10^3$
Ac-228	$6 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Silver (47)				
Ag-105	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Ag-108m (a)	$7 \times 10^{-1}$	$7 \times 10^{-1}$	$1 \times 10^1$ (b)	$1 \times 10^6$ (b)
Ag-110m (a)	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Ag-111	$2 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Aluminium (13)				
Al-26	$1 \times 10^{-1}$	$1 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Americium (95)				
Am-241	$1 \times 10^1$	$1 \times 10^{-3}$	$1 \times 10^0$	$1 \times 10^4$
Am-242m (a)	$1 \times 10^1$	$1 \times 10^{-3}$	$1 \times 10^0$ (b)	$1 \times 10^4$ (b)
Am-243 (a)	$5 \times 10^0$	$1 \times 10^{-3}$	$1 \times 10^0$ (b)	$1 \times 10^3$ (b)
Argon (18)				
Ar-37	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^6$	$1 \times 10^8$
Ar-39	$4 \times 10^1$	$2 \times 10^1$	$1 \times 10^7$	$1 \times 10^4$
Ar-41	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^9$
Arsenic (33)				
As-72	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
As-73	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^3$	$1 \times 10^7$
As-74	$1 \times 10^0$	$9 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
As-76	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^5$
As-77	$2 \times 10^1$	$7 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Astatine (85)				
At-211 (a)	$2 \times 10^1$	$5 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^7$
Gold (79)				
Au-193	$7 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$



Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Au-194	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Au-195	$1 \times 10^1$	$6 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Au-198	$1 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Au-199	$1 \times 10^1$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Barium (56)				
Ba-131 (a)	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Ba-133	$3 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Ba-133m	$2 \times 10^1$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Ba-140 (a)	$5 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$ (b)	$1 \times 10^5$ (b)
Beryllium (4)				
Be-7	$2 \times 10^1$	$2 \times 10^1$	$1 \times 10^3$	$1 \times 10^7$
Be-10	$4 \times 10^1$	$6 \times 10^{-1}$	$1 \times 10^4$	$1 \times 10^6$
Bismuth (83)				
Bi-205	$7 \times 10^{-1}$	$7 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Bi-206	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Bi-207	$7 \times 10^{-1}$	$7 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Bi-210	$1 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Bi-210m (a)	$6 \times 10^{-1}$	$2 \times 10^{-2}$	$1 \times 10^1$	$1 \times 10^5$
Bi-212 (a)	$7 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^1$ (b)	$1 \times 10^5$ (b)
Berkelium (97)				
Bk-247	$8 \times 10^0$	$8 \times 10^{-4}$	$1 \times 10^0$	$1 \times 10^4$
Bk-249 (a)	$4 \times 10^1$	$3 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Bromine (35)				
Br-76	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Br-77	$3 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Br-82	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Carbon (6)				
C-11	$1 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
C-14	$4 \times 10^1$	$3 \times 10^0$	$1 \times 10^4$	$1 \times 10^7$
Calcium (20)				
Ca-41	Unlimited	Unlimited	$1 \times 10^5$	$1 \times 10^7$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Ca-45	$4 \times 10^1$	$1 \times 10^0$	$1 \times 10^4$	$1 \times 10^7$
Ca-47 (a)	$3 \times 10^0$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Cadmium (48)				
Cd-109	$3 \times 10^1$	$2 \times 10^0$	$1 \times 10^4$	$1 \times 10^6$
Cd-113m	$4 \times 10^1$	$5 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Cd-115 (a)	$3 \times 10^0$	$4 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Cd-115m	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Cerium (58)				
Ce-139	$7 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Ce-141	$2 \times 10^1$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^7$
Ce-143	$9 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Ce-144 (a)	$2 \times 10^{-1}$	$2 \times 10^{-1}$	$1 \times 10^2$ (b)	$1 \times 10^5$ (b)
Californium (98)				
Cf-248	$4 \times 10^1$	$6 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
Cf-249	$3 \times 10^0$	$8 \times 10^{-4}$	$1 \times 10^0$	$1 \times 10^3$
Cf-250	$2 \times 10^1$	$2 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
Cf-251	$7 \times 10^0$	$7 \times 10^{-4}$	$1 \times 10^0$	$1 \times 10^3$
Cf-252	$5 \times 10^{-2}$	$3 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
Cf-253 (a)	$4 \times 10^1$	$4 \times 10^{-2}$	$1 \times 10^2$	$1 \times 10^5$
Cf-254	$1 \times 10^{-3}$	$1 \times 10^{-3}$	$1 \times 10^0$	$1 \times 10^3$
Chlorine (17)				
Cl-36	$1 \times 10^1$	$6 \times 10^{-1}$	$1 \times 10^4$	$1 \times 10^6$
Cl-38	$2 \times 10^{-1}$	$2 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Curium (96)				
Cm-240	$4 \times 10^1$	$2 \times 10^{-2}$	$1 \times 10^2$	$1 \times 10^5$
Cm-241	$2 \times 10^0$	$1 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Cm-242	$4 \times 10^1$	$1 \times 10^{-2}$	$1 \times 10^2$	$1 \times 10^5$
Cm-243	$9 \times 10^0$	$1 \times 10^{-3}$	$1 \times 10^0$	$1 \times 10^4$
Cm-244	$2 \times 10^1$	$2 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
Cm-245	$9 \times 10^0$	$9 \times 10^{-4}$	$1 \times 10^0$	$1 \times 10^3$
Cm-246	$9 \times 10^0$	$9 \times 10^{-4}$	$1 \times 10^0$	$1 \times 10^3$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Cm-247 (a)	$3 \times 10^0$	$1 \times 10^{-3}$	$1 \times 10^0$	$1 \times 10^4$
Cm-248	$2 \times 10^{-2}$	$3 \times 10^{-4}$	$1 \times 10^0$	$1 \times 10^3$
Cobalt (27)				
Co-55	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Co-56	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Co-57	$1 \times 10^1$	$1 \times 10^1$	$1 \times 10^2$	$1 \times 10^6$
Co-58	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Co-58m	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^4$	$1 \times 10^7$
Co-60	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Chromium (24)				
Cr-51	$3 \times 10^1$	$3 \times 10^1$	$1 \times 10^3$	$1 \times 10^7$
Caesium (55)				
Cs-129	$4 \times 10^0$	$4 \times 10^0$	$1 \times 10^2$	$1 \times 10^5$
Cs-131	$3 \times 10^1$	$3 \times 10^1$	$1 \times 10^3$	$1 \times 10^6$
Cs-132	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^5$
Cs-134	$7 \times 10^{-1}$	$7 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^4$
Cs-134m	$4 \times 10^1$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^5$
Cs-135	$4 \times 10^1$	$1 \times 10^0$	$1 \times 10^4$	$1 \times 10^7$
Cs-136	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Cs-137 (a)	$2 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^1$ (b)	$1 \times 10^4$ (b)
Copper (29)				
Cu-64	$6 \times 10^0$	$1 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Cu-67	$1 \times 10^1$	$7 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Dysprosium (66)				
Dy-159	$2 \times 10^1$	$2 \times 10^1$	$1 \times 10^3$	$1 \times 10^7$
Dy-165	$9 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Dy-166 (a)	$9 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Erbium (68)				
Er-169	$4 \times 10^1$	$1 \times 10^0$	$1 \times 10^4$	$1 \times 10^7$
Er-171	$8 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Europium (63)				
Eu-147	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Eu-148	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Eu-149	$2 \times 10^1$	$2 \times 10^1$	$1 \times 10^2$	$1 \times 10^7$
Eu-150(short lived)	$2 \times 10^0$	$7 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Eu-150(long lived)	$7 \times 10^{-1}$	$7 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Eu-152	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Eu-152m	$8 \times 10^{-1}$	$8 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Eu-154	$9 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Eu-155	$2 \times 10^1$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Eu-156	$7 \times 10^{-1}$	$7 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Fluorine (9)				
F-18	$1 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Iron (26)				
Fe-52 (a)	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Fe-55	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^4$	$1 \times 10^6$
Fe-59	$9 \times 10^{-1}$	$9 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Fe-60 (a)	$4 \times 10^1$	$2 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^5$
Gallium (31)				
Ga-67	$7 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Ga-68	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Ga-72	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Gadolinium (64)				
Gd-146 (a)	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Gd-148	$2 \times 10^1$	$2 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
Gd-153	$1 \times 10^1$	$9 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Gd-159	$3 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Germanium (32)				
Ge-68 (a)	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Ge-71	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^4$	$1 \times 10^8$
Ge-77	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Hafnium (72)				
Hf-172 (a)	$6 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Hf-175	$3 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Hf-181	$2 \times 10^0$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Hf-182	Unlimited	Unlimited	$1 \times 10^2$	$1 \times 10^6$
Mercury (80)				
Hg-194 (a)	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Hg-195m (a)	$3 \times 10^0$	$7 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Hg-197	$2 \times 10^1$	$1 \times 10^1$	$1 \times 10^2$	$1 \times 10^7$
Hg-197m	$1 \times 10^1$	$4 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Hg-203	$5 \times 10^0$	$1 \times 10^0$	$1 \times 10^2$	$1 \times 10^5$
Holmium (67)				
Ho-166	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^5$
Ho-166m	$6 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Iodine (53)				
I-123	$6 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
I-124	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
I-125	$2 \times 10^1$	$3 \times 10^0$	$1 \times 10^3$	$1 \times 10^6$
I-126	$2 \times 10^0$	$1 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
I-129	Unlimited	Unlimited	$1 \times 10^2$	$1 \times 10^5$
I-131	$3 \times 10^0$	$7 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
I-132	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
I-133	$7 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
I-134	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
I-135 (a)	$6 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Indium (49)				
In-111	$3 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
In-113m	$4 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
In-114m (a)	$1 \times 10^1$	$5 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
In-115m	$7 \times 10^0$	$1 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Iridium (77)				
Ir-189 (a)	$1 \times 10^1$	$1 \times 10^1$	$1 \times 10^2$	$1 \times 10^7$
Ir-190	$7 \times 10^{-1}$	$7 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Ir-192	$1 \times 10^0$ (c)	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^4$
Ir-194	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^5$
Potassium (19)				
K-40	$9 \times 10^{-1}$	$9 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
K-42	$2 \times 10^{-1}$	$2 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
K-43	$7 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Krypton (36)				
Kr-79	$4 \times 10^0$	$1 \times 10^0$	$1 \times 10^3$	$1 \times 10^5$
Kr-81	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^4$	$1 \times 10^7$
Kr-85	$1 \times 10^1$	$1 \times 10^1$	$1 \times 10^5$	$1 \times 10^4$
Kr-85m	$8 \times 10^0$	$3 \times 10^0$	$1 \times 10^3$	$1 \times 10^{10}$
Kr-87	$2 \times 10^{-1}$	$2 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^9$
Lanthanum (57)				
La-137	$3 \times 10^1$	$6 \times 10^0$	$1 \times 10^3$	$1 \times 10^7$
La-140	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Lutetium (71)				
Lu-172	$6 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Lu-173	$8 \times 10^0$	$8 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Lu-174	$9 \times 10^0$	$9 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Lu-174m	$2 \times 10^1$	$1 \times 10^1$	$1 \times 10^2$	$1 \times 10^7$
Lu-177	$3 \times 10^1$	$7 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^7$
Magnesium (12)				
Mg-28 (a)	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Manganese (25)				
Mn-52	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Mn-53	Unlimited	Unlimited	$1 \times 10^4$	$1 \times 10^9$
Mn-54	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Mn-56	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Molybdenum (42)				
Mo-93	$4 \times 10^1$	$2 \times 10^1$	$1 \times 10^3$	$1 \times 10^8$
Mo-99 (a)	$1 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Nitrogen (7)				
N-13	$9 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^9$
Sodium (11)				
Na-22	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Na-24	$2 \times 10^{-1}$	$2 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Niobium (41)				
Nb-93m	$4 \times 10^1$	$3 \times 10^1$	$1 \times 10^4$	$1 \times 10^7$
Nb-94	$7 \times 10^{-1}$	$7 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Nb-95	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Nb-97	$9 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Neodymium (60)				
Nd-147	$6 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Nd-149	$6 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Nickel (28)				
Ni-59	Unlimited	Unlimited	$1 \times 10^4$	$1 \times 10^8$
Ni-63	$4 \times 10^1$	$3 \times 10^1$	$1 \times 10^5$	$1 \times 10^8$
Ni-65	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Neptunium (93)				
Np-235	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^3$	$1 \times 10^7$
Np-236(short-lived)	$2 \times 10^1$	$2 \times 10^0$	$1 \times 10^3$	$1 \times 10^7$
Np-236(long-lived)	$9 \times 10^0$	$2 \times 10^{-2}$	$1 \times 10^2$	$1 \times 10^5$
Np-237	$2 \times 10^1$	$2 \times 10^{-3}$	$1 \times 10^0$ (b)	$1 \times 10^3$ (b)
Np-239	$7 \times 10^0$	$4 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^7$
Osmium (76)				
Os-185	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Os-191	$1 \times 10^1$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Os-191m	$4 \times 10^1$	$3 \times 10^1$	$1 \times 10^3$	$1 \times 10^7$
Os-193	$2 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Os-194 (a)	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^5$
Phosphorus (15)				
P-32	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^5$
P-33	$4 \times 10^1$	$1 \times 10^0$	$1 \times 10^5$	$1 \times 10^8$
Protactinium (91)				
Pa-230 (a)	$2 \times 10^0$	$7 \times 10^{-2}$	$1 \times 10^1$	$1 \times 10^6$
Pa-231	$4 \times 10^0$	$4 \times 10^{-4}$	$1 \times 10^0$	$1 \times 10^3$
Pa-233	$5 \times 10^0$	$7 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^7$
Lead (82)				
Pb-201	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Pb-202	$4 \times 10^1$	$2 \times 10^1$	$1 \times 10^3$	$1 \times 10^6$
Pb-203	$4 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Pb-205	Unlimited	Unlimited	$1 \times 10^4$	$1 \times 10^7$
Pb-210 (a)	$1 \times 10^0$	$5 \times 10^{-2}$	$1 \times 10^1$ (b)	$1 \times 10^4$ (b)
Pb-212 (a)	$7 \times 10^{-1}$	$2 \times 10^{-1}$	$1 \times 10^1$ (b)	$1 \times 10^5$ (b)
Palladium (46)				
Pd-103 (a)	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^3$	$1 \times 10^8$
Pd-107	Unlimited	Unlimited	$1 \times 10^5$	$1 \times 10^8$
Pd-109	$2 \times 10^0$	$5 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Promethium (61)				
Pm-143	$3 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Pm-144	$7 \times 10^{-1}$	$7 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Pm-145	$3 \times 10^1$	$1 \times 10^1$	$1 \times 10^3$	$1 \times 10^7$
Pm-147	$4 \times 10^1$	$2 \times 10^0$	$1 \times 10^4$	$1 \times 10^7$
Pm-148m (a)	$8 \times 10^{-1}$	$7 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Pm-149	$2 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Pm-151	$2 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Polonium (84)				
Po-210	$4 \times 10^1$	$2 \times 10^{-2}$	$1 \times 10^1$	$1 \times 10^4$
Praseodymium (59)				
Pr-142	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^5$



Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Pr-143	$3 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^4$	$1 \times 10^6$
Platinum (78)				
Pt-188 (a)	$1 \times 10^0$	$8 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Pt-191	$4 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Pt-193	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^4$	$1 \times 10^7$
Pt-193m	$4 \times 10^1$	$5 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^7$
Pt-195m	$1 \times 10^1$	$5 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Pt-197	$2 \times 10^1$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Pt-197m	$1 \times 10^1$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Plutonium (94)				
Pu-236	$3 \times 10^1$	$3 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
Pu-237	$2 \times 10^1$	$2 \times 10^1$	$1 \times 10^3$	$1 \times 10^7$
Pu-238	$1 \times 10^1$	$1 \times 10^{-3}$	$1 \times 10^0$	$1 \times 10^4$
Pu-239	$1 \times 10^1$	$1 \times 10^{-3}$	$1 \times 10^0$	$1 \times 10^4$
Pu-240	$1 \times 10^1$	$1 \times 10^{-3}$	$1 \times 10^0$	$1 \times 10^3$
Pu-241 (a)	$4 \times 10^1$	$6 \times 10^{-2}$	$1 \times 10^2$	$1 \times 10^5$
Pu-242	$1 \times 10^1$	$1 \times 10^{-3}$	$1 \times 10^0$	$1 \times 10^4$
Pu-244 (a)	$4 \times 10^{-1}$	$1 \times 10^{-3}$	$1 \times 10^0$	$1 \times 10^4$
Radium (88)				
Ra-223 (a)	$4 \times 10^{-1}$	$7 \times 10^{-3}$	$1 \times 10^2$ (b)	$1 \times 10^5$ (b)
Ra-224 (a)	$4 \times 10^{-1}$	$2 \times 10^{-2}$	$1 \times 10^1$ (b)	$1 \times 10^5$ (b)
Ra-225 (a)	$2 \times 10^{-1}$	$4 \times 10^{-3}$	$1 \times 10^2$	$1 \times 10^5$
Ra-226 (a)	$2 \times 10^{-1}$	$3 \times 10^{-3}$	$1 \times 10^1$ (b)	$1 \times 10^4$ (b)
Ra-228 (a)	$6 \times 10^{-1}$	$2 \times 10^{-2}$	$1 \times 10^1$ (b)	$1 \times 10^5$ (b)
Rubidium (37)				
Rb-81	$2 \times 10^0$	$8 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Rb-83 (a)	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Rb-84	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Rb-86	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^5$
Rb-87	Unlimited	Unlimited	$1 \times 10^4$	$1 \times 10^7$
Rb(nat)	Unlimited	Unlimited	$1 \times 10^4$	$1 \times 10^7$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Rhenium (75)				
Re-184	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Re-184m	$3 \times 10^0$	$1 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Re-186	$2 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Re-187	Unlimited	Unlimited	$1 \times 10^6$	$1 \times 10^9$
Re-188	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^5$
Re-189 (a)	$3 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Re(nat)	Unlimited	Unlimited	$1 \times 10^6$	$1 \times 10^9$
Rhodium (45)				
Rh-99	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Rh-101	$4 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Rh-102	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Rh-102m	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Rh-103m	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^4$	$1 \times 10^8$
Rh-105	$1 \times 10^1$	$8 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^7$
Radon (86)				
Rn-222 (a)	$3 \times 10^{-1}$	$4 \times 10^{-3}$	$1 \times 10^1$ (b)	$1 \times 10^8$ (b)
Ruthenium (44)				
Ru-97	$5 \times 10^0$	$5 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Ru-103 (a)	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Ru-105	$1 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Ru-106 (a)	$2 \times 10^{-1}$	$2 \times 10^{-1}$	$1 \times 10^2$ (b)	$1 \times 10^5$ (b)
Sulphur (16)				
S-35	$4 \times 10^1$	$3 \times 10^0$	$1 \times 10^5$	$1 \times 10^8$
Antimony (51)				
Sb-122	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^4$
Sb-124	$6 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Sb-125	$2 \times 10^0$	$1 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Sb-126	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Scandium (21)				
Sc-44	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Sc-46	$5 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Sc-47	$1 \times 10^1$	$7 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Sc-48	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Selenium (34)				
Se-75	$3 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Se-79	$4 \times 10^1$	$2 \times 10^0$	$1 \times 10^4$	$1 \times 10^7$
Silicon (14)				
Si-31	$6 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Si-32	$4 \times 10^1$	$5 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Samarium (62)				
Sm-145	$1 \times 10^1$	$1 \times 10^1$	$1 \times 10^2$	$1 \times 10^7$
Sm-147	Unlimited	Unlimited	$1 \times 10^1$	$1 \times 10^4$
Sm-151	$4 \times 10^1$	$1 \times 10^1$	$1 \times 10^4$	$1 \times 10^8$
Sm-153	$9 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Tin (50)				
Sn-113 (a)	$4 \times 10^0$	$2 \times 10^0$	$1 \times 10^3$	$1 \times 10^7$
Sn-117m	$7 \times 10^0$	$4 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Sn-119m	$4 \times 10^1$	$3 \times 10^1$	$1 \times 10^3$	$1 \times 10^7$
Sn-121m (a)	$4 \times 10^1$	$9 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^7$
Sn-123	$8 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Sn-125	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^5$
Sn-126 (a)	$6 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Strontium (38)				
Sr-82 (a)	$2 \times 10^{-1}$	$2 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Sr-85	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Sr-85m	$5 \times 10^0$	$5 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Sr-87m	$3 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Sr-89	$6 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Sr-90 (a)	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^2$ (b)	$1 \times 10^4$ (b)
Sr-91 (a)	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Sr-92 (a)	$1 \times 10^0$	$3 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Tritium (1)				
T(H-3)	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^6$	$1 \times 10^9$
Tantalum (73)				
Ta-178(long-lived)	$1 \times 10^0$	$8 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Ta-179	$3 \times 10^1$	$3 \times 10^1$	$1 \times 10^3$	$1 \times 10^7$
Ta-182	$9 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^4$
Terbium (65)				
Tb-157	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^4$	$1 \times 10^7$
Tb-158	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Tb-160	$1 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Technetium (43)				
Tc-95m (a)	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Tc-96	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Tc-96m (a)	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^7$
Tc-97	Unlimited	Unlimited	$1 \times 10^3$	$1 \times 10^8$
Tc-97m	$4 \times 10^1$	$1 \times 10^0$	$1 \times 10^3$	$1 \times 10^7$
Tc-98	$8 \times 10^{-1}$	$7 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Tc-99	$4 \times 10^1$	$9 \times 10^{-1}$	$1 \times 10^4$	$1 \times 10^7$
Tc-99m	$1 \times 10^1$	$4 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Tellurium (52)				
Te-121	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Te-121m	$5 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^5$
Te-123m	$8 \times 10^0$	$1 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Te-125m	$2 \times 10^1$	$9 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^7$
Te-127	$2 \times 10^1$	$7 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Te-127m (a)	$2 \times 10^1$	$5 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^7$
Te-129	$7 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Te-129m (a)	$8 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Te-131m (a)	$7 \times 10^{-1}$	$5 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Te-132 (a)	$5 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^7$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Thorium (90)				
Th-227	$1 \times 10^1$	$5 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
Th-228 (a)	$5 \times 10^{-1}$	$1 \times 10^{-3}$	$1 \times 10^0$ (b)	$1 \times 10^4$ (b)
Th-229	$5 \times 10^0$	$5 \times 10^{-4}$	$1 \times 10^0$ (b)	$1 \times 10^3$ (b)
Th-230	$1 \times 10^1$	$1 \times 10^{-3}$	$1 \times 10^0$	$1 \times 10^4$
Th-231	$4 \times 10^1$	$2 \times 10^{-2}$	$1 \times 10^3$	$1 \times 10^7$
Th-232	Unlimited	Unlimited	$1 \times 10^1$	$1 \times 10^4$
Th-234 (a)	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^3$ (b)	$1 \times 10^5$ (b)
Th(nat)	Unlimited	Unlimited	$1 \times 10^0$ (b)	$1 \times 10^3$ (b)
Titanium (22)				
Ti-44 (a)	$5 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
Thallium (81)				
Tl-200	$9 \times 10^{-1}$	$9 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Tl-201	$1 \times 10^1$	$4 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Tl-202	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Tl-204	$1 \times 10^1$	$7 \times 10^{-1}$	$1 \times 10^4$	$1 \times 10^4$
Thulium (69)				
Tm-167	$7 \times 10^0$	$8 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Tm-170	$3 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Tm-171	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^4$	$1 \times 10^8$
Uranium (92)				
U-230 (fast lung absorption) (a)(d)	$4 \times 10^1$	$1 \times 10^{-1}$	$1 \times 10^1$ (b)	$1 \times 10^5$ (b)
U-230 (medium lung absorption) (a)(e)	$4 \times 10^1$	$4 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
U-230 (slow lung absorption) (a)(f)	$3 \times 10^1$	$3 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
U-232 (fast lung absorption) (d)	$4 \times 10^1$	$1 \times 10^{-2}$	$1 \times 10^0$ (b)	$1 \times 10^3$ (b)
U-232 (medium lung absorption) (e)	$4 \times 10^1$	$7 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
U-232 (slow lung absorption) (f)	$1 \times 10^1$	$1 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
U-233 (fast lung absorption) (d)	$4 \times 10^1$	$9 \times 10^{-2}$	$1 \times 10^1$	$1 \times 10^4$
U-233 (medium lung absorption) (e)	$4 \times 10^1$	$2 \times 10^{-2}$	$1 \times 10^2$	$1 \times 10^5$
U-233 (slow lung absorption) (f)	$4 \times 10^1$	$6 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^5$
U-234 (fast lung absorption) (d)	$4 \times 10^1$	$9 \times 10^{-2}$	$1 \times 10^1$	$1 \times 10^4$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
U-234 (medium lung absorption) (e)	$4 \times 10^1$	$2 \times 10^{-2}$	$1 \times 10^2$	$1 \times 10^5$
U-234 (slow lung absorption) (f)	$4 \times 10^1$	$6 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^5$
U-235 (all lung absorption types) (a)(d)(e)(f)	Unlimited	Unlimited	$1 \times 10^1$ (b)	$1 \times 10^4$ (b)
U-236 (fast lung absorption) (d)	Unlimited	Unlimited	$1 \times 10^1$	$1 \times 10^4$
U-236 (medium lung absorption) (e)	$4 \times 10^1$	$2 \times 10^{-2}$	$1 \times 10^2$	$1 \times 10^5$
U-236 (slow lung absorption) (f)	$4 \times 10^1$	$6 \times 10^{-3}$	$1 \times 10^1$	$1 \times 10^4$
U-238 (all lung absorption types) (d)(e)(f)	Unlimited	Unlimited	$1 \times 10^1$ (b)	$1 \times 10^4$ (b)
U (nat)	Unlimited	Unlimited	$1 \times 10^0$ (b)	$1 \times 10^3$ (b)
U (enriched to 20% or less) (g)	Unlimited	Unlimited	$1 \times 10^0$	$1 \times 10^3$
U (dep)	Unlimited	Unlimited	$1 \times 10^0$	$1 \times 10^3$
Vanadium (23)				
V-48	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^5$
V-49	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^4$	$1 \times 10^7$
Tungsten (74)				
W-178 (a)	$9 \times 10^0$	$5 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
W-181	$3 \times 10^1$	$3 \times 10^1$	$1 \times 10^3$	$1 \times 10^7$
W-185	$4 \times 10^1$	$8 \times 10^{-1}$	$1 \times 10^4$	$1 \times 10^7$
W-187	$2 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
W-188 (a)	$4 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^5$
Xenon (54)				
Xe-122 (a)	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^9$
Xe-123	$2 \times 10^0$	$7 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^9$
Xe-127	$4 \times 10^0$	$2 \times 10^0$	$1 \times 10^3$	$1 \times 10^5$
Xe-131m	$4 \times 10^1$	$4 \times 10^1$	$1 \times 10^4$	$1 \times 10^4$
Xe-133	$2 \times 10^1$	$1 \times 10^1$	$1 \times 10^3$	$1 \times 10^4$
Xe-135	$3 \times 10^0$	$2 \times 10^0$	$1 \times 10^3$	$1 \times 10^{10}$
Yttrium (39)				
Y-87 (a)	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Y-88	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$

Radionuclide (atomic number)	A <sub>1</sub> (TBq)	A <sub>2</sub> (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for an exempt consignment (Bq)
Y-90	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^5$
Y-91	$6 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$
Y-91m	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Y-92	$2 \times 10^{-1}$	$2 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^5$
Y-93	$3 \times 10^{-1}$	$3 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^5$
Ytterbium (70)				
Yb-169	$4 \times 10^0$	$1 \times 10^0$	$1 \times 10^2$	$1 \times 10^7$
Yb-175	$3 \times 10^1$	$9 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^7$
Zinc (30)				
Zn-65	$2 \times 10^0$	$2 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Zn-69	$3 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^4$	$1 \times 10^6$
Zn-69m (a)	$3 \times 10^0$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Zirconium (40)				
Zr-88	$3 \times 10^0$	$3 \times 10^0$	$1 \times 10^2$	$1 \times 10^6$
Zr-93	Unlimited	Unlimited	$1 \times 10^3$ (b)	$1 \times 10^7$ (b)
Zr-95 (a)	$2 \times 10^0$	$8 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Zr-97 (a)	$4 \times 10^{-1}$	$4 \times 10^{-1}$	$1 \times 10^1$ (b)	$1 \times 10^5$ (b)

- (a) A<sub>1</sub> and/or A<sub>2</sub> values include contributions from daughter nuclides with half-lives less than 10 days.
- (b) Parent nuclides and their progeny included in secular equilibrium are listed in the following:

Sr-90	Y-90
Zr-93	Nb-93m
Zr-97	Nb-97
Ru-106	Rh-106
Cs-137	Ba-137m
Ce-134	La-134
Ce-144	Pr-144
Ba-140	La-140
Bi-212	Tl-208 (0.36), Po-212 (0.64)
Pb-210	Bi-210, Po-210
Pb-212	Bi-212, Tl-208 (0.36), Po-212 (0.64)
Rn-220	Po-216
Rn-222	Po-218, Pb-214, Bi-214, Po-214
Ra-223	Rn-219, Po-215, Pb-211, Bi-211, Tl-207
Ra-224	Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64)

Ra-226	Rn-222, Po-218, Pb-214, Bi-214, Po-214, Pb-210, Bi-210, Po-210
Ra-228	Ac-228
Th-226	Ra-222, Rn-218, Po-214
Th-228	Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64)
Th-229	Ra-225, Ac-225, Fr-221, At-217, Bi-213, Po-213, Pb-209
Th-nat	Ra-228, Ac-228, Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64)
Th-234	Pa-234m
U-230	Th-226, Ra-222, Rn-218, Po-214
U-232	Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64)
U-235	Th-231
U-238	Th-234, Pa-234m
U-nat	Th-234, Pa-234m, U-234, Th-230, Ra-226, Rn-222, Po-218, Pb-214, Bi-214, Po-214, Pb-210, Bi-210, Po-210
U-240	Np-240m
Np-237	Pa-233
Am-242m	Am-242
Am-243	Np-239

- (c) The quantity may be determined from a measurement of the rate of decay or a measurement of the radiation level at a prescribed distance from the source.
- (d) These values apply only to compounds of uranium that take the chemical form of  $UF_6$ ,  $UO_2F_2$  and  $UO_2(NO_3)_2$  in both normal and accident conditions of carriage.
- (e) These values apply only to compounds of uranium that take the chemical form of  $UO_3$ ,  $UF_4$ ,  $UCl_4$  and hexavalent compounds in both normal and accident conditions of carriage.
- (f) These values apply to all compounds of uranium other than those specified in (d) and (e) above.
- (g) These values apply to unirradiated uranium only.

#### 2.2.7.7.2.2

For individual radionuclides which are not listed in Table 2.2.7.7.2.1 the determination of the basic radionuclide values referred to in 2.2.7.7.2.1 shall require competent authority approval or, for international carriage, multilateral approval. Where the chemical form of each radionuclide is known, it is permissible to use the  $A_2$  value related to its solubility class as recommended by the International Commission on Radiological Protection, if the chemical forms under both normal and accident conditions of carriage are taken into consideration. Alternatively, the radionuclide values in Table 2.2.7.7.2.2 may be used without obtaining competent authority approval.



Table 2.2.7.7.2.2

## BASIC RADIONUCLIDE VALUES FOR UNKNOWN RADIONUCLIDES OR MIXTURES

Radioactive contents	A <sub>1</sub> TBq	A <sub>2</sub> TBq	Activity concentration for exempt material Bq/g	Activity limit for an exempt consignment Bq
Only beta or gamma emitting nuclides are known to be present	0.1	0.02	1 × 10 <sup>1</sup>	1 × 10 <sup>4</sup>
Only alpha emitting nuclides are known to be present	0.2	9 × 10 <sup>-5</sup>	1 × 10 <sup>-1</sup>	1 × 10 <sup>3</sup>
No relevant data are available	0.001	9 × 10 <sup>-5</sup>	1 × 10 <sup>-1</sup>	1 × 10 <sup>3</sup>

2.2.7.7.2.3 In the calculations of A<sub>1</sub> and A<sub>2</sub> for a radionuclide not in Table 2.2.7.7.2.1, a single radioactive decay chain in which the radionuclides are present in their naturally occurring proportions, and in which no daughter nuclide has a half-life either longer than 10 days or longer than that of the parent nuclide, shall be considered as a single radionuclide; and the activity to be taken into account and the A<sub>1</sub> or A<sub>2</sub> value to be applied shall be those corresponding to the parent nuclide of that chain. In the case of radioactive decay chains in which any daughter nuclide has a half-life either longer than 10 days or greater than that of the parent nuclide, the parent and such daughter nuclides shall be considered as mixtures of different nuclides.

2.2.7.7.2.4 For mixtures of radionuclides, the determination of the basic radionuclide values referred to in 2.2.7.7.2.1 may be determined as follows:

$$x_m = \frac{1}{\sum_i \frac{f(i)}{X(i)}}$$

where,

f(i) is the fraction of activity or activity concentration of radionuclide i in the mixture;

X(i) is the appropriate value of A<sub>1</sub> or A<sub>2</sub>, or the activity concentration for exempt material or the activity limit for an exempt consignment as appropriate for the radionuclide i; and

X<sub>m</sub> is the derived value of A<sub>1</sub> or A<sub>2</sub>, or the activity concentration for exempt material or the activity limit for an exempt consignment in the case of a mixture.

2.2.7.7.2.5 When the identity of each radionuclide is known but the individual activities of some of the radionuclides are not known, the radionuclides may be grouped and the lowest radionuclide value, as appropriate, for the radionuclides in each group may be used in applying the formulas in 2.2.7.7.2.4 and 2.2.7.7.1.4.2. Groups may be based on the total alpha activity and the total beta/gamma activity when these are known, using the lowest radionuclide values for the alpha emitters or beta/gamma emitters, respectively.

2.2.7.7.2.6 For individual radionuclides or for mixtures of radionuclides for which relevant data are not available, the values shown in Table 2.2.7.7.2.2 shall be used.

**2.2.7.8 Limits on transport index (TI), criticality safety index (CSI), radiation levels for packages and overpacks**

- 2.2.7.8.1 Except for consignments under exclusive use, the transport index of any package or overpack shall not exceed 10, nor shall the criticality safety index of any package or overpack exceed 50.
- 2.2.7.8.2 Except for packages or overpacks carried under exclusive use by road under the conditions specified in 7.5.11, CV33 (3.5)(a), the maximum radiation level at any point on any external surface of a package or overpack shall not exceed 2 mSv/h.
- 2.2.7.8.3 The maximum radiation level at any point on any external surface of a package under exclusive use shall not exceed 10 mSv/h.
- 2.2.7.8.4 Packages and overpacks shall be assigned to either category I-WHITE, II-YELLOW or III-YELLOW in accordance with the conditions specified in Table 2.2.7.8.4 and with the following requirements:
- For a package or overpack, both the transport index and the surface radiation level conditions shall be taken into account in determining which is the appropriate category. Where the transport index satisfies the condition for one category but the surface radiation level satisfies the condition for a different category, the package or overpack shall be assigned to the higher category. For this purpose, category I-WHITE shall be regarded as the lowest category;
  - The transport index shall be determined following the procedures specified in 2.2.7.6.1.1 and 2.2.7.6.1.2;
  - If the surface radiation level is greater than 2 mSv/h, the package or overpack shall be carried under exclusive use and under the provisions of 7.5.11, CV33 (3.5) (a);
  - A package carried under a special arrangement shall be assigned to category III-YELLOW;
  - An overpack which contains packages carried under special arrangement shall be assigned to category III-YELLOW.

**Table 2.2.7.8.4**

**CATEGORIES OF PACKAGES AND OVERPACKS**

Conditions		
Transport index (TI)	Maximum radiation level at any point on external surface	Category
0 <sup>a</sup>	Not more than 0.005 mSv/h	I-WHITE
More than 0 but not more than 1 <sup>a</sup>	More than 0.005 mSv/h but not more than 0.5 mSv/h	II-YELLOW
More than 1 but not more than 10	More than 0.5 mSv/h but not more than 2 mSv/h	III-YELLOW
More than 10	More than 2 mSv/h but not more than 10 mSv/h	III-YELLOW <sup>b</sup>

<sup>a</sup> If the measured TI is not greater than 0.05, the value quoted may be zero in accordance with 2.2.7.6.1.1(c).

<sup>b</sup> Shall also be carried under exclusive use.

**2.2.7.9 Requirements and controls for carriage of excepted packages**

2.2.7.9.1 Excepted packages which may contain radioactive material in limited quantities, instruments, manufactured articles as specified in 2.2.7.7.1.2 and empty packagings as specified in 2.2.7.9.6 may be carried under the following conditions:

- (a) The applicable requirements specified in 2.2.7.9.2, 3.3.1 (special provisions 172 or 290), 4.1.9.1.2, 5.2.1.2, 5.2.1.7.1, 5.2.1.7.2, 5.2.1.7.3, 5.4.1.2.5.1 (a), 7.5.11 CV33 (5.2) and, as applicable 2.2.7.9.3 to 2.2.7.9.6;
- (b) The requirements for excepted packages specified in 6.4.4;
- (c) If the excepted package contains fissile material, one of the fissile exceptions provided by 6.4.11.2 shall apply and the requirement of 6.4.7.2 shall be met.

2.2.7.9.2 The radiation level at any point on the external surface of an excepted package shall not exceed 5  $\mu\text{Sv/h}$ .

2.2.7.9.3 Radioactive material which is enclosed in or is included as a component part of an instrument or other manufactured article, with activity not exceeding the item and package limits specified in columns 2 and 3 respectively of Table 2.2.7.7.1.2.1, may be carried in an excepted package provided that:

- (a) The radiation level at 10 cm from any point on the external surface of any unpackaged instrument or article is not greater than 0.1 mSv/h; and
- (b) Each instrument or article (except radioluminescent time-pieces or devices) bears the marking "RADIOACTIVE"; and
- (c) The active material is completely enclosed by non-active components (a device performing the sole function of containing radioactive material shall not be considered to be an instrument or manufactured article).

2.2.7.9.4 Radioactive material in forms other than as specified in 2.2.7.9.3, with an activity not exceeding the limit specified in column 4 of Table 2.2.7.7.1.2.1, may be carried in an excepted package provided that:

- (a) The package retains its radioactive contents under routine conditions of carriage; and
- (b) The package bears the marking "RADIOACTIVE" on an internal surface in such a manner that a warning of the presence of radioactive material is visible on opening the package.

2.2.7.9.5 A manufactured article in which the sole radioactive material is unirradiated natural uranium, unirradiated depleted uranium or unirradiated natural thorium may be carried as an excepted package provided that the outer surface of the uranium or thorium is enclosed in an inactive sheath made of metal or some other substantial material.

2.2.7.9.6 An empty packaging which had previously contained radioactive material may be carried as an excepted package provided that:

- (a) It is in a well maintained condition and securely closed;
- (b) The outer surface of any uranium or thorium in its structure is covered with an inactive sheath made of metal or some other substantial material;

- (c) The level of internal non-fixed contamination does not exceed one hundred times the levels specified in 4.1.9.1.2; and
- (d) Any labels which may have been displayed on it in conformity with 5.2.2.1.11.1 are no longer visible.

2.2.7.9.7 The following provisions do not apply to excepted packages and the controls for carriage of excepted packages:

2.2.7.4.1, 2.2.7.4.2, 4.1.9.1.3, 4.1.9.1.4, 5.1.3.2, 5.1.5.1.1, 5.1.5.1.2, 5.2.2.1.11.1, 5.4.1.2.5.1 except for (a), 5.4.1.2.5.2, 5.4.1.3, 6.4.6.1, 7.5.11 CV 33 except for para. (5.2).

2.2.7.10 *(Reserved)*

## 2.2.8 Class 8 Corrosive substances

### 2.2.8.1 *Criteria*

2.2.8.1.1 The heading of Class 8 covers substances and articles containing substances of this Class which by chemical action attack epithelial tissue - of skin or mucous membranes - with which they are in contact, or which in the event of leakage are capable of damaging or destroying other goods, or means of transport. The heading of this Class also covers other substances which form a corrosive liquid only in the presence of water, or which produce corrosive vapour or mist in the presence of natural moisture of the air.

2.2.8.1.2 Substances and articles of Class 8 are subdivided as follows:

- C1-C10 Corrosive substances without subsidiary risk:
- C1-C4 Acid substances:
    - C1 Inorganic, liquid;
    - C2 Inorganic, solid;
    - C3 Organic, liquid;
    - C4 Organic, solid;
  - C5-C8 Basic substances:
    - C5 Inorganic, liquid;
    - C6 Inorganic, solid;
    - C7 Organic, liquid;
    - C8 Organic, solid;
  - C9-C10 Other corrosive substances:
    - C9 Liquid;
    - C10 Solid;
- C11 Articles;
- CF Corrosive substances, flammable:
  - CF1 Liquid;
  - CF2 Solid;
- CS Corrosive substances, self-heating:
  - CS1 Liquid;
  - CS2 Solid;
- CW Corrosive substances which, in contact with water, emit flammable gases:
  - CW1 Liquid;
  - CW2 Solid;
- CO Corrosive substances, oxidizing:
  - CO1 Liquid;
  - CO2 Solid;
- CT Corrosive substances, toxic:
  - CT1 Liquid;
  - CT2 Solid;
- CFT Corrosive substances, flammable, liquid, toxic;
- COT Corrosive substances, oxidizing, toxic.

*Classification and assignment of packing groups*

2.2.8.1.3 Substances of Class 8 shall be classified in three packing groups according to the degree of danger they present for carriage, as follows:

Packing group I:	highly corrosive substances
Packing group II:	corrosive substances
Packing group III:	slightly corrosive substances.

2.2.8.1.4 Substances and articles classified in Class 8 are listed in Table A of Chapter 3.2. Allocation of substances to packing groups I, II and III has been made on the basis of experience taking into account such additional factors as inhalation risk (see 2.2.8.1.5) and reactivity with water (including the formation of dangerous decomposition products).

2.2.8.1.5 A substance or preparation meeting the criteria of Class 8 having an inhalation toxicity of dusts and mists (LC<sub>50</sub>) in the range of packing group I, but toxicity through oral ingestion or dermal contact only in the range of packing group III or less, shall be allocated to Class 8.

2.2.8.1.6 Substances, including mixtures, not mentioned by name in Table A of Chapter 3.2 can be assigned to the relevant entry of sub-section 2.2.8.3, and to the relevant packing group on the basis of the length of time of contact necessary to produce full thickness destruction of human skin in accordance with the criteria of (a) to (c) below.

Substances which are judged not to cause full thickness destruction of human skin shall still be considered for their potential to cause corrosion to certain metal surfaces. In assigning the packing group, account shall be taken of human experience in instances of accidental exposure. In the absence of human experience, the grouping shall be based on data obtained from experiments in accordance with OECD Guideline 404<sup>8</sup>.

- (a) Packing group I is assigned to substances that cause full thickness destruction of intact skin tissue within an observation period up to 60 minutes starting after the exposure time of 3 minutes or less.
- (b) Packing group II is assigned to substances that cause full thickness destruction of intact skin tissue within an observation period up to 14 days starting after the exposure time of more than 3 minutes but not more than 60 minutes.
- (c) Packing group III is assigned to substances that:
  - cause full thickness destruction of intact skin tissue within an observation period up to 14 days starting after the exposure time of more than 60 minutes but not more than 4 hours; or
  - are judged not to cause full thickness destruction of intact skin tissue, but which exhibit a corrosion rate on steel or aluminium surfaces exceeding 6.25 mm a year at a test temperature of 55 °C. For the purposes of testing steel, type P235 [ISO 9328(II):1991] or a similar type, and for testing aluminium, non-clad types 7075-T6 or AZ5GU-T6 shall be used. An acceptable test is prescribed in ASTM G31-72 (Reapproved 1990).

<sup>8</sup> OECD guidelines for Testing of Chemicals, No. 404 "Acute Dermal Irritation/Corrosion" (1992).

2.2.8.1.7 If substances of Class 8, as a result of admixtures, come into categories of risk different from those to which the substances mentioned by name in Table A of Chapter 3.2 belong, these mixtures or solutions shall be assigned to the entries to which they belong, on the basis of their actual degree of danger.

*NOTE: For the classification of solutions and mixtures (such as preparations and wastes), see also 2.1.3.*

2.2.8.1.8 On the basis of the criteria set out in paragraph 2.2.8.1.6, it may also be determined whether the nature of a solution or mixture mentioned by name or containing a substance mentioned by name is such that the solution or mixture is not subject to the provisions for this Class.

2.2.8.1.9 Substances, solutions and mixtures, which

- do not meet the criteria of Directives 67/548/EEC<sup>9</sup> or 88/379/EEC<sup>10</sup> as amended and therefore are not classified as corrosive according to these directives, as amended; and
- do not exhibit a corrosive effect on steel or aluminium,

may be considered as substances not belonging to Class 8.

*NOTE: UN No. 1910 calcium oxide and UN No. 2812 sodium aluminate, listed in the UN Model Regulations, are not subject to the provisions of ADR.*

## 2.2.8.2 **Substances not accepted for carriage**

2.2.8.2.1 The chemically unstable substances of Class 8 shall not be accepted for carriage unless the necessary steps have been taken to prevent their dangerous decomposition or polymerization during carriage. To this end it shall in particular be ensured that receptacles and tanks do not contain any substance liable to promote these reactions.

2.2.8.2.2 The following substances shall not be accepted for carriage:

- UN No. 1798 NITROHYDROCHLORIC ACID;
- chemically unstable mixtures of spent sulphuric acid;
- chemically unstable mixtures of nitrating acid or mixtures of residual sulphuric and nitric acids, not denitrated;
- perchloric acid aqueous solution with more than 72 % pure acid, by mass, or mixtures of perchloric acid with any liquid other than water.

<sup>9</sup> Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (Official Journal of the European Communities No. L 196 of 16.08.1967).

<sup>10</sup> Council Directive 88/379/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous preparations (Official Journal of the European Communities No. L.187 of 16.07.1988, page 14).

2.2.8.3 *List of collective entries***Corrosive substances without subsidiary risk**

Acid	inorganic	liquid C1	2584 ALKYL SULPHONIC ACIDS, LIQUID with more than 5% free sulphuric acid or 2584 ARYLSULPHONIC ACIDS, LIQUID with more than 5% free sulphuric acid 2693 BISULPHITES, AQUEOUS SOLUTION, N.O.S. 2837 BISULPHATES, AQUEOUS SOLUTION 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
		solid C2	1740 HYDROGEN DIFLUORIDES, N.O.S. 2583 ALKYL SULPHONIC ACIDS, SOLID with more than 5% free sulphuric acid or 2583 ARYLSULPHONIC ACIDS, SOLID with more than 5% free sulphuric acid 3260 CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
	organic	liquid C3	2586 ALKYL SULPHONIC ACIDS, LIQUID with not more than 5% free sulphuric acid or 2586 ARYLSULPHONIC ACIDS, LIQUID with not more than 5% free sulphuric acid 2987 CHLOROSILANES, CORROSIVE, N.O.S. 3145 ALKYLPHENOLS, LIQUID, N.O.S. (including C <sub>2</sub> -C <sub>12</sub> homologues) 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
		solid C4	2430 ALKYLPHENOLS, SOLID, N.O.S. (including C <sub>2</sub> -C <sub>12</sub> homologues) 2585 ALKYL SULPHONIC ACIDS, SOLID with not more than 5% free sulphuric acid or 2585 ARYLSULPHONIC ACIDS, SOLID with not more than 5% free sulphuric acid 3261 CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.
Basic	inorganic	liquid C5	1719 CAUSTIC ALKALI LIQUID, N.O.S. 2797 BATTERY FLUID, ALKALI 3266 CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
		solid C6	3262 CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.
C5-C8	organic	liquid C7	2735 AMINES, LIQUID, CORROSIVE, N.O.S. or 2735 POLYAMINES, LIQUID, CORROSIVE, N.O.S. 3267 CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.
		solid C8	3259 AMINES, SOLID, CORROSIVE, N.O.S. or 3259 POLYAMINES, SOLID, CORROSIVE, N.O.S. 3263 CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.
Other corrosive substances C9-C10		liquid C9	1903 DISINFECTANT, LIQUID, CORROSIVE, N.O.S. 2801 DYE, LIQUID, CORROSIVE, N.O.S. or 2801 DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S. 3066 PAINT (including paint, enamel, stain, shellac, varnish, polish, liquid filler and lacquer base) or 3066 PAINT RELATED MATERIAL (including paint thinning or reducing compound) 1760 CORROSIVE LIQUID, N.O.S.
		solid <sup>a</sup> C10	3147 DYE, SOLID, CORROSIVE, N.O.S. or 3147 DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S. 3244 SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S. 1759 CORROSIVE SOLID, N.O.S.
Articles		C11	2794 BATTERIES, WET, FILLED WITH ACID, electric storage 2795 BATTERIES, WET, FILLED WITH ALKALI, electric storage 2800 BATTERIES, WET, NON-SPILLABLE, electric storage 3028 BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE SOLID, electric storage

(cont'd on next page)

<sup>a</sup> Mixtures of solids which are not subject to the provisions of ADR and of corrosive liquids may be carried under UN No. 3244 without being subject to the classification criteria of Class 8, provided there is no free liquid visible at the time the substance is loaded or at the time the packaging, container or transport unit is closed. Each packaging shall correspond to a design type which has passed the leakproofness test for Packing group II level.



## Corrosive substances with subsidiary risk(s)

Flammable <sup>b, c, d</sup> CF	liquid	CF1	2734 AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. or 2734 POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. 2986 CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S. 2920 CORROSIVE LIQUID, FLAMMABLE, N.O.S.
	solid	CF2	2921 CORROSIVE SOLID, FLAMMABLE, N.O.S.
Self-heating CS	liquid	CS1	3301 CORROSIVE LIQUID, SELF-HEATING, N.O.S.
	solid	CS2	3095 CORROSIVE SOLID, SELF-HEATING, N.O.S.
Water-reactive CW	liquid <sup>d</sup>	CW1	3094 CORROSIVE LIQUID, WATER-REACTIVE, N.O.S.
	solid	CW2	3096 CORROSIVE SOLID, WATER-REACTIVE, N.O.S.
Oxidizing CO	liquid	CO1	3093 CORROSIVE LIQUID, OXIDIZING, N.O.S.
	solid	CO2	3084 CORROSIVE SOLID, OXIDIZING, N.O.S.
Toxic <sup>f</sup> CT	liquid <sup>e</sup>	CT1	2922 CORROSIVE LIQUID, TOXIC, N.O.S.
	solid <sup>e</sup>	CT2	2923 CORROSIVE SOLID, TOXIC, N.O.S.
Flammable, liquid, toxic <sup>f</sup>		CFT	No collective entry with this classification code available; if need be, classification under a collective entry with a classification code to be determined according to table of precedence of hazard in 2.1.3.9.
Oxidizing, toxic <sup>e, f</sup>		COT	No collective entry with this classification code available; if need be, classification under a collective entry with a classification code to be determined according to table of precedence of hazard in 2.1.3.9.

<sup>b</sup> Flammable corrosive liquids having a flash-point below 23 °C, other than UN Nos. 2734 and 2920, are substances of Class 3.

<sup>c</sup> Flammable, slightly corrosive liquids having a flash-point between 23°C and 61°C, are substances of Class 3.

<sup>d</sup> Chlorosilanes which, in contact with water or moist air, emit flammable gases, are substances of Class 4.3.

<sup>e</sup> Chloroformates having predominantly toxic properties are substances of Class 6.1.

<sup>f</sup> Corrosive substances which are highly toxic by inhalation, as defined in 2.2.61.1.4 to 2.2.61.1.9 are substances of Class 6.1.

<sup>e</sup> UN No. 2505 AMMONIUM FLUORIDE, UN No. 1812 POTASSIUM FLUORIDE, UN No. 1690 SODIUM FLUORIDE, UN No. 2674 SODIUM FLUOROSILICATE and UN No. 2856 FLUOROSILICATES, N.O.S. are substances of Class 6.1.

**2.2.9 Class 9 Miscellaneous dangerous substances and articles**

**2.2.9.1 Criteria**

2.2.9.1.1 The heading of Class 9 covers substances and articles which, during carriage, present a danger not covered by the heading of other classes.

2.2.9.1.2 The substances and articles of Class 9 are subdivided as follows:

M1 Substances which, on inhalation as fine dust, may endanger health;

M2 Substances and apparatus which, in the event of fire, may form dioxins;

M3 Substances evolving flammable vapour;

M4 Lithium batteries;

M5 Life-saving appliances;

M6-M8 Environmentally hazardous substances:

M6 Pollutant to the aquatic environment, liquid;

M7 Pollutant to the aquatic environment, solid;

M8 Genetically modified micro-organisms and organisms;

M9-M10 Elevated temperature substances:

M9 Liquid;

M10 Solid;

M11 Other substances presenting a danger during carriage, but not meeting the definitions of another class.

*Definitions and classification*

2.2.9.1.3 Substances and articles classified in Class 9 are listed in Table A of Chapter 3.2. The assignment of substances and articles not mentioned by name in Table A of Chapter 3.2 to the relevant entry of that Table or of sub-section 2.2.9.3 shall be done in accordance with 2.2.9.1.4 to 2.2.9.1.14 below.

*Substances which, on inhalation as fine dust, may endanger health*

2.2.9.1.4 Substances which, on inhalation as fine dust, may endanger health include asbestos and mixtures containing asbestos.

*Substances and apparatus which, in the event of fire, may form dioxins*

2.2.9.1.5 Substances and apparatus which, in the event of fire, may form dioxins include polychlorinated biphenyls (PCBs) and terphenyls (PCTs) and polyhalogenated biphenyls and terphenyls and mixtures containing these substances, as well as apparatus such as transformers, condensers and apparatus containing those substances or mixtures.

**NOTE:** Mixtures with a PCB or PCT content of not more than 50 mg/kg are not subject to the provisions of ADR.

*Substances evolving flammable vapour*

- 2.2.9.1.6 Substances evolving flammable vapour include polymers containing flammable liquids with a flash-point not exceeding 55 °C.

*Lithium batteries*

- 2.2.9.1.7 Lithium cells and batteries may be assigned to Class 9 if they meet the requirements of special provision 230 of Chapter 3.3. They are not subject to the provisions of ADR if they meet the requirements of special provision 188 of Chapter 3.3. They shall be classified in accordance with the procedures of Section 38.3 of the Manual of Tests and Criteria.

*Life-saving appliances*

- 2.2.9.1.8 Life-saving appliances include life-saving appliances and motor vehicle components which meet the descriptions of special provisions 235 or 296 of Chapter 3.3.

*Environmentally hazardous substances*

- 2.2.9.1.9 Environmentally hazardous substances include liquid or solid substances pollutant to the aquatic environment and solutions and mixtures of such substances (such as preparations and wastes), which cannot be classified in the other classes or under any other entry of Class 9 listed in Table A of Chapter 3.2. It also includes genetically modified micro-organisms and organisms.

*Pollutants to the aquatic environment*

- 2.2.9.1.10 Assignment of a substance to the entries UN No. 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S and UN No. 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. as pollutant to the aquatic environment shall be as indicated in 2.3.5. Substances already classified as environmentally hazardous with UN Nos. 3077 and 3082 are listed in 2.2.9.4.

*Genetically modified micro-organisms or organisms*

- 2.2.9.1.11 Genetically modified micro-organisms are micro-organisms in which the genetic material has been deliberately altered by technical means or by such means that cannot occur naturally. Genetically modified micro-organisms within the meaning of Class 9 are those which are not dangerous for humans and animals, but which could alter animals, plants, microbiological substances and ecosystems in such a way as cannot occur naturally.

**NOTE 1:** *Genetically modified micro-organisms which are infectious are substances of Class 6.2, UN Nos. 2814 and 2900.*

**NOTE 2:** *Genetically modified micro-organisms which have received a consent for deliberate release into the environment<sup>11</sup> are not subject to the provisions for this Class.*

**NOTE 3:** *Live vertebrate or invertebrate animals shall not be used to carry genetically modified micro-organisms classified in Class 9 unless the substance can be carried no other way.*

<sup>11</sup> See in particular Part C of Directive 90/220/EEC (Official Journal of the European Communities, No. L 117, of 8 May 1990, pp. 18-20), which sets out the authorization procedures for the European Community.

- 2.2.9.1.12 Genetically modified organisms, which are known or suspected to be dangerous to the environment shall be carried in accordance with conditions specified by the competent authority of the country of origin.

*Elevated temperature substances*

- 2.2.9.1.13 Elevated temperature substances include substances which are carried or handed over for carriage in the liquid state at or above 100 °C and, in the case of those with a flash-point, below their flash-point. They also include solids which are carried or handed over for carriage at or above 240 °C.

*NOTE: Elevated temperature substances may be assigned to Class 9 only if they do not meet the criteria of any other class.*

*Other substances presenting a danger during carriage but not meeting the definitions of another class.*

- 2.2.9.1.14 The following other miscellaneous substances not meeting the definitions of another class are assigned to Class 9:

Solid ammonia compounds having a flash-point below 61 °C.

Low hazard dithionites

Highly volatile liquids

Substances emitting noxious fumes

Substances containing allergens

Chemical kits and first aid kits

*NOTE: UN No. 1845 carbon dioxide, solid (dry ice), UN No. 2071 ammonium nitrate fertilizers, UN No. 2216 fish meal (fish scrap), stabilized, UN No. 2807 magnetized material, UN No. 3166 engine, internal combustion or vehicle, flammable gas powered or vehicle, flammable liquid powered, UN No. 3171 battery-powered vehicle or 3171 battery-powered equipment (wet battery), UN No. 3334 aviation regulated liquid, n.o.s. and UN No. 3335 aviation regulated solid, n.o.s., listed in the UN Model Regulations, are not subject to the provisions of ADR.*

*Assignment of the packing groups*

- 2.2.9.1.15 The substances and articles of Class 9 listed as such in Table A of Chapter 3.2 shall be assigned to one of the following packing groups according to their degree of danger:

Packing group II: substances presenting medium danger

Packing group III: substances presenting low danger

**2.2.9.2 *Substances and articles not accepted for carriage***

The following substances and articles shall not be accepted for carriage:

- Lithium batteries which do not meet the relevant conditions of special provisions 188, 230, 287 or 636 of Chapter 3.3.
- Uncleaned empty containment vessels for apparatus such as transformers and condensers containing substances assigned to UN Nos. 2315, 3151 or 3152.

2.2.9.3 *List of collective entries*

Substances which, on inhalation as fine dust, may endanger health	M1	2212 BLUE ASBESTOS (crocidolite) or 2212 BROWN ASBESTOS (amosite, mysorite) 2590 WHITE ASBESTOS (chrysotile, actinolite, anthophyllite, tremolite)	
Substances and apparatus which, in the event of fire, may form dioxins	M2	2315 POLYCHLORINATED BIPHENYLS 3151 POLYHALOGENATED BIPHENYLS, LIQUID or 3151 POLYHALOGENATED TERPHENYLS, LIQUID 3152 POLYHALOGENATED BIPHENYLS, SOLID or 3152 POLYHALOGENATED TERPHENYLS, SOLID	
Substances evolving flammable vapour	M3	2211 POLYMERIC BEADS, EXPANDABLE, evolving flammable vapour 3314 PLASTICS MOULDING COMPOUND in dough, sheet or extruded rope form evolving flammable vapour	
Lithium batteries	M4	3090 LITHIUM BATTERIES 3091 LITHIUM BATTERIES CONTAINED IN EQUIPMENT or 3091 LITHIUM BATTERIES PACKED WITH EQUIPMENT	
Life-saving appliances	M5	2990 LIFE-SAVING APPLIANCES, SELF-INFLATING 3072 LIFE-SAVING APPLIANCES NOT SELF-INFLATING containing dangerous goods as equipment 3268 AIR BAG INFLATORS or 3268 AIR BAG MODULES or 3268 SEAT-BELT PRETENSIONERS	
Environmentally hazardous substances	pollutant to the aquatic environment, liquid	M6	3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
	pollutant to the aquatic environment, solid	M7	3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
	genetically modified micro-organisms and organisms	M8	3245 GENETICALLY MODIFIED MICRO-ORGANISMS
Elevated temperature substances	liquid	M9	3257 ELEVATED TEMPERATURE LIQUID, N.O.S., at or above 100 °C and below its flash-point (including molten metal, molten salts, etc.)
	solid	M10	3258 ELEVATED TEMPERATURE SOLID, N.O.S., at or above 240 °C
Other substances or articles presenting a danger during carriage, but not meeting the definitions of another class	M11	No collective entry available. Only substances listed in Table A of Chapter 3.2 are subject to the provisions for Class 9 under this classification code, as follows: 1841 ACETALDEHYDE AMMONIA 1931 ZINC DITHIONITE (ZINC HYDROSULPHITE) 1941 DIBROMODIFLUOROMETHANE 1990 BENZALDEHYDE 2969 CASTOR BEANS, or 2969 CASTOR MEAL, or 2969 CASTOR POMACE, or 2969 CASTOR FLAKE 3316 CHEMICAL KIT, or 3316 FIRST AID KIT 3359 FUMIGATED UNIT 3363 DANGEROUS GOODS IN MACHINERY or 3363 DANGEROUS GOODS IN APPARATUS	

**2.2.9.4** *Substances already classified as environmentally hazardous which do not belong to any other class nor to Class 9 entries other than the entries UN Nos. 3077 or 3082*

UN No. 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. pollutant to the aquatic environment, liquid

alcohol C<sub>6</sub>-C<sub>17</sub> (secondary) poly (3-6) ethoxylate  
 alcohol C<sub>12</sub>-C<sub>15</sub> poly (1-3) ethoxylate  
 alcohol C<sub>13</sub>-C<sub>15</sub> poly (1-6) ethoxylate  
 alpha-cypermethrin  
 butyl benzyl phthalate  
 chlorinated paraffins (C<sub>10</sub>-C<sub>13</sub>)  
 1-chlorooctane  
 cresyl diphenyl phosphate  
 cyfluthrin  
 decyl acrylate  
 di-n-butyl phthalate  
 1,6-dichlorohexane  
 diisopropylbenzenes  
 isodecyl acrylate  
 isodecyl diphenyl phosphate  
 isoctyl nitrate  
 malathion  
 resmethrin  
 triaryl phosphates  
 tricresyl phosphates  
 triethylbenzene  
 trixylenyl phosphate

UN No. 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. pollutant to the aquatic environment, solid

chlorohexidine  
 chlorinated paraffins (C<sub>10</sub>-C<sub>13</sub>)  
 p-dichlorobenzene  
 diphenyl  
 diphenyl ether  
 fenbutadin oxide  
 mercurous chloride (calomel)  
 tributyltin phosphate  
 zinc bromide

**CHAPTER 2.3**  
**TEST METHODS**

**2.3.0 General**

Unless otherwise provided for in Chapter 2.2 or in this Chapter, the test methods to be used for the classification of dangerous goods are those described in the Manual of Tests and Criteria.

**2.3.1 Exudation test for blasting explosives of Type A**

**2.3.1.1** Blasting explosives of type A (UN No. 0081) shall, if they contain more than 40% liquid nitric ester, in addition to the testing specified in the Manual of Tests and Criteria, satisfy the following exudation test.

**2.3.1.2** The apparatus for testing blasting explosive for exudation (figs. 1 to 3) consists of a hollow bronze cylinder. This cylinder, which is closed at one end by a plate of the same metal, has an internal diameter of 15.7 mm and a depth of 40 mm.

It is pierced by 20 holes 0.5 mm in diameter (four sets of five holes) on the circumference. A bronze piston, cylindrically fashioned over a length of 48 mm and having a total length of 52 mm, slides into the vertically placed cylinder.

The piston, whose diameter is 15.6 mm, is loaded with a mass of 2 220 g so that a pressure of 120 kPa (1.20 bar) is exerted on the base of the cylinder.

**2.3.1.3** A small plug of blasting explosive weighing 5 to 8 g, 30 mm long and 15 mm in diameter, is wrapped in very fine gauze and placed in the cylinder; the piston and its loading mass are then placed on it so that the blasting explosive is subjected to a pressure of 120 kPa (1.20 bar). The time taken for the appearance of the first signs of oily droplets (nitroglycerine) at the outer orifices of the cylinder holes is noted.

**2.3.1.4** The blasting explosive is considered satisfactory if the time elapsing before the appearance of the liquid exudations is more than five minutes, the test having been carried out at a temperature of 15 °C to 25 °C.

Test of blasting explosive for exudation

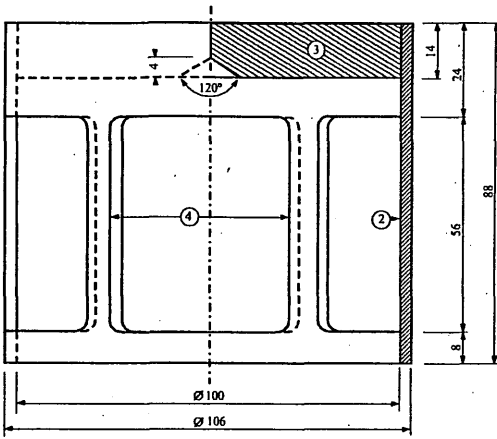


Fig. 1: Bell-form charge, mass 2220 g, capable of being suspended from a bronze piston

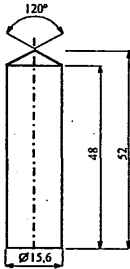


Fig. 2: Cylindrical bronze piston, dimensions in mm

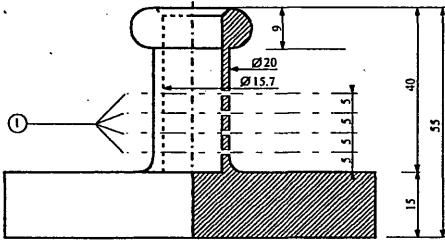


Fig. 3: Hollow bronze cylinder, closed at one end; Plan and cut dimensions in mm

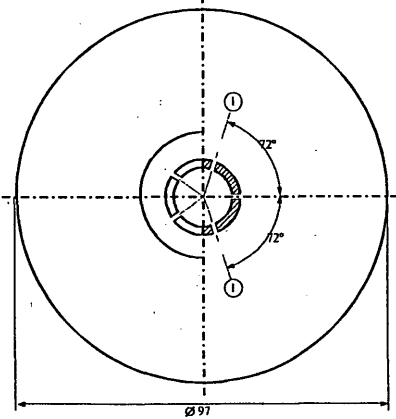


Fig. 1 to 3

- (1) 4 series of 5 holes at  $0.7 \phi$
- (2) copper
- (3) iron plate with centre cone at the inferior face
- (4) 4 openings, approximately 46x56, set at even intervals on the periphery



### 2.3.2 Tests relating to nitrated cellulose mixtures of Class 4.1

- 2.3.2.1 Nitrocellulose heated for half an hour at 132 °C shall not give off visible yellowish-brown nitrous fumes (nitrous gases). The ignition temperature shall be above 180 °C. See 2.3.2.3 to 2.3.2.8, 2.3.2.9 (a) and 2.3.2.10 below.
- 2.3.2.2 3 g of plasticized nitrocellulose, heated for one hour at 132 °C, shall not give off visible yellowish-brown nitrous fumes (nitrous gases). The ignition temperature shall be above 170 °C. See 2.3.2.3 to 2.3.2.8, 2.3.2.9 (b) and 2.3.2.10 below.
- 2.3.2.3 The test procedures set out below are to be applied when differences of opinion arise as to the acceptability of substances for carriage by road.
- 2.3.2.4 If other methods or test procedures are used to verify the conditions of stability prescribed above in this section, those methods shall lead to the same findings as could be reached by the methods specified below.
- 2.3.2.5 In carrying out the stability tests by heating described below, the temperature of the oven containing the sample under test shall not deviate by more than 2 °C from the prescribed temperature; the prescribed duration of a 30-minute or 60-minute test shall be observed to within two minutes. The oven shall be such that the required temperature is restored not more than five minutes after insertion of the sample.
- 2.3.2.6 Before undergoing the tests in 2.3.2.9 and 2.3.2.10, the samples shall be dried for not less than 15 hours at the ambient temperature in a vacuum desiccator containing fused and granulated calcium chloride, the sample substance being spread in a thin layer; for this purpose, substances which are neither in powder form nor fibrous shall be ground, or grated, or cut into small pieces. The pressure in the desiccator shall be brought below 6.5 kPa (0.065 bar).
- 2.3.2.7 Before being dried as prescribed in 2.3.2.6 above, substances conforming to 2.3.2.2 shall undergo preliminary drying in a well-ventilated oven, with its temperature set at 70 °C, until the loss of mass per quarter-hour is less than 0.3 % of the original mass.
- 2.3.2.8 Weakly nitrated nitrocellulose conforming to 2.3.2.1 shall first undergo preliminary drying as prescribed in 2.3.2.7 above; drying shall then be completed by keeping the nitrocellulose for at least 15 hours over concentrated sulphuric acid in a desiccator.

#### 2.3.2.9 *Test of chemical stability under heat*

(a) *Test of the substance listed in paragraph 2.3.2.1 above.*

(i) In each of two glass test tubes having the following dimensions:

length	350 mm
internal diameter	16 mm
thickness of wall	1.5 mm

is placed 1 g of substance dried over calcium chloride (if necessary the drying shall be carried out after reducing the substance to pieces weighing not more than 0.05 g each).

Both test tubes, completely covered with loose-fitting closures, are then so placed in an oven that at least four-fifths of their length is visible, and are kept at a constant temperature of 132 °C for 30 minutes. It is observed whether nitrous gases in the form of yellowish-brown fumes clearly visible against a white background are given off during this time.

(ii) In the absence of such fumes the substance is deemed to be stable.

- (b) *Test of plasticized nitrocellulose (see 2.3.2.2)*
- (i) 3 g of plasticized nitrocellulose are placed in glass test tubes, similar to those referred to in (a), which are then placed in an oven kept at a constant temperature of 132 °C.
  - (ii) The test tubes containing the plasticized nitrocellulose are kept in the oven for one hour. During this time no yellowish-brown nitrous fumes (nitrous gases) shall be visible. Observation and appraisal as in (a).

**2.3.2.10** *Ignition temperature (see 2.3.2.1 and 2.3.2.2)*

- (a) The ignition temperature is determined by heating 0.2 g of substance enclosed in a glass test tube immersed in a Wood's alloy bath. The test tube is placed in the bath when the latter has reached 100 °C. The temperature of the bath is then progressively increased by 5 °C per minute;
- (b) The test tubes must have the following dimensions:

length	125 mm
internal diameter	15 mm
thickness of wall	0.5 mm

and shall be immersed to a depth of 20 mm;
- (c) The test shall be repeated three times, the temperature at which ignition of the substance occurs, i.e., slow or rapid combustion, deflagration or detonation, being noted each time;
- (d) The lowest temperature recorded in the three tests is the ignition temperature.

**2.3.3** **Tests relating to flammable liquids of Classes 3, 6.1 and 8**

**2.3.3.1** *Test for determining flash-point*

**2.3.3.1.1** The flash-point shall be determined by means of one of the following types of apparatus:

- (a) Abel;
- (b) Abel-Pensky;
- (c) Tag;
- (d) Pensky-Martens;
- (e) Apparatus in accordance with ISO 3679: 1983 or ISO 3680: 1983.

**2.3.3.1.2** To determine the flash-point of paints, gums and similar viscous products containing solvents, only apparatus and test methods suitable for determining the flash-point for viscous liquids shall be used, in accordance with the following standards:

- (a) International Standard ISO 3679: 1983;
- (b) International Standard ISO 3680: 1983;
- (c) International Standard ISO 1523: 1983;
- (d) German Standard DIN 53213: 1978, Part 1.

- 2.3.3.1.3 The test procedure shall be either according to an equilibrium method or according to a non-equilibrium method.
- 2.3.3.1.4 For the procedure according to an equilibrium method, see:
- (a) International Standard ISO 1516: 1981;
  - (b) International Standard ISO 3680: 1983;
  - (c) International Standard ISO 1523: 1983;
  - (d) International Standard ISO 3679: 1983.
- 2.3.3.1.5 The procedure according to a non-equilibrium method shall be:
- (a) for the Abel apparatus, see:
    - (i) British Standard BS 2000 Part 170: 1995;
    - (ii) French Standard NF MO7-011: 1988;
    - (iii) French Standard NF T66-009: 1969;
  - (b) for the Abel-Pensky apparatus, see:
    - (i) German Standard DIN 51755, Part 1: 1974 (for temperatures from 5 °C to 65 °C);
    - (ii) German Standard DIN 51755, Part 2: 1978 (for temperatures below 5 °C);
    - (iii) French Standard NF MO7-036: 1984;
  - (c) for the Tag apparatus, see American Standard ASTM D 56: 1993;
  - (d) for the Pensky-Martens apparatus, see:
    - (i) International Standard ISO 2719: 1988;
    - (ii) European Standard EN 22719 in each of its national versions (e.g. BS 2000, part 404/EN 22719): 1994;
    - (iii) American Standard ASTM D 93: 1994;
    - (iv) Institute of Petroleum Standard IP 34: 1988.
- 2.3.3.1.6 The test methods listed in 2.3.3.1.4 and 2.3.3.1.5 shall only be used for flash-point ranges which are specified in the individual methods. The possibility of chemical reactions between the substance and the sample holder shall be considered when selecting the method to be used. The apparatus shall, as far as is consistent with safety, be placed in a draught-free position. For safety, a method utilizing a small sample size, around 2 ml, shall be used for organic peroxides and self-reactive substances (also known as "energetic" substances), or for toxic substances.
- 2.3.3.1.7 When the flash-point, determined by a non-equilibrium method in accordance with 2.3.3.1.5 is found to be  $23 \pm 2$  °C or  $61 \pm 2$  °C, it shall be confirmed for each temperature range by an equilibrium method in accordance with 2.3.3.1.4.
- 2.3.3.1.8 In the event of a dispute as to the classification of a flammable liquid, the classification proposed by the consignor shall be accepted if a check-test of the flash-point, yields a result

not differing by more than 2 °C from the limits (23 °C and 61 °C respectively) stated in 2.2.3.1. If the difference is more than 2 °C, a second check-test shall be carried out, and the lowest figure of the flash-points obtained in either check-test shall be adopted.

### 2.3.3.2 *Test for determining peroxide content*

To determine the peroxide content of a liquid, the procedure is as follows:

A quantity  $p$  (about 5 g, weighed to the nearest 0.01 g) of the liquid to be titrated is placed in an Erlenmeyer flask; 20 cm<sup>3</sup> of acetic anhydride and about 1 g of powdered solid potassium iodide are added; the flask is shaken and, after 10 minutes, heated for 3 minutes to about 60 °C. When it has been left to cool for 5 minutes, 25 cm<sup>3</sup> of water are added. After this, it is left standing for half an hour, then the liberated iodine is titrated with a decinormal solution of sodium thiosulphate, no indicator being added; complete discoloration indicates the end of the reaction. If  $n$  is the number of cm<sup>3</sup> of thiosulphate solution required, the percentage of peroxide (calculated as H<sub>2</sub>O<sub>2</sub>) present in the sample is obtained by the formula:

$$\frac{17n}{100p}$$

### 2.3.4 *Test for determining fluidity*

To determine the fluidity of liquid, viscous or pasty substances and mixtures, the following test method shall be used.

#### 2.3.4.1 *Test apparatus*

Commercial penetrometer conforming to ISO 2137:1985, with a guide rod of 47.5 g ± 0.05 g; sieve disc of duralumin with conical bores and a mass of 102.5 g ± 0.05 g (see Figure 1); penetration vessel with an inside diameter of 72 mm to 80 mm for reception of the sample.

#### 2.3.4.2 *Test procedure*

The sample is poured into the penetration vessel not less than half an hour before the measurement. The vessel is then hermetically closed and left standing until the measurement. The sample in the hermetically closed penetration vessel is heated to 35 °C ± 0.5 °C and is placed on the penetrometer table immediately prior to measurement (not more than two minutes). The point S of the sieve disc is then brought into contact with the surface of the liquid and the rate of penetration is measured.

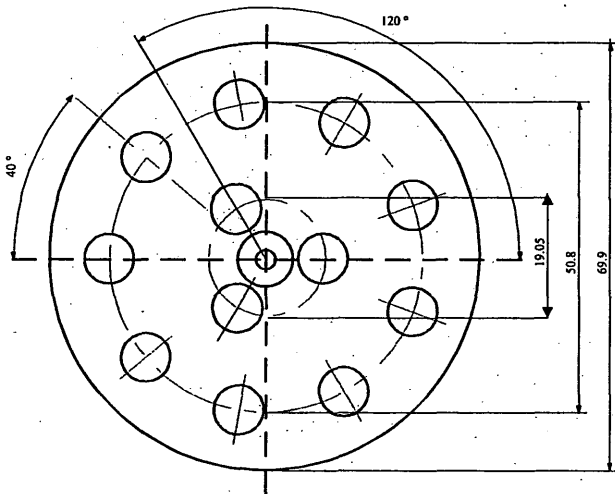
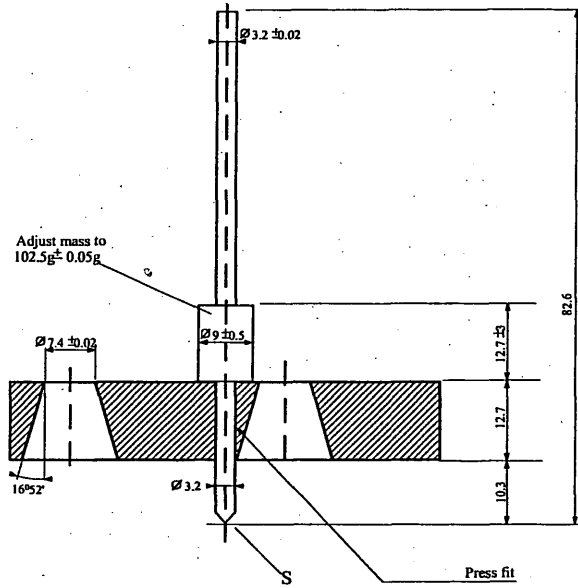
#### 2.3.4.3 *Evaluation of test results*

A substance is pasty if, after the centre S has been brought into contact with the surface of the sample, the penetration indicated by the dial gauge:

- (a) after a loading time of 5 s ± 0.1 s, is less than 15.0 mm ± 0.3 mm; or
- (b) after a loading time of 5 s ± 0.1 s, is greater than 15.0 mm ± 0.3 mm, but the additional penetration after another 55 s ± 0.5 s is less than 5.0 mm ± 0.5 mm.

**NOTE:** In the case of samples having a flow point, it is often impossible to produce a steady level surface in the penetration vessel and, hence, to establish satisfactory initial measuring conditions for the contact of the point S. Furthermore, with some samples, the impact of the sieve disc can cause an elastic deformation of the surface and, in the first few seconds, simulate a deeper penetration. In all these cases, it may be appropriate to make the evaluation in paragraph (b) above.

Figure 1 – Penetrometer



Tolerances not specified are  $\pm 0.1$  mm.

### 2.3.5 Test for determining the ecotoxicity, persistence and bioaccumulation of substances in the aquatic environment for assignment to Class 9

*NOTE: The test methods used shall be those adopted by the Organization for Economic Cooperation and Development (OECD) and the European Commission (EC). If other methods are used, they shall be internationally recognized, be equivalent to the OECD/EC tests and be referenced in test reports.*

#### 2.3.5.1 Acute toxicity for fish

The object is to determine the concentration which causes 50% mortality in the test species; this is the (LC<sub>50</sub>) value, namely, the concentration of the substance in water which will cause the death of 50% of a test group of fish during a continuous period of testing of at least 96 hours. Appropriate types of fish include: striped brill (Brachydanio rerio), fathead minnow (Pimephales promelas) and rainbow trout (Oncorhynchus mykiss).

The fish are exposed to the test substance added to the water in varying concentrations (+1 control). Observations are recorded at least every 24 hours. At the end of the 96-hour activity and, if possible, at each observation, the concentration causing the death of 50% of the fish is calculated. The no observed effect concentration (NOEC) at 96 hours is also determined.

#### 2.3.5.2 Acute toxicity for daphnia

The object is to determine the effective concentration of the substance in water which renders 50% of the daphnia unable to swim (EC<sub>50</sub>). The appropriate test organisms are daphnia magna and daphnia pulex. The daphnia are exposed for 48 hours to the test substance added to the water in varying concentrations. The no observed effect concentration (NOEC) at 48 hours is also determined.

#### 2.3.5.3 Algal growth inhibition

The object is to determine the effect of a chemical on the growth of algae under standard conditions. The change in biomass and the rate of growth with algae under the same conditions, but without the presence of the test chemical, are compared over 72 hours. The results are expressed as the effective concentration which reduces the rate of algal growth by 50%, IC<sub>50r</sub>, and also the formation of the biomass, IC<sub>50b</sub>.

#### 2.3.5.4 Tests for ready biodegradability

The object is to determine the degree of biodegradation under standard aerobic conditions. The test substance is added in low concentrations to a nutrient solution containing aerobic bacteria. The progress of degradation is followed for 28 days by determining the parameter specified in the test method used. Several equivalent test methods are available. The parameters include reduction of dissolved organic carbon (DOC), carbon dioxide (CO<sub>2</sub>) generation of oxygen (O<sub>2</sub>) depletion.

A substance is considered to be readily biodegradable if within not more than 28 days the following criteria are satisfied - within 10 days from when degradation first reaches 10%:

Reduction of DOC:	70%
Generation of CO <sub>2</sub> :	60% of theoretical CO <sub>2</sub> production
Depletion of O <sub>2</sub> :	60% of theoretical O <sub>2</sub> requirement.

The test may be continued beyond 28 days if the above criteria are not satisfied, but the result will represent the inherent biodegradability of the test substance. For assignment purposes, the "ready" result is normally required.

Where only COD and BOD<sub>5</sub> data are available, a substance is considered to be readily biodegradable if:

$$\frac{\text{BOD}_5}{\text{COD}} \geq 0.5$$

*BOD (Biochemical Oxygen Demand)* is defined as the mass of dissolved oxygen required by a specific volume of solution of the substance for the process of biochemical oxidation under prescribed conditions. The result is expressed as grams of BOD per gram of test substance. The normal test period is five days (BOD<sub>5</sub>) using a national standard test procedure.

*COD (Chemical Oxygen Demand)* is a measure of the oxidizability of a substance, expressed as the equivalent amount in oxygen of an oxidizing reagent consumed by the substance under fixed laboratory conditions. The results are expressed in grams of COD per gram of substance. A national standard procedure may be used.

### 2.3.5.5 *Tests for bioaccumulation potential*

2.3.5.5.1 The object is to determine the potential for bioaccumulation either by the ratio at equilibrium of the concentration (c) of a substance in a solvent to that in water or by the bioconcentration factor (BCF).

2.3.5.5.2 The ratio at equilibrium of the concentration (c) of a substance in a solvent to that in water is normally expressed as a log<sub>10</sub>. The solvent and water shall have negligible miscibility and the substance shall not ionize in water. The solvent normally used is n-octanol.

In the case of n-octanol and water, the result is:

$$\log P_{ow} = \log_{10} [c_o/c_w]$$

where  $P_{ow}$  is the partition coefficient obtained by dividing the concentration of the substance in n-octanol ( $c_o$ ) by the concentration of the substance in water ( $C_w$ ).

If  $\log P_{ow} \geq 3.0$  then the substance has a potential to bioaccumulate.

2.3.5.5.3 The bioconcentration factor (BCF) is defined as the ratio of the concentration of the test substance in the test fish ( $c_f$ ) to the concentration in the test water ( $c_w$ ) at steady state:

$$\text{BCF} = (c_f) / (c_w).$$

The principle of the test involves exposing fish to a solution or dispersion at known concentrations of the test substance in water. Continuous flow, static or semi-static procedures may be used according to the test procedure selected, based on the properties of the test substances. Fish are exposed to the test substances over a given period of time, followed by a period of no further exposure. During the second period, measurements are made of the rate of increase in the water of the test substance (i.e. the rate of excretion or depuration).

(Full details of the various test procedures and the calculation method for the BCF are given in the OECD Guidelines for Testing of Chemicals, methods 305A to 305E, 12 May 1981).

2.3.5.5.4 A substance may have a log  $P_{ow}$  greater than 3 and a BCF less than 100 which would indicate little or no potential to bioaccumulate. In cases of doubt, the BCF value takes precedence over log  $P_{ow}$ , as indicated in the flow chart of the procedure in 2.3.5.7.

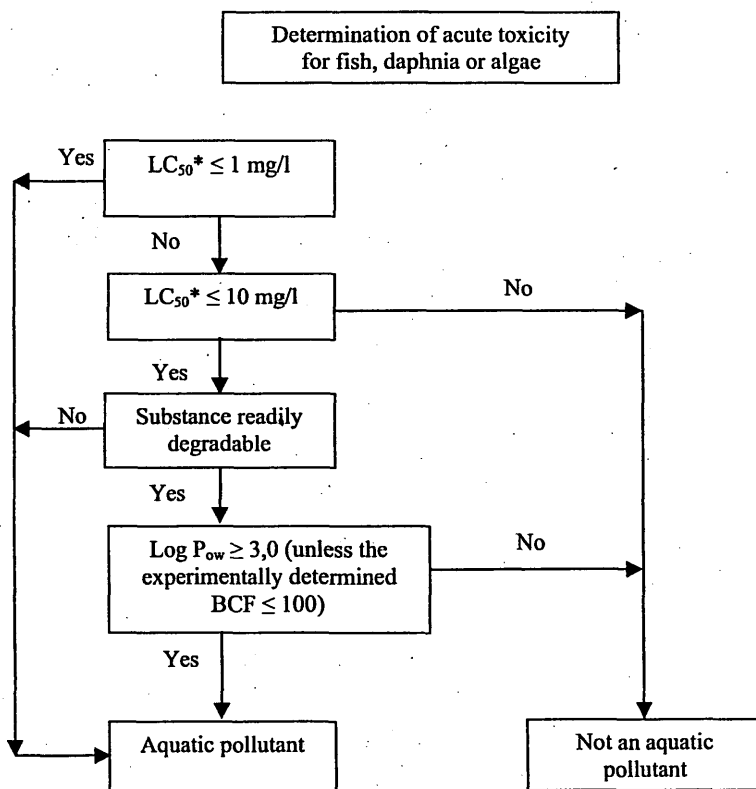
### 2.3.5.6 *Criteria*

A substance may be regarded as a pollutant to the aquatic environment if it satisfies one of the following criteria:

The lowest of the values of the 96-hour  $LC_{50}$  for fish, the 48-hour  $EC_{50}$  for daphnia or the 72-hour  $IC_{50}$  for algae

- is less than or equal to 1 mg/l;
- is greater than 1 mg/l but less than or equal to 10 mg/l, and the substance is not biodegradable;
- is greater than 1 mg/l but less than or equal to 10 mg/l, and the  $\log P_{ow}$  is greater than or equal to 3.0 (unless the experimentally determined BCF is less than or equal to 100).

### 2.3.5.7 *Procedure to be followed*



\* Lowest value of 96-hour  $LC_{50}$ , 48-hour  $EC_{50}$  or 72-hour  $IC_{50}$  as appropriate.

BCF = bioconcentration factor



**PART 3**

**Dangerous goods list, special provisions and  
exemptions related to dangerous goods  
packed in limited quantities**

## CHAPTER 3.1

## GENERAL

## 3.1.1 Introduction

In addition to the provisions referred to or given in the tables of this Part, the general requirements of each Part, Chapter and/or Section are to be observed. These general requirements are not given in the tables. When a general requirement is contradictory to a special provision, the special provision prevails.

## 3.1.2 Proper shipping name

*NOTE: For proper shipping names used for the carriage of samples, see 2.1.4.1.*

3.1.2.1 The proper shipping name is that portion of the entry most accurately describing the goods in Table A in Chapter 3.2, which is shown in upper case characters (plus any numbers, Greek letters, "sec", "tert", and the letters "m", "n", "o", "p", which form an integral part of the name). An alternative proper shipping name may be shown in brackets following the main proper shipping name [e.g., ETHANOL (ETHYL ALCOHOL)]. Portions of an entry appearing in lower case need not be considered as part of the proper shipping name.

3.1.2.2 When conjunctions such as "and" or "or" are in lower case or when segments of the name are punctuated by commas, the entire name of the entry need not necessarily be shown in the transport document or package markings. This is the case particularly when a combination of several distinct entries are listed under a single UN Number. Examples illustrating the selection of the proper shipping name for such entries are:

- (a) UN 1057 LIGHTERS or LIGHTER REFILLS - The proper shipping name is the most appropriate of the following possible combinations:

LIGHTERS  
LIGHTER REFILLS;

- (b) UN 3207 ORGANOMETALLIC COMPOUND or COMPOUND SOLUTION or COMPOUND DISPERSION, WATER-REACTIVE, FLAMMABLE, N.O.S. The proper shipping name is the most appropriate of the following possible combinations:

ORGANOMETALLIC COMPOUND, WATER-REACTIVE, FLAMMABLE,  
N.O.S.  
ORGANOMETALLIC COMPOUND SOLUTION, WATER-REACTIVE,  
FLAMMABLE, N.O.S.  
ORGANOMETALLIC COMPOUND DISPERSION, WATER-REACTIVE,  
FLAMMABLE, N.O.S.

each supplemented with the technical name of the goods (see 3.1.2.8.1).

3.1.2.3 Proper shipping names may be used in the singular or plural as appropriate. In addition, when qualifying words are used as part of the proper shipping name, their sequence on documentation or package markings is optional. For instance, "DIMETHYLAMINE AQUEOUS SOLUTION" may alternatively be shown "AQUEOUS SOLUTION OF DIMETHYLAMINE". Commercial or military names for goods of Class 1 which contain the proper shipping name supplemented by additional descriptive text may be used.

- 3.1.2.4 Unless it is already included in capital letters in the name indicated in Table A in Chapter 3.2, the qualifying word "LIQUID" or "SOLID", as appropriate, shall be added as part of the proper shipping name when a substance mentioned by name may, due to the differing physical states of the various isomers of the substance, be either a liquid or a solid (e.g. DINITROTOLUENES, LIQUID; DINITROTOLUENES, SOLID).
- 3.1.2.5 Unless it is already included in capital letters in the name indicated in Table A in Chapter 3.2, the qualifying word "MOLTEN" shall be added as part of the proper shipping name when a substance, which is a solid in accordance with the definition in 1.2.1, is offered for carriage in the molten state (e.g. ALKYLPHENOL, SOLID, N.O.S., MOLTEN).

- 3.1.2.6 Except for self-reactive substances and organic peroxides and unless it is already included in capital letters in the name indicated in Column (2) of Table A of Chapter 3.2, the word "STABILIZED" shall be added as part of the proper shipping name of a substance which without stabilization would be forbidden from carriage in accordance with paragraphs 2.2.X.2 due to it being liable to dangerously react under conditions normally encountered in carriage (e.g.: "TOXIC LIQUID, ORGANIC, N.O.S., STABILIZED").

When temperature control is used to stabilize such substances to prevent the development of any dangerous excess pressure, then:

- (a) For liquids: where the SADT is less than 50 °C, the provisions of 2.2.41.1.17, the special provision V8 of Chapter 7.2, the special provision S4 of Chapter 8.5 and the requirements of Chapter 9.6 shall apply; for carriage in IBCs and tanks, all the provisions applicable to UN No. 3239 apply (see in particular 4.1.7.2, "packing instruction IBC520 et 4.2.1.13);
- (b) For gases: the conditions of carriage shall be approved by the competent authority.

- 3.1.2.7 Hydrates may be carried under the proper shipping name for the anhydrous substance.

### 3.1.2.8 *Generic or "not otherwise specified" (N.O.S.) names*

- 3.1.2.8.1 Generic and "not otherwise specified" proper shipping names that are assigned to special provision 274 in Column (6) of Table A in Chapter 3.2 shall be supplemented with the technical name of the goods unless a national law or international convention prohibits its disclosure if it is a controlled substance. For explosives of Class 1, the dangerous goods description may be supplemented by additional descriptive text to indicate commercial or military names. Technical names shall be entered in brackets immediately following the proper shipping name. An appropriate modifier, such as "contains" or "containing" or other qualifying words such as "mixture", "solution", etc. and the percentage of the technical constituent may also be used. For example: "UN 1993 FLAMMABLE LIQUID, N.O.S. (CONTAINS XYLENE AND BENZENE), 3, II".

- 3.1.2.8.1.1 The technical name shall be a recognized chemical name, if relevant a biological name, or other name currently used in scientific and technical handbooks, journals and texts. Trade names shall not be used for this purpose. In the case of pesticides, only ISO common name(s), other name(s) in the World Health Organization (WHO) Recommended Classification of Pesticides by Hazard and Guidelines to Classification, or the name(s) of the active substance(s) may be used.

- 3.1.2.8.1.2 When a mixture of dangerous goods is described by one of the "N.O.S." or "generic" entries to which special provision 274 has been allocated in Column (6) of Table A in Chapter 3.2, not more than the two constituents which most predominantly contribute to the hazard or hazards of a mixture need to be shown, excluding controlled substances when their disclosure is prohibited by national law or international convention. If a package containing

a mixture is labelled with any subsidiary risk label, one of the two technical names shown in parentheses shall be the name of the constituent which compels the use of the subsidiary risk label.

*NOTE: see 5.4.1.2.2.*

- 3.1.2.8.1.3 Examples illustrating the selection of the proper shipping name supplemented with the technical name of goods for such N.O.S. entries are:

UN 2003 METAL ALKYL, WATER-REACTIVE, N.O.S. (trimethylgallium)

UN 2902 PESTICIDE, LIQUID, TOXIC, N.O.S. (drazoxolon).

- 3.1.2.9 *Mixtures and solutions containing one dangerous substance*

When mixtures and solutions have to be regarded as the dangerous substance mentioned by name in accordance with the classification requirements of 2.1.3.3, the qualifying word "SOLUTION" or "MIXTURE", as appropriate, shall be added as part of the proper shipping name, e.g. "ACETONE SOLUTION". In addition, the concentration of the solution or mixture may also be indicated, e.g. "ACETONE 75% SOLUTION".

## CHAPTER 3.2

## DANGEROUS GOODS LIST

## 3.2.1 Table A: Dangerous Goods List

*Explanations*

As a rule, each row of Table A of this Chapter deals with the substance(s) or article(s) covered by a specific UN number. However, when substances or articles belonging to the same UN number have different chemical properties, physical properties and/or carriage conditions, several consecutive rows may be used for that UN number.

Each column of Table A is dedicated to a specific subject as indicated in the explanatory notes below. The intersection of columns and rows (cell) contains information concerning the subject treated in that column, for the substance(s) or article(s) of that row:

- The first four cells identify the substance(s) or article(s) belonging to that row (additional information in that respect may be given by the special provisions referred to in Column (6);
- The following cells give the applicable special provisions, either in the form of complete information or in coded form. The codes cross-refer to detailed information that is to be found in the Part, Chapter, Section and/or Sub-section indicated in the explanatory notes below. An empty cell means either that there is no special provision and that only the general requirements apply, or that the carriage restriction indicated in the explanatory notes is in force.

The applicable general requirements are not referred to in the corresponding cells. The explanatory notes below indicate for every column the Part(s), Chapter(s), Section(s) and/or Sub-section(s) where these are to be found.

*Explanatory notes for each column:*

Column (1) "UN No."

Contains the UN number:

- of the dangerous substance or article if the substance or article has been assigned its own specific UN number, or
- of the generic or n.o.s. entry to which the dangerous substances or articles not mentioned by name shall be assigned in accordance with the criteria ("decision trees") of Part 2.

Column (2) "Name and description"

Contains, in upper case characters, the name of the substance or article, if the substance or article has been assigned its own specific UN number, or of the generic or n.o.s. entry to which it has been assigned in accordance with the criteria ("decision trees") of Part 2. This name shall be used as the proper shipping name or, when applicable, as part of the proper shipping name (see 3.1.2 for further details on the proper shipping name).

A descriptive text in lower case characters is added after the proper shipping name to clarify the scope of the entry if the classification and/or

carriage conditions of the substance or article may be different under certain conditions.

## Column (3a)

"Class"

Contains the number of the Class, whose heading covers the dangerous substance or article. This Class number is assigned in accordance with the procedures and criteria of Part 2.

## Column (3b)

"Classification code"

Contains the classification code of the dangerous substance or article.

- For dangerous substances or articles of Class 1, the code consists of a division number and compatibility group letter, which are assigned in accordance with the procedures and criteria of 2.2.1.1.4.
- For dangerous substances or articles of Class 2, the code consists of a number and hazardous property group, which are explained in 2.2.2.1.2 and 2.2.2.1.3.
- For dangerous substances or articles of Classes 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 8 and 9, the codes are explained in 2.2.x.1.2<sup>1</sup>.
- Dangerous substances or articles of Class 7 do not have a classification code.

## Column (4)

"Packing group"

Contains the packing group number(s) (I, II or III) assigned to the dangerous substance. These packing group numbers are assigned on the basis of the procedures and criteria of Part 2. Certain articles and substances are not assigned to packing groups.

## Column (5)

"Labels"

Contains the model number of the labels/placards (see 5.2.2.2 and 5.3.1.7) that have to be affixed to packages, containers, tank-containers, portable tanks, MEGCs and vehicles. However:

- For substances or articles of Class 7, 7X means label model No.7A, 7B or 7C as appropriate according to the category (see 2.2.7.8.4 and 5.2.2.1.11.1) or placard No. 7D (see 5.3.1.1.3 and 5.3.1.7.2);
- Labels of model number 11 are not indicated in this column; 5.2.2.1.12 is to be consulted in every case.

The general provisions on labelling/placarding (e.g. number of labels, their location) are to be found in 5.2.2.1 for packages, and in 5.3.1, for containers, tank-containers, MEGCs, portable tanks and vehicles.

**NOTE:** Special provisions, indicated in Column (6), may change the above labelling provisions.

<sup>1</sup> x = the Class number of the dangerous substance or article, without dividing point if applicable.

## Column (6)

## "Special provisions"

Contains the numeric codes of special provisions that have to be met. These provisions concern a wide array of subjects, mainly connected with the contents of Columns (1) to (5) (e.g. carriage prohibitions, exemptions from requirements, explanations concerning the classification of certain forms of the dangerous goods concerned and additional labelling or marking provisions), and are listed in Chapter 3.3 in numerical order. If Column (6) is empty, no special provisions apply to the contents of Columns (1) to (5) for the dangerous goods concerned.

## Column (7)

## "Limited quantities"

Contains an alphanumeric code with the following meaning:

- "LQ0" signifies that no exemption from the provisions of ADR exists for the dangerous goods packed in limited quantities;
- All the other alphanumeric codes starting with the letters "LQ" signify that the provisions of ADR are not applicable if the conditions indicated in Chapter 3.4 are fulfilled (general conditions of 3.4.1 and conditions of 3.4.3, 3.4.4, 3.4.5 and 3.4.6, as appropriate, for the relevant code).

## Column (8)

## "Packing instructions"

Contains the alphanumeric codes of the applicable packing instructions:

- Alphanumeric codes starting with the letter "P", which refers to packing instructions for packagings and receptacles (except IBCs and large packagings), or "R", which refers to packing instructions for light gauge metal packagings. These are listed in 4.1.4.1 in numerical order, and specify the packagings and receptacles that are authorized. They also indicate which of the general packing provisions of 4.1.1, 4.1.2 and 4.1.3, and which of the special packing provisions of 4.1.5, 4.1.6, 4.1.7, 4.1.8 and 4.1.9 have to be met. If Column (8) does not contain a code starting with the letters "P" or "R", the dangerous goods concerned may not be carried in packagings;
- Alphanumeric codes starting with the letters "IBC" refer to packing instructions for IBCs. These are listed in 4.1.4.2 in numerical order, and specify the IBCs that are authorized. They also indicate which of the general packing provisions of 4.1.1, 4.1.2 and 4.1.3, and which of the special packing provisions of 4.1.5, 4.1.6, 4.1.7, 4.1.8 and 4.1.9 have to be met. If Column (8) does not contain a code starting with the letters "IBC", the dangerous goods concerned may not be carried in IBCs;
- Alphanumeric codes starting with the letters "LP" refer to packing instructions for large packagings. These are listed in 4.1.4.3 in numerical order, and specify the large packagings that are authorized. They also indicate which of the general packing provisions of 4.1.1, 4.1.2 and 4.1.3, and which of the special packing provisions of 4.1.5, 4.1.6, 4.1.7, 4.1.8 and 4.1.9 have to be met. If Column (8) does not contain a code starting with the letters "LP", the dangerous goods concerned cannot be carried in large packagings;

- Alphanumerical codes starting with letters "PR" refer to packing instructions for particular pressure receptacles. These are listed in 4.1.4.4 in numerical order, and specify the pressure receptacles that are authorized. They also indicate which of the general packing provisions of 4.1.1, 4.1.2 and 4.1.3, and which of the special packing provisions of 4.1.5, 4.1.6, 4.1.7, 4.1.8 and 4.1.9 have to be met.

**NOTE:** *Special packing provisions, indicated in Column (9a), may change the above packing instructions.*

Column (9a)

"Special packing provisions"

Contains the alphanumeric codes of the applicable special packing provisions:

- Alphanumeric codes starting with the letters "PP" or "RR" refer to special packing provisions for packagings and receptacles (except IBCs and large packagings) that have additionally to be met. These are to be found in 4.1.4.1, at the end of the relevant packing instruction (with the letter "P" or "R") referred to in Column (8). If Column (9a) does not contain a code starting with the letters "PP" or "RR", none of the special packing provisions listed at the end of the relevant packing instruction apply;
- Alphanumeric codes starting with the letter "B" or the letters "BB" refer to special packing provisions for IBCs that have additionally to be met. These are to be found in 4.1.4.2, at the end of the relevant packing instruction (with the letters "IBC") referred to in Column (8). If Column (9a) does not contain a code starting with the letter "B" or the letters "BB", none of the special packing provisions listed at the end of the relevant packing instruction apply;
- Alphanumeric codes starting with the letter "L" refer to special packing provisions for large packagings that have additionally to be met. These are to be found in 4.1.4.3, at the end of the relevant packing instruction (with the letters "LP") referred to in Column (8). If Column (9a) does not contain a code starting with the letter "L", none of the special packing provisions listed at the end of the relevant packing instruction apply.

Column (9b)

"Mixed packing provisions"

Contains the alphanumeric codes starting with the letters "MP" of the applicable mixed packing provisions. These are listed in 4.1.10 in numerical order. If Column (9b) does not contain a code starting with the letters "MP", only the general requirements apply (see 4.1.1.5 and 4.1.1.6).

Column (10)

"Portable tanks instructions"

Contains an alphanumeric code assigned to a portable tank instruction, in accordance with 4.2.4.2.1 to 4.2.4.2.4 and 4.2.4.2.6. This portable tank instruction corresponds to the least stringent provisions that are acceptable for the carriage of the substance in portable tanks. The codes identifying the other portable tank instructions that are also permitted for the carriage of the substance are to be found in 4.2.4.2.5. If no code is given, carriage



in portable tanks is not permitted unless a competent authority approval is granted as detailed in 6.7.1.3.

The general requirements for the design, construction, equipment, type approval, testing and marking of portable tanks are to be found in Chapter 6.7. The general requirements for the use (e.g. filling) are to be found in 4.2.1 to 4.2.3.

*NOTE: Special provisions, indicated in Column (11), may change the above requirements.*

Column (11) "Portable tank special provisions"

Contains the alphanumeric codes of the portable tank special provisions that have additionally to be met. These codes, starting with the letters "TP" refer to special provisions for the construction or use of these portable tanks. They are to be found in 4.2.4.3.

Column (12) "Tank codes for ADR tanks"

Contains an alphanumeric code describing a tank type, in accordance with 4.3.3.1.1 (for gases of Class 2) or 4.3.4.1.1 (for substances of Classes 3 to 9). This tank type corresponds to the least stringent tank provisions that are acceptable for the carriage of the relevant substance in ADR tanks. The codes describing the other permitted tank types are to be found in 4.3.3.1.2 (for gases of Class 2) or 4.3.4.1.2 (for substances of Classes 3 to 9). If no code is given, carriage in ADR tanks is not permitted.

If in this column a tank code for solids (S) and for liquids (L) is indicated, this means that this substance may be carried in the solid or the liquid (molten) state. In general this provision is applicable to substances having melting points from 20 °C to 180 °C.

The general requirements for the construction, equipment, type approval, testing and marking that are not indicated in the tank code are to be found in 6.8.1, 6.8.2, 6.8.3 and 6.8.5. The general requirements for the use (e.g. maximum degree of filling, minimum test pressure) are to be found in 4.3.1 to 4.3.4.

The indication of a "(M)" after the tank code means that the substance can also be carried in battery-vehicles or MEGCs.

The indication of a "(+)" after the tank code means that the alternative use of tanks and the hierarchy of 4.3.4.1.3 is not applicable.

For fibre-reinforced plastic tanks, see 4.4.1 and Chapter 6.9; for vacuum operated waste tanks, see 4.5.1 and Chapter 6.10.

*NOTE: Special provisions, indicated in Column (13), may change the above requirements.*

Column (13) "Special provisions for ADR tanks"

Contains the alphanumeric codes of the special provisions for ADR tanks that have additionally to be met:

- Alphanumeric codes starting with the letters "TU" refer to special provisions for the use of these tanks. These are to be found in 4.3.5;
- Alphanumeric codes starting with the letters "TC" refer to special provisions for the construction of these tanks. These are to be found in 6.8.4 (a);
- Alphanumeric codes starting with the letters "TE" refer to special provisions concerning the items of equipment of these tanks. These are to be found in 6.8.4 (b);
- Alphanumeric codes starting with the letters "TA" refer to special provisions for the type approval of these tanks. These are to be found in 6.8.4 (c);
- Alphanumeric codes starting with the letters "TT" refer to special provisions for the testing of these tanks. These are to be found in 6.8.4 (d);
- Alphanumeric codes starting with the letters "TM" refer to special provisions for the marking of these tanks. These are to be found in 6.8.4 (e).

Column (14) "Vehicle for tank carriage"

Contains a code designating the vehicle (see 9.1.1) to be used for the carriage of the substance in tank in accordance with 7.4.2. The requirements concerning the construction and approval of vehicles are to be found in Chapters 9.1, 9.2 and 9.7.

Column (15) "Transport category"

Contains a figure indicating the transport category to which the substance or article is assigned for the purposes of exemption related to quantities carried per transport unit (see 1.1.3.6).

Column (16) "Special provisions for carriage - Packages"

Contains the alphanumeric code(s), starting with letter "V", of the applicable special provisions (if any) for carriage in packages. These are listed in 7.2.4. General provisions concerning the carriage in packages are to be found in Chapters 7.1 and 7.2.

*NOTE: In addition, special provisions indicated in Column (18), concerning loading, unloading and handling, shall be observed.*

Column (17) "Special provisions for carriage - Bulk"

Contains the alphanumeric code(s), starting with letters "VV", of the applicable special provisions for carriage in bulk. These are listed in 7.3.3. If no code is given, carriage in bulk is not permitted. General Provisions concerning the carriage in bulk are to be found in Chapters 7.1 and 7.3.

*NOTE: In addition, special provisions indicated in Column (18), concerning loading, unloading and handling, shall be observed.*

- Column (18)** "Special provisions for carriage - Loading and unloading"
- Contains the alphanumeric code(s), starting with letters "CV", of the applicable special provisions for loading, unloading and handling. These are listed in 7.5.11. If no code is given, only the general provisions apply (see 7.5.1 to 7.5.10).
- Column (19)** "Special provisions for carriage - Operation"
- Contains the alphanumeric code(s), starting with letter "S", of the applicable special provisions for operation which are listed in Chapter 8.5. These provisions shall be applied in addition to the requirements of Chapters 8.1 to 8.4 but in the event of conflict with the requirements of Chapters 8.1 to 8.4, the special provisions shall take precedence.
- Column (20)** "Hazard identification number"
- Contains a two or three figures number (in some cases prefixed by the letter "X") which shall appear on the upper part of the orange-coloured plate when required for carriage in tank or in bulk according to 5.3.2.1. The meaning of the hazard identification numbers is explained in 5.3.2.3.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
0004	AMMONIUM PICRATE dry or wetted with less than 10% water, by mass	1	1.1D		1		LQ0	P112(a) (b) (c)	PP26	MP20		
0005	CARTRIDGES FOR WEAPONS with bursting charge	1	1.1F		1		LQ0	P130		MP23		
0006	CARTRIDGES FOR WEAPONS with bursting charge	1	1.1E		1		LQ0	P130 LP101	PP67 L1	MP21		
0007	CARTRIDGES FOR WEAPONS with bursting charge	1	1.2F		1		LQ0	P130		MP23		
0009	AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge	1	1.2G		1		LQ0	P130 LP101	PP67 L1	MP23		
0010	AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge	1	1.3G		1		LQ0	P130 LP101	PP67 L1	MP23		
0012	CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS	1	1.4S		1.4		LQ0	P130		MP23 MP24		
0014	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK	1	1.4S		1.4		LQ0	P130		MP23 MP24		
0015	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	1	1.2G		1	204	LQ0	P130 LP101	PP67 L1	MP23		
0016	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	1	1.3G		1	204	LQ0	P130 LP101	PP67 L1	MP23		
0018	AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge	1	1.2G		1+ 6.1 +8		LQ0	P130 LP101	PP67 L1	MP23		
0019	AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge	1	1.3G		1 +6.1 +8		LQ0	P130 LP101	PP67 L1	MP23		
0020	AMMUNITION, TOXIC with burster, expelling charge or propelling charge	1	1.2K	CARRIAGE PROHIBITED								
0021	AMMUNITION, TOXIC with burster, expelling charge or propelling charge	1	1.3K	CARRIAGE PROHIBITED								
0027	BLACK POWDER (GUNPOWDER), granular or as a meal	1	1.1D		1		LQ0	P113	PP50	MP20 MP24		
0028	BLACK POWDER (GUNPOWDER), COMPRESSED or BLACK POWDER (GUNPOWDER), IN PELLETS	1	1.1D		1		LQ0	P113	PP51	MP20 MP24		
0029	DETONATORS, NON-ELECTRIC for blasting	1	1.1B		1		LQ0	P131	PP68	MP23		
0030	DETONATORS, ELECTRIC for blasting	1	1.1B		1		LQ0	P131		MP23		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard Identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
			1	V2 V3		CV1 CV2 CV3	S1		0004 AMMONIUM PICRATE dry or wetted with less than 10% water, by mass	
			1	V2		CV1 CV2 CV3	S1		0005 CARTRIDGES FOR WEAPONS with bursting charge	
			1	V2		CV1 CV2 CV3	S1		0006 CARTRIDGES FOR WEAPONS with bursting charge	
			1	V2		CV1 CV2 CV3	S1		0007 CARTRIDGES FOR WEAPONS with bursting charge	
			1	V2		CV1 CV2 CV3	S1		0009 AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge	
			1	V2		CV1 CV2 CV3	S1		0010 AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge	
			4	V2		CV1 CV2 CV3	S1		0012 CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS	
			4	V2		CV1 CV2 CV3	S1		0014 CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK	
			1	V2		CV1 CV2 CV3	S1		0015 AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	
			1	V2		CV1 CV2 CV3	S1		0016 AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	
			1	V2		CV1 CV2 CV3 CV28	S1		0018 AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge	
			1	V2		CV1 CV2 CV3 CV28	S1		0019 AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge	
CARRIAGE PROHIBITED									0020 AMMUNITION, TOXIC with burster, expelling charge or propelling charge	
CARRIAGE PROHIBITED									0021 AMMUNITION, TOXIC with burster, expelling charge or propelling charge	
			1	V2 V3		CV1 CV2 CV3	S1		0027 BLACK POWDER (GUNPOWDER), granular or as a meal	
			1	V2		CV1 CV2 CV3	S1		0028 BLACK POWDER (GUNPOWDER), COMPRESSED or BLACK POWDER (GUNPOWDER), IN PELLETS	
			1	V2		CV1 CV2 CV3	S1		0029 DETONATORS, NON-ELECTRIC for blasting	
			1	V2		CV1 CV2 CV3	S1		0030 DETONATORS, ELECTRIC for blasting	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
0033	BOMBS with bursting charge	1	1.1F		1		LQ0	P130		MP23		
0034	BOMBS with bursting charge	1	1.1D		1		LQ0	P130 LP101	PP67 L1	MP21		
0035	BOMBS with bursting charge	1	1.2D		1		LQ0	P130 LP101	PP67 L1	MP21		
0037	BOMBS, PHOTO-FLASH	1	1.1F		1		LQ0	P130		MP23		
0038	BOMBS, PHOTO-FLASH	1	1.1D		1		LQ0	P130 LP101	PP67 L1	MP21		
0039	BOMBS, PHOTO-FLASH	1	1.2G		1		LQ0	P130 LP101	PP67 L1	MP23		
0042	BOOSTERS without detonator	1	1.1D		1		LQ0	P132		MP21		
0043	BURSTERS, explosive	1	1.1D		1		LQ0	P133	PP69	MP21		
0044	PRIMERS, CAP TYPE	1	1.4S		1.4		LQ0	P133		MP23 MP24		
0048	CHARGES, DEMOLITION	1	1.1D		1		LQ0	P130 LP101	PP67 L1	MP21		
0049	CARTRIDGES, FLASH	1	1.1G		1		LQ0	P135		MP23		
0050	CARTRIDGES, FLASH	1	1.3G		1		LQ0	P135		MP23		
0054	CARTRIDGES, SIGNAL	1	1.3G		1		LQ0	P135		MP23 MP24		
0055	CASES, CARTRIDGE, EMPTY, WITH PRIMER	1	1.4S		1.4		LQ0	P136		MP23		
0056	CHARGES, DEPTH	1	1.1D		1		LQ0	P130 LP101	PP67 L1	MP21		
0059	CHARGES, SHAPED without detonator	1	1.1D		1		LQ0	P137	PP70	MP21		
0060	CHARGES, SUPPLEMENTARY, EXPLOSIVE	1	1.1D		1		LQ0	P132		MP21		
0065	CORD, DETONATING, flexible	1	1.1D		1		LQ0	P139	PP71 PP72	MP21		
0066	CORD, IGNITER	1	1.4G		1.4		LQ0	P140		MP23		
0070	CUTTERS, CABLE, EXPLOSIVE	1	1.4S		1.4		LQ0	P134 LP102		MP23		
0072	CYCLOTTRIMETHYLENE-TRINITRAMINE (CYCLONITE; HEXOGEN; RDX), WETTED with not less than 15% water, by mass	1	1.1D		1	266	LQ0	P112 (a)	PP45	MP20		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
			1	V2		CV1 CV2 CV3	SI		0033 BOMBS with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0034 BOMBS with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0035 BOMBS with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0037 BOMBS, PHOTO-FLASH	
			1	V2		CV1 CV2 CV3	SI		0038 BOMBS, PHOTO-FLASH	
			1	V2		CV1 CV2 CV3	SI		0039 BOMBS, PHOTO-FLASH	
			1	V2		CV1 CV2 CV3	SI		0042 BOOSTERS without detonator	
			1	V2		CV1 CV2 CV3	SI		0043 BURSTERS, explosive	
			4	V2		CV1 CV2 CV3	SI		0044 PRIMERS, CAP TYPE	
			1	V2		CV1 CV2 CV3	SI		0048 CHARGES, DEMOLITION	
			1	V2		CV1 CV2 CV3	SI		0049 CARTRIDGES, FLASH	
			1	V2		CV1 CV2 CV3	SI		0050 CARTRIDGES, FLASH	
			1	V2		CV1 CV2 CV3	SI		0054 CARTRIDGES, SIGNAL	
			4	V2		CV1 CV2 CV3	SI		0055 CASES, CARTRIDGE, EMPTY, WITH PRIMER	
			1	V2		CV1 CV2 CV3	SI		0056 CHARGES, DEPTH	
			1	V2		CV1 CV2 CV3	SI		0059 CHARGES, SHAPED without detonator	
			1	V2		CV1 CV2 CV3	SI		0060 CHARGES, SUPPLEMENTARY, EXPLOSIVE	
			1	V2		CV1 CV2 CV3	SI		0065 CORD, DETONATING, flexible	
			2	V2		CV1 CV2 CV3	SI		0066 CORD, IGNITER	
			4	V2		CV1 CV2 CV3	SI		0070 CUTTERS, CABLE, EXPLOSIVE	
			1	V2		CV1 CV2 CV3	SI		0072 CYCLOTTRIMETHYLENE-TRINITRAMINE (CYCLONITE; HEXOGEN; RDX), WETTED with not less than 15% water, by mass	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
0073	DETONATORS FOR AMMUNITION	1	1.1B		1		LQ0	P133		MP23		
0074	DIAZODINITROPHENOL, WETTED with not less than 40% water, or mixture of alcohol and water, by mass	1	1.1A		1	266	LQ0	P110 (b)	PP42	MP20		
0075	DIETHYLENEGLYCOL DINITRATE, DESENSITIZED with not less than 25% non-volatile, water-insoluble phlegmatizer, by mass	1	1.1D		1	266	LQ0	P115	PP53 PP54 PP57 PP58	MP20		
0076	DINITROPHENOL, dry or wetted with less than 15% water, by mass	1	1.1D		1 +6.1		LQ0	P112 (a) (b)(c)	PP26	MP20		
0077	DINITROPHENOLATES, alkali metals, dry or wetted with less than 15% water, by mass	1	1.3C		1 +6.1		LQ0	P114 (a) (b)	PP26	MP20		
0078	DINITRORESORCINOL, dry or wetted with less than 15% water, by mass	1	1.1D		1		LQ0	P112(a) (b)(c)	PP26	MP20		
0079	HEXANITRODIPHENYLAMINE (DIPICRYLAMINE; HEXYL)	1	1.1D		1		LQ0	P112(b) (c)		MP20		
0081	EXPLOSIVE, BLASTING, TYPE A	1	1.1D		1	616 617	LQ0	P116	PP63 PP66	MP20		
0082	EXPLOSIVE, BLASTING, TYPE B	1	1.1D		1	617	LQ0	P116	PP61 PP62 PP65 B9	MP20		
0083	EXPLOSIVE, BLASTING, TYPE C	1	1.1D		1	267 617	LQ0	P116		MP20		
0084	EXPLOSIVE, BLASTING, TYPE D	1	1.1D		1	617	LQ0	P116		MP20		
0092	FLARES, SURFACE	1	1.3G		1		LQ0	P135		MP23		
0093	FLARES, AERIAL	1	1.3G		1		LQ0	P135		MP23		
0094	FLASH POWDER	1	1.1G		1		LQ0	P113	PP49	MP20		
0099	FRACTURING DEVICES, EXPLOSIVE without detonator, for oil wells	1	1.1D		1		LQ0	P134 LP102		MP21		
0101	FUSE, NON-DETONATING	1	1.3G		1		LQ0	P140	PP74 PP75	MP23		
0102	CORD (FUSE), DETONATING, metal clad	1	1.2D		1		LQ0	P139	PP71	MP21		
0103	FUSE, IGNITER, tubular, metal clad	1	1.4G		1.4		LQ0	P140		MP23		
0104	CORD (FUSE), DETONATING, MILD EFFECT, metal clad	1	1.4D		1.4		LQ0	P139	PP71	MP21		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
			1	V2		CV1 CV2 CV3	SI		0073 DETONATORS FOR AMMUNITION	
			0	V2		CV1 CV2 CV3	SI		0074 DIAZODINITROPHENOL, WETTED with not less than 40% water, or mixture of alcohol and water, by mass	
			1	V2		CV1 CV2 CV3	SI		0075 DIETHYLENEGLYCOL DINITRATE, DESENSITIZED with not less than 25% non-volatile, water-insoluble phlegmatizer, by mass	
			1	V2 V3		CV1 CV2 CV3 CV28	SI		0076 DINITROPHENOL, dry or wetted with less than 15% water, by mass	
			1	V2 V3		CV1 CV2 CV3 CV28	SI		0077 DINITROPHENOLATES, alkali metals, dry or wetted with less than 15% water, by mass	
			1	V2 V3		CV1 CV2 CV3	SI		0078 DINITRORESORCINOL, dry or wetted with less than 15% water, by mass	
			1	V2 V3		CV1 CV2 CV3	SI		0079 HEXANITRODIPHENYLAMINE (DIPICRYLAMINE; HEXYL)	
			1	V2 V3		CV1 CV2 CV3	SI		0081 EXPLOSIVE, BLASTING, TYPE A	
			1	V2 V3		CV1 CV2 CV3	SI		0082 EXPLOSIVE, BLASTING, TYPE B	
			1	V2 V3		CV1 CV2 CV3	SI		0083 EXPLOSIVE, BLASTING, TYPE C	
			1	V2		CV1 CV2 CV3	SI		0084 EXPLOSIVE, BLASTING, TYPE D	
			1	V2		CV1 CV2 CV3	SI		0092 FLARES, SURFACE	
			1	V2		CV1 CV2 CV3	SI		0093 FLARES, AERIAL	
			1	V2 V3		CV1 CV2 CV3	SI		0094 FLASH POWDER	
			1	V2		CV1 CV2 CV3	SI		0099 FRACTURING DEVICES, EXPLOSIVE without detonator, for oil wells	
			1	V2		CV1 CV2 CV3	SI		0101 FUSE, NON-DETONATING	
			1	V2		CV1 CV2 CV3	SI		0102 CORD (FUSE), DETONATING, metal clad	
			2	V2		CV1 CV2 CV3	SI		0103 FUSE, IGNITER, metal clad	
			2	V2		CV1 CV2 CV3	SI		0104 CORD (FUSE), DETONATING, MILD EFFECT, metal clad	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
0105	FUSE, SAFETY	1	1.4S		1.4		LQ0	P140	PP73	MP23		
0106	FUZES, DETONATING	1	1.1B		1		LQ0	P141		MP23		
0107	FUZES, DETONATING	1	1.2B		1		LQ0	P141		MP23		
0110	GRENADERS, PRACTICE, hand or rifle	1	1.4S		1.4		LQ0	P141		MP23		
0113	GUANYLNITROSAMINO-GUANYLIDENE HYDRAZINE, WETTED with not less than 30% water, by mass	1	1.1A		1	266	LQ0	P110(b)	PP42	MP20		
0114	GUANYLNITROSAMINO-GUANYLTETRAZENE (TETRAZENE), WETTED with not less than 30% water, or mixture of alcohol and water, by mass	1	1.1A		1	266	LQ0	P110(b)	PP42	MP20		
0118	HEXOLITE (HEXOTOL), dry or wetted with less than 15% water, by mass	1	1.1D		1		LQ0	P112		MP20		
0121	IGNITERS	1	1.1G		1		LQ0	P142		MP23		
0124	JET PERFORATING GUNS, CHARGED, oil well, without detonator	1	1.1D		1		LQ0	P101		MP21		
0129	LEAD AZIDE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	1	1.1A		1	266	LQ0	P110(b)	PP42	MP20		
0130	LEAD STYPHNATE (LEAD TRINITRORESORCINATE), WETTED with not less than 20% water, or mixture of alcohol and water, by mass	1	1.1A		1	266	LQ0	P110(b)	PP42	MP20		
0131	LIGHTERS, FUSE	1	1.4S		1.4		LQ0	P142		MP23		
0132	DEFLAGRATING METAL SALTS OF AROMATIC NITRODERIVATIVES, N.O.S.	1	1.3C		1	274	LQ0	P114(a) (b)	PP26	MP2		
0133	MANNITOL HEXANITRATE (NITROMANNITE), WETTED with not less than 40% water, or mixture of alcohol and water, by mass	1	1.1D		1	266	LQ0	P112(a)		MP20		
0135	MERCURY FULMINATE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	1	1.1A		1	266	LQ0	P110(b)	PP42	MP20		
0136	MINES with bursting charge	1	1.1F		1		LQ0	P130		MP23		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
43 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
			4	V2		CV1 CV2 CV3	SI		0105 FUSE, SAFETY	
			1	V2		CV1 CV2 CV3	SI		0106 FUZES, DETONATING	
			1	V2		CV1 CV2 CV3	SI		0107 FUZES, DETONATING	
			4	V2		CV1 CV2 CV3	SI		0110 GRENADES, PRACTICE, hand or rifle	
			0	V2		CV1 CV2 CV3	SI		0113 GUANYLNITROSAMINO-GUANYLIDENE HYDRAZINE, WETTED with not less than 30% water, by mass	
			0	V2		CV1 CV2 CV3	SI		0114 GUANYLNITROSAMINO-GUANYLTETRAZENE (TETRAZENE), WETTED with not less than 30% water, or mixture of alcohol and water, by mass	
			1	V2 V3		CV1 CV2 CV3	SI		0118 HEXOLITE (HEXOTOL), dry or wetted with less than 15% water, by mass	
			1	V2		CV1 CV2 CV3	SI		0121 IGNITERS	
			1	V2		CV1 CV2 CV3	SI		0124 JET PERFORATING GUNS, CHARGED, oil well, without detonator	
			0	V2		CV1 CV2 CV3	SI		0129 LEAD AZIDE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	
			0	V2		CV1 CV2 CV3	SI		0130 LEAD STYPHNATE (LEAD TRINITRORESORCINATE), WETTED with not less than 20% water, or mixture of alcohol and water, by mass	
			4	V2		CV1 CV2 CV3	SI		0131 LIGHTERS, FUSE	
			1	V2 V3		CV1 CV2 CV3	SI		0132 DEFLAGRATING METAL SALTS OF AROMATIC NITRODERIVATIVES, N.O.S.	
			1	V2		CV1 CV2 CV3	SI		0133 MANNITOL HEXANITRATE (NITROMANNITE), WETTED with not less than 40% water, or mixture of alcohol and water, by mass	
			0	V2		CV1 CV2 CV3	SI		0135 MERCURY FULMINATE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	
			1	V2		CV1 CV2 CV3	SI		0136 MINES with bursting charge	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
0137	MINES with bursting charge	1	1.1D		1		LQ0	P130 LP101	PP67 L1	MP21		
0138	MINES with bursting charge	1	1.2D		1		LQ0	P130 LP101	PP67 L1	MP21		
0143	NITROGLYCERIN, DESENSITIZED with not less than 40% non-volatile water-insoluble phlegmatizer, by mass	1	1.1D		1 +6.1	266 271	LQ0	P115	PP53 PP54 PP57 PP58	MP20		
0144	NITROGLYCERIN SOLUTION IN ALCOHOL with more than 1% but not more than 10% nitroglycerin	1	1.1D		1	500	LQ0	P115	PP45 PP55 PP56 PP59 PP60	MP20		
0146	NITROSTARCH, dry or wetted with less than 20% water, by mass	1	1.1D		1		LQ0	P112		MP20		
0147	NITRO UREA	1	1.1D		1		LQ0	P112(b)		MP20		
0150	PENTAERYTHRITOL TETRANITRATE (PENTAERYTHRITOL TETRANITRATE; PETN), WETTED with not less than 25% water, by mass, or DESENSITIZED with not less than 15% phlegmatizer, by mass	1	1.1D		1	266	LQ0	P112(a) (b)		MP20		
0151	PENTOLITE, dry or wetted with less than 15% water, by mass	1	1.1D		1		LQ0	P112		MP20		
0153	TRINITROANILINE (PICRAMIDE)	1	1.1D		1		LQ0	P112(b) (c)		MP20		
0154	TRINITROPHENOL (PICRIC ACID), dry or wetted with less than 30% water, by mass	1	1.1D		1		LQ0	P112(a) (b)(c)	PP26	MP20		
0155	TRINITROCHLORO-BENZENE (PICRYL CHLORIDE)	1	1.1D		1		LQ0	P112(b) (c)		MP20		
0159	POWDER CAKE (POWDER PASTE), WETTED with not less than 25% water, by mass	1	1.3C		1	266	LQ0	P111	PP43	MP20		
0160	POWDER, SMOKELESS	1	1.1C		1		LQ0	P114(b)	PP50 PP52	MP20 MP24		
0161	POWDER, SMOKELESS	1	1.3C		1		LQ0	P114(b)	PP50 PP52	MP20 MP24		
0167	PROJECTILES with bursting charge	1	1.1F		1		LQ0	P130		MP23		
0168	PROJECTILES with bursting charge	1	1.1D		1		LQ0	P130 LP101	PP67 L1	MP21		
0169	PROJECTILES with bursting charge	1	1.2D		1		LQ0	P130 LP101	PP67 L1	MP21		
0171	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge	1	1.2G		1		LQ0	P130 LP101	PP67 L1	MP23		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
			1	V2		CV1 CV2 CV3	SI		0137	MINES with bursting charge
			1	V2		CV1 CV2 CV3	SI		0138	MINES with bursting charge
			1	V2		CV1 CV2 CV3 CV28	SI		0143	NITROGLYCERIN, DESENSITIZED with not less than 40% non-volatile water-insoluble phlegmatizer, by mass
			1	V2		CV1 CV2 CV3	SI		0144	NITROGLYCERIN SOLUTION IN ALCOHOL with more than 1% but not more than 10% nitroglycerin
			1	V2 V3		CV1 CV2 CV3	SI		0146	NITROSTARCH, dry or wetted with less than 20% water, by mass
			1	V2 V3		CV1 CV2 CV3	SI		0147	NITRO UREA
			1	V2 V3		CV1 CV2 CV3	SI		0150	PENTAERYTHRITATE TETRA-NITRATE (PENTAERYTHRITOL TETRA-NITRATE; PETN), WETTED with not less than 25% water, by mass, or DESENSITIZED with not less than 15% phlegmatizer, by mass
			1	V2 V3		CV1 CV2 CV3	SI		0151	PENTOLITE, dry or wetted with less than 15% water, by mass
			1	V2 V3		CV1 CV2 CV3	SI		0153	TRINITROANILINE (PICRAMIDE)
			1	V2 V3		CV1 CV2 CV3	SI		0154	TRINITROPHENOL (PICRIC ACID), dry or wetted with less than 30% water, by mass
			1	V2 V3		CV1 CV2 CV3	SI		0155	TRINITROCHLORO-BENZENE (PICRYL CHLORIDE)
			1	V2		CV1 CV2 CV3	SI		0159	POWDER CAKE (POWDER PASTE), WETTED with not less than 25% water, by mass
			1	V2 V3		CV1 CV2 CV3	SI		0160	POWDER, SMOKELESS
			1	V2 V3		CV1 CV2 CV3	SI		0161	POWDER, SMOKELESS
			1	V2		CV1 CV2 CV3	SI		0167	PROJECTILES with bursting charge
			1	V2		CV1 CV2 CV3	SI		0168	PROJECTILES with bursting charge
			1	V2		CV1 CV2 CV3	SI		0169	PROJECTILES with bursting charge
			1	V2		CV1 CV2 CV3	SI		0171	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
0173	RELEASE DEVICES, EXPLOSIVE	1	1.4S		1.4		LQ0	P134 LP102		MP23		
0174	RIVETS, EXPLOSIVE	1	1.4S		1.4		LQ0	P134 LP102		MP23		
0180	ROCKETS with bursting charge	1	1.1F		1		LQ0	P130		MP23		
0181	ROCKETS with bursting charge	1	1.1E		1		LQ0	P130 LP101	PP67 L1	MP21		
0182	ROCKETS with bursting charge	1	1.2E		1		LQ0	P130 LP101	PP67 L1	MP21		
0183	ROCKETS with inert head	1	1.3C		1		LQ0	P130 LP101	PP67 L1	MP22		
0186	ROCKET MOTORS	1	1.3C		1		LQ0	P130 LP101	PP67 L1	MP22 MP24		
0190	SAMPLES, EXPLOSIVE, other than initiating explosive	1				16 274	LQ0	P101		MP2		
0191	SIGNAL DEVICES, HAND	1	1.4G		1.4		LQ0	P135		MP23 MP24		
0192	SIGNALS, RAILWAY TRACK, EXPLOSIVE	1	1.1G		1		LQ0	P135		MP23		
0193	SIGNALS, RAILWAY TRACK, EXPLOSIVE	1	1.4S		1.4		LQ0	P135		MP23		
0194	SIGNALS, DISTRESS, ship	1	1.1G		1		LQ0	P135		MP23 MP24		
0195	SIGNALS, DISTRESS, ship	1	1.3G		1		LQ0	P135		MP23 MP24		
0196	SIGNALS, SMOKE	1	1.1G		1		LQ0	P135		MP23		
0197	SIGNALS, SMOKE	1	1.4G		1.4		LQ0	P135		MP23 MP24		
0204	SOUNDING DEVICES, EXPLOSIVE	1	1.2F		1		LQ0	P134 LP102		MP23		
0207	TETRANITROANILINE	1	1.1D		1		LQ0	P112(b) (c)		MP20		
0208	TRINITROPHENYLMETHYL NITRAMINE (TETRYL)	1	1.1D		1		LQ0	P112(b) (c)		MP20		
0209	TRINITROTOLUENE (TNT), dry or wetted with less than 30% water, by mass	1	1.1D		1		LQ0	P112(b) (c)	PP46	MP20		
0212	TRACERS FOR AMMUNITION	1	1.3G		1		LQ0	P133	PP69	MP23		
0213	TRINITROANISOLE	1	1.1D		1		LQ0	P112(b) (c)		MP20		
0214	TRINITROBENZENE, dry or wetted with less than 30% water, by mass	1	1.1D		1		LQ0	P112		MP20		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
			4	V2		CV1 CV2 CV3	SI		0173	RELEASE DEVICES, EXPLOSIVE
			4	V2		CV1 CV2 CV3	SI		0174	RIVETS, EXPLOSIVE
			1	V2		CV1 CV2 CV3	SI		0180	ROCKETS with bursting charge
			1	V2		CV1 CV2 CV3	SI		0181	ROCKETS with bursting charge
			1	V2		CV1 CV2 CV3	SI		0182	ROCKETS with bursting charge
			1	V2		CV1 CV2 CV3	SI		0183	ROCKETS with inert head
			1	V2		CV1 CV2 CV3	SI		0186	ROCKET MOTORS
			0	V2		CV1 CV2 CV3	SI		0190	SAMPLES, EXPLOSIVE, other than initiating explosive
			2	V2		CV1 CV2 CV3	SI		0191	SIGNAL DEVICES, HAND
			1	V2		CV1 CV2 CV3	SI		0192	SIGNALS, RAILWAY TRACK, EXPLOSIVE
			4	V2		CV1 CV2 CV3	SI		0193	SIGNALS, RAILWAY TRACK, EXPLOSIVE
			1	V2		CV1 CV2 CV3	SI		0194	SIGNALS, DISTRESS, ship
			1	V2		CV1 CV2 CV3	SI		0195	SIGNALS, DISTRESS, ship
			1	V2		CV1 CV2 CV3	SI		0196	SIGNALS, SMOKE
			2	V2		CV1 CV2 CV3	SI		0197	SIGNALS, SMOKE
			1	V2		CV1 CV2 CV3	SI		0204	SOUNDING DEVICES, EXPLOSIVE
			1	V2 V3		CV1 CV2 CV3	SI		0207	TETRANITROANILINE
			1	V2 V3		CV1 CV2 CV3	SI		0208	TRINITROPHENYLMETHYL NITRAMINE (TETRYL)
			1	V2 V3		CV1 CV2 CV3	SI		0209	TRINITROTOLUENE (TNT), dry or wetted with less than 30% water, by mass
			1	V2		CV1 CV2 CV3	SI		0212	TRACERS FOR AMMUNITION
			1	V2 V3		CV1 CV2 CV3	SI		0213	TRINITROANISOLE
			1	V2 V3		CV1 CV2 CV3	SI		0214	TRINITROBENZENE, dry or wetted with less than 30% water, by mass

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
0215	TRINITROBENZOIC ACID, dry or wetted with less than 30% water, by mass	1	1.1D		1		LQ0	P112		MP20		
0216	TRINITRO-m-CRESOL	1	1.1D		1		LQ0	P112(b)(c)	PP26	MP20		
0217	TRINITRONAPHTHALENE	1	1.1D		1		LQ0	P112(b)(c)		MP20		
0218	TRINITROPHENETOLE	1	1.1D		1		LQ0	P112(b)(c)		MP20		
0219	TRINITRORESORCINOL (STYPHNIC ACID), dry or wetted with less than 20% water, or mixture of alcohol and water, by mass	1	1.1D		1		LQ0	P112(a)(b)(c)	PP26	MP20		
0220	UREA NITRATE, dry or wetted with less than 20% water, by mass	1	1.1D		1		LQ0	P112		MP20		
0221	WARHEADS, TORPEDO with bursting charge	1	1.1D		1		LQ0	P130 LP101	PP67 L1	MP21		
0222	AMMONIUM NITRATE with more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance	1	1.1D		1		LQ0	P112(b)(c)	PP47	MP20		
0224	BARIUM AZIDE, dry or wetted with less than 50% water, by mass	1	1.1A		1 +6.1		LQ0	P110(b)	PP42	MP20		
0225	BOOSTERS WITH DETONATOR	1	1.1B		1		LQ0	P133	PP69	MP23		
0226	CYCLOTETRAMETHYLENE TETRANITRAMINE (HMX; OCTOGEN), WETTED with not less than 15% water, by mass	1	1.1D		1	266	LQ0	P112(a)	PP45	MP20		
0234	SODIUM DINITRO-o-CRESOLATE, dry or wetted with less than 15% water, by mass	1	1.3C		1		LQ0	P114(a)(b)	PP26	MP20		
0235	SODIUM PICRAMATE, dry or wetted with less than 20% water, by mass	1	1.3C		1		LQ0	P114(a)(b)	PP26	MP20		
0236	ZIRCONIUM PICRAMATE, dry or wetted with less than 20% water, by mass	1	1.3C		1		LQ0	P114(a)(b)	PP26	MP20		
0237	CHARGES, SHAPED, FLEXIBLE, LINEAR	1	1.4D		1.4		LQ0	P138		MP21		
0238	ROCKETS, LINE-THROWING	1	1.2G		1		LQ0	P130		MP23 MP24		
0240	ROCKETS, LINE-THROWING	1	1.3G		1		LQ0	P130		MP23 MP24		
0241	EXPLOSIVE, BLASTING, TYPE E	1	1.1D		1	617	LQ0	P116 IBC100	PP61 PP62 PP65 B10	MP20		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
			1	V2 V3		CV1 CV2 CV3	SI		0215 TRINITROBENZOIC ACID, dry or wetted with less than 30% water, by mass	
			1	V2 V3		CV1 CV2 CV3	SI		0216 TRINITRO-m-CRESOL	
			1	V2 V3		CV1 CV2 CV3	SI		0217 TRINITRONAPHTHALENE	
			1	V2 V3		CV1 CV2 CV3	SI		0218 TRINITROPHENETOLE	
			1	V2 V3		CV1 CV2 CV3	SI		0219 TRINITRORESORCINOL (STYPHNIC ACID), dry or wetted with less than 20% water, or mixture of alcohol and water, by mass	
			1	V2 V3		CV1 CV2 CV3	SI		0220 UREA NITRATE, dry or wetted with less than 20% water, by mass	
			1	V2 V3		CV1 CV2 CV3	SI		0221 WARHEADS, TORPEDO with bursting charge	
			1	V2 V3		CV1 CV2 CV3	SI		0222 AMMONIUM NITRATE with more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance	
			0	V2 V3		CV1 CV2 CV3 CV28	SI		0224 BARIUM AZIDE, dry or wetted with less than 50% water, by mass	
			1	V2		CV1 CV2 CV3	SI		0225 BOOSTERS WITH DETONATOR	
			1	V2		CV1 CV2 CV3	SI		0226 CYCLOTETRAMETHYLENE TETRANITRAMINE (HMX; OCTOGEN), WETTED with not less than 15% water, by mass	
			1	V2 V3		CV1 CV2 CV3	SI		0234 SODIUM DINITRO-o-CRESOLATE, dry or wetted with less than 15% water, by mass	
			1	V2 V3		CV1 CV2 CV3	SI		0235 SODIUM PICRAMATE, dry or wetted with less than 20% water, by mass	
			1	V2 V3		CV1 CV2 CV3	SI		0236 ZIRCONIUM PICRAMATE, dry or wetted with less than 20% water, by mass	
			2	V2		CV1 CV2 CV3	SI		0237 CHARGES, SHAPED, FLEXIBLE, LINEAR	
			1	V2		CV1 CV2 CV3	SI		0238 ROCKETS, LINE-THROWING	
			1	V2		CV1 CV2 CV3	SI		0240 ROCKETS, LINE-THROWING	
			1	V2		CV1 CV2 CV3	SI		0241 EXPLOSIVE, BLASTING, TYPE E	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
0242	CHARGES, PROPELLING, FOR CANNON	1	1.3C		1		LQ0	P130		MP22		
0243	AMMUNITION, INCENDIARY, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	1	1.2H		1		LQ0	P130 LP101	PP67 L1	MP23		
0244	AMMUNITION, INCENDIARY, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	1	1.3H		1		LQ0	P130 LP101	PP67 L1	MP23		
0245	AMMUNITION, SMOKE, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	1	1.2H		1		LQ0	P130 LP101	PP67 L1	MP23		
0246	AMMUNITION, SMOKE, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	1	1.3H		1		LQ0	P130 LP101	PP67 L1	MP23		
0247	AMMUNITION, INCENDIARY, liquid or gel, with burster, expelling charge or propelling charge	1	1.3J		1		LQ0	P101		MP23		
0248	CONTRIVANCES, WATER-ACTIVATED with burster, expelling charge or propelling charge	1	1.2L		1	274	LQ0	P144	PP77	MP1		
0249	CONTRIVANCES, WATER-ACTIVATED with burster, expelling charge or propelling charge	1	1.3L		1	274	LQ0	P144	PP77	MP1		
0250	ROCKET MOTORS WITH HYPERGOLIC LIQUIDS with or without expelling charge	1	1.3L		1		LQ0	P101		MP1		
0254	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge	1	1.3G		1		LQ0	P130 LP101	PP67 L1	MP23		
0255	DETONATORS, ELECTRIC for blasting	1	1.4B		1.4		LQ0	P131		MP23		
0257	FUZES, DETONATING	1	1.4B		1.4		LQ0	P141		MP23		
0266	OCTOLITE (OCTOL), dry or wetted with less than 15% water, by mass	1	1.1D		1		LQ0	P112		MP20		
0267	DETONATORS, NON-ELECTRIC for blasting	1	1.4B		1.4		LQ0	P131	PP68	MP23		
0268	BOOSTERS WITH DETONATOR	1	1.2B		1		LQ0	P133	PP69	MP23		
0271	CHARGES, PROPELLING	1	1.1C		1		LQ0	P143	PP76	MP22		
0272	CHARGES, PROPELLING	1	1.3C		1		LQ0	P143	PP76	MP22		
0275	CARTRIDGES, POWER DEVICE	1	1.3C		1		LQ0	P134 LP102		MP22		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
			1	V2		CV1 CV2 CV3	SI		0242	CHARGES, PROPELLING, FOR CANNON
			1	V2		CV1 CV2 CV3	SI		0243	AMMUNITION, INCENDIARY, WHITE PHOSPHORUS with burster, expelling charge or propelling charge
			1	V2		CV1 CV2 CV3	SI		0244	AMMUNITION, INCENDIARY, WHITE PHOSPHORUS with burster, expelling charge or propelling charge
			1	V2		CV1 CV2 CV3	SI		0245	AMMUNITION, SMOKE, WHITE PHOSPHORUS with burster, expelling charge or propelling charge
			1	V2		CV1 CV2 CV3	SI		0246	AMMUNITION, SMOKE, WHITE PHOSPHORUS with burster, expelling charge or propelling charge
			1	V2		CV1 CV2 CV3	SI		0247	AMMUNITION, INCENDIARY, liquid or gel, with burster, expelling charge or propelling charge
			0	V2		CV1 CV2 CV3 CV4	SI		0248	CONTRIVANCES, WATER-ACTIVATED with burster, expelling charge or propelling charge
			0	V2		CV1 CV2 CV3 CV4	SI		0249	CONTRIVANCES, WATER-ACTIVATED with burster, expelling charge or propelling charge
			0	V2		CV1 CV2 CV3 CV4	SI		0250	ROCKET MOTORS WITH HYPERGOLIC LIQUIDS with or without expelling charge
			1	V2		CV1 CV2 CV3	SI		0254	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge
			2	V2		CV1 CV2 CV3	SI		0255	DETONATORS, ELECTRIC for blasting
			2	V2		CV1 CV2 CV3	SI		0257	FUZES, DETONATING
			1	V2 V3		CV1 CV2 CV3	SI		0266	OCTOLITE (OCTOL), dry or wetted with less than 15% water, by mass
			2	V2		CV1 CV2 CV3	SI		0267	DETONATORS, NON-ELECTRIC for blasting
			1	V2		CV1 CV2 CV3	SI		0268	BOOSTERS WITH DETONATOR
			1	V2		CV1 CV2 CV3	SI		0271	CHARGES, PROPELLING
			1	V2		CV1 CV2 CV3	SI		0272	CHARGES, PROPELLING
			1	V2		CV1 CV2 CV3	SI		0275	CARTRIDGES, POWER DEVICE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
0276	CARTRIDGES, POWER DEVICE	1	1.4C		1.4		LQ0	P134 LP102		MP22		
0277	CARTRIDGES, OIL WELL	1	1.3C		1		LQ0	P134 LP102		MP22		
0278	CARTRIDGES, OIL WELL	1	1.4C		1.4		LQ0	P134 LP102		MP22		
0279	CHARGES, PROPELLING, FOR CANNON	1	1.1C		1		LQ0	P130		MP22		
0280	ROCKET MOTORS	1	1.1C		1		LQ0	P130 LP101	PP67 LI	MP22		
0281	ROCKET MOTORS	1	1.2C		1		LQ0	P130 LP101	PP67 LI	MP22		
0282	NITROGUANIDINE (PICRITE), dry or wetted with less than 20% water, by mass	1	1.1D		1		LQ0	P112		MP20		
0283	BOOSTERS without detonator	1	1.2D		1		LQ0	P132		MP21		
0284	GRENADES, hand or rifle, with bursting charge	1	1.1D		1		LQ0	P141		MP21		
0285	GRENADES, hand or rifle, with bursting charge	1	1.2D		1		LQ0	P141		MP21		
0286	WARHEADS, ROCKET with bursting charge	1	1.1D		1		LQ0	P130 LP101	PP67 LI	MP21		
0287	WARHEADS, ROCKET with bursting charge	1	1.2D		1		LQ0	P130 LP101	PP67 LI	MP21		
0288	CHARGES, SHAPED, FLEXIBLE, LINEAR	1	1.1D		1		LQ0	P138		MP21		
0289	CORD, DETONATING, flexible	1	1.4D		1.4		LQ0	P139	PP71 PP72	MP21		
0290	CORD (FUSE), DETONATING, metal clad	1	1.1D		1		LQ0	P139	PP71	MP21		
0291	BOMBS with bursting charge	1	1.2F		1		LQ0	P130		MP23		
0292	GRENADES, hand or rifle, with bursting charge	1	1.1F		1		LQ0	P141		MP23		
0293	GRENADES, hand or rifle, with bursting charge	1	1.2F		1		LQ0	P141		MP23		
0294	MINES with bursting charge	1	1.2F		1		LQ0	P130		MP23		
0295	ROCKETS with bursting charge	1	1.2F		1		LQ0	P130		MP23		
0296	SOUNDING DEVICES, EXPLOSIVE	1	1.1F		1		LQ0	P134 LP102		MP23		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
			2	V2		CV1 CV2 CV3	SI		0276 CARTRIDGES, POWER DEVICE	
			1	V2		CV1 CV2 CV3	SI		0277 CARTRIDGES, OIL WELL	
			2	V2		CV1 CV2 CV3	SI		0278 CARTRIDGES, OIL WELL	
			1	V2		CV1 CV2 CV3	SI		0279 CHARGES, PROPELLING, FOR CANNON	
			1	V2		CV1 CV2 CV3	SI		0280 ROCKET MOTORS	
			1	V2		CV1 CV2 CV3	SI		0281 ROCKET MOTORS	
			1	V2 V3		CV1 CV2 CV3	SI		0282 NITROGUANIDINE (PICRITE), dry or wetted with less than 20% water, by mass	
			1	V2		CV1 CV2 CV3	SI		0283 BOOSTERS without detonator	
			1	V2		CV1 CV2 CV3	SI		0284 GRENADES, hand or rifle, with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0285 GRENADES, hand or rifle, with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0286 WARHEADS, ROCKET with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0287 WARHEADS, ROCKET with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0288 CHARGES, SHAPED, FLEXIBLE, LINEAR	
			2	V2		CV1 CV2 CV3	SI		0289 CORD, DETONATING, flexible	
			1	V2		CV1 CV2 CV3	SI		0290 CORD (FUSE), DETONATING, metal clad	
			1	V2		CV1 CV2 CV3	SI		0291 BOMBS with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0292 GRENADES, hand or rifle, with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0293 GRENADES, hand or rifle, with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0294 MINES with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0295 ROCKETS with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0296 SOUNDING DEVICES, EXPLOSIVE	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
0297	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge	1	1.4G		1.4		LQ0	P130 LP101	PP67 L1	MP23		
0299	BOMBS, PHOTO-FLASH	1	1.3G		1		LQ0	P130 LP101	PP67 L1	MP23		
0300	AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge	1	1.4G		1.4		LQ0	P130 LP101	PP67 L1	MP23		
0301	AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge	1	1.4G		1.4 +6.1 +8		LQ0	P130 LP101	PP67 L1	MP23		
0303	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	1	1.4G		1.4	204	LQ0	P130 LP101	PP67 L1	MP23		
0305	FLASH POWDER	1	1.3G		1		LQ0	P113	PP49	MP20		
0306	TRACERS FOR AMMUNITION	1	1.4G		1.4		LQ0	P133	PP69	MP23		
0312	CARTRIDGES, SIGNAL	1	1.4G		1.4		LQ0	P135		MP23 MP24		
0313	SIGNALS, SMOKE	1	1.2G		1		LQ0	P135		MP23		
0314	IGNITERS	1	1.2G		1		LQ0	P142		MP23		
0315	IGNITERS	1	1.3G		1		LQ0	P142		MP23		
0316	FUZES, IGNITING	1	1.3G		1		LQ0	P141		MP23		
0317	FUZES, IGNITING	1	1.4G		1.4		LQ0	P141		MP23		
0318	GRENADES, PRACTICE, hand or rifle	1	1.3G		1		LQ0	P141		MP23		
0319	PRIMERS, TUBULAR	1	1.3G		1		LQ0	P133		MP23		
0320	PRIMERS, TUBULAR	1	1.4G		1.4		LQ0	P133		MP23		
0321	CARTRIDGES FOR WEAPONS with bursting charge	1	1.2E		1		LQ0	P130 LP101	PP67 L1	MP21		
0322	ROCKET MOTORS WITH HYPERGOLIC LIQUIDS with or without expelling charge	1	1.2L		1		LQ0	P101		MP1		
0323	CARTRIDGES, POWER	1	1.4S		1.4		LQ0	P134 LP102		MP23		
0324	PROJECTILES with bursting charge	1	1.2F		1		LQ0	P130		MP23		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
			2	V2		CV1 CV2 CV3	SI		0297	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge
			1	V2		CV1 CV2 CV3	SI		0299	BOMBS, PHOTO-FLASH
			2	V2		CV1 CV2 CV3	SI		0300	AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge
			2	V2		CV1 CV2 CV3 CV28	SI		0301	AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge
			2	V2		CV1 CV2 CV3	SI		0303	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge
			1	V2 V3		CV1 CV2 CV3	SI		0305	FLASH POWDER
			2	V2		CV1 CV2 CV3	SI		0306	TRACERS FOR AMMUNITION
			2	V2		CV1 CV2 CV3	SI		0312	CARTRIDGES, SIGNAL
			1	V2		CV1 CV2 CV3	SI		0313	SIGNALS, SMOKE
			1	V2		CV1 CV2 CV3	SI		0314	IGNITERS
			1	V2		CV1 CV2 CV3	SI		0315	IGNITERS
			1	V2		CV1 CV2 CV3	SI		0316	FUZES, IGNITING
			2	V2		CV1 CV2 CV3	SI		0317	FUZES, IGNITING
			1	V2		CV1 CV2 CV3	SI		0318	GRENADES, PRACTICE, hand or rifle
			1	V2		CV1 CV2 CV3	SI		0319	PRIMERS, TUBULAR
			2	V2		CV1 CV2 CV3	SI		0320	PRIMERS, TUBULAR
			1	V2		CV1 CV2 CV3	SI		0321	CARTRIDGES FOR WEAPONS with bursting charge
			0	V2		CV1 CV2 CV3 CV4	SI		0322	ROCKET MOTORS WITH HYPERGOLIC LIQUIDS with or without expelling charge
			4	V2		CV1 CV2 CV3	SI		0323	CARTRIDGES, POWER DEVICE
			1	V2		CV1 CV2 CV3	SI		0324	PROJECTILES with bursting charge

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
0325	IGNITERS	1	1.4G		1.4		LQ0	P142		MP23		
0326	CARTRIDGES FOR WEAPONS, BLANK	1	1.1C		1		LQ0	P130		MP22		
0327	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK	1	1.3C		1		LQ0	P130		MP22		
0328	CARTRIDGES FOR WEAPONS, INERT PROJECTILE	1	1.2C		1		LQ0	P130 LP101	PP67 L1	MP22		
0329	TORPEDOES with bursting charge	1	1.1E		1		LQ0	P130 LP101	PP67 L1	MP21		
0330	TORPEDOES with bursting charge	1	1.1F		1		LQ0	P130		MP23		
0331	EXPLOSIVE, BLASTING, TYPE B (AGENT, BLASTING, TYPE B)	1	1.5D		1.5	617	LQ0	P116  IBC100	PP61 PP62 PP64 PP65	MP20		
0332	EXPLOSIVE, BLASTING, TYPE E (AGENT, BLASTING, TYPE B)	1	1.5D		1.5	617	LQ0	P116  IBC100	PP61 PP62 PP65	MP20		
0333	FIREWORKS	1	1.1G		1	645	LQ0	P135		MP23 MP24		
0334	FIREWORKS	1	1.2G		1	645	LQ0	P135		MP23 MP24		
0335	FIREWORKS	1	1.3G		1	645	LQ0	P135		MP23 MP24		
0336	FIREWORKS	1	1.4G		1.4	645	LQ0	P135		MP23 MP24		
0337	FIREWORKS	1	1.4S		1.4	645	LQ0	P135		MP23 MP24		
0338	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK	1	1.4C		1.4		LQ0	P130		MP22		
0339	CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS	1	1.4C		1.4		LQ0	P130		MP22		
0340	NITROCELLULOSE, dry or wetted with less than 25% water (or alcohol), by mass	1	1.1D		1		LQ0	P112(a) (b)		MP20		
0341	NITROCELLULOSE, unmodified or plasticized with less than 18% plasticizing substance, by mass	1	1.1D		1		LQ0	P112(b)		MP20		
0342	NITROCELLULOSE, WETTED with not less than 25% alcohol, by mass	1	1.3C		1	105	LQ0	P114(a)	PP43	MP20		
0343	NITROCELLULOSE, PLASTICIZED with not less than 18% plasticizing substance, by mass	1	1.3C		1	105	LQ0	P111		MP20		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
			2	V2		CV1 CV2 CV3	SI		0325	IGNITERS
			1	V2		CV1 CV2 CV3	SI		0326	CARTRIDGES FOR WEAPONS, BLANK
			1	V2		CV1 CV2 CV3	SI		0327	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK
			1	V2		CV1 CV2 CV3	SI		0328	CARTRIDGES FOR WEAPONS, INERT PROJECTILE
			1	V2		CV1 CV2 CV3	SI		0329	TORPEDOES with bursting charge
			1	V2		CV1 CV2 CV3	SI		0330	TORPEDOES with bursting charge
			1	V2		CV1 CV2 CV3	SI		0331	EXPLOSIVE, BLASTING, TYPE B (AGENT, BLASTING, TYPE B)
			1	V2		CV1 CV2 CV3	SI		0332	EXPLOSIVE, BLASTING, TYPE E (AGENT, BLASTING, TYPE B)
			1	V2 V3		CV1 CV2 CV3	SI		0333	FIREWORKS
			1	V2 V3		CV1 CV2 CV3	SI		0334	FIREWORKS
			1	V2 V3		CV1 CV2 CV3	SI		0335	FIREWORKS
			2	V2		CV1 CV2 CV3	SI		0336	FIREWORKS
			4	V2		CV1 CV2 CV3	SI		0337	FIREWORKS
			2	V2		CV1 CV2 CV3	SI		0338	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK
			2	V2		CV1 CV2 CV3	SI		0339	CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS
			1	V2 V3		CV1 CV2 CV3	SI		0340	NITROCELLULOSE, dry or wetted with less than 25% water (or alcohol), by mass
			1	V2 V3		CV1 CV2 CV3	SI		0341	NITROCELLULOSE, unmodified or plasticized with less than 18% plasticizing substance, by mass
			1	V2		CV1 CV2 CV3	SI		0342	NITROCELLULOSE, WETTED with not less than 25% alcohol, by mass
			1	V2		CV1 CV2 CV3	SI		0343	NITROCELLULOSE, PLASTICIZED with not less than 18% plasticizing substance, by mass

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
0344	PROJECTILES with bursting charge	1	1.4D		1.4		LQ0	P130 LP101	PP67 L1	MP21		
0345	PROJECTILES, inert with tracer	1	1.4S		1.4		LQ0	P130 LP101	PP67 L1	MP23		
0346	PROJECTILES with burster or expelling charge	1	1.2D		1		LQ0	P130 LP101	PP67 L1	MP21		
0347	PROJECTILES with burster or expelling charge	1	1.4D		1.4		LQ0	P130 LP101	PP67 L1	MP21		
0348	CARTRIDGES FOR WEAPONS with bursting charge	1	1.4F		1.4		LQ0	P130		MP23		
0349	ARTICLES, EXPLOSIVE, N.O.S.	1	1.4S		1.4	178 274	LQ0	P101		MP2		
0350	ARTICLES, EXPLOSIVE, N.O.S.	1	1.4B		1.4	178 274	LQ0	P101		MP2		
0351	ARTICLES, EXPLOSIVE, N.O.S.	1	1.4C		1.4	178 274	LQ0	P101		MP2		
0352	ARTICLES, EXPLOSIVE, N.O.S.	1	1.4D		1.4	178 274	LQ0	P101		MP2		
0353	ARTICLES, EXPLOSIVE, N.O.S.	1	1.4G		1.4	178 274	LQ0	P101		MP2		
0354	ARTICLES, EXPLOSIVE, N.O.S.	1	1.1L		1	178 274	LQ0	P101		MP1		
0355	ARTICLES, EXPLOSIVE, N.O.S.	1	1.2L		1	178 274	LQ0	P101		MP1		
0356	ARTICLES, EXPLOSIVE, N.O.S.	1	1.3L		1	178 274	LQ0	P101		MP1		
0357	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.1L		1	178 274	LQ0	P101		MP1		
0358	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.2L		1	178 274	LQ0	P101		MP1		
0359	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.3L		1	178 274	LQ0	P101		MP1		
0360	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting	1	1.1B		1		LQ0	P131		MP23		
0361	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting	1	1.4B		1.4		LQ0	P131		MP23		
0362	AMMUNITION, PRACTICE	1	1.4G		1.4		LQ0	P130 LP101	PP67 L1	MP23		
0363	AMMUNITION, PROOF	1	1.4G		1.4		LQ0	P130 LP101	PP67 L1	MP23		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
			2	V2		CV1 CV2 CV3	SI		0344 PROJECTILES with bursting charge	
			4	V2		CV1 CV2 CV3	SI		0345 PROJECTILES, inert with tracer	
			1	V2		CV1 CV2 CV3	SI		0346 PROJECTILES with burster or expelling charge	
			2	V2		CV1 CV2 CV3	SI		0347 PROJECTILES with burster or expelling charge	
			2	V2		CV1 CV2 CV3	SI		0348 CARTRIDGES FOR WEAPONS with bursting charge	
			4	V2		CV1 CV2 CV3	SI		0349 ARTICLES, EXPLOSIVE, N.O.S.	
			2	V2		CV1 CV2 CV3	SI		0350 ARTICLES, EXPLOSIVE, N.O.S.	
			2	V2		CV1 CV2 CV3	SI		0351 ARTICLES, EXPLOSIVE, N.O.S.	
			2	V2		CV1 CV2 CV3	SI		0352 ARTICLES, EXPLOSIVE, N.O.S.	
			2	V2		CV1 CV2 CV3	SI		0353 ARTICLES, EXPLOSIVE, N.O.S.	
			0	V2		CV1 CV2 CV3 CV4	SI		0354 ARTICLES, EXPLOSIVE, N.O.S.	
			0	V2		CV1 CV2 CV3 CV4	SI		0355 ARTICLES, EXPLOSIVE, N.O.S.	
			0	V2		CV1 CV2 CV3 CV4	SI		0356 ARTICLES, EXPLOSIVE, N.O.S.	
			0	V2		CV1 CV2 CV3 CV4	SI		0357 SUBSTANCES, EXPLOSIVE, N.O.S.	
			0	V2		CV1 CV2 CV3 CV4	SI		0358 SUBSTANCES, EXPLOSIVE, N.O.S.	
			0	V2		CV1 CV2 CV3 CV4	SI		0359 SUBSTANCES, EXPLOSIVE, N.O.S.	
			1	V2		CV1 CV2 CV3	SI		0360 DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting	
			2	V2		CV1 CV2 CV3	SI		0361 DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting	
			2	V2		CV1 CV2 CV3	SI		0362 AMMUNITION, PRACTICE	
			2	V2		CV1 CV2 CV3	SI		0363 AMMUNITION, PROOF	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
0364	DETONATORS FOR AMMUNITION	1	2.2B		1		LQ0	P133		MP23		
0365	DETONATORS FOR AMMUNITION	1	1.4B		1.4		LQ0	P133		MP23		
0366	DETONATORS FOR AMMUNITION	1	1.4S		1.4		LQ0	P133		MP23		
0367	FUZES, DETONATING	1	1.4S		1.4		LQ0	P141		MP23		
0368	FUZES, IGNITING	1	1.4S		1.4		LQ0	P141		MP23		
0369	WARHEADS, ROCKET with bursting charge	1	1.1F		1		LQ0	P130		MP23		
0370	WARHEADS, ROCKET with burster or expelling charge	1	1.4D		1.4		LQ0	P130 LP101	PP67 L1	MP21		
0371	WARHEADS, ROCKET with burster or expelling charge	1	1.4F		1.4		LQ0	P130		MP23		
0372	GRENADES, PRACTICE, hand or rifle	1	1.2G		1		LQ0	P141		MP23		
0373	SIGNAL DEVICES, HAND	1	1.4S		1.4		LQ0	P135		MP23 MP24		
0374	SOUNDING DEVICES, EXPLOSIVE	1	1.1D		1		LQ0	P134 LP102		MP21		
0375	SOUNDING DEVICES, EXPLOSIVE	1	1.2D		1		LQ0	P134 LP102		MP21		
0376	PRIMERS, TUBULAR	1	1.4S		1.4		LQ0	P133		MP23		
0377	PRIMERS, CAP TYPE	1	1.1B		1		LQ0	P133		MP23		
0378	PRIMERS, CAP TYPE	1	1.4B		1.4		LQ0	P133		MP23		
0379	CASES, CARTRIDGE, EMPTY, WITH PRIMER	1	1.4C		1.4		LQ0	P136		MP22		
0380	ARTICLES, PYROPHORIC	1	1.2L		1		LQ0	P101		MP1		
0381	CARTRIDGES, POWER DEVICE	1	1.2C		1		LQ0	P134 LP102		MP22		
0382	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.	1	1.2B		1	178 274	LQ0	P101		MP2		
0383	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.	1	1.4B		1.4	178 274	LQ0	P101		MP2		
0384	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.	1	1.4S		1.4	178 274	LQ0	P101		MP2		
0385	5-NITROBENZOTRIAZOL	1	1.1D		1		LQ0	P112(b) (c)		MP20		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
			1	V2		CV1 CV2 CV3	SI		0364	DETONATORS FOR AMMUNITION
			2	V2		CV1 CV2 CV3	SI		0365	DETONATORS FOR AMMUNITION
			4	V2		CV1 CV2 CV3	SI		0366	DETONATORS FOR AMMUNITION
			4	V2		CV1 CV2 CV3	SI		0367	FUZES, DETONATING
			4	V2		CV1 CV2 CV3	SI		0368	FUZES, IGNITING
			1	V2		CV1 CV2 CV3	SI		0369	WARHEADS, ROCKET with bursting charge
			2	V2		CV1 CV2 CV3	SI		0370	WARHEADS, ROCKET with burster or expelling charge
			2	V2		CV1 CV2 CV3	SI		0371	WARHEADS, ROCKET with burster or expelling charge
			1	V2		CV1 CV2 CV3	SI		0372	GRENADES, PRACTICE, hand or rifle
			4	V2		CV1 CV2 CV3	SI		0373	SIGNAL DEVICES, HAND
			1	V2		CV1 CV2 CV3	SI		0374	SOUNDING DEVICES, EXPLOSIVE
			1	V2		CV1 CV2 CV3	SI		0375	SOUNDING DEVICES, EXPLOSIVE
			4	V2		CV1 CV2 CV3	SI		0376	PRIMERS, TUBULAR
			1	V2		CV1 CV2 CV3	SI		0377	PRIMERS, CAP TYPE
			2	V2		CV1 CV2 CV3	SI		0378	PRIMERS, CAP TYPE
			2	V2		CV1 CV2 CV3	SI		0379	CASES, CARTRIDGE, EMPTY, WITH PRIMER
			0	V2		CV1 CV2 CV3 CV4	SI		0380	ARTICLES, PYROPHORIC
			1	V2		CV1 CV2 CV3	SI		0381	CARTRIDGES, POWER DEVICE
			1	V2		CV1 CV2 CV3	SI		0382	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
			2	V2		CV1 CV2 CV3	SI		0383	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
			4	V2		CV1 CV2 CV3	SI		0384	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
			1	V2 V3		CV1 CV2 CV3	SI		0385	5-NITROBENZOTRIAZOL

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
0386	TRINITROBENZENE-SULPHONIC ACID	1	1.1D		1		LQ0	P112(b)(c)	PP26	MP20		
0387	TRINITROFLUORENONE	1	1.1D		1		LQ0	P112(b)(c)		MP20		
0388	TRINITROTOLUENE (TNT) AND TRINITROBENZENE MIXTURE or TRINITROTOLUENE (TNT) AND HEXANITROSTILBENE MIXTURE	1	1.1D		1		LQ0	P112(b)(c)		MP20		
0389	TRINITROTOLUENE (TNT) MIXTURE CONTAINING TRINITROBENZENE AND HEXANITROSTILBENE	1	1.1D		1		LQ0	P112(b)(c)		MP20		
0390	TRITONAL	1	1.1D		1		LQ0	P112(b)(c)		MP20		
0391	CYCLOTRIMETHYLENE-TRINITRAMINE (CYCLONITE; HEXOGEN; RDX) AND CYCLOTETRAMETHYLENE TETRANITRAMINE (HMX; OCTOGEN) MIXTURE, WETTED with not less than 15% water, by mass or DESENSITIZED with not less than 10% phlegmatizer by mass	1	1.1D		1	266	LQ0	P112(a)(b)		MP20		
0392	HEXANITROSTILBENE	1	1.1D		1		LQ0	P112(b)(c)		MP20		
0393	HEXOTONAL	1	1.1D		1		LQ0	P112(b)		MP20		
0394	TRINITRORESORCINOL (STYPHNIC ACID), WETTED with not less than 20% water, or mixture of alcohol and water, by mass	1	1.1D		1		LQ0	P112(a)	PP26	MP20		
0395	ROCKET MOTORS, LIQUID FUELLED	1	1.2J		1		LQ0	P101		MP23		
0396	ROCKET MOTORS, LIQUID FUELLED	1	1.3J		1		LQ0	P101		MP23		
0397	ROCKETS, LIQUID FUELLED with bursting charge	1	1.1J		1		LQ0	P101		MP23		
0398	ROCKETS, LIQUID FUELLED with bursting charge	1	1.2J		1		LQ0	P101		MP23		
0399	BOMBS WITH FLAMMABLE LIQUID with bursting charge	1	1.1J		1		LQ0	P101		MP23		
0400	BOMBS WITH FLAMMABLE LIQUID with bursting charge	1	1.2J		1		LQ0	P101		MP23		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1)	3.1.2 (2)
			1	V2 V3		CV1 CV2 CV3	SI		0386	TRINITROBENZENE-SULPHONIC ACID
			1	V2 V3		CV1 CV2 CV3	SI		0387	TRINITROFLUORENONE
			1	V2 V3		CV1 CV2 CV3	SI		0388	TRINITROTOLUENE (TNT) AND TRINITROBENZENE MIXTURE or TRINITROTOLUENE (TNT) AND HEXANITROSTILBENE MIXTURE
			1	V2 V3		CV1 CV2 CV3	SI		0389	TRINITROTOLUENE (TNT) MIXTURE CONTAINING TRINITROBENZENE AND HEXANITROSTILBENE
			1	V2 V3		CV1 CV2 CV3	SI		0390	TRITONAL
			1	V2 V3		CV1 CV2 CV3	SI		0391	CYCLOTTRIMETHYLENE-TRINITRAMINE (CYCLONITE; HEXOGEN; RDX) AND CYCLOTETRAMETHYLENE TETRANITRAMINE (HMX; OCTOGEN) MIXTURE, WETTED with not less than 15% water, by mass or DESENSITIZED with not less than 10% phlegmatizer by mass
			1	V2 V3		CV1 CV2 CV3	SI		0392	HEXANITROSTILBENE
			1	V2 V3		CV1 CV2 CV3	SI		0393	HEXOTONAL
			1	V2		CV1 CV2 CV3	SI		0394	TRINITRORESORCINOL (STYPHNIC ACID), WETTED with not less than 20% water, or mixture of alcohol and water, by mass
			1	V2		CV1 CV2 CV3	SI		0395	ROCKET MOTORS, LIQUID FUELLED
			1	V2		CV1 CV2 CV3	SI		0396	ROCKET MOTORS, LIQUID FUELLED
			1	V2		CV1 CV2 CV3	SI		0397	ROCKETS, LIQUID FUELLED with bursting charge
			1	V2		CV1 CV2 CV3	SI		0398	ROCKETS, LIQUID FUELLED with bursting charge
			1	V2		CV1 CV2 CV3	SI		0399	BOMBS WITH FLAMMABLE LIQUID with bursting charge
			1	V2		CV1 CV2 CV3	SI		0400	BOMBS WITH FLAMMABLE LIQUID with bursting charge

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
0401	DIPICRYL SULPHIDE, dry or wetted with less than 10% water, by mass	1	1.1D		1		LQ0	P112		MP20		
0402	AMMONIUM PERCHLORATE	1	1.1D		1	152	LQ0	P112(b)(c)		MP20		
0403	FLARES, AERIAL	1	1.4G		1.4		LQ0	P135		MP23		
0404	FLARES, AERIAL	1	1.4S		1.4		LQ0	P135		MP23		
0405	CARTRIDGES, SIGNAL	1	1.4S		1.4		LQ0	P135		MP23 MP24		
0406	DINITROSOBENZENE	1	1.3C		1		LQ0	P114(b)		MP20		
0407	TETRAZOL-1-ACETIC ACID	1	1.4C		1.4		LQ0	P114(b)		MP20		
0408	FUZES, DETONATING with protective features	1	1.1D		1		LQ0	P141		MP21		
0409	FUZES, DETONATING with protective features	1	1.2D		1		LQ0	P141		MP21		
0410	FUZES, DETONATING with protective features	1	1.4D		1.4		LQ0	P141		MP21		
0411	PENTAERYTHRITATE TETRANITRATE (PENTAERYTHRITOL TETRANITRATE; PETN) with not less than 7% wax, by mass	1	1.1D		1	131	LQ0	P112(b)(c)		MP20		
0412	CARTRIDGES FOR WEAPONS with bursting charge	1	1.4E		1.4		LQ0	P130 LP101	PP67 L1	MP21		
0413	CARTRIDGES FOR WEAPONS, BLANK	1	1.2C		1		LQ0	P130		MP22		
0414	CHARGES, PROPELLING, FOR CANNON	1	1.2C		1		LQ0	P130		MP22		
0415	CHARGES, PROPELLING	1	1.2C		1		LQ0	P143	PP76	MP22		
0417	CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS	1	1.3C		1		LQ0	P130		MP22		
0418	FLARES, SURFACE	1	1.1G		1		LQ0	P135		MP23		
0419	FLARES, SURFACE	1	1.2G		1		LQ0	P135		MP23		
0420	FLARES, AERIAL	1	1.1G		1		LQ0	P135		MP23		
0421	FLARES, AERIAL	1	1.2G		1		LQ0	P135		MP23		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
			1	V2 V3		CV1 CV2 CV3	SI		0401 DIPICRYL SULPHIDE, dry or wetted with less than 10% water, by mass	
			1	V2 V3		CV1 CV2 CV3	SI		0402 AMMONIUM PERCHLORATE	
			2	V2		CV1 CV2 CV3	SI		0403 FLARES, AERIAL	
			4	V2		CV1 CV2 CV3	SI		0404 FLARES, AERIAL	
			4	V2		CV1 CV2 CV3	SI		0405 CARTRIDGES, SIGNAL	
			1	V2 V3		CV1 CV2 CV3	SI		0406 DINITROSOBENZENE	
			2	V2		CV1 CV2 CV3	SI		0407 TETRAZOL-1-ACETIC ACID	
			1	V2		CV1 CV2 CV3	SI		0408 FUZES, DETONATING with protective features	
			1	V2		CV1 CV2 CV3	SI		0409 FUZES, DETONATING with protective features	
			2	V2		CV1 CV2 CV3	SI		0410 FUZES, DETONATING with protective features	
			1	V2 V3		CV1 CV2 CV3	SI		0411 PENTAERYTHRITATE TETRANITRATE (PENTAERYTHRITOL TETRANITRATE; PETN) with not less than 7% wax, by mass	
			2	V2		CV1 CV2 CV3	SI		0412 CARTRIDGES FOR WEAPONS with bursting charge	
			1	V2		CV1 CV2 CV3	SI		0413 CARTRIDGES FOR WEAPONS, BLANK	
			1	V2		CV1 CV2 CV3	SI		0414 CHARGES, PROPELLING, FOR CANNON	
			1	V2		CV1 CV2 CV3	SI		0415 CHARGES, PROPELLING	
			1	V2		CV1 CV2 CV3	SI		0417 CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS	
			1	V2		CV1 CV2 CV3	SI		0418 FLARES, SURFACE	
			1	V2		CV1 CV2 CV3	SI		0419 FLARES, SURFACE	
			1	V2		CV1 CV2 CV3	SI		0420 FLARES, AERIAL	
			1	V2		CV1 CV2 CV3	SI		0421 FLARES, AERIAL	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
0424	PROJECTILES, inert with tracer	1	1.3G		1		LQ0	P130 LP101	PP67 L1	MP23		
0425	PROJECTILES, inert with tracer	1	1.4G		1.4		LQ0	P130 LP101	PP67 L1	MP23		
0426	PROJECTILES with burster or expelling charge	1	1.2F		1		LQ0	P130		MP23		
0427	PROJECTILES with burster or expelling charge	1	1.4F		1.4		LQ0	P130		MP23		
0428	ARTICLES, PYROTECHNIC for technical purposes	1	1.1G		1		LQ0	P135		MP23 MP24		
0429	ARTICLES, PYROTECHNIC for technical purposes	1	1.2G		1		LQ0	P135		MP23 MP24		
0430	ARTICLES, PYROTECHNIC for technical purposes	1	1.3G		1		LQ0	P135		MP23 MP24		
0431	ARTICLES, PYROTECHNIC for technical purposes	1	1.4G		1.4		LQ0	P135		MP23 MP24		
0432	ARTICLES, PYROTECHNIC for technical purposes	1	1.4S		1.4		LQ0	P135		MP23 MP24		
0433	POWDER CAKE (POWDER PASTE), WETTED with not less than 17% alcohol, by mass	1	1.1C		1	266	LQ0	P111		MP20		
0434	PROJECTILES with burster or expelling charge	1	1.2G		1		LQ0	P130 LP101	PP67 L1	MP23		
0435	PROJECTILES with burster or expelling charge	1	1.4G		1.4		LQ0	P130 LP101	PP67 L1	MP23		
0436	ROCKETS with expelling charge	1	1.2C		1		LQ0	P130 LP101	PP67 L1	MP22		
0437	ROCKETS with expelling charge	1	1.3C		1		LQ0	P130 LP101	PP67 L1	MP22		
0438	ROCKETS with expelling charge	1	1.4C		1.4		LQ0	P130 LP101	PP67 L1	MP22		
0439	CHARGES, SHAPED, without detonator	1	1.2D		1		LQ0	P137	PP70	MP21		
0440	CHARGES, SHAPED, without detonator	1	1.4D		1.4		LQ0	P137	PP70	MP21		
0441	CHARGES, SHAPED, without detonator	1	1.4S		1.4		LQ0	P137	PP70	MP23		
0442	CHARGES, EXPLOSIVE, COMMERCIAL without detonator	1	1.1D		1		LQ0	P137		MP21		
0443	CHARGES, EXPLOSIVE, COMMERCIAL without detonator	1	1.2D		1		LQ0	P137		MP21		
0444	CHARGES, EXPLOSIVE, COMMERCIAL without detonator	1	1.4D		1.4		LQ0	P137		MP21		
0445	CHARGES, EXPLOSIVE, COMMERCIAL without detonator	1	1.4S		1.4		LQ0	P137		MP23		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
			1	V2		CV1 CV2 CV3	.S1		0424	PROJECTILES, inert with tracer
			2	V2		CV1 CV2 CV3	S1		0425	PROJECTILES, inert with tracer
			1	V2		CV1 CV2 CV3	S1		0426	PROJECTILES with burster or expelling charge
			2	V2		CV1 CV2 CV3	S1		0427	PROJECTILES with burster or expelling charge
			1	V2		CV1 CV2 CV3	S1		0428	ARTICLES, PYROTECHNIC for technical purposes
			1	V2		CV1 CV2 CV3	S1		0429	ARTICLES, PYROTECHNIC for technical purposes
			1	V2		CV1 CV2 CV3	S1		0430	ARTICLES, PYROTECHNIC for technical purposes
			2	V2		CV1 CV2 CV3	S1		0431	ARTICLES, PYROTECHNIC for technical purposes
			4	V2		CV1 CV2 CV3	S1		0432	ARTICLES, PYROTECHNIC for technical purposes
			1	V2		CV1 CV2 CV3	S1		0433	POWDER CAKE (POWDER PASTE), WETTED with not less than 17% alcohol, by mass
			1	V2		CV1 CV2 CV3	S1		0434	PROJECTILES with burster or expelling charge
			2	V2		CV1 CV2 CV3	S1		0435	PROJECTILES with burster or expelling charge
			1	V2		CV1 CV2 CV3	S1		0436	ROCKETS with expelling charge
			1	V2		CV1 CV2 CV3	S1		0437	ROCKETS with expelling charge
			2	V2		CV1 CV2 CV3	S1		0438	ROCKETS with expelling charge
			1	V2		CV1 CV2 CV3	S1		0439	CHARGES, SHAPED, without detonator
			2	V2		CV1 CV2 CV3	S1		0440	CHARGES, SHAPED, without detonator
			4	V2		CV1 CV2 CV3	S1		0441	CHARGES, SHAPED, without detonator
			1	V2		CV1 CV2 CV3	S1		0442	CHARGES, EXPLOSIVE, COMMERCIAL without detonator
			1	V2		CV1 CV2 CV3	S1		0443	CHARGES, EXPLOSIVE, COMMERCIAL without detonator
			2	V2		CV1 CV2 CV3	S1		0444	CHARGES, EXPLOSIVE, COMMERCIAL without detonator
			4	V2		CV1 CV2 CV3	S1		0445	CHARGES, EXPLOSIVE, COMMERCIAL without detonator

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
0446	CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER	1	1.4C		1.4		LQ0	P136		MP22		
0447	CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER	1	1.3C		1		LQ0	P136		MP22		
0448	5-MERCAPTOTETRAZOL-1-ACETIC ACID	1	1.4C		1.4		LQ0	P114(b)		MP20		
0449	TORPEDOES, LIQUID FUELLED with or without bursting charge	1	1.1J		1		LQ0	P101		MP23		
0450	TORPEDOES, LIQUID FUELLED with inert head	1	1.3J		1		LQ0	P101		MP23		
0451	TORPEDOES with bursting charge	1	1.1D		1		LQ0	P130 LP101	PP67 L1	MP21		
0452	GRENADES, PRACTICE, hand or rifle	1	1.4G		1.4		LQ0	P141		MP23		
0453	ROCKETS, LINE-THROWING	1	1.4G		1.4		LQ0	P130		MP23		
0454	IGNITERS	1	1.4S		1.4		LQ0	P142		MP23		
0455	DETONATORS, NON-ELECTRIC for blasting	1	1.4S		1.4		LQ0	P131	PP68	MP23		
0456	DETONATORS, ELECTRIC for blasting	1	1.4S		1.4		LQ0	P131		MP23		
0457	CHARGES, BURSTING, PLASTICS BONDED	1	1.1D		1		LQ0	P130		MP21		
0458	CHARGES, BURSTING, PLASTICS BONDED	1	1.2D		1		LQ0	P130		MP21		
0459	CHARGES, BURSTING, PLASTICS BONDED	1	1.4D		1.4		LQ0	P130		MP21		
0460	CHARGES, BURSTING, PLASTICS BONDED	1	1.4S		1.4		LQ0	P130		MP23		
0461	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.	1	1.1B		1	178 274	LQ0	P101		MP2		
0462	ARTICLES, EXPLOSIVE, N.O.S.	1	1.1C		1	178 274	LQ0	P101		MP2		
0463	ARTICLES, EXPLOSIVE, N.O.S.	1	1.1D		1	178 274	LQ0	P101		MP2		
0464	ARTICLES, EXPLOSIVE, N.O.S.	1	1.1E		1	178 274	LQ0	P101		MP2		
0465	ARTICLES, EXPLOSIVE, N.O.S.	1	1.1F		1	178 274	LQ0	P101		MP2		
0466	ARTICLES, EXPLOSIVE, N.O.S.	1	1.2C		1	178 274	LQ0	P101		MP2		
0467	ARTICLES, EXPLOSIVE, N.O.S.	1	1.2D		1	178 274	LQ0	P101		MP2		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
			2	V2		CV1 CV2 CV3	SI		0446	CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER
			1	V2		CV1 CV2 CV3	SI		0447	CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER
			2	V2		CV1 CV2 CV3	SI		0448	5-MERCAPTOTETRAZOL-1-ACETIC ACID
			1	V2		CV1 CV2 CV3	SI		0449	TORPEDOES, LIQUID FUELLED with or without bursting charge
			1	V2		CV1 CV2 CV3	SI		0450	TORPEDOES, LIQUID FUELLED with inert head
			1	V2		CV1 CV2 CV3	SI		0451	TORPEDOES with bursting charge
			2	V2		CV1 CV2 CV3	SI		0452	GRENADES, PRACTICE, hand or rifle
			2	V2		CV1 CV2 CV3	SI		0453	ROCKETS, LINE-THROWING
			4	V2		CV1 CV2 CV3	SI		0454	IGNITERS
			4	V2		CV1 CV2 CV3	SI		0455	DETONATORS, NON-ELECTRIC for blasting
			4	V2		CV1 CV2 CV3	SI		0456	DETONATORS, ELECTRIC for blasting
			1	V2		CV1 CV2 CV3	SI		0457	CHARGES, BURSTING, PLASTICS BONDED
			1	V2		CV1 CV2 CV3	SI		0458	CHARGES, BURSTING, PLASTICS BONDED
			2	V2		CV1 CV2 CV3	SI		0459	CHARGES, BURSTING, PLASTICS BONDED
			4	V2		CV1 CV2 CV3	SI		0460	CHARGES, BURSTING, PLASTICS BONDED
			1	V2		CV1 CV2 CV3	SI		0461	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
			1	V2		CV1 CV2 CV3	SI		0462	ARTICLES, EXPLOSIVE, N.O.S.
			1	V2		CV1 CV2 CV3	SI		0463	ARTICLES, EXPLOSIVE, N.O.S.
			1	V2		CV1 CV2 CV3	SI		0464	ARTICLES, EXPLOSIVE, N.O.S.
			1	V2		CV1 CV2 CV3	SI		0465	ARTICLES, EXPLOSIVE, N.O.S.
			1	V2		CV1 CV2 CV3	SI		0466	ARTICLES, EXPLOSIVE, N.O.S.
			1	V2		CV1 CV2 CV3	SI		0467	ARTICLES, EXPLOSIVE, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
0468	ARTICLES, EXPLOSIVE, N.O.S.	1	1.2E		1	178 274	LQ0	P101		MP2		
0469	ARTICLES, EXPLOSIVE, N.O.S.	1	1.2F		1	178 274	LQ0	P101		MP2		
0470	ARTICLES, EXPLOSIVE, N.O.S.	1	1.3C		1	178 274	LQ0	P101		MP2		
0471	ARTICLES, EXPLOSIVE, N.O.S.	1	1.4E		1.4	178 274	LQ0	P101		MP2		
0472	ARTICLES, EXPLOSIVE, N.O.S.	1	1.4F		1.4	178 274	LQ0	P101		MP2		
0473	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.1A		1	178 274	LQ0	P101		MP2		
0474	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.1C		1	178 274	LQ0	P101		MP2		
0475	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.1D		1	178 274	LQ0	P101		MP2		
0476	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.1G		1	178 274	LQ0	P101		MP2		
0477	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.3C		1	178 274	LQ0	P101		MP2		
0478	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.3G		1	178 274	LQ0	P101		MP2		
0479	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.4C		1.4	178 274	LQ0	P101		MP2		
0480	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.4D		1.4	178 274	LQ0	P101		MP2		
0481	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.4S		1.4	178 274	LQ0	P101		MP2		
0482	SUBSTANCES, EXPLOSIVE, VERY INSENSITIVE (SUBSTANCES, EVI), N.O.S.	1	1.5D		1.5	178 274	LQ0	P101		MP2		
0483	CYCLOTTRIMETHYLENE-TRINITRAMINE (CYCLONITE; HEXOGEN; RDX), DESENSITIZED	1	1.1D		1		LQ0	P112(b) (c)		MP20		
0484	CYCLOTETRAMETHYLENE TETRANITRAMINE (HMX; OCTOGEN), DESENSITIZED	1	1.1D		1		LQ0	P112(b) (c)		MP20		
0485	SUBSTANCES, EXPLOSIVE, N.O.S.	1	1.4G		1.4	178 274	LQ0	P101		MP2		
0486	ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES, EEI)	1	1.6N		1.6		LQ0	P101		MP23		
0487	SIGNALS, SMOKE	1	1.3G		1		LQ0	P135		MP23		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
			1	V2		CV1 CV2 CV3	SI		0468	ARTICLES, EXPLOSIVE, N.O.S.
			1	V2		CV1 CV2 CV3	SI		0469	ARTICLES, EXPLOSIVE, N.O.S.
			1	V2		CV1 CV2 CV3	SI		0470	ARTICLES, EXPLOSIVE, N.O.S.
			2	V2		CV1 CV2 CV3	SI		0471	ARTICLES, EXPLOSIVE, N.O.S.
			2	V2		CV1 CV2 CV3	SI		0472	ARTICLES, EXPLOSIVE, N.O.S.
			0	V2		CV1 CV2 CV3	SI		0473	SUBSTANCES, EXPLOSIVE, N.O.S.
			1	V2 V3		CV1 CV2 CV3	SI		0474	SUBSTANCES, EXPLOSIVE, N.O.S.
			1	V2 V3		CV1 CV2 CV3	SI		0475	SUBSTANCES, EXPLOSIVE, N.O.S.
			1	V2 V3		CV1 CV2 CV3	SI		0476	SUBSTANCES, EXPLOSIVE, N.O.S.
			1	V2 V3		CV1 CV2 CV3	SI		0477	SUBSTANCES, EXPLOSIVE, N.O.S.
			1	V2 V3		CV1 CV2 CV3	SI		0478	SUBSTANCES, EXPLOSIVE, N.O.S.
			2	V2		CV1 CV2 CV3	SI		0479	SUBSTANCES, EXPLOSIVE, N.O.S.
			2	V2		CV1 CV2 CV3	SI		0480	SUBSTANCES, EXPLOSIVE, N.O.S.
			4	V2		CV1 CV2 CV3	SI		0481	SUBSTANCES, EXPLOSIVE, N.O.S.
			1	V2		CV1 CV2 CV3	SI		0482	SUBSTANCES, EXPLOSIVE, VERY INSENSITIVE (SUBSTANCES, EVI), N.O.S.
			1	V2 V3		CV1 CV2 CV3	SI		0483	CYCLOTTRIMETHYLENE-TRINITRAMINE (CYCLONITE; HEXOGEN; RDX), DESENSITIZED
			1	V2 V3		CV1 CV2 CV3	SI		0484	CYCLOTETRAMETHYLENE TETRANITRAMINE (HMX; OCTOGEN), DESENSITIZED
			2	V2 V3		CV1 CV2 CV3	SI		0485	SUBSTANCES, EXPLOSIVE, N.O.S.
			2	V2		CV1 CV2 CV3	SI		0486	ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES, EEI)
			1	V2		CV1 CV2 CV3	SI		0487	SIGNALS, SMOKE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
0488	AMMUNITION, PRACTICE	1	1.3G		1		LQ0	P130 LP101	PP67 LI	MP23		
0489	DINITROGLYCOLURIL (DINGU)	1	1.1D		1		LQ0	P112(b) (c)		MP20		
0490	NITROTRIAZOLONE (NTO)	1	1.1D		1		LQ0	P112(b) (c)		MP20		
0491	CHARGES, PROPELLING	1	1.4C		1.4		LQ0	P143	PP76	MP22		
0492	SIGNALS, RAILWAY TRACK, EXPLOSIVE	1	1.3G		1		LQ0	P135		MP23		
0493	SIGNALS, RAILWAY TRACK, EXPLOSIVE	1	1.4G		1.4		LQ0	P135		MP23		
0494	JET PERFORATING GUNS, CHARGED, oil well, without detonator	1	1.4D		1.4		LQ0	P101		MP21		
0495	PROPELLANT, LIQUID	1	1.3C		1	224	LQ0	P115	PP53 PP54 PP57 PP58	MP20		
0496	OCTONAL	1	1.1D		1		LQ0	P112(b) (c)		MP20		
0497	PROPELLANT, LIQUID	1	1.1C		1	224	LQ0	P115	PP53 PP54 PP57 PP58	MP20		
0498	PROPELLANT, SOLID	1	1.1C		1		LQ0	P114(b)		MP20		
0499	PROPELLANT, SOLID	1	1.3C		1		LQ0	P114(b)		MP20		
0500	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting	1	1.4S		1.4		LQ0	P131		MP23		
0501	PROPELLANT, SOLID	1	1.4C		1.4		LQ0	P114(b)		MP20		
0502	ROCKETS with inert head	1	1.2C		1		LQ0	P130 LP101	PP67 LI	MP22		
0503	AIR BAG INFLATORS or AIR BAG MODULES or SEAT-BELT PRETENSIONERS	1	1.4G		1.4	235 289	LQ0	P135		MP23		
0504	1H-TETRAZOLE	1	1.1D		1		LQ0	P112(c)	PP48	MP20		
1001	ACETYLENE, DISSOLVED	2	4F		2.1		LQ0	P200		MP9		
1002	AIR, COMPRESSED	2	1A		2.2	292	LQ1	P200		MP9		
1003	AIR, REFRIGERATED LIQUID	2	3O		2.2 +5.1		LQ0	P203		MP9	T75	TP22
1005	AMMONIA, ANHYDROUS	2	2TC		2.3 +8	23	LQ0	P200		MP9	T50	
1006	ARGON, COMPRESSED	2	1A		2.2		LQ1	P200		MP9		
1008	BORON TRIFLUORIDE	2	2TC		2.3 +8		LQ0	P200		MP9		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (1) (2)	
			1	V2		CV1 CV2 CV3	SI		0488	AMMUNITION, PRACTICE
			1	V2 V3		CV1 CV2 CV3	SI		0489	DINITROGLYCOURIL (DINGU)
			1	V2 V3		CV1 CV2 CV3	SI		0490	NITROTRIAZOLONE (NTO)
			2	V2		CV1 CV2 CV3	SI		0491	CHARGES, PROPELLING
			1	V2		CV1 CV2 CV3	SI		0492	SIGNALS, RAILWAY TRACK, EXPLOSIVE
			2	V2		CV1 CV2 CV3	SI		0493	SIGNALS, RAILWAY TRACK, EXPLOSIVE
			2	V2		CV1 CV2 CV3	SI		0494	JET PERFORATING GUNS, CHARGED, oil well, without detonator
			1	V2		CV1 CV2 CV3	SI		0495	PROPELLANT, LIQUID
			1	V2 V3		CV1 CV2 CV3	SI		0496	OCTONAL
			1	V2		CV1 CV2 CV3	SI		0497	PROPELLANT, LIQUID
			1	V2		CV1 CV2 CV3	SI		0498	PROPELLANT, SOLID
			1	V2		CV1 CV2 CV3	SI		0499	PROPELLANT, SOLID
			4	V2		CV1 CV2 CV3	SI		0500	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting
			2	V2		CV1 CV2 CV3	SI		0501	PROPELLANT, SOLID
			1	V2		CV1 CV2 CV3	SI		0502	ROCKETS with inert head
			2	V2		CV1 CV2 CV3	SI		0503	AIR BAG INFLATORS or AIR BAG MODULES or SEAT-BELT PRETENSIONERS
			1	V2 V3		CV1 CV2 CV3	SI		0504	1H-TETRAZOLE
PxBN	TU17	FL	2	V7		CV9 CV10	S2	239	1001	ACETYLENE, DISSOLVED
CxBN(M)		AT	3			CV9 CV10		20	1002	AIR, COMPRESSED
RxBN	TU7 TU19	AT	3	V5 V7		CV9 CV11	S20	225	1003	AIR, REFRIGERATED LIQUID
PxBH(M)	TEI	AT	1	V7		CV9 CV10	S7 S17	268	1005	AMMONIA, ANHYDROUS
CxBN(M)		AT	3	V7		CV9 CV10		20	1006	ARGON, COMPRESSED
PxBH(M)	TEI	AT	1	V7		CV9 CV10	S7 S17	268	1008	BORON TRIFLUORIDE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1009	BROMOTRIFLUOROMETHANE (REFRIGERANT GAS R 13B1)	2	2A		2.2		LQ1	P200		MP9	T50	
1010	1,2-BUTADIENE, STABILIZED or 1,3-BUTADIENE, STABILIZED or MIXTURES OF 1,3-BUTADIENE AND HYDROCARBONS, STABILIZED, having a vapour pressure at 70 °C not exceeding 1.1 Mpa (11 bar) and a density at 50 °C not lower than 0.525 kg/l	2	2F		2.1	618	LQ0	P200		MP9	T50	
1011	BUTANE	2	2F		2.1		LQ0	P200		MP9	T50	
1012	BUTYLENES MIXTURE or 1-BUTYLENE or CIS-2-BUTYLENE or TRANS-2-BUTYLENE	2	2F		2.1		LQ0	P200		MP9	T50	
1013	CARBON DIOXIDE	2	2A		2.2	584	LQ1	P200		MP9		
1014	CARBON DIOXIDE AND OXYGEN MIXTURE, COMPRESSED	2	10		2.2 +5.1		LQ0	P200		MP9		
1015	CARBON DIOXIDE AND NITROUS OXIDE MIXTURE	2	2A		2.2		LQ1	P200		MP9		
1016	CARBON MONOXIDE, COMPRESSED	2	1TF		2.3 +2.1		LQ0	P200		MP9		
1017	CHLORINE	2	2TC		2.3 +8		LQ0	P200		MP9	T50	TP19
1018	CHLORODIFLUOROMETHANE (REFRIGERANT GAS R 22)	2	2A		2.2		LQ1	P200		MP9	T50	
1020	CHLOROPENTAFLUOROETHANE (REFRIGERANT GAS R 115)	2	2A		2.2		LQ1	P200		MP9	T50	
1021	1-CHLORO-1,2,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 124)	2	2A		2.2		LQ1	P200		MP9	T50	
1022	CHLOROTRIFLUOROMETHANE (REFRIGERANT GAS R 13)	2	2A		2.2		LQ1	P200		MP9		
1023	COAL GAS, COMPRESSED	2	1TF		2.3 +2.1		LQ0	P200		MP9		
1026	CYANOGEN	2	2TF		2.3 +2.1		LQ0	P200		MP9		
1027	CYCLOPROPANE	2	2F		2.1		LQ0	P200		MP9	T50	
1028	DICHLORODIFLUOROMETHANE (REFRIGERANT GAS R 12)	2	2A		2.2		LQ1	P200		MP9	T50	
1029	DICHLOROFLUOROMETHANE (REFRIGERANT GAS R 21)	2	2A		2.2		LQ1	P200		MP9	T50	
1030	1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)	2	2F		2.1		LQ0	P200		MP9	T50	
1032	DIMETHYLAMINE, ANHYDROUS	2	2F		2.1		LQ0	P200		MP9	T50	
1033	DIMETHYL ETHER	2	2F		2.1		LQ0	P200		MP9	T50	

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	
PxBN(M)		AT	3	V7		CV9 CV10		20	1009	BROMOTRIFLUOROMETHANE (REFRIGERANT GAS R 13B1)
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	239	1010	1,2-BUTADIENE, STABILIZED or 1,3-BUTADIENE, STABILIZED or MIXTURES OF 1,3-BUTADIENE AND HYDROCARBONS, STABILIZED, having a vapour pressure at 70 °C not exceeding 1.1 Mpa (11 bar) and a density at 50 °C not lower than 0.525 kg/l
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1011	BUTANE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1012	BUTYLENES MIXTURE or 1-BUTYLENE or CIS-2-BUTYLENE or TRANS-2-BUTYLENE
PxBN(M)		AT	3	V7		CV9 CV10		20	1013	CARBON DIOXIDE
CxBN(M)		AT	3	V7		CV9 CV10		25	1014	CARBON DIOXIDE AND OXYGEN MIXTURE, COMPRESSED
PxBN(M)		AT	3	V7		CV9 CV10		20	1015	CARBON DIOXIDE AND NITROUS OXIDE MIXTURE
CxBH(M)	TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	1016	CARBON MONOXIDE, COMPRESSED
P22DH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	268	1017	CHLORINE
PxBN(M)		AT	3	V7		CV9 CV10		20	1018	CHLORODIFLUOROMETHANE (REFRIGERANT GAS R 22)
PxBN(M)		AT	3	V7		CV9 CV10		20	1020	CHLOROPENTAFLUOROETHANE (REFRIGERANT GAS R 115)
PxBN(M)		AT	3	V7		CV9 CV10		20	1021	1-CHLORO-1,2,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 124)
PxBN(M)		AT	3	V7		CV9 CV10		20	1022	CHLOROTRIFLUOROMETHANE (REFRIGERANT GAS R 13)
CxBH(M)	TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	1023	COAL GAS, COMPRESSED
PxBH(M)	TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	1026	CYANOGEN
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1027	CYCLOPROPANE
PxBN(M)		AT	3	V7		CV9 CV10		20	1028	DICHLORODIFLUOROMETHANE (REFRIGERANT GAS R 12)
PxBN(M)		AT	3	V7		CV9 CV10		20	1029	DICHLOROFLUOROMETHANE (REFRIGERANT GAS R 21)
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1030	1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1032	DIMETHYLAMINE, ANHYDROUS
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1033	DIMETHYL ETHER

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1035	ETHANE	2	2F		2.1		LQ0	P200		MP9		
1036	ETHYLAMINE	2	2F		2.1		LQ0	P200		MP9	T50	
1037	ETHYL CHLORIDE	2	2F		2.1		LQ0	P200		MP9	T50	
1038	ETHYLENE, REFRIGERATED LIQUID	2	3F		2.1		LQ0	P203		MP9	T75	
1039	ETHYL METHYL ETHER	2	2F		2.1		LQ0	P200		MP9		
1040	ETHYLENE OXIDE	2	2TF		2.3 +2.1		LQ0	P200		MP9		
1040	ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1 MPa (10 bar) at 50 °C	2	2TF		2.3 +2.1		LQ0	P200		MP9	T50	TP20
1041	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 9% but not more than 87% ethylene oxide	2	2F		2.1		LQ0	P200		MP9	T50	
1043	FERTILIZER AMMONIATING SOLUTION with free ammonia	2	2A		2.2	642		P200				
1044	FIRE EXTINGUISHERS with compressed or liquefied gas	2	6A		2.2	225 594	LQ0	P003		MP9		
1045	FLUORINE, COMPRESSED	2	1TOC		2.3 +5.1 +8		LQ0	P200		MP9		
1046	HELIUM, COMPRESSED	2	1A		2.2		LQ1	P200		MP9		
1048	HYDROGEN BROMIDE, ANHYDROUS	2	2TC		2.3 +8		LQ0	P200		MP9		
1049	HYDROGEN, COMPRESSED	2	1F		2.1		LQ0	P200		MP9		
1050	HYDROGEN CHLORIDE, ANHYDROUS	2	2TC		2.3 +8		LQ0	P200		MP9		
1051	HYDROGEN CYANIDE, STABILIZED containing less than 3% water	6.1	TF1	I	6.1 +3	603	LQ0	P200		MP2		
1052	HYDROGEN FLUORIDE, ANHYDROUS	8	CT1	I	8 +6.1		LQ0	P200		MP2	T10	TP2
1053	HYDROGEN SULPHIDE	2	2TF		2.3 +2.1		LQ0	P200		MP9		
1055	ISOBUTYLENE	2	2F		2.1		LQ0	P200		MP9	T50	
1056	KRYPTON, COMPRESSED	2	1A		2.2		LQ1	P200		MP9		
1057	LIGHTERS or LIGHTER REFILLS containing flammable gas	2	6F		2.1		LQ0	P205		MP9		
1058	LIQUEFIED GASES, non-flammable, charged with nitrogen, carbon dioxide or air	2	2A		2.2		LQ1	P200		MP9		
1060	METHYLACETYLENE AND PROPADIENE MIXTURE, STABILIZED such as mixture P1 or mixture P2	2	2F		2.1	581	LQ0	P200		MP9	T50	
1061	METHYLAMINE, ANHYDROUS	2	2F		2.1		LQ0	P200		MP9	T50	

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1035	ETHANE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1036	ETHYLAMINE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1037	ETHYL CHLORIDE
RxBN	TU18	FL	2	V5 V7		CV9 CV11	S2 S17	223	1038	ETHYLENE, REFRIGERATED LIQUID
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1039	ETHYL METHYL ETHER
			1	V7		CV9 CV10	S2 S7 S17		1040	ETHYLENE OXIDE
PxBH(M)	TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	1040	ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1 MPa (10 bar) at 50 °C
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	239	1041	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 9% but not more than 87% ethylene oxide
									1043	FERTILIZER AMMONIATING SOLUTION with free ammonia
			3			CV9			1044	FIRE EXTINGUISHERS with compressed or liquefied gas
			1	V7		CV9 CV10	S7 S17		1045	FLUORINE, COMPRESSED
CxBN(M)		AT	3	V7		CV9 CV10		20	1046	HELIUM, COMPRESSED
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	268	1048	HYDROGEN BROMIDE, ANHYDROUS
CxBN(M)		FL	2	V7		CV9 CV10	S2	23	1049	HYDROGEN, COMPRESSED
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	268	1050	HYDROGEN CHLORIDE, ANHYDROUS
			0			CV1 CV13 CV28	S2 S9 S10 S17		1051	HYDROGEN CYANIDE, STABILIZED containing less than 3% water
L21DH(+)	TU14 TU34 TC1 TE1 TE21 TM3 TM5	AT	1			CV13 CV28	S17	886	1052	HYDROGEN FLUORIDE, ANHYDROUS
PxDH(M)	TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	1053	HYDROGEN SULPHIDE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1055	ISOBUTYLENE
CxBN(M)		AT	3	V7		CV9 CV10		20	1056	KRYPTON, COMPRESSED
			2			CV9	S2		1057	LIGHTERS or LIGHTER REFILLS containing flammable gas
PxBN(M)		AT	3	V7		CV9 CV10		20	1058	LIQUEFIED GASES, non-flammable, charged with nitrogen, carbon dioxide or air
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	239	1060	METHYLACETYLENE AND PROPADIENE MIXTURE, STABILIZED such as mixture P1 or mixture P2
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1061	METHYLAMINE, ANHYDROUS

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1062	METHYL BROMIDE with not more than 2% chloropicrin	2	2T		2.3	23	LQ0	P200		MP9	T50	
1063	METHYL CHLORIDE (REFRIGERANT GAS R 40)	2	2F		2.1		LQ0	P200		MP9	T50	
1064	METHYL MERCAPTAN	2	2TF		2.3 +2.1		LQ0	P200		MP9	T50	
1065	NEON, COMPRESSED	2	1A		2.2		LQ1	P200		MP9		
1066	NITROGEN, COMPRESSED	2	1A		2.2		LQ1	P200		MP9		
1067	DINITROGEN TETROXIDE (NITROGEN DIOXIDE)	2	2TOC		2.3 +5.1 +8		LQ0	P200		MP9	T50	TP21
1069	NITROSYL CHLORIDE	2	2TC		2.3 +8		LQ0	P200		MP9		
1070	NITROUS OXIDE	2	2O		2.2 +5.1	584	LQ0	P200		MP9		
1071	OIL GAS, COMPRESSED	2	1TF		2.3 +2.1		LQ0	P200		MP9		
1072	OXYGEN, COMPRESSED	2	1O		2.2 +5.1		LQ0	P200		MP9		
1073	OXYGEN, REFRIGERATED LIQUID	2	3O		2.2 +5.1		LQ0	P203		MP9	T75	TP22
1075	PETROLEUM GASES, LIQUEFIED	2	2F		2.1	274 583 639	LQ0	P200		MP9	T50	
1076	PHOSGENE	2	2TC		2.3 +8		LQ0	P200		MP9		
1077	PROPYLENE	2	2F		2.1		LQ0	P200		MP9	T50	
1078	REFRIGERANT GAS, N.O.S., such as mixture F1, mixture F2 or mixture F3	2	2A		2.2	274 582	LQ1	P200		MP9	T50	
1079	SULPHUR DIOXIDE	2	2TC		2.3 +8		LQ0	P200		MP9	T50	TP19
1080	SULPHUR HEXAFLUORIDE	2	2A		2.2		LQ1	P200		MP9		
1081	TETRAFLUOROETHYLENE, STABILIZED	2	2F		2.1		LQ0	P200		MP9		
1082	TRIFLUOROCHLOROETHYLENE, STABILIZED	2	2TF		2.3 +2.1		LQ0	P200		MP9	T50	
1083	TRIMETHYLAMINE, ANHYDROUS	2	2F		2.1		LQ0	P200		MP9	T50	
1085	VINYL BROMIDE, STABILIZED	2	2F		2.1		LQ0	P200		MP9	T50	
1086	VINYL CHLORIDE, STABILIZED	2	2F		2.1		LQ0	P200		MP9	T50	
1087	VINYL METHYL ETHER, STABILIZED	2	2F		2.1		LQ0	P200		MP9	T50	
1088	ACETAL	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1089	ACETALDEHYDE	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2 TP7
1090	ACETONE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1091	ACETONE OILS	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1 TP8
1092	ACROLEIN, STABILIZED	6.1	TF1	I	6.1 +3		LQ0	P601 PR3		MP8 MP17	T14	TP2 TP7 TP13
1093	ACRYLONITRILE, STABILIZED	3	FT1	I	3 +6.1		LQ0	P001		MP7 MP17	T14	TP2 TP13

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	26	1062	METHYL BROMIDE with not more than 2% chloropicrin
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1063	METHYL CHLORIDE (REFRIGERANT GAS R 40)
PxDH(M)	TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	1064	METHYL MERCAPTAN
CxBN(M)		AT	3	V7		CV9 CV10		20	1065	NEON, COMPRESSED
CxBN(M)		AT	3	V7		CV9 CV10		20	1066	NITROGEN, COMPRESSED
PxBH	TU17 TE1	AT	1	V7		CV9 CV10	S7 S17	265	1067	DINITROGEN TETROXIDE (NITROGEN DIOXIDE)
			1	V7		CV9 CV10	S7 S17		1069	NITROSYL CHLORIDE
PxBN(M)		AT	3	V7		CV9 CV10		25	1070	NITROUS OXIDE
CxBH(M)	TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	1071	OIL GAS, COMPRESSED
CxBN(M)		AT	3	V7		CV9 CV10		25	1072	OXYGEN, COMPRESSED
RxBN	TU7 TU19	AT	3	V5 V7		CV9 CV11	S20	225	1073	OXYGEN, REFRIGERATED LIQUID
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1075	PETROLEUM GASES, LIQUEFIED
P22DH	TU17 TE1	AT	1	V7		CV9 CV10	S7 S17	268	1076	PHOSGENE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1077	PROPYLENE
PxBN(M)		AT	3	V7		CV9 CV10		20	1078	REFRIGERANT GAS, N.O.S., such as mixture F1, mixture F2 or mixture F3
PxDH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	268	1079	SULPHUR DIOXIDE
PxBN(M)		AT	3	V7		CV9 CV10		20	1080	SULPHUR HEXAFLUORIDE
			2	V7		CV9 CV10	S2 S20		1081	TETRAFLUOROETHYLENE, STABILIZED
PxBH(M)	TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	1082	TRIFLUOROCHLOROETHYLENE, STABILIZED
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1083	TRIMETHYLAMINE, ANHYDROUS
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	239	1085	VINYL BROMIDE, STABILIZED
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	239	1086	VINYL CHLORIDE, STABILIZED
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	239	1087	VINYL METHYL ETHER, STABILIZED
LGBF		FL	2				S2 S20	33	1088	ACETAL
L4BN	TU8	FL	1				S2 S20	33	1089	ACETALDEHYDE
LGBF		FL	2				S2 S20	33	1090	ACETONE
LGBF		FL	2				S2 S20	33	1091	ACETONE OILS
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1092	ACROLEIN, STABILIZED
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	1093	ACRYLONITRILE, STABILIZED

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1098	ALLYL ALCOHOL	6.1	TF1	I	6.1 +3		LQ0	P602		MP8 MP17	T14	TP2,TP13
1099	ALLYL BROMIDE	3	FT1	I	3 +6.1		LQ0	P001		MP7 MP17	T14	TP2 TP13
1100	ALLYL CHLORIDE	3	FT1	I	3 +6.1		LQ0	P001		MP7 MP17	T14	TP2 TP13
1104	AMYL ACETATES	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1105	PENTANOLS	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1 TP29
1105	PENTANOLS	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1106	AMYLAMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
1106	AMYLAMINE	3	FC	III	3 +8		LQ7	P001 IBC03 R001		MP19	T4	TP1
1107	AMYL CHLORIDE	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1108	1-PENTENE (n-AMYLENE)	3	FI	I	3		LQ3	P001		MP7 MP17	T11	TP2
1109	AMYL FORMATES	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1110	n-AMYL METHYL KETONE	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1111	AMYL MERCAPTAN	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1112	AMYL NITRATE	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1113	AMYL NITRITE	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1114	BENZENE	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1120	BUTANOLS	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1 TP29
1120	BUTANOLS	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1123	BUTYL ACETATES	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1123	BUTYL ACETATES	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1125	n-BUTYLAMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1098	ALLYL ALCOHOL
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	1099	ALLYL BROMIDE
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	1100	ALLYL CHLORIDE
LGBF		FL	3				S2	30	1104	AMYL ACETATES
LGBF		FL	2				S2 S20	33	1105	PENTANOLS
LGBF		FL	3				S2	30	1105	PENTANOLS
L4BH	TE1 TE15	FL	2				S2 S20	338	1106	AMYLAMINE
L4BN		FL	3				S2	38	1106	AMYLAMINE
LGBF		FL	2				S2 S20	33	1107	AMYL CHLORIDE
L4BN		FL	1				S2 S20	33	1108	I-PENTENE (n-AMYLENE)
LGBF		FL	3				S2	30	1109	AMYL FORMATES
LGBF		FL	3				S2	30	1110	n-AMYL METHYL KETONE
LGBF		FL	2				S2 S20	33	1111	AMYL MERCAPTAN
LGBF		FL	3				S2	30	1112	AMYL NITRATE
LGBF		FL	2				S2 S20	33	1113	AMYL NITRITE
LGBF		FL	2				S2 S20	33	1114	BENZENE
LGBF		FL	2				S2 S20	33	1120	BUTANOLS
LGBF		FL	3				S2	30	1120	BUTANOLS
LGBF		FL	2				S2 S20	33	1123	BUTYL ACETATES
LGBF		FL	3				S2	30	1123	BUTYL ACETATES
L4BH	TE1 TE15	FL	2				S2 S20	338	1125	n-BUTYLAMINE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Fixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1126	1-BROMOBUTANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1127	CHLOROBUTANES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1128	n-BUTYL FORMATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1129	BUTYRALDEHYDE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1130	CAMPHOR OIL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1131	CARBON DISULPHIDE	3	FT1	I	3 +6.1		LQ0	P001	PP31	MP7 MP17	T14	TP2 TP7 TP13
1133	ADHESIVES containing flammable liquid (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	640A	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP27
1133	ADHESIVES containing flammable liquid (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	640B	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP27
1133	ADHESIVES containing flammable liquid (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ6	P001	PP1	MP19	T4	TP1 TP8
1133	ADHESIVES containing flammable liquid (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ6	P001 IBC02 R001	PP1	MP19	T4	TP1 TP8
1133	ADHESIVES containing flammable liquid	3	F1	III	3	640E	LQ7	P001 IBC03 LP01 R001	PP1	MP19	T2	TP1
1133	ADHESIVES containing flammable liquid (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	640F	LQ7	P001 LP01 R001	PP1	MP19	T2	TP1
1133	ADHESIVES containing flammable liquid (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	640G	LQ7	P001 LP01 R001	PP1	MP19	T2	TP1
1133	ADHESIVES containing flammable liquid (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	640H	LQ7	P001 IBC02 LP01 R001	PP1	MP19	T2	TP1
1134	CHLOROBENZENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
LGBF		FL	2				S2 S20	33	1126	1-BROMOBUTANE
LGBF		FL	2				S2 S20	33	1127	CHLOROBUTANES
LGBF		FL	2				S2 S20	33	1128	n-BUTYL FORMATE
LGBF		FL	2				S2 S20	33	1129	BUTYRALDEHYDE
LGBF		FL	3				S2	30	1130	CAMPHOR OIL
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	1131	CARBON DISULPHIDE
L4BN		FL	1				S2 S20	33	1133	ADHESIVES containing flammable liquid (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	1				S2 S20	33	1133	ADHESIVES containing flammable liquid (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
L1.5BN		FL	2				S2 S20	33	1133	ADHESIVES containing flammable liquid (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1133	ADHESIVES containing flammable liquid (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1133	ADHESIVES containing flammable liquid
L4BN		FL	3				S2	33	1133	ADHESIVES containing flammable liquid (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	3				S2	33	1133	ADHESIVES containing flammable liquid (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	3				S2	33	1133	ADHESIVES containing flammable liquid (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1134	CHLOROBENZENE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1135	ETHYLENE CHLOROHYDRIN	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
1136	COAL TAR DISTILLATES, FLAMMABLE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1136	COAL TAR DISTILLATES, FLAMMABLE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1 TP29
1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	640A	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP27
1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	640B	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP27
1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ6	P001		MP19	T4	TP1 TP8
1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ6	P001 IBC02 R001		MP19	T4	TP1 TP8
1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining)	3	F1	III	3	640E	LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	640F	LQ7	P001 LP01 R001		MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1135	ETHYLENE CHLOROHYDRIN
LGBF		FL	2				S2 S20	33	1136	COAL TAR DISTILLATES, FLAMMABLE
LGBF		FL	3				S2	30	1136	COAL TAR DISTILLATES, FLAMMABLE
L4BN		FL	1				S2 S20	33	1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	1				S2 S20	33	1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
L1.5BN		FL	2				S2 S20	33	1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining)
L4BN		FL	3				S2	33	1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	640G	LQ7	P001 LP01 R001		MP19	T2	TP1
1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	640H	LQ7	P001 IBC02 LP01 R001		MP19	T2	TP1
1143	CROTONALDEHYDE, STABILIZED	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
1144	CROTONYLENE	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2
1145	CYCLOHEXANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1146	CYCLOPENTANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T7	TP1
1147	DECAHYDRO- NAPHTHALENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1148	DIACETONE ALCOHOL	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1148	DIACETONE ALCOHOL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1149	DIBUTYL ETHERS	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1150	1,2-DICHLOROETHYLENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T7	TP2
1152	DICHLOROPENTANES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1153	ETHYLENE GLYCOL DIETHYL ETHER	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1153	ETHYLENE GLYCOL DIETHYL ETHER	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1154	DIETHYLAMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
L15BN		FL	3				S2	33	1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	3				S2	33	1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1143	CROTONALDEHYDE, STABILIZED
L4BN		FL	1				S2 S20	339	1144	CROTONYLENE
LGBF		FL	2				S2 S20	33	1145	CYCLOHEXANE
LGBF		FL	2				S2 S20	33	1146	CYCLOPENTANE
LGBF		FL	3				S2	30	1147	DECAHYDRO-NAPHTHALENE
LGBF		FL	2				S2 S20	33	1148	DIACETONE ALCOHOL
LGBF		FL	3				S2	30	1148	DIACETONE ALCOHOL
LGBF		FL	3				S2	30	1149	DIBUTYL ETHERS
LGBF		FL	2				S2 S20	33	1150	1,2-DICHLOROETHYLENE
LGBF		FL	3				S2	30	1152	DICHLOROPENTANES
LGBF		FL	2				S2 S20	33	1153	ETHYLENE GLYCOL DIETHYL ETHER
LGBF		FL	3				S2	30	1153	ETHYLENE GLYCOL DIETHYL ETHER
L4BH	TE1 TE15	FL	2				S2 S20	338	1154	DIETHYLAMINE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1155	DIETHYL ETHER (ETHYL ETHER)	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2
1156	DIETHYL KETONE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1157	DIISOBUTYL KETONE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1158	DIISOPROPYLAMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
1159	DIISOPROPYL ETHER	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1160	DIMETHYLAMINE AQUEOUS SOLUTION	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
1161	DIMETHYL CARBONATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1162	DIMETHYLDICHLOROSILANE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP2 TP13
1163	DIMETHYLHYDRAZINE, UNSYMMETRICAL	6.1	TFC	I	6.1 +3 +8		LQ0	P602		MP8 MP17	T14	TP2 TP13
1164	DIMETHYL SULPHIDE	3	F1	II	3		LQ4	P001 IBC02	B8	MP19	T7	TP2
1165	DIOXANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1166	DIOXOLANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1167	DIVINYL ETHER, STABILIZED	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2
1169	EXTRACTS, AROMATIC, LIQUID (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	640A	LQ3	P001		MP7 MP17		
1169	EXTRACTS, AROMATIC, LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	640B	LQ3	P001		MP7 MP17		
1169	EXTRACTS, AROMATIC, LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ6	P001		MP19	T4	TP1 TP8
1169	EXTRACTS, AROMATIC, LIQUID (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ6	P001 IBC02 R001		MP19	T4	TP1 TP8
1169	EXTRACTS, AROMATIC, LIQUID	3	F1	III	3	640E	LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1169	EXTRACTS, AROMATIC, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	640F	LQ7	P001 LP01 R001		MP19	T2	TP1



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L1.5BN		FL	1				S2 S20	33	1155 DIETHYL ETHER (ETHYL ETHER)	
LGBF		FL	2				S2 S20	33	1156 DIETHYL KETONE	
LGBF		FL	3				S2	30	1157 DIISOBUTYL KETONE	
L4BH	TE1 TE15	FL	2				S2 S20	338	1158 DIISOPROPYLAMINE	
LGBF		FL	2				S2 S20	33	1159 DIISOPROPYL ETHER	
L4BH	TE1 TE15	FL	2				S2 S20	338	1160 DIMETHYLAMINE AQUEOUS SOLUTION	
LGBF		FL	2				S2 S20	33	1161 DIMETHYL CARBONATE	
L4BH	TE1 TE15	FL	2				S2 S20	X338	1162 DIMETHYLDICHLOROSILANE	
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1163 DIMETHYLHYDRAZINE, UNSYMMETRICAL	
L1.5BN		FL	2				S2 S20	33	1164 DIMETHYL SULPHIDE	
LGBF		FL	2				S2 S20	33	1165 DIOXANE	
LGBF		FL	2				S2 S20	33	1166 DIOXOLANE	
L1.5BN		FL	1				S2 S20	339	1167 DIVINYL ETHER, STABILIZED	
L4BN		FL	1				S2 S20	33	1169 EXTRACTS, AROMATIC, LIQUID (vapour pressure at 50 °C more than 175 kPa)	
L1.5BN		FL	1				S2 S20	33	1169 EXTRACTS, AROMATIC, LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
L1.5BN		FL	2				S2 S20	33	1169 EXTRACTS, AROMATIC, LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
LGBF		FL	2				S2 S20	33	1169 EXTRACTS, AROMATIC, LIQUID (vapour pressure at 50 °C not more than 110 kPa)	
LGBF		FL	3				S2	30	1169 EXTRACTS, AROMATIC, LIQUID	
L4BN		FL	3				S2	33	1169 EXTRACTS, AROMATIC, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1169	EXTRACTS, AROMATIC, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	640G	LQ7	P001 LP01 R001		MP19	T2	TP1
1169	EXTRACTS, AROMATIC, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	640H	LQ7	P001 IBC02 LP01 R001		MP19	T2	TP1
1170	ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)	3	F1	II	3	144	LQ4	P001 IBC02 R001	PP2	MP19	T4	TP1
1170	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)	3	F1	III	3	144	LQ7	P001 IBC03 LP01 R001	PP2	MP19	T2	TP1
1171	ETHYLENE GLYCOL MONOETHYL ETHER	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1172	ETHYLENE GLYCOL MONOETHYL ETHER ACETATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1173	ETHYL ACETATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1175	ETHYLBENZENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1176	ETHYL BORATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1177	2-ETHYLBUTYL ACETATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1178	2-ETHYL-BUTYRALDEHYDE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1179	ETHYL BUTYL ETHER	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1180	ETHYL BUTYRATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1181	ETHYL CHLOROACETATE	6.1	TF1	II	6.1 +3		LQ17	P001 IBC02		MP15	T7	TP2
1182	ETHYL CHLOROFORMATE	6.1	TFC	I	6.1 +3 +8		LQ0	P602		MP8 MP17	T14	TP2 TP13
1183	ETHYLDICHLOROSILANE	4.3	WFC	I	4.3 +3 +8		LQ0	P401 PR2		MP2	T10	TP2 TP7 TP13
1184	ETHYLENE DICHLORIDE	3	FT1	II	3 +6.1		LQ0	P001 IBC02		MP19	T7	TP1
1185	ETHYLENEIMINE, STABILIZED	6.1	TF1	I	6.1 +3		LQ0	P601 PR4		MP2		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L1.5BN		FL	3				S2	33	1169 EXTRACTS, AROMATIC, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
LGBF		FL	3				S2	33	1169 EXTRACTS, AROMATIC, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	
LGBF		FL	2				S2 S20	33	1170 ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)	
LGBF		FL	3				S2	30	1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)	
LGBF		FL	3				S2	30	1171 ETHYLENE GLYCOL MONOETHYL ETHER	
LGBF		FL	3				S2	30	1172 ETHYLENE GLYCOL MONOETHYL ETHER ACETATE	
LGBF		FL	2				S2 S20	33	1173 ETHYL ACETATE	
LGBF		FL	2				S2 S20	33	1175 ETHYLBENZENE	
LGBF		FL	2				S2 S20	33	1176 ETHYL BORATE	
LGBF		FL	3				S2	30	1177 2-ETHYLBUTYL ACETATE	
LGBF		FL	2				S2 S20	33	1178 2-ETHYL-BUTYRALDEHYDE	
LGBF		FL	2				S2 S20	33	1179 ETHYL BUTYL ETHER	
LGBF		FL	3				S2	30	1180 ETHYL BUTYRATE	
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	1181 ETHYL CHLOROACETATE	
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1182 ETHYL CHLOROFORMATE	
L10DH	TU14 TU23 TE1 TE21 TM2 TM3	FL	0	VI		CV23	S2 S20	X338	1183 ETHYLDICHLOROSILANE	
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	1184 ETHYLENE DICHLORIDE	
L15CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1185 ETHYLENIMINE, STABILIZED	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1188	ETHYLENE GLYCOL MONOMETHYL ETHER	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1189	ETHYLENE GLYCOL MONOMETHYL ETHER ACETATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1190	ETHYL FORMATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1191	OCTYL ALDEHYDES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1192	ETHYL LACTATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1193	ETHYL METHYL KETONE (METHYL ETHYL KETONE)	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1194	ETHYL NITRITE SOLUTION	3	FT1	I	3 +6.1		LQ0	P001		MP7 MP17		
1195	ETHYL PROPIONATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1196	ETHYLTRICHLOROSILANE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP2 TP13
1197	EXTRACTS, FLAVOURING, LIQUID (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	640A	LQ3	P001		MP7 MP17		
1197	EXTRACTS, FLAVOURING, LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	640B	LQ3	P001		MP7 MP17		
1197	EXTRACTS, FLAVOURING, LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ6	P001		MP19	T4	TP1 TP8
1197	EXTRACTS, FLAVOURING, LIQUID (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ6	P001 IBC02 R001		MP19	T4	TP1 TP8
1197	EXTRACTS, FLAVOURING, LIQUID	3	F1	III	3	640E	LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1197	EXTRACTS, FLAVOURING, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	640F	LQ7	P001 LP01 R001		MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
LGBF		FL	3				S2	30	1188	ETHYLENE GLYCOL MONOMETHYL ETHER
LGBF		FL	3				S2	30	1189	ETHYLENE GLYCOL MONOMETHYL ETHER ACETATE
LGBF		FL	2				S2 S20	33	1190	ETHYL FORMATE
LGBF		FL	3				S2	30	1191	OCTYL ALDEHYDES
LGBF		FL	3				S2	30	1192	ETHYL LACTATE
LGBF		FL	2				S2 S20	33	1193	ETHYL METHYL KETONE (METHYL ETHYL KETONE)
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	1194	ETHYL NITRITE SOLUTION
LGBF		FL	2				S2 S20	33	1195	ETHYL PROPIONATE
L4BH	TE1 TE15	FL	2				S2 S20	X338	1196	ETHYLTRICHLOROSILANE
L4BN		FL	1				S2 S20	33	1197	EXTRACTS, FLAVOURING, LIQUID (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	1				S2 S20	33	1197	EXTRACTS, FLAVOURING, LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
L1.5BN		FL	2				S2 S20	33	1197	EXTRACTS, FLAVOURING, LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1197	EXTRACTS, FLAVOURING, LIQUID (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1197	EXTRACTS, FLAVOURING, LIQUID
L4BN		FL	3				S2	33	1197	EXTRACTS, FLAVOURING, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1197	EXTRACTS, FLAVOURING, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	640G	LQ7	P001 LP01 R001		MP19	T2	TP1
1197	EXTRACTS, FLAVOURING, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	640H	LQ7	P001 IBC02 LP01 R001		MP19	T2	TP1
1198	FORMALDEHYDE SOLUTION, FLAMMABLE	3	FC	III	3 +8		LQ7	P001 IBC03 R001		MP19	T4	TP1
1199	FURALDEHYDES	6.1	TF1	II	6.1 +3		LQ0	P001 IBC02		MP15	T7	TP2
1201	FUSEL OIL	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1201	FUSEL OIL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1202	GAS OIL or DIESEL FUEL or HEATING OIL, LIGHT (flash-point not more than 61 °C)	3	F1	III	3	640K	LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1202	DIESEL FUEL complying with standard EN 590:1993 or GAS OIL or HEATING OIL, LIGHT with a flash-point as specified in EN 590:1993	3	F1	III	3	640L	LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1202	GAS OIL or DIESEL FUEL or HEATING OIL, LIGHT (flash-point more than 61 °C and not more than 100 °C)	3	F1	III	3	640M	LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1203	MOTOR SPIRIT or GASOLINE or PETROL	3	F1	II	3	534	LQ4	P001 IBC02 R001		MP19	T4	TP1
1204	NITROGLYCERIN SOLUTION IN ALCOHOL with not more than 1% nitroglycerin	3	D	II	3		LQ0	P001 IBC02	PP5	MP2		
1206	HEPTANES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1207	HEXALDEHYDE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1208	HEXANES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L1.5BN		FL	3				S2	33	1197	EXTRACTS, FLAVOURING, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	3				S2	33	1197	EXTRACTS, FLAVOURING, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)
L4BN		FL	3				S2	38	1198	FORMALDEHYDE SOLUTION, FLAMMABLE
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	1199	FURALDEHYDES
LGBF		FL	2				S2 S20	33	1201	FUSEL OIL
LGBF		FL	3				S2	30	1201	FUSEL OIL
LGBF		FL	3				S2	30	1202	GAS OIL or DIESEL FUEL or HEATING OIL, LIGHT (flash-point not more than 61 °C)
LGBF		AT	3				S2	30	1202	DIESEL FUEL complying with standard EN 590:1993 or GAS OIL or HEATING OIL, LIGHT with a flash-point as specified in EN 590:1993
LGBV		AT	3				S2	30	1202	GAS OIL or DIESEL FUEL or HEATING OIL, LIGHT (flash-point more than 61 °C and not more than 100 °C)
LGBF	TU9	FL	2				S2 S20	33	1203	MOTOR SPIRIT or GASOLINE or PETROL
			2				S2 S20		1204	NITROGLYCERIN SOLUTION IN ALCOHOL with not more than 1% nitroglycerin
LGBF		FL	2				S2 S20	33	1206	HEPTANES
LGBF		FL	3				S2	30	1207	HEXALDEHYDE
LGBF		FL	2				S2 S20	33	1208	HEXANES

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1210	PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	163 640A	LQ3	P001		MP7 MP17	T11	TP1 TP8
1210	PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	163 640B	LQ3	P001		MP7 MP17	T11	TP1 TP8
1210	PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	163 640C	LQ6	P001	PP1	MP19	T4	TP1 TP8
1210	PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	163 640D	LQ6	P001 IBC02 R001	PP1	MP19	T4	TP1 TP8
1210	PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable	3	F1	III	3	163 640E	LQ7	P001 IBC03 LP01 R001	PP1	MP19	T2	TP1
1210	PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	163 640F	LQ7	P001 LP01 R001	PP1	MP19	T2	TP1
1210	PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	163 640G	LQ7	P001 LP01 R001	PP1	MP19	T2	TP1



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L4BN		FL	1				S2 S20	33	1210 PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (vapour pressure at 50 °C more than 175 kPa)	
L1.5BN		FL	1				S2 S20	33	1210 PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
L1.5BN		FL	2				S2 S20	33	1210 PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
LGBF		FL	2				S2 S20	33	1210 PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (vapour pressure at 50 °C not more than 110 kPa)	
LGBF		FL	3				S2	30	1210 PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable	
L4BN		FL	3				S2	33	1210 PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	
L1.5BN		FL	3				S2	33	1210 PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1210	PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 116 kPa)	3	F1	III	3	163 640H	LQ7	P001 IBC02 LP01 R001	PP1	MP19	T2	TP1
1212	ISOBUTANOL (ISOBUTYL ALCOHOL)	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1213	ISOBUTYL ACETATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1214	ISOBUTYLAMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
1216	ISOOCTENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1218	ISOPRENE, STABILIZED	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2
1219	ISOPROPANOL (ISOPROPYL ALCOHOL)	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1220	ISOPROPYL ACETATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1221	ISOPROPYLAMINE	3	FC	I	3 +8		LQ3	P001		MP7 MP17	T11	TP2
1222	ISOPROPYL NITRATE	3	F1	II	3		LQ4	P001 IBC02 R001	B7	MP19		
1223	KEROSENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP2
1224	KETONES, LIQUID, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	274 640C	LQ4	P001		MP19	T7	TP1 TP8 TP28
1224	KETONES, LIQUID, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	274 640D	LQ4	P001 IBC02 R001		MP19	T7	TP1 TP8 TP28
1224	KETONES, LIQUID, N.O.S.	3	F1	III	3	274	LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1 TP29
1228	MERCAPTANS, LIQUID, FLAMMABLE, TOXIC, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, TOXIC, N.O.S.	3	FT1	II	3 +6.1	274	LQ0	P001 IBC02		MP19	T11	TP2 TP27
1228	MERCAPTANS, LIQUID, FLAMMABLE, TOXIC, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, TOXIC, N.O.S.	3	FT1	III	3 +6.1	274	LQ7	P001 IBC03 R001		MP19	T7	TP1 TP28
1229	MESITYL OXIDE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
LGBF		FL	3				S2	33	1210	PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1212	ISOBUTANOL (ISOBUTYL ALCOHOL)
LGBF		FL	2				S2 S20	33	1213	ISOBUTYL ACETATE
L4BH	TE1 TE15	FL	2				S2 S20	338	1214	ISOBUTYLAMINE
LGBF		FL	2				S2 S20	33	1216	ISOOCETENE
L1.5BN		FL	1				S2 S20	339	1218	ISOPRENE, STABILIZED
LGBF		FL	2				S2 S20	33	1219	ISOPROPANOL (ISOPROPYL ALCOHOL)
LGBF		FL	2				S2 S20	33	1220	ISOPROPYL ACETATE
L10CH	TU14 TE1 TE21	FL	1				S2 S20	338	1221	ISOPROPYLAMINE
			2				S2 S20		1222	ISOPROPYL NITRATE
LGBF		FL	3				S2	30	1223	KEROSENE
L1.5BN		FL	2				S2 S20	33	1224	KETONES, LIQUID, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1224	KETONES, LIQUID, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1224	KETONES, LIQUID, N.O.S.
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	1228	MERCAPTANS, LIQUID, FLAMMABLE, TOXIC, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15	FL	3			CV13 CV28	S2	36	1228	MERCAPTANS, LIQUID, FLAMMABLE, TOXIC, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, TOXIC, N.O.S.
LGBF		FL	3				S2	30	1229	MESITYL OXIDE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1230	METHANOL	3	FT1	II	3 +6.1	279	LQ0	P001 IBC02		MP19	T7	TP2
1231	METHYL ACETATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1233	METHYLAMYL ACETATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1234	METHYLAL	3	F1	II	3		LQ4	P001 IBC02	B8	MP19	T7	TP2
1235	METHYLAMINE, AQUEOUS SOLUTION	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
1237	METHYL BUTYRATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1238	METHYL CHLOROFORMATE	6.1	TFC	I	6.1 +3 +8		LQ0	P602		MP8 MP17	T14	TP2 TP13
1239	METHYL CHLORO-METHYL ETHER	6.1	TF1	I	6.1 +3		LQ0	P602		MP8 MP17	T14	TP2
1242	METHYLDICHLOROSILANE	4.3	WFC	I	4.3 +3 +8		LQ0	P401 PR2		MP2	T10	TP2 TP7 TP13
1243	METHYL FORMATE	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2
1244	METHYLHYDRAZINE	6.1	TFC	I	6.1 +3 +8		LQ0	P602		MP8 MP17	T14	TP2 TP13
1245	METHYL ISOBUTYL KETONE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1246	METHYL ISOPROPENYL KETONE, STABILIZED	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1247	METHYL METHACRYLATE MONOMER, STABILIZED	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1248	METHYL PROPIONATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1249	METHYL PROPYL KETONE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1250	METHYLTRICHLORO-SILANE	3	FC	I	3 +8		LQ3	P001		MP7 MP17	T11	TP2 TP13
1251	METHYL VINYL KETONE, STABILIZED	6.1	TFC	I	6.1 +3 +8		LQ0	P601 PR3		MP8 MP17	T14	TP2 TP13
1259	NICKEL CARBONYL	6.1	TF1	I	6.1 +3		LQ0	P601 PR3		MP2		
1261	NITROMETHANE	3	F1	II	3		LQ4	P001 R001	RR2	MP19		
1262	OCTANES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	1230	METHANOL
LGBF		FL	2				S2 S20	33	1231	METHYL ACETATE
LGBF		FL	3				S2	30	1233	METHYLAMYL ACETATE
L1.5BN		FL	2				S2 S20	33	1234	METHYLAL
L4BH	TE1 TE15	FL	2				S2 S20	338	1235	METHYLAMINE, AQUEOUS SOLUTION
LGBF		FL	2				S2 S20	33	1237	METHYL BUTYRATE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1238	METHYL CHLOROFORMATE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1239	METHYL CHLORO-METHYL ETHER
L10DH	TU14 TU24 TE1 TE21 TM2 TM3	FL	0	VI		CV23	S2 S20	X338	1242	METHYLDICHLOROSILANE
L4BN		FL	1				S2 S20	33	1243	METHYL FORMATE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1244	METHYLHYDRAZINE
LGBF		FL	2				S2 S20	33	1245	METHYL ISOBUTYL KETONE
LGBF		FL	2				S2 S20	339	1246	METHYL ISOPROPENYL KETONE, STABILIZED
LGBF		FL	2				S2 S20	339	1247	METHYL METHACRYLATE MONOMER, STABILIZED
LGBF		FL	2				S2 S20	33	1248	METHYL PROPIONATE
LGBF		FL	2				S2 S20	33	1249	METHYL PROPYL KETONE
L10CH	TU14 TE1 TE21	FL	1				S2 S20	X338	1250	METHYLTRICHLORO-SILANE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	639	1251	METHYL VINYL KETONE, STABILIZED
L15CH	TU14 TU15 TU31 TE1 TE19 TE21 TM3	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1259	NICKEL CARBONYL
			2				S2 S20		1261	NITROMETHANE
LGBF		FL	2				S2 S20	33	1262	OCTANES

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	163 640A	LQ3	P001		MP7 MP17	T11	TP1 TP8
1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	163 640B	LQ3	P001		MP7 MP17	T11	TP1 TP8
1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	163 640C	LQ6	P001	PP1	MP19	T4	TP1 TP8
1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	163 640D	LQ6	P001 IBC02 R001	PP1	MP19	T4	TP1 TP8
1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound)	3	F1	III	3	163 640E	LQ7	P001 IBC03 LP01 R001	PP1	MP19	T2	TP1
1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	163 640F	LQ7	P001 LP01 R001	PP1	MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
43	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BN		FL	1				S2 S20	33	1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	1				S2 S20	33	1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
L1.5BN		FL	2				S2 S20	33	1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound)
L4BN		FL	3				S2	33	1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	163 640G	LQ7	P001 LP01 R001	PP1	MP19	T2	TP1
1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	163 640H	LQ7	P001 IBC02 LP01 R001		MP19	T2	TP1
1264	PARALDEHYDE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1265	PENTANES, liquid	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2
1265	PENTANES, liquid	3	F1	II	3		LQ4	P001 IBC02	B8	MP19	T4	TP1
1266	PERFUMERY PRODUCTS with flammable solvents (vapour pressure at 50 °C, more than 175 kPa)	3	F1	I	3	640A	LQ3	P001		MP7 MP17		
1266	PERFUMERY PRODUCTS with flammable solvents (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	640B	LQ3	P001		MP7 MP17		
1266	PERFUMERY PRODUCTS with flammable solvents (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ6	P001		MP19	T4	TP1 TP8
1266	PERFUMERY PRODUCTS with flammable solvents (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ6	P001 IBC02 R001		MP19	T4	TP1 TP8
1266	PERFUMERY PRODUCTS with flammable solvents	3	F1	III	3	640E	LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1266	PERFUMERY PRODUCTS with flammable solvents (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	640F	LQ7	P001 LP01 R001		MP19	T2	TP1



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
L1.5BN		FL	3				S2	33	1263 PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
LGBF		FL	3				S2	33	1263 PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound) (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	
LGBF		FL	3				S2	30	1264 PARALDEHYDE	
L4BN		FL	1				S2 S20	33	1265 PENTANES, liquid	
L1.5BN		FL	2				S2 S20	33	1265 PENTANES, liquid	
L4BN		FL	1				S2 S20	33	1266 PERFUMERY PRODUCTS with flammable solvents (vapour pressure at 50 °C more than 175 kPa)	
L1.5BN		FL	1				S2 S20	33	1266 PERFUMERY PRODUCTS with flammable solvents (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
L1.5BN		FL	2				S2 S20	33	1266 PERFUMERY PRODUCTS with flammable solvents (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
LGBF		FL	2				S2 S20	33	1266 PERFUMERY PRODUCTS with flammable solvents (vapour pressure at 50 °C not more than 110 kPa)	
LGBF		FL	3				S2	30	1266 PERFUMERY PRODUCTS with flammable solvents	
L4BN		FL	3				S2	33	1266 PERFUMERY PRODUCTS with flammable solvents (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1266	PERFUMERY PRODUCTS with flammable solvents (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	640G	LQ7	P001 LP01 R001		MP19	T2	TP1
1266	PERFUMERY PRODUCTS with flammable solvents (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	640H	LQ7	P001 IBC02 LP01 R001		MP19	T2	TP1
1267	PETROLEUM CRUDE OIL (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	640A	LQ3	P001		MP7 MP17	T11	TP1 TP8
1267	PETROLEUM CRUDE OIL (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	640B	LQ3	P001		MP7 MP17	T11	TP1 TP8
1267	PETROLEUM CRUDE OIL (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ4	P001		MP19	T4	TP1 TP8
1267	PETROLEUM CRUDE OIL (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ4	P001 IBC02 R001		MP19	T4	TP1 TP8
1267	PETROLEUM CRUDE OIL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	274 640A	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP9
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	274 640B	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP9
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	274 640C	LQ4	P001		MP19	T7	TP1 TP8 TP9 TP28
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	274 640D	LQ4	P001 IBC02 R001		MP19	T7	TP1 TP8 TP9 TP28
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	III	3	274	LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1 TP9 TP29
1272	PINE OIL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L1.5BN		FL	3				S2	33	1266	PERFUMERY PRODUCTS with flammable solvents (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	3				S2	33	1266	PERFUMERY PRODUCTS with flammable solvents (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)
L4BN		FL	1				S2 S20	33	1267	PETROLEUM CRUDE OIL (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	1				S2 S20	33	1267	PETROLEUM CRUDE OIL (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
L1.5BN		FL	2				S2 S20	33	1267	PETROLEUM CRUDE OIL (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1267	PETROLEUM CRUDE OIL (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1267	PETROLEUM CRUDE OIL
L4BN		FL	1				S2 S20	33	1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	1				S2 S20	33	1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
L1.5BN		FL	2				S2 S20	33	1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.
LGBF		FL	3				S2	30	1272	PINE OIL

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1274	n-PROPANOL (PROPYL ALCOHOL, NORMAL)	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1274	n-PROPANOL (PROPYL ALCOHOL, NORMAL)	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1275	PROPIONALDEHYDE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T7	TP1
1276	n-PROPYL ACETATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1277	PROPYLAMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
1278	1-CHLOROPROPANE	3	F1	II	3		LQ4	P001 IBC02	B8	MP19	T7	TP2
1279	1,2-DICHLOROPROPANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1280	PROPYLENE OXIDE	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2 TP7
1281	PROPYL FORMATES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1282	PYRIDINE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP2
1286	ROSIN OIL (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	640A	LQ3	P001		MP7 MP17		
1286	ROSIN OIL (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	640B	LQ3	P001		MP7 MP17		
1286	ROSIN OIL (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ6	P001		MP19	T4	TP1
1286	ROSIN OIL (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ6	P001 IBC02 R001		MP19	T4	TP1
1286	ROSIN OIL	3	F1	III	3	640E	LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1286	ROSIN OIL (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	640F	LQ7	P001 LP01 R001		MP19	T2	TP1
1286	ROSIN OIL (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	640G	LQ7	P001 LP01 R001		MP19	T2	TP1
1286	ROSIN OIL (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	640H	LQ7	P001 IBC02 LP01 R001		MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
LGBF		FL	2				S2 S20	33	1274	n-PROPANOL (PROPYL ALCOHOL, NORMAL)
LGBF		FL	3				S2	30	1274	n-PROPANOL (PROPYL ALCOHOL, NORMAL)
LGBF		FL	2				S2 S20	33	1275	PROPIONALDEHYDE
LGBF		FL	2				S2 S20	33	1276	n-PROPYL ACETATE
L4BH	TE1 TE15	FL	2				S2 S20	338	1277	PROPYLAMINE
L1.5BN		FL	2				S2 S20	33	1278	1-CHLOROPROPANE
LGBF		FL	2				S2 S20	33	1279	1,2-DICHLOROPROPANE
L1.5BN		FL	1				S2 S20	33	1280	PROPYLENE OXIDE
LGBF		FL	2				S2 S20	33	1281	PROPYL FORMATES
LGBF		FL	2				S2 S20	33	1282	PYRIDINE
L4BN		FL	1				S2 S20	33	1286	ROSIN OIL (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	1				S2 S20	33	1286	ROSIN OIL (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
L1.5BN		FL	2				S2 S20	33	1286	ROSIN OIL (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1286	ROSIN OIL (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1286	ROSIN OIL
L4BN		FL	3				S2	33	1286	ROSIN OIL (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	3				S2	33	1286	ROSIN OIL (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	3				S2	33	1286	ROSIN OIL (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)

UN- No.	Name and description	Class	Classifi- cation Code	Packing group	Labels	Special provi- sions	Limited quantities	Packaging			UN portable tanks	
								Packing Instructions	Special packing provisions	Mixed packing provisions	Instruc- tions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1287	RUBBER SOLUTION (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	640A	LQ3	P001		MP7 MP17		
1287	RUBBER SOLUTION (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	640B	LQ3	P001		MP7 MP17		
1287	RUBBER SOLUTION (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ6	P001		MP19	T4	TP1 TP8
1287	RUBBER SOLUTION (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ6	P001 IBC02 R001		MP19	T4	TP1 TP8
1287	RUBBER SOLUTION	3	F1	III	3	640E	LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1287	RUBBER SOLUTION (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	640F	LQ7	P001 LP01 R001		MP19	T2	TP1
1287	RUBBER SOLUTION (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	640G	LQ7	P001 LP01 R001		MP19	T2	TP1
1287	RUBBER SOLUTION (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	640H	LQ7	P001 IBC02 LP01 R001		MP19	T2	TP1
1288	SHALE OIL	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1 TP8
1288	SHALE OIL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1289	SODIUM METHYLATE SOLUTION in alcohol	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1 TP8
1289	SODIUM METHYLATE SOLUTION in alcohol	3	FC	III	3 +8		LQ7	P001 IBC02 R001		MP19	T4	TP1
1292	TETRAETHYL SILICATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1293	TINCTURES, MEDICINAL	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1 TP8
1293	TINCTURES, MEDICINAL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1294	TOLUENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
L4BN		FL	1				S2 S20	33	1287 RUBBER SOLUTION (vapour pressure at 50 °C more than 175 kPa)	
L1.5BN		FL	1				S2 S20	33	1287 RUBBER SOLUTION (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
L1.5BN		FL	2				S2 S20	33	1287 RUBBER SOLUTION (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
LGBF		FL	2				S2 S20	33	1287 RUBBER SOLUTION (vapour pressure at 50 °C not more than 110 kPa)	
LGBF		FL	3				S2	30	1287 RUBBER SOLUTION	
L4BN		FL	3				S2	33	1287 RUBBER SOLUTION (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	
L1.5BN		FL	3				S2	33	1287 RUBBER SOLUTION (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
LGBF		FL	3				S2	33	1287 RUBBER SOLUTION (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	
LGBF		FL	2				S2 S20	33	1288 SHALE OIL	
LGBF		FL	3				S2	30	1288 SHALE OIL	
L4BH	TE1 TE15.	FL	2				S2 S20	338	1289 SODIUM METHYLATE SOLUTION in alcohol	
L4BN		FL	3				S2	38	1289 SODIUM METHYLATE SOLUTION in alcohol	
LGBF		FL	3				S2	30	1292 TETRAETHYL SILICATE	
LGBF		FL	2				S2 S20	33	1293 TINCTURES, MEDICINAL	
LGBF		FL	3				S2	30	1293 TINCTURES, MEDICINAL	
LGBF		FL	2				S2 S20	33	1294 TOLUENE	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
		(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1295	TRICHLOROSILANE	4.3	WFC	I	4.3 +3 +8		LQ0	P401 PR2		MP2	T14	TP2 TP7 TP13
1296	TRIETHYLAMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
1297	TRIMETHYLAMINE, AQUEOUS SOLUTION, not more than 50% trimethylamine, by mass	3	FC	I	3 +8		LQ3	P001		MP7 MP17	T11	TP1
1297	TRIMETHYLAMINE, AQUEOUS SOLUTION, not more than 50% trimethylamine, by mass	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
1297	TRIMETHYLAMINE, AQUEOUS SOLUTION, not more than 50% trimethylamine, by mass	3	FC	III	3 +8		LQ7	P001 IBC03 R001		MP19	T7	TP1
1298	TRIMETHYLCHLOROSILANE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP2 TP13
1299	TURPENTINE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1300	TURPENTINE SUBSTITUTE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1300	TURPENTINE SUBSTITUTE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1301	VINYL ACETATE, STABILIZED	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1302	VINYL ETHYL ETHER, STABILIZED	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2
1303	VINYLDIENE CHLORIDE, STABILIZED	3	F1	I	3		LQ3	P001		MP7 MP17	T12	TP2 TP7
1304	VINYL ISOBUTYL ETHER, STABILIZED	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1305	VINYLTRICHLOROSILANE, STABILIZED	3	FC	I	3 +8		LQ3	P001		MP7 MP17	T11	TP2 TP13
1306	WOOD PRESERVATIVES, LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ6	P001		MP19	T4	TP1 TP8
1306	WOOD PRESERVATIVES, LIQUID (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ6	P001 IBC02 R001		MP19	T4	TP1 TP8
1306	WOOD PRESERVATIVES, LIQUID	3	F1	III	3	640E	LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1306	WOOD PRESERVATIVES, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	640F	LQ7	P001 LP01 R001		MP19	T2	TP1



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L10DH	TU14 TU25 TE1 TE21 TM2 TM3	FL	0	VI		CV23	S2 S20	X338	1295	TRICHLOROSILANE
L4BH	TE1 TE15	FL	2				S2 S20	338	1296	TRIETHYLAMINE
L10CH	TU14 TE1 TE21	FL	1				S2 S20	338	1297	TRIMETHYLAMINE, AQUEOUS SOLUTION, not more than 50% trimethylamine, by mass
L4BH	TE1 TE15	FL	2				S2 S20	338	1297	TRIMETHYLAMINE, AQUEOUS SOLUTION, not more than 50% trimethylamine, by mass
L4BN		FL	3				S2	38	1297	TRIMETHYLAMINE, AQUEOUS SOLUTION, not more than 50% trimethylamine, by mass
L4BH	TE1 TE15	FL	2				S2 S20	X338	1298	TRIMETHYLCHLOROSILANE
LGBF		FL	3				S2	30	1299	TURPENTINE
LGBF		FL	2				S2 S20	33	1300	TURPENTINE SUBSTITUTE
LGBF		FL	3				S2	30	1300	TURPENTINE SUBSTITUTE
LGBF		FL	2				S2 S20	339	1301	VINYL ACETATE, STABILIZED
L1.5BN		FL	1				S2 S20	339	1302	VINYL ETHYL ETHER, STABILIZED
L4BN		FL	1				S2 S20	339	1303	VINYLDIENE CHLORIDE, STABILIZED
LGBF		FL	2				S2 S20	339	1304	VINYL ISOBUTYL ETHER, STABILIZED
L10CH	TU14 TE1 TE21	FL	1				S2 S20	X338	1305	VINYLTRICHLOROSILANE, STABILIZED
L1.5BN		FL	2				S2 S20	33	1306	WOOD PRESERVATIVES, LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1306	WOOD PRESERVATIVES, LIQUID (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1306	WOOD PRESERVATIVES, LIQUID
L4BN		FL	3				S2	33	1306	WOOD PRESERVATIVES, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1306	WOOD PRESERVATIVES, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	640G	LQ7	P001 LP01 R001		MP19	T2	TP1
1306	WOOD PRESERVATIVES, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	640H	LQ7	P001 IBC02 LP01 R001		MP19	T2	TP1
1307	XYLENES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
1307	XYLENES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1308	ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	640A	LQ3	P001	PP33	MP7 MP17		
1308	ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	640B	LQ3	P001	PP33	MP7 MP17		
1308	ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ4	P001 R001	PP33	MP19		
1308	ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ4	P001 R001	PP33	MP19		
1308	ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID	3	F1	III	3		LQ7	P001 R001		MP19		
1309	ALUMINIUM POWDER, COATED	4.1	F3	II	4.1		LQ8	P002 IBC08	PP38 B4	MP11		
1309	ALUMINIUM POWDER, COATED	4.1	F3	III	4.1		LQ9	P002 IBC08 LP02 R001	PP11 B3	MP11		
1310	AMMONIUM PICRATE, WETTED with not less than 10% water, by mass	4.1	D	I	4.1		LQ0	P406	PP26	MP2		
1312	BORNEOL	4.1	F1	III	4.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
1313	CALCIUM RESINATE	4.1	F3	III	4.1		LQ9	P002 IBC06 R001		MP11		
1314	CALCIUM RESINATE, FUSED	4.1	F3	III	4.1		LQ9	P002 IBC04 R001		MP11		
1318	COBALT RESINATE, PRECIPITATED	4.1	F3	III	4.1		LQ9	P002 IBC06 R001		MP11		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L1.5BN		FL	3				S2	33	1306 WOOD PRESERVATIVES, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
LGBF		FL	3				S2	33	1306 WOOD PRESERVATIVES, LIQUID (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	
LGBF		FL	2				S2 S20	33	1307 XYLENES	
LGBF		FL	3				S2	30	1307 XYLENES	
L4BN		FL	1				S2 S20	33	1308 ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID (vapour pressure at 50 °C more than 175 kPa)	
L1.5BN		FL	1				S2 S20	33	1308 ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
L1.5BN		FL	2				S2 S20	33	1308 ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
LGBF		FL	2				S2 S20	33	1308 ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID (vapour pressure at 50 °C not more than 110 kPa)	
LGBF		FL	3				S2	30	1308 ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID	
SGAN		AT	2	V11				40	1309 ALUMINIUM POWDER, COATED	
SGAV		AT	3		VV1			40	1309 ALUMINIUM POWDER, COATED	
			1				S17		1310 AMMONIUM PICRATE, WETTED with not less than 10% water, by mass	
SGAV		AT	3		VV1			40	1312 BORNEOL	
SGAV		AT	3	V12	VV1			40	1313 CALCIUM RESINATE	
SGAV		AT	3		VV1			40	1314 CALCIUM RESINATE, FUSED	
SGAV		AT	3	V12	VV1			40	1318 COBALT RESINATE, PRECIPITATED	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1320	DINITROPHENOL, WETTED with not less than 15% water, by mass	4.1	DT	I	4.1 +6.1		LQ0	P406	PP26	MP2		
1321	DINITROPHENOLATES, WETTED with not less than 15% water, by mass	4.1	DT	I	4.1 +6.1		LQ0	P406	PP26	MP2		
1322	DINITRORESORCINOL, WETTED with not less than 15% water, by mass	4.1	D	I	4.1		LQ0	P406	PP26	MP2		
1323	FERROCERIUM	4.1	F3	II	4.1	249	LQ8	P002 IBC08	B4	MP11		
1324	FILMS, NITROCELLULOSE BASE, gelatin coated, except scrap	4.1	F1	III	4.1		LQ9	P002 R001	PP15	MP11		
1325	FLAMMABLE SOLID, ORGANIC, N.O.S.	4.1	F1	II	4.1	274	LQ8	P002 IBC08	B4	MP10	T3	TP1
1325	FLAMMABLE SOLID, ORGANIC, N.O.S.	4.1	F1	III	4.1	274	LQ9	P002 IBC08 LP02 R001	B3	MP10	T1	TP1
1326	HAFNIUM POWDER, WETTED with not less than 25% water	4.1	F3	II	4.1	586	LQ8	P410 IBC06	PP40	MP11		
1327	Hay, Straw or Bhusa	4.1	F1	NOT SUBJECT TO ADR								
1328	HEXAMETHYLENE-TETRAMINE	4.1	F1	III	4.1		LQ9	P002 IBC08 R001	B3	MP10		
1330	MANGANESE RESINATE	4.1	F3	III	4.1		LQ9	P002 IBC06 R001		MP11		
1331	MATCHES, 'STRIKE ANYWHERE'	4.1	F1	III	4.1	293	LQ9	P407	PP27	MP12		
1332	METALDEHYDE	4.1	F1	III	4.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
1333	CERIUM, slabs, ingots or rods	4.1	F3	II	4.1		LQ8	P002 IBC08	B4	MP11		
1334	NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED	4.1	F1	III	4.1	501	LQ9	P002 IBC08 LP02 R001	B3	MP10		
1336	NITROGUANIDINE (PICRITE), WETTED with not less than 20% water, by mass	4.1	D	I	4.1		LQ0	P406		MP2		
1337	NITROSTARCH, WETTED with not less than 20% water, by mass	4.1	D	I	4.1		LQ0	P406		MP2		
1338	PHOSPHORUS, AMORPHOUS	4.1	F3	III	4.1		LQ9	P410 IBC08 R001	B3	MP11		
1339	PHOSPHORUS HEPTASULPHIDE, free from yellow and white phosphorus	4.1	F3	II	4.1	602	LQ8	P410 IBC04		MP11		
1340	PHOSPHORUS PENTASULPHIDE, free from yellow and white phosphorus	4.3	WF2	II	4.3 +4.1	602	LQ11	P410 IBC04		MP14		
1341	PHOSPHORUS SESQUISULPHIDE, free from yellow and white phosphorus	4.1	F3	II	4.1	602	LQ8	P410 IBC04		MP11		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
			1			CV28	S17		1320 DINITROPHENOL, WETTED with not less than 15% water, by mass	
			1			CV28	S17		1321 DINITROPHENOLATES, WETTED with not less than 15% water, by mass	
			1				S17		1322 DINITRORESORCINOL, WETTED with not less than 15% water, by mass	
SGAN		AT	2	V11				40	1323 FERROCERIUM	
			3						1324 FILMS, NITROCELLULOSE BASE, gelatin coated, except scrap	
SGAN		AT	2	V11				40	1325 FLAMMABLE SOLID, ORGANIC, N.O.S.	
SGAV		AT	3		VV1			40	1325 FLAMMABLE SOLID, ORGANIC, N.O.S.	
SGAN		AT	2	V11 V12				40	1326 HAFNIUM POWDER, WETTED with not less than 25% water	
NOT SUBJECT TO ADR									1327 Hay, Straw or Bhusa	
SGAV		AT	3		VV1			40	1328 HEXAMETHYLENE-TETRAMINE	
SGAV		AT	3	V12	VV1			40	1330 MANGANESE RESINATE	
			4						1331 MATCHES, 'STRIKE ANYWHERE'	
SGAV		AT	3		VV1			40	1332 METALDEHYDE	
			2	V11					1333 CERIUM, slabs, ingots or rods	
SGAV		AT	3		VV2			40	1334 NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED	
			1				S17		1336 NITROGUANIDINE (PICRITE), WETTED with not less than 20% water, by mass	
			1				S17		1337 NITROSTARCH, WETTED with not less than 20% water, by mass	
SGAV		AT	3		VV1			40	1338 PHOSPHORUS, AMORPHOUS	
SGAN		AT	2					40	1339 PHOSPHORUS HEPTASULPHIDE, free from yellow and white phosphorus	
SGAN		AT	0	V1		CV23		423	1340 PHOSPHORUS PENTASULPHIDE, free from yellow and white phosphorus	
SGAN		AT	2					40	1341 PHOSPHORUS SESQUISULPHIDE, free from yellow and white phosphorus	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1343	PHOSPHORUS TRISULPHIDE, free from yellow and white phosphorus	4.1	F3	II	4.1	602	LQ8	P410 IBC04		MP11		
1344	TRINITROPHENOL, WETTED with not less than 30% water, by mass	4.1	D	I	4.1		LQ0	P406	PP26	MP2		
1345	RUBBER SCRAP or RUBBER SHODDY, powdered or granulated	4.1	F1	II	4.1		LQ8	P002 IBC08	B4	MP11		
1346	SILICON POWDER, AMORPHOUS	4.1	F3	III	4.1	32	LQ9	P002 IBC08 LP02 R001	B3	MP11		
1347	SILVER PICRATE, WETTED with not less than 30% water, by mass	4.1	D	I	4.1		LQ0	P406	PP25 PP26	MP2		
1348	SODIUM DINITRO- <i>o</i> -CRESOLATE, WETTED with not less than 15% water, by mass	4.1	DT	I	4.1 +6.1		LQ0	P406	PP26	MP2		
1349	SODIUM PICRAMATE, WETTED with not less than 20% water, by mass	4.1	D	I	4.1		LQ0	P406	PP26	MP2		
1350	SULPHUR	4.1	F3	III	4.1	242	LQ9	P002 IBC08 LP02 R001	B3	MP11	T1	TP1
1352	TITANIUM POWDER, WETTED with not less than 25% water	4.1	F3	II	4.1	586	LQ8	P410 IBC06	PP40	MP11		
1353	FIBRES or FABRICS IMPREGNATED WITH WEAKLY NITRATED NITROCELLULOSE, N.O.S.	4.1	F1	III	4.1	274 502	LQ9	P410 IBC08 R001	B3	MP11		
1354	TRINITROBENZENE, WETTED with not less than 30% water, by mass	4.1	D	I	4.1		LQ0	P406		MP2		
1355	TRINITROBENZOIC ACID, WETTED with not less than 30% water, by mass	4.1	D	I	4.1		LQ0	P406		MP2		
1356	TRINITROTOLUENE (TNT), WETTED with not less than 30% water, by mass	4.1	D	I	4.1		LQ0	P406		MP2		
1357	UREA NITRATE, WETTED with not less than 20% water, by mass	4.1	D	I	4.1	227	LQ0	P406		MP2		
1358	ZIRCONIUM POWDER, WETTED with not less than 25% water	4.1	F3	II	4.1	586	LQ8	P410 IBC06	PP40	MP11		
1360	CALCIUM PHOSPHIDE	4.3	WT2	I	4.3 +6.1		LQ0	P403		MP2		
1361	CARBON, animal or vegetable origin	4.2	S2	II	4.2		LQ0	P002 IBC06	PP12	MP14		
1361	CARBON, animal or vegetable origin	4.2	S2	III	4.2		LQ0	P002 IBC08 LP02 R001	PP12 B3	MP14		
1362	CARBON, ACTIVATED	4.2	S2	III	4.2	646	LQ0	P002 IBC08 LP02 R001	PP11 B3	MP14		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
SGAN		AT	2					40	1343 PHOSPHORUS TRISULPHIDE, free from yellow and white phosphorus	
			1				S17		1344 TRINITROPHENOL, WETTED with not less than 30% water, by mass	
SGAN		AT	4	V11				40	1345 RUBBER SCRAP or RUBBER SHODDY, powdered or granulated	
SGAV		AT	3		VV1			40	1346 SILICON POWDER, AMORPHOUS	
			1				S17		1347 SILVER PICRATE, WETTED with not less than 30% water, by mass	
			1			CV28	S17		1348 SODIUM DINITRO-o-CRESOLATE, WETTED with not less than 15% water, by mass	
			1				S17		1349 SODIUM PICRAMATE, WETTED with not less than 20% water, by mass	
SGAV		AT	3		VV1			40	1350 SULPHUR	
SGAN		AT	2	V11 V12				40	1352 TITANIUM POWDER, WETTED with not less than 25% water	
			3						1353 FIBRES or FABRICS IMPREGNATED WITH WEAKLY NITRATED NITROCELLULOSE, N.O.S.	
			1				S17		1354 TRINITROBENZENE, WETTED with not less than 30% water, by mass	
			1				S17		1355 TRINITROBENZOIC ACID, WETTED with not less than 30% water, by mass	
			1				S17		1356 TRINITROTOLUENE (TNT), WETTED with not less than 30% water, by mass	
			1				S17		1357 UREA NITRATE, WETTED with not less than 20% water, by mass	
SGAN		AT	2	V11 V12				40	1358 ZIRCONIUM POWDER, WETTED with not less than 25% water	
			1	V1		CV23 CV28	S20		1360 CALCIUM PHOSPHIDE	
SGAN	TU11	AT	2	V1 V12 V13				40	1361 CARBON, animal or vegetable origin	
SGAV		AT	4	V1 V13	VV4			40	1361 CARBON, animal or vegetable origin	
SGAV		AT	4	V1	VV4			40	1362 CARBON, ACTIVATED	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1363	COPRA	4.2	S2	III	4.2		LQ0	P003 IBC08 LP02 R001	PP20 B3 B6	MP14		
1364	COTTON WASTE, OILY	4.2	S2	III	4.2		LQ0	P003 IBC08 LP02 R001	PP19 B3 B6	MP14		
1365	COTTON, WET	4.2	S2	III	4.2		LQ0	P003 IBC08 LP02 R001	PP19 B3 B6	MP14		
1366	DIETHYLZINC	4.2	SW	I	4.2 +4.3		LQ0	P400 PR1		MP2	T21	TP2 TP7
1369	p-NITROSODIMETHYL-ANILINE	4.2	S2	II	4.2		LQ0	P410 IBC06		MP14		
1370	DIMETHYLZINC	4.2	SW	I	4.2 +4.3		LQ0	P400 PR1		MP2	T21	TP2 TP7
1372	Fibres, animal or fibres, vegetable burnt, wet or damp	4.2	S2	NOT SUBJECT TO ADR								
1373	FIBRES or FABRICS, ANIMAL or VEGETABLE or SYNTHETIC, N.O.S. with oil	4.2	S2	III	4.2	274	LQ0	P410 IBC08 R001	B3	MP14		
1374	FISH MEAL (FISH SCRAP), UNSTABILIZED	4.2	S2	II	4.2	300	LQ0	P410 IBC08	B4	MP14		
1376	IRON OXIDE, SPENT or IRON SPONGE, SPENT obtained from coal gas purification	4.2	S4	III	4.2	592	LQ0	P002 IBC08 LP02 R001	B3	MP14		
1378	METAL CATALYST, WETTED with a visible excess of liquid	4.2	S4	II	4.2	274	LQ0	P410 IBC01	PP39	MP14		
1379	PAPER, UNSATURATED OIL TREATED, incompletely dried (including carbon paper)	4.2	S2	III	4.2		LQ0	P410 IBC08 R001	B3	MP14		
1380	PENTABORANE	4.2	ST3	I	4.2 +6.1		LQ0	P601 PR1		MP2		
1381	PHOSPHORUS, WHITE or YELLOW, UNDER WATER or IN SOLUTION	4.2	ST3	I	4.2 +6.1	503	LQ0	P405		MP2	T9	TP3 TP31
1381	PHOSPHORUS, WHITE or YELLOW, DRY	4.2	ST4	I	4.2 +6.1	503	LQ0	P405		MP2	T9	TP3 TP31
1382	POTASSIUM SULPHIDE, ANHYDROUS or POTASSIUM SULPHIDE with less than 30% water of crystallization	4.2	S4	II	4.2	504	LQ0	P410 IBC06		MP14		
1383	PYROPHORIC METAL, N.O.S. or PYROPHORIC ALLOY, N.O.S.	4.2	S4	I	4.2	274	LQ0	P404		MP13		
1384	SODIUM DITHIONITE (SODIUM HYDROSULPHITE)	4.2	S4	II	4.2		LQ0	P410 IBC06		MP14		
1385	SODIUM SULPHIDE, ANHYDROUS or SODIUM SULPHIDE with less than 30% water of crystallization	4.2	S4	II	4.2	504	LQ0	P410 IBC06		MP14		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	3.1.2
			3	V1	VV4			40	1363	COPRA
			3	V1	VV4			40	1364	COTTON WASTE, OILY
			3	V1	VV4			40	1365	COTTON, WET
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	V1			S20	X333	1366	DIETHYLZINC
SGAN		AT	2	V1 V12				40	1369	p-NITROSODIMETHYL-ANILINE
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	V1			S20	X333	1370	DIMETHYLZINC
NOT SUBJECT TO ADR									1372	Fibres, animal or fibres, vegetable burnt, wet or damp
			3	V1	VV4			40	1373	FIBRES or FABRICS, ANIMAL or VEGETABLE or SYNTHETIC, N.O.S. with oil
			2	V1					1374	FISH MEAL (FISH SCRAP), UNSTABILIZED
SGAV		AT	3	V1	VV4			40	1376	IRON OXIDE, SPENT or IRON SPONGE, SPENT obtained from coal gas purification
SGAN		AT	2	V1				40	1378	METAL CATALYST, WETTED with a visible excess of liquid
			3	V1	VV4			40	1379	PAPER, UNSATURATED OIL TREATED, incompletely dried (including carbon paper)
L21DH	TU14 TC1 TE1 TE21 TM1	AT	0	V1		CV28	S20	333	1380	PENTABORANE
L10DH(+)	TU14 TU16 TU21 TE3 TE21	AT	0	V1		CV28	S20	46	1381	PHOSPHORUS, WHITE or YELLOW, UNDER WATER or IN SOLUTION
L10DH(+)	TU14 TU16 TU21 TE3 TE21	AT	0	V1		CV28	S20	46	1381	PHOSPHORUS, WHITE or YELLOW, DRY
SGAN		AT	2	V1 V12				40	1382	POTASSIUM SULPHIDE, ANHYDROUS or POTASSIUM SULPHIDE with less than 30% water of crystallization
			0	V1			S20		1383	PYROPHORIC METAL, N.O.S. or PYROPHORIC ALLOY, N.O.S.
SGAN		AT	2	V1 V12				40	1384	SODIUM DITHIONITE (SODIUM HYDROSULPHITE)
SGAN		AT	2	V1 V12				40	1385	SODIUM SULPHIDE, ANHYDROUS or SODIUM SULPHIDE with less than 30% water of crystallization

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1386	SEED CAKE with more than 1.5% oil and not more than 11% moisture	4.2	S2	III	4.2		LQ0	P003 IBC08 LP02 R001	PP20 B3 B6	MP14		
1387	Wool waste, wet	4.2	S2	NOT SUBJECT TO ADR								
1389	ALKALI METAL AMALGAM	4.3	W2	I	4.3	182 274	LQ0	P402 P403 PR1		MP2		
1390	ALKALI METAL AMIDES	4.3	W2	II	4.3	182 274 505	LQ11	P410 IBC07		MP14		
1391	ALKALI METAL DISPERSION or ALKALINE EARTH METAL DISPERSION	4.3	W1	I	4.3	182 183 274 282 506	LQ0	P402 PR1		MP2		
1392	ALKALINE EARTH METAL AMALGAM	4.3	W2	I	4.3	183 274 506	LQ0	P402 P403 IBC04		MP2		
1393	ALKALINE EARTH METAL ALLOY, N.O.S.	4.3	W2	II	4.3	183 274 506	LQ11	P410 IBC07		MP14		
1394	ALUMINIUM CARBIDE	4.3	W2	II	4.3		LQ11	P410 IBC07		MP14		
1395	ALUMINIUM FERROSILICON POWDER	4.3	WT2	II	4.3 +6.1		LQ11	P410 IBC05	PP40	MP14		
1396	ALUMINIUM POWDER, UNCOATED	4.3	W2	II	4.3		LQ12	P410 IBC07	PP40	MP14		
1396	ALUMINIUM POWDER, UNCOATED	4.3	W2	III	4.3		LQ12	P410 IBC08 R001	B4	MP14		
1397	ALUMINIUM PHOSPHIDE	4.3	WT2	I	4.3 +6.1	507	LQ0	P403		MP2		
1398	ALUMINIUM SILICON POWDER, UNCOATED	4.3	W2	III	4.3	37	LQ12	P410 IBC08 R001	B4	MP14		
1400	BARIUM	4.3	W2	II	4.3		LQ11	P410 IBC07		MP14		
1401	CALCIUM	4.3	W2	II	4.3		LQ11	P410 IBC07		MP14		
1402	CALCIUM CARBIDE	4.3	W2	I	4.3		LQ0	P403 IBC04		MP2		
1402	CALCIUM CARBIDE	4.3	W2	II	4.3		LQ11	P410 IBC07		MP14		
1403	CALCIUM CYANAMIDE with more than 0.1% calcium carbide	4.3	W2	III	4.3	38	LQ12	P410 IBC08 R001	B4	MP14		
1404	CALCIUM HYDRIDE	4.3	W2	I	4.3		LQ0	P403		MP2		
1405	CALCIUM SILICIDE	4.3	W2	II	4.3		LQ11	P410 IBC07		MP14		
1405	CALCIUM SILICIDE	4.3	W2	III	4.3		LQ12	P410 IBC08 R001	B4	MP14		
1407	CAESIUM	4.3	W2	I	4.3		LQ0	P403 IBC04		MP2		
1408	FERROSILICON with 30% or more but less than 90% silicon	4.3	WT2	III	4.3 +6.1	39	LQ12	P003 IBC08 R001	PP20 B4	MP14		
1409	METAL HYDRIDES, WATER REACTIVE, N.O.S.	4.3	W2	I	4.3	274 508	LQ0	P403		MP2		
1409	METAL HYDRIDES, WATER REACTIVE, N.O.S.	4.3	W2	II	4.3	274 508	LQ11	P410 IBC04		MP14		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	3.1.2
			3	V1	VV4			40	1386	SEED CAKE with more than 1.5% oil and not more than 11% moisture
NOT SUBJECT TO ADR									1387	Wool waste, wet
L10BN(+)	TU1 TE5 TT3 TM2	AT	1	V1		CV23	S20	X423	1389	ALKALI METAL AMALGAM
SGAN		AT	0	V1 V12		CV23		423	1390	ALKALI METAL AMIDES
L10BN(+)	TU1 TE5 TT3 TM2	AT	1	V1		CV23	S20	X423	1391	ALKALI METAL DISPERSION or ALKALINE EARTH METAL DISPERSION
L10BN(+)	TU1 TE5 TT3 TM2	AT	1	V1		CV23	S20	X423	1392	ALKALINE EARTH METAL AMALGAM
SGAN		AT	2	V1 V12		CV23		423	1393	ALKALINE EARTH METAL ALLOY, N.O.S.
SGAN		AT	2	V1 V12	VV5	CV23		423	1394	ALUMINIUM CARBIDE
SGAN		AT	2	V1		CV23 CV28		462	1395	ALUMINIUM FERROSILICON POWDER.
SGAN		AT	2	V1 V12		CV23		423	1396	ALUMINIUM POWDER, UNCOATED
SGAN		AT	3	V1	VV5	CV23		423	1396	ALUMINIUM POWDER, UNCOATED
			1	V1		CV23 CV28	S20		1397	ALUMINIUM PHOSPHIDE
SGAN		AT	3	V1	VV5	CV23		423	1398	ALUMINIUM SILICON POWDER, UNCOATED
SGAN		AT	2	V1 V12		CV23		423	1400	BARIUM
SGAN		AT	2	V1 V12		CV23		423	1401	CALCIUM
			1	V1		CV23	S20		1402	CALCIUM CARBIDE
SGAN		AT	2	V1 V12	VV5	CV23		423	1402	CALCIUM CARBIDE
SGAN		AT	0	V1		CV23		423	1403	CALCIUM CYANAMIDE with more than 0.1% calcium carbide
			1	V1		CV23	S20		1404	CALCIUM HYDRIDE
SGAN		AT	2	V1 V12	VV7	CV23		423	1405	CALCIUM SILICIDE
SGAN		AT	3	V1	VV5 VV7	CV23		423	1405	CALCIUM SILICIDE
L10CH(+)	TU2 TU14 TE5 TE21 TT3 TM2	AT	1	V1		CV23	S20	X423	1407	CAESIUM
SGAN		AT	3	V1	VV1	CV23 CV28		462	1408	FERROSILICON with 30% or more but less than 90% silicon
			1	V1		CV23	S20		1409	METAL HYDRIDES, WATER REACTIVE, N.O.S.
SGAN		AT	2	V1		CV23		423	1409	METAL HYDRIDES, WATER REACTIVE, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1410	LITHIUM ALUMINIUM HYDRIDE	4.3	W2	I	4.3		LQ0	P403		MP2		
1411	LITHIUM ALUMINIUM HYDRIDE, ETHEREAL	4.3	WF1	I	4.3 +3		LQ0	P402 PR1		MP2		
1413	LITHIUM BOROHYDRIDE	4.3	W2	I	4.3		LQ0	P403		MP2		
1414	LITHIUM HYDRIDE	4.3	W2	I	4.3		LQ0	P403		MP2		
1415	LITHIUM	4.3	W2	I	4.3		LQ0	P403 IBC04		MP2		
1417	LITHIUM SILICON	4.3	W2	II	4.3		LQ11	P410 IBC07		MP14		
1418	MAGNESIUM POWDER or MAGNESIUM ALLOYS POWDER	4.3	WS	I	4.3 +4.2		LQ0	P403		MP2		
1418	MAGNESIUM POWDER or MAGNESIUM ALLOYS POWDER	4.3	WS	II	4.3 +4.2		LQ11	P410 IBC05		MP14		
1418	MAGNESIUM POWDER or MAGNESIUM ALLOYS POWDER	4.3	WS	III	4.3 +4.2		LQ12	P410 IBC08 R001	B4	MP14		
1419	MAGNESIUM ALUMINIUM PHOSPHIDE	4.3	WT2	I	4.3 +6.1		LQ0	P403		MP2		
1420	POTASSIUM METAL ALLOYS	4.3	W2	I	4.3		LQ0	P403 IBC04		MP2		
1421	ALKALI METAL ALLOY, LIQUID, N.O.S.	4.3	W1	I	4.3	182 274	LQ0	P402 PR1		MP2		
1422	POTASSIUM SODIUM ALLOYS	4.3	W2	I	4.3		LQ0	P403 IBC04		MP2	T9	TP3 TP7 TP31
1423	RUBIDIUM	4.3	W2	I	4.3		LQ0	P403 IBC04		MP2		
1426	SODIUM BOROHYDRIDE	4.3	W2	I	4.3		LQ0	P403		MP2		
1427	SODIUM HYDRIDE	4.3	W2	I	4.3		LQ0	P403		MP2		
1428	SODIUM	4.3	W2	I	4.3		LQ0	P403 IBC04		MP2	T9	TP3 TP7 TP31
1431	SODIUM METHYLATE	4.2	SC4	II	4.2 +8		LQ0	P410 IBC05		MP14		
1432	SODIUM PHOSPHIDE	4.3	WT2	I	4.3 +6.1		LQ0	P403		MP2		
1433	STANNIC PHOSPHIDES	4.3	WT2	I	4.3 +6.1		LQ0	P403		MP2		
1435	ZINC ASHES	4.3	W2	III	4.3		LQ12	P002 IBC08 R001	B4	MP14		
1436	ZINC POWDER or ZINC DUST	4.3	WS	I	4.3 +4.2		LQ0	P403		MP2		
1436	ZINC POWDER or ZINC DUST	4.3	WS	II	4.3 +4.2		LQ11	P410 IBC07	PP40	MP14		
1436	ZINC POWDER or ZINC DUST	4.3	WS	III	4.3 +4.2		LQ12	P410 IBC08 R001	B4	MP14		
1437	ZIRCONIUM HYDRIDE	4.1	F3	II	4.1		LQ8	P410 IBC04	PP40	MP11		
1438	ALUMINIUM NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1439	AMMONIUM DICHROMATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1442	AMMONIUM PERCHLORATE	5.1	O2	II	5.1	152	LQ11	P002 IBC06		MP2		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
			1	V1		CV23	S20		1410	LITHIUM ALUMINIUM HYDRIDE
			1	V1		CV23	S2 S20		1411	LITHIUM ALUMINIUM HYDRIDE, ETHEREAL
			1	V1		CV23	S20		1413	LITHIUM BOROHYDRIDE
			1	V1		CV23	S20		1414	LITHIUM HYDRIDE
L10BN(+)	TU1 TE5 TT3 TM2	AT	1	V1		CV23	S20	X423	1415	LITHIUM
SGAN		AT	2	V1 V12		CV23		423	1417	LITHIUM SILICON
			1	V1		CV23	S20		1418	MAGNESIUM POWDER or MAGNESIUM ALLOYS POWDER
SGAN		AT	2	V1		CV23		423	1418	MAGNESIUM POWDER or MAGNESIUM ALLOYS POWDER
SGAN		AT	3	V1	VV5	CV23		423	1418	MAGNESIUM POWDER or MAGNESIUM ALLOYS POWDER
			1	V1		CV23 CV28	S20		1419	MAGNESIUM ALUMINIUM PHOSPHIDE
L10BN(+)	TU1 TE5 TT3 TM2	AT	1	V1		CV23	S20	X423	1420	POTASSIUM METAL ALLOYS
L10BN(+)	TU1 TE5 TT3 TM2	AT	1	V1		CV23	S20	X423	1421	ALKALI METAL ALLOY, LIQUID, N.O.S.
L10BN(+)	TU1 TE5 TT3 TM2	AT	1	V1		CV23	S20	X423	1422	POTASSIUM SODIUM ALLOYS
L10CH(+)	TU2 TU14 TE5 TE21 TT3 TM2	AT	1	V1		CV23	S20	X423	1423	RUBIDIUM
			1	V1		CV23	S20		1426	SODIUM BOROHYDRIDE
			1	V1		CV23	S20		1427	SODIUM HYDRIDE
L10BN(+)	TU1 TE5 TT3 TM2	AT	1	V1		CV23	S20	X423	1428	SODIUM
SGAN		AT	2	V1				48	1431	SODIUM METHYLATE
			1	V1		CV23 CV28	S20		1432	SODIUM PHOSPHIDE
			1	V1		CV23 CV28	S20		1433	STANNIC PHOSPHIDES
SGAN		AT	3	V1	VV5	CV23		423	1435	ZINC ASHES
			1	V1		CV23	S20		1436	ZINC POWDER or ZINC DUST
SGAN		AT	2	V1 V12		CV23		423	1436	ZINC POWDER or ZINC DUST
SGAN		AT	3	V1	VV5	CV23		423	1436	ZINC POWDER or ZINC DUST
SGAN		AT	2					40	1437	ZIRCONIUM HYDRIDE
SGAV	TU3	AT	3		VV8	CV24		50	1438	ALUMINIUM NITRATE
SGAN	TU3	AT	2	V11		CV24		50	1439	AMMONIUM DICHROMATE
			2	V6 V11 V12	VV8	CV24		50	1442	AMMONIUM PERCHLORATE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1444	AMMONIUM PERSULPHATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1445	BARIUM CHLORATE	5.1	OT2	II	5.1 +6.1		LQ11	P002 IBC06		MP2	T4	TP1
1446	BARIUM NITRATE	5.1	OT2	II	5.1 +6.1		LQ11	P002 IBC08	B4	MP2		
1447	BARIUM PERCHLORATE	5.1	OT2	II	5.1 +6.1		LQ11	P002 IBC06		MP2	T4	TP1
1448	BARIUM PERMANGANATE	5.1	OT2	II	5.1 +6.1		LQ11	P002 IBC06		MP2		
1449	BARIUM PEROXIDE	5.1	OT2	II	5.1 +6.1		LQ11	P002 IBC06		MP2		
1450	BROMATES, INORGANIC, N.O.S.	5.1	O2	II	5.1	274 604	LQ11	P002 IBC08	B4	MP2		
1451	CAESIUM NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1452	CALCIUM CHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1453	CALCIUM CHLORITE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1454	CALCIUM NITRATE	5.1	O2	III	5.1	208	LQ12	P002 IBC08 LP02 R001	B3	MP10		
1455	CALCIUM PERCHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1456	CALCIUM PERMANGANATE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1457	CALCIUM PEROXIDE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1458	CHLORATE AND BORATE MIXTURE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1458	CHLORATE AND BORATE MIXTURE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP2		
1459	CHLORATE AND MAGNESIUM CHLORIDE MIXTURE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2	T4	TP1
1459	CHLORATE AND MAGNESIUM CHLORIDE MIXTURE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP2	T4	TP1
1461	CHLORATES, INORGANIC, N.O.S.	5.1	O2	II	5.1	274 605	LQ11	P002 IBC06		MP2		
1462	CHLORITES, INORGANIC, N.O.S.	5.1	O2	II	5.1	274 509 606	LQ11	P002 IBC06		MP2		
1463	CHROMIUM TRIOXIDE, ANHYDROUS	5.1	OC2	II	5.1 +8	510	LQ11	P002 IBC08	B4	MP2		
1465	DIDYMIUM NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1466	FERRIC NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1467	GUANIDINE NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
SGAV	TU3	AT	3		VV8	CV24		50	1444 AMMONIUM PERSULPHATE	
SGAN	TU3	AT	2	V11 V12		CV24 CV28		56	1445 BARIUM CHLORATE	
SGAN	TU3	AT	2	V11		CV24 CV28		56	1446 BARIUM NITRATE	
SGAN	TU3	AT	2	V11 V12		CV24 CV28		56	1447 BARIUM PERCHLORATE	
SGAN	TU3	AT	2	V11 V12		CV24 CV28		56	1448 BARIUM PERMANGANATE	
SGAN	TU3	AT	2	V11 V12		CV24 CV28		56	1449 BARIUM PEROXIDE	
SGAV	TU3	AT	2	V11	VV8	CV24		50	1450 BROMATES, INORGANIC, N.O.S.	
SGAV	TU3	AT	3		VV8	CV24		50	1451 CAESIUM NITRATE	
SGAV	TU3	AT	2	V11	VV8	CV24		50	1452 CALCIUM CHLORATE	
SGAN	TU3	AT	2	V11		CV24		50	1453 CALCIUM CHLORITE	
SGAV	TU3	AT	3		VV8	CV24		50	1454 CALCIUM NITRATE	
SGAV	TU3	AT	2	V11 V12	VV8	CV24		50	1455 CALCIUM PERCHLORATE	
SGAN	TU3	AT	2	V11 V12		CV24		50	1456 CALCIUM PERMANGANATE	
SGAN	TU3	AT	2	V11 V12		CV24		50	1457 CALCIUM PEROXIDE	
SGAV	TU3	AT	2	V11	VV8	CV24		50	1458 CHLORATE AND BORATE MIXTURE	
SGAV	TU3	AT	3		VV8	CV24		50	1458 CHLORATE AND BORATE MIXTURE	
SGAV	TU3	AT	2	V11	VV8	CV24		50	1459 CHLORATE AND MAGNESIUM CHLORIDE MIXTURE	
SGAV	TU3	AT	3		VV8	CV24		50	1459 CHLORATE AND MAGNESIUM CHLORIDE MIXTURE	
SGAV	TU3	AT	2	V11 V12	VV8	CV24		50	1461 CHLORATES, INORGANIC, N.O.S.	
SGAN	TU3	AT	2	V11 V12		CV24		50	1462 CHLORITES, INORGANIC, N.O.S.	
SGAN	TU3	AT	2			CV24		58	1463 CHROMIUM TRIOXIDE, ANHYDROUS	
SGAV	TU3	AT	3		VV8	CV24		50	1465 DIDYMIUM NITRATE	
SGAV	TU3	AT	3		VV8	CV24		50	1466 FERRIC NITRATE	
SGAV	TU3	AT	3		VV8	CV24		50	1467 GUANIDINE NITRATE	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1469	LEAD NITRATE	5.1	OT2	II	5.1 +6.1		LQ11	P002 IBC08	B4	MP2		
1470	LEAD PERCHLORATE	5.1	OT2	II	5.1 +6.1		LQ11	P002 IBC06		MP2	T4	TP1
1471	LITHIUM HYPOCHLORITE, DRY or LITHIUM HYPOCHLORITE MIXTURE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP10		
1472	LITHIUM PEROXIDE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1473	MAGNESIUM BROMATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1474	MAGNESIUM NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1475	MAGNESIUM PERCHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1476	MAGNESIUM PEROXIDE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1477	NITRATES, INORGANIC, N.O.S.	5.1	O2	II	5.1	274 511	LQ11	P002 IBC08	B4	MP10		
1477	NITRATES, INORGANIC, N.O.S.	5.1	O2	III	5.1	274 511	LQ12	P002 IBC08 LP02 R001	B3	MP10		
1479	OXIDIZING SOLID, N.O.S.	5.1	O2	I	5.1	274	LQ0	P503 IBC05		MP2		
1479	OXIDIZING SOLID, N.O.S.	5.1	O2	II	5.1	274	LQ11	P002 IBC08	B4	MP2		
1479	OXIDIZING SOLID, N.O.S.	5.1	O2	III	5.1	274	LQ12	P002 IBC08 LP02 R001	B3	MP2		
1481	PERCHLORATES, INORGANIC, N.O.S.	5.1	O2	II	5.1	274	LQ11	P002 IBC06		MP2		
1481	PERCHLORATES, INORGANIC, N.O.S.	5.1	O2	III	5.1	274	LQ12	P002 IBC08 LP02 R001	B3	MP2		
1482	PERMANGANATES, INORGANIC, N.O.S.	5.1	O2	II	5.1	274 608	LQ11	P002 IBC06		MP2		
1482	PERMANGANATES, INORGANIC, N.O.S.	5.1	O2	III	5.1	274 608	LQ12	P002 IBC08 LP02 R001	B3	MP2		
1483	PEROXIDES, INORGANIC, N.O.S.	5.1	O2	II	5.1	274	LQ11	P002 IBC06		MP2		
1483	PEROXIDES, INORGANIC, N.O.S.	5.1	O2	III	5.1	274	LQ12	P002 IBC08 LP02 R001	B3	MP2		
1484	POTASSIUM BROMATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1485	POTASSIUM CHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1486	POTASSIUM NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1487	POTASSIUM NITRATE AND SODIUM NITRITE MIXTURE	5.1	O2	II	5.1	607	LQ11	P002 IBC08	B4	MP10		
1488	POTASSIUM NITRITE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP10		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	
SGAN	TU3	AT	2	V11		CV24 CV28		56	1469	LEAD NITRATE
SGAN	TU3	AT	2	V11 V12		CV24 CV28		56	1470	LEAD PERCHLORATE
SGAN	TU3	AT	2	V11		CV24		50	1471	LITHIUM HYPOCHLORITE, DRY or LITHIUM HYPOCHLORITE MIXTURE
SGAN	TU3	AT	2	V11 V12		CV24		50	1472	LITHIUM PEROXIDE
SGAV	TU3	AT	2		VV8	CV24		50	1473	MAGNESIUM BROMATE
SGAV	TU3	AT	3		VV8	CV24		50	1474	MAGNESIUM NITRATE
SGAV	TU3	AT	2	V11 V12	VV8	CV24		50	1475	MAGNESIUM PERCHLORATE
SGAN	TU3	AT	2	V11 V12		CV24		50	1476	MAGNESIUM PEROXIDE
SGAN	TU3	AT	2	V11		CV24		50	1477	NITRATES, INORGANIC, N.O.S.
SGAV	TU3	AT	3		VV8	CV24		50	1477	NITRATES, INORGANIC, N.O.S.
			1	V10		CV24	S20		1479	OXIDIZING SOLID, N.O.S.
SGAN	TU3	AT	2	V11		CV24		50	1479	OXIDIZING SOLID, N.O.S.
SGAN	TU3	AT	3			CV24		50	1479	OXIDIZING SOLID, N.O.S.
SGAV	TU3	AT	2	V11 V12	VV8	CV24		50	1481	PERCHLORATES, INORGANIC, N.O.S.
SGAV	TU3	AT	3		VV8	CV24		50	1481	PERCHLORATES, INORGANIC, N.O.S.
SGAN	TU3	AT	2	V11 V12		CV24		50	1482	PERMANGANATES, INORGANIC, N.O.S.
SGAN	TU3	AT	3			CV24		50	1482	PERMANGANATES, INORGANIC, N.O.S.
SGAN	TU3	AT	2	V11 V12		CV24		50	1483	PEROXIDES, INORGANIC, N.O.S.
SGAN	TU3	AT	3			CV24		50	1483	PEROXIDES, INORGANIC, N.O.S.
SGAV	TU3	AT	2		VV8	CV24		50	1484	POTASSIUM BROMATE
SGAV	TU3	AT	2		VV8	CV24		50	1485	POTASSIUM CHLORATE
SGAV	TU3	AT	3		VV8	CV24		50	1486	POTASSIUM NITRATE
SGAV	TU3	AT	2		VV8	CV24		50	1487	POTASSIUM NITRATE AND SODIUM NITRITE MIXTURE
SGAV	TU3	AT	2		VV8	CV24		50	1488	POTASSIUM NITRITE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1489	POTASSIUM PERCHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1490	POTASSIUM PERMANGANATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1491	POTASSIUM PEROXIDE	5.1	O2	I	5.1		LQ0	P503 IBC06		MP2		
1492	POTASSIUM PERSULPHATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1493	SILVER NITRATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP10		
1494	SODIUM BROMATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1495	SODIUM CHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1496	SODIUM CHLORITE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1498	SODIUM NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1499	SODIUM NITRATE AND POTASSIUM NITRATE MIXTURE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1500	SODIUM NITRITE	5.1	OT2	III	5.1 +6.1		LQ12	P002 IBC08 R001	B3	MP10		
1502	SODIUM PERCHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1503	SODIUM PERMANGANATE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1504	SODIUM PEROXIDE	5.1	O2	I	5.1		LQ0	P503 IBC05		MP2		
1505	SODIUM PERSULPHATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1506	STRONTIUM CHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1507	STRONTIUM NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
1508	STRONTIUM PERCHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1509	STRONTIUM PEROXIDE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1510	TETRANITROMETHANE	5.1	OT1	I	5.1 +6.1	609	LQ0	P602		MP2		
1511	UREA HYDROGEN PEROXIDE	5.1	OC2	III	5.1 +8		LQ12	P002 IBC08 R001	B3	MP2		
1512	ZINC AMMONIUM NITRITE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP10		
1513	ZINC CHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
1514	ZINC NITRATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP10		
1515	ZINC PERMANGANATE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		
1516	ZINC PEROXIDE	5.1	O2	II	5.1		LQ11	P002 IBC06		MP2		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAV	TU3	AT	2	V11 V12	VV8	CV24		50	1489	POTASSIUM PERCHLORATE
SGAN	TU3	AT	2			CV24		50	1490	POTASSIUM PERMANGANATE
			1	V10 V12		CV24	S20		1491	POTASSIUM PEROXIDE
SGAV	TU3	AT	3		VV8	CV24		50	1492	POTASSIUM PERSULPHATE
SGAV	TU3	AT	2		VV8	CV24		50	1493	SILVER NITRATE
SGAV	TU3	AT	2		VV8	CV24		50	1494	SODIUM BROMATE
SGAV	TU3	AT	2		VV8	CV24		50	1495	SODIUM CHLORATE
SGAN	TU3	AT	2	V11		CV24		50	1496	SODIUM CHLORITE
SGAV	TU3	AT	3		VV8	CV24		50	1498	SODIUM NITRATE
SGAV	TU3	AT	3		VV8	CV24		50	1499	SODIUM NITRATE AND POTASSIUM NITRATE MIXTURE
SGAN	TU3	AT	3			CV24 CV28		56	1500	SODIUM NITRITE
SGAV	TU3	AT	2	V11 V12	VV8	CV24		50	1502	SODIUM PERCHLORATE
SGAN	TU3	AT	2	V11 V12		CV24		50	1503	SODIUM PERMANGANATE
			1	V10		CV24	S20		1504	SODIUM PEROXIDE
SGAV	TU3	AT	3		VV8	CV24		50	1505	SODIUM PERSULPHATE
SGAV	TU3	AT	2	V11	VV8	CV24		50	1506	STRONTIUM CHLORATE
SGAV	TU3	AT	3		VV8	CV24		50	1507	STRONTIUM NITRATE
SGAV	TU3	AT	2	V11 V12	VV8	CV24		50	1508	STRONTIUM PERCHLORATE
SGAN	TU3	AT	2	V11 V12		CV24		50	1509	STRONTIUM PEROXIDE
L4BN	TU3 TU28	AT	1	V5		CV24 CV28	S20	559	1510	TETRANITROMETHANE
SGAN	TU3	AT	3			CV24		58	1511	UREA HYDROGEN PEROXIDE
SGAN	TU3	AT	2			CV24		50	1512	ZINC AMMONIUM NITRITE
SGAV	TU3	AT	2	V11	VV8	CV24		50	1513	ZINC CHLORATE
SGAN	TU3	AT	2			CV24		50	1514	ZINC NITRATE
SGAN	TU3	AT	2	V11 V12		CV24		50	1515	ZINC PERMANGANATE
SGAN	TU3	AT	2	V11 V12		CV24		50	1516	ZINC PEROXIDE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1517	ZIRCONIUM PICRAMATE, WETTED with not less than 20% water, by mass	4.1	D	I	4.1		LQ0	P406	PP26	MP2		
1541	ACETONE CYANOHYDRIN, STABILIZED	6.1	T1	I	6.1		LQ0	P602		MP8 MP17	T14	TP2 TP13
1544	ALKALOIDS, SOLID, N.O.S. or ALKALOID SALTS, SOLID, N.O.S.	6.1	T2	I	6.1	43 274	LQ0	P002 IBC07		MP18		
1544	ALKALOIDS, SOLID, N.O.S. or ALKALOID SALTS, SOLID, N.O.S.	6.1	T2	II	6.1	43 274	LQ18	P002 IBC08	B4	MP10		
1544	ALKALOIDS, SOLID, N.O.S. or ALKALOID SALTS, SOLID, N.O.S.	6.1	T2	III	6.1	43 274	LQ9	P002 IBC08 LP02 R001	B3	MP10		
1545	ALLYL ISOTHIOCYANATE, STABILIZED	6.1	TF1	II	6.1 +3		LQ17	P001 IBC02		MP15	T7	TP2
1546	AMMONIUM ARSENATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1547	ANILINE	6.1	T1	II	6.1	279	LQ17	P001 IBC02		MP15	T7	TP2
1548	ANILINE HYDROCHLORIDE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
1549	ANTIMONY COMPOUND, INORGANIC, SOLID, N.O.S.	6.1	T5	III	6.1	45 274 512	LQ9	P002 IBC08 LP02 R001	B3	MP10		
1550	ANTIMONY LACTATE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
1551	ANTIMONY POTASSIUM TARTRATE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
1553	ARSENIC ACID, LIQUID	6.1	T4	I	6.1		LQ0	P001		MP8 MP17	T20	TP2 TP7 TP13
1554	ARSENIC ACID, SOLID	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1555	ARSENIC BROMIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1556	ARSENIC COMPOUND, LIQUID, N.O.S., inorganic, including: Arsenates, n.o.s., Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	6.1	T4	I	6.1	43 274	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
1556	ARSENIC COMPOUND, LIQUID, N.O.S., inorganic, including: Arsenates, n.o.s., Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	6.1	T4	II	6.1	43 274	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
1556	ARSENIC COMPOUND, LIQUID, N.O.S., inorganic, including: Arsenates, n.o.s., Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	6.1	T4	III	6.1	43 274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	
			1				S17		1517	ZIRCONIUM PICRAMATE, WETTED with not less than 20% water, by mass
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	669	1541	ACETONE CYANOHYDRIN, STABILIZED
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1544	ALKALOIDS, SOLID, N.O.S. or ALKALOID SALTS, SOLID, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1544	ALKALOIDS, SOLID, N.O.S. or ALKALOID SALTS, SOLID, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1544	ALKALOIDS, SOLID, N.O.S. or ALKALOID SALTS, SOLID, N.O.S.
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	639	1545	ALLYL ISOTHIOCYANATE, STABILIZED
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1546	AMMONIUM ARSENATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1547	ANILINE
SGAH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1548	ANILINE HYDROCHLORIDE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1549	ANTIMONY COMPOUND, INORGANIC, SOLID, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1550	ANTIMONY LACTATE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1551	ANTIMONY POTASSIUM TARTRATE
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1553	ARSENIC ACID, LIQUID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1554	ARSENIC ACID, SOLID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1555	ARSENIC BROMIDE
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1556	ARSENIC COMPOUND, LIQUID, N.O.S., inorganic, including: Arsenates, n.o.s., Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1556	ARSENIC COMPOUND, LIQUID, N.O.S., inorganic, including: Arsenates, n.o.s., Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1556	ARSENIC COMPOUND, LIQUID, N.O.S., inorganic, including: Arsenates, n.o.s., Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1557	ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	6.1	T5	I	6.1	43 274	LQ0	P002 IBC07		MP18		
1557	ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	6.1	T5	II	6.1	43 274	LQ18	P002 IBC08	B4	MP10		
1557	ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	6.1	T5	III	6.1	43 274	LQ9	P002 IBC08 LP02 R001	B3	MP10		
1558	ARSENIC	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1559	ARSENIC PENTOXIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1560	ARSENIC TRICHLORIDE	6.1	T4	I	6.1		LQ0	P602		MP8 MP17	T14	TP2 TP13
1561	ARSENIC TRIOXIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1562	ARSENICAL DUST	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1564	BARIUM COMPOUND, N.O.S.	6.1	T5	II	6.1	177 274 513 587	LQ18	P002 IBC08	B4	MP10		
1564	BARIUM COMPOUND, N.O.S.	6.1	T5	III	6.1	177 274 513 587	LQ9	P002 IBC08 LP02 R001	B3	MP10		
1565	BARIUM CYANIDE	6.1	T5	I	6.1		LQ0	P002 IBC07		MP18		
1566	BERYLLIUM COMPOUND, N.O.S.	6.1	T5	II	6.1	274 514	LQ18	P002 IBC08	B4	MP10		
1566	BERYLLIUM COMPOUND, N.O.S.	6.1	T5	III	6.1	274 514	LQ9	P002 IBC08 LP02 R001	B3	MP10		
1567	BERYLLIUM POWDER	6.1	TF3	II	6.1 +4.1		LQ18	P002 IBC08	B4	MP10		
1569	BROMOACETONE	6.1	TF1	II	6.1 +3		LQ17	P602		MP15	T10	TP2 TP13
1570	BRUCINE	6.1	T2	I	6.1	43	LQ0	P002 IBC07		MP18		
1571	BARIUM AZIDE, WETTED with not less than 50% water, by mass	4.1	DT	I	4.1 +6.1	568	LQ0	P406		MP2		
1572	CACODYLIC ACID	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1573	CALCIUM ARSENATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1574	CALCIUM ARSENATE AND CALCIUM ARSENITE MIXTURE, SOLID	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1575	CALCIUM CYANIDE	6.1	T5	I	6.1		LQ0	P002 IBC07		MP18		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
S10AH L10CH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1557 ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1557 ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1557 ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1558 ARSENIC	
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1559 ARSENIC PENTOXIDE	
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1560 ARSENIC TRICHLORIDE	
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1561 ARSENIC TRIOXIDE	
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1562 ARSENICAL DUST	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1564 BARIUM COMPOUND, N.O.S.	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9a	CV13 CV28	S9	60	1564 BARIUM COMPOUND, N.O.S.	
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1565 BARIUM CYANIDE	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1566 BERYLLIUM COMPOUND, N.O.S.	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1566 BERYLLIUM COMPOUND, N.O.S.	
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	64	1567 BERYLLIUM POWDER	
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	1569 BROMOACETONE	
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1570 BRUCINE	
			1			CV28	S17		1571 BARIUM AZIDE, WETTED with not less than 50% water, by mass	
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1572 CACODYLIC ACID	
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1573 CALCIUM ARSENATE	
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1574 CALCIUM ARSENATE AND CALCIUM ARSENITE MIXTURE, SOLID	
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1575 CALCIUM CYANIDE	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1577	CHLORODINITROBENZENES, LIQUID	6.1	T1	II	6.1	279	LQ17	P001 IBC02		MP15	T7	TP2
1577	CHLORODINITROBENZENES, SOLID	6.1	T2	II	6.1	279	LQ18	P002 IBC08	B4	MP10	T7	TP2
1578	CHLORONITROBENZENES, liquid	6.1	T1	II	6.1	279	LQ17	P001 IBC02		MP15	T7	TP2
1578	CHLORONITROBENZENES, solid	6.1	T2	II	6.1	279	LQ18	P002 IBC08	B4	MP10	T7	TP2
1579	4-CHLORO-o-TOLUIDINE HYDROCHLORIDE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10	T4	TP1
1580	CHLOROPICRIN	6.1	T1	I	6.1		LQ0	P602		MP8 MP17	T14	TP2 TP13
1581	CHLOROPICRIN AND METHYL BROMIDE MIXTURE with more than 2% chloropicrin	2	2T		2.3		LQ0	P200		MP9	T50	
1582	CHLOROPICRIN AND METHYL CHLORIDE MIXTURE	2	2T		2.3		LQ0	P200		MP9	T50	
1583	CHLOROPICRIN MIXTURE, N.O.S.	6.1	T1	I	6.1	274 515	LQ0	P602		MP8 MP17		
1583	CHLOROPICRIN MIXTURE, N.O.S.	6.1	T1	II	6.1	274 515	LQ17	P001 IBC02		MP15		
1583	CHLOROPICRIN MIXTURE, N.O.S.	6.1	T1	III	6.1	274 515	LQ19	P001 IBC03 LP01 R001		MP15		
1585	COPPER ACETOARSENITE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1586	COPPER ARSENITE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1587	COPPER CYANIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1588	CYANIDES, INORGANIC, SOLID, N.O.S.	6.1	T5	I	6.1	47 274	LQ0	P002 IBC07		MP18		
1588	CYANIDES, INORGANIC, SOLID, N.O.S.	6.1	T5	II	6.1	47 274	LQ18	P002 IBC08	B4	MP10		
1588	CYANIDES, INORGANIC, SOLID, N.O.S.	6.1	T5	III	6.1	47 274	LQ9	P002 IBC08 LP02 R001	B3	MP10		
1589	CYANOGEN CHLORIDE, STABILIZED	2	2TC		2.3 +8		LQ0	P200		MP9		
1590	DICHLOROANILINES, LIQUID	6.1	T1	II	6.1	279	LQ17	P001 IBC02		MP15	T7	TP2
1590	DICHLOROANILINES, SOLID	6.1	T2	II	6.1	279	LQ18	P002 IBC08	B4	MP10		
1591	o-DICHLOROBENZENE	6.1	T1	III	6.1	279	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1593	DICHLOROMETHANE	6.1	T1	III	6.1	516	LQ19	P001 IBC03 LP01 R001	B8	MP15	T7	TP2
1594	DIETHYL SULPHATE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
1595	DIMETHYL SULPHATE	6.1	TC1	I	6.1 +8		LQ0	P602		MP8 MP17	T14	TP2 TP13



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1577	CHLORODINITROBENZENES, LIQUID
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1577	CHLORODINITROBENZENES, SOLID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1578	CHLORONITROBENZENES, liquid
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1578	CHLORONITROBENZENES, solid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1579	4-CHLORO-o-TOLUIDINE HYDROCHLORIDE
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1580	CHLOROPICRIN
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	26	1581	CHLOROPICRIN AND METHYL BROMIDE MIXTURE with more than 2% chloropicrin
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	26	1582	CHLOROPICRIN AND METHYL CHLORIDE MIXTURE
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1583	CHLOROPICRIN MIXTURE, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1583	CHLOROPICRIN MIXTURE, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1583	CHLOROPICRIN MIXTURE, N.O.S.
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1585	COPPER ACETOARSENITE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1586	COPPER ARSENITE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1587	COPPER CYANIDE
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1588	CYANIDES, INORGANIC, SOLID, N.O.S.
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1588	CYANIDES, INORGANIC, SOLID, N.O.S.
SGAH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1588	CYANIDES, INORGANIC, SOLID, N.O.S.
			1	V7		CV9 CV10	S7 S17		1589	CYANOGEN CHLORIDE, STABILIZED
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1590	DICHLOROANILINES, LIQUID
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1590	DICHLOROANILINES, SOLID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1591	o-DICHLOROBENZENE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1593	DICHLOROMETHANE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1594	DIETHYL SULPHATE
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	668	1595	DIMETHYL SULPHATE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	4.1.4	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1596	DINITROANILINES	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10	T7	TP2
1597	DINITROBENZENES, LIQUID	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
1597	DINITROBENZENES, SOLID	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
1598	DINITRO- <i>o</i> -CRESOL	6.1	T2	II	6.1	43	LQ18	P002 IBC08	B4	MP10	T7	TP2
1599	DINITROPHENOL SOLUTION	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
1599	DINITROPHENOL SOLUTION	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1600	DINITROTOLUENES, MOLTEN	6.1	T1	II	6.1		LQ0				T7	TP3
1601	DISINFECTANT, SOLID, TOXIC, N.O.S.	6.1	T2	I	6.1	274	LQ0	P002 IBC07		MP18		
1601	DISINFECTANT, SOLID, TOXIC, N.O.S.	6.1	T2	II	6.1	274	LQ18	P002 IBC08	B4	MP10		
1601	DISINFECTANT, SOLID, TOXIC, N.O.S.	6.1	T2	III	6.1	274	LQ9	P002 IBC08 LP02 R001	B3	MP10		
1602	DYE, LIQUID, TOXIC, N.O.S. or DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S.	6.1	T1	I	6.1	274	LQ0	P001		MP8 MP17		
1602	DYE, LIQUID, TOXIC, N.O.S. or DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S.	6.1	T1	II	6.1	274	LQ17	P001 IBC02		MP15		
1602	DYE, LIQUID, TOXIC, N.O.S. or DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S.	6.1	T1	III	6.1	274	LQ19	P001 IBC03 LP01 R001		MP15		
1603	ETHYL BROMOACETATE	6.1	TF1	II	6.1 +3		LQ17	P001 IBC02		MP15	T7	TP2
1604	ETHYLENEDIAMINE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
1605	ETHYLENE DIBROMIDE	6.1	T1	I	6.1		LQ0	P601 PR3		MP8 MP17	T14	TP2 TP13
1606	FERRIC ARSENATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1607	FERRIC ARSENITE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1608	FERROUS ARSENATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1611	HEXAETHYL TETRAPHOSPHATE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15		
1612	HEXAETHYL TETRAPHOSPHATE AND COMPRESSED GAS MIXTURE	2	IT		2.3		LQ0	P200		MP9		
1613	HYDROCYANIC ACID, AQUEOUS SOLUTION (HYDROGEN CYANIDE, AQUEOUS SOLUTION) with not more than 20% hydrogen cyanide	6.1	TF1	I	6.1 +3	48	LQ0	P601 PR3		MP8 MP17	T14	TP2 TP13
1614	HYDROGEN CYANIDE, STABILIZED, containing less than 3% water and absorbed in a porous inert material	6.1	TF1	I	6.1 +3	603	LQ0	P601 PR7	RR3	MP2		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1), (2)	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1596	DINITROANILINES
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1597	DINITROBENZENES, LIQUID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1597	DINITROBENZENES, SOLID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1598	DINITRO-o-CRESOL
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1599	DINITROPHENOL SOLUTION
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1599	DINITROPHENOL SOLUTION
L4BH	TU15 TE1 TE15 TE19	AT	0			CV13	S9 S19	60	1600	DINITROTOLUENES, MOLTEN
S10AH L10CH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1601	DISINFECTANT, SOLID, TOXIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1601	DISINFECTANT, SOLID, TOXIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1601	DISINFECTANT, SOLID, TOXIC, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1602	DYE, LIQUID, TOXIC, N.O.S. or DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1602	DYE, LIQUID, TOXIC, N.O.S. or DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1602	DYE, LIQUID, TOXIC, N.O.S. or DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	1603	ETHYL BROMOACETATE
L4BN		FL	2				S2	83	1604	ETHYLENEDIAMINE
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1605	ETHYLENE DIBROMIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1606	FERRIC ARSENATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1607	FERRIC ARSENITE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1608	FEROUS ARSENATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1611	HEXAETHYL TETRAPHOSPHATE
CxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	26	1612	HEXAETHYL TETRAPHOSPHATE AND COMPRESSED GAS MIXTURE
L15DH(+)	TU14 TU15 TE1 TE19 TE21	FL	0			CV1 CV13 CV28	S2 S9 S17	663	1613	HYDROCYANIC ACID, AQUEOUS SOLUTION (HYDROGEN CYANIDE, AQUEOUS SOLUTION) with not more than 20% hydrogen cyanide
			0			CV1 CV13 CV28	S2 S9 S10 S17		1614	HYDROGEN CYANIDE, STABILIZED, containing less than 3% water and absorbed in a porous inert material

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1616	LEAD ACETATE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
1617	LEAD ARSENATES	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1618	LEAD ARSENITES	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1620	LEAD CYANIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1621	LONDON PURPLE	6.1	T5	II	6.1	43	LQ18	P002 IBC08	B4	MP10		
1622	MAGNESIUM ARSENATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1623	MERCURIC ARSENATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1624	MERCURIC CHLORIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1625	MERCURIC NITRATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1626	MERCURIC POTASSIUM CYANIDE	6.1	T5	I	6.1		LQ0	P002 IBC07		MP18		
1627	MERCUROUS NITRATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1629	MERCURY ACETATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1630	MERCURY AMMONIUM CHLORIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1631	MERCURY BENZOATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1634	MERCURY BROMIDES	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1636	MERCURY CYANIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1637	MERCURY GLUCONATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1638	MERCURY IODIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1639	MERCURY NUCLEATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1640	MERCURY OLEATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1641	MERCURY OXIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1642	MERCURY OXYCYANIDE, DESENSITIZED	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1643	MERCURY POTASSIUM IODIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1644	MERCURY SALICYLATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1645	MERCURY SULPHATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1646	MERCURY THIOCYANATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1647	METHYL BROMIDE AND ETHYLENE DIBROMIDE MIXTURE, LIQUID	6.1	T1	I	6.1		LQ0	P602		MP8 MP17		
1648	ACETONITRILE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T7	TP2
1649	MOTOR FUEL ANTI-KNOCK MIXTURE	6.1	T3	I	6.1	162	LQ0	P602		MP8 MP17	T14	TP2 TP13
1650	beta-NAPHTHYLAMINE	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10	T7	TP2

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1616	LEAD ACETATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1617	LEAD ARSENATES
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1618	LEAD ARSENITES
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1620	LEAD CYANIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1621	LONDON PURPLE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1622	MAGNESIUM ARSENATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1623	MERCURIC ARSENATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1624	MERCURIC CHLORIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1625	MERCURIC NITRATE
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1626	MERCURIC POTASSIUM CYANIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1627	MERCUROUS NITRATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1629	MERCURY ACETATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1630	MERCURY AMMONIUM CHLORIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1631	MERCURY BENZOATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1634	MERCURY BROMIDES
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1636	MERCURY CYANIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1637	MERCURY GLUCONATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1638	MERCURY IODIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1639	MERCURY NUCLEATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1640	MERCURY OLEATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1641	MERCURY OXIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1642	MERCURY OXYCYANIDE, DESENSITIZED
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1643	MERCURY POTASSIUM IODIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1644	MERCURY SALICYLATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1645	MERCURY SULPHATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1646	MERCURY THIOCYANATE
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1647	METHYL BROMIDE AND ETHYLENE DIBROMIDE MIXTURE, LIQUID
LGBF		FL	2				S2 S20	33	1648	ACETONITRILE
L10CH	TU14 TU15 TE1 TE19 TE21 TT6	AT	1			CV1 CV13 CV28	S9 S17	66	1649	MOTOR FUEL ANTI-KNOCK MIXTURE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1650	beta-NAPHTHYLAMINE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1651	NAPHTHYLTHIOUREA	6.1	T2	II	6.1	43	LQ18	P002 IBC08	B4	MP10		
1652	NAPHTHYLUREA	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
1653	NICKEL CYANIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1654	NICOTINE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15		
1655	NICOTINE COMPOUND, SOLID, N.O.S. or NICOTINE PREPARATION, SOLID, N.O.S.	6.1	T2	I	6.1	43 274	LQ0	P002 IBC07		MP18		
1655	NICOTINE COMPOUND, SOLID, N.O.S. or NICOTINE PREPARATION, SOLID, N.O.S.	6.1	T2	II	6.1	43 274	LQ18	P002 IBC08	B4	MP10		
1655	NICOTINE COMPOUND, SOLID, N.O.S. or NICOTINE PREPARATION, SOLID, N.O.S.	6.1	T2	III	6.1	43 274	LQ9	P002 IBC08 LP02 R001	B3	MP10		
1656	NICOTINE HYDROCHLORIDE, liquid or NICOTINE HYDROCHLORIDE SOLUTION	6.1	T1	II	6.1	43	LQ17	P001 IBC02		MP15		
1656	NICOTINE HYDROCHLORIDE, solid	6.1	T2	II	6.1	43	LQ18	P002 IBC08		MP10		
1657	NICOTINE SALICYLATE	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
1658	NICOTINE SULPHATE, SOLUTION	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
1658	NICOTINE SULPHATE, SOLID	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
1659	NICOTINE TARTRATE	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
1660	NITRIC OXIDE, COMPRESSED	2	ITOC		2.3 +5.1 +8		LQ0	P200		MP9		
1661	NITROANILINES (o-, m-, p-)	6.1	T2	II	6.1	279	LQ18	P002 IBC08	B4	MP10	T7	TP2
1662	NITROBENZENE	6.1	T1	II	6.1	279	LQ17	P001 IBC02		MP15	T7	TP2
1663	NITROPHENOLS (o-, m-, p-)	6.1	T2	III	6.1	279	LQ9	P002 IBC08 LP02 R001	B3	MP10	T4	TP3
1664	NITROTOLUENES, LIQUID	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
1664	NITROTOLUENES, SOLID	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
1665	NITROXYLENES, LIQUID	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
1665	NITROXYLENES, SOLID	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
1669	PENTACHLOROETHANE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
1670	PERCHLOROMETHYL MERCAPTAN	6.1	T1	I	6.1		LQ0	P602		MP8 MP17	T14	TP2 TP13
1671	PHENOL, SOLID	6.1	T2	II	6.1	279	LQ18	P002 IBC08	B4	MP10	T6	TP2
1672	PHENYL CARBYLAMINE CHLORIDE	6.1	T1	I	6.1		LQ0	P602		MP8 MP17	T14	TP2 TP13

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1651	NAPHTHYLTHIOUREA
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1652	NAPHTHYLUREA
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1653	NICKEL CYANIDE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1654	NICOTINE
S10AH L10CH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1655	NICOTINE COMPOUND, SOLID, N.O.S. or NICOTINE PREPARATION, SOLID, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1655	NICOTINE COMPOUND, SOLID, N.O.S. or NICOTINE PREPARATION, SOLID, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1655	NICOTINE COMPOUND, SOLID, N.O.S. or NICOTINE PREPARATION, SOLID, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1656	NICOTINE HYDROCHLORIDE, liquid or NICOTINE HYDROCHLORIDE SOLUTION
SGAH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1656	NICOTINE HYDROCHLORIDE, solid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1657	NICOTINE SALICYLATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1658	NICOTINE SULPHATE, SOLUTION
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1658	NICOTINE SULPHATE, SOLID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1659	NICOTINE TARTRATE
			1	V7		CV9 CV10	S7 S17		1660	NITRIC OXIDE, COMPRESSED
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1661	NITROANILINES (o-, m-, p-)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1662	NITROBENZENE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1663	NITROPHENOLS (o-, m-, p-)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1664	NITROTOLUENES, LIQUID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1664	NITROTOLUENES, SOLID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1665	NITROXYLENES, LIQUID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1665	NITROXYLENES, SOLID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1669	PENTACHLOROETHANE
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1670	PERCHLOROMETHYL MERCAPTAN
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1671	PHENOL, SOLID
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1672	PHENYL CARBYLAMINE CHLORIDE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1673	PHENYLENEDIAMINES (o-, m-, p-)	6.1	T2	III	6.1	279	LQ9	P002 IBC08 LP02 R001	B3	MP10	T7	TP1
1674	PHENYLMERCURIC ACETATE	6.1	T3	II	6.1	43	LQ18	P002 IBC08	B4	MP10		
1677	POTASSIUM ARSENATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1678	POTASSIUM ARSENITE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1679	POTASSIUM CUPROCYANIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1680	POTASSIUM CYANIDE	6.1	T5	I	6.1		LQ0	P002 IBC07		MP18	T14	TP2 TP13
1683	SILVER ARSENITE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1684	SILVER CYANIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1685	SODIUM ARSENATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1686	SODIUM ARSENITE, AQUEOUS SOLUTION	6.1	T4	II	6.1	43	LQ17	P001 IBC02		MP15	T7	TP2
1686	SODIUM ARSENITE, AQUEOUS SOLUTION	6.1	T4	III	6.1	43	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP2
1687	SODIUM AZIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1688	SODIUM CACODYLATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1689	SODIUM CYANIDE	6.1	T5	I	6.1		LQ0	P002 IBC07		MP18	T14	TP2 TP13
1690	SODIUM FLUORIDE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10	T4	TP1
1691	STRONTIUM ARSENITE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1692	STRYCHNINE or STRYCHNINE SALTS	6.1	T2	I	6.1		LQ0	P002 IBC07		MP18		
1693	TEAR GAS SUBSTANCE, LIQUID, N.O.S.	6.1	T1	I	6.1	274	LQ0	P001		MP8 MP17		
1693	TEAR GAS SUBSTANCE, LIQUID, N.O.S.	6.1	T1	II	6.1	274	LQ17	P001 IBC02		MP15		
1693	TEAR GAS SUBSTANCE, SOLID, N.O.S.	6.1	T2	I	6.1	274	LQ0	P002		MP18		
1693	TEAR GAS SUBSTANCE, SOLID, N.O.S.	6.1	T2	II	6.1	274	LQ18	P002 IBC08	B4	MP10		
1694	BROMOBENZYL CYANIDES, LIQUID	6.1	T1	I	6.1	138	LQ0	P001		MP8 MP17	T14	TP2 TP13
1694	BROMOBENZYL CYANIDES, SOLID	6.1	T2	I	6.1	138	LQ0	P002		MP18	T14	TP2 TP13
1695	CHLOROACETONE, STABILIZED	6.1	TFC	I	6.1 +3 +8		LQ0	P001		MP8 MP17	T14	TP2 TP13
1697	CHLOROACETOPHENONE	6.1	T1	II	6.1		LQ17	P002 IBC08	B4	MP10	T7	TP2 TP13
1698	DIPHENYLAMINE CHLOROARSINE	6.1	T3	I	6.1		LQ0	P002		MP18		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1673	PHENYLENEDIAMINES (o-, m-, p-)
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1674	PHENYLMERCURIC ACETATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1677	POTASSIUM ARSENATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1678	POTASSIUM ARSENITE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1679	POTASSIUM CUPROCYANIDE
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1680	POTASSIUM CYANIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1683	SILVER ARSENITE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1684	SILVER CYANIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1685	SODIUM ARSENATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1686	SODIUM ARSENITE, AQUEOUS SOLUTION
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1686	SODIUM ARSENITE, AQUEOUS SOLUTION
			2	V11		CV13 CV28	S9 S19		1687	SODIUM AZIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1688	SODIUM CACODYLATE
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1689	SODIUM CYANIDE
SGAH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1690	SODIUM FLUORIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1691	STRONTIUM ARSENITE
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1692	STRYCHNINE or STRYCHNINE SALTS
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1693	TEAR GAS SUBSTANCE, LIQUID, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1693	TEAR GAS SUBSTANCE, LIQUID, N.O.S.
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1693	TEAR GAS SUBSTANCE, SOLID, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1693	TEAR GAS SUBSTANCE, SOLID, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1694	BROMOBENZYL CYANIDES, LIQUID
S10AH	TU15 TE1 TE19	AT	1			CV1 CV13 CV28	S9 S17	66	1694	BROMOBENZYL CYANIDES, SOLID
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1695	CHLOROACETONE, STABILIZED
L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1697	CHLOROACETOPHENONE
S10AH	TU15 TE1 TE19	AT	1			CV1 CV13 CV28	S9 S17	66	1698	DIPHENYLAMINE CHLOROARSINE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1699	DIPHENYLCHLOROARSINE, LIQUID	6.1	T3	I	6.1		LQ0	P001		MP8 MP17		
1699	DIPHENYLCHLOROARSINE, SOLID	6.1	T3	I	6.1		LQ0	P002 IBC07		MP18		
1700	TEAR GAS CANDLES	6.1	TF3	II	6.1 +4.1		LQ18	P600				
1701	XYLYL BROMIDE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2 TP13
1702	1,1,2,2-TETRACHLOROETHANE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
1704	TETRAETHYL DITHIOPYROPHOSPHATE	6.1	T2	II	6.1	43	LQ18	P002 IBC08	B4	MP10		
1707	THALLIUM COMPOUND, N.O.S.	6.1	T5	II	6.1	43 274	LQ18	P002 IBC08	B4	MP10		
1708	TOLUIDINES, LIQUID	6.1	T1	II	6.1	279	LQ17	P001 IBC02		MP15	T7	TP2
1708	TOLUIDINES, SOLID	6.1	T2	II	6.1	279	LQ18	P002 IBC08	B4	MP10	T7	TP2
1709	2,4-TOLUYLENEDIAMINE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10	T4	TP1
1710	TRICHLOROETHYLENE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1711	XYLIDINES, LIQUID	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
1711	XYLIDINES, SOLID	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10	T7	TP2
1712	ZINC ARSENATE, ZINC ARSENITE or ZINC ARSENATE AND ZINC ARSENITE MIXTURE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
1713	ZINC CYANIDE	6.1	T5	I	6.1		LQ0	P002 IBC07		MP18		
1714	ZINC PHOSPHIDE	4.3	WT2	I	4.3 +6.1		LQ0	P403		MP2		
1715	ACETIC ANHYDRIDE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
1716	ACETYL BROMIDE	8	C3	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12
1717	ACETYL CHLORIDE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T8	TP2 TP12
1718	BUTYL ACID PHOSPHATE	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1719	CAUSTIC ALKALI LIQUID, N.O.S.	8	C5	II	8	274	LQ22	P001 IBC02		MP15	T11	TP2 TP27
1719	CAUSTIC ALKALI LIQUID, N.O.S.	8	C5	III	8	274	LQ19	P001 IBC03 R001		MP15	T7	TP1 TP28
1722	ALLYL CHLOROFORMATE	6.1	TFC	I	6.1 +3 +8		LQ0	P001		MP8 MP17	T14	TP2 TP13
1723	ALLYL IODIDE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP2 TP13
1724	ALLYLTRICHLOROSILANE, STABILIZED	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1725	ALUMINIUM BROMIDE, ANHYDROUS	8	C2	II	8	588	LQ23	P002 IBC08	B4	MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1)	3.1.2 (2)
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1699	DIPHENYLCHLORO- ARSINE, LIQUID
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1699	DIPHENYLCHLORO- ARSINE, SOLID
			2			CV13 CV28	S9 S19		1700	TEAR GAS CANDLES
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1701	XYLYL BROMIDE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1702	1,1,2,2-TETRACHLORO- ETHANE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1704	TETRAETHYL DITHIOPYROPHOSPHATE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1707	THALLIUM COMPOUND, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1708	TOLUIDINES, LIQUID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1708	TOLUIDINES, SOLID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1709	2,4-TOLUYLENEDIAMINE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1710	TRICHLOROETHYLENE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1711	XYLIDINES, LIQUID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1711	XYLIDINES, SOLID
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1712	ZINC ARSENATE, ZINC ARSENITE or ZINC ARSENATE AND ZINC ARSENITE MIXTURE
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	1713	ZINC CYANIDE
			1	V1		CV23 CV28	S20		1714	ZINC PHOSPHIDE
L4BN		FL	2				S2	83	1715	ACETIC ANHYDRIDE
L4BN		AT	2					80	1716	ACETYL BROMIDE
L4BH	TE1 TE15	FL	2				S2 S20	X338	1717	ACETYL CHLORIDE
L4BN		AT	3					80	1718	BUTYL ACID PHOSPHATE
L4BN		AT	2					80	1719	CAUSTIC ALKALI LIQUID, N.O.S.
L4BN		AT	3					80	1719	CAUSTIC ALKALI LIQUID, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	668	1722	ALLYL CHLOROFORMATE
L4BH	TE1 TE15	FL	2				S2 S20	338	1723	ALLYL IODIDE
L4BN		FL	2				S2	X839	1724	ALLYLTRICHLOROSILANE, STABILIZED
SGAN		AT	2	V11				80	1725	ALUMINIUM BROMIDE, ANHYDROUS

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1726	ALUMINIUM CHLORIDE, ANHYDROUS	8	C2	II	8	588	LQ23	P002 IBC08	B4	MP10		
1727	AMMONIUM HYDROGENDIFLUORIDE, SOLID	8	C2	II	8		LQ23	P002 IBC08	B4	MP10		
1728	AMYLTRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1729	ANISOYL CHLORIDE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1730	ANTIMONY PENTACHLORIDE, LIQUID	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1731	ANTIMONY PENTACHLORIDE SOLUTION	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1731	ANTIMONY PENTACHLORIDE SOLUTION	8	C1	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1732	ANTIMONY PENTAFLUORIDE	8	CT1	II	8 +6.1		LQ22	P001 IBC02		MP15	T7	TP2
1733	ANTIMONY TRICHLORIDE	8	C2	II	8		LQ23	P002 IBC08	B4	MP10		
1736	BENZOYL CHLORIDE	8	C3	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12 TP13
1737	BENZYL BROMIDE	6.1	TC1	II	6.1 +8		LQ17	P001 IBC02		MP15	T8	TP2 TP12 TP13
1738	BENZYL CHLORIDE	6.1	TC1	II	6.1 +8		LQ17	P001 IBC02		MP15	T8	TP2 TP12 TP13
1739	BENZYL CHLOROFORMATE	8	C9	I	8		LQ20	P001		MP8 MP17	T10	TP2 TP12 TP13
1740	HYDROGENDIFLUORIDES, N.O.S.	8	C2	II	8	274 517	LQ23	P002 IBC08	B4	MP10		
1740	HYDROGENDIFLUORIDES, N.O.S.	8	C2	III	8	274 517	LQ24	P002 IBC08 LP02 R001	B3	MP10		
1741	BORON TRICHLORIDE	2	2TC		2.3 +8		LQ0	P200		MP9		
1742	BORON TRIFLUORIDE ACETIC ACID COMPLEX	8	C3	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12
1743	BORON TRIFLUORIDE PROPIONIC ACID COMPLEX	8	C3	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12
1744	BROMINE or BROMINE SOLUTION	8	CT1	I	8 +6.1		LQ0	P601 PR6		MP2	T22	TP2 TP10 TP12 TP13
1745	BROMINE PENTAFLUORIDE	5.1	OTC	I	5.1 +6.1 +8		LQ0	P200		MP2	T22	TP2 TP12 TP13
1746	BROMINE TRIFLUORIDE	5.1	OTC	I	5.1 +6.1 +8		LQ0	P200		MP2	T22	TP2 TP12 TP13
1747	BUTYLTRICHLOROSILANE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1748	CALCIUM HYPOCHLORITE, DRY or CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 39% available chlorine (8.8% available oxygen)	5.1	O2	II	5.1	589	LQ11	P002 IBC08	B4	MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAN		AT	2	V11				80	1726	ALUMINIUM CHLORIDE, ANHYDROUS
SGAN		AT	2	V11				80	1727	AMMONIUM HYDROGENDIFLUORIDE, SOLID
L4BN		AT	2					X80	1728	AMYLTRICHLOROSILANE
L4BN		AT	2					80	1729	ANISOYL CHLORIDE
L4BN		AT	2					X80	1730	ANTIMONY PENTACHLORIDE, LIQUID
L4BN		AT	2					80	1731	ANTIMONY PENTACHLORIDE SOLUTION
L4BN		AT	3					80	1731	ANTIMONY PENTACHLORIDE SOLUTION
L4BN		AT	2			CV13 CV28		86	1732	ANTIMONY PENTAFLUORIDE
SGAN L4BN		AT	2	V11				80	1733	ANTIMONY TRICHLORIDE
L4BN		AT	2					80	1736	BENZOYL CHLORIDE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	1737	BENZYL BROMIDE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	1738	BENZYL CHLORIDE
L10BH	TE1	AT	1				S20	88	1739	BENZYL CHLOROFORMATE
SGAN		AT	2	V11				80	1740	HYDROGENDIFLUORIDES, N.O.S.
SGAV		AT	3		VV9b			80	1740	HYDROGENDIFLUORIDES, N.O.S.
			1	V7		CV9 CV10	S7 S17		1741	BORON TRICHLORIDE
L4BN		AT	2					80	1742	BORON TRIFLUORIDE ACETIC ACID COMPLEX
L4BN		AT	2					80	1743	BORON TRIFLUORIDE PROPIONIC ACID COMPLEX
L21DH(+)	TU14 TU33 TC5 TE1 TE21 TT2 TM3 TM5	AT	1			CV13 CV28	S17	886	1744	BROMINE or BROMINE SOLUTION
L10DH	TU3	AT	1			CV24 CV28	S20	568	1745	BROMINE PENTAFLUORIDE
L10DH	TU3	AT	1			CV24 CV28	S20	568	1746	BROMINE TRIFLUORIDE
L4BN		FL	2				S2	X83	1747	BUTYLTRICHLOROSILANE
SGAN	TU3	AT	2	V11		CV24		50	1748	CALCIUM HYPOCHLORITE, DRY or CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 39% available chlorine (8.8% available oxygen)

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1749	CHLORINE TRIFLUORIDE	2	2TOC		2.3 +5.1 +8		LQ0	P200		MP9		
1750	CHLOROACETIC ACID SOLUTION	6.1	TC1	II	6.1 +8		LQ17	P001 IBC02		MP15	T7	TP2
1751	CHLOROACETIC ACID, SOLID	6.1	TC2	II	6.1 +8		LQ18	P002 IBC08	B4	MP10		
1752	CHLOROACETYL CHLORIDE	6.1	TC1	I	6.1 +8		LQ0	P001		MP8 MP17	T14	TP2 TP13
1753	CHLOROPHENYL-TRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1754	CHLOROSULPHONIC ACID (with or without sulphur trioxide)	8	C1	I	8		LQ20	P001		MP8 MP17	T20	TP2 TP12
1755	CHROMIC ACID SOLUTION	8	C1	II	8	518	LQ22	P001 IBC02		MP15	T8	TP2 TP12
1755	CHROMIC ACID SOLUTION	8	C1	III	8	518	LQ19	P001 IBC02 LP01 R001		MP15	T4	TP1 TP12
1756	CHROMIC FLUORIDE, SOLID	8	C2	II	8		LQ23	P002 IBC08	B4	MP10		
1757	CHROMIC FLUORIDE SOLUTION	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1757	CHROMIC FLUORIDE SOLUTION	8	C1	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1758	CHROMIUM OXYCHLORIDE	8	C1	I	8		LQ20	P001		MP8 MP17	T10	TP2 TP12
1759	CORROSIVE SOLID, N.O.S.	8	C10	I	8	274	LQ21	P002 IBC07		MP18		
1759	CORROSIVE SOLID, N.O.S.	8	C10	II	8	274	LQ23	P002 IBC08	B4	MP10		
1759	CORROSIVE SOLID, N.O.S.	8	C10	III	8	274	LQ24	P002 IBC08 LP02 R001	B3	MP10		
1760	CORROSIVE LIQUID, N.O.S.	8	C9	I	8	274	LQ20	P001		MP8 MP17	T14	TP2 TP9 TP27
1760	CORROSIVE LIQUID, N.O.S.	8	C9	II	8	274	LQ22	P001 IBC02		MP15	T11	TP2 TP27
1760	CORROSIVE LIQUID, N.O.S.	8	C9	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
1761	CUPRIETHYLENEDIAMINE SOLUTION	8	CT1	II	8 +6.1		LQ22	P001 IBC02		MP15	T7	TP2
1761	CUPRIETHYLENEDIAMINE SOLUTION	8	CT1	III	8 +6.1		LQ19	P001 IBC03 R001		MP15	T7	TP1 TP28
1762	CYCLOHEXENYL-TRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1763	CYCLOHEXYL-TRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1764	DICHLOROACETIC ACID	8	C3	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12
1765	DICHLOROACETYL CHLORIDE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1766	DICHLOROPHENYL-TRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1767	DIETHYLDICHLOROSILANE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1768	DIFLUOROPHOSPHORIC ACID, ANHYDROUS	8	C1	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	265	1749	CHLORINE TRIFLUORIDE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	1750	CHLOROACETIC ACID SOLUTION
SGAH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	1751	CHLOROACETIC ACID, SOLID
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	668	1752	CHLOROACETYL CHLORIDE
L4BN		AT	2					X80	1753	CHLOROPHENYL-TRICHLOROSILANE
L10BH	TE1	AT	1				S20	X88	1754	CHLOROSULPHONIC ACID (with or without sulphur trioxide)
L4BN		AT	2					80	1755	CHROMIC ACID SOLUTION
L4BN		AT	3					80	1755	CHROMIC ACID SOLUTION
SGAN		AT	2	V11				80	1756	CHROMIC FLUORIDE, SOLID
L4BN		AT	2					80	1757	CHROMIC FLUORIDE SOLUTION
L4BN		AT	3					80	1757	CHROMIC FLUORIDE SOLUTION
L10BH	TE1	AT	1				S20	X88	1758	CHROMIUM OXYCHLORIDE
S10AN L10BH	TE1	AT	1	V10 V12			S20	88	1759	CORROSIVE SOLID, N.O.S.
SGAN L4BN		AT	2	V11				80	1759	CORROSIVE SOLID, N.O.S.
SGAV L4BN		AT	3		VV9b			80	1759	CORROSIVE SOLID, N.O.S.
L10BH	TE1	AT	1				S20	88	1760	CORROSIVE LIQUID, N.O.S.
L4BN		AT	2					80	1760	CORROSIVE LIQUID, N.O.S.
L4BN		AT	3					80	1760	CORROSIVE LIQUID, N.O.S.
L4BN		AT	2			CV13 CV28		86	1761	CUPRIETHYLENEDIAMINE SOLUTION
L4BN		AT	3			CV13 CV28		86	1761	CUPRIETHYLENEDIAMINE SOLUTION
L4BN		AT	2					X80	1762	CYCLOHEXYL-TRICHLOROSILANE
L4BN		AT	2					X80	1763	CYCLOHEXYL-TRICHLOROSILANE
L4BN		AT	2					80	1764	DICHLOROACETIC ACID
L4BN		AT	2					X80	1765	DICHLOROACETYL CHLORIDE
L4BN		AT	2					X80	1766	DICHLOROPHENYL-TRICHLOROSILANE
L4BN		FL	2				S2	X83	1767	DIETHYLDICHLOROSILANE
L4BN		AT	2					80	1768	DIFLUOROPHOSPHORIC ACID, ANHYDROUS

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1769	DIPHENYLDICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1770	DIPHENYLMETHYLBROMIDE	8	C10	II	8		LQ23	P002 IBC08	B4	MP10		
1771	DODECYLTRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1773	FERRIC CHLORIDE, ANHYDROUS	8	C2	III	8	590	LQ24	P002 IBC08 LP02 R001	B3	MP10		
1774	FIRE EXTINGUISHER CHARGES, corrosive liquid	8	C11	II	8		LQ22	P001	PP4			
1775	FLUOROBORIC ACID	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1776	FLUOROPHOSPHORIC ACID, ANHYDROUS	8	C1	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12
1777	FLUOROSULPHONIC ACID	8	C1	I	8		LQ20	P001		MP8 MP17	T10	TP2 TP12
1778	FLUOROSILICIC ACID	8	C1	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12
1779	FORMIC ACID	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1780	FUMARYL CHLORIDE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1781	HEXADECYLTRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1782	HEXAFLUOROPHOSPHORIC ACID	8	C1	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12
1783	HEXAMETHYLENEDIAMINE SOLUTION	8	C7	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1783	HEXAMETHYLENEDIAMINE SOLUTION	8	C7	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1784	HEXYLTRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1786	HYDROFLUORIC ACID AND SULPHURIC ACID MIXTURE	8	CT1	I	8 +6.1		LQ20	P001		MP8 MP17	T10	TP2 TP12 TP13
1787	HYDRIODIC ACID	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1787	HYDRIODIC ACID	8	C1	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1788	HYDROBROMIC ACID	8	C1	II	8	519	LQ22	P001 IBC02		MP15	T7	TP2
1788	HYDROBROMIC ACID	8	C1	III	8	519	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1789	HYDROCHLORIC ACID	8	C1	II	8	520	LQ22	P001 IBC02		MP15	T8	TP2 TP12
1789	HYDROCHLORIC ACID	8	C1	III	8	520	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1 TP12
1790	HYDROFLUORIC ACID with more than 85% hydrofluoric acid	8	CT1	I	8 +6.1	640I	LQ0	P802		MP2	T10	TP2 TP12 TP13
1790	HYDROFLUORIC ACID with more than 60% but not more than 85% hydrofluoric acid	8	CT1	I	8 +6.1	640J	LQ20	P001	PP81	MP8 MP17	T10	TP2 TP12 TP13



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BN		AT	2					X80	1769	DIPHENYLDICHLOROSILANE
SGAN L4BN		AT	2	V11				80	1770	DIPHENYLMETHYL BROMIDE
L4BN		AT	2					X80	1771	DODECYLTRICHLOROSILANE
SGAV		AT	3		VV9b			80	1773	FERRIC CHLORIDE, ANHYDROUS
			2						1774	FIRE EXTINGUISHER CHARGES, corrosive liquid
L4BN		AT	2					80	1775	FLUOROBORIC ACID
L4BN		AT	2					80	1776	FLUOROPHOSPHORIC ACID, ANHYDROUS
L10BH	TE1	AT	1				S20	88	1777	FLUROSULPHONIC ACID
L4BN		AT	2					80	1778	FLUROSILICIC ACID
L4BN		AT	2					80	1779	FORMIC ACID
L4BN		AT	2					80	1780	FUMARYL CHLORIDE
L4BN		AT	2					X80	1781	HEXADECYLTRICHLOROSILANE
L4BN		AT	2					80	1782	HEXAFLUOROPHOSPHORIC ACID
L4BN		AT	2					80	1783	HEXAMETHYLENE DIAMINE SOLUTION
L4BN		AT	3					80	1783	HEXAMETHYLENE DIAMINE SOLUTION
L4BN		AT	2					X80	1784	HEXYLTRICHLOROSILANE
L10DH	TU14 TE1 TE21	AT	1			CV13 CV28	S20	886	1786	HYDROFLUORIC ACID AND SULPHURIC ACID MIXTURE
L4BN		AT	2					80	1787	HYDRIODIC ACID
L4BN		AT	3					80	1787	HYDRIODIC ACID
L4BN		AT	2					80	1788	HYDROBROMIC ACID
L4BN		AT	3					80	1788	HYDROBROMIC ACID
L4BN		AT	2					80	1789	HYDROCHLORIC ACID
L4BN		AT	3					80	1789	HYDROCHLORIC ACID
L21DH(+)	TU14 TU34 TC1 TE1 TE21 TM3 TM5	AT	1			CV13 CV28	S17	886	1790	HYDROFLUORIC ACID with more than 85% hydrofluoric acid
L10DH	TU14 TE1 TE21	AT	1			CV13 CV28	S17	886	1790	HYDROFLUORIC ACID with more than 60% but not more than 85% hydrofluoric acid

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1790	HYDROFLUORIC ACID with not more than 60% hydrofluoric acid	8	CT1	II	8 +6.1		LQ22	P001 IBC02		MP15	T8	TP2 TP12
1791	HYPOCHLORITE SOLUTION	8	C9	II	8	521	LQ22	P001 IBC02	PP10 B5	MP15	T7	TP2 TP24
1791	HYPOCHLORITE SOLUTION	8	C9	III	8	521	LQ19	P001 IBC02 LP01 R001	B5	MP15	T4	TP2 TP24
1792	IODINE MONOCHLORIDE	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1793	ISOPROPYL ACID PHOSPHATE	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1794	LEAD SULPHATE with more than 3% free acid	8	C2	II	8	591	LQ23	P002 IBC08	B4	MP10		
1796	NITRATING ACID MIXTURE with more than 50% nitric acid	8	CO1	I	8 +5.1		LQ20	P001		MP8 MP17	T10	TP2 TP12 TP13
1796	NITRATING ACID MIXTURE with not more than 50% nitric acid	8	C1	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12 TP13
1798	NITROHYDROCHLORIC ACID	8	COT	CARRIAGE PROHIBITED								
1799	NONYLTRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1800	OCTADECYLTRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1801	OCTYLTRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1802	PERCHLORIC ACID with not more than 50% acid, by mass	8	CO1	II	8 +5.1	522	LQ22	P001 IBC02		MP3	T7	TP2
1803	PHENOLSULPHONIC ACID, LIQUID	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1804	PHENYLTRICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1805	PHOSPHORIC ACID, LIQUID	8	C1	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1805	PHOSPHORIC ACID, SOLID	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
1806	PHOSPHORUS PENTACHLORIDE	8	C2	II	8		LQ23	P002 IBC08	B4	MP10		
1807	PHOSPHORUS PENTOXIDE	8	C2	II	8		LQ23	P002 IBC08	B4	MP10		
1808	PHOSPHORUS TRIBROMIDE	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1809	PHOSPHORUS TRICHLORIDE	6.1	TC3	I	6.1 +8		LQ0	P001		MP8 MP17	T14	TP2 TP13
1810	PHOSPHORUS OXYCHLORIDE	8	C1	II	8		LQ22	P001		MP15	T7	TP2
1811	POTASSIUM HYDROGENDIFLUORIDE	8	CT2	II	8 +6.1		LQ23	P002 IBC08	B4	MP10	T7	TP2
1812	POTASSIUM FLUORIDE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10	T4	TP1
1813	POTASSIUM HYDROXIDE, SOLID	8	C6	II	8		LQ23	P002 IBC08	B4	MP10		
1814	POTASSIUM HYDROXIDE SOLUTION	8	C5	II	8		LQ22	P001 IBC02		MP15	T7	TP2

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4DH	TU14 TE21	AT	2			CV13 CV28		86	1790	HYDROFLUORIC ACID with not more than 60% hydrofluoric acid
L4BV(+)	TE11	AT	2					80	1791	HYPOCHLORITE SOLUTION
L4BV(+)	TE11	AT	3					80	1791	HYPOCHLORITE SOLUTION
L4BN		AT	2					80	1792	IODINE MONOCHLORIDE
L4BN		AT	3					80	1793	ISOPROPYL ACID PHOSPHATE
SGAN		AT	2	V11	VV9a			80	1794	LEAD SULPHATE with more than 3% free acid
L10BH	TC6 TE1 TT1	AT	1			CV24	S20	885	1796	NITRATING ACID MIXTURE with more than 50% nitric acid
L4BN		AT	2					80	1796	NITRATING ACID MIXTURE with not more than 50% nitric acid
CARRIAGE PROHIBITED									1798	NITROHYDROCHLORIC ACID
L4BN		AT	2					X80	1799	NONYLTRICHLOROSILANE
L4BN		AT	2					X80	1800	OCTADECYLTRICHLOROSILANE
L4BN		AT	2					X80	1801	OCTYLTRICHLOROSILANE
L4BN		AT	2			CV24		85	1802	PERCHLORIC ACID with not more than 50% acid, by mass
L4BN		AT	2					80	1803	PHENOLSULPHONIC ACID, LIQUID
L4BN		AT	2					X80	1804	PHENYLTRICHLOROSILANE
L4BN		AT	3					80	1805	PHOSPHORIC ACID, LIQUID
			3		VV9b			80	1805	PHOSPHORIC ACID, SOLID
SGAN		AT	2	V11				80	1806	PHOSPHORUS PENTACHLORIDE
SGAN		AT	2	V11				80	1807	PHOSPHORUS PENTOXIDE
L4BN		AT	2					X80	1808	PHOSPHORUS TRIBROMIDE
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	668	1809	PHOSPHORUS TRICHLORIDE
L4BN		AT	2					X80	1810	PHOSPHORUS OXYCHLORIDE
SGAN		AT	2	V11		CV13 CV28		86	1811	POTASSIUM HYDROGENDIFLUORIDE
SGAH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	1812	POTASSIUM FLUORIDE
SGAN		AT	2	V11				80	1813	POTASSIUM HYDROXIDE, SOLID
L4BN		AT	2					80	1814	POTASSIUM HYDROXIDE SOLUTION

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1814	POTASSIUM HYDROXIDE SOLUTION	8	C5	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1815	PROPIONYL CHLORIDE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
1816	PROPYLTRICHLORO-SILANE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1817	PYROSULPHURYL CHLORIDE	8	C1	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12
1818	SILICON TETRACHLORIDE	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP7
1819	SODIUM ALUMINATE SOLUTION	8	C5	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1819	SODIUM ALUMINATE SOLUTION	8	C5	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1823	SODIUM HYDROXIDE, SOLID	8	C6	II	8		LQ23	P002 IBC08	B4	MP10		
1824	SODIUM HYDROXIDE SOLUTION	8	C5	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1824	SODIUM HYDROXIDE SOLUTION	8	C5	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1825	SODIUM MONOXIDE	8	C6	II	8		LQ23	P002 IBC08	B4	MP10		
1826	NITRATING ACID MIXTURE, SPENT, with more than 50% nitric acid	8	CO1	I	8 +5.1	113	LQ20	P001		MP8 MP17	T10	TP2 TP12 TP13
1826	NITRATING ACID MIXTURE, SPENT, with not more than 50% nitric acid	8	C1	II	8	113	LQ22	P001 IBC02		MP15	T8	TP2 TP12
1827	STANNIC CHLORIDE, ANHYDROUS	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1828	SULPHUR CHLORIDES	8	C1	I	8		LQ20	P602		MP8 MP17	T20	TP2 TP12
1829	SULPHUR TRIOXIDE, STABILIZED	8	C1	I	8	623	LQ20	P001		MP8 MP17	T20	TP4 TP12 TP13 TP25 TP26
1830	SULPHURIC ACID with more than 51% acid	8	C1	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12
1831	SULPHURIC ACID, FUMING	8	CT1	I	8 +6.1		LQ20	P602		MP8 MP17	T20	TP2 TP12 TP13
1832	SULPHURIC ACID, SPENT	8	C1	II	8	113	LQ22	P001 IBC02		MP15	T8	TP2 TP12
1833	SULPHUROUS ACID	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1834	SULPHURYL CHLORIDE	8	C1	I	8		LQ20	P602		MP8 MP17	T20	TP2 TP12
1835	TETRAMETHYL-AMMONIUM HYDROXIDE	8	C7	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1836	THIONYL CHLORIDE	8	C1	I	8		LQ20	P802		MP8 MP17	T10	TP2 TP12 TP13
1837	THIOPHOSPHORYL CHLORIDE	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1838	TITANIUM TETRACHLORIDE	8	C1	II	8		LQ22	P001 IBC02		MP15	T10	TP2 TP13
1839	TRICHLOROACETIC ACID	8	C4	II	8		LQ23	P002 IBC08	B4	MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BN		AT	3					80	1814	POTASSIUM HYDROXIDE SOLUTION
L4BH	TEI TE15	FL	2				S2 S20	338	1815	PROPIONYL CHLORIDE
L4BN		FL	2				S2	X83	1816	PROPYLTRICHLORO-SILANE
L4BN		AT	2					X80	1817	PYROSULPHURYL CHLORIDE
L4BN		AT	2					X80	1818	SILICON TETRACHLORIDE
L4BN		AT	2					80	1819	SODIUM ALUMINATE SOLUTION
L4BN		AT	3					80	1819	SODIUM ALUMINATE SOLUTION
SGAN		AT	2	V11				80	1823	SODIUM HYDROXIDE, SOLID
L4BN		AT	2					80	1824	SODIUM HYDROXIDE SOLUTION
L4BN		AT	3					80	1824	SODIUM HYDROXIDE SOLUTION
SGAN		AT	2	V11				80	1825	SODIUM MONOXIDE
L10BH	TEI	AT	1			CV24	S20	885	1826	NITRATING ACID MIXTURE, SPENT, with more than 50% nitric acid
L4BN		AT	2					80	1826	NITRATING ACID MIXTURE, SPENT, with not more than 50% nitric acid
L4BN		AT	2					X80	1827	STANNIC CHLORIDE, ANHYDROUS
L10BH	TEI	AT	1				S20	X88	1828	SULPHUR CHLORIDES
L10BH	TU32 TE1 TE13 TT5 TM3	AT	1				S20	X88	1829	SULPHUR TRIOXIDE, STABILIZED
L4BN		AT	2					80	1830	SULPHURIC ACID with more than 51% acid
L10BH	TEI	AT	1			CV13 CV28	S20	X886	1831	SULPHURIC ACID, FUMING
L4BN		AT	2					80	1832	SULPHURIC ACID, SPENT
L4BN		AT	2					80	1833	SULPHUROUS ACID
L10BH	TEI	AT	1				S20	X88	1834	SULPHURYL CHLORIDE
L4BN		AT	2					80	1835	TETRAMETHYL-AMMONIUM HYDROXIDE
L10BH	TEI	AT	1				S20	X88	1836	THIONYL CHLORIDE
L4BN		AT	2					X80	1837	THIOPHOSPHORYL CHLORIDE
L4BN		AT	2					X80	1838	TITANIUM TETRACHLORIDE
SGAN L4BN		AT	2	V11				80	1839	TRICHLOROACETIC ACID

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1840	ZINC CHLORIDE SOLUTION	8	C1	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1841	ACETALDEHYDE AMMONIA	9	M11	III	9		LQ27	P002 IBC08 LP01 R001	B3 B6	MP10		
1843	AMMONIUM DINITRO- CRESOLATE	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10	T7	TP2
1845	Carbon dioxide, solid (Dry ice)	9	M11	NOT SUBJECT TO ADR								
1846	CARBON TETRACHLORIDE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
1847	POTASSIUM SULPHIDE, HYDRATED with not less than 30% water of crystallization	8	C6	II	8	523	LQ23	P002 IBC08	B4	MP10		
1848	PROPIONIC ACID	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1849	SODIUM SULPHIDE, HYDRATED with not less than 30% water	8	C6	II	8	523	LQ23	P002 IBC08	B4	MP10	T7	TP2
1851	MEDICINE, LIQUID, TOXIC, N.O.S.	6.1	T1	II	6.1	221 274 601	LQ17	P001	PP6	MP15		
1851	MEDICINE, LIQUID, TOXIC, N.O.S.	6.1	T1	III	6.1	221 274 601	LQ19	P001 LP01 R001	PP6	MP15		
1854	BARIUM ALLOYS, PYROPHORIC	4.2	S4	I	4.2		LQ0	P404		MP13		
1855	CALCIUM, PYROPHORIC or CALCIUM ALLOYS, PYROPHORIC	4.2	S4	I	4.2		LQ0	P404		MP13		
1856	Rags, oily	4.2	S2	NOT SUBJECT TO ADR								
1857	Textile waste, wet	4.2	S2	NOT SUBJECT TO ADR								
1858	HEXAFLUOROPROPYLENE (REFRIGERANT GAS R 1216)	2	2A		2.2		LQ1	P200		MP9	T50	
1859	SILICON TETRAFLUORIDE	2	2TC		2.3 +8		LQ0	P200		MP9		
1860	VINYL FLUORIDE, STABILIZED	2	2F		2.1		LQ0	P200		MP9		
1862	ETHYL CROTONATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP2
1863	FUEL, AVIATION, TURBINE ENGINE (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	640A	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP28
1863	FUEL, AVIATION, TURBINE ENGINE (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	640B	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP28
1863	FUEL, AVIATION, TURBINE ENGINE (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ4	P001		MP19	T4	TP1 TP8
1863	FUEL, AVIATION, TURBINE ENGINE (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ4	P001 IBC02 R001		MP19	T4	TP1 TP8

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	3.1.2
L4BN		AT	3					80	1840	ZINC CHLORIDE SOLUTION
SGAV		AT	3	VI	VV3			90	1841	ACETALDEHYDE AMMONIA
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	1843	AMMONIUM DINITRO- CRESOLATE
NOT SUBJECT TO ADR									1845	Carbon dioxide, solid (Dry ice)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1846	CARBON TETRACHLORIDE
SGAN L4BN		AT	2	V11				80	1847	POTASSIUM SULPHIDE, HYDRATED with not less than 30% water of crystallization
L4BN		AT	3					80	1848	PROPIONIC ACID
SGAN L4BN		AT	2	V11				80	1849	SODIUM SULPHIDE, HYDRATED with not less than 30% water
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1851	MEDICINE, LIQUID, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1851	MEDICINE, LIQUID, TOXIC, N.O.S.
			0	VI			S20		1854	BARIUM ALLOYS, PYROPHORIC
			0	VI			S20		1855	CALCIUM, PYROPHORIC or CALCIUM ALLOYS, PYROPHORIC
NOT SUBJECT TO ADR									1856	Rags, oily
NOT SUBJECT TO ADR									1857	Textile waste, wet
PxBN(M)		AT	3	V7		CV9 CV10		20	1858	HEXAFLUOROPROPYLENE (REFRIGERANT GAS R 1216)
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	268	1859	SILICON TETRAFLUORIDE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	239	1860	VINYL FLUORIDE, STABILIZED
LGBF		FL	2				S2 S20	33	1862	ETHYL CROTONATE
L4BN		FL	1				S2 S20	33	1863	FUEL, AVIATION, TURBINE ENGINE (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	1				S2 S20	33	1863	FUEL, AVIATION, TURBINE ENGINE (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
L1.5BN		FL	2				S2 S20	33	1863	FUEL, AVIATION, TURBINE ENGINE (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1863	FUEL, AVIATION, TURBINE ENGINE (vapour pressure at 50 °C not more than 110 kPa)

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1863	FUEL, AVIATION, TURBINE ENGINE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1865	n-PROPYL NITRATE	3	F1	II	3		LQ4	P001 IBC02 R001	B7	MP19		
1866	RESIN SOLUTION, flammable (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	640A	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP28
1866	RESIN SOLUTION, flammable (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	640B	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP28
1866	RESIN SOLUTION, flammable (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ6	P001	PP1	MP19	T4	TP1 TP8
1866	RESIN SOLUTION, flammable (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ6	P001 IBC02 R001	PP1	MP19	T4	TP1 TP8
1866	RESIN SOLUTION, flammable	3	F1	III	3	640E	LQ7	P001 IBC03 LP01 R001	PP1	MP19	T2	TP1
1866	RESIN SOLUTION, flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	640F	LQ7	P001 LP01 R001	PP1	MP19	T2	TP1
1866	RESIN SOLUTION, flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	640G	LQ7	P001 LP01 R001	PP1	MP19	T2	TP1
1866	RESIN SOLUTION, flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	640H	LQ7	P001 IBC02 LP01 R001	PP1	MP19	T2	TP1
1868	DECABORANE	4.1	FT2	II	4.1 +6.1		LQ0	P002 IBC06		MP10		
1869	MAGNESIUM or MAGNESIUM ALLOYS with more than 50% magnesium in pellets, turnings or ribbons	4.1	F3	III	4.1	59	LQ9	P002 IBC08 LP02 R001	B3	MP11		
1870	POTASSIUM BOROHYDRIDE	4.3	W2	I	4.3		LQ0	P403		MP2		
1871	TITANIUM HYDRIDE	4.1	F3	II	4.1		LQ8	P410 IBC04	PP40	MP11		
1872	LEAD DIOXIDE	5.1	OT2	III	5.1 +6.1		LQ12	P002 IBC08 LP02 R001	B3	MP2		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
LGBF		FL	3				S2	30	1863	FUEL, AVIATION, TURBINE ENGINE
			2				S2 S20		1865	n-PROPYL NITRATE
L4BN		FL	1				S2 S20	33	1866	RESIN SOLUTION, flammable (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	1				S2 S20	33	1866	RESIN SOLUTION, flammable (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
L1.5BN		FL	2				S2 S20	33	1866	RESIN SOLUTION, flammable (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1866	RESIN SOLUTION, flammable (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1866	RESIN SOLUTION, flammable
L4BN		FL	3				S2	33	1866	RESIN SOLUTION, flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	3				S2	33	1866	RESIN SOLUTION, flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	3				S2	33	1866	RESIN SOLUTION, flammable (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)
SGAN		AT	2	V11 V12		CV28		46	1868	DECABORANE
SGAV		AT	3		VV1			40	1869	MAGNESIUM or MAGNESIUM ALLOYS with more than 50% magnesium in pellets, turnings or ribbons
			1	VI		CV23	S20		1870	POTASSIUM BOROHYDRIDE
SGAN		AT	2					40	1871	TITANIUM HYDRIDE
SGAN	TU3	AT	3			CV24 CV28		56	1872	LEAD DIOXIDE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
1873	PERCHLORIC ACID with more than 50% but not more than 72% acid, by mass	5.1	OC1	I	5.1 +8	60	LQ0	P502	PP28	MP3	T10	TP1 TP12
1884	BARIUM OXIDE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
1885	BENZIDINE	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
1886	BENZYLIDENE CHLORIDE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
1887	BROMOCHLOROMETHANE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1888	CHLOROFORM	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2
1889	CYANOGEN BROMIDE	6.1	TC2	I	6.1 +8		LQ0	P002		MP18		
1891	ETHYL BROMIDE	6.1	T1	II	6.1		LQ17	P001 IBC02	B8	MP15	T7	TP2 TP13
1892	ETHYLDICHLOROARSINE	6.1	T3	I	6.1		LQ0	P602		MP8 MP17	T14	TP2 TP13
1894	PHENYL MERCURIC HYDROXIDE	6.1	T3	II	6.1		LQ18	P002 IBC08	B4	MP10		
1895	PHENYL MERCURIC NITRATE	6.1	T3	II	6.1		LQ18	P002 IBC08	B4	MP10		
1897	TETRACHLOROETHYLENE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1898	ACETYL IODIDE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
1902	DIISOCTYL ACID PHOSPHATE	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
1903	DISINFECTANT, LIQUID, CORROSIVE, N.O.S.	8	C9	I	8	274	LQ20	P001		MP8 MP17		
1903	DISINFECTANT, LIQUID, CORROSIVE, N.O.S.	8	C9	II	8	274	LQ22	P001 IBC02		MP15		
1903	DISINFECTANT, LIQUID, CORROSIVE, N.O.S.	8	C9	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15		
1905	SELENIC ACID	8	C2	I	8		LQ21	P002 IBC07		MP18		
1906	SLUDGE ACID	8	C1	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12 TP28
1907	SODA LIME with more than 4% sodium hydroxide	8	C6	III	8	62	LQ24	P002 IBC08 LP02 R001	B3	MP10		
1908	CHLORITE SOLUTION	8	C9	II	8	521	LQ22	P001 IBC02		MP15	T7	TP2 TP24
1908	CHLORITE SOLUTION	8	C9	III	8	521	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP2 TP24
1910	Calcium oxide	8	C6					NOT SUBJECT TO ADR				

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4DN(+)	TU3 TU28	AT	1			CV24	S20	558	1873	PERCHLORIC ACID with more than 50% but not more than 72% acid, by mass
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9a	CV13 CV28	S9	60	1884	BARIUM OXIDE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	VII		CV13 CV28	S9 S19	60	1885	BENZIDINE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1886	BENZYLIDENE CHLORIDE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1887	BROMOCHLOROMETHANE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1888	CHLOROFORM
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	668	1889	CYANOGEN BROMIDE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1891	ETHYL BROMIDE
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1892	ETHYLDICHLOROARSINE
SGAH	TU15 TE1 TE15 TE19	AT	2	VII		CV13 CV28	S9 S19	60	1894	PHENYLMERCURIC HYDROXIDE
SGAH	TU15 TE1 TE15 TE19	AT	2	VII		CV13 CV28	S9 S19	60	1895	PHENYLMERCURIC NITRATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1897	TETRACHLOROETHYLENE
L4BN		AT	2					80	1898	ACETYL IODIDE
L4BN		AT	3					80	1902	DIISOOCTYL ACID PHOSPHATE
L10BH	TE1	AT	1				S20	88	1903	DISINFECTANT, LIQUID, CORROSIVE, N.O.S.
L4BN		AT	2					80	1903	DISINFECTANT, LIQUID, CORROSIVE, N.O.S.
L4BN		AT	3					80	1903	DISINFECTANT, LIQUID, CORROSIVE, N.O.S.
S10AN		AT	1	V10 V12			S20	88	1905	SELENIC ACID
L4BN		AT	2					80	1906	SLUDGE ACID
SGAV		AT	3		VV9b			80	1907	SODA LIME with more than 4% sodium hydroxide
L4BV(+)	TE11	AT	2					80	1908	CHLORITE SOLUTION
L4BV(+)	TE11	AT	3					80	1908	CHLORITE SOLUTION
NOT SUBJECT TO ADR									1910	Calcium oxide

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1911	DIBORANE	2	2F		2.3 +2.1		LQ0	P200		MP9		
1912	METHYL CHLORIDE AND METHYLENE CHLORIDE MIXTURE	2	2F		2.1	228	LQ0	P200		MP9	T50	
1913	NEON, REFRIGERATED LIQUID	2	3A		2.2	593	LQ1	P203		MP9	T75	
1914	BUTYL PROPIONATES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1915	CYCLOHEXANONE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1916	2,2'-DICHLORODIETHYL ETHER	6.1	TF1	II	6.1 +3		LQ17	P001 IBC02		MP15	T7	TP2
1917	ETHYL ACRYLATE, STABILIZED	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1 TP13
1918	ISOPROPYLBENZENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1919	METHYL ACRYLATE, STABILIZED	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1 TP13
1920	NONANES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
1921	PROPYLENEIMINE, STABILIZED	3	FT1	I	3 +6.1		LQ0	P001		MP2	T14	TP2 TP13
1922	PYRROLIDINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
1923	CALCIUM DITHIONITE (CALCIUM HYDROSULPHITE)	4.2	S4	II	4.2		LQ0	P410 IBC06		MP14		
1928	METHYL MAGNESIUM BROMIDE IN ETHYL ETHER	4.3	WF1	I	4.3 +3		LQ0	P402 PR1		MP2		
1929	POTASSIUM DITHIONITE (POTASSIUM HYDROSULPHITE)	4.2	S4	II	4.2		LQ0	P410 IBC06		MP14		
1931	ZINC DITHIONITE (ZINC HYDROSULPHITE)	9	M11	III	9		LQ27	P002 IBC08 LP02 R001	B3	MP10		
1932	ZIRCONIUM SCRAP	4.2	S4	III	4.2	524 592	LQ0	P002 IBC08 LP02 R001	B3	MP14		
1935	CYANIDE SOLUTION, N.O.S.	6.1	T4	I	6.1	274 525	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
1935	CYANIDE SOLUTION, N.O.S.	6.1	T4	II	6.1	274 525	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
1935	CYANIDE SOLUTION, N.O.S.	6.1	T4	III	6.1	274 525	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP13 TP28
1938	BROMOACETIC ACID	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1939	PHOSPHORUS OXYBROMIDE	8	C2	II	8		LQ23	P002 IBC08	B4	MP10	T7	TP2

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	
			1	V7		CV9 CV10	S2 S7 S17		1911	DIBORANE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1912	METHYL CHLORIDE AND METHYLENE CHLORIDE MIXTURE
RxBN	TU19	AT	3	V5 V7		CV9 CV11	S20	22	1913	NEON, REFRIGERATED LIQUID
LGBF		FL	3				S2	30	1914	BUTYL PROPIONATES
LGBF		FL	3				S2	30	1915	CYCLOHEXANONE
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	1916	2,2-DICHLORODIETHYL ETHER
LGBF		FL	2				S2 S20	339	1917	ETHYL ACRYLATE, STABILIZED
LGBF		FL	3				S2	30	1918	ISOPROPYLBENZENE
LGBF		FL	2				S2 S20	339	1919	METHYL ACRYLATE, STABILIZED
LGBF		FL	3				S2	30	1920	NONANES
L15CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	1921	PROPYLENEIMINE, STABILIZED
L4BH	TE1 TE15	FL	2				S2 S20	338	1922	PYRROLIDINE
SGAN		AT	2	V1 V12				40	1923	CALCIUM DITHIONITE (CALCIUM HYDROSULPHITE)
L10DH	TU4 TU14 TU22 TE1 TE21 TM2	FL	0	V1		CV23	S2 S20	X323	1928	METHYL MAGNESIUM BROMIDE IN ETHYL ETHER
SGAN		AT	2	V1 V12				40	1929	POTASSIUM DITHIONITE (POTASSIUM HYDROSULPHITE)
SGAV		AT	3	V1	VV3			90	1931	ZINC DITHIONITE (ZINC HYDROSULPHITE)
SGAN		AT	3	V1	VV4			40	1932	ZIRCONIUM SCRAP
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	1935	CYANIDE SOLUTION, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	1935	CYANIDE SOLUTION, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	1935	CYANIDE SOLUTION, N.O.S.
L4BN		AT	2					80	1938	BROMOACETIC ACID
SGAN		AT	2	V11				80	1939	PHOSPHORUS OXYBROMIDE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1940	THIOGLYCOLIC ACID	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
1941	DIBROMODIFLUOROMETHANE	9	M11	III	9		LQ28	P001 LP01 R001		MP15	T11	TP2
1942	AMMONIUM NITRATE with not more than 0.2% total combustible material, including any organic substance calculated as carbon, to the exclusion of any other added substance	5.1	O2	III	5.1	306 611	LQ12	P002 IBC08 LP02 R001	B3	MP10		
1944	MATCHES, SAFETY (book, card or strike on box)	4.1	F1	III	4.1	293	LQ9	P407 R001		MP11		
1945	MATCHES, WAX 'VESTA'	4.1	F1	III	4.1	293	LQ9	P407 R001		MP11		
1950	AEROSOLS, asphyxiant	2	5A		2.2	190 625	LQ2	P204		MP9		
1950	AEROSOLS, corrosive	2	5C		2.2 +8	190 625	LQ2	P204		MP9		
1950	AEROSOLS, corrosive, oxidizing	2	5CO		2.2 +5.1 +8	190 625	LQ2	P204		MP9		
1950	AEROSOLS, flammable	2	5F		2.1	190 625	LQ2	P204		MP9		
1950	AEROSOLS, flammable, corrosive	2	5FC		2.1 +8	190 625	LQ2	P204		MP9		
1950	AEROSOLS, oxidizing	2	5O		2.2 +5.1	190 625	LQ2	P204		MP9		
1950	AEROSOLS, toxic	2	5T		2.2 +6.1	190 625	LQ1	P204		MP9		
1950	AEROSOLS, toxic, corrosive	2	5TC		2.2 +6.1 +8	190 625	LQ1	P204		MP9		
1950	AEROSOLS, toxic, flammable	2	5TF		2.1 +6.1	190 625	LQ1	P204		MP9		
1950	AEROSOLS, toxic, flammable, corrosive	2	5TFC		2.1 +6.1 +8	190 625	LQ1	P204		MP9		
1950	AEROSOLS, toxic, oxidizing	2	5TO		2.2 +5.1 +6.1	190 625	LQ1	P204		MP9		
1950	AEROSOLS, toxic, oxidizing, corrosive	2	5TOC		2.2 +5.1 +6.1 +8	190 625	LQ1	P204		MP9		
1951	ARGON, REFRIGERATED LIQUID	2	3A		2.2	593	LQ1	P203		MP9	T75	
1952	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with not more than 9% ethylene oxide	2	2A		2.2		LQ1	P200		MP9		
1953	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	2	1TF		2.3 +2.1	274	LQ0	P200		MP9		
1954	COMPRESSED GAS, FLAMMABLE, N.O.S.	2	1F		2.1	274	LQ0	P200		MP9		
1955	COMPRESSED GAS, TOXIC, N.O.S.	2	1T		2.3	274	LQ0	P200		MP9		
1956	COMPRESSED GAS, N.O.S.	2	1A		2.2	274 567	LQ1	P200		MP9		
1957	DEUTERIUM, COMPRESSED	2	1F		2.1		LQ0	P200		MP9		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L4BN		AT	2					80	1940	THIOGLYCOLIC ACID
L4BN		AT	3	V1				90	1941	DIBROMODIFLUOROMETHANE
SGAV	TU3	AT	3		VV8	CV24		50	1942	AMMONIUM NITRATE with not more than 0.2% total combustible material, including any organic substance calculated as carbon, to the exclusion of any other added substance
			4						1944	MATCHES, SAFETY (book, card or strike on box)
			4						1945	MATCHES, WAX 'VESTA'
			3			CV9 CV12			1950	AEROSOLS, asphyxiant
			1			CV9 CV12			1950	AEROSOLS, corrosive
			1			CV9 CV12			1950	AEROSOLS, corrosive, oxidizing
			2			CV9 CV12	S2		1950	AEROSOLS, flammable
			1			CV9 CV12	S2		1950	AEROSOLS, flammable, corrosive
			3			CV9 CV12			1950	AEROSOLS, oxidizing
			1			CV9 CV12 CV28	S7		1950	AEROSOLS, toxic
			1			CV9 CV12 CV28	S7		1950	AEROSOLS, toxic, corrosive
			1			CV9 CV12 CV28	S2 S7		1950	AEROSOLS, toxic, flammable
			1			CV9 CV12 CV28	S2 S7		1950	AEROSOLS, toxic, flammable, corrosive
			1			CV9 CV12 CV28	S7		1950	AEROSOLS, toxic, oxidizing
			1			CV9 CV12 CV28	S7		1950	AEROSOLS, toxic, oxidizing, corrosive
RxBN	TU19	AT	3	V5 V7		CV9 CV11	S20	22	1951	ARGON, REFRIGERATED LIQUID
PxBN(M)		AT	3	V7		CV9 CV10		20	1952	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with not more than 9% ethylene oxide
CxBH(M)	TU6 TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	1953	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.
CxBN(M)		FL	2	V7		CV9 CV10	S2	23	1954	COMPRESSED GAS, FLAMMABLE, N.O.S.
CxBH(M)	TU6 TE1	AT	1	V7		CV9 CV10	S7 S17	26	1955	COMPRESSED GAS, TOXIC, N.O.S.
CxBN(M)	/	AT	3	V7		CV9 CV10		20	1956	COMPRESSED GAS, N.O.S.
CxBN(M)	/	FL	2	V7		CV9 CV10	S2	23	1957	DEUTERIUM, COMPRESSED

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
1958	1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 114)	2	2A		2.2		LQ1	P200		MP9	T50	
1959	1,1-DIFLUOROETHYLENE (REFRIGERANT GAS R 1132a)	2	2F		2.1		LQ0	P200		MP9		
1961	ETHANE, REFRIGERATED LIQUID	2	3F		2.1		LQ0	P203		MP9	T75	
1962	ETHYLENE	2	2F		2.1		LQ0	P200		MP9		
1963	HELIUM, REFRIGERATED LIQUID	2	3A		2.2	593	LQ1	P203		MP9	T75	
1964	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.	2	1F		2.1	274	LQ0	P200		MP9		
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. such as mixtures A, A01, A02, A0, A1, B1, B2, B or C	2	2F		2.1	274 583	LQ0	P200		MP9	T50	
1966	HYDROGEN, REFRIGERATED LIQUID	2	3F		2.1		LQ0	P203		MP9	T75	TP23
1967	INSECTICIDE GAS, TOXIC, N.O.S.	2	2T		2.3	274	LQ0	P200		MP9		
1968	INSECTICIDE GAS, N.O.S.	2	2A		2.2	274	LQ1	P200		MP9		
1969	ISOBUTANE	2	2F		2.1		LQ0	P200		MP9	T50	
1970	KRYPTON, REFRIGERATED LIQUID	2	3A		2.2	593	LQ1	P203		MP9	T75	
1971	METHANE, COMPRESSED or NATURAL GAS, COMPRESSED with high methane content	2	1F		2.1		LQ0	P200		MP9		
1972	METHANE, REFRIGERATED LIQUID or NATURAL GAS, REFRIGERATED LIQUID with high methane content	2	3F		2.1		LQ0	P203		MP9	T75	
1973	CHLORODIFLUORO-METHANE AND CHLOROPENTAFLUORO-ETHANE MIXTURE with fixed boiling point, with approximately 49% chlorodifluoromethane (REFRIGERANT GAS R 502)	2	2A		2.2		LQ1	P200		MP9	T50	
1974	CHLORODIFLUOROBROMO-METHANE (REFRIGERANT GAS R 12B1)	2	2A		2.2		LQ1	P200		MP9	T50	
1975	NITRIC OXIDE AND DINITROGEN TETROXIDE MIXTURE (NITRIC OXIDE AND NITROGEN DIOXIDE MIXTURE)	2	2TOC		2.3 +5.1 +8		LQ0	P200		MP9		
1976	OCTAFLUOROCYCLOBUTANE (REFRIGERANT GAS RC 318)	2	2A		2.2		LQ1	P200		MP9	T50	
1977	NITROGEN, REFRIGERATED LIQUID	2	3A		2.2	593	LQ1	P203		MP9	T75	
1978	PROPANE	2	2F		2.1		LQ0	P200		MP9	T50	



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
PxBN(M)		AT	3	V7		CV9 CV10		20	1958	1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 114)
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	239	1959	1,1-DIFLUOROETHYLENE (REFRIGERANT GAS R 1132a)
RxBN	TU18	FL	2	V5 V7		CV9 CV11	S2 S17	223	1961	ETHANE, REFRIGERATED LIQUID
PxBN(M)		FL	2	V7		CV9 CV10	S2	23	1962	ETHYLENE
RxBN	TU19	AT	3	V5 V7		CV9 CV11	S20	22	1963	HELIUM, REFRIGERATED LIQUID
CxBN(M)		FL	2	V7		CV9 CV10	S2	23	1964	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. such as mixtures A, A01, A02, A0, A1, B1, B2, B or C
RxBN	TU18	FL	2	V5 V7		CV9 CV11	S2 S17	223	1966	HYDROGEN, REFRIGERATED LIQUID
PxBH(M)	TU6 TE1	AT	1	V7		CV9 CV10	S7 S17	26	1967	INSECTICIDE GAS, TOXIC, N.O.S.
PxBN(M)		AT	3	V7		CV9 CV10		20	1968	INSECTICIDE GAS, N.O.S.
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1969	ISOBUTANE
RxBN	TU19	AT	3	V5 V7		CV9 CV11	S20	22	1970	KRYPTON, REFRIGERATED LIQUID
CxBN(M)		FL	2	V7		CV9 CV10	S2	23	1971	METHANE, COMPRESSED or NATURAL GAS, COMPRESSED with high methane content
RxBN	TU18	FL	2	V5 V7		CV9 CV11	S2 S17	223	1972	METHANE, REFRIGERATED LIQUID or NATURAL GAS, REFRIGERATED LIQUID with high methane content
PxBN(M)		AT	3	V7		CV9 CV10		20	1973	CHLORODIFLUORO-METHANE AND CHLOROPENTAFLUORO-ETHANE MIXTURE with fixed boiling point, with approximately 49% chlorodifluoromethane (REFRIGERANT GAS R 502)
PxBN(M)		AT	3	V7		CV9 CV10		20	1974	CHLORODIFLUOROBROMO METHANE (REFRIGERANT GAS R 12B1)
			1	V7		CV9 CV10	S7 S17		1975	NITRIC OXIDE AND DINITROGEN TETROXIDE MIXTURE (NITRIC OXIDE AND NITROGEN DIOXIDE MIXTURE)
PxBN(M)		AT	3	V7		CV9 CV10		20	1976	1,1,1,2,2,2-HEXAFLUOROETHANE (REFRIGERANT GAS RC 318)
RxBN	TU19	AT	3	V5 V7		CV9 CV11	S20	22	1977	NITROGEN, REFRIGERATED LIQUID
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	1978	PROPANE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1979	RARE GASES MIXTURE, COMPRESSED	2	1A		2.2		LQ1	P200		MP9		
1980	RARE GASES AND OXYGEN MIXTURE, COMPRESSED	2	1A		2.2	567	LQ1	P200		MP9		
1981	RARE GASES AND NITROGEN MIXTURE, COMPRESSED	2	1A		2.2		LQ1	P200		MP9		
1982	TETRAFLUOROMETHANE (REFRIGERANT GAS R 14)	2	2A		2.2		LQ1	P200		MP9		
1983	1-CHLORO-2,2,2-TRIFLUOROETHANE (REFRIGERANT GAS R 133a)	2	2A		2.2		LQ1	P200		MP9	T50	
1984	TRIFLUOROMETHANE (REFRIGERANT GAS R 23)	2	2A		2.2		LQ1	P200		MP9		
1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	FT1	I	3 +6.1	274	LQ0	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	FT1	II	3 +6.1	274	LQ0	P001 IBC02		MP19	T11	TP2 TP27
1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	FT1	III	3 +6.1	274	LQ7	P001 IBC03 R001		MP19	T7	TP1 TP28
1987	ALCOHOLS, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	274 640C	LQ4	P001		MP19	T7	TP1 TP8 TP28
1987	ALCOHOLS, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	274 640D	LQ4	P001 IBC02 R001		MP19	T7	TP1 TP8 TP28
1987	ALCOHOLS, N.O.S.	3	F1	III	3	274	LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1 TP29
1988	ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.	3	FT1	I	3 +6.1	274	LQ0	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
1988	ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.	3	FT1	II	3 +6.1	274	LQ0	P001 IBC02		MP19	T11	TP2 TP27
1988	ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.	3	FT1	III	3 +6.1	274	LQ7	P001 IBC03 R001		MP19	T7	TP1 TP28
1989	ALDEHYDES, N.O.S. (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	274 640A	LQ3	P001		MP7 MP17	T11	TP1 TP9 TP27
1989	ALDEHYDES, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	274 640B	LQ3	P001		MP7 MP17	T11	TP1 TP9 TP27
1989	ALDEHYDES, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	274 640C	LQ4	P001		MP19	T7	TP1 TP8 TP28
1989	ALDEHYDES, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	274 640D	LQ4	P001 IBC02 R001		MP19	T7	TP1 TP8 TP28
1989	ALDEHYDES, N.O.S.	3	F1	III	3	274	LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1 TP29

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
CxBN(M)		AT	3	V7		CV9 CV10		20	1979	RARE GASES MIXTURE, COMPRESSED
CxBN(M)		AT	3	V7		CV9 CV10		20	1980	RARE GASES AND OXYGEN MIXTURE, COMPRESSED
CxBN(M)		AT	3	V7		CV9 CV10		20	1981	RARE GASES AND NITROGEN MIXTURE, COMPRESSED
PxBN(M)		AT	3	V7		CV9 CV10		20	1982	TETRAFLUOROMETHANE (REFRIGERANT GAS R 14)
PxBN(M)		AT	3	V7		CV9 CV10		20	1983	1-CHLORO-2,2,2-TRIFLUOROETHANE (REFRIGERANT GAS R 133a)
PxBN(M)		AT	3	V7		CV9 CV10		20	1984	TRIFLUOROMETHANE (REFRIGERANT GAS R 23)
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15	FL	3			CV13 CV28	S2	36	1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.
L1.5BN		FL	2				S2 S20	33	1987	ALCOHOLS, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1987	ALCOHOLS, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1987	ALCOHOLS, N.O.S.
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	1988	ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	1988	ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15	FL	3			CV13 CV28	S2	36	1988	ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.
L4BN		FL	1				S2 S20	33	1989	ALDEHYDES, N.O.S. (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	1				S2 S20	33	1989	ALDEHYDES, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
L1.5BN		FL	2				S2 S20	33	1989	ALDEHYDES, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1989	ALDEHYDES, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1989	ALDEHYDES, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1990	BENZALDEHYDE	3	M11	III	9		LQ28	P001 IBC03 LP01 R001		MP15	T2	TP1
1991	CHLOROPRENE, STABILIZED	3	FT1	I	3 +6.1		LQ0	P001		MP7 MP17	T14	TP2 TP6 TP13
1992	FLAMMABLE LIQUID, TOXIC, N.O.S.	3	FT1	I	3 +6.1	274	LQ0	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
1992	FLAMMABLE LIQUID, TOXIC, N.O.S.	3	FT1	II	3 +6.1	274	LQ0	P001 IBC02		MP19	T7	TP2 TP13
1992	FLAMMABLE LIQUID, TOXIC, N.O.S.	3	FT1	III	3 +6.1	274	LQ7	P001 IBC03 R001		MP19	T7	TP1 TP28
1993	FLAMMABLE LIQUID, N.O.S. (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	274 640A	LQ3	P001		MP7 MP17	T11	TP1 TP9 TP27
1993	FLAMMABLE LIQUID, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	274 640B	LQ3	P001		MP7 MP17	T11	TP1 TP9 TP27
1993	FLAMMABLE LIQUID, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	274 640C	LQ4	P001		MP19	T7	TP1 TP8 TP28
1993	FLAMMABLE LIQUID, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	274 640D	LQ4	P001 IBC02 R001		MP19	T7	TP1 TP8 TP28
1993	FLAMMABLE LIQUID, N.O.S.	3	F1	III	3	274 640E	LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1 TP29
1993	FLAMMABLE LIQUID, N.O.S. (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	274 640F	LQ7	P001 LP01 R001		MP19	T4	TP1 TP29
1993	FLAMMABLE LIQUID, N.O.S. (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	274 640G	LQ7	P001 LP01 R001		MP19	T4	TP1 TP29
1993	FLAMMABLE LIQUID, N.O.S. (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	274 640H	LQ7	P001 IBC02 LP01 R001		MP19	T4	TP1 TP29
1994	IRON PENTACARBONYL	6.1	TF1	I	6.1 +3		LQ0	P601 PR3		MP2		
1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	640C	LQ6	P001		MP19	T3	TP3 TP29

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
LGBV		AT	3	VI				90	1990	BENZALDEHYDE
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	1991	CHLOROPRENE, STABILIZED
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	1992	FLAMMABLE LIQUID, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE21	FL	2			CV13 CV28	S2 S19	336	1992	FLAMMABLE LIQUID, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15	FL	3			CV13 CV28	S2	36	1992	FLAMMABLE LIQUID, TOXIC, N.O.S.
L4BN		FL	1				S2 S20	33	1993	FLAMMABLE LIQUID, N.O.S. (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	1				S2 S20	33	1993	FLAMMABLE LIQUID, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
L1.5BN		FL	2				S2 S20	33	1993	FLAMMABLE LIQUID, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	2				S2 S20	33	1993	FLAMMABLE LIQUID, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1993	FLAMMABLE LIQUID, N.O.S.
L4BN		FL	3				S2	33	1993	FLAMMABLE LIQUID, N.O.S. (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	3				S2	33	1993	FLAMMABLE LIQUID, N.O.S. (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	3				S2	33	1993	FLAMMABLE LIQUID, N.O.S. (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)
L15CH	TU14 TU15 TU31 TE1 TE19 TE21 TM3	FL	1			CV1 CV13 CV28	S2 S9 S17	663	1994	IRON PENTACARBONYL
L1.5BN		FL	2				S2 S20	33	1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	640D	LQ6	P001 IBC02 R001		MP19	T3	TP3 TP29
1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs	3	F1	III	3	640E	LQ7	P001 IBC03 LP01 R001		MP19	T1	TP3
1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)	3	F1	III	3	640F	LQ7	P001 LP01 R001		MP19	T1	TP3
1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	III	3	640G	LQ7	P001 LP01 R001		MP19	T1	TP3
1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)	3	F1	III	3	640H	LQ7	P001 IBC02 LP01 R001		MP19	T1	TP3
2000	CELLULOSE in block, rods, rolls, sheets, tubes, etc., except scrap	4.1	F1	III	4.1	502	LQ9	P002 LP02 R001	PP7	MP11		
2001	COBALT NAPHTHENATES, POWDER	4.1	F3	III	4.1		LQ9	P002 IBC08 LP02 R001	B3	MP11		
2002	CELLULOSE, SCRAP	4.2	S2	III	4.2	526 592	LQ0	P002 IBC08 LP02 R001	PP8 B3	MP14		
2003	METAL ALKYLs, WATER-REACTIVE, N.O.S. or METAL ARYLs, WATER-REACTIVE, N.O.S.	4.2	SW	I	4.2 +4.3	274 527	LQ0	P400 PR1		MP2	T21	TP2 TP7 TP9
2004	MAGNESIUM DIAMIDE	4.2	S4	II	4.2		LQ0	P410 IBC06		MP14		
2005	MAGNESIUM DIPHENYL	4.2	SW	I	4.2 +4.3		LQ0	P404		MP2		
2006	PLASTICS, NITROCELLULOSE-BASED, SELF-HEATING, N.O.S.	4.2	S2	III	4.2	274 528	LQ0	P002 R001		MP14		
2008	ZIRCONIUM POWDER, DRY	4.2	S4	I	4.2	524 540	LQ0	P404		MP13		
2008	ZIRCONIUM POWDER, DRY	4.2	S4	II	4.2	524 540	LQ0	P410 IBC06		MP14		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
LGBF		FL	2				S2 S20	33	1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs
L4BN		FL	3				S2	33	1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 175 kPa)
L1.5BN		FL	3				S2	33	1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)
LGBF		FL	3				S2	33	1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs (having a flash-point below 23 °C and viscous according to 2.2.3.1.4) (vapour pressure at 50 °C not more than 110 kPa)
			3						2000	CELLULOID in block, rods, rolls, sheets, tubes, etc., except scrap
SGAV		AT	3		VVI			40	2001	COBALT NAPHTHENATES, POWDER
			3	VI					2002	CELLULOID, SCRAP
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	VI			S20	X333	2003	METAL ALKYLs, WATER-REACTIVE, N.O.S. or METAL ARYLs, WATER-REACTIVE, N.O.S.
SGAN		AT	2	VI VI2				40	2004	MAGNESIUM DIAMIDE
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	VI			S20	X333	2005	MAGNESIUM DIPHENYL
			3	VI					2006	PLASTICS, NITROCELLULOSE-BASED, SELF-HEATING, N.O.S.
			0	VI			S20		2008	ZIRCONIUM POWDER, DRY
SGAN		AT	2	VI VI2				40	2008	ZIRCONIUM POWDER, DRY

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2008	ZIRCONIUM POWDER, DRY	4.2	S4	III	4.2	540	LQ0	P002 IBC08 LP02 R001	B3	MP14		
2009	ZIRCONIUM, DRY, finished sheets, strip or coiled wire	4.2	S4	III	4.2	524 592	LQ0	P002 LP02 R001		MP14		
2010	MAGNESIUM HYDRIDE	4.3	W2	I	4.3		LQ0	P403		MP2		
2011	MAGNESIUM PHOSPHIDE	4.3	WT2	I	4.3 +6.1		LQ0	P403		MP2		
2012	POTASSIUM PHOSPHIDE	4.3	WT2	I	4.3 +6.1		LQ0	P403		MP2		
2013	STRONTIUM PHOSPHIDE	4.3	WT2	I	4.3 +6.1		LQ0	P403		MP2		
2014	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)	5.1	OC1	II	5.1 +8		LQ10	P504  IBC02	PP10 PP29 B5	MP15	T7	TP2 TP6 TP24
2015	HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED with more than 70% hydrogen peroxide.	5.1	OC1	I	5.1 +8	640N	LQ0	P501		MP2	T10	TP2 TP6 TP24
2015	HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED with more than 60% hydrogen peroxide and not more than 70% hydrogen peroxide	5.1	OC1	I	5.1 +8	6400	LQ0	P501		MP2	T10	TP2 TP6 TP24
2016	AMMUNITION, TOXIC, NON-EXPLOSIVE without burster or expelling charge, non-fuzed	6.1	T2	II	6.1		LQ0	P600		MP10		
2017	AMMUNITION, TEAR-PRODUCING, NON-EXPLOSIVE without burster or expelling charge, non-fuzed	6.1	TC2	II	6.1 +8		LQ0	P600				
2018	CHLOROANILINES, SOLID	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10	T7	TP2
2019	CHLOROANILINES, LIQUID	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2020	CHLOROPHENOLS, SOLID	6.1	T2	III	6.1	205	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2021	CHLOROPHENOLS, LIQUID	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2022	CRESYLIC ACID	6.1	TC1	II	6.1 +8		LQ17	P001 IBC02		MP15	T7	TP2 TP13
2023	EPICHLOROHYDRIN	6.1	TF1	II	6.1 +3	279	LQ17	P001 IBC02		MP15	T7	TP2 TP13
2024	MERCURY COMPOUND, LIQUID, N.O.S.	6.1	T4	I	6.1	43 274	LQ0	P001		MP8 MP17		
2024	MERCURY COMPOUND, LIQUID, N.O.S.	6.1	T4	II	6.1	43 274	LQ17	P001 IBC02		MP15		
2024	MERCURY COMPOUND, LIQUID, N.O.S.	6.1	T4	III	6.1	43 274	LQ19	P001 IBC03 LP01 R001		MP15		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAN		AT	3	VI	VV4			40	2008	ZIRCONIUM POWDER, DRY
			3	VI	VV4				2009	ZIRCONIUM, DRY, finished sheets, strip or coiled wire
			1	VI		CV23	S20		2010	MAGNESIUM HYDRIDE
			1	VI		CV23 CV28	S20		2011	MAGNESIUM PHOSPHIDE
			1	VI		CV23 CV28	S20		2012	POTASSIUM PHOSPHIDE
			1	VI		CV23 CV28	S20		2013	STRONTIUM PHOSPHIDE
L4BV(+)	TU3 TC2 TE8 TE11 TT1	AT	2			CV24		58	2014	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)
L4DV(+)	TU3 TU28 TC2 TE8 TE9 TT1	OX	1	V5		CV24	S20	559	2015	HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED with more than 70% hydrogen peroxide
L4BV(+)	TU3 TU28 TC2 TE7 TE8 TE9 TT1	OX	1	V5		CV24	S20	559	2015	HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED with more than 60% hydrogen peroxide and not more than 70% hydrogen peroxide
			2			CV13 CV28	S9 S19		2016	AMMUNITION, TOXIC, NON-EXPLOSIVE without burster or expelling charge, non-fuzed
			2			CV13 CV28	S9 S19		2017	AMMUNITION, TEAR-PRODUCING, NON-EXPLOSIVE without burster or expelling charge, non-fuzed
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2018	CHLOROANILINES, SOLID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2019	CHLOROANILINES, LIQUID
SGAH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2020	CHLOROPHENOLS, SOLID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2021	CHLOROPHENOLS, LIQUID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	2022	CRESYLIC ACID
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	2023	EPICHLOROHYDRIN
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2024	MERCURY COMPOUND, LIQUID, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2024	MERCURY COMPOUND, LIQUID, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2024	MERCURY COMPOUND, LIQUID, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2025	MERCURY COMPOUND, SOLID, N.O.S.	6.1	T5	I	6.1	43 274 529 585	LQ0	P002 IBC07		MP18		
2025	MERCURY COMPOUND, SOLID, N.O.S.	6.1	T5	II	6.1	43 274 529 585	LQ18	P002 IBC08	B4	MP10		
2025	MERCURY COMPOUND, SOLID, N.O.S.	6.1	T5	III	6.1	43 274 529 585	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2026	PHENYLMERCURIC COMPOUND, N.O.S.	6.1	T3	I	6.1	43 274	LQ0	P002 IBC07		MP18		
2026	PHENYLMERCURIC COMPOUND, N.O.S.	6.1	T3	II	6.1	43 274	LQ18	P002 IBC08	B4	MP10		
2026	PHENYLMERCURIC COMPOUND, N.O.S.	6.1	T3	III	6.1	43 274	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2027	SODIUM ARSENITE, SOLID	6.1	T5	II	6.1	43	LQ18	P002 IBC08	B4	MP10		
2028	BOMBS, SMOKE, NON-EXPLOSIVE with corrosive liquid, without initiating device	8	C11	II	8		LQ0	P803				
2029	HYDRAZINE, ANHYDROUS	8	CFT	I	8 +3 +6.1		LQ20	P001		MP8 MP17		
2030	HYDRAZINE AQUEOUS SOLUTION, with more than 37% hydrazine by mass	8	CT1	I	8 +6.1	298 530	LQ20	P001		MP8 MP17	T20	TP2 TP13
2030	HYDRAZINE AQUEOUS SOLUTION, with more than 37% hydrazine by mass	8	CT1	II	8 +6.1	530	LQ22	P001 IBC02		MP15	T15	TP2 TP13
2030	HYDRAZINE AQUEOUS SOLUTION, with more than 37% hydrazine by mass	8	CT1	III	8 +6.1	530	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP2
2031	NITRIC ACID, other than red fuming, with more than 70% nitric acid	8	CO1	I	8 +5.1		LQ20	P001	PP81	MP8 MP17	T10	TP2 TP12 TP13
2031	NITRIC ACID, other than red fuming, with not more than 70% nitric acid	8	CO1	II	8		LQ22	P001 IBC02	PP81	MP15	T8	TP2 TP12
2032	NITRIC ACID, RED FUMING	8	COT	I	8 +5.1 +6.1		LQ20	P602		MP8 MP17	T20	TP2 TP12 TP13
2033	POTASSIUM MONOXIDE	8	C6	II	8		LQ23	P002 IBC08	B4	MP10		
2034	HYDROGEN AND METHANE MIXTURE, COMPRESSED	2	1F		2.1		LQ0	P200		MP9		
2035	1,1,1-TRIFLUOROETHANE (REFRIGERANT GAS R 143a)	2	2F		2.1		LQ0	P200		MP9	T50	
2036	XENON	2	2A		2.2		LQ1	P200		MP9		
2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable	2	5A		2.2	191 303	LQ2	P204		MP9		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2025	MERCURY COMPOUND, SOLID, N.O.S.
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2025	MERCURY COMPOUND, SOLID, N.O.S.
SGAH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2025	MERCURY COMPOUND, SOLID, N.O.S.
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2026	PHENYLMERCURIC COMPOUND, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2026	PHENYLMERCURIC COMPOUND, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2026	PHENYLMERCURIC COMPOUND, N.O.S.
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2027	SODIUM ARSENITE, SOLID
			2						2028	BOMBS, SMOKE, NON-EXPLOSIVE with corrosive liquid, without initiating device
			1			CV13 CV28	S2 S20		2029	HYDRAZINE, ANHYDROUS
L10BH	TE1	AT	1			CV13 CV28		886	2030	HYDRAZINE AQUEOUS SOLUTION, with more than 37% hydrazine by mass
L4BN		AT	2			CV13 CV28		86	2030	HYDRAZINE AQUEOUS SOLUTION, with more than 37% hydrazine by mass
L4BN		AT	3			CV13 CV28		86	2030	HYDRAZINE AQUEOUS SOLUTION, with more than 37% hydrazine by mass
L10BH	TC6 TE1 TT1	AT	1			CV24	S20	885	2031	NITRIC ACID, other than red fuming, with more than 70% nitric acid
L4BN		AT	2					80	2031	NITRIC ACID, other than red fuming, with not more than 70% nitric acid
L10BH	TC6 TE1 TT1	AT	1			CV13 CV24 CV28	S20	856	2032	NITRIC ACID, RED FUMING
SGAN		AT	2	V11				80	2033	POTASSIUM MONOXIDE
CxBN(M)		FL	2	V7		CV9 CV10	S2	23	2034	HYDROGEN AND METHANE MIXTURE, COMPRESSED
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	2035	1,1,1-TRIFLUOROETHANE (REFRIGERANT GAS R.143a)
PxBN(M)		AT	3	V7		CV9 CV10		20	2036	XENON
			3			CV9 CV12			2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable	2	5F		2.1	191 303	LQ2	P204		MP9		
2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable	2	5O		2.2 +5.1	191 303	LQ2	P204		MP9		
2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable	2	5T		2.3	303	LQ1	P204		MP9		
2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable	2	5TC		2.3 +8	303	LQ1	P204		MP9		
2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable	2	5TF		2.3 +2.1	303	LQ1	P204		MP9		
2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable	2	5TFC		2.3 +2.1 +8	303	LQ1	P204		MP9		
2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable	2	5TO		2.3 +5.1	303	LQ1	P204		MP9		
2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable	2	5TOC		2.3 +5.1 +8	303	LQ1	P204		MP9		
2038	DINITROTOLUENES, LIQUID	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2038	DINITROTOLUENES, SOLID	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10	T7	TP2
2044	2,2-DIMETHYLPROPANE	2	2F		2.1		LQ0	P200		MP9		
2045	ISOBUTYRALDEHYDE (ISOBUTYL ALDEHYDE)	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2046	CYMENES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2047	DICHLOROPROPENES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2047	DICHLOROPROPENES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2048	DICYCLOPENTADIENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
			2			CV9 CV12	S2		2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable
			3			CV9 CV12			2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable
			1			CV9 CV12	S7		2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable
			1			CV9 CV12	S7		2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable
			1			CV9 CV12	S2 S7		2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable
			1			CV9 CV12	S2 S7		2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable
			1			CV9 CV12	S7		2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable
			1			CV9 CV12	S7		2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2038	DINITROTOLUENES, LIQUID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2038	DINITROTOLUENES, SOLID
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	2044	2,2-DIMETHYLPROPANE
LGBF		FL	2				S2 S20	33	2045	ISOBUTYRALDEHYDE (ISOBUTYL ALDEHYDE)
LGBF		FL	3				S2	30	2046	CYMENES
LGBF		FL	2				S2 S20	33	2047	DICHLOROPROPENES
LGBF		FL	3				S2	30	2047	DICHLOROPROPENES
LGBF		FL	3				S2	30	2048	DICYCLOPENTADIENE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
2049	DIETHYLBENZENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2050	DIISOBUTYLENE, ISOMERIC COMPOUNDS	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2051	2-DIMETHYLAMINO-ETHANOL	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
2052	DIPENTENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2053	METHYL ISOBUTYL CARBINOL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2054	MORPHOLINE	8	CF1	I	8 +3		LQ20	P001		MP8 MP17	T10	TP2
2055	STYRENE MONOMER, STABILIZED	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2056	TETRAHYDROFURAN	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2057	TRIPROPYLENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2057	TRIPROPYLENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2058	VALERALDEHYDE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2059	NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose (vapour pressure at 50 °C more than 175 kPa)	3	D	I	3	198 531 640A	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP27
2059	NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	D	I	3	198 531 640B	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP27
2059	NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	D	II	3	198 531 640C	LQ4	P001		MP19	T4	TP1 TP8

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
LGBF		FL	3				S2	30	2049 DIETHYLBENZENE	
LGBF		FL	2				S2 S20	33	2050 DIISOBUTYLENE, ISOMERIC COMPOUNDS	
L4BN		FL	2				S2	83	2051 2-DIMETHYLAMINO-ETHANOL	
LGBF		FL	3				S2	30	2052 DIPENTENE	
LGBF		FL	3				S2	30	2053 METHYL ISOBUTYL CARBINOL	
L10BH	TE1	FL	1				S2 S20	883	2054 MORPHOLINE	
LGBF		FL	3				S2	39	2055 STYRENE MONOMER, STABILIZED	
LGBF		FL	2				S2 S20	33	2056 TETRAHYDROFURAN	
LGBF		FL	2				S2 S20	33	2057 TRIPROPYLENE	
LGBF		FL	3				S2	30	2057 TRIPROPYLENE	
LGBF		FL	2				S2 S20	33	2058 VALERALDEHYDE	
L4BN		FL	1				S2 S20	33	2059 NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose (vapour pressure at 50 °C more than 175 kPa)	
L1.5BN		FL	1				S2 S20	33	2059 NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
L1.5BN		FL	2				S2 S20	33	2059 NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2059	NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose (vapour pressure at 50 °C not more than 110 kPa)	3	D	II	3	198 531 640D	LQ4	P001 R001		MP19	T4	TP1 TP8
2059	NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose	3	D	III	3	198 531	LQ7	P001 LP01 R001		MP19	T2	TP1
2067	AMMONIUM NITRATE BASED FERTILIZER	5.1	O2	III	5.1	186 306 307	LQ12	P002 IBC08 LP02 R001	B3	MP10		
2071	Ammonium nitrate based fertilizer, uniform mixtures of the nitrogen/phosphate, nitrogen/potash or nitrogen/phosphate/potash type, containing not more than 70% ammonium nitrate and not more than 0.4% total combustible/organic material calculated as carbon or with not more than 45% ammonium nitrate and unrestricted combustible material	9	M11	NOT SUBJECT TO ADR								
2073	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 35% but not more than 50% ammonia	2	4A		2.2	532	LQ1	P200		MP9		
2074	ACRYLAMIDE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10	T4	TP1
2075	CHLORAL, ANHYDROUS, STABILIZED	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2076	CRESOLS, LIQUID	6.1	TC1	II	6.1 +8		LQ17	P001 IBC02		MP15	T7	TP2
2076	CRESOLS, SOLID	6.1	TC2	II	6.1 +8		LQ18	P002 IBC08	B4	MP10	T7	TP2
2077	alpha-NAPHTHYLAMINE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10	T3	TP1
2078	TOLUENE DIISOCYANATE	6.1	T1	II	6.1	279	LQ17	P001 IBC02		MP15	T7	TP2 TP13
2079	DIETHYLENETRIAMINE	8	C7	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2186	HYDROGEN CHLORIDE, REFRIGERATED LIQUID	2	3TC	CARRIAGE PROHIBITED								
2187	CARBON DIOXIDE, REFRIGERATED LIQUID	2	3A		2.2	593	LQ1	P203		MP9	T75	
2188	ARSINE	2	2TF		2.3 +2.1		LQ0	P200		MP9		
2189	DICHLOROSILANE	2	2TFC		2.3 +2.1 +8		LQ0	P200		MP9		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
LGBF		FL	2				S2 S20	33	2059 NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose (vapour pressure at 50 °C not more than 110 kPa)	
LGBF		FL	3				S2	30	2059 NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose	
SGAV	TU3	AT	3		VV8	CV24		50	2067 AMMONIUM NITRATE BASED FERTILIZER	
NOT SUBJECT TO ADR									2071 Ammonium nitrate based fertilizer, uniform mixtures of the nitrogen/phosphate, nitrogen/potash or nitrogen/phosphate/potash type, containing not more than 70% ammonium nitrate and not more than 0.4% total combustible/organic material calculated as carbon or with not more than 45% ammonium nitrate and unrestricted combustible material	
PxBN(M)		AT	3			CV9 CV10		20	2073 AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 35% but not more than 50% ammonia	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2074 ACRYLAMIDE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	69	2075 CHLORAL, ANHYDROUS, STABILIZED	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	2076 CRESOLS, LIQUID	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	68	2076 CRESOLS, SOLID	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2077 alpha-NAPHTHYLAMINE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2078 TOLUENE DIISOCYANATE	
L4BN		AT	2					80	2079 DIETHYLENTRIAMINE	
CARRIAGE PROHIBITED									2186 HYDROGEN CHLORIDE, REFRIGERATED LIQUID	
RxBN	TU19	AT	3	V5 V7		CV9 CV11	S20	22	2187 CARBON DIOXIDE, REFRIGERATED LIQUID	
			1	V7		CV9 CV10	S2 S7 S17		2188 ARSINE	
PxBH(M)	TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	2189 DICHLOROSILANE	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
2190	OXYGEN DIFLUORIDE, COMPRESSED	2	1TOC		2.3 +5.1 +8		LQ0	P200		MP9		
2191	SULPHURYL FLUORIDE	2	2T		2.3		LQ0	P200		MP9		
2192	GERMANE	2	2TF		2.3 +2.1	632	LQ0	P200		MP9		
2193	HEXAFLUOROETHANE (REFRIGERANT GAS R 116)	2	2A		2.2		LQ1	P200		MP9		
2194	SELENIUM HEXAFLUORIDE	2	2TC		2.3 +8		LQ0	P200		MP9		
2195	TELLURIUM HEXAFLUORIDE	2	2TC		2.3 +8		LQ0	P200		MP9		
2196	TUNGSTEN HEXAFLUORIDE	2	2TC		2.3 +8		LQ0	P200		MP9		
2197	HYDROGEN IODIDE, ANHYDROUS	2	2TC		2.3 +8		LQ0	P200		MP9		
2198	PHOSPHORUS PENTAFLUORIDE	2	2TC		2.3 +8		LQ0	P200		MP9		
2199	PHOSPHINE	2	2TF		2.3 +2.1	632	LQ0	P200		MP9		
2200	PROPADIENE, STABILIZED	2	2F		2.1		LQ0	P200		MP9		
2201	NITROUS OXIDE, REFRIGERATED LIQUID	2	3O		2.2 +5.1		LQ0	P203		MP9	T75	TP22
2202	HYDROGEN SELENIDE, ANHYDROUS	2	2TF		2.3 +2.1		LQ0	P200		MP9		
2203	SILANE	2	2F		2.1	632	LQ0	P200		MP9		
2204	CARBONYL SULPHIDE	2	2TF		2.3 +2.1		LQ0	P200		MP9		
2205	ADIPONITRILE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T3	TP1
2206	ISOCYANATES, TOXIC, N.O.S. or ISOCYANATE SOLUTION, TOXIC, N.O.S.	6.1	T1	II	6.1	274 551	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2206	ISOCYANATES, TOXIC, N.O.S. or ISOCYANATE SOLUTION, TOXIC, N.O.S.	6.1	T1	III	6.1	274 551	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP13 TP28
2208	CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 10% but not more than 39% available chlorine	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
2209	FORMALDEHYDE SOLUTION with not less than 25% formaldehyde	8	C9	III	8	533	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2210	MANEB or MANEB PREPARATION with not less than 60% maneb	4.2	SW	III	4.2 +4.3	273	LQ0	P002 IBC06 R001		MP14		
2211	POLYMERIC BEADS, EXPANDABLE, evolving flammable vapour	9	M3	III	None	207 633	LQ27	P002 IBC08 R001	PP14 B3 B6	MP10		
2212	BLUE ASBESTOS (crocidolite) or BROWN ASBESTOS (amosite, mysorite)	9	M1	II	9	168	LQ25	P002 IBC08	PP37 B4	MP10		
2213	PARAFORMALDEHYDE	4.1	F1	III	4.1		LQ9	P002 IBC08 LP02 R001	PP12 B3	MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
			1	V7		CV9 CV10	S7 S17		2190	OXYGEN DIFLUORIDE, COMPRESSED
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	26	2191	SULPHURYL FLUORIDE
			1	V7		CV9 CV10	S2 S7 S17		2192	GERMANE
PxBN(M)		AT	3	V7		CV9 CV10		20	2193	HEXAFLUOROETHANE (REFRIGERANT GAS R 116)
			1	V7		CV9 CV10	S7 S17		2194	SELENIUM HEXAFLUORIDE
			1	V7		CV9 CV10	S7 S17		2195	TELLURIUM HEXAFLUORIDE
			1	V7		CV9 CV10	S7 S17		2196	TUNGSTEN HEXAFLUORIDE
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	268	2197	HYDROGEN IODIDE, ANHYDROUS
			1	V7		CV9 CV10	S7 S17		2198	PHOSPHORUS PENTAFLUORIDE
			1	V7		CV9 CV10	S2 S7 S17		2199	PHOSPHINE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	239	2200	PROPADIENE, STABILIZED
RxBN	TU7 TU19	AT	3	V5 V7		CV9 CV11	S20	225	2201	NITROGEN OXIDE, REFRIGERATED LIQUID
			1	V7		CV9 CV10	S2 S7 S17		2202	HYDROGEN SELENIDE, ANHYDROUS
PxBN(M)		FL	2	V7		CV9 CV10	S2	23	2203	SILANE
PxBH(M)	TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	2204	CARBONYL SULPHIDE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2205	ADIPONITRILE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2206	ISOCYANATES, TOXIC, N.O.S. or ISOCYANATE SOLUTION, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2206	ISOCYANATES, TOXIC, N.O.S. or ISOCYANATE SOLUTION, TOXIC, N.O.S.
SGAN	TU3	AT	3			CV24		50	2208	CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 10% but not more than 39% available chlorine
L4BN		AT	3					80	2209	FORMALDEHYDE SOLUTION with not less than 25% formaldehyde
SGAN		AT	3	V1 V12	VV4			40	2210	MANEB or MANEB PREPARATION with not less than 60% maneb
SGAN	TE20	AT	3	V1	VV3			90	2211	POLYMERIC BEADS, EXPANDABLE, evolving flammable vapour
SGAH	TU15 TE1 TE15	AT	2	V1		CV1 CV13 CV28	S19	90	2212	BLUE ASBESTOS (crocidolite) or BROWN ASBESTOS (amosite, mysorite)
SGAV		AT	3	V13	VV1			40	2213	PARAFORMALDEHYDE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
2214	PHTHALIC ANHYDRIDE with more than 0.05% of maleic anhydride	8	C4	III	8	169	LQ24	P002 IBC08 LP02 R001	B3	MP10	T4	TP3
2215	MALEIC ANHYDRIDE, MOLTEN	8	C3	III	8		LQ0				T4	TP3
2215	MALEIC ANHYDRIDE	8	C4	III	8		LQ24	P002 IBC08 R001	B3	MP10	T4	TP1
2216	Fish meal (Fish scrap), stabilized	9	M11	NOT SUBJECT TO ADR								
2217	SEED CAKE with not more than 1.5% oil and not more than 11% moisture	4.2	S2	III	4.2	142	LQ0	P002 IBC08 LP02 R001	PP20 B3 B6	MP14		
2218	ACRYLIC ACID, STABILIZED	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
2219	ALLYL GLYCIDYL ETHER	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2222	ANISOLE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2224	BENZONITRILE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2225	BENZENESULPHONYL CHLORIDE	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2226	BENZOTRICHLORIDE	8	C9	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2227	n-BUTYL METHACRYLATE, STABILIZED	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2232	2-CHLOROETHANAL	6.1	T1	I	6.1		LQ0	P001		MP8 MP17	T14	TP2 TP13
2233	CHLOROANISIDINES	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2234	CHLOROBENZOTRI-FLUORIDES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2235	CHLOROBENZYL CHLORIDES	6.1	T2	III	6.1		LQ9	P001 IBC03 LP01 R001		MP10	T4	TP1
2236	3-CHLORO-4-METHYLPHENYL ISOCYANATE	6.1	T2	II	6.1		LQ18	P001 IBC02		MP10		
2237	CHLORONITROANILINES	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2238	CHLOROTOLUENES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2239	CHLOROTOLUIDINES, liquid	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAV L4BN		AT	3		VV9b			80	2214	PHTHALIC ANHYDRIDE with more than 0.05% of maleic anhydride
L4BN		AT	0					80	2215	MALEIC ANHYDRIDE, MOLTEN
SGAV		AT	3		VV9b			80	2215	MALEIC ANHYDRIDE
NOT SUBJECT TO ADR									2216	Fish meal (Fish scrap), stabilized
			3	VI	VV4			40	2217	SEED CAKE with not more than 1.5% oil and not more than 11% moisture
L4BN		FL	2				S2	839	2218	ACRYLIC ACID, STABILIZED
LGBF		FL	3				S2	30	2219	ALLYL GLYCIDYL ETHER
LGBF		FL	3				S2	30	2222	ANISOLE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2224	BENZONITRILE
L4BN		AT	3					80	2225	BENZENESULPHONYL CHLORIDE
L4BN		AT	2					80	2226	BENZOTRICHLORIDE
LGBF		FL	3				S2	39	2227	n-BUTYL METHACRYLATE, STABILIZED
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2232	2-CHLOROETHANAL
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2233	CHLOROANISIDINES
LGBF		FL	3				S2	30	2234	CHLOROBENZOTRI-FLUORIDES
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2235	CHLOROBENZYL CHLORIDES
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2236	3-CHLORO-4-METHYLPHENYL ISOCYANATE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2237	CHLORONITROANILINES
LGBF		FL	3				S2	30	2238	CHLOROTOLUENES
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2239	CHLOROTOLUIDINES, liquid

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2239	CHLOROTOLUIDINES, solid	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10	T4	TP1
2240	CHROMOSULPHURIC ACID	8	C1	I	8		LQ20	P001		MP8 MP17	T10	TP2 TP12 TP13
2241	CYCLOHEPTANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2242	CYCLOHEPTENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2243	CYCLOHEXYL ACETATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2244	CYCLOPENTANOL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2245	CYCLOPENTANONE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2246	CYCLOPENTENE	3	F1	II	3		LQ4	P001 IBC02	B8	MP19	T7	TP2
2247	n-DECANE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2248	DI-n-BUTYLAMINE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
2249	DICHLORODIMETHYL ETHER, SYMMETRICAL	6.1	T1	CARRIAGE PROHIBITED								
2250	DICHLOROPHENYL ISOCYANATES	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10	T7	TP2
2251	BICYCLO[2.2.1]HEPTA-2,5- DIENE, STABILIZED (2,5- NORBORNADIENE, STABILIZED)	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T7	TP2
2252	1,2-DIMETHOXYETHANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2253	N,N-DIMETHYLANILINE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2254	MATCHES, FUSEE	4.1	F1	III	4.1	293	LQ9	P407 R001		MP11		
2256	CYCLOHEXENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2257	POTASSIUM	4.3	W2	I	4.3		LQ0	P403 IBC04		MP2	T9	TP3 TP7 TP31
2258	1,2-PROPYLENEDIAMINE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
2259	TRIETHYLENETETRAMINE	8	C7	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2260	TRIPROPYLAMINE	3	FC	III	3 +8		LQ7	P001 IBC03 R001		MP19	T4	TP1
2261	XYLENOLS, liquid	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2261	XYLENOLS, solid	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10	T7	TP2
2262	DIMETHYLCARBAMOYL CHLORIDE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2239 CHLOROTOLUIDINES, solid	
L10BH	TE1	AT	1				S20	88	2240 CHROMOSULPHURIC ACID	
LGBF		FL	2				S2 S20	33	2241 CYCLOHEPTANE	
LGBF		FL	2				S2 S20	33	2242 CYCLOHEPTENE	
LGBF		FL	3				S2	30	2243 CYCLOHEXYL ACETATE	
LGBF		FL	3				S2	30	2244 CYCLOPENTANOL	
LGBF		FL	3				S2	30	2245 CYCLOPENTANONE	
L1.5BN		FL	2				S2 S20	33	2246 CYCLOPENTENE	
LGBF		FL	3				S2	30	2247 n-DECANE	
L4BN		FL	2				S2	83	2248 DI-n-BUTYLAMINE	
CARRIAGE PROHIBITED									2249	DICHLORODIMETHYL ETHER, SYMMETRICAL
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	VII		CV13 CV28	S9 S19	60	2250 DICHLOROPHENYL ISOCYANATES	
LGBF		FL	2				S2 S20	339	2251 BICYCLO[2.2.1]HEPTA-2,5- DIENE, STABILIZED (2,5- NORBORNADIENE, STABILIZED)	
LGBF		FL	2				S2 S20	33	2252 1,2-DIMETHOXYETHANE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2253 N,N-DIMETHYLANILINE	
			4						2254 MATCHES, FUSEE	
LGBF		FL	2				S2 S20	33	2256 CYCLOHEXENE	
L10BN(+)	TU1 TE5 TT3 TM2	AT	1	VI		CV23	S20	X423	2257 POTASSIUM	
L4BN		FL	2				S2	83	2258 1,2-PROPYLENEDIAMINE	
L4BN		AT	2					80	2259 TRIETHYLENETETRAMINE	
L4BN		FL	3				S2	38	2260 TRIPROPYLAMINE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2261 XYLENOLS, liquid	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	VII		CV13 CV28	S9 S19	60	2261 XYLENOLS, solid	
L4BN		AT	2					80	2262 DIMETHYLCARBAMOYL CHLORIDE	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2263	DIMETHYL-CYCLOHEXANES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2264	N,N-DIMETHYL-CYCLOHEXYLAMINE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
2265	N,N-DIMETHYL-FORMAMIDE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP2
2266	DIMETHYL-N-PROPYLAMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP2 TP13
2267	DIMETHYL THIOPHOSPHORYL CHLORIDE	6.1	TC1	II	6.1 +8		LQ17	P001 IBC02		MP15	T7	TP2
2269	3,3'-IMINODIPROPYLAMINE	8	C7	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP2
2270	ETHYLAMINE, AQUEOUS SOLUTION with not less than 50% but not more than 70% ethylamine	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
2271	ETHYL AMYL KETONE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2272	N-ETHYLANILINE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2273	2-ETHYLANILINE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2274	N-ETHYL-N-BENZYLANILINE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2275	2-ETHYLBUTANOL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2276	2-ETHYLHEXYLAMINE	3	FC	III	3 +8		LQ7	P001 IBC03 R001		MP19	T4	TP1
2277	ETHYL METHACRYLATE, STABILIZED	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2278	n-HEPTENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2279	HEXACHLOROBUTADIENE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2280	HEXAMETHYLENE-DIAMINE, SOLID	8	C8	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10	T4	TP1
2281	HEXAMETHYLENE DIISOCYANATE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2 TP13
2282	HEXANOLS	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
LGBF		FL	2				S2 S20	33	2263 DIMETHYL-CYCLOHEXANES	
L4BN		FL	2				S2	83	2264 N,N-DIMETHYL-CYCLOHEXYLAMINE	
LGBF		FL	3				S2	30	2265 N,N-DIMETHYL-FORMAMIDE	
L4BH	TE1 TE15	FL	2				S2 S20	338	2266 DIMETHYL-N-PROPYLAMINE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	2267 DIMETHYL THIOPHOSPHORYL CHLORIDE	
L4BN		AT	3					80	2269 3,3'-IMINODIPROPYLAMINE	
L4BH	TE1 TE15	FL	2				S2 S20	338	2270 ETHYLAMINE, AQUEOUS SOLUTION with not less than 50% but not more than 70% ethylamine	
LGBF		FL	3				S2	30	2271 ETHYL AMYL KETONE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2272 N-ETHYLANILINE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2273 2-ETHYLANILINE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2274 N-ETHYL-N-BENZYLANILINE	
LGBF		FL	3				S2	30	2275 2-ETHYLBUTANOL	
L4BN		FL	3				S2	38	2276 2-ETHYLHEXYLAMINE	
LGBF		FL	2				S2 S20	339	2277 ETHYL METHACRYLATE, STABILIZED	
LGBF		FL	2				S2 S20	33	2278 n-HEPTENE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2279 HEXACHLOROBUTADIENE	
SGAV L4BN		AT	3		VV9b			80	2280 HEXAMETHYLENE-DIAMINE, SOLID	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2281 HEXAMETHYLENE DIISOCYANATE	
LGBF		FL	3				S2	30	2282 HEXANOLS	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2283	ISOBUTYL METHACRYLATE, STABILIZED	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2284	ISOBUTYRONITRILE	3	FT1	II	3 +6.1		LQ0	P001 IBC02		MP19	T7	TP2 TP13
2285	ISOCYANATOBENZO-TRIFLUORIDES	6.1	TF1	II	6.1 +3		LQ17	P001 IBC02		MP15	T7	TP2
2286	PENTAMETHYLHEPTANE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2287	ISOHEPTENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2288	ISOHEXENE	3	F1	II	3		LQ4	P001 IBC02 R001	B8	MP19	T11	TP1
2289	ISOPHORONEDIAMINE	8	C7	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2290	ISOPHORONE DIISOCYANATE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP2
2291	LEAD COMPOUND, SOLUBLE, N.O.S.	6.1	T5	III	6.1	199 274 535	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2293	4-METHOXY-4-METHYLPENTAN-2-ONE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2294	N-METHYLANILINE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2295	METHYL CHLOROACETATE	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
2296	METHYLCYCLOHEXANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2297	METHYLCYCLOHEXANONE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2298	METHYLCYCLOPENTANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2299	METHYL DICHLOROACETATE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2300	2-METHYL-5-ETHYLPYRIDINE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2301	2-METHYLFURAN	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2302	5-METHYLHEXAN-2-ONE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (1) (2)	
LGBF		FL	3				S2	39	2283	ISOBUTYL METHACRYLATE, STABILIZED
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2284	ISOBUTYRONITRILE
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	2285	ISOCYANATOBENZO-TRIFLUORIDES
LGBF		FL	3				S2	30	2286	PENTAMETHYLHEPTANE
LGBF		FL	2				S2 S20	33	2287	ISOHEPTENE
LGBF		FL	2				S2 S20	33	2288	ISOHEXENE
L4BN		AT	3					80	2289	ISOPHORONEDIAMINE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2290	ISOPHORONE DIISOCYANATE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2291	LEAD COMPOUND, SOLUBLE, N.O.S.
LGBF		FL	3				S2	30	2293	4-METHOXY-4-METHYLPENTAN-2-ONE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2294	N-METHYLANILINE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2295	METHYL CHLOROACETATE
LGBF		FL	2				S2 S20	33	2296	METHYLCYCLOHEXANE
LGBF		FL	3				S2	30	2297	METHYLCYCLOHEXANONE
LGBF		FL	2				S2 S20	33	2298	METHYLCYCLOPENTANE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2299	METHYL DICHLOROACETATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2300	2-METHYL-5-ETHYLPYRIDINE
LGBF		FL	2				S2 S20	33	2301	2-METHYLFURAN
LGBF		FL	3				S2	30	2302	5-METHYLHEXAN-2-ONE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2303	ISOPROPENYLBENZENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2304	NAPHTHALENE, MOLTEN	4.1	F2	III	4.1	536	LQ0				T1	TP3
2305	NITROBENZENE-SULPHONIC ACID	8	C4	II	8		LQ23	P002 IBC08	B4	MP10		
2306	NITROBENZOTRI-FLUORIDES, liquid	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2306	NITROBENZOTRI-FLUORIDES, solid	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10	T7	TP2
2307	3-NITRO-4-CHLORO-BENZOTRIFLUORIDE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP10	T7	TP2
2308	NITROSYLSULPHURIC ACID, LIQUID	8	C1	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12
2308	NITROSYLSULPHURIC ACID, SOLID	8	C2	II	8		LQ23	P002 IBC08	B4	MP10	T8	TP2 TP12
2309	OCTADIENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2310	PENTANE-2,4-DIONE	3	FT1	III	3 +6.1		LQ7	P001 IBC03 R001		MP19	T4	TP1
2311	PHENETIDINES	6.1	T1	III	6.1	279	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2312	PHENOL, MOLTEN	6.1	T1	II	6.1		LQ0				T7	TP3
2313	PICOLINES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1
2315	POLYCHLORINATED BIPHENYLS	9	M2	II	9	305	LQ26 LQ29	P906 IBC02		MP15	T4	TP1
2316	SODIUM CUPROCYANIDE, SOLID	6.1	T5	I	6.1		LQ0	P002 IBC07		MP18		
2317	SODIUM CUPROCYANIDE SOLUTION	6.1	T4	I	6.1		LQ0	P001		MP8 MP17	T14	TP2 TP13
2318	SODIUM HYDROSULPHIDE with less than 25% water of crystallization	4.2	S4	II	4.2	504	LQ0	P410 IBC06		MP14		
2319	TERPENE HYDROCARBONS, N.O.S.	3	F1	III	3	274	LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1 TP29
2320	TETRAETHYLENE-PENTAMINE	8	C7	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2321	TRICHLOROBENZENES, LIQUID	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2322	TRICHLOROBUTENE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2323	TRIETHYL PHOSPHITE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1)	3.1.2 (2)
LGBF		FL	3				S2	30	2303	ISOPROPENYLBENZENE
LGBV	TU27 TE4 TE6	AT	3					44	2304	NAPHTHALENE, MOLTEN
SGAN L4BN		AT	2	V11				80	2305	NITROBENZENE-SULPHONIC ACID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2306	NITROBENZOTRI-FLUORIDES, liquid
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2306	NITROBENZOTRI-FLUORIDES, solid
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2307	3-NITRO-4-CHLORO-BENZOTRIFLUORIDE
L4BN		AT	2					X80	2308	NITROSYLSULPHURIC ACID, LIQUID
SGAN		AT	2	V11				X80	2308	NITROSYLSULPHURIC ACID, SOLID
LGBF		FL	2				S2 S20	33	2309	OCTADIENE
L4BH	TU15 TE1 TE15	FL	3			CV13 CV28	S2	36	2310	PENTANE-2,4-DIONE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2311	PHENETIDINES
L4BH	TU15 TE1 TE15 TE19	AT	0			CV13	S9 S19	60	2312	PHENOL, MOLTEN
LGBF		FL	3				S2	30	2313	PICOLINES
L4BH	TU15 TE1 TE15	AT	0	V1		CV1 CV13 CV28	S19	90	2315	POLYCHLORINATED BIPHENYLS
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2316	SODIUM CUPROCYANIDE, SOLID
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2317	SODIUM CUPROCYANIDE SOLUTION
SGAN		AT	2	V1 V12				40	2318	SODIUM HYDROSULPHIDE with less than 25% water of crystallization
LGBF		FL	3				S2	30	2319	TERPENE HYDROCARBONS, N.O.S.
L4BN		AT	3					80	2320	TETRAETHYLENE-PENTAMINE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2321	TRICHLOROBENZENES, LIQUID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2322	TRICHLOROBUTENE
LGBF		FL	3				S2	30	2323	TRIETHYL PHOSPHITE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2324	TRISOBUTYLENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1
2325	1,3,5-TRIMETHYLBENZENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2326	TRIMETHYLCYCLO- HEXYLAMINE	8	C7	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2327	TRIMETHYLHEXA- METHYLENEDIAMINES	8	C7	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2328	TRIMETHYLHEXA- METHYLENE DIISOCYANATE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP2 TP13
2329	TRIMETHYL PHOSPHITE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2330	UNDECANE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2331	ZINC CHLORIDE, ANHYDROUS	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2332	ACETALDEHYDE OXIME	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1
2333	ALLYL ACETATE	3	FT1	II	3 +6.1		LQ0	P001 IBC02		MP19	T7	TP1 TP13
2334	ALLYLAMINE	6.1	TF1	I	6.1 +3		LQ0	P602		MP8 MP17	T14	TP2 TP13
2335	ALLYL ETHYL ETHER	3	FT1	II	3 +6.1		LQ0	P001 IBC02		MP19	T7	TP1 TP13
2336	ALLYL FORMATE	3	FT1	I	3 +6.1		LQ0	P001		MP7 MP17	T14	TP2 TP13
2337	PHENYL MERCAPTAN	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
2338	BENZOTRIFLUORIDE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2339	2-BROMOBUTANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2340	2-BROMOETHYL ETHYL ETHER	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2341	1-BROMO-3- METHYLBUTANE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2342	BROMOMETHYL- PROPANES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2343	2-BROMOPENTANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
LGBF		FL	3				S2	30	2324 TRIISOBUTYLENE	
LGBF		FL	3				S2	30	2325 1,3,5-TRIMETHYLBENZENE	
L4BN		AT	3					80	2326 TRIMETHYLCYCLO- HEXYLAMINE	
L4BN		AT	3					80	2327 TRIMETHYLHEXA- METHYLENEDIAMINES	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2328 TRIMETHYLHEXA- METHYLENE DIISOCYANATE	
LGBF		FL	3				S2	30	2329 TRIMETHYL PHOSPHITE	
LGBF		FL	3				S2	30	2330 UNDECANE	
SGAV		AT	3		VV9b			80	2331 ZINC CHLORIDE, ANHYDROUS	
LGBF		FL	3				S2	30	2332 ACETALDEHYDE OXIME	
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2333 ALLYL ACETATE	
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2334 ALLYLAMINE	
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2335 ALLYL ETHYL ETHER	
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2336 ALLYL FORMATE	
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2337 PHENYL MERCAPTAN	
LGBF		FL	2				S2 S20	33	2338 BENZOTRIFLUORIDE	
LGBF		FL	2				S2 S20	33	2339 2-BROMOBUTANE	
LGBF		FL	2				S2 S20	33	2340 2-BROMOETHYL ETHYL ETHER	
LGBF		FL	3				S2	30	2341 1-BROMO-3- METHYLBUTANE	
LGBF		FL	2				S2 S20	33	2342 BROMOMETHYL- PROPANES	
LGBF		FL	2				S2 S20	33	2343 2-BROMOPENTANE	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2344	BROMOPROPANES	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2344	BROMOPROPANES	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2345	3-BROMOPROPYNE	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2346	BUTANEDIONE	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2347	BUTYL MERCAPTAN	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2348	BUTYL ACRYLATES, STABILIZED	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2350	BUTYL METHYL ETHER	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2351	BUTYL NITRITES	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2351	BUTYL NITRITES	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2352	BUTYL VINYL ETHER, STABILIZED	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2353	BUTYRYL CHLORIDE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T8	TP2 TP12 TP13
2354	CHLOROMETHYL ETHYL ETHER	3	FT1	II	3 +6.1		LQ0	P001 IBC02		MP19	T7	TP1 TP13
2356	2-CHLOROPROPANE	3	FI	I	3		LQ3	P001		MP7 MP17	T11	TP2 TP13
2357	CYCLOHEXYLAMINE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
2358	CYCLOOCTATETRAENE	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2359	DIALLYLAMINE	3	FTC	II	3 +6.1 +8		LQ0	P001 IBC02		MP19	T7	TP1
2360	DIALLYL ETHER	3	FT1	II	3 +6.1		LQ0	P001 IBC02		MP19	T7	TP1 TP13
2361	DIISOBUTYLAMINE	3	FC	III	3 +8		LQ7	P001 IBC03 R001		MP19	T4	TP1
2362	1,1-DICHLOROETHANE	3	FI	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2363	ETHYL MERCAPTAN	3	FI	I	3		LQ3	P001		MP7 MP17	T11	TP2 TP13
2364	n-PROPYLBENZENE	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2366	DIETHYL CARBONATE	3	FI	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
LGBF		FL	2				S2 S20	33	2344	BROMOPROPANES
LGBF		FL	3				S2	30	2344	BROMOPROPANES
LGBF		FL	2				S2 S20	33	2345	3-BROMOPROPYNE
LGBF		FL	2				S2 S20	33	2346	BUTANEDIONE
LGBF		FL	2				S2 S20	33	2347	BUTYL MERCAPTAN
LGBF		FL	3				S2	39	2348	BUTYL ACRYLATES, STABILIZED
LGBF		FL	2				S2 S20	33	2350	BUTYL METHYL ETHER
LGBF		FL	2				S2 S20	33	2351	BUTYL NITRITES
LGBF		FL	3				S2	30	2351	BUTYL NITRITES
LGBF		FL	2				S2 S20	339	2352	BUTYL VINYL ETHER, STABILIZED
L4BH	TE1 TE15	FL	2				S2 S20	338	2353	BUTYRYL CHLORIDE
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2354	CHLOROMETHYL ETHYL ETHER
L1.SBN		FL	1				S2 S20	33	2356	2-CHLOROPROPANE
L4BN		FL	2				S2	83	2357	CYCLOHEXYLAMINE
LGBF		FL	2				S2 S20	33	2358	CYCLOOCTATETRAENE
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	338	2359	DIALLYLAMINE
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2360	DIALLYL ETHER
L4BN		FL	3				S2	38	2361	DIISOBUTYLAMINE
LGBF		FL	2				S2 S20	33	2362	1,1-DICHLOROETHANE
L1.SBN		FL	1				S2 S20	33	2363	ETHYL MERCAPTAN
LGBF		FL	3				S2	30	2364	n-PROPYLBENZENE
LGBF		FL	3				S2	30	2366	DIETHYL CARBONATE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2367	alpha-METHYL-VALERALDEHYDE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2368	alpha-PINENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2370	1-HEXENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2371	ISOPENTENES	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2
2372	1,2-DI-(DIMETHYLAMINO)ETHANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2373	DIETHOXYMETHANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2374	3,3-DIETHOXYPROPENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2375	DIETHYL SULPHIDE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T7	TP1 TP13
2376	2,3-DIHYDROPYRAN	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2377	1,1-DIMETHOXYETHANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T7	TP1
2378	2-DIMETHYLAMINO-ACETONITRILE	3	FT1	II	3 +6.1		LQ0	P001 IBC02		MP19	T7	TP1
2379	1,3-DIMETHYL-BUTYLAMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
2380	DIMETHYL-DIETHOXSILANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2381	DIMETHYL DISULPHIDE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2382	DIMETHYLHYDRAZINE, SYMMETRICAL	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
2383	DIPROPYLAMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
2384	DI-n-PROPYL ETHER	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2385	ETHYL ISOBUTYRATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2386	1-ETHYLPYPERIDINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
2387	FLUOROBENZENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2388	FLUOROTOLUENES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2389	FURAN	3	F1	I	3		LQ3	P001		MP7 MP17	T12	TP2 TP13
2390	2-IODOBUTANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2391	IODOMETHYLPROPANES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
LGBF		FL	2				S2 S20	33	2367	alpha-METHYL-VALERALDEHYDE
LGBF		FL	3				S2	30	2368	alpha-PINENE
LGBF		FL	2				S2 S20	33	2370	1-HEXENE
L4BN		FL	1				S2 S20	33	2371	ISOPENTENES
LGBF		FL	2				S2 S20	33	2372	1,2-DI-(DIMETHYLAMINO) ETHANE
LGBF		FL	2				S2 S20	33	2373	DIETHOXYMETHANE
LGBF		FL	2				S2 S20	33	2374	3,3-DIETHOXYPROPENE
LGBF		FL	2				S2 S20	33	2375	DIETHYL SULPHIDE
LGBF		FL	2				S2 S20	33	2376	2,3-DIHYDROPYRAN
LGBF		FL	2				S2 S20	33	2377	1,1-DIMETHOXYETHANE
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2378	2-DIMETHYLAMINO-ACETONITRILE
L4BH	TE1 TE15	FL	2				S2 S20	338	2379	1,3-DIMETHYL-BUTYLAMINE
LGBF		FL	2				S2 S20	33	2380	DIMETHYL-DIETHOXSILANE
LGBF		FL	2				S2 S20	33	2381	DIMETHYL DISULPHIDE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2382	DIMETHYLHYDRAZINE, SYMMETRICAL
L4BH	TE1 TE15	FL	2				S2 S20	338	2383	DIPROPYLAMINE
LGBF		FL	2				S2 S20	33	2384	DI-n-PROPYL ETHER
LGBF		FL	2				S2 S20	33	2385	ETHYL ISOBUTYRATE
L4BH	TE1 TE15	FL	2				S2 S20	338	2386	1-ETHYLPYPERIDINE
LGBF		FL	2				S2 S20	33	2387	FLUOROBENZENE
LGBF		FL	2				S2 S20	33	2388	FLUOROTOLUENES
L4BN		FL	1				S2 S20	33	2389	FURAN
LGBF		FL	2				S2 S20	33	2390	2-IODOBUTANE
LGBF		FL	2				S2 S20	33	2391	IODOMETHYLPROPANES

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2392	IODOPROPANES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2393	ISOBUTYL FORMATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2394	ISOBUTYL PROPIONATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2395	ISOBUTYRYL CHLORIDE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP2
2396	METHACRYLALDEHYDE, STABILIZED	3	FT1	II	3 +6.1		LQ0	P001 IBC02		MP19	T7	TP1 TP13
2397	3-METHYLBUTAN-2-ONE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2398	METHYL <i>tert</i> -BUTYL ETHER	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T7	TP1
2399	1-METHYLPYPERIDINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
2400	METHYL ISOVALERATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2401	PIPERIDINE	8	CF1	I	8 +3		LQ20	P001		MP8 MP17	T10	TP2
2402	PROPANETHIOLS	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1 TP13
2403	ISOPROPENYL ACETATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2404	PROPIONITRILE	3	FT1	II	3 +6.1		LQ0	P001 IBC02		MP19	T7	TP1 TP13
2405	ISOPROPYL BUTYRATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2406	ISOPROPYL ISOBUTYRATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2407	ISOPROPYL CHLOROFORMATE	6.1	TFC	I	6.1 +3 +8		LQ0	P602		MP8 MP17		
2409	ISOPROPYL PROPIONATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2410	1,2,3,6- TETRAHYDROPYRIDINE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2411	BUTYRONITRILE	3	FT1	II	3 +6.1		LQ0	P001 IBC02		MP19	T7	TP1 TP13
2412	TETRAHYDROTHIOPHENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2413	TETRAPROPYL ORTHOTITANATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1
2414	THIOPHENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2416	TRIMETHYL BORATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T7	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1)	3.1.2 (2)
LGBF		FL	3				S2	30	2392	IODOPROPANES
LGBF		FL	2				S2 S20	33	2393	ISOBUTYL FORMATE
LGBF		FL	3				S2	30	2394	ISOBUTYL PROPIONATE
L4BH	TE1 TE15	FL	2				S2 S20	338	2395	ISOBUTYRYL CHLORIDE
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2396	METHACRYLALDEHYDE, STABILIZED
LGBF		FL	2				S2 S20	33	2397	3-METHYLBUTAN-2-ONE
LGBF		FL	2				S2 S20	33	2398	METHYL tert-BUTYL ETHER
L4BH	TE1 TE15	FL	2				S2 S20	338	2399	1-METHYLPYPERIDINE
LGBF		FL	2				S2 S20	33	2400	METHYL ISOVALERATE
L10BH	TE1	FL	1				S2 S20	883	2401	PIPERIDINE
LGBF		FL	2				S2 S20	33	2402	PROPANETHIOLS
LGBF		FL	2				S2 S20	33	2403	ISOPROPENYL ACETATE
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2404	PROPIONITRILE
LGBF		FL	3				S2	30	2405	ISOPROPYL BUTYRATE
LGBF		FL	2				S2 S20	33	2406	ISOPROPYL ISOBUTYRATE
			1			CV1 CV13 CV28	S2 S9 S17		2407	ISOPROPYL CHLOROFORMATE
LGBF		FL	2				S2 S20	33	2409	ISOPROPYL PROPIONATE
LGBF		FL	2				S2 S20	33	2410	1,2,3,6- TETRAHYDROPIRIDINE
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2411	BUTYRONITRILE
LGBF		FL	2				S2 S20	33	2412	TETRAHYDROTHIOPHENE
LGBF		FL	3				S2	30	2413	TETRAPROPYL ORTHOTITANATE
LGBF		FL	2				S2 S20	33	2414	THIOPHENE
LGBF		FL	2				S2 S20	33	2416	TRIMETHYL BORATE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
2417	CARBONYL FLUORIDE	2	2TC		2.3 +8		LQ0	P200		MP9		
2418	SULPHUR TETRAFLUORIDE	2	2TC		2.3 +8		LQ0	P200		MP9		
2419	BROMOTRIFLUORO- ETHYLENE	2	2F		2.1		LQ0	P200		MP9		
2420	HEXAFLUOROACETONE	2	2TC		2.3 +8		LQ0	P200		MP9		
2421	NITROGEN TRIOXIDE	2	2TOC	CARRIAGE PROHIBITED								
2422	OCTAFLUOROBUT-2-ENE (REFRIGERANT GAS R 1318)	2	2A		2.2		LQ1	P200		MP9		
2424	OCTAFLUOROPROPANE (REFRIGERANT GAS R 218)	2	2A		2.2		LQ1	P200		MP9	T50	
2426	AMMONIUM NITRATE, LIQUID, hot concentrated solution, in a concentration of more than 80% but not more than 93%	5.1	O1		5.1	252 644	LQ0				T7	TP1 TP16 TP17
2427	POTASSIUM CHLORATE, AQUEOUS SOLUTION	5.1	O1	II	5.1		LQ10	P504 IBC02		MP2	T4	TP1
2427	POTASSIUM CHLORATE, AQUEOUS SOLUTION	5.1	O1	III	5.1		LQ13	P504 IBC02 R001		MP2	T4	TP1
2428	SODIUM CHLORATE, AQUEOUS SOLUTION	5.1	O1	II	5.1		LQ10	P504 IBC02		MP2	T4	TP1
2428	SODIUM CHLORATE, AQUEOUS SOLUTION	5.1	O1	III	5.1		LQ13	P504 IBC02 R001		MP2	T4	TP1
2429	CALCIUM CHLORATE, AQUEOUS SOLUTION	5.1	O1	II	5.1		LQ10	P504 IBC02		MP2	T4	TP1
2429	CALCIUM CHLORATE, AQUEOUS SOLUTION	5.1	O1	III	5.1		LQ13	P504 IBC02 R001		MP2	T4	TP1
2430	ALKYLPHENOLS, SOLID, N.O.S. (including C <sub>2</sub> -C <sub>12</sub> homologues)	8	C4	I	8	274	LQ21	P002 IBC07		MP18	T10	TP2 TP9 TP28
2430	ALKYLPHENOLS, SOLID, N.O.S. (including C <sub>2</sub> -C <sub>12</sub> homologues)	8	C4	II	8	274	LQ23	P002 IBC08	B4	MP10	T3	TP2
2430	ALKYLPHENOLS, SOLID, N.O.S. (including C <sub>2</sub> -C <sub>12</sub> homologues)	8	C4	III	8	274	LQ24	P002 IBC08 LP02 R001	B3	MP10	T3	TP1
2431	ANISIDINES	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2432	N,N-DIETHYLANILINE	6.1	T1	III	6.1	279	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2433	CHLORONITROTOLUENES, LIQUID	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2433	CHLORONITROTOLUENES, SOLID	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2434	DIBENZYL-DICHLORO- SILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
2435	ETHYLPHENYL-DICHLORO- SILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	268	2417	CARBONYL FLUORIDE
			1	V7		CV9 CV10	S7 S17		2418	SULPHUR TETRAFLUORIDE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	2419	BROMOTRIFLUORO- ETHYLENE
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	268	2420	HEXAFLUOROACETONE
CARRIAGE PROHIBITED									2421	NITROGEN TRIOXIDE
PxBN(M)		AT	3	V7		CV9 CV10		20	2422	OCTAFLUOROBUT-2-ENE (REFRIGERANT GAS R 1318)
PxBN(M)		AT	3	V7		CV9 CV10		20	2424	OCTAFLUOROPROPANE (REFRIGERANT GAS R 218)
L4BV	TU3 TU12 TU29 TC3 TE9 TE10 TA1	AT	0					59	2426	AMMONIUM NITRATE, LIQUID, hot concentrated solution, in a concentration of more than 80% but not more than 93%
L4BN	TU3	AT	2	V6		CV24		50	2427	POTASSIUM CHLORATE, AQUEOUS SOLUTION
LGBV	TU3	AT	3	V6		CV24		50	2427	POTASSIUM CHLORATE, AQUEOUS SOLUTION
L4BN	TU3	AT	2			CV24		50	2428	SODIUM CHLORATE, AQUEOUS SOLUTION
LGBV	TU3	AT	3			CV24		50	2428	SODIUM CHLORATE, AQUEOUS SOLUTION
L4BN	TU3	AT	2			CV24		50	2429	CALCIUM CHLORATE, AQUEOUS SOLUTION
LGBV	TU3	AT	3			CV24		50	2429	CALCIUM CHLORATE, AQUEOUS SOLUTION
S10AN L10BH	TE1	AT	1	V10 V12			S20	88	2430	ALKYLPHENOLS, SOLID, N.O.S. (including C <sub>2</sub> -C <sub>12</sub> homologues)
SGAN- L4BN		AT	2	V11				80	2430	ALKYLPHENOLS, SOLID, N.O.S. (including C <sub>2</sub> -C <sub>12</sub> homologues)
SGAV L4BN		AT	3		VV9b			80	2430	ALKYLPHENOLS, SOLID, N.O.S. (including C <sub>2</sub> -C <sub>12</sub> homologues)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2431	ANISIDINES
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2432	N,N-DIETHYLANILINE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2433	CHLORONITROTOLUENES, LIQUID
SGAH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2433	CHLORONITROTOLUENES, SOLID
L4BN		AT	2					X80	2434	DIBENZYL-DICHLORO- SILANE
L4BN		AT	2					X80	2435	ETHYLPHENYL-DICHLORO- SILANE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
2436	THIOACETIC ACID	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2437	METHYLPHENYL-DICHLOROSILANE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2 TP13
2438	TRIMETHYLACETYL CHLORIDE	6.1	TFC	I	6.1 +3 +8		LQ0	P001		MP8 MP17	T14	TP2 TP13
2439	SODIUM HYDROGENDIFLUORIDE	8	C2	II	8		LQ23	P002 IBC08	B4	MP10		
2440	STANNIC CHLORIDE PENTAHYDRATE	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2441	TITANIUM TRICHLORIDE, PYROPHORIC or TITANIUM TRICHLORIDE MIXTURE, PYROPHORIC	4.2	SC4	I	4.2 +8	537	LQ0	P404		MP13		
2442	TRICHLOROACETYL CHLORIDE	8	C3	II	8		LQ22	P001		MP15	T7	TP2
2443	VANADIUM OXYTRICHLORIDE	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2444	VANADIUM TETRACHLORIDE	8	C1	I	8		LQ20	P802		MP8 MP17	T10	TP2
2445	LITHIUM ALKYL	4.2	SW	I	4.2 +4.3	274	LQ0	P400 PR1		MP2	T21	TP2 TP7
2446	NITROCRESOLS, liquid	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2446	NITROCRESOLS, solid	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2447	PHOSPHORUS, WHITE, MOLTEN	4.2	ST3	I	4.2 +6.1		LQ0				T21	TP3 TP7 TP26
2448	SULPHUR, MOLTEN	4.1	F3	III	4.1	538	LQ0				T1	TP3
2451	NITROGEN TRIFLUORIDE	2	20		2.2 +5.1		LQ0	P200		MP9		
2452	ETHYLACETYLENE, STABILIZED	2	2F		2.1		LQ0	P200		MP9		
2453	ETHYL FLUORIDE (REFRIGERANT GAS R 161)	2	2F		2.1		LQ0	P200		MP9		
2454	METHYL FLUORIDE (REFRIGERANT GAS R 41)	2	2F		2.1		LQ0	P200		MP9		
2455	METHYL NITRITE	2	2A	CARRIAGE PROHIBITED								
2456	2-CHLOROPROPENE	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2
2457	2,3-DIMETHYLBUTANE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T7	TP1
2458	HEXADIENES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2459	2-METHYL-1-BUTENE	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2
2460	2-METHYL-2-BUTENE	3	F1	II	3		LQ4	P001 IBC02	B8	MP19	T7	TP1



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
LGBF		FL	2				S2 S20	33	2436	THIOACETIC ACID
L4BN		AT	2					X80	2437	METHYLPHENYL-DICHLOROSILANE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2438	TRIMETHYLACETYL CHLORIDE
SGAN		AT	2	V11				80	2439	SODIUM HYDROGENDIFLUORIDE
SGAV		AT	3		VV9b			80	2440	STANNIC CHLORIDE PENTAHYDRATE
			0	V1			S20		2441	TITANIUM TRICHLORIDE, PYROPHORIC or TITANIUM TRICHLORIDE MIXTURE, PYROPHORIC
L4BN		AT	2					X80	2442	TRICHLOROACETYL CHLORIDE
L4BN		AT	2					80	2443	VANADIUM OXYTRICHLORIDE
L10BH	TE1	AT	1				S20	X88	2444	VANADIUM TETRACHLORIDE
L21DH	TU4 TU14 TU22 TCI TE1 TE21 TM1	AT	0	V1			S20	X333	2445	LITHIUM ALKYL
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2446	NITROCRESOLS, liquid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2446	NITROCRESOLS, solid
L10DH(+)	TU14 TU16 TU21 TE3 TE21	AT	0				S20	446	2447	PHOSPHORUS, WHITE, MOLTEN
LGBV(+)	TU27 TE4 TE6	AT	3					44	2448	SULPHUR, MOLTEN
PxBN(M)		AT	3	V7		CV9 CV10		25	2451	NITROGEN TRIFLUORIDE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	239	2452	ETHYLACETYLENE, STABILIZED
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	2453	ETHYL FLUORIDE (REFRIGERANT GAS R 161)
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	2454	METHYL FLUORIDE (REFRIGERANT GAS R 41)
CARRIAGE PROHIBITED									2455	METHYL NITRITE
L4BN		FL	1				S2 S20	33	2456	2-CHLOROPROPENE
LGBF		FL	2				S2 S20	33	2457	2,3-DIMETHYLBUTANE
LGBF		FL	2				S2 S20	33	2458	HEXADIENES
L4BN		FL	1				S2 S20	33	2459	2-METHYL-1-BUTENE
LI.SBN		FL	2				S2 S20	33	2460	2-METHYL-2-BUTENE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2461	METHYLPENTADIENE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2463	ALUMINIUM HYDRIDE	4.3	W2	I	4.3		LQ0	P403		MP2		
2464	BERYLLIUM NITRATE	5.1	OT2	II	5.1 +6.1		LQ11	P002 IBC08	B4	MP2		
2465	DICHLOROISOCYANURIC ACID, DRY or DICHLOROISOCYANURIC ACID SALTS	5.1	O2	II	5.1	135	LQ11	P002 IBC08	B4	MP10		
2466	POTASSIUM SUPEROXIDE	5.1	O2	I	5.1		LQ0	P503 IBC06		MP2		
2468	TRICHLOROISOCYANURIC ACID, DRY	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP10		
2469	ZINC BROMATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
2470	PHENYLACETONITRILE, LIQUID	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2471	OSMIUM TETROXIDE	6.1	T5	I	6.1		LQ0	P002 IBC07	PP30	MP18		
2473	SODIUM ARSANILATE	6.1	T3	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2474	THIOPHOSGENE	6.1	T1	II	6.1	279	LQ17	P001		MP15	T7	TP2
2475	VANADIUM TRICHLORIDE	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2477	METHYL ISOTHIOCYANATE	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
2478	ISOCYANATES, FLAMMABLE, TOXIC, N.O.S. or ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S.	3	FT1	II	3 +6.1	274 539	LQ0	P001 IBC02		MP19	T11	TP2 TP13 TP27
2478	ISOCYANATES, FLAMMABLE, TOXIC, N.O.S. or ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S.	3	FT1	III	3 +6.1	274	LQ7	P001 IBC03 R001		MP19	T7	TP1 TP13 TP28
2480	METHYL ISOCYANATE	6.1	TF1	I	6.1 +3		LQ0	P601 PR5		MP2		
2481	ETHYL ISOCYANATE	3	FT1	I	3 +6.1		LQ0	P601 PR5		MP2	T14	TP2 TP13
2482	n-PROPYL ISOCYANATE	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
2483	ISOPROPYL ISOCYANATE	3	FT1	I	3 +6.1		LQ0	P001		MP7 MP17	T14	TP2 TP13
2484	tert-BUTYL ISOCYANATE	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
2485	n-BUTYL ISOCYANATE	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
LGBF		FL	2				S2 S20	33	2461	METHYLPENTADIENE
			1	VI		CV23	S20		2463	ALUMINIUM HYDRIDE
SGAN	TU3	AT	2	V11		CV24 CV28		56	2464	BERYLLIUM NITRATE
SGAN	TU3	AT	2			CV24		50	2465	DICHLOROISOCYANURIC ACID, DRY or DICHLOROISOCYANURIC ACID SALTS
			1	V10 V12		CV24	S20		2466	POTASSIUM SUPEROXIDE
SGAN	TU3	AT	2			CV24		50	2468	TRICHLOROISOCYANURIC ACID, DRY
SGAV	TU3	AT	3		VV8	CV24		50	2469	ZINC BROMATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2470	PHENYLACETONITRILE, LIQUID
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2471	OSMIUM TETROXIDE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2473	SODIUM ARSANILATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2474	THIOPHOSGENE
SGAV		AT	3		VV9b			80	2475	VANADIUM TRICHLORIDE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2477	METHYL ISOTHIOCYANATE
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2478	ISOCYANATES, FLAMMABLE, TOXIC, N.O.S. or ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15	FL	3			CV13 CV28	S2	36	2478	ISOCYANATES, FLAMMABLE, TOXIC, N.O.S. or ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S.
			1			CV1 CV13 CV28	S2 S9 S17		2480	METHYL ISOCYANATE
		FL	1			CV13 CV28	S2 S19	336	2481	ETHYL ISOCYANATE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2482	n-PROPYL ISOCYANATE
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2483	ISOPROPYL ISOCYANATE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2484	tert-BUTYL ISOCYANATE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2485	n-BUTYL ISOCYANATE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2486	ISOBUTYL ISOCYANATE	3	FT1	II	3 +6.1		LQ0	P001		MP19	T8	TP2 TP13
2487	PHENYL ISOCYANATE	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
2488	CYCLOHEXYL ISOCYANATE	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
2490	DICHLOROISOPROPYL ETHER	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2491	ETHANOLAMINE or ETHANOLAMINE SOLUTION	8	C7	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2493	HEXAMETHYLENEMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
2495	IODINE PENTAFLUORIDE	5.1	OTC	I	5.1 +6.1 +8		LQ0	P200		MP2		
2496	PROPIONIC ANHYDRIDE	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2498	1,2,3,6-TETRAHYDRO-BENZALDEHYDE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2501	TRIS-(1-AZIRIDINYL) PHOSPHINE OXIDE SOLUTION	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2501	TRIS-(1-AZIRIDINYL) PHOSPHINE OXIDE SOLUTION	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2502	VALERYL CHLORIDE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
2503	ZIRCONIUM TETRACHLORIDE	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2504	TETRABROMOETHANE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2505	AMMONIUM FLUORIDE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2506	AMMONIUM HYDROGEN SULPHATE	8	C2	II	8		LQ23	P002 IBC08	B4	MP10		
2507	CHLOROPLATINIC ACID, SOLID	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2508	MOLYBDENUM PENTACHLORIDE	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2509	POTASSIUM HYDROGEN SULPHATE	8	C2	II	8		LQ23	P002 IBC08	B4	MP10		
2511	2-CHLOROPROPIONIC ACID, SOLUTION	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP2

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2486	ISOBUTYL ISOCYANATE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2487	PHENYL ISOCYANATE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2488	CYCLOHEXYL ISOCYANATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2490	DICHLOROISOPROPYL ETHER
L4BN		AT	3					80	2491	ETHANOLAMINE or ETHANOLAMINE SOLUTION
L4BH	TE1 TE15	FL	2				S2 S20	338	2493	HEXAMETHYLENEIMINE
L10DH	TU3	AT	1			CV24 CV28	S20	568	2495	IODINE PENTAFLUORIDE
L4BN		AT	3					80	2496	PROPIONIC ANHYDRIDE
LGBF		FL	3				S2	30	2498	1,2,3,6-TETRAHYDRO-BENZALDEHYDE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2501	TRIS-(1-AZIRIDINYL) PHOSPHINE OXIDE SOLUTION
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2501	TRIS-(1-AZIRIDINYL) PHOSPHINE OXIDE SOLUTION
L4BN		FL	2				S2	83	2502	VALERYL CHLORIDE
SGAV		AT	3		VV9b			80	2503	ZIRCONIUM TETRACHLORIDE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2504	TETRABROMOETHANE
SGAH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2505	AMMONIUM FLUORIDE
SGAV		AT	2	V11	VV9a			80	2506	AMMONIUM HYDROGEN SULPHATE
SGAV		AT	3		VV9b			80	2507	CHLOROPLATINIC ACID, SOLID
SGAV		AT	3		VV9b			80	2508	MOLYBDENUM PENTACHLORIDE
SGAV		AT	2	V11	VV9a			80	2509	POTASSIUM HYDROGEN SULPHATE
L4BN		AT	3					80	2511	2-CHLOROPROPIONIC ACID, SOLUTION

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2511	2-CHLOROPROPIONIC ACID, SOLID	8	C4	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10	T4	TP2
2512	AMINOPHENOLS (o-, m-, p-)	6.1	T2	III	6.1	279	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2513	BROMOACETYL BROMIDE	8	C3	II	8		LQ22	P001, IBC02		MP15	T8	TP2 TP12
2514	BROMOBENZENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2515	BROMOFORM	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2516	CARBON TETRABROMIDE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2517	1-CHLORO-1,1-DIFLUOROETHANE (REFRIGERANT GAS R 142b)	2	2F		2.1		LQ0	P200		MP9	T50	
2518	1,5,9-CYCLODODECATRIENE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2520	CYCLOOCTADIENES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2521	DIKETENE, STABILIZED	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
2522	2-DIMETHYLAMINOETHYL METHACRYLATE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2524	ETHYL ORTHOFORMATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2525	ETHYL OXALATE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2526	FURFURYLAMINE	3	FC	III	3 +8		LQ7	P001 IBC03 R001		MP19	T4	TP1
2527	ISOBUTYL ACRYLATE, STABILIZED	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2528	ISOBUTYL ISOBUTYRATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2529	ISOBUTYRIC ACID	3	FC	III	3 +8		LQ7	P001 IBC03 R001		MP19	T4	TP1
2531	METHACRYLIC ACID, STABILIZED	8	C3	II	8		LQ22	P001 IBC02 LP01		MP15	T7	TP1 TP18 TP30

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAV L4BN		AT	3		VV9b			80	2511	2-CHLOROPROPIONIC ACID, SOLID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2512	AMINOPHENOLS (o-, m-, p-)
L4BN		AT	2					X80	2513	BROMOACETYL BROMIDE
LGBF		FL	3				S2	30	2514	BROMOBENZENE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2515	BROMOFORM
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2516	CARBON TETRABROMIDE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	2517	1-CHLORO-1,1-DIFLUOROETHANE (REFRIGERANT GAS R 142b)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2518	1,5,9-CYCLO-DODECATRIENE
LGBF		FL	3				S2	30	2520	CYCLOOCTADIENES
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2521	DIKETENE, STABILIZED
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	69	2522	2-DIMETHYLAMINOETHYL METHACRYLATE
LGBF		FL	3				S2	30	2524	ETHYL ORTHOFORMATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2525	ETHYL OXALATE
L4BN		FL	3				S2	38	2526	FURFURYLAMINE
LGBF		FL	3				S2	39	2527	ISOBUTYL ACRYLATE, STABILIZED
LGBF		FL	3				S2	30	2528	ISOBUTYL ISOBUTYRATE
L4BN		FL	3				S2	38	2529	ISOBUTYRIC ACID
L4BN		AT	2					89	2531	METHACRYLIC ACID, STABILIZED

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2533	METHYL TRICHLOROACETATE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2534	METHYLCHLOROSILANE	2	2TFC		2.3 +2.1 +8		LQ0	P200		MP9		
2535	4-METHYLMORPHOLINE (N-METHYLMORPHOLINE)	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
2536	METHYLTETRAHYDROFURAN	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2538	NITRONAPHTHALENE	4.1	F1	III	4.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2541	TERPINOLENE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2542	TRIBUTYLAMINE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2545	HAFNIUM POWDER, DRY	4.2	S4	I	4.2	540	LQ0	P404		MP13		
2545	HAFNIUM POWDER, DRY	4.2	S4	II	4.2	540	LQ0	P410 IBC06		MP14		
2545	HAFNIUM POWDER, DRY	4.2	S4	III	4.2	540	LQ0	P002 IBC08 LP02 R001	B3	MP14		
2546	TITANIUM POWDER, DRY	4.2	S4	I	4.2	540	LQ0	P404		MP13		
2546	TITANIUM POWDER, DRY	4.2	S4	II	4.2	540	LQ0	P410 IBC06		MP14		
2546	TITANIUM POWDER, DRY	4.2	S4	III	4.2	540	LQ0	P002 IBC08 LP02 R001	B3	MP14		
2547	SODIUM SUPEROXIDE	5.1	O2	I	5.1		LQ0	P503 IBC06		MP2		
2548	CHLORINE PENTAFLUORIDE	2	2TOC		2.3 +5.1 +8		LQ0	P200		MP9		
2552	HEXAFLUOROACETONE HYDRATE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2554	METHYLALLYL CHLORIDE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1 TP13
2555	NITROCELLULOSE WITH WATER (not less than 25% water, by mass)	4.1	D	II	4.1	541	LQ0	P406		MP2		
2556	NITROCELLULOSE WITH ALCOHOL (not less than 25% alcohol, by mass, and not more than 12.6% nitrogen, by dry mass)	4.1	D	II	4.1	541	LQ0	P406		MP2		
2557	NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITH or WITHOUT PLASTICIZER, WITH or WITHOUT PIGMENT	4.1	D	II	4.1	241 541	LQ0	P406		MP2		
2558	EPIBROMOHYDRIN	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2533	METHYL TRICHLOROACETATE
			1	V7		CV9 CV10	S2 S7 S17		2534	METHYLCHLOROSILANE
L4BH	TE1 TE15	FL	2				S2 S20	338	2535	4-METHYLMORPHOLINE (N-METHYLMORPHOLINE)
LGBF		FL	2				S2 S20	33	2536	METHYLTETRAHYDRO- FURAN
SGAV		AT	3		VVI			40	2538	NITRONAPHTHALENE
LGBF		FL	3				S2	30	2541	TERPINOLENE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2542	TRIBUTYLAMINE
			0	V1			S20		2545	HAFNIUM POWDER, DRY
SGAN		AT	2	V1 V12				40	2545	HAFNIUM POWDER, DRY
SGAN		AT	3	V1	VV4			40	2545	HAFNIUM POWDER, DRY
			0	V1			S20		2546	TITANIUM POWDER, DRY
SGAN		AT	2	V1 V12				40	2546	TITANIUM POWDER, DRY
SGAN		AT	3	V1	VV4			40	2546	TITANIUM POWDER, DRY
			1	V10 V12		CV24	S20		2547	SODIUM SUPEROXIDE
			1	V7		CV9 CV10	S7 S17		2548	CHLORINE PENTAFLUORIDE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2552	HEXAFLUOROACETONE HYDRATE
LGBF		FL	2				S2 S20	33	2554	METHYLALYL CHLORIDE
			2				S17		2555	NITROCELLULOSE WITH WATER (not less than 25% water, by mass)
			2				S17		2556	NITROCELLULOSE WITH ALCOHOL (not less than 25% alcohol, by mass, and not more than 12.6% nitrogen, by dry mass)
			2				S17		2557	NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITH or WITHOUT PLASTICIZER, WITH or WITHOUT PIGMENT
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2558	EPIBROMOHYDRIN

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2560	2-METHYLPENTAN-2-OL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2561	3-METHYL-1-BUTENE	3	F1	I	3		LQ3	P001		MP7 MP17	T11	TP2
2564	TRICHLOROACETIC ACID SOLUTION	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2564	TRICHLOROACETIC ACID SOLUTION	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2565	DICYCLOHEXYLAMINE	8	C7	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2567	SODIUM PENTACHLOROPHENATE	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
2570	CADMIUM COMPOUND	6.1	T5	I	6.1	274 596	LQ0	P002 IBC07		MP18		
2570	CADMIUM COMPOUND	6.1	T5	II	6.1	274 596	LQ18	P002 IBC07		MP10		
2570	CADMIUM COMPOUND	6.1	T5	III	6.1	274 596	LQ9	P002 IBC07 R001		MP10		
2571	ALKYLSULPHURIC ACIDS	8	C3	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12 TP13 TP28
2572	PHENYLHYDRAZINE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2573	THALLIUM CHLORATE	5.1	OT2	II	5.1 +6.1		LQ11	P002 IBC06		MP2		
2574	TRICRESYL PHOSPHATE with more than 3% ortho isomer	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2576	PHOSPHORUS OXYBROMIDE, MOLTEN	8	C1	II	8		LQ0				T7	TP3 TP13
2577	PHENYLACETYL CHLORIDE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2578	PHOSPHORUS TRIOXIDE	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2579	PIPERAZINE	8	C8	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10	T4	TP1 TP30
2580	ALUMINIUM BROMIDE SOLUTION	8	C1	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2581	ALUMINIUM CHLORIDE SOLUTION	8	C1	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2582	FERRIC CHLORIDE SOLUTION	8	C1	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2583	ALKYLSULPHONIC ACIDS, SOLID or ARYLSULPHONIC ACIDS, SOLID with more than 5% free sulphuric acid	8	C2	II	8	274	LQ23	P002 IBC08	B4	MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
LGBF		FL	3				S2	30	2560 2-METHYLPENTAN-2-OL	
L4BN		FL	1				S2 S20	33	2561 3-METHYL-1-BUTENE	
L4BN		AT	2					80	2564 TRICHLOROACETIC ACID SOLUTION	
L4BN		AT	3					80	2564 TRICHLOROACETIC ACID SOLUTION	
L4BN		AT	3					80	2565 DICYCLOHEXYLAMINE	
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2567 SODIUM PENTACHLOROPHENATE	
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2570 CADMIUM COMPOUND	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V12		CV13 CV28	S9 S19	60	2570 CADMIUM COMPOUND	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V12	VV9b	CV13 CV28	S9	60	2570 CADMIUM COMPOUND	
L4BN		AT	2					80	2571 ALKYL SULPHURIC ACIDS	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2572 PHENYLHYDRAZINE	
SGAN	TU3	AT	2	V11 V12		CV24 CV28		56	2573 THALLIUM CHLORATE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2574 TRICRESYL PHOSPHATE with more than 3% ortho isomer	
L4BN		AT	2					80	2576 PHOSPHORUS OXYBROMIDE, MOLTEN	
L4BN		AT	2					80	2577 PHENYLACETYL CHLORIDE	
SGAV		AT	3		VV9b			80	2578 PHOSPHORUS TRIOXIDE	
SGAV L4BN		AT	3		VV9b			80	2579 PIPERAZINE	
L4BN		AT	3					80	2580 ALUMINIUM BROMIDE SOLUTION	
L4BN		AT	3					80	2581 ALUMINIUM CHLORIDE SOLUTION	
L4BN		AT	3					80	2582 FERRIC CHLORIDE SOLUTION	
S4BN		AT	2	V11				80	2583 ALKYL SULPHONIC ACIDS, SOLID or ARYL SULPHONIC ACIDS, SOLID with more than 5% free sulphuric acid	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2584	ALKYLSULPHONIC ACIDS, LIQUID or ARYLSULPHONIC ACIDS, LIQUID with more than 5% free sulphuric acid	8	C1	II	8	274	LQ22	P001 IBC02		MP15	T8	TP2 TP12 TP13
2585	ALKYLSULPHONIC ACIDS, SOLID or ARYLSULPHONIC ACIDS, SOLID with not more than 5% free sulphuric acid	8	C4	III	8	274	LQ24	P002 IBC08 LP02 R001	B3	MP10		
2586	ALKYLSULPHONIC ACIDS, LIQUID or ARYLSULPHONIC ACIDS, LIQUID with not more than 5% free sulphuric acid	8	C3	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2587	BENZOQUINONE	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
2588	PESTICIDE, SOLID, TOXIC, N.O.S.	6.1	T7	I	6.1	61	LQ0	P002 IBC02		MP18		
2588	PESTICIDE, SOLID, TOXIC, N.O.S.	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2588	PESTICIDE, SOLID, TOXIC, N.O.S.	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2589	VINYL CHLOROACETATE	6.1	TF1	II	6.1 +3		LQ17	P001 IBC02		MP15	T7	TP2
2590	WHITE ASBESTOS (chrysotile, actinolite, anthophyllite, tremolite)	9	M1	III	9	168 542	LQ27	P002 IBC08 R001	PP37 B4	MP10		
2591	XENON, REFRIGERATED LIQUID	2	3A		2.2	593	LQ1	P203		MP9	T75	
2599	CHLOROTRIFLUOROMETHANE AND TRIFLUOROMETHANE AZEOTROPIC MIXTURE with approximately 60% chlorotrifluoromethane (REFRIGERANT GAS R 503)	2	2A		2.2		LQ1	P200		MP9		
2600	CARBON MONOXIDE AND HYDROGEN MIXTURE, COMPRESSED	2	1TF		2.3 +2.1		LQ0	P200		MP9		
2601	CYCLOBUTANE	2	2F		2.1		LQ0	P200		MP9		
2602	DICHLORODIFLUOROMETHANE AND 1,1-DIFLUOROETHANE AZEOTROPIC MIXTURE with approximately 74% dichlorodifluoromethane (REFRIGERANT GAS R 500)	2	2A		2.2		LQ1	P200		MP9	T50	
2603	CYCLOHEPTATRIENE	3	FT1	II	3 +6.1		LQ0	P001 IBC02		MP19	T7	TP1 TP13
2604	BORON TRIFLUORIDE DIETHYL ETHERATE	8	CF1	I	8 +3		LQ20	P001		MP8 MP17	T10	TP2
2605	METHOXYMETHYL ISOCYANATE	3	FT1	I	3 +6.1		LQ0	P001		MP7 MP17	T14	TP2 TP13
2606	METHYL ORTHOSILICATE	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
2607	ACROLEIN DIMER, STABILIZED	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BN		AT	2					80	2584	ALKYLSULPHONIC ACIDS, LIQUID or ARYLSULPHONIC ACIDS, LIQUID with more than 5% free sulphuric acid
SGAV		AT	3		VV9b			80	2585	ALKYLSULPHONIC ACIDS, SOLID or ARYLSULPHONIC ACIDS, SOLID with not more than 5% free sulphuric acid
L4BN		AT	3					80	2586	ALKYLSULPHONIC ACIDS, LIQUID or ARYLSULPHONIC ACIDS, LIQUID with not more than 5% free sulphuric acid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2587	BENZOQUINONE
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2588	PESTICIDE, SOLID, TOXIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2588	PESTICIDE, SOLID, TOXIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2588	PESTICIDE, SOLID, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	2589	VINYL CHLOROACETATE
SGAH	TU15 TE1 TE15	AT	3	V1		CV13 CV28		90	2590	WHITE ASBESTOS (chrysotile, actinolite, anthophyllite, tremolite)
RxBN	TU19	AT	3	V5 V7		CV9 CV11	S20	22	2591	XENON, REFRIGERATED LIQUID
PxBN(M)		AT	3	V7		CV9 CV10		20	2599	CHLOROTRIFLUOROMETHANE AND TRIFLUOROMETHANE AZEOTROPIC MIXTURE with approximately 60% chlorotrifluoromethane (REFRIGERANT GAS R 503)
CxBH(M)	TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	2600	CARBON MONOXIDE AND HYDROGEN MIXTURE, COMPRESSED
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	2601	CYCLOBUTANE
PxBN(M)		AT	3	V7		CV9 CV10		20	2602	DICHLORODIFLUOROMETHANE AND 1,1-DIFLUOROETHANE AZEOTROPIC MIXTURE with approximately 74% dichlorodifluoromethane (REFRIGERANT GAS R 500)
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2603	CYCLOHEPTATRIENE
L10BH	TE1	FL	1				S2 S20	883	2604	BORON TRIFLUORIDE DIETHYL ETHERATE
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2605	METHOXYMETHYL ISOCYANATE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2606	METHYL ORTHOSILICATE
LGBF		FL	3				S2	39	2607	ACROLEIN DIMER, STABILIZED

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2608	NITROPROPANES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2609	TRIALLYL BORATE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15		
2610	TRIALLYLAMINE	3	FC	III	3 +8		LQ7	P001 IBC03 R001		MP19	T4	TP1
2611	PROPYLENE CHLOROHYDRIN	6.1	TF1	II	6.1 +3		LQ17	P001 IBC02		MP15	T7	TP2 TP13
2612	METHYL PROPYL ETHER	3	F1	II	3		LQ4	P001 IBC02	B8	MP19	T7	TP2
2614	METHALLYL ALCOHOL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2615	ETHYL PROPYL ETHER	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2616	TRISOPROPYL BORATE	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2616	TRISOPROPYL BORATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2617	METHYLCYCLO- HEXANOLS, flammable	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2618	VINYLTOLUENES, STABILIZED	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2619	BENZYLDMETHYLAMINE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
2620	AMYL BUTYRATES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2621	ACETYL METHYL CARBINOL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2622	GLYCIDALDEHYDE	3	FT1	II	3 +6.1		LQ0	P001 IBC02	B8	MP19	T7	TP1
2623	FIRELIGHTERS, SOLID with flammable liquid	4.1	F1	III	4.1		LQ9	P002 LP02 R001	PP15	MP11		
2624	MAGNESIUM SILICIDE	4.3	W2	II	4.3		LQ11	P410 IBC07		MP14		
2626	CHLORIC ACID, AQUEOUS SOLUTION with not more than 10% chloric acid	5.1	O1	II	5.1	613	LQ10	P504 IBC02		MP2		
2627	NITRITES, INORGANIC, N.O.S.	5.1	O2	II	5.1	103 274	LQ11	P002 IBC08	B4	MP10		
2628	POTASSIUM FLUOROACETATE	6.1	T2	I	6.1		LQ0	P002 IBC07		MP18		
2629	SODIUM FLUOROACETATE	6.1	T2	I	6.1		LQ0	P002 IBC07		MP18		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
LGBF		FL	3				S2	30	2608	NITROPROPANES
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2609	TRIALLYL BORATE
L4BN		FL	3				S2	38	2610	TRIALLYLAMINE
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	2611	PROPYLENE CHLOROHYDRIN
L1.5BN		FL	2				S2 S20	33	2612	METHYL PROPYL ETHER
LGBF		FL	3				S2	30	2614	METHALLYL ALCOHOL
LGBF		FL	2				S2 S20	33	2615	ETHYL PROPYL ETHER
LGBF		FL	2				S2 S20	33	2616	TRIISOPROPYL BORATE
LGBF		FL	3				S2	30	2616	TRIISOPROPYL BORATE
LGBF		FL	3				S2	30	2617	METHYLCYCLO- HEXANOLS, flammable
LGBF		FL	3				S2	39	2618	VINYLTOLUENES, STABILIZED
L4BN		FL	2				S2	83	2619	BENZYLDIMETHYLAMINE
LGBF		FL	3				S2	30	2620	AMYL BUTYRATES
LGBF		FL	3				S2	30	2621	ACETYL METHYL CARBINOL
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2622	GLYCIDALDEHYDE
			4						2623	FIRELIGHTERS, SOLID with flammable liquid
SGAN		AT	2	V1 V12		CV23		423	2624	MAGNESIUM SILICIDE
L4BN	TU3	AT	2			CV24		50	2626	CHLORIC ACID, AQUEOUS SOLUTION with not more than 10% chloric acid
SGAN	TU3	AT	2			CV24		50	2627	NITRITES, INORGANIC, N.O.S.
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	,66	2628	POTASSIUM FLUOROACETATE
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2629	SODIUM FLUOROACETATE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2630	SELENATES or SELENITES	6.1	T5	I	6.1	274	LQ0	P002 IBC07		MP18		
2642	FLUOROACETIC ACID	6.1	T2	I	6.1		LQ0	P002 IBC07		MP18		
2643	METHYL BROMOACETATE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2644	METHYL IODIDE	6.1	T1	I	6.1		LQ0	P001		MP8 MP17	T14	TP2 TP13
2645	PHENACYL BROMIDE	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
2646	HEXACHLOROCYCLOPENTADIENE	6.1	T1	I	6.1		LQ0	P001		MP8 MP17	T14	TP2 TP13
2647	MALONONITRILE	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
2648	1,2-DIBROMOBUTAN-3-ONE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15		
2649	1,3-DICHLOROACETONE	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
2650	1,1-DICHLORO-1-NITROETHANE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2651	4,4'-DIAMINODIPHENYL-METHANE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10	T4	TP1
2653	BENZYL IODIDE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2655	POTASSIUM FLUOROSILICATE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2656	QUINOLINE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2657	SELENIUM DISULPHIDE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
2659	SODIUM CHLOROACETATE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2660	NITROTOLUIDINES (MONO)	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2661	HEXACHLOROACETONE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2662	HYDROQUINONE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10	T4	TP1
2664	DIBROMOMETHANE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2667	BUTYLTOLUENES	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2668	CHLOROACETONITRILE	6.1	TF1	II	6.1 +3		LQ17	P001 IBC02		MP15	T7	TP2



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2630 SELENATES or SELENITES	
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2642 FLUOROACETIC ACID	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2643 METHYL BROMOACETATE	
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2644 METHYL IODIDE	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2645 PHENACYL BROMIDE	
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2646 HEXACHLOROCYCLO- PENTADIENE	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2647 MALONITRILE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2648 1,2-DIBROMOBUTAN-3- ONE	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2649 1,3-DICHLOROACETONE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2650 1,1-DICHLORO-1- NITROETHANE	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2651 4,4'-DIAMINODIPHENYL- METHANE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2653 BENZYL IODIDE	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2655 POTASSIUM FLUOROSILICATE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2656 QUINOLINE	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2657 SELENIUM DISULPHIDE	
SGAH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2659 SODIUM CHLOROACETATE	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2660 NITROTOLUIDINES (MONO)	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2661 HEXACHLOROACETONE	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2662 HYDROQUINONE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2664 DIBROMOMETHANE	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2667 BUTYLTOLUENES	
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	2668 CHLOROACETONITRILE	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2669	CHLOROCRESOLS, liquid	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2669	CHLOROCRESOLS, solid	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10	T7	TP2
2670	CYANURIC CHLORIDE	8	C4	II	8		LQ23	P002 IBC08	B4	MP10		
2671	AMINOPYRIDINES (o-, m-, p-)	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
2672	AMMONIA SOLUTION, relative density between 0.880 and 0.957 at 15 °C in water, with more than 10% but not more than 35% ammonia	8	C5	III	8	543	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1
2673	2-AMINO-4- CHLOROPHENOL	6.1	T2	II	6.1		LQ18	P002 IBC08	B4	MP10		
2674	SODIUM FLUOROSILICATE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2676	STIBINE	2	2TF		2.3 +2.1		LQ0	P200		MP9		
2677	RUBIDIUM HYDROXIDE SOLUTION	8	C5	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2677	RUBIDIUM HYDROXIDE SOLUTION	8	C5	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2678	RUBIDIUM HYDROXIDE	8	C6	II	8		LQ23	P002 IBC08	B4	MP10		
2679	LITHIUM HYDROXIDE SOLUTION	8	C5	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2679	LITHIUM HYDROXIDE SOLUTION	8	C5	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP2
2680	LITHIUM HYDROXIDE	8	C6	II	8		LQ23	P002 IBC08	B4	MP10		
2681	CAESIUM HYDROXIDE SOLUTION	8	C5	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2681	CAESIUM HYDROXIDE SOLUTION	8	C5	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2682	CAESIUM HYDROXIDE	8	C6	II	8		LQ23	P002 IBC08	B4	MP10		
2683	AMMONIUM SULPHIDE SOLUTION	8	CFT	II	8 +3 +6.1		LQ22	P001 IBC01		MP15	T7	TP2 TP13
2684	3-DIETHYLAMINOPROPYL- AMINE	3	FC	III	3 +8		LQ7	P001 IBC03 R001		MP19	T4	TP1
2685	N,N-DIETHYLETHYLENE- DIAMINE	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
2686	2-DIETHYLAMINO- ETHANOL	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
2687	DICYCLOHEXYL- AMMONIUM NITRITE	4.1	F3	III	4.1		LQ9	P002 IBC08 LP02 R001	B3	MP11		
2688	1-BROMO-3- CHLOROPROPANE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2669	CHLOROCRESOLS, liquid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2669	CHLOROCRESOLS, solid
SGAN L4BN		AT	2	V11				80	2670	CYANURIC CHLORIDE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2671	AMINOPYRIDINES (o-, m-, p-)
L4BN		AT	3					80	2672	AMMONIA SOLUTION, relative density between 0.880 and 0.957 at 15 °C in water, with more than 10% but not more than 35% ammonia
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2673	2-AMINO-4- CHLOROPHENOL
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2674	SODIUM FLUOSILICATE
			1	V7		CV9 CV10	S2 S7 S17		2676	STIBINE
L4BN		AT	2					80	2677	RUBIDIUM HYDROXIDE SOLUTION
L4BN		AT	3					80	2677	RUBIDIUM HYDROXIDE SOLUTION
SGAN		AT	2	V11				80	2678	RUBIDIUM HYDROXIDE
L4BN		AT	2					80	2679	LITHIUM HYDROXIDE SOLUTION
L4BN		AT	3					80	2679	LITHIUM HYDROXIDE SOLUTION
SGAN		AT	2	V11				80	2680	LITHIUM HYDROXIDE
L4BN		AT	2					80	2681	CAESIUM HYDROXIDE SOLUTION
L4BN		AT	3					80	2681	CAESIUM HYDROXIDE SOLUTION
SGAN		AT	2	V11				80	2682	CAESIUM HYDROXIDE
L4BN		FL	2			CV13 CV28	S2	86	2683	AMMONIUM SULPHIDE SOLUTION
L4BN		FL	3				S2	38	2684	3-DIETHYLAMINOPROPYL- AMINE
L4BN		FL	2				S2	83	2685	N,N-DIETHYLETHYLENE- DIAMINE
L4BN		FL	2				S2	83	2686	2-DIETHYLAMINO- ETHANOL
SGAV		AT	3		VVI			40	2687	DICYCLOHEXYL- AMMONIUM NITRITE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2688	1-BROMO-3- CHLOROPROPANE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
2689	GLYCEROL alpha-MONOCHLOROHYDRIN	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2690	N,n-BUTYLIMIDAZOLE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2691	PHOSPHORUS PENTABROMIDE	8	C2	II	8		LQ23	P002 IBC08	B4	MP10		
2692	BORON TRIBROMIDE	8	C1	I	8		LQ20	P602		MP8 MP17	T20	TP2 TP12 TP13
2693	BISULPHITES, AQUEOUS SOLUTION, N.O.S.	8	C1	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
2698	TETRAHYDROPHTHALIC ANHYDRIDES with more than 0.05% of maleic anhydride	8	C4	III	8	169	LQ24	P002 IBC08 LP02 R001	PP14 B3	MP10		
2699	TRIFLUOROACETIC ACID	8	C3	I	8		LQ20	P001		MP8 MP17	T10	TP2 TP12
2705	I-PENTOL	8	C9	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2707	DIMETHYLDIOXANES	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
2707	DIMETHYLDIOXANES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2709	BUTYLBENZENES	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2710	DIPROPYL KETONE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2713	ACRIDINE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2714	ZINC RESINATE	4.1	F3	III	4.1		LQ9	P002 IBC06 R001		MP11		
2715	ALUMINIUM RESINATE	4.1	F3	III	4.1		LQ9	P002 IBC06 R001		MP11		
2716	1,4-BUTYNEEDIOL	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2717	CAMPHOR, synthetic	4.1	F1	III	4.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2719	BARIUM BROMATE	5.1	OT2	II	5.1 +6.1		LQ11	P002 IBC08	B4	MP2		
2720	CHROMIUM NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
2721	COPPER CHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2689	GLYCEROL alpha-MONOCHLOROHYDRIN
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2690	N,n-BUTYLIMIDAZOLE
SGAN		AT	2	VII				80	2691	PHOSPHORUS PENTABROMIDE
L10BH	TE1	AT	1				S20	X88	2692	BORON TRIBROMIDE
L4BN		AT	3					80	2693	BISULPHITES, AQUEOUS SOLUTION, N.O.S.
SGAV L4BN		AT	3		VV9b			80	2698	TETRAHYDROPHTHALIC ANHYDRIDES with more than 0.05% of maleic anhydride
L10BH	TE1	AT	1				S20	88	2699	TRIFLUOROACETIC ACID
L4BN		AT	2					80	2705	1-PENTOL
LGBF		FL	2				S2 S20	33	2707	DIMETHYLDIOXANES
LGBF		FL	3				S2	30	2707	DIMETHYLDIOXANES
LGBF		FL	3				S2	30	2709	BUTYLBENZENES
LGBF		FL	3				S2	30	2710	DIPROPYL KETONE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2713	ACRIDINE
SGAV		AT	3	V12	VV1			40	2714	ZINC RESINATE
SGAV		AT	3	V12	VV1			40	2715	ALUMINIUM RESINATE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2716	1,4-BUTYNYEDIOL
SGAV		AT	3		VV1			40	2717	CAMPHOR, synthetic
SGAN	TU3	AT	2	VII		CV24 CV28		56	2719	BARIUM BROMATE
SGAV	TU3	AT	3		VV8	CV24		50	2720	CHROMIUM NITRATE
SGAV	TU3	AT	2	VII	VV8	CV24		50	2721	COPPER CHLORATE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2722	LITHIUM NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
2723	MAGNESIUM CHLORATE	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
2724	MANGANESE NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
2725	NICKEL NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
2726	NICKEL NITRITE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
2727	THALLIUM NITRATE	6.1	TO2	II	6.1 +5.1		LQ18	P002 IBC06		MP10		
2728	ZIRCONIUM NITRATE	5.1	O2	III	5.1		LQ12	P002 IBC08 LP02 R001	B3	MP10		
2729	HEXACHLOROBENZENE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2730	NITROANISOLES, LIQUID	6.1	T1	III	6.1	279	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2730	NITROANISOLES, SOLID	6.1	T2	III	6.1	279	LQ9	P002 IBC08 LP02 R001	B3	MP10	T4	TP1
2732	NITROBROMOBENZENES, LIQUID	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2732	NITROBROMOBENZENES, SOLID	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10	T4	TP1
2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. or POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.	3	FC	I	3 +8	274 544	LQ3	P001		MP7 MP17	T14	TP1 TP9 TP27
2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. or POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.	3	FC	II	3 +8	274 544	LQ4	P001 IBC02		MP19	T11	TP1 TP27
2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. or POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.	3	FC	III	3 +8	274 544	LQ7	P001 IBC03 R001		MP19	T7	TP1 TP28
2734	AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.	8	CF1	I	8 +3	274	LQ20	P001		MP8 MP17	T14	TP2 TP9 TP27

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
SGAV	TU3	AT	3		VV8	CV24		50	2722	LITHIUM NITRATE
SGAV	TU3	AT	2	V11	VV8	CV24		50	2723	MAGNESIUM CHLORATE
SGAV	TU3	AT	3		VV8	CV24		50	2724	MANGANESE NITRATE
SGAV	TU3	AT	3		VV8	CV24		50	2725	NICKEL NITRATE
SGAV	TU3	AT	3		VV8	CV24		50	2726	NICKEL NITRITE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11 V12		CV13 CV28	S9 S19	65	2727	THALLIUM NITRATE
SGAV	TU3	AT	3		VV8	CV24		50	2728	ZIRCONIUM NITRATE
SGAH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2729	HEXACHLOROBENZENE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2730	NITROANISOLES, LIQUID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2730	NITROANISOLES, SOLID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2732	NITROBROMOBENZENES, LIQUID
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2732	NITROBROMOBENZENES, SOLID
L10CH	TU14 TE1 TE21	FL	1				S2 S20	338	2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. or POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.
L4BH	TE1 TE15	FL	2				S2 S20	338	2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. or POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.
L4BN		FL	3				S2	38	2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. or POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.
L10BH	TE1	FL	1				S2 S20	883	2734	AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2734	AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.	8	CF1	II	8 +3	274	LQ22	P001 IBC02		MP15	T11	TP2 TP27
2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.	8	C7	I	8	274	LQ20	P001		MP8 MP17	T14	TP2 TP9 TP27
2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.	8	C7	II	8	274	LQ22	P001 IBC02		MP15	T11	TP1 TP27
2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.	8	C7	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
2738	N-BUTYLANILINE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2739	BUTYRIC ANHYDRIDE	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2740	n-PROPYL CHLOROFORMATE	6.1	TFC	I	6.1 +3 +8		LQ0	P602		MP8 MP17	T20	TP2 TP13
2741	BARIUM HYPOCHLORITE with more than 22% available chlorine	5.1	OT2	II	5.1 +6.1		LQ11	P002 IBC08	B4	MP2		
2742	CHLOROFORMATES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.	6.1	TFC	II	6.1 +3 +8	274 561	LQ17	P001 IBC01		MP15		
2743	n-BUTYL CHLOROFORMATE	6.1	TFC	II	6.1 +3 +8		LQ17	P001		MP15	T20	TP2 TP13
2744	CYCLOBUTYL CHLOROFORMATE	6.1	TFC	II	6.1 +3 +8		LQ17	P001 IBC01		MP15	T7	TP2 TP13
2745	CHLOROMETHYL CHLOROFORMATE	6.1	TC1	II	6.1 +8		LQ17	P001 IBC02		MP15	T7	TP2 TP13
2746	PHENYL CHLOROFORMATE	6.1	TC1	II	6.1 +8		LQ17	P001 IBC02		MP15	T7	TP2 TP13
2747	tert-BUTYLCYCLOHEXYL CHLOROFORMATE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2748	2-ETHYLHEXYL CHLOROFORMATE	6.1	TC1	II	6.1 +8		LQ17	P001 IBC02		MP15	T7	TP2 TP13
2749	TETRAMETHYLSILANE	3	F1	I	3		LQ3	P001		MP7 MP17	T14	TP2
2750	1,3-DICHLOROPROPANOL-2	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2751	DIETHYLTHIOPHOSPHORYL CHLORIDE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2752	1,2-EPOXY-3-ETHOXYPROPANE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2753	N-ETHYLBENZYL-TOLUIDINES, LIQUID	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
L4BN		FL	2				S2	83	2734	AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.
L10BH	TE1	AT	1				S20	88	2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
L4BN		AT	2					80	2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
L4BN		AT	3					80	2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2738	N-BUTYLANILINE
L4BN		AT	3					80	2739	BUTYRIC ANHYDRIDE
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	668	2740	n-PROPYL CHLOROFORMATE
SGAN	TU3	AT	2	V11		CV24 CV28		56	2741	BARIUM HYPOCHLORITE with more than 22% available chlorine
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	638	2742	CHLOROFORMATES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	638	2743	n-BUTYL CHLOROFORMATE
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	638	2744	CYCLOBUTYL CHLOROFORMATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	2745	CHLOROMETHYL CHLOROFORMATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	2746	PHENYL CHLOROFORMATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2747	tert-BUTYLCYCLOHEXYL CHLOROFORMATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	2748	2-ETHYLHEXYL CHLOROFORMATE
L4BN		FL	1				S2 S20	33	2749	TETRAMETHYLSILANE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2750	1,3-DICHLOROPROPANOL-2
L4BN		AT	2					80	2751	DIETHYL-THIOPHOSPHORYL CHLORIDE
LGBF		FL	3				S2	30	2752	1,2-EPOXY-3-ETHOXYPROPANE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2753	N-ETHYLBENZYL-TOLUIDINES, LIQUID

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2753	N-ETHYLBENZYL-TOLUIDINES, SOLID	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10	T7	TP1
2754	N-ETHYLTOLUIDINES	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2757	CARBAMATE PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
2757	CARBAMATE PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2757	CARBAMATE PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2758	CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
2758	CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
2759	ARSENICAL PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
2759	ARSENICAL PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2759	ARSENICAL PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2760	ARSENICAL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
2760	ARSENICAL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
2761	ORGANOCHLORINE PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
2761	ORGANOCHLORINE PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2761	ORGANOCHLORINE PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2762	ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
2762	ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
2763	TRIAZINE PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1)	3.1.2 (2)
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2753	N-ETHYLBENZYL- TOLUIDINES, SOLID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2754	N-ETHYLTOLUIDINES
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2757	CARBAMATE PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2757	CARBAMATE PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2757	CARBAMATE PESTICIDE, SOLID, TOXIC
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2758	CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2758	CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2759	ARSENICAL PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2759	ARSENICAL PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2759	ARSENICAL PESTICIDE, SOLID, TOXIC
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2760	ARSENICAL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2760	ARSENICAL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2761	ORGANOCHLORINE PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2761	ORGANOCHLORINE PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2761	ORGANOCHLORINE PESTICIDE, SOLID, TOXIC
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2762	ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash- point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2762	ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash- point less than 23 °C
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2763	TRIAZINE PESTICIDE, SOLID, TOXIC

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2763	TRIAZINE PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2763	TRIAZINE PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 R001	B3	MP10		
2764	TRIAZINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
2764	TRIAZINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
2771	THIOCARBAMATE PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
2771	THIOCARBAMATE PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2771	THIOCARBAMATE PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2772	THIOCARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
2772	THIOCARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
2775	COPPER BASED PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
2775	COPPER BASED PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2775	COPPER BASED PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2776	COPPER BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
2776	COPPER BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
2777	MERCURY BASED PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
2777	MERCURY BASED PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2777	MERCURY BASED PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2778	MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2763	TRIAZINE PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2763	TRIAZINE PESTICIDE, SOLID, TOXIC
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2764	TRIAZINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2764	TRIAZINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2771	THIOCARBAMATE PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2771	THIOCARBAMATE PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2771	THIOCARBAMATE PESTICIDE, SOLID, TOXIC
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2772	THIOCARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash- point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2772	THIOCARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash- point less than 23 °C
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2775	COPPER BASED PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2775	COPPER BASED PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2775	COPPER BASED PESTICIDE, SOLID, TOXIC
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2776	COPPER BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2776	COPPER BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2777	MERCURY BASED PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2777	MERCURY BASED PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2777	MERCURY BASED PESTICIDE, SOLID, TOXIC
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2778	MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash- point less than 23 °C

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2778	MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
2779	SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
2779	SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2779	SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2780	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
2780	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
2781	BIPYRIDILUM PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
2781	BIPYRIDILUM PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2781	BIPYRIDILUM PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2782	BIPYRIDILUM PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
2782	BIPYRIDILUM PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
2783	ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
2783	ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2783	ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2784	ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
2784	ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description.
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2778	MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2779	SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2779	SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2779	SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2780	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2780	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2781	BIPYRIDILIUM PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2781	BIPYRIDILIUM PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2781	BIPYRIDILIUM PESTICIDE, SOLID, TOXIC
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2782	BIPYRIDILIUM PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2782	BIPYRIDILIUM PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2783	ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2783	ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2783	ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2784	ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2784	ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
2785	4-THIAPENTANAL	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2786	ORGANOTIN PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
2786	ORGANOTIN PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
2786	ORGANOTIN PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2787	ORGANOTIN PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
2787	ORGANOTIN PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
2788	ORGANOTIN COMPOUND, LIQUID, N.O.S.	6.1	T3	I	6.1	43 274	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2788	ORGANOTIN COMPOUND, LIQUID, N.O.S.	6.1	T3	II	6.1	43 274	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2788	ORGANOTIN COMPOUND, LIQUID, N.O.S.	6.1	T3	III	6.1	43 274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
2789	ACETIC ACID, GLACIAL or ACETIC ACID SOLUTION, more than 80% acid, by mass	8	CF1	II	8 +3		LQ22	P001 IBC02		MP15	T7	TP2
2790	ACETIC ACID SOLUTION, not less than 50% but not more than 80% acid, by mass	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2790	ACETIC ACID SOLUTION, more than 10% and less than 50% acid, by mass	8	C3	III	8	597 647	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2793	FERROUS METAL BORINGS, SHAVINGS, TURNINGS or CUTTINGS in a form liable to self-heating	4.2	S4	III	4.2	592	LQ0	P003 IBC08 LP02 R001	PP20 B3 B6	MP14		
2794	BATTERIES, WET, FILLED WITH ACID, electric storage	8	C11		8	295 598	LQ0	P801 P801a				
2795	BATTERIES, WET, FILLED WITH ALKALI, electric storage	8	C11		8	295 598	LQ0	P801 P801a				
2796	SULPHURIC ACID with not more than 51% acid or BATTERY FLUID, ACID	8	C1	II	8		LQ22	P001 IBC02		MP15	T8	TP2 TP12
2797	BATTERY FLUID, ALKALI	8	C5	II	8		LQ22	P001 IBC02			T7	TP2 TP28
2798	PHENYLPHOSPHORUS DICHLORIDE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2799	PHENYLPHOSPHORUS THIODICHLORIDE	8	C3	II	8		LQ22	P001 IBC02		MP15	T7	TP2



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2785 4-THIAPENTANAL	
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	2786 ORGANOTIN PESTICIDE, SOLID, TOXIC	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2786 ORGANOTIN PESTICIDE, SOLID, TOXIC	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2786 ORGANOTIN PESTICIDE, SOLID, TOXIC	
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2787 ORGANOTIN PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	2787 ORGANOTIN PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2788 ORGANOTIN COMPOUND, LIQUID, N.O.S.	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2788 ORGANOTIN COMPOUND, LIQUID, N.O.S.	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2788 ORGANOTIN COMPOUND, LIQUID, N.O.S.	
L4BN		FL	2				S2	83	2789 ACETIC ACID, GLACIAL or ACETIC ACID SOLUTION, more than 80% acid, by mass	
L4BN		AT	2					80	2790 ACETIC ACID SOLUTION, not less than 50% but not more than 80% acid, by mass	
L4BN		AT	3					80	2790 ACETIC ACID SOLUTION, more than 10% and less than 50% acid, by mass	
			3	VI	VV4			40	2793 FERROUS METAL BORINGS, SHAVINGS, TURNINGS or CUTTINGS in a form liable to self-heating	
			3		VV14			80	2794 BATTERIES, WET, FILLED WITH ACID, electric storage	
			3		VV14			80	2795 BATTERIES, WET, FILLED WITH ALKALI, electric storage	
L4BN		AT	2					80	2796 SULPHURIC ACID with not more than 51% acid or BATTERY FLUID, ACID	
L4BN		AT	2					80	2797 BATTERY FLUID, ALKALI	
L4BN		AT	2					80	2798 PHENYLPHOSPHORUS DICHLORIDE	
L4BN		AT	2					80	2799 PHENYLPHOSPHORUS THIODICHLORIDE	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2800	BATTERIES, WET, NON-SPILLABLE, electric storage	8	C11		8	238 295 598	LQ0	P003 P801a	PP16			
2801	DYE, LIQUID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S.	8	C9	I	8	274	LQ20	P001		MP8 MP17	T14	TP2 TP9 TP27
2801	DYE, LIQUID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S.	8	C9	II	8	274	LQ22	P001 IBC02		MP15	T11	TP2 TP27
2801	DYE, LIQUID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S.	8	C9	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
2802	COPPER CHLORIDE	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2803	GALLIUM	8	C10	III	8		LQ24	P800	PP41	MP10		
2805	LITHIUM HYDRIDE, FUSED SOLID	4.3	W2	II	4.3		LQ11	P410 IBC04	PP40	MP14		
2806	LITHIUM NITRIDE	4.3	W2	I	4.3		LQ0	P403 IBC04		MP2		
2807	Magnetized material	9	M11	NOT SUBJECT TO ADR								
2809	MERCURY	8	C9	III	8	599	LQ19	P800		MP15		
2810	TOXIC LIQUID, ORGANIC, N.O.S.	6.1	T1	I	6.1	274 614	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2810	TOXIC LIQUID, ORGANIC, N.O.S.	6.1	T1	II	6.1	274 614	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2810	TOXIC LIQUID, ORGANIC, N.O.S.	6.1	T1	III	6.1	274 614	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
2811	TOXIC SOLID, ORGANIC, N.O.S.	6.1	T2	I	6.1	274 614	LQ0	P002 IBC02		MP18		
2811	TOXIC SOLID, ORGANIC, N.O.S.	6.1	T2	II	6.1	274 614	LQ18	P002 IBC08	B4	MP10		
2811	TOXIC SOLID, ORGANIC, N.O.S.	6.1	T2	III	6.1	274 614	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2812	Sodium aluminate, solid	8	C6	NOT SUBJECT TO ADR								
2813	WATER-REACTIVE SOLID, N.O.S.	4.3	W2	I	4.3	274	LQ0	P403 IBC99		MP2		
2813	WATER-REACTIVE SOLID, N.O.S.	4.3	W2	II	4.3	274	LQ11	P410 IBC07		MP14		
2813	WATER-REACTIVE SOLID, N.O.S.	4.3	W2	III	4.3	274	LQ12	P410 IBC08 R001	B4	MP14		
2814	INFECTIOUS SUBSTANCE, AFFECTING HUMANS (risk groups 3 and 4)	6.2	II		6.2	274 634	LQ0	P620		MP5		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
			3		VV14			80	2800	BATTERIES, WET, NON-SPILLABLE, electric storage
L10BH	TE1	AT	1				S20	88	2801	DYE, LIQUID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S.
L4BN		AT	2					80	2801	DYE, LIQUID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S.
L4BN		AT	3					80	2801	DYE, LIQUID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S.
SGAV		AT	3		VV9b			80	2802	COPPER CHLORIDE
SGAV L4BN		AT	3		VV9b			80	2803	GALLIUM
SGAN		AT	2	V1		CV23		423	2805	LITHIUM HYDRIDE, FUSED SOLID
			1	V1		CV23	S20		2806	LITHIUM NITRIDE
NOT SUBJECT TO ADR									2807	Magnetized material
L4BN		AT	3					80	2809	MERCURY
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2810	TOXIC LIQUID, ORGANIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2810	TOXIC LIQUID, ORGANIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2810	TOXIC LIQUID, ORGANIC, N.O.S.
S10AH L10CH	TU15 TE1 TE19	AT	1			CV1 CV13 CV28	S9 S17	66	2811	TOXIC SOLID, ORGANIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2811	TOXIC SOLID, ORGANIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2811	TOXIC SOLID, ORGANIC, N.O.S.
NOT SUBJECT TO ADR									2812	Sodium aluminate, solid
			0	V1		CV23	S20		2813	WATER-REACTIVE SOLID, N.O.S.
SGAN		AT	0	V1 V12		CV23		423	2813	WATER-REACTIVE SOLID, N.O.S.
SGAN		AT	0	V1	VV5	CV23		423	2813	WATER-REACTIVE SOLID, N.O.S.
			0			CV13 CV25 CV26 CV28	S3 S9 S15		2814	INFECTIOUS SUBSTANCE, AFFECTING HUMANS (risk groups 3 and 4)

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2814	INFECTIOUS SUBSTANCE, AFFECTING HUMANS (risk group 2)	6.2	II		6.2	274, 634	LQ0	P620		MP5		
2815	N-AMINOETHYL-PIPERAZINE	8	C7	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2817	AMMONIUM-HYDROGENDIFLUORIDE SOLUTION	8	CT1	II	8 +6.1		LQ22	P001 IBC02		MP15	T8	TP2 TP12 TP13
2817	AMMONIUM HYDROGENDIFLUORIDE SOLUTION	8	CT1	III	8 +6.1		LQ19	P001 IBC03 R001		MP15	T4	TP1 TP12 TP13
2818	AMMONIUM POLYSULPHIDE SOLUTION	8	CT1	II	8 +6.1		LQ22	P001 IBC02		MP15	T7	TP2 TP13
2818	AMMONIUM POLYSULPHIDE SOLUTION	8	CT1	III	8 +6.1		LQ19	P001 IBC03 R001		MP15	T4	TP1 TP13
2819	AMYL ACID PHOSPHATE	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2820	BUTYRIC ACID	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2821	PHENOL SOLUTION	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2821	PHENOL SOLUTION	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2822	2-CHLOROPYRIDINE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2823	CROTONIC ACID	8	C4	III	8		LQ24	P001 IBC03 LP01 R001		MP10	T4	TP1
2826	ETHYL CHLOROTHIOFORMATE	8	CF1	II	8 +3		LQ22	P001		MP15	T7	TP2
2829	CAPROIC ACID	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2830	LITHIUM FERROSILICON	4.3	W2	II	4.3		LQ11	P410 IBC07		MP14		
2831	1,1,1-TRICHLOROETHANE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2834	PHOSPHOROUS ACID	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10	T3	TP1
2835	SODIUM ALUMINIUM HYDRIDE	4.3	W2	II	4.3		LQ11	P410 IBC04		MP14		
2837	BISULPHATES, AQUEOUS SOLUTION	8	C1	II	8	274	LQ22	P001 IBC02		MP15	T7	TP2
2837	BISULPHATES, AQUEOUS SOLUTION	8	C1	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2838	VINYL BUTYRATE, STABILIZED	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV25 CV26 CV28	S3	606	2814 INFECTIOUS SUBSTANCE, AFFECTING HUMANS (risk group 2)	
L4BN		AT	3					80	2815 N-AMINOETHYL-PIPERAZINE	
L4DH	TU14 TE21	AT	2			CV13 CV28		86	2817 AMMONIUM HYDROGENDIFLUORIDE SOLUTION	
L4DH	TU14 TE21	AT	3			CV13 CV28		86	2817 AMMONIUM HYDROGENDIFLUORIDE SOLUTION	
L4BN		AT	2			CV13 CV28		86	2818 AMMONIUM POLYSULPHIDE SOLUTION	
L4BN		AT	3			CV13 CV28		86	2818 AMMONIUM POLYSULPHIDE SOLUTION	
L4BN		AT	3					80	2819 AMYL ACID PHOSPHATE	
L4BN		AT	3					80	2820 BUTYRIC ACID	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2821 PHENOL SOLUTION	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2821 PHENOL SOLUTION	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2822 2-CHLOROPYRIDINE	
SGAV L4BN		AT	3		VV9b			80	2823 CROTONIC ACID	
L4BN		FL	2				S2	83	2826 ETHYL CHLOROTHIOFORMATE	
L4BN		AT	3					80	2829 CAPROIC ACID	
SGAN		AT	2	V1 V12		CV23		423	2830 LITHIUM FERROSILICON	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2831 1,1,1-TRICHLOROETHANE	
SGAV		AT	3		VV9b			80	2834 PHOSPHOROUS ACID	
SGAN		AT	2	V1		CV23		423	2835 SODIUM ALUMINIUM HYDRIDE	
L4BN		AT	2					80	2837 BISULPHATES, AQUEOUS SOLUTION	
L4BN		AT	3					80	2837 BISULPHATES, AQUEOUS SOLUTION	
LGBF/		FL	2				S2 S20	339	2838 VINYL BUTYRATE, STABILIZED	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2839	ALDOL	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2840	BUTYRALDOXIME	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2841	DI-n-AMYLAMINE	3	FT1	III	3 +6.1		LQ7	P001 IBC03 R001		MP19	T4	TP1
2842	NITROETHANE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2844	CALCIUM MANGANESE SILICON	4.3	W2	III	4.3		LQ12	P410 IBC08 R001	B4	MP14		
2845	PYROPHORIC LIQUID, ORGANIC, N.O.S.	4.2	S1	I	4.2	274	LQ0	P400 PR1		MP2	T22	TP2 TP7 TP9
2846	PYROPHORIC SOLID, ORGANIC, N.O.S.	4.2	S2	I	4.2	274	LQ0	P404		MP13		
2849	3-CHLOROPROPANOL-1	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2850	PROPYLENE TETRAMER	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2851	BORON TRIFLUORIDE DIHYDRATE	8	C1	II	8		LQ22	P001 IBC02		MP15	T7	TP2
2852	DIPICRYL SULPHIDE, WETTED with not less than 10% water, by mass	4.1	D	I	4.1	545	LQ0	P406	PP24	MP2		
2853	MAGNESIUM FLUROSILICATE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2854	AMMONIUM FLUROSILICATE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2855	ZINC FLUROSILICATE	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2856	FLUROSILICATES, N.O.S.	6.1	T5	III	6.1	274	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2857	REFRIGERATING MACHINES containing non-flammable, non-toxic, liquefied gas or ammonia solutions (UN 2672)	2	6A		2.2	119	LQ0	P003	PP32	MP9		
2858	ZIRCONIUM, DRY, coiled wire, finished metal sheets, strip (thinner than 254 microns but not thinner than 18 microns)	4.1	F3	III	4.1	546	LQ9	P002 LP02 R001		MP11		
2859	AMMONIUM METAVANADATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
2861	AMMONIUM POLYVANADATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2839	ALDOL
LGBF		FL	3				S2	30	2840	BUTYRALDOXIME
L4BH	TU15 TE1 TE15	FL	3			CV13 CV28	S2	36	2841	DI-n-AMYLAMINE
LGBF		FL	3				S2	30	2842	NITROETHANE
SGAN		AT	3	VI	VV5 VV7	CV23		423	2844	CALCIUM MANGANESE SILICON
L21DH	TU14 TC1 TE1 TE21 TM1	AT	0	VI			S20	333	2845	PYROPHORIC LIQUID, ORGANIC, N.O.S.
			0	VI			S20		2846	PYROPHORIC SOLID, ORGANIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2849	3-CHLOROPROPANOL-1
LGBF		FL	3				S2	30	2850	PROPYLENE TETRAMER
L4BN		AT	2					80	2851	BORON TRIFLUORIDE DIHYDRATE
			1				S17		2852	DIPICRYL SULPHIDE, WETTED with not less than 10% water, by mass
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2853	MAGNESIUM FLUROSILICATE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2854	AMMONIUM FLUROSILICATE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2855	ZINC FLUROSILICATE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2856	FLUROSILICATES, N.O.S.
			3			CV9			2857	REFRIGERATING MACHINES containing non-flammable, non-toxic, liquefied gas or ammonia solutions (UN 2672)
			3		VVI			40	2858	ZIRCONIUM, DRY, coiled wire, finished metal sheets, strip (thinner than 254 microns but not thinner than 18 microns)
SGAH	TU15 TE1 TE15 TE19	AT	2	VII		CV13 CV28	S9 S19	60	2859	AMMONIUM METAVANADATE
SGAH	TU15 TE1 TE15 TE19	AT	2	VII		CV13 CV28	S9 S19	60	2861	AMMONIUM POLYVANADATE

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2862	VANADIUM PENTOXIDE, non-fused form	6.1	T5	III	6.1	600	LQ9	P002 IBC08 LP02 R001	B3	MP10		
2863	SODIUM AMMONIUM VANADATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
2864	POTASSIUM METAVANADATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
2865	HYDROXYLAMINE SULPHATE	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2869	TITANIUM TRICHLORIDE MIXTURE	8	C2	II	8		LQ23	P002 IBC08	B4	MP10		
2869	TITANIUM TRICHLORIDE MIXTURE	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2870	ALUMINIUM BOROHYDRIDE	4.2	SW	I	4.2 +4.3		LQ0	P400 PR1		MP2		
2870	ALUMINIUM BOROHYDRIDE IN DEVICES	4.2	SW	I	4.2 +4.3		LQ0	P002	PP13	MP2		
2871	ANTIMONY POWDER	6.1	T5	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2872	DIBROMOCHLORO-PROPANES	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2872	DIBROMOCHLORO-PROPANES	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2873	DIBUTYLAMINOETHANOL	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2874	FURFURYL ALCOHOL	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2875	HEXACHLOROPHENE	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2876	RESORCINOL	6.1	T2	III	6.1		LQ9	P002 IBC08 LP02 R001	B3	MP10		
2878	TITANIUM SPONGE GRANULES or TITANIUM SPONGE POWDERS	4.1	F3	III	4.1		LQ9	P002 IBC08 LP02 R001	B3	MP11		
2879	SELENIUM OXYCHLORIDE	8	CT1	I	8 +6.1		LQ20	P001		MP8 MP17	T10	TP2 TP12 TP13
2880	CALCIUM HYPOCHLORITE, HYDRATED, or CALCIUM HYPOCHLORITE, HYDRATED MIXTURE, with not less than 5.5% but not more than 16% water	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP10		
2881	METAL CATALYST, DRY	4.2	S4	I	4.2	274	LQ0	P404		MP13		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (21)	
SGAH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2862	VANADIUM PENTOXIDE, non-fused form
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2863	SODIUM AMMONIUM VANADATE
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2864	POTASSIUM META VANADATE
SGAV		AT	3		VV9b			80	2865	HYDROXYLAMINE SULPHATE
SGAN		AT	2	V11				80	2869	TITANIUM TRICHLORIDE MIXTURE
SGAV		AT	3		VV9b			80	2869	TITANIUM TRICHLORIDE MIXTURE
L21DH	TU14 TC1 TE1 TE21 TM1	AT	0	V1			S20	X333	2870	ALUMINIUM BOROHYDRIDE
			0	V1			S20		2870	ALUMINIUM BOROHYDRIDE IN DEVICES
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2871	ANTIMONY POWDER
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2872	DIBROMOCHLORO- PROPANES
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2872	DIBROMOCHLORO- PROPANES
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2873	DIBUTYLAMINOETHANOL
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2874	FURFURYL ALCOHOL
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2875	HEXACHLOROPHENE
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	2876	RESORCINOL
SGAV		AT	3		VV1			40	2878	TITANIUM SPONGE GRANULES or TITANIUM SPONGE POWDERS
LI0BH	TE1	AT	1			CV13 CV28	S20	X886	2879	SELENIUM OXYCHLORIDE
SGAN	TU3	AT	2	V11		CV24		50	2880	CALCIUM HYPOCHLORITE, HYDRATED, or CALCIUM HYPOCHLORITE, HYDRATED MIXTURE, with not less than 5.5% but not more than 16% water
			0	V1			S20		2881	METAL CATALYST, DRY

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2881	METAL CATALYST, DRY	4.2	S4	II	4.2	274	LQ0	P410 IBC06		MP14		
2881	METAL CATALYST, DRY	4.2	S4	III	4.2	274	LQ0	P002 IBC08 LP02 R001	B3	MP14		
2900	INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only (risk groups 3 and 4)	6.2	I2		6.2	274 634	LQ0	P620		MP5		
2900	INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only (risk group 2)	6.2	I2		6.2	274 634	LQ0	P620		MP5		
2901	BROMINE CHLORIDE	2	2TOC		2.3 +5.1 +8		LQ0	P200		MP9		
2902	PESTICIDE, LIQUID, TOXIC, N.O.S.	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2902	PESTICIDE, LIQUID, TOXIC, N.O.S.	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2902	PESTICIDE, LIQUID, TOXIC, N.O.S.	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
2903	PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S., flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2903	PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S., flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2903	PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S., flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2
2904	CHLOROPHENOLATES, LIQUID or PHENOLATES, LIQUID	8	C9	III	8		LQ19	P001 IBC03 LP01 R001		MP15		
2905	CHLOROPHENOLATES, SOLID or PHENOLATES, SOLID	8	C10	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2907	ISOSORBIDE DINITRATE MIXTURE with not less than 60% lactose, mannose, starch or calcium hydrogen phosphate	4.1	D	II	4.1	127	LQ8	P406 IBC06	PP26 PP80 B12	MP2		
2908	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - EMPTY PACKAGING	7				290	LQ0	See 2.2.7	See 4.1.9.1.3			
2909	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM	7				290	LQ0	See 2.2.7	See 4.1.9.1.3			

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
SGAN		AT	2	V1 V12				40	2881	METAL CATALYST, DRY
SGAN		AT	3	V1	VV4			40	2881	METAL CATALYST, DRY
			0			CV13 CV25 CV26 CV28	S3 S9 S15		2900	INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only (risk groups 3 and 4)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV25 CV26 CV28	S3	606	2900	INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only (risk group 2)
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	265	2901	BROMINE CHLORIDE
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2902	PESTICIDE, LIQUID, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2902	PESTICIDE, LIQUID, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2902	PESTICIDE, LIQUID, TOXIC, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2903	PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S., flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	2903	PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S., flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	2903	PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S., flash-point not less than 23 °C
L4BN		AT	3					80	2904	CHLOROPHENOLATES, LIQUID or PHENOLATES, LIQUID
SGAV L4BN		AT	3		VV9b			80	2905	CHLOROPHENOLATES, SOLID or PHENOLATES, SOLID
			2	V11 V12			S17		2907	ISOSORBIDE DINITRATE MIXTURE with not less than 60% lactose, mannose, starch or calcium hydrogen phosphate
			4			CV33	S5 S13 S21		2908	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - EMPTY PACKAGING
			4			CV33	S5 S13 S21		2909	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
2910	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL	7				290	LQ0	See 2.2.7	See 4.1.9.1.3			
2911	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - INSTRUMENTS or ARTICLES	7				290	LQ0	See 2.2.7	4.1.9.1.3			
2912	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non fissile or fissile-excepted	7			7X	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3		T5	TP4
2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	7			7X	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
2915	RADIOACTIVE MATERIAL, TYPE A PACKAGE, non-special form, non fissile or fissile-excepted	7			7X	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
2916	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, non fissile or fissile-excepted	7			7X	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
2917	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, non fissile or fissile-excepted	7			7X	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
2919	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, non fissile or fissile-excepted	7			7X	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S.	8	CF1	I	8 +3	274	LQ20	P001		MP8 MP17	T14	TP2 TP9 TP27
2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S.	8	CF1	II	8 +3	274	LQ22	P001 IBC02		MP15	T11	TP2 TP27
2921	CORROSIVE SOLID, FLAMMABLE, N.O.S.	8	CF2	I	8 +4.1	274	LQ21	P002 IBC05		MP18		
2921	CORROSIVE SOLID, FLAMMABLE, N.O.S.	8	CF2	II	8 +4.1	274	LQ23	P002 IBC08	B4	MP10		
2922	CORROSIVE LIQUID, TOXIC, N.O.S.	8	CT1	I	8 +6.1	274	LQ20	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2922	CORROSIVE LIQUID, TOXIC, N.O.S.	8	CT1	II	8 +6.1	274	LQ22	P001 IBC02		MP15	T7	TP2
2922	CORROSIVE LIQUID, TOXIC, N.O.S.	8	CT1	III	8 +6.1	274	LQ19	P001 IBC03 R001		MP15	T7	TP1 TP28
2923	CORROSIVE SOLID, TOXIC, N.O.S.	8	CT2	I	8 +6.1	274	LQ21	P002 IBC05		MP18		
2923	CORROSIVE SOLID, TOXIC, N.O.S.	8	CT2	II	8 +6.1	274	LQ23	P002 IBC08	B4	MP10		
2923	CORROSIVE SOLID, TOXIC, N.O.S.	8	CT2	III	8 +6.1	274	LQ24	P002 IBC08 R001	B3	MP10		
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	FC	I	3 +8	274	LQ3	P001		MP7 MP17	T14	TP2 TP9
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	FC	II	3 +8	274	LQ4	P001 IBC02		MP19	T11	TP2 TP27

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
			4			CV33	S5 S13 S21		2910	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL
			4			CV33	S5 S13 S21		2911	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - INSTRUMENTS or ARTICLES
L2.65CN(+) S2.65AN(+)	TU36 TM7 TT7	AT	0			CV33	S6 S11 S13 S21	70	2912	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non fissile or fissile-excepted
			0			CV33	S6 S11 S13 S21		2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted
			0			CV33	S6 S11 S12 S13 S21		2915	RADIOACTIVE MATERIAL, TYPE A PACKAGE, non-special form, non fissile or fissile-excepted
			0			CV33	S6 S11 S13 S21		2916	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, non fissile or fissile-excepted
			0			CV33	S6 S11 S13 S21		2917	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, non fissile or fissile-excepted
			0			CV33	S6 S11 S13 S21		2919	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, non fissile or fissile-excepted
L10BH	TE1	FL	1				S2 S20	883	2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S.
L4BN		FL	2				S2	83	2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S.
S10AN L10BH	TE1	AT	1				S20	884	2921	CORROSIVE SOLID, FLAMMABLE, N.O.S.
SGAN L4BN		AT	2	V11				84	2921	CORROSIVE SOLID, FLAMMABLE, N.O.S.
L10BH	TE1	AT	1			CV13 CV28	S20	886	2922	CORROSIVE LIQUID, TOXIC, N.O.S.
L4BN		AT	2			CV13 CV28		86	2922	CORROSIVE LIQUID, TOXIC, N.O.S.
L4BN		AT	3			CV13 CV28		86	2922	CORROSIVE LIQUID, TOXIC, N.O.S.
S10AN L10BH	TE1	AT	1			CV13 CV28	S20	886	2923	CORROSIVE SOLID, TOXIC, N.O.S.
SGAN L4BN		AT	2	V11		CV13 CV28		86	2923	CORROSIVE SOLID, TOXIC, N.O.S.
SGAV L4BN		AT	3		VV9b	CV13 CV28		86	2923	CORROSIVE SOLID, TOXIC, N.O.S.
L10CH	TU14 TE1 TE21	FL	1				S2 S20	338	2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.
L4BH	TE1 TE15	FL	2				S2 S20	338	2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	FC	III	3 +8	274	LQ7	P001 IBC03 R001		MP19	T7	TP1 TP28
2925	FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S.	4.1	FC1	II	4.1 +8	274	LQ0	P002 IBC06		MP10		
2925	FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S.	4.1	FC1	III	4.1 +8	274	LQ0	P002 IBC06 R001		MP10		
2926	FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.	4.1	FT1	II	4.1 +6.1	274	LQ0	P002 IBC06		MP10		
2926	FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.	4.1	FT1	III	4.1 +6.1	274	LQ0	P002 IBC06 R001		MP10		
2927	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.	6.1	TC1	I	6.1 +8	274	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2927	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.	6.1	TC1	II	6.1 +8	274	LQ17	P001 IBC02		MP15	T11	TP2 TP27
2928	TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.	6.1	TC2	I	6.1 +8	274	LQ0	P002 IBC05		MP18		
2928	TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.	6.1	TC2	II	6.1 +8	274	LQ18	P002 IBC06		MP10		
2929	TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.	6.1	TF1	I	6.1 +3	274	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2929	TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.	6.1	TF1	II	6.1 +3	274	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2930	TOXIC SOLID, FLAMMABLE, ORGANIC, N.O.S.	6.1	TF3	I	6.1 +4.1	274	LQ0	P002 IBC05		MP18		
2930	TOXIC SOLID, FLAMMABLE, ORGANIC, N.O.S.	6.1	TF3	II	6.1 +4.1	274	LQ18	P002 IBC08	B4	MP10		
2931	VANADYL SULPHATE	6.1	T5	II	6.1		LQ18	P002 IBC08	B4	MP10		
2933	METHYL 2-CHLOROPROPIONATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2934	ISOPROPYL 2-CHLOROPROPIONATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2935	ETHYL 2-CHLOROPROPIONATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2936	THIOLACTIC ACID	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2937	alpha-METHYLBENZYL ALCOHOL	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2940	9-PHOSPHABICYCLO-NONANES (CYCLOOCTADIENE PHOSPHINES)	4.2	S2	II	4.2		LQ0	P410 IBC06		MP14		
2941	FLUOROANILINES	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	3.1.2
L4BN		FL	3				S2	38	2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.
SGAN		AT	2	V11 V12				48	2925	FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S.
SGAN		AT	3	V12				48	2925	FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S.
SGAN		AT	2	V11 V12		CV28		46	2926	FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.
SGAN		AT	3	V12		CV28		46	2926	FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	668	2927	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	2927	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.
S10AH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	668	2928	TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11 V12		CV13 CV28	S9 S19	68	2928	TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2929	TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	2929	TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
			1			CV1 CV13 CV28	S9 S17		2930	TOXIC SOLID, FLAMMABLE, ORGANIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	64	2930	TOXIC SOLID, FLAMMABLE, ORGANIC, N.O.S.
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	2931	VANADYL SULPHATE
LGBF		FL	3				S2	30	2933	METHYL 2-CHLOROPROPIONATE
LGBF		FL	3				S2	30	2934	ISOPROPYL 2-CHLOROPROPIONATE
LGBF		FL	3				S2	30	2935	ETHYL 2-CHLOROPROPIONATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2936	THIOLACTIC ACID
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2937	alpha-METHYLBENZYL ALCOHOL
SGAN		AT	2	V1 V12				40	2940	9-PHOSPHABICYCLONONANES (CYCLOOCTADIENE PHOSPHINES)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2941	FLUOROANILINES

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
2942	2-TRIFLUOROMETHYL-ANILINE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15		
2943	TETRAHYDRO-FURFURYLAMINE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2945	N-METHYLBUTYLAMINE	3	FC	II	3 +8		LQ4	P001 IBC02		MP19	T7	TP1
2946	2-AMINO-5-DIETHYL-AMINOPENTANE	6.1	T1	III	6.1		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
2947	ISOPROPYL CHLOROACETATE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
2948	3-TRIFLUOROMETHYL-ANILINE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2949	SODIUM HYDROSULPHIDE with not less than 25% water of crystallization	8	C6	II	8	523	LQ23	P002 IBC08	B4	MP10	T7	TP2
2950	MAGNESIUM GRANULES, COATED, particle size not less than 149 microns	4.3	W2	III	4.3		LQ12	P410 IBC08 R001	B4	MP14		
2956	5-tert-BUTYL-2,4,6-TRINITRO-m-XYLENE (MUSK XYLENE)	4.1	SR1	III	4.1	638	LQ0	P409		MP2		
2965	BORON TRIFLUORIDE DIMETHYL ETHERATE	4.3	WFC	I	4.3 +3 +8		LQ0	P401		MP2	T10	TP2 TP7
2966	THIOGLYCOL	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
2967	SULPHAMIC ACID	8	C2	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
2968	MANEB, STABILIZED or MANEB PREPARATION, STABILIZED against self-heating	4.3	W2	III	4.3	547	LQ12	P002 IBC08 R001	B4	MP14		
2969	CASTOR BEANS or CASTOR MEAL or CASTOR POMACE or CASTOR FLAKE	9	M11	II	9	141	LQ25	P002 IBC08	PP34 B4	MP10		
2977	RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE	7			7X +7E +8	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
2978	RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non fissile or fissile-excepted	7			7X +8	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
2983	ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE, not more than 30% ethylene oxide	3	FT1	I	3 +6.1		LQ0	P001		MP7 MP17	T14	TP2 TP7 TP13
2984	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 8% but less than 20% hydrogen peroxide (stabilized as necessary)	5.1	O1	III	5.1	65	LQ13	P504 IBC02 R001	PP10 B5	MP15	T4	TP1 TP6 TP24



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2942	2-TRIFLUOROMETHYL-ANILINE
LGBF		FL	3				S2	30	2943	TETRAHYDRO-FURFURYLAMINE
L4BH	TE1 TE15	FL	2				S2 S20	338	2945	N-METHYLBUTYLAMINE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2946	2-AMINO-5-DIETHYL-AMINOPENTANE
LGBF		FL	3				S2	30	2947	ISOPROPYL CHLOROACETATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2948	3-TRIFLUOROMETHYL-ANILINE
SGAN L4BN		AT	2	VII				80	2949	SODIUM HYDROSULPHIDE with not less than 25% water of crystallization
SGAN		AT	3	VI	VV5	CV23		423	2950	MAGNESIUM GRANULES, COATED, particle size not less than 149 microns
			3			CV14	S14		2956	5-tert-BUTYL-2,4,6-TRINITRO-m-XYLENE (MUSK XYLENE)
L10DH	TU4 TU14 TU22 TE1 TE21 TM2	FL	0	VI		CV23	S2 S20	382	2965	BORON TRIFLUORIDE DIMETHYL ETHERATE
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2966	THIOGLYCOL
SGAV		AT	3		VV9b			80	2967	SULPHAMIC ACID
SGAN		AT	0	VI	VV5	CV23		423	2968	MANEB, STABILIZED or MANEB PREPARATION, STABILIZED against self-heating
SGAV		AT	2	VI	VV3			90	2969	CASTOR BEANS or CASTOR MEAL or CASTOR POMACE or CASTOR FLAKE
			0			CV33	S6 S11 S13 S21		2977	RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE
			0			CV33	S6 S11 S13 S21		2978	RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non fissile or fissile-excepted
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	2983	ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE, not more than 30% ethylene oxide
LGBV	TU3 TC2 TE8 TE11 TT1	AT	3			CV24		50	2984	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 8% but less than 20% hydrogen peroxide (stabilized as necessary)

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
2985	CHLOROSILANES, FLAMMABLE, CORROSIVE, N.O.S.	3	FC	II	3 +8	274 548	LQ4	P001 IBC02		MP19	T11	TP2 TP13 TP27
2986	CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S.	8	CF1	II	8 +3	274 548	LQ22	P001 IBC02		MP15	T11	TP2 TP27
2987	CHLOROSILANES, CORROSIVE, N.O.S.	8	C3	II	8	274 548	LQ22	P001 IBC02		MP15	T14	TP2 TP27
2988	CHLOROSILANES, WATER-REACTIVE, FLAMMABLE, CORROSIVE, N.O.S.	4.3	WFC	I	4.3 +3 +8	274 549	LQ0	P401 PR2		MP2	T10	TP2 TP7 TP9 TP13
2989	LEAD PHOSPHITE, DIBASIC	4.1	F3	II	4.1		LQ8	P002 IBC08	B4	MP11		
2989	LEAD PHOSPHITE, DIBASIC	4.1	F3	III	4.1		LQ9	P002 IBC08 LP02 R001	B3	MP11		
2990	LIFE-SAVING APPLIANCES, SELF-INFLATING	9	M5		9	296 635	LQ0	P905				
2991	CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2991	CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2991	CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
2992	CARBAMATE PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2992	CARBAMATE PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2992	CARBAMATE PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
2993	ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2993	ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2993	ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
2994	ARSENICAL PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2994	ARSENICAL PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BH	TE1 TE15	FL	2				S2 S20	X338	2985	CHLOROSILANES, FLAMMABLE, CORROSIVE, N.O.S.
L4BN		FL	2				S2	X83	2986	CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S.
L4BN		AT	2					X80	2987	CHLOROSILANES, CORROSIVE, N.O.S.
L10DH	TU14 TU26 TE1 TE21 TM2 TM3	FL	0	V1		CV23	S2 S20	X338	2988	CHLOROSILANES, WATER-REACTIVE, FLAMMABLE, CORROSIVE, N.O.S.
SGAN		AT	2	V11				40	2989	LEAD PHOSPHITE, DIBASIC
SGAV		AT	3		VV1			40	2989	LEAD PHOSPHITE, DIBASIC
			3	V1					2990	LIFE-SAVING APPLIANCES, SELF-INFLATING
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2991	CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	2991	CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	2991	CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2992	CARBAMATE PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2992	CARBAMATE PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2992	CARBAMATE PESTICIDE, LIQUID, TOXIC
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2993	ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	2993	ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	2993	ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2994	ARSENICAL PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2994	ARSENICAL PESTICIDE, LIQUID, TOXIC

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
2994	ARSENICAL PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
2995	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2995	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2995	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
2996	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2996	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2996	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
2997	TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2997	TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2997	TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
2998	TRIAZINE PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
2998	TRIAZINE PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
2998	TRIAZINE PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
3005	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13
3005	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3005	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2994	ARSENICAL PESTICIDE, LIQUID, TOXIC
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2995	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	2995	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	2995	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2996	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2996	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2996	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	2997	TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	2997	TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	2997	TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	2998	TRIAZINE PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	2998	TRIAZINE PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	2998	TRIAZINE PESTICIDE, LIQUID, TOXIC
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3005	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3005	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	3005	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
3006	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13
3006	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3006	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
3009	COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3009	COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3009	COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
3010	COPPER BASED PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3010	COPPER BASED PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3010	COPPER BASED PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
3011	MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3011	MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3011	MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
3012	MERCURY BASED PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3012	MERCURY BASED PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3012	MERCURY BASED PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
3013	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3006	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3006	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3006	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3009	COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3009	COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	3009	COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3010	COPPER BASED PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3010	COPPER BASED PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3010	COPPER BASED PESTICIDE, LIQUID, TOXIC
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3011	MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3011	MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	3011	MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3012	MERCURY BASED PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3012	MERCURY BASED PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3012	MERCURY BASED PESTICIDE, LIQUID, TOXIC
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3013	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3013	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3013	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
3014	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3014	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3014	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
3015	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3015	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3015	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
3016	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3016	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3016	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
3017	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3017	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3017	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
3018	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3013	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	3013	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3014	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3014	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3014	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3015	BIPYRIDILUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3015	BIPYRIDILUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	3015	BIPYRIDILUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3016	BIPYRIDILUM PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3016	BIPYRIDILUM PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3016	BIPYRIDILUM PESTICIDE, LIQUID, TOXIC
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3017	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3017	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	3017	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3018	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3018	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3018	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
3019	ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3019	ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3019	ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
3020	ORGANOTIN PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3020	ORGANOTIN PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3020	ORGANOTIN PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
3021	PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S., flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
3021	PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S., flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
3022	1,2-BUTYLENE OXIDE, STABILIZED	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
3023	2-METHYL-2-HEPTANETHIOL	6.1	TF1	I	6.1 +3		LQ0	P001		MP8 MP17	T14	TP2 TP13
3024	COUMARIN DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
3024	COUMARIN DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
3025	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3025	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3018	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3018	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3019	ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3019	ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	3019	ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3020	ORGANOTIN PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3020	ORGANOTIN PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3020	ORGANOTIN PESTICIDE, LIQUID, TOXIC
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	3021	PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S., flash-point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	3021	PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S., flash-point less than 23 °C
LGBF		FL	2				S2 S20	339	3022	1,2-BUTYLENE OXIDE, STABILIZED
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3023	2-METHYL-2- HEPTANETHIOL
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	3024	COUMARIN DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash- point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	3024	COUMARIN DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash- point less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3025	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3025	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
3025	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP1 TP28
3026	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3026	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP27
3026	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3027	COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
3027	COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
3027	COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
3028	BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE SOLID, electric storage	8	C11		8	295 304 598	LQ0	P801 P801a				
3048	ALUMINIUM PHOSPHIDE PESTICIDE	6.1	T7	I	6.1	61 153	LQ0	P002 IBC07		MP18		
3049	METAL ALKYL HALIDES, WATER-REACTIVE, N.O.S. or METAL ARYL HALIDES, WATER-REACTIVE, N.O.S.	4.2	SW	I	4.2 +4.3	274 527	LQ0	P400 PR1		MP2	T21	TP2 TP7 TP9
3050	METAL ALKYL HYDRIDES, WATER-REACTIVE, N.O.S. or METAL ARYL HYDRIDES, WATER-REACTIVE, N.O.S.	4.2	SW	I	4.2 +4.3	274 527	LQ0	P400 PR1		MP2	T21	TP2 TP7
3051	ALUMINIUM ALKYL	4.2	SW	I	4.2 +4.3	274	LQ0	P400 PR1		MP2	T21	TP2 TP7 TP9
3052	ALUMINIUM ALKYL HALIDES, LIQUID	4.2	SW	I	4.2 +4.3	274	LQ0	P400 PR1		MP2	T21	TP2 TP7
3052	ALUMINIUM ALKYL HALIDES, SOLID	4.2	SW	I	4.2 +4.3	274	LQ0	P404		MP2		
3053	MAGNESIUM ALKYL	4.2	SW	I	4.2 +4.3	274	LQ0	P400 PR1		MP2	T21	TP2 TP7
3054	CYCLOHEXYL MERCAPTAN	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	3025	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3026	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3026	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3026	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3027	COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3027	COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3027	COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC
			3		VV14			80	3028	BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE SOLID, electric storage
S10AH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	642	3048	ALUMINIUM PHOSPHIDE PESTICIDE
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	V1			S20	X333	3049	METAL ALKYL HALIDES, WATER-REACTIVE, N.O.S. or METAL ARYL HALIDES, WATER-REACTIVE, N.O.S.
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	V1			S20	X333	3050	METAL ALKYL HYDRIDES, WATER-REACTIVE, N.O.S. or METAL ARYL HYDRIDES, WATER-REACTIVE, N.O.S.
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	V1			S20	X333	3051	ALUMINIUM ALKYL
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	V1			S20	X333	3052	ALUMINIUM ALKYL HALIDES, LIQUID
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	V1			S20	X333	3052	ALUMINIUM ALKYL HALIDES, SOLID
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	V1			S20	X333	3053	MAGNESIUM ALKYL
LGBF		FL	3				S2	30	3054	CYCLOHEXYL MERCAPTAN

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3055	2-(2-AMINOETHOXY) ETHANOL	8	C7	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
3056	n-HEPTALDEHYDE	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
3057	TRIFLUOROACETYL CHLORIDE	2	2TC		2.3 +8		LQ0	P200		MP9	T50	TP21
3064	NITROGLYCERIN, SOLUTION IN ALCOHOL with more than 1% but not more than 5% nitroglycerin	3	D	II	3		LQ0	P300		MP2		
3065	ALCOHOLIC BEVERAGES, with more than 70% alcohol by volume	3	F1	II	3		LQ5	P001 IBC02 R001	PP2	MP19	T4	TP1
3065	ALCOHOLIC BEVERAGES, with more than 24% but not more than 70% alcohol by volume	3	F1	III	3	144 145 247	LQ7	P001 IBC03 R001	PP2	MP19	T2	TP1
3066	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound)	8	C9	II	8	163	LQ22	P001 IBC02		MP15	T7	TP2
3066	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound)	8	C9	III	8	163	LQ19	P001 IBC03 R001		MP15	T4	TP1
3070	ETHYLENE OXIDE AND DICHLORODIFLUOROMETHANE MIXTURE with not more than 12.5% ethylene oxide	2	2A		2.2		LQ1	P200		MP9	T50	
3071	MERCAPTANS, LIQUID, TOXIC, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, TOXIC, FLAMMABLE, N.O.S.	6.1	TF1	II	6.1 +3	274	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3072	LIFE-SAVING APPLIANCES NOT SELF-INFLATING containing dangerous goods as equipment	9	M5		9	296 635	LQ0	P905				
3073	VINYLPYRIDINES, STABILIZED	6.1	TFC	II	6.1 +3 +8		LQ17	P001 IBC01		MP15	T7	TP2 TP13
3076	ALUMINIUM ALKYL HYDRIDES	4.2	SW	I	4.2 +4.3	274	LQ0	P400 PR1		MP2	T21	TP2 TP7
3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	9	M7	III	9	274	LQ27	P002 IBC08 LP02 R001	PP12 B3	MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
L4BN		AT	3					80	3055 2-(2-AMINOETHOXY) ETHANOL	
LGBF		FL	3				S2	30	3056 n-HEPTALDEHYDE	
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	268	3057 TRIFLUOROACETYL CHLORIDE	
			2				S2 S19		3064 NITROGLYCERIN, SOLUTION IN ALCOHOL with more than 1% but not more than 5% nitroglycerin	
LGBF		FL	2				S2 S20	33	3065 ALCOHOLIC BEVERAGES, with more than 70% alcohol by volume	
LGBF		FL	3				S2	30	3065 ALCOHOLIC BEVERAGES, with more than 24% but not more than 70% alcohol by volume	
L4BN		AT	2					80	3066 PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound)	
L4BN		AT	3					80	3066 PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound)	
PxBN(M)		AT	3	V7		CV9 CV10		20	3070 ETHYLENE OXIDE AND DICHLORODIFLUOROMETHANE MIXTURE with not more than 12.5% ethylene oxide	
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3071 MERCAPTANS, LIQUID, TOXIC, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, TOXIC, FLAMMABLE, N.O.S.	
			3	V1					3072 LIFE-SAVING APPLIANCES NOT SELF-INFLATING containing dangerous goods as equipment	
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	638	3073 VINYL PYRIDINES, STABILIZED	
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TMI	AT	0	V1			S20	X333	3076 ALUMINIUM ALKYL HYDRIDES	
SGAV		AT	3	V1 V13	VV3	CV13		90	3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
3078	CERIUM, turnings or gritty powder	4.3	W2	II	4.3	550	LQ11	P410 IBC07		MP14		
3079	METHACRYLONITRILE, STABILIZED	3	FT1	I	3 +6.1		LQ0	P001		MP7 MP17	T14	TP2 TP13
3080	ISOCYANATES, TOXIC, FLAMMABLE, N.O.S. or ISOCYANATE SOLUTION, TOXIC, FLAMMABLE, N.O.S.	6.1	TF1	II	6.1 +3	274 551	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	9	M6	III	9	274	LQ28	P001 IBC03 LP01 R001		MP15	T4	TP1 TP29
3083	PERCHLORYL FLUORIDE	2	2TO		2.3 +5.1		LQ0	P200		MP9		
3084	CORROSIVE SOLID, OXIDIZING, N.O.S.	8	CO2	I	8 +5.1	274	LQ21	P002		MP18		
3084	CORROSIVE SOLID, OXIDIZING, N.O.S.	8	CO2	II	8 +5.1	274	LQ23	P002 IBC06		MP10		
3085	OXIDIZING SOLID, CORROSIVE, N.O.S.	5.1	OC2	I	5.1 +8	274	LQ0	P503		MP2		
3085	OXIDIZING SOLID, CORROSIVE, N.O.S.	5.1	OC2	II	5.1 +8	274	LQ11	P002 IBC06		MP2		
3085	OXIDIZING SOLID, CORROSIVE, N.O.S.	5.1	OC2	III	5.1 +8	274	LQ12	P002 IBC08 R001	B3	MP2		
3086	TOXIC SOLID, OXIDIZING, N.O.S.	6.1	TO2	I	6.1 +5.1	274	LQ0	P002		MP18		
3086	TOXIC SOLID, OXIDIZING, N.O.S.	6.1	TO2	II	6.1 +5.1	274	LQ18	P002 IBC06		MP10		
3087	OXIDIZING SOLID, TOXIC, N.O.S.	5.1	OT2	I	5.1 +6.1	274	LQ0	P503		MP2		
3087	OXIDIZING SOLID, TOXIC, N.O.S.	5.1	OT2	II	5.1 +6.1	274	LQ11	P002 IBC06		MP2		
3087	OXIDIZING SOLID, TOXIC, N.O.S.	5.1	OT2	III	5.1 +6.1	274	LQ12	P002 IBC08 R001	B3	MP2		
3088	SELF-HEATING SOLID, ORGANIC, N.O.S.	4.2	S2	II	4.2	274	LQ0	P410 IBC06		MP14		
3088	SELF-HEATING SOLID, ORGANIC, N.O.S.	4.2	S2	III	4.2	274	LQ0	P002 IBC08 LP02 R001	B3	MP14		
3089	METAL POWDER, FLAMMABLE, N.O.S.	4.1	F3	II	4.1	274 552	LQ8	P002 IBC08	B4	MP11		
3089	METAL POWDER, FLAMMABLE, N.O.S.	4.1	F3	III	4.1	274 552	LQ9	P002 IBC06 R001		MP11		
3090	LITHIUM BATTERIES	9	M4	II	9	188 230 310 636	LQ0	P903 P903a)				
3091	LITHIUM BATTERIES CONTAINED IN EQUIPMENT or LITHIUM BATTERIES PACKED WITH EQUIPMENT	9	M4	II	9	188 230 636	LQ0	P903 P903a)				
3092	I-METHOXY-2-PROPANOL	3	F1	III	3		LQ7	P001 IBC03 LP01 R001		MP19	T2	TP1
3093	CORROSIVE LIQUID, OXIDIZING, N.O.S.	8	CO1	I	8 +5.1	274	LQ20	P001		MP8 MP17		
3093	CORROSIVE LIQUID, OXIDIZING, N.O.S.	8	CO1	II	8 +5.1	274	LQ22	P001 IBC02		MP15		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3		3.1.2
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAN		AT	2	V1 V12		CV23		423	3078	CERIUM, turnings or gritty powder
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	3079	METHACRYLONITRILE, STABILIZED
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3080	ISOCYANATES, TOXIC, FLAMMABLE, N.O.S. or ISOCYANATE SOLUTION, TOXIC, FLAMMABLE, N.O.S.
LGBV		AT	3	V1		CV13		90	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
PxBH(M)	TE1	AT	1	V7		CV9 CV10	S7 S17	265	3083	PERCHLORYL FLUORIDE
S10AH L10BH	TE1	AT	1			CV24	S20	885	3084	CORROSIVE SOLID, OXIDIZING, N.O.S.
SGAN L4BN		AT	2	V11 V12		CV24		85	3084	CORROSIVE SOLID, OXIDIZING, N.O.S.
			1			CV24	S20		3085	OXIDIZING SOLID, CORROSIVE, N.O.S.
SGAN	TU3	AT	2	V11 V12		CV24		58	3085	OXIDIZING SOLID, CORROSIVE, N.O.S.
SGAN	TU3	AT	3			CV24		58	3085	OXIDIZING SOLID, CORROSIVE, N.O.S.
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	665	3086	TOXIC SOLID, OXIDIZING, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11 V12		CV13 CV28	S9 S19	65	3086	TOXIC SOLID, OXIDIZING, N.O.S.
			1			CV24 CV28	S20		3087	OXIDIZING SOLID, TOXIC, N.O.S.
SGAN	TU3	AT	2	V11 V12		CV24 CV28		56	3087	OXIDIZING SOLID, TOXIC, N.O.S.
SGAN	TU3	AT	3			CV24 CV28		56	3087	OXIDIZING SOLID, TOXIC, N.O.S.
SGAV		AT	2	V1 V12				40	3088	SELF-HEATING SOLID, ORGANIC, N.O.S.
SGAV		AT	3	V1				40	3088	SELF-HEATING SOLID, ORGANIC, N.O.S.
SGAN		AT	2	V11				40	3089	METAL POWDER, FLAMMABLE, N.O.S.
SGAV		AT	3	V12	VV1			40	3089	METAL POWDER, FLAMMABLE, N.O.S.
			2	V1					3090	LITHIUM BATTERIES
			2	V1					3091	LITHIUM BATTERIES CONTAINED IN EQUIPMENT or LITHIUM BATTERIES PACKED WITH EQUIPMENT
LGBF		FL	3				S2	30	3092	1-METHOXY-2-PROPANOL
L10BH	TE1	AT	1			CV24	S20	885	3093	CORROSIVE LIQUID, OXIDIZING, N.O.S.
L4BN		AT	2			CV24		85	3093	CORROSIVE LIQUID, OXIDIZING, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
3094	CORROSIVE LIQUID, WATER-REACTIVE, N.O.S.	8	CW1	I	8 +4.3	274	LQ20	P001		MP8 MP17		
3094	CORROSIVE LIQUID, WATER-REACTIVE, N.O.S.	8	CW1	II	8 +4.3	274	LQ22	P001		MP15		
3095	CORROSIVE SOLID, SELF-HEATING, N.O.S.	8	CS2	I	8 +4.2	274	LQ21	P002		MP18		
3095	CORROSIVE SOLID, SELF-HEATING, N.O.S.	8	CS2	II	8 +4.2	274	LQ23	P002 IBC06		MP10		
3096	CORROSIVE SOLID, WATER REACTIVE, N.O.S.	8	CW2	I	8 +4.3	274	LQ21	P002		MP18		
3096	CORROSIVE SOLID, WATER REACTIVE, N.O.S.	8	CW2	II	8 +4.3	274	LQ23	P002 IBC06		MP10		
3097	FLAMMABLE SOLID, OXIDIZING, N.O.S.	4.1	FO	CARRIAGE PROHIBITED								
3098	OXIDIZING LIQUID, CORROSIVE, N.O.S.	5.1	OC1	I	5.1 +8	274	LQ0	P502		MP2		
3098	OXIDIZING LIQUID, CORROSIVE, N.O.S.	5.1	OC1	II	5.1 +8	274	LQ10	P504 IBC01		MP2		
3098	OXIDIZING LIQUID, CORROSIVE, N.O.S.	5.1	OC1	III	5.1 +8	274	LQ13	P504 IBC02 R001		MP2		
3099	OXIDIZING LIQUID, TOXIC, N.O.S.	5.1	OT1	I	5.1 +6.1	274	LQ0	P502		MP2		
3099	OXIDIZING LIQUID, TOXIC, N.O.S.	5.1	OT1	II	5.1 +6.1	274	LQ10	P504 IBC01		MP2		
3099	OXIDIZING LIQUID, TOXIC, N.O.S.	5.1	OT1	III	5.1 +6.1	274	LQ13	P504 IBC02 R001		MP2		
3100	OXIDIZING SOLID, SELF-HEATING, N.O.S.	5.1	OS	CARRIAGE PROHIBITED								
3101	ORGANIC PEROXIDE TYPE B, LIQUID	5.2	PI		5.2 +1	122 181 274	LQ14	P520		MP4		
3102	ORGANIC PEROXIDE TYPE B, SOLID	5.2	PI		5.2 +1	122 181 274	LQ15	P520		MP4		
3103	ORGANIC PEROXIDE TYPE C, LIQUID	5.2	PI		5.2	122 274	LQ14	P520		MP4		
3104	ORGANIC PEROXIDE TYPE C, SOLID	5.2	PI		5.2	122 274	LQ15	P520		MP4		
3105	ORGANIC PEROXIDE TYPE D, LIQUID	5.2	PI		5.2	122 274	LQ16	P520		MP4		
3106	ORGANIC PEROXIDE TYPE D, SOLID	5.2	PI		5.2	122 274	LQ11	P520		MP4		
3107	ORGANIC PEROXIDE TYPE E, LIQUID	5.2	PI		5.2	122 274	LQ16	P520		MP4		
3108	ORGANIC PEROXIDE TYPE E, SOLID	5.2	PI		5.2	122 274	LQ11	P520		MP4		
3109	ORGANIC PEROXIDE TYPE F, LIQUID	5.2	PI		5.2	122 274	LQ16	P520 IBC520		MP4	T23	

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L10BH	TE1	AT	1				S20	823	3094	CORROSIVE LIQUID, WATER-REACTIVE, N.O.S.
L4BN		AT	2					823	3094	CORROSIVE LIQUID, WATER-REACTIVE, N.O.S.
S10AN			1				S20		3095	CORROSIVE SOLID, SELF-HEATING, N.O.S.
SGAN		AT	2	V11 V12				84	3095	CORROSIVE SOLID, SELF-HEATING, N.O.S.
S10AN L10BH	TE1	AT	1				S20	842	3096	CORROSIVE SOLID, WATER REACTIVE, N.O.S.
SGAN L4BN		AT	2	V11 V12				842	3096	CORROSIVE SOLID, WATER REACTIVE, N.O.S.
CARRIAGE PROHIBITED									3097	FLAMMABLE SOLID, OXIDIZING, N.O.S.
			1			CV24	S20		3098	OXIDIZING LIQUID, CORROSIVE, N.O.S.
			2			CV24			3098	OXIDIZING LIQUID, CORROSIVE, N.O.S.
			3			CV24			3098	OXIDIZING LIQUID, CORROSIVE, N.O.S.
			1			CV24 CV28	S20		3099	OXIDIZING LIQUID, TOXIC, N.O.S.
			2			CV24 CV28			3099	OXIDIZING LIQUID, TOXIC, N.O.S.
			3			CV24 CV28			3099	OXIDIZING LIQUID, TOXIC, N.O.S.
CARRIAGE PROHIBITED									3100	OXIDIZING SOLID, SELF-HEATING, N.O.S.
			1	V1 V5		CV15 CV20 CV22 CV24	S9 S17		3101	ORGANIC PEROXIDE TYPE B, LIQUID
			1	V1 V5		CV15 CV20 CV22 CV24	S9 S17		3102	ORGANIC PEROXIDE TYPE B, SOLID
			1	V1		CV15 CV20 CV22 CV24	S8 S18		3103	ORGANIC PEROXIDE TYPE C, LIQUID
			1	V1		CV15 CV20 CV22 CV24	S8 S18		3104	ORGANIC PEROXIDE TYPE C, SOLID
			2	V1		CV15 CV22 CV24	S19		3105	ORGANIC PEROXIDE TYPE D, LIQUID
			2	V1		CV15 CV22 CV24	S19		3106	ORGANIC PEROXIDE TYPE D, SOLID
			2	V1		CV15 CV22 CV24			3107	ORGANIC PEROXIDE TYPE E, LIQUID
			2	V1		CV15 CV22 CV24			3108	ORGANIC PEROXIDE TYPE E, SOLID
L4BN(+)	TU3 TU13 TU30 TE12 TA2 TM4	AT	2	V1		CV15 CV22 CV24		539	3109	ORGANIC PEROXIDE TYPE F, LIQUID

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
3110	ORGANIC PEROXIDE TYPE F, SOLID	5.2	P1		5.2	122 181 274	LQ11	P520 IBC520		MP4	T23	
3111	ORGANIC PEROXIDE TYPE B, LIQUID, TEMPERATURE CONTROLLED	5.2	P2		5.2 +1	122 181 274	LQ0	P520		MP4		
3112	ORGANIC PEROXIDE TYPE B, SOLID, TEMPERATURE CONTROLLED	5.2	P2		5.2 +1	122 181 274	LQ0	P520		MP4		
3113	ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED	5.2	P2		5.2	122 274	LQ0	P520		MP4		
3114	ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED	5.2	P2		5.2	122 274	LQ0	P520		MP4		
3115	ORGANIC PEROXIDE TYPE D, LIQUID, TEMPERATURE CONTROLLED	5.2	P2		5.2	122 274	LQ0	P520		MP4		
3116	ORGANIC PEROXIDE TYPE D, SOLID, TEMPERATURE CONTROLLED	5.2	P2		5.2	122 274	LQ0	P520		MP4		
3117	ORGANIC PEROXIDE TYPE E, LIQUID, TEMPERATURE CONTROLLED	5.2	P2		5.2	122 274	LQ0	P520		MP4		
3118	ORGANIC PEROXIDE TYPE E, SOLID, TEMPERATURE CONTROLLED	5.2	P2		5.2	122 274	LQ0	P520		MP4		
3119	ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED	5.2	P2		5.2	122 274	LQ0	P520 IBC520		MP4	T23	
3120	ORGANIC PEROXIDE TYPE F, SOLID, TEMPERATURE CONTROLLED	5.2	P2		5.2	122 274	LQ0	P520 IBC520		MP4	T23	
3121	OXIDIZING SOLID, WATER- REACTIVE, N.O.S.	5.1	OW	CARRIAGE PROHIBITED								
3122	TOXIC LIQUID, OXIDIZING, N.O.S.	6.1	TO1	I	6.1 +5.1	274	LQ0	P001		MP8 MP17		
3122	TOXIC LIQUID, OXIDIZING, N.O.S.	6.1	TO1	II	6.1 +5.1	274	LQ17	P001 IBC02		MP15		
3123	TOXIC LIQUID, WATER- REACTIVE, N.O.S.	6.1	TW1	I	6.1 +4.3	274	LQ0	P099		MP8 MP17		
3123	TOXIC LIQUID, WATER- REACTIVE, N.O.S.	6.1	TW1	II	6.1 +4.3	274	LQ17	P001 IBC02		MP15		
3124	TOXIC SOLID, SELF- HEATING, N.O.S.	6.1	TS	I	6.1 +4.2	274	LQ0	P002		MP18		
3124	TOXIC SOLID, SELF- HEATING, N.O.S.	6.1	TS	II	6.1 +4.2	274	LQ18	P002 IBC06		MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
S4AN(+)	TU3 TU13 TU30 TE12 TA2 TM4	AT	2	V1		CV15 CV22 CV24		539	3110	ORGANIC PEROXIDE TYPE F, SOLID
			1	V8		CV15 CV20 CV21 CV22 CV24	S4 S9 S16		3111	ORGANIC PEROXIDE TYPE B, LIQUID, TEMPERATURE CONTROLLED
			1	V8		CV15 CV20 CV21 CV22 CV24	S4 S9 S16		3112	ORGANIC PEROXIDE TYPE B, SOLID, TEMPERATURE CONTROLLED
			1	V8		CV15 CV20 CV21 CV22 CV24	S4 S8 S17		3113	ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED
			1	V8		CV15 CV20 CV21 CV22 CV24	S4 S8 S17		3114	ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED
			1	V8		CV15 CV21 CV22 CV24	S4 S18		3115	ORGANIC PEROXIDE TYPE D, LIQUID, TEMPERATURE CONTROLLED
			1	V8		CV15 CV21 CV22 CV24	S4 S18		3116	ORGANIC PEROXIDE TYPE D, SOLID, TEMPERATURE CONTROLLED
			1	V8		CV15 CV21 CV22 CV24	S4 S19		3117	ORGANIC PEROXIDE TYPE E, LIQUID, TEMPERATURE CONTROLLED
			1	V8		CV15 CV21 CV22 CV24	S4 S19		3118	ORGANIC PEROXIDE TYPE E, SOLID, TEMPERATURE CONTROLLED
L4BN(+)	TU3 TU13 TU30 TE12 TA2 TM4	AT	1	V8		CV15 CV21 CV22 CV24	S4	539	3119	ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED
S4AN(+)	TU3 TU13 TU30 TE12 TA2 TM4	AT	1	V8		CV15 CV21 CV22 CV24	S4	539	3120	ORGANIC PEROXIDE TYPE F, SOLID, TEMPERATURE CONTROLLED
CARRIAGE PROHIBITED									3121	OXIDIZING SOLID, WATER- REACTIVE, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	665	3122	TOXIC LIQUID, OXIDIZING, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	65	3122	TOXIC LIQUID, OXIDIZING, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	623	3123	TOXIC LIQUID, WATER- REACTIVE, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	623	3123	TOXIC LIQUID, WATER- REACTIVE, N.O.S.
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	664	3124	TOXIC SOLID, SELF- HEATING, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11 V12		CV13 CV28	S9 S19	64	3124	TOXIC SOLID, SELF- HEATING, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
3125	TOXIC SOLID, WATER-REACTIVE, N.O.S.	6.1	TW2	I	6.1 +4.3	274	LQ0	P099		MP18		
3125	TOXIC SOLID, WATER-REACTIVE, N.O.S.	6.1	TW2	II	6.1 +4.3	274	LQ18	P002 IBC06		MP10		
3126	SELF-HEATING SOLID, CORROSIVE, ORGANIC, N.O.S.	4.2	SC2	II	4.2 +8	274	LQ0	P410 IBC05		MP14		
3126	SELF-HEATING SOLID, CORROSIVE, ORGANIC, N.O.S.	4.2	SC2	III	4.2 +8	274	LQ0	P002 JBC08 R001	B3	MP14		
3127	SELF-HEATING SOLID, OXIDIZING, N.O.S.	4.2	SO	CARRIAGE PROHIBITED								
3128	SELF-HEATING SOLID, TOXIC, ORGANIC, N.O.S.	4.2	ST2	II	4.2 +6.1	274	LQ0	P410 IBC05		MP14		
3128	SELF-HEATING SOLID, TOXIC, ORGANIC, N.O.S.	4.2	ST2	III	4.2 +6.1	274	LQ0	P002 IBC08 R001	B3	MP14		
3129	WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.	4.3	WC1	I	4.3 +8	274	LQ0	P402 PR1		MP2		
3129	WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.	4.3	WC1	II	4.3 +8	274	LQ10	P402 IBC01 PR1		MP15		
3129	WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.	4.3	WC1	III	4.3 +8	274	LQ13	P001 IBC02 R001		MP15		
3130	WATER-REACTIVE LIQUID, TOXIC, N.O.S.	4.3	WT1	I	4.3 +6.1	274	LQ0	P402 PR1	RR4	MP2		
3130	WATER-REACTIVE LIQUID, TOXIC, N.O.S.	4.3	WT1	II	4.3 +6.1	274	LQ10	P402 IBC01 PR1	RR4 BB1	MP15		
3130	WATER-REACTIVE LIQUID, TOXIC, N.O.S.	4.3	WT1	III	4.3 +6.1	274	LQ13	P001 IBC02 R001		MP15		
3131	WATER-REACTIVE SOLID, CORROSIVE, N.O.S.	4.3	WC2	I	4.3 +8	274	LQ0	P403		MP2		
3131	WATER-REACTIVE SOLID, CORROSIVE, N.O.S.	4.3	WC2	II	4.3 +8	274	LQ11	P410 IBC06		MP14		
3131	WATER-REACTIVE SOLID, CORROSIVE, N.O.S.	4.3	WC2	III	4.3 +8	274	LQ12	P410 IBC08 R001	B4	MP14		
3132	WATER-REACTIVE SOLID, FLAMMABLE, N.O.S.	4.3	WF2	CARRIAGE PROHIBITED								
3133	WATER-REACTIVE SOLID, OXIDIZING, N.O.S.	4.3	WO	CARRIAGE PROHIBITED								
3134	WATER-REACTIVE SOLID, TOXIC, N.O.S.	4.3	WT2	I	4.3 +6.1	274	LQ0	P403		MP2		
3134	WATER-REACTIVE SOLID, TOXIC, N.O.S.	4.3	WT2	II	4.3 +6.1	274	LQ11	P410 IBC05		MP14		
3134	WATER-REACTIVE SOLID, TOXIC, N.O.S.	4.3	WT2	III	4.3 +6.1	274	LQ12	P410 IBC08 R001	B4	MP14		
3135	WATER-REACTIVE SOLID, SELF-HEATING, N.O.S.	4.3	WS	CARRIAGE PROHIBITED								
3136	TRIFLUOROMETHANE, REFRIGERATED LIQUID	2	3A		2.2	593	LQ1	P203		MP9	T75	
3137	OXIDIZING SOLID, FLAMMABLE, N.O.S.	5.1	OF	CARRIAGE PROHIBITED								

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	642	3125	TOXIC SOLID, WATER-REACTIVE, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11 V12		CV13 CV28	S9 S19	642	3125	TOXIC SOLID, WATER-REACTIVE, N.O.S.
SGAN		AT	2	V1				48	3126	SELF-HEATING SOLID, CORROSIVE, ORGANIC, N.O.S.
SGAN		AT	3	V1				48	3126	SELF-HEATING SOLID, CORROSIVE, ORGANIC, N.O.S.
CARRIAGE PROHIBITED									3127	SELF-HEATING SOLID, OXIDIZING, N.O.S.
SGAN		AT	2	V1		CV28		46	3128	SELF-HEATING SOLID, TOXIC, ORGANIC, N.O.S.
SGAN		AT	3	V1		CV28		46	3128	SELF-HEATING SOLID, TOXIC, ORGANIC, N.O.S.
L10DH	TU14 TE1 TE21 TM2	AT	0	V1		CV23	S20	X382	3129	WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.
L4DH	TU14 TE1 TE21 TM2	AT	0	V1		CV23		382	3129	WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.
L4DH	TU14 TE1 TE21 TM2	AT	0	V1		CV23		382	3129	WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.
L10DH	TU14 TE1 TE21 TM2	AT	0	V1		CV23 CV28	S20	X362	3130	WATER-REACTIVE LIQUID, TOXIC, N.O.S.
L4DH	TU14 TE1 TE21 TM2	AT	0	V1		CV23 CV28		362	3130	WATER-REACTIVE LIQUID, TOXIC, N.O.S.
L4DH	TU14 TE1 TE21 TM2	AT	0	V1		CV23 CV28		362	3130	WATER-REACTIVE LIQUID, TOXIC, N.O.S.
			0	V1		CV23	S20		3131	WATER-REACTIVE SOLID, CORROSIVE, N.O.S.
SGAN		AT	0	V1 V12		CV23		482	3131	WATER-REACTIVE SOLID, CORROSIVE, N.O.S.
SGAN		AT	0	V1		CV23		482	3131	WATER-REACTIVE SOLID, CORROSIVE, N.O.S.
CARRIAGE PROHIBITED									3132	WATER-REACTIVE SOLID, FLAMMABLE, N.O.S.
CARRIAGE PROHIBITED									3133	WATER-REACTIVE SOLID, OXIDIZING, N.O.S.
			0	V1		CV23 CV28	S20		3134	WATER-REACTIVE SOLID, TOXIC, N.O.S.
SGAN		AT	0	V1		CV23 CV28		462	3134	WATER-REACTIVE SOLID, TOXIC, N.O.S.
SGAN		AT	0	V1		CV23 CV28		462	3134	WATER-REACTIVE SOLID, TOXIC, N.O.S.
CARRIAGE PROHIBITED									3135	WATER-REACTIVE SOLID, SELF-HEATING, N.O.S.
RxBN	TU19	AT	3	V5 V7		CV9 CV11	S20	22	3136	TRIFLUOROMETHANE, REFRIGERATED LIQUID
CARRIAGE PROHIBITED									3137	OXIDIZING SOLID, FLAMMABLE, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3138	ETHYLENE, ACETYLENE AND PROPYLENE MIXTURE, REFRIGERATED LIQUID containing at least 71.5% ethylene with not more than 22.5% acetylene and not more than 6% propylene	2	3F		2.1		LQ0	P203		MP9	T75	
3139	OXIDIZING LIQUID, N.O.S.	5.1	O1	I	5.1	274	LQ0	P502		MP2		
3139	OXIDIZING LIQUID, N.O.S.	5.1	O1	II	5.1	274	LQ10	P504 IBC02		MP2		
3139	OXIDIZING LIQUID, N.O.S.	5.1	O1	III	5.1	274	LQ13	P504 IBC02 R001		MP2		
3140	ALKALOIDS, LIQUID, N.O.S. or ALKALOID SALTS, LIQUID, N.O.S.	6.1	T1	I	6.1	43 274	LQ0	P001		MP8 MP17		
3140	ALKALOIDS, LIQUID, N.O.S. or ALKALOID SALTS, LIQUID, N.O.S.	6.1	T1	II	6.1	43 274	LQ17	P001 IBC02		MP15		
3140	ALKALOIDS, LIQUID, N.O.S. or ALKALOID SALTS, LIQUID, N.O.S.	6.1	T1	III	6.1	43 274	LQ19	P001 IBC03 LP01 R001		MP15		
3141	ANTIMONY COMPOUND, INORGANIC, LIQUID, N.O.S.	6.1	T4	III	6.1	45 274 512	LQ19	P001 IBC03 LP01 R001		MP15		
3142	DISINFECTANT, LIQUID, TOXIC, N.O.S.	6.1	T1	I	6.1	274	LQ0	P001		MP8 MP17		
3142	DISINFECTANT, LIQUID, TOXIC, N.O.S.	6.1	T1	II	6.1	274	LQ17	P001 IBC02		MP15		
3142	DISINFECTANT, LIQUID, TOXIC, N.O.S.	6.1	T1	III	6.1	274	LQ19	P001 IBC03 LP01 R001		MP15		
3143	DYE, SOLID, TOXIC, N.O.S. or DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.	6.1	T2	I	6.1	274	LQ0	P002 IBC07		MP18		
3143	DYE, SOLID, TOXIC, N.O.S. or DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.	6.1	T2	II	6.1	274	LQ18	P002 IBC08	B4	MP10		
3143	DYE, SOLID, TOXIC, N.O.S. or DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.	6.1	T2	III	6.1	274	LQ9	P002 IBC08 LP02 R001	B3	MP10		
3144	NICOTINE COMPOUND, LIQUID, N.O.S. or NICOTINE PREPARATION, LIQUID, N.O.S.	6.1	T1	I	6.1	43 274	LQ0	P001		MP8 MP17		
3144	NICOTINE COMPOUND, LIQUID, N.O.S. or NICOTINE PREPARATION, LIQUID, N.O.S.	6.1	T1	II	6.1	43 274	LQ17	P001 IBC02		MP15		
3144	NICOTINE COMPOUND, LIQUID, N.O.S. or NICOTINE PREPARATION, LIQUID, N.O.S.	6.1	T1	III	6.1	43 274	LQ19	P001 IBC03 LP01 R001		MP15		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
RxBN	TU18	FL	2	V5 V7		CV9 CV11	S2 S17	223	3138	ETHYLENE, ACETYLENE AND PROPYLENE MIXTURE, REFRIGERATED LIQUID containing at least 71.5% ethylene with not more than 22.5% acetylene and not more than 6% propylene
			1			CV24	S20		3139	OXIDIZING LIQUID, N.O.S.
			2			CV24			3139	OXIDIZING LIQUID, N.O.S.
			3			CV24			3139	OXIDIZING LIQUID, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3140	ALKALOIDS, LIQUID, N.O.S. or ALKALOID SALTS, LIQUID, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3140	ALKALOIDS, LIQUID, N.O.S. or ALKALOID SALTS, LIQUID, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3140	ALKALOIDS, LIQUID, N.O.S. or ALKALOID SALTS, LIQUID, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3141	ANTIMONY COMPOUND, INORGANIC, LIQUID, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3142	DISINFECTANT, LIQUID, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3142	DISINFECTANT, LIQUID, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3142	DISINFECTANT, LIQUID, TOXIC, N.O.S.
S10AH L10CH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3143	DYE, SOLID, TOXIC, N.O.S. or DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3143	DYE, SOLID, TOXIC, N.O.S. or DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3143	DYE, SOLID, TOXIC, N.O.S. or DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3144	NICOTINE COMPOUND, LIQUID, N.O.S. or NICOTINE PREPARATION, LIQUID, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3144	NICOTINE COMPOUND, LIQUID, N.O.S. or NICOTINE PREPARATION, LIQUID, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3144	NICOTINE COMPOUND, LIQUID, N.O.S. or NICOTINE PREPARATION, LIQUID, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.16	4.2.4.2	4.2.4.3
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3145	ALKYLPHENOLS, LIQUID, N.O.S. (including C <sub>7</sub> -C <sub>12</sub> homologues)	8	C3	I	8	274	LQ20	P001		MP8 MP17	T14	TP2 TP9
3145	ALKYLPHENOLS, LIQUID, N.O.S. (including C <sub>7</sub> -C <sub>12</sub> homologues)	8	C3	II	8	274	LQ22	P001 IBC02		MP15	T11	TP2 TP27
3145	ALKYLPHENOLS, LIQUID, N.O.S. (including C <sub>7</sub> -C <sub>12</sub> homologues)	8	C3	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3146	ORGANOTIN COMPOUND, SOLID, N.O.S.	6.1	T3	I	6.1	43 274	LQ0	P002 IBC07		MP18		
3146	ORGANOTIN COMPOUND, SOLID, N.O.S.	6.1	T3	II	6.1	43 274	LQ18	P002 IBC08	B4	MP10		
3146	ORGANOTIN COMPOUND, SOLID, N.O.S.	6.1	T3	III	6.1	43 274	LQ9	P002 IBC08 LP02 R001	B3	MP10		
3147	DYE, SOLID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S.	8	C10	I	8	274	LQ21	P002 IBC07		MP18		
3147	DYE, SOLID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S.	8	C10	II	8	274	LQ23	P002 IBC08	B4	MP10		
3147	DYE, SOLID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S.	8	C10	III	8	274	LQ24	P002 IBC08 LP02 R001	B3	MP10		
3148	WATER-REACTIVE LIQUID, N.O.S.	4.3	W1	I	4.3	274	LQ0	P402 PR1		MP2		
3148	WATER-REACTIVE LIQUID, N.O.S.	4.3	W1	II	4.3	274	LQ10	P402 IBC01 PR1		MP15		
3148	WATER-REACTIVE LIQUID, N.O.S.	4.3	W1	III	4.3	274	LQ13	P001 IBC02 R001		MP15		
3149	HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE with acid(s), water and not more than 5% peroxyacetic acid, STABILIZED	5.1	OC1	II	5.1 +8	196 553	LQ10	P504 IBC02	B5	MP15	T7	TP2 TP6 TP24
3150	DEVICES, SMALL, HYDROCARBON GAS POWERED or HYDROCARBON GAS REFILLS FOR SMALL DEVICES with release device	2	6F		2.1		LQ0	P206		MP9		
3151	POLYHALOGENATED BIPHENYLS, LIQUID or POLYHALOGENATED TERPHENYLS, LIQUID	9	M2	II	9	203 305	LQ26 LQ29	P906 IBC02		MP15		
3152	POLYHALOGENATED BIPHENYLS, SOLID or POLYHALOGENATED TERPHENYLS, SOLID	9	M2	II	9	203 305	LQ25	P906 IBC08	B4	MP10		
3153	PERFLUORO(METHYL VINYL ETHER)	2	2F		2.1		LQ0	P200		MP9	T50	
3154	PERFLUORO(ETHYL VINYL ETHER)	2	2F		2.1		LQ0	P200		MP9		
3155	PENTACHLOROPHENOL	6.1	T2	II	6.1	43	LQ18	P002 IBC08	B4	MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
L10BH	TE1	AT	1				S20	88	3145	ALKYLPHENOLS, LIQUID, N.O.S. (including C <sub>7</sub> -C <sub>12</sub> homologues)
L4BN		AT	2					80	3145	ALKYLPHENOLS, LIQUID, N.O.S. (including C <sub>7</sub> -C <sub>12</sub> homologues)
L4BN		AT	3					80	3145	ALKYLPHENOLS, LIQUID, N.O.S. (including C <sub>7</sub> -C <sub>12</sub> homologues)
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3146	ORGANOTIN COMPOUND, SOLID, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3146	ORGANOTIN COMPOUND, SOLID, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3146	ORGANOTIN COMPOUND, SOLID, N.O.S.
S10AN L10BH	TE1	AT	1	V10 V12			S20	88	3147	DYE, SOLID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S.
SGAN L4BN		AT	2	V11				80	3147	DYE, SOLID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S.
SGAV L4BN		AT	3		VV9b			80	3147	DYE, SOLID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S.
L10DH	TU14 TE1 TE21 TM2	AT	0	V1		CV23	S20	X323	3148	WATER-REACTIVE LIQUID, N.O.S.
L4DH	TU14 TE1 TE21 TM2	AT	0	V1		CV23		323	3148	WATER-REACTIVE LIQUID, N.O.S.
L4DH	TU14 TE1 TE21 TM2	AT	0	V1		CV23		323	3148	WATER-REACTIVE LIQUID, N.O.S.
L4BV(+)	TU3 TC2 TE8 TE11 TT1	AT	2			CV24		58	3149	HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE with acid(s), water and not more than 5% peroxyacetic acid, STABILIZED
			2			CV9	S2		3150	DEVICES, SMALL, HYDROCARBON GAS POWERED or HYDROCARBON GAS REFILLS FOR SMALL DEVICES with release device
L4BH	TU15 TE1 TE15	AT	0	V1		CV1 CV13 CV28	S19	90	3151	POLYHALOGENATED BIPHENYLS, LIQUID or POLYHALOGENATED TERPHENYLS, LIQUID
S4AH L4BH	TU15 TE1 TE15	AT	0	V1		CV1 CV13 CV28	S19	90	3152	POLYHALOGENATED BIPHENYLS, SOLID or POLYHALOGENATED TERPHENYLS, SOLID
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	3153	PERFLUORO(METHYL VINYL ETHER)
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	3154	PERFLUORO(ETHYL VINYL ETHER)
SGAH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3155	PENTACHLOROPHENOL

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3156	COMPRESSED GAS, OXIDIZING, N.O.S.	2	10		2.2 +5.1	274	LQ0	P200		MP9		
3157	LIQUEFIED GAS, OXIDIZING, N.O.S.	2	20		2.2 +5.1	274	LQ0	P200		MP9		
3158	GAS, REFRIGERATED LIQUID, N.O.S.	2	3A		2.2	274 593	LQ1	P203		MP9	T75	
3159	1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)	2	2A		2.2		LQ1	P200		MP9	T50	
3160	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	2	2TF		2.3 +2.1	274	LQ0	P200		MP9		
3161	LIQUEFIED GAS, FLAMMABLE, N.O.S.	2	2F		2.1	274	LQ0	P200		MP9	T50	
3162	LIQUEFIED GAS, TOXIC, N.O.S.	2	2T		2.3	274	LQ0	P200		MP9		
3163	LIQUEFIED GAS, N.O.S.	2	2A		2.2	274	LQ1	P200		MP9	T50	
3164	ARTICLES, PRESSURIZED, PNEUMATIC or HYDRAULIC (containing non-flammable gas)	2	6A		2.2	283 594	LQ0	P003		MP9		
3165	AIRCRAFT HYDRAULIC POWER UNIT FUEL TANK (containing a mixture of anhydrous hydrazine and methylhydrazine) (M86 fuel)	3	FTC	I	3 +6.1 +8		LQ0	P301		MP7		
3166	Engine, internal combustion or vehicle, flammable gas powered or vehicle, flammable liquid powered	9	M11	NOT SUBJECT TO ADR								
3167	GAS SAMPLE, NON-PRESSURIZED, FLAMMABLE, N.O.S., not refrigerated liquid	2	7F		2.1	274	LQ0	P201		MP9		
3168	GAS SAMPLE, NON-PRESSURIZED, TOXIC, FLAMMABLE, N.O.S., not refrigerated liquid	2	7TF		2.3 +2.1	274	LQ0	P201		MP9		
3169	GAS SAMPLE, NON-PRESSURIZED, TOXIC, N.O.S., not refrigerated liquid	2	7T		2.3	274	LQ0	P201		MP9		
3170	ALUMINIUM SMELTING BY PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS	4.3	W2	II	4.3	244	LQ11	P410 IBC07		MP14		
3170	ALUMINIUM SMELTING BY PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS	4.3	W2	III	4.3	244	LQ12	P002 IBC08 R001	B4	MP14		
3171	Battery-powered vehicle or Battery-powered equipment	9	M11	NOT SUBJECT TO ADR								
3172	TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S.	6.1	T1	I	6.1	210 274	LQ0	P001		MP8 MP17		
3172	TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S.	6.1	T1	II	6.1	210 274	LQ17	P001 IBC02		MP15		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	
CxBN(M)		AT	3	V7		CV9 CV10		25	3156	COMPRESSED GAS, OXIDIZING, N.O.S.
PxBN(M)		AT	3	V7		CV9 CV10		25	3157	LIQUEFIED GAS, OXIDIZING, N.O.S.
RxBN	TU19	AT	3	V5 V7		CV9 CV11	S20	22	3158	GAS, REFRIGERATED LIQUID, N.O.S.
PxBN(M)		AT	3	V7		CV9 CV10		20	3159	1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)
PxBH(M)	TU6 TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	3160	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	3161	LIQUEFIED GAS, FLAMMABLE, N.O.S.
PxBH(M)	TU6 TE1	AT	1	V7		CV9 CV10	S7 S17	26	3162	LIQUEFIED GAS, TOXIC, N.O.S.
PxBN(M)		AT	3	V7		CV9 CV10		20	3163	LIQUEFIED GAS, N.O.S.
			3			CV9			3164	ARTICLES, PRESSURIZED, PNEUMATIC or HYDRAULIC (containing non-flammable gas)
			1			CV13 CV28	S2 S19		3165	AIRCRAFT HYDRAULIC POWER UNIT FUEL TANK (containing a mixture of anhydrous hydrazine and methylhydrazine) (M86 fuel)
NOT SUBJECT TO ADR									3166	Engine, internal combustion or vehicle, flammable gas powered or vehicle, flammable liquid powered
			2			CV9	S2		3167	GAS SAMPLE, NON-PRESSURIZED, FLAMMABLE, N.O.S., not refrigerated liquid
			1			CV9	S2 S7		3168	GAS SAMPLE, NON-PRESSURIZED, TOXIC, FLAMMABLE, N.O.S., not refrigerated liquid
			1			CV9	S7		3169	GAS SAMPLE, NON-PRESSURIZED, TOXIC, N.O.S., not refrigerated liquid
SGAN		AT	2	V1 V12	VV3	CV23		423	3170	ALUMINIUM SMELTING BY PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS
SGAN		AT	3	V1	VV1 VV5	CV23		423	3170	ALUMINIUM SMELTING BY PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS
NOT SUBJECT TO ADR									3171	Battery-powered vehicle or Battery-powered equipment
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3172	TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3172	TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
3172	TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S.	6.1	T1	III	6.1	210 274	LQ19	P001 IBC03 LP01 R001		MP15		
3172	TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.	6.1	T2	I	6.1	210 274	LQ0	P002 IBC07		MP18		
3172	TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.	6.1	T2	II	6.1	210 274	LQ18	P002 IBC08	B4	MP10		
3172	TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.	6.1	T2	III	6.1	210 274	LQ9	P002 IBC08 R001	B3	MP10		
3174	TITANIUM DISULPHIDE	4.2	S4	III	4.2		LQ0	P002 IBC08 LP02 R001	B3	MP14		
3175	SOLIDS or mixtures of solids (such as preparations and wastes) CONTAINING FLAMMABLE LIQUID, N.O.S. having a flash-point up to 61°C	4.1	F1	II	4.1	216 274	LQ8	P002 IBC06 R001	PP9	MP11		
3176	FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S.	4.1	F2	II	4.1	274	LQ0				T3	TP3 TP9 TP26
3176	FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S.	4.1	F2	III	4.1	274	LQ0				T1	TP3 TP9 TP26
3178	FLAMMABLE SOLID, INORGANIC, N.O.S.	4.1	F3	II	4.1	274	LQ8	P002 IBC08	B4	MP11		
3178	FLAMMABLE SOLID, INORGANIC, N.O.S.	4.1	F3	III	4.1	274	LQ9	P002 IBC08 LP02 R001	B3	MP11		
3179	FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S.	4.1	FT2	II	4.1 +6.1	274	LQ0	P002 IBC06		MP10		
3179	FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S.	4.1	FT2	III	4.1 +6.1	274	LQ0	P002 IBC06 R001		MP10		
3180	FLAMMABLE SOLID, CORROSIVE, INORGANIC, N.O.S.	4.1	FC2	II	4.1 +8	274	LQ0	P002 IBC06		MP10		
3180	FLAMMABLE SOLID, CORROSIVE, INORGANIC, N.O.S.	4.1	FC2	III	4.1 +8	274	LQ0	P002 IBC06 R001		MP10		
3181	METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.	4.1	F3	II	4.1	274	LQ8	P002 IBC08	B4	MP11		
3181	METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.	4.1	F3	III	4.1	274	LQ9	P002 IBC08 LP02 R001	B3	MP11		
3182	METAL HYDRIDES, FLAMMABLE, N.O.S.	4.1	F3	II	4.1	274 554	LQ8	P410 IBC04	PP40	MP11		
3182	METAL HYDRIDES, FLAMMABLE, N.O.S.	4.1	F3	III	4.1	274 554	LQ9	P002 IBC04 R001		MP11		
3183	SELF-HEATING LIQUID, ORGANIC, N.O.S.	4.2	S1	II	4.2	274	LQ0	P001 IBC02		MP15		
3183	SELF-HEATING LIQUID, ORGANIC, N.O.S.	4.2	S1	III	4.2	274	LQ0	P001 IBC02 R001		MP15		
3184	SELF-HEATING LIQUID, TOXIC, ORGANIC, N.O.S.	4.2	ST1	II	4.2 +6.1	274	LQ0	P402 IBC02		MP15		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3172	TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S.
S10AH L10CH	TU15 TE1 TE19	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3172	TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3172	TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3172	TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.
SGAN		AT	3	V1				40	3174	TITANIUM DISULPHIDE
			2	V11 V12	VV3			40	3175	SOLIDS or mixtures of solids (such as preparations and wastes) CONTAINING FLAMMABLE LIQUID, N.O.S. having a flash-point up to 61°C
LGBV	TU27 TE4 TE6	AT	2					44	3176	FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S.
LGBV	TU27 TE4 TE6	AT	3					44	3176	FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S.
SGAN		AT	2	V11				40	3178	FLAMMABLE SOLID, INORGANIC, N.O.S.
SGAV		AT	3		VV1			40	3178	FLAMMABLE SOLID, INORGANIC, N.O.S.
SGAN		AT	2	V11 V12		CV28		46	3179	FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S.
SGAN		AT	3	V12		CV28		46	3179	FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S.
SGAN		AT	2	V11 V12				48	3180	FLAMMABLE SOLID, CORROSIVE, INORGANIC, N.O.S.
SGAN		AT	3	V12				48	3180	FLAMMABLE SOLID, CORROSIVE, INORGANIC, N.O.S.
SGAN		AT	2	V11				40	3181	METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.
SGAV		AT	3		VV1			40	3181	METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.
SGAN		AT	2					40	3182	METAL HYDRIDES, FLAMMABLE, N.O.S.
SGAV		AT	3		VV1			40	3182	METAL HYDRIDES, FLAMMABLE, N.O.S.
L4DH	TU14 TE1 TE21	AT	2	V1				30	3183	SELF-HEATING LIQUID, ORGANIC, N.O.S.
L4DH	TU14 TE1 TE21	AT	3	V1				30	3183	SELF-HEATING LIQUID, ORGANIC, N.O.S.
L4DH	TU14 TE1 TE21	AT	2	V1		CV28		36	3184	SELF-HEATING LIQUID, TOXIC, ORGANIC, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3184	SELF-HEATING LIQUID, TOXIC, ORGANIC, N.O.S.	4.2	ST1	III	4.2 +6.1	274	LQ0	P001 IBC02 R001		MP15		
3185	SELF-HEATING LIQUID, CORROSIVE, ORGANIC, N.O.S.	4.2	SC1	II	4.2 +8	274	LQ0	P402 IBC02		MP15		
3185	SELF-HEATING LIQUID, CORROSIVE, ORGANIC, N.O.S.	4.2	SC1	III	4.2 +8	274	LQ0	P001 IBC02 R001		MP15		
3186	SELF-HEATING LIQUID, INORGANIC, N.O.S.	4.2	S3	II	4.2	274	LQ0	P001 IBC02		MP15		
3186	SELF-HEATING LIQUID, INORGANIC, N.O.S.	4.2	S3	III	4.2	274	LQ0	P001 IBC02 R001		MP15		
3187	SELF-HEATING LIQUID, TOXIC, INORGANIC, N.O.S.	4.2	ST3	II	4.2 +6.1	274	LQ0	P402 IBC02		MP15		
3187	SELF-HEATING LIQUID, TOXIC, INORGANIC, N.O.S.	4.2	ST3	III	4.2 +6.1	274	LQ0	P001 IBC02 R001		MP15		
3188	SELF-HEATING LIQUID, CORROSIVE, INORGANIC, N.O.S.	4.2	SC3	II	4.2 +8	274	LQ0	P402 IBC02		MP15		
3188	SELF-HEATING LIQUID, CORROSIVE, INORGANIC, N.O.S.	4.2	SC3	III	4.2 +8	274	LQ0	P001 IBC02 R001		MP15		
3189	METAL POWDER, SELF-HEATING, N.O.S.	4.2	S4	II	4.2	274 555	LQ0	P410 IBC06		MP14		
3189	METAL POWDER, SELF-HEATING, N.O.S.	4.2	S4	III	4.2	274 555	LQ0	P002 IBC08 LP02 R001	B3	MP14		
3190	SELF-HEATING SOLID, INORGANIC, N.O.S.	4.2	S4	II	4.2	274	LQ0	P410 IBC06		MP14		
3190	SELF-HEATING SOLID, INORGANIC, N.O.S.	4.2	S4	III	4.2	274	LQ0	P002 IBC08 LP02 R001	B3	MP14		
3191	SELF-HEATING SOLID, TOXIC, INORGANIC, N.O.S.	4.2	ST4	II	4.2 +6.1	274	LQ0	P410 IBC05		MP14		
3191	SELF-HEATING SOLID, TOXIC, INORGANIC, N.O.S.	4.2	ST4	III	4.2 +6.1	274	LQ0	P002 IBC08 R001	B3	MP14		
3192	SELF-HEATING SOLID, CORROSIVE, INORGANIC, N.O.S.	4.2	SC4	II	4.2 +8	274	LQ0	P410 IBC05		MP14		
3192	SELF-HEATING SOLID, CORROSIVE, INORGANIC, N.O.S.	4.2	SC4	III	4.2 +8	274	LQ0	P002 IBC08 R001	B3	MP14		
3194	PYROPHORIC LIQUID, INORGANIC, N.O.S.	4.2	S3	I	4.2	274	LQ0	P400 PR1		MP2		
3200	PYROPHORIC SOLID, INORGANIC, N.O.S.	4.2	S4	I	4.2	274	LQ0	P404		MP13		
3203	PYROPHORIC ORGANOMETALLIC COMPOUND, WATER-REACTIVE, N.O.S., liquid	4.2	SW	I	4.2 +4.3	274 527	LQ0	P400 PR1		MP2	T21	TP2 TP7 TP9
3203	PYROPHORIC ORGANOMETALLIC COMPOUND, WATER-REACTIVE, N.O.S., solid	4.2	SW	I	4.2 +4.3	274 527	LQ0	P404 PR1		MP2	T21	TP2 TP7 TP9
3205	ALKALINE EARTH METAL ALCOHOLATES, N.O.S.	4.2	S4	II	4.2	183 274	LQ0	P410 IBC06		MP14		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
L4DH	TU14 TE1 TE21	AT	3	V1		CV28		36	3184	SELF-HEATING LIQUID, TOXIC, ORGANIC, N.O.S.
L4DH	TU14 TE1 TE21	AT	2	V1				38	3185	SELF-HEATING LIQUID, CORROSIVE, ORGANIC, N.O.S.
L4DH	TU14 TE1 TE21	AT	3	V1				38	3185	SELF-HEATING LIQUID, CORROSIVE, ORGANIC, N.O.S.
L4DH	TU14 TE1 TE21	AT	2	V1				30	3186	SELF-HEATING LIQUID, INORGANIC, N.O.S.
L4DH	TU14 TE1 TE21	AT	3	V1				30	3186	SELF-HEATING LIQUID, INORGANIC, N.O.S.
L4DH	TU14 TE1 TE21	AT	2	V1		CV28		36	3187	SELF-HEATING LIQUID, TOXIC, INORGANIC, N.O.S.
L4DH	TU14 TE1 TE21	AT	3	V1		CV28		36	3187	SELF-HEATING LIQUID, TOXIC, INORGANIC, N.O.S.
L4DH	TU14 TE1 TE21	AT	2	V1				38	3188	SELF-HEATING LIQUID, CORROSIVE, INORGANIC, N.O.S.
L4DH	TU14 TE1 TE21	AT	3	V1				38	3188	SELF-HEATING LIQUID, CORROSIVE, INORGANIC, N.O.S.
SGAN		AT	2	V1 V12				40	3189	METAL POWDER, SELF- HEATING, N.O.S.
SGAN		AT	3	V1	VV4			40	3189	METAL POWDER, SELF- HEATING, N.O.S.
SGAN		AT	2	V1 V12				40	3190	SELF-HEATING SOLID, INORGANIC, N.O.S.
SGAN		AT	3	V1	VV4			40	3190	SELF-HEATING SOLID, INORGANIC, N.O.S.
SGAN		AT	2	V1		CV28		46	3191	SELF-HEATING SOLID, TOXIC, INORGANIC, N.O.S.
SGAN		AT	3	V1		CV28		46	3191	SELF-HEATING SOLID, TOXIC, INORGANIC, N.O.S.
SGAN		AT	2	V1				48	3192	SELF-HEATING SOLID, CORROSIVE, INORGANIC, N.O.S.
SGAN		AT	3	V1				48	3192	SELF-HEATING SOLID, CORROSIVE, INORGANIC, N.O.S.
L21DH	TU14 TC1 TE1 TE21 TM1	AT	0	V1			S20	333	3194	PYROPHORIC LIQUID, INORGANIC, N.O.S.
			0	V1			S20		3200	PYROPHORIC SOLID, INORGANIC, N.O.S.
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	V1			S20	X333	3203	PYROPHORIC ORGANOMETALLIC COMPOUND, WATER- REACTIVE, N.O.S., liquid
L21DH	TU4 TU14 TU22 TC1 TE1 TE21 TM1	AT	0	V1			S20	X333	3203	PYROPHORIC ORGANOMETALLIC COMPOUND, WATER- REACTIVE, N.O.S., solid
SGAN		AT	2	V1 V12				40	3205	ALKALINE EARTH METAL ALCOHOLATES, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
3205	ALKALINE EARTH METAL ALCOHOLATES, N.O.S.	4.2	S4	III	4.2	183 274	LQ0	P002 IBC08 LP02 R001	B3	MP14		
3206	ALKALI METAL ALCOHOLATES, SELF-HEATING, CORROSIVE, N.O.S.	4.2	SC4	II	4.2 +8	182 274	LQ0	P410 IBC05		MP14		
3206	ALKALI METAL ALCOHOLATES, SELF-HEATING, CORROSIVE, N.O.S.	4.2	SC4	III	4.2 +8	183 274	LQ0	P002 IBC08 R001	B3	MP14		
3207	ORGANOMETALLIC COMPOUND or ORGANOMETALLIC COMPOUND SOLUTION or ORGANOMETALLIC COMPOUND DISPERSION, WATER-REACTIVE, FLAMMABLE, N.O.S.	4.3	WF1	I	4.3 +3	274 556	LQ0	P402 IBC99 PR1		MP2	T13	TP2 TP7 TP9
3207	ORGANOMETALLIC COMPOUND or ORGANOMETALLIC COMPOUND SOLUTION or ORGANOMETALLIC COMPOUND DISPERSION, WATER-REACTIVE, FLAMMABLE, N.O.S.	4.3	WF1	II	4.3 +3	274 556	LQ10	P001 IBC01		MP15	T7	TP2 TP7
3207	ORGANOMETALLIC COMPOUND or ORGANOMETALLIC COMPOUND SOLUTION or ORGANOMETALLIC COMPOUND DISPERSION, WATER-REACTIVE, FLAMMABLE, N.O.S.	4.3	WF1	III	4.3 +3	274 556	LQ13	P001 IBC02 R001		MP15	T7	TP2 TP7
3208	METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.	4.3	W2	I	4.3	274 557	LQ0	P403 IBC99		MP2		
3208	METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.	4.3	W2	II	4.3	274 557	LQ11	P410 IBC07		MP14		
3208	METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.	4.3	W2	III	4.3	274 557	LQ12	P410 IBC08 R001	B4	MP14		
3209	METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S.	4.3	WS	I	4.3 +4.2	274 558	LQ0	P403		MP2		
3209	METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S.	4.3	WS	II	4.3 +4.2	274 558	LQ11	P410 IBC05		MP14		
3209	METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S.	4.3	WS	III	4.3 +4.2	274 558	LQ12	P410 IBC08 R001	B4	MP14		
3210	CHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	II	5.1	274 605	LQ10	P504 IBC02		MP2	T4	TP1
3210	CHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	III	5.1	274 605	LQ13	P504 IBC02 R001		MP2	T4	TP1
3211	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	II	5.1	274	LQ10	P504 IBC02		MP2	T4	TP1

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAN		AT	3	V1				40	3205	ALKALINE EARTH METAL ALCOHOLATES, N.O.S.
SGAN		AT	2	V1				48	3206	ALKALI METAL ALCOHOLATES, SELF-HEATING, CORROSIVE, N.O.S.
SGAN		AT	3	V1				48	3206	ALKALI METAL ALCOHOLATES, SELF-HEATING, CORROSIVE, N.O.S.
L10DH	TU4 TU14 TU22 TE1 TE21 TM2	FL	0	V1		CV23	S2 S20	X323	3207	ORGANOMETALLIC COMPOUND or ORGANOMETALLIC COMPOUND SOLUTION or ORGANOMETALLIC COMPOUND DISPERSION, WATER-REACTIVE, FLAMMABLE, N.O.S.
L4DH	TU4 TU14 TU22 TE1 TE21 TM2	FL	0	V1		CV23	S2	323	3207	ORGANOMETALLIC COMPOUND or ORGANOMETALLIC COMPOUND SOLUTION or ORGANOMETALLIC COMPOUND DISPERSION, WATER-REACTIVE, FLAMMABLE, N.O.S.
L4DH	TU14 TE1 TE21 TM2	FL	0	V1		CV23	S2	323	3207	ORGANOMETALLIC COMPOUND or ORGANOMETALLIC COMPOUND SOLUTION or ORGANOMETALLIC COMPOUND DISPERSION, WATER-REACTIVE, FLAMMABLE, N.O.S.
			1	V1		CV23	S20		3208	METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.
SGAN		AT	2	V1 V12		CV23		423	3208	METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.
SGAN		AT	3	V1	VV5	CV23		423	3208	METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.
			1	V1		CV23	S20		3209	METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S.
SGAN		AT	2	V1		CV23		423	3209	METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S.
SGAN		AT	3	V1	VV5	CV23		423	3209	METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S.
L4BN	TU3	AT	2			CV24		50	3210	CHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
LGBV	TU3	AT	3			CV24		50	3210	CHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
L4BN	TU3	AT	2	V6		CV24		50	3211	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3211	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	III	5.1	274	LQ13	P504 IBC02 R001		MP2	T4	TP1
3212	HYPOCHLORITES, INORGANIC, N.O.S.	5.1	O2	II	5.1	274 559	LQ11	P002 IBC08	B4	MP10		
3213	BROMATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	II	5.1	274 604	LQ10	P504 IBC02		MP2	T4	TP1
3213	BROMATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	III	5.1	274 604	LQ13	P504 IBC02 R001		MP15	T4	TP1
3214	PERMANGANATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	II	5.1	274 608	LQ10	P504 IBC02		MP2	T4	TP1
3215	PERSULPHATES, INORGANIC, N.O.S.	5.1	O2	III	5.1	274	LQ12	P002 IBC08 LP02 R001	B3	MP10		
3216	PERSULPHATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	III	5.1	274	LQ13	P504 IBC02 R001		MP15	T4	TP1 TP29
3218	NITRATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	II	5.1	270 274 511	LQ10	P504 IBC02		MP15	T4	TP1
3218	NITRATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	III	5.1	270 274 511	LQ13	P504 IBC02 R001		MP15	T4	TP1
3219	NITRITES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	II	5.1	103 274	LQ10	P504 IBC01		MP15	T4	TP1
3219	NITRITES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	O1	III	5.1	103 274	LQ13	P504 IBC02 R001		MP15	T4	TP1
3220	PENTAFLUOROETHANE (REFRIGERANT GAS R 125)	2	2A		2.2		LQ1	P200		MP9	T50	
3221	SELF-REACTIVE LIQUID TYPE B	4.1	SR1		4.1 +1	181 194 274	LQ14	P520	PP21	MP2		
3222	SELF-REACTIVE SOLID TYPE B	4.1	SR1		4.1 +1	181 194 274	LQ15	P520	PP21	MP2		
3223	SELF-REACTIVE LIQUID TYPE C	4.1	SR1		4.1	194 274	LQ14	P520	PP21	MP2		
3224	SELF-REACTIVE SOLID TYPE C	4.1	SR1		4.1	194 274	LQ15	P520	PP21	MP2		
3225	SELF-REACTIVE LIQUID TYPE D	4.1	SR1		4.1	194 274	LQ16	P520		MP2		
3226	SELF-REACTIVE SOLID TYPE D	4.1	SR1		4.1	194 274	LQ11	P520		MP2		
3227	SELF-REACTIVE LIQUID TYPE E	4.1	SR1		4.1	194 274	LQ16	P520		MP2		
3228	SELF-REACTIVE SOLID TYPE E	4.1	SR1		4.1	194 274	LQ11	P520		MP2		
3229	SELF-REACTIVE LIQUID TYPE F	4.1	SR1		4.1	194 274	LQ16	P520 IBC99		MP2	T23	
3230	SELF-REACTIVE SOLID TYPE F	4.1	SR1		4.1	194 274	LQ11	P520 IBC99		MP2	T23	
3231	SELF-REACTIVE LIQUID TYPE B, TEMPERATURE CONTROLLED	4.1	SR2		4.1 +1	181 194 274	LQ0	P520	PP21	MP2		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
LGBV	TU3	AT	3	V6		CV24		50	3211	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
SGAN	TU3	AT	2	V11		CV24		50	3212	HYPOCHLORITES, INORGANIC, N.O.S.
L4BN	TU3	AT	2	V6		CV24		50	3213	BROMATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
LGBV	TU3	AT	3			CV24		50	3213	BROMATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
L4BN	TU3	AT	2			CV24		50	3214	PERMANGANATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
SGAV	TU3	AT	3		VV8	CV24		50	3215	PERSULPHATES, INORGANIC, N.O.S.
LGBV	TU3	AT	3			CV24		50	3216	PERSULPHATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
L4BN	TU3	AT	2			CV24		50	3218	NITRATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
LGBV	TU3	AT	3			CV24		50	3218	NITRATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
L4BN	TU3	AT	2			CV24		50	3219	NITRITES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
LGBV	TU3	AT	3			CV24		50	3219	NITRITES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
PxBN(M)		AT	3	V7		CV9 CV10		20	3220	PENTAFLUOROETHANE (REFRIGERANT GAS R 125)
			1	V1		CV15 CV20 CV22	S9 S17		3221	SELF-REACTIVE LIQUID TYPE B
			1	V1		CV15 CV20 CV22	S9 S17		3222	SELF-REACTIVE SOLID TYPE B
			1	V1		CV15 CV20 CV22	S8 S18		3223	SELF-REACTIVE LIQUID TYPE C
			1	V1		CV15 CV20 CV22	S8 S18		3224	SELF-REACTIVE SOLID TYPE C
			2	V1		CV15 CV22	S19		3225	SELF-REACTIVE LIQUID TYPE D
			2	V1		CV15 CV22	S19		3226	SELF-REACTIVE SOLID TYPE D
			2	V1		CV15 CV22			3227	SELF-REACTIVE LIQUID TYPE E
			2	V1		CV15 CV22			3228	SELF-REACTIVE SOLID TYPE E
		AT	2	V1		CV15 CV22		40	3229	SELF-REACTIVE LIQUID TYPE F
		AT	2	V1		CV15 CV22		40	3230	SELF-REACTIVE SOLID TYPE F
			1	V8		CV15 CV20 CV21 CV22	S4 S9 S16		3231	SELF-REACTIVE LIQUID TYPE B, TEMPERATURE CONTROLLED

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
3232	SELF-REACTIVE SOLID TYPE B, TEMPERATURE CONTROLLED	4.1	SR2		4.1 +1	181 194 274	LQ0	P520	PP21	MP2		
3233	SELF-REACTIVE LIQUID TYPE C, TEMPERATURE CONTROLLED	4.1	SR2		4.1	194 274	LQ0	P520	PP21	MP2		
3234	SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED	4.1	SR2		4.1	194 274	LQ0	P520	PP21	MP2		
3235	SELF-REACTIVE LIQUID TYPE D, TEMPERATURE CONTROLLED	4.1	SR2		4.1	194 274	LQ0	P520		MP2		
3236	SELF-REACTIVE SOLID TYPE D, TEMPERATURE CONTROLLED	4.1	SR2		4.1	194 274	LQ0	P520		MP2		
3237	SELF-REACTIVE LIQUID TYPE E, TEMPERATURE CONTROLLED	4.1	SR2		4.1	194 274	LQ0	P520		MP2		
3238	SELF-REACTIVE SOLID TYPE E, TEMPERATURE CONTROLLED	4.1	SR2		4.1	194 274	LQ0	P520		MP2		
3239	SELF-REACTIVE LIQUID TYPE F, TEMPERATURE CONTROLLED	4.1	SR2		4.1	194 274	LQ0	P520		MP2	T23	
3240	SELF-REACTIVE SOLID TYPE F, TEMPERATURE CONTROLLED	4.1	SR2		4.1	194 274	LQ0	P520		MP2	T23	
3241	2-BROMO-2-NITROPROPANE-1,3-DIOL	4.1	SR1	III	4.1	638	LQ0	P520 IBC08	PP22 B3	MP2		
3242	AZODICARBONAMIDE	4.1	SR1	II	4.1	215 638	LQ0	P409		MP2		
3243	SOLIDS CONTAINING TOXIC LIQUID, N.O.S.	6.1	T9	II	6.1	217 274	LQ18	P002 IBC02	PP9	MP10		
3244	SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S.	8	C10	II	8	218 274	LQ23	P002 IBC05	PP9	MP10		
3245	GENETICALLY MODIFIED MICRO-ORGANISMS	9	M8		9	219 634 637	LQ0	P904 IBC08		MP6		
3246	METHANESULPHONYL CHLORIDE	6.1	TC1	I	6.1 +8		LQ0	P001		MP8 MP17	T14	TP2 TP12 TP13
3247	SODIUM PEROXOBORATE, ANHYDROUS	5.1	O2	II	5.1		LQ11	P002 IBC08	B4	MP2		
3248	MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S.	3	FT1	II	3 +6.1	220 221 274 601	LQ0	P001	PP6	MP19		
3248	MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S.	3	FT1	III	3 +6.1	220 221 274 601	LQ7	P001 R001	PP6	MP19		
3249	MEDICINE, SOLID, TOXIC, N.O.S.	6.1	T2	II	6.1	221 274 601	LQ18	P002	PP6	MP10		
3249	MEDICINE, SOLID, TOXIC, N.O.S.	6.1	T2	III	6.1	221 274 601	LQ9	P002 LP02 R001	PP6	MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
			1	V8		CV15 CV20 CV21 CV22	S4 S9 S16		3232	SELF-REACTIVE SOLID TYPE B, TEMPERATURE CONTROLLED
			1	V8		CV15 CV20 CV21 CV22	S4 S8 S17		3233	SELF-REACTIVE LIQUID TYPE C, TEMPERATURE CONTROLLED
			1	V8		CV15 CV20 CV21 CV22	S4 S8 S17		3234	SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED
			1	V8		CV15 CV21 CV22	S4 S18		3235	SELF-REACTIVE LIQUID TYPE D, TEMPERATURE CONTROLLED
			1	V8		CV15 CV21 CV22	S4 S18		3236	SELF-REACTIVE SOLID TYPE D, TEMPERATURE CONTROLLED
			1	V8		CV15 CV21 CV22	S4 S19		3237	SELF-REACTIVE LIQUID TYPE E, TEMPERATURE CONTROLLED
			1	V8		CV15 CV21 CV22	S4 S19		3238	SELF-REACTIVE SOLID TYPE E, TEMPERATURE CONTROLLED
		AT	1	V8		CV15 CV21 CV22	S4	40	3239	SELF-REACTIVE LIQUID TYPE F, TEMPERATURE CONTROLLED
		AT	1	V8		CV15 CV21 CV22	S4	40	3240	SELF-REACTIVE SOLID TYPE F, TEMPERATURE CONTROLLED
			3			CV14	S14		3241	2-BROMO-2-NITROPROPANE-1,3-DIOL
			2			CV14	S14		3242	AZODICARBONAMIDE
SGAH	TU15 TE1 TE15 TE19	AT	2		VV10	CV13 CV28	S9 S19	60	3243	SOLIDS CONTAINING TOXIC LIQUID, N.O.S.
SGAV		AT	2		VV10			80	3244	SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S.
			2	VI		CV1 CV13 CV26 CV27 CV28	S17		3245	GENETICALLY MODIFIED MICRO-ORGANISMS
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	668	3246	METHANESULPHONYL CHLORIDE
SGAN	TU3	AT	2			CV24		50	3247	SODIUM PEROXOBORATE, ANHYDROUS
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	3248	MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15	FL	3			CV13 CV28	S2	36	3248	MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3249	MEDICINE, SOLID, TOXIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3249	MEDICINE, SOLID, TOXIC, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3250	CHLOROACETIC ACID, MOLTEN	6.1	TC1	II	6.1 +8		LQ0				T7	TP3 TP28
3251	ISOSORBIDE-5-MONONITRATE	4.1	SR1	III	4.1	226 638	LQ0	P409		MP2		
3252	DIFLUOROMETHANE (REFRIGERANT GAS R 32)	2	2F		2.1		LQ0	P200		MP9	T50	
3253	DISODIUM TRIOXOSILICATE	8	C6	III	8		LQ24	P002 IBC08 LP02 R001	B3	MP10		
3254	TRIBUTYLPHOSPHANE	4.2	S1	I	4.2		LQ0	P400 PR1		MP2		
3255	tert-BUTYL HYPOCHLORITE	4.2	SC1	CARRIAGE PROHIBITED								
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 61 °C, at or above its flash-point	3	F2	III	3	274 560	LQ0	P099 IBC99		MP2	T3	TP3 TP29
3257	ELEVATED TEMPERATURE LIQUID, N.O.S., at or above 100 °C and below its flash-point (including molten metals, molten salts, etc.)	9	M9	III	9	274 580 643	LQ0	P099 IBC99			T3	TP3 TP29
3258	ELEVATED TEMPERATURE SOLID, N.O.S., at or above 240 °C	9	M10	III	9	274 580 643	LQ0	P099 IBC99				
3259	AMINES, SOLID, CORROSIVE, N.O.S. or POLYAMINES, SOLID, CORROSIVE, N.O.S.	8	C8	I	8	274	LQ21	P002 IBC07		MP18		
3259	AMINES, SOLID, CORROSIVE, N.O.S. or POLYAMINES, SOLID, CORROSIVE, N.O.S.	8	C8	II	8	274	LQ23	P002 IBC08	B4	MP10		
3259	AMINES, SOLID, CORROSIVE, N.O.S. or POLYAMINES, SOLID, CORROSIVE, N.O.S.	8	C8	III	8	274	LQ24	P002 IBC08 LP02 R001	B3	MP10		
3260	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.	8	C2	I	8	274	LQ21	P002 IBC07		MP18		
3260	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.	8	C2	II	8	274	LQ23	P002 IBC08	B4	MP10		
3260	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.	8	C2	III	8	274	LQ24	P002 IBC08 LP02 R001	B3	MP10		
3261	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.	8	C4	I	8	274	LQ21	P002 IBC07		MP18		
3261	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.	8	C4	II	8	274	LQ23	P002 IBC08	B4	MP10		
3261	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.	8	C4	III	8	274	LQ24	P002 IBC08 LP02 R001	B3	MP10		
3262	CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.	8	C6	I	8	274	LQ21	P002 IBC07		MP18		
3262	CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.	8	C6	II	8	274	LQ23	P002 IBC08	B4	MP10		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1)	3.1.2 (2)
L4BH	TU15 TC4 TE1 TE15 TE19	AT	0			CV13	S9 S19	68	3250	CHLOROACETIC ACID, MOLTEN
			3			CV14	S14		3251	ISOSORBIDE-5- MONONITRATE
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	3252	DIFLUOROMETHANE (REFRIGERANT GAS R 32)
SGAV		AT	3		VV9b			80	3253	DISODIUM TRIOXOSILICATE
			0	V1			S20		3254	TRIBUTYLPHOSPHANE
CARRIAGE PROHIBITED									3255	tert-BUTYL HYPOCHLORITE
LGAV	TU35	FL	3				S2	30	3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 61 °C, at or above its flash- point
LGAV	TU35 TC7 TE14 TE18	AT	3		VV12			99	3257	ELEVATED TEMPERATURE LIQUID, N.O.S., at or above 100 °C and below its flash- point (including molten metals, molten salts, etc.)
			3	V1	VV13			99	3258	ELEVATED TEMPERATURE SOLID, N.O.S., at or above 240 °C
S10AN L10BH	TE1	AT	1	V10 V12			S20	88	3259	AMINES, SOLID, CORROSIVE, N.O.S. or POLYAMINES, SOLID, CORROSIVE, N.O.S.
SGAN L4BN		AT	2	V11				80	3259	AMINES, SOLID, CORROSIVE, N.O.S. or POLYAMINES, SOLID, CORROSIVE, N.O.S.
SGAV L4BN		AT	3		VV9b			80	3259	AMINES, SOLID, CORROSIVE, N.O.S. or POLYAMINES, SOLID, CORROSIVE, N.O.S.
S10AN		AT	1	V10 V12			S20	88	3260	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
SGAN		AT	2	V11				80	3260	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
SGAV		AT	3		VV9b			80	3260	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
S10AN L10BH	TE1	AT	1	V10 V12			S20	88	3261	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.
SGAN L4BN		AT	2	V11				80	3261	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.
SGAV L4BN		AT	3		VV9b			80	3261	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.
S10AN L10BH	TE1	AT	1	V10 V12			S20	88	3262	CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.
SGAN L4BN		AT	2	V11				80	3262	CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
3262	CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.	8	C6	III	8	274	LQ24	P002 IBC08 LP02 R001	B3	MP10		
3263	CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.	8	C8	I	8	274	LQ21	P002 IBC07		MP18		
3263	CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.	8	C8	II	8	274	LQ23	P002 IBC08	B4	MP10		
3263	CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.	8	C8	III	8	274	LQ24	P002 IBC08 LP02 R001	B3	MP10		
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	8	C1	I	8	274	LQ20	P001		MP8 MP17	T14	TP2 TP9 TP27
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	8	C1	II	8	274	LQ22	P001 IBC02		MP15	T11	TP2 TP27
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	8	C1	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	8	C3	I	8	274	LQ20	P001		MP8 MP17	T14	TP2 TP9 TP27
3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	8	C3	II	8	274	LQ22	P001 IBC02		MP15	T11	TP2 TP27
3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	8	C3	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	8	C5	I	8	274	LQ20	P001		MP8 MP17	T14	TP2 TP9 TP27
3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	8	C5	II	8	274	LQ22	P001 IBC02		MP15	T11	TP2 TP27
3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	8	C5	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	8	C7	I	8	274	LQ20	P001		MP8 MP17	T14	TP2 TP9 TP27
3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	8	C7	II	8	274	LQ22	P001 IBC02		MP15	T11	TP2 TP27
3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	8	C7	III	8	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3268	AIR BAG INFLATORS or AIR BAG MODULES or SEAT-BELT PRETENSIONERS	9	M5	III	9	280 289	LQ0	P902 LP902				
3269	POLYESTER RESIN KIT	3	F1	II	3	236	LQ6	P302 R001				
3269	POLYESTER RESIN KIT	3	F1	III	3	236	LQ7	P302 R001				
3270	NITROCELLULOSE MEMBRANE FILTERS, with not more than 12.6% nitrogen, by dry mass	4.1	F1	II	4.1	237 286	LQ8	P411		MP11		
3271	ETHERS, N.O.S.	3	F1	II	3	274	LQ4	P001 IBC02 R001		MP19	T7	TP1 TP8 TP28
3271	ETHERS, N.O.S.	3	F1	III	3	274	LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1 TP29

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
SGAV L4BN		AT	3		VV9b			80	3262	CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.
SGAV	TEI	AT	1	V10 V12			S20	88	3263	CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.
SGAN L4BN		AT	2	V11				80	3263	CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.
SGAV L4BN		AT	3		VV9b			80	3263	CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.
L10BH	TEI	AT	1				S20	88	3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
L4BN		AT	2					80	3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
L4BN		AT	3					80	3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
L10BH	TEI	AT	1				S20	88	3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
L4BN		AT	2					80	3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
L4BN		AT	3					80	3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
L10BH	TEI	AT	1				S20	88	3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
L4BN		AT	2					80	3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
L4BN		AT	3					80	3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
L10BH	TEI	AT	1				S20	88	3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.
L4BN		AT	2					80	3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.
L4BN		AT	3					80	3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.
			4	VI					3268	AIR BAG INFLATORS or AIR BAG MODULES or SEAT-BELT PRETENSIONERS
			2				S2 S20		3269	POLYESTER RESIN KIT
			3				S2		3269	POLYESTER RESIN KIT
			2						3270	NITROCELLULOSE MEMBRANE FILTERS, with not more than 12.6% nitrogen, by dry mass
LGBF		FL	2				S2 S20	33	3271	ETHERS, N.O.S.
LGBF		FL	3				S2	30	3271	ETHERS, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3272	ESTERS, N.O.S.	3	F1	II	3	274	LQ4	P001 IBC02 R001		MP19	T7	TP1 TP8 TP28
3272	ESTERS, N.O.S.	3	F1	III	3	274	LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1 TP29
3273	NITRILES, FLAMMABLE, TOXIC, N.O.S.	3	FT1	I	3 +6.1	274	LQ0	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
3273	NITRILES, FLAMMABLE, TOXIC, N.O.S.	3	FT1	II	3 +6.1	274	LQ0	P001 IBC02		MP19	T11	TP2 TP13 TP27
3274	ALCOHOLATES SOLUTION, N.O.S., in alcohol	3	FC	II	3 +8	274	LQ4	P001 IBC02		MP19		
3275	NITRILES, TOXIC, FLAMMABLE, N.O.S.	6.1	TF1	I	6.1 +3	274	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3275	NITRILES, TOXIC, FLAMMABLE, N.O.S.	6.1	TF1	II	6.1 +3	274	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3276	NITRILES, TOXIC, N.O.S.	6.1	T1	I	6.1	274	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3276	NITRILES, TOXIC, N.O.S.	6.1	T1	II	6.1	274	LQ17	P001 IBC02		MP15	T11	TP2 TP27
3276	NITRILES, TOXIC, N.O.S.	6.1	T1	III	6.1	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3277	CHLOROFORMATES, TOXIC, CORROSIVE, N.O.S.	6.1	TC1	II	6.1 +8	274 561	LQ17	P001 IBC02		MP15	T8	TP2 TP13 TP28
3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., liquid	6.1	T1	I	6.1	43 274	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., liquid	6.1	T1	II	6.1	43 274	LQ17	P001 IBC02		MP15	T11	TP2 TP27
3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., liquid	6.1	T1	III	6.1	43 274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., solid	6.1	T2	I	6.1	43 274	LQ0	P002 IBC07		MP18	T14	TP2 TP9 TP27
3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., solid	6.1	T2	II	6.1	43 274	LQ18	P002 IBC08	B4	MP10	T11	TP2 TP27
3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., solid	6.1	T2	III	6.1	43 274	LQ9	P002 IBC08 LP02 R001	B3	MP10	T7	TP1 TP28
3279	ORGANOPHOSPHORUS COMPOUND, TOXIC, FLAMMABLE, N.O.S.	6.1	TF1	I	6.1 +3	43 274	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3279	ORGANOPHOSPHORUS COMPOUND, TOXIC, FLAMMABLE, N.O.S.	6.1	TF1	II	6.1 +3	43 274	LQ17	P001		MP15	T11	TP2 TP13 TP27
3280	ORGANOARSENIC COMPOUND, N.O.S., liquid	6.1	T3	I	6.1	274	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3280	ORGANOARSENIC COMPOUND, N.O.S., liquid	6.1	T3	II	6.1	274	LQ17	P001 IBC02		MP15	T11	TP2 TP27

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
LGBF		FL	2				S2 S20	33	3272	ESTERS, N.O.S.
LGBF		FL	3				S2	30	3272	ESTERS, N.O.S.
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	3273	NITRILES, FLAMMABLE, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	3273	NITRILES, FLAMMABLE, TOXIC, N.O.S.
L4BH	TE1 TE15	FL	2				S2 S20	338	3274	ALCOHOLATES SOLUTION, N.O.S., in alcohol
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3275	NITRILES, TOXIC, FLAMMABLE, N.O.S.
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3275	NITRILES, TOXIC, FLAMMABLE, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3276	NITRILES, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3276	NITRILES, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3276	NITRILES, TOXIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	3277	CHLOROFORMATES, TOXIC, CORROSIVE, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., liquid
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., liquid
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., liquid
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., solid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., solid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., solid
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3279	ORGANOPHOSPHORUS COMPOUND, TOXIC, FLAMMABLE, N.O.S.
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3279	ORGANOPHOSPHORUS COMPOUND, TOXIC, FLAMMABLE, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3280	ORGANOARSENIC COMPOUND, N.O.S., liquid
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3280	ORGANOARSENIC COMPOUND, N.O.S., liquid

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3280	ORGANOARSENIC COMPOUND, N.O.S., liquid	6.1	T3	III	6.1	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3280	ORGANOARSENIC COMPOUND, N.O.S., solid	6.1	T3	I	6.1	274	LQ0	P002 IBC07		MP18	T14	TP2 TP9 TP27
3280	ORGANOARSENIC COMPOUND, N.O.S., solid	6.1	T3	II	6.1	274	LQ18	P002 IBC08	B4	MP10	T11	TP2 TP27
3280	ORGANOARSENIC COMPOUND, N.O.S., solid	6.1	T3	III	6.1	274	LQ9	P002 IBC08 LP02 R001	B3	MP10	T7	TP1 TP28
3281	METAL CARBONYLS, N.O.S., liquid	6.1	T3	I	6.1	274 562	LQ0	P601		MP8 MP17	T14	TP2 TP9 TP13 TP27
3281	METAL CARBONYLS, N.O.S., liquid	6.1	T3	II	6.1	274 562	LQ17	P001 IBC02		MP15	T11	TP2 TP27
3281	METAL CARBONYLS, N.O.S., liquid	6.1	T3	III	6.1	274 562	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3281	METAL CARBONYLS, N.O.S., solid	6.1	T3	I	6.1	274 562	LQ0	P002 IBC07		MP18	T14	TP2 TP9 TP27
3281	METAL CARBONYLS, N.O.S., solid	6.1	T3	II	6.1	274 562	LQ18	P002 IBC08	B4	MP10	T11	TP2 TP27
3281	METAL CARBONYLS, N.O.S., solid	6.1	T3	III	6.1	274 562	LQ9	P002 IBC08 LP02 R001	B3	MP10	T7	TP1 TP28
3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., liquid	6.1	T3	I	6.1	274 562	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., liquid	6.1	T3	II	6.1	274 562	LQ17	P001 IBC02		MP15	T11	TP2 TP27
3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., liquid	6.1	T3	III	6.1	274 562	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., solid	6.1	T3	I	6.1	274 562	LQ0	P002 IBC07		MP18	T14	TP2 TP9 TP27
3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., solid	6.1	T3	II	6.1	274 562	LQ18	P002 IBC08	B4	MP10	T11	TP2 TP27
3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., solid	6.1	T3	III	6.1	274 562	LQ9	P002 IBC08 LP02 R001	B3	MP10	T7	TP1 TP28
3283	SELENIUM COMPOUND, N.O.S.	6.1	T5	I	6.1	274 563	LQ0	P002 IBC07		MP18	T14	TP2 TP9 TP27
3283	SELENIUM COMPOUND, N.O.S.	6.1	T5	II	6.1	274 563	LQ18	P002 IBC07		MP10	T11	TP2 TP27
3283	SELENIUM COMPOUND, N.O.S.	6.1	T5	III	6.1	274 563	LQ9	P002 IBC07 R001		MP10	T7	TP1 TP28
3284	TELLURIUM COMPOUND, N.O.S.	6.1	T5	I	6.1	274	LQ0	P002 IBC07		MP18	T14	TP2 TP9 TP27
3284	TELLURIUM COMPOUND, N.O.S.	6.1	T5	II	6.1	274	LQ18	P002 IBC08	B4	MP10	T11	TP2 TP27
3284	TELLURIUM COMPOUND, N.O.S.	6.1	T5	III	6.1	274	LQ9	P002 IBC08 R001	B3	MP10	T7	TP1 TP28

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3280	ORGANOARSENIC COMPOUND, N.O.S., liquid
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3280	ORGANOARSENIC COMPOUND, N.O.S., solid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3280	ORGANOARSENIC COMPOUND, N.O.S., solid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3280	ORGANOARSENIC COMPOUND, N.O.S., solid
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3281	METAL CARBONYLS, N.O.S., liquid
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3281	METAL CARBONYLS, N.O.S., liquid
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3281	METAL CARBONYLS, N.O.S., liquid
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3281	METAL CARBONYLS, N.O.S., solid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3281	METAL CARBONYLS, N.O.S., solid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3281	METAL CARBONYLS, N.O.S., solid
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., liquid
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., liquid
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., liquid
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., solid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., solid
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3282	ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., solid
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3283	SELENIUM COMPOUND, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V12		CV13 CV28	S9 S19	60	3283	SELENIUM COMPOUND, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V12	VV9b	CV13 CV28	S9	60	3283	SELENIUM COMPOUND, N.O.S.
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3284	TELLURIUM COMPOUND, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3284	TELLURIUM COMPOUND, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3284	TELLURIUM COMPOUND, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3285	VANADIUM COMPOUND, N.O.S.	6.1	T5	I	6.1	274 564	LQ0	P002 IBC07		MP18	T14	TP2 TP9 TP27
3285	VANADIUM COMPOUND, N.O.S.	6.1	T5	II	6.1	274 564	LQ18	P002 IBC08	B4	MP10	T11	TP2 TP27
3285	VANADIUM COMPOUND, N.O.S.	6.1	T5	III	6.1	274 564	LQ9	P002 IBC08 R001		MP10	T7	TP1 TP28
3286	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.	3	FTC	I	3 +6.1 +8	274	LQ0	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
3286	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.	3	FTC	II	3 +6.1 +8	274	LQ0	P001 IBC02		MP19	T11	TP2 TP13 TP27
3287	TOXIC LIQUID, INORGANIC, N.O.S.	6.1	T4	I	6.1	274	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3287	TOXIC LIQUID, INORGANIC, N.O.S.	6.1	T4	II	6.1	274	LQ17	P001 IBC02		MP15	T11	TP2 TP27
3287	TOXIC LIQUID, INORGANIC, N.O.S.	6.1	T4	III	6.1	274	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP1 TP28
3288	TOXIC SOLID, INORGANIC, N.O.S.	6.1	T5	I	6.1	274	LQ0	P002 IBC05		MP18		
3288	TOXIC SOLID, INORGANIC, N.O.S.	6.1	T5	II	6.1	274	LQ18	P002 IBC08	B4	MP10		
3288	TOXIC SOLID, INORGANIC, N.O.S.	6.1	T5	III	6.1	274	LQ9	P002 IBC08 LP02 R001	B3	MP10		
3289	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.	6.1	TC3	I	6.1 +8	274	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3289	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.	6.1	TC3	II	6.1 +8	274	LQ17	P001 IBC02		MP15	T11	TP2 TP27
3290	TOXIC SOLID, CORROSIVE, INORGANIC, N.O.S.	6.1	TC4	I	6.1 +8	274	LQ0	P002 IBC05		MP18		
3290	TOXIC SOLID, CORROSIVE, INORGANIC, N.O.S.	6.1	TC4	II	6.1 +8	274	LQ18	P002 IBC06		MP10		
3291	CLINICAL WASTE, UNSPECIFIED, N.O.S. or (BIO) MEDICAL WASTE, N.O.S. or REGULATED MEDICAL WASTE, N.O.S.	6.2	I3	II	6.2	565 634	LQ0	P621 IBC620 LP621		MP6		
3292	BATTERIES, CONTAINING SODIUM, or CELLS, CONTAINING SODIUM	4.3	W3	II	4.3	239 295	LQ0	P408				
3293	HYDRAZINE, AQUEOUS SOLUTION with not more than 37% hydrazine, by mass	6.1	T4	III	6.1	566	LQ19	P001 IBC03 LP01 R001		MP15	T4	TP1
3294	HYDROGEN CYANIDE, SOLUTION IN ALCOHOL with not more than 45% hydrogen cyanide	6.1	TF1	I	6.1 +3	610	LQ0	P601 PR3		MP8 MP17	T14	TP2 TP13
3295	HYDROCARBONS, LIQUID, N.O.S. (vapour pressure at 50 °C more than 175 kPa)	3	F1	I	3	274 640A	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP9 TP28



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3285	VANADIUM COMPOUND, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3285	VANADIUM COMPOUND, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3285	VANADIUM COMPOUND, N.O.S.
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	368	3286	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	368	3286	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3287	TOXIC LIQUID, INORGANIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3287	TOXIC LIQUID, INORGANIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3287	TOXIC LIQUID, INORGANIC, N.O.S.
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3288	TOXIC SOLID, INORGANIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3288	TOXIC SOLID, INORGANIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3288	TOXIC SOLID, INORGANIC, N.O.S.
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	668	3289	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	3289	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.
S10AH L10CH	TU15 TE1 TE19	AT	1			CV1 CV13 CV28	S9 S17	668	3290	TOXIC SOLID, CORROSIVE, INORGANIC, N.O.S.
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11 V12		CV13 CV28	S9 S19	68	3290	TOXIC SOLID, CORROSIVE, INORGANIC, N.O.S.
S4AH L4BH	TU15 TE1 TE15 TE19	AT	2		VV11	CV13 CV25 CV28	S3	606	3291	CLINICAL WASTE, UNSPECIFIED, N.O.S. or (BIO) MEDICAL WASTE, N.O.S. or REGULATED MEDICAL WASTE, N.O.S.
			2	V1		CV23			3292	BATTERIES, CONTAINING SODIUM, or CELLS, CONTAINING SODIUM
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3293	HYDRAZINE, AQUEOUS SOLUTION with not more than 37% hydrazine, by mass
L15DH(+)	TU14 TU15 TE1 TE19 TE21	FL	0			CV1 CV13 CV28	S2 S9 S17	663	3294	HYDROGEN CYANIDE, SOLUTION IN ALCOHOL with not more than 45% hydrogen cyanide
L4BN		FL	1				S2 S20	33	3295	HYDROCARBONS, LIQUID, N.O.S. (vapour pressure at 50 °C more than 175 kPa)

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
3295	HYDROCARBONS, LIQUID, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	I	3	274 640B	LQ3	P001		MP7 MP17	T11	TP1 TP8 TP9 TP28
3295	HYDROCARBONS, LIQUID, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	274 640C	LQ4	P001		MP19	T7	TP1 TP8 TP28
3295	HYDROCARBONS, LIQUID, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	274 640D	LQ4	P001 IBC02 R001		MP19	T7	TP1 TP8 TP28
3295	HYDROCARBONS, LIQUID, N.O.S.	3	F1	III	3	274	LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1 TP29
3296	HEPTAFLUOROPROPANE (REFRIGERANT GAS R 227)	2	2A		2.2		LQ1	P200		MP9	T50	
3297	ETHYLENE OXIDE AND CHLOROTETRAFLUOROETHANE MIXTURE with not more than 8.8% ethylene oxide	2	2A		2.2		LQ1	P200		MP9	T50	
3298	ETHYLENE OXIDE AND PENTAFLUROETHANE MIXTURE with not more than 7.9% ethylene oxide	2	2A		2.2		LQ1	P200		MP9	T50	
3299	ETHYLENE OXIDE AND TETRAFLUROETHANE MIXTURE with not more than 5.6% ethylene oxide	2	2A		2.2		LQ1	P200		MP9	T50	
3300	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 87% ethylene oxide	2	2TF		2.3 +2.1		LQ0	P200		MP9		
3301	CORROSIVE LIQUID, SELF-HEATING, N.O.S.	8	CS1	I	8 +4.2	274	LQ20	P001		MP8 MP17		
3301	CORROSIVE LIQUID, SELF-HEATING, N.O.S.	8	CS1	II	8 +4.2	274	LQ22	P001		MP15		
3302	2-DIMETHYLAMINOETHYL ACRYLATE	6.1	T1	II	6.1		LQ17	P001 IBC02		MP15	T7	TP2
3303	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	2	1TO		2.3 +5.1	274	LQ0	P200		MP9		
3304	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	2	1TC		2.3 +8	274	LQ0	P200		MP9		
3305	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2	1TFC		2.3 +2.1 +8	274	LQ0	P200		MP9		
3306	COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	2	1TOC		2.3 +5.1 +8	274	LQ0	P200		MP9		
3307	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	2	2TO		2.3 +5.1	274	LQ0	P200		MP9		
3308	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	2	2TC		2.3 +8	274	LQ0	P200		MP9		
3309	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2	2TFC		2.3 +2.1 +8	274	LQ0	P200		MP9		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description	
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation				
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2		
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)	
L1.5BN		FL	1				S2 S20	33	3295	HYDROCARBONS, LIQUID, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
L1.5BN		FL	2				S2 S20	33	3295	HYDROCARBONS, LIQUID, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	
LGBF		FL	2				S2 S20	33	3295	HYDROCARBONS, LIQUID, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)	
LGBF		FL	3				S2	30	3295	HYDROCARBONS, LIQUID, N.O.S.	
PxBN(M)		AT	3	V7			CV9 CV10	20	3296	HEPTAFLUOROPROPANE (REFRIGERANT GAS R 227)	
PxBN(M)		AT	3	V7			CV9 CV10	20	3297	ETHYLENE OXIDE AND CHLOROTETRAFLUOROETHANE MIXTURE with not more than 8.8% ethylene oxide	
PxBN(M)		AT	3	V7			CV9 CV10	20	3298	ETHYLENE OXIDE AND PENTAFLUOROETHANE MIXTURE with not more than 7.9% ethylene oxide	
PxBN(M)		AT	3	V7			CV9 CV10	20	3299	ETHYLENE OXIDE AND TETRAFLUOROETHANE MIXTURE with not more than 5.6% ethylene oxide	
PxBH(M)	TE1	FL	1	V7			CV9 CV10	S2 S7 S17	263	3300	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 87% ethylene oxide
L10BH	TE1	AT	1				S20	884	3301	CORROSIVE LIQUID, SELF-HEATING, N.O.S.	
L4BN		AT	2					84	3301	CORROSIVE LIQUID, SELF-HEATING, N.O.S.	
L4BH	TU15 TE1 TE15 TE19	AT	2				CV13 CV28	S9 S19	60	3302	2-DIMETHYLAMINOETHYL ACRYLATE
CxBH(M)	TU6 TE1	AT	1	V7			CV9 CV10	S7 S17	265	3303	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.
CxBH(M)	TU6.TE1	AT	1	V7			CV9 CV10	S7 S17	268	3304	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.
CxBH(M)	TU6 TE1	FL	1	V7			CV9 CV10	S2 S7 S17	263	3305	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.
CxBH(M)	TU6 TE1	AT	1	V7			CV9 CV10	S7 S17	265	3306	COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.
PxBH(M)	TU6 TE1	AT	1	V7			CV9 CV10	S7 S17	265	3307	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.
PxBH(M)	TU6 TE1	AT	1	V7			CV9 CV10	S7 S17	268	3308	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.
PxBH(M)	TU6 TE1	FL	1	V7			CV9 CV10	S2 S7 S17	263	3309	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3310	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	2	2TOC		2.3 +5.1 +8	274	LQ0	P200		MP9		
3311	GAS, REFRIGERATED LIQUID, OXIDIZING, N.O.S.	2	3O		2.2 +5.1	274	LQ0	P203		MP9	T75	TP22
3312	GAS, REFRIGERATED LIQUID, FLAMMABLE, N.O.S.	2	3F		2.1	274	LQ0	P203		MP9	T75	
3313	ORGANIC PIGMENTS, SELF-HEATING	4.2	S2	II	4.2		LQ0	P002 IBC08	B4	MP14		
3313	ORGANIC PIGMENTS, SELF-HEATING	4.2	S2	III	4.2		LQ0	P002 IBC08 LP02 R001	B3 B4	MP14		
3314	PLASTICS MOULDING COMPOUND in dough, sheet or extruded rope form evolving flammable vapour	9	M3	III	None	207 633	LQ27	P002 IBC08 R001	PP14 B3 B6	MP10		
3315	CHEMICAL SAMPLE, TOXIC, liquid or solid	6.1	T8	I	6.1	250	LQ0	P099		MP8 MP17		
3316	CHEMICAL KIT or FIRST AID KIT	9	M11	II	9	251	LQ0	P901				
3316	CHEMICAL KIT or FIRST AID KIT	9	M11	III	9	251	LQ0	P901				
3317	2-AMINO-4,6-DINITROPHENOL, WETTED with not less than 20% water, by mass	4.1	D	I	4.1		LQ0	P406	PP26	MP2		
3318	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 50% ammonia	2	4TC		2.3 +8	23	LQ0	P200		MP9	T50	
3319	NITROGLYCERIN MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 2% but not more than 10% nitroglycerin, by mass	4.1	D	II	4.1	272 274	LQ0	P099 IBC99		MP2		
3320	SODIUM BOROHYDRIDE AND SODIUM HYDROXIDE SOLUTION, with not more than 12% sodium borohydride and not more than 40% sodium hydroxide by mass	8	C5	II	8		LQ22	P001 IBC02		MP15	T7	TP2
3320	SODIUM BOROHYDRIDE AND SODIUM HYDROXIDE SOLUTION, with not more than 12% sodium borohydride and not more than 40% sodium hydroxide by mass	8	C5	III	8		LQ19	P001 IBC03 LP01 R001		MP15	T4	TP2
3321	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), non fissile or fissile-excepted	7			7X	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3		T5	TP4
3322	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-III), non fissile or fissile-excepted	7			7X	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3		T5	TP4

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1)	(2)
PxBH(M)	TU6 TE1	AT	1	V7		CV9 CV10	S7 S17	265	3310	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.
RxBN	TU7 TU9	AT	3	V5 V7		CV9 CV11	S20	225	3311	GAS, REFRIGERATED LIQUID, OXIDIZING, N.O.S.
RxBN	TU18	FL	2	V5 V7		CV9 CV11	S2 S17	223	3312	GAS, REFRIGERATED LIQUID, FLAMMABLE, N.O.S.
SGAV		AT	2	V1				40	3313	ORGANIC PIGMENTS, SELF-HEATING
SGAV		AT	3	V1				40	3313	ORGANIC PIGMENTS, SELF-HEATING
			3	V1	VV3			90	3314	PLASTICS MOULDING COMPOUND in dough, sheet or extruded rope form evolving flammable vapour
			1			CV1 CV13 CV28	S9 S17		3315	CHEMICAL SAMPLE, TOXIC, liquid or solid
			2	V1					3316	CHEMICAL KIT or FIRST AID KIT
			3	V1					3316	CHEMICAL KIT or FIRST AID KIT
			1				S17		3317	2-AMINO-4,6-DINITROPHENOL, WETTED with not less than 20% water, by mass
PxBH(M)	TE1	AT	1			CV9 CV10	S7	268	3318	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 50% ammonia
			2				S17		3319	NITROGLYCERIN MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 2% but not more than 10% nitroglycerin, by mass
L4BN		AT	2					80	3320	SODIUM BOROXYDRIDE AND SODIUM HYDROXIDE SOLUTION, with not more than 12% sodium borohydride and not more than 40% sodium hydroxide by mass
L4BN		AT	3					80	3320	SODIUM BOROXYDRIDE AND SODIUM HYDROXIDE SOLUTION, with not more than 12% sodium borohydride and not more than 40% sodium hydroxide by mass
S2.65AN(+) L2.65CN(+)	TU36 TM7 TT7	AT	0			CV33	S6 S11 S13 S21	70	3321	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), non fissile or fissile-excepted
S2.65AN(+) L2.65CN(+)	TU36 TM7 TT7	AT	0			CV33	S6 S11 S13 S21	70	3322	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-III), non fissile or fissile-excepted

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	3.1.2 (2)	2.2 (3a)	2.2 (3b)	2.1.1.3 (4)	5.2.2 (5)	3.3 (6)	3.4.6 (7)	4.1.4 (8)	4.1.4 (9a)	4.1.10 (9b)	4.2.4.2 (10)	4.2.4.3 (11)
3323	RADIOACTIVE MATERIAL, TYPE C PACKAGE, non fissile or fissile-excepted	7			7X	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
3324	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), FISSILE	7			7X +7E	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
3325	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY, (LSA-III), FISSILE	7			7X +7E	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
3326	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), FISSILE	7			7X +7E	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
3327	RADIOACTIVE MATERIAL, TYPE A PACKAGE, FISSILE, non-special form	7			7X +7E	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
3328	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, FISSILE	7			7X +7E	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
3329	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, FISSILE	7			7X +7E	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
3330	RADIOACTIVE MATERIAL, TYPE C PACKAGE, FISSILE	7			7X +7E	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
3331	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, FISSILE	7			7X +7E	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
3332	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, non fissile or fissile-excepted	7			7X	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
3333	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, FISSILE	7			7X +7E	172	LQ0	See 2.2.7 and 4.1.9	See 4.1.9.1.3			
3334	Aviation regulated liquid, n.o.s.	9	M11	NOT SUBJECT TO ADR								
3335	Aviation regulated solid, n.o.s.	9	M11	NOT SUBJECT TO ADR								
3336	MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.	3	F1	I	3	274	LQ3	P001		MP7 MP17	T11	TP2
3336	MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)	3	F1	II	3	274 640C	LQ4	P001		MP19	T7	TP1 TP8 TP28

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1)	3.1.2 (2)
			0			CV33	S6 S11 S13 S21		3323	RADIOACTIVE MATERIAL, TYPE C PACKAGE, non fissile or fissile-excepted
			0			CV33	S6 S11 S13 S21		3324	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), FISSILE
			0			CV33	S6 S11 S13 S21		3325	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY, (LSA-III), FISSILE
			0			CV33	S6 S11 S13 S21		3326	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), FISSILE
			0			CV33	S6 S11 S13 S21		3327	RADIOACTIVE MATERIAL, TYPE A PACKAGE, FISSILE, non-special form
			0			CV33	S6 S11 S13 S21		3328	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, FISSILE
			0			CV33	S6 S11 S13 S21		3329	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, FISSILE
			0			CV33	S6 S11 S13 S21		3330	RADIOACTIVE MATERIAL, TYPE C PACKAGE, FISSILE
			0			CV33	S6 S11 S13 S21		3331	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, FISSILE
			0			CV33	S6 S11 S12 S13 S21		3332	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, non fissile or fissile-excepted
			0			CV33	S6 S11 S13 S21		3333	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, FISSILE
NOT SUBJECT TO ADR									3334	Aviation regulated liquid, n.o.s.
NOT SUBJECT TO ADR									3335	Aviation regulated solid, n.o.s.
L1.5BN		FL	1				S2 S20	33	3336	MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.
L1.5BN		FL	2				S2 S20	33	3336	MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S. (vapour pressure at 50 °C more than 110 kPa but not more than 175 kPa)

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3336	MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)	3	F1	II	3	274 640D	LQ4	P001 IBC02 R001		MP19	T7	TP1 TP8 TP28
3336	MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.	3	F1	III	3	274	LQ7	P001 IBC03 LP01 R001		MP19	T4	TP1 TP29
3337	REFRIGERANT GAS R 404A (Pentafluoroethane, 1,1,1-trifluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 44% pentafluoroethane and 52% 1,1,1-trifluoroethane)	2	2A		2.2		LQ1	P200		MP9	T50	
3338	REFRIGERANT GAS R 407A (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 20% difluoromethane and 40% pentafluoroethane)	2	2A		2.2		LQ1	P200		MP9	T50	
3339	REFRIGERANT GAS R 407B (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 10% difluoromethane and 70% pentafluoroethane)	2	2A		2.2		LQ1	P200		MP9	T50	
3340	REFRIGERANT GAS R 407C (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 23% difluoromethane and 25% pentafluoroethane)	2	2A		2.2		LQ1	P200		MP9	T50	
3341	THIOUREA DIOXIDE	4.2	S2	II	4.2		LQ0	P002 IBC06		MP14		
3341	THIOUREA DIOXIDE	4.2	S2	III	4.2		LQ0	P002 IBC08 LP02 R001	B3	MP14		
3342	XANTHATES	4.2	S2	II	4.2		LQ0	P002 IBC06		MP14		
3342	XANTHATES	4.2	S2	III	4.2		LQ0	P002 IBC08 LP02 R001	B3	MP14		
3343	NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, FLAMMABLE, N.O.S. with not more than 30% nitroglycerin, by mass	3	D		3	274 278	LQ0	P099		MP2		



ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	(1) (2)	
LGBF		FL	2				S2 S20	33	3336	MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S. (vapour pressure at 50 °C not more than 110 kPa)
LGBF		FL	3				S2	30	3336	MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.
PxBN(M)		AT	3	V7		CV9 CV10		20	3337	REFRIGERANT GAS R 404A (Pentafluoroethane, 1,1,1-trifluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 44% pentafluoroethane and 52% 1,1,1-trifluoroethane)
PxBN(M)		AT	3	V7		CV9 CV10		20	3338	REFRIGERANT GAS R 407A (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 20% difluoromethane and 40% pentafluoroethane)
PxBN(M)		AT	3	V7		CV9 CV10		20	3339	REFRIGERANT GAS R 407B (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 10% difluoromethane and 70% pentafluoroethane)
PxBN(M)		AT	3	V7		CV9 CV10		20	3340	REFRIGERANT GAS R 407C (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 23% difluoromethane and 25% pentafluoroethane)
SGAV		AT	2	V1 V12				40	3341	THIOUREA DIOXIDE
SGAV		AT	3	V1				40	3341	THIOUREA DIOXIDE
SGAV		AT	2	V1 V12				40	3342	XANTHATES
SGAV		AT	3	V1				40	3342	XANTHATES
			0				S2 S17		3343	NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, FLAMMABLE, N.O.S. with not more than 30% nitroglycerin, by mass

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3344	PENTAERYTHRITE TETRANITRATE MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 10% but not more than 20% PETN, by mass	4.1	D	II	4.1	272 274	LQ0	P099	PP80	MP2		
3345	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
3345	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
3345	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		
3346	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
3346	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
3347	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3347	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3347	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
3348	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3348	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP27
3348	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
3349	PYRETHROID PESTICIDE, SOLID, TOXIC	6.1	T7	I	6.1	61	LQ0	P002 IBC07		MP18		
3349	PYRETHROID PESTICIDE, SOLID, TOXIC	6.1	T7	II	6.1	61	LQ18	P002 IBC08	B4	MP10		
3349	PYRETHROID PESTICIDE, SOLID, TOXIC	6.1	T7	III	6.1	61	LQ9	P002 IBC08 LP02 R001	B3	MP10		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
			2				S17		3344 PENTAERYTHRITE TETRANITRATE MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 10% but not more than 20% PETN, by mass.	
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3345 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3345 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3345 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC	
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	3346 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	3346 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3347 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3347 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	3347 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3348 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3348 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC	
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3348 PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC	
S10AH L10CH	TU14 TU15 TE1 TE19 TE21	AT	1	V10 V12		CV1 CV13 CV28	S9 S17	66	3349 PYRETHROID PESTICIDE, SOLID, TOXIC	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2	V11		CV13 CV28	S9 S19	60	3349 PYRETHROID PESTICIDE, SOLID, TOXIC	
SGAH L4BH	TU15 TE1 TE15 TE19	AT	2		VV9b	CV13 CV28	S9	60	3349 PYRETHROID PESTICIDE, SOLID, TOXIC	

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
3350	PYRETHROID PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	I	3 +6.1	61	LQ3	P001		MP7 MP17	T14	TP2 TP9 TP13 TP27
3350	PYRETHROID PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	FT2	II	3 +6.1	61	LQ4	P001 IBC02 R001		MP19	T11	TP2 TP13 TP27
3351	PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	I	6.1 +3	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3351	PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	II	6.1 +3	61	LQ17	P001 IBC02		MP15	T11	TP2 TP13 TP27
3351	PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	TF2	III	6.1 +3	61	LQ19	P001 IBC03 R001		MP15	T7	TP2 TP28
3352	PYRETHROID PESTICIDE, LIQUID, TOXIC	6.1	T6	I	6.1	61	LQ0	P001		MP8 MP17	T14	TP2 TP9 TP13 TP27
3352	PYRETHROID PESTICIDE, LIQUID, TOXIC	6.1	T6	II	6.1	61	LQ17	P001 IBC02		MP15	T11	TP2 TP27
3352	PYRETHROID PESTICIDE, LIQUID, TOXIC	6.1	T6	III	6.1	61	LQ19	P001 IBC03 LP01 R001		MP15	T7	TP2 TP28
3354	INSECTICIDE GAS, FLAMMABLE, N.O.S.	2	2F		2.1	274	LQ0	P200		MP9		
3355	INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S.	2	2TF		2.3 +2.1	274	LQ0	P200		MP9		
3356	OXYGEN GENERATOR, CHEMICAL	5.1	O3	II	5.1	284	LQ0	P500		MP2		
3357	NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, N.O.S. with not more than 30% nitroglycerin, by mass	3	D	II	3	274 288	LQ4	P099		MP2		
3358	REFRIGERATING MACHINES containing flammable, non-toxic, liquefied gas	2	6F		2.1	291	LQ0	P003	PP32	MP9		
3359	FUMIGATED UNIT	9	M11			302						
3360	Fibres, vegetable, dry	4.1	F1				NOT SUBJECT TO ADR					
3361	CHLOROSILANES, TOXIC, CORROSIVE, N.O.S.	6.1	TC1	II	6.1 +8	274	LQ0	P001 IBC01		MP15	T11	TP2 TP13 TP27
3362	CHLOROSILANES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.	6.1	TFC	II	6.1 +3 +8	274	LQ0	P001 IBC01		MP15	T11	TP2 TP13 TP27
3363	Dangerous goods in machinery or dangerous goods in apparatus	9	M11	NOT SUBJECT TO ADR [See also I.1.3.1 (b)]								
3364	TRINITROPHENOL (PICRIC ACID) wetted with not less than 10% water, by mass	4.1	D	I	4.1		LQ0	P406	PP24	MP2		
3365	TRINITROCHLORO-BENZENE (PICRYL CHLORIDE) wetted with not less than 10% water, by mass	4.1	D	I	4.1		LQ0	P406	PP24	MP2		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3	4.3.5, 6.8.4	9.1.1.2	1.1.3.6	7.2.4	7.3.3	7.5.11	8.5	5.3.2.3	3.1.2	
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(1) (2)	
L10CH	TU14 TU15 TE1 TE21	FL	1			CV13 CV28	S2 S19	336	3350	PYRETHROID PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
L4BH	TU15 TE1 TE15	FL	2			CV13 CV28	S2 S19	336	3350	PYRETHROID PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	FL	1			CV1 CV13 CV28	S2 S9 S17	663	3351	PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	63	3351	PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9	63	3351	PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C
L10CH	TU14 TU15 TE1 TE19 TE21	AT	1			CV1 CV13 CV28	S9 S17	66	3352	PYRETHROID PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	60	3352	PYRETHROID PESTICIDE, LIQUID, TOXIC
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9	60	3352	PYRETHROID PESTICIDE, LIQUID, TOXIC
PxBN(M)		FL	2	V7		CV9 CV10	S2 S20	23	3354	INSECTICIDE GAS, FLAMMABLE, N.O.S.
PxBH(M)	TU6 TE1	FL	1	V7		CV9 CV10	S2 S7 S17	263	3355	INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S.
			2			CV24			3356	OXYGEN GENERATOR, CHEMICAL
			2				S2 S17		3357	NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, N.O.S. with not more than 30% nitroglycerin, by mass
			2			CV9	S2		3358	REFRIGERATING MACHINES containing flammable, non-toxic, liquefied gas
									3359	FUMIGATED UNIT
NOT SUBJECT TO ADR										
L4BH	TU15 TE1 TE15 TE19	AT	2			CV13 CV28	S9 S19	68	3361	CHLOROSILANES, TOXIC, CORROSIVE, N.O.S.
L4BH	TU15 TE1 TE15 TE19	FL	2			CV13 CV28	S2 S9 S19	638	3362	CHLOROSILANES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.
NOT SUBJECT TO ADR [See also 1.1.3.1 (b)]										
			1				S17		3363	Dangerous goods in machinery or dangerous goods in apparatus
			1				S17		3364	TRINITROPHENOL (PICRIC ACID) wetted with not less than 10% water, by mass
			1				S17		3365	TRINITROCHLORO-BENZENE (PICRYL CHLORIDE) wetted with not less than 10% water, by mass

UN No.	Name and description	Class	Classification Code	Packing group	Labels	Special provisions	Limited quantities	Packaging			UN portable tanks	
								Packing instructions	Special packing provisions	Mixed packing provisions	Instructions	Special provisions
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2	3.3	3.4.6	4.1.4	4.1.4	4.1.10	4.2.4.2	4.2.4.3
3366	TRINITROTOLUENE (TNT), wetted with not less than 10% water, by mass	4.1	D	I	4.1		LQ0	P406	PP24	MP2		
3367	TRINITROBENZENE, wetted with not less than 10% water, by mass	4.1	D	I	4.1		LQ0	P406	PP24	MP2		
3368	TRINITROBENZOIC ACID, wetted with not less than 10% water, by mass	4.1	D	I	4.1		LQ0	P406	PP24	MP2		
3369	SODIUM DINITRO- <i>o</i> -CRESOLATE, wetted with not less than 10% water, by mass	4.1	DT	I	4.1 +6.1		LQ0	P406	PP24	MP2		
3370	UREA NITRATE, wetted with not less than 10% water, by mass	4.1	D	I	4.1		LQ0	P406	PP78	MP2		
3371	2-METHYLBUTANAL	3	F1	II	3		LQ4	P001 IBC02 R001		MP19	T4	TP1
3372	ORGANOMETALLIC COMPOUND, SOLID, WATER-REACTIVE, FLAMMABLE, N.O.S.	4.3	WF2	I	4.3 +4.1	274	LQ0	P403 IBC04		MP2		
3372	ORGANOMETALLIC COMPOUND, SOLID, WATER-REACTIVE, FLAMMABLE, N.O.S.	4.3	WF2	II	4.3 +4.1	274	LQ11	P410 IBC04		MP14		
3372	ORGANOMETALLIC COMPOUND, SOLID, WATER-REACTIVE, FLAMMABLE, N.O.S.	4.3	WF2	III	4.3 +4.1	274	LQ12	P410 IBC06		MP14		
3373	DIAGNOSTIC SPECIMENS	6.2	I4				LQ0	P650				
3374	ACETYLENE, SOLVENT FREE	2	2F		2.1		LQ0	P200		MP9		
3375	AMMONIUM NITRATE EMULSION or SUSPENSION or GEL, intermediate for blasting explosives, liquid	5.1	O1	II	5.1	306 309	LQ0	P099 IBC99		MP2		
3375	AMMONIUM NITRATE EMULSION or SUSPENSION or GEL, intermediate for blasting explosives, solid	5.1	O2	II	5.1	306 309	LQ0	P099 IBC99		MP2		
3376	4-NITROPHENYL-HYDRAZINE, with not less than 30% water, by mass	4.1	D	II	4.1	28	LQ0	P406	PP26	MP2		

ADR tank		Vehicle for tank carriage	Transport category	Special provisions for carriage				Hazard identification No.	UN No.	Name and description
Tank code	Special provisions			Packages	Bulk	Loading, unloading and handling	Operation			
4.3 (12)	4.3.5, 6.8.4 (13)	9.1.1.2 (14)	1.1.3.6 (15)	7.2.4 (16)	7.3.3 (17)	7.5.11 (18)	8.5 (19)	5.3.2.3 (20)	3.1.2 (2)	
			1				S17		3366 TRINITROTOLUENE (TNT), wetted with not less than 10% water, by mass	
			1				S17		3367 TRINITROBENZENE, wetted with not less than 10% water, by mass	
			1				S17		3368 TRINITROBENZOIC ACID, wetted with not less than 10% water, by mass	
			1			CV13 CV28	S17		3369 SODIUM DINITRO-o-CRESOLATE, WETTED with not less than 10% water; by mass	
			1				S17		3370 UREA NITRATE, wetted with not less than 10% water, by mass	
LGBF		FL	2				S2 S20	33	3371 2-METHYLBUTANAL	
			0	V1		CV23			3372 ORGANOMETALLIC COMPOUND, SOLID, WATER-REACTIVE, FLAMMABLE, N.O.S.	
			0	V1		CV23			3372 ORGANOMETALLIC COMPOUND, SOLID, WATER-REACTIVE, FLAMMABLE, N.O.S.	
			0	V1 V12		CV23			3372 ORGANOMETALLIC COMPOUND, SOLID, WATER-REACTIVE, FLAMMABLE, N.O.S.	
									3373 DIAGNOSTIC SPECIMENS	
			2	V7		CV9 CV10	S2		3374 ACETYLENE, SOLVENT FREE	
			2			CV24	S9 S14		3375 AMMONIUM NITRATE EMULSION or SUSPENSION or GEL, intermediate for blasting explosives, liquid	
			2			CV24	S9 S14		3375 AMMONIUM NITRATE EMULSION or SUSPENSION or GEL, intermediate for blasting explosives, solid	
			1	V1			S17		3376 4-NITROPHENYL-HYDRAZINE, with not less than 30% water, by mass	

**3.2.2 Table B: Alphabetic index of substances and articles of ADR**

This index is an alphabetical list of the substances and articles which are listed in the UN numerical order in Table A of 3.2.1. It does not form an integral part of ADR. It has been submitted neither to the Working Party on the Transport of Dangerous Goods of the Inland Transport Committee for checking and approval nor to the Contracting Parties to ADR for formal acceptance. It has been prepared, with all necessary care by the Secretariat of the United Nations Economic Commission for Europe, in order to facilitate the consultation of Annexes A and B, but it cannot be relied upon as a substitute for the careful study and observance of the actual provisions of those annexes which, in case of conflict, are deemed to be authoritative. ONLY ADR AND ITS ANNEXES HAVE LEGAL FORCE.

*NOTE 1: For the purpose of determining the alphabetical order the following information has been ignored, even when it forms part of the proper shipping name: numbers; Greek letters; the abbreviations "sec" and "tert"; and the letters "N" (nitrogen), "n" (normal), "o" (ortho) "m" (meta), "p" (para) and "N.O.S." (not otherwise specified).*

*NOTE 2: The name of a substance or article in block capital letters indicates a proper shipping name (see 3.1.2).*

*NOTE 3: The name of a substance or article in block capital letters followed by the word "see" indicates an alternative proper shipping name or part of a proper shipping name (except for PCBs) (see 3.1.2.1).*

*NOTE 4: An entry in lower case letters followed by the word "see" indicates that the entry is not a proper shipping name; it is a synonym.*

*NOTE 5: Where an entry is partly in block capital letters and partly in lower case letters, the latter part is considered not to be part of the proper shipping name (see 3.1.2.1).*

*NOTE 6: A proper shipping name may be used in the singular or plural, as appropriate, for the purposes of documentation and package marking (see 3.1.2.3).*

*NOTE 7: For the exact determination of a proper shipping name, see 3.1.2.*



Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Accumulators, electric, see	2794	8		ACETYL METHYL	2621	3	
	2795	8		CARBINOL			
	2800	8					
	3028	8		Acid butyl phosphate, see	1718	8	
	3292	4.3					
ACETAL	1088	3		Acid mixture, hydrofluoric and sulphuric, see	1786	8	
ACETALDEHYDE	1089	3					
ACETALDEHYDE	1841	9		Acid mixture, nitrating acid, see	1796	8	
AMMONIA							
ACETALDEHYDE OXIME	2332	3		Acid mixture, spent, nitrating acid, see	1826	8	
ACETIC ACID, GLACIAL	2789	8					
ACETIC ACID SOLUTION, more than 10% but not more than 80% acid, by mass	2790	8		Acraldehyde, inhibited, see	1092	6.1	
ACETIC ACID SOLUTION, more than 80% acid, by mass	2789	8		ACRIDINE	2713	6.1	
ACETIC ANHYDRIDE	1715	8		ACROLEIN DIMER, STABILIZED	2607	3	
Acetoin, see	2621	3		ACROLEIN, STABILIZED	1092	6.1	
ACETONE	1090	3		ACRYLAMIDE	2074	6.1	
ACETONE	1541	6.1		ACRYLIC ACID, STABILIZED	2218	8	
CYANOHYDRIN, STABILIZED				ACRYLONITRILE, STABILIZED	1093	3	
ACETONE OILS	1091	3		Actinolite, see	2590	9	
ACETONITRILE	1648	3		Activated carbon, see	1362	4.2	
ACETYL BROMIDE	1716	8		Activated charcoal, see	1362	4.2	
ACETYL CHLORIDE	1717	3		ADHESIVES containing flammable liquid	1133	3	
ACETYLENE, DISSOLVED	1001	2		ADIPONITRILE	2205	6.1	
ACETYLENE, SOLVENT FREE	3374	2		Aeroplane flares, see	0093	1	
Acetylene tetrabromide, see	2504	6.1			0403	1	
Acetylene tetrachloride, see	1702	6.1			0404	1	
ACETYL IODIDE	1898	8			0420	1	
					0421	1	
				AEROSOLS	1950	2	
				AGENT, BLASTING, TYPE B	0331	1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
AGENT, BLASTING, TYPE E	0332	1		ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.	1988	3	
AIR BAG INFLATORS	0503 3268	1 9		ALDOL	2839	6.1	
AIR BAG MODULES	0503 3268	1 9		ALKALI METAL ALCOHOLATES, SELF-HEATING, CORROSIVE, N.O.S.	3206	4.2	
AIR, COMPRESSED	1002	2		ALKALI METAL ALLOY, LIQUID, N.O.S.	1421	4.3	
Aircraft evacuation slides, see	2990	9		ALKALI METAL AMALGAM	1389	4.3	
AIRCRAFT HYDRAULIC POWER UNIT FUEL TANK (containing a mixture of anhydrous hydrazine and methylhydrazine) (M86 fuel)	3165	3		ALKALI METAL AMIDES	1390	4.3	
Aircraft survival kits, see	2990	9		ALKALI METAL DISPERSION	1391	4.3	
AIR, REFRIGERATED LIQUID	1003	2		Alkaline corrosive battery fluid, see	2797	8	
ALCOHOLATES SOLUTION, N.O.S., in alcohol	3274	3		ALKALINE EARTH METAL ALCOHOLATES, N.O.S.	3205	4.2	
Alcohol, denaturated, see	1986 1987	3 3		ALKALINE EARTH METAL ALLOY, N.O.S.	1393	4.3	
Alcohol, industrial, see	1986 1987	3 3		ALKALINE EARTH METAL AMALGAM	1392	4.3	
ALCOHOLS, N.O.S.	1987	3		ALKALINE EARTH METAL DISPERSION	1391	4.3	
ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	1986	3		ALKALOIDS, LIQUID, N.O.S.	3140	6.1	
ALCOHOLIC BEVERAGES, with more than 24% but not more than 70% alcohol by volume	3065	3		ALKALOIDS, SOLID, N.O.S.	1544	6.1	
ALCOHOLIC BEVERAGES, with more than 70% alcohol by volume	3065	3		ALKALOID SALTS, LIQUID, N.O.S.	3140	6.1	
Aldehyde, see	1989	3		ALKALOID SALTS, SOLID, N.O.S.	1544	6.1	
ALDEHYDES, N.O.S.	1989	3		Alkyl aluminium halides, see	3052	4.2	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
ALKYLPHENOLS, LIQUID, N.O.S. (including C <sub>2</sub> -C <sub>12</sub> homologues)	3145	8		ALLYL ISOTHIOCYANATE, STABILIZED	1545	6.1	
ALKYLPHENOLS, SOLID, N.O.S. (including C <sub>2</sub> -C <sub>12</sub> homologues)	2430	8		ALLYLTRICHLORO-SILANE, STABILIZED	1724	8	
ALKYLSULPHONIC ACIDS, LIQUID with more than 5% free sulphuric acid	2584	8		ALUMINIUM ALKYL HALIDES, LIQUID	3051	4.2	
ALKYLSULPHONIC ACIDS, LIQUID with not more than 5% free sulphuric acid	2586	8		ALUMINIUM ALKYL HALIDES, SOLID	3052	4.2	
ALKYLSULPHONIC ACIDS, SOLID with more than 5% free sulphuric acid	2583	8		ALUMINIUM ALKYL HYDRIDES	3076	4.2	
ALKYLSULPHONIC ACIDS, SOLID with not more than 5% free sulphuric acid	2585	8		ALUMINIUM BOROXYDRIDE	2870	4.2	
ALKYLSULPHURIC ACIDS	2571	8		ALUMINIUM BOROXYDRIDE IN DEVICES	2870	4.2	
Allene, see	2200	2		ALUMINIUM BROMIDE, ANHYDROUS	1725	8	
ALLYL ACETATE	2333	3		ALUMINIUM BROMIDE SOLUTION	2580	8	
ALLYL ALCOHOL	1098	6.1		ALUMINIUM CARBIDE	1394	4.3	
ALLYLAMINE	2334	6.1		ALUMINIUM CHLORIDE, ANHYDROUS	1726	8	
ALLYL BROMIDE	1099	3		ALUMINIUM CHLORIDE SOLUTION	2581	8	
ALLYL CHLORIDE	1100	3		Aluminium dross, see	3170	4.3	
Allyl chlorocarbonate, see	1722	6.1		ALUMINIUM FERROSILICON POWDER	1395	4.3	
ALLYL CHLOROFORMATE	1722	6.1		ALUMINIUM HYDRIDE	2463	4.3	
ALLYL ETHYL ETHER	2335	3		ALUMINIUM NITRATE	1438	5.1	
ALLYL FORMATE	2336	3		ALUMINIUM PHOSPHIDE	1397	4.3	
ALLYL GLYCIDYL ETHER	2219	3		ALUMINIUM PHOSPHIDE PESTICIDE	3048	6.1	
ALLYL IODIDE	1723	3					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
ALUMINIUM POWDER, COATED	1309	4.1		2-(2-AMINOETHOXY) ETHANOL	3055	8	
ALUMINIUM POWDER, UNCOATED	1396	4.3		N-AMINOETHYL-PIPERAZINE	2815	8	
ALUMINIUM REMELTING BY-PRODUCTS	3170	4.3		1-Amino-2-nitrobenzene, see	1661	6.1	
ALUMINIUM RESINATE	2715	4.1		1-Amino-3-nitrobenzene, see	1661	6.1	
ALUMINIUM SILICON POWDER, UNCOATED	1398	4.3		1-Amino-4-nitrobenzene, see	1661	6.1	
ALUMINIUM SMELTING BY-PRODUCTS	3170	4.3		AMINOPHENOLS (o-, m-, p-)	2512	6.1	
Amatols, see	0082	1		AMINOPYRIDINES (o-, m-, p-)	2671	6.1	
AMINES, FLAMMABLE, CORROSIVE, N.O.S.	2733	3		AMMONIA, ANHYDROUS	1005	2	
AMINES, LIQUID, CORROSIVE, N.O.S.	2735	8		AMMONIA SOLUTION relative density between 0.880 and 0.957 at 15 °C in water, with more than 10% but not more than 35% ammonia	2672	8	
AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.	2734	8		AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 35% but not more than 50% ammonia	2073	2	
AMINES, SOLID, CORROSIVE, N.O.S.	3259	8		AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 50% ammonia	3318	2	
Aminobenzene, see	1547	6.1		AMMONIUM ARSENATE	1546	6.1	
2-Aminobenzotrifluoride, see	2942	6.1		Ammonium bichromate, see	1439	5.1	
3-Aminobenzotrifluoride, see	2948	6.1		Ammonium bifluoride solid, see	1727	8	
Aminobutane, see	1125	3		Ammonium bifluoride solution, see	2817	8	
2-AMINO-4-CHLOROPHENOL	2673	6.1		Ammonium bisulphate, see	2506	8	
2-AMINO-5-DIETHYLAMINOPENTANE	2946	6.1		Ammonium bisulphite solution, see	2693	8	
2-AMINO-4,6-DINITROPHENOL, WETTED with not less than 20% water, by mass	3317	4.1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
AMMONIUM DICHROMATE	1439	5.1		AMMONIUM NITRATE EMULSION, intermediate for blasting explosives, solid	3375	5.1	
AMMONIUM DINITRO-o-CRESOLATE	1843	6.1		Ammonium nitrate explosive, see	0082 0331	1 1	
AMMONIUM FLUORIDE	2505	6.1		AMMONIUM NITRATE BASED FERTILIZER	2067	5.1	
AMMONIUM FLUROSILICATE	2854	6.1		Ammonium nitrate based fertilizer, uniform mixtures of the nitrogen/phosphate, nitrogen/potash or nitrogen/phosphate/potash type, containing not more than 70% ammonium nitrate and not more than 0.4% total combustible/organic material calculated as carbon or with not more than 45% ammonium nitrate and unrestricted combustible material	2071	9	Not subject to ADR
Ammonium hexafluorosilicate, see	2854	6.1					
AMMONIUM HYDROGENDIFLUORIDE, SOLID	1727	8					
AMMONIUM HYDROGENDIFLUORIDE SOLUTION	2817	8					
AMMONIUM HYDROGEN SULPHATE	2506	8					
Ammonium hydrosulphide solution (treat as ammonium sulphide solution), see	2683	8		AMMONIUM NITRATE GEL, intermediate for blasting explosives, liquid	3375	5.1	
AMMONIUM METAVANADATE	2859	6.1		AMMONIUM NITRATE GEL, intermediate for blasting explosives, solid	3375	5.1	
AMMONIUM NITRATE with more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance	0222	1		AMMONIUM NITRATE, LIQUID hot concentrated solution, in a concentration of more than 80% but not more than 93%	2426	5.1	
AMMONIUM NITRATE with not more than 0.2% total combustible material, including any organic substance calculated as carbon, to the exclusion of any other added substance	1942	5.1		AMMONIUM NITRATE SUSPENSION, intermediate for blasting explosives, liquid	3375	5.1	
				AMMONIUM NITRATE SUSPENSION, intermediate for blasting explosives, solid	3375	5.1	
				AMMONIUM PERCHLORATE	0402 1442	1 5.1	
AMMONIUM NITRATE EMULSION, intermediate for blasting explosives, liquid	3375	5.1		Ammonium permanganate, see	1482	5.1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
AMMONIUM PERSULPHATE	1444	5.1		Ammunition, incendiary (water-activated contrivances) with burster, expelling charge or propelling charge, see	0248 0249	1 1	
AMMONIUM PICRATE dry or wetted with less than 10% water, by mass	0004	1		AMMUNITION, INCENDIARY, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	0243 0244	1 1	
AMMONIUM PICRATE, WETTED with not less than 10% water, by mass	1310	4.1		Ammunition, industrial, see	0275 0276 0277 0278	1 1 1 1	
AMMONIUM POLYSULPHIDE SOLUTION	2818	8		AMMUNITION, PRACTICE	0362 0488	1 1	
AMMONIUM POLYVANADATE	2861	6.1		AMMUNITION, PROOF	0363	1	
Ammonium silicofluoride, see	2854	6.1		AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	0015 0016 0303	1 1 1	
AMMONIUM SULPHIDE SOLUTION	2683	8		Ammunition, smoke (water-activated contrivances), white phosphorus with burster, expelling charge or propelling charge, see	0248	1	
Ammunition, blank, see	0014 0326 0327 0338 0413	1 1 1 1 1		Ammunition, smoke (water-activated contrivances), without white phosphorus or phosphides with burster, expelling charge or propelling charge, see	0249	1	
Ammunition, fixed	0005	1		AMMUNITION, SMOKE, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	0245 0246	1 1	
Ammunition, semi-fixed	0006	1					
Ammunition, separate loading, see	0007 0321 0348 0412	1 1 1 1					
AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge	0171 0254 0297	1 1 1					
AMMUNITION, INCENDIARY, liquid or gel, with burster, expelling charge or propelling charge	0247	1					
AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge	0009 0010 0300	1 1 1					

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Ammunition, sporting, see	0012	1		AMYL FORMATES	1109	3	
	0328	1					
	0339	1		AMYL MERCAPTAN	1111	3	
	0417	1					
AMMUNITION, TEAR- PRODUCING, NON- EXPLOSIVE without burster or expelling charge, non-fuzed	2017	6.1		n-AMYL METHYL KETONE	1110	3	
				AMYL NITRATE	1112	3	
				AMYL NITRITE	1113	3	
AMMUNITION, TEAR- PRODUCING with burster, expelling charge or propelling charge	0018	1		AMYLTRICHLOROSILANE	1728	8	
	0019	1					
	0301	1		Anaesthetic ether, see	1155	3	
AMMUNITION, TOXIC with burster, expelling charge or propelling charge	0020	1	Carriage prohi- bited	ANILINE	1547	6.1	
				Aniline chloride, see	1548	6.1	
AMMUNITION, TOXIC with burster, expelling charge or propelling charge	0021	1	Carriage prohi- bited	ANILINE HYDROCHLORIDE	1548	6.1	
				Aniline oil, see	1547	6.1	
Ammunition, toxic (water- activated contrivances) with burster, expelling charge or propelling charge, see	0248	1		Aniline salt, see	1548	6.1	
	0249	1					
AMMUNITION, TOXIC, NON-EXPLOSIVE without burster or expelling charge, non-fuzed	2016	6.1		ANISIDINES	2431	6.1	
Amorces (caps, toy), see	0333	1		ANISOLE	2222	3	
	0336	1		ANISOYL CHLORIDE	1729	8	
	0337	1		Anthophyllite, see	2590	9	
Amosite, see	2212	9		Antimonous chloride, see	1733	8	
AMYL ACETATES	1104	3		ANTIMONY COMPOUND, INORGANIC, LIQUID, N.O.S.	3141	6.1	
AMYL ACID PHOSPHATE	2819	8		ANTIMONY COMPOUND, INORGANIC, SOLID, N.O.S.	1549	6.1	
Amyl aldehyde, see	2058	3		Antimony hydride, see	2676	2	
AMYLAMINE	1106	3		ANTIMONY LACTATE	1550	6.1	
AMYL BUTYRATES	2620	3		Antimony (III) lactate, see	1550	6.1	
AMYL CHLORIDE	1107	3		ANTIMONY PENTACHLORIDE, LIQUID	1730	8	
n-AMYLENE, see	1108	3					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
ANTIMONY PENTACHLORIDE SOLUTION	1731	8		ARSENIC BROMIDE	1555	6.1	
				Arsenic (III) bromide, see	1555	6.1	
ANTIMONY PENTAFLUORIDE	1732	8		Arsenic chloride, see	1560	6.1	
Antimony perchloride, liquid, see	1730	8		ARSENIC COMPOUND, LIQUID, N.O.S., inorganic, including: Arsenates, n.o.s., Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	1556	6.1	
ANTIMONY POTASSIUM TARTRATE	1551	6.1		ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	1557	6.1	
ANTIMONY POWDER	2871	6.1					
ANTIMONY TRICHLORIDE	1733	8					
A.n.t.u., see	1651	6.1		Arsenic (III) oxide, see	1561	6.1	
ARGON, COMPRESSED	1006	2		Arsenic (V) oxide, see	1559	6.1	
ARGON, REFRIGERATED LIQUID	1951	2		ARSENIC PENTOXIDE	1559	6.1	
Arsenates, n.o.s., see	1556	6.1		Arsenic sulphides, see	1556	6.1	
	1557	6.1			1557	6.1	
ARSENIC	1558	6.1		ARSENIC TRICHLORIDE	1560	6.1	
ARSENIC ACID, LIQUID	1553	6.1		ARSENIC TRIOXIDE	1561	6.1	
ARSENIC ACID, SOLID	1554	6.1		Arsenious chloride, see	1560	6.1	
ARSENICAL DUST	1562	6.1		Arsenites, n.o.s., see	1556	6.1	
Arsenical flue dust, see	1562	6.1			1557	6.1	
ARSENICAL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	2760	3		Arsenous chloride, see	1560	6.1	
				ARSINE	2188	2	
ARSENICAL PESTICIDE, LIQUID, TOXIC	2994	6.1		ARTICLES, EEI, see	0486	1	
ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	2993	6.1		ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE	0486	1	
				ARTICLES, EXPLOSIVE, N.O.S.	0349	1	
ARSENICAL PESTICIDE, SOLID, TOXIC	2759	6.1			0350	1	
					0351	1	
					0352	1	
					0353	1	
					0354	1	
					0355	1	
					0356	1	



Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
<i>ARTICLES, EXPLOSIVE, N.O.S.(cont'd)</i>	0462	1		Aviation regulated solid, n.o.s.	3335	9	Not subject to ADR
	0463	1					
	0464	1					
	0465	1					
	0466	1		AZODICARBONAMIDE	3242	4.1	
	0467	1					
	0468	1		Bag charges, see	0242	1	
	0469	1			0279	1	
	0470	1			0414	1	
	0471	1					
	0472	1	Ballistite, see	0160	1		
				0161	1		
ARTICLES, PRESSURIZED, HYDRAULIC (containing non-flammable gas)	3164	2		Bangalore torpedoes, see	0136	1	
					0137	1	
					0138	1	
					0294	1	
ARTICLES, PRESSURIZED, PNEUMATIC (containing non-flammable gas)	3164	2		BARIUM	1400	4.3	
ARTICLES, PYROPHORIC	0380	1		BARIUM ALLOYS, PYROPHORIC	1854	4.2	
ARTICLES, PYROTECHNIC for technical purposes	0428	1		BARIUM AZIDE, dry or wetted with less than 50% water, by mass	0224	1	
	0429	1					
	0430	1					
	0431	1					
	0432	1					
ARYLSULPHONIC ACIDS, LIQUID with more than 5% free sulphuric acid	2584	8		BARIUM AZIDE, WETTED with not less than 50% water, by mass	1571	4.1	
				Barium binoxide, see	1449	5.1	
ARYLSULPHONIC ACIDS, LIQUID with not more than 5% free sulphuric acid	2586	8		BARIUM BROMATE	2719	5.1	
				BARIUM CHLORATE	1445	5.1	
ARYLSULPHONIC ACIDS, SOLID with more than 5% free sulphuric acid	2583	8		BARIUM COMPOUND, N.O.S.	1564	6.1	
ARYLSULPHONIC ACIDS, SOLID with not more than 5% free sulphuric acid	2585	8		BARIUM CYANIDE	1565	6.1	
				Barium dioxide, see	1449	5.1	
Asbestos, blue or brown, see	2212	9		BARIUM HYPOCHLORITE with more than 22% available chlorine	2741	5.1	
Asbestos, white, see	2590	9					
Asphalt, see	1999	3		BARIUM NITRATE	1446	5.1	
Aviation regulated liquid, n.o.s.	3334	9	Not subject to ADR	BARIUM OXIDE	1884	6.1	
				BARIUM PERCHLORATE	1447	5.1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
BARIUM PERMANGANATE	1448	5.1		BENZONITRILE	2224	6.1	
BARIUM PEROXIDE	1449	5.1		BENZOQUINONE	2587	6.1	
Barium selenate, see	2630	6.1		Benzosulphochloride, see	2225	8	
Barium selenite, see	2630	6.1		BENZOTRICHLORIDE	2226	8	
Barium superoxide, see	1449	5.1		BENZOTRIFLUORIDE	2338	3	
BATTERIES, CONTAINING SODIUM	3292	4.3		BENZOYL CHLORIDE	1736	8	
BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE SOLID, electric storage	3028	8		BENZYL BROMIDE	1737	6.1	
BATTERIES, WET, FILLED WITH ACID, electric storage	2794	8		BENZYL CHLORIDE	1738	6.1	
BATTERIES, WET, FILLED WITH ALKALI, electric storage	2795	8		Benzyl chlorocarbonate, see	1739	8	
BATTERIES, WET, NON-SPILLABLE, electric storage	2800	8		BENZYL CHLOROFORMATE	1739	8	
BATTERY FLUID, ACID	2796	8		Benzyl cyanide, see	2470	6.1	
BATTERY FLUID, ALKALI	2797	8		BENZYLDIMETHYL-AMINE	2619	8	
Battery-powered vehicle or Battery-powered equipment	3171	9	Not subject to ADR	BENZYLIDENE CHLORIDE	1886	6.1	
BENZALDEHYDE	1990	9		BENZYL IODIDE	2653	6.1	
BENZENE	1114	3		BERYLLIUM COMPOUND, N.O.S.	1566	6.1	
1,4-Benzenediol, see	2662	6.1		BERYLLIUM NITRATE	2464	5.1	
BENZENESULPHONYL CHLORIDE	2225	8		BERYLLIUM POWDER	1567	6.1	
Benzenethiol, see	2337	6.1		Bhusa	1327	4.1	Not subject to ADR
BENZIDINE	1885	6.1		BICYCLO[2.2.1]HEPTA-2,5-DIENE, STABILIZED	2251	3	
Benzol, see	1114	3		Bifluorides, n.o.s., see	1740	8	
Benzolene, see	1268	3		(BIO) MEDICAL WASTE, N.O.S.	3291	6.2	
				BIPYRIDILIUM PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	2782	3	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC	3016	6.1		BOMBS, PHOTO-FLASH	0037	1	
					0038	1	
					0039	1	
BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	3015	6.1			0299	1	
				BOMBS, SMOKE, NON-EXPLOSIVE with corrosive liquid, without initiating device	2028	8	
BIPYRIDILIUM PESTICIDE, SOLID, TOXIC	2781	6.1					
				Bombs, target identification, see	0171	1	
BISULPHATES, AQUEOUS SOLUTION	2837	8			0254	1	
					0297	1	
BISULPHITES, AQUEOUS SOLUTION, N.O.S.	2693	8		BOMBS WITH FLAMMABLE LIQUID with bursting charge	0399	1	
Bitumen, see	1999	3			0400	1	
BLACK POWDER, COMPRESSED	0028	1		BOOSTERS WITH DETONATOR	0225	1	
					0268	1	
BLACK POWDER, granular or as a meal	0027	1		BOOSTERS without detonator	0042	1	
					0283	1	
BLACK POWDER, IN PELLETS	0028	1		Borate and chlorate mixture, see	1458	5.1	
Blasting cap assemblies, see	0360	1		BORNEOL	1312	4.1	
	0361	1		BORON TRIBROMIDE	2692	8	
Blasting caps, electric, see	0030	1		BORON TRICHLORIDE	1741	2	
	0255	1		BORON TRIFLUORIDE ACETIC ACID COMPLEX	1742	8	
	0456	1		BORON TRIFLUORIDE	1008	2	
Blasting caps, non electric, see	0029	1		BORON TRIFLUORIDE DIETHYL ETHERATE	2604	8	
	0267	1		BORON TRIFLUORIDE DIHYDRATE	2851	8	
	0455	1		BORON TRIFLUORIDE DIMETHYL ETHERATE	2965	4.3	
Blau gas, see	2600	2		BORON TRIFLUORIDE PROPIONIC ACID COMPLEX	1743	8	
Bleaching powder, see	2208	5.1		BROMATES, INORGANIC, N.O.S.	1450	5.1	
BLUE ASBESTOS (crocidolite)	2212	9					
BOMBS with bursting charge	0033	1					
	0034	1					
	0035	1					
	0291	1					
Bombs, illuminating, see	0254	1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
BROMATES, INORGANIC, AQUEOUS SOLUTION, N.O.S	3213	5.1		1-BROMO-3-METHYLBUTANE	2341	3	
BROMINE	1744	8		BROMOMETHYL-PROPANES	2342	3	
BROMINE CHLORIDE	2901	2		2-BROMO-2-NITROPROPANE-1,3-DIOL	3241	4.1	
BROMINE PENTAFLUORIDE	1745	5.1		2-BROMOPENTANE	2343	3	
BROMINE SOLUTION	1744	8		BROMOPROPANES	2344	3	
BROMINE TRIFLUORIDE	1746	5.1		3-BROMOPROPYNE	2345	3	
BROMOACETIC ACID	1938	8		BROMOTRIFLUORO-ETHYLENE	2419	2	
BROMOACETONE	1569	6.1		BROMOTRIFLUORO-METHANE	1009	2	
omega-Bromoacetone, see	2645	6.4		BROWN ASBESTOS (amosite, mysorite)	2212	9	
BROMOACETYL BROMIDE	2513	8		BRUCINE	1570	6.1	
BROMOBENZENE	2514	3		BURSTERS, explosive	0043	1	
BROMOBENZYL CYANIDES, LIQUID	1694	6.1		1,2-BUTADIENE, STABILIZED, having a vapour pressure at 70 °C not exceeding 1.1 MPa (11 bar) and a density at 50 °C not lower than 0.525 kg/l	1010	2	
BROMOBENZYL CYANIDES, SOLID	1694	6.1		1,3-BUTADIENE, STABILIZED, having a vapour pressure at 70 °C not exceeding 1.1 MPa (11 bar) and a density at 50 °C not lower than 0.525 kg/l	1010	2	
1-BROMOBUTANE	1126	3		BUTANE	1011	2	
2-BROMOBUTANE	2339	3		BUTANEDIONE	2346	3	
BROMOCHLORO-METHANE	1887	6.1		Butane-1-thiol, see	2347	3	
1-BROMO-3-CHLOROPROPANE	2688	6.1		BUTANOLS	1120	3	
1-Bromo-2,3-epoxypropane, see	2558	6.1		1-Butanol, see	1120	3	
Bromoethane, see	1891	6.1		Butan-2-ol, see	1120	3	
2-BROMOETHYL ETHYL ETHER	2340	3					
BROMOFORM	2515	6.1					
Bromomethane, see	1062	2					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Butanol, secondary, see	1120	3		Butyl ethers, see	1149	3	
Butanol, tertiary, see	1120	3		Butyl ethyl ether, see	1179	3	
Butanone, see	1193	3		n-BUTYL FORMATE	1128	3	
2-Butenal, see	1143	6.1		tert-BUTYL HYPOCHLORITE	3255	4.2	Carriage prohi- bited
Butene, see	1012	2		N,n-BUTYLIMIDAZOLE	2690	6.1	
Bute-1-ene-3-one, see	1251	3		N,n-Butyliminazole, see	2690	6.1	
1,2-Buteneoxide, see	3022	3		n-BUTYL ISOCYANATE	2485	6.1	
2-Buten-1-ol, see	2614	3		tert-BUTYL ISOCYANATE	2484	6.1	
BUTYL ACETATES	1123	3		Butyl lithium, see	2445	4.2	
Butyl acetate, secondary, see	1123	3		BUTYL MERCAPTAN	2347	3	
BUTYL ACID PHOSPHATE	1718	8		n-BUTYL METHACRYLATE, STABILIZED	2227	3	
BUTYL ACRYLATES, STABILIZED	2348	3		BUTYL METHYL ETHER	2350	3	
Butyl alcohols, see	1120	3		BUTYL NITRITES	2351	3	
n-BUTYLAMINE	1125	3		Butylphenols, liquid, see	3145	8	
N-BUTYLANILINE	2738	6.1		Butylphenols, solid, see	2430	8	
sec-Butyl benzene, see	2709	3		BUTYL PROPIONATES	1914	3	
BUTYLBENZENES	2709	3		p-tert-Butyltoluene, see	2667	6.1	
n-Butyl bromide, see	1126	3		BUTYLTOLUENES	2667	6.1	
n-Butyl chloride, see	1127	3		BUTYLTRICHLORO- SILANE	1747	8	
n-BUTYL CHLOROFORMATE	2743	6.1		5-tert-BUTYL-2,4,6- TRINITRO-m-XYLENE	2956	4.1	
tert-BUTYLCYCLOHEXYL CHLOROFORMATE	2747	6.1		BUTYL VINYL ETHER, STABILIZED	2352	3	
BUTYLENES MIXTURE or 1-BUTYLENE or CIS-2-BUTYLENE or TRANS-2-BUTYLENE	1012	2		But-1-yne, see	2452	2	
1,2-BUTYLENE OXIDE, STABILIZED	3022	3		1,4-BUTYNEDIOL	2716	6.1	
				2-Butyne-1,4-diol, see	2716	6.1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
BUTYRALDEHYDE	1129	3		CALCIUM CHLORATE, AQUEOUS SOLUTION	2429	5.1	
BUTYRALDOXIME	2840	3		CALCIUM CHLORITE	1453	5.1	
BUTYRIC ACID	2820	8		CALCIUM CYANAMIDE with more than 0.1% calcium carbide	1403	4.3	
BUTYRIC ANHYDRIDE	2739	8		CALCIUM CYANIDE	1575	6.1	
Butyrone, see	2710	3		CALCIUM DITHIONITE	1923	4.2	
BUTYRONITRILE	2411	3		CALCIUM HYDRIDE	1404	4.3	
Butyroyl chloride, see	2353	3		CALCIUM HYDROSULPHITE, see	1923	4.2	
BUTYRYL CHLORIDE	2353	3		CALCIUM HYPOCHLORITE, DRY	1748	5.1	
Cable cutters, explosive, see	0070	1		CALCIUM HYPOCHLORITE, HYDRATED with not less than 5.5% but not more than 16% water	2880	5.1	
CACODYLIC ACID	1572	6.1		CALCIUM HYPOCHLORITE, HYDRATED MIXTURE with not less than 5.5% but not more than 16% water	2880	5.1	
CADMIUM COMPOUND	2570	6.1		CALCIUM MANGANESE SILICON	2844	4.3	
CAESIUM	1407	4.3		CALCIUM NITRATE	1454	5.1	
CAESIUM HYDROXIDE	2682	8		Calcium oxide	1910	8	Not subject to ADR
CAESIUM HYDROXIDE SOLUTION	2681	8					
CAESIUM NITRATE	1451	5.1					
Caffeine, see	1544	6.1					
Cajeputene, see	2052	3					
CALCIUM	1401	4.3					
CALCIUM ALLOYS, PYROPHORIC	1855	4.2					
CALCIUM ARSENATE	1573	6.1					
CALCIUM ARSENATE AND CALCIUM ARSENITE MIXTURE, SOLID	1574	6.1					
Calcium bisulphite solution, see	2693	8					
CALCIUM CARBIDE	1402	4.3					
CALCIUM CHLORATE	1452	5.1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
CALCIUM PERCHLORATE	1455	5.1		CARBON, animal or vegetable origin	1361	4.2	
CALCIUM PERMANGANATE	1456	5.1		CARBON, ACTIVATED	1362	4.2	
CALCIUM PEROXIDE	1457	5.1		Carbon bisulphide, see	1131	3	
CALCIUM PHOSPHIDE	1360	4.3		Carbon black (animal or vegetable origin), see	1361	4.2	
CALCIUM, PYROPHORIC	1855	4.2		CARBON DIOXIDE	1013	2	
CALCIUM RESINATE	1313	4.1		Carbon dioxide and ethylene oxide mixture, see	1041	2	
CALCIUM RESINATE, FUSED	1314	4.1			1952	2	
Calcium selenate, see	2630	6.1			3300	2	
CALCIUM SILICIDE	1405	4.3		CARBON DIOXIDE AND NITROUS OXIDE MIXTURE	1015	2	
Calcium silicon, see	1405	4.3		CARBON DIOXIDE AND OXYGEN MIXTURE, COMPRESSED	1014	2	
Calcium superoxide, see	1457	5.1		CARBON DIOXIDE, REFRIGERATED LIQUID	2187	2	
Camphanone, see	2717	4.1		Carbon dioxide, solid	1845	9	Not subject to ADR
CAMPHOR OIL	1130	3		CARBON DISULPHIDE	1131	3	
CAMPHOR, synthetic	2717	4.1		Carbonic anhydride, see	1013	2	
CAPROIC ACID	2829	8			1845	9	
CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	2758	3			2187	2	
CARBAMATE PESTICIDE, LIQUID, TOXIC	2992	6.1		CARBON MONOXIDE, COMPRESSED	1016	2	
CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	2991	6.1		CARBON MONOXIDE AND HYDROGEN MIXTURE, COMPRESSED	2600	2	
CARBAMATE PESTICIDE, SOLID, TOXIC	2757	6.1		Carbon oxysulphide, see	2204	2.3	
Carbolic acid, see	1671	6.1		CARBON TETRABROMIDE	2516	6.1	
	2312	6.1		CARBON TETRACHLORIDE	1846	6.1	
	2821	6.1		Carbonyl chloride, see	1076	2	
				CARBONYL FLUORIDE	2417	2	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
CARBONYL SULPHIDE	2204	2		CARTRIDGES, SMALL ARMS, BLANK	0014	1	
Cartridge cases, empty, primed, see	0055	1			0327	1	
	0379	1			0338	1	
Cartridges, actuating, for fire extinguisher or apparatus valve, see	0275	1		Cartridges, starter, jet engine, see	0275	1	
	0276	1			0276	1	
	0323	1			0323	1	
	0381	1			0381	1	
Cartridges, explosive, see	0048	1		CASES, CARTRIDGE, EMPTY, WITH PRIMER	0055	1	
CARTRIDGES, FLASH	0049	1			0379	1	
	0050	1		CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER	0446	1	
CARTRIDGES FOR WEAPONS with bursting charge	0005	1			0447	1	
	0006	1		Casinghead gasoline, see	1203	3	
	0007	1		CASTOR BEANS	2969	9	
	0321	1		CASTOR FLAKE	2969	9	
	0348	1		CASTOR MEAL	2969	9	
	0412	1		CASTOR POMACE	2969	9	
CARTRIDGES FOR WEAPONS, BLANK	0014	1		CAUSTIC ALKALI LIQUID, N.O.S.	1719	8	
	0326	1		Caustic potash, see	1814	8	
	0327	1		Caustic soda, see	1824	8	
	0338	1		Caustic soda liquor, see	1824	8	
	0413	1		CELLS, CONTAINING SODIUM	3292	4.3	
CARTRIDGES FOR WEAPONS, INERT PROJECTILE	0012	1		CELLULOID in block, rods, rolls, sheets, tubes, etc., except scrap	2000	4.1	
	0328	1		CELLULOID, SCRAP	2002	4.2	
	0339	1		Cement, see	1133	3	
	0417	1		CERIUM, slabs, ingots or rods	1333	4.1	
Cartridges, illuminating, see	0171	1		CERIUM, turnings or gritty powder	3078	4.3	
	0254	1		Cer mishmetall, see	1323	4.1	
	0297	1					
CARTRIDGES, OIL WELL	0277	1					
	0278	1					
CARTRIDGES, POWER DEVICE	0275	1					
	0276	1					
	0323	1					
	0381	1					
CARTRIDGES, SIGNAL	0054	1					
	0312	1					
	0405	1					
CARTRIDGES, SMALL ARMS	0012	1					
	0339	1					
	0417	1					



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Charcoal, activated, see	1362	4.1		CHLORATE AND BORATE MIXTURE	1458	5.1	
Charcoal, non-activated, see	1361	4.2		CHLORATE AND MAGNESIUM CHLORIDE MIXTURE	1459	5.1	
CHARGES, BURSTING, PLASTICS BONDED	0457	1		CHLORATES, INORGANIC, N.O.S.	1461	5.1	
	0458	1		CHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	3210	5.1	
	0459	1		CHLORIC ACID, AQUEOUS SOLUTION with not more than 10% chloric acid	2626	5.1	
	0460	1		CHLORINE	1017	2	
CHARGES, DEMOLITION	0048	1		CHLORINE PENTAFLUORIDE	2548	2	
CHARGES, DEPTH	0056	1		CHLORINE TRIFLUORIDE	1749	2	
Charges, expelling, explosive, for fire extinguishers, see	0275	1		CHLORITES, INORGANIC, N.O.S.	1462	5.1	
	0276	1		CHLORITE SOLUTION	1908	8	
	0323	1		Chloroacetaldehyde, see	2232	6.1	
	0381	1		CHLOROACETIC ACID, MOLTEN	3250	6.1	
CHARGES, EXPLOSIVE, COMMERCIAL without detonator	0442	1		CHLOROACETIC ACID, SOLID	1751	6.1	
	0443	1		CHLOROACETIC ACID SOLUTION	1750	6.1	
	0444	1		CHLOROACETONE, STABILIZED	1695	6.1	
	0445	1		CHLOROACETONITRILE	2668	6.1	
CHARGES, PROPELLING	0271	1		CHLOROACETOPHENONE	1697	6.1	
	0272	1		CHLOROACETYL CHLORIDE	1752	6.1	
	0415	1		CHLOROANILINES, LIQUID	2019	6.1	
	0491	1					
CHARGES, PROPELLING, FOR CANNON	0242	1					
	0279	1					
	0414	1					
CHARGES, SHAPED, FLEXIBLE, LINEAR	0237	1					
	0288	1					
CHARGES, SHAPED, without detonator	0059	1					
	0439	1					
	0440	1					
	0441	1					
CHARGES, SUPPLEMENTARY, EXPLOSIVE	0060	1					
CHEMICAL KIT	3316	9					
CHEMICAL SAMPLE, TOXIC, liquid or solid	3315	6.1					
Chile saltpetre, see	1498	5.1					
CHLORAL, ANHYDROUS, STABILIZED	2075	6.1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
CHLOROANILINES, SOLID	2018	6.1		Chloroethane, see	1037	2	
CHLOROANISIDINES	2233	6.1		Chloroethane nitrile, see	2668	6.1	
CHLOROBENZENE	1134	3		2-Chloroethanol, see	1135	6.1	
CHLOROBENZOTRIFLUORIDES	2234	3		CHLOROFORM	1888	6.1	
CHLOROBENZYL CHLORIDES	2235	6.1		CHLOROFORMATES, TOXIC, CORROSIVE, N.O.S.	3277	6.1	
1-Chloro-3-bromopropane, see	2688	6.1		CHLOROFORMATES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.	2742	6.1	
1-Chlorobutane, see	1127	3		Chloromethane, see	1063	2	
2-Chlorobutane, see	1127	3		1-Chloro-3-methylbutane, see	1107	3	
CHLOROBUTANES	1127	3		2-Chloro-2-methylbutane, see	1107	3	
CHLOROCRESOLS, liquid	2669	6.1		CHLOROMETHYL CHLOROFORMATE	2745	6.1	
CHLOROCRESOLS, solid	2669	6.1		Chloromethyl cyanide, see	2668	6.1	
CHLORODIFLUOROBROMOMETHANE	1974	2		CHLOROMETHYL ETHYL ETHER	2354	3	
1-CHLORO-1,1-DIFLUOROETHANE	2517	2		Chloromethyl methyl ether, see	1239	6.1	
CHLORODIFLUOROMETHANE	1018	2		3-CHLORO-4-METHYLPHENYL ISOCYANATE	2236	6.1	
CHLORODIFLUOROMETHANE AND CHLOROPENTAFLUOROETHANE MIXTURE with fixed boiling point, with approximately 49% chlorodifluoromethane	1973	2		3-Chloro-2-methylprop-1-ene, see	2554	3	
3-Chloro-1,2-dihydroxypropane, see	2689	6.1		CHLORONITROANILINES	2237	6.1	
Chlorodimethyl ether, see	1239	6.1		CHLORONITROBENZENES	1578	6.1	
CHLORODINITROBENZENES, LIQUID	1577	6.1		CHLORONITRO-TOLUENES, LIQUID	2433	6.1	
CHLORODINITROBENZENES, SOLID	1577	6.1		CHLORONITRO-TOLUENES, SOLID	2433	6.1	
2-CHLOROETHANAL	2232	6.1		CHLOROPENTAFLUOROETHANE	1020	2	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
CHLOROPHENOLATES, LIQUID	2904	8		2-CHLOROPYRIDINE	2822	6.1	
CHLOROPHENOLATES, SOLID	2905	8		CHLOROSILANES, CORROSIVE, N.O.S.	2987	8	
CHLOROPHENOLS, LIQUID	2021	6.1		CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S.	2986	8	
CHLOROPHENOLS, SOLID	2020	6.1		CHLOROSILANES, FLAMMABLE, CORROSIVE, N.O.S.	2985	3	
CHLOROPHENYL-TRICHLOROSILANE	1753	8		CHLOROSILANES, TOXIC, CORROSIVE, N.O.S.	3361	6.1	
CHLOROPICRIN	1580	6.1		CHLOROSILANES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.	3362	6.1	
CHLOROPICRIN AND METHYL BROMIDE MIXTURE, with more than 2% chloropicrin	1581	2		CHLOROSILANES, WATER-REACTIVE, FLAMMABLE, CORROSIVE, N.O.S.	2988	4.3	
CHLOROPICRIN AND METHYL CHLORIDE MIXTURE	1582	2		CHLOROSULPHONIC ACID (with or without sulphur trioxide)	1754	8	
CHLOROPICRIN MIXTURE, N.O.S.	1583	6.1		1-CHLORO-1,2,2,2-TETRAFLUOROETHANE	1021	2	
CHLOROPLATINIC ACID, SOLID	2507	8		CHLOROTOLUENES	2238	3	
CHLOROPRENE, STABILIZED	1991	3		4-CHLORO-o-TOLUIDINE HYDROCHLORIDE	1579	6.1	
1-CHLOROPROPANE	1278	3		CHLOROTOLUIDINES	2239	6.1	
2-CHLOROPROPANE	2356	3		1-CHLORO-2,2,2-TRIFLUOROETHANE	1983	2	
3-Chloro-propanediol-1,2, see	2689	6.1		Chlorotrifluoroethylene, see	1082	2	
3-CHLOROPROPANOL-1	2849	6.1		CHLOROTRIFLUORO-METHANE	1022	2	
2-CHLOROPROPENE	2456	3		CHLOROTRIFLUORO-METHANE AND TRIFLUOROMETHANE AZEOTROPIC MIXTURE with approximately 60% chlorotrifluoromethane	2599	2	
3-Chloropropene, see	1100	3					
3-Chloroprop-1-ene, see	1100	3					
2-CHLOROPROPIONIC ACID, SOLID	2511	8					
2-CHLOROPROPIONIC ACID, SOLUTION	2511	8					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Chromic acid, solid, see	1463	5.1		COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining)	1139	3	
CHROMIC ACID SOLUTION	1755	8					
Chromic anhydride, solid, see	1463	5.1					
CHROMIC FLUORIDE, SOLID	1756	8		COBALT NAPHTHENATES, POWDER	2001	4.1	
CHROMIC FLUORIDE SOLUTION	1757	8		COBALT RESINATE, PRECIPITATED	1318	4.1	
Chromic nitrate, see	2720	5.1		Cocculus, see	3172	6.1	
Chromium (VI) dichloride dioxide, see	1758	8		Collodion cottons, see	0340	1	
Chromium (III) fluoride, solid, see	1756	8			0341	1	
					0342	1	
					2059	3	
					2555	4.1	
					2556	4.1	
CHROMIUM NITRATE	2720	5.1			2557	4.1	
Chromium (III) nitrate, see	2720	5.1		COMPONENTS, EXPLOSIVE TRAIN, N.O.S.	0382	1	
CHROMIUM OXYCHLORIDE	1758	8			0383	1	
					0384	1	
					0461	1	
CHROMIUM TRIOXIDE, ANHYDROUS	1463	5.1		Composition B, see	0118	1	
CHROMOSULPHURIC ACID	2240	8		COMPRESSED GAS, N.O.S.	1956	2	
Chrysootile, see	2590	9		COMPRESSED GAS, FLAMMABLE, N.O.S.	1954	2	
Cinene, see	2052	3		COMPRESSED GAS, OXIDIZING, N.O.S.	3156	2	
Cinnamene, see	2055	3		COMPRESSED GAS, TOXIC, N.O.S.	1955	2	
Cinnamol, see	2055	3		COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	3304	2	
CLINICAL WASTE, UNSPECIFIED, N.O.S.	3291	6.2		COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	1953	2	
COAL GAS, COMPRESSED	1023	2		COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	3305	2	
COAL TAR DISTILLATES, FLAMMABLE	1136	3					
Coal tar naphtha, see	1268	3					
Coal tar oil, see	1136	3					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	3303	2		CORD, DETONATING, metal clad	0102 0290	1 1	
COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	3306	2		CORD, DETONATING, MILD EFFECT, metal clad	0104	1	
CONTRIVANCES, WATER- ACTIVATED with burster, expelling charge or propelling charge	0248 0249	1 1		CORD, IGNITER	0066	1	
COPPER ACETOARSENITE	1585	6.1		Cordite, see	0160 0161	1 1	
COPPER ARSENITE	1586	6.1		CORROSIVE LIQUID, N.O.S.	1760	8	
Copper (II) arsenite, see	1586	6.1		CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	3264	8	
COPPER BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	2776	3		CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	3265	8	
COPPER BASED PESTICIDE, LIQUID, TOXIC	3010	6.1		CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	3266	8	
COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	3009	6.1		CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	3267	8	
COPPER BASED PESTICIDE, SOLID, TOXIC	2775	6.1		CORROSIVE LIQUID, FLAMMABLE, N.O.S.	2920	8	
COPPER CHLORATE	2721	5.1		CORROSIVE LIQUID, OXIDIZING, N.O.S.	3093	8	
Copper (II) chlorate, see	2721	5.1		CORROSIVE LIQUID, SELF-HEATING, N.O.S.	3301	8	
COPPER CHLORIDE	2802	8		CORROSIVE LIQUID, TOXIC, N.O.S.	2922	8	
COPPER CYANIDE	1587	6.1		CORROSIVE LIQUID, WATER-REACTIVE, N.O.S.	3094	8	
Copper selenate, see	2630	6.1		CORROSIVE SOLID, N.O.S.	1759	8	
Copper selenite, see	2630	6.1		CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.	3260	8	
COPRA	1363	4.2		CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.	3261	8	
CORD, DETONATING, flexible	0065 0289	1 1		CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.	3262	8	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.	3263	8		CROTONIC ACID	2823	8	
CORROSIVE SOLID, FLAMMABLE, N.O.S.	2921	8		Crotonic aldehyde, stabilized, see	1143	6.1	
CORROSIVE SOLID, OXIDIZING, N.O.S.	3084	8		CROTONYLENE	1144	3	
CORROSIVE SOLID, SELF-HEATING, N.O.S.	3095	8		Crude naphtha, see	1268	3	
CORROSIVE SOLID, TOXIC, N.O.S.	2923	8		Cumene, see	1918	3	
CORROSIVE SOLID, WATER-REACTIVE, N.O.S.	3096	8		Cupric chlorate, see	2721	5.1	
COTTON WASTE, OILY	1364	4.2		CUPRIETHYLENE-DIAMINE SOLUTION	1761	8	
COTTON, WET	1365	4.2		Cut backs, see	1999	3	
COUMARIN DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3024	3		CUTTERS, CABLE, EXPLOSIVE	0070	1	
COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC	3026	6.1		CYANIDE SOLUTION, N.O.S.	1935	6.1	
COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	3025	6.1		CYANIDES, INORGANIC, SOLID, N.O.S.	1588	6.1	
COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC	3027	6.1		Cyanides, organic, flammable, toxic, n.o.s., see	3273	3	
Creosote, see	2810	6.1		Cyanides, organic, toxic, n.o.s., see	3276	6.1	
Creosote salts, see	1334	4.1		Cyanides, organic, toxic, flammable, n.o.s., see	3275	6.1	
CRESOLS, LIQUID	2076	6.1		Cyanoacetonitrile, see	2647	6.1	
CRESOLS, SOLID	2076	6.1		CYANOGEN	1026	2	
CRESYLIC ACID	2022	6.1		CYANOGEN BROMIDE	1889	6.1	
Crocidolite, see	2212	9		CYANOGEN CHLORIDE, STABILIZED	1589	2	
CROTONALDEHYDE, STABILIZED	1143	6.1		CYANURIC CHLORIDE	2670	8	
				CYCLOBUTANE	2601	2	
				CYCLOBUTYL CHLOROFORMATE	2744	6.1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
1,5,9-CYCLODODECATRIENE	2518	6.1		CYCLOOCTADIENES	2520	3	
CYCLOHEPTANE	2241	3		CYCLOOCTADIENE PHOSPHINES, see	2940	4.2	
CYCLOHEPTATRIENE	2603	3		CYCLOOCTATETRAENE	2358	3	
1,3,5-Cycloheptatriene, see	2603	3		CYCLOPENTANE	1146	3	
CYCLOHEPTENE	2242	3		CYCLOPENTANOL	2244	3	
1,4-Cyclohexadienedione, see	2587	6.1		CYCLOPENTANONE	2245	3	
CYCLOHEXANE	1145	3		CYCLOPENTENE	2246	3	
Cyclohexanethiol, see	3054	3		CYCLOPROPANE	1027	2	
CYCLOHEXANONE	1915	3		CYCLOTETRA- METHYLENE- TETRANITRAMINE, DESENSITIZED	0484	1	
CYCLOHEXENE	2256	3		CYCLOTETRA- METHYLENE- TETRANITRAMINE, WETTED with not less than 15% water, by mass	0226	1	
CYCLOHEXENYLTRI- CHLOROSILANE	1762	8		CYCLOTRIMETHYLENE- TRINITRAMINE AND CYCLOTETRA- METHYLENE- TETRANITRAMINE MIXTURE, DESENSITIZED with not less than 10% phlegmatizer by mass	0391	1	
CYCLOHEXYL ACETATE	2243	3		CYCLOTRIMETHYLENE- TRINITRAMINE AND CYCLOTETRA- METHYLENE- TETRANITRAMINE MIXTURE, WETTED with not less than 15% water, by mass	0483	1	
CYCLOHEXYLAMINE	2357	8					
CYCLOHEXYL ISOCYANATE	2488	6.1					
CYCLOHEXYL MERCAPTAN	3054	3					
CYCLOHEXYLTRI- CHLOROSILANE	1763	8					
CYCLONITE AND CYCLOTETRA- METHYLENE- TETRANITRAMINE MIXTURE, WETTED with not less than 15% water, by mass or DESENSITIZED with not less than 10% phlegmatizer by mass, see	0391	1					
CYCLONITE, DESENSITIZED, see	0483	1					
CYCLONITE, WETTED with not less than 15% water, by mass, see	0072	1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
CYCLOTRIMETHYLENE- TRINITRAMINE, WETTED with not less than 15% water, by mass	0072	1		DETONATORS, NON-	0029	1	
				ELECTRIC for blasting	0267	1	
					0455	1	
CYMENES	2046	3		DEUTERIUM, COMPRESSED	1957	2	
Cymol, see	2046	3		DEVICES, SMALL, HYDROCARBON GAS	3150	2	
Deanol, see	2051	8		POWERED with release device			
Dangerous goods in machinery or dangerous goods in apparatus	3363	9	Not subject to ADR [see also 1.1.3.1 (b)]	DIACETONE ALCOHOL	1148	3	
				DIAGNOSTIC SPECIMENS	3373	6.2	
DECABORANE	1868	4.1		DIALLYLAMINE	2359	3	
DECAHYDRO- NAPHTHALENE	1147	3		DIALLYL ETHER	2360	3	
Decalin, see	1147	3		4,4'-DIAMINODIPHENYL- METHANE	2651	6.1	
n-DECANE	2247	3		1,2-Diaminoethane, see	1604	8	
DEFLAGRATING METAL SALTS OF AROMATIC NITRODERIVATIVES, N.O.S.	0132	1		Diaminopropylamine, see	2269	8	
				DI-n-AMYLAMINE	2841	3	
Depth charge, see	0056	1		DIAZODINITROPHENOL, WETTED with not less than 40% water, or mixture of alcohol and water, by mass	0074	1	
Detonating relays, see	0029	1		Dibenzopyridine, see	2713	6.1	
	0267	1					
	0360	1					
	0361	1					
	0455	1					
	0500	1					
DETONATOR	0360	1		DIBORANE	1911	2	
ASSEMBLIES, NON- ELECTRIC for blasting	0361	1		1,2-DIBROMOBUTAN-3- ONE	2648	6.1	
DETONATORS FOR AMMUNITION	0073	1		DIBROMOCHLORO- PROPANES	2872	6.1	
	0364	1					
	0365	1					
	0366	1					
DETONATORS, ELECTRIC for blasting	0030	1		1,2-Dibromo-3-chloropropane, see	2872	6.1	
	0255	1		DIBROMODIFLUORO- METHANE	1941	9	
	0456	1					



Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
DIBROMOMETHANE	2664	6.1		Di(2-chloroethyl) ether, see	1916	6.1	
DI-n-BUTYLAMINE	2248	8		DICHLOROFLUORO-METHANE	1029	2	
DIBUTYLAMINO-ETHANOL	2873	6.1		alpha-Dichlorohydrin, see	2750	6.1	
2-Dibutylaminoethanol, see	2873	6.1		DICHLOROISOCYANURIC ACID, DRY	2465	5.1	
N,N-Di-n-butylaminoethanol, see	2873	6.1		DICHLOROISOCYANURIC ACID SALTS	2465	5.1	
DIBUTYL ETHERS	1149	3		DICHLOROISOPROPYL ETHER	2490	6.1	
DICHLOROACETIC ACID	1764	8		DICHLOROMETHANE	1593	6.1	
1,3-DICHLOROACETONE	2649	6.1		1,1-DICHLORO-1-NITROETHANE	2650	6.1	
DICHLOROACETYL CHLORIDE	1765	8		DICHLOROPENTANES	1152	3	
DICHLOROANILINES, LIQUID	1590	6.1		Dichlorophenol, see	2020	6.1	
DICHLOROANILINES, SOLID	1590	6.1			2021	6.1	
o-DICHLOROBENZENE	1591	6.1		DICHLOROPHENYL ISOCYANATES	2250	6.1	
2,2'-DICHLORODIETHYL ETHER	1916	6.1		DICHLOROPHENYLTRI-CHLOROSILANE	1766	8	
DICHLORODIFLUORO-METHANE	1028	2		1,2-DICHLOROPROPANE	1279	3	
DICHLORODIFLUORO-METHANE AND DIFLUOROETHANE AZEOTROPIC MIXTURE with approximately 74% dichlorodifluoromethane	2602	2		1,3-DICHLORO-PROPANOL-2	2750	6.1	
Dichlorodifluoromethane and ethylene oxide mixture, see	3070	2		1,3-Dichloro-2-propanone, see	2649	6.1	
DICHLORODIMETHYL ETHER, SYMMETRICAL	2249	6.1	Carriage prohibited	DICHLOROPROPENES	2047	3	
1,1-DICHLOROETHANE	2362	3		DICHLOROSILANE	2189	2	
1,2-Dichloroethane, see	1184	3		1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE	1958	2	
1,2-DICHLOROETHYLENE	1150	3		Dichloro-s-triazine-2,4,6-trione, see	2465	5.1	
				1,4-Dicyanobutane, see	2205	6.1	
				Dicycloheptadiene, see	2251	3	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
DICYCLOHEXYLAMINE	2565	8		N,N-Diethylethanolamine, see	2686	3	
Dicyclohexylamine nitrite, see	2687	4.1		DIETHYL ETHER	1155	3	
DICYCLOHEXYL-AMMONIUM NITRITE	2687	4.1		N,N-DIETHYLETHYLENE-DIAMINE	2685	8	
DICYCLOPENTADIENE	2048	3		Di-(2-ethylhexyl) phosphoric acid, see	1902	8	
1,2-DI-(DIMETHYLAMINO) ETHANE	2372	3		DIETHYL KETONE	1156	3	
DIDYMIUM NITRATE	1465	5.1		DIETHYL SULPHATE	1594	6.1	
DIESEL FUEL	1202	3		DIETHYL SULPHIDE	2375	3	
1,1-Diethoxyethane, see	1088	3		DIETHYLTHIO-PHOSPHORYL CHLORIDE	2751	8	
1,2-Diethoxyethane, see	1153	3		DIETHYLZINC	1366	4.2	
DIETHOXYMETHANE	2373	3		2,4-Difluoroaniline, see	2941	6.1	
3,3-DIETHOXYPROPENE	2374	3		Difluorochloroethane, see	2517	2	
DIETHYLAMINE	1154	3		1,1-DIFLUOROETHANE	1030	2	
2-DIETHYLAMINO-ETHANOL	2686	8		1,1-DIFLUOROETHYLENE	1959	2	
3-DIETHYL-AMINOPROPYLAMINE	2684	3		DIFLUOROMETHANE	3252	2	
N,N-DIETHYLANILINE	2432	6.1		Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 10% difluoromethane and 70% pentafluoroethane, see	3339	2	
DIETHYLBENZENE	2049	3		Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 20% difluoromethane and 40% pentafluoroethane, see	3338	2	
Diethylcarbinol, see	1105	3					
DIETHYL CARBONATE	2366	3					
DIETHYLDICHLORO-SILANE	1767	8					
Diethylenediamine, see	2579	8					
DIETHYLENEGLYCOL DINITRATE, DESENSITIZED with not less than 25% non-volatile, water-insoluble phlegmatizer, by mass	0075	1					
DIETHYLENETRIAMINE	2079	8					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 23% difluoromethane and 25% pentafluoroethane, see	3340	2		2-DIMETHYL-AMINOETHYL ACRYLATE	3302	6.1	
				2-DIMETHYL-AMINOETHYL METHACRYLATE	2522	6.1	
DIFLUOROPHOSPHORIC ACID, ANHYDROUS	1768	8		N,N-DIMETHYLANILINE	2253	6.1	
2,3-DIHYDROPYRAN	2376	3		Dimethylarsenic acid, see	1572	6.1	
p-Dihydroxybenzene, see	2662	6.1		N,N-Dimethylbenzylamine, see	2619	8	
DIISOBUTYLAMINE	2361	3		2,3-DIMETHYLBUTANE	2457	3	
DIISOBUTYLENE, ISOMERIC COMPOUNDS	2050	3		1,3-DIMETHYL-BUTYLAMINE	2379	3	
alpha-Diisobutylene, see	2050	3		DIMETHYLCARBAMOYL CHLORIDE	2262	8	
beta-Diisobutylene, see	2050	3		DIMETHYL CARBONATE	1161	3	
DIISOBUTYL KETONE	1157	3		DIMETHYL-CYCLOHEXANES	2263	3	
DIISOCTYL ACID PHOSPHATE	1902	8		N,N-DIMETHYLCYCLO-HEXYLAMINE	2264	8	
DIISOPROPYLAMINE	1158	3		DIMETHYLDICHLORO-SILANE	1162	3	
DIISOPROPYL ETHER	1159	3		DIMETHYLDIETHOXY-SILANE	2380	3	
DIKETENE, STABILIZED	2521	6.1		DIMETHYLDIOXANES	2707	3	
1,1-DIMETHOXYETHANE	2377	3		DIMETHYL DISULPHIDE	2381	3	
1,2-DIMETHOXYETHANE	2252	3		Dimethylethanolamine, see	2051	8	
Dimethoxystrychnine, see	1570	6.1		DIMETHYL ETHER	1033	2	
DIMETHYLAMINE, ANHYDROUS	1032	2		N,N-DIMETHYL-FORMAMIDE	2265	3	
DIMETHYLAMINE AQUEOUS SOLUTION	1160	3		DIMETHYLHYDRAZINE, SYMMETRICAL	2382	6.1	
2-DIMETHYLAMINO-ACETONITRILE	2378	3		DIMETHYLHYDRAZINE, UNSYMMETRICAL	1163	6.1	
2-DIMETHYLAMINO-ETHANOL	2051	8					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
1,1-Dimethylhydrazine, see	1163	6.1		DINITROPHENOLATES, WETTED with not less than 15% water, by mass	1321	4.1	
N,N-Dimethyl-4-nitrosoaniline, see	1369	4.2		DINITRORESORCINOL, dry or wetted with less than 15% water, by mass	0078	1	
2,2-DIMETHYLPROPANE	2044	2		DINITRORESORCINOL, WETTED with not less than 15% water, by mass	1322	4.1	
DIMETHYL-N-PROPYLAMINE	2266	3		DINITROSOBENZENE	0406	1	
DIMETHYL SULPHATE	1595	6.1		Dinitrotoluene mixed with sodium chlorate, see	0083	1	
DIMETHYL SULPHIDE	1164	3		DINITROTOLUENES, LIQUID	2038	6.1	
DIMETHYL THIOPHOSPHORYL CHLORIDE	2267	6.1		DINITROTOLUENES, MOLTEN	1600	6.1	
DIMETHYLZINC	1370	4.2		DINITROTOLUENES, SOLID	2038	6.1	
DINGU, see	0489	1		DIOXANE	1165	3	
DINITROANILINES	1596	6.1		DIOXOLANE	1166	3	
DINITROBENZENES, LIQUID	1597	6.1		DIPENTENE	2052	3	
DINITROBENZENES, SOLID	1597	6.1		DIPHENYLAMINE CHLOROARSINE	1698	6.1	
Dinitrochlorobenzene, see	1577	6.1		DIPHENYLCHLOROARSINE, LIQUID	1699	6.1	
DINITRO-o-CRESOL	1598	6.1		DIPHENYLCHLOROARSINE, SOLID	1699	6.1	
DINITROGEN TETROXIDE	1067	2		DIPHENYLDICHLORO-SILANE	1769	8	
DINITROGLYCOLURIL	0489	1		DIPHENYLMETHYL BROMIDE	1770	8	
DINITROPHENOL, dry or wetted with less than 15% water, by mass	0076	1		DIPICRYLAMINE, see	0079	1	
DINITROPHENOL SOLUTION	1599	6.1		DIPICRYL SULPHIDE, dry or wetted with less than 10% water, by mass	0401	1	
DINITROPHENOL, WETTED with not less than 15% water, by mass	1320	4.1					
DINITROPHENOLATES, alkali metals, dry or wetted with less than 15% water, by mass	0077	1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
DIPICRYL SULPHIDE, WETTED with not less than 10% water, by mass	2852	4.1		DYE, SOLID, CORROSIVE, N.O.S.	3147	8	
DIPROPYLAMINE	2383	3		DYE, SOLID, TOXIC, N.O.S.	3143	6.1	
Dipropylene triamine, see	2269	8		Dynamite, see	0081	1	
DI-n-PROPYL ETHER	2384	3		Electric storage batteries, see	2794	8	
DIPROPYL KETONE	2710	3			2795	8	
DISINFECTANT, LIQUID, CORROSIVE, N.O.S.	1903	8			2800	8	
DISINFECTANT, LIQUID, TOXIC, N.O.S.	3142	6.1			3028	8	
DISINFECTANT, SOLID, TOXIC, N.O.S.	1601	6.1		Electrolyte (acid or alkaline) for batteries, see	2796	8	
DISODIUM TRIOXOSILICATE	3253	8			2797	8	
DIVINYL ETHER, STABILIZED	1167	3		ELEVATED TEMPERATURE LIQUID, N.O.S., at or above 100 °C and below its flash-point (including molten metals, molten salts, etc.)	3257	9	
DODECYLTRICHLORO-SILANE	1771	8		ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 61 °C, at or above its flash-point	3256	3	
Dry ice, see	1845	9	Not subject to ADR	ELEVATED TEMPERATURE SOLID, N.O.S., at or above 240 °C	3258	9	
DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S.	2801	8		Empty battery-vehicle, uncleaned			See 4.3.2.4, 5.1.3 and 5.4.1.1.6
DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S.	1602	6.1		Empty IBC, uncleaned			See 4.1.1.11, 5.1.3 and 5.4.1.1.6
DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S.	3147	8		Empty large packaging, uncleaned			See 4.1.1.11, 5.1.3 and 5.4.1.1.6
DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.	3143	6.1		Empty MEGC, uncleaned			See 4.3.2.4, 5.1.3 and 5.4.1.1.6
DYE, LIQUID, CORROSIVE, N.O.S.	2801	8		Empty packaging, uncleaned			See 4.1.1.11, 5.1.3 and 5.4.1.1.6
DYE, LIQUID, TOXIC, N.O.S.	1602	6.1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Empty receptacle, uncleaned			See 5.1.3 and 5.4.1.1.6	ETHANOL	1170	3	
				ETHANOL SOLUTION	1170	3	
Empty tank, uncleaned			See 4.3.2.4, 5.1.3 and 5.4.1.1.6	ETHANOLAMINE	2491	8	
				ETHANOLAMINE SOLUTION	2491	8	
Empty vehicle, uncleaned			See 5.1.3 and 5.4.1.1.6	Ether, see	1155	3	
Engines, internal combustion	3166	9	Not subject to ADR	ETHERS, N.O.S.	3271	3	
Engines, rocket, see	0250 0322	1 1		2-Ethoxyethanol, see	1171	3	
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	3082	9		2-Ethoxyethyl acetate, see	1172	3	
				Ethoxy propane-1, see	2615	3	
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	3077	9		ETHYL ACETATE	1173	3	
				ETHYLACETYLENE, STABILIZED	2452	2	
				ETHYL ACRYLATE, STABILIZED	1917	3	
EPIBROMOHYDRIN	2558	6.1		ETHYL ALCOHOL, see	1170	3	
EPICHLOROHYDRIN	2023	6.1		ETHYL ALCOHOL SOLUTION, see	1170	3	
1,2-Epoxybutane, stabilized, see	3022	3		ETHYLAMINE	1036	2	
Epoxyethane, see	1040	2		ETHYLAMINE, AQUEOUS SOLUTION with not less than 50% but not more than 70% ethylamine	2270	3	
1,2-EPOXY-3-ETHOXYPROPANE	2752	3		ETHYL AMYL KETONE	2271	3	
2,3-Epoxy-1-propanal, see	2622	3		N-ETHYLANILINE	2272	6.1	
2,3-Epoxypropyl ethyl ether, see	2752	3		2-ETHYLANILINE	2273	6.1	
ESTERS, N.O.S.	3272	3		ETHYLBENZENE	1175	3	
ETHANE	1035	2		N-ETHYL-N-BENZYLANILINE	2274	6.1	
ETHANE, REFRIGERATED LIQUID	1961	2		N-ETHYLBENZYL-TOLUIDINES, LIQUID	2753	6.1	
Ethanethiol, see	2363	3					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
N-ETHYLBENZYL-TOLUIDINES, SOLID	2753	6.1		ETHYLENE CHLOROHYDRIN	1135	6.1	
ETHYL BORATE	1176	3		ETHYLENE	1962	2	
ETHYL BROMIDE	1891	6.1		ETHYLENEDIAMINE	1604	8	
ETHYL BROMOACETATE	1603	6.1		ETHYLENE DIBROMIDE	1605	6.1	
2-ETHYLBUTANOL	2275	3		Ethylene dibromide and methyl bromide, liquid mixture, see	1647	6.1	
2-ETHYLBUTYL ACETATE	1177	3					
ETHYL BUTYL ETHER	1179	3		ETHYLENE DICHLORIDE	1184	3	
2-ETHYLBUTYRALDEHYDE	1178	3		ETHYLENE GLYCOL DIETHYL ETHER	1153	3	
ETHYL BUTYRATE	1180	3		ETHYLENE GLYCOL MONOETHYL ETHER	1171	3	
ETHYL CHLORIDE	1037	2		ETHYLENE GLYCOL MONOETHYL ETHER ACETATE	1172	3	
ETHYL CHLOROACETATE	1181	6.1					
Ethyl chlorocarbonate, see	1182	6.1		ETHYLENE GLYCOL MONOMETHYL ETHER	1188	3	
ETHYL CHLOROFORMATE	1182	6.1					
ETHYL 2-CHLORO-PROPIONATE	2935	3		ETHYLENE GLYCOL MONOMETHYL ETHER ACETATE	1189	3	
Ethyl-alpha-chloropropionate, see	2935	3		ETHYLENEIMINE, STABILIZED	1185	6.1	
ETHYL CHLORO-THIOFORMATE	2826	8		ETHYLENE OXIDE	1040	2	
ETHYL CROTONATE	1862	3		ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 87% ethylene oxide	3300	2	
ETHYLDICHLOROARSINE	1892	6.1					
ETHYLDICHLOROSILANE	1183	4.3		ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 9% but not more than 87% ethylene oxide	1041	2	
ETHYLENE, ACETYLENE AND PROPYLENE MIXTURE, REFRIGERATED LIQUID containing at least 71.5% ethylene with not more than 22.5% acetylene and not more than 6% propylene	3138	2		ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with not more than 9% ethylene oxide	1952	2	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
ETHYLENE OXIDE AND CHLOROTETRAFLUOROETHANE MIXTURE with not more than 8.8% ethylene oxide	3297	2		ETHYL MERCAPTAN	2363	3	
ETHYLENE OXIDE AND DICHLORODIFLUOROMETHANE MIXTURE with not more than 12.5% ethylene oxide	3070	2		ETHYL METHACRYLATE, STABILIZED	2277	3	
ETHYLENE OXIDE AND PENTAFLUOROETHANE MIXTURE with not more than 7.9% ethylene oxide	3298	2		ETHYL METHYL ETHER	1039	2	
ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE, not more than 30% ethylene oxide	2983	3		ETHYL METHYL KETONE	1193	3	
ETHYLENE OXIDE AND TETRAFLUOROETHANE MIXTURE with not more than 5.6% ethylene oxide	3299	2		ETHYL NITRITE SOLUTION	1194	3	
ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1 MPa (10 bar) at 50 °C	1040	2		ETHYL ORTHOFORMATE	2524	3	
ETHYLENE, REFRIGERATED LIQUID	1038	2		ETHYL OXALATE	2525	6.1	
ETHYL ETHER, see	1155	3		ETHYLPHENYL-DICHLOROSILANE	2435	8	
ETHYL FLUORIDE	2453	2		1-ETHYLPYPERIDINE	2386	3	
ETHYL FORMATE	1190	3		ETHYL PROPIONATE	1195	3	
2-ETHYLHEXYLAMINE	2276	3		ETHYL PROPYL ETHER	2615	3	
2-ETHYLHEXYL CHLOROFORMATE	2748	6.1		Ethyl silicate, see	1292	3	
Ethylidene chloride, see	2362	3		Ethyl sulphate, see	1594	6.1	
ETHYL ISOBUTYRATE	2385	3		N-ETHYLTOLUIDINES	2754	6.1	
ETHYL ISOCYANATE	2481	3		ETHYLTRICHLORO-SILANE	1196	3	
ETHYL LACTATE	1192	3		EXPLOSIVE, BLASTING, TYPE A	0081	1	
				EXPLOSIVE, BLASTING, TYPE B	0082	1	
					0331	1	
				EXPLOSIVE, BLASTING, TYPE C	0083	1	
				EXPLOSIVE, BLASTING, TYPE D	0084	1	
				EXPLOSIVE, BLASTING, TYPE E	0241	1	
					0332	1	
				Explosives, emulsion, see	0241	1	
					0332	1	



Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Explosive, seismic, see	0081	1		FERROUS METAL	2793	4.2	
	0082	1		CUTTINGS in a form liable to			
	0083	1		self-heating			
	0331	1		FERROUS METAL	2793	4.2	
Explosive, slurry, see	0241	1		SHAVINGS in a form liable			
	0332	1		to self-heating			
Explosive, water gel, see	0241	1		FERROUS METAL	2793	4.2	
	0332	1		TURNINGS in a form liable			
				to self-heating			
EXTRACTS, AROMATIC, LIQUID	1169	3		FERTILIZER	1043	2	
EXTRACTS, FLAVOURING, LIQUID	1197	3		AMMONIATING			
				SOLUTION with free			
				ammonia			
FABRICS, ANIMAL, N.O.S. with oil	1373	4.2		Fertilizer with ammonium	2067	5.1	
				nitrate, n.o.s., see			
FABRICS IMPREGNATED WITH WEAKLY NITRATED NITROCELLULOSE, N.O.S.	1353	4.1		Fibres, animal, burnt wet or	1372	4.2	Not subject to ADR
				damp			
				FIBRES, ANIMAL, N.O.S.	1373	4.2	
				with oil			
FABRICS, SYNTHETIC, N.O.S. with oil	1373	4.2		FIBRES IMPREGNATED	1353	4.1	
				WITH WEAKLY			
				NITRATED			
				NITROCELLULOSE, N.O.S.			
FABRICS, VEGETABLE, N.O.S. with oil	1373	4.2		FIBRES, SYNTHETIC,	1373	4.2	
				N.O.S. with oil			
FERRIC ARSENATE	1606	6.1		Fibres, vegetable, burnt wet or	1372	4.2	Not subject to ADR
FERRIC ARSENITE	1607	6.1		damp			
FERRIC CHLORIDE, ANHYDROUS	1773	8		Fibres, vegetable, dry	3360	4.1	Not subject to ADR
FERRIC CHLORIDE SOLUTION	2582	8					
FERRIC NITRATE	1466	5.1		FIBRES, VEGETABLE,	1373	4.2	
FERROCERIUM	1323	4.1		N.O.S. with oil			
FERROSILICON with 30% or more but less than 90% silicon	1408	4.3		Films, nitrocellulose base,	2002	4.2	
				from which gelatin has been			
				removed; film scrap, see			
FERROUS ARSENATE	1608	6.1		FILMS, NITROCELLULOSE	1324	4.1	
FERROUS METAL BORINGS in a form liable to self-heating	2793	4.2		BASE, gelatin coated, except			
				scrap			
				FIRE EXTINGUISHER	1774	8	
				CHARGES, corrosive liquid			

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Fire extinguisher charges, expelling, explosive, see	0275	1		FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S.	2925	4.1	
	0276	1					
	0323	1					
	0381	1					
FIRE EXTINGUISHERS with compressed or liquefied gas	1044	2		FLAMMABLE SOLID, INORGANIC, N.O.S.	3178	4.1	
FIRELIGHTERS, SOLID with flammable liquid	2623	4.1		FLAMMABLE SOLID, ORGANIC, N.O.S.	1325	4.1	
FIREWORKS	0333	1		FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S.	3176	4.1	
	0334	1					
	0335	1					
	0336	1		FLAMMABLE SOLID, OXIDIZING, N.O.S.	3097	4.1	Carriage prohibited
	0337	1					
FIRST AID KIT	3316	9		FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S.	3179	4.1	
Fischer Tropsch gas, see	2600	2					
Fish meal, stabilized	2216	9	Not subject to ADR	FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.	2926	4.1	
FISH MEAL, UNSTABILIZED	1374	4.2		FLARES, AERIAL	0093	1	
					0403	1	
					0404	1	
					0420	1	
					0421	1	
Fish scrap, stabilized, see	2216	9	Not subject to ADR	Flares, aeroplane, see	0093	1	
					0403	1	
FISH SCRAP, UNSTABILIZED, see	1374	4.2			0404	1	
					0420	1	
					0421	1	
Flammable gas in lighters, see	1057	2					
FLAMMABLE LIQUID, N.O.S	1993	3		Flares, highway, Flares, distress, small, Flares, railway or highway, see	0191	1	
					0373	1	
FLAMMABLE LIQUID, CORROSIVE, N.O.S.	2924	3		FLARES, SURFACE	0092	1	
					0418	1	
FLAMMABLE LIQUID, TOXIC, N.O.S.	1992	3			0419	1	
				Flares, water-activated, see	0248	1	
					0249	1	
FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.	3286	3		FLASH POWDER	0094	1	
					0305	1	
FLAMMABLE SOLID, CORROSIVE, INORGANIC, N.O.S.	3180	4.1		Flue dusts, toxic, see	1562	6.1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Fluoric acid, see	1790	8		Formic aldehyde, see	1198	3	
FLUORINE, COMPRESSED	1045	2			2209	8	
FLUOROACETIC ACID	2642	6.1		2-Formyl-3,4-dihydro-2H-pyran, see	2607	3	
FLUOROANILINES	2941	6.1		FRACTURING DEVICES, EXPLOSIVE without detonator, for oil wells	0099	1	
2-Fluoroaniline, see	2941	6.1					
4-Fluoroaniline, see	2941	6.1		FUEL, AVIATION, TURBINE ENGINE	1863	3	
o-Fluoroaniline, see	2941	6.1		Fumaroyl dichloride, see	1780	3	
p-Fluoroaniline, see	2941	6.1		FUMARYL CHLORIDE	1780	8	
FLUOROBENZENE	2387	3		FUMIGATED UNIT	3359	9	
FLUOROBORIC ACID	1775	8		FURALDEHYDES	1199	6.1	
Fluoroethane, see	2453	2		FURAN	2389	3	
Fluoroform, see	1984	2		FURFURYL ALCOHOL	2874	6.1	
Fluoromethane, see	2454	2		FURFURYLAMINE	2526	3	
FLUOROPHOSPHORIC ACID, ANHYDROUS	1776	8		Furyl carbinol, see	2874	6.1	
FLUROSILICATES, N.O.S.	2856	6.1		FUSE, DETONATING, metal clad	0102	1	
FLUROSILICIC ACID	1778	8			0290	1	
FLUROSULPHONIC ACID	1777	8		FUSE, DETONATING, MILD EFFECT, metal clad	0104	1	
FLUOROTOLUENES	2388	3		FUSE, IGNITER, tubular, metal clad	0103	1	
FORMALDEHYDE SOLUTION with not less than 25% formaldehyde	2209	8		FUSE, NON-DETONATING	0101	1	
FORMALDEHYDE SOLUTION, FLAMMABLE	1198	3		FUSEL OIL	1201	3	
Formalin, see	1198	3		FUSE, SAFETY	0105	1	
	2209	8		Fuze, combination, percussion or time, see	0106	1	
Formamidine sulphinic acid, see	3341	4.2			0107	1	
					0257	1	
					0316	1	
					0317	1	
					0367	1	
FORMIC ACID	1779	8			0368	1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
FUZES, DETONATING	0106	1		Gelatin, dynamites, see	0081	1	
	0107	1					
	0257	1		GENETICALLY MODIFIED MICRO-ORGANISMS	3245	9	
	0367	1					
FUZES, DETONATING with protective features	0408	1		GERMANE	2192	2	
	0409	1		Germanium hydride, see	2192	2	
	0410	1					
FUZES, IGNITING	0316	1		Glycer-1,3-dichlorohydrin, see	2750	6.1	
	0317	1					
	0368	1		GLYCEROL alpha-MONOCHLOROHYDRIN	2689	6.1	
GALLIUM	2803	8		Glyceryl trinitrate, see	0143	1	
GAS CARTRIDGES without a release device, non-refillable, see	2037	2			0144	1	
					1204	3	
					3064	3	
Gas drips, hydrocarbon, see	3295	3		GLYCIDALDEHYDE	2622	3	
GAS OIL	1202	3		GRENADES, hand or rifle, with bursting charge	0284	1	
GASOLINE	1203	3			0285	1	
Gasoline, casinghead, see	1203	3			0292	1	
GAS, REFRIGERATED LIQUID, N.O.S.	3158	2			0293	1	
				Grenades, illuminating, see	0171	1	
GAS, REFRIGERATED LIQUID, FLAMMABLE, N.O.S.	3312	2			0254	1	
					0297	1	
GAS, REFRIGERATED LIQUID, OXIDIZING, N.O.S.	3311	2		GRENADES, PRACTICE, hand or rifle	0110	1	
					0318	1	
GAS SAMPLE, NON-PRESSURIZED, FLAMMABLE, N.O.S., not refrigerated liquid	3167	2			0372	1	
					0452	1	
GAS SAMPLE, NON-PRESSURIZED, TOXIC, N.O.S., not refrigerated liquid	3169	2		Grenades, smoke, see	0015	1	
					0016	1	
GAS SAMPLE, NON-PRESSURIZED, TOXIC, FLAMMABLE, N.O.S., not refrigerated liquid	3168	2			0245	1	
					0246	1	
					0303	1	
Gelatin, blasting, see	0081	1		GUANIDINE NITRATE	1467	5.1	
				GUANYLNITROSAMINO-GUANYLIDENE HYDRAZINE, WETTED with not less than 30% water, by mass	0113	1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
GUANYLNITROSAMINO-GUANYLTETRAZENE, WETTED with not less than 30% water, or mixture of alcohol and water, by mass	0114	1		Hexachloro-1,3-butadiene, see	2279	6.1	
GUNPOWDER, COMPRESSED, see	0028	1		HEXACHLOROCYCLO-PENTADIENE	2646	6.1	
GUNPOWDER, granular or as a meal, see	0027	1		HEXACHLOROPHENE	2875	6.1	
GUNPOWDER, IN PELLETS, see	0028	1		Hexachloro-2-propanone, see	2661	6.1	
Gutta percha solution, see	1287	3		HEXADECYLTRICHLORO-SILANE	1781	8	
HAFNIUM POWDER, DRY	2545	4.2		HEXADIENES	2458	3	
HAFNIUM POWDER, WETTED with not less than 25% water	1326	4.1		HEXAETHYL TETRAPHOSPHATE	1611	6.1	
Hay	1327	4.1	Not subject to ADR	HEXAETHYL TETRAPHOSPHATE AND COMPRESSED GAS MIXTURE	1612	2	
HEATING OIL, LIGHT	1202	3		HEXAFLUOROACETONE	2420	2	
Heavy hydrogen, see	1957	2		HEXAFLUOROACETONE HYDRATE	2552	6.1	
HELIUM, COMPRESSED	1046	2		HEXAFLUOROETHANE	2193	2	
HELIUM, REFRIGERATED LIQUID	1963	2		HEXAFLUORO-PHOSPHORIC ACID	1782	8	
HEPTAFLUOROPROPANE	3296	2		HEXAFLUORO-PROPYLENE	1858	2	
n-HEPTALDEHYDE	3056	3		Hexahydrocresol, see	2617	3	
n-Heptanal, see	3056	3		Hexahydromethyl phenol, see	2617	3	
HEPTANES	1206	3		HEXALDEHYDE	1207	3	
4-Heptanone, see	2710	3		HEXAMETHYLENE-DIAMINE, SOLID	2280	8	
n-HEPTENE	2278	3		HEXAMETHYLENE-DIAMINE SOLUTION	1783	8	
HEXACHLOROACETONE	2661	6.1		HEXAMETHYLENE DIISOCYANATE	2281	6.1	
HEXACHLOROBENZENE	2729	6.1		HEXAMETHYLENEIMINE	2493	3	
HEXACHLORO-BUTADIENE	2279	6.1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
HEXAMETHYLENE-TETRAMINE	1328	4.1		HMX, DESENSITIZED, see	0484	1	
Hexamine, see	1328	4.1		HMX, WETTED with not less than 15% water, by mass, see	0226	1	
HEXANES	1208	3		HYDRAZINE, ANHYDROUS	2029	8	
HEXANITRODIPHENYLAMINE	0079	1		HYDRAZINE AQUEOUS SOLUTION, with more than 37% hydrazine by mass	2030	8	
HEXANTROSTILBENE	0392	1		HYDRAZINE, AQUEOUS SOLUTION with not more than 37% hydrazine, by mass	3293	6.1	
Hexanoic acid, see	2829	8		Hydrides, metal, water-reactive, n.o.s., see	1409	4.3	
HEXANOLS	2282	3		Hydriodic acid, anhydrous, see	2197	2	
1-HEXENE	2370	3		HYDRIODIC ACID	1787	8	
HEXOGEN AND CYCLOTETRAMETHYLENE-TETRANITRAMINE MIXTURE, WETTED with not less than 15% water, by mass or DESENSITIZED with not less than 10% phlegmatizer by mass, see	0391	1		HYDROBROMIC ACID	1788	8	
HEXOGEN, DESENSITIZED, see	0483	1		HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.	1964	2	
HEXOGEN, WETTED with not less than 15% water, by mass, see	0072	1		HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. such as mixtures A, A01, A02, A0, A1, B1, B2, B or C	1965	2	
HEXOLITE, dry or wetted with less than 15% water, by mass	0118	1		HYDROCARBON GAS REFILLS FOR SMALL DEVICES with release device	3150	2	
HEXOTOL, dry or wetted with less than 15% water, by mass, see	0118	1		HYDROCARBONS, LIQUID, N.O.S.	3295	3	
HEXOTONAL	0393	1		HYDROCHLORIC ACID	1789	8	
HEXOTONAL, cast, see	0393	1		HYDROCYANIC ACID, AQUEOUS SOLUTION with not more than 20% hydrogen cyanide	1613	6.1	
HEXYL, see	0079	1					
HEXYLTRICHLOROSILANE	1784	8					
HMX, see	0391	1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
HYDROFLUORIC ACID with more than 60% but not more than 85% hydrofluoric acid	1790	8		HYDROGEN CYANIDE, STABILIZED containing less than 3% water	1051	6.1	
HYDROFLUORIC ACID with more than 85% hydrofluoric acid	1790	8		HYDROGEN CYANIDE, STABILIZED, containing less than 3% water and absorbed in a porous inert material	1614	6.1	
HYDROFLUORIC ACID with not more than 60% hydrofluoric acid	1790	8		HYDROGEN-DIFLUORIDES, N.O.S.	1740	8	
HYDROFLUORIC ACID AND SULPHURIC ACID MIXTURE	1786	8		HYDROGEN FLUORIDE, ANHYDROUS	1052	8	
Hydrofluoroboric acid, see	1775	8		Hydrogen fluoride solution, see	1790	8	
Hydrofluorosilicic acid, see	1778	8		HYDROGEN IODIDE, ANHYDROUS	2197	2	
HYDROGEN AND METHANE MIXTURE, COMPRESSED	2034	2		Hydrogen iodide solution, see	1787	8	
Hydrogen arsenide, see	2188	2		HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE with acid(s), water and not more than 5% peroxyacetic acid, STABILIZED	3149	5.1	
HYDROGEN BROMIDE, ANHYDROUS	1048	2		HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 8% but less than 20% hydrogen peroxide (stabilized as necessary)	2984	5.1	
Hydrogen bromide solution, see	1788	8		HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)	2014	5.1	
HYDROGEN CHLORIDE, ANHYDROUS	1050	2		HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 60% hydrogen peroxide and not more than 70% hydrogen peroxide	2015	5.1	
HYDROGEN CHLORIDE, REFRIGERATED LIQUID	2186	2	Carriage prohibited				
HYDROGEN, COMPRESSED	1049	2					
HYDROGEN CYANIDE, AQUEOUS SOLUTION with not more than 20% hydrogen cyanide, see	1613	6.1					
HYDROGEN CYANIDE, SOLUTION IN ALCOHOL with not more than 45% hydrogen cyanide	3294	6.1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILIZED with more than 70% hydrogen peroxide	2015	5.1		INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only (risk groups 3 and 4)	2900	6.2	
HYDROGEN, REFRIGERATED LIQUID	1966	2		INFECTIOUS SUBSTANCE, AFFECTING HUMANS (risk group 2)	2814	6.2	
HYDROGEN SELENIDE, ANHYDROUS	2202	2		INFECTIOUS SUBSTANCE, AFFECTING HUMANS (risk groups 3 and 4)	2814	6.2	
Hydrogen silicide, see	2203	2		Ink, printer's, flammable, see	1210	3	
HYDROGEN SULPHIDE	1053	2		INSECTICIDE GAS, N.O.S.	1968	2	
Hydroquinol, see	2662	6.1		INSECTICIDE GAS, FLAMMABLE, N.O.S.	3354	2	
HYDROQUINONE	2662	6.1		INSECTICIDE GAS, TOXIC, N.O.S.	1967	2	
Hydroselenic acid, see	2202	2		INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S.	3355	2	
Hydrosilicofluoric acid, see	1778	8		IODINE MONOCHLORIDE	1792	8	
3-Hydroxybutan-2-one, see	2621	3		IODINE PENTAFLUORIDE	2495	5.1	
HYDROXYLAMINE SULPHATE	2865	8		2-IODOBUTANE	2390	3	
1-Hydroxy-3-methyl-2-penten-4-yne, see	2705	8		Iodomethane, see	2644	6.1	
3-Hydroxyphenol, see	2876	6.1		IODOMETHYLPROPANES	2391	3	
HYPOCHLORITES, INORGANIC, N.O.S.	3212	5.1		IODOPROPANES	2392	3	
HYPOCHLORITE SOLUTION	1791	8		alpha-Iodotoluene, see	2653	6.1	
IGNITERS	0121	1		I.p.d.i., see	2290	6.1	
	0314	1		Iron chloride, anhydrous, see	1773	8	
	0315	1		Iron (III) chloride, anhydrous, see	1773	8	
	0325	1					
	0454	1		Iron chloride solution, see	2582	8	
3,3'-IMINO-DIPROPYLAMINE	2269	8		IRON OXIDE, SPENT obtained from coal gas purification	1376	4.2	
Indiarubber, see	1287	3		IRON PENTACARBONYL	1994	6.1	
INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only (risk group 2)	2900	6.2					



Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Iron perchloride, anhydrous, see	1773	8		ISOCYANATES, FLAMMABLE, TOXIC, N.O.S.	2478	3	
Iron powder, pyrophoric, see	1383	4.2		ISOCYANATES, TOXIC, N.O.S.	2206	6.1	
Iron sesquichloride, anhydrous, see	1773	8		ISOCYANATES, TOXIC, FLAMMABLE, N.O.S.	3080	6.1	
IRON SPONGE, SPENT obtained from coal gas purification	1376	4.2		ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S.	2478	3	
Iron swarf, see	2793	4.2		ISOCYANATE SOLUTION, TOXIC, N.O.S.	2206	6.1	
ISOBUTANE	1969	2		ISOCYANATE SOLUTION, TOXIC, FLAMMABLE, N.O.S.	3080	6.1	
ISOBUTANOL	1212	3		ISOCYANATO-BENZOTRIFLUORIDES	2285	6.1	
Isobutene, see	1055	2		3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, see	2290	6.1	
ISOBUTYL ACETATE	1213	3		Isododecane, see	2286	3	
ISOBUTYL ACRYLATE, STABILIZED	2527	3		ISOHEPTENE	2287	3	
ISOBUTYL ALCOHOL, see	1212	3		ISOHEXENE	2288	3	
ISOBUTYL ALDEHYDE, see	2045	3		Isooctane, see	1262	3	
ISOBUTYLAMINE	1214	3		ISOCTENE	1216	3	
ISOBUTYLENE	1055	2		Isopentane, see	1265	3	
ISOBUTYL FORMATE	2393	3		ISOPENTENES	2371	3	
ISOBUTYL ISOBUTYRATE	2528	3		Isopentylamine, see	1106	3	
ISOBUTYL ISOCYANATE	2486	3		Isopentyl nitrite, see	1113	3	
ISOBUTYL METHACRYLATE, STABILIZED	2283	3		ISOPHORONEDIAMINE	2289	8	
ISOBUTYL PROPIONATE	2394	3		ISOPHORONE DIISOCYANATE	2290	6.1	
ISOBUTYRALDEHYDE	2045	3		ISOPRENE, STABILIZED	1218	3	
ISOBUTYRIC ACID	2529	3					
ISOBUTYRONITRILE	2284	3					
ISOBUTYRYL CHLORIDE	2395	3					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
ISOPROPANOL	1219	3		ISOSORBIDE DINITRATE	2907	4.1	
ISOPROPENYL ACETATE	2403	3		MIXTURE with not less than 60% lactose, mannose, starch or calcium hydrogen phosphate			
ISOPROPENYLBENZENE	2303	3					
ISOPROPYL ACETATE	1220	3		ISOSORBIDE-5-MONONITRATE	3251	4.1	
ISOPROPYL ACID PHOSPHATE	1793	8		Isovaleraldehyde, see	2058	3	
ISOPROPYL ALCOHOL, see	1219	3		JET PERFORATING GUNS, CHARGED, oil well, without detonator	0124 0494	1 1	
ISOPROPYLAMINE	1221	3					
ISOPROPYLBENZENE	1918	3		Jet tappers, without detonator, see	0059	1	
ISOPROPYL BUTYRATE	2405	3					
Isopropyl chloride, see	2356	3		KEROSENE	1223	3	
ISOPROPYL CHLOROACETATE	2947	3		KETONES, LIQUID, N.O.S.	1224	3	
ISOPROPYL CHLOROFORMATE	2407	6.1		KRYPTON, COMPRESSED	1056	2	
ISOPROPYL 2-CHLORO-PROPIONATE	2934	3		KRYPTON, REFRIGERATED LIQUID	1970	2	
Isopropyl-alpha-chloropropionate, see	2934	3		Lacquer base or lacquer chips, nitrocellulose, dry, see	2557	4.1	
Isopropyl ether, see	1159	3		Lacquer base or lacquer chips, plastic, wet with alcohol or solvent, see	1263 2059 2555 2556	3 3 4.1 4.1	
Isopropylethylene, see	2561	3		LEAD ACETATE	1616	6.1	
Isopropyl formate, see	1281	3		Lead (II) acetate, see	1616	6.1	
ISOPROPYL ISOBUTYRATE	2406	3		LEAD ARSENATES	1617	6.1	
ISOPROPYL ISOCYANATE	2483	3		LEAD ARSENITES	1618	6.1	
Isopropyl mercaptan, see	2402	3		LEAD AZIDE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	0129	1	
ISOPROPYL NITRATE	1222	3					
ISOPROPYL PROPIONATE	2409	3		Lead chloride, solid, see	2291	6.1	
Isopropyltoluene, see	2046	3		LEAD COMPOUND, SOLUBLE, N.O.S.	2291	6.1	
Isopropyltoluol, see	2046	3					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
LEAD CYANIDE	1620	6.1		Limonene, inactive, see	2052	3	
Lead (II) cyanide	1620	6.1		LIQUEFIED GAS, N.O.S.	3163	2	
LEAD DIOXIDE	1872	5.1		LIQUEFIED GAS, FLAMMABLE, N.O.S.	3161	2	
LEAD NITRATE	1469	5.1		LIQUEFIED GASES, non- flammable, charged with nitrogen, carbon dioxide or air	1058	2	
Lead (II) nitrate	1469	5.1					
LEAD PERCHLORATE	1470	5.1		LIQUEFIED GAS, OXIDIZING, N.O.S.	3157	2	
Lead (II) perchlorate	1470	5.1					
Lead peroxide, see	1872	5.1		LIQUEFIED GAS, TOXIC, N.O.S.	3162	2	
LEAD PHOSPHITE, DIBASIC	2989	4.1		LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	3308	2	
LEAD STYPHNATE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	0130	1		LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	3160	2	
LEAD SULPHATE with more than 3% free acid	1794	8		LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	3309	2	
Lead tetraethyl, see	1649	6.1		LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	3307	2	
Lead tetramethyl, see	1649	6.1					
LEAD TRINITRO- RESORCINATE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass, see	0130	1		LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	3310	2	
				Liquefied petroleum gas, see	1075	2	
LIFE-SAVING APPLIANCES NOT SELF- INFLATING containing dangerous goods as equipment	3072	9		LITHIUM	1415	4.3	
				LITHIUM ALKYLs	2445	4.2	
				LITHIUM ALUMINIUM HYDRIDE	1410	4.3	
LIFE-SAVING APPLIANCES, SELF- INFLATING	2990	9		LITHIUM ALUMINIUM HYDRIDE, ETHEREAL	1411	4.3	
LIGHTER REFILLS containing flammable gas	1057	2		LITHIUM BATTERIES	3090	9	
LIGHTERS containing flammable gas	1057	2		LITHIUM BATTERIES CONTAINED IN EQUIPMENT	3091	9	
LIGHTERS, FUSE	0131	1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
LITHIUM BATTERIES PACKED WITH EQUIPMENT	3091	9		MAGNESIUM ALLOYS with more than 50% magnesium in pellets, turnings or ribbons	1869	4.1	
LITHIUM BOROHYDRIDE	1413	4.3		MAGNESIUM ALLOYS POWDER	1418	4.3	
LITHIUM FERROSILICON	2830	4.3		MAGNESIUM ALUMINIUM PHOSPHIDE	1419	4.3	
LITHIUM HYDRIDE	1414	4.3		MAGNESIUM ARSENATE	1622	6.1	
LITHIUM HYDRIDE, FUSED SOLID	2805	4.3		Magnesium bisulphite solution, see	2693	8	
LITHIUM HYDROXIDE	2680	8		MAGNESIUM BROMATE	1473	5.1	
LITHIUM HYDROXIDE SOLUTION	2679	8		MAGNESIUM CHLORATE	2723	5.1	
LITHIUM HYPOCHLORITE, DRY	1471	5.1		Magnesium chloride and chlorate mixture, see	1459	5.1	
LITHIUM HYPOCHLORITE MIXTURE	1471	5.1		MAGNESIUM DIAMIDE	2004	4.2	
Lithium in cartouches, see	1415	4.3		MAGNESIUM DIPHENYL	2005	4.2	
LITHIUM NITRATE	2722	5.1		MAGNESIUM FLUOROSILICATE	2853	6.1	
LITHIUM NITRIDE	2806	4.3		MAGNESIUM GRANULES, COATED, particle size not less than 149 microns	2950	4.3	
LITHIUM PEROXIDE	1472	5.1		MAGNESIUM HYDRIDE	2010	4.3	
Lithium silicide, see	1417	4.3		MAGNESIUM NITRATE	1474	5.1	
LITHIUM SILICON	1417	4.3		MAGNESIUM PERCHLORATE	1475	5.1	
L.n.g., see	1972	2		MAGNESIUM PEROXIDE	1476	5.1	
LONDON PURPLE	1621	6.1		MAGNESIUM PHOSPHIDE	2011	4.3	
L.p.g., see	1075	2		MAGNESIUM POWDER	1418	4.3	
Lye, see	1823	8		Magnesium scrap, see	1869	4.1	
Lythene, see	1268	3		MAGNESIUM SILICIDE	2624	4.3	
MAGNESIUM in pellets, turnings or ribbons	1869	4.1		Magnesium silicofluoride, see	2853	6.1	
MAGNESIUM ALKYLs	3053	4.2					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Magnetized material	2807	9	Not subject to ADR	MATCHES, WAX "VESTA"	1945	4.1	
				MEDICAL WASTE, N.O.S.	3291	6.2	
MALEIC ANHYDRIDE	2215	8		MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S.	3248	3	
MALEIC ANHYDRIDE, MOLTEN	2215	8					
Malonic dinitrile, see	2647	6.1		MEDICINE, LIQUID, TOXIC, N.O.S.	1851	6.1	
Malonodinitrile, see	2647	6.1					
MALONONITRILE	2647	6.1					
MANEB	2210	4.2		p-Mentha-1,8-diene, see	2052	8	
MANEB PREPARATION with not less than 60% maneb	2210	4.2		MERCAPTANS, LIQUID, FLAMMABLE, N.O.S.	3336	3	
MANEB PREPARATION, STABILIZED against self-heating	2968	4.3		MERCAPTANS, LIQUID, FLAMMABLE, TOXIC, N.O.S.	1228	3	
MANEB, STABILIZED against self-heating	2968	4.3		MERCAPTANS, LIQUID, TOXIC, FLAMMABLE, N.O.S.	3071	6.1	
Manganese ethylene-dithiocarbamate, see	2210	4.2					
Manganese ethylene-1,2-dithiocarbamate, see	2210	4.2		MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.	3336	3	
MANGANESE NITRATE	2724	5.1		MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, TOXIC, N.O.S.	1228	3	
Manganese (II) nitrate, see	2724	5.1					
MANGANESE RESINATE	1330	4.1		MERCAPTAN MIXTURE, LIQUID, TOXIC, FLAMMABLE, N.O.S.	3071	6.1	
Manganous nitrate, see	2724	5.1					
MANNITOL HEXANITRATE, WETTED with not less than 40% water, or mixture of alcohol and water, by mass	0133	1		2-Mercaptoethanol, see	2966	6.1	
				2-Mercaptopropionic acid, see	2936	6.1	
				5-MERCAPTOTETRAZOL-1-ACETIC ACID	0448	1	
MATCHES, FUSEE	2254	4.1		MERCURIC ARSENATE	1623	6.1	
MATCHES, SAFETY (book, card or strike on box)	1944	4.1		MERCURIC CHLORIDE	1624	6.1	
MATCHES, "STRIKE ANYWHERE"	1331	4.1		MERCURIC NITRATE	1625	6.1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
MERCURIC POTASSIUM CYANIDE	1626	6.1		MERCURY FULMINATE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	0135	1	
Mercuric sulphate, see	1645	6.1					
Mercuriol, see	1639	6.1		MERCURY GLUCONATE	1637	6.1	
Mercurous bisulphate, see	1645	6.1		MERCURY IODIDE	1638	6.1	
MERCUROUS NITRATE	1627	6.1		MERCURY NUCLEATE	1639	6.1	
Mercurous sulphate, see	1645	6.1		MERCURY OLEATE	1640	6.1	
MERCURY	2809	8		MERCURY OXIDE	1641	6.1	
MERCURY ACETATE	1629	6.1		MERCURY OXYCYANIDE, DESENSITIZED	1642	6.1	
MERCURY AMMONIUM CHLORIDE	1630	6.1		MERCURY POTASSIUM IODIDE	1643	6.1	
MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	2778	3		MERCURY SALICYLATE	1644	6.1	
MERCURY BASED PESTICIDE, LIQUID, TOXIC	3012	6.1		MERCURY SULPHATE	1645	6.1	
MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	3011	6.1		MERCURY THIOCYANATE	1646	6.1	
MERCURY BASED PESTICIDE, SOLID, TOXIC	2777	6.1		Mesitylene, see	2325	3	
MERCURY BENZOATE	1631	6.1		MESITYL OXIDE	1229	3	
Mercury bichloride, see	1624	6.1		METAL ALKYL HALIDES, WATER-REACTIVE, N.O.S.	3049	4.2	
MERCURY BROMIDES	1634	6.1		METAL ALKYL HYDRIDES, WATER-REACTIVE, N.O.S.	3050	4.2	
MERCURY COMPOUND, LIQUID, N.O.S.	2024	6.1		METAL ALKYL, WATER-REACTIVE, N.O.S.	2003	4.2	
MERCURY COMPOUND, SOLID, N.O.S.	2025	6.1		METAL ARYL HALIDES, WATER-REACTIVE, N.O.S.	3049	4.2	
MERCURY CYANIDE	1636	6.1		METAL ARYL HYDRIDES, WATER-REACTIVE, N.O.S.	3050	4.2	
				METAL ARYL, WATER-REACTIVE, N.O.S.	2003	4.2	
				METAL CARBONYLS, N.O.S., liquid	3281	6.1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
METAL CARBONYLS, N.O.S., solid	3281	6.1		METHANE, REFRIGERATED LIQUID	1972	2	
METAL CATALYST, DRY	2881	4.2		METHANESULPHONYL CHLORIDE	3246	6.1	
METAL CATALYST, WETTED with a visible excess of liquid	1378	4.2		METHANOL	1230	3	
METALDEHYDE	1332	4.1		2-Methoxyethyl acetate, see	1189	3	
METAL HYDRIDES, FLAMMABLE, N.O.S.	3182	4.1		METHOXYMETHYL ISOCYANATE	2605	3	
METAL HYDRIDES, WATER-REACTIVE, N.O.S.	1409	4.3		4-METHOXY-4-METHYLPENTAN-2-ONE	2293	3	
METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.	3208	4.3		1-Methoxy-2-nitrobenzene, see	2730	6.1	
METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S.	3209	4.3		1-Methoxy-3-nitrobenzene, see	2730	6.1	
METAL POWDER, FLAMMABLE, N.O.S.	3089	4.1		1-Methoxy-4-nitrobenzene, see	2730	6.1	
METAL POWDER, SELF-HEATING, N.O.S.	3189	4.2		1-METHOXY-2-PROPANOL	3092	3	
METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.	3181	4.1		METHYL ACETATE	1231	3	
METHACRYLALDEHYDE, STABILIZED	2396	3		METHYLACETYLENE AND PROPADIENE MIXTURE, STABILIZED such as mixture P1 or mixture P2	1060	2	
METHACRYLIC ACID, STABILIZED	2531	8		beta-Methyl acrolein, see	1143	6.1	
METHACRYLONITRILE, STABILIZED	3079	3		METHYL ACRYLATE, STABILIZED	1919	3	
METHALLYL ALCOHOL	2614	3		METHYLAL	1234	3	
Methanal, see	1198	3		Methyl alcohol, see	1230	3	
	2209	8		Methyl allyl alcohol, see	2614	3	
Methane and hydrogen mixture, see	2034	2		METHYLALLYL CHLORIDE	2554	3	
METHANE, COMPRESSED	1971	2		METHYLAMINE, ANHYDROUS	1061	2	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
METHYLAMINE, AQUEOUS SOLUTION	1235	3		METHYL CHLORIDE AND METHYLENE CHLORIDE MIXTURE	1912	2	
METHYLAMYL ACETATE	1233	3		METHYL CHLOROACETATE	2295	6.1	
Methyl amyl alcohol, see	2053	3		Methyl chlorocarbonate, see	1238	6.1	
Methyl amyl ketone, see	1110	3		Methyl chloroform, see	2831	6.1	
N-METHYLANILINE	2294	6.1		METHYL CHLOROFORMATE	1238	6.1	
Methylated spirit, see	1986	3					
	1987	3		METHYL CHLOROMETHYL ETHER	1239	6.1	
alpha-METHYLBENZYL ALCOHOL	2937	6.1		METHYL 2-CHLORO-PROPIONATE	2933	3	
METHYL BROMIDE with not more than 2% chloropicrin	1062	2		Methyl alpha-chloropropionate, see	2933	3	
Methyl bromide and chloropicrin mixture, with more than 2% chloropicrin, see	1581	2		METHYLCHLOROSILANE	2534	2	
METHYL BROMIDE AND ETHYLENE DIBROMIDE MIXTURE, LIQUID	1647	6.1		Methyl cyanide, see	1648	3	
METHYL BROMOACETATE	2643	6.1		METHYLCYCLOHEXANE	2296	3	
2-METHYLBUTANAL	3371	3		METHYLCYCLOHEXANOLS, flammable	2617	3	
3-METHYLBUTAN-2-ONE	2397	3		METHYLCYCLOHEXANONE	2297	3	
2-METHYL-1-BUTENE	2459	3		METHYLCYCLOPENTANE	2298	3	
2-METHYL-2-BUTENE	2460	3		METHYL DICHLOROACETATE	2299	6.1	
3-METHYL-1-BUTENE	2561	3		METHYLDICHLOROSILANE	1242	4.3	
N-METHYLBUTYLAMINE	2945	3		Methylene bromide, see	2664	6.1	
METHYL tert-BUTYL ETHER	2398	3		Methylene chloride, see	1593	6.1	
METHYL BUTYRATE	1237	3		Methylene chloride and methyl chloride mixture, see	1912	2	
METHYL CHLORIDE	1063	2		Methylene cyanide, see	2647	6.1	
Methyl chloride and chloropicrin mixture, see	1582	2		p,p'-Methylene dianiline, see	2651	6.1	



Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Methylene dibromide, see	2664	6.1		Methyl mercapto-propionaldehyde, see	2785	6.1	
2,2'-Methylene-di-(3,4,6-trichlorophenol), see	2875	6.1		METHYL METHACRYLATE MONOMER, STABILIZED	1247	3	
Methyl ethyl ether, see	1039	2		4-METHYLMORPHOLINE	2535	3	
METHYL ETHYL KETONE, see	1193	3		N-METHYLMORPHOLINE, see	2535	3	
2-METHYL-5-ETHYLPYRIDINE	2300	6.1		METHYL NITRITE	2455	2	Carriage prohibited
METHYL FLUORIDE	2454	2		METHYL ORTHOSILICATE	2606	6.1	
METHYL FORMATE	1243	3		METHYLPENTADIENE	2461	3	
2-METHYLFURAN	2301	3		Methylpentanes, see	1208	3	
Methyl glycol, see	1188	3		2-METHYLPENTAN-2-OL	2560	3	
Methyl glycol acetate, see	1189	3		4-Methylpentan-2-ol, see	2053	3	
2-METHYL-2-HEPTANETHIOL	3023	6.1		3-Methyl-2-penten-4ynol, see	2705	8	
5-METHYLHEXAN-2-ONE	2302	3		METHYLPHENYL-DICHLOROSILANE	2437	8	
METHYLHYDRAZINE	1244	6.1		2-Methyl-2-phenylpropane, see	2709	3	
METHYL IODIDE	2644	6.1		1-METHYLPYRIDINE	2399	3	
METHYL ISOBUTYL CARBINOL	2053	3		METHYL PROPIONATE	1248	3	
METHYL ISOBUTYL KETONE	1245	3		Methylpropylbenzene, see	2046	3	
METHYL ISOCYANATE	2480	6.1		METHYL PROPYL ETHER	2612	3	
METHYL ISOPROPENYL KETONE, STABILIZED	1246	3		METHYL PROPYL KETONE	1249	3	
METHYL ISOTHIOCYANATE	2477	6.1		Methyl pyridines, see	2313	3	
METHYL ISOVALERATE	2400	3		Methylstyrene, inhibited, see	2618	3	
METHYL MAGNESIUM BROMIDE IN ETHYL ETHER	1928	4.3		alpha-Methylstyrene, see	2303	3	
METHYL MERCAPTAN	1064	2		Methyl sulphate, see	1595	6.1	
				Methyl sulphide, see	1164	3	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
METHYLTETRAHYDRO-FURAN	2536	3		Mixture P1 or mixture P2, see	1060	2	
METHYL TRICHLOROACETATE	2533	6.1		MOLYBDENUM PENTACHLORIDE	2508	8	
METHYLTRICHLORO-SILANE	1250	3		Monochloroacetic acid, see	1750 1751	6.1 6.1	
alpha-METHYLVALERAL-DEHYDE	2367	3		Monochlorobenzene, see	1134	3	
Methyl vinyl benzene, inhibited, see	2618	3		Monochlorodifluoromethane, see	1018	2	
METHYL VINYL KETONE, STABILIZED	1251	6.1		Monochlorodifluoromethane and monochloropentafluoroethane mixture, see	1973	2	
M.i.b.c., see	2053	3		Monochlorodifluoromono-bromomethane, see	1974	2	
MINES with bursting charge	0136 0137 0138 0294	1 1 1 1		Monochloropentafluoroethane and monochlorodifluoromethane mixture, see	1973	2	
Mirbane oil, see	1662	6.1		Monoethylamine, see	1036	2	
Missiles, guided, see	0180 0181 0182 0183 0295 0397 0398 0436 0437 0438	1 1 1 1 1 1 1 1 1 1		MONONITROTOLUIDINES, see	2660	6.1	
Mixtures A, A01, A02, A0, A1, B1, B2, B or C, see	1965	2		Monopropylamine, see	1277	3	
Mixture F1, mixture F2 or mixture F3, see	1078	2		MORPHOLINE	2054	8	
MIXTURES OF 1,3-BUTADIENE AND HYDROCARBONS, STABILIZED, having a vapour pressure at 70 °C not exceeding 1.1 MPa (11 bar) and a density at 50 °C not lower than 0.525 kg/l	1010	2		MOTOR FUEL ANTI-KNOCK MIXTURE	1649	6.1	
				MOTOR SPIRIT	1203	3	
				Muriatic acid, see	1789	8	
				MUSK XYLENE, see	2956	4.1	
				Mysorite, see	2212	9	
				Naphta, see	1268	3	
				Naphta, petroleum, see	1268	3	
				Naphta, solvent, see	1268	3	
				NAPHTHALENE, CRUDE	1334	4.1	
				NAPHTHALENE, MOLTEN	2304	4.1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
NAPHTHALENE, REFINED	1334	4.1		NICOTINE COMPOUND, LIQUID, N.O.S.	3144	6.1	
alpha-NAPHTHYLAMINE	2077	6.1		NICOTINE COMPOUND, SOLID, N.O.S.	1655	6.1	
beta-NAPHTHYLAMINE	1650	6.1		NICOTINE HYDROCHLORIDE, liquid	1656	6.1	
NAPHTHYLTHIOUREA	1651	6.1		NICOTINE HYDROCHLORIDE, solid	1656	6.1	
1-Naphthylthiourea, see	1651	6.1		NICOTINE HYDROCHLORIDE, solid	1656	6.1	
NAPHTHYLUREA	1652	6.1		NICOTINE HYDROCHLORIDE SOLUTION	1656	6.1	
NATURAL GAS, COMPRESSED with high methane content	1971	2		NICOTINE PREPARATION, LIQUID, N.O.S.	3144	6.1	
NATURAL GAS, REFRIGERATED LIQUID with high methane content	1972	2		NICOTINE PREPARATION, SOLID, N.O.S.	1655	6.1	
Natural gasoline, see	1203	3		NICOTINE SALICYLATE	1657	6.1	
Neohexane, see	1208	3		NICOTINE SULPHATE, SOLID	1658	6.1	
NEON, COMPRESSED	1065	2		NICOTINE SULPHATE, SOLUTION	1658	6.1	
NEON, REFRIGERATED LIQUID	1913	2		NICOTINE TARTRATE	1659	6.1	
Neothyl, see	2612	3		NITRATES, INORGANIC, N.O.S.	1477	5.1	
NICKEL CARBONYL	1259	6.1		NITRATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	3218	5.1	
NICKEL CYANIDE	1653	6.1		NITRATING ACID MIXTURE with more than 50% nitric acid	1796	8	
Nickel (II) cyanide, see	1653	6.1		NITRATING ACID MIXTURE with not more than 50% nitric acid	1796	8	
NICKEL NITRATE	2725	5.1		NITRATING ACID MIXTURE, SPENT, with more than 50% nitric acid	1826	8	
Nickel (II) nitrate, see	2725	5.1					
NICKEL NITRITE	2726	5.1					
Nickel (II) nitrite, see	2726	5.1					
Nickelous nitrate, see	2725	5.1					
Nickelous nitrite, see	2726	5.1					
Nickel tetracarbonyl, see	1259	6.1					
NICOTINE	1654	6.1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
NITRATING ACID MIXTURE, SPENT, with not more than 50% nitric acid	1826	8		NITROBENZENE-SULPHONIC ACID	2305	8	
NITRIC ACID, other than red fuming, with more than 70% nitric acid	2031	8		Nitrobenzol, see	1662	6.1	
NITRIC ACID, other than red fuming, with not more than 70% nitric acid	2031	8		5-NITROBENZOTRIAZOL	0385	1	
NITRIC ACID, RED FUMING	2032	8		NITROBENZOTRIFLUORIDES, liquid	2306	6.1	
NITRIC OXIDE, COMPRESSED	1660	2		NITROBENZOTRIFLUORIDES, solid	2306	6.1	
NITRIC OXIDE AND DINITROGEN TETROXIDE MIXTURE	1975	2		NITROBROMOBENZENES, LIQUID	2732	6.1	
NITRIC OXIDE AND NITROGEN DIOXIDE MIXTURE, see	1975	2		NITROBROMOBENZENES, SOLID	2732	6.1	
NITRILES, FLAMMABLE, TOXIC, N.O.S.	3273	3		NITROCELLULOSE, dry or wetted with less than 25% water (or alcohol), by mass	0340	1	
NITRILES, TOXIC, N.O.S.	3276	6.1		NITROCELLULOSE, unmodified or plasticized with less than 18% plasticizing substance, by mass	0341	1	
NITRILES, TOXIC, FLAMMABLE, N.O.S.	3275	6.1		NITROCELLULOSE MEMBRANE FILTERS, with not more than 12.6% nitrogen, by dry mass	3270	4.1	
NITRITES, INORGANIC, N.O.S.	2627	5.1		NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITH PLASTICIZER, WITH PIGMENT	2557	4.1	
NITRITES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	3219	5.1		NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITH PLASTICIZER, WITHOUT PIGMENT	2557	4.1	
NITROANILINES (o-, m-, p-)	1661	6.1		NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITHOUT PLASTICIZER, WITH PIGMENT	2557	4.1	
NITROANISOLES, LIQUID	2730	6.1					
NITROANISOLES, SOLID	2730	6.1					
NITROBENZENE	1662	6.1					
Nitrobenzene bromide, see	2732	6.1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITHOUT PLASTICIZER, WITHOUT PIGMENT	2557	4.1		NITROGEN TRIFLUORIDE	2451	2	
				NITROGEN TRIOXIDE	2421	2	Carriage prohibited
NITROCELLULOSE, PLASTICIZED with not less than 18% plasticizing substance, by mass	0343	1		NITROGLYCERIN, DESENSITIZED with not less than 40% non-volatile water-insoluble phlegmatizer, by mass	0143	1	
NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose	2059	3		NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, N.O.S. with not more than 30% nitroglycerin, by mass	3357	3	
NITROCELLULOSE, WETTED with not less than 25% alcohol, by mass	0342	1		NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, FLAMMABLE, N.O.S. with not more than 30% nitroglycerin, by mass	3343	3	
NITROCELLULOSE WITH ALCOHOL (not less than 25% alcohol, by mass, and not more than 12.6% nitrogen, by dry mass)	2556	4.1		NITROGLYCERIN MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 2% but not more than 10% nitroglycerin, by mass	3319	4.1	
NITROCELLULOSE WITH WATER (not less than 25% water, by mass)	2555	4.1		NITROGLYCERIN, SOLUTION IN ALCOHOL with more than 1% but not more than 5% nitroglycerin	3064	3	
Nitrochlorobenzenes, see	1578	6.1		NITROGLYCERIN SOLUTION IN ALCOHOL with more than 1% but not more than 10% nitroglycerin	0144	1	
3-NITRO-4-CHLOROBENZO-TRIFLUORIDE	2307	6.1		NITROGLYCERIN SOLUTION IN ALCOHOL with not more than 1% nitroglycerin	1204	3	
NITROCRESOLS, liquid	2446	6.1		NITROGUANIDINE, dry or wetted with less than 20% water, by mass	0282	1	
NITROCRESOLS, solid	2446	6.1		NITROGUANIDINE, WETTED with not less than 20% water, by mass	1336	4.1	
NITROETHANE	2842	3					
NITROGEN, COMPRESSED	1066	2					
NITROGEN DIOXIDE, see	1067	2					
Nitrogen mixture with rare gases, see	1981	2					
NITROGEN, REFRIGERATED LIQUID	1977	2					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
NITROHYDROCHLORIC ACID	1798	8	Carriage prohibited	Nitrous oxide and carbon dioxide mixture, see	1015	2	
NITROMANNITE, WETTED, see	0133	1		NITROUS OXIDE, REFRIGERATED LIQUID	2201	2	
NITROMETHANE	1261	3		NITROXYLENES, LIQUID	1665	6.1	
Nitromuriatic acid, see	1798	8		NITROXYLENES, SOLID	1665	6.1	
NITRONAPHTHALENE	2538	4.1		Non-activated carbon, see	1361	4.2	
NITROPHENOLS (o-, m-, p-)	1663	6.1		Non-activated charcoal, see	1361	4.2	
4-NITROPHENYL-HYDRAZINE, with not less than 30% water, by mass	3376	4.1		NONANES	1920	3	
NITROPROPANES	2608	3		NONYLTRICHLORO-SILANE	1799	8	
p-NITROSODIMETHYL-ANILINE	1369	4.2		2,5-NORBORNADIENE, STABILIZED, see	2251	3	
NITROSTARCH, dry or wetted with less than 20% water, by mass	0146	1		Normal propyl alcohol, see	1274	3	
NITROSTARCH, WETTED with not less than 20% water, by mass	1337	4.1		NTO, see	0490	1	
NITROSYL CHLORIDE	1069	2		OCTADECYLTRICHLORO-SILANE	1800	8	
NITROSYLSULPHURIC ACID, LIQUID	2308	8		OCTADIENE	2309	3	
NITROSYLSULPHURIC ACID, SOLID	2308	8		OCTAFLUOROBUT-2-ENE	2422	2	
NITROTOLUENES, LIQUID	1664	6.1		OCTAFLUOROCYCLO-BUTANE	1976	2	
NITROTOLUENES, SOLID	1664	6.1		OCTAFLUOROPROPANE	2424	2	
NITROTOLUIDINES	2660	6.1		OCTANES	1262	3	
NITROTRIAZOLONE	0490	1		OCTOGEN, see	0226	1	
NITRO UREA	0147	1			0391	1	
NITROUS OXIDE	1070	2			0484	1	
				OCTOL, dry or wetted with less than 15% water, by mass, see	0266	1	
				OCTOLITE, dry or wetted with less than 15% water, by mass	0266	1	
				OCTONAL	0496	1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
OCTYL ALDEHYDES	1191	3		ORGANIC PEROXIDE TYPE D, SOLID	3106	5.2	
tert-Octyl mercaptan, see	3023	6.1					
OCTYLTRICHLORO- SILANE	1801	8		ORGANIC PEROXIDE TYPE D, SOLID, TEMPERATURE CONTROLLED	3116	5.2	
Oenanthol, see	3056	3					
OIL GAS, COMPRESSED	1071	2		ORGANIC PEROXIDE TYPE E, LIQUID	3107	5.2	
Oleum, see	1831	8					
ORGANIC PEROXIDE TYPE B, LIQUID	3101	5.2		ORGANIC PEROXIDE TYPE E, LIQUID, TEMPERATURE CONTROLLED	3117	5.2	
ORGANIC PEROXIDE TYPE B, LIQUID, TEMPERATURE CONTROLLED	3111	5.2		ORGANIC PEROXIDE TYPE E, SOLID	3108	5.2	
ORGANIC PEROXIDE TYPE B, SOLID	3102	5.2		ORGANIC PEROXIDE TYPE E, SOLID, TEMPERATURE CONTROLLED	3118	5.2	
ORGANIC PEROXIDE TYPE B, SOLID, TEMPERATURE CONTROLLED	3112	5.2		ORGANIC PEROXIDE TYPE F, LIQUID	3109	5.2	
ORGANIC PEROXIDE TYPE C, LIQUID	3103	5.2		ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED	3119	5.2	
ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED	3113	5.2		ORGANIC PEROXIDE TYPE F, SOLID	3110	5.2	
ORGANIC PEROXIDE TYPE C, SOLID	3104	5.2		ORGANIC PEROXIDE TYPE F, SOLID, TEMPERATURE CONTROLLED	3120	5.2	
ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED	3114	5.2		Organic peroxides, see 2.2.52.4 for an alphabetic list of currently assigned organic peroxides and see	3101 to 3120	5.2	
ORGANIC PEROXIDE TYPE D, LIQUID	3105	5.2		ORGANIC PIGMENTS, SELF-HEATING	3313	4.2	
ORGANIC PEROXIDE TYPE D, LIQUID, TEMPERATURE CONTROLLED	3115	5.2		ORGANOARSENIC COMPOUND, N.O.S., liquid	3280	6.1	
				ORGANOARSENIC COMPOUND, N.O.S., solid	3280	6.1	

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ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	2762	3		ORGANOPHOSPHORUS COMPOUND, TOXIC, FLAMMABLE, N.O.S.	3279	6.1	
ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC	2996	6.1		ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	2784	3	
ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	2995	6.1		ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC	3018	6.1	
ORGANOCHLORINE PESTICIDE, SOLID, TOXIC	2761	6.1		ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	3017	6.1	
ORGANOMETALLIC COMPOUND DISPERSION, WATER-REACTIVE, FLAMMABLE, N.O.S.	3207	4.3		ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC	2783	6.1	
ORGANOMETALLIC COMPOUND SOLID, WATER-REACTIVE, FLAMMABLE, N.O.S.	3372	4.3		ORGANOTIN COMPOUND, LIQUID, N.O.S.	2788	6.1	
ORGANOMETALLIC COMPOUND SOLUTION, WATER-REACTIVE, FLAMMABLE, N.O.S.	3207	4.3		ORGANOTIN COMPOUND, SOLID, N.O.S.	3146	6.1	
ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., liquid	3282	6.1		ORGANOTIN PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	2787	3	
ORGANOMETALLIC COMPOUND, TOXIC, N.O.S., solid	3282	6.1		ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	3020	6.1	
ORGANOMETALLIC COMPOUND, WATER-REACTIVE, FLAMMABLE, N.O.S.	3207	4.3		ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	3019	6.1	
ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., liquid	3278	6.1		ORGANOTIN PESTICIDE, SOLID, TOXIC	2786	6.1	
ORGANOPHOSPHORUS COMPOUND, TOXIC, N.O.S., solid	3278	6.1		Orthophosphoric acid, see	1805	8	
				OSMIUM TETROXIDE	2471	6.1	
				OXIDIZING LIQUID, N.O.S.	3139	5.1	
				OXIDIZING LIQUID, CORROSIVE, N.O.S.	3098	5.1	



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OXIDIZING LIQUID, TOXIC, N.O.S.	3099	5.1		PAPER, UNSATURATED OIL TREATED, incompletely dried (including carbon paper)	1379	4.2	
OXIDIZING SOLID, N.O.S.	1479	5.1		Paraffin, see	1223	3	
OXIDIZING SOLID, CORROSIVE, N.O.S.	3085	5.1		PARAFORMALDEHYDE	2213	4.1	
OXIDIZING SOLID, FLAMMABLE, N.O.S.	3137	5.1	Carriage prohibited	PARALDEHYDE	1264	3	
OXIDIZING SOLID, SELF-HEATING, N.O.S.	3100	5.1	Carriage prohibited	PCBs, see	2315	9	
OXIDIZING SOLID, TOXIC, N.O.S.	3087	5.1		PENTABORANE	1380	4.2	
OXIDIZING SOLID, WATER-REACTIVE, N.O.S.	3121	5.1	Carriage prohibited	PENTACHLOROETHANE	1669	6.1	
Oxirane, see	1040	2		PENTACHLOROPHENOL	3155	6.1	
Oxygen and carbon dioxide mixture, see	1014	2		PENTAERYTHRITOL TETRANITRATE with not less than 7% wax, by mass	0411	1	
OXYGEN, COMPRESSED	1072	2		PENTAERYTHRITOL TETRANITRATE, DESENSITIZED with not less than 15% phlegmatizer, by mass	0150	1	
OXYGEN DIFLUORIDE, COMPRESSED	2190	2		PENTAERYTHRITOL TETRANITRATE	3344	4.1	
OXYGEN GENERATOR, CHEMICAL	3356	5.1		MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 10% but not more than 20% PETN, by mass			
Oxygen, mixture with rare gases, see	1980	2		PENTAERYTHRITOL TETRANITRATE, WETTED with not less than 25% water, by mass	0150	1	
OXYGEN, REFRIGERATED LIQUID	1073	2		PENTAERYTHRITOL TETRANITRATE, see	0411	1	
1-Oxy-4-nitrobenzene, see	1663	6.1		PENTAFLUOROETHANE	3220	2	
PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)	1263 3066	3 8		Pentafluoroethane, 1,1,1-trifluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 44% pentafluoroethane and 52% 1,1,1-trifluoroethane, see	3337	2	
PAINT RELATED MATERIAL (including paint thinning and reducing compound)	1263 3066	3 8		PENTAMETHYLHEPTANE	2286	3	

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Pentanal, see	2058	3		PERFLUORO(METHYL VINYL ETHER)	3153	2	
PENTANE-2,4-DIONE	2310	3		Perfluoropropane, see	2424	2	
PENTANES, liquid	1265	3		PERFUMERY PRODUCTS with flammable solvents	1266	3	
n-Pentane, see	1265	3		PERMANGANATES, INORGANIC, N.O.S.	1482	5.1	
PENTANOLS	1105	3		PERMANGANATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	3214	5.1	
3-Pentanol, see	1105	3		PEROXIDES, INORGANIC, N.O.S.	1483	5.1	
1-PENTENE	1108	3		PERSULPHATES, INORGANIC, N.O.S.	3215	5.1	
1-PENTOL	2705	8		PERSULPHATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	3216	5.1	
PENTOLITE, dry or wetted with less than 15% water, by mass	0151	1		PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S., flash-point less than 23 °C	3021	3	
Pentyl nitrite, see	1113	3		PESTICIDE, LIQUID, TOXIC, N.O.S.	2902	6.1	
PERCHLORATES, INORGANIC, N.O.S.	1481	5.1		PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S., flash-point not less than 23 °C	2903	6.1	
PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	3211	5.1		PESTICIDE, SOLID, TOXIC, N.O.S.	2588	6.1	
PERCHLORIC ACID with more than 50% but not more than 72% acid, by mass	1873	5.1		Pesticide, toxic, under compressed gas, n.o.s, see	1950	2	
PERCHLORIC ACID with not more than 50% acid, by mass	1802	8		PETN, see	0150	1	
Perchlorobenzene, see	2729	6.1			0411	1	
Perchlorocyclopentadiene, see	2646	6.1		PETN/TNT, see	0151	1	
Perchloroethylene, see	1897	6.1		PETROL	1203	3	
PERCHLOROMETHYL MERCAPTAN	1670	6.1		PETROLEUM CRUDE OIL	1267	3	
PERCHLORYL FLUORIDE	3083	2					
Perfluoroacetylchloride, see	3057	2					
PERFLUORO(ETHYL VINYL ETHER)	3154	2					

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PETROLEUM DISTILLATES, N.O.S.	1268	3		PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC	3345	6.1	
Petroleum ether, see	1268	3		PHENYLACETONITRILE, LIQUID	2470	6.1	
PETROLEUM GASES, LIQUEFIED	1075	2		PHENYLACETYL CHLORIDE	2577	8	
Petroleum naphtha, see	1268	3		Phenylamine, see	1547	6.1	
Petroleum oil, see	1268	3		1-Phenylbutane, see	2709	3	
PETROLEUM PRODUCTS, N.O.S.	1268	3		2-Phenylbutane, see	2709	3	
Petroleum raffinate, see	1268	3		PHENYL CARBYLAMINE CHLORIDE	1672	6.1	
Petroleum spirit, see	1268	3		PHENYL CHLOROFORMATE	2746	6.1	
PHENACYL BROMIDE	2645	6.1		Phenyl cyanide, see	2224	6.1	
PHENETIDINES	2311	6.1		PHENYLENEDIAMINES (o-, m-, p-)	1673	6.1	
PHENOLATES, LIQUID	2904	8		Phenylethylene, see	2055	3	
PHENOLATES, SOLID	2905	8		PHENYLHYDRAZINE	2572	6.1	
PHENOL, MOLTEN	2312	6.1		PHENYL ISOCYANATE	2487	6.1	
PHENOL, SOLID	1671	6.1		Phenylisocyanodichloride, see	1672	6.1	
PHENOL SOLUTION	2821	6.1		PHENYL MERCAPTAN	2337	6.1	
PHENOLSULPHONIC ACID, LIQUID	1803	8		PHENYLMERCURIC ACETATE	1674	6.1	
PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3346	3		PHENYLMERCURIC COMPOUND, N.O.S.	2026	6.1	
PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC	3348	6.1		PHENYLMERCURIC HYDROXIDE	1894	6.1	
PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	3347	6.1		PHENYLMERCURIC NITRATE	1895	6.1	
				PHENYLPHOSPHORUS DICHLORIDE	2798	8	

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PHENYLPHOSPHORUS THIODICHLORIDE	2799	8		PHOSPHORUS PENTAFLUORIDE	2198	2	
2-Phenylpropene, see	2303	3		PHOSPHORUS PENTASULPHIDE, free from yellow and white phosphorus	1340	4.3	
PHENYLTRICHLOROSILANE	1804	8		PHOSPHORUS PENTOXIDE	1807	8	
PHOSGENE	1076	2		PHOSPHORUS SESQUISULPHIDE, free from yellow and white phosphorus	1341	4.1	
9-PHOSPHABICYCLONONANES	2940	4.2		Phosphorus (V) sulphide, free from yellow and white phosphorus, see	1340	4.3	
PHOSPHINE	2199	2		Phosphorus sulphochloride, see	1837	8	
Phosphoretted hydrogen, see	2199	2		PHOSPHORUS TRIBROMIDE	1808	8	
PHOSPHORIC ACID, LIQUID	1805	8		PHOSPHORUS TRICHLORIDE	1809	6.1	
PHOSPHORIC ACID, SOLID	1805	8		PHOSPHORUS TRIOXIDE	2578	8	
Phosphoric acid, anhydrous, see	1807	8		PHOSPHORUS TRISULPHIDE, free from yellow and white phosphorus	1343	4.1	
PHOSPHOROUS ACID	2834	8		PHOSPHORUS, WHITE, DRY	1381	4.2	
PHOSPHORUS, AMORPHOUS	1338	4.1		PHOSPHORUS, WHITE IN SOLUTION	1381	4.2	
Phosphorus bromide, see	1808	8		PHOSPHORUS, WHITE, MOLTEN	2447	4.2	
Phosphorus chloride, see	1809	6.1		PHOSPHORUS, WHITE, UNDER WATER	1381	4.2	
PHOSPHORUS HEPTASULPHIDE, free from yellow and white phosphorus	1339	4.1		PHOSPHORUS, YELLOW, DRY	1381	4.2	
PHOSPHORUS OXYBROMIDE	1939	8		PHOSPHORUS, YELLOW, IN SOLUTION	1381	4.2	
PHOSPHORUS OXYBROMIDE, MOLTEN	2576	8		PHOSPHORUS, YELLOW, UNDER WATER	1381	4.2	
PHOSPHORUS OXYCHLORIDE	1810	8					
PHOSPHORUS PENTABROMIDE	2691	8					
PHOSPHORUS PENTACHLORIDE	1806	8					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Phosphoryl chloride, see	1810	8		POLYAMINES, SOLID, CORROSIVE, N.O.S.	3259	8	
PHTHALIC ANHYDRIDE with more than 0.05% of maleic anhydride	2214	8		POLYCHLORINATED BIPHENYLS	2315	9	
PICOLINES	2313	3		POLYESTER RESIN KIT	3269	3	
PICRAMIDE, see	0153	1		POLYHALOGENATED BIPHENYLS, LIQUID	3151	9	
PICRIC ACID, see	3364	4.1		POLYHALOGENATED BIPHENYLS, SOLID	3152	9	
PICRITE, see	0282	1		POLYHALOGENATED TERPHENYLS, LIQUID	3151	9	
PICRITE, WETTED, see	1336	4.1		POLYHALOGENATED TERPHENYLS, SOLID	3152	9	
Picrotoxin, see	3172	6.1		POLYMERIC BEADS, EXPANDABLE, evolving flammable vapour	2211	9	
PICRYL CHLORIDE, see	0155	1		Polystyrene beads, expandable, see	2211	9	
alpha-PINENE	2368	3		POTASSIUM	2257	4.3	
PINE OIL	1272	3		POTASSIUM ARSENATE	1677	6.1	
PIPERAZINE	2579	8		POTASSIUM ARSENITE	1678	6.1	
PIPERIDINE	2401	8		Potassium bifluoride, see	1811	8	
Pivaloyl chloride, see	2438	6.1		Potassium bisulphate, see	2509	8	
Plastic explosives, see	0084	1		Potassium bisulphite solution, see	2693	8	
PLASTICS MOULDING COMPOUND in dough, sheet or extruded rope form evolving flammable vapour	3314	9		POTASSIUM BOROXYDRIDE	1870	4.3	
PLASTICS, NITROCELLULOSE-BASED, SELF-HEATING, N.O.S.	2006	4.2		POTASSIUM BROMATE	1484	5.1	
POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.	2733	3		POTASSIUM CHLORATE	1485	5.1	
POLYAMINES, LIQUID, CORROSIVE, N.O.S.	2735	8		POTASSIUM CHLORATE, AQUEOUS SOLUTION	2427	5.1	
POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.	2734	8		Potassium chlorate mixed with mineral oil, see	0083	1	

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POTASSIUM CUPROCYANIDE	1679	6.1		POTASSIUM NITRATE AND SODIUM NITRITE MIXTURE	1487	5.1	
POTASSIUM CYANIDE	1680	6.1		POTASSIUM NITRITE	1488	5.1	
Potassium dicyanocuprate (I), see	1679	6.1		POTASSIUM PERCHLORATE	1489	5.1	
POTASSIUM DITHIONITE	1929	4.2		POTASSIUM PERMANGANATE	1490	5.1	
POTASSIUM FLUORIDE	1812	6.1		POTASSIUM PEROXIDE	1491	5.1	
POTASSIUM FLUOROACETATE	2628	6.1		POTASSIUM PERSULPHATE	1492	5.1	
POTASSIUM FLUROSILICATE	2655	6.1		POTASSIUM PHOSPHIDE	2012	4.3	
Potassium hexafluorosilicate, see	2655	6.1		Potassium selenate, see	2630	6.1	
Potassium hydrate, see	1814	8		Potassium selenite, see	2630	6.1	
POTASSIUM HYDROGENDIFLUORIDE	1811	8		Potassium silicofluoride, see	2655	6.1	
POTASSIUM HYDROGEN SULPHATE	2509	8		POTASSIUM SODIUM ALLOYS	1422	4.3	
POTASSIUM HYDROSULPHITE, see	1929	4.2		POTASSIUM SULPHIDE with less than 30% water of crystallization	1382	4.2	
Potassium hydroxide, liquid, see	1814	8		POTASSIUM SULPHIDE, ANHYDROUS	1382	4.2	
POTASSIUM HYDROXIDE, SOLID	1813	8		POTASSIUM SULPHIDE, HYDRATED with not less than 30% water of crystallization	1847	8	
POTASSIUM HYDROXIDE SOLUTION	1814	8		POTASSIUM SUPEROXIDE	2466	5.1	
POTASSIUM METAL ALLOYS	1420	4.3		Potassium tetracyano-mercurate (II), see	1626	6.1	
POTASSIUM METAVANADATE	2864	6.1		POWDER CAKE, WETTED with not less than 17% alcohol, by mass	0433	1	
POTASSIUM MONOXIDE	2033	8		POWDER CAKE, WETTED with not less than 25% water, by mass	0159	1	
POTASSIUM NITRATE	1486	5.1					
Potassium nitrate and sodium nitrate mixture, see	1499	5.1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
POWDER PASTE, see	0159	1		Propadiene and methyl acetylene mixture, stabilized, see	1060	2	
	0433	1					
POWDER, SMOKELESS	0160	1		PROPANE	1978	2	
	0161	1					
Power devices, explosive, see	0275	1		PROPANETHIOLS	2402	3	
	0276	1					
	0323	1		n-PROPANOL	1274	3	
	0381	1					
PRIMERS, CAP TYPE	0044	1		PROPELLANT, LIQUID	0495	1	
	0377	1			0497	1	
	0378	1		PROPELLANT, SOLID	0498	1	
Primers, small arms, see	0044	1			0499	1	
					0501	1	
PRIMERS, TUBULAR	0319	1		Propellant with a single base, see	0160	1	
	0320	1		Propellant with a double base, see	0161	1	
	0376	1		Propellant with a triple base, see			
PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable	1210	3		Propene, see	1077	2	
				PROPIONALDEHYDE	1275	3	
				PROPIONIC ACID	1848	8	
Projectiles, illuminating, see	0171	1		PROPIONIC ANHYDRIDE	2496	8	
	0254	1					
	0297	1		PROPIONITRILE	2404	3	
PROJECTILES, inert with tracer	0345	1		PROPIONYL CHLORIDE	1815	3	
	0424	1					
	0425	1		n-PROPYL ACETATE	1276	3	
PROJECTILES with burster or expelling charge	0346	1		PROPYL ALCOHOL, NORMAL, see	1274	3	
	0347	1					
	0426	1		PROPYLAMINE	1277	3	
	0427	1					
	0434	1		n-PROPYLBENZENE	2364	3	
	0435	1					
PROJECTILES with bursting charge	0167	1		Propyl chloride, see	1278	3	
	0168	1					
	0169	1		n-PROPYL CHLOROFORMATE	2740	6.1	
	0324	1					
	0344	1		PROPYLENE	1077	2	
PROPADIENE, STABILIZED	2200	2		PROPYLENE CHLOROHYDRIN	2611	6.1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
1,2-PROPYLENEDIAMINE	2258	8		PYROPHORIC METAL, N.O.S.	1383	4.2	
Propylene dichloride, see	1279	3		PYROPHORIC ORGANOMETALLIC COMPOUND, WATER-REACTIVE, N.O.S., liquid	3203	4.2	
PROPYLENEIMINE, STABILIZED	1921	3		PYROPHORIC ORGANOMETALLIC COMPOUND, WATER-REACTIVE, N.O.S., solid	3203	4.2	
PROPYLENE OXIDE	1280	3					
PROPYLENE TETRAMER	2850	3					
Propylene trimer, see	2057	3					
PROPYL FORMATES	1281	3		PYROPHORIC SOLID, INORGANIC, N.O.S.	3200	4.2	
n-PROPYL ISOCYANATE	2482	6.1		PYROPHORIC SOLID, ORGANIC, N.O.S.	2846	4.2	
Propyl mercaptan, see	2402	3					
n-PROPYL NITRATE	1865	3		PYROSULPHURYL CHLORIDE	1817	8	
PROPYLTRICHLOROSILANE	1816	8		Pyroxylin solution, see	2059	3	
Pyrazine hexahydride, see	2579	8		PYRROLIDINE	1922	3	
PYRETHROID PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3350	3		Quinol, see	2662	6.1	
PYRETHROID PESTICIDE, LIQUID, TOXIC	3352	6.1		QUINOLINE	2656	6.1	
PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	3351	6.1		Quinone, see	2587	6.1	
PYRETHROID PESTICIDE, SOLID, TOXIC	3349	6.1		RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM	2909	7	
PYRIDINE	1282	3		RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - EMPTY PACKAGING	2908	7	
PYROPHORIC ALLOY, N.O.S.	1383	4.2		RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - INSTRUMENTS or ARTICLES	2911	7	
PYROPHORIC LIQUID, INORGANIC, N.O.S.	3194	4.2					
PYROPHORIC LIQUID, ORGANIC, N.O.S.	2845	4.2					



Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL	2910	7		RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, non fissile or fissile-excepted	2919	7	
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non fissile or fissile-excepted	2912	7		RADIOACTIVE MATERIAL, TYPE A PACKAGE, FISSILE, non-special form	3327	7	
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), FISSILE	3324	7		RADIOACTIVE MATERIAL, TYPE A PACKAGE, non-special form, non fissile or fissile-excepted	2915	7	
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), non fissile or fissile-excepted	3321	7		RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, FISSILE	3333	7	
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY, (LSA-III), FISSILE	3325	7		RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, non fissile or fissile-excepted	3332	7	
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-III), non fissile or fissile-excepted	3322	7		RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, FISSILE	3329	7	
RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), FISSILE	3326	7		RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, non fissile or fissile-excepted	2917	7	
RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	2913	7		RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, FISSILE	3328	7	
RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, FISSILE	3331	7		RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, non fissile or fissile-excepted	2916	7	
				RADIOACTIVE MATERIAL, TYPE C PACKAGE, FISSILE	3330	7	
				RADIOACTIVE MATERIAL, TYPE C PACKAGE, non fissile or fissile-excepted	3323	7	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE	2977	7		REFRIGERANT GAS R 22, see	1018	2	
RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non fissile or fissile-excepted	2978	7		REFRIGERANT GAS R 23, see	1984	2	
Rags, oily	1856	4.2	Not subject to ADR	REFRIGERANT GAS R 32, see	3252	2	
RARE GASES AND NITROGEN MIXTURE, COMPRESSED	1981	2		REFRIGERANT GAS R 40, see	1063	2	
RARE GASES AND OXYGEN MIXTURE, COMPRESSED	1980	2		REFRIGERANT GAS R 41, see	2454	2	
RARE GASES MIXTURE, COMPRESSED	1979	2		REFRIGERANT GAS R 114, see	1958	2	
RDX, see	0072	1		REFRIGERANT GAS R 115, see	1020	2	
	0391	1		REFRIGERANT GAS R 116, see	2193	2	
	0483	1		REFRIGERANT GAS R 124, see	1021	2	
RECEPTACLES, SMALL, CONTAINING GAS without a release device, non-refillable	2037	2		REFRIGERANT GAS R 125, see	3220	2	
Red phosphorus, see	1338	4.1		REFRIGERANT GAS R 133a, see	1983	2	
REFRIGERANT GAS, N.O.S., such as mixture F1, mixture F2 or mixture P2	1078	2		REFRIGERANT GAS R 134a, see	3159	2	
REFRIGERANT GAS R 12, see	1028	2		REFRIGERANT GAS R 142b, see	2517	2	
REFRIGERANT GAS R 12B1, see	1974	2		REFRIGERANT GAS R 143a, see	2035	2	
REFRIGERANT GAS R 13, see	1022	2		REFRIGERANT GAS R 152a, see	1030	2	
REFRIGERANT GAS R 13B1, see	1009	2		REFRIGERANT GAS R 161, see	2453	2	
REFRIGERANT GAS R 14, see	1982	2		REFRIGERANT GAS R 218, see	2424	2	
REFRIGERANT GAS R 21, see	1029	2		REFRIGERANT GAS R 227, see	3296	2	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
REFRIGERANT GAS R 404A	3337	2		Resorcin, see	2876	6.1	
REFRIGERANT GAS R 407A	3338	2		RESORCINOL	2876	6.1	
REFRIGERANT GAS R 407B	3339	2		RIVETS, EXPLOSIVE	0174	1	
REFRIGERANT GAS R 407C	3340	2		ROCKET MOTORS	0186	1	
REFRIGERANT GAS R 500, see	2602	2			0280	1	
REFRIGERANT GAS R 502, see	1973	2			0281	1	
REFRIGERANT GAS R 503, see	2599	2		ROCKET MOTORS, LIQUID FUELLED	0395	1	
REFRIGERANT GAS R 1132a, see	1959	2			0396	1	
REFRIGERANT GAS R 1216, see	1858	2		ROCKET MOTORS WITH HYPERGOLIC LIQUIDS with or without expelling charge	0250	1	
REFRIGERANT GAS R 1318, see	2422	2			0322	1	
REFRIGERANT GAS RC 318, see	1976	2		ROCKETS with bursting charge	0180	1	
REFRIGERATING MACHINES containing flammable, non-toxic, liquefied gas	3358	2			0181	1	
REFRIGERATING MACHINES containing non- flammable, non-toxic, liquefied gas or ammonia solutions (UN 2672)	2857	2			0182	1	
REGULATED MEDICAL WASTE, N.O.S.	3291	6.2		ROCKETS with expelling charge	0436	1	
RELEASE DEVICES, EXPLOSIVE	0173	1			0437	1	
RESIN SOLUTION, flammable	1866	3		ROCKETS with inert head	0438	1	
				ROCKETS, LINE- THROWING	0183	1	
					0502	1	
				ROCKETS, LIQUID FUELLED with bursting charge	0238	1	
					0240	1	
				ROSIN OIL	0453	1	
					0397	1	
				RUBBER SCRAP, powdered or granulated	0398	1	
					1286	3	
				RUBBER SHODDY, powdered or granulated	1345	4.1	
					1345	4.1	
				RUBBER SOLUTION	1287	3	
				RUBIDIUM	1423	4.3	
				RUBIDIUM HYDROXIDE	2678	8	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
RUBIDIUM HYDROXIDE SOLUTION	2677	8		SELF-HEATING LIQUID, ORGANIC, N.O.S.	3183	4.2	
Saltpetre, see	1486	5.1		SELF-HEATING LIQUID, TOXIC, INORGANIC, N.O.S.	3187	4.2	
SAMPLES, EXPLOSIVE, other than initiating explosive	0190	1		SELF-HEATING LIQUID, TOXIC, ORGANIC, N.O.S.	3184	4.2	
Sand acid, see	1778	8		SELF-HEATING SOLID, CORROSIVE, INORGANIC, N.O.S.	3192	4.2	
SEAT-BELT PRETENSIONERS	0503	1		SELF-HEATING SOLID, CORROSIVE, ORGANIC, N.O.S.	3126	4.2	
SEED CAKE with more than 1.5% oil and not more than 11% moisture	3268	9		SELF-HEATING SOLID, INORGANIC, N.O.S.	3190	4.2	
SEED CAKE with not more than 1.5% oil and not more than 11% moisture	1386	4.2		SELF-HEATING SOLID, ORGANIC, N.O.S.	3088	4.2	
Seed expellers, see	2217	4.2		SELF-HEATING SOLID, OXIDIZING, N.O.S.	3127	4.2	Carriage prohibited
SELENATES	1386	4.2		SELF-HEATING SOLID, TOXIC, INORGANIC, N.O.S.	3191	4.2	
SELENIC ACID	2630	6.1		SELF-HEATING SOLID, TOXIC, ORGANIC, N.O.S.	3128	4.2	
SELENITES	1905	8		SELF-REACTIVE LIQUID TYPE B	3221	4.1	
SELENIUM COMPOUND, N.O.S.	2630	6.1		SELF-REACTIVE LIQUID TYPE B, TEMPERATURE CONTROLLED	3231	4.1	
SELENIUM DISULPHIDE	3283	6.1		SELF-REACTIVE LIQUID TYPE C	3223	4.1	
SELENIUM HEXAFLUORIDE	2657	6.1		SELF-REACTIVE LIQUID TYPE C, TEMPERATURE CONTROLLED	3233	4.1	
SELENIUM OXYCHLORIDE	2194	2		SELF-REACTIVE LIQUID TYPE D	3225	4.1	
SELF-HEATING LIQUID, CORROSIVE, INORGANIC, N.O.S.	2879	8					
SELF-HEATING LIQUID, CORROSIVE, ORGANIC, N.O.S.	3188	4.2					
SELF-HEATING LIQUID, INORGANIC, N.O.S.	3185	4.2					
	3186	4.2					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
SELF-REACTIVE LIQUID TYPE D, TEMPERATURE CONTROLLED	3235	4.1		SHALE OIL	1288	3	
				Shaped charges, see	0059	1	
					0439	1	
SELF-REACTIVE LIQUID TYPE E	3227	4.1			0440	1	
					0441	1	
SELF-REACTIVE LIQUID TYPE E, TEMPERATURE CONTROLLED	3237	4.1		SIGNAL DEVICES, HAND	0191	1	
					0373	1	
SELF-REACTIVE LIQUID TYPE F	3229	4.1		SIGNALS, DISTRESS, ship	0194	1	
					0195	1	
SELF-REACTIVE LIQUID TYPE F, TEMPERATURE CONTROLLED	3239	4.1		Signals, distress, ship, water- activated, see	0249	1	
				SIGNALS, RAILWAY TRACK, EXPLOSIVE	0192	1	
					0193	1	
SELF-REACTIVE SOLID TYPE B	3222	4.1			0492	1	
					0493	1	
SELF-REACTIVE SOLID TYPE B, TEMPERATURE CONTROLLED	3232	4.1		SIGNALS, SMOKE	0196	1	
					0197	1	
					0313	1	
					0487	1	
SELF-REACTIVE SOLID TYPE C	3224	4.1		SILANE	2203	2	
SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED	3234	4.1		Silicofluoric acid, see	1778	8	
				Silicofluorides, n.o.s., see	2856	6.1	
SELF-REACTIVE SOLID TYPE D	3226	4.1		Silicon chloride, see	1818	8	
SELF-REACTIVE SOLID TYPE D, TEMPERATURE CONTROLLED	3236	4.1		SILICON POWDER, AMORPHOUS	1346	4.1	
				SILICON TETRACHLORIDE	1818	8	
SELF-REACTIVE SOLID TYPE E	3228	4.1		SILICON TETRAFLUORIDE	1859	2	
SELF-REACTIVE SOLID TYPE E, TEMPERATURE CONTROLLED	3238	4.1		SILVER ARSENITE	1683	6.1	
				SILVER CYANIDE	1684	6.1	
SELF-REACTIVE SOLID TYPE F	3230	4.1		SILVER NITRATE	1493	5.1	
SELF-REACTIVE SOLID TYPE F, TEMPERATURE CONTROLLED	3240	4.1		SILVER PICRATE, WETTED with not less than 30% water, by mass	1347	4.1	
				SLUDGE ACID	1906	8	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
SODA LIME with more than 4% sodium hydroxide	1907	8		SODIUM CHLORATE, AQUEOUS SOLUTION	2428	5.1	
SODIUM	1428	4.3		Sodium chlorate mixed with dinitrotoluene, see	0083	1	
Sodium aluminate, solid	2812	8	Not subject to ADR	SODIUM CHLORITE	1496	5.1	
SODIUM ALUMINATE SOLUTION	1819	8		SODIUM CHLOROACETATE	2659	6.1	
SODIUM ALUMINIUM HYDRIDE	2835	4.3		SODIUM CUPROCYANIDE, SOLID	2316	6.1	
SODIUM AMMONIUM VANADATE	2863	6.1		SODIUM CUPROCYANIDE SOLUTION	2317	6.1	
SODIUM ARSANILATE	2473	6.1		SODIUM CYANIDE	1689	6.1	
SODIUM ARSENATE	1685	6.1		Sodium dicyanocuprate (I), solid, see	2316	6.1	
SODIUM ARSENITE, AQUEOUS SOLUTION	1686	6.1		Sodium dicyanocuprate (I) solution, see	2317	6.1	
SODIUM ARSENITE, SOLID	2027	6.1		Sodium dimethylarsenate, see	1688	6.1	
SODIUM AZIDE	1687	6.1		SODIUM DINITRO-o-CRESOLATE, dry or wetted with less than 15% water, by mass	0234	1	
Sodium bifluoride, see	2439	8					
Sodium binoxide, see	1504	5.1		SODIUM DINITRO-o-CRESOLATE, WETTED with not less than 10% water, by mass	3369	4.1	
Sodium bisulphite solution, see	2693	8					
SODIUM BOROHYDRIDE	1426	4.3		SODIUM DINITRO-o-CRESOLATE, WETTED with not less than 15% water, by mass	1348	4.1	
SODIUM BOROHYDRIDE AND SODIUM HYDROXIDE SOLUTION, with not more than 12% sodium borohydride and not more than 40% sodium hydroxide by mass	3320	8		Sodium dioxide, see	1504	5.1	
				SODIUM DITHIONITE	1384	4.2	
SODIUM BROMATE	1494	5.1		SODIUM FLUORIDE	1690	6.1	
SODIUM CACODYLATE	1688	6.1		SODIUM FLUOROACETATE	2629	6.1	
SODIUM CHLORATE	1495	5.1		SODIUM FLUROSILICATE	2674	6.1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
Sodium hexafluorosilicate, see	2674	6.1		SODIUM PENTACHLOROPHENATE	2567	6.1	
Sodium hydrate, see	1824	8		SODIUM PERCHLORATE	1502	5.1	
SODIUM HYDRIDE	1427	4.3		SODIUM PERMANGANATE	1503	5.1	
Sodium hydrogen 4-amino-phenylarsenate, see	2473	6.1		SODIUM PEROXIDE	1504	5.1	
SODIUM HYDROGENDIFLUORIDE	2439	8		SODIUM PEROXOBORATE, ANHYDROUS	3247	5.1	
SODIUM HYDROSULPHIDE with less than 25% water of crystallization	2318	4.2		SODIUM PERSULPHATE	1505	5.1	
SODIUM HYDROSULPHIDE with not less than 25% water of crystallization	2949	8		SODIUM PHOSPHIDE	1432	4.3	
SODIUM HYDROSULPHITE, see	1384	4.2		SODIUM PICRAMATE, dry or wetted with less than 20% water, by mass	0235	1	
SODIUM HYDROXIDE, SOLID	1823	8		SODIUM PICRAMATE, WETTED with not less than 20% water, by mass	1349	4.1	
SODIUM HYDROXIDE SOLUTION	1824	8		Sodium potassium alloys, see	1422	4.3	
Sodium metasilicate pentahydrate, see	3253	8		Sodium selenate, see	2630	6.1	
SODIUM METHYLATE	1431	4.2		Sodium selenite, see	2630	6.1	
SODIUM METHYLATE SOLUTION in alcohol	1289	3		Sodium silicofluoride, see	2674	6.1	
SODIUM MONOXIDE	1825	8		SODIUM SULPHIDE, ANHYDROUS	1385	4.2	
SODIUM NITRATE	1498	5.1		SODIUM SULPHIDE with less than 30% water of crystallization	1385	4.2	
SODIUM NITRATE AND POTASSIUM NITRATE MIXTURE	1499	5.1		SODIUM SULPHIDE, HYDRATED with not less than 30% water	1849	8	
SODIUM NITRITE	1500	5.1		SODIUM SUPEROXIDE	2547	5.1	
Sodium nitrite and potassium nitrate mixture, see	1487	5.1		SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S.	3244	8	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
SOLIDS or mixtures of solids (such as preparations and wastes) CONTAINING FLAMMABLE LIQUID, N.O.S. having a flash-point up to 61°C	3175	4.1		STRONTIUM PEROXIDE	1509	5.1	
				STRONTIUM PHOSPHIDE	2013	4.3	
				STRYCHNINE	1692	6.1	
SOLIDS CONTAINING TOXIC LIQUID, N.O.S.	3243	6.1		STRYCHNINE SALTS	1692	6.1	
				STYPHNIC ACID, see	0219	1	
Solvents, flammable, n.o.s., see	1993	3		0394	1		
Solvents, flammable, toxic, n.o.s., see	1992	3		STYRENE MONOMER, STABILIZED	2055	3	
				SUBSTANCES, EVI, N.O.S., see	0482	1	
SOUNDING DEVICES, EXPLOSIVE	0204	1		SUBSTANCES,	0357	1	
	0296	1		EXPLOSIVE, N.O.S.	0358	1	
	0374	1			0359	1	
	0375	1			0473	1	
Squibs, see	0325	1			0474	1	
	0454	1			0475	1	
STANNIC CHLORIDE, ANHYDROUS	1827	8			0476	1	
					0477	1	
					0478	1	
					0479	1	
					0480	1	
STANNIC CHLORIDE PENTAHYDRATE	2440	8			0481	1	
					0485	1	
					0482	1	
STANNIC PHOSPHIDES	1433	4.3		SUBSTANCES, EXPLOSIVE, VERY INSENSITIVE, N.O.S.			
Steel swarf, see	2793	4.2					
STIBINE	2676	2					
Straw	1327	4.1	Not subject to ADR	Substances liable to spontaneous combustion, n.o.s., see	2845	4.2	
					2846	4.2	
					3194	4.2	
					3200	4.2	
Strontium alloys, pyrophoric, see	1383	4.2		SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	2780	3	
STRONTIUM ARSENITE	1691	6.1					
STRONTIUM CHLORATE	1506	5.1					
Strontium dioxide, see	1509	5.1		SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC	3014	6.1	
STRONTIUM NITRATE	1507	5.1					
STRONTIUM PERCHLORATE	1508	5.1					



Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	3013	6.1		SULPHURYL FLUORIDE	2191	2	
				Synthesis gas, see	2600	2	
				Talcum with tremolite and/or actinolite, see	2590	9	
SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC	2779	6.1		TARS, LIQUID, including road asphalt and oils, bitumen and cut backs	1999	3	
SULPHAMIC ACID	2967	8		Tartar emetic, see	1551	6.1	
SULPHUR	1350	4.1		TEAR GAS CANDLES	1700	6.1	
SULPHUR CHLORIDES	1828	8		TEAR GAS SUBSTANCE, LIQUID, N.O.S.	1693	6.1	
Sulphur dichloride, see	1828	8		TEAR GAS SUBSTANCE, SOLID, N.O.S.	1693	6.1	
SULPHUR DIOXIDE	1079	2		TELLURIUM COMPOUND, N.O.S.	3284	6.1	
Sulphuretted hydrogen, see	1053	2		TELLURIUM HEXAFLUORIDE	2195	2	
SULPHUR HEXAFLUORIDE	1080	2		TERPENE HYDROCARBONS, N.O.S.	2319	3	
SULPHURIC ACID with more than 51% acid	1830	8		TERPINOLENE	2541	3	
SULPHURIC ACID with not more than 51% acid	2796	8		TETRABROMOETHANE	2504	6.1	
SULPHURIC ACID, FUMING	1831	8		1,1,2,2-TETRACHLOROETHANE	1702	6.1	
SULPHURIC ACID, SPENT	1832	8		TETRACHLOROETHYLENE	1897	6.1	
Sulphuric and hydrofluoric acid mixture, see	1786	8		TETRAETHYL DITHIO-PYROPHOSPHATE	1704	6.1	
SULPHUR, MOLTEN	2448	4.1		TETRAETHYLENE-PENTAMINE	2320	8	
Sulphur monochloride, see	1828	8		Tetraethyl lead, see	1649	6.1	
SULPHUROUS ACID	1833	8		TETRAETHYL SILICATE	1292	3	
SULPHUR TETRAFLUORIDE	2418	2		Tetraethoxysilane, see	1292	3	
SULPHUR TRIOXIDE, STABILIZED	1829	8		Tetrafluorodichloroethane, see	1958	2	
SULPHURYL CHLORIDE	1834	8					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
1,1,1,2-TETRA- FLUOROETHANE	3159	2		TETRAZOL-1-ACETIC ACID	0407	1	
TETRAFLUORO- ETHYLENE, STABILIZED	1081	2		1H-TETRAZOLE	0504	1	
TETRAFLUOROMETHANE	1982	2		TETRYL, see	0208	1	
1,2,3,6-TETRAHYDRO- BENZALDEHYDE	2498	3		Textile waste, wet	1857	4.2	Not subject to ADR
TETRAHYDROFURAN	2056	3		THALLIUM CHLORATE	2573	5.1	
TETRAHYDRO- FURFURYLAMINE	2943	3		Thallium (I) chlorate, see	2573	5.1	
Tetrahydro-1,4-oxazine, see	2054	3		THALLIUM COMPOUND, N.O.S.	1707	6.1	
TETRAHYDROPHTHALIC ANHYDRIDES with more than 0.05% of maleic anhydride	2698	8		THALLIUM NITRATE	2727	6.1	
1,2,3,6-TETRAHYDRO- PYRIDINE	2410	3		Thallium (I) nitrate, see	2727	6.1	
TETRAHYDROTHIOPHENE	2412	3		Thalious chlorate, see	2573	5.1	
Tetramethoxysilane, see	2606	6.1		4-THIAPENTANAL	2785	6.1	
TETRAMETHYL- AMMONIUM HYDROXIDE	1835	8		Thia-4-pentanal, see	2785	6.1	
Tetramethylene, see	2601	2		THIOACETIC ACID	2436	3	
Tetramethylene cyanide, see	2205	6.1		THIOCARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	2772	3	
Tetramethyl lead, see	1649	6.1		THIOCARBAMATE PESTICIDE, LIQUID, TOXIC	3006	6.1	
TETRAMETHYLSILANE	2749	3		THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	3005	6.1	
TETRANITROANILINE	0207	1		THIOCARBAMATE PESTICIDE, SOLID, TOXIC	2771	6.1	
TETRANITROMETHANE	1510	5.1		THIOGLYCOL	2966	6.1	
TETRAPROPYL ORTHOTITANATE	2413	3		THIOGLYCOLIC ACID	1940	8	
TETRAZENE, WETTED with not less than 30% water, or mixture of alcohol and water, by mass, see	0114	1		THIOLACTIC ACID	2936	6.1	
				THIONYL CHLORIDE	1836	8	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
THIOPHENE	2414	3		TNT mixed with aluminium, see	0390	1	
Thiophenol, see	2337	6.1					
THIOPHOSGENE	2474	6.1		TNT, WETTED with not less than 30% water, by mass, see	1356	4.1	
THIOPHOSPHORYL CHLORIDE	1837	8		Toe puffs, nitrocellulose base, see	1353	4.1	
THIOUREA DIOXIDE	3341	4.2		TOLUENE	1294	3	
Tin (IV) chloride, anhydrous, see	1827	8		TOLUENE DIISOCYANATE	2078	6.1	
Tin (IV) chloride pentahydrate, see	2440	8		TOLUIDINES, LIQUID	1708	6.1	
TINCTURES, MEDICINAL	1293	3		TOLUIDINES, SOLID	1708	6.1	
Tin tetrachloride, see	1827	8		Toluol, see	1294	3	
TITANIUM DISULPHIDE	3174	4.2		2,4-TOLUYLENEDIAMINE	1709	6.1	
TITANIUM HYDRIDE	1871	4.1		Toluylene diisocyanate, see	2078	6.1	
TITANIUM POWDER, DRY	2546	4.2		Tolylene diisocyanate, see	2078	6.1	
TITANIUM POWDER, WETTED with not less than 25% water	1352	4.1		Tolyethylene, inhibited, see	2618	3	
TITANIUM SPONGE GRANULES	2878	4.1		TORPEDOES with bursting charge	0329	1	
TITANIUM SPONGE POWDERS	2878	4.1			0330	1	
TITANIUM TETRACHLORIDE	1838	8			0451	1	
TITANIUM TRICHLORIDE MIXTURE	2869	8		TORPEDOES, LIQUID FUELLED with inert head	0450	1	
TITANIUM TRICHLORIDE MIXTURE, PYROPHORIC	2441	4.2		TORPEDOES, LIQUID FUELLED with or without bursting charge	0449	1	
TITANIUM TRICHLORIDE, PYROPHORIC	2441	4.2		TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.	3289	6.1	
TNT, see	0209	1		TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.	2927	6.1	
	0388	1		TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.	2929	6.1	
	0389	1		TOXIC LIQUID, INORGANIC, N.O.S.	3287	6.1	
	1356	4.1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
TOXIC LIQUID, ORGANIC, N.O.S.	2810	6.1		TRIAZINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	2764	3	
TOXIC LIQUID, OXIDIZING, N.O.S.	3122	6.1		TRIAZINE PESTICIDE, LIQUID, TOXIC	2998	6.1	
TOXIC LIQUID, WATER-REACTIVE, N.O.S.	3123	6.1		TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	2997	6.1	
TOXIC SOLID, CORROSIVE, INORGANIC, N.O.S.	3290	6.1		TRIAZINE PESTICIDE, SOLID, TOXIC	2763	6.1	
TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.	2928	6.1		Tribromoborane, see	2692	8	
TOXIC SOLID, FLAMMABLE, ORGANIC, N.O.S.	2930	6.1		TRIBUTYLAMINE	2542	6.1	
TOXIC SOLID, INORGANIC, N.O.S.	3288	6.1		TRIBUTYLPHOSPHANE	3254	4.2	
TOXIC SOLID, ORGANIC, N.O.S.	2811	6.1		Trichloroacetaldehyde, see	2075	6.1	
TOXIC SOLID, OXIDIZING, N.O.S.	3086	6.1		TRICHLOROACETIC ACID	1839	8	
TOXIC SOLID, SELF-HEATING, N.O.S.	3124	6.1		TRICHLOROACETIC ACID SOLUTION	2564	8	
TOXIC SOLID, WATER-REACTIVE, N.O.S.	3125	6.1		Trichloroacetaldehyde, see	2075	6.1	
TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S.	3172	6.1		TRICHLOROACETYL CHLORIDE	2442	8	
TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.	3172	6.1		TRICHLOROBENZENES, LIQUID	2321	6.1	
TRACERS FOR AMMUNITION	0212 0306	1 1		TRICHLOROBUTENE	2322	6.1	
Tremolite, see	2590	9		1,1,1-TRICHLOROETHANE	2831	6.1	
TRIALLYLAMINE	2610	3		TRICHLOROETHYLENE	1710	6.1	
TRIALLYL BORATE	2609	6.1		TRICHLOROISO-CYANURIC ACID, DRY	2468	5.1	
				Trichloronitromethane, see	1580	6.1	
				TRICHLOROSILANE	1295	4.3	
				1,3,5-Trichloro-s-triazine-2,4,6-trione, see	2468	5.1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
2,4,6-Trichloro-1,3,5- triazine, see	2670	8		TRIMETHYLAMINE, ANHYDROUS	1083	2	
TRICRESYL PHOSPHATE with more than 3% ortho isomer	2574	6.1		TRIMETHYLAMINE, AQUEOUS SOLUTION, not more than 50% trimethylamine, by mass	1297	3	
TRIETHYLAMINE	1296	3		1,3,5-TRIMETHYL- BENZENE	2325	3	
Triethyl borate, see	1176	3		TRIMETHYL BORATE	2416	3	
TRIETHYLENE- TETRAMINE	2259	8		TRIMETHYLCHLORO- SILANE	1298	3	
Triethyl orthoformate, see	2524	3		TRIMETHYLCYCLO- HEXYLAMINE	2326	8	
TRIETHYL PHOSPHITE	2323	3		Trimethylene chlorobromide, see	2688	6.1	
TRIFLUOROACETIC ACID	2699	8		TRIMETHYLHEXA- METHYLENEDIAMINES	2327	8	
TRIFLUOROACETYL CHLORIDE	3057	2		TRIMETHYLHEXA- METHYLENE DIISOCYANATE	2328	6.1	
Trifluorobromomethane, see	1009	2		2,4,4-Trimethylpentene-1, see	2050	3	
Trifluorochloroethane, see	1983	2		2,4,4-Trimethylpentene-2, see	2050	3	
TRIFLUOROCHLORO- ETHYLENE, STABILIZED	1082	2		TRIMETHYL PHOSPHITE	2329	3	
Trifluorochloromethane, see	1022	2		TRINITROANILINE	0153	1	
1,1,1-TRIFLUOROETHANE	2035	2		TRINITROANISOLE	0213	1	
TRIFLUOROMETHANE	1984	2		TRINITROBENZENE, dry or wetted with less than 30% water, by mass	0214	1	
TRIFLUOROMETHANE, REFRIGERATED LIQUID	3136	2		TRINITROBENZENE, wetted with not less than 10% water, by mass	3367	4.1	
2-TRIFLUOROMETHYL- ANILINE	2942	6.1		TRINITROBENZENE, WETTED with not less than 30% water, by mass	1354	4.1	
3-TRIFLUOROMETHYL- ANILINE	2948	6.1		TRINITROBENZENE- SULPHONIC ACID	0386	1	
TRISOBUTYLENE	2324	3					
TRISOPROPYL BORATE	2616	3					
TRIMETHYLACETYL CHLORIDE	2438	6.1					

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
TRINITROBENZOIC ACID, dry or wetted with less than 30% water, by mass	0215	1		TRINITROTOLUENE (TNT), dry or wetted with less than 30% water, by mass	0209	1	
TRINITROBENZOIC ACID, wetted with not less than 10% water, by mass	3368	4.1		TRINITROTOLUENE AND HEXANITROSTILBENE MIXTURE	0388	1	
TRINITROBENZOIC ACID, WETTED with not less than 30% water, by mass	1355	4.1		TRINITROTOLUENE MIXTURE CONTAINING TRINITROBENZENE AND HEXANITROSTILBENE	0389	1	
TRINITROCHLORO-BENZENE	0155	1		TRINITROTOLUENE AND TRINITROBENZENE MIXTURE	0388	1	
TRINITROCHLOROBENZE NE wetted with not less than 10% water, by mass	3365	4.1		TRINITROTOLUENE, wetted with not less than 10% water, by mass	3366	4.1	
TRINITRO-m-CRESOL	0216	1		TRINITROTOLUENE, WETTED with not less than 30% water, by mass	1356	4.1	
TRINITROFLUORENONE	0387	1		TRIPROPYLAMINE	2260	3	
TRINITRONAPHTHALENE	0217	1		TRIPROPYLENE	2057	3	
TRINITROPHENETOLE	0218	1		TRIS-(1-AZIRIDINYL) PHOSPHINE OXIDE SOLUTION	2501	6.1	
TRINITROPHENOL, dry or wetted with less than 30% water, by mass	0154	1		TRITONAL	0390	1	
TRINITROPHENOL, WETTED with not less than 30% water, by mass	1344	4.1		Tropilidene, see	2603	3	
TRINITROPHENOL wetted with not less than 10% water, by mass	3364	4.1		TUNGSTEN HEXAFLUORIDE	2196	2	
TRINITROPHENYL-METHYLNITRAMINE	0208	1		TURPENTINE	1299	3	
TRINITRORESORCINOL, dry or wetted with less than 20% water, or mixture of alcohol and water, by mass	0219	1		TURPENTINE SUBSTITUTE	1300	3	
TRINITRORESORCINOL, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	0394	1		UNDECANE	2330	3	
				UREA HYDROGEN PEROXIDE	1511	5.1	
				UREA NITRATE, dry or wetted with less than 20% water, by mass	0220	1	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
UREA NITRATE, wetted with not less than 10% water, by mass	3370	4.1		VINYL BUTYRATE, STABILIZED	2838	3	
UREA NITRATE, WETTED with not less than 20% water, by mass	1357	4.1		VINYL CHLORIDE, STABILIZED	1086	2	
Valeral, see	2058	3		VINYL CHLOROACETATE	2589	6.1	
VALERALDEHYDE	2058	3		VINYL ETHYL ETHER, STABILIZED	1302	3	
n-Valeraldehyde, see	2058	3		VINYL FLUORIDE, STABILIZED	1860	2	
Valeric aldehyde, see	2058	3		VINYLDENE CHLORIDE, STABILIZED	1303	3	
VALERYL CHLORIDE	2502	8		VINYL ISOBUTYL ETHER, STABILIZED	1304	3	
VANADIUM COMPOUND, N.O.S.	3285	6.1		VINYL METHYL ETHER, STABILIZED	1087	2	
Vanadium (IV) oxide sulphate, see	2931	6.1		VINYLPYRIDINES, STABILIZED	3073	6.1	
Vanadium oxysulphate, see	2931	6.1		VINYLTOLUENES, STABILIZED	2618	3	
VANADIUM OXYTRICHLORIDE	2443	8		VINYLTRICHLORO-SILANE, STABILIZED	1305	3	
VANADIUM PENTOXIDE, non-fused form	2862	6.1		Warheads for guided missiles; see	0286	1	
VANADIUM TETRACHLORIDE	2444	8			0287	1	
VANADIUM TRICHLORIDE	2475	8			0369	1	
VANADYL SULPHATE	2931	6.1			0370	1	
Vehicle, flammable gas powered or vehicle, flammable liquid powered	3166	9	Not subject to ADR	WARHEADS, ROCKET with burster or expelling charge	0371	1	
Villiumite, see	1690	6.1		WARHEADS, ROCKET with bursting charge	0286	1	
VINYL ACETATE, STABILIZED	1301	3			0287	1	
Vinylbenzene, see	2055	3			0369	1	
VINYL BROMIDE, STABILIZED	1085	2		WARHEADS, TORPEDO with bursting charge	0221	1	
				Water gas, see	2600	2	
				WATER-REACTIVE LIQUID, N.O.S.	3148	4.3	

Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.	3129	4.3		XYLIDINES, SOLID	1711	6.1	
				Xylols, see	1307	3	
WATER-REACTIVE LIQUID, TOXIC, N.O.S.	3130	4.3		XYLYL BROMIDE	1701	6.1	
WATER-REACTIVE SOLID, N.O.S.	2813	4.3		ZINC AMMONIUM NITRITE	1512	5.1	
WATER-REACTIVE SOLID, CORROSIVE, N.O.S.	3131	4.3		ZINC ARSENATE	1712	6.1	
WATER-REACTIVE SOLID, FLAMMABLE, N.O.S.	3132	4.3	Carriage prohibited	ZINC ARSENATE AND ZINC ARSENITE MIXTURE	1712	6.1	
WATER-REACTIVE SOLID, OXIDIZING, N.O.S.	3133	4.3	Carriage prohibited	ZINC ARSENITE	1712	6.1	
WATER-REACTIVE SOLID, SELF-HEATING, N.O.S.	3135	4.3	Carriage prohibited	ZINC ASHES	1435	4.3	
WATER-REACTIVE SOLID, TOXIC, N.O.S.	3134	4.3		Zinc bisulphite solution, see	2693	8	
White arsenic, see	1561	6.1		ZINC BROMATE	2469	5.1	
WHITE ASBESTOS (chrysotile, actinolite, anthophyllite, tremolite)	2590	9		ZINC CHLORATE	1513	5.1	
White spirit, see	1300	3		ZINC CHLORIDE, ANHYDROUS	2331	8	
WOOD PRESERVATIVES, LIQUID	1306	3		ZINC CHLORIDE SOLUTION	1840	8	
Wool waste, wet	1387	4.2	Not subject to ADR	ZINC CYANIDE	1713	6.1	
XANTHATES	3342	4.2		ZINC DITHIONITE	1931	9	
XENON	2036	2		ZINC DUST	1436	4.3	
XENON, REFRIGERATED LIQUID	2591	2		ZINC FLUROSILICATE	2855	6.1	
XYLENES	1307	3		Zinc hexafluorosilicate, see	2855	6.1	
XYLENOLS, liquid	2261	6.1		ZINC HYDROSULPHITE, see	1931	9	
XYLENOLS, solid	2261	6.1		ZINC NITRATE	1514	5.1	
XYLIDINES, LIQUID	1711	6.1		ZINC PERMANGANATE	1515	5.1	
				ZINC PEROXIDE	1516	5.1	
				ZINC PHOSPHIDE	1714	4.3	
				ZINC POWDER	1436	4.3	



Name and description	UN No.	Class	Remarks	Name and description	UN No.	Class	Remarks
ZINC RESINATE	2714	4.1		ZIRCONIUM PICRAMATE, dry or wetted with less than 20% water, by mass	0236	1	
Zinc selenate, see	2630	4.1					
Zinc selenite, see	2630	4.1		ZIRCONIUM PICRAMATE, WETTED with not less than 20% water, by mass	1517	4.1	
Zinc silicofluoride, see	2855	6.1					
ZIRCONIUM, DRY, coiled wire, finished metal sheets, strip (thinner than 254 microns but not thinner than 18 microns)	2858	4.1		ZIRCONIUM POWDER, DRY	2008	4.2	
				ZIRCONIUM POWDER, WETTED with not less than 25% water	1358	4.1	
ZIRCONIUM, DRY, finished sheets, strip or coiled wire	2009	4.2		ZIRCONIUM SCRAP	1932	4.2	
ZIRCONIUM HYDRIDE	1437	4.1		ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID	1308	3	
ZIRCONIUM NITRATE	2728	5.1		ZIRCONIUM TETRACHLORIDE	2503	8	

Economic Commission for Europe  
Inland Transport Committee

Restructured

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# ADR

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applicable as from 1 January 2003

**European Agreement**  
Concerning the International Carriage  
of Dangerous Goods by Road

**Volume II**



UNITED NATIONS  
New York and Geneva, 2002

**ANNEX A**

**GENERAL PROVISIONS AND PROVISIONS CONCERNING  
DANGEROUS SUBSTANCES AND ARTICLES**

**(cont'd)**

**PART 3**

**Dangerous goods list, special provisions and  
exemptions related to dangerous goods  
packed in limited quantities**

**(cont'd)**

## CHAPTER 3.3

## SPECIAL PROVISIONS APPLICABLE TO CERTAIN ARTICLES OR SUBSTANCES

## 3.3.1

When Column (6) of Table A of Chapter 3.2 indicates that a special provision is relevant to a substance or article, the meaning and requirements of that special provision are as set forth below.

- 16 Samples of new or existing explosive substances or articles may be carried as directed by the competent authorities (see 2.2.1.1.3) for purposes including: testing, classification, research and development, quality control, or as a commercial sample. Explosive samples which are not wetted or desensitized shall be limited to 10 kg in small packages as specified by the competent authorities. Explosive samples which are wetted or desensitized shall be limited to 25 kg.
- 23 Even though this substance has a flammability hazard, it only exhibits such hazard under extreme fire conditions in confined areas.
- 32 This substance is not subject to the requirements of ADR when in any other form.
- 37 This substance is not subject to the requirements of ADR when coated.
- 38 This substance is not subject to the requirements of ADR when it contains not more than 0.1% calcium carbide.
- 39 This substance is not subject to the requirements of ADR when it contains less than 30% or not less than 90% silicon.
- 43 When offered for carriage as pesticides, these substances shall be carried under the relevant pesticide entry and in accordance with the relevant pesticide provisions (see 2.2.61.1.10 to 2.2.61.1.11.2).
- 45 Antimony sulphides and oxides which contain not more than 0.5% of arsenic calculated on the total mass are not subject to the requirements of ADR.
- 47 Ferricyanides and ferrocyanides are not subject to the requirements of ADR.
- 48 The carriage of this substance, when it contains more than 20% hydrocyanic acid, is prohibited.
- 59 These substances are not subject to the requirements of ADR when they contain not more than 50% magnesium.
- 60 If the concentration is more than 72%, the carriage of this substance is prohibited.
- 61 The technical name which shall supplement the proper shipping name shall be the ISO common name (see also ISO 1750:1981 "*Pesticides and other agrochemicals - common names*", as amended), other name listed in the WHO "*Recommended Classification of Pesticides by Hazard and Guidelines to Classification*" or the name of the active substance (see also 3.1.2.8.1 and 3.1.2.8.1.1).
- 62 This substance is not subject to the requirements of ADR when it contains not more than 4% sodium hydroxide.

- 65 Hydrogen peroxide aqueous solutions with less than 8% hydrogen peroxide are not subject to the requirements of ADR.
- 103 The carriage of ammonium nitrites and mixtures of an inorganic nitrite with an ammonium salt is prohibited.
- 105 Nitrocellulose meeting the descriptions of UN No. 2556 or UN No. 2557 may be classified in Class 4.1.
- 113 The carriage of chemically unstable mixtures is prohibited.
- 119 Refrigerating machines include machines or other appliances which have been designed for the specific purpose of keeping food or other items at a low temperature in an internal compartment, and air conditioning units. Refrigerating machines and refrigerating machine components are not subject to the provisions of ADR if they contain less than 12 kg of gas in Class 2, group A or O according to 2.2.2.1.3, or if they contain less than 12 litres ammonia solution (UN No. 2672).
- 122 The subsidiary risks, control and emergency temperatures if any, and the UN number (generic entry) for each of the currently assigned organic peroxide formulations are given in 2.2.52.4.
- 127 Other inert material or inert material mixture may be used, provided this inert material has identical phlegmatizing properties.
- 131 The phlegmatized substance shall be significantly less sensitive than dry PETN.
- 135 The dihydrated sodium salt of dichloroisocyanuric acid is not subject to the requirements of ADR.
- 138 p-Bromobenzyl cyanide is not subject to the requirements of ADR.
- 141 Products which have undergone sufficient heat treatment so that they present no hazard during carriage are not subject to the requirements of ADR.
- 142 Solvent extracted soya bean meal containing not more than 1.5% oil and 11% moisture, which is substantially free of flammable solvent, is not subject to the requirements of ADR.
- 144 An aqueous solution containing not more than 24% alcohol by volume is not subject to the requirements of ADR.
- 145 Alcoholic beverages of packing group III, when carried in receptacles of 250 litres or less, are not subject to the requirements of ADR.
- 152 The classification of this substance will vary with particle size and packaging, but borderlines have not been experimentally determined. Appropriate classifications shall be made in accordance with 2.2.1.
- 153 This entry applies only if it is demonstrated, on the basis of tests, that the substances when in contact with water are not combustible nor show a tendency to auto-ignition and that the mixture of gases evolved is not flammable.
- 162 Mixtures with a flash-point of not more than 61 °C shall bear a label conforming to model No. 3.

- 163 A substance mentioned by name in Table A of Chapter 3.2 shall not be carried under this entry. Substances carried under this entry may contain 20% or less nitrocellulose provided the nitrocellulose contains not more than 12.6% nitrogen (by dry mass).
- 168 Asbestos which is immersed or fixed in a natural or artificial binder (such as cement, plastics, asphalt, resins or mineral ore) in such a way that no escape of hazardous quantities of respirable asbestos fibres can occur during carriage is not subject to the requirements of ADR. Manufactured articles containing asbestos and not meeting this provision are nevertheless not subject to the requirements of ADR when packed so that no escape of hazardous quantities of respirable asbestos fibres can occur during carriage.
- 169 Phthalic anhydride in the solid state and tetrahydrophthalic anhydrides, with not more than 0.05% maleic anhydride, are not subject to the requirements of ADR. Phthalic anhydride molten at a temperature above its flash-point, with not more than 0.05% maleic anhydride, shall be classified under UN No. 3256.
- 172 For radioactive material with a subsidiary risk :
- (a) The packages shall be labelled with a label corresponding to each subsidiary risk exhibited by the material; corresponding placards shall be affixed to vehicles or containers in accordance with the relevant provisions of 5.3.1;
  - (b) The radioactive material shall be allocated to packing groups I, II or III, as and if appropriate, by application of the grouping criteria provided in Part 2 corresponding to the nature of the predominant subsidiary risk.

The description required in 5.4.1.2.5.1 (e) shall include a description of these subsidiary risks (e.g. "Subsidiary risk: 3, 6.1"), the name of the constituents which most predominantly contribute to this (these) subsidiary risk(s), and where applicable, the packing group.

- 177 Barium sulphate is not subject to the requirements of ADR.
- 178 This designation shall be used only when no other appropriate designation exists in Table A of Chapter 3.2, and only with the approval of the competent authority of the country of origin (see 2.2.1.1.3).
- 181 Packages containing this type of substance shall bear a label conforming to model No. 1 unless the competent authority of the country of origin has permitted this label to be dispensed with for the specific packaging employed because test data have proved that the substance in this packaging does not exhibit explosive behaviour (see 5.2.2.1.9).
- 182 The group of alkali metals includes lithium, sodium, potassium, rubidium and caesium.
- 183 The group of alkaline earth metals includes magnesium, calcium, strontium and barium.
- 186 In determining the ammonium nitrate content, all nitrate ions for which a molecular equivalent of ammonium ions is present in the mixture shall be calculated as ammonium nitrate.
- 188 Lithium cells and batteries offered for carriage are not subject to other provisions of ADR if they meet the following:

- (a) For a lithium metal or lithium alloy cell, the lithium content is not more than 1 g, and for a lithium-ion cell, the lithium-equivalent content is not more than 1.5 g;
- (b) For a lithium metal or lithium alloy battery the aggregate lithium content is not more than 2 g, and for a lithium-ion battery, the aggregate lithium-equivalent content is not more than 8 g;
- (c) Each cell or battery is of the type proved to meet the requirements of each test in the *Manual of Tests and Criteria*, Part III, sub-section 38.3;
- (d) Cells and batteries are separated so as to prevent short circuits and are packed in strong packagings, except when installed in equipment; and
- (e) Except when installed in equipment, each package containing more than 24 lithium cells or 12 lithium batteries shall in addition meet the following requirements:
  - (i) Each package shall be marked indicating that it contains lithium batteries and that special procedures should be followed in the event that the package is damaged;
  - (ii) Each shipment shall be accompanied with a document indicating that packages contain lithium batteries and that special procedures should be followed in the event a package is damaged;
  - (iii) Each package is capable of withstanding a 1.2 m drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (or cell to cell) contact and without release of contents; and
  - (iv) Except in the case of lithium batteries packed with equipment; packages may not exceed 30 kg gross mass.

As used above and elsewhere in ADR, "lithium content" means the mass of lithium in the anode of a lithium metal or lithium alloy cell, except in the case of a lithium-ion cell the "lithium-equivalent content" in grams is calculated to be 0.3 times the rated capacity in ampere-hours.

- 190 Aerosol dispensers shall be provided with protection against inadvertent discharge. Aerosols with a capacity not exceeding 50 ml containing only non-toxic constituents are not subject to the requirements of ADR.
- 191 Receptacles, small, with a capacity not exceeding 50 ml, containing only non-toxic constituents are not subject to the requirements of ADR.
- 194 The control and emergency temperatures, if any, and the UN number (generic entry) for each of the currently assigned self-reactive substances are given in 2.2.41.4.
- 196 Formulations which in laboratory testing neither detonate in the cavitated state nor deflagrate, which show no effect when heated under confinement and which exhibit no explosive power may be carried under this entry. The formulation must also be thermally stable (i.e. the SADT is 60 °C or higher for a 50 kg package). Formulations not meeting these criteria shall be carried under the provisions of Class 5.2, (see 2.2.52.4).



- 198 Nitrocellulose solutions containing not more than 20% nitrocellulose may be carried as paint or printing ink, as applicable (see UN Nos. 1210, 1263 and 3066).
- 199 Lead compounds which, when mixed in a ratio of 1:1000 with 0.07M hydrochloric acid and stirred for one hour at a temperature of  $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ , exhibit a solubility of 5% or less are considered insoluble. See ISO 3711:1990 "*Lead chromate pigments and lead chromate - molybdate pigments - Specifications and methods of test*".
- 203 This entry shall not be used for polychlorinated biphenyls, UN No. 2315.
- 204 Articles containing smoke-producing substance(s) corrosive according to the criteria for Class 8 shall be labelled with a label conforming to model No. 8.
- 205 This entry shall not be used for UN No. 3155 PENTACHLOROPHENOL.
- 207 Polymeric beads and moulding compounds may be made from polystyrene, poly(methyl methacrylate) or other polymeric material.
- 208 The commercial grade of calcium nitrate fertilizer, when consisting mainly of a double salt (calcium nitrate and ammonium nitrate) containing not more than 10% ammonium nitrate and at least 12% water of crystallization, is not subject to the requirements of ADR.
- 210 Toxins from plant, animal or bacterial sources which contain infectious substances, or toxins that are contained in infectious substances, shall be classified in Class 6.2.
- 215 This entry only applies to the technically pure substance or to formulations derived from it having an SADT higher than  $75\text{ }^{\circ}\text{C}$  and therefore does not apply to formulations which are self-reactive substances (for self-reactive substances, see 2.2.41.4).
- 216 Mixtures of solids which are not subject to the requirements of ADR and flammable liquids may be carried under this entry without first applying the classification criteria of Class 4.1, provided there is no free liquid visible at the time the substance is loaded or at the time the packaging, vehicle or container is closed. Sealed packets containing less than 10 ml of a packing group II or III flammable liquid absorbed into a solid material are not subject to ADR provided there is no free liquid in the packet.
- 217 Mixtures of solids which are not subject to the requirements of ADR and toxic liquids may be carried under this entry without first applying the classification criteria of Class 6.1, provided there is no free liquid visible at the time the substance is loaded or at the time the packaging, vehicle or container is closed. This entry shall not be used for solids containing a packing group I liquid.
- 218 Mixtures of solids which are not subject to the requirements of ADR and corrosive liquids may be carried under this entry without first applying the classification criteria of Class 8, provided there is no free liquid visible at the time the substance is loaded or at the time the packaging, vehicle or container is closed.
- 219 Genetically modified micro-organisms which are infectious shall be carried as UN Nos. 2814 or 2900.
- 220 Only the technical name of the flammable liquid component of this solution or mixture shall be shown in parentheses immediately following the proper shipping name.

- 221 Substances included under this entry shall not be of packing group I.
- 224 Unless it can be demonstrated by testing that the sensitivity of the substance in its frozen state is no greater than in its liquid state, the substance shall remain liquid during normal transport conditions. It shall not freeze at temperatures above -15 °C.
- 225 Fire extinguishers under this entry may include installed actuating cartridges (cartridges, power device of classification code 1.4C or 1.4S), without changing the classification of Class 2, group A or O according to 2.2.2.1.3 provided the total quantity of deflagrating (propellant) explosives does not exceed 3.2 g per extinguishing unit.
- 226 Formulations of this substance containing not less than 30% non-volatile, non-flammable phlegmatizer are not subject to the requirements of ADR.
- 227 When phlegmatized with water and inorganic inert material the content of urea nitrate may not exceed 75% by mass and the mixture shall not be capable of being detonated by the Series 1, type (a), test in the *Manual of Tests and Criteria*, Part 1.
- 228 Mixtures not meeting the criteria for flammable gases (see 2.2.2.1.5) shall be carried under UN No. 3163.
- 230 This entry applies to cells and batteries containing lithium in any form, including lithium polymer and lithium ion cells and batteries.

Lithium cells and batteries may be carried under this entry if they meet the following provisions:

- (a) Each cell or battery is of the type proved to meet the requirements of each test of the *Manual of Tests and Criteria*, Part III, sub-section 38.3;
  - (b) Each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under normal conditions of carriage;
  - (c) Each cell and battery is equipped with an effective means of preventing external short circuits;
  - (d) Each battery containing cells or series of cells connected in parallel is equipped with effective means as necessary to prevent dangerous reverse current flow (e.g. diodes, fuses, etc.).
- 235 This entry applies to articles which contain Class 1 explosive substances and which may also contain dangerous goods of other classes. These articles are used as life-saving vehicle air bag inflators or air bag modules or seat-belt pretensioners.
- 236 Polyester resin kits consist of two components: a base material (Class 3, packing group II or III) and an activator (organic peroxide). The organic peroxide shall be type D, E or F, not requiring temperature control. Packing group shall be II or III, according to the criteria for Class 3, applied to the base material. The quantity limit referred to in Column (7) of Table A of Chapter 3.2 applies to the base material.
- 237 The membrane filters, including paper separators, coating or backing materials, etc., that are present in carriage, shall not be liable to propagate a detonation as tested by one of the tests described in the *Manual of Tests and Criteria*, Part I, Test series 1 (a).

In addition the competent authority may determine, on the basis of the results of suitable burning rate tests taking account of the standard tests in the *Manual of Tests and Criteria*, Part III, sub-section 33.2.1, that nitrocellulose membrane filters in the form in which they are to be carried are not subject to the requirements applicable to flammable solids in Class 4.1.

- 238 (a) Batteries can be considered as non-spillable provided that they are capable of withstanding the vibration and pressure differential tests given below, without leakage of battery fluid.

**Vibration test:** The battery is rigidly clamped to the platform of a vibration machine and a simple harmonic motion having an amplitude of 0.8 mm (1.6 mm maximum total excursion) is applied. The frequency is varied at the rate of 1 Hz/min between the limits of 10 Hz and 55 Hz. The entire range of frequencies and return is traversed in  $95 \pm 5$  minutes for each mounting position (direction of vibration) of the battery. The battery is tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for equal time periods.

**Pressure differential test:** Following the vibration test, the battery is stored for six hours at  $24 \text{ }^\circ\text{C} \pm 4 \text{ }^\circ\text{C}$  while subjected to a pressure differential of at least 88 kPa. The battery is tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for at least six hours in each position.

- (b) Non-spillable batteries are not subject to the requirements of ADR if, at a temperature of  $55 \text{ }^\circ\text{C}$ , the electrolyte will not flow from a ruptured or cracked case and there is no free liquid to flow and if, as packaged for carriage, the terminals are protected from short circuit.

- 239 Batteries or cells shall not contain dangerous substances other than sodium, sulphur and/or polysulphides. Batteries or cells shall not be offered for carriage at a temperature such that liquid elemental sodium is present in the battery or cell unless approved and under the conditions established by the competent authority of the country of origin. If the country of origin is not a Contracting Party to ADR, the approval and conditions of carriage shall be recognized by the competent authority of the first country Contracting Party to ADR reached by the consignment.

Cells shall consist of hermetically sealed metal casings which fully enclose the dangerous substances and which are so constructed and closed as to prevent the release of the dangerous substances under normal conditions of carriage.

Batteries shall consist of cells secured within and fully enclosed by a metal casing so constructed and closed as to prevent the release of the dangerous substances under normal conditions of carriage.

- 241 The formulation shall be prepared so that it remains homogeneous and does not separate during carriage. Formulations with low nitrocellulose contents and not showing dangerous properties when tested for their liability to detonate, deflagrate or explode when heated under defined confinement by tests of Test series 1 (a), 2 (b) and 2 (c) respectively in the *Manual of Tests and Criteria*, Part I and not being a flammable solid when tested in accordance with test No. 1 in the *Manual of Tests and Criteria*, Part III, sub-section 33.2.1.4 (chips, if necessary, crushed and sieved to a particle size of less than 1.25 mm) are not subject to the requirements of ADR.

- 242 Sulphur is not subject to the requirements of ADR when it has been formed to a specific shape (e.g. prills, granules, pellets, pastilles or flakes).
- 244 This entry includes e.g. aluminium dross, aluminium skimmings, spent cathodes, spent potliner, and aluminium salt slags.
- 247 Alcoholic beverages containing more than 24% alcohol but not more than 70% by volume, when carried as part of the manufacturing process, may be carried in wooden casks with a capacity of not more than 500 litres deviating from the requirements of Chapter 6.1, on the following conditions:
- (a) The casks shall be checked and tightened before filling;
  - (b) Sufficient ullage (not less than 3%) shall be left to allow for the expansion of the liquid;
  - (c) The casks shall be carried with the bungholes pointing upwards;
  - (d) The casks shall be carried in containers meeting the requirements of the CSC. Each cask shall be secured in custom-made cradles and be wedged by appropriate means to prevent it from being displaced in any way during carriage.
- 249 Ferrocium, stabilized against corrosion, with a minimum iron content of 10% is not subject to the requirements of ADR.
- 250 This entry may only be used for samples of chemicals taken for analysis in connection with the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction. The carriage of substances under this entry shall be in accordance with the chain of custody and security procedures specified by the Organisation for the Prohibition of Chemical Weapons.

The chemical sample may only be carried providing prior approval has been granted by the competent authority or the Director General of the Organisation for the Prohibition of Chemical Weapons and providing the sample complies with the following provisions:

- (a) It shall be packed according to packing instruction 623 in the ICAO Technical Instructions (see S-3-8 of the Supplement); and
  - (b) During carriage, a copy of the document of approval for transport, showing the quantity limitations and the packing provisions shall be attached to the transport document.
- 251 The entry CHEMICAL KIT or FIRST AID KIT is intended to apply to boxes, cases etc. containing small quantities of various dangerous goods which are used for medical, analytical or testing purposes. Such kits may not contain dangerous goods for which the code "LQ0" has been indicated in Column (7) of Table A of Chapter 3.2.

Components shall not react dangerously (see "dangerous reaction" in 1.2.1). The total quantity of dangerous goods in any one kit shall not exceed either 1 l or 1 kg. The packing group assigned to the kit as a whole shall be the most stringent packing group assigned to any individual substance in the kit.

Kits which are carried on board vehicles for first-aid or operating purposes are not subject to the requirements of ADR.

Chemical kits and first aid kits containing dangerous goods in inner packagings which do not exceed the quantity limits applicable to individual substances as specified in Column (7) of Table A of Chapter 3.2 in accordance with the LQ code defined in 3.4.6 may be carried in accordance with Chapter 3.4.

- 252 Provided the ammonium nitrate remains in solution under all conditions of carriage, aqueous solutions of ammonium nitrate, with not more than 0.2% combustible material, in a concentration not exceeding 80%, are not subject to the requirements of ADR.
- 266 This substance, when containing less alcohol, water or phlegmatizer than specified, shall not be carried unless specifically authorized by the competent authority (see 2.2.1.1).
- 267 Any explosives, blasting, type C containing chlorates shall be segregated from explosives containing ammonium nitrate or other ammonium salts.
- 270 Aqueous solutions of Class 5.1 inorganic solid nitrate substances are considered as not meeting the criteria of Class 5.1 if the concentration of the substances in solution at the minimum temperature encountered during carriage is not greater than 80% of the saturation limit.
- 271 Lactose or glucose or similar materials, may be used as a phlegmatizer provided that the substance contains not less than 90%, by mass, of phlegmatizer. The competent authority may authorize these mixtures to be classified in Class 4.1 on the basis of a test Series 6(c) of Section 16 of Part I of the *Manual of Tests and Criteria* on at least three packages as prepared for carriage. Mixtures containing at least 98%, by mass, of phlegmatizer are not subject to the requirements of ADR. Packages containing mixtures with not less than 90%, by mass, of phlegmatizer need not bear a label conforming to model No. 6.1.
- 272 This substance shall not be carried under the provisions of Class 4.1 unless specifically authorized by the competent authority (see UN No. 0143).
- 273 Maneb and maneb preparations stabilized against self-heating need not be classified in Class 4.2 when it can be demonstrated by testing that a cubic volume of 1 m<sup>3</sup> of substance does not self-ignite and that the temperature at the centre of the sample does not exceed 200 °C, when the sample is maintained at a temperature of not less than 75 °C ± 2 °C for a period of 24 hours.
- 274 The provisions of 3.1.2.8 apply.
- 278 These substances shall not be classified and carried unless authorized by the competent authority on the basis of results from Series 2 tests and a Series 6(c) test of Part I of the *Manual of Tests and Criteria* on packages as prepared for carriage (see 2.2.1.1). The competent authority shall assign the packing group on the basis of 2.2.3 criteria and the package type used for the Series 6(c) test.
- 279 The substance is assigned to this classification or packing group based on human experience rather than the strict application of classification criteria set out in ADR.
- 280 This entry applies to articles which are used as life-saving vehicle air bag inflators, or air bag modules or seat-belt pretensioners and which contain dangerous goods of

Class 1 or dangerous goods of other classes and when carried as component parts and when these articles as presented for carriage have been tested in accordance with Test series 6 (c) of Part 1 of the *Manual of Tests and Criteria*, with no explosion of the device, no fragmentation of device casing or pressure vessel, and no projection hazard nor thermal effect which would significantly hinder fire-fighting or other emergency response efforts in the immediate vicinity.

- 282 Suspensions with a flash-point of not more than 61 °C, shall bear a label conforming to model No. 3.
- 283 Articles, containing gas, intended to function as shock absorbers, including impact energy-absorbing devices, or pneumatic springs are not subject to the requirements of ADR provided:
- (a) Each article has a gas space capacity not exceeding 1.6 litres and a charge pressure not exceeding 280 bar where the product of the capacity (litres) and charge pressure (bars) does not exceed 80 (i.e. 0.5 litres gas space and 160 bar charge pressure, 1 litre gas space and 80 bar charge pressure, 1.6 litres gas space and 50 bar charge pressure, 0.28 litres gas space and 280 bar charge pressure);
  - (b) Each article has a minimum burst pressure of 4 times the charge pressure at 20 °C for products not exceeding 0.5 litres gas space capacity and 5 times charge pressure for products greater than 0.5 litres gas space capacity;
  - (c) Each article is manufactured from material which will not fragment upon rupture;
  - (d) Each article is manufactured in accordance with a quality assurance standard acceptable to the competent authority; and
  - (e) The design type has been subjected to a fire test demonstrating that the article relieves its pressure by means of a fire degradable seal or other pressure relief device, such that the article will not fragment and that the article does not rocket.

See also 1.1.3.2 (d) for equipment used for the operation of the vehicle.

- 284 An oxygen generator, chemical, containing oxidizing substances shall meet the following conditions:
- (a) The generator when containing an explosive actuating device shall only be carried under this entry when excluded from Class 1 in accordance with the NOTE under paragraph 2.2.1.1.1 (b);
  - (b) The generator, without its packaging, shall be capable of withstanding a 1.8 m drop test onto a rigid, non-resilient, flat and horizontal surface, in the position most likely to cause damage, without loss of its contents and without actuation;
  - (c) When a generator is equipped with an actuating device, it shall have at least two positive means of preventing unintentional actuation.
- 286 Nitrocellulose membrane filters covered by this entry, each with a mass not exceeding 0.5 g, are not subject to the requirements of ADR when contained individually in an article or a sealed packet.

- 288 These substances shall not be classified and carried unless authorized by the competent authority on the basis of results from Series 2 tests and a Series 6(c) test of Part I of the *Manual of tests and Criteria* on packages as prepared for carriage (see 2.2.1.1).
- 289 Air bags or seat-belts installed in vehicles or in completed vehicle components such as steering columns, door panels, seats, etc. are not subject to the requirements of ADR.
- 290 When this material meets the definitions and criteria of other classes as defined in Part 2, it shall be classified in accordance with the predominant subsidiary risk. Such material shall be declared under the proper shipping name and UN number appropriate for the material in that predominant Class, with the addition of the name applicable to this material according to Column (2) of Table A of Chapter 3.2, and shall be carried in accordance with the provisions applicable to that UN number. In addition, all other requirements specified in 2.2.7.9.1 shall apply, except 5.2.1.7.2 and 5.4.1.2.5.1 (a).
- 291 Flammable liquefied gases shall be contained within refrigerating machine components. These components shall be designed and tested to at least three times the working pressure of the machinery. The refrigerating machines shall be designed and constructed to contain the liquefied gas and preclude the risk of bursting or cracking of the pressure retaining components during normal conditions of carriage. Refrigerating machines and refrigerating-machine components are not subject to the requirements of ADR if they contain less than 12 kg of gas.
- 292 Only mixtures with not more than 23.5% oxygen may be carried under this entry. A label conforming to model No. 5.1 is not required for any concentrations within this limit.
- 293 The following definitions apply to matches:
- (a) Fusee matches are matches the heads of which are prepared with a friction-sensitive igniter composition and a pyrotechnic composition which burns with little or no flame, but with intense heat;
  - (b) Safety matches are matches which are combined with or attached to the box, book or card that can be ignited by friction only on a prepared surface;
  - (c) Strike anywhere matches are matches that can be ignited by friction on a solid surface;
  - (d) Wax Vesta matches are matches that can be ignited by friction either on a prepared surface or on a solid surface.
- 295 Batteries need not be individually marked and labelled if the pallet bears the appropriate mark and label.
- 296 These articles may contain:
- (a) Class 2 compressed gases group A or O, according to 2.2.2.1.3;
  - (b) Signal devices (Class 1) which may include smoke and illumination signal flares;
  - (c) Electric storage batteries;
  - (d) First aid kits;

(e) Strike anywhere matches.

298 Solutions with a flash point of 61 °C or less shall bear a label conforming to model No 3.

300 Fish meal or fish scrap shall not be loaded if the temperature at the time of loading exceeds 35 °C or 5 °C above the ambient temperature whichever is higher.

302 In the proper shipping name, the word "UNIT" means:

a vehicle;  
a container; or  
a tank.

Fumigated vehicles, containers and tanks are only subject to the provisions of 5.5.2.

303 The classification of these receptacles (UN No. 2037) shall be based on the gases contained therein and in accordance with the provisions of 2.2.2.

304 Batteries, dry, containing corrosive electrolyte which will not flow out of the battery if the battery case is cracked are not subject to the requirements of ADR provided the batteries are securely packed and protected against short-circuits. Examples of such batteries are: alkali-manganese, zinc-carbon, nickel-metal hydride and nickel-cadmium batteries.

305 These substances are not subject to the requirements of ADR when in concentrations of not more than 50 mg/kg.

306 This entry may only be used for substances that do not exhibit explosive properties of Class 1 when tested in accordance to Test Series 1 and 2 of Class 1 (see *Manual of Tests and Criteria*, Part I).

307 This entry may only be used for uniform mixtures containing ammonium nitrate as the main ingredient within the following composition limits:

(a) Not less than 90% ammonium nitrate with not more than 0.2% total combustible/organic material calculated as carbon and with added matter, if any, which is inorganic and inert towards ammonium nitrate; or

(b) Less than 90% but more than 70% ammonium nitrate with other inorganic materials or more than 80% but less than 90% ammonium nitrate mixed with calcium carbonate and/or dolomite and not more than 0.4% total combustible/organic material calculated as carbon; or

(c) Nitrogen type ammonium nitrate based fertilizers containing mixtures of ammonium nitrate and ammonium sulphate with more than 45% but less than 70% ammonium nitrate and not more than 0.4% total combustible/organic material calculated as carbon such that the sum of the percentage compositions of ammonium nitrate and ammonium sulphate exceeds 70%.

309 This entry applies to non sensitised emulsions, suspensions and gels consisting primarily of a mixture of ammonium nitrate and a fuel phase, intended to produce a Type E blasting explosive only after further processing prior to use. The mixture typically has the following composition: 60 - 85% ammonium nitrate; 5 - 30% water; 2 - 8% fuel; 0.5 - 4% emulsifier or thickening agent; 0 - 10% soluble flame suppressants and trace additives. Other inorganic nitrate salts may replace part of the



ammonium nitrate. These substances shall not be classified and carried unless authorized by the competent authority.

310 The testing requirements in sub-section 38.3 of the *Manual of Tests and Criteria* do not apply to production runs consisting of not more than 100 lithium cells and batteries, or to pre-production prototypes of lithium cells and batteries when these prototypes are carried for testing, if:

- (a) the cells and batteries are carried in an outer packaging that is a metal, plastics or plywood drum or a metal, plastics or wooden box and that meets the criteria for packing group I; and
- (b) each cell and battery is individually packed in an inner packaging inside an outer packaging and is surrounded by cushioning material that is non-combustible, and non-conductive.

311-499 (*Reserved*)

500 UN No. 3064 nitroglycerin, solution in alcohol with more than 1% but not more than 5% nitroglycerin, packed in accordance with packing instruction P300 of 4.1.4.1, is a substance of Class 3.

501 For naphthalene, molten, see UN No. 2304.

502 UN No. 2006 plastics, nitrocellulose-based, self-heating, n.o.s., and 2002 celluloid scrap are substances of Class 4.2.

503 For phosphorus, white or yellow, molten, see UN No. 2447.

504 UN No. 1847 potassium sulphide, hydrated with not less than 30% water of crystallization, UN No. 1849 sodium sulphide, hydrated with not less than 30% water of crystallization and UN No. 2949 sodium hydrosulphide with not less than 25% water of crystallization are substances of Class 8.

505 UN No. 2004 magnesium diamide is a substance of Class 4.2.

506 Alkaline earth metals and alkaline earth metal alloys in pyrophoric form are substances of Class 4.2.

UN No. 1869 magnesium or magnesium alloys containing more than 50% magnesium as pellets, turnings or ribbons, are substances of Class 4.1.

507 UN No. 3048 aluminium phosphide pesticides, with additives inhibiting the emission of toxic flammable gases are substances of Class 6.1.

508 UN No. 1871 titanium hydride and UN No. 1437 zirconium hydride are substances of Class 4.1. UN No. 2870 aluminium borohydride is a substance of Class 4.2.

509 UN No. 1908 chlorite solution is a substance of Class 8.

510 UN No. 1755 chromic acid solution is a substance of Class 8.

511 UN No. 1625 mercuric nitrate, UN No. 1627 mercurous nitrate and UN No. 2727 thallium nitrate are substances of Class 6.1. Thorium nitrate, solid, uranyl nitrate hexahydrate solution and uranyl nitrate, solid are substances of Class 7.

- 512 UN No. 1730 antimony pentachloride, liquid, UN No. 1731 antimony pentachloride solution, UN No. 1732 antimony pentafluoride and UN No. 1733 antimony trichloride are substances of Class 8.
- 513 UN No. 0224 barium azide, dry or wetted with less than 50% water, by mass, is a substance of Class 1. UN No. 1571 barium azide, wetted is a substance of Class 4.1. UN No. 1854 barium alloys, pyrophoric, are substances of Class 4.2. UN No. 1445 barium chlorate, UN No. 1446 barium nitrate, UN No. 1447 barium perchlorate, UN No. 1448 barium permanganate, UN No. 1449 barium peroxide, UN No. 2719 barium bromate and UN No. 2741 barium hypochlorite with more than 22% available chlorine are substances of Class 5.1. UN No. 1565 barium cyanide and UN No. 1884 barium oxide are substances of Class 6.1.
- 514 UN No. 2464 beryllium nitrate is a substance of Class 5.1.
- 515 UN No. 1581 chloropicrin and methyl bromide mixture and UN No. 1582 chloropicrin and methyl chloride mixture are substances of Class 2.
- 516 UN No. 1912 methyl chloride and methylene chloride mixture is a substance of Class 2.
- 517 UN No. 1690 sodium fluoride, UN No. 1812 potassium fluoride, UN No. 2505 ammonium fluoride, UN No. 2674 sodium fluorosilicate and UN No. 2856 fluorosilicates, n.o.s. are substances of Class 6.1.
- 518 UN No. 1463 chromium trioxide, anhydrous (chromic acid, solid) is a substance of Class 5.1.
- 519 UN No. 1048 hydrogen bromide, anhydrous, is a substance of Class 2.
- 520 UN No. 1050 hydrogen chloride, anhydrous, is a substance of Class 2.
- 521 Solid chlorites and hypochlorites are substances of Class 5.1.
- 522 UN No. 1873 perchloric acid aqueous solution with more than 50% but not more than 72% pure acid, by mass are substances of Class 5.1. Perchloric acid solutions containing more than 72% pure acid, by mass, or mixtures of perchloric acid with any liquid other than water, are not to be accepted for carriage.
- 523 UN No. 1382 anhydrous potassium sulphide and UN No. 1385 anhydrous sodium sulphide and their hydrates with less than 30% water of crystallization, and UN No. 2318 sodium hydrosulphide with less than 25% water of crystallization are substances of Class 4.2.
- 524 UN No. 2858 finished zirconium products of a thickness of 18  $\mu\text{m}$  or more are substances of Class 4.1.
- 525 Solutions of inorganic cyanides with a total cyanide ion content of more than 30% shall be classified in packing group I, solutions with a total cyanide ion content of more than 3% and not more than 30% in packing group II and solutions with a cyanide ion content of more than 0.3% and not more than 3% in packing group III.
- 526 UN No. 2000 celluloid is assigned to Class 4.1.
- 527 Organometallic compounds and their solutions, not spontaneously flammable, but which, in contact with water, emit flammable gases, are substances of Class 4.3,

- UN No. 3207. Flammable solutions containing organometallic compounds which are not spontaneously flammable and which, in contact with water, do not emit flammable gases, are substances of Class 3.
- 528 UN No. 1353 fibres or fabrics impregnated with weakly nitrated cellulose, non-self heating are articles of Class 4.1.
- 529 UN No. 0135 mercury fulminate, wetted with not less than 20% water, or mixture of alcohol and water, by mass, is a substance of Class 1. Mercurous chloride (calomel) is a substance of Class 9 (UN No. 3077).
- 530 UN No. 3293 hydrazine, aqueous solution with not more than 37% hydrazine, by mass, is a substance of Class 6.1.
- 531 Mixtures having a flash-point below 23 °C and containing more than 55% nitrocellulose, whatever its nitrogen content or containing not more than 55% nitrocellulose with a nitrogen content above 12.6% (by dry mass), are substances of Class 1 (see UN Nos. 0340 or 0342) or of Class 4.1.
- 532 UN No. 2672 ammonia solution containing not less than 10% but not more than 35% ammonia is a substance of Class 8.
- 533 UN No. 1198 formaldehyde solutions, flammable are substances of Class 3. Formaldehyde solutions, non-flammable, with less than 25% formaldehyde are not subject to the requirements of ADR.
- 534 While in some climatic conditions, petrol (gasoline) may have a vapour pressure at 50 °C of more than 110 kPa (1.10 bar) but not more than 150 kPa (1.50 bar) it is to continue to be considered as a substance having a vapour pressure at 50 °C of not more than 110 kPa (1.10 bar).
- 535 UN No. 1469 lead nitrate and UN No. 1470 lead perchlorate are substances of Class 5.1.
- 536 For naphthalene, solid, see UN No. 1334.
- 537 UN No. 2869 titanium trichloride mixture, not pyrophoric, is a substance of Class 8.
- 538 For sulphur (in the solid state), see UN No. 1350.
- 539 Solutions of isocyanates having a flash-point of not less than 23 °C are substances of Class 6.1.
- 540 UN No. 1326 hafnium powder, wetted, UN No. 1352 titanium powder, wetted or UN No. 1358 zirconium powder, wetted, with not less than 25% water, are substances of Class 4.1.
- 541 Nitrocellulose mixtures with a water content, alcohol content or plasticizer content lower than the stated limits are substances of Class 1.
- 542 Talc containing tremolite and/or actinolite is covered by this entry.
- 543 UN No. 1005 ammonia, anhydrous, UN No. 3318 ammonia solution with more than 50% ammonia and UN No. 2073 ammonia solution, with more than 35% but not more than 50% ammonia, are substances of Class 2. Ammonia solutions with not more than 10% ammonia are not subject to the requirements of ADR.

- 544 UN No. 1032 dimethylamine, anhydrous, UN No. 1036 ethylamine, UN No. 1061 methylamine, anhydrous and UN No. 1083 trimethylamine, anhydrous, are substances of Class 2.
- 545 UN No. 0401 dipicryl sulphide, wetted with less than 10% water by mass is a substance of Class 1.
- 546 UN No. 2009 zirconium, dry, finished sheets, strip or coiled wire, in thicknesses of less than 18  $\mu\text{m}$ , is a substance of Class 4.2. Zirconium, dry, finished sheets, strip or coiled wire, in thicknesses of 254  $\mu\text{m}$  or more, is not subject to the requirements of ADR.
- 547 UN No. 2210 maneb or UN No. 2210 maneb preparations in self-heating form are substances of Class 4.2.
- 548 Chlorosilanes which, in contact with water, emit flammable gases, are substances of Class 4.3.
- 549 Chlorosilanes having a flash-point of less than 23 °C and which, in contact with water, do not emit flammable gases are substances of Class 3. Chlorosilanes having a flash-point equal to or greater than 23 °C and which, in contact with water, do not emit flammable gases are substances of Class 8.
- 550 UN No. 1333 cerium in slabs, rods or ingots is a substance of Class 4.1.
- 551 Solutions of these isocyanates having a flash-point below 23 °C are substances of Class 3.
- 552 Metals and metal alloys in powdered or other flammable form, liable to spontaneous combustion, are substances of Class 4.2. Metals and metal alloys in powdered or other flammable form which, in contact with water, emit flammable gases are substances of Class 4.3.
- 553 This mixture of hydrogen peroxide and peroxyacetic acid shall, in laboratory testing (see *Manual of Tests and Criteria*, Part II, section 20), neither detonate in the cavitated state nor deflagrate at all and shall show no effect when heated under confinement nor any explosive power. The formulation shall be thermally stable (self-accelerating decomposition temperature 60 °C or higher for a 50 kg package), and a liquid compatible with peroxyacetic acid shall be used for desensitization. Formulations not meeting these criteria are to be regarded as substances of Class 5.2 (see *Manual of Tests and Criteria*, Part II, paragraph 20.4.3(g)).
- 554 Metal hydrides which, in contact with water, emit flammable gases are substances of Class 4.3. UN No. 2870 aluminium borohydride or UN No. 2870 aluminium borohydride in devices is a substance of Class 4.2.
- 555 Dust and powder of metals in non-spontaneously combustible form, non-toxic which nevertheless, in contact with water, emit flammable gases, are substances of Class 4.3.
- 556 Organometallic compounds and their solutions which ignite spontaneously are substances of Class 4.2. Flammable solutions with organometallic compounds in concentrations which, in contact with water, neither emit flammable gases in dangerous quantities nor ignite spontaneously are substances of Class 3.
- 557 Dust and powder of metals in pyrophoric form are substances of Class 4.2.

- 558 Metals and metal alloys in pyrophoric form are substances of Class 4.2. Metals and metal alloys which, in contact with water, do not emit flammable gases and are not pyrophoric or self-heating, but which are easily ignited, are substances of Class 4.1.
- 559 Mixtures of a hypochlorite with an ammonium salt are not to be accepted for carriage. UN No. 1791 hypochlorite solution is a substance of Class 8.
- 560 UN No. 3257 elevated temperature liquid, n.o.s., at or above 100 °C and, for a substance with a flash-point, below its flash-point (including molten metals and molten salts) is a substance of Class 9.
- 561 Chloroformates having predominantly corrosive properties are substances of Class 8.
- 562 Spontaneously combustible organometallic compounds are substances of Class 4.2. Water-reactive organometallic compounds, flammable, are substances of Class 4.3.
- 563 UN No. 1905 selenic acid is a substance of Class 8.
- 564 UN No. 2443 vanadium oxytrichloride, UN No. 2444 vanadium tetrachloride and UN No. 2475 vanadium trichloride are substances of Class 8.
- 565 Unspecified wastes resulting from medical/veterinary treatment of humans/animals or from biological research, and which are unlikely to contain substances of Class 6.2 shall be assigned to this entry. Decontaminated clinical wastes or wastes resulting from biological research which previously contained infectious substances are not subject to the requirements of Class 6.2.
- 566 UN No. 2030 hydrazine aqueous solution, with more than 37%, by mass, is a substance of Class 8.
- 567 Mixtures containing more than 21% oxygen by volume shall be classified as oxidizing.
- 568 Barium azide with a water content lower than the stated limit is a substance of Class 1, UN No. 0224.
- 569-579 (*Reserved*)
- 580 Tank-vehicles, specialized vehicles and specially equipped vehicles for carriage in bulk shall bear on both sides and at the rear the mark referred to in 5.3.3. Tank-containers, portable tanks, special containers and specially equipped containers for carriage in bulk shall bear this mark on both sides and at each end.
- 581 This entry covers mixtures of methylacetylene and propadiene with hydrocarbons, which as
- Mixture P1, contain not more than 63% methylacetylene and propadiene by volume and not more than 24% propane and propylene by volume, the percentage of C<sub>4</sub>-saturated hydrocarbons being not less than 14% by volume; and as
- Mixture P2, contain not more than 48% methylacetylene and propadiene by volume and not more than 50% propane and propylene by volume, the percentage of C<sub>4</sub>-saturated hydrocarbons being not less than 5% by volume,
- as well as mixtures of propadiene with 1 to 4% methylacetylene.

When relevant, in order to meet the requirements for the transport document (5.4.1.1), the term "Mixture P1" or "Mixture P2" may be used as technical name.

582 This entry covers, *inter alia*, mixtures of gases indicated by the letter R ..., which as

Mixture F1, have a vapour pressure at 70 °C not exceeding 1.3 MPa (13 bar) and a density at 50 °C not lower than that of dichlorofluoromethane (1.30 kg/l);

Mixture F2, have a vapour pressure at 70 °C not exceeding 1.9 MPa (19 bar) and a density at 50 °C not lower than that of dichlorodifluoromethane (1.21 kg/l);

Mixture F3, have a vapour pressure at 70 °C not exceeding 3 MPa (30 bar) and a density at 50 °C not lower than that of chlorodifluoromethane (1.09 kg/l).

*NOTE: Trichlorofluoromethane (refrigerant gas R 11), 1,1,2-trichloro-1,2,2-trifluoroethane (refrigerant gas R 113), 1,1,1-trichloro-2,2,2-trifluoroethane (refrigerant gas R 113a), 1-chloro-1,2,2-trifluoroethane (refrigerant gas R 133) and 1-chloro-1,1,2-trifluoroethane (refrigerant gas R 133 b) are not substances of Class 2. They may, however, enter into the composition of mixtures F 1 to F 3.*

When relevant, in order to meet the requirements for the transport document (5.4.1.1), the term "Mixture F1", "Mixture F2" or "Mixture F3" may be used as technical name.

583 This entry covers, *inter alia*, mixtures which as

Mixture A, have a vapour pressure at 70 °C not exceeding 1.1 MPa (11 bar) and a density at 50 °C not lower than 0.525 kg/l;

Mixture A01, have a vapour pressure at 70 °C not exceeding 1.6 MPa (16 bar) and a relative density at 50 °C not lower than 0.516 kg/l;

Mixture A02, have a vapour pressure at 70 °C not exceeding 1.6 MPa (16 bar) and a relative density at 50 °C not lower than 0.505 kg/l;

Mixture A0, have a vapour pressure at 70 °C not exceeding 1.6 MPa (16 bar) and a density at 50 °C not lower than 0.495 kg/l;

Mixture A1, have a vapour pressure at 70 °C not exceeding 2.1 MPa (21 bar) and a density at 50 °C not lower than 0.485 kg/l;

Mixture B1, have a vapour pressure at 70 °C not exceeding 2.6 MPa (26 bar) and a relative density at 50 °C not lower than 0.474 kg/l;

Mixture B2, have a vapour pressure at 70 °C not exceeding 2.6 MPa (26 bar) and a relative density at 50 °C not lower than 0.463 kg/l;

Mixture B, have a vapour pressure at 70 °C not exceeding 2.6 MPa (26 bar) and a density at 50 °C not lower than 0.450 kg/l;

Mixture C, have a vapour pressure at 70 °C not exceeding 3.1 MPa (31 bar) and a relative density at 50 °C not lower than 0.440 kg/l;

When relevant, in order to meet the requirements for the transport document (5.4.1.1), the following terms may be used as technical name:

- "Mixture A" or "Butane";
- "Mixture A01" or "Butane";
- "Mixture A02" or "Butane";
- "Mixture A0" or "Butane";
- "Mixture A1";
- "Mixture B1";
- "Mixture B2";
- "Mixture B";
- "Mixture C" or "Propane".

For carriage in tanks, the trade names "butane" or "propane" may be used only as a complement.

584 This gas is not subject to the requirements of ADR when:

- it is in the gaseous state;
- it contains not more than 0.5% air;
- it is contained in metal capsules (sodors, sparklets) free from defects which may impair their strength;
- the leakproofness of the closure of the capsule is ensured;
- a capsule contains not more than 25 g of this gas;
- a capsule contains not more than 0.75 g of this gas per cm<sup>3</sup> of capacity.

585 Cinnabar is not subject to the requirements of ADR.

586 Hafnium, titanium and zirconium powders shall contain a visible excess of water. Hafnium, titanium and zirconium powders, wetted, mechanically produced, of a particle size of 53 µm and over, or chemically produced, of a particle size of 840 µm and over, are not subject to the requirements of ADR.

587 Barium stearate and barium titanate are not subject to the requirements of ADR.

588 Solid hydrated forms of aluminium bromide and aluminium chloride are not subject to the requirements of ADR.

589 Calcium hypochlorite mixtures, dry, containing not more than 10% available chlorine are not subject to the requirements of ADR.

590 Ferric chloride hexahydrate is not subject to the requirements of ADR.

591 Lead sulphate with not more than 3% free acid is not subject to the requirements of ADR.

- 592 Uncleaned empty packagings (including empty IBCs and large packagings), empty tank-vehicles, empty demountable tanks, empty portable tanks, empty tank-containers and empty small containers which have contained this substance are not subject to the requirements of ADR.
- 593 This gas, intended for the cooling of e.g. medical or biological specimens, if contained in double wall receptacles which comply with the provisions of packing instruction P203 (11) of 4.1.4.1 is not subject to the requirements of ADR.
- 594 The following articles, manufactured and filled according to the regulations of the manufacturing State and packaged in strong outer packagings, are not subject to the requirements of ADR:
- UN No. 1044 fire extinguishers provided with protection against inadvertent discharge;
  - UN No. 3164 articles, pressurized pneumatic or hydraulic, designed to withstand stresses greater than the internal gas pressure by virtue of transmission of force, intrinsic strength or construction.
- 596 Cadmium pigments, such as cadmium sulphides, cadmium sulphoselenides and cadmium salts of higher fatty acids (e.g. cadmium stearate), are not subject to the requirements of ADR.
- 597 Acetic acid solutions with not more than 10% pure acid by mass, are not subject to the requirements of ADR.
- 598 The following are not subject to the requirements of ADR:
- (a) New storage batteries when:
- they are secured in such a way that they cannot slip, fall or be damaged;
  - they are provided with carrying devices, unless they are suitably stacked, e.g. on pallets;
  - there are no dangerous traces of alkalis or acids on the outside;
  - they are protected against short circuits.
- (b) Used storage batteries when:
- their cases are undamaged;
  - they are secured in such a way that they cannot leak, slip, fall or be damaged, e.g. by stacking on pallets;
  - there are no dangerous traces of alkalis or acids on the outside of the articles;
  - they are protected against short circuits.

"Used storage batteries" means storage batteries carried for recycling at the end of their normal service life.



- 599 Manufactured articles or instruments containing not more than 1 kg of mercury are not subject to the requirements of ADR.
- 600 Vanadium pentoxide, fused and solidified, is not subject to the requirements of ADR.
- 601 Pharmaceutical products ready for use, e.g. cosmetics, drugs and medicines, which are substances manufactured and packed in packagings of a type intended for retail sale or distribution for personal or household consumption are not subject to the requirements of ADR.
- 602 Phosphorus sulphides which are not free from yellow and white phosphorus are not to be accepted for carriage.
- 603 Anhydrous hydrogen cyanide not meeting the description for UN No. 1051 or UN No. 1614 is not to be accepted for carriage. Hydrogen cyanide (hydrocyanic acid) containing less than 3% water is stable, if the pH-value is  $2.5 \pm 0.5$  and the liquid is clear and colourless.
- 604 Ammonium bromate and its aqueous solutions and mixtures of a bromate with an ammonium salt are not to be accepted for carriage.
- 605 Ammonium chlorate and its aqueous solutions and mixtures of a chlorate with an ammonium salt are not to be accepted for carriage.
- 606 Ammonium chlorite and its aqueous solutions and mixtures of a chlorite with an ammonium salt are not to be accepted for carriage.
- 607 Mixtures of potassium nitrate and sodium nitrite with an ammonium salt are not to be accepted for carriage.
- 608 Ammonium permanganate and its aqueous solutions and mixtures of a permanganate with an ammonium salt are not to be accepted for carriage.
- 609 Tetranitromethane not free from combustible impurities is not to be accepted for carriage.
- 610 The carriage of this substance, when it contains more than 45% hydrogen cyanide is prohibited.
- 611 Ammonium nitrate containing more than 0.2% combustible substances (including any organic substance calculated as carbon) is not to be accepted for carriage unless it is a constituent of a substance or article of Class 1.
- 612 *(Reserved)*
- 613 Chloric acid solution containing more than 10% chloric acid and mixtures of chloric acid with any liquid other than water is not to be accepted for carriage.
- 614 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) in concentrations considered highly toxic according to the criteria in 2.2.61.1 is not to be accepted for carriage.
- 615 *(Reserved)*
- 616 Substances containing more than 40% liquid nitric esters shall satisfy the exudation test specified in 2.3.1.

617 In addition to the type of explosive, the commercial name of the particular explosive shall be marked on the package and shall be specified in the transport document.

618 In receptacles containing 1,2-butadiene, the oxygen concentration in the gaseous phase shall not exceed 50 ml/m<sup>3</sup>.

619-622 (*Reserved*)

623 UN No. 1829 sulphur trioxide shall be inhibited. Sulphur trioxide, 99.95% pure or above, may be carried without inhibitor in tanks provided that its temperature is maintained at or above 32.5 °C. For the carriage of this substance without inhibitor in tanks at a minimum temperature of 32.5 °C, the specification "**Transport under minimum temperature of the product of 32.5 °C**" shall appear in the transport document.

625 Packages containing these articles shall be clearly marked as follows:  
"UN 1950 AEROSOLS"

626-627 (*Reserved*)

632 Considered to be spontaneously flammable (pyrophoric).

633 Packages and small containers containing this substance shall bear the following marking: "**Keep away from any source of ignition**". This marking shall be in an official language of the forwarding country, and also, if that language is not English, French or German, in English, French or German, unless any agreements concluded between the countries concerned in the transport operation provide otherwise.

634 Packages containing substances carried in refrigerated liquid nitrogen shall, in addition, bear a label conforming to model No. 2.2.

635 Packages containing these articles need not bear a label conforming to model No. 9 unless the article is fully enclosed by packaging, crates or other means that prevent the ready identification of the article.

636 (a) With the approval of the competent authority of the country of origin, the quantity of lithium or lithium alloy in each cell may be raised to 60 g and a package may contain up to 2500 g of lithium or lithium alloy; the competent authority shall determine the conditions of carriage as well as the type and duration of the test. If the country of origin is not a Contracting Party to ADR, the approval shall be recognized by the competent authority of the first country Contracting Party to ADR reached by the consignment. In such a case, a copy of the approval with the conditions of carriage shall be attached to the transport document. This approval shall be drawn up in an official language of the forwarding country and also, if that language is not English, French or German, in English, French or German, unless any agreements concluded between the countries concerned in the transport operation provide otherwise.

(b) Cells contained in equipment shall not be capable of being discharged during carriage to the extent that the open circuit voltage falls below 2 volts or two thirds of the voltage of the undischarged cell, whichever is the lower.

(c) Packages containing used cells or batteries in unmarked packagings shall bear the inscription: "**Used lithium cells**".

(d) Articles which do not meet the requirements of this special provision and/or special provisions 188, 230, as appropriate, are not to be accepted for carriage.

- 637 Genetically modified micro-organisms are those which are not dangerous for humans and animals, but which could alter animals, plants, microbiological substances and ecosystems in such a way as cannot occur naturally. Genetically modified micro-organisms which have received a consent for deliberate release into the environment<sup>1</sup> are not subject to the requirements of Class 9. Live vertebrate or invertebrate animals shall not be used to carry these substances classified under this UN number unless the substance can be carried in no other way. For the carriage of easily perishable substances under this UN number appropriate information shall be given, e.g.: "Cool at +2 °/+4 °C" or "Carry in frozen state" or "Do not freeze".
- 638 Substances related to self-reactive substances (see 2.2.41.1.19).
- 639 See 2.2.2.3, classification code 2F, UN No. 1965, Note 2.
- 640 The physical and technical characteristics mentioned in column (2) of Table A of Chapter 3.2 determine different conditions of carriage for the same packing group.

In order to identify these conditions of carriage, the following shall be added to the particulars required in the transport document:

"Special provision 640X" where "X" is the capital letter appearing after the reference to special provision 640 in column (6) of Table A of Chapter 3.2.

Provided that the above mentioned characteristics do not entail different hazard identification numbers in column (20), these particulars may, however, be dispensed with in the following cases:

- goods packed in accordance with packing instruction P001;
  - substances and preparations of UN No. 2015 packed in accordance with packing instruction P501;
  - carriage in portable tanks;
  - carriage in the type of tank which for a specific packing group of a specific UN number meets at least the most stringent requirements.
- 642 Except as authorized under 1.1.4.2, this entry of the UN Model Regulations shall not be used for the carriage of fertilizer ammoniating solutions with free ammonia.
- 643 Stone or aggregate asphalt mixture is not subject to the requirements for Class 9.
- 644 This substance is admitted for carriage provided that:
- The pH is between 5 and 7 measured in an aqueous solution of 10% of the substance carried;
  - The solution does not contain more than 0.2% combustible material or chlorine compounds in quantities such that the chlorine level exceeds 0.02%.

<sup>1</sup> See in particular Part C of Directive 90/220/EEC (Official Journal of the European Communities, No. L 117 of 8 May 1990, pp. 18-20), which sets out the authorization procedures for the European Community.

- 645 The classification code as mentioned in Column (3b) of Table A of Chapter 3.2 shall be used only with the approval of the competent authority of a Contracting Party to ADR prior to carriage.
- 646 Carbon made by steam activation process is not subject to the requirements of ADR.
- 647 The carriage of vinegar and acetic acid food grade with not more than 25 % pure acid by mass is subject only to the following requirements:
- (a) Packagings, including IBCs and large packagings, and tanks shall be manufactured from stainless steel or plastic material which is permanently resistant to corrosion of vinegar/acetic acid food grade;
  - (b) Packagings, including IBCs and large packagings, and tanks shall be subjected to a visual inspection by the owner at least once a year. The results of the inspections shall be recorded and the records kept for at least one year. Damaged packagings, including IBCs and large packagings, and tanks shall not be filled;
  - (c) Packagings, including IBCs and large packagings, and tanks shall be filled in a way that no product is spilled or adheres to the outer surface;
  - (d) Seals and closures shall be resistant to vinegar/acetic acid food grade. Packagings, including IBCs and large packagings, and tanks shall be hermetically sealed by the packer or the filler so that under normal conditions of carriage there will be no leakage;
  - (e) Combination packagings with inner packaging made of glass or plastic (see packing instruction P001 in 4.1.4.1) which fulfil the general packing requirements of 4.1.1.1, 4.1.1.2, 4.1.1.4, 4.1.1.5, 4.1.1.6, 4.1.1.7 and 4.1.1.8 may be used;

The other provisions of ADR do not apply.

## CHAPTER 3.4

## EXEMPTIONS RELATED TO DANGEROUS GOODS PACKED IN LIMITED QUANTITIES

- 3.4.1 Packagings used in accordance with 3.4.3 to 3.4.6 below, need only to conform to the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
- 3.4.2 When the code "LQ0" is shown in Column (7) of Table A in Chapter 3.2 for a given substance or article, that substance or article is not exempted from any of the applicable provisions of Annexes A and B when it is packed in limited quantities, unless otherwise specified in these Annexes.
- 3.4.3 Unless otherwise provided in this Chapter, when one of the codes "LQ1" or "LQ2" is shown in Column (7) of Table A in Chapter 3.2 for a given substance or article, the provisions of other Chapters of ADR do not apply to the carriage of that substance or article, provided:
- (a) The provisions of 3.4.5 (a) to (c) are observed; with respect to these provisions, articles are considered to be inner packagings;
  - (b) Inner packagings meet the conditions of 6.2.1.2 when "LQ1" is shown, and the conditions of 6.2.1.2, 6.2.4.1 and 6.2.4.2 when "LQ2" is shown.
- 3.4.4 Unless otherwise provided in this Chapter, when one of the codes "LQ3", "LQ20", "LQ21" or "LQ29" is shown in Column (7) of Table A in Chapter 3.2 for a given substance, the provisions of other Chapters of ADR do not apply to the carriage of that substance, provided:
- (a) The substance is carried in combination packagings, the following outer packagings being allowed:
    - steel or aluminium drums with removable head;
    - steel or aluminium jerricans with removable head;
    - plywood or fibre drums;
    - plastics drums or jerricans with removable head;
    - boxes of natural wood, plywood, reconstituted wood, fibreboard, plastics, steel or aluminium;
  - (b) The maximum quantity per inner packaging and per package, prescribed for the relevant code in the second and third column of the table in 3.4.6, are not exceeded;
  - (c) Each package is clearly and durably marked with :
    - (i) the UN number of the goods contained therein, as given in Column (1) of Table A in Chapter 3.2, preceded by the letters "UN";
    - (ii) in the case of different goods with different UN numbers within a single package:
      - the UN numbers of the goods contained therein, preceded by the letters "UN", or
      - the letters "LQ"<sup>1</sup>.

<sup>1</sup> The letters "LQ" are an abbreviation of the English words "Limited Quantities".

These markings shall be displayed within a diamond-shaped area surrounded by a line that measures at least 100 × 100 mm. The width of line forming the diamond shall be at least 2 mm; the number shall be at least 6 mm high. Where more than one substance assigned to different UN numbers are included in the package, the diamond shall be large enough to include each relevant UN number. If the size of the package so requires, the dimension may be reduced, provided the markings remain clearly visible.

3.4.5 Unless otherwise provided in this Chapter, when one of the codes "LQ4" to "LQ19" and "LQ22" to "LQ28" is shown in Column (7) of Table A in Chapter 3.2 for a given substance, the provisions of other Chapters of ADR do not apply to the carriage of that substance, provided:

- (a) The substance is carried:
  - in combination packagings, corresponding to the prescriptions of 3.4.4 (a), or
  - in metal or plastics inner packagings which are not liable to break or be easily punctured, placed in shrink-wrapped or stretch-wrapped trays;
- (b) The maximum quantity per inner packaging and per package, prescribed for the relevant code in the table in 3.4.6 (in the second and third column in the case of combination packagings, and in the fourth and fifth column in the case of shrink-wrapped or stretch-wrapped trays), are not exceeded;
- (c) Each package is clearly and durably marked as indicated in 3.4.4 (c).

3.4.6 Table

Code	Combination packagings		Inner packagings placed in shrink-wrapped or stretch-wrapped trays	
	Inner packaging Maximum contents	Package Maximum gross mass (kg) / contents (l)	Inner packaging Maximum contents	Package Maximum gross mass (kg) / contents (l)
LQ0	No exemption under the conditions of 3.4.2.			
LQ1	120 ml	30 kg	120 ml	20 kg
LQ2	1 l	30 kg	1 l	20 kg
LQ3 <sup>a</sup>	500 ml	1 l	Not allowed	Not allowed
LQ4	3 l	12 l	1 l	12 l and 20 kg
LQ5	5 l	-	1 l	20 kg
LQ6 <sup>a</sup>	5 l	20 l	1 l	20 l and 20 kg
LQ7 <sup>a</sup>	5 l	45 l	5 l	20 kg
LQ8	3 kg	12 kg	500 g	12 kg
LQ9	6 kg	24 kg	3 kg	20 kg
LQ10	500 ml	30 kg	500 ml	20 kg
LQ11 <sup>b</sup>	500 g	30 kg	500 g	20 kg
LQ12	1 kg	30 kg	1 kg	20 kg
LQ13	1 l	30 kg	1 l	20 kg
LQ14 <sup>b</sup>	25 ml	30 kg	25 ml	20 kg
LQ15 <sup>b</sup>	100 g	30 kg	100 g	20 kg
LQ16 <sup>b</sup>	125 ml	30 kg	125 ml	20 kg
LQ17	500 ml	2 l	100 ml	2 l
LQ18	1 kg	4 kg	500 g	4 kg
LQ19	3 l	12 l	1 l	12 l and 20 kg
LQ20	100 ml	400 ml	Not allowed	Not allowed
LQ21	500 g	2 kg	Not allowed	Not allowed
LQ22	1 l	4 l	500 ml	4 l and 20 kg
LQ23	3 kg	12 kg	1 kg	12 kg
LQ24	6 kg	24 kg	2 kg	20 kg
LQ25	1 kg	4 kg	1 kg	20 kg
LQ26	500 ml	2 l	500 ml	2 l
LQ27	6 kg	24 kg	6 kg	20 kg
LQ28	3 l	12 l	3 l	12 l and 20 kg
LQ29	500 ml (per apparatus) if packed in leakproof packagings and conforming to 3.4.4 (c) only	2 l if packed in leakproof packagings and conforming to 3.4.4 (c) only	Not allowed	Not allowed

<sup>a</sup> In the case of homogenous mixtures of Class 3 containing water, the quantities specified relate only to the substance of Class 3 contained in those mixtures.

<sup>b</sup> For Class 5.2 these quantities of substances may be packed together with other articles or substances, provided they will not interact dangerously in the event of leakage.

3.4.7

Overpacks containing packages conforming to 3.4.3, 3.4.4 or 3.4.5 shall be marked, as required by 3.4.4 (c) for each item of dangerous goods contained in the overpack, unless markings representative of all dangerous goods contained in the overpack are visible.



## **PART 4**

### **Packing and tank provisions**

## CHAPTER 4.1

USE OF PACKAGINGS, INCLUDING INTERMEDIATE  
BULK CONTAINERS (IBCs) AND LARGE PACKAGINGS**4.1.1 General provisions for the packing of dangerous goods in packagings, including IBCs and large packagings**

*NOTE: The general provisions of this section only apply to the packing of goods of Classes 2, 6.2 and 7 as indicated in 4.1.1.16 (Class 2), 4.1.8.2 (Class 6.2), 4.1.9.1.5 (Class 7) and in the applicable packing instructions of 4.1.4 (packing instructions P201 and P202 for Class 2 and P621, IBC620 and LP621 for Class 6.2).*

4.1.1.1 Dangerous goods shall be packed in good quality packagings, including IBCs and large packagings, which shall be strong enough to withstand the shocks and loadings normally encountered during carriage, including trans-shipment between transport units and between transport units and warehouses as well as any removal from a pallet or overpack for subsequent manual or mechanical handling. Packagings, including IBCs and large packagings, shall be constructed and closed so as to prevent any loss of contents when prepared for transport which might be caused under normal conditions of transport, by vibration, or by changes in temperature, humidity or pressure (resulting from altitude, for example). Packagings, including IBCs and large packagings, shall be closed in accordance with the information provided by the manufacturer. No dangerous residue shall adhere to the outside of packagings, IBCs and large packagings during carriage. These provisions apply, as appropriate, to new, reused, reconditioned or remanufactured packagings and to new, reused, repaired or remanufactured IBCs, and to new or reused large packagings.

4.1.1.2 Parts of packagings, including IBCs and large packagings, which are in direct contact with dangerous goods:

- (a) shall not be affected or significantly weakened by those dangerous goods; and
- (b) shall not cause a dangerous effect e.g. catalysing a reaction or reacting with the dangerous goods.

Where necessary, they shall be provided with a suitable inner coating or treatment.

4.1.1.3 Unless provided elsewhere in ADR, each packaging, including IBCs and large packagings, except inner packagings, shall conform to a design type successfully tested in accordance with the requirements of 6.1.5, 6.3.2, 6.5.4 or 6.6.5, as applicable. The packagings for which the test is not required are mentioned under 6.1.1.3.

4.1.1.4 When filling packagings, including IBCs and large packagings, with liquids, sufficient ullage (outage) shall be left to ensure that neither leakage nor permanent distortion of the packaging occurs as a result of an expansion of the liquid caused by temperatures likely to occur during transport. Unless specific requirements are prescribed, liquids shall not completely fill a packaging at a temperature of 55 °C. However, sufficient ullage shall be left in an IBC to ensure that at the mean bulk temperature of 50 °C it is not filled to more than 98% of its water capacity. For a filling temperature of 15 °C, the maximum degree of filling shall be determined as follows, unless otherwise provided, either:

(a)

Boiling point (initial boiling point) of the substance in °C	<60	≥60 <100	≥100 <200	≥200 <300	≥300
Degree of filling as a percentage of the capacity of the packaging	90	92	94	96	98

or

(b) degree of filling =  $\frac{98}{1 + \alpha(50 - t_F)}$  % of the capacity of the packaging.

In this formula  $\alpha$  represents the mean coefficient of cubic expansion of the liquid substance between 15 °C and 50 °C; that is to say, for a maximum rise in temperature of 35 °C,

$\alpha$  is calculated according to the formula:  $\alpha = \frac{d_{15} - d_{50}}{35 \times d_{50}}$

$d_{15}$  and  $d_{50}$  being the relative densities<sup>1</sup> of the liquid at 15 °C and 50 °C and  $t_F$  the mean temperature of the liquid at the time of filling.

4.1.1.4.1 For air transport, packagings intended to contain liquids shall also be capable of withstanding a pressure differential without leakage as specified in the international regulations for air transport.

4.1.1.5 Inner packagings shall be packed in an outer packaging in such a way that, under normal conditions of carriage, they cannot break, be punctured or leak their contents into the outer packaging. Inner packagings that are liable to break or be punctured easily, such as those made of glass, porcelain or stoneware or of certain plastics materials, etc., shall be secured in outer packagings with suitable cushioning material. Any leakage of the contents shall not substantially impair the protective properties of the cushioning material or of the outer packaging.

4.1.1.6 Dangerous goods shall not be packed together in the same outer packaging or in large packagings, with dangerous or other goods if they react dangerously with each other and cause:

- (a) combustion or evolution of considerable heat;
- (b) evolution of flammable, asphyxiant, oxidizing or toxic gases;
- (c) the formation of corrosive substances; or
- (d) the formation of unstable substances.

*NOTE: For mixed packing special provisions, see 4.1.10.*

4.1.1.7 The closures of packagings containing wetted or diluted substances shall be such that the percentage of liquid (water, solvent or phlegmatizer) does not fall below the prescribed limits during transport.

4.1.1.7.1 Where two or more closure systems are fitted in series on an IBC, that nearest to the substance being carried shall be closed first.

<sup>1</sup> Relative density ( $d$ ) is considered to be synonymous with specific gravity (SG) and will be used throughout this Chapter.

- 4.1.1.8 Liquids may only be filled into inner packagings which have an appropriate resistance to internal pressure that may be developed under normal conditions of carriage. Where pressure may develop in a package by the emission of gas from the contents (as a result of temperature increase or other cause), the packaging may be fitted with a vent, provided that the gas emitted will not cause danger on account of its toxicity, its flammability, the quantity released, etc. A venting device shall be fitted if dangerous overpressure may develop due to normal decomposition of substances. The vent shall be so designed that, when the packaging is in the attitude in which it is intended to be carried, leakages of liquid and the penetration of foreign matter are prevented under normal conditions of carriage.
- 4.1.1.9 New, remanufactured or reused packagings, including IBCs and large packagings, or reconditioned packagings and repaired IBCs shall be capable of passing the tests prescribed in 6.1.5, 6.3.2, 6.5.4 or 6.6.5, as applicable. Before being filled and handed over for carriage, every packaging, including IBCs and large packagings, shall be inspected to ensure that it is free from corrosion, contamination or other damage and every IBC shall be inspected with regard to the proper functioning of any service equipment. Any packaging which shows signs of reduced strength as compared with the approved design type shall no longer be used or shall be so reconditioned, that it is able to withstand the design type tests. Any IBC which shows signs of reduced strength as compared with the tested design type shall no longer be used or shall be so repaired that it is able to withstand the design type tests.
- 4.1.1.10 Liquids shall be filled only into packagings, including IBCs, which have an appropriate resistance to the internal pressure that may develop under normal conditions of carriage. Packagings and IBCs marked with the hydraulic test pressure prescribed in 6.1.3.1 (d) and 6.5.2.2.1, respectively shall be filled only with a liquid having a vapour pressure:
- such that the total gauge pressure in the packaging or IBC (i.e. the vapour pressure of the filling substance plus the partial pressure of air or other inert gases, less 100 kPa) at 55 °C, determined on the basis of a maximum degree of filling in accordance with 4.1.1.4 and a filling temperature of 15 °C, will not exceed two-thirds of the marked test pressure; or
  - at 50 °C less than four-sevenths of the sum of the marked test pressure plus 100 kPa; or
  - at 55 °C less than two-thirds of the sum of the marked test pressure plus 100 kPa.

Metal IBCs intended for the carriage of liquids shall not be used to carry liquids having a vapour pressure of more than 110kPa (1.1 bar) at 50 °C or 130kPa (1.3 bar) at 55 °C.

EXAMPLES OF REQUIRED MARKED TEST PRESSURES FOR PACKAGINGS,  
INCLUDING IBCs, CALCULATED AS IN 4.1.1.10 (c)

UN No	Name	Class	Packing group	$V_{p55}$ (kPa)	$V_{p55} \times 1.5$ (kPa)	$(V_{p55} \times 1.5)$ minus 100 (kPa)	Required minimum test pressure gauge under 6.1.5.5.4(c) (kPa)	Minimum test pressure (gauge) to be marked on the packaging (kPa)
2056	Tetrahydrofuran	3	II	70	105	5	100	100
2247	n-Decane	3	III	1.4	2.1	-97.9	100	100
1593	Dichloromethane	6.1	III	164	246	146	146	150
1155	Diethyl ether	3	I	199	299	199	199	250

**NOTE 1:** For pure liquids the vapour pressure at 55 °C ( $V_{p55}$ ) can often be obtained from scientific tables.

**NOTE 2:** The table refers to the use of 4.1.1.10 (c) only, which means that the marked test pressure shall exceed 1.5 times the vapour pressure at 55 °C less 100 kPa. When, for example, the test pressure for n-decane is determined according to 6.1.5.5.4 (a), the minimum marked test pressure may be lower.

**NOTE 3:** For diethyl ether the required minimum test pressure under 6.1.5.5.5 is 250 kPa.

- 4.1.1.11 Empty packagings, including IBCs and large packagings, that have contained a dangerous substance are subject to the same requirements as those for a filled packaging, unless adequate measures have been taken to nullify any hazard.
- 4.1.1.12 Every packagings, including IBCs, intended to contain liquids shall successfully undergo a suitable leakproofness test, and be capable of meeting the appropriate test level indicated in 6.1.5.4.3 or 6.5.4.7 for the various types of IBCs:
- (a) before it is first used for carriage;
  - (b) after remanufacturing or reconditioning of any packaging, before it is re-used for carriage;
  - (c) after the repair or remanufacture of any IBC, before it is reused for carriage.

For this test the packaging, or IBC, need not have its closures fitted. The inner receptacle of a composite packaging or IBC may be tested without the outer packaging, provided the test results are not affected. This test is not required for:

- inner packagings of combination packagings or large packagings;
- inner receptacles of composite packagings (glass, porcelain or stoneware) marked with the symbol "RID/ADR" in accordance with 6.1.3.1 (a) (ii);
- light gauge metal packagings marked with the symbol "RID/ADR" in accordance with 6.1.3.1 (a) (ii).

- 4.1.1.13 Packagings, including IBCs, used for solids which may become liquid at temperatures likely to be encountered during carriage shall also be capable of containing the substance in the liquid state.
- 4.1.1.14 Packagings, including IBCs, used for powdery or granular substances shall be sift-proof or shall be provided with a liner.
- 4.1.1.15 For plastics drums and jerricans, rigid plastics IBCs and composite IBCs with plastics inner receptacles, unless otherwise approved by the competent authority, the period of use permitted for the carriage of dangerous substances shall be five years from the date of manufacture of the receptacles, except where a shorter period of use is prescribed because of the nature of the substance to be carried.
- 4.1.1.16 Packagings, including IBCs and large packagings, marked in accordance with 6.1.3, 6.2.5.7, 6.2.5.8, 6.3.1, 6.5.2 or 6.6.3 but which were approved in a State which is not a Contracting Party to ADR may nevertheless be used for carriage under ADR.
- 4.1.1.17 **Explosives, self-reactive substances and organic peroxides**

Unless specific provision to the contrary is made in ADR, the packagings, including IBCs and large packagings, used for goods of Class 1, self-reactive substances of Class 4.1 and

organic peroxides of Class 5.2 shall comply with the provisions for the medium danger group (packing group II).

#### **4.1.1.18 Use of salvage packagings**

4.1.1.18.1 Damaged, defective, leaking or non-conforming packages, or dangerous goods that have spilled or leaked may be carried in salvage packagings mentioned in 6.1.5.1.11. This does not prevent the use of a bigger size packaging of appropriate type and performance level under the conditions of 4.1.1.18.2.

4.1.1.18.2 Appropriate measures shall be taken to prevent excessive movement of the damaged or leaking packages within a salvage packaging. When the salvage packaging contains liquids, sufficient inert absorbent material shall be added to eliminate the presence of free liquid.

#### **4.1.2 Additional general provisions for the use of IBCs**

4.1.2.1 When IBCs are used for the carriage of liquids with a flash-point of 61 °C (closed cup) or lower, or of powders liable to dust explosion, measures shall be taken to prevent a dangerous electrostatic discharge.

4.1.2.2 The periodic testing and inspection requirements for IBCs are provided in Chapter 6.5. An IBC shall not be filled and offered for carriage after the date of expiry of the last periodic test required by 6.5.4.14.3, or the date of expiry of the last periodic inspection required by 6.5.1.6.4. However, an IBC filled prior to the date of expiry of the last periodic test or inspection may be carried for a period not to exceed three months beyond the date of expiry of the last periodic test or inspection. In addition, an IBC may be carried after the date of expiry of the last periodic test or inspection:

- (a) after emptying but before cleaning, for purposes of performing the required test or inspection prior to refilling; and
- (b) unless otherwise approved by the competent authority, for a period not to exceed six months beyond the date of expiry of the last periodic test or inspection in order to allow the return of dangerous goods or residues for proper disposal or recycling.

*Note: For the particulars in the transport document, see 5.4.1.1.11.*

4.1.2.3 IBCs of type 31HZ2 shall be filled to at least 80% of the volume of the outer casing.

4.1.2.4 Except for routine maintenance of metal, rigid plastics and composite IBCs performed by the owner of the IBC, whose State and name or authorized symbol is durably marked on the IBC, the party performing routine maintenance shall durably mark the IBC near the manufacturer's UN design type marking to show:

- (a) The State in which the routine maintenance was carried out; and
- (b) The name or authorized symbol of the party performing the routine maintenance.

#### **4.1.3 General provisions concerning packing instructions**

4.1.3.1 Packing instructions applicable to dangerous goods of Classes 1 to 9 are specified in Section 4.1.4. They are subdivided in three sub-sections depending on the type of packagings to which they apply:

- Sub-section 4.1.4.1 for packagings other than IBCs and large packagings; these packing instructions are designated by an alphanumeric code starting with the letter "P" or "R" for packagings specific to RID and ADR;
- Sub-section 4.1.4.2 for IBCs; these are designated by an alphanumeric code starting with the letters "IBCs";
- Sub-section 4.1.4.3 for large packagings; these are designated by an alphanumeric code starting with the letters "LP".

Generally, packing instructions specify that the general provisions of 4.1.1, 4.1.2 or 4.1.3, as appropriate, are applicable. They may also require compliance with the special provisions of Sections 4.1.5, 4.1.6, 4.1.7, 4.1.8 or 4.1.9 when appropriate. Special packing provisions may also be specified in the packing instruction for individual substances or articles. They are also designated by an alphanumeric code comprising the letters:

- "PP" for packagings other than IBCs and large packagings, or "RR" for special provisions specific to RID and ADR;
- "B" for IBCs or "BB" for special packing provisions specific to RID and ADR;
- "L" for large packagings.

Unless otherwise specified, each packaging shall conform to the applicable requirements of Part 6. Generally packing instructions do not provide guidance on compatibility and the user shall not select a packaging without checking that the substance is compatible with the packaging material selected (e.g. glass receptacles are unsuitable for most fluorides). Where glass receptacles are permitted in the packing instructions porcelain, earthenware and stoneware packagings are also allowed.

- 4.1.3.2 Column (8) of Table A of Chapter 3.2 shows for each article or substance the packing instruction(s) that shall be used. Columns (9a) and (9b) indicate the special packing provisions and the mixed packing provisions (see 4.1.10) applicable to specific substances or articles.
- 4.1.3.3 Each packing instruction shows, where applicable, the acceptable single and combination packagings. For combination packagings, the acceptable outer packagings, inner packagings and when applicable the maximum quantity permitted in each inner or outer packaging, are shown. Maximum net mass and maximum capacity are as defined in 1.2.1.
- 4.1.3.4 The following packagings shall not be used when the substances being carried are liable to become liquid during carriage:

**Packagings**

- |                       |   |
|-----------------------|---|
| Drums:                | 1D and 1G   |
| Boxes:                | 4A, 4B, 4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2                         |
| Bags:                 | 5L1, 5L2, 5L3, 5H1, 5H2, 5H3, 5H4, 5M1 and 5M2                    |
| Composite packagings: | 6HC, 6HD2, 6HG1, 6HG2, 6HD1, 6PC, 6PD1, 6PD2, 6PG1, 6PG2 and 6PH1 |

## IBCs

For substances of packing group I: All types of IBC

For substances of packing groups II and III:

Wooden: 11C, 11D and 11F

Fibreboard: 11G

Flexible: 13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 and 13M2

Composite: 11HZ2 and 21HZ2

For the purposes of this paragraph, substances and mixtures of substances having a melting point equal to or less than 45 °C shall be treated as solids liable to become liquid during transport.

- 4.1.3.5 Where the packing instructions in this Chapter authorize the use of a particular type of outer packaging in a combination packaging (e.g. 4G), packagings bearing the same packaging identification code followed by the letters "V", "U" or "W" marked in accordance with the requirements of Part 6 (e.g. 4GV, 4GU or 4GW) may also be used under the same conditions and limitations applicable to the use of that type of outer packaging according to the relevant packing instructions. For example, a combination packaging marked with the packaging code "4GV" may be used whenever a combination packaging marked "4G" is authorized, provided the requirements in the relevant packing instruction regarding types of inner packagings and quantity limitations are respected.
- 4.1.3.6 All cylinders, tubes, pressure drums, and bundles of cylinders conforming to packing instruction P200 and to the construction requirements of Chapter 6.2 are authorized for the carriage of any liquid or solid substance assigned to packing instructions P001 or P002 unless otherwise indicated in the packing instruction or by a special provision in Column (9a) of Table A of Chapter 3.2. The capacity of tubes and bundles of cylinders shall not exceed 1000 litres
- 4.1.3.7 Packagings or IBCs not specifically authorized in the applicable packing instruction shall not be used for the carriage of a substance or article unless specifically allowed under a temporary derogation agreed between Contracting Parties in accordance with 1.5.1.
- 4.1.3.8 *Unpackaged articles other than Class 1 articles*
- 4.1.3.8.1 Where large and robust articles cannot be packaged in accordance with the requirements of Chapters 6.1 or 6.6 and they have to be carried empty, uncleaned and unpackaged, the competent authority of the country of origin<sup>2</sup> may approve such carriage. In doing so the competent authority shall take into account that:
- (a) Large and robust articles shall be strong enough to withstand the shocks and loadings normally encountered during carriage including trans-shipment between transport units and between transport units and warehouses, as well as any removal from a pallet for subsequent manual or mechanical handling;
  - (b) All closures and openings shall be sealed so that there can be no loss of contents which might be caused under normal conditions of carriage, by vibration, or by changes in temperature, humidity or pressure (resulting from altitude, for example). No dangerous residue shall adhere to the outside of the large and robust articles;

<sup>2</sup> If the country of origin is not a contracting party to ADR, the competent authority of the first country contracting party to the ADR reached by the consignment.



- (c) Parts of large and robust articles, which are in direct contact with dangerous goods:
  - (i) shall not be affected or significantly weakened by those dangerous goods; and
  - (ii) shall not cause a dangerous effect e.g. catalysing a reaction or reacting with the dangerous goods;
- (d) Large and robust articles containing liquids shall be stowed and secured to ensure that neither leakage nor permanent distortion of the article occurs during carriage;
- (e) They shall be fixed in cradles or crates or other handling devices or to the transport unit or container in such a way that they will not become loose during normal conditions of carriage.

4.1.3.8.2 Unpackaged articles approved by the competent authority in accordance with the provisions of 4.1.3.8.1 shall be subject to the consignment procedures of Part 5. In addition the consignor of such articles shall ensure that a copy of any such approval is attached to the transport document.

*NOTE: A large and robust article may include flexible fuel containment systems, military equipment, machinery or equipment containing dangerous goods above the limited quantities according to 3.4.6."*

#### 4.1.4 List of packing instructions

*NOTE: Although the following packing instructions use the same numbering system as used in the IMDG Code and the UN Model Regulations, readers should be aware that some of the details may be different in the case of ADR.*

4.1.4.1 *Packing instructions concerning the use of packagings (except IBCs and large packagings)*

P001		PACKING INSTRUCTION (LIQUIDS)			P001
The following packagings are authorized provided the general provisions of 4.1.1 and 4.1.3 are met:					
Combination packagings:		Maximum capacity/Net mass (see 4.1.3.3.)			
Inner packagings	Outer packagings	Packing group I	Packing group II	Packing group III	
Glass 10 l	<b>Drums</b>				
Plastics 30 l	steel (1A2)	250 kg	400 kg	400 kg	
Metal 40 l	aluminium (1B2)	250 kg	400 kg	400 kg	
	metal other than steel or aluminium (1N2)	250 kg	400 kg	400 kg	
	plastics (1H2)	250 kg	400 kg	400 kg	
	plywood (1D)	150 kg	400 kg	400 kg	
	fibre (1G)	75 kg	400 kg	400 kg	
	<b>Boxes</b>				
	steel (4A)	250 kg	400 kg	400 kg	
	aluminium (4B)	250 kg	400 kg	400 kg	
	natural wood (4C1, 4C2)	150 kg	400 kg	400 kg	
	plywood (4D)	150 kg	400 kg	400 kg	
	reconstituted wood (4F)	75 kg	400 kg	400 kg	
	fibreboard (4G)	75 kg	400 kg	400 kg	
	expanded plastics (4H1)	60 kg	60 kg	60 kg	
	solid plastics (4H2)	150 kg	400 kg	400 kg	
	<b>Jerricans</b>				
	steel (3A2)	120 kg	120 kg	120 kg	
	aluminium (3B2)	120 kg	120 kg	120 kg	
	plastics (3H2)	120 kg	120 kg	120 kg	
<b>Single packagings:</b>					
<b>Drums</b>					
	steel, non-removable head (1A1)	250 l	450 l	450 l	
	steel, removable head (1A2)	250 l <sup>a</sup>	450 l	450 l	
	aluminium, non-removable head (1B1)	250 l	450 l	450 l	
	aluminium, removable head (1B2)	250 l <sup>a</sup>	450 l	450 l	
	metal other than steel or aluminium, non-removable head (1N1)	250 l	450 l	450 l	
	metal other than steel or aluminium, removable head (1N2)	250 l <sup>a</sup>	450 l	450 l	
	plastics, non-removable head (1H1)	250 l	450 l	450 l	
	plastics, removable head (1H2)	250 l <sup>a</sup>	450 l	450 l	
<b>Jerricans</b>					
	steel, non-removable head (3A1)	60 l	60 l	60 l	
	steel, removable head (3A2)	60 l <sup>a</sup>	60 l	60 l	
	aluminium, non-removable head (3B1)	60 l	60 l	60 l	
	aluminium, removable head (3B2)	60 l <sup>a</sup>	60 l	60 l	
	plastics, non-removable head (3H1)	60 l	60 l	60 l	
	plastics, removable head (3H2)	60 l <sup>a</sup>	60 l	60 l	

<sup>a</sup> Only substances with a viscosity of more than 2 680 mm<sup>2</sup>/s are authorized.

P001 PACKING INSTRUCTION (LIQUIDS) (cont'd) P001			
Single packagings (cont'd)	Maximum capacity/Net mass (see 4.1.3.3.)		
Composite packagings	Packing group I	Packing group II	Packing group III
plastics receptacle with outer steel or aluminium drum (6HA1, 6HB1)	250 l	250 l	250 l
plastics receptacle with outer fibre, plastics or plywood drum (6HG1, 6HH1, 6HD1)	120 l	250 l	250 l
plastics receptacle with outer steel or aluminium crate or box or plastics receptacle with outer wooden, plywood, fibreboard or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	60 l	60 l	60 l
glass receptacle with outer steel, aluminium, fibreboard, plywood, solid plastics or expanded plastics drum (6PA1, 6PB1, 6PG1, 6PD1, 6PH1 or 6PH2) or with outer steel or aluminium crate or box or with outer wooden or fibreboard box or with outer wickerwork hamper (6PA2, 6PB2, 6PC, 6PG2 or 6PD2)	60 l	60 l	60 l
<b>Additional requirement:</b> For substances of Class 3, packing group III, which give off small quantities of carbon dioxide or nitrogen, the packagings shall be vented.			
<b>Special packing provisions:</b>			
<p><b>PP1</b> For UN Nos. 1133, 1210, 1263 and 1866, substances of packing groups II and III may be carried in quantities of 5 litres or less per packaging in metal or plastics packagings which are not required to meet the performance tests of Chapter 6.1, provided that such packagings are carried:</p> <p>(a) in palletized loads, a pallet box or unit load device, e.g. individual packagings placed or stacked and secured by strapping, shrink or stretch-wrapping or other suitable means to a pallet; or</p> <p>(b) as inner packagings of combination packagings with a maximum net mass of 40 kg.</p>			
<b>PP2</b> For UN Nos. 3065 and 1170, wooden barrels (2C1 and 2C2) may be used.			
<b>PP4</b> For UN No. 1774, packagings shall meet the packing group II performance level.			
<b>PP5</b> For UN No. 1204, packagings shall be so constructed that explosion is not possible by reason of increased internal pressure. Cylinders, tubes and pressure drums shall not be used for these substances.			
<b>PP6</b> For UN Nos. 1851 and 3248, the maximum net quantity per package shall be 5 l.			
<b>PP10</b> For UN No. 1791, packing group II, the packaging shall be vented.			
<b>PP31</b> For UN No. 1131, packagings shall be hermetically sealed.			
<b>PP33</b> For UN No. 1308, packing groups I and II, only combination packagings with a maximum gross mass of 75 kg allowed.			
<b>PP81</b> For UN No. 1790 with more than 60% but not more than 85% hydrofluoric acid and UN No. 2031 with more than 55% nitric acid, the permitted use of plastics drums and jerricans as single packagings shall be two years from their date of manufacture.			
<b>Special packing provisions specific to RID and ADR</b>			
<b>RR2</b> For UN No. 1261, removable head packagings are not permitted.			

P002		PACKING INSTRUCTION (SOLIDS)			P002
The following packagings are authorized provided the general provisions of 4.1.1 and 4.1.3 are met:					
Combination packagings:		Maximum net mass (see 4.1.3.3)			
Inner packagings	Outer packagings	Packing group I	Packing group II	Packing group III	
	<b>Drums</b>				
Glass 10 kg	steel (1A2)	400 kg	400 kg	400 kg	
Plastics <sup>a</sup> 50 kg	aluminium (1B2)	400 kg	400 kg	400 kg	
Metal 50 kg	metal, other than steel	400 kg	400 kg	400 kg	
Paper <sup>a, b, c</sup> 50 kg	or aluminium (1N2)				
Fibre <sup>a, b, c</sup> 50 kg	plastics (1H2)	400 kg	400 kg	400 kg	
	plywood (1D)	400 kg	400 kg	400 kg	
	fibre (1G)	400 kg	400 kg	400 kg	
<sup>a</sup> These inner packagings shall be sift-proof.	<b>Boxes</b>				
	steel (4A)	400 kg	400 kg	400 kg	
	aluminium (4B)	400 kg	400 kg	400 kg	
<sup>b</sup> These inner packagings shall not be used when the substances being carried may become liquid during carriage (see 4.1.3.4).	natural wood (4C1)	250 kg	400 kg	400 kg	
	natural wood with sift proof walls (4C2)	250 kg	400 kg	400 kg	
	plywood (4D)	250 kg	400 kg	400 kg	
	reconstituted wood (4F)	125 kg	400 kg	400 kg	
	fibreboard (4G)	125 kg	400 kg	400 kg	
	expanded plastics (4H1)	60 kg	60 kg	60 kg	
	solid plastics (4H2)	250 kg	400 kg	400 kg	
<sup>c</sup> These inner packagings shall not be used for substances of packing group I.	<b>Jerricans</b>				
	steel (3A2)	120 kg	120 kg	120 kg	
	aluminium (3B2)	120 kg	120 kg	120 kg	
	plastics (3H2)	120 kg	120 kg	120 kg	
<b>Single packagings:</b>					
<b>Drums</b>					
	steel (1A1 or 1A2 <sup>d</sup> )	400 kg	400 kg	400 kg	
	aluminium (1B1 or 1B2 <sup>d</sup> )	400 kg	400 kg	400 kg	
	metal, other than steel or aluminium (1N1 or 1N2 <sup>d</sup> )	400 kg	400 kg	400 kg	
	plastics (1H1 or 1H2 <sup>d</sup> )	400 kg	400 kg	400 kg	
	fibre (1G) <sup>e</sup>	400 kg	400 kg	400 kg	
	plywood (1D) <sup>e</sup>	400 kg	400 kg	400 kg	
<b>Jerricans</b>					
	steel (3A1 or 3A2 <sup>d</sup> )	120 kg	120 kg	120 kg	
	aluminium (3B1 or 3B2 <sup>d</sup> )	120 kg	120 kg	120 kg	
	plastics (3H1 or 3H2 <sup>d</sup> )	120 kg	120 kg	120 kg	

<sup>d</sup> These packagings shall not be used for substances of packing group I that may become liquid during carriage (see 4.1.3.4).

<sup>e</sup> These packagings shall not be used when substances being carried may become liquid during carriage (see 4.1.3.4).

P002 PACKING INSTRUCTION (SOLIDS) (cont'd)		P002		
		Maximum net mass (see 4.1.3.3.)		
Single packagings (cont'd):		Packing group I	Packing group II	Packing group III
<b>Boxes</b>				
steel (4A) <sup>e</sup>	Not allowed		400 kg	400 kg
aluminium (4B) <sup>e</sup>	Not allowed		400 kg	400 kg
natural wood (4C1) <sup>e</sup>	Not allowed		400 kg	400 kg
plywood (4D) <sup>e</sup>	Not allowed		400 kg	400 kg
reconstituted wood (4F) <sup>e</sup>	Not allowed		400 kg	400 kg
natural wood with sift-proof walls (4C2) <sup>e</sup>	Not allowed		400 kg	400 kg
fibreboard (4G) <sup>e</sup>	Not allowed		400 kg	400 kg
solid plastics (4H2) <sup>e</sup>	Not allowed		400 kg	400 kg
<b>Bags</b>				
bags (5H3, 5H4, 5L3, 5M2) <sup>e</sup>	Not allowed		50 kg	50 kg
<b>Composite packagings</b>				
plastics receptacle with outer steel, aluminium, plywood, fibre or plastics drum (6HA1, 6HB1, 6HG1 <sup>e</sup> , 6HD1 <sup>e</sup> , or 6HH1)	400 kg		400 kg	400 kg
plastics receptacle with outer steel or aluminium crate or box, wooden box, plywood box, fibreboard box or solid plastics box (6HA2, 6HB2, 6HC, 6HD2 <sup>e</sup> , 6HG2 <sup>e</sup> or 6HH2)	75 kg		75 kg	75 kg
glass receptacle with outer steel, aluminium plywood or fibre drum (6PA1, 6PB1, 6PD1 <sup>e</sup> or 6PG1 <sup>e</sup> ) or with outer steel or aluminium crate or box or with outer wooden, or fibreboard box or with outer wickerwork hamper (6PA2, 6PB2, 6PC, 6PD2 <sup>e</sup> , or 6PG2 <sup>e</sup> ) or with outer solid plastics or expanded plastics packaging (6PH2 or 6PH1 <sup>e</sup> )	75 kg		75 kg	75 kg
<sup>e</sup> These packagings shall not be used when the substances being carried may become liquid during carriage (see 4.1.3.4).				
<b>Special packing provisions:</b>				
<b>PP6</b> For UN No. 3249, the maximum net mass per package shall be 5 kg.				
<b>PP7</b> For UN No. 2000, celluloid may also be transported unpacked on pallets, wrapped in plastic film and secured by appropriate means, such as steel bands as a full load in closed vehicles or containers. Each pallet shall not exceed 1000 kg.				
<b>PP8</b> For UN No. 2002, packagings shall be so constructed that explosion is not possible by reason of increased internal pressure. Cylinders, tubes and pressure drums shall not be used for these substances.				
<b>PP9</b> For UN Nos. 3175, 3243 and 3244, packagings shall conform to a design type that has passed a leakproofness test at the packing group II performance level.				
<b>PP11</b> For UN No. 1309, packing group III, and UN No. 1362, 5H1, 5L1 and 5M1 bags are allowed if they are overpacked in plastic bags and are wrapped in shrink or stretch wrap on pallets.				
<b>PP12</b> For UN Nos. 1361, 2213 and UN No. 3077, 5H1, 5L1 and 5M1 bags are allowed when carried in closed vehicles or containers.				
<b>PP13</b> For articles classified under UN No. 2870, only combination packagings meeting the packing group I performance level are authorized.				
<b>PP14</b> For UN Nos. 2211, 2698 and 3314, packagings are not required to meet the performance tests in Chapter 6.1.				
<b>PP15</b> For UN Nos. 1324 and 2623, packagings shall meet the packing group III performance level.				
<b>PP20</b> For UN No. 2217, any sift-proof, tearproof receptacle may be used.				
<b>PP30</b> For UN No. 2471, paper or fibre inner packagings are not permitted.				
<b>PP34</b> For UN No. 2969 (as whole beans), 5H1, 5L1 and 5M1 bags are permitted.				
<b>PP37</b> For UN Nos. 2590 and 2212, 5M1 bags are permitted. Packages shall be carried in closed vehicles or containers or as stretch or shrink-wrapped unit loads.				
<b>PP38</b> For UN No. 1309, packing group II, bags are permitted only in closed vehicles or containers.				

P003	PACKING INSTRUCTION	P003
<p>Dangerous goods shall be placed in suitable outer packagings. The packagings shall meet the provisions of 4.1.1.1, 4.1.1.2, 4.1.1.4, 4.1.1.8 and 4.1.3 and be so designed that they meet the construction requirements of 6.1.4. Outer packagings constructed of suitable material of adequate strength and design in relation to the packaging capacity and its intended use shall be used. Where this packing instruction is used for the transport of articles or inner packagings of combination packagings, the packaging shall be designed and constructed to prevent inadvertent discharge of articles during normal conditions of carriage.</p>		
<p><b>Special packing provisions:</b></p>		
<p><b>PP16</b> For UN No. 2800, batteries shall be protected from short circuits and shall be securely packed in strong outer packagings.</p> <p><i>NOTE 1: Non-spillable batteries which are an integral part of, and necessary for, the operation of mechanical or electronic equipment shall be securely fastened in the battery holder on the equipment and protected in such a manner as to prevent damage and short circuits.</i></p> <p><i>NOTE 2: For used batteries (UN No. 2800), see P801a.</i></p>		
<p><b>PP19</b> For UN Nos. 1364 and 1365, carriage as bales is authorized.</p>		
<p><b>PP20</b> For UN Nos. 1363, 1386, 1408 and 2793 any sift-proof, tearproof receptacle may be used.</p>		
<p><b>PP32</b> UN Nos. 2857 and 3358 may be carried unpackaged, in crates or in appropriate overpacks.</p>		

P099	PACKING INSTRUCTION	P099
<p>Only packagings which are approved by the competent authority may be used.</p>		

P101	PACKING INSTRUCTION	P101
<p>Only packagings which are approved by the competent authority of the country of origin may be used. If the country of origin is not a Contracting Party to the ADR, the packaging shall be approved by the competent authority of the first country Contracting Party to ADR reached by the consignment. The State's distinguishing sign for motor vehicles in international traffic of the country for which the authority acts, shall be marked on the transport documents as follows:</p> <p style="text-align: center;"><b>"Packaging approved by the competent authority of..."</b> (see 5.4.1.2.1 (e))</p>		

P110(a)	PACKING INSTRUCTION P110(a)	P110(a)
<p><b>RESERVED</b></p>		
<p><i>NOTE: This packing instruction in the UN Model Regulations is not admitted for carriage under ADR.</i></p>		

P110(b)		PACKING INSTRUCTION		P110(b)
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:				
<b>Inner packagings and arrangements</b>		<b>Intermediate packagings and arrangements</b>		<b>Outer packagings and arrangements</b>
<b>Receptacles</b> metal wood rubber, conductive plastics, conductive  <b>Bags</b> rubber, conductive plastics, conductive		<b>Dividing partitions</b> metal wood plastics fibreboard		<b>Boxes</b> natural wood, sift-proof wall (4C2) plywood (4D) reconstituted wood (4F)
<b>Special packing provision:</b>				
<b>PP42</b> For UN Nos. 0074, 0113, 0114, 0129, 0130, 0135 and 0224, the following conditions shall be met:				
(a) Inner packagings shall not contain more than 50 g of explosive substance (quantity corresponding to dry substance);				
(b) Compartments between dividing partitions shall not contain more than one inner packaging, firmly fitted; and				
(c) The outer packaging may be partitioned into up to 25 compartments.				

P111		PACKING INSTRUCTION		P111
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:				
<b>Inner packagings and arrangements</b>		<b>Intermediate packagings and arrangements</b>		<b>Outer packagings and arrangements</b>
<b>Bags</b> paper, waterproofed plastics textile, rubberized  <b>Sheets</b> plastics textile, rubberized		Not necessary		<b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibreboard (1G) plastics, removable head (1H2)
<b>Special packing provision:</b>				
<b>PP43</b> For UN No. 0159, inner packagings are not required when metal (1A2 or 1B2) or plastics (1H2) drums are used as outer packagings.				

P112(a)	PACKING INSTRUCTION (Solid wetted, 1.1D)		P112(a)
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<b>Inner packagings and arrangements</b>  <b>Bags</b> paper, multiwall, water resistant plastics textile textile, rubberized woven plastics  <b>Receptacles</b> metal plastics	<b>Intermediate packagings and arrangements</b>  <b>Bags</b> plastics textile, plastic coated or lined  <b>Receptacles</b> metal plastics	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)	
<b>Additional requirement:</b>  Intermediate packagings are not required if leakproof removable head drums are used as the outer packaging.			
<b>Special packing provisions:</b>  <b>PP26</b> For UN Nos. 0004, 0076, 0078, 0154, 0219 and 0394, packagings shall be lead free.  <b>PP45</b> For UN Nos. 0072 and 0226, intermediate packagings are not required.			



P112(b)	<b>PACKING INSTRUCTION</b> (Solid dry, other than powder 1.1D)		P112(b)
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<b>Inner packagings and arrangements</b>	<b>Intermediate packagings and arrangements</b>	<b>Outer packagings and arrangements</b>	
<b>Bags</b> paper, kraft paper, multiwall, water resistant plastics textile textile, rubberized woven plastics	<b>Bags (for UN No. 0150 only)</b> plastics textile, plastic coated or lined	<b>Bags</b> woven plastics, sift-proof (5H2) woven plastics, water-resistant (5H3) plastics, film (5H4) textile, sift-proof (5L2) textile, water resistant (5L3) paper, multiwall, water resistant (5M2)  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)	
<b>Special packing provisions:</b>			
PP26 For UN Nos. 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings shall be lead free.			
PP46 For UN Nos. 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg.			
PP47 For UN No. 0222, inner packagings are not required when the outer packaging is a bag.			

P112(c)	PACKING INSTRUCTION (Solid dry powder 1.1D)		P112(c)
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<b>Inner packagings and arrangements</b>  <b>Bags</b> paper, multiwall, water resistant plastics woven plastics  <b>Receptacles</b> fibreboard metal plastics wood	<b>Intermediate packagings and arrangements</b>  <b>Bags</b> paper, multiwall, water resistant with inner lining plastics  <b>Receptacles</b> metal plastics	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)	
<b>Additional requirements:</b>  1. Inner packagings are not required if drums are used as the outer packaging.  2. The packaging shall be sift-proof.			
<b>Special packing provisions:</b>  <b>PP26</b> For UN Nos. 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings shall be lead free.  <b>PP46</b> For UN No. 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg.  <b>PP48</b> For UN No. 0504, metal packagings shall not be used.			

P113	PACKING INSTRUCTION		P113
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<b>Inner packagings and arrangements</b>  <b>Bags</b> paper plastics textile, rubberized  <b>Receptacles</b> fibreboard metal plastics wood	<b>Intermediate packagings and arrangements</b>  Not necessary	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)	
<b>Additional requirement:</b>			
The packaging shall be sift-proof.			
<b>Special packing provisions:</b>			
PP49 For UN Nos. 0094 and 0305, no more than 50 g of substance shall be packed in an inner packaging.			
PP50 For UN No. 0027, inner packagings are not necessary when drums are used as outer packagings.			
PP51 For UN No. 0028, paper kraft or waxed paper sheets may be used as inner packagings.			

P114(a)	PACKING INSTRUCTION (Solid wetted)		P114(a)
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<b>Inner packagings and arrangements</b>  <b>Bags</b> plastics textile woven plastics  <b>Receptacles</b> metal plastics	<b>Intermediate packagings and arrangements</b>  <b>Bags</b> plastics textile, plastic coated or lined  <b>Receptacles</b> metal plastics	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)	
<b>Additional requirement:</b>			
Intermediate packagings are not required if leakproof removable head drums are used as outer packagings.			
<b>Special packing provisions:</b>			
PP26 For UN Nos. 0077, 0132, 0234, 0235 and 0236, packagings shall be lead free.			
PP43 For UN No. 0342, inner packagings are not required when metal (1A2 or 1B2) or plastics (1H2) drums are used as outer packagings.			

P114(b)	<b>PACKING INSTRUCTION</b> (Solid dry)		P114(b)
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<b>Inner packagings and arrangements</b>  <b>Bags</b> paper, kraft plastics textile, sift-proof woven plastics, sift-proof  <b>Receptacles</b> fibreboard metal paper plastics woven plastics, sift-proof	<b>Intermediate packagings and arrangements</b>  Not necessary	<b>Outer packagings and arrangements</b>  <b>Boxes</b> natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)	
<b>Special packing provisions:</b>			
<b>PP26</b> For UN Nos. 0077, 0132, 0234, 0235 and 0236, packagings shall be lead free.			
<b>PP50</b> For UN Nos. 0160 and 0161, inner packagings are not required if drums are used as outer packagings.			
<b>PP52</b> For UN Nos. 0160 and 0161, when metal drums (1A2 or 1B2) are used as outer packagings, metal packagings shall be so constructed that the risk of explosion, by reason of increased internal pressure from internal or external causes is prevented.			

P115	PACKING INSTRUCTION		P115
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<b>Inner packagings and arrangements</b>  <b>Receptacles</b> plastics	<b>Intermediate packagings and arrangements</b>  <b>Bags</b> plastics in metal receptacles  <b>Drums</b> metal	<b>Outer packagings and arrangements</b>  <b>Boxes</b> natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)	
<b>Special packing provisions:</b>			
<b>PP45</b> For UN No. 0144, intermediate packagings are not required.			
<b>PP53</b> For UN Nos. 0075, 0143, 0495 and 0497, when boxes are used as outer packagings, inner packagings shall have taped screw cap closures and be not more than 5 litres capacity each. Inner packagings shall be surrounded with non-combustible absorbent cushioning materials. The amount of absorbent cushioning material shall be sufficient to absorb the liquid contents. Metal receptacles shall be cushioned from each other. Net mass of propellant is limited to 30 kg for each package when outer packagings are boxes.			
<b>PP54</b> For UN Nos. 0075, 0143, 0495 and 0497, when drums are used as outer packagings and when intermediate packagings are drums, they shall be surrounded with non-combustible cushioning material in a quantity sufficient to absorb the liquid contents. A composite packaging consisting of a plastics receptacle in a metal drum may be used instead of the inner and intermediate packagings. The net volume of propellant in each package shall not exceed 120 litres.			
<b>PP55</b> For UN No. 0144, absorbent cushioning material shall be inserted.			
<b>PP56</b> For UN No. 0144, metal receptacles may be used as inner packagings.			
<b>PP57</b> For UN Nos. 0075, 0143, 0495 and 0497, bags shall be used as intermediate packagings when boxes are used as outer packagings.			
<b>PP58</b> For UN Nos. 0075, 0143, 0495 and 0497, drums shall be used as intermediate packagings when drums are used as outer packagings.			
<b>PP59</b> For UN No. 0144, fibreboard boxes (4G) may be used as outer packagings.			
<b>PP60</b> For UN No. 0144, aluminium drums, removable head (1B2) shall not be used.			

P116	PACKING INSTRUCTION		P116
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<p><b>Inner packagings and arrangements</b></p> <p><b>Bags</b> paper, water and oil resistant plastics textile, plastic coated or lined woven plastics, sift-proof</p> <p><b>Receptacles</b> fibreboard, water resistant metal plastics wood, sift-proof</p> <p><b>Sheets</b> paper, water resistant paper, waxed plastics</p>	<p><b>Intermediate packagings and arrangements</b></p> <p>Not necessary</p>	<p><b>Outer packagings and arrangements</b></p> <p><b>Bags</b> woven plastics (5H1) paper, multiwall, water resistant (5M2) plastics, film (5H4) textile, sift-proof (5L2) textile, water resistant (5L3)</p> <p><b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)</p> <p><b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)</p> <p><b>Jerricans</b> steel, removable head (3A2) plastics, removable head (3H2)</p>	
<b>Special packing provisions:</b>			
<p><b>PP61</b> For UN Nos. 0082, 0241, 0331 and 0332, inner packagings are not required if leakproof removable head drums are used as outer packagings.</p>			
<p><b>PP62</b> For UN Nos. 0082, 0241, 0331 and 0332, inner packagings are not required when the explosive is contained in a material impervious to liquid.</p>			
<p><b>PP63</b> For UN No. 0081, inner packagings are not required when contained in rigid plastic which is impervious to nitric esters.</p>			
<p><b>PP64</b> For UN No. 0331, inner packagings are not required when bags (5H2), (5H3) or (5H4) are used as outer packagings.</p>			
<p><b>PP65</b> For UN Nos. 0082, 0241, 0331 and 0332, bags (5H2 or 5H3) may be used as outer packagings.</p>			
<p><b>PP66</b> For UN No. 0081, bags shall not be used as outer packagings.</p>			

P130		PACKING INSTRUCTION		P130
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:				
<b>Inner packagings and arrangements</b>	<b>Intermediate packagings and arrangements</b>	<b>Outer packagings and arrangements</b>		
Not necessary	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)		
<b>Special packing provision:</b>				
<b>PP67</b> The following applies to UN Nos. 0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 0243, 0244, 0245, 0246, 0254, 0280, 0281, 0286, 0287, 0297, 0299, 0300, 0301, 0303, 0321, 0328, 0329, 0344, 0345, 0346, 0347, 0362, 0363, 0370, 0412, 0424, 0425, 0434, 0435, 0436, 0437, 0438, 0451, 0488 and 0502: Large and robust explosives articles, normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried unpackaged. When such articles have propelling charges or are self-propelled, their ignition systems shall be protected against stimuli encountered during normal conditions of carriage. A negative result in Test Series 4 on an unpackaged article indicates that the article can be considered for carriage unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling devices.				



P131		PACKING INSTRUCTION		P131
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:				
<b>Inner packagings and arrangements</b>		<b>Intermediate packagings and arrangements</b>		<b>Outer packagings and arrangements</b>
<b>Bags</b> paper plastics  <b>Receptacles</b> fibreboard metal plastics wood  <b>Reels</b>		Not necessary		<b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)
<b>Special packing provision:</b>				
PP68 For UN Nos. 0029, 0267 and 0455, bags and reels shall not be used as inner packagings.				

P132(a)		PACKING INSTRUCTION		P132(a)
<b>(Articles consisting of closed metal, plastics or fibreboard casings that contain a detonating explosive, or consisting of plastics-bonded detonating explosives)</b>				
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:				
<b>Inner packagings and arrangements</b>		<b>Intermediate packagings and arrangements</b>		<b>Outer packagings and arrangements</b>
Not necessary		Not necessary		<b>Boxes</b> steel (4A) aluminium (4B) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)

P132(b) PACKING INSTRUCTION P132(b)		
(Articles without closed casings)		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
<b>Inner packagings and arrangements</b>	<b>Intermediate packagings and arrangements</b>	<b>Outer packagings and arrangements</b>
<b>Receptacles</b> fibreboard metal plastics  <b>Sheets</b> paper plastics	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)

P133 PACKING INSTRUCTION P133		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
<b>Inner packagings and arrangements</b>	<b>Intermediate packagings and arrangements</b>	<b>Outer packagings and arrangements</b>
<b>Receptacles</b> fibreboard metal plastics wood  <b>Trays, fitted with dividing partitions</b> fibreboard plastics wood	<b>Receptacles</b> fibreboard metal plastics wood	<b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)
<b>Additional requirement:</b>		
Receptacles are only required as intermediate packagings when the inner packagings are trays.		
<b>Special packing provision:</b>		
PP69 For UN Nos. 0043, 0212, 0225, 0268 and 0306, trays shall not be used as inner packagings.		

P134	PACKING INSTRUCTION		P134
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<b>Inner packagings and arrangements</b>  <b>Bags</b> water resistant  <b>Receptacles</b> fibreboard metal plastics wood  <b>Sheets</b> fibreboard, corrugated  <b>Tubes</b> fibreboard	<b>Intermediate packagings and arrangements</b>  Not necessary	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)	

P135	PACKING INSTRUCTION		P135
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<b>Inner packagings and arrangements</b>  <b>Bags</b> paper plastics  <b>Receptacles</b> fibreboard metal plastics wood  <b>Sheets</b> paper plastics	<b>Intermediate packagings and arrangements</b>  Not necessary	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)	

P136		PACKING INSTRUCTION		P136
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:				
<b>Inner packagings and arrangements</b>  <b>Bags</b> plastics textile  Boxes fibreboard plastics wood  <b>Dividing partitions in the outer packagings</b>	<b>Intermediate packagings and arrangements</b>  Not necessary	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)		

P137		PACKING INSTRUCTION		P137
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:				
<b>Inner packagings and arrangements</b>  <b>Bags</b> plastics  <b>Boxes</b> fibreboard  <b>Tubes</b> fibreboard metal plastics  <b>Dividing partitions in the outer packagings</b>	<b>Intermediate packagings and arrangements</b>  Not necessary	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)		
<b>Special packing provision:</b>				
<b>PP70</b> For UN Nos. 0059, 0439, 0440 and 0441, when the shaped charges are packed singly, the conical cavity shall face downwards and the package marked "THIS SIDE UP". When the shaped charges are packed in pairs, the conical cavities shall face inwards to minimize the jetting effect in the event of accidental initiation.				

P138	PACKING INSTRUCTION		P138
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<b>Inner packagings and arrangements</b>  <b>Bags</b> plastics	<b>Intermediate packagings and arrangements</b>  Not necessary	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)	
<b>Additional requirement:</b>			
If the ends of the articles are sealed, inner packagings are not necessary.			

P139	PACKING INSTRUCTION		P139
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<b>Inner packagings and arrangements</b>  <b>Bags</b> plastics  <b>Receptacles</b> fibreboard metal plastics wood  <b>Reels</b>  <b>Sheets</b> paper plastics	<b>Intermediate packagings and arrangements</b>  Not necessary	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)	
<b>Special packing provisions:</b>			
<b>PP71</b> For UN Nos. 0065, 0102, 0104, 0289 and 0290, the ends of the detonating cord shall be sealed, for example, by a plug firmly fixed so that the explosive cannot escape. The ends of flexible detonating cord shall be fastened securely.			
<b>PP72</b> For UN Nos. 0065 and 0289, inner packagings are not required when they are in coils.			

P140 PACKING INSTRUCTION P140		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
<b>Inner packagings and arrangements</b>  <b>Bags</b> plastics  <b>Reels</b>  <b>Sheets</b> paper, kraft plastics	<b>Intermediate packagings and arrangements</b>  Not necessary	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)
<b>Special packing provisions:</b>  <b>PP73</b> For UN No. 0105, no inner packagings are required if the ends are sealed.  <b>PP74</b> For UN No. 0101, the packaging shall be sift-proof except when the fuse is covered by a paper tube and both ends of the tube are covered with removable caps.  <b>PP75</b> For UN No. 0101, steel or aluminium boxes or drums shall not be used.		

P141 PACKING INSTRUCTION P141		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
<b>Inner packagings and arrangements</b>  <b>Receptacles</b> fibreboard metal plastics wood  <b>Trays, fitted with dividing partitions</b> plastics wood  <b>Dividing partitions in the outer packagings</b>	<b>Intermediate packagings and arrangements</b>  Not necessary	<b>Outer packagings and arrangements</b>  <b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)  <b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)

P142	PACKING INSTRUCTION		P142
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements	
<p><b>Bags</b> paper plastics</p> <p><b>Receptacles</b> fibreboard metal plastics wood</p> <p><b>Sheets</b> paper</p> <p><b>Trays, fitted with dividing partitions</b> plastics</p>	Not necessary	<p><b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)</p> <p><b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)</p>	



P143	PACKING INSTRUCTION		P143
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<p><b>Inner packagings and arrangements</b></p> <p><b>Bags</b> paper, kraft plastics textile textile, rubberized</p> <p><b>Receptacles</b> fibreboard metal plastics</p> <p><b>Trays, fitted with dividing partitions</b> plastics wood</p>	<p><b>Intermediate packagings and arrangements</b></p> <p>Not necessary</p>	<p><b>Outer packagings and arrangements</b></p> <p><b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)</p> <p><b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plywood (1D) fibre (1G) plastics, removable head (1H2)</p>	
<b>Additional requirement:</b>			
Instead of the above inner and outer packagings, composite packagings (6HH2) (plastics receptacle with outer solid plastics box) may be used.			
<b>Special packing provision:</b>			
<b>PP76</b> For UN Nos. 0271, 0272, 0415 and 0491, when metal packagings are used, metal packagings shall be so constructed that the risk of explosion, by reason of increase in internal pressure from internal or external causes is prevented.			

P144	PACKING INSTRUCTION		P144
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
<p><b>Inner packagings and arrangements</b></p> <p><b>Receptacles</b> fibreboard metal plastics</p> <p><b>Dividing partitions in the outer packagings</b></p>	<p><b>Intermediate packagings and arrangements</b></p> <p>Not necessary</p>	<p><b>Outer packagings and arrangements</b></p> <p><b>Boxes</b> steel (4A) aluminium (4B) natural wood, ordinary with metal liner (4C1) plywood (4D) with metal liner reconstituted wood (4F) with metal liner plastics, expanded (4H1) plastics, solid (4H2)</p> <p><b>Drums</b> steel, removable head (1A2) aluminium, removable head (1B2) plastics, removable head (1H2)</p>	
<b>Special packing provision:</b>			
<p><b>PP77</b> For UN Nos. 0248 and 0249, packagings shall be protected against the ingress of water. When water-activated contrivances are transported unpackaged, they shall be provided with at least two independent protective features which prevent the ingress of water.</p>			

P200	PACKING INSTRUCTION	P200
<b>Type of packagings:</b> Cylinders, tubes, pressure drums and bundles of cylinders		
Cylinders, tubes, pressure drums and bundles of cylinders are authorised provided the special packing provisions of 4.1.6 and the provisions listed below under (1) to (9) are met.		
<b>General</b>		
<p>(1) Pressure receptacles shall be so closed and leakproof as to prevent escape of the gases;</p> <p>(2) Pressure receptacles containing toxic substances with an LC<sub>50</sub> less than or equal to 200 ml/m<sup>3</sup> (ppm) as specified in the table shall not be equipped with any pressure relief device;</p> <p>(3) The following three tables cover compressed gases (Table 1), liquefied and dissolved gases (Table 2) and substances not in Class 2 (Table 3). They provide:</p> <ul style="list-style-type: none"> <li>(a) the UN number, name and description, and the classification code of the substance;</li> <li>(b) the LC<sub>50</sub> for toxic substances;</li> <li>(c) the types of pressure receptacles authorised for the substance, shown by the letter "X";</li> <li>(d) the maximum test period for periodic inspection of the pressure receptacles;</li> <li>(e) the minimum test pressure of the pressure receptacles;</li> <li>(f) the maximum working pressure of the pressure receptacles for compressed gases or the maximum filling ratio(s) for liquefied and dissolved gases;</li> <li>(g) special packing provisions that are specific to a substance.</li> </ul>		
<b>Test pressure and filling ratios</b>		
<p>(4) The minimum test pressure required for is 1 MPa (10 bar);</p> <p>(5) In no case shall pressure receptacles be filled in excess of the limit permitted in the following requirements:</p> <ul style="list-style-type: none"> <li>(a) For compressed gases, the working pressure shall be not more than two thirds of the test pressure of the pressure receptacles. Restrictions to this upper limit on working pressure are imposed by special packing provision "o". In no case shall the internal pressure at 65 °C exceed the test pressure.</li> <li>(b) For high pressure liquefied gases, the filling ratio shall be such that the settled pressure at 65 °C does not exceed the test pressure of the pressure receptacles.</li> </ul> <p>The use of test pressures and filling ratios other than those in the table is permitted provided that the above criterion is met, except where special packing provision "o" applies.</p>		
For high pressure liquefied gases for which data is not provided in the table, the maximum filling ratio (FR) shall be determined as follows:		
$FR = 8.5 \times 10^{-4} \times d_g \times P_h$		
where	FR	= maximum filling ratio
	d <sub>g</sub>	= gas density (at 15 °C, 1 bar)(in kg/m <sup>3</sup> )
	P <sub>h</sub>	= minimum test pressure (in bar).

P200

## PACKING INSTRUCTION (cont'd)

P200

If the density of the gas is unknown, the maximum filling ratio shall be determined as follows:

$$FR = \frac{P_h \times MM \times 10^{-3}}{R \times 338}$$

- where
- FR = maximum filling ratio
  - $P_h$  = minimum test pressure (in bar)
  - MM = molecular mass (in g/mol)
  - R =  $8.31451 \times 10^{-2}$  bar.l.mol<sup>-1</sup>.K<sup>-1</sup> (gas constant).

For gas mixtures, the average molecular mass is to be taken, taking into account the volumetric concentrations of the various components.

- (c) For low pressure liquefied gases, the maximum mass of contents per litre of water capacity shall equal 0.95 times the density of the liquid phase at 50 °C; in addition, the liquid phase shall not fill the pressure receptacle at any temperature up to 60 °C. The test pressure of the pressure receptacle shall be at least equal to the vapour pressure (absolute) of the liquid at 65 °C, minus 100 kPa (1 bar).

For low pressure liquefied gases for which filling data is not provided in the table, the maximum filling ratio shall be determined as follows:

$$FR = (0.0032 \times BP - 0.24) \times d_l$$

- where
- FR = maximum filling ratio
  - BP = boiling point (in Kelvin)
  - $d_l$  = density of the liquid at boiling point (in kg/l).

- (d) For UN No. 1001 acetylene, dissolved, and UN No. 3374 acetylene, solvent free, see (9), special packing provision "p".
- (6) Other test pressure and filling ratio may be used provided they satisfy the general requirements outlined in paragraphs (4) and (5) above;

#### Periodic inspections

- (7) Refillable pressure receptacles shall be subjected to periodic inspections in accordance with the requirements of 6.2.1.6.
- (8) If special provisions for certain substances do not appear in the tables below, periodic inspections shall be carried out:
- (a) Every 5 years in the case of pressure receptacles intended for the carriage of gases of classification codes 1T, 1TF, 1TO, 1TC, 1TFC, 1TOC, 2T, 2TO, 2TF, 2TC, 2TFC, 2TOC, 4A, 4F and 4C;
  - (b) Every 5 years in the case of pressure receptacles intended for the carriage of substances from other classes;
  - (c) Every 10 years in the case of pressure receptacles intended for the carriage of gases of classification codes 1A, 1O, 1F, 2A, 2O and 2F.

By derogation from this paragraph, the periodic inspection of pressure receptacles which make use of composite materials (composite pressure receptacles) shall be carried out at intervals determined by the competent authority of the Contracting Party to ADR which has approved the technical code for the design and construction.

P200	PACKING INSTRUCTION (cont'd)	P200
<b>Special packing provisions</b>		
(9) Keys for the column "Special packing provisions":		
<i>Material compatibility</i> (for gases see ISO 11114-1:1997 and ISO 11114-2:2000)		
a:	Aluminium alloy pressure receptacles are not authorized.	
b:	Copper valves shall not be used.	
c:	Metal parts in contact with the contents shall not contain more than 65% copper.	
d:	When steel pressure receptacles are used, only those resistant to hydrogen embrittlement shall be authorized.	
<i>Requirements for toxic substances with an LC<sub>50</sub> less than or equal to 200 ml/m<sup>3</sup> (ppm)</i>		
k:	Valve outlets shall be fitted with gas tight plugs or caps which shall be made of material not liable to attack by the contents of the pressure receptacle.	
Each cylinder within a bundle shall be fitted with an individual valve that shall be closed during carriage. After filling, the manifold shall be evacuated, purged and plugged.		
Pressure receptacles shall not be fitted with a pressure relief device.		
Cylinders and individual cylinders in a bundle shall be limited to a maximum water capacity of 85 litres.		
Each valve shall have a taper threaded connection directly to the pressure receptacle and be capable of withstanding the test pressure of the pressure receptacle.		
Each valve shall either be of the packless type with non-perforated diaphragm, or be of a type which prevents leakage through or past the packing.		
Carriage in capsules is not allowed.		
Each pressure receptacle shall be tested for leakage after filling.		
<i>Gas specific provisions</i>		
l:	UN No. 1040 ethylene oxide may also be packed in hermetically sealed glass or metal inner packagings suitably cushioned in fibreboard, wooden or metal boxes meeting the packing group I performance level. The maximum quantity permitted in any glass inner packaging is 30 g, and the maximum quantity permitted in any metal inner packaging is 200 g. After filling, each inner packaging shall be determined to be leak-tight by placing the inner packaging in a hot water bath at a temperature, and for a period of time, sufficient to ensure that an internal pressure equal to the vapour pressure of ethylene oxide at 55 °C is achieved. The total quantity in any outer packaging shall not exceed 2.5 kg.	
m:	Pressure receptacles shall be filled to a working pressure not exceeding 5 bar.	
n:	A pressure receptacle shall contain not more than 5 kg of the gas.	
o:	In no case shall the working pressure or filling ratio shown in the tables be exceeded.	
p:	For UN No. 1001 acetylene, dissolved, and UN No. 3374 acetylene, solvent free: cylinders shall be filled with a homogeneous monolithic porous mass; the working pressure and the quantity of acetylene shall not exceed the values prescribed in the approval or in ISO 3807-1:2000 or ISO 3807-2:2000, as applicable.	
For UN No. 1001 acetylene, dissolved: cylinders shall contain a quantity of acetone or suitable solvent as specified in the approval (see ISO 3807-1:2000 or ISO 3807-2:2000, as applicable); cylinders fitted with pressure relief devices or manifolded together shall be carried vertically.		

P200

## PACKING INSTRUCTION (cont'd)

P200

Alternatively, for UN No. 1001 acetylene, dissolved: cylinders which are not UN certified pressure receptacles may be filled with a non monolithic porous mass; the working pressure, the quantity of acetylene and the quantity of solvent shall not exceed the values prescribed in the approval. The maximum test period for periodic inspection of the cylinders shall not exceed five years.

A test pressure of 52 bar shall be applied only to cylinders conforming to ISO 3807-2:2000.

- q: The valves of pressure receptacles for pyrophoric gases or flammable mixtures of gases containing more than 1% of pyrophoric compounds shall be fitted with gas-tight plugs or caps which shall be made of material not liable to attack by the contents of the pressure receptacle. When these pressure receptacles are manifolded in a bundle, each of the pressure receptacles shall be fitted with an individual valve that shall be closed during carriage, and the manifold outlet valve shall be fitted with a gas-tight plug or cap. Carriage in capsules is not allowed.
- r: Allowed for carriage in capsules under the following conditions:
- (a) The mass of gas shall not exceed 150 g per capsule;
  - (b) The capsules shall be free from faults liable to impair the strength;
  - (c) The leakproofness of the closure shall be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any leakage of the closure during carriage;
  - (d) The capsules shall be placed in an outer packaging of sufficient strength. A package shall not weigh more than 75 kg.
- s: Aluminium alloy pressure receptacles shall be:
- Equipped only with brass or stainless steel valves; and
  - Cleaned for hydrocarbons contamination and not contaminated with oil. UN certified pressure receptacles shall be cleaned in accordance with ISO 11621:1997.
- t: Other criteria may be used for filling of welded steel cylinders intended for the carriage of substances of UN No. 1965:
- (a) with the agreement of the competent authorities of the countries where the carriage is carried out; and
  - (b) in compliance with the provisions of a national code or standard recognised by the competent authorities or standard EN 1439:1996 "Transportable refillable steel cylinders for liquefied petroleum Gases (LPG) - Procedures for checking before, during and after refilling".

When the criteria for filling are different from those in P200(5), the transport document shall include the statement "Carriage in accordance with packing instruction P200, special packing provision t" and the indication of the reference temperature used for the calculation of the filling ratio.

**Periodic inspection**

- u: The interval between periodic tests may be extended to 10 years for aluminium alloy pressure receptacles. This derogation may only be applied to UN certified pressure receptacles when the alloy of the pressure receptacle has been subjected to stress corrosion testing as specified in ISO 7866:1999.
- v: The interval between inspections for steel cylinders may be extended to 15 years:
- (a) with the agreement of the competent authority (authorities) of the country (countries) where the periodic inspection and the carriage take place; and

P200	PACKING INSTRUCTION (cont'd)		P200
<p>(b) in accordance with the requirements of a technical code or a standard recognised by the competent authority, or standard EN 1440:1996 "Transportable refillable welded cylinders for liquefied petroleum gas (LPG) – Periodic requalification".</p> <p><b>Requirements for N.O.S. entries and for mixtures</b></p> <p>z: The construction materials of the pressure receptacles and their accessories shall be compatible with the contents and shall not react to form harmful or dangerous compounds therewith.</p> <p>The test pressure and filling ratio shall be calculated in accordance with the relevant requirements of (5).</p> <p>Toxic substances with an LC<sub>50</sub> less than or equal to 200 ml/m<sup>3</sup> shall not be carried in tubes, pressure drums or MEGCs and shall meet the requirements of special packing provision "k".</p> <p>For pressure receptacles containing pyrophoric gases or flammable mixtures of gases containing more than 1% pyrophoric compounds, the requirements of special packing provision "q" shall be met.</p> <p>The necessary steps shall be taken to prevent dangerous reactions (i.e. polymerisation or decomposition) during carriage. If necessary, stabilisation or addition of an inhibitor shall be required.</p> <p>Mixtures containing UN No. 1911 diborane, shall be filled to a pressure such that, if complete decomposition of the diborane occurs, two thirds of the test pressure of the pressure receptacle shall not be exceeded.</p> <p><b>Requirements for substances not in Class 2</b></p> <p>ab: Pressure receptacles shall satisfy the following conditions:</p> <ul style="list-style-type: none"> <li>(i) The pressure test shall include an inspection of the inside of the pressure receptacles and check of accessories;</li> <li>(ii) In addition resistance to corrosion shall be checked every two years by means of suitable instruments (e.g. ultrasound) and the condition of the accessories verified;</li> <li>(iii) Wall thickness shall not be less than 3 mm.</li> </ul> <p>ac: Tests and inspections shall be carried out under the supervision of an expert approved by the competent authority.</p> <p>ad: Pressure receptacles shall satisfy the following conditions:</p> <ul style="list-style-type: none"> <li>(i) Pressure receptacles shall be designed for a design pressure of not less than 2.1 MPa (21 bar) (gauge pressure);</li> <li>(ii) In addition to the marks for refillable receptacles, the pressure receptacles shall bear the following particulars in clearly legible and durable characters: <ul style="list-style-type: none"> <li>- The UN number and the proper shipping name of the substance according to 3.1.2;</li> <li>- The maximum permitted mass when filled and the tare of the pressure receptacle, including accessories fitted during filling, or the gross mass.</li> </ul> </li> </ul>			
<p>(10) The applicable requirements of this packing instruction are considered to have been complied with if the following standards, as relevant, are applied:</p>			
Applicable requirements	Reference	Title of document	
(9)(p)	EN1801:1998	Transportable gas cylinders – Filling conditions for single acetylene cylinders (including list of permissible porous masses)	
(9)(p)	EN 12755: 2000	Transportable gas cylinders – Filling conditions for acetylene bundles	

P200		PACKING INSTRUCTION (cont'd)										P200	
Table 1: COMPRESSED GASES													
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar <sup>b</sup>	Working pressure, bar <sup>b</sup>	Special packing provisions		
1002	AIR, COMPRESSED	1A		X	X	X	X	10					
1006	ARGON, COMPRESSED	1A		X	X	X	X	10					
1014	CARBON DIOXIDE AND OXYGEN MIXTURE, COMPRESSED	1O		X	X	X	X	10					
1016	CARBON MONOXIDE, COMPRESSED	1TF	3760	X	X	X	X	5			u		
1023	COAL GAS, COMPRESSED	1TF		X	X	X	X	5					
1045	FLUORINE, COMPRESSED	1TOC	185	X			X	5	200	30	a, k, n, o		
1046	HELIUM, COMPRESSED	1A		X	X	X	X	10					
1049	HYDROGEN, COMPRESSED	1F		X	X	X	X	10			d		
1056	KRYPTON, COMPRESSED	1A		X	X	X	X	10					
1065	NEON, COMPRESSED	1A		X	X	X	X	10					
1066	NITROGEN, COMPRESSED	1A		X	X	X	X	10					
1071	OIL GAS, COMPRESSED	1TF		X	X	X	X	5					
1072	OXYGEN, COMPRESSED	1O		X	X	X	X	10			s		
1612	HEXAETHYL TETRAPHOSPHATE AND COMPRESSED GAS MIXTURE	1T		X	X	X	X	5			z		
1660	NITRIC OXIDE, COMPRESSED	1TOC	115	X			X	5	200	50	k, o		
1953	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	1TF		X	X	X	X	5			z		
1954	COMPRESSED GAS, FLAMMABLE, N.O.S	1F		X	X	X	X	10			z		
1955	COMPRESSED GAS, TOXIC, N.O.S.	1T		X	X	X	X	5			z		
1956	COMPRESSED GAS, N.O.S.	1A		X	X	X	X	10			z		
1957	DEUTERIUM, COMPRESSED	1F		X	X	X	X	10			d		
1964	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.	1F		X	X	X	X	10			z		
1971	METHANE, COMPRESSED or NATURAL GAS, COMPRESSED with high methane content	1F		X	X	X	X	10					
1979	RARE GASES MIXTURE, COMPRESSED	1A		X	X	X	X	10					
1980	RARE GASES AND OXYGEN MIXTURE, COMPRESSED	1A		X	X	X	X	10					
1981	RARE GASES AND NITROGEN MIXTURE, COMPRESSED	1A		X	X	X	X	10					



P200		PACKING INSTRUCTION (cont'd)										P200	
Table 1: COMPRESSED GASES													
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar <sup>b</sup>	Working pressure, bar <sup>b</sup>	Special packing provisions		
2034	HYDROGEN AND METHANE MIXTURE, COMPRESSED	1F		X	X	X	X	10			d		
2190	OXYGEN DIFLUORIDE, COMPRESSED	1TOC	2.6	X			X	5	200	30	a, k, n, o		
2600	CARBON MONOXIDE AND HYDROGEN MIXTURE, COMPRESSED	1TF		X	X	X	X	5			d, u		
3156	COMPRESSED GAS, OXIDIZING, N.O.S.	1O		X	X	X	X	10			z		
3303	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	1TO		X	X	X	X	5			z		
3304	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	1TC		X	X	X	X	5			z		
3305	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	1TFC		X	X	X	X	5			z		
3306	COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	1TOC		X	X	X	X	5			z		

<sup>a</sup> Not applicable for pressure receptacles made of composite materials.

<sup>b</sup> Where the entries are blank, the working pressure shall not exceed two thirds of the test pressure.

P200		PACKING INSTRUCTION (cont'd)								P200	
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar	Filling ratio	Special packing provisions
1001	ACETYLENE, DISSOLVED	4F		X			X	10	60		c, p
1005	AMMONIA, ANHYDROUS	2TC	4000	X	X	X	X	5	33	0.53	b, r
1008	BORON TRIFLUORIDE	2TC	387	X	X	X	X	5	225 300	0.715 0.86	
1009	BROMOTRIFLUOROMETHANE (REFRIGERANT GAS R 13B1)	2A		X	X	X	X	10	42 120 250	1.13 1.44 1.60	r r r
1010	1,2-BUTADIENE, STABILIZED or	2F		X	X	X	X	10	10	0.59	r
1010	1,3-BUTADIENE, STABILIZED or	2F		X	X	X	X	10	10	0.55	r
1010	MIXTURES OF 1,3-BUTADIENE AND HYDROCARBONS, STABILIZED, having a vapour pressure at 70 °C not exceeding 1.1 MPa (11 bar) and a density at 50 °C not lower than 0.525 kg/l	2F		X	X	X	X	10	10	0.50	r, z
1011	BUTANE	2F		X	X	X	X	10	10	0.51	r, v
1012	BUTYLENES MIXTURES or	2F		X	X	X	X	10	10	0.50	r, z
1012	1-BUTYLENE or	2F		X	X	X	X	10	10	0.53	
1012	CIS-2-BUTYLENE or	2F		X	X	X	X	10	10	0.55	
1012	TRANS-2 BUTYLENE	2F		X	X	X	X	10	10	0.54	
1013	CARBON DIOXIDE	2A		X	X	X	X	10	190 250	0.66 0.75	r r
1015	CARBON DIOXIDE AND NITROUS OXIDE MIXTURE	2A		X	X	X	X	10	250	0.75	r
1017	CHLORINE	2TC	293	X	X	X	X	5	22	1.25	a, r
1018	CHLORODIFLUOROMETHANE (REFRIGERANT GAS R 22)	2A		X	X	X	X	10	29	1.03	r
1020	CHLOROPENTAFLUOROETHANE (REFRIGERANT GAS R 115)	2A		X	X	X	X	10	25	1.08	r
1021	1-CHLORO-1,2,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 124)	2A		X	X	X	X	10	12	1.20	r
1022	CHLOROTRIFLUOROMETHANE (REFRIGERANT GAS R 13)	2A		X	X	X	X	10	100 120 190 250	0.83 0.90 1.04 1.10	r r r r
1026	CYANOGEN	2TF	350	X	X	X	X	5	100	0.70	r, u
1027	CYCLOPROPANE	2F		X	X	X	X	10	20	0.53	r

P200 PACKING INSTRUCTION (cont'd) P200											
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar	Filling ratio	Special packing provisions
1028	DICHLORODIFLUOROMETHANE (REFRIGERANT GAS R 12)	2A		X	X	X	X	10	18	1.15	r
1029	DICHLOROFLUOROMETHANE (REFRIGERANT GAS R 21)	2A		X	X	X	X	10	10	1.23	r
1030	1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)	2A		X	X	X	X	10	18	0.79	r
1032	DIMETHYLAMINE, ANHYDROUS	2F		X	X	X	X	10	10	0.59	b, r
1033	DIMETHYL ETHER	2F		X	X	X	X	10	18	0.58	r
1035	ETHANE	2F		X	X	X	X	10	95 120 300	0.25 0.29 0.39	r r r
1036	ETHYLAMINE	2F		X	X	X	X	10	10	0.61	b, r
1037	ETHYL CHLORIDE	2F		X	X	X	X	10	10	0.80	a, r
1039	ETHYL METHYL ETHER	2F		X	X	X	X	10	10	0.64	r
1040	ETHYLENE OXIDE, or ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1MPa (10 bar) at 50 °C	2TF	2900	X	X	X	X	5	15	0.78	l, r
1041	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 9% but not more than 87% ethylene oxide	2F		X	X	X	X	10	190 250	0.66 0.75	r r
1043	FERTILIZER AMMONIATING SOLUTION with free ammonia	2A		X		X	X	5			b, z
1048	HYDROGEN BROMIDE, ANHYDROUS	2TC	2860	X	X	X	X	5	60	1.54	a, d, r
1050	HYDROGEN CHLORIDE, ANHYDROUS	2TC	2810	X	X	X	X	5	100 120 150 200	0.30 0.56 0.67 0.74	a, d, r a, d, r a, d, r a, d, r
1053	HYDROGEN SULPHIDE	2TF	712	X	X	X	X	5	55	0.67	d, r, u
1055	ISOBUTYLENE	2F		X	X	X	X	10	10	0.52	r
1058	LIQUEFIED GASES, non-flammable, charged with nitrogen, carbon dioxide or air	2A		X	X	X	X	10	Test pressure = 1.5 x working pressure		r

P200		PACKING INSTRUCTION (cont'd)								P200	
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar	Filling ratio	Special packing provisions
1060	METHYLACETYLENE AND PROPADIENE MIXTURE, STABILIZED Propadiene with 1% to 4% methylacetylene Mixture P1 Mixture P2	2F		X	X	X	X	10			c, r, z
				X	X	X	X	10	22	0.52	c, r
				X	X	X	X	10	30	0.49	c, r
				X	X	X	X	10	24	0.47	c, r
1061	METHYLAMINE, ANHYDROUS	2F		X	X	X	X	10	13	0.58	b, r
1062	METHYL BROMIDE with not more than 2% chloropicrin	2T	850	X	X	X	X	5	10	1.51	a
1063	METHYL CHLORIDE (REFRIGERANT GAS R 40)	2F		X	X	X	X	10	17	0.81	a, r
1064	METHYL MERCAPTAN	2TF	1350	X	X	X	X	5	10	0.78	d, r, u
1067	DINITROGEN TETROXIDE (NITROGEN DIOXIDE)	2TOC	115	X			X	5	10	1.30	k
1069	NITROSYL CHLORIDE	2TC	35	X			X	5	13	1.10	k, r
1070	NITROUS OXIDE	2O		X	X	X	X	10	180	0.68	
									225	0.74	
									250	0.75	
1075	PETROLEUM GASES, LIQUEFIED	2F		X	X	X	X	10			v, z
1076	PHOSGENE	2TC	5	X		X	X	5	20	1.23	k, r
1077	PROPYLENE	2F		X	X	X	X	10	30	0.43	r
1078	REFRIGERANT GAS, N.O.S. Mixture F1 Mixture F2 Mixture F3	2A		X	X	X	X	10			r, z
				X	X	X	X	10	12	1.23	
				X	X	X	X	10	18	1.15	
				X	X	X	X	10	29	1.03	
1079	SULPHUR DIOXIDE	2TC	2520	X	X	X	X	5	14	1.23	r
1080	SULPHUR HEXAFLUORIDE	2A		X	X	X	X	10	70	1.04	r
									140	1.33	r
									160	1.37	r
1081	TETRAFLUOROETHYLENE, STABILIZED	2F		X	X	X	X	10	200		m, o, r
1082	TRIFLUOROCHLOROETHYLENE, STABILIZED	2TF	2000	X	X	X	X	5	19	1.13	r, u
1083	TRIMETHYLAMINE, ANHYDROUS	2F		X	X	X	X	10	10	0.56	b, r
1085	VINYL BROMIDE, STABILIZED	2F		X	X	X	X	10	10	1.37	a, r
1086	VINYL CHLORIDE, STABILIZED	2F		X	X	X	X	10	12	0.81	a, r
1087	VINYL METHYL ETHER, STABILIZED	2F		X	X	X	X	10	10	0.67	r

P200		PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES												
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar	Filling ratio	Special packing provisions	
1581	CHLOROPICRIN AND METHYL BROMIDE MIXTURE with more than 2% chloropicrin	2T	850	X	X	X	X	5	10	1.51	a	
1582	CHLOROPICRIN AND METHYL CHLORIDE MIXTURE	2T	<sup>d</sup>	X	X	X	X	5	17	0.81	a	
1589	CYANOGEN CHLORIDE, STABILIZED	2TC	80	X			X	5	20	1.03	k	
1741	BORON TRICHLORIDE	2TC	2541	X	X	X	X	5	10	1.19	r	
1749	CHLORINE TRIFLUORIDE	2TOC	299	X	X	X	X	5	30	1.40	a	
1858	HEXAFLUOROPROPYLENE (REFRIGERANT GAS R 1216)	2A		X	X	X	X	10	22	1.11	r	
1859	SILICON TETRAFLUORIDE	2TC	450	X	X	X	X	5	200 300	0.74 1.10		
1860	VINYL FLUORIDE, STABILIZED	2F		X	X	X	X	10	250	0.64	a, r	
1911	DIBORANE	2TF	80	X			X	5	250	0.07	d, k, o	
1912	METHYL CHLORIDE AND METHYLENE CHLORIDE MIXTURE	2F		X	X	X	X	10	17	0.81	a, r	
1952	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with not more than 9% ethylene oxide	2A		X	X	X	X	10	190 250	0.66 0.75	r r	
1958	1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 114)	2A		X	X	X	X	10	10	1.30	r	
1959	1,1-DIFLUOROETHYLENE (REFRIGERANT GAS R 1132a)	2F		X	X	X	X	10	250	0.77	r	
1962	ETHYLENE	2F		X	X	X	X	10	225 300	0.34 0.37		
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S	2F		X	X	X	X	10		<sup>b</sup>	r, t, v, z	
	Mixture A							10	10	0.50		
	Mixture A01							10	15	0.49		
	Mixture A02							10	15	0.48		
	Mixture A0							10	15	0.47		
	Mixture A1							10	20	0.46		
	Mixture B1							10	25	0.45		
	Mixture B2							10	25	0.44		
	Mixture-B							10	25	0.43		
	Mixture C							10	30	0.42		

P200		PACKING INSTRUCTION (cont'd)										P200	
Table 2: LIQUEFIED GASES AND DISSOLVED GASES													
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar	Filling ratio	Special packing provisions		
1967	INSECTICIDE GAS, TOXIC, N.O.S.	2T		X	X	X	X	5			z		
1968	INSECTICIDE GAS, N.O.S.	2A		X	X	X	X	10			r, z		
1969	ISOBUTANE	2F		X	X	X	X	10	10	0.49	r, v		
1973	CHLORODIFLUOROMETHANE AND CHLOROPENTAFLUOROETHANE MIXTURE with fixed boiling point, with approximately 49% chlorodifluoromethane (REFRIGERANT GAS R 502)	2A		X	X	X	X	10	31	1.05	r		
1974	CHLORODIFLUOROBROMOMETHANE (REFRIGERANT GAS R 12B1)	2A		X	X	X	X	10	10	1.61	r		
1975	NITRIC OXIDE AND DINITROGEN TETROXIDE MIXTURE (NITRIC OXIDE AND NITROGEN DIOXIDE MIXTURE)	2TOC	115	X		X	X	5			k, z		
1976	OCTAFLUOROCYCLOBUTANE (REFRIGERANT GAS RC 318)	2A		X	X	X	X	10	11	1.34	r		
1978	PROPANE	2F		X	X	X	X	10	25	0.42	r, v		
1982	TETRAFLUOROMETHANE (REFRIGERANT GAS R 14)	2A		X	X	X	X	10	200 300	0.62 0.94			
1983	1-CHLORO-2,2,2-TRIFLUOROETHANE (REFRIGERANT GAS R 133a)	2A		X	X	X	X	10	10	1.18	r		
1984	TRIFLUOROMETHANE (REFRIGERANT GAS R 23)	2A		X	X	X	X	10	190 250	0.87 0.95	r r		
2035	1,1,1-TRIFLUOROETHANE (REFRIGERANT GAS R 143a)	2F		X	X	X	X	10	35	0.75	r		
2036	XENON	2A		X	X	X	X	10	130	1.24			
2044	2,2-DIMETHYLPROPANE	2F		X	X	X	X	10	10	0.53	r		
2073	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 35% but not more than 40% ammonia with more than 40% but not more than 50% ammonia	4A		X	X	X	X	5 5	10 12	0.80 0.77	b b		
2188	ARSINE	2TF	20	X			X	5	42	1.10	d, k		
2189	DICHLOROSILANE	2TFC	314	X	X	X	X	5	10	0.90			
2191	SULPHURYL FLUORIDE	2T	3020	X	X	X	X	5	50	1.10	u		

P200		PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES												
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar	Filling ratio	Special packing provisions	
2192	GERMANE <sup>c</sup>	2TF	620	X	X	X	X	5	250	1.02	d, r	
2193	HEXAFLUOROETHANE (REFRIGERANT GAS R 116)	2A		X	X	X	X	10	200	1.10		
2194	SELENIUM HEXAFLUORIDE	2TC	50	X			X	5	36	1.46	k, r	
2195	TELLURIUM HEXAFLUORIDE	2TC	25	X			X	5	20	1.00	k, r	
2196	TUNGSTEN HEXAFLUORIDE	2TC	160	X			X	5	10	2.70	a, k, r	
2197	HYDROGEN IODIDE, ANHYDROUS	2TC	2860	X	X	X	X	5	23	2.25	a, d, r	
2198	PHOSPHORUS PENTAFLUORIDE	2TC	190	X			X	5	200 300	0.90 1.34	k k	
2199	PHOSPHINE <sup>c</sup>	2TF	20	X			X	5	225 250	0.30 0.45	d, k, r d, k, r	
2200	PROPADIENE, STABILIZED	2F		X	X	X	X	10	22	0.50	r	
2202	HYDROGEN SELENIDE, ANHYDROUS	2TF	2	X			X	5	31	1.60	k	
2203	SILANE <sup>c</sup>	2F		X	X	X	X	10	225 250	0.32 0.36	d, q d, q	
2204	CARBONYL SULPHIDE	2TF	1700	X	X	X	X	5	26	0.84	r, u	
2417	CARBONYL FLUORIDE	2TC	360	X	X	X	X	5	200 300	0.47 0.70		
2418	SULPHUR TETRAFLUORIDE	2TC	40	X			X	5	30	0.91	k, r	
2419	BROMOTRIFLUORO- ETHYLENE	2F		X	X	X	X	10	10	1.19	r	
2420	HEXAFLUOROACETONE	2TC	470	X	X	X	X	5	22	1.08	r	
2421	NITROGEN TRIOXIDE	2TOC	CARRIAGE PROHIBITED									
2422	OCTAFLUOROBUT-2-ENE (REFRIGERANT GAS R 1318)	2A		X	X	X	X	10	12	1.34	r	
2424	OCTAFLUOROPROPANE (REFRIGERANT GAS R 218)	2A		X	X	X	X	10	25	1.09	r	
2451	NITROGEN TRIFLUORIDE	2O		X	X	X	X	10	200 300	0.50 0.75		
2452	ETHYLACETYLENE, STABILIZED	2F		X	X	X	X	10	10	0.57	c, r	
2453	ETHYL FLUORIDE (REFRIGERANT GAS R 161)	2F		X	X	X	X	10	30	0.57	r	
2454	METHYL FLUORIDE (REFRIGERANT GAS R 41)	2F		X	X	X	X	10	300	0.36	r	
2455	METHYL NITRITE	2A	CARRIAGE PROHIBITED									
2517	1-CHLORO-1,1- DIFLUOROETHANE (REFRIGERANT GAS R 142b)	2F		X	X	X	X	10	10	0.99	r	

P200		PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES												
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar	Filling ratio	Special packing provisions	
2534	METHYLCHLOROSILANE	2TFC	600	X	X	X	X	5			r, z	
2548	CHLORINE PENTAFLUORIDE	2TOC	122	X			X	5	13	1.49	a, k	
2599	CHLOROTRIFLUORO- METHANE AND TRIFLUOROMETHANE AZEOTROPIC MIXTURE with approximately 60% chlorotrifluoromethane (REFRIGERANT GAS R 503)	2A		X	X	X	X	10	31 42 100	0.11 0.20 0.66	r r r	
2601	CYCLOBUTANE	2F		X	X	X	X	10	10	0.63	r	
2602	DICHLORODIFLUORO- METHANE AND DIFLUOROETHANE AZEOTROPIC MIXTURE with approximately 74% dichlorodifluoromethane (REFRIGERANT GAS R 500)	2A		X	X	X	X	10	22	1.01	r	
2676	STIBINE	2TF	20	X			X	5	20	1.20	k, r	
2901	BROMINE CHLORIDE	2TOC	290	X	X	X	X	5	10	1.50	a	
3057	TRIFLUOROACETYL CHLORIDE	2TC	10	X		X	X	5	17	1.17	k, r	
3070	ETHYLENE OXIDE AND DICHLORODIFLUORO- METHANE MIXTURE with not more than 12,5% ethylene oxide	2A		X	X	X	X	10	18	1.09	r	
3083	PERCHLORYL FLUORIDE	2TO	770	X	X	X	X	5	33	1.21	k, u	
3153	PERFLUORO(METHYL VINYL ETHER)	2F		X	X	X	X	10	20	0.75	r	
3154	PERFLUORO(ETHYL VINYL ETHER)	2F		X	X	X	X	10	10	0.98	r	
3157	LIQUEFIED GAS, OXIDIZING, N.O.S.	2O		X	X	X	X	10			z	
3159	1,1,1,2- TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)	2A		X	X	X	X	10	22	1.04	r	
3160	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	2TF		X	X	X	X	5			r, z	
3161	LIQUEFIED GAS, FLAMMABLE, N.O.S.	2F		X	X	X	X	10			r, z	
3162	LIQUEFIED GAS, TOXIC, N.O.S.	2T		X	X	X	X	5			z	
3163	LIQUEFIED GAS, N.O.S.	2A		X	X	X	X	10			r, z	
3220	PENTAFLUOROETHANE (REFRIGERANT GAS R 125)	2A		X	X	X	X	10	49 36	0.95 0.72	r r	

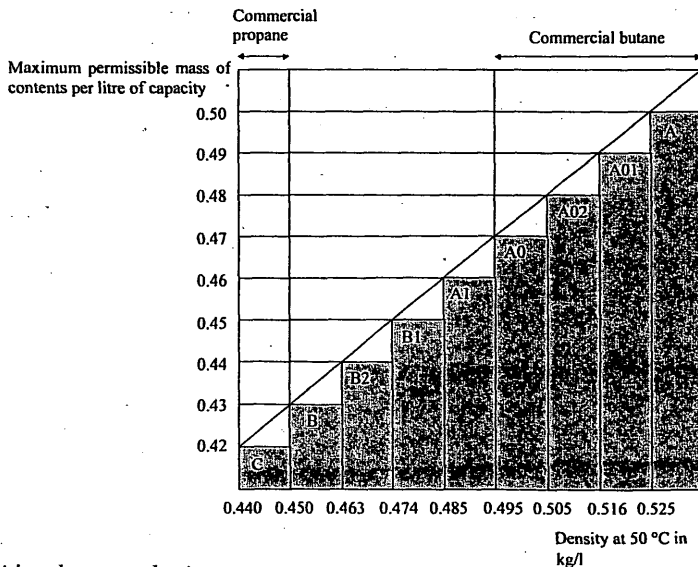


P200		PACKING INSTRUCTION (cont'd)										P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES												
UN No.	Name and description	Classification code	L <sub>C50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar	Filling ratio	Special packing provisions	
3252	DIFLUOROMETHANE (REFRIGERANT GAS R 32)	2F		X	X	X	X	10	48	0.78	r	
3296	HEPTAFLUOROPROPANE (REFRIGERANT GAS R 227)	2A		X	X	X	X	10	15	1.20	r	
3297	ETHYLENE OXIDE AND CHLOROTETRAFLUOROETHANE MIXTURE with not more than 8.8% ethylene oxide	2A		X	X	X	X	10	10	1.16	r	
3298	ETHYLENE OXIDE AND PENTAFLUOROETHANE MIXTURE with not more than 7.9% ethylene oxide	2A		X	X	X	X	10	26	1.02	r	
3299	ETHYLENE OXIDE AND TETRAFLUOROETHANE MIXTURE with not more than 5.6% ethylene oxide	2A		X	X	X	X	10	17	1.03	r	
3300	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 87% ethylene oxide	2TF	More than 2900	X	X	X	X	5	28	0.73	r	
3307	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	2TO		X	X	X	X	5			z	
3308	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	2TC		X	X	X	X	5			r, z	
3309	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2TFC		X	X	X	X	5			r, z	
3310	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	2TO C		X	X	X	X	5			z	
3318	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 50% ammonia	4TC		X	X	X	X	5			b	
3337	REFRIGERANT GAS R 404A (Pentafluoroethane, 1,1,1-trifluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 44% pentafluoroethane and 52% 1,1,1-trifluoroethane)	2A		X	X	X	X	10	36	0.82	r	
3338	REFRIGERANT GAS R 407A (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 20% difluoromethane and 40% pentafluoroethane)	2A		X	X	X	X	10	36	0.94	r	

P200		PACKING INSTRUCTION (cont'd)										P200	
Table 2: LIQUEFIED GASES AND DISSOLVED GASES													
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar	Filling ratio	Special packing provisions		
3339	REFRIGERANT GAS R 407B (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 10% difluoromethane and 70% pentafluoroethane)	2A		X	X	X	X	10	38	0.93	r		
3340	REFRIGERANT GAS R 407C (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 23% difluoromethane and 25% pentafluoroethane)	2A		X	X	X	X	10	35	0.95	r		
3354	INSECTICIDE GAS, FLAMMABLE, N.O.S.	2F		X	X	X	X	10			r, z		
3355	INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S.	2TF		X	X	X	X	5			r, z		
3374	ACETYLENE, SOLVENT FREE	2F		X			X	5	60		c, p		

<sup>a</sup> Not applicable for pressure receptacles made of composite materials.

<sup>b</sup> For mixtures of UN No. 1965, the maximum permissible filling mass per litre of capacity is as follows:



<sup>c</sup> Considered as pyrophoric.

<sup>d</sup> Considered to be toxic. The LC<sub>50</sub> value still to be determined.

P200 PACKING INSTRUCTION (cont'd) P200												
Table 3: SUBSTANCES NOT IN CLASS 2												
UN No.	Name and description	Class	Classification Code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>a</sup>	Test pressure, bar	Filling ratio	Special packing provisions
1051	HYDROGEN CYANIDE, STABILIZED containing less than 3% water	6.1	TF1	140	X			X	5	100	0.55	k
1052	HYDROGEN FLUORIDE, ANHYDROUS	8	CT1	966	X		X	X	5	10	0.84	ab, ac
1745	BROMINE PENTAFLUORIDE	5.1	OTC	25	X		X	X	5	10	<sup>b</sup>	k, ab, ad
1746	BROMINE TRIFLUORIDE	5.1	OTC	180	X		X	X	5	10	<sup>b</sup>	k, ab, ad
1790	HYDROFLUORIC ACID, solution, with more than 85 % hydrofluoric acid	8	CT1	966	X		X	X	5	10	0.84	ab, ac
2495	IODINE PENTAFLUORIDE	5.1	OTC	120	X		X	X	5	10	<sup>b</sup>	k, ab, ad

<sup>a</sup> Not applicable for pressure receptacles made of composite materials.

<sup>b</sup> A minimum ullage of 8% by volume is required.

P201	PACKING INSTRUCTION	P201
This instruction applies to UN Nos. 3167, 3168 and 3169.		
The following packagings are authorized:		
<ul style="list-style-type: none"><li>(1) Cylinders tubes and pressure drums conforming to the construction, testing and filling requirements approved by the competent authority;</li><li>(2) In addition, the following packagings are authorized provided that the general provisions of 4.1.1 and 4.1.3 are met.<ul style="list-style-type: none"><li>(a) For non-toxic gases, combination packagings with hermetically sealed inner packagings of glass or metal with a maximum capacity of 5 litres per package which meet the packing group III performance level;</li><li>(b) For toxic gases, combination packagings with hermetically sealed inner packagings of glass or metal with a maximum capacity of 1 litre per package which meet the packing group III performance level.</li></ul></li></ul>		

P202	PACKING INSTRUCTION	P202
<b>RESERVED</b>		

P203	PACKING INSTRUCTION	P203
<b>Type of packagings:</b> Cryogenic receptacles		
<b>General instructions:</b>		
<ol style="list-style-type: none"> <li>(1) The special packing provisions of 4.1.6 shall be met.</li> <li>(2) The receptacles shall be so insulated that they cannot become coated with dew or hoar-frost.</li> <li>(3) In the case of receptacles intended for the carriage of gases of classification code 3O, the material used to ensure the leakproofness of the joints or for the maintenance of the closures shall be compatible with the contents.</li> </ol>		
<b>Particular instructions for closed cryogenic receptacles:</b>		
<ol style="list-style-type: none"> <li>(4) The receptacles shall be fitted with safety valves.</li> <li>(5) For refrigerated liquefied gases of classification codes 3A and 3O the degree of filling, at the filling temperature and at a pressure of 0.1 MPa (1 bar) shall not exceed 98% of the capacity.</li> <li>(6) For refrigerated liquefied gases of classification code 3F the degree of filling shall remain below the level at which, if the contents were raised to the temperature at which the vapour pressure equalled the opening pressure of the relief valve, the volume would reach 95% of the capacity at that temperature.</li> <li>(7) Receptacles shall be subjected to periodic inspections in accordance with the provisions of 6.2.1.6.</li> <li>(8) Periodic inspections shall be carried out every 10 years. By derogation from this date, the periodic inspection of receptacles which make use of composite materials (composite receptacles) may be carried out at intervals determined by the competent authority of the Contracting Party to ADR which has approved the technical code for the design and construction.</li> </ol>		
<b>Particular instructions for open cryogenic receptacles:</b>		
<ol style="list-style-type: none"> <li>(9) Open cryogenic receptacles are not allowed for flammable refrigerated liquefied gases of classification code 3F, and UN No. 2187 carbon dioxide, refrigerated liquid and its mixtures.</li> <li>(10) The receptacles shall be equipped with devices which prevent the liquid from splashing out.</li> <li>(11) Glass receptacles shall be double-walled vacuum insulated and surrounded by an absorbent insulating material; they shall be protected by iron-wire baskets and placed in metal cases. The metal cases for the glass receptacles and the other receptacles shall be fitted with means of handling.</li> <li>(12) The openings of the receptacles shall be fitted with devices allowing gases to escape, preventing any splashing out of the liquid, and so fixed that they cannot fall out.</li> <li>(13) In the case of UN No. 1073 oxygen refrigerated liquid and mixtures thereof, the devices referred to above and the absorbent insulating material surrounding the glass receptacles shall be made of incombustible materials.</li> </ol>		
<b>Reference to standards</b> <i>(reserved)</i>		

P204	PACKING INSTRUCTION	P204
This packing instruction applies to UN No. 1950 aerosols and UN No. 2037 receptacles, small, containing gas (gas cartridges)		
<p>(1) The special packing provisions of 4.1.6 shall be met when applicable.</p> <p>(2) Receptacles shall be so closed and leakproof as to prevent escape of the gases.</p> <p>(3) For UN No. 1950 aerosols and UN No. 2037 receptacles, small, containing gas (gas cartridges):</p> <p>(a) the internal pressure at 50 °C shall exceed neither two-thirds of the test pressure nor 1.32 MPa (13.2 bar).</p> <p>(b) they shall be so filled that at 50 °C the liquid phase does not exceed 95% of their capacity.</p> <p>(c) they shall satisfy a tightness (leakproofness) test in a hot-water bath:</p> <ul style="list-style-type: none"> <li>- The temperature of the bath and the duration of the test shall be such that the internal pressure of each receptacle reaches at least 90% of the internal pressure that would be reached at 55 °C;</li> <li>- However, if the contents are sensitive to heat or if the receptacles are made of a plastics material which softens at this temperature, the temperature of the bath shall be from 20 °C to 30 °C; in addition, one receptacle out of every 2000 shall be tested at the temperature prescribed in the foregoing indent;</li> <li>- No leakage or permanent deformation shall occur. The provision concerning permanent deformation is not applicable to receptacles which, being made of plastics material, soften.</li> </ul>		
The requirements of instruction P204 (3)(c) are deemed to be met if the following standards are complied with:		
<ul style="list-style-type: none"> <li>- for aerosol dispensers (UN No. 1950 aerosols): Annex to Council Directive 75/324/EEC<sup>a</sup> as amended by Commission Directive 94/1/EC<sup>b</sup>;</li> <li>- for UN No. 2037 gas cartridges containing UN No. 1965 hydrocarbon gas mixture, liquefied: EN 417:1992 Non-refillable metallic gas cartridges for liquefied petroleum gases, with or without a valve, for use with portable appliances - Construction, inspection, testing and marking.</li> </ul>		
(4) For UN No. 1950 aerosols, only non-pyrophoric and non-toxic gases may be used as propellants, as constituents of propellants, or as filler gases.		
(5) All compressed and liquefied gases, except the pyrophoric gases and very toxic gases (gases with an LC50 lower than 200 ppm), shall be accepted as filling gases for UN No. 2037 gas cartridges.		
(6) Aerosols and gas cartridges shall be placed in wooden boxes or strong fibreboard or metal boxes; UN No. 1950 aerosols made of glass or synthetic material and liable to shatter shall be separated from one another by interposed sheets of fibreboard or of another suitable material.		
(7) A package shall not weigh more than 50 kg if fibreboard boxes are used or more than 75 kg if other packagings are used.		
(8) In the case of carriage by full load, metal articles may also be packed as follows: the articles shall be grouped together in units on trays and held in position with an appropriate plastics cover; these units shall be stacked and suitably secured on pallets.		

<sup>a</sup> European Communities Council Directive 75/324/EEC of 20 May 1975 on the approximation of the laws of the Member States (of the European Communities) concerning packagings for aerosols, published in the Official Journal of the European Communities No. L147 of 9 June 1975.

<sup>b</sup> European Commission Directive 94/1/EC of 6 January 1994 to align with Directive 75/324/EEC on the approximation of the laws of the Member States (of the European Union) concerning aerosol packagings to technical progress, published in the Official Journal of the European Communities No. L23 of 28 January 1994.

P205	PACKING INSTRUCTION	P205
This packing instruction applies to UN No. 1057 lighters or lighter refills		
<ol style="list-style-type: none"> <li>(1) The special packing provisions of 4.1.6 shall be met when applicable.</li> <li>(2) The articles shall comply with the provisions of the country in which they were filled.</li> <li>(3) Lighters and lighter refills shall be provided with protection against inadvertent discharge.</li> <li>(4) The liquid portion of the gas shall not exceed 85% of the capacity of the receptacle at 15 °C.</li> <li>(5) The receptacles, including the closures, shall be capable of withstanding an internal pressure of the liquefied petroleum gas at 55 °C.</li> <li>(6) The valve mechanisms and ignition devices shall be securely sealed, taped or otherwise fastened or designed to prevent operation or leakage of the contents during carriage.</li> <li>(7) The lighters or lighter refills shall be tightly packed to prevent inadvertent operation of the release devices.</li> <li>(8) Lighters shall contain not more than 10 g of liquefied petroleum gas. Lighter refills shall contain not more than 65 g of liquefied petroleum gas.</li> <li>(9) The lighters and lighter refills shall be packed in strong outer packagings conforming to 6.1.4 consisting of natural wood boxes (4C1, 4C2), plywood boxes (4D) or reconstituted wood boxes (4F) with a maximum gross mass of 75 kg, or fibreboard boxes (4G) with a maximum gross mass of 40 kg. The packagings shall be tested and approved in accordance with Chapter 6.1 for packing group II. Nevertheless, if these packagings have a maximum gross mass of not more than 2 kg, compliance with the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.5 to 4.1.1.7.</li> </ol>		

P206	PACKING INSTRUCTION	P206
This packing instruction applies to UN No. 3150 devices, small, hydrocarbon gas powered or hydrocarbon gas refills for small devices		
<ol style="list-style-type: none"> <li>(1) The special packing provisions of 4.1.6 when applicable shall be met.</li> <li>(2) The articles shall comply with the provisions of the country in which they were filled.</li> <li>(3) The devices and refills shall be packed in outer packagings conforming to 6.1.4 tested and approved in accordance with Chapter 6.1 for packing group II.</li> </ol>		

P300	PACKING INSTRUCTION	P300
This instruction applies to UN No. 3064.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
Combination packagings consisting of inner metal cans of not more than 1 litre capacity each and outer wooden boxes (4C1, 4C2, 4D or 4F) containing not more than 5 litres of solution.		
<b>Additional requirements:</b>		
<ol style="list-style-type: none"> <li>1. Metal cans shall be completely surrounded with absorbent cushioning material.</li> <li>2. Wooden boxes shall be completely lined with suitable material impervious to water and nitroglycerin.</li> </ol>		

P301	PACKING INSTRUCTION	P301
This instruction applies to UN No. 3165.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
(1)	<p>Aluminium pressure vessel made from tubing and having welded heads.            Primary containment of the fuel within this vessel shall consist of a welded aluminium bladder having a maximum internal volume of 46 litres.            The outer vessel shall have a minimum design gauge pressure of 1 275 kPa and a minimum burst gauge pressure of 2 755 kPa.            Each vessel shall be leak checked during manufacture and before dispatch and shall be found leakproof.            The complete inner unit shall be securely packed in non-combustible cushioning material, such as vermiculite, in a strong outer tightly closed metal packaging which will adequately protect all fittings.            Maximum quantity of fuel per unit and package is 42 litres;</p>	
(2)	<p>Aluminium pressure vessel.            Primary containment of the fuel within this vessel shall consist of a welded vapour tight fuel compartment with an elastomeric bladder having a maximum internal volume of 46 litres.            The pressure vessel shall have a minimum design gauge pressure of 2 860 kPa and a minimum burst gauge pressure of 5 170 kPa.            Each vessel shall be leak-checked during manufacture and before dispatch and shall be securely packed in non-combustible cushioning material such as vermiculite, in a strong outer tightly closed metal packaging which will adequately protect all fittings.            Maximum quantity of fuel per unit and package is 42 litres.</p>	

P302	PACKING INSTRUCTION	P302
This instruction applies to UN No. 3269.		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
<p>Combination packagings which meet the packing group II or III performance level according to the criteria for Class 3, applied to the base material.            The base material and the activator (organic peroxide) shall be each separately packed in inner packagings.            The components may be placed in the same outer packaging provided they will not interact dangerously in the event of a leakage.            The activator shall have a maximum quantity of 125 ml per inner packaging if liquid, and 500 g per inner packaging if solid.</p>		



P400	PACKING INSTRUCTION	P400
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met (see also the Table in 4.1.4.4):		
(1)	Steel cylinders, tubes and pressure drums, which shall comply with the appropriate requirements in the Table of 4.1.4.4. Valves shall be protected with steel valve protection caps or collars or the cylinders, tubes or pressure drums shall be overpacked in strong wood, fibreboard or plastics boxes. Cylinders, tubes and pressure drums shall be secured to prevent movement in the box and shall be packaged and carried so that the pressure relief devices remain in the vapour space during normal conditions of handling and carriage;	
(2)	Boxes (4A, 4B, 4C1, 4C2, 4D, 4F or 4G), drums (1A2, 1B2, 1N2, 1D or 1G) or jerricans (3A2 or 3B2) enclosing hermetically sealed metal cans with inner packagings of glass or metal, with a capacity of not more than 1 litre each, having threaded closures with gaskets. Inner packagings shall be cushioned on all sides with dry, absorbent, non-combustible material in a quantity sufficient to absorb the entire contents. Inner packagings shall not be filled to more than 90% of their capacity. Outer packagings shall have a maximum net mass of 125 kg;	
(3)	Steel, aluminium or metal drums (1A2, 1B2 or 1N2), jerricans (3A2 or 3B2) or boxes (4A or 4B) with a maximum net mass of 150 kg each with hermetically sealed inner metal cans not more than 4 litre capacity each, with threaded closures fitted with gaskets. Inner packagings shall be cushioned on all sides with dry, absorbent, non-combustible material in a quantity sufficient to absorb the entire contents. Each layer of inner packagings shall be separated by a dividing partition in addition to cushioning material. Inner packagings shall not be filled to more than 90% of their capacity.	

P401	PACKING INSTRUCTION	P401						
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met (see also the Table in 4.1.4.4):								
(1)	Steel cylinders, tubes and pressure drums, which shall comply with the appropriate requirements in the Table of 4.1.4.4. Valves shall be protected with steel valve protection caps or collars or the cylinders, tubes or pressure drums shall be overpacked in strong wood, fibreboard or plastics boxes. Cylinders, tubes and pressure drums shall be secured to prevent movement in the box and shall be packaged and carried so that the pressure relief devices remain in the vapour space during normal conditions of handling and carriage;							
(2)	Combination packagings with inner packagings of glass metal or plastics which have threaded closures surrounded in inert cushioning and absorbent material in a quantity sufficient to absorb the entire contents.	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><b>Inner packaging</b></td> <td style="text-align: center;"><b>Outer packaging</b></td> </tr> <tr> <td style="text-align: center;">1 l</td> <td style="text-align: center;">30 kg</td> </tr> <tr> <td></td> <td style="text-align: center;">maximum net mass</td> </tr> </table>	<b>Inner packaging</b>	<b>Outer packaging</b>	1 l	30 kg		maximum net mass
<b>Inner packaging</b>	<b>Outer packaging</b>							
1 l	30 kg							
	maximum net mass							

<b>P402</b>	<b>PACKING INSTRUCTION</b>	<b>P402</b>
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The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met (see also the Table in 4.1.4.4):

- (1) Steel cylinders, tubes and pressure drums, which shall comply with the appropriate requirements in the Table of 4.1.4.4. Valves shall be protected with steel valve protection caps or collars or the cylinders, tubes or pressure drums shall be overpacked in strong wood, fibreboard or plastics boxes. Cylinders, tubes and pressure drums shall be secured to prevent movement in the box and shall be packaged and carried so that the pressure relief devices remain in the vapour space during normal conditions of handling and carriage;

	<b>Maximum net mass</b>	
	<b>Inner packaging</b>	<b>Outer packaging</b>

- |   |                           |        |
|---|---------------------------|--------|
| (2) Combination packagings with inner packagings of glass, metal or plastics which have threaded closures surrounded in inert cushioning and absorbent material in a quantity sufficient to absorb the entire contents. | 10 kg (glass)             | 125 kg |
|   | 15 kg (metal or plastics) | 125 kg |
- (3) Steel drums (1A1) with a maximum capacity of 250 litres.
- (4) Composite packagings consisting of a plastics receptacle with outer steel drum or aluminium (6HA1 or 6HB1) with a maximum capacity of 250 litres.

**Special packing provision specific to RID and ADR**

**RR4** For UN No. 3130, the openings of receptacles shall be tightly closed by means of two devices in series, one of which shall be screwed or secured in an equivalent manner.

P403		PACKING INSTRUCTION		P403
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:				
<b>Combination packagings:</b>				
<b>Inner packagings</b>		<b>Outer packagings</b>		<b>Maximum net mass</b>
Glass 2 kg Plastics 15 kg Metal 20 kg  Inner packagings shall have threaded closures		<b>Drums</b> steel (1A2) 400 kg aluminium (1B2) 400 kg metal, other than steel or aluminium (1N2) 400 kg plastics (1H2) 400 kg plywood (1D) 400 kg fibre (1G) 400 kg  <b>Boxes</b> steel (4A) 400 kg aluminium (4B) 400 kg natural wood (4C1) 250 kg natural wood with sift proof walls (4C2) 250 kg plywood (4D) 250 kg reconstituted wood (4F) 125 kg fibreboard (4G) 125 kg expanded plastics (4H1) 60 kg solid plastics (4H2) 250 kg  <b>Jerricans</b> steel (3A2) 120 kg aluminium (3B2) 120 kg plastics (3H2) 120 kg		
<b>Single packagings:</b>				<b>Maximum net mass</b>
<b>Drums</b> steel (1A1, 1A2) 250 kg aluminium (1B1, 1B2) 250 kg metal other than steel or aluminium (1N1, 1N2) 250 kg plastics (1H1, 1H2) 250 kg  <b>Jerricans</b> steel (3A1, 3A2) 120 kg aluminium (3B1, 3B2) 120 kg plastics (3H1, 3H2) 120 kg  <b>Composite packagings</b> plastics receptacle with outer steel or aluminium drums (6HA1 or 6HB1) 250 kg plastics receptacle with outer fibre, plastics or plywood drums (6HG1, 6HH1 or 6HD1) 75 kg plastics receptacle with outer steel or aluminium crate or box or with outer wooden, plywood, fibreboard or solid plastics boxes (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2) 75 kg				
<b>Additional requirement:</b>				
Packagings shall be hermetically sealed.				

P404	PACKING INSTRUCTION	P404
This instruction applies to pyrophoric solids: UN Nos.: 1383, 1854, 1855, 2005, 2008, 2441, 2545, 2546, 2846, 2881, 3052, 3200 and 3203.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
(1)	Combination packagings	
	Outer packagings:	(1A2, 1B2, 1N2, 1H2, 1D, 4A, 4B, 4C1, 4C2, 4D, 4F or 4H2)
	Inner packagings:	Metal packagings with a capacity of not more than 15kg each. Inner packagings shall be hermetically sealed and have threaded closures;
(2)	Metal packagings:	(1A1, 1A2, 1B1, 1N1, 1N2, 3A1, 3A2, 3B1 and 3B2) Maximum gross mass: 150 kg;
(3)	Composite packagings:	Plastics receptacle with outer steel or aluminium drum (6HA1 or 6HB1) Maximum gross mass: 150 kg.

P405	PACKING INSTRUCTION	P405
This instruction applies to UN No. 1381.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
(1)	For UN No. 1381, phosphorus, wet:	
	(a) Combination packagings	
	Outer packagings:	(4A, 4B, 4C1, 4C2, 4D or 4F) Maximum net mass: 75 kg
	Inner packagings:	
	(i)	hermetically sealed metal cans, with a maximum net mass of 15kg; or
	(ii)	glass inner packagings cushioned on all sides with dry, absorbent, non-combustible material in a quantity sufficient to absorb the entire contents with a maximum net mass of 2 kg; or
	(b)	Drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2); maximum net mass: 400 kg Jerricans (3A1 or 3B1); maximum net mass: 120 kg.
	These packagings shall be capable of passing the leakproofness test specified in 6.1.5.4 at the packing group II performance level;	
(2)	For UN No. 1381, dry phosphorus:	
	(a)	When fused, drums (1A2, 1B2 or 1N2) with a maximum net mass of 400 kg; or
	(b)	In projectiles or hard cased articles when carried without Class 1 components: as specified by the competent authority.

P406	PACKING INSTRUCTION	P406
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
<p>(1) Combination packagings</p> <p>outer packagings: (4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2, 1G, 1D, 1H2 or 3H2)</p> <p>inner packagings: water-resistant packagings;</p> <p>(2) Plastics, plywood or fibreboard drums (1H2, 1D or 1G) or boxes (4A, 4B, 4C1, 4D, 4F, 4C2, 4G and 4H2) with a water resistant inner bag, plastics film lining or water resistant coating;</p> <p>(3) Metal drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2), plastics drums (1H1 or 1H2), metal jerricans (3A1, 3A2, 3B1 or 3B2), plastics jerricans (3H1 or 3H2), plastics receptacle with outer steel or aluminium drums (6HA1 or 6HB1), plastics receptacle with outer fibre, plastics or plywood drums (6HG1, 6HH1 or 6HD1), plastics receptacle with outer steel or aluminium crate or box or with outer wooden, plywood, fibreboard or solid plastics boxes (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2).</p>		
<b>Additional requirements:</b>		
<ol style="list-style-type: none"> <li>1. Packagings shall be designed and constructed to prevent the loss of water or alcohol content or the content of the phlegmatizer.</li> <li>2. Packagings shall be so constructed and closed so as to avoid an explosive overpressure or pressure build-up of more than 300 kPa (3 bar).</li> </ol>		
<b>Special packing provisions:</b>		
<b>PP24</b> UN Nos. 2852, 3364, 3365, 3366, 3367, 3368 and 3369 shall not be carried in quantities of more than 500 g per package.		
<b>PP25</b> For UN No. 1347, the quantity carried shall not exceed 15 kg per package.		
<b>PP26</b> For UN Nos. 1310, 1320, 1321, 1322, 1344, 1347, 1348, 1349, 1517, 2907, 3317 and 3344 packagings shall be lead free.		
<b>PP78</b> UN No. 3370 shall not be carried in quantities of more than 11.5 kg per package.		
<b>PP80</b> For UN Nos. 2907 and 3344, packagings shall meet the packing group II performance level. Packagings meeting the test criteria of packing group I shall not be used.		

P407	PACKING INSTRUCTION	P407
This instruction applies to UN Nos. 1331, 1944, 1945 and 2254.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met: Combination packagings comprising securely closed inner packagings to prevent accidental ignition under normal conditions of transport. The maximum net mass of the outer packagings shall not exceed 45 kg except for fibreboard boxes which shall not exceed 30 kg.		
<b>Additional requirement:</b>		
Matches shall be tightly packed.		
<b>Special packing provision:</b>		
PP27 UN No. 1331, Strike-anywhere matches shall not be packed in the same outer packaging with any other dangerous goods other than safety matches or wax Vesta matches, which shall be packed in separate inner packagings. Inner packagings shall not contain more than 700 strike-anywhere matches.		

P408	PACKING INSTRUCTION	P408
This instruction applies to UN No. 3292.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
(1) For cells:  Outer packagings with sufficient cushioning material to prevent contact between cells and between cells and the internal surfaces of the outer packaging and to ensure that no dangerous movement of the cells within the outer packaging occurs during carriage. Packagings shall conform to the packing group II performance level;		
(2) For batteries:  Batteries may be carried unpacked or in protective enclosures (e.g. in fully enclosed or wooden slatted crates). The terminals shall not support the weight of other batteries or materials packed with the batteries.		
<b>Additional requirement:</b>		
Batteries shall be protected against short circuit and shall be isolated in such a manner as to prevent short circuits.		

P409	PACKING INSTRUCTION	P409
This instruction applies to UN Nos. 2956, 3242 and 3251.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
(1) Fibre drum (1G) which may be fitted with a liner or coating; maximum net mass: 50 kg;		
(2) Combination packagings: Fibreboard box (4G) with a single inner plastic bag; maximum net mass: 50 kg;		
(3) Combination packagings: Fibreboard box (4G) or fibre drum (1G) with plastics inner packagings each containing a maximum of 5 kg; maximum net mass: 25 kg.		

P410		PACKING INSTRUCTION		P410
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:				
Combination packagings:				
Inner packagings		Outer packagings	Maximum net mass	
			Packing group II	Packing group III
Glass	10 kg	<b>Drums</b>		
Plastics <sup>a</sup>	30 kg	steel (1A2)	400 kg	400 kg
Metal	40 kg	aluminium (1B2)	400 kg	400 kg
Paper <sup>a, b</sup>	10 kg	metal other than steel	400 kg	400 kg
Fibre <sup>a, b</sup>	10 kg	or aluminium (1N2)		
		plastics (1H2)	400 kg	400 kg
		plywood (1D)	400 kg	400 kg
		fibre (1G) <sup>a</sup>	400 kg	400 kg
<sup>a</sup>	<i>These packagings shall be sift-proof.</i>			
		<b>Boxes</b>		
		steel (4A)	400 kg	400 kg
		aluminium (4B)	400 kg	400 kg
		natural wood (4C1)	400 kg	400 kg
		natural wood with sift-proof walls (4C2)	400 kg	400 kg
		plywood (4D)	400 kg	400 kg
		reconstituted wood (4F)	400 kg	400 kg
		fibreboard (4G) <sup>a</sup>	400 kg	400 kg
		expanded plastics (4H1)	60 kg	60 kg
		solid plastics (4H2)	400 kg	400 kg
		<b>Jerricans</b>		
		steel (3A2)	120 kg	120 kg
		aluminium (3B2)	120 kg	120 kg
		plastics (3H2)	120 kg	120 kg
<b>Single packagings:</b>				
<b>Drums</b>				
		steel (1A1 or 1A2)	400 kg	400 kg
		aluminium (1B1 or 1B2)	400 kg	400 kg
		metal other than steel or aluminium (1N1 or 1N2)	400 kg	400 kg
		plastics (1H1 or 1H2)	400 kg	400 kg
<b>Jerricans</b>				
		steel (3A1 or 3A2)	120 kg	120 kg
		aluminium (3B1 or 3B2)	120 kg	120 kg
		plastics (3H1 or 3H2)	120 kg	120 kg

P410	PACKING INSTRUCTION (cont'd)		P410
Single packagings (cont'd):	Packing group II	Packing group III	
<b>Boxes</b>			
steel (4A) <sup>c</sup>	400 kg	400 kg	
aluminium (4B) <sup>c</sup>	400 kg	400 kg	
natural wood (4C1) <sup>c</sup>	400 kg	400 kg	
plywood (4D) <sup>c</sup>	400 kg	400 kg	
reconstituted wood (4F) <sup>c</sup>	400 kg	400 kg	
natural wood with sift-proof walls (4C2) <sup>c</sup>	400 kg	400 kg	
fibreboard (4G) <sup>c</sup>	400 kg	400 kg	
solid plastics (4H2) <sup>c</sup>	400 kg	400 kg	
<b>Bags</b>			
Bags (5H3, 5H4, 5L3, 5M2) <sup>c, d</sup>	50 kg	50 kg	
<b>Composite packagings</b>			
plastics receptacle with outer steel, aluminium, plywood, fibre or plastics drum (6HA1, 6HB1, 6HG1, 6HD1, or 6HH1)	400 kg	400 kg	
plastics receptacle with outer steel or aluminium crate or box, or outer wooden, plywood, fibreboard or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	75 kg	75 kg	
glass receptacle with outer steel, aluminium, plywood or fibre drum (6PA1, 6PB1, 6PD1 or 6PG1) or outer steel or aluminium crate or box or with outer wooden or fibreboard box or with outer wickerwork hamper (6PA2, 6PB2, 6PC, 6PD2, or 6PG2) or with outer solid or expanded plastics packaging (6PH1 or 6PH2)	75 kg	75 kg	
<sup>c</sup> <i>These packagings shall not be used when the substances being carried may become liquid during carriage.</i>			
<sup>d</sup> <i>These packagings shall only be used for packing group II substances when carried in a closed vehicle or container.</i>			
<b>Special packing provisions:</b>			
<b>PP39</b> For UN No. 1378, for metal packagings a venting device is required.			
<b>PP40</b> For UN Nos. 1326, 1352, 1358, 1395, 1396, 1436, 1437, 1871, 2805 and 3182, packing group II, bags are not allowed.			



<b>P411</b>	<b>PACKING INSTRUCTION</b>	<b>P411</b>
This instruction applies to UN No. 3270.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
(1)	Fibreboard box with a maximum gross mass of 30 kg;	
(2)	Other packagings, provided that explosion is not possible by reason of increased internal pressure. Maximum net mass shall not exceed 30 kg.	

<b>P500</b>	<b>PACKING INSTRUCTION</b>	<b>P500</b>
This instruction applies to UN No. 3356.		
The general provisions of 4.1.1 and 4.1.3 shall be met. Packagings shall conform to the packing group II performance level.		
The generator(s) shall be carried in a package which meets the following requirements when one generator in the package is actuated:		
(a)	Other generators in the package will not be actuated;	
(b)	Packaging material will not ignite; and	
(c)	The outside surface temperature of the completed package shall not exceed 100 °C.	

P501		PACKING INSTRUCTION		P501
This instruction applies to UN No. 2015.				
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:				
Combination packagings:		Inner packaging maximum capacity	Outer packaging maximum net mass	
(1)	Boxes (4A, 4B, 4C1, 4C2, 4D, 4H2) or drums (1A2, 1B2, 1N2, 1H2, 1D) or jerricans (3A2, 3B2, 3H2) with glass, plastics or metal inner packagings	5 l	125 kg	
(2)	Fibreboard box (4G) or fibre drum (1G), with plastics or metal inner packagings each in a plastics bag	2 l	50 kg	
Single packagings:		Maximum capacity		
<b>Drums</b>		250 l		
steel (1A1)				
aluminium (1B1)				
metal other than steel or aluminium (1N1)				
plastics (1H1)				
<b>Jerricans</b>		60 l		
steel (3A1)				
aluminium (3B1)				
plastics (3H1)				
<b>Composite packagings</b>				
plastics receptacle with outer steel or aluminium drum (6HA1, 6HB1)		250 l		
plastics receptacle with outer fibre, plastics or plywood drum (6HG1, 6HH1, 6HD1)		250 l		
plastics receptacle with outer steel or aluminium crate or box or plastics receptacle with outer wooden, plywood, fibreboard or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)		60 l		
glass receptacle with outer steel, aluminium, fibre, plywood, solid plastics or expanded plastics drum (6PA1, 6PB1, 6PG1, 6PD1, 6PH1 or 6PH2) or with outer steel or aluminium crate or box or with outer wooden or fibreboard box or with outer wickerwork hamper (6PA2, 6PB2, 6PC, 6PG2 or 6PD2)		60 l		
<b>Additional requirements:</b>				
1. Packagings shall have a maximum filling degree of 90%.				
2. Packagings shall be vented.				

P502		PACKING INSTRUCTION		P502
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:				
<b>Combination packagings:</b>				
Inner packagings		Outer packagings		Maximum net mass
Glass	5 l	<b>Drums</b>	steel (1A2)	125 kg
Metal	5 l		aluminium (1B2)	125 kg
Plastics	5 l		metal other than steel or aluminium (1N2)	125 kg
			plastics (1H2)	125 kg
			plywood (1D)	125 kg
			fibre (1G)	125 kg
		<b>Boxes</b>	steel (4A)	125 kg
			aluminium (4B)	125 kg
			natural wood (4C1)	125 kg
			natural wood with sift-proof walls (4C2)	125 kg
			plywood (4D)	125 kg
			reconstituted wood (4F)	125 kg
			fibreboard (4G)	125 kg
			expanded plastics (4H1)	60 kg
			solid plastics (4H2)	125 kg
<b>Single packagings:</b>				<b>Maximum capacity</b>
<b>Drums</b>				250 l
steel (1A1)				
aluminium (1B1)				
plastics (1H1)				
<b>Jerricans</b>				60 l
steel (3A1)				
aluminium (3B1)				
plastics (3H1)				
<b>Composite packagings</b>				
plastics receptacle with outer steel or aluminium drum (6HA1, 6HB1)				250 l
plastics receptacle with outer fibre, plastics or plywood drum (6HG1, 6HH1, 6HD1)				250 l
plastics receptacle with outer steel or aluminium crate or box or plastics receptacle with outer wooden, plywood, fibreboard or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)				60 l
glass receptacle with outer steel, aluminium, fibre, plywood, solid plastics or expanded plastics drum (6PA1, 6PB1, 6PG1, 6PD1, 6PH1 or 6PH2) or with outer steel or aluminium crate or box or with outer wooden or fibreboard box or with outer wickerwork hamper (6PA2, 6PB2, 6PC, 6PG2 or 6PD2)				60 l
<b>Special packing provision:</b>				
PP28 For UN No. 1873, only glass inner packagings and glass inner receptacles are authorized respectively for combination packagings and composite packagings.				

P503		PACKING INSTRUCTION		P503
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:				
<b>Combination packagings:</b>				
Inner packagings		Outer packagings		Maximum net mass
Glass	5 kg.	<b>Drums</b>	steel (1A2)	125kg
Metal	5 kg		aluminium (1B2)	125kg
Plastics	5 kg		metal other than steel or aluminium (1N2)	125kg
			plastics (1H2)	125kg
			plywood (1D)	125kg
			fibre (1G)	125kg
		<b>Boxes</b>	steel (4A)	125 kg
			aluminium (4B)	125 kg
			natural wood (4C1)	125 kg
			natural wood with sift-proof walls (4C2)	125 kg
			plywood (4D)	125 kg
			reconstituted wood (4F)	125 kg
			fibreboard (4G)	40 kg
			expanded plastics (4H1)	60 kg
			solid plastics (4H2)	125 kg
<b>Single packagings:</b>				
Metal drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) with a maximum net mass of 250 kg.				
Fibreboard (1G) or plywood drums (1D) fitted with inner liners with a maximum net mass of 200 kg.				

P504	PACKING INSTRUCTION	P504
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
<b>Combination packagings:</b>	<b>Maximum net mass</b>	
(1) Glass receptacles with a maximum capacity of 5 litres in 1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G, 4H2 outer packagings	75 kg	
(2) Plastics receptacles with a maximum capacity of 30 litres in 1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G, 4H2 outer packagings	75 kg	
(3) Metal receptacles with a maximum capacity of 40 litres in 1G, 4F or 4G outer packagings	125 kg	
(4) Metal receptacles with a maximum capacity of 40 litres in 1A2, 1B2, 1N2, 1H2, 1D, 4A, 4B, 4C1, 4C2, 4D, 4H2 outer packagings	225 kg	
<b>Single packagings:</b>	<b>Maximum capacity</b>	
<b>Drums</b>		
steel, non-removable head (1A1)	250 l	
steel, removable head (1A2)	250 l	
aluminium, non-removable head (1B1)	250 l	
aluminium, removable head (1B2)	250 l	
metal other than steel or aluminium, non-removable head (1N1)	250 l	
metal other than steel or aluminium, removable head (1N2)	250 l	
plastics, non-removable head (1H1)	250 l	
plastics, removable head (3H2)	250 l	
<b>Jerricans</b>		
steel, non-removable head (3A1)	60 l	
steel, removable head (3A2)	60 l	
aluminium, non-removable head (3B1)	60 l	
aluminium, removable head (3B2)	60 l	
plastics, non-removable head (3H1)	60 l	
plastics, removable head (3H2)	60 l	
<b>Composite packagings:</b>		
plastics receptacle with outer steel or aluminium drum (6HA1, 6HB1)	250 l	
plastics receptacle with outer fibre, plastics or plywood drum (6HG1, 6HH1, 6HD1)	120 l	
plastics receptacle with outer steel or aluminium crate or box or plastics receptacle with outer wooden, plywood, fibreboard or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	60 l	
glass receptacle with outer steel, aluminium, fibre, plywood, solid plastics or expanded plastics drum (6PA1, 6PB1, 6PG1, 6PD1, 6PH1 or 6PH2) or with outer steel or aluminium crate or box or with outer wooden fibreboard box or with outer wickerwork hamper (6PA2, 6PB2, 6PC, 6PG2 or 6PD2)	60 l	
<b>Special packing provisions:</b>		
<b>PP10</b> For UN No. 2014 PG II and UN No. 2984 PG III, the packaging shall be vented.		
<b>PP29</b> For UN No. 2014, maximum degree of filling shall be 90%.		

P520		PACKING INSTRUCTION							P520
This instruction applies to organic peroxides of Class 5.2 and self-reactive substances of Class 4.1									
The packagings listed below are authorized provided the general provisions of 4.1.1 and 4.1.3 and special provisions of 4.1.7.1 are met.									
The packing methods are designated OP1 to OP8. The packing methods appropriate for the individual currently assigned organic peroxides and self-reactive substances are listed in 4.1.7.1.3, 2.2.41.4 and 2.2.52.4. The quantities specified for each packing method are the maximum quantities authorized per package. The following packagings are authorized:									
<ol style="list-style-type: none"> <li>(1) Combination packagings with outer packagings comprising boxes (4A, 4B, 4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2), drums (1A2, 1B2, 1G, 1H2 and 1D), jerricans (3A2, 3B2 and 3H2);</li> <li>(2) Single packagings consisting of drums (1A1, 1A2, 1B1, 1B2, 1G, 1H1, 1H2 and 1D) and jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2);</li> <li>(3) Composite packagings with plastics inner receptacles (6HA1, 6HA2, 6HB1, 6HB2, 6HC, 6HD1, 6HD2, 6HG1, 6HG2, 6HH1 and 6HH2).</li> </ol>									
<b>Maximum quantity per packaging/package <sup>a</sup> for packing methods OP1 to OP8</b>									
	<b>Packing Method</b>	OP1	OP2 <sup>a</sup>	OP3	OP4 <sup>a</sup>	OP5	OP6	OP7	OP8
<b>Maximum Quantity</b>									
Maximum mass (kg) for solids and for combination packagings (liquid and solid)		0.5	0.5/10	5	5/25	25	50	50	200 <sup>b</sup>
Maximum contents in litres for liquids <sup>c</sup>		0.5	-	5	-	30	60	60	225 <sup>d</sup>
<sup>a</sup> If two values are given, the first applies to the maximum net mass per inner packaging and the second to the maximum net mass of the complete package.									
<sup>b</sup> 60 kg for jerricans / 100 kg for boxes.									
<sup>c</sup> Viscous substances shall be treated as solids when they do not meet the criteria provided in the definition for "liquids" presented in 1.2.1.									
<sup>d</sup> 60 litres for jerricans.									
<b>Additional requirements:</b>									
<ol style="list-style-type: none"> <li>1. Metal packagings, including inner packagings of combination packagings and outer packagings of combination or composite packagings may only be used for packing methods OP7 and OP8.</li> <li>2. In combination packagings, glass receptacles may only be used as inner packagings with maximum contents of 0.5 kg for solids or 0.5 litre for liquids.</li> <li>3. In combination packagings, cushioning materials shall not be readily combustible.</li> <li>4. The packaging of an organic peroxide or self-reactive substance required to bear an "EXPLOSIVE" subsidiary risk label shall also comply with the provisions given in 4.1.5.10 and 4.1.5.11.</li> </ol>									
<b>Special packing provisions:</b>									
<b>PP21</b> For certain self-reactive substances of types B or C, UN Nos. 3221, 3222, 3223, 3224, 3231, 3232, 3233 and 3234, a smaller packaging than that allowed by packing methods OP5 or OP6 respectively shall be used (see 4.1.6 and 2.2.41.4).									
<b>PP22</b> UN No. 3241, 2-Bromo-2-nitropropane-1, 3-diol, shall be packed in accordance with packing method OP6.									

P600	PACKING INSTRUCTION	P600
This instruction applies to UN Nos. 1700, 2016 and 2017.		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
Outer packagings (1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G, 4H2) meeting the packing group II performance level. The articles shall be individually packaged and separated from each other using partitions, dividers, inner packagings or cushioning material to prevent inadvertent discharge during normal conditions of carriage.		
Maximum net mass: 75 kg		

P601	PACKING INSTRUCTION	P601
The following packagings are authorized provided the general provisions of 4.1.1 and 4.1.3 are met and the packagings are hermetically sealed:		
<p>(1) Combination packagings consisting of glass inner packagings not exceeding 1 litre in capacity packed with absorbent material sufficient to absorb the entire contents and inert cushioning material placed in metal receptacles which are individually packed in 1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings with a maximum gross mass of 15 kg. Inner packagings shall not be filled to more than 90% of their capacity. The closure of each inner packaging shall be physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during carriage;</p> <p>(2) Combination packagings consisting of metal inner packagings or additionally, for UN No. 1744 only, in polyvinylidene fluoride (PVDF) inner packagings, not exceeding 5 litres in capacity individually packed with absorbent material sufficient to absorb the contents and inert cushioning material in 1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings with a maximum gross mass of 75 kg. Inner packagings shall not be filled to more than 90% of their capacity. The closure of each inner packaging shall be physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during carriage;</p> <p>(3) Combination packagings:</p> <p style="padding-left: 40px;">Outer packagings: Plastic or steel drums, removable head (1A2 or 1H2) tested in accordance with the test requirements in 6.1.5 as combination packagings as assembled for carriage;</p> <p style="padding-left: 40px;">Inner packagings:</p> <p style="padding-left: 40px;">Drums and composite packagings (1A1, 1B1, 1N1, 1H1 or 6HA1) meeting the requirements of Chapter 6.1 for single packagings, subject to the following conditions:</p> <p style="padding-left: 80px;">(a) The hydraulic pressure test shall be conducted at a pressure of at least 0.3 MPa (gauge pressure);</p> <p style="padding-left: 80px;">(b) The design and production leakproofness tests shall be conducted at a test pressure of 30 kPa;</p> <p style="padding-left: 80px;">(c) They shall be isolated from the outer drum by the use of inert shock-mitigating cushioning material which surrounds the inner packaging on all sides;</p> <p style="padding-left: 80px;">(d) Their capacity shall not exceed 125 litres; and</p>		

P601	PACKING INSTRUCTION (cont'd)	P601
(3)	<i>Combination packagings: (cont'd)</i>	
	<p>(e) Closures shall be of a screw cap type that are:</p> <ul style="list-style-type: none"><li>(i) physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during carriage; and</li><li>(ii) provided with a cap seal;</li></ul> <p>(f) The outer and inner packagings shall be subjected periodically to a leakproofness test according to (b) at intervals of not more than two and a half years;</p> <p>(g) The complete packaging shall be visually inspected to the satisfaction of the competent authority at least every 3 years;</p> <p>(h) The outer and inner packaging shall bear in clearly legible and durable characters:</p> <ul style="list-style-type: none"><li>(i) the date (month, year) of the initial test and the latest periodic test and inspection;</li><li>(ii) The stamp of the expert who carried out the test and inspection;</li></ul>	
(4)	Cylinders, tubes and pressure drums, which shall comply with the appropriate requirements of the Table of 4.1.4.4.	
<b>Special packing provision specific to RID and ADR:</b>		
<b>RR3</b>	Only receptacles which satisfy one of the special requirements (PR) listed in 4.1.4.4 shall be used.	



P602	PACKING INSTRUCTION	P602
<p>The following packagings are authorised provided the general provisions of 4.1.1 and 4.1.3 are met and the packagings are hermetically sealed:</p>		
<ol style="list-style-type: none"><li>(1) Combination packagings consisting of glass inner packagings packed with absorbent material sufficient to absorb the entire contents and inert cushioning material placed in metal receptacles which are individually packed in 1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings with a maximum gross mass of 50 kg. Inner packagings shall not be filled to more than 90% of their capacity. The closure of each inner packaging shall be physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during carriage. Inner packagings shall not exceed 1 litre in capacity;</li><li>(2) Combination packagings consisting of metal inner packagings individually packed with absorbent material sufficient to absorb the entire contents and inert cushioning material in 1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings with a maximum gross mass of 75 kg. Inner packagings shall not be filled to more than 90% of their capacity. The closure of each inner packaging shall be physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during carriage. Inner packagings shall not exceed 5 litres in capacity;</li><li>(3) Drums and composite packagings (1A1, 1B1, 1N1, 1H1 or 6HA1), subject to the following conditions:<ol style="list-style-type: none"><li>(a) The hydraulic pressure test shall be conducted at a pressure of at least 0.3 MPa (gauge pressure);</li><li>(b) The design and production leakproofness tests shall be conducted at a test pressure of 30 kPa; and</li><li>(c) Closures shall be of a screw cap type that are:<ol style="list-style-type: none"><li>(i) physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during carriage; and</li><li>(ii) provided with a cap seal;</li></ol></li></ol></li><li>(4) Cylinders, tubes and pressure drums with a minimum test pressure of 1MPa (10 bar) (gauge pressure) conforming to the provisions of packing instruction P200. No cylinder, tube or pressure drum may be equipped with any pressure relief device. Cylinders, tubes and pressure drums shall have their valves protected.</li></ol>		

P620	PACKING INSTRUCTION	P620
This instruction applies to UN Nos. 2814 and 2900.		
The following packagings are authorized provided the special packing provisions of 4.1.8 are met:		
Packagings meeting the requirements of Chapter 6.3 and approved accordingly consisting of:		
<p>(a) Inner packagings comprising:</p> <ul style="list-style-type: none"> <li>(i) leakproof primary receptacle(s);</li> <li>(ii) a leakproof secondary packaging;</li> <li>(iii) other than for solid infectious substances, an absorbent material in sufficient quantity to absorb the entire contents placed between the primary receptacle(s) and the secondary packaging; if multiple primary receptacles are placed in a single secondary packaging, they shall be individually wrapped so as to prevent contact between them;</li> </ul> <p>(b) An outer packaging of adequate strength for its capacity, mass and intended use. The smallest external dimension shall be at least 100 mm.</p>		
<b>Additional requirements:</b>		
<ol style="list-style-type: none"> <li>1. Inner packagings containing infectious substances shall not be consolidated with inner packagings containing unrelated types of goods. Complete packages may be overpacked in accordance with the provisions of 1.2.1 and 5.1.2; such an overpack may contain dry ice.</li> <li>2. Other than for exceptional consignments, e.g. whole organs which require special packaging, the following additional requirements shall apply: <ul style="list-style-type: none"> <li>(a) Lyophilized substances: Primary receptacles shall be flame-sealed glass ampoules or rubber-stoppered glass vials fitted with metal seals;</li> <li>(b) Liquid or solid substances: <ul style="list-style-type: none"> <li>(i) Substances consigned at ambient temperatures or at a higher temperature. Primary receptacles shall be of glass, metal or plastics. Positive means of ensuring a leakproof seal shall be provided, e.g. a heat seal, a skirted stopper or a metal crimp seal. If screw caps are used, they shall be reinforced with adhesive tape;</li> <li>(ii) Substances consigned refrigerated or frozen. Ice, dry ice or other refrigerant shall be placed around the secondary packaging(s) or alternatively in an overpack with one or more complete packages marked in accordance with 6.3.1.1. Interior supports shall be provided to secure secondary packaging(s) or packages in position after the ice or dry ice has dissipated. If ice is used, the outer packaging or overpack shall be leakproof. If dry ice is used, the outer packaging or overpack shall permit the release of carbon dioxide gas. The primary receptacle and the secondary packaging shall maintain their integrity at the temperature of the refrigerant used;</li> <li>(iii) Substances consigned in liquid nitrogen. Plastics primary receptacles capable of withstanding very low temperature shall be used. The secondary packaging shall also be capable of withstanding very low temperatures, and in most cases will need to be fitted over the primary receptacle individually. Provisions for the consignment of liquid nitrogen shall also be fulfilled in accordance with the requirements of P200. The primary receptacle and the secondary packaging shall maintain their integrity at the temperature of the liquid nitrogen.</li> </ul> </li> </ul> </li> <li>3. Whatever the intended temperature of the consignment, the primary receptacle or the secondary packaging shall be capable of withstanding without leakage an internal pressure producing a pressure differential of not less than 95 kPa and temperatures in the range -40 °C to +55 °C.</li> </ol>		

P621	PACKING INSTRUCTION	P621
<b>This instruction applies to UN No. 3291.</b>		
The following packagings are authorized provided the general provisions of 4.1.1 and 4.1.3 and the special provisions of 4.1.8 are met:		
<ul style="list-style-type: none"><li>(1) Rigid, leakproof packagings meeting the requirements of Chapter 6.1 for solids, at the packing group II performance level, provided there is sufficient absorbent material to absorb the entire amount of liquid present and the packaging is capable of retaining liquids;</li><li>(2) For packages containing larger quantities of liquid, rigid packagings meeting the requirements of Chapter 6.1 at the packing group II performance level for liquids.</li></ul>		
<b>Additional requirement:</b>		
Packagings intended to contain sharp objects such as broken glass and needles shall be resistant to puncture and retain liquids under the performance test conditions in Chapter 6.1.		

P650	PACKING INSTRUCTION	P650
This packing instruction applies to UN No. 3373.		
<b>General provisions</b>		
Diagnostic specimens shall be packed in good quality packagings, which shall be strong enough to withstand the shocks and loadings normally encountered during carriage, including trans-shipment between transport units and between transport units and warehouses as well as any removal from a pallet or overpack for subsequent manual or mechanical handling. Packagings shall be constructed and closed so as to prevent any loss of contents when prepared for carriage which might be caused under normal conditions of carriage, by vibration, or by changes in temperature, humidity or pressure.		
Primary receptacles shall be packed in secondary packagings in such a way that, under normal conditions of carriage, they cannot break, be punctured or leak their contents into the secondary packaging. Secondary packagings shall be secured in outer packagings with suitable cushioning material. Any leakage of the contents shall not substantially impair the protective properties of the cushioning material or of the outer packaging.		
For carriage each package shall be clearly and durably marked with the words "DIAGNOSTIC SPECIMENS". Packages containing substances carried in refrigerated liquid nitrogen shall, in addition, bear a label conforming to model No. 2.2.		
The completed package shall be capable of successfully passing the drop test in 6.3.2.5 as specified in 6.3.2.3 and 6.3.2.4 except that the height of the drop shall not be less than 1.2 m.		
If any substances have leaked and been spilled in a vehicle or container, it may not be reused until after it has been thoroughly cleaned and, if necessary, disinfected or decontaminated. Any other goods and articles carried in the same vehicle or container shall be examined for possible contamination.		
<b>For liquids</b>		
The primary receptacle(s) shall be leakproof and shall not contain more than 500 ml.		
There shall be absorbent material placed between the primary receptacle and the secondary packaging; if several fragile primary receptacles are placed in a single secondary packaging, they shall be either individually wrapped or separated so as to prevent contact between them. The absorbent material, such as cotton wool, shall be in sufficient quantity to absorb the entire contents of the primary receptacles and there shall be a secondary packaging which shall be leakproof.		
The primary receptacle or the secondary packaging shall be capable of withstanding without leakage an internal pressure producing a pressure differential of not less than 95 kPa (0.95 bar).		
The outer packaging shall not contain more than 4 litres.		
<b>For solids</b>		
The primary receptacle(s) shall be siftproof and shall not contain more than 500 g.		
If several fragile primary receptacles are placed in a single secondary packaging, they shall be either individually wrapped or separated so as to prevent contact between them and there shall be a secondary packaging which shall be leakproof.		
The outer packaging shall not contain more than 4 kg.		
Provided that diagnostic specimens are packed in accordance with this packing instruction, no other requirements of ADR shall apply.		

P800	PACKING INSTRUCTION	P800
This instruction applies to UN Nos. 2809 and 2803.		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
<p>(1) Cylinders in accordance with P200; or</p> <p>(2) Steel flasks or bottles with threaded closures with a capacity not exceeding 2.5 l; or</p> <p>(3) Combination packagings which conform to the following requirements:</p> <p style="margin-left: 20px;">(a) Inner packagings shall comprise glass, metal or rigid plastics intended to contain liquids with a maximum net mass of 15 kg each;</p> <p style="margin-left: 20px;">(b) The inner packagings shall be packed with sufficient cushioning material to prevent breakage;</p> <p style="margin-left: 20px;">(c) Either the inner packagings or the outer packagings shall have inner liners or bags of strong leakproof and puncture-resistant material impervious to the contents and completely surrounding the contents to prevent it from escaping from the package irrespective of its position or orientation;</p> <p style="margin-left: 20px;">(d) The following outer packagings and maximum net masses are authorized:</p>		
<b>Outer packaging:</b>	<b>Maximum net mass</b>	
<b>Drums</b>		
steel (1A2)	400 kg	
metal other than steel or aluminium (1N2)	400 kg	
plastics (1H2)	400 kg	
plywood (1D)	400 kg	
fibre (1G)	400 kg	
<b>Boxes</b>		
steel (4A)	400 kg	
natural wood (4C1)	250 kg	
natural wood with sift-proof walls (4C2)	250 kg	
plywood (4D)	250 kg	
reconstituted wood (4F)	125 kg	
fibreboard (4G)	125 kg	
expanded plastics (4H1)	60 kg	
solid plastics (4H2)	125 kg	
<b>Special packing provision:</b>		
<p><b>PP41</b> For UN No. 2803, when it is necessary to carry gallium at low temperatures in order to maintain it in a completely solid state, the above packagings may be overpacked in a strong, water-resistant outer packaging which contains dry ice or other means of refrigeration. If a refrigerant is used, all of the above materials used in the packaging of gallium shall be chemically and physically resistant to the refrigerant and shall have impact resistance at the low temperatures of the refrigerant employed. If dry ice is used, the outer packaging shall permit the release of carbon dioxide gas.</p>		

P801	PACKING INSTRUCTION	P801
This instruction applies to new and used batteries assigned to UN Nos. 2794, 2795 or 3028.		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
<ol style="list-style-type: none"> <li>(1) Rigid outer packagings;</li> <li>(2) Wooden slatted crates;</li> <li>(3) Pallets.</li> </ol>		
<b>Additional requirements:</b>		
<ol style="list-style-type: none"> <li>1. Batteries shall be protected against short circuits.</li> <li>2. Batteries stacked shall be adequately secured in tiers separated by a layer of non conductive material.</li> <li>3. Battery terminals shall not support the weight of other superimposed elements.</li> <li>4. Batteries shall be packaged or secured to prevent inadvertent movement. Any cushioning material used shall be inert.</li> </ol>		

P801a	PACKING INSTRUCTION	P801a
This instruction applies to used batteries of UN Nos. 2794, 2795, 2800 and 3028.		
Stainless steel or solid plastics battery boxes of a capacity of up to 1 m <sup>3</sup> are authorized provided the following provisions are met:		
<ol style="list-style-type: none"> <li>(a) The battery boxes shall be resistant to the corrosive substances contained in the storage batteries;</li> <li>(b) Under normal conditions of carriage, no corrosive substance shall leak from the battery boxes and no other substance (e.g. water) shall enter the battery boxes. No dangerous residues of corrosive substances contained in the storage batteries shall adhere to the outside of the battery boxes;</li> <li>(c) The battery boxes shall not be loaded with storage batteries to a height greater than the height of their sides;</li> <li>(d) No storage battery containing substances or other dangerous goods which may react dangerously with one another shall be placed in a battery box;</li> <li>(e) The battery boxes shall be either: <ol style="list-style-type: none"> <li>(i) covered; or</li> <li>(ii) carried in closed or sheeted vehicles or containers.</li> </ol> </li> </ol>		

P802	PACKING INSTRUCTION	P802
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
(1) Combination packagings: Outer packagings: 1A2, 1B2, 1N2, 1H2, 1D, 4A, 4B, 4C1, 4C2, 4D, 4F, or 4H2; maximum net mass: 75 kg. Inner packagings: glass or plastics; maximum capacity: 10 litres;		
(2) Combination packagings: Outer packagings: 1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2; maximum net mass: 125 kg. Inner packagings: metal; maximum capacity: 40 litres;		
(3) Composite packagings: Glass receptacle with outer steel, aluminium, plywood or solid plastics drum (6PA1, 6PB1, 6PD1, or 6PH2) or with outer steel or aluminium crate or box or with outer wooden box or with outer wickerwork hamper (6PA2, 6PB2, 6PC or 6PD2); maximum capacity: 60 litres;		
(4) Austenitic steel drums (1A1) with a maximum capacity of 250 litres;		
(5) Cylinders and pressure drums conforming to the provisions of packing instruction P200.		

P803	PACKING INSTRUCTION	P803
This instruction applies to UN No. 2028.		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
(1) Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);		
(2) Boxes (4A, 4B, 4C1, 4C2, 4D, 4F, 4G, 4H2).		
Maximum net mass: 75 kg.		
The articles shall be individually packaged and separated from each other using partitions, dividers, inner packagings or cushioning material to prevent inadvertent discharge during normal conditions of carriage.		

P900	PACKING INSTRUCTION	P900
(RESERVED)		

P901	PACKING INSTRUCTION	P901
This instruction applies to UN No. 3316.		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
Packagings conforming to the performance level consistent with the packing group assigned to the kit as a whole (see 3.3.1, special provision 251).		
Maximum quantity of dangerous goods per outer packaging: 10 kg.		
<b>Additional requirement:</b>		
Dangerous goods in kits shall be packed in inner packagings which shall not exceed either 250 ml or 250 g and shall be protected from other materials in the kit.		

P902	PACKING INSTRUCTION	P902
This instruction applies to UN No. 3268.		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
Packagings conforming to the packing group III performance level. The packagings shall be designed and constructed to prevent movement of the articles and inadvertent operation during normal conditions of carriage.		
The articles may also be carried unpackaged in dedicated handling devices, vehicles or containers when moved from where they are manufactured to an assembly plant.		
<b>Additional requirement:</b>		
Any pressure vessel shall be in accordance with the requirements of the competent authority for the substance(s) contained in the pressure vessel(s).		

P903	PACKING INSTRUCTION	P903
This instruction applies to UN Nos. 3090 and 3091.		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
Packagings conforming to the packing group II performance level.		
When lithium cells and batteries are packed with equipment, they shall be packed in inner fibreboard packagings that meet the requirements for packing group II. When lithium cells and batteries included in Class 9 are contained in equipment, the equipment shall be packed in strong outer packagings in such a manner as to prevent accidental operation during carriage.		
<b>Additional requirement:</b>		
Batteries shall be protected against short circuit.		

P903a	PACKING INSTRUCTION	P903a
This instruction applies to used cells and batteries of UN Nos. 3090 and 3091.		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
Packagings conforming to the packing group II performance level.		
Non-approved packagings shall, however, be permitted provided that:		
<ul style="list-style-type: none"> <li>- they meet the general provisions of 4.1.1 and 4.1.3;</li> <li>- the cells and batteries are packed and stowed so as to prevent any risk of short circuits;</li> <li>- the packages weigh not more than 30 kg.</li> </ul>		
<b>Additional requirement:</b>		
Batteries shall be protected against short circuit.		



P904	PACKING INSTRUCTION	P904
<b>This instruction applies to UN No. 3245.</b>		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
(1)	Packagings according to packing instruction P001 or P002 conforming to the packing group III performance level;	
(2)	Packagings, which need not conform to the packaging test requirements of Part 6, but conforming to the following:	
(a)	An inner packaging comprising:	
(i)	a watertight primary receptacle(s);	
(ii)	a watertight secondary packaging which is leakproof;	
(iii)	absorbent material in sufficient quantity to absorb the entire contents placed between the primary receptacle(s) and the secondary packaging; if several primary receptacles are placed in a single secondary packaging, they shall be individually wrapped so as to prevent contact between them;	
(b)	An outer packaging of adequate strength for its capacity, mass and intended use, and with a minimum external dimension of 100 mm;	
(3)	For substances consigned in liquid nitrogen: Plastics primary receptacles capable of withstanding very low temperatures shall be used. The secondary packaging shall also be capable of withstanding very low temperatures, and in most cases will need to be fitted over the primary receptacle individually. Provisions for the consignment of liquid nitrogen shall also be fulfilled in accordance with the requirements of P200. The primary receptacle and the secondary packaging shall maintain their integrity at the temperature of the liquid nitrogen.	

P905	PACKING INSTRUCTION	P905
This instruction applies to UN Nos. 2990 and 3072.		
Any suitable packaging is authorized, provided the general provisions of 4.1.1 and 4.1.3 are met, except that packagings need not conform to the requirements of Part 6.		
When the life saving appliances are constructed to incorporate or are contained in rigid outer weatherproof casings (such as for lifeboats), they may be carried unpackaged.		
<b>Additional requirements:</b>		
<ol style="list-style-type: none"> <li>1. All dangerous substances and articles contained as equipment within the appliances shall be secured to prevent inadvertent movement and in addition: <ol style="list-style-type: none"> <li>(a) Signal devices of Class 1 shall be packed in plastics or fibreboard inner packagings;</li> <li>(b) Non-flammable, non-toxic gases shall be contained in cylinders as specified by the competent authority, which may be connected to the appliance;</li> <li>(c) Electric storage batteries (Class 8) and lithium batteries (Class 9) shall be disconnected or electrically isolated and secured to prevent any spillage of liquid; and</li> <li>(d) Small quantities of other dangerous substances (for example in Classes 3, 4.1 and 5.2) shall be packed in strong inner packagings.</li> </ol> </li> <li>2. Preparation for transport and packaging shall include provisions to prevent any accidental inflation of the appliance.</li> </ol>		

P906	PACKING INSTRUCTION	P906
This instruction applies to UN Nos. 2315, 3151 and 3152.		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
<ol style="list-style-type: none"> <li>(1) For liquids and solids containing or contaminated with PCBs or polyhalogenated biphenyls or terphenyls: Packagings in accordance with P001 or P002, as appropriate;</li> <li>(2) For transformers and condensers and other devices: Leakproof packagings which are capable of containing, in addition to the devices, at least 1.25 times the volume of the liquid PCBs or polyhalogenated biphenyls or terphenyls present in them. There shall be sufficient absorbent material in the packagings to absorb at least 1.1 times the volume of liquid which is contained in the devices. In general, transformers and condensers shall be carried in leakproof metal packagings which are capable of holding, in addition to the transformers and condensers, at least 1.25 times the volume of the liquid present in them.</li> </ol>		
Notwithstanding the above, liquids and solids not packaged in accordance with P001 and P002 and unpackaged transformers and condensers may be carried in cargo transport units fitted with a leakproof metal tray to a height of at least 800 mm, containing sufficient inert absorbent material to absorb at least 1.1 times the volume of any free liquid.		
<b>Additional requirement:</b>		
Adequate provisions shall be taken to seal the transformers and condensers to prevent leakage during normal conditions of carriage.		

R001	PACKING INSTRUCTION			R001
The following packagings are authorized provided the general provisions of 4.1.1 and 4.1.3 are met:				
<b>Light gauge metal packagings</b>	<b>Maximum capacity/maximum net mass</b>			
	<b>Packing group I</b>	<b>Packing group II</b>	<b>Packing group III</b>	
steel, non-removable head (0A1)	Not allowed	40 l / 50 kg	40 l / 50 kg	
steel, removable head (0A2) <sup>a</sup>	Not allowed	40 l / 50 kg	40 l / 50 kg	
<sup>a</sup> <i>Not allowed for UN No. 1261 NITROMETHANE.</i>				
<i>NOTE 1: This instruction applies to solids and liquids (provided the design type is tested and marked appropriately).</i>				
<i>NOTE 2: For Class 3, packing group II, these packagings may be used only for substances with no subsidiary risk and a vapour pressure of not more than 110 kPa at 50 °C and for slightly toxic pesticides.</i>				

## 4.1.4.2 Packing instructions concerning the use of IBCs

IBC01	PACKING INSTRUCTION	IBC01
The following IBCs are authorized, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met: Metal (31A, 31B and 31N).		
<b>Additional requirement:</b>		
Only liquids with a vapour pressure less than or equal to 110 kPa at 50 °C, or 130 kPa at 55 °C, are authorized.		
<b>Special packing provision specific to RID and ADR:</b>		
<b>BB1</b> For UN No. 3130, the openings of receptacles for this substance shall be tightly closed by means of two devices in series, one of which shall be screwed or secured in an equivalent manner.		

IBC02	PACKING INSTRUCTION	IBC02
The following IBCs are authorized, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met:		
(1) Metal (31A, 31B and 31N);		
(2) Rigid plastics (31H1 and 31H2);		
(3) Composite (31HZ1).		
<b>Additional requirement:</b>		
Only liquids with a vapour pressure less than or equal to 110 kPa at 50 °C, or 130 kPa at 55 °C, are authorized.		
<b>Special packing provisions:</b>		
<b>B5</b> For UN Nos. 1791, 2014, 2984 and 3149, IBCs shall be provided with a device to allow venting during carriage. The inlet to the venting device shall be sited in the vapour space of the IBC under maximum filling conditions during carriage.		
<b>B7</b> For UN Nos. 1222 and 1865, IBCs with a capacity greater than 450 litres are not permitted due to the substance's potential for explosion when carried in large volumes.		
<b>B8</b> The pure form of this substance shall not be transported in IBCs since it is known to have a vapour pressure of more than 110 kPa at 50 °C or 130 kPa at 55 °C.		

IBC03	PACKING INSTRUCTION	IBC03
The following IBCs are authorized, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met:		
(1) Metal (31A, 31B and 31N);		
(2) Rigid plastics (31H1 and 31H2);		
(3) Composite (31HZ1, 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2).		
<b>Additional requirement:</b>		
Only liquids with a vapour pressure less than or equal to 110 kPa at 50 °C, or 130 kPa at 55 °C, are authorized.		
<b>Special packing provision:</b>		
<b>B8</b> The pure form of this substance shall not be carried in IBCs since it is known to have a vapour pressure of more than 110 kPa at 50 °C or 130 kPa at 55 °C.		

IBC04	PACKING INSTRUCTION	IBC04
The following IBCs are authorized, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met:		
Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N).		

IBC05	PACKING INSTRUCTION	IBC05
The following IBCs are authorized, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met:		
(1) Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N);		
(2) Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2);		
(3) Composite (11HZ1, 21HZ1 and 31HZ1).		

IBC06	PACKING INSTRUCTION	IBC06
The following IBCs are authorized, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met:		
(1) Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N);		
(2) Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2);		
(3) Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2).		
<b>Additional requirement:</b>		
Composite IBCs 11HZ2 and 21HZ2 shall not be used when the substances being carried may become liquid during carriage.		
<b>Special packing provisions:</b>		
<b>B12</b> For UN No. 2907, IBCs shall meet the packing group II performance level. IBCs meeting the test criteria of packing group I shall not be used.		

IBC07	PACKING INSTRUCTION	IBC07
The following IBCs are authorized, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met:		
(1) Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N);		
(2) Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2);		
(3) Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2);		
(4) Wooden (11C, 11D and 11F).		
<b>Additional requirement:</b>		
Liners of wooden IBCs shall be sift-proof.		

IBC08	PACKING INSTRUCTION	IBC08
The following IBCs are authorized, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met:		
(1) Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N);		
(2) Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2);		
(3) Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2);		
(4) Fibreboard (11G);		
(5) Wooden (11C, 11D and 11F);		
(6) Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 and 13M2).		
<b>Special packing provisions:</b>		
<b>B3</b>	Flexible IBCs shall be sift-proof and water-resistant or shall be fitted with a sift-proof and water-resistant liner.	
<b>B4</b>	Flexible, fibreboard or wooden IBCs shall be sift-proof and water-resistant or shall be fitted with a sift-proof and water-resistant liner.	
<b>B6</b>	For UN Nos. 1363, 1364, 1365, 1386, 1841, 2211, 2217, 2793 and 3314, IBCs are not required to meet the IBC testing requirements of Chapter 6.5.	

IBC99	PACKING INSTRUCTION	IBC99
Only IBCs which are approved by the competent authority may be used.		

IBC100	PACKING INSTRUCTION	IBC100
This instruction applies to UN Nos. 0082, 0241, 0331 and 0332.		
The following IBCs are authorized, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 and special provisions of 4.1.5 are met:		
<ul style="list-style-type: none"> <li>(1) Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N);</li> <li>(2) Flexible (13H2, 13H3, 13H4, 13L2, 13L3, 13L4 and 13M2);</li> <li>(3) Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2);</li> <li>(4) Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2).</li> </ul>		
<b>Additional requirements:</b>		
<ul style="list-style-type: none"> <li>1. IBCs shall only be used for free flowing substances.</li> <li>2. Flexible IBCs shall only be used for solids.</li> </ul>		
<b>Special packing provisions:</b>		
<p><b>B9</b> For UN No. 0082, this packing instruction may only be used when the substances are mixtures of ammonium nitrate or other inorganic nitrates with other combustible substances which are not explosive ingredients. Such explosives shall not contain nitroglycerin, similar liquid organic nitrates, or chlorates. Metal IBCs are not authorized.</p>		
<p><b>B10</b> For UN No. 0241, this packing instruction may only be used for substances which consist of water as an essential ingredient and high proportions of ammonium nitrate or other oxidizing substances some or all of which are in solution. The other constituents may include hydrocarbons or aluminium powder, but shall not include nitro-derivatives such as trinitrotoluene. Metal IBCs are not authorized.</p>		

IBC520	PACKING INSTRUCTION				IBC520	
This instruction applies to organic peroxides and self-reactive substances of type F.						
The IBCs listed below are authorized for the formulations listed, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 and special provisions of 4.1.7.2 are met.						
For formulations not listed below, only IBCs which are approved by the competent authority may be used (see 4.1.7.2.2).						
UN No.	Organic peroxide	Type of IBC	Maximum quantity (litres)	Control temperature	Emergency temperature	
3109	<b>ORGANIC PEROXIDE, TYPE F, LIQUID</b> tert-Butyl hydroperoxide, not more than 72% with water	31A	1 250			
	tert-Butyl peroxyacetate, not more than 32% in diluent type A	31A 31HA1	1 250 1 000			
	tert-Butyl peroxy-3,5,5-trimethylhexanoate, not more than 32% in diluent type A	31A 31HA1	1 250 1 000			
	Cumyl hydroperoxide, not more than 90% in diluent type A	31HA1	1 250			
	Dibenzoyl peroxide, not more than 42% as a stable dispersion in water	31H1	1 000			
	Di-tert-butyl peroxide, not more than 52% in diluent type A	31A 31HA1	1 250 1 000			
	1,1-Di-(tert-butylperoxy) cyclohexane, not more than 42% in diluent type A	31H1	1 000			
	Dilauroyl peroxide, not more than 42%, stable dispersion, in water	31HA1	1 000			
	Isopropyl cumyl hydroperoxide, not more than 72% in diluent type A	31HA1	1 250			
	p-Menthyl hydroperoxide, not more than 72% in diluent type A	31HA1	1 250			
	Peroxyacetic acid, stabilized, not more than 17%	31H1 31HA1 31A	1 500 1 500 1 500			
	3119	<b>ORGANIC PEROXIDE, TYPE F, LIQUID, TEMPERATURE CONTROLLED</b> tert-Butyl peroxy-2-ethylhexanoate, not more than 32% in diluent type B	31HA1 31A	1 000 1 250	+30 °C +30 °C	+35 °C +35 °C
		tert-Butyl peroxyneodecanoate, not more than 32% in diluent type A	31A	1 250	0 °C	+10 °C
tert-Butyl peroxyneodecanoate, not more than 42% stable dispersion, in water		31A	1 250	-5 °C	+5 °C	
tert-Butyl peroxy-pivalate, not more than 27% in diluent type B		31HA1 31A	1 000 1 250	+10 °C +10 °C	+15 °C +15 °C	
Cumyl peroxyneodecanoate, not more than 52%, stable dispersion, in water		31A	1 250	-15 °C	-5 °C	
Di-(4-tert-butylcyclohexyl) peroxydicarbonate, not more than 42%, stable dispersion, in water		31HA1	1 000	+30 °C	+35 °C	
Dicetyl peroxydicarbonate, not more than 42%, stable dispersion, in water		31HA1	1 000	+30 °C	+35 °C	
Di-(2-ethylhexyl) peroxydicarbonate, not more than 52%, stable dispersion, in water		31A	1 250	-20 °C	-10 °C	
Dimyristyl peroxydicarbonate, not more than 42%, stable dispersion, in water		31HA1	1 000	+15 °C	+20 °C	



IBC520		PACKING INSTRUCTION (cont'd)				IBC520
3119 (cont'd)	Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 38% in diluent type A	31HA1 31A	1 000 1 250	+10 °C +10 °C	+15 °C +15 °C	
	Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 52%, stable dispersion, in water	31A	1 250	+10 °C	+15 °C	
	1,1,3,3-Tetramethylbutyl peroxyneodecanoate, not more than 52%, stable dispersion, in water	31A	1 250	- 5 °C	+ 5 °C	
<b>Additional requirements:</b>						
1. IBCs shall be provided with a device to allow venting during carriage. The inlet to the pressure-relief device shall be sited in the vapour space of the IBC under maximum filling conditions during carriage.						
2. To prevent explosive rupture of metal IBCs or composite IBCs with complete metal casing, the emergency-relief devices shall be designed to vent all the decomposition products and vapours evolved during self-accelerating decomposition or during a period of not less than one hour of fire-engulfment as calculated by the formula in 4.2.1.13.8. The control and emergency temperatures specified in this packing instruction are based on a non-insulated IBC. When consigning an organic peroxide in an IBC in accordance with this instruction, it is the responsibility of the consignor to ensure that:						
(a) the pressure and emergency relief devices installed on the IBC are designed to take appropriate account of the self-accelerating decomposition of the organic peroxide and of fire-engulfment; and						
(b) when applicable, the control and emergency temperatures indicated are appropriate, taking into account the design (e.g. insulation) of the IBC to be used.						

IBC620		PACKING INSTRUCTION		IBC620
This instruction applies to UN No. 3291.				
The following IBCs are authorized, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 and the special provisions of 4.1.8 are met:				
Rigid, leakproof IBCs conforming to the packing group II performance level.				
<b>Additional requirements:</b>				
1. There shall be sufficient absorbent material to absorb the entire amount of liquid present in the IBC.				
2. IBCs shall be capable of retaining liquids.				
3. IBCs intended to contain sharp objects such as broken glass and needles shall be resistant to puncture.				

4.1.4.3 *Packing instructions concerning the use of large packagings*

LP01		PACKING INSTRUCTION (LIQUIDS)			LP01
The following large packagings are authorized provided the general provision of 4.1.1 and 4.1.3 are met:					
Inner packagings	Large outer packagings	Packing group I	Packing group II	Packing group III	
Glass 10 litre Plastics 30 litre Metal 40 litre	Steel (50A) Aluminium (50B) Metal other than steel or aluminium (50N) Rigid plastics (50H) Natural wood (50C) Plywood (50D) Reconstituted wood (50F) Fibreboard (50G)	Not allowed	Not allowed	Maximum capacity: 3 m <sup>3</sup>	

LP02		PACKING INSTRUCTION (SOLIDS)			LP02
The following large packagings are authorized provided the general provisions of 4.1.1 and 4.1.3 are met:					
Inner packagings	Large outer packagings	Packing group I	Packing group II	Packing group III	
Glass 10kg Plastics <sup>b</sup> 50kg Metal 50 kg Paper <sup>a, b</sup> 50 kg Fibre <sup>a, b</sup> 50 kg	Steel (50A) Aluminium (50B) Metal other than steel or aluminium (50N) Rigid plastics (50H) Natural wood (50C) Plywood (50D) Reconstituted wood (50F) Fibreboard (50G)	Not allowed	Not allowed	Maximum capacity: 3 m <sup>3</sup>	
<sup>a</sup> <i>These inner packagings shall not be used when the substances being carried may become liquid during carriage.</i>					
<sup>b</sup> <i>These inner packagings shall be sift-proof.</i>					

LP99		PACKING INSTRUCTION			LP99
Only large packagings which are approved by the competent authority may be used (see 4.1.3.7).					

PACKING INSTRUCTION		
LP101		LP101
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 and special provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Large packagings
Not necessary	Not necessary	Steel (50A) Aluminium (50B) Metal other than steel or aluminium (50N) Rigid plastics (50H) Natural wood (50C) Plywood (50D) Reconstituted wood (50F) Fibreboard (50G)
<b>Special packing provision:</b>		
<p><b>L1</b> For UN Nos. 0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 0243, 0244, 0245, 0246, 0254, 0280, 0281, 0286, 0287, 0297, 0299, 0300, 0301, 0303, 0321, 0328, 0329, 0344, 0345, 0346, 0347, 0362, 0363, 0370, 0412, 0424, 0425, 0434, 0435, 0436, 0437, 0438, 0451, 0488 and 0502:</p> <p>Large and robust explosives articles, normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried unpackaged. When such articles have propelling charges or are self-propelled, their ignition systems shall be protected against stimuli encountered during normal conditions of carriage. A negative result in Test Series 4 on an unpackaged article indicates that the article can be considered for carriage unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling devices.</p>		

PACKING INSTRUCTION		
LP102		LP102
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 and special provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> water resistant  <b>Receptacles</b> fibreboard metal plastics wood  <b>Sheets</b> fibreboard, corrugated  <b>Tubes</b> fibreboard	Not necessary	Steel (50A) Aluminium (50B) Metal other than steel or aluminium (50N) Rigid plastics (50H) Natural wood (50C) Plywood (50D) Reconstituted wood (50F) Fibreboard (50G)

LP621	PACKING INSTRUCTION	LP621
This instruction applies to UN No. 3291.		
The following large packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 and the special provisions of 4.1.8 are met:		
<p>(1) For clinical waste placed in inner packagings: Rigid, leakproof large packagings conforming to the requirements of Chapter 6.6 for solids, at the packing group II performance level, provided there is sufficient absorbent material to absorb the entire amount of liquid present and the large packaging is capable of retaining liquids;</p> <p>(2) For packages containing larger quantities of liquid: Large rigid packagings conforming to the requirements of Chapter 6.6, at the packing group II performance level, for liquids.</p>		
<b>Additional requirement:</b>		
Large packagings intended to contain sharp objects such as broken glass and needles shall be resistant to puncture and retain liquids under the performance test conditions in Chapter 6.6.		

LP902	PACKING INSTRUCTION	LP902
This instruction applies to UN No. 3268.		
The following packagings are authorized, provided the general provisions of 4.1.1 and 4.1.3 are met:		
Packagings conforming to the packing group III performance level. The packagings shall be designed and constructed to prevent movement of the articles and inadvertent operation during normal conditions of carriage.		
The articles may also be carried unpackaged in dedicated handling devices, vehicles, or containers when moved from where they are manufactured to an assembly plant.		
<b>Additional requirement:</b>		
Any pressure vessel shall be in accordance with the requirements of the competent authority for the substance(s) contained in the pressure vessel(s).		

**4.1.4.4 Particular requirements applicable to the use of pressure receptacles for substances other than those of Class 2**

When cylinders, tubes or pressure drums are used as packaging for substances assigned to packing instructions P400, P401, P402 or P601, they shall be constructed, tested, filled and marked according to the corresponding requirements (PR1 to PR7) as mentioned in the table below for each UN number.

**TABLE**  
**LIST OF PARTICULAR REQUIREMENTS (PR)**  
**FOR GAS CYLINDERS AND RECEPTACLES**

Requirement code	UN Nos.	Applicable construction, testing, filling and marking requirements	
PR1	1366	The substances classified under these UN numbers shall be packed in hermetically closing metal receptacles which are not affected by the contents and have a capacity of not more than 450 litres.	
	1370		
	1380		
	1389		
	1391	The receptacles shall be subjected to the initial test and periodic tests every five years at a pressure of not less than 1MPa (10 bar) (gauge pressure).	
	1411		
	1421		
	1928	The receptacles shall not be filled to more than 90% of their capacity; however, a space of at least 5% shall remain empty for safety when the liquid is at an average temperature of 50 °C.	
	2003		
	2445		
	2845	During carriage, the liquid shall be under a layer of inert gas the gauge pressure of which shall be not less than 50 kPa (0.5 bar).	
	2870		
	3049		
	3050	The receptacles shall carry a data plate with the following particulars entered in a durable form:	
	3051		
	3052		
	3053		
	3076		- substance or substances <sup>a</sup> accepted for carriage;
	3129		- tare <sup>b</sup> of the receptacle, including accessories;
	3130	- test pressure <sup>b</sup> (gauge pressure);	
3148	- date (month, year) of the last test undergone;		
3194	- stamp of the expert who carried out the test;		
3203	- capacity <sup>b</sup> of the receptacle;		
3207	- maximum mass of filling allowed <sup>b</sup>		
3254			

<sup>a</sup> The name may be replaced by a generic description covering substances of a similar nature and also compatible with the characteristics of the receptacle.

<sup>b</sup> The units of measurement to be added each time after the numerical values.

Requirement code	UN Nos.	Applicable construction, testing, filling and marking requirements
PR2	1183 1242 1295 2988	<p>The substances classified under these UN number shall be packed in corrosion-resistant steel receptacles with a maximum capacity of 450 litres. The closing device of the receptacle shall be protected by a cap.</p> <p>The receptacles shall be subjected to the initial test and periodic tests every five years at a pressure of not less than 0.4 MPa (4 bar) (gauge pressure).</p> <p>The maximum permissible mass of filling per litre of capacity for trichlorosilane, ethyldichlorosilane and methyldichlorosilane shall not exceed 1.14 kg, 0.93 kg or 0.95 kg respectively, if the filling is carried out by mass; if the filling is by volume, the degree of filling shall not exceed 85%.</p> <p>The receptacles shall also carry a plate showing the following particulars in a durable form:</p> <ul style="list-style-type: none"> <li>- description of the substance(s) accepted for carriage, or for chlorosilanes : "chlorosilanes, Class 4.3";</li> <li>- tare<sup>b</sup> of the receptacle, including accessories;</li> <li>- test pressure<sup>b</sup> (gauge pressure);</li> <li>- date (month, year) of the last test undergone;</li> <li>- stamp of the expert who carried out the test;</li> <li>- capacity<sup>b</sup> of the receptacle;</li> <li>- maximum degree of filling allowed by mass<sup>b</sup> for each substance accepted for carriage.</li> </ul>

<sup>b</sup> The units of measurement to be added each time after the numerical values.

Requirement code	UN Nos.	Applicable construction, testing, filling and marking requirements
PR3	1092 1251 1259 1605 1613 1994 3294	<p>The substances classified under these UN numbers shall be packed in metal receptacles fitted with completely leakproof closing devices which shall, if necessary, be secured against mechanical damage by protective caps. Steel receptacles of a capacity not exceeding 150 litres shall have a minimum wall thickness of 3 mm, and larger steel receptacles and receptacles made of other materials shall have walls at least thick enough to guarantee equivalent mechanical strength.</p> <p>The maximum capacity of receptacles permitted shall be 250 litres.</p> <p>The mass of the contents shall be not more than 1 kg of liquid per litre of capacity.</p> <p>Before being used for the first time, the receptacles shall undergo a hydraulic pressure test at a pressure of not less than 1 MPa (10 bar) (gauge pressure).</p> <p>The pressure test shall be repeated every five years and shall include a meticulous inspection of the inside of the receptacle and a check of the tare.</p> <p>The receptacles shall bear the following particulars in clearly legible and durable characters:</p> <ul style="list-style-type: none"> <li>- substance or substances <sup>a</sup> accepted for carriage;</li> <li>- the name of the owner of the receptacle;</li> <li>- the tare <sup>b</sup> of the receptacle, including such fittings and accessories as valves, protective caps, etc;</li> <li>- the date (month, year) of the initial test and of the most recent test, and the stamp of the expert who carried out the test;</li> <li>- the maximum permissible mass of the contents of the receptacle in kg;</li> <li>- the internal pressure (test pressure) to be applied in the hydraulic pressure test.</li> </ul>

<sup>a</sup> The name may be replaced by a generic description covering substances of a similar nature and also compatible with the characteristics of the receptacle.

<sup>b</sup> The units of measurement to be added each time after the numerical values.

Requirement code	UN Nos.	Applicable construction, testing, filling and marking requirements
PR4	1185	<p>This substance shall be packed in steel receptacles of sufficient thickness, which shall be closed by a screw-threaded bung and a screw-threaded protective cap or equivalent device leakproof both to liquid and to vapour.</p> <p>The receptacles shall initially and periodically, at least every five years, be tested at a pressure of at least 1 MPa (10 bar) (gauge pressure) in accordance with 6.2.1.5 and 6.2.1.6.</p> <p>The mass of the contents shall not exceed 0.67 kg per litre of capacity. A package shall not weigh more than 75 kg.</p> <p>Receptacles shall bear, in clearly legible and durable characters:</p> <ul style="list-style-type: none"> <li>- the name or mark of the manufacturer and the number of the receptacle;</li> <li>- the word "ethyleneimine";</li> <li>- the tare <sup>b</sup> of the receptacle and its maximum permitted mass<sup>b</sup> when filled;</li> <li>- the date (month and year) of the initial test and of the most recent test undergone;</li> <li>- the stamp of the expert who carried out the tests and examinations.</li> </ul>

<sup>b</sup> *The units of measurement to be added each time after the numerical values.*



Requirement code	UN Nos.	Applicable construction, testing, filling and marking requirements
PR5	2480 2481	<p>The substances classified under this UN number shall be packed in receptacles made of pure aluminium having a wall thickness of not less than 5 mm or in receptacles of stainless steel. The receptacles shall be fully welded.</p> <p>They shall initially and periodically, at least every five years, be tested at a pressure of at least 0.5 MPa (5 bar) (gauge pressure) in accordance with 6.2.1.5 and 6.2.1.6.</p> <p>They shall be so closed as to be leakproof by means of two closures one above the other, one of which shall be screw-threaded or secured in an equally effective manner.</p> <p>The degree of filling shall be not more than 90 %.</p> <p>Drums weighing more than 100 kg shall be fitted with rolling hoops or stiffening ribs.</p> <p>The receptacles shall bear, in clearly legible and durable characters:</p> <ul style="list-style-type: none"> <li>- the name or mark of the manufacturer and the number of the receptacle;</li> <li>- substance or substances <sup>a</sup> accepted for carriage;</li> <li>- the tare <sup>b</sup> of the receptacle and its maximum permitted mass when filled;</li> <li>- the date (month and year) of the initial test and of the most recent test undergone;</li> <li>- the stamp of the expert who carried out the tests and examinations.</li> </ul>

<sup>a</sup> The name may be replaced by a generic description covering substances of a similar nature and also compatible with the characteristics of the receptacle.

<sup>b</sup> The units of measurement to be added each time after the numerical values.

Requirement code	UN Nos.	Applicable construction, testing, filling and marking requirements
PR6	1744	<p>Bromine containing less than 0.005% water, or between 0.005% and 0.2% water, provided that in the latter case measures are taken to prevent corrosion of the lining of the receptacles, may be carried in receptacles satisfying the following conditions:</p> <ul style="list-style-type: none"> <li>(a) The receptacles shall be made of steel and be equipped with a leakproof lining made of lead or of some other material affording equivalent protection and with a hermetic closure; receptacles made of monel metal or nickel, or with a nickel lining, shall also be permitted;</li> <li>(b) The capacity of the receptacles shall not exceed 450 litres;</li> <li>(c) The receptacles shall not be filled to more than 92% of their capacity or more than 2.86 kg per litre of capacity;</li> <li>(d) The receptacles shall be welded and designed for a calculation pressure of not less than 2.1 MPa (21 bar) gauge pressure. The materials and workmanship shall in other respects meet the relevant requirements of Chapter 6.2. The initial test of unlined steel receptacles shall be subject to the requirements of 6.2.1.5;</li> <li>(e) The closures shall project as little as possible from the receptacle and be fitted with protective caps. The closures and caps shall be fitted with gaskets made of a material not capable of being attacked by bromine. The closures shall be in the upper part of the receptacles in such a manner that they can in no case be in permanent contact with the liquid phase;</li> <li>(f) The receptacles shall be provided with fittings enabling them to stand stably upright, and with lifting attachments (rings, flanges, etc.) at the top, which shall be tested at twice the working load.</li> </ul> <p>Before being put into service, the receptacles shall be subjected to a leakproofness test at a pressure of at least 200 kPa (2 bar) gauge pressure.</p> <p>The leakproofness test shall be repeated every two years and shall be accompanied by an internal inspection of the receptacle and a check of its tare.</p> <p>The test and the inspection shall be carried out under the supervision of an expert approved by the competent authority.</p> <p>The receptacles shall bear, in clearly legible and durable characters:</p> <ul style="list-style-type: none"> <li>- the name or the mark of the manufacturer and the number of the receptacle,</li> <li>- the word "Bromine",</li> <li>- tare <sup>b</sup> mass of the receptacle and the permissible maximum mass <sup>b</sup> of the filled receptacle,</li> <li>- date (month, year) of the initial test and of the latest periodical test,</li> <li>- stamp of the expert who carried out the tests and examinations.</li> </ul>

<sup>b</sup> The units of measurement to be added each time after the numerical values.

Requirement code	UN No.	Applicable construction, testing, filling and marking requirements
PR7	1614	<p>Liquid hydrogen cyanide, stabilized, when completely absorbed by an inert porous material, shall be packed in metal receptacles of a capacity of not more than 7.5 litres, placed in wooden cases in such a manner that they cannot come into contact with one another. Such combination packagings shall comply with the following conditions:</p> <ol style="list-style-type: none"><li>(1) the receptacles shall be tested at a pressure of not less than 0.6 MPa (6 bar) (gauge pressure);</li><li>(2) the receptacles shall be entirely filled with the porous material which shall not shake down or form dangerous spaces even after prolonged use or under impact, even at temperatures of up to 50 °C;</li><li>(3) the date of filling shall be durably marked on the lid of each receptacle;</li><li>(4) combination packagings shall be tested and approved, in accordance with 6.1.5.21 for packing group I;</li><li>(5) a package shall not weigh more than 120 kg.</li></ol>

**4.1.5 Special packing provisions for goods of Class 1**

4.1.5.1 The general provisions of Section 4.1.1 shall be met.

4.1.5.2 All packagings for Class 1 goods shall be so designed and constructed that:

- (a) They will protect the explosives, prevent them escaping and cause no increase in the risk of unintended ignition or initiation when subjected to normal conditions of carriage including foreseeable changes in temperature, humidity and pressure;
- (b) The complete package can be handled safely in normal conditions of carriage; and
- (c) The packages will withstand any loading imposed on them by foreseeable stacking to which they will be subject during carriage so that they do not add to the risk presented by the explosives, the containment function of the packagings is not harmed, and they are not distorted in a way or to an extent which will reduce their strength or cause instability of a stack.

4.1.5.3 All explosive substances and articles, as prepared for carriage, shall have been classified in accordance with the procedures detailed in 2.2.1.

4.1.5.4 Class 1 goods shall be packed in accordance with the appropriate packing instruction shown in Column (8) of Table A of Chapter 3.2, as detailed in 4.1.4.

4.1.5.5 Packagings, including IBCs and large packagings shall conform to the requirements of Chapter 6.1, 6.5 or 6.6, respectively, and shall meet the test requirements of 6.1.5, 6.5.4 or 6.6.5, respectively, for packing group II, subject to 4.1.1.13, 6.1.2.4 and 6.5.1.4.4. Packagings other than metal packagings meeting the test criteria of packing group I may be used. To avoid unnecessary confinement, metal packagings of packing group I shall not be used.

4.1.5.6 The closure device of packagings containing liquid explosives shall ensure a double protection against leakage.

4.1.5.7 The closure device of metal drums shall include a suitable gasket; if a closure device includes a screw-thread, the ingress of explosive substances into the screw-thread shall be prevented.

4.1.5.8 Packagings for water soluble substances shall be water resistant. Packagings for desensitized or phlegmatized substances shall be closed to prevent changes in concentration during carriage.

4.1.5.9 When the packaging includes a double envelope filled with water which may freeze during transport, a sufficient quantity of an anti-freeze agent shall be added to the water to prevent freezing. Anti-freeze that could create a fire hazard because of its inherent flammability shall not be used.

4.1.5.10 Nails, staples and other closure devices made of metal without protective covering shall not penetrate to the inside of the outer packaging unless the inner packaging adequately protects the explosives against contact with the metal.

4.1.5.11 Inner packagings, fittings and cushioning materials and the placing of explosive substances or articles in packages shall be accomplished in a manner which prevents the explosive substances or articles from becoming loose in the outer packaging under normal conditions of carriage. Metallic components of articles shall be prevented from making contact with metal packagings. Articles containing explosive substances not enclosed in an outer casing

shall be separated from each other in order to prevent friction and impact. Padding, trays, partitioning in the inner or outer packaging, mouldings or receptacles may be used for this purpose.

- 4.1.5.12 Packagings shall be made of materials compatible with, and impermeable to, the explosives contained in the package, so that neither interaction between the explosives and the packaging materials, nor leakage, causes the explosive to become unsafe to carriage, or the hazard division or compatibility group to change.
- 4.1.5.13 The ingress of explosive substances into the recesses of seamed metal packagings shall be prevented.
- 4.1.5.14 Plastics packagings shall not be liable to generate or accumulate sufficient static electricity so that a discharge could cause the packaged explosive substances or articles to initiate, ignite or function.
- 4.1.5.15 Large and robust explosives articles, normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried unpackaged. When such articles have propelling charges or are self-propelled, their ignition systems shall be protected against stimuli encountered during normal conditions of carriage. A negative result in Test Series 4 on an unpackaged article indicates that the article can be considered for carriage unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling, storage or launching devices in such a way that they will not become loose during normal conditions of carriage.

Where such large explosive articles are as part of their operational safety and suitability tests subjected to test regimes that meet the intentions of ADR and such tests have been successfully undertaken, the competent authority may approve such articles to be carried in accordance with ADR.

- 4.1.5.16 Explosive substances shall not be packed in inner or outer packagings where the differences in internal and external pressures, due to thermal or other effects, could cause an explosion or rupture of the package.
- 4.1.5.17 Whenever loose explosive substances or the explosive substance of an uncased or partly cased article may come into contact with the inner surface of metal packagings (1A2, 1B2, 4A, 4B and metal receptacles), the metal packaging shall be provided with an inner liner or coating (see 4.1.1.2).
- 4.1.5.18 Packing instruction P101 may be used for any explosive provided the packaging has been approved by a competent authority regardless of whether the packaging complies with the packing instruction assignment in Column (8) of Table A of Chapter 3.2.

#### 4.1.6 Special packing provisions for goods of Class 2

- 4.1.6.1 Receptacles, including their closures, shall be selected to contain a gas or a mixture of gases according to the requirements of 6.2.1.2 "Materials of receptacles" and the requirements of the relevant packing instructions of 4.1.4.
- 4.1.6.2 A change of use of a refillable receptacle shall include emptying, purging and evacuation operations to the extent necessary for safe operation (see also table of standards at the end of this section).

**NOTE 1:** Refillable receptacles for the transport of gases of Class 2 shall be periodically inspected according to the periodicity set out in the relevant packing instructions (P200 or P203) and according to the provisions detailed in 6.2.1.6 "Periodic inspection".

**NOTE 2:** Receptacles ready for shipment shall be marked and labelled according to the provisions set out in chapter 5.2.

4.1.6.3 Receptacles except open cryogenic receptacles, including their closures, shall conform to the design, construction, inspection and testing requirements detailed in Chapter 6.2. When outer packagings are prescribed, the receptacles shall be firmly secured therein. Unless otherwise specified in the relevant packing instructions, receptacles may be enclosed in outer packagings either singly or in groups.

4.1.6.4 Valves (cocks) shall be effectively protected from damage which could cause gas release if the receptacle falls, and during carriage and stacking. This requirement is deemed to be complied with if one or more of the following conditions are fulfilled (see also table of standards at the end of this section):

- (a) Valves are placed inside the neck of the receptacle and protected by a screw-threaded plug;
- (b) Valves are protected by caps. Caps shall possess vent-holes of sufficient cross-sectional area to evacuate gases if leakage occurs at the valves;
- (c) Valves are protected by shrouds or guards;
- (d) Valves are designed and constructed in such a way that their ability to withstand damage without leakage of product has been demonstrated;
- (e) Valves are placed inside a protective frame;
- (f) Receptacles are carried in protective boxes or frames.

4.1.6.5 Receptacles may be carried after the expiry of the time-limit set for the periodic test prescribed for the purpose of undergoing the test.

4.1.6.6 Non-refillable pressure receptacles shall:

- (a) be carried in an outer packaging, such as a box, or crate, or in shrink-wrapped trays or stretch-wrapped trays;
- (b) be of a water capacity less than or equal to 1.25 litres when filled with flammable or toxic gas;
- (c) not be used for toxic gases with an  $LC_{50}$  less than or equal to  $200 \text{ ml/m}^3$ ; and
- (d) not be repaired after being put into service.

4.1.6.7 Pressure receptacles shall not be subjected to repairs of any of the following;

- (a) weld cracks or other weld defects;
- (b) cracks in walls;
- (c) leaks or defects in the material of the wall, head or bottom.

4.1.6.8 Pressure receptacles shall not be offered for filling:

- (a) when damaged to such an extent that the integrity of the pressure receptacle or its service equipment may be affected;
- (b) unless the pressure receptacle and its service equipment has been examined and found to be in good working order; and
- (c) unless the required certification, retest, and filling markings are legible.

4.1.6.9 Charged pressure receptacles shall not be offered for carriage:

- (a) when leaking;
- (b) when damaged to such an extent that the integrity of the pressure receptacle or its service equipment may be affected;
- (c) unless the pressure receptacle and its service equipment has been examined and found to be in good working order; and
- (d) unless the required certification, retest, and filling markings are legible.

4.1.6.10 Requirements of the following packing provisions are considered to have been complied with if the following standards, as relevant, are applied:

Applicable paragraphs	Reference	Title of document
4.1.6.2	EN 1795:1997	Gas cylinders (excluding LPG) - Procedures for change of gas service.
4.1.6.4	EN 962:1996/A2:2000	Valve protection caps and valve guards for industrial and medical gas cylinders - Design, construction and tests
4.1.6.4 (d)	Annex A of EN849:1996/A2:2001	Transportable gas cylinders - Cylinder valves: Specifications and type testing - Amendment 2

4.1.7 Special packing provisions for organic peroxides (Class 5.2) and self-reactive substances of Class 4.1

4.1.7.0.1 For organic peroxides, all receptacles shall be "effectively closed". Where significant internal pressure may develop in a package by the evolution of a gas, a vent may be fitted, provided the gas emitted will not cause danger, otherwise the degree of filling shall be limited. Any venting device shall be so constructed that liquid will not escape when the package is in an upright position and it shall be able to prevent ingress of impurities. The outer packaging, if any, shall be so designed as not to interfere with the operation of the venting device.

4.1.7.1 *Use of packagings*

4.1.7.1.1 Packagings for organic peroxides and self-reactive substances shall meet the requirements of Chapter 6.1 or of Chapter 6.6 at the packing group II performance level. To avoid unnecessary confinement, metal packagings meeting the test criteria of packing group I shall not be used.

4.1.7.1.2 The packing methods for organic peroxides and self-reactive substances are listed in packing instruction 520 and are designated OP1 to OP8. The quantities specified for each packing method are the maximum quantities authorized per package.

4.1.7.1.3 The packing methods appropriate for the individual currently assigned organic peroxides and self-reactive substances are listed in 2.2.41.4 and 2.2.52.4.

4.1.7.1.4 For new organic peroxides, new self-reactive substances or new formulations of currently assigned organic peroxides or self-reactive substances, the following procedure shall be used to assign the appropriate packing method:

(a) ORGANIC PEROXIDE, TYPE B or SELF-REACTIVE SUBSTANCE, TYPE B:

Packing method OP5 shall be assigned, provided that the organic peroxide (or self-reactive substance) satisfies the criteria of 20.4.3 (b) (resp. 20.4.2 (b)) of the Manual of Tests and Criteria in a packaging authorized by the packing method. If the organic peroxide (or self-reactive substance) can only satisfy these criteria in a smaller packaging than those authorized by packing method OP5 (viz. one of the packagings listed for OP1 to OP4), then the corresponding packing method with the lower OP number is assigned;

(b) ORGANIC PEROXIDE, TYPE C or SELF-REACTIVE SUBSTANCE, TYPE C:

Packing method OP6 shall be assigned, provided that the organic peroxide (or self-reactive substance) satisfies the criteria of 20.4.3 (c) (resp. 20.4.2 (c)) of the Manual of Tests and Criteria in a packaging authorized by the packing method. If the organic peroxide (or self-reactive substance) can only satisfy these criteria in a smaller packaging than those authorized by packing method OP6 then the corresponding packing method with the lower OP number is assigned;

(c) ORGANIC PEROXIDE, TYPE D or SELF-REACTIVE SUBSTANCE, TYPE D:

Packing method OP7 shall be assigned to this type of organic peroxide or self-reactive substance;

(d) ORGANIC PEROXIDE, TYPE E or SELF-REACTIVE SUBSTANCE, TYPE E:

Packing method OP8 shall be assigned to this type of organic peroxide or self-reactive substance;

(e) ORGANIC PEROXIDE, TYPE F or SELF-REACTIVE SUBSTANCE, TYPE F:

Packing method OP8 shall be assigned to this type of organic peroxide or self-reactive substance.

4.1.7.2 *Use of intermediate bulk containers*

4.1.7.2.1 The currently assigned organic peroxides specifically listed in the table of 2.2.52.4 and indicated with the letter "N" in the "Packing Method" column of that table may be carried in IBCs in accordance with packing instruction IBC520.

4.1.7.2.2 Other organic peroxides and self-reactive substances of type F may be carried in IBCs under conditions established by the competent authority of the country of origin when, on the basis of the appropriate tests, that competent authority is satisfied that such carriage may be safely conducted. The tests undertaken shall include those necessary:

- (a) To prove that the organic peroxide (or self-reactive substance) complies with the principles for classification given in 20.4.3 (f) [resp. 20.4.2 (f)] of the Manual of Tests and Criteria, exit box F of Figure 20.1 (b) of the Manual;



- (b) To prove the compatibility of all materials normally in contact with the substance during carriage;
- (c) To determine, when applicable, the control and emergency temperatures associated with the carriage of the product in the IBC concerned as derived from the SADT;
- (d) To design, when applicable, pressure and emergency relief devices; and
- (e) To determine if any special provisions are necessary for safe carriage of the substance.

If the country of origin is not a Contracting Party to ADR, the classification and transport conditions shall be recognized by the competent authority of the first country Contracting Party to ADR reached by the consignment.

4.1.7.2.3 Emergencies to be taken into account are self-accelerating decomposition and fire engulfment. To prevent explosive rupture of metal or composite IBCs with a complete metal casing, the emergency-relief devices shall be designed to vent all the decomposition products and vapours evolved during self-accelerating decomposition or during a period of not less than one hour of complete fire engulfment calculated by the equations given in 4.2.1.13.8.

#### 4.1.8 Special packing provisions for infectious substances (Class 6.2)

4.1.8.1 Consignors of infectious substances shall ensure that packages are prepared in such a manner that they arrive at their destination in good condition and present no hazard to persons or animals during carriage.

4.1.8.2 The definitions in 1.2.1 and the general packing provisions of 4.1.1.1 to 4.1.1.16, except 4.1.1.3, 4.1.1.9 to 4.1.1.12 and 4.1.1.15 apply to infectious substances packages. However, liquids shall be filled into packagings, including IBCs, which have an appropriate resistance to the internal pressure that may develop under normal conditions of carriage.

4.1.8.3 For UN No. 2814 and UN No. 2900, an itemized list of contents shall be enclosed between the secondary packaging and the outer packaging.

4.1.8.4 Before an empty packaging is returned to the consignor, or sent elsewhere, it shall be thoroughly disinfected or sterilized and any label or marking indicating that it had contained an infectious substance shall be removed or obliterated.

4.1.8.5 The provisions of this section do not apply to UN No. 3373 Diagnostic specimens (see packing instruction P650).

#### 4.1.9 Special packing provisions for Class 7

##### 4.1.9.1 *General*

4.1.9.1.1 Radioactive material, packagings and packages shall meet the requirements of Chapter 6.4. The quantity of radioactive material in a package shall not exceed the limits specified in 2.2.7.7.1.

4.1.9.1.2 The non-fixed contamination on the external surfaces of any package shall be kept as low as practicable and, under routine conditions of transport, shall not exceed the following limits:

- (a) 4 Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters; and
- (b) 0.4 Bq/cm<sup>2</sup> for all other alpha emitters.

These limits are applicable when averaged over any area of 300 cm<sup>2</sup> of any part of the surface.

4.1.9.1.3 A package shall not contain any other items except such articles and documents as are necessary for the use of the radioactive material. This requirement shall not preclude the carriage of low specific activity material or surface contaminated objects with other items. The carriage of such articles and documents in a package, or of low specific activity material or surface contaminated objects with other items may be permitted provided that there is no interaction between them and the packaging or its radioactive contents that would reduce the safety of the package.

4.1.9.1.4 Except as provided in 7.5.11, CV33, the level of non-fixed contamination on the external and internal surfaces of overpacks, containers, tanks and intermediate bulk containers shall not exceed the limits specified in 4.1.9.1.2.

4.1.9.1.5 Radioactive material with a subsidiary risk shall be carried in packagings, IBCs or tanks fully complying with the requirements of the relevant chapters of Part 6 as appropriate, as well as applicable requirements of Chapters 4.1, 4.2 or 4.3 for that subsidiary risk.

#### 4.1.9.2 *Requirements and controls for carriage of LSA material and SCO*

4.1.9.2.1 The quantity of LSA material or SCO in a single Industrial package Type 1 (Type IP-1), Industrial package Type 2 (Type IP-2), Industrial package Type 3 (Type IP-3), or object or collection of objects, whichever is appropriate, shall be so restricted that the external radiation level at 3 m from the unshielded material or object or collection of objects does not exceed 10 mSv/h.

4.1.9.2.2 LSA material and SCO which is or contains fissile material shall meet the applicable requirements of 7.5.11, CV33 and 6.4.11.1.

4.1.9.2.3 LSA material and SCO in groups LSA-I and SCO-I may be carried unpackaged under the following conditions:

- (a) All unpackaged material other than ores containing only naturally occurring radionuclides shall be carried in such a manner that under routine conditions of carriage there will be no escape of the radioactive contents from the vehicle nor will there be any loss of shielding;
- (b) Each vehicle shall be under exclusive use, except when only carrying SCO-I on which the contamination on the accessible and the inaccessible surfaces is not greater than ten times the applicable level specified in 2.2.7.5; and
- (c) For SCO-I where it is suspected that non-fixed contamination exists on inaccessible surfaces in excess of the values specified in 2.2.7.5 (a)(i), measures shall be taken to ensure that the radioactive material is not released into the vehicle.

4.1.9.2.4 LSA material and SCO, except as otherwise specified in 4.1.9.2.3, shall be packaged in accordance with the table below:

## Industrial package requirements for LSA material and SCO

Radioactive contents	Industrial package type	
	Exclusive use	Not under exclusive use
LSA-I Solid <sup>a</sup> Liquid	Type IP-1 Type IP-1	Type IP-1 Type IP-2
LSA-II Solid Liquid and gas	Type IP-2 Type IP-2	Type IP-2 Type IP-3
LSA-III	Type IP-2	Type IP-3
SCO-I <sup>a</sup>	Type IP-1	Type IP-1
SCO-II	Type IP-2	Type IP-2

<sup>a</sup> Under the conditions specified in 4.1.9.2.3, LSA-I material and SCO-I may be carried unpackaged.

## 4.1.10 Special provisions for mixed packing

4.1.1.10.1 When mixed packing is permitted in accordance with the provisions of this section, different dangerous goods or dangerous goods and other goods may be packed together in combination packagings conforming to 6.1.4.2.1, provided that they do not react dangerously with one another and that all other relevant provisions of this Chapter are complied with.

*NOTE 1: See also 4.1.1.5 and 4.1.1.6.*

*NOTE 2: For goods of Class 7, see 4.1.9.*

4.1.10.2 Except for packages containing Class 1 goods only or Class 7 goods only, if wooden or fibreboard boxes are used as outer packagings, a package containing different goods packed together shall not weigh more than 100 kg.

4.1.10.3 Unless otherwise prescribed by a special provision applicable according to 4.1.10.4, dangerous goods of the same class and the same classification code may be packed together.

4.1.10.4 When indicated for a given entry in Column (9b) of Table A of Chapter 3.2, the following special provisions shall apply to the mixed packing of the goods assigned to that entry with other goods in the same package.

MP 1 May only be packed together with goods of the same type within the same compatibility group.

MP 2 Shall not be packed together with other goods.

MP 3 Mixed packing of UN No. 1873 with UN No. 1802 is permitted.

MP 4 Shall not be packed together with goods of other classes or with goods which are not subject to the requirements of ADR. However, if this organic peroxide is a hardener or compound system for Class 3 substances, mixed packing is permitted with these substances of Class 3.

MP 5 UN No. 2814 and UN No. 2900 may be packed together in a combination packaging in conformity with P620. They shall not be packed together with other goods; this does not apply to UN No. 3373 diagnostic specimens packed

in accordance with P650 or to substances added as coolants, e.g. ice, dry ice or refrigerated liquid nitrogen.

MP 6 Shall not be packed together with other goods. This does not apply to substances added as coolants, e.g. ice, dry ice or refrigerated liquid nitrogen.

MP 7 May - in quantities not exceeding 5 litres per inner packaging - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods of the same class covered by other classification codes when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

MP 8 May - in quantities not exceeding 3 litres per inner packaging - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods of the same class covered by other classification codes when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

MP 9 May be packed together in an outer packaging for combination packagings in accordance with 6.1.4.21:

- with other goods of Class 2;
- with goods of other classes, when the mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

MP 10 May - in quantities not exceeding 5 kg per inner packaging - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods of the same class covered by other classification codes or with goods of other classes, when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

MP 11 May - in quantities not exceeding 5 kg per inner packaging - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods of the same class covered by other classification codes or with goods of other classes (except substances of packing group I or II of Class 5.1) when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

MP 12 May - in quantities not exceeding 5 kg per inner packaging - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods of the same class covered by other classification codes or with goods of other classes (except substances of packing group I or II of Class 5.1) when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

Packagings shall not weigh more than 45 kg. If fibreboard boxes are used as outer packagings however, a package shall not weigh more than 27 kg.

MP 13 May - in quantities not exceeding 3 kg per inner packaging and per package - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods of the same class covered by other classification codes or with goods of other classes, when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

MP 14 May - in quantities not exceeding 6 kg per inner packaging - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods of the same class covered by other classification codes or with goods of other classes, when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

MP 15 May - in quantities not exceeding 3 litres per inner packaging - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods of the same class covered by other classification codes or with goods of other classes, when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

MP 16 May - in quantities not exceeding 3 litres per inner packaging and per package - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods of the same class covered by other classification codes or with goods of other classes, when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

MP 17. May - in quantities not exceeding 0.5 litre per inner packaging and 1 litre per package - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods of other classes, except Class 7, when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

MP 18. May - in quantities not exceeding 0.5 kg per inner packaging and 1 kg per package - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods or articles of other classes, except Class 7, when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR,

provided they do not react dangerously with one another.

MP 19. May - in quantities not exceeding 5 litres per inner packaging - be packed together in a combination packaging conforming to 6.1.4.21:

- with goods of the same class covered by other classification codes or with goods of other classes, when mixed packing is also permitted for these; or
- with goods which are not subject to the requirements of ADR, provided they do not react dangerously with one another.

MP 20. May be packed together with substances covered by the same UN number.

Shall not be packed together with goods and articles of Class 1 having different UN numbers.

Shall not be packed together with goods of other classes or with goods which are not subject to the requirements of ADR.

MP 21. May be packed together with articles covered by the same UN number.

Shall not be packed together with goods of Class 1 having different UN numbers, except for

- (a) their own means of initiation, provided that
  - (i) the means of initiation will not function under normal conditions of carriage; or
  - (ii) such means have at least two effective protective features which prevent explosion of an article in the event of accidental functioning of the means of initiation; or
  - (iii) when such means do not have two effective protective features (i.e. means of initiation assigned to compatibility group B), in the

opinion of the competent authority of the country of origin<sup>3</sup>, the accidental functioning of the means of initiation does not cause the explosion of an article under normal conditions of carriage;

- (b) articles of compatibility groups C, D and E.

Shall not be packed together with goods of other classes or with goods which are not subject to the requirements of ADR.

When goods are packed together in accordance with this special provision, account shall be taken of a possible amendment of the classification of packages in accordance with 2.2.1.1. For the description of the goods in the transport document, see 5.4.1.2.1 (b).

- MP 22 May be packed together with articles covered by the same UN number.

Shall not be packed together with goods of Class 1 having different UN numbers, except for

- (a) their own means of initiation, provided that the means of initiation will not function under normal conditions of carriage;
- (b) articles of compatibility groups C, D and E.

Shall not be packed together with goods of other classes or with goods which are not subject to the requirements of ADR.

When goods are packed together in accordance with this special provision, account shall be taken of a possible amendment of the classification of packages in accordance with 2.2.1.1. For the description of the goods in the transport document, see 5.4.1.2.1 (b).

- MP 23 May be packed together with articles covered by the same UN number.

Shall not be packed together with goods and articles of Class 1 having different UN numbers; however, exception is made for their own means of initiation, provided that the means of initiation will not function under normal conditions of carriage.

Shall not be packed together with goods of other classes or with goods which are not subject to the requirements of ADR.

When goods are packed together in accordance with this special provision, account shall be taken of a possible amendment of the classification of packages in accordance with 2.2.1.1. For the description of the goods in the transport document, see 5.4.1.2.1 (b).

- MP 24 May be packed together with goods with the UN numbers shown in the table below, under the following conditions:

<sup>3</sup> *If the country of origin is not a Contracting Party to ADR, the approval shall require validation by the competent authority of the first country Contracting Party to ADR reached by the consignment.*

- if a letter A is indicated in the table, the goods with those UN numbers may be included in the same package without any special limitation of mass;
- if a letter B is indicated in the table, the goods with those UN numbers may be included in the same package up to a total mass of 50 kg of explosive substances.

When goods are packed together in accordance with this special provision, account shall be taken of a possible amendment of the classification of packages in accordance with 2.2.1.1. For the description of the goods in the transport document, see 5.4.1.2.1 (b).





## CHAPTER 4.2

USE OF PORTABLE TANKS AND UN CERTIFIED  
MULTIPLE-ELEMENT GAS CONTAINERS (MEGCs)

**NOTE 1:** *For fixed tanks (tank-vehicles), demountable tanks and tank-containers and tank-swap bodies, with shells made of metallic materials, and battery-vehicles and multiple element gas containers (MEGCs), see Chapter 4.3; for fibre-reinforced plastics tanks, see Chapter 4.4; for vacuum operated waste tanks, see Chapter 4.5.*

**NOTE 2:** *Portable tanks and UN certified MEGCs marked in accordance with the applicable provisions of Chapter 6.7 but which were approved in a State which is not a Contracting Party to ADR may nevertheless be used for carriage under ADR.*

**4.2.1 General provisions for the use of portable tanks for the carriage of substances of Classes 3 to 9**

**4.2.1.1** This section provides general provisions applicable to the use of portable tanks for the carriage of substances of Classes 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 7, 8 and 9. In addition to these general provisions, portable tanks shall conform to the design, construction, inspection and testing requirements detailed in 6.7.2. Substances shall be carried in portable tanks conforming to the applicable portable tank instruction identified in Column (10) of the Table A of Chapter 3.2 and described in 4.2.5.2.6 (T1 to T23) and the portable tank special provisions assigned to each substance in Column (11) of Table A of Chapter 3.2 and described in 4.2.5.3.

**4.2.1.2** During carriage, portable tanks shall be adequately protected against damage to the shell and service equipment resulting from lateral and longitudinal impact and overturning. If the shell and service equipment are so constructed as to withstand impact or overturning it need not be protected in this way. Examples of such protection are given in 6.7.2.17.5.

**4.2.1.3** Certain substances are chemically unstable. They are accepted for carriage only when the necessary steps have been taken to prevent their dangerous decomposition, transformation or polymerization during carriage. To this end, care shall in particular be taken to ensure that shells do not contain any substances liable to promote these reactions.

**4.2.1.4** The temperature of the outer surface of the shell excluding openings and their closures or of the thermal insulation shall not exceed 70 °C during carriage. When substances are carried at elevated temperatures in either liquid or solid state, the shell shall be thermally insulated to meet this condition.

**4.2.1.5** Empty portable tanks not cleaned and not gas-free shall comply with the same provisions as portable tanks filled with the previous substance.

**4.2.1.6** Substances shall not be carried in the same or in adjoining compartments of shells when they may react dangerously with each other (see definition for "dangerous reaction" in 1.2.1).

**4.2.1.7** The design approval certificate, the test report and the certificate showing the results of the initial inspection and test for each portable tank issued by the competent authority or its authorized body shall be retained by the authority or body and the owner. Owners shall be able to provide this documentation upon the request of any competent authority.

- 4.2.1.8 Unless the name of the substance(s) being carried appears on the metal plate described in 6.7.2.20.2 a copy of the certificate specified in 6.7.2.18.1 shall be made available upon the request of a competent authority or its authorized body and readily provided by the consignor, consignee or agent, as appropriate.

4.2.1.9 ***Degree of filling***

- 4.2.1.9.1 Prior to filling, the consignor shall ensure that the appropriate portable tank is used and that the portable tank is not filled with substances which in contact with the materials of the shell, gaskets, service equipment and any protective linings, are likely to react dangerously with them to form dangerous products or appreciably weaken these materials. The consignor may need to consult the manufacturer of the substance in conjunction with the competent authority for guidance on the compatibility of the substance with the portable tank materials.

- 4.2.1.9.1.1 Portable tanks shall not be filled above the extent provided in 4.2.1.9.2 to 4.2.1.9.6. The applicability of 4.2.1.9.2, 4.2.1.9.3 or 4.2.1.9.5.1 to individual substances is specified in the applicable portable tank instruction or special provisions in 4.2.5.2.6 or 4.2.5.3 and Column (10) or (11) of Table A of Chapter 3.2.

- 4.2.1.9.2 The maximum degree of filling (in %) for general use is determined by the formula:

$$\text{Degree of filling} = \frac{97}{1 + (t_r - t_f)}$$

- 4.2.1.9.3 The maximum degree of filling (in %) for liquids of Class 6.1 and Class 8, in packing groups I and II, and liquids with an absolute vapour pressure of more than 175 kPa (1.75 bar) at 65 °C, is determined by the formula:

$$\text{Degree of filling} = \frac{95}{1 + \alpha (t_r - t_f)}$$

- 4.2.1.9.4 In these formulae,  $\alpha$  is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling ( $t_f$ ) and the maximum mean bulk temperature during carriage ( $t_r$ ) (both in °C). For liquids carried under ambient conditions  $\alpha$  could be calculated by the formula:

$$\alpha = \frac{d_{15} - d_{50}}{35d_{50}}$$

in which  $d_{15}$  and  $d_{50}$  are the densities of the liquid at 15 °C and 50 °C, respectively.

- 4.2.1.9.4.1 The maximum mean bulk temperature ( $t_r$ ) shall be taken as 50 °C except that, for journeys under temperate or extreme climatic conditions, the competent authorities concerned may agree to a lower or require a higher temperature, as appropriate.

- 4.2.1.9.5 The provisions of 4.2.1.9.2 to 4.2.1.9.4.1 do not apply to portable tanks which contain substances maintained at a temperature above 50 °C during carriage (e.g. by means of a heating device). For portable tanks equipped with a heating device, a temperature regulator shall be used to ensure the maximum degree of filling is not more than 95% full at any time during carriage.

- 4.2.1.9.5.1 The maximum degree of filling (in %) for liquids carried under elevated temperature conditions is determined by the formula:

$$\text{Degree of filling} = 95 \frac{d_r}{d_f}$$

in which  $d_f$  and  $d_r$  are the densities of the liquid at the mean temperature of the liquid during filling and the maximum mean bulk temperature during carriage respectively.

- 4.2.1.9.6 Portable tanks shall not be offered for carriage:

- (a) With a degree of filling, for liquids having a viscosity less than 2 680 mm<sup>2</sup>/s at 20 °C or maximum temperature of the substance during carriage in the case of the heated substance, of more than 20% but less than 80% unless the shells of portable tanks are divided, by partitions or surge plates, into sections of not more than 7 500 litres capacity;
- (b) With residue of substances previously carried adhering to the outside of the shell or service equipment;
- (c) When leaking or damaged to such an extent that the integrity of the portable tank or its lifting or securing arrangements may be affected; and
- (d) Unless the service equipment has been examined and found to be in good working order.

- 4.2.1.9.7 Forklift pockets of portable tanks shall be closed off when the tank is filled. This provision does not apply to portable tanks which according to 6.7.3.13.4 need not be provided with a means of closing off the forklift pockets.

**4.2.1.10 *Additional provisions applicable to the carriage of Class 3 substances in portable tanks***

- 4.2.1.10.1 All portable tanks intended for the carriage of flammable liquids shall be closed and be fitted with relief devices in accordance with 6.7.2.8 to 6.7.2.15.

- 4.2.1.10.1.1 For portable tanks intended for use only on land, open venting systems may be used if allowed according to Chapter 4.3.

**4.2.1.11 *Additional provisions applicable to the carriage of Classes 4.1, 4.2 or 4.3 substances (other than Class 4.1 self-reactive substances) in portable tanks***

*(Reserved)*

*NOTE: For Class 4.1 self-reactive substances, see 4.2.1.13.1.*

**4.2.1.12 *Additional provisions applicable to the carriage of Class 5.1 substances in portable tanks***

*(Reserved)*

**4.2.1.13 *Additional provisions applicable to the carriage of Class 5.2 substances and Class 4.1 self-reactive substances in portable tanks***

- 4.2.1.13.1 Each substance shall have been tested and a report submitted to the competent authority of the country of origin for approval. Notification thereof shall be sent to the competent authority of the country of destination. The notification shall contain relevant transport information and the report with test results. The tests undertaken shall include those necessary:

- (a) To prove the compatibility of all materials normally in contact with the substance during carriage;
- (b) To provide data for the design of the pressure and emergency relief devices taking into account the design characteristics of the portable tank.

Any additional provision necessary for safe carriage of the substance shall be clearly described in the report.

- 4.2.1.13.2 The following provisions apply to portable tanks intended for the carriage of Type F organic peroxides or Type F self-reactive substances with a Self-Accelerating Decomposition Temperature (SADT) of 55 °C or more. In case of conflict these provisions prevail over those specified in Section 6.7.2. Emergencies to be taken into account are self-accelerating decomposition of the substance and fire-engulfment as described in 4.2.1.13.8.
- 4.2.1.13.3 The additional provisions for carriage of organic peroxides or self-reactive substances with a SADT less than 55 °C in portable tanks shall be specified by the competent authority of the country of origin. Notification thereof shall be sent to the competent authority of the country of destination.
- 4.2.1.13.4 The portable tank shall be designed for a test pressure of at least 0.4 MPa (4 bar).
- 4.2.1.13.5 Portable tanks shall be fitted with temperature sensing devices.
- 4.2.1.13.6 Portable tanks shall be fitted with pressure-relief devices and emergency-relief devices. Vacuum-relief devices may also be used. Pressure-relief devices shall operate at pressures determined according to both the properties of the substance and the construction characteristics of the portable tank. Fusible elements are not allowed in the shell.
- 4.2.1.13.7 The pressure-relief devices shall consist of spring-loaded valves fitted to prevent significant build-up within the portable tank of the decomposition products and vapours released at a temperature of 50 °C. The capacity and start-to-discharge pressure of the relief valves shall be based on the results of the tests specified in 4.2.1.13.1. The start-to-discharge pressure shall, however, in no case be such that liquid would escape from the valve(s) if the portable tank were overturned.
- 4.2.1.13.8 The emergency-relief devices may be of the spring-loaded or frangible types, or a combination of the two, designed to vent all the decomposition products and vapours evolved during a period of not less than one hour of complete fire-engulfment as calculated by the following formula:

$$q = 70961 \times F \times A^{0.82}$$

where:

- q = heat absorption [W]
- A = wetted area [m<sup>2</sup>]
- F = insulation factor
- = 1 for non-insulated shells, or

$$F = \frac{U(923 - T)}{47032} \text{ for insulated shells}$$

where:

K =	heat conductivity of insulation layer	$[W \cdot m^{-1} \cdot K^{-1}]$
L =	thickness of insulation layer	[m]
U =	$K/L$ = heat transfer coefficient of the insulation	$[W \cdot m^{-2} \cdot K^{-1}]$
T =	temperature of the substance at relieving conditions	[K]

The start-to-discharge pressure of the emergency-relief device(s) shall be higher than that specified in 4.2.1.13.7 and based on the results of the tests referred to in 4.2.1.13.1. The emergency-relief devices shall be dimensioned in such a way that the maximum pressure in the portable tank never exceeds the test pressure of the tank.

*NOTE: An example of a method to determine the size of emergency-relief devices is given in Appendix 5 of the "Manual of Tests and Criteria".*

- 4.2.1.13.9 For insulated portable tanks the capacity and setting of emergency-relief device(s) shall be determined assuming a loss of insulation from 1% of the surface area.
- 4.2.1.13.10 Vacuum-relief devices and spring-loaded valves shall be provided with flame arresters. Due attention shall be paid to the reduction of the relief capacity caused by the flame arrester.
- 4.2.1.13.11 Service equipment such as valves and external piping shall be so arranged that no substance remains in them after filling the portable tank.
- 4.2.1.13.12 Portable tanks may be either insulated or protected by a sun-shield. If the SADT of the substance in the portable tank is 55 °C or less, or the portable tank is constructed of aluminium, the portable tank shall be completely insulated. The outer surface shall be finished in white or bright metal.
- 4.2.1.13.13 The degree of filling shall not exceed 90% at 15 °C.
- 4.2.1.13.14 The marking as required in 6.7.2.20.2 shall include the UN number and the technical name with the approved concentration of the substance concerned.
- 4.2.1.13.15 Organic peroxides and self-reactive substances specifically listed in portable tank instruction T23 in 4.2.5.2.6 may be carried in portable tanks.
- 4.2.1.14 ***Additional provisions applicable to the carriage of Class 6.1 substances in portable tanks***  
(Reserved)
- 4.2.1.15 ***Additional provisions applicable to the carriage of Class 7 substances in portable tanks***
- 4.2.1.15.1 Portable tanks used for the carriage of radioactive material shall not be used for the carriage of other goods.
- 4.2.1.15.2 The degree of filling for portable tanks shall not exceed 90% or, alternatively, any other value approved by the competent authority.
- 4.2.1.16 ***Additional provisions applicable to the carriage of Class 8 substances in portable tanks***
- 4.2.1.16.1 Pressure-relief devices of portable tanks used for the carriage of Class 8 substances shall be inspected at intervals not exceeding one year.

**4.2.1.17 Additional provisions applicable to the carriage of Class 9 substances in portable tanks**

*(Reserved)*

**4.2.2 General provisions for the use of portable tanks for the carriage of non-refrigerated liquefied gases**

4.2.2.1 This section provides general provisions applicable to the use of portable tanks for the carriage of non-refrigerated liquefied gases.

4.2.2.2 Portable tanks shall conform to the design, construction, inspection and testing requirements detailed in 6.7.3. Non-refrigerated liquefied gases shall be carried in portable tanks conforming to portable tank instruction T50 as described in 4.2.5.2.6 and any portable tank special provisions assigned to specific non-refrigerated liquefied gases in Column (11) of Table A of Chapter 3.2 and described in 4.2.5.3.

4.2.2.3 During carriage, portable tanks shall be adequately protected against damage to the shell and service equipment resulting from lateral and longitudinal impact and overturning. If the shell and service equipment are so constructed as to withstand impact or overturning it need not be protected in this way. Examples of such protection are given in 6.7.3.13.5.

4.2.2.4 Certain non-refrigerated liquefied gases are chemically unstable. They are accepted for carriage only when the necessary steps have been taken to prevent their dangerous decomposition, transformation or polymerization during carriage. To this end, care shall in particular be taken to ensure that portable tanks do not contain any non-refrigerated liquefied gases liable to promote these reactions.

4.2.2.5 Unless the name of the gas(es) being carried appears on the metal plate described in 6.7.3.16.2, a copy of the certificate specified in 6.7.3.14.1 shall be made available upon a competent authority request and readily provided by the consignor, consignee or agent, as appropriate.

4.2.2.6 Empty portable tanks not cleaned and not gas-free shall comply with the same provisions as portable tanks filled with the previous non-refrigerated liquefied gas.

**4.2.2.7 Filling**

4.2.2.7.1 Prior to filling the portable tank shall be inspected to ensure that it is authorized for the non-refrigerated liquefied gas to be carried and that the portable tank is not loaded with non-refrigerated liquefied gases which in contact with the materials of the shell, gaskets, service equipment and any protective linings, are likely to react dangerously with them to form dangerous products or appreciably weaken these materials. During filling, the temperature of the non-refrigerated liquefied gas shall fall within the limits of the design temperature range.

4.2.2.7.2 The maximum mass of non-refrigerated liquefied gas per litre of shell capacity (kg/l) shall not exceed the density of the non-refrigerated liquefied gas at 50 °C multiplied by 0.95. Furthermore, the shell shall not be liquid-full at 60 °C.

4.2.2.7.3 Portable tanks shall not be filled above their maximum permissible gross mass and the maximum permissible load mass specified for each gas to be carried.

4.2.2.8 Portable tanks shall not be offered for carriage:

- (a) In an ullage condition liable to produce an unacceptable hydraulic force due to surge within the shell;

- (b) When leaking;
- (c) When damaged to such an extent that the integrity of the tank or its lifting or securing arrangements may be affected; and
- (d) Unless the service equipment has been examined and found to be in good working order.

4.2.2.9 Forklift pockets of portable tanks shall be closed off when the tank is filled. This provision does not apply to portable tanks which according to 6.7.4.12.4 need not be provided with a means of closing off the forklift pockets.

#### 4.2.3 General provisions for the use of portable tanks for the carriage of refrigerated liquefied gases

4.2.3.1 This section provides general provisions applicable to the use of portable tanks for the carriage of refrigerated liquefied gases.

4.2.3.2 Portable tanks shall conform to the design, construction, inspection and testing requirements detailed in 6.7.4. Refrigerated liquefied gases shall be carried in portable tanks conforming to portable tank instruction T75 as described in 4.2.5.2.6 and the portable tank special provisions assigned to each substance in Column (11) of Table A of Chapter 3.2 and described in 4.2.5.3.

4.2.3.3 During carriage, portable tanks shall be adequately protected against damage to the shell and service equipment resulting from lateral and longitudinal impact and overturning. If the shell and service equipment are so constructed as to withstand impact or overturning it need not be protected in this way. Examples of such protection are provided in 6.7.4.12.5.

4.2.3.4 Unless the name of the gas(es) being carried appears on the metal plate described in 6.7.4.15.2, a copy of the certificate specified in 6.7.4.13.1 shall be made available upon a competent authority request and readily provided by the consignor, consignee or agent, as appropriate.

4.2.3.5 Empty portable tanks not cleaned and not gas-free shall comply with the same provisions as portable tanks filled with the previous substance.

#### 4.2.3.6 *Filling*

4.2.3.6.1 Prior to filling the portable tank shall be inspected to ensure that it is authorized for the refrigerated liquefied gas to be carried and that the portable tank is not loaded with refrigerated liquefied gases which in contact with the materials of the shell, gaskets, service equipment and any protective linings, are likely to react dangerously with them to form dangerous products or appreciably weaken these materials. During filling, the temperature of the refrigerated liquefied gas shall be within the limits of the design temperature range.

4.2.3.6.2 In estimating the initial degree of filling the necessary holding time for the intended journey including any delays which might be encountered shall be taken into consideration. The initial degree of filling of the shell, except as provided for in 4.2.3.6.3 and 4.2.3.6.4, shall be such that if the contents, except helium, were to be raised to a temperature at which the vapour pressure is equal to the maximum allowable working pressure (MAWP) the volume occupied by liquid would not exceed 98%.

4.2.3.6.3 Shells intended for the carriage of helium can be filled up to but not above the inlet of the pressure-relief device.



4.2.3.6.4 A higher initial degree of filling may be allowed, subject to approval by the competent authority, when the intended duration of carriage is considerably shorter than the holding time.

**4.2.3.7** *Actual holding time*

4.2.3.7.1 The actual holding time shall be calculated for each journey in accordance with a procedure recognized by the competent authority, on the basis of the following:

- (a) The reference holding time for the refrigerated liquefied gas to be carried (see 6.7.4.2.8.1) (as indicated on the plate referred to in 6.7.4.15.1);
- (b) The actual filling density;
- (c) The actual filling pressure;
- (d) The lowest set pressure of the pressure limiting device(s).

4.2.3.7.2 The actual holding time shall be marked either on the portable tank itself or on a metal plate firmly secured to the portable tank, in accordance with 6.7.4.15.2.

4.2.3.8 Portable tanks shall not be offered for carriage:

- (a) In an ullage condition liable to produce an unacceptable hydraulic force due to surge within the shell;
- (b) When leaking;
- (c) When damaged to such an extent that the integrity of the portable tank or its lifting or securing arrangements may be affected;
- (d) Unless the service equipment has been examined and found to be in good working order;
- (e) Unless the actual holding time for the refrigerated liquefied gas being carried has been determined in accordance with 4.2.3.7 and the portable tank is marked in accordance with 6.7.4.15.2; and
- (f) Unless the duration of carriage, after taking into consideration any delays which might be encountered, does not exceed the actual holding time.

4.2.3.9 Forklift pockets of portable tanks shall be closed off when the tank is filled. This provision does not apply to portable tanks which according to 6.7.4.12.4, need not be provided with a means of closing off the forklift pockets.

**4.2.4** **General provisions for the use of UN certified multiple-element gas containers (MEGCs)**

4.2.4.1 This section provides general requirements applicable to the use of multiple-element gas containers (MEGCs) for the carriage of non-refrigerated gases referred to in 6.7.5.

4.2.4.2 MEGCs shall conform to the design, construction, inspection and testing requirements detailed in 6.7.5. The elements of MEGCs shall be periodically inspected according to the provisions set out in packing instruction P200 of 4.1.4.1 and in 6.2.1.5.

- 4.2.4.3 During carriage, MEGCs shall be protected against damage to the elements and service equipment resulting from lateral and longitudinal impact and overturning. If the elements and service equipment are so constructed as to withstand impact or overturning, they need not be protected in this way. Examples of such protection are given in 6.7.5.10.4.
- 4.2.4.4 The periodic testing and inspection requirements for MEGCs are specified in 6.7.5.12. MEGCs or their elements shall not be charged or filled after they become due for periodic inspection but may be carried after the expiry of the time limit.
- 4.2.4.5 **Filling**
- 4.2.4.5.1 Prior to filling, the MEGC shall be inspected to ensure that it is authorized for the gas to be carried and that the applicable provisions of ADR have been met.
- 4.2.4.5.2 Elements of MEGCs shall be filled according to the working pressures, filling ratios and filling provisions specified in packing instruction P200 of 4.1.4.1 for the specific gas being filled into each element. In no case shall an MEGC or group of elements be filled as a unit in excess of the lowest working pressure of any given element.
- 4.2.4.5.3 MEGCs shall not be filled above their maximum permissible gross mass.
- 4.2.4.5.4 Isolation valves shall be closed after filling and remain closed during carriage. Toxic gases (gases of groups T, TF, TC, TO, TFC and TOC) shall only be carried in MEGCs where each element is equipped with an isolation valve.
- 4.2.4.5.5 The opening(s) for filling shall be closed by caps or plugs. The leakproofness of the closures and equipment shall be verified by the filler after filling.
- 4.2.4.5.6 MEGCs shall not be offered for filling:
- (a) when damaged to such an extent that the integrity of the pressure receptacles or its structural or service equipment may be affected;
  - (b) unless the pressure receptacles and its structural and service equipment has been examined and found to be in good working order; and
  - (c) unless the required certification, retest, and filling markings are legible.
- 4.2.4.6 Charged MEGCs shall not be offered for carriage;
- (a) when leaking;
  - (b) when damaged to such an extent that the integrity of the pressure receptacles or its structural or service equipment may be affected;
  - (c) unless the pressure receptacles and its structural and service equipment have been examined and found to be in good working order; and
  - (d) unless the required certification, retest, and filling markings are legible.
- 4.2.4.7 Empty MEGCs that have not been cleaned and purged shall comply with the same requirements as MEGCs filled with the previous substance.

## 4.2.5 Portable tank instructions and special provisions

### 4.2.5.1 *General*

4.2.5.1.1 This section includes the portable tank instructions and special provisions applicable to dangerous goods authorized to be carried in portable tanks. Each portable tank instruction is identified by an alpha-numeric code (e.g. T1). Column (10) of Table A of Chapter 3.2 indicates the portable tank instruction that shall be used for each substance permitted for carriage in a portable tank. When no portable tank instruction appears in Column (10) for a specific dangerous goods entry then carriage of the substance in portable tanks is not permitted unless a competent authority approval is granted as detailed in 6.7.1.3. Portable tank special provisions are assigned to specific dangerous goods in Column (11) of Table A of Chapter 3.2. Each portable tank special provision is identified by an alpha-numeric code (e.g. TP1). A listing of the portable tank special provisions is provided in 4.2.5.3.

### 4.2.5.2 *Portable tank instructions*

4.2.5.2.1 Portable tank instructions apply to dangerous goods of Classes 2 to 9. Portable tank instructions provide specific information relevant to portable tanks provisions applicable to specific substances. These provisions shall be met in addition to the general provisions in this Chapter and the general requirements in Chapter 6.7.

4.2.5.2.2 For substances of Classes 3 to 9, the portable tank instructions indicate the applicable minimum test pressure, the minimum shell thickness (in reference steel), bottom opening requirements and pressure relief requirements. In portable tank instruction T23, self-reactive substances of Class 4.1 and Class 5.2 organic peroxides permitted to be carried in portable tanks are listed along with the applicable control and emergency temperatures.

4.2.5.2.3 Non-refrigerated liquefied gases are assigned to portable tank instruction T50. T50 provides the maximum allowable working pressures, the requirements for the openings below liquid level, pressure-relief requirements and maximum filling density requirements for non-refrigerated liquefied gases permitted for carriage in portable tanks.

4.2.5.2.4 Refrigerated liquefied gases are assigned to portable tank instruction T75.

#### 4.2.5.2.5 *Determination of the appropriate portable tank instructions*

When a specific portable tank instruction is specified in Column (10) of Table A of Chapter 3.2 for a specific dangerous goods entry additional portable tanks which possess higher minimum test pressures, greater shell thicknesses, more stringent bottom opening and pressure-relief device arrangements may be used. The following guidelines apply to determining the appropriate portable tanks which may be used for carriage of particular substances:

Portable tank instruction specified	Portable tank instructions also permitted
T1	T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T2	T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T3	T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T4	T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T5	T10, T14, T19, T20, T22
T6	T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T7	T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T8	T9, T10, T13, T14, T19, T20, T21, T22
T9	T10, T13, T14, T19, T20, T21, T22
T10	T14, T19, T20, T22
T11	T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T12	T14, T16, T18, T19, T20, T22
T13	T14, T19, T20, T21, T22
T14	T19, T20, T22
T15	T16, T17, T18, T19, T20, T21, T22
T16	T18, T19, T20, T22
T17	T18, T19, T20, T21, T22
T18	T19, T20, T22
T19	T20, T22
T20	T22
T21	T22
T22	None
T23	None

## 4.2.5.2.6 Portable tank instructions

T1 - T22		PORTABLE TANK INSTRUCTIONS			T1 - T22
<i>These portable tank instructions apply to liquid and solid substances of Classes 3 to 9. The general provisions of Section 4.2.1 and the requirements of Section 6.7.2 shall be met.</i>					
Portable tank instruction	Minimum test pressure (bar)	Minimum shell thickness (in mm-reference steel) (see 6.7.2.4)	Pressure-relief requirements (see 6.7.2.8)	Bottom opening requirements (see 6.7.2.6)	
T1	1.5	See 6.7.2.4.2	Normal	See 6.7.2.6.2	
T2	1.5	See 6.7.2.4.2	Normal	See 6.7.2.6.3	
T3	2.65	See 6.7.2.4.2	Normal	See 6.7.2.6.2	
T4	2.65	See 6.7.2.4.2	Normal	See 6.7.2.6.3	
T5	2.65	See 6.7.2.4.2	See 6.7.2.8.3	Not allowed	
T6	4	See 6.7.2.4.2	Normal	See 6.7.2.6.2	
T7	4	See 6.7.2.4.2	Normal	See 6.7.2.6.3	
T8	4	See 6.7.2.4.2	Normal	Not allowed	
T9	4	6mm	Normal	Not allowed	
T10	4	6mm	See 6.7.2.8.3	Not allowed	
T11	6	See 6.7.2.4.2	Normal	See 6.7.2.6.3	
T12	6	See 6.7.2.4.2	See 6.7.2.8.3	See 6.7.2.6.3	
T13	6	6mm	Normal	Not allowed	
T14	6	6mm	See 6.7.2.8.3	Not allowed	
T15	10	See 6.7.2.4.2	Normal	See 6.7.2.6.3	
T16	10	See 6.7.2.4.2	See 6.7.2.8.3	See 6.7.2.6.3	
T17	10	6mm	Normal	See 6.7.2.6.3	
T18	10	6mm	See 6.7.2.8.3	See 6.7.2.6.3	
T19	10	6mm	See 6.7.2.8.3	Not allowed	
T20	10	8mm	See 6.7.2.8.3	Not allowed	
T21	10	10mm	Normal	Not allowed	
T22	10	10mm	See 6.7.2.8.3	Not allowed	

T23		PORTABLE TANK INSTRUCTION						T23	
<p><i>This portable tank instruction applies to self-reactive substances of Class 4.1 and organic peroxides of Class 5.2. The general provisions of Section 4.2.1 and the requirements of Section 6.7.2 shall be met. The additional provisions specific to self-reactive substances of Class 4.1 and organic peroxides of Class 5.2 in 4.2.1.13 shall also be met.</i></p>									
UN No.	Substance	Minimum test pressure (bar)	Minimum shell thickness (mm-reference steel)	Bottom opening requirements	Pressure-relief requirements	Degree of filling	Control temperature	Emergency temperature	
3109	<p>ORGANIC PEROXIDE, TYPE F, LIQUID</p> <p>tert-Butyl hydroperoxide <sup>a</sup>, not more than 72% with water</p> <p>Cumyl hydroperoxide, not more than 90% in diluent type A</p> <p>Di-tert-butyl peroxide, not more than 32% in diluent type A</p> <p>Isopropyl cumyl hydroperoxide, not more than 72% in diluent type A</p> <p>p-Menthyl hydroperoxide, not more than 72% in diluent type A</p> <p>Pinanyl hydroperoxide, not more than 56% in diluent type A</p>	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13			
3110	<p>ORGANIC PEROXIDE TYPE F, SOLID</p> <p>Dicumyl peroxide <sup>b</sup></p>	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13			

<sup>a</sup> Provided that steps have been taken to achieve the safety equivalence of 65% tert-Butyl hydroperoxide and 35% water.

<sup>b</sup> Maximum quantity per portable tank: 2000 kg.

T23		PORTABLE TANK INSTRUCTION (cont'd)						T23	
This portable tank instruction applies to self-reactive substances of Class 4.1 and organic peroxides of Class 5.2. The general provisions of Section 4.2.1 and the requirements of Section 6.7.2 shall be met. The additional provisions specific to self-reactive substances of Class 4.1 and organic peroxides of Class 5.2 in 4.2.1.13 shall also be met.									
UN No.	Substance	Minimum test pressure (bar)	Minimum shell thickness (mm-reference steel)	Bottom opening requirements	Pressure-relief requirements	Degree of filling	Control temperature	Emergency temperature	
3119	ORGANIC PEROXIDE, TYPE F, LIQUID, TEMPERATURE CONTROLLED  tert-Butyl peroxyacetate, not more than 32% in diluent type B  tert-Butyl peroxy-2-ethylhexanoate, not more than 32% in diluent type B  tert-Butyl peroxy-pivalate, not more than 27% in diluent type B  tert-Butyl peroxy-3,5,5-trimethylhexanoate, not more than 32% in diluent type B  Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 38% in diluent type A  Peroxyacetic acid, distilled, type F, stabilized	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13	+30 °C  +15 °C  +5 °C  +35 °C  0 °C  +30 °C	+35 °C  +20 °C  +10 °C  +40 °C  +5 °C  +35 °C	
3120	ORGANIC PEROXIDE, TYPE F, SOLID, TEMPERATURE CONTROLLED	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13			

<sup>c</sup> As approved by the competent authority.

<sup>d</sup> Formulation derived from distillation of peroxyacetic acid originating from peroxyacetic acid in concentration of not more than 41% with water, total active oxygen (Peroxyacetic acid+H<sub>2</sub>O<sub>2</sub>) ≤ 9.5%, which fulfils the criteria of the Manual of Tests and Criteria, paragraph 20.4.3 (f).

T23 PORTABLE TANK INSTRUCTION (cont'd) T23								
<i>This portable tank instruction applies to self-reactive substances of Class 4.1 and organic peroxides of Class 5.2. The general provisions of Section 4.2.1 and the requirements of Section 6.7.2 shall be met. The additional provisions specific to self-reactive substances of Class 4.1 and organic peroxides of Class 5.2 in 4.2.1.13 shall also be met.</i>								
UN No.	Substance	Minimum test pressure (bar)	Minimum shell thickness (mm-reference steel)	Bottom opening requirements	Pressure-relief requirements	Degree of filling	Control temperature	Emergency temperature
3229	SELF-REACTIVE LIQUID TYPE F	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13		
3230	SELF-REACTIVE SOLID TYPE F	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13		
3239	SELF-REACTIVE LIQUID TYPE F, TEMPERATURE CONTROLLED	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13	c	c
3240	SELF-REACTIVE SOLID TYPE F, TEMPERATURE CONTROLLED	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13	c	c

T50 PORTABLE TANK INSTRUCTION T50					
<i>This portable tank instruction applies to non-refrigerated liquefied gases. The general provisions of Section 4.2.2 and the requirements of Section 6.7.3 shall be met.</i>					
UN No.	Non-refrigerated liquefied gases	Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated	Openings below liquid level	Pressure-relief requirements (see 6.7.3.7)	Maximum filling density (kg/l)
1005	Ammonia, anhydrous	29.0 25.7 22.0 19.7	Allowed	See 6.7.3.7.3	0.53
1009	Bromotrifluoromethane (Refrigerant gas R 13B1)	38.0 34.0 30.0 27.5	Allowed	Normal	1.13
1010	Butadienes, stabilized	7.5 7.0 7.0 7.0	Allowed	Normal	0.55

<sup>c</sup> As approved by the competent authority.



T50		PORTABLE TANK INSTRUCTION (cont'd)			T50
<i>This portable tank instruction applies to non-refrigerated liquefied gases. The general provisions of Section 4.2.2 and the requirements of Section 6.7.3 shall be met.</i>					
UN No.	Non-refrigerated liquefied gases	Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated	Openings below liquid level	Pressure-relief requirements (see 6.7.3.7)	Maximum filling density (kg/l)
1011	Butane	7.0 7.0 7.0 7.0	Allowed	Normal	0.51
1012	Butylene	8.0 7.0 7.0 7.0	Allowed	Normal	0.53
1017	Chlorine	19.0 17.0 15.0 13.5	Not Allowed	See 6.7.3.7.3	1.25
1018	Chlorodifluoromethane (Refrigerant gas R 22)	26.0 24.0 21.0 19.0	Allowed	Normal	1.03
1020	Chloropentafluoroethane (Refrigerant gas R 115)	23.0 20.0 18.0 16.0	Allowed	Normal	1.06
1021	1-Chloro-1,2,2,2-tetrafluoroethane (Refrigerant gas R 124)	10.3 9.8 7.9 7.0	Allowed	Normal	1.20
1027	Cyclopropane	18.0 16.0 14.5 13.0	Allowed	Normal	0.53
1028	Dichlorodifluoromethane (Refrigerant gas R 12)	16.0 15.0 13.0 11.5	Allowed	Normal	1.15
1029	Dichlorofluoromethane (Refrigerant gas R 21)	7.0 7.0 7.0 7.0	Allowed	Normal	1.23
1030	1,1-Difluoroethane (Refrigerant gas R 152a)	16.0 14.0 12.4 11.0	Allowed	Normal	0.79
1032	Dimethylamine, anhydrous	7.0 7.0 7.0 7.0	Allowed	Normal	0.59

T50		PORTABLE TANK INSTRUCTION (cont'd)			T50	
<i>This portable tank instruction applies to non-refrigerated liquefied gases. The general provisions of Section 4.2.2 and the requirements of Section 6.7.3 shall be met.</i>						
UN No.	Non-refrigerated liquefied gases	Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated	Openings below liquid level	Pressure-relief requirements (see 6.7.3.7)	Maximum filling density (kg/l)	
1033	Dimethyl ether	15.5 13.8 12.0 10.6	Allowed	Normal	0.58	
1036	Ethylamine	7.0 7.0 7.0 7.0	Allowed	Normal	0.61	
1037	Ethyl chloride	7.0 7.0 7.0 7.0	Allowed	Normal	0.80	
1040	Ethylene oxide with nitrogen up to a total pressure of 1MPa (10 bar) at 50 °C	- - 10.0	Not Allowed	See 6.7.3.7.3	0.78	
1041	Ethylene oxide and carbon dioxide mixture with more than 9% but not more than 87% ethylene oxide	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7	
1055	Isobutylene	8.1 7.0 7.0 7.0	Allowed	Normal	0.52	
1060	Methylacetylene and propadiene mixture, stabilized	28.0 24.5 22.0 20.0	Allowed	Normal	0.43	
1061	Methylamine, anhydrous	10.8 9.6 7.8 7.0	Allowed	Normal	0.58	
1062	Methyl bromide with not more than 2% chloropicrin	7.0 7.0 7.0 7.0	Not Allowed	See 6.7.3.7.3	1.51	
1063	Methyl chloride (Refrigerant gas R 40)	14.5 12.7 11.3 10.0	Allowed	Normal	0.81	
1064	Methyl mercaptan	7.0 7.0 7.0 7.0	Not Allowed	See 6.7.3.7.3	0.78	

T50		PORTABLE TANK INSTRUCTION (cont'd)				T50
<i>This portable tank instruction applies to non-refrigerated liquefied gases. The general provisions of Section 4.2.2 and the requirements of Section 6.7.3 shall be met.</i>						
UN No.	Non-refrigerated liquefied gases	Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated	Openings below liquid level	Pressure-relief requirements (see 6.7.3.7)	Maximum filling density (kg/l)	
1067	Dinitrogen tetroxide	7.0 7.0 7.0 7.0	Not Allowed	See 6.7.3.7.3	1.30	
1075	Petroleum gases, liquefied	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7	
1077	Propylene	28.0 24.5 22.0 20.0	Allowed	Normal	0.43	
1078	Refrigerant gas, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7	
1079	Sulphur dioxide	11.6 10.3 8.5 7.6	Not Allowed	See 6.7.3.7.3	1.23	
1082	Trifluorochloroethylene, stabilized (Refrigerant gas R 1113)	17.0 15.0 13.1 11.6	Not Allowed	See 6.7.3.7.3	1.13	
1083	Trimethylamine, anhydrous	7.0 7.0 7.0 7.0	Allowed	Normal	0.56	
1085	Vinyl bromide, stabilized	7.0 7.0 7.0 7.0	Allowed	Normal	1.37	
1086	Vinyl chloride, stabilized	10.6 9.3 8.0 7.0	Allowed	Normal	0.81	
1087	Vinyl methyl ether, stabilized	7.0 7.0 7.0 7.0	Allowed	Normal	0.67	
1581	Chloropicrin and methyl bromide mixture with more than 2% chloropicrin	7.0 7.0 7.0 7.0	Not Allowed	See 6.7.3.7.3	1.51	
1582	Chloropicrin and methyl chloride mixture	19.2 16.9 15.1 13.1	Not Allowed	See 6.7.3.7.3	0.81	

T50		PORTABLE TANK INSTRUCTION (cont'd)			T50
<i>This portable tank instruction applies to non-refrigerated liquefied gases. The general provisions of Section 4.2.2 and the requirements of Section 6.7.3 shall be met.</i>					
UN No.	Non-refrigerated liquefied gases	Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated	Openings below liquid level	Pressure-relief requirements (see 6.7.3.7)	Maximum filling density (kg/l)
1858	Hexafluoropropylene (Refrigerant gas R 1216)	19.2 16.9 15.1 13.1	Allowed	Normal	1.11
1912	Methyl chloride and methylene chloride mixture	15.2 13.0 11.6 10.1	Allowed	Normal	0.81
1958	1,2-Dichloro-1,1,2,2-tetrafluoroethane (Refrigerant gas R 114)	7.0 7.0 7.0 7.0	Allowed	Normal	1.30
1965	Hydrocarbon gas, mixture liquefied, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7
1969	Isobutane	8.5 7.5 7.0 7.0	Allowed	Normal	0.49
1973	Chlorodifluoromethane and chloropentafluoroethane mixture with fixed boiling point, with approximately 49% chlorodifluoromethane (Refrigerant gas R 502)	28.3 25.3 22.8 20.3	Allowed	Normal	1.05
1974	Chlorodifluorobromomethane (Refrigerant gas R 12B1)	7.4 7.0 7.0 7.0	Allowed	Normal	1.61
1976	Octafluorocyclobutane (Refrigerant gas RC 318)	8.8 7.8 7.0 7.0	Allowed	Normal	1.34
1978	Propane	22.5 20.4 18.0 16.5	Allowed	Normal	0.42
1983	1-Chloro-2,2,2-trifluoroethane (Refrigerant gas R 133a)	7.0 7.0 7.0 7.0	Allowed	Normal	1.18
2035	1,1,1-Trifluoroethane (Refrigerant gas R 143a)	31.0 27.5 24.2 21.8	Allowed	Normal	0.76

T50		PORTABLE TANK INSTRUCTION (cont'd)			T50	
<i>This portable tank instruction applies to non-refrigerated liquefied gases. The general provisions of Section 4.2.2 and the requirements of Section 6.7.3 shall be met.</i>						
UN No.	Non-refrigerated liquefied gases	Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated	Openings below liquid level	Pressure-relief requirements (see 6.7.3.7)	Maximum filling density (kg/l)	
2424	Octafluoropropane (Refrigerant gas R 218)	23.1 20.8 18.6 16.6	Allowed	Normal	1.07	
2517	1-Chloro-1,1-difluoroethane (Refrigerant gas R 142b)	8.9 7.8 7.0 7.0	Allowed	Normal	0.99	
2602	Dichlorodifluoromethane and 1,1-difluoroethane azeotropic mixture with approximately 74% dichlorodifluoromethane (Refrigerant gas R 500)	20.0 18.0 16.0 14.5	Allowed	Normal	1.01	
3057	Trifluoroacetyl chloride	14.6 12.9 11.3 9.9	Not allowed	6.7.3.7.3	1.17	
3070	Ethylene oxide and dichlorodifluoromethane mixture with not more than 12.5% ethylene oxide	14.0 12.0 11.0 9.0	Allowed	6.7.3.7.3	1.09	
3153	Perfluoro (methyl vinyl ether)	14.3 13.4 11.2 10.2	Allowed	Normal	1.14	
3159	1,1,1,2-Tetrafluoroethane (Refrigerant gas R 134a)	17.7 15.7 13.8 12.1	Allowed	Normal	1.04	
3161	Liquefied gas, flammable, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7	
3163	Liquefied gas, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7	
3220	Pentafluoroethane (Refrigerant gas R 125)	34.4 30.8 27.5 24.5	Allowed	Normal	0.95	
3252	Difluoromethane (Refrigerant gas R 32)	43.0 39.0 34.4 30.5	Allowed	Normal	0.78	

T50		PORTABLE TANK INSTRUCTION (cont'd)				T50
<i>This portable tank instruction applies to non-refrigerated liquefied gases. The general provisions of Section 4.2.2 and the requirements of Section 6.7.3 shall be met.</i>						
UN No.	Non-refrigerated liquefied gases	Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated	Openings below liquid level	Pressure-relief requirements (see 6.7.3.7)	Maximum filling density (kg/l)	
3296	Heptafluoropropane (Refrigerant gas R 227)	16.0 14.0 12.5 11.0	Allowed	Normal	1.20	
3297	Ethylene oxide and chlorotetrafluoroethane mixture, with not more than 8.8% ethylene oxide	8.1 7.0 7.0 7.0	Allowed	Normal	1.16	
3298	Ethylene oxide and pentafluoroethane mixture, with not more than 7.9% ethylene oxide	25.9 23.4 20.9 18.6	Allowed	Normal	1.02	
3299	Ethylene oxide and tetrafluoroethane mixture, with not more than 5.6% ethylene oxide	16.7 14.7 12.9 11.2	Allowed	Normal	1.03	
3318	Ammonia solution, relative density less than 0.880 at 15 °C in water, with more than 50% ammonia	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	See 4.2.2.7	
3337	Refrigerant gas R 404A	31.6 28.3 25.3 22.5	Allowed	Normal	0.84	
3338	Refrigerant gas R 407A	31.3 28.1 25.1 22.4	Allowed	Normal	0.95	
3339	Refrigerant gas R 407B	33.0 29.6 26.5 23.6	Allowed	Normal	0.95	
3340	Refrigerant gas R 407C	29.9 26.8 23.9 21.3	Allowed	Normal	0.95	

T75		PORTABLE TANK INSTRUCTION				T75
<i>This portable tank instruction applies to refrigerated liquefied gases. The general provisions of Section 4.2.3 and the requirements of Section 6.7.4 shall be met.</i>						

## 4.2.5.3

*Portable tank special provisions*

Portable tank special provisions are assigned to certain substances to indicate provisions which are in addition to or in lieu of those provided by the portable tank instructions or the requirements in Chapter 6.7. Portable tank special provisions are identified by an alpha numeric code beginning with the letters "TP" (tank provision) and are assigned to specific substances in Column (11) of Table A of Chapter 3.2. The following is a list of the portable tank special provisions:

TP1 The degree of filling prescribed in 4.2.1.9.2 shall not be exceeded.

$$\left(\text{Degree of filling} = \frac{97}{1 + \alpha(t_r - t_f)}\right)$$

TP2 The degree of filling prescribed in 4.2.1.9.3 shall not be exceeded.

$$\left(\text{Degree of filling} = \frac{95}{1 + \alpha(t_r - t_f)}\right)$$

TP3 For liquids carried under elevated temperature conditions the degree of filling prescribed in 4.2.1.9.5.1 shall not be exceeded.

$$\left(\text{Degree of filling} = 95 \frac{d_r}{d_f}\right)$$

TP4 The degree of filling shall not exceed 90% or, alternatively, any other value approved by the competent authority (see 4.2.1.15.2).

TP5 *(Reserved)*

TP6 To prevent the tank bursting in any event, including fire engulfment, it shall be provided with pressure-relief devices which are adequate in relation to the capacity of the tank and to the nature of the substance carried. The device shall also be compatible with the substance.

TP7 Air shall be eliminated from the vapour space by nitrogen or other means.

TP8 The test pressure may be reduced to 1.5 bar when the flash point of the substances carried is greater than 0 °C.

TP9 A substance under this description shall only be carried in a portable tank under an approval granted by the competent authority.

TP10 A lead lining, not less than 5 mm thick, which shall be tested annually, or another suitable lining material approved by the competent authority is required.

TP12 This substance is highly corrosive to steel.

TP13 Self-contained breathing apparatus shall be provided when this substance is carried.

- TP16 The tank shall be fitted with a special device to prevent under-pressure and excess pressure during normal carriage conditions. This device shall be approved by the competent authority.
- Pressure-relief requirements are as indicated in 6.7.2.8.3 to prevent crystallization of the product in the pressure-relief valve.
- TP17 Only inorganic non-combustible materials shall be used for thermal insulation of the tank.
- TP18 Temperature shall be maintained between 18 °C and 40 °C. Portable tanks containing solidified methacrylic acid shall not be reheated during carriage.
- TP19 The calculated shell thickness shall be increased by 3 mm. Shell thickness shall be verified ultrasonically at intervals midway between periodic hydraulic tests.
- TP20 This substance shall only be carried in insulated tanks under a nitrogen blanket.
- TP21 The shell thickness shall be not less than 8 mm. Tanks shall be hydraulically tested and internally inspected at intervals not exceeding 2.5 years.
- TP22 Lubricant for joints or other devices shall be oxygen compatible.
- TP23 Carriage permitted under special conditions prescribed by the competent authorities.
- TP24 The portable tank may be fitted with a device located under maximum filling conditions in the vapour space of the shell to prevent the build up of excess pressure due to the slow decomposition of the substance carried. This device shall also prevent an unacceptable amount of leakage of liquid in the case of overturning or entry of foreign matter into the tank. This device shall be approved by the competent authority or its authorized body.
- TP25 Sulphur trioxide 99.95% pure and above may be carried in tanks without an inhibitor provided that it is maintained at a temperature equal to or above 32.5 °C.
- TP26 When carried under heated conditions, the heating device shall be fitted outside the shell. For UN 3176 this requirement only applies when the substance reacts dangerously with water.
- TP27 A portable tank having a minimum test pressure of 4 bar may be used if it is shown that a test pressure of 4 bar or less is acceptable according to the test pressure definition in 6.7.2.1.
- TP28 A portable tank having a minimum test pressure of 2.65 bar may be used if it is shown that a test pressure of 2.65 bar or less is acceptable according to the test pressure definition in 6.7.2.1.
- TP29 A portable tank having a minimum test pressure of 1.5 bar may be used if it is shown that a test pressure of 1.5 bar or less is acceptable according to the test pressure definition in 6.7.2.1.



## CHAPTER 4.3

**USE OF FIXED TANKS (TANK-VEHICLES), DEMOUNTABLE TANKS, TANK-CONTAINERS  
AND TANK SWAP BODIES WITH SHELLS MADE OF METALLIC MATERIALS, AND  
BATTERY-VEHICLES AND MULTIPLE-ELEMENT GAS CONTAINERS (MEGCs)**

**NOTE:** For portable tanks see Chapter 4.2; for fibre-reinforced plastics tanks, see Chapter 4.4; for vacuum operated waste tanks, see Chapter 4.5.

**4.3.1 Scope**

4.3.1.1 Provisions which take up the whole width of the page apply both to fixed tanks (tank-vehicles), demountable tanks and battery-vehicles, and to tank-containers, tank swap bodies and MEGCs. Provisions contained in a single column apply only to:

- fixed tanks (tank-vehicles), demountable tanks and battery-vehicles (left-hand column);
- tank-containers, tank swap bodies and MEGCs (right-hand column).

4.3.1.2 These provisions apply to:

fixed tanks (tank-vehicles), demountable tanks and battery-vehicles	tank-containers, tank swap bodies and MEGCs
---	---

used for the carriage of gaseous, liquid, powdery or granular substances.

4.3.1.3 Section 4.3.2 lists the provisions applicable to fixed tanks (tank-vehicles), demountable tanks, tank-containers and tank swap bodies, intended for the carriage of substances of all classes, and to battery-vehicles and MEGCs intended for the carriage of gases of Class 2. Sections 4.3.3 and 4.3.4 contain special provisions adding to or amending the provisions of Section 4.3.2.

4.3.1.4 For requirements concerning the construction, equipment, type approval, tests and marking, see Chapter 6.8.

4.3.1.5 For transitional measures concerning the application of this Chapter, see:

1.6.3.

1.6.4.

**4.3.2 Provisions applicable to all classes**

**4.3.2.1 Use**

4.3.2.1.1 A substance subject to ADR may be carried in fixed tanks (tank-vehicles), demountable tanks, battery-vehicles, tank-containers, tank swap bodies and MEGCs only when provision is made for a tank code according to 4.3.3.1.1 and 4.3.4.1.1 in Column (12) of Table A in Chapter 3.2.

4.3.2.1.2 The required type of tank, battery-vehicle and MEGC is given in code form in Column (12) of Table A in Chapter 3.2. The identification codes appearing there are made up of letters or numbers in a given order. The explanations for reading the four parts of the code are given in

4.3.3.1.1 (when the substance to be carried belongs to Class 2) and in 4.3.4.1.1 (when the substance to be carried belongs to Classes 3 to 9)<sup>1</sup>.

4.3.2.1.3 The required type according to 4.3.2.1.2 corresponds to the least stringent construction requirements which are acceptable for the dangerous substance in question unless otherwise prescribed in this Chapter or in Chapter 6.8. It is possible to use tanks corresponding to codes prescribing a higher minimum calculation pressure, or more stringent requirements for filling or discharge openings or for safety valves/devices (see 4.3.3.1.1 for Class 2 and 4.3.4.1.1 for Classes 3 to 9).

4.3.2.1.4 For certain substances, tanks, battery-vehicles or MEGCs are subject to additional provisions which are included as special provisions in Column (13) of Table A in Chapter 3.2.

4.3.2.1.5 Tanks, battery-vehicles and MEGCs shall not be loaded with any dangerous substances other than those for the carriage of which they have been approved according to 6.8.2.3.1 and which, in contact with the materials of the shell, gaskets, equipment and protective linings, are not liable to react dangerously with them (see "dangerous reaction" in 1.2.1), to form dangerous products or appreciably to weaken these materials<sup>2</sup>.

4.3.2.1.6 Foodstuffs shall not be carried in tanks used for dangerous substances unless the necessary steps have been taken to prevent any harm to public health.

#### 4.3.2.2 *Degree of filling*

4.3.2.2.1 The following degrees of filling shall not be exceeded in tanks intended for the carriage of liquids at ambient temperatures:

- (a) for flammable substances without additional risks (e.g. toxicity or corrosivity), in tanks with a venting system or with safety valves (even where preceded by a bursting disc):

$$\text{Degree of filling} = \frac{100}{1 + \alpha (50 - t_F)} \% \text{ of capacity}$$

- (b) for toxic or corrosive substances (whether flammable or not) in tanks with a venting system or with safety valves (even where preceded by a bursting disc):

$$\text{Degree of filling} = \frac{98}{1 + \alpha (50 - t_F)} \% \text{ of capacity}$$

- (c) for flammable substances and for slightly toxic or corrosive substances (whether flammable or not) in hermetically closed tanks without a safety device:

$$\text{Degree of filling} = \frac{97}{1 + \alpha (50 - t_F)} \% \text{ of capacity}$$

<sup>1</sup> An exception is made for tanks intended for the carriage of substances of classes 5.2 or 7 (see 4.3.4.1.3).

<sup>2</sup> It may be necessary to consult the manufacturer of the substance and the competent authority for guidance on the compatibility of the substance with the materials of the tank, battery-vehicle or MEGC.

- (d) for highly toxic, toxic, highly corrosive or corrosive substances (whether flammable or not) in hermetically closed tanks without a safety device:

$$\text{Degree of filling} = \frac{95}{1 + \alpha (50 - t_F)} \% \text{ of capacity}$$

- 4.3.2.2.2 In these formulae,  $\alpha$  is the mean coefficient of cubical expansion of the liquid between 15 °C and 50 °C, i.e. for a maximum variation in temperature of 35 °C.

$\alpha$  is calculated by the formula:

$$\alpha = \frac{d_{15} - d_{50}}{35d_{50}}$$

where  $d_{15}$  and  $d_{50}$  are the relative densities of the liquid at 15 °C and 50 °C respectively.  $t_F$  is the mean temperature of the liquid during filling.

- 4.3.2.2.3 The provisions of 4.3.2.2.1 (a) to (d) above shall not apply to tanks whose contents are, by means of a heating device, maintained at a temperature above 50 °C during carriage. In this case the degree of filling at the outset shall be such, and the temperature so regulated, that the tank is not full to more than 95% of its capacity and that the filling temperature is not exceeded, at any time during carriage.

- 4.3.2.2.4 Where shells intended for the carriage of liquids<sup>3</sup> are not divided by partitions or surge plates into sections of not more than 7 500 litres capacity, they shall be filled to not less than 80% or not more than 20% of their capacity.

#### 4.3.2.3 Operation

- 4.3.2.3.1 The thickness of the walls of the shell shall not, throughout its use, fall below the minimum figure prescribed in:

6.8.2.1.17 to 6.8.2.1.21.

6.8.2.1.17 to 6.8.1.20.

#### 4.3.2.3.2

During carriage tank-containers/MEGCs shall be loaded on the carrying vehicle in such a way as to be adequately protected by the fittings of the carrying vehicle or of the tank-container/MEGC itself against lateral and longitudinal impact and against overturning<sup>4</sup>. If the tank-containers/MEGCs, including the service equipment, are so constructed as to withstand impact or overturning they need not be protected in this way.

<sup>3</sup> Under this provision, substances whose kinematic viscosity at 20 °C is below 2 680 mm<sup>2</sup>/s shall be deemed to be liquids.

<sup>4</sup> Examples of protection of shells:

- protection against lateral impact may, for example, consist of longitudinal bars protecting the shell on both sides at the level of the median line;
- protection against overturning may, for example, consist of reinforcing rings or bars fixed transversally in relation to the frame;
- protection against rear impact, may, for example, consist of a bumper or frame.

4.3.2.3.3 During filling and discharge of tanks, battery-vehicles and MEGCs, appropriate measures shall be taken to prevent the release of dangerous quantities of gases and vapours. Tanks, battery-vehicles and MEGCs shall be closed so that the contents cannot spill out uncontrolled. The openings of bottom-discharge tanks shall be closed by means of screw-threaded plugs, blank flanges or other equally effective devices. The leakproofness of the closures of the tanks, and of the battery-vehicles and MEGCs shall be checked by the filler after the tank is filled. This applies in particular to the upper part of the dip tube.

4.3.2.3.4 Where several closure systems are fitted in series, that nearest to the substance being carried shall be closed first.

4.3.2.3.5 No dangerous residue of the filling substance shall adhere to the outside of the tank during carriage.

4.3.2.3.6 Substances which may react dangerously with each other shall not be carried in adjoining compartments of tanks.

Substances which may react dangerously with each other may be carried in adjoining compartments of tanks, when these compartments are separated by a partition with a wall thickness equal to or greater than that of the tank itself. They may also be carried separated by an empty space or an empty compartment between loaded compartments.

**4.3.2.4 Empty tanks, battery-vehicles and MEGCs, uncleaned**

*NOTE: For empty tanks, battery-vehicles and MEGCs, uncleaned, special provisions TU1, TU2, TU4, TU16 and TU35 of 4.3.5 may apply.*

4.3.2.4.1 No dangerous residue of the filling substance shall adhere to the outside of the tank during carriage.

4.3.2.4.2 To be accepted for carriage, empty tanks, battery-vehicles and MEGCs, uncleaned, shall be closed in the same manner and be leakproof to the same degree as if they were full.

4.3.2.4.3 Where empty tanks, battery-vehicles and MEGCs, uncleaned, are not closed in the same manner and are not leakproof to the same degree as if they were full and where the provisions of ADR cannot be complied with, they shall be carried, with due regard to adequate safety, to the nearest suitable place where cleaning or repair can be carried out. Carriage is adequately safe if suitable measures have been taken to ensure equivalent safety commensurate with the provisions of ADR and to prevent the uncontrolled release of the dangerous goods.

4.3.2.4.4 Empty fixed tanks (tank-vehicles), demountable tanks, battery-vehicles, tank-containers, tank swap bodies and MEGCs, uncleaned, may also be carried after the expiry of the periods established in 6.8.2.4.2 and 6.8.2.4.3 for undergoing the inspection.

### 4.3.3 Special provisions applicable to Class 2

#### 4.3.3.1 Coding and hierarchy of tanks

##### 4.3.3.1.1 Coding of tanks, battery-vehicles and MEGCs

The four parts of the codes (tank codes) given in Column (12) of Table A in Chapter 3.2 have the following meanings:

Part	Description	Tank Code
1	Types of tank, battery-vehicle or MEGC	C = tank, battery-vehicle or MEGC for compressed gases; P = tank, battery-vehicle or MEGC for liquefied gases or dissolved gases; R = tank for refrigerated liquefied gases.
2	Calculation pressure	X = value of the minimum relevant test pressure according to the table in 4.3.3.2.5; or 22 = minimum calculation pressure in bar.
3	Openings (see 6.8.2.2 and 6.8.3.2)	B = tank with bottom filling or discharge openings with 3 closures; or battery-vehicle or MEGC with openings below the surface of the liquid or for compressed gases; C = tank with top filling or discharge openings with 3 closures with only cleaning openings below the surface of the liquid; D = tank with top filling or discharge openings with 3 closures; or battery-vehicle or MEGC with no openings below the surface of the liquid.
4	Safety valves/devices	N = tank, battery-vehicle or MEGC with safety valve according to 6.8.3.2.9 or 6.8.3.2.10 which is not hermetically closed; H = hermetically closed tank, battery-vehicle or MEGC (see 1.2.1);

**NOTE 1:** The special provision TUI7 indicated in Column (13) of Table A in Chapter 3.2 for certain gases means that the gas may only be carried in a battery-vehicle or MEGC.

**NOTE 2:** The pressures indicated on the tank itself or on the panel shall be not less than the value of "X" or the minimum calculation pressure.

4.3.3.1.2 *Hierarchy of tanks*

Tank code	Other tank code(s) permitted for the substances under this code
C*BN	C#BN, C#CN, C#DN, C#BH, C#CH, C#DH
C*BH	C#BH, C#CH, C#DH
C*CN	C#CN, C#DN, C#CH, C#DH
C*CH	C#CH, C#DH
C*DN	C#DN, C#DH
C*DH	C#DH
P*BN	P#BN, P#CN, P#DN, P#BH, P#CH, P#DH
P*BH	P#BH, P#CH, P#DH
P*CN	P#CN, P#DN, P#CH, P#DH
P*CH	P#CH, P#DH
P*DN	P#DN, P#DH
P*DH	P#DH
R*BN	R#BN, R#CN, R#DN
R*CN	R#CN, R#DN
R*DN	R#DN

The figure represented by "#" shall be equal to or greater than the figure represented by "\*\*".

*NOTE: This hierarchy does not take any special provisions into account (see 4.3.5 and 6.8.4) for each entry.*

4.3.3.2 *Filling conditions and test pressures*

4.3.3.2.1 The test pressure for tanks intended for the carriage of compressed gases shall be at least 1.5 times the working pressure as defined in 1.2.1 for pressure receptacles.

4.3.3.2.2 The test pressure for tanks intended for the carriage of:

- high pressure liquefied gases; and
- dissolved gases

shall be such that, when the shell is filled to the maximum filling ratio, the pressure reached in the shell by the substance at 55 °C for tanks with thermal insulation or 65 °C for tanks without thermal insulation does not exceed the test pressure.

4.3.3.2.3 The test pressure for tanks intended for the carriage of low pressure liquefied gases will be:

- (a) If the tank is equipped with thermal insulation, at least equal to the vapour pressure, reduced by 0.1 MPa (1 bar) of the liquid at 60 °C, but not less than 1 MPa (10 bar);
- (b) If the tank is not equipped with thermal insulation, at least equal to the vapour pressure, reduced by 0.1 MPa (1 bar), of the liquid at 65 °C, but not less than 1 MPa (10 bar).

The maximum permissible mass of contents per litre of capacity is calculated as follows:

*Maximum permissible mass of contents per litre of capacity = 0.95 × density of the liquid phase at 50 °C (in kg/l)*

Moreover the vapour phase shall not disappear below 60 °C.

If the shells are not more than 1.5 m in diameter, the values of the test pressure and maximum filling ratio conforming to packing instruction P200 in 4.1.4.1 shall be applicable.

4.3.3.2.4 The test pressure for tanks intended for the carriage of refrigerated liquefied gases shall be not less than 1.3 times the maximum allowable working pressure and indicated on the tank but not less than 300 kPa (3 bar) (gauge pressure); for tanks with vacuum insulation the test pressure shall be not less than 1.3 times the maximum allowable working pressure increased by 100 kPa (1 bar).

4.3.3.2.5 *Table of gases and gas mixtures which may be carried in fixed tanks (tank-vehicles), battery-vehicles, demountable tanks, tank-containers or MEGCs indicating the minimum test pressure for tanks and as far as applicable the filling ratio*

In the case of gases and gas mixtures classified under n.o.s. entries, the values of the test pressure and the filling ratio shall be prescribed by the expert approved by the competent authority.

When tanks for compressed or high pressure liquefied gases have been subjected to a test pressure lower than shown in the table, and the tanks are fitted with thermal insulation, a lower maximum load may be prescribed by the expert approved by the competent authority, provided that the pressure reached in the tank by the substance at 55 °C does not exceed the test pressure stamped on the tank.

	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity
			With thermal insulation		Without thermal insulation		
			MPa	bar	MPa	bar	kg
1001	Acetylene, dissolved	4 F	only in battery-vehicles and MEGCs composed of receptacles				
1002	Air, compressed	1 A	see 4.3.3.2.1				
1003	Air, refrigerated liquid	3 O	see 4.3.3.2.4				
1005	Ammonia, anhydrous	2 TC	2.6	26	2.9	29	0.53
1006	Argon, compressed	1 A	see 4.3.3.2.1				
1008	Boron trifluoride	2 TC	22.5 30	225 300	22.5 30	225 300	0.715 0.86
1009	Bromotrifluoromethane (Refrigerant gas R13B1)	2 A	12	120	4.2 12 25	42 120 250	1.50 1.13 1.44 1.60
1010	1,3-butadiene, stabilized or 1,2-butadiene, stabilized or mixtures of 1,3-butadiene and hydrocarbons, stabilized	2 F	1 1 1	10 10 10	1 1 1	10 10 10	0.55 0.59 0.50

	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity kg
			With thermal insulation		Without thermal insulation		
			MPa	bar	MPa	bar	
1011	Butane	2 F	1	10	1	10	0.51
1012	1-butylene or trans-2-butylene or cis-2-butylene or butylenes mixture	2 F	1	10	1	10	0.53
			1	10	1	10	0.54
			1	10	1	10	0.55
			1	10	1	10	0.50
1013	Carbon dioxide	2 A	19	190			0.73
			22.5	225			0.78
					19	190	0.66
					25	250	0.75
1014	Carbon dioxide and oxygen mixtures compressed	1 O	see 4.3.3.2.1				
1015	Carbon dioxide and nitrous oxide mixture	2 A	see 4.3.3.2.2 or 4.3.3.2.3				
1016	Carbon monoxide, compressed	1 TF	see 4.3.3.2.1				
1017	Chlorine	2 TC	1.7	17	1.9	19	1.25
1018	Chlorodifluoromethane (Refrigerant gas R22)	2 A	2.4	24	2.6	26	1.03
1020	Chloropentafluoroethane (Refrigerant gas R115)	2 A	2	20	2.3	23	1.08
1021	1-chloro-1,2,2,2-tetrafluoroethane (Refrigerant gas R124)	2 A	1	10	1.1	11	1.2
1022	Chlorotrifluoromethane (Refrigerant gas R13)	2 A	12	120			0.96
			22.5	225			1.12
					10	100	0.83
					12	120	0.90
					19	190	1.04
					25	250	1.10
1023	Coal gas, compressed	1 TF	see 4.3.3.2.1				
1026	Cyanogen	2 TF	10	100	10	100	0.70
1027	Cyclopropane	2 F	1.6	1.6	1.8	1.8	0.53
1028	Dichlorodifluoromethane (Refrigerant gas R12)	2 A	1.5	15	1.6	16	1.15
1029	Dichlorofluoromethane (Refrigerant gas R21)	2 A	1	10	1	10	1.23



	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity  kg
			With thermal insulation		Without thermal insulation		
			MPa	bar	MPa	bar	
1030	1,1-difluoroethane (Refrigerant gas R152a)	2 F	1.4	14	1.6	16	0.79
1032	Dimethylamine, anhydrous	2 F	1	10	1	10	0.59
1033	Dimethyl ether	2 F	1.4	14	1.6	16	0.58
1035	Ethane	2 F	12	120	9.5 12 30	95 120 300	0.32 0.25 0.29 0.39
1036	Ethylamine	2 F	1	10	1	10	0.61
1037	Ethyl chloride	2 F	1	10	1	10	0.8
1038	Ethylene, refrigerated liquid	3 F	see 4.3.3.2.4				
1039	Ethyl methyl ether	2 F	1	10	1	10	0.64
1040	Ethylene oxide with nitrogen up to a total pressure of 1MPa (10 bar) at 50 °C	2 TF	1.5	15	1.5	15	0.78
1041	Ethylene oxide and carbon dioxide mixture, with more than 9% but not more than 87% ethylene oxide	2 F	2.4	24	2.6	26	0.73
1046	Helium, compressed	1 A	see 4.3.3.2.1				
1048	Hydrogen bromide, anhydrous	2 TC	5	50	5.5	55	1.54
1049	Hydrogen, compressed	1 F	see 4.3.3.2.1				
1050	Hydrogen chloride, anhydrous	2 TC	12	120	10 12 15 20	100 120 150 200	0.69 0.30 0.56 0.67 0.74
1053	Hydrogen sulphide	2 TF	4.5	45	5	50	0.67
1055	Isobutylene	2 F	1	10	1	10	0.52
1056	Krypton, compressed	1 A	see 4.3.3.2.1				

	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity
			With thermal insulation		Without thermal insulation		
			MPa	bar	MPa	bar	kg
1058	Liquefied gases, non flammable, charged with nitrogen, carbon dioxide or air	2 A	1.5 × filling pressure see 4.3.3.2.2 or 4.3.3.2.3				
1060	Methylacetylene and propadiene mixture, stabilized:  mixture P1 mixture P2 propadiene with 1% to 4% methylacetylene	2 F	see 4.3.3.2.2 or 4.3.3.2.3				
			2.5	25	2.8	28	0.49
			2.2	22	2.3	23	0.47
			2.2	22	2.2	22	0.50
1061	Methylamine, anhydrous	2 F	1	10	1.1	11	0.58
1062	Methyl bromide with not more than 2% chloropicrin	2 T	1	10	1	10	1.51
1063	Methyl chloride (Refrigerant gas R40)	2 F	1.3	13	1.5	15	0.81
1064	Methyl mercaptan	2 TF	1	10	1	10	0.78
1065	Neon, compressed	1 A	see 4.3.3.2.1				
1066	Nitrogen, compressed	1 A	see 4.3.3.2.1				
1067	Dinitrogen tetroxide (nitrogen dioxide)	2 TOC	only in battery-vehicles and MEGCs composed of receptacles				
1070	Nitrous oxide	2 O	22.5	225	18	180	0.78
					22.5	225	0.68
					25	250	0.74
						0.75	
1071	Oil gas, compressed	1 TF	see 4.3.3.2.1				
1072	Oxygen, compressed	1 O	see 4.3.3.2.1				
1073	Oxygen, refrigerated liquid	3 O	see 4.3.3.2.4				
1076	Phosgene	2 TC	only in battery-vehicles and MEGCs composed of receptacles				
1077	Propylene	2 F	2.5	25	2.7	27	0.43

	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity		
			With thermal insulation		Without thermal insulation				
			MPa	bar	MPa	bar	kg		
1078	Refrigerant gases, n.o.s. such as: mixture F1 mixture F2 mixture F3	2 A	1	10	1.1	11	1.23		
	1.5		15	1.6	16	1.15			
	other mixtures		see 4.3.3.2.2 or 4.3.3.2.3				1.03		
1079	Sulphur dioxide	2 TC	1	10	1.2	12	1.23		
1080	Sulphur hexafluoride	2 A	12	120	7	70	1.34		
					14	140	1.04		
					16	160	1.33		
						1.37			
1082	Trifluorochloroethylene, stabilized	2 TF	1.5	15	1.7	17	1.13		
1083	Trimethylamine, anhydrous	2 F	1	10	1	10	0.56		
1085	Vinyl bromide, stabilized	2 F	1	10	1	10	1.37		
1086	Vinyl chloride, stabilized	2 F	1	10	1.1	11	0.81		
1087	Vinyl methyl ether, stabilized	2 F	1	10	1	10	0.67		
1581	Chloropicrin and methyl bromide mixture with more than 2% chloropicrin	2 T	1	10	1	10	1.51		
1582	Chloropicrin and methyl chloride mixture	2 T	1.3	13	1.5	15	0.81		
1612	Hexaethyl tetraphosphate and compressed gas mixture	1 T	see 4.3.3.2.1						
1749	Chlorine trifluoride	2 TOC	3	30	3	30	1.40		
1858	Hexafluoropropylene (Refrigerant gas R 1216)	2A	1.7	17	1.9	19	1.11		
1859	Silicon tetrafluoride	2 TC	20	200	20	200	0.74		
			30	300	30	300	1.10		
1860	Vinyl fluoride, stabilized	2 F	12	120			0.58		
					22.5	225			0.65
							25	250	0.64
1912	Methyl chloride and methylene chloride mixture	2 F	1.3	13	1.5	15	0.81		

	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity
			With thermal insulation		Without thermal insulation		
			MPa	bar	MPa	bar	kg
1913	Neon, refrigerated liquid	3 A	see 4.3.3.2.4				
1951	Argon, refrigerated liquid	3 A	see 4.3.3.2.4				
1952	Ethylene oxide and carbon dioxide mixture, with not more than 9% ethylene oxide	2 A	19 25	190 250	19 25	190 250	0.66 0.75
1953	Compressed gas, toxic, flammable, n.o.s. <sup>a</sup>	1 TF	see 4.3.3.2.1 or 4.3.3.2.2				
1954	Compressed gas, flammable n.o.s.	1 F	see 4.3.3.2.1 or 4.3.3.2.2				
1955	Compressed gas, toxic, n.o.s. <sup>a</sup>	1 T	see 4.3.3.2.1 or 4.3.3.2.2				
1956	Compressed gas, n.o.s.	1 A	see 4.3.3.2.1 or 4.3.3.2.2				
1957	Deuterium, compressed	1 F	see 4.3.3.2.1				
1958	1,2-dichloro-1,1,2,2-tetrafluoroethane (Refrigerant gas R114)	2 A	1	10	1	10	1.3
1959	1,1-difluoroethylene (Refrigerant gas R1132a)	2 F	12 22.5	120 225	25	250	0.66 0.78 0.77
1961	Ethane, refrigerated liquid	3 F	see 4.3.3.2.4				
1962	Ethylene	2 F	12 22.5	120 225	22.5 30	225 300	0.25 0.36 0.34 0.37
1963	Helium, refrigerated liquid	3 A	see 4.3.3.2.4				
1964	Hydrocarbon gas mixture, compressed, n.o.s.	1 F	see 4.3.3.2.1 or 4.3.3.2.2				

<sup>a</sup> Allowed if LC<sub>50</sub> equal to or greater than 200 ppm.

	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity kg
			With thermal insulation		Without thermal insulation		
			MPa	bar	MPa	bar	
1965	Hydrocarbon gas mixture, liquefied, n.o.s.	2 F					
	Mixture A		1	10	1	10	0.50
	Mixture A01		1.2	12	1.4	14	0.49
	Mixture A02		1.2	12	1.4	14	0.48
	Mixture A0		1.2	12	1.4	14	0.47
	Mixture A1		1.6	16	1.8	18	0.46
	Mixture B1		2	20	2.3	23	0.45
	Mixture B2		2	20	2.3	23	0.44
	Mixture B		2	20	2.3	23	0.43
	Mixture C		2.5	25	2.7	27	0.42
	Other mixtures		see 4.3.3.2.2 or 4.3.3.2.3				
1966	Hydrogen, refrigerated liquid	3 F	see 4.3.3.2.4				
1967	Insecticide gas, toxic, n.o.s. <sup>a</sup>	2 T	see 4.3.3.2.2 or 4.3.3.2.3				
1968	Insecticide gas, n.o.s.	2 A	see 4.3.3.2.2 or 4.3.3.2.3				
1969	Isobutane	2 F	1	10	1	10	0.49
1970	Krypton, refrigerated liquid	3 A	see 4.3.3.2.4				
1971	Methane, compressed or natural gas, compressed with high methane content	1 F	see 4.3.3.2.1				
1972	Methane, refrigerated liquid or natural gas, refrigerated liquid with high methane content	3 F	see 4.3.3.2.4				
1973	Chlorodifluoromethane and chloropentafluoroethane mixture with fixed boiling point, with approximately 49% chlorodifluoromethane (Refrigerant gas R502)	2 A	2.5	25	2.8	28	1.05
1974	Chlorodifluorobromomethane (Refrigerant gas R12B1)	2 A	1	10	1	10	1.61
1976	Octafluorocyclobutane (Refrigerant gas RC318)	2 A	1	10	1	10	1.34
1977	Nitrogen, refrigerated liquid	3 A	see 4.3.3.2.4				
1978	Propane	2 F	2.1	21	2.3	23	0.42

	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity
			With thermal insulation		Without thermal insulation		
			MPa	bar	MPa	bar	kg
1979	Rare gases mixture, compressed	1 A	see 4.3.3.2.1				
1980	Rare gases and oxygen mixture, compressed	1 A	see 4.3.3.2.1				
1981	Rare gases and nitrogen mixture, compressed	1 A	see 4.3.3.2.1				
1982	Tetrafluoromethane (Refrigerant gas R14)	2 A	20 30	200 300	20 30	200 300	0.62 0.94
1983	1-chloro-2,2,2-trifluoroethane (Refrigerant gas R133a)	2 A	1	10	1	10	1.18
1984	Trifluoromethane (Refrigerant gas R23)	2 A	19 25	190 250	19 25	190 250	0.92 0.99 0.87 0.95
2034	Hydrogen and methane mixture, compressed	1 F	see 4.3.3.2.1				
2035	1,1,1-trifluoroethane (Refrigerant gas R143a)	2 F	2.8	28	3.2	32	0.79
2036	Xenon	2 A	12	120	13	130	1.30 1.24
2044	2,2-dimethylpropane	2 F	1	10	1	10	0.53
2073	Ammonia solutions, relative density less than 0.880 at 15 °C in water, with more than 35% and not more than 40% ammonia with more than 40% and not more than 50% ammonia	4 A	1 1.2	10 12	1 1.2	10 12	0.80 0.77
2187	Carbon dioxide, refrigerated liquid	3 A	see 4.3.3.2.4				
2189	Dichlorosilane	2 TFC	1	10	1	10	0.90
2191	Sulfuryl fluoride	2 T	5	50	5	50	1.1
2193	Hexafluoroethane (Refrigerant gas R116)	2 A	16 20	160 200	20	200	1.28 1.34 1.10
2197	Hydrogen iodide, anhydrous	2 TC	1.9	19	2.1	21	2.25

	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity
			With thermal insulation		Without thermal insulation		
			MPa	bar	MPa	bar	kg
2200	Propadiene, stabilized	2 F	1.8	18	2.0	20	0.50
2201	Nitrous oxide, refrigerated liquid	3 O	see 4.3.3.2.4				
2203	Silane <sup>b</sup>	2 F	22.5 25	225 250	22.5 25	225 250	0.32 0.36
2204	Carbonyl sulphide	2 TF	2.7	27	3.0	30	0.84
2417	Carbonyl fluoride	2 TC	20 30	200 300	20 30	200 300	0.47 0.70
2419	Bromotrifluoroethylene	2 F	1	10	1	10	1.19
2420	Hexafluoroacetone	2 TC	1.6	16	1.8	18	1.08
2422	Octafluorobut-2-ene (Refrigerant gas R1318)	2 A	1	10	1	10	1.34
2424	Octafluoropropane (Refrigerant gas R218)	2 A	2.1	21	2.3	23	1.07
2451	Nitrogen trifluoride	2 O	20 30	200 300	20 30	200 300	0.50 0.75
2452	Ethylacetylene, stabilized	2 F	1	10	1	10	0.57
2453	Ethyl fluoride (Refrigerant gas R161)	2 F	2.1	21	2.5	25	0.57
2454	Methyl fluoride (Refrigerant gas R41)	2 F	30	300	30	300	0.36
2517	1-chloro-1,1-difluoroethane (Refrigerant gas R142b)	2 F	1	10	1	10	0.99
2591	Xenon, refrigerated liquid	3 A	see 4.3.3.2.4				
2599	Chlorotrifluoromethane and trifluoromethane, azeotropic mixture with approximately 60% chlorotrifluoromethane (Refrigerant gas R503)	2 A	3.1 4.2 10	31 42 100	3.1 4.2 10	31 42 100	0.11 0.21 0.76 0.20 0.66
2600	Carbon monoxide and hydrogen mixture, compressed	1 TF	see 4.3.3.2.1				

<sup>b</sup> Considered as pyrophoric.

	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity
			With thermal insulation		Without thermal insulation		
			MPa	bar	MPa	bar	kg
2601	Cyclobutane	2 F	1	10	1	10	0.63
2602	Dichlorodifluoromethane and difluoro-1,1 ethane, azeotropic mixture with approximately 74% dichlorodifluoromethane (Refrigerant gas R500)	2 A	1.8	18	2	20	1.01
2901	Bromine chloride	2 TOC	1	10	1	10	1.50
3057	Trifluoroacetyl chloride	2 TC	1.3	13	1.5	15	1.17
3070	Ethylene oxide and dichlorodifluoromethane mixture with not more than 12.5% ethylene oxide	2 A	1.5	15	1.6	16	1.09
3083	Perchloryl fluoride	2 TO	2.7	27	3.0	30	1.21
3136	Trifluoromethane, refrigerated liquid	3 A	See 4.3.3.2.4				
3138	Ethylene, acetylene propylene in mixture, refrigerated liquid, containing at least 71.5% ethylene with not more than 22.5% acetylene and not more than 6% propylene	3 F	see 4.3.3.2.4				
3153	Perfluoro(methyl vinyl ether)	2 F	1.4	14	1.5	15	1.14
3154	Perfluoro(ethyl vinyl ether)	2 F	1	10	1	10	0.98
3156	Compressed gas, oxidizing, n.o.s.	1 O	see 4.3.3.2.1 or 4.3.3.2.2				
3157	Liquefied gas, oxidizing, n.o.s.	2 O	see 4.3.3.2.2 or 4.3.3.2.3				
3158	Gas, refrigerated liquid, n.o.s.	3 A	see 4.3.3.2.4				
3159	1,1,1,2-tetrafluoroethane (Refrigerant gas R134a)	2 A	1.6	16	1.8	18	1.04
3160	Liquefied gas, toxic, flammable, n.o.s. <sup>a</sup>	2 TF	see 4.3.3.2.2 or 4.3.3.2.3				
3161	Liquefied gas, flammable, n.o.s.	2 F	see 4.3.3.2.2 or 4.3.3.2.3				

<sup>a</sup> Allowed if LC<sub>50</sub> equal to or greater than 200 ppm.



	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity
			With thermal insulation		Without thermal insulation		
			MPa	bar	MPa	bar	kg
3162	Liquefied gas, toxic, n.o.s. <sup>a</sup>	2 T	see 4.3.3.2.2 or 4.3.3.2.3				
3163	Liquefied gas, n.o.s.	2 A	see 4.3.3.2.2 or 4.3.3.2.3				
3220	Pentafluoroethane (Refrigerant gas R125)	2 A	4.1	41	4.9	49	0.95
3252	Difluoromethane (Refrigerant gas R32)	2 F	3.9	39	4.3	43	0.78
3296	Heptafluoropropane (Refrigerant gas R227)	2 A	1.4	14	1.6	16	1.20
3297	Ethylene oxide and chlorotetrafluoroethane mixture, with not more than 8.8% ethylene oxide	2 A	1	10	1	10	1.16
3298	Ethylene oxide and pentafluoroethane mixture, with not more than 7.9% ethylene oxide	2 A	2.4	24	2.6	26	1.02
3299	Ethylene oxide and tetrafluoroethane mixture, with not more than 5.6% ethylene oxide	2 A	1.5	15	1.7	17	1.03
3300	Ethylene oxide and carbon dioxide mixture, with more than 87% ethylene oxide	2 TF	2.8	28	2.8	28	0.73
3303	Compressed gas, toxic, oxidizing, n.o.s. <sup>a</sup>	1 TO	see 4.3.3.2.1 or 4.3.3.2.2				
3304	Compressed gas, toxic, corrosive, n.o.s. <sup>a</sup>	1 TC	see 4.3.3.2.1 or 4.3.3.2.2				
3305	Compressed gas, toxic, flammable, corrosive, n.o.s. <sup>a</sup>	1 TFC	see 4.3.3.2.1 or 4.3.3.2.2				
3306	Compressed gas, toxic, oxidizing, corrosive, n.o.s. <sup>a</sup>	1 TOC	see 4.3.3.2.1 or 4.3.3.2.2				
3307	Liquefied gas, toxic, oxidizing, n.o.s. <sup>a</sup>	2 TO	see 4.3.3.2.2 or 4.3.3.2.3				

<sup>a</sup> Allowed if LC<sub>50</sub> equal to or greater than 200 ppm.

	Name	Classification code	Minimum test pressure for tanks				Maximum permissible mass of contents per litre of capacity
			With thermal insulation		Without thermal insulation		
			MPa	bar	MPa	bar	kg
3308	Liquefied gas, toxic, corrosive, n.o.s. <sup>a</sup>	2 TC	see 4.3.3.2.2 or 4.3.3.2.3				
3309	Liquefied gas, toxic, flammable, corrosive, n.o.s. <sup>a</sup>	2 TFC	see 4.3.3.2.2 or 4.3.3.2.3				
3310	Liquefied gas, toxic, oxidizing, corrosive, n.o.s. <sup>a</sup>	2 TOC	see 4.3.3.2.2 or 4.3.3.2.3				
3311	Gas, refrigerated liquid, oxidizing, n.o.s.	3 O	see 4.3.3.2.4				
3312	Gas, refrigerated liquid, flammable, n.o.s.	3 F	see 4.3.3.2.4				
3318	Ammonia solutions, relative density less than 0.880 at 15 °C in water, with more than 50% ammonia	4 TC	see 4.3.3.2.2				
3337	Refrigerant gas R404A	2 A	2.9	29	3.2	32	0.84
3338	Refrigerant gas R407A	2 A	2.8	28	3.2	32	0.95
3339	Refrigerant gas R407B	2 A	3.0	30	3.3	33	0.95
3340	Refrigerant gas R407C	2 A	2.7	27	3.0	30	0.95
3354	Insecticide gas, flammable, n.o.s.	2 F	see 4.3.3.2.2 or 4.3.3.2.3				
3355	Insecticide gas, toxic, flammable, n.o.s. <sup>a</sup>	2 TF	see 4.3.3.2.2 or 4.3.3.2.3				

### 4.3.3.3 Operation

- 4.3.3.3.1 When tanks, battery-vehicles or MEGCs are approved for different gases, the change of use shall include emptying, purging and evacuation operations to the extent necessary for safe operation.
- 4.3.3.3.2 When tanks, battery-vehicles or MEGCs are handed over for carriage, only the particulars specified in 6.8.3.5.6 applicable to the gas loaded or just discharged shall be visible; all particulars concerning other gases shall be covered up.
- 4.3.3.3.3 All the elements of a battery-vehicle or MEGC shall contain only one and the same gas.

<sup>a</sup> Allowed if LC<sub>50</sub> equal to or greater than 200 ppm.

4.3.3.4 (Reserved)

4.3.4 Special provisions applicable to Classes 3 to 9

4.3.4.1 Coding, rationalized approach and hierarchy of tanks

4.3.4.1.1 Coding of tanks

The four parts of the codes (tank codes) given in Column (12) of Table A in Chapter 3.2 have the following meanings:

Part	Description	Tank code
1	Types of tank	L = tank for substances in the liquid state (liquids or solids handed over for carriage in the molten state);  S = tank for substances in the solid state (powdery or granular).
2	Calculation pressure	G = minimum calculation pressure according to the general requirements of 6.8.2.1.14; or  1.5; 2.65; 4; 10; 15 or 21 = minimum calculation pressure in bar (see 6.8.2.1.14).
3	Openings (see 6.8.2.2.2)	A = tank with bottom-filling and discharge openings with 2 closures;  B = tank with bottom-filling and discharge openings with 3 closures;  C = tank with top-filling and discharge openings with only cleaning openings below the surface of the liquid;  D = tank with top-filling and discharge openings with no openings below the surface of the liquid.
4	Safety valves/devices	V = tank with a venting system, according to 6.8.2.2.6, but no flame trap; or non-explosion-pressure proof tank;  F = tank with a venting system, according to 6.8.2.2.6, fitted with a flame trap; or explosion-pressure proof tank;  N = tank with a safety valve according to 6.8.2.2.7 or 6.8.2.2.8 and not hermetically closed; these tanks may be fitted with vacuum valves;  H = hermetically closed tank (see 1.2.1).

4.3.4.1.2 Rationalized approach for assignment of ADR tank codes to groups of substances and hierarchy of tanks

**NOTE:** Certain substances and groups of substances are not included in the rationalized approach, see 4.3.4.1.3

Tank code	Rationalized approach			Hierarchy of tanks Other tank codes permitted for substances under this code
	Group of permitted substances	Class	Classification code	
			Packing group	
LIQUIDS LGAV	3 9	F2 M9	III III	LGBV; LGBF; L1.5BN; L4BN; L4BH; L4DH; L10BH; L10CH; L10DH; L15CH; L21DH
LGBV	4.1 5.1 9	F2 O1 M6 M11	II, III III III III	LGBF; L1.5BN; L4BV; L4BN; L4BH; L4DH; L10BH; L10CH; L10DH; L15CH; L21DH
	and groups of permitted substances for tank code LGAV			
LGBF	3 3 3 3	F1 F1 D D	II vapour pressure at 50 °C ≤ 1.1 bar III II vapour pressure at 50 °C ≤ 1.1 bar III	L1.5BN; L4BN; L4BH; L4DH; L10BH; L10CH; L10DH; L15CH; L21DH
	and groups of permitted substances for tank codes LGAV and LGBV			
L1.5BN	3 3 3	F1 F1 D	I, II 1.1 bar < vapour pressure at 50 °C ≤ 1.75 bar III flashpoint <23°C, viscous, 1.1bar < vapour pressure at 50°C ≤ 1.75bar I, II 1.1bar < vapour pressure at 50°C ≤ 1.75bar	L4BN; L4BH; L4DH; L10BH; L10CH; L10DH; L15CH; L21DH.
	and groups of permitted substances for tank codes LGAV, LGBV and LGBF			
L4BV	5.1	O1	-	-
L4BN	3 3 5.1 8	F1 FC D O1 OT1 C1 C3 C4 C5 C7 C8 C9 C10 CF1 CF2	I, III vapour pressure at 50 °C > 1.75 bar III I vapour pressure at 50 °C > 1.75 bar I, II I II, III II, III II, III II, III II, III II, III II, III II, III II II	L4BH; L4DH; L10BH; L10CH; L10DH; L15CH; L21DH.

Tank code	Rationalized approach			Other tank codes permitted for substances under this code
	Class	Classification code	Packing group	
<i>L4BN (cont'd)</i>		CS1 CW1 CW2 CO1 CO2 CT1 CT2 CFT M11	II II II II II II, III II, III II III	
	and groups of permitted substances for tank codes LGAV, LGBV, LGBF and L1.5BN			
L4BH	3  6.1  6.2  9	FT1 FT2 FC FTC T1 T2 T3 T4 T6 T7 TF1 TF2 TF3 TS TW1 TW2 TO1 TO2 TC1 TC2 TC3 TC4 TFC Risk group 2 I3 M2	II, III II II II II, III II, III II, III II, III II, III II, III II II, III II II II II II II II II II II II II II II	L4DH; L10BH; L10CH; L10DH; L15CH; L21DH.
	and groups of permitted substances for tank codes LGAV, LGBV, LGBF, L1.5BN and L4BN			
L4DH	4.2  4.3  8	S1 S3 ST1 ST3 SC1 SC3 W1 WF1 WT1 WC1 CT1	II, III II, III II, III II, III II, III II, III II, III II, III II, III II, III II, III	L10DH; L21DH
	and groups of permitted substances for tank codes LGAV, LGBV, LGBF, L1.5BN, L4BN and L4BH			

Tank code	Rationalized approach			Hierarchy of tanks Other tank codes permitted for substances under this code
	Class	Classification code	Packing group	
L10BH	8	C1 C3 C4 C5 C7 C8 C9 C10 CF1 CF2 CS1 CW1 CW2 CO1 CO2 CT1 CT2 COT	I I I I I I I I I I I I I I I I I I	L10CH; L10DH; L15CH; L21DH
		and groups of permitted substances for tank codes LGAV, LGBV, LGBF, L1.5BN, L4BN, and L4BH		
L10CH	3  6.1	FT1 FT2 FC FTC T1 T2 T3 T4 T6 T7 TF1 TF2 TF3 TS TW1 TO1 TC1 TC2 TC3 TC4 TFC	I I	L10DH; L15CH; L21DH
		and groups of permitted substances for tank codes LGAV, LGBV, LGBF, L1.5BN, L4BN, L4BH, and L10BH		
L10DH	4.3  5.1 8	W1 WF1 WT1 WC1 WFC OTC CT1	I I I I I I I	L21DH
		and groups of permitted substances for tank codes LGAV, LGBV, LGBF, L1.5BN, L4BN, L4BH, L4DH, L10BH and L10CH		

Tank code	Rationalized approach			Hierarchy of tanks
	Group of permitted substances			Other tank codes permitted for substances under this code
	Class	Classification code	Packing group	
L15CH	3 6.1	FT1 TF1	I I	L21DH
	and groups of permitted substances for tank codes LGAV, LGBV, LGBF, L1.5BN, L4BN, L4BH, L10BH and L10CH			
L21DH	4.2	S1 S3 SW ST3	I I I I	
	and groups of permitted substances for tank codes LGAV, LGBV, LGBF, L1.5BN, L4BN, L4BH, L4DH, L10BH, L10CH, L10DH and L15CH			
<i>SOLIDS</i> SGAV	4.1 4.2 5.1 8 9	F1 F3 S2 S4 O2 C2 C4 C6 C8 C10 CT2 M7 M11	III III II, III III II, III II, III III III III II, III III III II, III	SGAN; SGAH; S4AH; S10AN; S10AH.
SGAN	4.1 4.2 4.3 5.1 8	F1 F3 FT1 FT2 FC1 FC2 S2 S4 ST2 ST4 SC2 SC4 W2 WF2 WS WT2 WC2 O2 OT2 OC2 C2 C4 C6 C8 C10 CF2 CS2 CW2 CO2 CT2	II II II, III II, III II, III II, III II II, III II, III II, III II, III II, III II, III II II, III II, III II, III II, III II II II II II II II II II II II II II	SGAH; S4AH; S10AN; S10AH.

Tank code	Rationalized approach			Hierarchy of tanks
	Group of permitted substances			Other tank codes permitted for substances under this code
	Class	Classification code	Packing group	
SGAN (cont'd)	9	M3	III	
	and groups of permitted substances for tank codes SGAV			
SGAH	6.1	T2 T3 T5 T7 T9 TF3 TS TW2 TO2 TC2 TC4	II, III II, III II, III II, III II II II II II II II	S4AH; S10AH
	9	M1	II, III	
	and groups of permitted substances for tanks codes SGAV and SGAN			
S4AH	6.2 9	I3 M2	II II	S10AH
	and groups of permitted substances for tanks codes SGAV, SGAN and SGAH			
S10AN	8	C2 C4 C6 C8 C10 CF2 CS2 CW2 CO2 CT2	I I I I I I I I I I	S10AH
	and groups of permitted substances for tank codes SGAV and SGAN			
S10AH	6.1	T2 T3 T5 T7 TS TW2 TO2 TC2 TC4	I I I I I I I I I	
	and groups of permitted substances for tank codes SGAV, SGAN, SGAH and S10AN			

*NOTE: This hierarchy does not take account of any special provisions for each entry (see 4.3.5 and 6.8.4)*



The list of tank codes permitted under the hierarchy of tanks given in the table above is not necessarily complete. This table is limited to the tank codes that are indicated in Table A of Chapter 3.2. Tanks with tank codes different from those indicated in this table or in Table A of Chapter 3.2 may also be used provided that the first part of the code (L or S) remains unchanged and that any other element (number or letter) of parts 2 to 4 of these tank codes correspond to a level of safety at least equivalent to the corresponding element of the tank code indicated in Table A of Chapter 3.2, according to the following increasing order:

Part 2: Calculation-pressure

G → 1.5 → 2.65 → 4 → 10 → 15 → 21 bar

Part 3: Openings

A → B → C → D

Part 4: Safety valves/devices

V → F → N → H

For example, a tank with the tank code L10CN is authorized for the carriage of a substance to which the tank code L4BN has been assigned.

#### 4.3.4.1.3

The following substances and groups of substances in respect of which a "(+)" is given after the tank code in Column (12) of Table A in Chapter 3.2 are subject to special provisions. In that case the alternate use of the tanks for other substances and groups of substances is permitted only where this is specified in the certificate of type approval. The hierarchy in 4.3.4.1.2 is not applicable. However, higher value tanks according to the provisions at the end of the table in 4.3.4.1.2 may be used with due regard to the special provisions indicated in Column (13) of Table A in Chapter 3.2.

(a) Class 4.1:

UN No. 2448 sulphur, molten: code LGBV;

(b) Class 4.2:

UN No. 1381 phosphorus, white or yellow, dry, or under water or in solution and  
UN No. 2447 phosphorus, white or yellow molten: code L10DH;

(c) Class 4.3:

UN No. 1389 alkali metal amalgam, UN No. 1391 alkali metal dispersion or alkaline earth metal dispersion, UN No. 1392 alkaline earth metal amalgam, UN No. 1415 lithium, UN No. 1420 potassium metal alloys, UN No. 1421 alkali metal alloy, liquid, n.o.s, UN No. 1422 potassium sodium alloys, UN No. 1428 sodium and UN No. 2257 potassium: code L10BN;

UN No. 1407 caesium and UN No. 1423 rubidium: code L10CH;

(d) Class 5.1:

UN No. 1873 perchloric acid 50-72%: code L4DN;

UN No. 2015 hydrogen peroxide, aqueous solution, stabilized with more than 70% hydrogen peroxide: code L4DV;

UN No. 2015 hydrogen peroxide, aqueous solution, stabilized with 60-70% hydrogen peroxide: code L4BV;

UN No. 2014 hydrogen peroxide, aqueous solution with 20-60% hydrogen peroxide, and UN No. 3149 hydrogen peroxide and peroxyacetic acid mixture, stabilized: code L4BV;

(e) Class 5.2:

UN No. 3109 organic peroxide type F, liquid and UN No. 3119 organic peroxide, type F, liquid temperature controlled: code L4BN;

UN No. 3110 organic peroxide, type F, solid and UN No. 3120 organic peroxide, type F, solid, temperature controlled: code S4AN;

(f) Class 6.1:

UN No. 1613 hydrogen cyanide, aqueous solution and UN No. 3294 hydrogen cyanide solution in alcohol: code L15DH;

(g) Class 7:

All substances: special tanks;

Minimum requirements for liquids: code L2,65CN; for solids: code S2,65AN

Notwithstanding the general requirements of this paragraph, tanks used for radioactive material may also be used for the carriage of other goods provided the requirements of 5.1.3.2 are complied with.

(h) Class 8:

UN No. 1052 hydrogen fluoride, anhydrous and UN No. 1790 hydrofluoric acid, solution, with more than 85% hydrofluoric acid: code L21DH;

UN No. 1744 bromine or bromine solution: code L21DH;

UN No. 1791 hypochlorite solution and UN No. 1908 chlorite solution: code L4BV.

4.3.4.1.4 Tanks intended for the carriage of liquid wastes complying with the requirements of Chapter 6.10 and equipped with two closures in accordance with 6.10.3.2, shall be assigned to tank code L4AH. If the tanks concerned are equipped for the alternate carriage of liquid and solid substances, they shall be assigned to the combined codes L4AH+S4AH.

4.3.4.2 *General provisions*

4.3.4.2.1 Where hot substances are loaded, the temperature of the outer surface of the tank or of the thermal insulation shall not exceed 70 °C during carriage.

4.3.4.2.2 The connecting pipes between independent but interconnected tanks of a transport unit shall be empty during carriage. Flexible filling and discharge pipes which are not permanently connected to the shells shall be empty during carriage.

4.3.4.2.3 *(Reserved)*

## 4.3.5

**Special provisions**

When they are shown under an entry in Column (13) of Table of A in Chapter 3.2, the following special provisions apply:

- TU1 The tanks shall not be handed over for carriage until the substance has solidified completely and been covered by an inert gas. Uncleaned empty tanks which have contained these substances shall be filled with an inert gas.
- TU2 The substance shall be covered by an inert gas. Uncleaned empty tanks which have contained these substances shall be filled with an inert gas.
- TU3 The inside of the shell and all parts liable to come into contact with the substance shall be kept clean. No lubricant capable of combining dangerously with the substance shall be used for pumps, valves or other devices.
- TU4 During carriage, these substances shall be under a layer of inert gas, the gauge pressure of which shall not be less than 50 kPa (0.5 bar).  
Uncleaned empty tanks which have contained these substances shall when handed over for carriage be filled with an inert gas at a gauge pressure of at least 50 kPa (0.5 bar).
- TU5 *(Reserved)*
- TU6 Not authorized for carriage in tanks, battery-vehicles and MEGCs when having a LC<sub>50</sub> lower than 200 ppm.
- TU7 The materials used to ensure leakproofness of the joints or for the maintenance of the closures shall be compatible with the contents.
- TU8 An aluminium-alloy tank shall not be used for carriage unless the tank is reserved solely for such carriage and the acetaldehyde is free from acid.
- TU9 UN No.1203 petrol (gasoline) with a vapour pressure at 50 °C of more than 110 kPa (1.1 bar) but not above 150 kPa (1.5 bar) may also be carried in tanks designed according to 6.8.2.1.14 (a) and having equipment conforming to 6.8.2.2.6.
- TU10 *(Reserved)*
- TU11 During filling, the temperature of this substance shall not exceed 60 °C. A maximum filling temperature of 80 °C is allowed provided that smoulder spots are prevented and that the following conditions are met. After filling, the tanks shall be pressurized (e.g. with compressed air) to check tightness. It shall be ensured that no depressurization takes place during carriage. Before discharge, it shall be checked if pressure in the tanks is still above atmospheric. If this is not the case, an inert gas shall be introduced into the tanks prior to discharge.
- TU12 In the event of a change of use, shells and equipment shall be thoroughly cleansed of all residues before and after the carriage of this substance.
- TU13 Tanks shall be free from impurities at the time of filling. Service equipment such as valves and external piping shall be emptied after filling or discharging.
- TU14 The protective caps of closures shall be locked during carriage.

- TU15 Tanks shall not be used for the carriage of foodstuffs, articles of consumption or animal feeds.
- TU16 Uncleaned empty tanks, shall, when handed over for carriage, either:
- be filled with nitrogen; or
  - be filled with water to not less than 96% and not more than 98% of their capacity; between 1 October and 31 March, this water shall contain sufficient anti-freeze agent to make it impossible for the water to freeze during carriage; the anti-freeze agent shall be free from corrosive action and not liable to react with phosphorus.
- TU17 Only to be carried in battery-vehicles or MEGCs the elements of which are composed of receptacles.
- TU18 The degree of filling shall remain below the level at which, if the contents were raised to a temperature at which the vapour pressure equalled the opening pressure of the safety valve, the volume of the liquid would reach 95% of the tank's capacity at that temperature. The provision in 4.3.2.3.4 shall not apply.
- TU19 Tanks may be filled to 98% at the filling temperature and pressure. The provision in 4.3.2.3.4 shall not apply.
- TU20 *(Reserved)*
- TU21 The substance shall, if water is used as a protective agent, be covered with a depth of not less than 12 cm of water at the time of filling; the degree of filling at a temperature of 60 °C shall not exceed 98%. If nitrogen is used as a protective agent, the degree of filling at a temperature of 60 °C shall not exceed 96%. The remaining space shall be filled with nitrogen in such a way that, even after cooling, the pressure at no time falls below atmospheric pressure. The tank shall be closed in such a way that no leakage of gas occurs.
- TU22 Tanks shall be filled to not more than 90% of their capacity; a space of 5% shall remain empty when the liquid is at an average temperature of 50 °C.
- TU23 The degree of filling shall not exceed 0.93 kg per litre of capacity, if filling is by mass. If filling is by volume, the degree of filling shall not exceed 85%.
- TU24 The degree of filling shall not exceed 0.95 kg per litre of capacity, if filling is by mass. If filling is by volume, the degree of filling shall not exceed 85%.
- TU25 The degree of filling shall not exceed 1.14 kg per litre of capacity, if filling is by mass. If filling is by volume, the degree of filling shall not exceed 85%.
- TU26 The degree of filling shall not exceed 85%.
- TU27 Tanks shall not be filled to more than 98% of their capacity.
- TU28 Tanks shall be filled to not more than 95% of their capacity at a reference temperature of 15 °C.
- TU29 Tanks shall be filled to not more than 97% of their capacity and the maximum temperature after filling shall not exceed 140 °C.

- TU30 Tanks shall be filled as set out in the test report for the type approval of the tank but shall be filled to not more than 90% of their capacity.
- TU31 Tanks shall not be filled to more than 1 kg per litre of capacity.
- TU32 Tanks shall not be filled to more than 88% of their capacity.
- TU33 Tanks shall be filled to not less than 88% and not more than 92% of their capacity or to 2.86 kg per litre of capacity.
- TU34 Tanks shall not be filled to more than 0.84 kg per litre of capacity.
- TU35 Empty fixed tanks (tank-vehicles), empty demountable tanks and empty tank-containers, uncleaned, which have contained these substances are not subject to the requirements of ADR if adequate measures have been taken to nullify any hazard.
- TU36 The degree of filling according to 4.3.2.2, at the reference temperature of 15 °C, shall not exceed 93% of the capacity.

## CHAPTER 4.4

**USE OF FIBRE-REINFORCED PLASTICS (FRP) FIXED TANKS (TANK-VEHICLES),  
DEMOUNTABLE TANKS, TANK-CONTAINERS AND TANK SWAP BODIES**

**NOTE:** *For portable tanks, see Chapter 4.2; for fixed tanks (tank-vehicles), demountable tanks, tank-containers and tank swap bodies, with shells made of metallic materials, and battery-vehicles and multiple elements gas containers (MEGCs), see Chapter 4.3; for vacuum operated waste containers, see Chapter 4.5.*

**4.4.1 General**

The carriage of dangerous substances in fibre-reinforced plastics (FRP) tanks is permitted only when the following conditions are met:

- (a) The substance is classified in Class 3, 5.1, 6.1, 6.2, 8 or 9;
- (b) The maximum vapour pressure (absolute pressure) at 50 °C of the substance does not exceed 110 kPa (1.1 bar);
- (c) The carriage of the substance in metallic tanks is authorized according to 4.3.2.1.1;
- (d) The calculation pressure specified for that substance in part 2 of the tank code given in Column (12) of Table A in Chapter 3.2 does not exceed 4 bar (see also 4.3.4.1.1) and,
- (e) The tank complies with the provisions of Chapter 6.9 applicable for the carriage of the substance.

**4.4.2 Operation**

4.4.2.1 The provisions of 4.3.2.1.5 to 4.3.2.2.4, 4.3.2.3.3 to 4.3.2.3.6, 4.3.2.4.1, 4.3.2.4.2, 4.3.4.1 and 4.3.4.2 shall apply.

4.4.2.2 The temperature of the substance carried shall not exceed, at the time of filling, the maximum service temperature indicated on the tank plate referred to in 6.9.6.

4.4.2.3 When applicable to carriage in metallic tanks, the special provisions (TU) of 4.3.5 shall also apply, as indicated in Column (13) of Table A in Chapter 3.2.

## CHAPTER 4.5

## USE OF VACUUM OPERATED WASTE TANKS

**NOTE:** *For portable tanks, see Chapter 4.2; for fixed tanks (tank-vehicles), demountable tanks, tank-containers and tank swap bodies, with shells made of metallic materials, and battery-vehicles and multiple elements gas containers (MEGCs), see Chapter 4.3; for fibre reinforced plastics tanks, see Chapter 4.4.*

**4.5.1 Use**

4.5.1.1 Wastes consisting of substances in Classes 3, 4.1, 5.1, 6.1, 6.2, 8 and 9 may be carried in vacuum-operated waste tanks conforming to Chapter 6.10 if their carriage in fixed tanks, demountable tanks, tank-containers or tank swap bodies is permitted according to Chapter 4.3. Substances assigned to tank code L4BH in Column (12) of Table A of Chapter 3.2 or to another tank code permitted under the hierarchy in 4.3.3.1.2 may be carried in vacuum operated waste tanks with the letter "A" or "B" in part 3 of the tank code, as indicated in No. 9.5 of the vehicle approval certificate conforming to 9.1.2.1.5.

**4.5.2 Operation**

4.5.2.1 The provisions of Chapter 4.3 except those of 4.3.2.2.4 and 4.3.2.3.3 apply to the carriage in vacuum operated waste tanks and are supplemented by the provisions of 4.5.2.2 to 4.5.2.4 below.

4.5.2.2 For carriage of liquids classified as flammable, vacuum-operated waste tanks shall be filled through fillings which discharge into the tank at a low level. Provisions shall be made to minimize the production of spray.

4.5.2.3 When discharging flammable liquids with a flash-point below 23° C by using air pressure, the maximum allowed pressure is 100 kPa (1 bar).

4.5.2.4 The use of tanks fitted with an internal piston operating as a compartment wall is allowed only when the substances on either side of the wall (piston) do not react dangerously with each other (see 4.3.2.3.6).

**PART 5**

**Consignment procedures**



**CHAPTER 5.1****GENERAL PROVISIONS****5.1.1 Application and general provisions**

This Part sets forth the provisions for dangerous goods consignments relative to marking, labelling, and documentation, and, where appropriate, authorization of consignments and advance notifications.

**5.1.2 Use of overpacks**

- 5.1.2.1 (a) An overpack shall be marked with the UN number preceded by the letters "UN" and shall be labelled as required for packages in 5.2.2, for each item of dangerous goods contained in the overpack, unless the markings and the labels representative of all dangerous goods contained in the overpack are visible. If the same marking or the same label is required for different packages, it only needs to be applied once.
- (b) Label conforming to model No. 11 illustrated in 5.2.2.2.2 shall be displayed on two opposite sides of the following overpacks:
- overpacks containing packages which shall be labelled in accordance with 5.2.2.1.12, unless the labels remain visible, and
  - overpacks containing liquids in packages which need not be labelled in accordance with 5.2.2.1.12, unless the closures remain visible.

5.1.2.2 Each package of dangerous goods contained in an overpack shall comply with all applicable provisions of ADR. The intended function of each package shall not be impaired by the overpack.

5.1.2.3 The prohibitions on mixed loading also apply to these overpacks.

**5.1.3 Empty uncleaned packagings (including IBCs and large packagings), tanks, vehicles and containers for carriage in bulk**

5.1.3.1 Empty uncleaned packagings (including IBCs and large packagings), tanks (including tank-vehicles, battery-vehicles, demountable tanks, portable tanks, tank-containers, MEGCs), vehicles and containers for carriage in bulk having contained dangerous goods of the different classes other than Class 7, shall be marked and labelled as if they were full.

*NOTE: For documentation, see Chapter 5.4.*

5.1.3.2 Tanks and IBCs used for the carriage of radioactive material shall not be used for the storage or carriage of other goods unless decontaminated below the level of 0.4 Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters and 0.04 Bq/cm<sup>2</sup> for all other alpha emitters.

**5.1.4 Mixed packing**

When two or more dangerous goods are packed within the same outer packaging, the package shall be labelled and marked as required for each substance or article. If the same label is required for different goods, it only needs to be applied once.

**5.1.5 General provisions for Class 7****5.1.5.1 Requirements before shipments****5.1.5.1.1 Requirements before the first shipment of a package**

Before the first shipment of any package, the following requirements shall be fulfilled:

- (a) If the design pressure of the containment system exceeds 35 kPa (gauge), it shall be ensured that the containment system of each package conforms to the approved design requirements relating to the capability of that system to maintain its integrity under that pressure;
- (b) For each Type B(U), Type B(M) and Type C package and for each package containing fissile material, it shall be ensured that the effectiveness of its shielding and containment and, where necessary, the heat transfer characteristics and the effectiveness of the confinement system, are within the limits applicable to or specified for the approved design;
- (c) For packages containing fissile material, where, in order to comply with the requirements of 6.4.11.1, neutron poisons are specifically included as components of the package, checks shall be performed to confirm the presence and distribution of those neutron poisons.

**5.1.5.1.2 Requirements before each shipment of a package**

Before each shipment of any package, the following requirements shall be fulfilled:

- (a) For any package it shall be ensured that all the requirements specified in the relevant provisions of ADR have been satisfied;
- (b) It shall be ensured that lifting attachments which do not meet the requirements of 6.4.2.2 have been removed or otherwise rendered incapable of being used for lifting the package, in accordance with 6.4.2.3;
- (c) For each Type B(U), Type B(M) and Type C package and for each package containing fissile material, it shall be ensured that all the requirements specified in the approval certificates have been satisfied;
- (d) Each Type B(U), Type B(M) and Type C package shall be held until equilibrium conditions have been approached closely enough to demonstrate compliance with the requirements for temperature and pressure unless an exemption from these requirements has received unilateral approval;
- (e) For each Type B(U), Type B(M) and Type C package, it shall be ensured by inspection and/or appropriate tests that all closures, valves, and other openings of the containment system through which the radioactive contents might escape are properly closed and, where appropriate, sealed in the manner for which the demonstrations of compliance with the requirements of 6.4.8.7 were made;
- (f) For each special form radioactive material, it shall be ensured that all the requirements specified in the special form approval certificate and the relevant provisions of ADR have been satisfied;

- (g) For packages containing fissile material the measurement specified in 6.4.11.4(b) and the tests to demonstrate closure of each package as specified in 6.4.11.7 shall be performed where applicable;
- (h) For each low dispersible radioactive material, it shall be ensured that all the requirements specified in the approval certificate and the relevant provisions of ADR have been satisfied.

## 5.1.5.2 *Approval of shipments and notification*

### 5.1.5.2.1 *General*

In addition to the approval for package designs described in Chapter 6.4, multilateral shipment approval is also required in certain circumstances (5.1.5.2.2 and 5.1.5.2.3). In some circumstances it is also necessary to notify competent authorities of a shipment (5.1.5.2.4).

### 5.1.5.2.2 *Shipment approvals*

Multilateral approval shall be required for:

- (a) the shipment of Type B(M) packages not conforming with the requirements of 6.4.7.5 or designed to allow controlled intermittent venting;
- (b) the shipment of Type B(M) packages containing radioactive material with an activity greater than 3000 A<sub>1</sub> or 3000 A<sub>2</sub>, as appropriate, or 1000 TBq, whichever is the lower;
- (c) the shipment of packages containing fissile materials if the sum of the criticality safety indexes of the packages exceeds 50;

except that a competent authority may authorize carriage into or through its country without shipment approval, by a specific provision in its design approval (see 5.1.5.3.1).

### 5.1.5.2.3 *Shipment approval by special arrangement*

Provisions may be approved by a competent authority under which a consignment, which does not satisfy all of the applicable requirements of ADR may be carried under special arrangement (see 1.7.4).

### 5.1.5.2.4 *Notifications*

Notification to competent authorities is required as follows:

- (a) Before the first shipment of any package requiring competent authority approval, the consignor shall ensure that copies of each applicable competent authority certificate applying to that package design have been submitted to the competent authority of each country through or into which the consignment is to be carried. The consignor is not required to await an acknowledgement from the competent authority, nor is the competent authority required to make such acknowledgement of receipt of the certificate;
- (b) For each of the following types of shipments:
  - (i) Type C packages containing radioactive material with an activity greater than 3000 A<sub>1</sub> or 3000 A<sub>2</sub>, as appropriate, or 1000 TBq, whichever is the lower;

- (ii) Type B(U) packages containing radioactive material with an activity greater than 3000 A<sub>1</sub> or 3000 A<sub>2</sub>, as appropriate, or 1000 TBq, whichever is the lower;
- (iii) Type B(M) packages;
- (iv) Shipment under special arrangement;

The consignor shall notify the competent authority of each country through or into which the consignment is to be carried. This notification shall be in the hands of each competent authority prior to the commencement of the shipment, and preferably at least 7 days in advance;

- (c) The consignor is not required to send a separate notification if the required information has been included in the application for shipment approval;
- (d) The consignment notification shall include:
  - (i) sufficient information to enable the identification of the package or packages including all applicable certificate numbers and identification marks;
  - (ii) information on the date of shipment, the expected date of arrival and proposed routing;
  - (iii) the name(s) of the radioactive material(s) or nuclide(s);
  - (iv) descriptions of the physical and chemical forms of the radioactive material, or whether it is special form radioactive material or low dispersible radioactive material; and
  - (v) the maximum activity of the radioactive contents during carriage expressed in becquerels (Bq) with an appropriate SI prefix (see 1.2.2.1). For fissile material, the mass of fissile material in grams (g), or multiples thereof, may be used in place of activity.

### 5.1.5.3 *Certificates issued by the competent authority*

#### 5.1.5.3.1 Certificates issued by the competent authority are required for the following:

- (a) Designs for:
  - (i) special form radioactive material;
  - (ii) low dispersible radioactive material;
  - (iii) packages containing 0.1 kg or more of uranium hexafluoride;
  - (iv) all packages containing fissile material unless excepted by 6.4.11.2;
  - (v) Type B(U) packages and Type B(M) packages;
  - (vi) Type C packages;
- (b) Special arrangements;
- (c) Certain shipments (see 5.1.5.2.2).

The certificates shall confirm that the applicable requirements are met, and for design approvals shall attribute to the design an identification mark.

The package design and shipment approval certificates may be combined into a single certificate.

Certificates and applications for these certificates shall be in accordance with the requirements in 6.4.23.

5.1.5.3.2 The consignor shall be in possession of a copy of each applicable certificate. The consignor shall also have a copy of any instructions with regard to the proper closing of the package and any preparation for shipment before making any shipment under the terms of the certificates.

5.1.5.3.3 For package designs where a competent authority issued certificate is not required, the consignor shall, on request, make available for inspection by the competent authority, documentary evidence of the compliance of the package design with all the applicable requirements.

#### 5.1.5.4 Summary of approval and prior notification requirements

**NOTE 1:** Before first shipment of any package requiring competent authority approval of the design, the consignor shall ensure that a copy of the approval certificate for that design has been submitted to the competent authority of each country en route (see 5.1.5.2.4 (a)).

**NOTE 2:** Notification required if contents exceed  $3 \times 10^3 A_1$ , or  $3 \times 10^3 A_2$ , or 1000 TBq; (see 5.1.5.2.4 (b)).

**NOTE 3:** Multilateral approval of shipment required if contents exceed  $3 \times 10^3 A_1$ , or  $3 \times 10^3 A_2$ , or 1000 TBq, or if controlled intermittent venting is allowed (see 5.1.5.2).

**NOTE 4:** See approval and prior notification provisions for the applicable package for carrying this material.

Subject	UN Number	Competent Authority approval required		Consignor required to notify the competent authorities of the country of origin and of the countries en route <sup>a</sup> before each shipment	Reference
		Country of origin	Countries en route <sup>a</sup>		
Calculation of unlisted $A_1$ and $A_2$ values	-	Yes	Yes	No	---
Excepted packages	2908, 2909, 2910, 2911	No	No	No	---
- package design		No	No	No	
- shipment		No	No	No	
LSA material <sup>b</sup> and SCO <sup>b</sup> Industrial packages types 1, 2 or 3, non fissile and fissile excepted	2912, 2913, 3321, 3322				---

<sup>a</sup> Countries from, through or into which the consignment is carried.

<sup>b</sup> If the radioactive contents are fissile material which is not excepted from the provisions for packages containing fissile material, then the provisions for fissile material packages apply (see 6.4.11).

Subject	UN Number	Competent Authority approval required		Consignor required to notify the competent authorities of the country of origin and of the countries en route <sup>a</sup> before each shipment	Reference
		Country of origin	Countries en route <sup>a</sup>		
- package design - shipment		No No	No No	No No	
Type A packages <sup>b</sup> , non fissile and fissile excepted - package design - shipment	2915, 3332	No No	No No	No No	
Type B(U) packages <sup>b</sup> , non fissile and fissile excepted - package design - shipment	2916	Yes No	No No	See Note 1 See Note 2	5.1.5.2.4 (b), 5.1.5.3.1 (a), 6.4.22.2
Type B(M) packages <sup>b</sup> , non fissile and fissile excepted - package design - shipment	2917	Yes See Note 3	Yes See Note 3	No Yes	5.1.5.2.4 (b), 5.1.5.3.1 (a), 5.1.5.2.2, 6.4.22.3
Type C packages <sup>b</sup> , non fissile and fissile excepted - package design - shipment	3323	Yes No	No No	See Note 1 See Note 2	5.1.5.2.4 (b), 5.1.5.3.1 (a), 6.4.22.2
Packages for fissile material - package design - shipment : - sum of criticality safety indexes not more than 50 - sum of criticality safety indexes greater than 50	2977, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3333	Yes <sup>c</sup> No <sup>d</sup> Yes	Yes <sup>c</sup> No <sup>d</sup> Yes	No See Note 2 See Note 2	5.1.5.3.1 (a), 5.1.5.2.2, 6.4.22.4, 6.4.22.5
Special form radioactive material - design - shipment	- See Note 4	Yes See Note 4	No See Note 4	No See Note 4	1.6.6.3, 5.1.5.3.1 (a) 6.4.22.5
Low dispersable radioactive material - design - shipment	- See Note 4	Yes See Note 4	No See Note 4	No See Note 4	5.1.5.3.1 (a), 6.4.22.3
Packages containing 0.1 kg or more of uranium hexafluoride - design - shipment	- See Note 4	Yes See Note 4	No See Note 4	No See Note 4	5.1.5.3.1 (a), 6.4.22.1
Special Arrangement - shipment	2919, 3331	Yes	Yes	Yes	5.1.5.3.1 (b), 5.1.5.2.4 (b)
Approved packages designs subjected to transitional measures	-	See 1.6.6	See 1.6.6	See Note 1	1.6.6.2, 5.1.5.2.4 (b), 5.1.5.3.1 (a), 5.1.5.2.2.

<sup>a</sup> Countries from, through or into which the consignment is carried.

<sup>b</sup> If the radioactive contents are fissile material which is not excepted from the provisions for packages containing fissile material, then the provisions for fissile material packages apply (see 6.4.11).

<sup>c</sup> Designs of packages for fissile material may also require approval in respect of one of the other items in the table.

<sup>d</sup> Shipments may, however, require approval in respect of one of the other items in the table.

## CHAPTER 5.2

## MARKING AND LABELLING

## 5.2.1 Marking of packages

*NOTE: For markings related to the construction, testing and approval of packagings, large packagings, gas receptacles and IBCs, see Part 6.*

5.2.1.1 Unless provided otherwise in ADR, the UN number corresponding to the dangerous goods contained, preceded by the letters "UN" shall be clearly and durably marked on each package. In the case of unpackaged articles the marking shall be displayed on the article, on its cradle or on its handling, storage or launching device.

5.2.1.2 All package markings required by this Chapter:

- (a) shall be readily visible and legible;
- (b) shall be able to withstand open weather exposure without a substantial reduction in effectiveness.

5.2.1.3 Salvage packagings shall additionally be marked with the word "SALVAGE".

5.2.1.4 Intermediate bulk containers of more than 450 litres capacity shall be marked on two opposite sides.

5.2.1.5 *Additional provisions for goods of Class 1*

For goods of Class 1, packages shall, in addition, bear the proper shipping name as determined in accordance with 3.1.2. The marking, which shall be clearly legible and indelible, shall be in an official language of the country of origin and also, if that language is not English, French or German, in English, French or German unless any agreements concluded between the countries concerned in the transport operation provide otherwise.

5.2.1.6 *Additional provisions for goods of Class 2*

Refillable receptacles shall bear the following particulars in clearly legible and durable characters:

- (a) the UN number and the proper shipping name of the gas or mixture of gases, as determined in accordance with 3.1.2.

In the case of gases classified under an N.O.S. entry, only the technical name<sup>1</sup> of the gas has to be indicated in addition to the UN number.

In the case of mixtures, not more than the two constituents which most predominantly contribute to the hazards have to be indicated;

<sup>1</sup> *Instead of the technical name the use of one of the following names is permitted:*

- *For UN No. 1078 refrigerant gas, N.O.S.: mixture F1, mixture F2, mixture F3;*
- *For UN No. 1060 methylacetylene and propadiene mixtures, stabilized: mixture P1, mixture P2;*
- *For UN No. 1965 hydrocarbon gas mixture, liquefied, N.O.S.: mixture A or butane, mixture A01 or butane, mixture A02 or butane, mixture A0 or butane, mixture A1, mixture B1, mixture B2, mixture B, mixture C or propane.*

- (b) for compressed gases filled by mass and for liquefied gases, either the maximum filling mass and the tare of the receptacle with fittings and accessories as fitted at the time of filling, or the gross mass;
- (c) the date (year) of the next periodic inspection.

These marks can either be engraved or indicated on a durable information disk or label attached on the receptacle or indicated by an adherent and clearly visible marking such as by printing or by any equivalent process.

*NOTE 1: See also 6.2.1.7.*

*NOTE 2: For non refillable receptacles, see 6.2.1.8.*

#### **5.2.1.7 Special marking provisions for goods of Class 7**

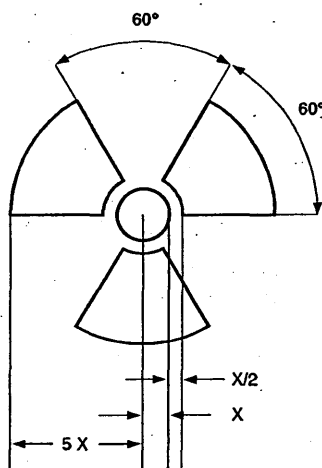
- 5.2.1.7.1 Each package shall be legibly and durably marked on the outside of the packaging with an identification of either the consignor or consignee, or both.
- 5.2.1.7.2 For each package, other than excepted packages, the UN number preceded by the letters "UN" and the proper shipping name shall be legibly and durably marked on the outside of the packaging. In the case of excepted packages only the UN number, preceded by the letters "UN", is required.
- 5.2.1.7.3 Each package of gross mass exceeding 50 kg shall have its permissible gross mass legibly and durably marked on the outside of the packaging.
- 5.2.1.7.4 Each package which conforms to:
  - (a) an Industrial package Type 1, an Industrial package Type 2 or an Industrial package Type 3 design shall be legibly and durably marked on the outside of the packaging with "TYPE IP-1", "TYPE IP-2" or "TYPE IP-3" as appropriate;
  - (b) a Type A package design shall be legibly and durably marked on the outside of the packaging with "TYPE A";
  - (c) an Industrial package Type 2, an Industrial package Type 3 or a Type A package design shall be legibly and durably marked on the outside of the packaging with the international vehicle registration code (VRI Code)<sup>2</sup> of the country of origin of design and the name of the manufacturers, or other identification of the packaging specified by the competent authority.
- 5.2.1.7.5 Each package which conforms to a design approved by the competent authority shall be legibly and durably marked on the outside of the packaging with:
  - (a) the identification mark allocated to that design by the competent authority;
  - (b) a serial number to uniquely identify each packaging which conforms to that design;
  - (c) in the case of a Type B(U) or Type B(M) package design, with "TYPE B(U)" or "TYPE B(M)"; and
  - (d) in the case of a Type C package design, with "TYPE C".

<sup>2</sup> *Distinguishing sign for motor vehicles in international traffic prescribed in the Vienna Convention on Road Traffic (1968).*



- 5.2.1.7.6 Each package which conforms to a Type B(U), Type B(M) or Type C package design shall have the outside of the outermost receptacle which is resistant to the effects of fire and water plainly marked by embossing, stamping or other means resistant to the effects of fire and water with the trefoil symbol shown in the figure below.

Basic trefoil symbol with proportions based on a central circle of radius  $X$ . The minimum allowable size of  $X$  shall be 4 mm.



- 5.2.1.7.7 Where LSA-I or SCO-I material is contained in receptacles or wrapping materials and is carried under exclusive use as permitted by 4.1.9.2.3, the outer surface of these receptacles or wrapping materials may bear the marking "RADIOACTIVE LSA-I" or "RADIOACTIVE SCO-I", as appropriate.

## 5.2.2 Labelling of packages

### 5.2.2.1 Labelling provisions

- 5.2.2.1.1 For each article or substance listed in Table A of Chapter 3.2, the labels shown in Column (5) shall be affixed unless otherwise provided for by a special provision in Column (6).

- 5.2.2.1.2 Indelebile danger markings corresponding exactly to the prescribed models may be used instead of labels.

- 5.2.2.1.3 to  
5.2.2.1.5 *(Reserved)*

- 5.2.2.1.6 Each label shall:

- be affixed to the same surface of the package, if the dimensions of the package allow; for packages of Class 1 and 7, near the mark indicating the proper shipping name;
- be so placed on the package that it is not covered or obscured by any part or attachment to the packaging or any other label or marking; and
- be displayed next to each other when more than one label is required.

Where a package is of such an irregular shape or small size that a label cannot be satisfactorily affixed, the label may be attached to the package by a securely affixed tag or other suitable means.

5.2.2.1.7 Intermediate bulk containers of more than 450 litres capacity shall be labelled on two opposite sides.

5.2.2.1.8 *(Reserved)*

5.2.2.1.9 *Special provisions for the labelling of self-reactive substances and organic peroxides*

(a) The label conforming to model No. 4.1 also implies that the product may be flammable and hence no label conforming to model No. 3 is required. In addition, a label conforming to model No. 1 shall be applied for self-reactive substances Type B, unless the competent authority has permitted this label to be dispensed with for a specific packaging because test data have proven that the self-reactive substance in such a packaging does not exhibit explosive behaviour.

(b) The label conforming to model No. 5.2 also implies that the product may be flammable and hence no label conforming to model No. 3 is required. In addition, the following labels shall be applied:

- (i) A label conforming to model No. 1 for organic peroxides type B, unless the competent authority has permitted this label to be dispensed with for a specific packaging because test data have proven that the organic peroxide in such a packaging does not exhibit explosive behaviour;
- (ii) A label conforming to model No. 8 is required when Packing Group I or II criteria of Class 8 are met.

For self-reactive substances and organic peroxides mentioned by name, the labels to be affixed are indicated in the list found in 2.2.41.4 and 2.2.52.4 respectively.

5.2.2.1.10 *Special provisions for the labelling of infectious substances packages*

In addition to the label conforming to model No. 6.2, infectious substances packages shall bear any other label required by the nature of the contents.

5.2.2.1.11 *Special provisions for the labelling of radioactive material*

5.2.2.1.11.1 Except as provided for large containers and tanks in accordance with 5.3.1.1.3, each package, overpack and container containing radioactive material shall bear at least two labels which conform to the models Nos. 7A, 7B, and 7C as appropriate according to the category (see 2.2.7.8.4) of that package, overpack or container. Labels shall be affixed to two opposite sides on the outside of the package or on the outside of all four sides of the container. Each overpack containing radioactive material shall bear at least two labels on opposite sides of the outside of the overpack. In addition, each package, overpack and container containing fissile material, other than fissile material excepted under 6.4.11.2 shall bear labels which conform to model No. 7E; such labels, where applicable shall be affixed adjacent to the labels for radioactive material. Labels shall not cover the markings specified in 5.2.1. Any labels which do not relate to the contents shall be removed or covered.

5.2.2.1.11.2 Each label conforming to models Nos. 7A, 7B, and 7C shall be completed with the following information:

(a) *Contents:*

(i) except for LSA-I material, the name(s) of the radionuclide(s) as taken from Table 2.2.7.7.2.1, using the symbols prescribed therein. For mixtures of radionuclides, the most restrictive nuclides shall be listed to the extent the space on the line permits. The group of LSA or SCO shall be shown following the name(s) of the radionuclide(s). The terms "LSA-II", "LSA-III", "SCO-I" and "SCO-II" shall be used for this purpose;

(ii) for LSA-I material, only the term "LSA-I" is necessary; the name of the radionuclide is not necessary;

(b) *Activity:* The maximum activity of the radioactive contents during carriage expressed in becquerels (Bq) with the appropriate SI prefix (see 1.2.2.1). For fissile material, the mass of fissile material in grams (g), or multiples thereof, may be used in place of activity;

(c) For overpacks and containers the "contents" and "activity" entries on the label shall bear the information required in (a) and (b) above, respectively, totalled together for the entire contents of the overpack or container except that on labels for overpacks or containers containing mixed loads of packages containing different radionuclides, such entries may read "See Transport Documents";

(d) *Transport index:* see 2.2.7.6.1.1 and 2.2.7.6.1.2 (no transport index entry is required for category I-WHITE).

5.2.2.1.11.3 Each label conforming to the model No. 7E shall be completed with the criticality safety index (CSI) as stated in the certificate of approval for special arrangement or the certificate of approval for the package design issued by the competent authority.

5.2.2.1.11.4 For overpacks and containers, the criticality safety index (CSI) on the label shall bear the information required in 5.2.2.1.11.3 totalled together for the fissile contents of the overpack or container.

5.2.2.1.12 *Additional labelling*

With the exception of Classes 1 and 7, label conforming to model No. 11 illustrated in 5.2.2.2.2 shall be displayed on two opposite sides of a package on the following packages:

- packages containing liquids in receptacles, the closures of which are not visible from the outside;
- packages containing vented receptacles or vented receptacles without outer packaging; and
- packages containing refrigerated liquefied gases.

### 5.2.2.2 *Provisions for labels*

5.2.2.2.1 Labels shall satisfy the provisions below and conform, in terms of colour, symbols and general format, to the models shown in 5.2.2.2.2.

5.2.2.2.1.1 Labels, except label conforming to model No. 11, shall be in the form of a square set at an angle of 45° (diamond-shaped) with minimum dimensions of 100 mm by 100 mm. They have a line of the same colour as the symbol, 5 mm inside the edge and running parallel with it. Label conforming to model No. 11 shall be rectangular, of standard format A5 (148×210 mm). If the size of the package so requires, the dimensions of the labels may be reduced, provided that they remain clearly visible.

5.2.2.2.1.2 Cylinders for Class 2 may, on account of their shape, orientation and securing mechanisms for carriage, bear labels representative of those specified in this section, which have been reduced in size, according to the dimensions outlined in ISO 7225:1994, "Gas cylinders - Precautionary labels", for display on the non-cylindrical part (shoulder) of such cylinders. Notwithstanding the provisions of 5.2.2.1.6, labels may overlap to the extent provided for by ISO 7225. However, in all cases, the primary risk label and the figures appearing on any label shall remain fully visible and the symbols recognizable.

5.2.2.2.1.3 Labels, except label conforming to model No.11, are divided into halves. With the exception of Divisions 1.4, 1.5 and 1.6, the upper half of the label is reserved for the pictorial symbol and the lower half for texts and the class number and the compatibility group letter as appropriate.

*NOTE: For the labels of Classes 1, 2, 3, 5.1, 5.2, 7, 8 and 9, the respective class number shall be shown in the bottom corner. For the labels of Classes 4.1, 4.2 and 4.3 and of Classes 6.1 and 6.2 only figures 4 and 6 respectively shall be shown in the bottom corner (see 5.2.2.2.2).*

5.2.2.2.1.4 Except for Divisions 1.4, 1.5 and 1.6, labels for Class 1 show in the lower half the division number and compatibility group letter for the substance or article. Labels for Divisions 1.4, 1.5 and 1.6 show in the upper half the division number and in the lower half the compatibility group letter.

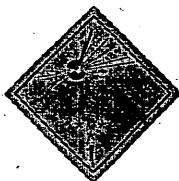
5.2.2.2.1.5 On labels other than those for material of Class 7, the optional insertion of any text (other than the class number) in the space below the symbol shall be confined to particulars indicating the nature of the risk and precautions to be taken in handling.

5.2.2.2.1.6 The symbols, text and numbers shall be clearly legible and indelible and shall be shown in black on all labels except for:

- (a) the Class 8 label, where the text (if any) and class number shall appear in white;
- (b) labels with entirely green, red or blue backgrounds where they may be shown in white; and
- (c) labels conforming to model No. 2.1 displayed on cylinders and gas cartridges for UN No. 1965, where they may be shown in the background colour of the receptacle if adequate contrast is provided.

5.2.2.2.1.7 All labels shall be able to withstand open weather exposure without a substantial reduction in effectiveness.

## 5.2.2.2.2 Specimen labels

**CLASS 1 HAZARD****Explosive substances or articles**

(No.1)

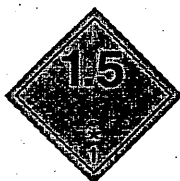
Divisions 1.1, 1.2 and 1.3

Symbol (exploding bomb): black; Background: orange; Figure '1' in bottom corner



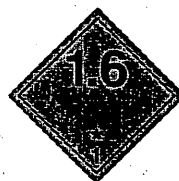
(No 1.4)

Division 1.4



(No 1.5)

Division 1.5



(No 1.6)

Division 1.6

Background: orange; Figures: black; Numerals shall be about 30 mm in height and be about 5 mm thick (for a label measuring 100 mm x 100 mm); Figure '1' in bottom corner

\*\* Place for division - to be left blank if explosive is the subsidiary risk

\* Place for compatibility group - to be left blank if explosive is the subsidiary risk

**CLASS 2 HAZARD****Gaz**

(No.2.1)

Flammable gases

Symbol (flame): black or white;  
(except as provided for in 5.2.2.2.1.6 c)

Background: red; Figure '2' in bottom corner



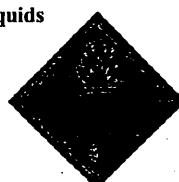
(No.2.2)

Non flammable, non-toxic gases

Symbol (gas cylinder): black or white;  
Background: green; Figure '2' in bottom corner**CLASS 3 HAZARD****Flammable liquids**

(No 2.3)

Toxic gases

Symbol (skull and crossbones): black;  
Background: white; Figure '2' in bottom corner

(No 3)

Symbol (flame): black or white;  
Background: red; Figure '3' in bottom corner

**CLASS 4.1 HAZARD**  
**Flammable solids, self-reactive substances and desensitized explosives**



(No 4.1)  
 Symbol (flame): black;  
 Background: white with seven vertical red stripes;  
 Figure '4' in bottom corner

**CLASS 4.2 HAZARD**  
**Substances liable to spontaneous combustion**



(No 4.2)  
 Symbol (flame): black;  
 Background: upper half white, lower half red;  
 Figure '4' in bottom corner

**CLASS 4.3 HAZARD**  
**Substances which, in contact with water, emit flammable gases**



(No 4.3)  
 Symbol (flame): black or white;  
 Background: blue;  
 Figure '4' in bottom corner



**CLASS 5.1 HAZARD**  
**Oxidizing substances**



(No 5.1)  
 Symbol (flame over circle): black;  
 Background: yellow;  
 Figures '5.1' in bottom corner

**CLASS 5.2 HAZARD**  
**Organic peroxides**



(No 5.2)  
 Symbol (flame over circle): black;  
 Background: yellow;  
 Figures '5.2' in bottom corner

**CLASS 6.1 HAZARD**  
**Toxic substances**



(No 6.1)  
 Symbol (skull and crossbones): black;  
 Background: white; Figure '6' in bottom corner

**CLASS 6.2 HAZARD**  
**Infectious substances**



(No 6.2)  
 The lower half of the label may bear the inscriptions: 'INFECTIOUS SUBSTANCE' and 'In the case of damage or leakage immediately notify Public Health Authority';  
 Symbol (three crescents superimposed on a circle) and inscriptions: black;  
 Background: white; Figure '6' in bottom corner

**CLASS 7 HAZARD**  
Radioactive material



(No. 7A)

Category I - White  
Symbol (trefoil): black;  
Background: white;

Text (mandatory): black in lower half of label:

'RADIOACTIVE'  
'CONTENTS .....'  
'ACTIVITY .....'

One red bar shall follow the word 'RADIOACTIVE';  
Figure '7' in bottom corner.



(No 7B)

Category II - Yellow

Background: upper half yellow with white border, lower half white;

Text (mandatory): black in lower half of label:

'RADIOACTIVE'  
'CONTENTS .....'  
'ACTIVITY .....'

In a black outlined box: 'TRANSPORT INDEX';  
Two red vertical bars shall follow the word 'RADIOACTIVE';  
Three red vertical bars shall follow the word 'RADIOACTIVE';  
Figure '7' in bottom corner.



(No 7C)

Category III - Yellow

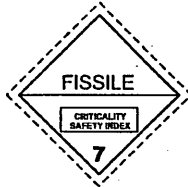
Symbol (trefoil): black;

Background: upper half yellow with white border, lower half white;

Text (mandatory): black in lower half of label:

'RADIOACTIVE'  
'CONTENTS .....'  
'ACTIVITY .....'

In a black outlined box: 'TRANSPORT INDEX';  
Two red vertical bars shall follow the word 'RADIOACTIVE';  
Three red vertical bars shall follow the word 'RADIOACTIVE';  
Figure '7' in bottom corner.



(No. 7E)

Class 7 fissile material

Background: white;

Text (mandatory): black in upper half of label: 'FISSILE';

In a black outlined box in the lower half of the label:

'CRITICALITY SAFETY INDEX'

Figure '7' in bottom corner.

**CLASS 8 HAZARD**  
Corrosive substances



(No. 8)

Symbol (liquids, spilling from two glass vessels and attacking a hand and a metal): black;

Background: upper half white;  
lower half black with white border;

Figure '8' in bottom corner

**CLASS 9 HAZARD**  
Miscellaneous dangerous substances and articles



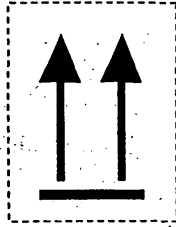
(No. 9)

Symbol (seven vertical stripes in upper half): black;

Background: white;

Figure '9' underlined in bottom corner

986



(No. 11)

Two black arrows on white  
or suitable contrasting background .



## CHAPTER 5.3

PLACARDING AND MARKING OF CONTAINERS, MEGCs, TANK-CONTAINERS,  
PORTABLE TANKS AND VEHICLES

**NOTE :** *For marking and placarding of containers, MEGCs, tank-containers and portable tanks for carriage in a transport chain including a maritime journey, see also 1.1.4.2.1. If the provisions of 1.1.4.2.1 (c) are applied, only 5.3.1.3 and 5.3.2.1.1 of this Chapter are applicable.*

**5.3.1 Placarding**

**5.3.1.1 General provisions**

5.3.1.1.1 As and when required in this section, placards shall be affixed to the exterior surface of containers, MEGCs, tank-containers, portable tanks and vehicles. Placards shall correspond to the labels required in Column (5) and, where appropriate, Column (6) of Table A of Chapter 3.2 for the dangerous goods contained in the container, MEGC, tank-container, portable tank or vehicle and shall conform to the specifications given in 5.3.1.7.

5.3.1.1.2 For Class 1, compatibility groups shall not be indicated on placards if the transport unit or container is carrying substances or articles belonging to two or more compatibility groups. Transport units or containers carrying substances or articles of different divisions shall bear only placards conforming to the model of the most dangerous division in the order:

1.1 (most dangerous), 1.5, 1.2, 1.3, 1.6, 1.4 (least dangerous).

When 1.5 D substances are carried with substances or articles of Division 1.2, the transport unit or container shall be placarded as Division 1.1.

5.3.1.1.3. For Class 7, the primary risk placard shall conform to model No. 7D as specified in 5.3.1.7.2. This placard is not required for vehicles or containers carrying excepted packages and for small containers.

Where both Class 7 labels and placards would be required to be affixed to vehicles, containers, MEGCs, tank-containers or portable tanks, an enlarged label corresponding to the label required may be displayed instead of placard No.7D to serve both purposes.

5.3.1.1.4 Containers, MEGCs, tank-containers, portable tanks or vehicles containing goods of more than one class need not bear a subsidiary risk placard if the hazard represented by that placard is already indicated by a primary or subsidiary risk placard.

5.3.1.1.5 Placards which do not relate to the dangerous goods being carried, or residues thereof, shall be removed or covered.

**5.3.1.2 Placarding of containers, MEGCs, tank-containers and portable tanks**

*NOTE: This sub-section does not apply to swap-bodies, except tank swap bodies or swap-bodies carried in combined road/rail transport.*

The placards shall be affixed to both sides and at each end of the container, MEGC, tank-container or portable tank.

When the tank-container or portable tank has multiple compartments and carries two or more dangerous goods, the appropriate placards shall be displayed along each side at the position

of the relevant compartments and one placard of each model shown on each side at both ends.

**5.3.1.3** *Placarding of vehicles carrying containers, MEGCs, tank-containers or portable tanks*

*NOTE: This sub-section does not apply to the placarding of vehicles carrying swap-bodies other than tank swap-bodies or than swap-bodies carried in combined road/rail transport; for such vehicles, see 5.3.1.5.*

If the placards affixed to the containers, MEGCs, tank-containers or portable tanks are not visible from outside the carrying vehicles, the same placards shall also be affixed to both sides and at the rear of the vehicle. Otherwise, no placard need be affixed on the carrying vehicle.

**5.3.1.4** *Placarding of vehicles for carriage in bulk, tank-vehicles, battery vehicles and vehicles with demountable tanks*

Placards shall be affixed to both sides and at the rear of the vehicle.

When the tank-vehicle or the demountable tank carried on the vehicle has multiple compartments and carries two or more dangerous goods, the appropriate placards shall be displayed along each side at the position of the relevant compartments and one placard of each model shown on each side at the rear of the vehicle. However, in such case, if all compartments have to bear the same placards, these placards need be displayed only once along each side and at the rear of the vehicle.

Where more than one placard is required for the same compartment, these placards shall be displayed adjacent to each other.

*NOTE: When, in the course of an ADR journey or at the end of an ADR journey, a tank semi-trailer is separated from its tractor to be loaded on board a ship or an inland navigation vessel, placards shall also be displayed at the front of the semi-trailer.*

**5.3.1.5** *Placarding of vehicles carrying packages only*

*NOTE: This sub-section applies also to vehicles carrying swap-bodies loaded with packages, except for combined road/rail transport; for combined road/rail transport, see 5.3.1.2 and 5.3.1.3.*

**5.3.1.5.1** For vehicles carrying packages containing substances or articles of Class 1, placards shall be affixed to both sides and at the rear of the vehicle.

**5.3.1.5.2** For vehicles carrying radioactive material of Class 7 in packagings or IBCs (other than excepted packages), placards shall be affixed to both sides and at the rear of the vehicle.

*NOTE: If, during an ADR journey, a vehicle carrying packages containing dangerous goods of classes other than Classes 1 and 7 is loaded on board a ship for sea transport or if the ADR journey precedes a voyage by sea, placards shall be affixed to both sides and at the rear of the vehicle. Placards may remain affixed to both sides and at the rear of the vehicle after a sea voyage.*

**5.3.1.6** *Placarding of empty tank-vehicles, battery-vehicles, MEGCs, tank-containers, portable tanks and empty vehicles and containers for carriage in bulk*

**5.3.1.6.1** Empty tank-vehicles, vehicles with demountable tanks, battery-vehicles, MEGCs, tank-containers and portable tanks uncleaned and not degassed, and empty vehicles and

containers for carriage in bulk, uncleaned, shall continue to display the placards required for the previous load.

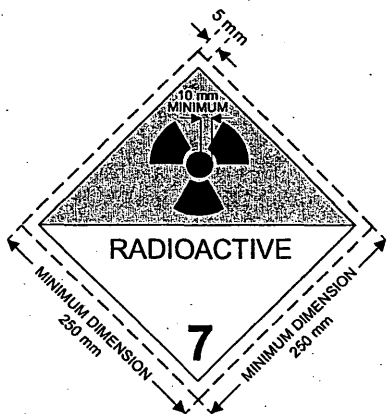
### 5.3.1.7 *Specifications for placards*

5.3.1.7.1 Except as provided in 5.3.1.7.2 for the Class 7 placard, a placard shall:

- Be not less than 250 mm by 250 mm, with a line of the same colour as the symbol running 12.5mm inside the edge and parallel with it;
- Correspond to the label required for the dangerous goods in question with respect to colour and symbol (see 5.2.2.2); and
- Display the numbers (and for goods of Class 1, the compatibility group letter) prescribed for the dangerous goods in question in 5.2.2.2 for the corresponding label, in digits not less than 25 mm high.

5.3.1.7.2 The Class 7 placard shall be not less than 250 mm by 250 mm with a black line running 5 mm inside the edge and parallel with it and is otherwise as shown below (Model No. 7D). The number "7" shall not be less than 25 mm high. The background colour of the upper half of the placard shall be yellow and of the lower half white, the colour of the trefoil and the printing shall be black. The use of the word "RADIOACTIVE" in the bottom half is optional to allow the use of this placard to display the appropriate UN number for the consignment.

Placard for radioactive material of Class 7



(No.7D)

Symbol (trefoil): black; Background: upper half yellow with white border, lower half white;

The lower half shall show the word "RADIOACTIVE" or alternatively, when required, the appropriate UN Number (see 5.3.2.1.2) and the figure "7" in the bottom corner.

5.3.1.7.3 For tanks with a capacity of not more than 3 m<sup>3</sup> and for small containers, placards may be replaced by labels conforming to 5.2.2.2.

- 5.3.1.7.4 For Classes 1 and 7, if the size and construction of the vehicle are such that the available surface area is insufficient to affix the prescribed placards, their dimensions may be reduced to 100 mm on each side.
- 5.3.2 Orange-coloured plate marking**
- 5.3.2.1 *General orange-coloured plate marking provisions***
- 5.3.2.1.1 Transport units carrying dangerous goods shall display two rectangular reflectorized orange-coloured plates conforming to 5.3.2.2.1, set in a vertical plane. They shall be affixed one at the front and the other at the rear of the transport unit, both perpendicular to the longitudinal axis of the transport unit. They shall be clearly visible.
- 5.3.2.1.2 When a hazard identification number is indicated in Column (20) of table A of Chapter 3.2, tank-vehicles or transport units having one or more tanks carrying dangerous goods shall in addition display on the sides of each tank or tank compartment, clearly visible and parallel to the longitudinal axis of the vehicle, orange-coloured plates identical with those prescribed in 5.3.2.1.1. These orange-coloured plates shall bear the hazard identification number and the UN number prescribed respectively in Columns (20) and (1) of table A of Chapter 3.2 for each of the substances carried in the tank or in a compartment of the tank.
- 5.3.2.1.3 For tank-vehicles or transport units having one or more tanks carrying substances with UN Nos. 1202, 1203 or 1223, or aviation fuel classed under UN Nos. 1268 or 1863, but no other dangerous substance, the orange-coloured plates prescribed in 5.3.2.1.2 need not be affixed if the plates affixed to the front and rear in accordance with 5.3.2.1.1 bear the hazard identification number and the UN number prescribed for the most hazardous substance carried, i.e. the substance with the lowest flash-point.
- 5.3.2.1.4 When a hazard identification number is indicated in Column (20) of Table A of Chapter 3.2, transport units and containers carrying dangerous solid substances in bulk shall in addition display on the sides of each transport unit or container, clearly visible and parallel to the longitudinal axis of the vehicle, orange-coloured plates identical with those prescribed in 5.3.2.1.1. These orange-coloured plates shall bear the hazard identification number and the UN number prescribed respectively in Columns (20) and (1) of table A of Chapter 3.2 for each of the substances carried in bulk in the transport unit or in the container.
- 5.3.2.1.5 For containers carrying dangerous solid substances in bulk and for tanks-containers, MEGCs and portable tanks, the plates prescribed in 5.3.2.1.2 and 5.3.2.1.4 may be replaced by a self-adhesive sheet, by paint or by any other equivalent process, provided the material used for this purpose is weather-resistant and ensures durable marking. In this case, the provisions of the last sentence of 5.3.2.2.2, concerning resistance to fire, shall not apply.
- 5.3.2.1.6 For transport units carrying only one substance, the orange-coloured plates prescribed in 5.3.2.1.2 and 5.3.2.1.4 shall not be necessary provided that those displayed at the front and rear in accordance with 5.3.2.1.1 bear the hazard identification number and the UN number prescribed respectively in Columns (20) and (1) of Table A of Chapter 3.2.
- 5.3.2.1.7 The above requirements are also applicable to empty fixed or demountable tanks, tank-containers, MEGCs, portable tanks and battery-vehicles, uncleaned and not degassed and empty vehicles and empty containers for carriage in bulk, uncleaned.
- 5.3.2.1.8 Orange-coloured plates which do not relate to dangerous goods carried, or residues thereof, shall be removed or covered. If plates are covered, the covering shall be total and remain effective after 15 minute' engulfment in fire.

### 5.3.2.2 Specifications for the orange-coloured plates

- 5.3.2.2.1 The reflectorized orange-coloured plates shall be of 40 cm base and not less than 30 cm high; they shall have a black border not more than 15 mm wide. If the size and construction of the vehicle are such that the available surface area is insufficient to affix these orange-coloured plates, their dimensions may be reduced to 300 mm for the base, 120 mm for the height and 10 mm for the black border.

**NOTE:** The colour of the orange plates in conditions of normal use should have chromaticity co-ordinates lying within the area on the chromaticity diagram formed by joining the following co-ordinates

Chromaticity co-ordinates of points at the corners of the area on the chromaticity diagram				
x	0.52	0.52	0.578	0.618
y	0.38	0.40	0.422	0.38

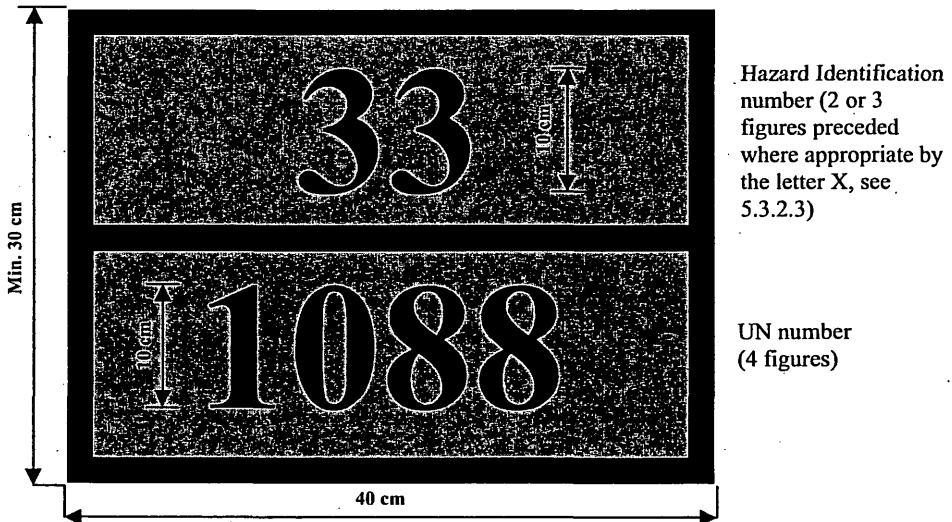
Luminance factor of reflectorized colour:  $\beta > 0.12$ .

Reference centre E, standard illuminant C, normal incidence 45°, viewed at 0°.

Co-efficient of reflex luminous intensity at an angle of illumination of 5°, viewed at 0.2°: not less than 20 candelas per lux per m<sup>2</sup>.

- 5.3.2.2.2 The hazard identification number and the UN number shall consist of black digits 100 mm high and of 15 mm stroke thickness. The hazard-identification number shall be inscribed in the upper part of the plate and the UN number in the lower part; they shall be separated by a horizontal black line, 15 mm in stroke width, extending from side to side of the plate at mid-height (see 5.3.2.2.3). The hazard identification number and the UN number shall be indelible and shall remain legible after 15 minute' engulfment in fire.

#### 5.3.2.2.3 Example of orange-coloured plate with hazard identification number and UN number



Background orange.

Border, horizontal line and figures black, 15 mm thickness.

### 5.3.2.3 *Meaning of hazard identification numbers*

5.3.2.3.1 The hazard identification number consists of two or three figures. In general, the figures indicate the following hazards:

- 2 Emission of gas due to pressure or to chemical reaction
- 3 Flammability of liquids (vapours) and gases or self-heating liquid
- 4 Flammability of solids or self-heating solid
- 5 Oxidizing (fire-intensifying) effect
- 6 Toxicity or risk of infection
- 7 Radioactivity
- 8 Corrosivity
- 9 Risk of spontaneous violent reaction

*NOTE: The risk of spontaneous violent reaction within the meaning of figure 9 include the possibility following from the nature of a substance of a risk of explosion, disintegration and polymerization reaction following the release of considerable heat or flammable and/or toxic gases.*

Doubling of a figure indicates an intensification of that particular hazard.

Where the hazard associated with a substance can be adequately indicated by a single figure, this is followed by zero.

The following combinations of figures, however, have a special meaning: 22, 323, 333, 362, 382, 423, 44, 446, 462, 482, 539, 606, 623, 642, 823, 842, 90 and 99, see 5.3.2.3.2 below.

If a hazard identification number is prefixed by the letter "X", this indicates that the substance will react dangerously with water. For such substances, water may only be used by approval of experts.

5.3.2.3.2 The hazard identification numbers listed in Column (20) of table A of Chapter 3.2 have the following meanings:

- 20 asphyxiant gas or gas with no subsidiary risk
- 22 refrigerated liquefied gas, asphyxiant
- 223 refrigerated liquefied gas, flammable
- 225 refrigerated liquefied gas, oxidizing (fire-intensifying)
- 23 flammable gas
- 239 flammable gas, which can spontaneously lead to violent reaction
- 25 oxidizing (fire-intensifying) gas
- 26 toxic gas
- 263 toxic gas, flammable
- 265 toxic gas, oxidizing (fire-intensifying)
- 268 toxic gas, corrosive
  
- 30 flammable liquid (flash-point between 23 °C and 61 °C, inclusive) or flammable liquid or solid in the molten state with a flash-point above 61 °C, heated to a temperature equal to or above its flash-point, or self-heating liquid
- 323 flammable liquid which reacts with water, emitting flammable gases
- X323 flammable liquid which reacts dangerously with water, emitting flammable gases<sup>1</sup>
- 33 highly flammable liquid (flash-point below 23 °C)

<sup>1</sup> Water not to be used except by approval of experts.

333	pyrophoric liquid
X333	pyrophoric liquid which reacts dangerously with water <sup>1</sup>
336	highly flammable liquid, toxic
338	highly flammable liquid, corrosive
X338	highly flammable liquid, corrosive, which reacts dangerously with water <sup>1</sup>
339	highly flammable liquid which can spontaneously lead to violent reaction
36	flammable liquid (flash-point between 23 °C and 61 °C, inclusive), slightly toxic, or self-heating liquid, toxic
362	flammable liquid, toxic, which reacts with water, emitting flammable gases
X362	flammable liquid toxic, which reacts dangerously with water, emitting flammable gases <sup>1</sup>
368	flammable liquid, toxic, corrosive
38	flammable liquid (flash-point between 23 °C and 61 °C, inclusive), slightly corrosive or self-heating liquid, corrosive
382	flammable liquid, corrosive, which reacts with water, emitting flammable gases
X382	flammable liquid, corrosive, which reacts dangerously with water, emitting flammable gases <sup>1</sup>
39	flammable liquid, which can spontaneously lead to violent reaction
40	flammable solid, or self-reactive substance, or self-heating substance
423	solid which reacts with water, emitting flammable gases
X423	flammable solid which reacts dangerously with water, emitting flammable gases <sup>1</sup>
43	spontaneously flammable (pyrophoric) solid
44	flammable solid, in the molten state at an elevated temperature
446	flammable solid, toxic, in the molten state, at an elevated temperature
46	flammable or self-heating solid, toxic
462	toxic solid which reacts with water, emitting flammable gases
X462	solid which reacts dangerously with water, emitting toxic gases <sup>1</sup>
48	flammable or self-heating solid, corrosive
482	corrosive solid which reacts with water, emitting flammable gases
X482	solid which reacts dangerously with water, emitting corrosive gases <sup>1</sup>
50	oxidizing (fire-intensifying) substance
539	flammable organic peroxide
55	strongly oxidizing (fire-intensifying) substance
556	strongly oxidizing (fire-intensifying) substance, toxic
558	strongly oxidizing (fire-intensifying) substance, corrosive
559	strongly oxidizing (fire-intensifying) substance, which can spontaneously lead to violent reaction
56	oxidizing substance (fire-intensifying), toxic
568	oxidizing substance (fire-intensifying), toxic, corrosive
58	oxidizing substance (fire-intensifying), corrosive
59	oxidizing substance (fire-intensifying) which can spontaneously lead to violent reaction
60	toxic or slightly toxic substance
606	infectious substance
623	toxic liquid, which reacts with water, emitting flammable gases
63	toxic substance, flammable (flash-point between 23 °C and 61 °C, inclusive)
638	toxic substance, flammable (flash-point between 23 °C and 61 °C, inclusive), corrosive
639	toxic substance, flammable (flash-point not above 61 °C) which can spontaneously lead to violent reaction

<sup>1</sup> Water not to be used except by approval of experts.

64	toxic solid, flammable or self-heating
642	toxic solid, which reacts with water, emitting flammable gases
65	toxic substance, oxidizing (fire-intensifying)
66	highly toxic substance
663	highly toxic substance, flammable (flash-point not above 61 °C)
664	highly toxic solid, flammable or self-heating
665	highly toxic substance, oxidizing (fire-intensifying)
668	highly toxic substance, corrosive
669	highly toxic substance which can spontaneously lead to violent reaction
68	toxic substance, corrosive
69	toxic or slightly toxic substance, which can spontaneously lead to violent reaction
70	radioactive material
72	radioactive gas
723	radioactive gas, flammable
73	radioactive liquid, flammable (flash-point not above 61 °C)
74	radioactive solid, flammable
75	radioactive material, oxidizing (fire-intensifying)
76	radioactive material, toxic
78	radioactive material, corrosive
80	corrosive or slightly corrosive substance
X80	corrosive or slightly corrosive substance, which reacts dangerously with water <sup>1</sup>
823	corrosive liquid which reacts with water, emitting flammable gases
83	corrosive or slightly corrosive substance, flammable (flash-point between 23 °C and 61 °C, inclusive)
X83	corrosive or slightly corrosive substance, flammable, (flash-point between 23 °C and 61 °C, inclusive), which reacts dangerously with water <sup>1</sup>
839	corrosive or slightly corrosive substance, flammable (flash-point between 23 °C and 61 °C inclusive) which can spontaneously lead to violent reaction
X839	corrosive or slightly corrosive substance, flammable (flash-point between 23 °C and 61 °C inclusive), which can spontaneously lead to violent reaction and which reacts dangerously with water <sup>1</sup>
84	corrosive solid, flammable or self-heating
842	corrosive solid which reacts with water, emitting flammable gases
85	corrosive or slightly corrosive substance, oxidizing (fire-intensifying)
856	corrosive or slightly corrosive substance, oxidizing (fire-intensifying) and toxic
86	corrosive or slightly corrosive substance, toxic
88	highly corrosive substance
X88	highly corrosive substance, which reacts dangerously with water <sup>1</sup>
883	highly corrosive substance, flammable (flash-point between 23 °C and 61 °C inclusive)
884	highly corrosive solid, flammable or self-heating
885	highly corrosive substance, oxidizing (fire-intensifying)
886	highly corrosive substance, toxic
X886	highly corrosive substance, toxic, which reacts dangerously with water <sup>1</sup>
89	corrosive or slightly corrosive substance, which can spontaneously lead to violent reaction
90	environmentally hazardous substance; miscellaneous dangerous substances
99	miscellaneous dangerous substance carried at an elevated temperature.

<sup>1</sup> Water not to be used except by approval of experts.



**5.3.3****Mark for elevated temperature substances**

Tank-vehicles, tank-containers, portable tanks, special vehicles or containers or especially equipped vehicles or containers for which a mark for elevated temperature substances is required according to special provision 580 in Column (6) of Table A of Chapter 3.2 shall bear on both sides and at the rear for vehicles, and on both sides and at each end for containers, tank-containers and portable tanks, a triangular shaped mark with sides of at least 250 mm, to be shown in red, as reproduced below.



**CHAPTER 5.4**  
**DOCUMENTATION**

5.4.0 Any carriage of goods governed by ADR shall be accompanied by the documentation prescribed in this Chapter, as appropriate, unless exempted under 1.1.3.1 to 1.1.3.5.

*NOTE 1: For the list of documentation to be carried on board transport units, see 8.1.2.*

*NOTE 2: The use of electronic data processing (EDP) or electronic data interchange (EDI) techniques as an aid to or instead of paper documentation is permitted, provided that the procedures used for the capture, storage and processing of electronics data meet the legal requirements as regards the evidential value and availability of data during transport in a manner at least equivalent to that of paper documentation.*

**5.4.1 Dangerous goods transport document and related information**

**5.4.1.1 General information required in the transport document**

5.4.1.1.1 The transport document(s) shall contain the following information for each dangerous substance, material or article offered for carriage:

- (a) the UN number preceded by the letters "UN";
- (b) the proper shipping name supplemented, when applicable (see 3.1.2.8.1) with the technical name (see 3.1.2.8.1.1), as determined in accordance with 3.1.2;
- (c) - for substances and articles of Class 1: the classification code given in Column (3 b) of Table A in Chapter 3.2.

When, in Column (5) of Table A of Chapter 3.2, label model numbers other than 1, 1.4, 1.5 and 1.6 are given, these label model numbers, in brackets, shall follow the classification code;

- for radioactive material of Class 7: see 5.4.1.2.5;
- for substances and articles of other classes: the label model numbers given in Column (5) of Table A in Chapter 3.2. When more than one label model numbers are given, the numbers following the first one shall be given in brackets;
- (d) where assigned, the packing group for the substance which may be preceded by the letters "PG" (e.g. "PG II"), or the initials corresponding to the words "Packing Group" in the languages used according to 5.4.1.4.1;
- (e) the number and a description of the packages;
- (f) the total quantity of each item of dangerous goods bearing a different UN number, proper shipping name or, when applicable, packing group (as a volume or as a gross mass, or as a net mass as appropriate);

*NOTE: In the case of intended application of 1.1.3.6, the total quantity of dangerous goods for each transport category shall be indicated in the transport document in accordance with 1.1.3.6.3.*

- (g) the name and address of the consignor;
- (h) the name and address of the consignee(s);
- (i) a declaration as required by the terms of any special agreement.

The location and order in which the elements of information required appear in the transport document is left optional, except that (a), (b), (c) and (d) shall be shown either in sequence (a), (b), (c), (d) or in sequence (b), (c), (a), (d) with no information interspersed, except as provided in ADR. Examples of such permitted dangerous goods descriptions are:

**"UN 1098 ALLYL ALCOHOL, 6.1 (3), I" or  
"ALLYL ALCOHOL, 6.1 (3), UN 1098, I"**

5.4.1.1.2 The information required on a transport document shall be legible.

Although upper case is used in Chapter 3.1 and in Table A in Chapter 3.2 to indicate the elements which shall be part of the proper shipping name, and although upper and lower case are used in this Chapter to indicate the information required in the transport document, the use of upper or of lower case for entering the information in the transport document is left optional.

5.4.1.1.3 *Special provisions for wastes*

If waste containing dangerous goods (other than radioactive wastes) is being carried, the UN number and the proper shipping name shall be preceded by the word "WASTE", unless this term is part of the proper shipping name, e.g.:

**"WASTE, UN 1230 METHANOL, 3, II ", or  
"WASTE, UN 1993 FLAMMABLE LIQUID, N.O.S., (toluene and ethyl alcohol), 3, II"**

5.4.1.1.4 *Special provisions for dangerous goods packed in limited quantities*

No information is required in the transport document, if any, for carriage of dangerous goods packed in limited quantities according to Chapter 3.4.

5.4.1.1.5 *Special provisions for salvage packagings*

When dangerous goods are carried in a salvage packaging, the words "SALVAGE PACKAGE" shall be added after the description of the goods in the transport document.

5.4.1.1.6 *Special provisions for empty uncleaned packagings, vehicles, containers, tanks, battery-vehicles and MEGCs*

For empty means of containment, uncleaned, which contain the residue of dangerous goods of classes other than Class 7, the description in the transport document shall be "EMPTY PACKAGING", "EMPTY RECEPTACLE", "EMPTY IBC", "EMPTY LARGE PACKAGING", "EMPTY VEHICLE", "EMPTY TANK-VEHICLE", "EMPTY DEMOUNTABLE TANK", "EMPTY PORTABLE TANK", "EMPTY TANK-CONTAINER", "EMPTY CONTAINER", "EMPTY BATTERY-VEHICLE", "EMPTY MEGC", as appropriate, followed by the class number. See example as follows: "EMPTY PACKAGING, 3"

In the case of empty gas receptacles with a capacity of more than 1 000 litres, empty tank-vehicles, battery-vehicles, demountable tanks, portable tanks, tank-containers, MEGCs, vehicles and containers for carriage in bulk, uncleaned, this description shall be followed by

the words "last load" together with the UN number and proper shipping name of the goods last loaded, supplemented, if necessary (see 3.1.2.8) by the technical name and, if applicable, by the packing group. See example as follows:

**"EMPTY TANK-VEHICLE, 2, LAST LOAD: UN 1017 CHLORINE"**

If empty tanks, battery-vehicles and MEGCs, uncleaned, are carried to the nearest place where cleaning or repair can be carried out in accordance with the provisions of 4.3.2.4.3 or 7.5.8.1, the following additional entry shall be made in the transport document: "Carriage in accordance with 4.3.2.4.3" or "Carriage in accordance with 7.5.8.1"

5.4.1.1.7 *Special provisions for carriage in a transport chain including maritime or air carriage*

For carriage in accordance with 1.1.4.2, a statement shall be included in the transport document, as follows: "Carriage in accordance with 1.1.4.2".

5.4.1.1.8 *Special provisions for use of portable tanks approved for maritime carriage*

For carriage in accordance with 1.1.4.3, a statement shall be included in the transport document, as follows: "Carriage in accordance with 1.1.4.3".

5.4.1.1.9 *(Reserved)*

5.4.1.1.10 *Special provisions for exemptions related to quantities carried per transport unit*

5.4.1.1.10.1 In the case of exemptions provided for in 1.1.3.6, the transport document shall bear the following inscription: "Load not exceeding the exemption limits prescribed in 1.1.3.6".

5.4.1.1.10.2 Where consignments from more than one consignor are carried in the same transport unit, the transport documents accompanying these consignments need not bear the inscription mentioned in 5.4.1.1.10.1.

5.4.1.1.11 *Special provisions for the carriage of IBCs after the date of expiry of the last periodic test inspection*

For carriage in accordance with 4.1.2.2, a statement to this effect shall be included in the transport document, as follows: "Carriage in accordance with 4.1.2.2".

5.4.1.1.12 *(Reserved)*

5.4.1.1.13 *Special provisions for carriage in multi-compartment tank-vehicles or transport units with more than one tank*

When by derogation from 5.3.2.1.2 a multi-compartment tank-vehicle or a transport unit with more than one tank is marked in accordance with 5.3.2.1.3, the substances contained in each tank or in each compartment of a tank shall be specified in the transport document.

5.4.1.1.14 *Special provisions for the carriage of substances carried under elevated temperature*

If the proper shipping name of a substance which is carried or offered for carriage in a liquid state at a temperature equal to or exceeding 100 °C, or in a solid state at a temperature equal to or exceeding 240 °C, does not convey the elevated temperature condition (for example, by using the term "MOLTEN" or "ELEVATED TEMPERATURE" as part of the proper shipping name), the word "HOT" shall immediately precede the proper shipping name.

5.4.1.1.15 *Special provisions for the carriage of substances stabilized by temperature control*

If the word "STABILIZED" is part of the proper shipping name (see also 3.1.2.6), when stabilization is by means of temperature control, the control and emergency temperatures (see 2.2.41.1.17) shall be indicated in the transport document, as follows:

"Control temperature: ....°C Emergency temperature: .... °C"

5.4.1.1.16 *Information required in accordance with special provision 640 in Chapter 3.3*

Where it is required by special provision 640 of Chapter 3.3, the transport document shall bear the inscription "Special provision 640X" where "X" is the capital letter appearing after the pertinent reference to special provision 640 in column (6) of Table A of Chapter 3.2.

5.4.1.2 *Additional or special information required for certain classes*

5.4.1.2.1 *Special provisions for Class 1*

- (a) The transport document shall indicate, in addition to the requirements in 5.4.1.1.1 (g):
- the total net mass, in kg, of explosive contents <sup>1</sup> for each substance or article bearing a different UN number;
  - the total net mass, in kg, of explosive contents <sup>1</sup> for all substances and articles covered by the transport document.
- (b) For mixed packing of two different goods, the description of the goods in the transport document shall include the UN numbers and names printed in capitals in Columns (1) and (2) of Table A of Chapter 3.2 of both substances or articles. If more than two different goods are contained in the same package in conformity with the mixed packing provisions given in 4.1.10 special provisions MP1, MP2 and MP20 to MP24, the transport document shall indicate under the description of the goods the UN numbers of all the substances and articles contained in the package, in the form, "Goods of UN Nos...";
- (c) For the carriage of substances and articles assigned to an n.o.s. entry or the entry "0190 SAMPLES, EXPLOSIVE" or packed conforming to packing instruction P101 of 4.1.4.1, a copy of the competent authority approval with the conditions of carriage shall be attached to the transport document. It shall be in an official language of the forwarding country and also, if that language is not English, French or German, in English, French or German unless agreements, if any, concluded between the countries concerned in the transport operation provide otherwise;
- (d) If packages containing substances and articles of compatibility groups B and D are loaded together in the same vehicle in accordance with the requirements of 7.5.2.2, the approval certificate of the protective container/separate compartment in accordance with 7.5.2.2, note <sup>a</sup> under the table, shall be attached to the transport document;
- (e) When explosive substances or articles are carried in packagings conforming to packing instruction P101, the transport document shall bear the inscription "Packaging approved by the competent authority of ..." (see 4.1.4.1, packing instruction P101);

<sup>1</sup> For articles, "explosive contents" means the explosive substance contained in the article.

(f) *(Reserved)*

(g) When fireworks of UN Nos. 0333, 0334, 0335, 0336 and 0337 are carried, the transport document shall bear the inscription: **"Classification recognized by the competent authority of ... (State referred to in special provision 645 of 3.3.1).**

*NOTE: The commercial or technical name of the goods may be entered additionally to the proper shipping name in the transport document.*

#### 5.4.1.2.2 *Additional provisions for Class 2*

(a) For the carriage of mixtures (see 2.2.2.1.1) in tanks (demountable tanks, fixed tanks, portable tanks, tank-containers or elements of battery-vehicles or of MEGCs), the composition of the mixture as a percentage of the volume or as a percentage of the mass shall be given. Constituents below 1% need not be indicated (see also 3.1.2.8.1.2);

(b) For the carriage of cylinders, tubes, pressure drums, cryogenic receptacles and bundles of cylinders under the conditions of 4.1.6.5, the following entry shall be included in the transport document: **"Carriage in accordance with 4.1.6.5"**.

#### 5.4.1.2.3 *Additional provisions for self-reactive substances of Class 4.1 and organic peroxides of Class 5.2*

5.4.1.2.3.1 For self-reactive substances of Class 4.1 and for organic peroxides of Class 5.2 that require temperature control during carriage (for self-reactive substances see 2.2.41.1.17; for organic peroxides, see 2.2.52.1.15 to 2.2.52.1.17), the control and emergency temperatures shall be indicated in the transport document, as follows: **"Control temperature: ... °C  
Emergency temperature: ... °C"**.

5.4.1.2.3.2 When for certain self-reactive substances of Class 4.1 and certain organic peroxides of Class 5.2 the competent authority has permitted the label conforming to model No.1 to be dispensed with for a specific packaging (see 5.2.2.1.9), a statement to this effect shall be included in the transport document, as follows: **"The label conforming to model No.1 is not required"**.

5.4.1.2.3.3 When organic peroxides and self-reactive substances are carried under conditions where approval is required (for organic peroxides see 2.2.52.1.8, 4.1.7.2.2 and special provision TA2 of 6.8.4; for self-reactive substances see 2.2.41.1.13 and 4.1.7.2.2, a statement to this effect shall be included in the transport document, e.g. **"Carriage in accordance with 2.2.52.1.8"**.

A copy of the approval of the competent authority with the conditions of carriage shall be attached to the transport document.

5.4.1.2.3.4 When a sample of an organic peroxide (see 2.2.52.1.9) or a self-reactive substance (see 2.2.41.1.15) is carried, a statement to this effect shall be included in the transport document, e.g. **"Carriage in accordance with 2.2.52.1.9"**.

5.4.1.2.3.5 When self-reactive substances type G (see Manual of Tests and Criteria, Part II, paragraph 20.4.2 (g)) are carried, the following statement may be given in the transport document: **"Not a self-reactive substance of Class 4.1"**.

When organic peroxides type G (see Manual of Tests and Criteria, Part II, paragraph 20.4.3 (g)) are carried, the following statement may be given in the transport document: **"Not a substance of Class 5.2"**.

5.4.1.2.4 *Additional provisions for Class 6.2*

- (a) If the infectious substance is a genetically modified substance, the words "genetically modified micro-organisms" shall be added in the transport document;
- (b) *(Reserved)*
- (c) For the carriage of easily perishable substances, appropriate information shall be provided, e.g. "Cool at +2/+4 °C" or "Carry in frozen state" or "Do not freeze".

5.4.1.2.5 *Special provisions for Class 7*

5.4.1.2.5.1 The consignor shall include in the transport documents with each consignment the following information, as applicable in the order given:

- (a) The UN number assigned to the material preceded by the letters "UN";
- (b) The proper shipping name;
- (c) The Class number "7";
- (d) The name or symbol of each radionuclide or, for mixtures of radionuclides, an appropriate general description or a list of the most restrictive nuclides;
- (e) A description of the physical and chemical form of the material, or a notation that the material is special form radioactive material or low dispersible radioactive material. A generic chemical description is acceptable for chemical form;
- (f) The maximum activity of the radioactive contents during carriage expressed in becquerels (Bq) with an appropriate SI prefix (see 1.2.2.1). For fissile material, the mass of fissile material in grams (g), or appropriate multiples thereof, may be used in place of activity;
- (g) The category of the package, i.e. I-WHITE, II-YELLOW, III-YELLOW;
- (h) The transport index (categories II-YELLOW and III-YELLOW only);
- (i) For consignments including fissile material other than consignments excepted under 6.4.11.2, the criticality safety index;
- (j) The identification mark for each competent authority approval certificate (special form radioactive material, low dispersible radioactive material, special arrangement, package design, or shipment) applicable to the consignment;
- (k) For consignments of packages in an overpack or container, a detailed statement of the contents of each package within the overpack or container and, where appropriate, of each overpack or container in the consignment. If packages are to be removed from the overpack or container at a point of intermediate unloading, appropriate transport documents shall be made available;
- (l) Where a consignment is required to be shipped under exclusive use, the statement "EXCLUSIVE USE SHIPMENT"; and
- (m) For LSA-II and LSA-III substances, SCO-I and SCO-II, the total activity of the consignment as a multiple of  $A_2$ .

5.4.1.2.5.2 The consignor shall provide in the transport documents a statement regarding actions, if any, that are required to be taken by the carrier. The statement shall be in the languages deemed necessary by the carrier or the authorities concerned, and shall include at least the following information:

- (a) Supplementary requirements for loading, stowage, carriage, handling and unloading of the package, overpack or container including any special stowage provisions for the safe dissipation of heat (see special provision CV33 (3.2) of 7.5.11), or a statement that no such requirements are necessary;
- (b) Restrictions on the mode of carriage or vehicle and any necessary routing instructions;
- (c) Emergency arrangements appropriate to the consignment.

5.4.1.2.5.3 The applicable competent authority certificates need not necessarily accompany the consignment. The consignor shall make them available to the carrier(s) before loading and unloading.

5.4.1.3 *(Reserved)*

5.4.1.4 *Format and language*

5.4.1.4.1 The document containing the information in 5.4.1.1 and 5.4.1.2 may be that already required by other regulations in force for carriage by another mode of carriage. In case of multiple consignees, the name and address of the consignees and the quantities delivered enabling the nature and quantities carried to be evaluated at any time, may be entered in other documents which are to be used or in any other documents made mandatory according to other specific regulations and which shall be on board the vehicle.

The particulars to be entered in the document shall be drafted in an official language of the forwarding country, and also, if that language is not English, French, or German, in English, French or German, unless international road carriage tariffs, if any, or agreements concluded between the countries concerned in the transport operation, provide otherwise.

5.4.1.4.2 If by reason of the size of the load, a consignment cannot be loaded in its entirety on a single transport unit, at least as many separate documents, or copies of the single document, shall be made out as transport units loaded. Furthermore, in all cases, separate transport documents shall be made out for consignments or parts of consignments which may not be loaded together on the same vehicle by reason of the prohibitions set forth in 7.5.2.

The information relative to the hazards of the goods to be carried (as indicated in 5.4.1.1) may be incorporated in, or combined with, an existing transport or cargo handling document. The layout of the information in the document (or the order of transmission of the corresponding data by electronic data processing (EDP) or electronic data interchange (EDI) techniques) shall be as provided in 5.4.1.1.1.

When an existing transport document or cargo handling document cannot be used for the purposes of dangerous goods documentation for multimodal transport, the use of documents corresponding to the example shown in 5.4.4 is considered advisable<sup>2</sup>.

<sup>2</sup> If used, the relevant recommendations of the UNECE Working Party on Facilitation of International Trade Procedures may be consulted, in particular Recommendation No.1 (United Nations Lay-out Key for Trade Documents) (ECE/TRADE/137, edition 96.1), Recommendation No.11 (Documentary Aspects of the International Transport of Dangerous Goods) ECE/TRADE/204, edition 96.1) and Recommendation No.22



**5.4.1.5 Non-dangerous goods**

When goods mentioned by name in Table A of Chapter 3.2, are not subject to ADR because they are considered as non-dangerous according to Part 2, the consignor may enter in the transport document a statement to that effect, e.g.: "Not goods of Class...."

*NOTE: This provision may be used in particular when the consignor considers that, due to the chemical nature of the goods (e.g. solutions and mixtures) carried or to the fact that such goods are deemed dangerous for other regulatory purposes the consignment might be subject to control during the journey.*

## 5.4.2 Container packing certificate

If the carriage of dangerous goods in a large container precedes a voyage by sea, a container packing certificate conforming to section 5.4.2 of the IMDG Code<sup>3</sup> shall be provided with the transport document<sup>4</sup>.

<sup>3</sup> Guidelines for use in practice and in training for loading goods in transport units have also been drawn up by the International Maritime Organization (IMO), the International Labour Organization (ILO) and the United Nations Economic Commission for Europe (UN/ECE) and have been published by IMO ("IMO/ILO/UN-ECE Guidelines for Packing of Cargo Transport Units (CTUs)").

<sup>4</sup> Section 5.4.2 of the IMDG Code requires the following:

### "5.4.2 Container/vehicle packing certificate

5.4.2.1 When dangerous goods are packed or loaded into any container or vehicle, those responsible for packing the container or vehicle shall provide a "container/vehicle packing certificate" specifying the container/vehicle identification number(s) and certifying that the operation has been carried out in accordance with the following conditions:

- 1 The container/vehicle was clean, dry and apparently fit to receive the goods;
- 2 Packages, which need to be segregated in accordance with applicable segregation requirements, have not been packed together onto or in the container/vehicle [unless approved by the competent authority concerned in accordance with 7.2.2.3 (of the IMDG Code)];
- 3 All packages have been externally inspected for damage, and only sound packages have been loaded;
- 4 Drums have been stowed in an upright position, unless otherwise authorized by the competent authority, and all goods have been properly loaded, and, where necessary, adequately braced with securing material to suit the mode(s) of transport for the intended journey;
- 5 Goods loaded in bulk have been evenly distributed within the container/vehicle;
- 6 For consignments including goods of class 1, other than division 1.4, the container/vehicle is structurally serviceable in conformity with 7.4.6 (of the IMDG Code);
- 7 The container/vehicle and packages are properly marked, labelled, and placarded, as appropriate;
- 8 When solid carbon dioxide (CO<sub>2</sub>-dry ice) is used for cooling purposes, the container/vehicle is externally marked or labelled in a conspicuous place, such as, at the door end, with the words: "DANGEROUS CO<sub>2</sub> GAS (DRY ICE) INSIDE. VENTILATE THOROUGHLY BEFORE ENTERING"; and
- 9 A dangerous goods transport document, as indicated in 5.4.1 (of the IMDG Code) has been received for each dangerous goods consignment loaded in the container/vehicle.

**NOTE:** The container/vehicle packing certificate is not required for tanks

5.4.2.2 The information required in the dangerous goods transport document and the container/vehicle packing certificate may be incorporated into a single document; if not, these documents shall be attached one to the other. If the information is incorporated into a single document, the document shall include a signed declaration such as "It is declared that the packing of the goods into the container/vehicle has been carried out in accordance with the applicable provisions". This declaration shall be dated and the person signing this declaration shall be identified on the document.

The functions of the transport document required under 5.4.1 and of the container packing certificate as provided above may be incorporated into a single document; if not, these documents shall be attached one to the other. If these functions are incorporated into a single document, the inclusion in the transport document of a statement that the loading of the container has been carried out in accordance with the applicable modal regulations together with the identification of the person responsible for the container packing certificate shall be sufficient.

*NOTE: The container packing certificate is not required for portable tanks, tank-containers and MEGCs.*

### 5.4.3 Instructions in writing

5.4.3.1 As a precaution against any accident or emergency that may occur or arise during carriage, the driver shall be given instructions in writing, specifying concisely for each dangerous substance or article carried or for each group of goods presenting the same dangers to which the substance(s) or article(s) carried belong(s):

- (a) the name of the substance or article or group of goods, the Class and the UN number or for a group of goods the UN numbers of the goods for which these instructions are intended or are applicable;
- (b) the nature of the danger inherent in these goods as well as the measures to be taken by the driver and the personal protection equipment to be used by the driver;
- (c) the general actions to be taken, e.g. to warn the road users and passers-by and call the police/fire brigade;
- (d) the additional actions to be taken to deal with minor leakages or spillages to prevent their escalation, if this can be achieved without personal risk;
- (e) the special actions to be taken for certain goods, if applicable;
- (f) the necessary equipment for additional and/or special actions, if applicable.

5.4.3.2 These instructions shall be provided by the consignor and shall be handed out to the driver at the latest when the dangerous goods are loaded on the vehicle. Information on the content of the instructions shall be supplied to the carrier at the latest when the carriage order is given, so as to enable him to take the necessary steps to ensure that the employees concerned are aware of these instructions and are capable of carrying them out properly and to ensure that the necessary equipment is on board the vehicle.

5.4.3.3 The consignor shall be responsible for the content of these instructions. They shall be provided in a language the driver(s) taking over the dangerous goods is (are) able to read and to understand, and in all languages of the countries of origin, transit and destination. In the case of countries with more than one official language, the competent authority shall specify the official language or languages applicable throughout the territory or in each region or part of the territory.

5.4.3.4 These instructions shall be kept readily identifiable in the driver's cab.

5.4.3.5 Instructions in writing according to this section which are not applicable to the goods which are on board of the vehicle, shall be kept separate from pertinent documents in such a way as to prevent confusion.

- 5.4.3.6 The carrier shall ensure that the drivers concerned understand and are capable of carrying out these instructions properly.
- 5.4.3.7 In case of mixed loads of packaged goods including dangerous goods which belong to different groups of goods presenting the same dangers, the instructions in writing may be restricted to one instruction per Class of dangerous goods carried on board of the vehicle. In such case no name of goods, or UN number has to be mentioned in the instructions.
- 5.4.3.8 These instructions shall be drafted according to the following format:

**LOAD**

- Mention of the proper shipping name of the substance or article, or the name of the group of goods presenting the same dangers, the Class and the UN number or for a group of goods the UN numbers of the goods for which these instructions are intended or are applicable.
- Description shall be restricted to e.g. the physical state with indication of any colour and mention of any odour, to aid identification of leakages or spillages.

**NATURE OF DANGER**

Short enumeration of dangers:

- Main danger;
- Additional dangers including possible delayed effects and dangers for the environment;
- Behaviour under fire or heating (decomposition, explosion, development of toxic fumes, etc.);
- If applicable, it shall be mentioned here that the goods carried react dangerously with water.

**PERSONAL PROTECTION**

Mention of the personal protection intended for the driver in accordance with the requirements of 8.1.5 (b) and (c).

**GENERAL ACTIONS TO BE TAKEN BY DRIVER**

Mention of the following instructions:

- Stop the engine;
- No naked lights. No smoking;
- Mark roads and warn other road users or passers-by;
- Inform the public about the hazard and give advice to keep upwind;
- Notify police and fire brigade as soon as possible.

**ADDITIONAL AND/OR SPECIAL ACTIONS TO BE TAKEN BY THE DRIVER**

Appropriate instructions shall be included here as well as the list of equipment necessary for the driver to perform the additional and/or special actions according to the class(es) of the goods being carried (e.g. shovel, collecting container, etc.).

It is considered that drivers of vehicles should be instructed and trained to take additional actions with minor leakages or spillages to prevent their escalation, provided that this can be achieved without personal risk.

It is considered that any special action recommended by the consignor requires a special training of the driver. If applicable, appropriate instructions shall be included here as well as the list of equipment needed for these special actions.

**FIRE**

Information for the driver in case of fire:

Drivers should be instructed during training to deal with minor vehicle fires. They shall not attempt to deal with any fire involving the load.

**FIRST AID**

Information for the driver in case of contact with the carried good(s).

**ADDITIONAL INFORMATION**

\* \* \* \* \*

**5.4.4 Example of a multimodal dangerous goods form**

Example of a form which may be used as a combined dangerous goods declaration and container packing certificate for multimodal carriage of dangerous goods.





## CHAPTER 5.5

## SPECIAL PROVISIONS

- 5.5.1 Special provisions for the consignment of infectious substances in risk groups 3 and 4**
- 5.5.1.1 Unless an infectious substance cannot be consigned by any other means, live vertebrate or invertebrate animals shall not be used to consign such a substance. Such animals shall be packed, marked, indicated, and carried in accordance with the relevant regulations governing the carriage of animals <sup>1</sup>.
- 5.5.1.2 The transport of infectious substances requires co-ordinated action by the consignor, the carrier and the consignee to ensure safety and arrival on time and in proper condition. To this end, the following measures shall be taken:
- (a) *Advance arrangements between consignor, carrier and consignee.* Dispatch of infectious substances shall not take place before advance arrangements have been made between consignor, carrier and consignee or before the consignee has confirmed with his competent authorities that the substances can legally be imported and that no delay will be incurred in the delivery of the consignment to its destination;
  - (b) *Preparation of dispatch documents.* In order to secure transmission without hindrance it is necessary to prepare all dispatch documents, including the transport document (see Chapter 5.4), in strict accordance with rules governing the acceptance of the goods to be dispatched;
  - (c) *Routeing.* Transport shall be by the quickest possible routeing. If transshipment is necessary, precautions shall be taken to ensure special care, expeditious handling and monitoring of the substances in transit;
  - (d) *Timely notification of all transport data by consignor to consignee.* The consignor shall notify the consignee in advance of transport details, such as: means of transport, transport document number and date and hour of expected arrival at the point of destination, so that the consignment can be collected promptly. The most rapid means of communication shall be used for this notification.
- 5.5.1.3 Dead animals which are known or reasonably believed to contain an infectious substance shall be packed, marked, labelled and carried in accordance with the conditions <sup>2</sup> specified by the competent authority of the country of origin <sup>3</sup>.

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<sup>1</sup> Regulations governing the carriage of live animals are contained in, e.g. Directive 91/628/EEC of 19 November 1991 on the protection of animals during transport (Official Journal of the European Communities No. L 340 of 11.12.1991, p.17) and in the Recommendations of the Council of Europe (Ministerial Committee) on the carriage of certain animal species.

<sup>2</sup> Such regulations are contained e.g. in the Council of the European Communities Directive 90/667/EEC of 27.11.1990, laying down the veterinary rules for the disposal and processing of animal waste, for its placing on the market and for the prevention of pathogens in feedstuffs of animal or fish origin and amending Directive 90/425/EEC (Official Journal of the European Communities, No. L 363 of 27.12.1990 p. 0051-0060).

<sup>3</sup> If the country of origin is not a contracting party to ADR, the competent authority of the first country contracting party to ADR reached by the consignment.



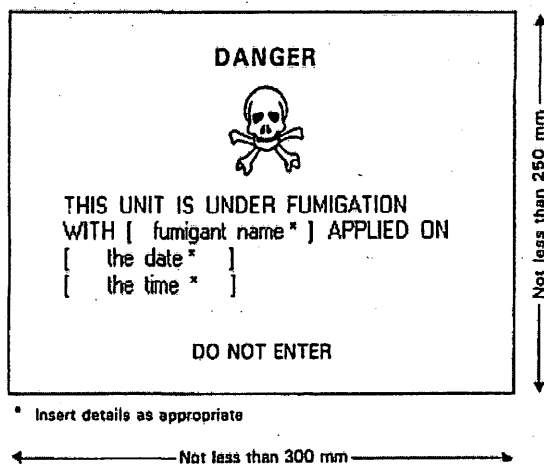
## 5.5.2 Special provisions for fumigated vehicles, containers and tanks

5.5.2.1 For the carriage of UN No. 3359 fumigated unit (vehicle, container or tank) the transport document shall show the information required in 5.4.1.1.1, the date of fumigation and the type and amount of the fumigant used. These particulars shall be drafted in an official language of the forwarding country and also, if the language is not English, French or German, in English, French or German, unless agreements, if any, concluded between the countries concerned in the transport operation provide otherwise. In addition, instructions for disposal of any residual fumigant including fumigation devices (if used) shall be provided.

5.5.2.2 A warning sign as specified in 5.5.2.3 shall be placed on each fumigated vehicle, container or tank in a location where it will be easily seen by persons attempting to enter the interior of vehicle, container or tank. The particulars concerning the warning sign shall be drafted in a language considered appropriate by the consignor.

5.5.2.3 The fumigation warning sign shall be rectangular and shall not be less than 300 mm wide and not less than 250 mm high. The markings shall be black print on a white background with lettering not less than 25 mm high. An illustration of this sign is given in the figure below.

Fumigation warning sign



## **PART 6**

### **Requirements for the construction and testing of packagings, intermediate bulk containers (IBCs), large packagings and tanks**

## CHAPTER 6.1

REQUIREMENTS FOR THE CONSTRUCTION  
AND TESTING OF PACKAGINGS

## 6.1.1 General

6.1.1.1 The requirements of this Chapter do not apply to:

- (a) Packages containing radioactive material of Class 7, unless otherwise provided (see 4.1.9);
- (b) Packages containing infectious substances of Class 6.2, unless otherwise provided (see Chapter 6.3, Note and packing instruction P621 of 4.1.4.1);
- (c) Pressure receptacles containing gases of Class 2;
- (d) Packages whose net mass exceeds 400 kg;
- (e) Packagings with a capacity exceeding 450 litres.

6.1.1.2 The requirements for packagings in 6.1.4 are based on packagings currently used. In order to take into account progress in science and technology, there is no objection to the use of packagings having specifications different from those in 6.1.4, provided that they are equally effective, acceptable to the competent authority and able successfully to withstand the tests described in 6.1.1.3 and 6.1.5. Methods of testing other than those described in this Chapter are acceptable, provided they are equivalent, and are recognized by the competent authority.

6.1.1.3 Every packaging intended to contain liquids shall successfully undergo a suitable leakproofness test, and be capable of meeting the appropriate test level indicated in 6.1.5.4.3:

- (a) before it is first used for carriage;
- (b) after remanufacturing or reconditioning, before it is re-used for carriage;

For this test, packagings need not have their own closures fitted.

The inner receptacle of composite packagings may be tested without the outer packaging provided the test results are not affected.

This test is not necessary for:

- inner packagings of combination packagings;
- inner receptacles of composite packagings (glass, porcelain or stoneware), marked with the symbol "RID/ADR" according to 6.1.3.1 (a) (ii);
- light gauge metal packagings, marked with the symbol "RID/ADR" according to 6.1.3.1 (a) (ii).

6.1.1.4 Packagings shall be manufactured, reconditioned and tested under a quality assurance programme which satisfies the competent authority in order to ensure that each packaging meets the requirements of this Chapter.

6.1.1.5 Manufacturers and subsequent distributors of packagings shall provide information regarding procedures to be followed and a description of the types and dimensions of closures

(including required gaskets) and any other components needed to ensure that packages as presented for carriage are capable of passing the applicable performance tests of this Chapter.

## 6.1.2 Code for designating types of packagings

6.1.2.1 The code consists of:

- (a) an Arabic numeral indicating the kind of packaging, e.g. drum, jerrican, etc., followed by;
- (b) a capital letter(s) in Latin characters indicating the nature of the material, e.g. steel, wood, etc., followed where necessary by;
- (c) an Arabic numeral indicating the category of packaging within the kind to which the packaging belongs.

6.1.2.2 In the case of composite packagings, two capital letters in Latin characters are used in sequence in the second position of the code. The first indicates the material of the inner receptacle and the second that of the outer packaging.

6.1.2.3 In the case of combination packagings only the code number for the outer packaging is used.

6.1.2.4 The letters "T", "V" or "W" may follow the packaging code. The letter "T" signifies a salvage packaging conforming to the requirements of 6.1.5.1.11. The letter "V" signifies a special packaging conforming to the requirements of 6.1.5.1.7. The letter "W" signifies that the packaging, although of the same type indicated by the code, is manufactured to a specification different to that in 6.1.4 and is considered equivalent under the requirements of 6.1.1.2.

6.1.2.5 The following numerals shall be used for the kinds of packaging:

- 1. Drum
- 2. Wooden barrel
- 3. Jerrican
- 4. Box
- 5. Bag
- 6. Composite packaging
- 7. (reserved)
- 0. Light gauge metal packagings

6.1.2.6 The following capital letters shall be used for the types of material:

- A. Steel (all types and surface treatments)
- B. Aluminium
- C. Natural wood
- D. Plywood
- F. Reconstituted wood
- G. Fibreboard
- H. Plastics material
- L. Textile
- M. Paper, multiwall
- N. Metal (other than steel or aluminium)
- P. Glass, porcelain or stoneware

## 6.1.2.7

The following table indicates the codes to be used for designating types of packagings depending on the kind of packagings, the material used for their construction and their category; it also refers to the sub-sections to be consulted for the appropriate requirements:

Kind	Material	Category	Code	Sub-section	
1. Drums	A. Steel	non-removable head	1A1	6.1.4.1	
		removable head	1A2		
	B. Aluminium	non-removable head	1B1	6.1.4.2	
		removable head	1B2		
	D. Plywood		1D	6.1.4.5	
	G. Fibre		1G	6.1.4.7	
	H. Plastics	non-removable head	1H1	6.1.4.8	
		removable head	1H2		
	N. Metal, other than steel or aluminium	non-removable head	1N1	6.1.4.3	
		removable head	1N2		
	2. Barrels	C. Wooden	bung type	2C1	6.1.4.6
			removable head	2C2	
3. Jerricans	A. Steel	non-removable head	3A1	6.1.4.4	
		removable head	3A2		
	B. Aluminium	non-removable head	3B1	6.1.4.4	
		removable head	3B2		
	H. Plastics	non-removable head	3H1	6.1.4.8	
		removable head	3H2		
4. Boxes	A. Steel		4A	6.1.4.14	
	B. Aluminium		4B	6.1.4.14	
	C. Natural wood	ordinary	4C1	6.1.4.9	
		with sift-proof walls	4C2		
	D. Plywood		4D	6.1.4.10	
	F. Reconstituted wood		4F	6.1.4.11	
	G. Fibreboard		4G	6.1.4.12	
	H. Plastics	expanded	4H1	6.1.4.13	
		solid	4H2		
5. Bags	H. Woven plastics	without inner liner or coating	5H1	6.1.4.16	
		sift-proof	5H2		
		water resistant	5H3		
	H. Plastics film		5H4	6.1.4.17	
	L. Textile	without inner liner or coating	5L1	6.1.4.15	
		sift-proof	5L2		
		water resistant	5L3		
	M. Paper	multiwall	5M1	6.1.4.18	
		multiwall, water resistant	5M2		

Kind	Material	Category	Code	Sub-section
6. Composite packagings	H. Plastics receptacle	with outer steel drum	6HA1	6.1.4.19
		with outer steel crate or box	6HA2	6.1.4.19
		with outer aluminium drum	6HB1	6.1.4.19
		with outer aluminium crate or box	6HB2	6.1.4.19
		with outer wooden box	6HC	6.1.4.19
		with outer plywood drum	6HD1	6.1.4.19
		with outer plywood box	6HD2	6.1.4.19
		with outer fibre drum	6HG1	6.1.4.19
		with outer fibreboard box	6HG2	6.1.4.19
		with outer plastics drum	6HH1	6.1.4.19
	with outer solid plastics box	6HH2	6.1.4.19	
	P. Glass, porcelain or stoneware receptacle	with outer steel drum	6PA1	6.1.4.20
		with outer steel crate or box	6PA2	6.1.4.20
		with outer aluminium drum	6PB1	6.1.4.20
		with outer aluminium crate or box	6PB2	6.1.4.20
		with outer wooden box	6PC	6.1.4.20
		with outer plywood drum	6PD1	6.1.4.20
		with outer wickerwork hamper	6PD2	6.1.4.20
		with outer fibre drum	6PG1	6.1.4.20
		with outer fibreboard box	6PG2	6.1.4.20
with outer expanded plastics packaging		6PH1	6.1.4.20	
with outer solid plastics packaging	6PH2	6.1.4.20		
0. Light gauge metal packagings	A. Steel	non-removable head	0A1	6.1.4.22
		removable head	0A2	

### 6.1.3 Marking

**NOTE 1:** The marking indicates that the packaging which bears it corresponds to a successfully tested design type and that it complies with the requirements of this Chapter which are related to the manufacture, but not to the use, of the packaging. In itself, therefore, the mark does not necessarily confirm that the packaging may be used for any substance: generally the type of packaging (e.g. steel drum), its maximum capacity and/or mass, and any special requirements are specified for each substance in Table A of Chapter 3.2.

**NOTE 2:** The marking is intended to be of assistance to packaging manufacturers, reconditioners, packaging users, carriers and regulatory authorities. In relation to the use of a new packaging, the original marking is a means for its manufacturer(s) to identify the type and to indicate those performance test regulations that have been met.

**NOTE 3:** The marking does not always provide full details of the test levels, etc., and these may need to be taken further into account, e.g. by reference to a test certificate, to test reports or to a register of successfully tested packagings. For example, a packaging having an X or Y marking may be used for substances to which a packing group having a lesser degree of danger has been assigned with the relevant maximum permissible value of the relative density<sup>1</sup> determined by taking into account the factor 1.5 or 2.25 indicated in the packaging test requirements in 6.1.5 as appropriate, i.e. packing group I packaging tested for products of relative density 1.2 could be used as a packing group II packaging for products of relative density 1.8 or a packing group III packaging for products of relative density 2.7, provided of course that all the performance criteria can still be met with the higher relative density product.

#### 6.1.3.1

Each packaging intended for use according to the ADR shall bear markings which are durable, legible and placed in a location and of such a size relative to the packaging as to be readily visible. For packages with a gross mass of more than 30 kg, the markings or a duplicate thereof shall appear on the top or on a side of the packaging. Letters, numerals and symbols shall be at least 12 mm high, except for packagings of 30 litres or 30 kg capacity or less, when they shall be at least 6 mm in height and for packagings of 5 litres or 5 kg or less when they shall be of an appropriate size.

The marking shall show:

- (a) (i) The United Nations packaging symbol



This shall not be used for any purpose other than certifying that a packaging complies with the relevant requirements in this Chapter. For embossed metal packagings the capital letters "UN" may be applied instead of the symbol; or

- (ii) The symbol "RID/ADR" for packagings approved for rail transport as well as road transport.

For composite packagings (glass, porcelain or stoneware) and light gauge metal packagings, conforming to simplified conditions (see 6.1.1.3, 6.1.5.3.1 (e), 6.1.5.3.4 (c), 6.1.5.4, 6.1.5.5.1 and 6.1.5.6);

- (b) The code designating the type of packaging according to 6.1.2;

<sup>1</sup> Relative density (d) is considered to be synonymous with Specific Gravity (SG) and is used throughout this text.

(c) A code in two parts:

(i) a letter designating the packing group(s) for which the design type has been successfully tested:

X for packing groups I, II and III;

Y for packing groups II and III;

Z for packing group III only;

(ii) the relative density, rounded off to the first decimal, for which the design type has been tested for packagings without inner packagings intended to contain liquids; this may be omitted when the relative density does not exceed 1.2. For packagings intended to contain solids or inner packagings, the maximum gross mass in kilograms.

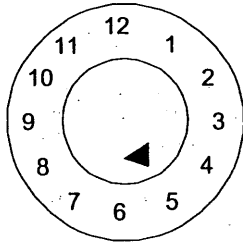
For light-gauge metal packagings, marked with the symbol "RID/ADR" according to 6.1.3.1 (a) (ii) intended to contain liquids having a viscosity at 23 °C exceeding 200 mm<sup>2</sup>/s, the maximum gross mass in kg;

(d) Either the letter "S" denoting that the packaging is intended for the carriage of solids or inner packagings or, for packagings (other than combination packagings) intended to contain liquids, the hydraulic test pressure which the packaging was shown to withstand in kPa rounded down to the nearest 10 kPa.

For light-gauge metal packagings, marked with the symbol "RID/ADR, according to 6.1.3.1(a) (ii) intended to contain liquids having a viscosity at 23 °C exceeding 200 mm<sup>2</sup>/s, the letter "S";

*NOTE: The requirements of subparagraph (d) do not apply to packagings intended for the carriage of substances classified under UN Nos. 2814 or 2900 of Class 6.2.*

(e) The last two digits of the year during which the packaging was manufactured. Packagings of types 1H and 3H shall also be appropriately marked with the month of manufacture; this may be marked on the packaging in a different place from the remainder of the marking. An appropriate method is:



(f) The State authorizing the allocation of the mark, indicated by the distinguishing sign for motor vehicles in international traffic <sup>2</sup>:

(g) The name of the manufacturer or other identification of the packaging specified by the competent authority.

<sup>2</sup> Distinguishing sign for motor vehicles in international traffic prescribed in Vienna Convention on Road Traffic (1968).








- 6.1.3.2 In addition to the durable markings prescribed in 6.1.3.1, every new metal drum of a capacity greater than 100 litres shall bear the marks described in 6.1.3.1 (a) to (e) on the bottom, with an indication of the nominal thickness of at least the metal used in the body (in mm, to 0.1 mm), in permanent form (e.g. embossed). When the nominal thickness of either head of a metal drum is thinner than that of the body, the nominal thickness of the top head, body, and bottom head shall be marked on the bottom in permanent form (e.g. embossed), for example "1.0-1.2-1.0" or "0.9-1.0-1.0". Nominal thickness of metal shall be determined according to the appropriate ISO standard, for example ISO 3574:1999 for steel. The marks indicated in 6.1.3.1 (f) and (g) shall not be applied in a permanent form except as provided in 6.1.3.5.
- 6.1.3.3 Every packaging other than those referred to in 6.1.3.2 liable to undergo a reconditioning process shall bear the marks indicated in 6.1.3.1 (a) to (e) in a permanent form. Marks are permanent if they are able to withstand the reconditioning process (e.g. embossed). For packagings other than metal drums of a capacity greater than 100 litres, these permanent marks may replace the corresponding durable markings prescribed in 6.1.3.1.
- 6.1.3.4 For remanufactured metal drums, if there is no change to the packaging type and no replacement or removal of integral structural components, the required markings need not be permanent. Every other remanufactured metal drum shall bear the markings in 6.1.3.1 (a) to (e) in a permanent form (e.g. embossed) on the top head or side.
- 6.1.3.5 Metal drums made from materials (e.g. stainless steel) designed to be reused repeatedly may bear the markings indicated in 6.1.3.1 (f) and (g) in a permanent form (e.g. embossed).
- 6.1.3.6 The marking in accordance with 6.1.3.1 is valid for only one design type or series of design types. Different surface treatments may fall within the same design type.
- A "series of design types" means packagings of the same structural design, wall thickness, material and cross-section, which differ only in their lesser design heights from the design type approved.
- The closures of receptacles shall be identifiable as those referred to in the test report.
- 6.1.3.7 Marking shall be applied in the sequence of the sub-paragraphs in 6.1.3.1; each element of the marking required in these sub-paragraphs and when appropriate sub-paragraphs (h) to (j) of 6.1.3.8 shall be clearly separated, e.g. by a slash or space, so as to be easily identifiable. For examples, see 6.1.3.11.
- Any additional markings authorized by a competent authority shall still enable the parts of the mark to be correctly identified with reference to 6.1.3.1.
- 6.1.3.8 After reconditioning a packaging, the reconditioner shall apply to it a durable marking showing, in the following sequence:
- (h) The State in which the reconditioning was carried out, indicated by the distinguishing sign for motor vehicles in international traffic<sup>2</sup>;
  - (i) The name of the reconditioner or other identification of the packaging specified by the competent authority;
  - (j) The year of reconditioning; the letter "R"; and, for every packaging successfully passing the leakproofness test in 6.1.1.3, the additional letter "L".

<sup>2</sup> *Distinguishing sign for motor vehicles in international traffic prescribed in Vienna Convention on Road Traffic (1968).*



6.1.3.9 When, after reconditioning, the markings required by 6.1.3.1 (a) to (d) no longer appear on the top head or the side of a metal drum, the reconditioner also shall apply them in a durable form followed by 6.1.3.8 (h), (i) and (j). These markings shall not identify a greater performance capability than that for which the original design type had been tested and marked.

6.1.3.10 Packagings manufactured with recycled plastics material as defined in 1.2.1 shall be marked "REC". This mark shall be placed near the mark prescribed in 6.1.3.1.


6.1.3.11 *Examples of markings for NEW packagings*

	4G/Y145/S/83 NL/VL823	as in 6.1.3.1 (a) (i), (b), (c), (d) and (e) as in 6.1.3.1 (f) and (g)	For a new fibreboard box
	1A1/Y1.4/150/83 NL/VL824	as in 6.1.3.1 (a) (i), (b), (c), (d) and (e) as in 6.1.3.1 (f) and (g)	For a new steel drum to contain liquids
	1A2/Y150/S/83 NL/VL825	as in 6.1.3.1 (a) (i), (b), (c), (d) and (e) as in 6.1.3.1 (f) and (g)	For a new steel drum to contain solids, or inner packagings
	4HW/Y136/S/83 NL/VL826	as in 6.1.3.1 (a) (i), (b), (c), (d) and (e) as in 6.1.3.1 (f) and (g)	For a new plastics box of equivalent specification
	1A2/Y/100/91 USA/MM5	as in 6.1.3.1 (a) (i), (b), (c), (d) and (e) as in 6.1.3.1 (f) and (g)	For a remanufactured steel drum to contain liquids
	RID/ADR/0A1/100/83 NL/VL123	as in 6.1.3.1 (a) (ii), (b), (c), (d) and (e) as in 6.1.3.1 (f) and (g)	For a new light gauge metal packaging, non-removable head
	RID/ADR/0A2/Y20/S/83 NL/VL124	as in 6.1.3.1 (a) (ii), (b), (c), (d) and (e) as in 6.1.3.1 (f) and (g)	For a new light gauge metal packaging, removable head, intended to contain solids, or liquids with a viscosity at 23 °C exceeding 200 mm <sup>2</sup> /s.

6.1.3.12 *Examples of markings for RECONDITIONED packagings*

	1A1/Y1.4/150/83 NL/RB/85 RL	as in 6.1.3.1 (a) (i), (b), (c), (d) and (e) as in 6.1.3.8 (h), (i) and (j)
	1A2/Y150/S/83 USA/RB/85 R	as in 6.1.3.1 (a) (i), (b), (c), (d) and (e) as in 6.1.3.8 (h), (i) and (j)

6.1.3.13 *Example of marking for SALVAGE packagings*

	1A2T/Y300/S/94 USA/abc	as in 6.1.3.1 (a) (i), (b), (c), (d) and (e) as in 6.1.3.1 (f) and (g)
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**NOTE:** The markings, for which examples are given in 6.1.3.11, 6.1.3.12 and 6.1.3.13 may be applied in a single line or in multiple lines provided the correct sequence is respected.

**6.1.3.14 Certification**

By affixing marking in accordance with 6.1.3.1, it is certified that mass-produced packagings correspond to the approved design type and that the requirements referred to in the approval have been met.

**6.1.4 Requirements for packagings****6.1.4.1 Steel drums**

1A1 non-removable head

1A2 removable head

6.1.4.1.1 Body and heads shall be constructed of steel sheet of a suitable type and of adequate thickness in relation to the capacity of the drum and to its intended use.

6.1.4.1.2 Body seams shall be welded on drums intended to contain more than 40 litres of liquid. Body seams shall be mechanically seamed or welded on drums intended to contain solids or 40 litres or less of liquids.

6.1.4.1.3 Chimes shall be mechanically seamed or welded. Separate reinforcing rings may be applied.

6.1.4.1.4 The body of a drum of a capacity greater than 60 litres shall, in general, have at least two expanded rolling hoops or, alternatively, at least two separate rolling hoops. If there are separate rolling hoops they shall be fitted tightly on the body and so secured that they cannot shift. Rolling hoops shall not be spot welded.

6.1.4.1.5 Openings for filling, emptying and venting in the bodies or heads of non-removable head (1A1) drums shall not exceed 7 cm in diameter. Drums with larger openings are considered to be of the removable head type (1A2). Closures for openings in the bodies and heads of drums shall be so designed and applied that they will remain secure and leakproof under normal conditions of carriage. Closure flanges may be mechanically seamed or welded in place. Gaskets or other sealing elements shall be used with closures, unless the closure is inherently leakproof.

6.1.4.1.6 Closure devices for removable head (1A2) drums shall be so designed and applied that they will remain secure and drums will remain leakproof under normal conditions of carriage. Gaskets or other sealing elements shall be used with all removable heads.

6.1.4.1.7 If materials used for body, heads, closures and fittings are not in themselves compatible with the contents to be carried, suitable internal protective coatings or treatments shall be applied. These coatings or treatments shall retain their protective properties under normal conditions of carriage.

6.1.4.1.8 Maximum capacity of drum: 450 litres.

6.1.4.1.9 Maximum net mass: 400 kg.

**6.1.4.2 Aluminium drums**

1B1 non-removable head

1B2 removable head

6.1.4.2.1 Body and heads shall be constructed of aluminium at least 99% pure or of an aluminium base alloy. Material shall be of a suitable type and of adequate thickness in relation to the capacity of the drum and to its intended use.

- 6.1.4.2.2 All seams shall be welded. Chime seams, if any, shall be reinforced by the application of separate reinforcing rings.
- 6.1.4.2.3 The body of a drum of a capacity greater than 60 litres shall, in general, have at least two expanded rolling hoops or, alternatively, at least two separate rolling hoops. If there are separate rolling hoops they shall be fitted tightly on the body and so secured that they cannot shift. Rolling hoops shall not be spot welded.
- 6.1.4.2.4 Openings for filling, emptying and venting in the bodies or heads of non-removable head (1B1) drums shall not exceed 7 cm in diameter. Drums with larger openings are considered to be of the removable head type (1B2). Closures for openings in the bodies and heads of drums shall be so designed and applied that they will remain secure and leakproof under normal conditions of carriage. Closure flanges shall be welded in place so that the weld provides a leakproof seam. Gaskets or other sealing elements shall be used with closures, unless the closure is inherently leakproof.
- 6.1.4.2.5 Closure devices for removable head (1B2) drums shall be so designed and applied that they will remain secure and drums will remain leakproof under normal conditions of carriage. Gaskets or other sealing elements shall be used with all removable heads.
- 6.1.4.2.6 Maximum capacity of drum: 450 litres.
- 6.1.4.2.7 Maximum net mass: 400 kg.
- 6.1.4.3 ***Drums of metal other than aluminium or steel***
- 1N1 non-removable head  
1N2 removable head
- 6.1.4.3.1 The body and heads shall be constructed of a metal or of a metal alloy other than steel or aluminium. Material shall be of a suitable type and of adequate thickness in relation to the capacity of the drum and to its intended use.
- 6.1.4.3.2 Chime seams, if any, shall be reinforced by the application of separate reinforcing rings. All seams, if any, shall be joined (welded, soldered, etc.) in accordance with the technical state of the art for the used metal or metal alloy.
- 6.1.4.3.3 The body of a drum of a capacity greater than 60 litres shall, in general, have at least two expanded rolling hoops or, alternatively, at least two separate rolling hoops. If there are separate rolling hoops they shall be fitted tightly on the body and so secured that they cannot shift. Rolling hoops shall not be spot welded.
- 6.1.4.3.4 Openings for filling, emptying and venting in the bodies or heads of non-removable head (1N1) drums shall not exceed 7 cm in diameter. Drums with larger openings are considered to be of the removable head type (1N2). Closures for openings in the bodies and heads of drums shall be so designed and applied that they will remain secure and leakproof under normal conditions of carriage. Closure flanges shall be joined in place (welded, soldered, etc.) in accordance with the technical state of the art for the used metal or metal alloy so that the seam join is leakproof. Gaskets or other sealing elements shall be used with closures, unless the closure is inherently leakproof.
- 6.1.4.3.5 Closure devices for removable head (1N2) drums shall be so designed and applied that they will remain secure and drums will remain leakproof under normal conditions of carriage. Gaskets or other sealing elements shall be used with all removable heads.

6.1.4.3.6 Maximum capacity of drum: 450 litres.

6.1.4.3.7 Maximum net mass: 400 kg.

**6.1.4.4 *Steel or aluminium jerricans***

3A1 steel, non-removable head

3A2 steel, removable head

3B1 aluminium, non-removable head

3B2 aluminium, removable head

6.1.4.4.1 Body and heads shall be constructed of steel sheet, of aluminium at least 99% pure or of an aluminium base alloy. Material shall be of a suitable type and of adequate thickness in relation to the capacity of the jerrican and to its intended use.

6.1.4.4.2 Chimes of steel jerricans shall be mechanically seamed or welded. Body seams of steel jerricans intended to contain more than 40 litres of liquid shall be welded. Body seams of steel jerricans intended to contain 40 litres or less shall be mechanically seamed or welded. For aluminium jerricans, all seams shall be welded. Chime seams, if any, shall be reinforced by the application of a separate reinforcing ring.

6.1.4.4.3 Openings in non-removable head jerricans (3A1 and 3B1) shall not exceed 7 cm in diameter. Jerricans with larger openings are considered to be of the removable head type (3A2 and 3B2). Closures shall be so designed that they will remain secure and leakproof under normal conditions of carriage. Gaskets or other sealing elements shall be used with closures, unless the closure is inherently leakproof.

6.1.4.4.4 If materials used for body, heads, closures and fittings are not in themselves compatible with the contents to be carried, suitable internal protective coatings or treatments shall be applied. These coatings or treatments shall retain their protective properties under normal conditions of carriage.

6.1.4.4.5 Maximum capacity of jerrican: 60 litres.

6.1.4.4.6 Maximum net mass: 120 kg.

**6.1.4.5 *Plywood drums***

1D

6.1.4.5.1 The wood used shall be well seasoned, commercially dry and free from any defect likely to lessen the effectiveness of the drum for the purpose intended. If a material other than plywood is used for the manufacture of the heads, it shall be of a quality equivalent to the plywood.

6.1.4.5.2 At least two-ply plywood shall be used for the body and at least three-ply plywood for the heads; the plies shall be firmly glued together by a water resistant adhesive with their grain crosswise.

6.1.4.5.3 The body and heads of the drum and their joins shall be of a design appropriate to the capacity of the drum and to its intended use.

6.1.4.5.4 In order to prevent sifting of the contents, lids shall be lined with kraft paper or some other equivalent material which shall be securely fastened to the lid and extend to the outside along its full circumference.

6.1.4.5.5 Maximum capacity of drum: 250 litres.

6.1.4.5.6 Maximum net mass: 400 kg.

**6.1.4.6 *Wooden barrels***

2C1 bung type

2C2 removable head

6.1.4.6.1 The wood used shall be of good quality, straight grained, well seasoned and free from knots, bark, rotten wood, sapwood or other defects likely to lessen the effectiveness of the barrel for the purpose intended.

6.1.4.6.2 The body and heads shall be of a design appropriate to the capacity of the barrel and to its intended use.

6.1.4.6.3 Staves and heads shall be sawn or cleft with the grain so that no annual ring extends over more than half the thickness of a stave or head.

6.1.4.6.4 Barrel hoops shall be of steel or iron of good quality. The hoops of removable head (2C2) barrels may be of a suitable hardwood.

6.1.4.6.5 Wooden barrels 2C1: the diameter of the bunghole shall not exceed half the width of the stave in which it is placed.

6.1.4.6.6 Wooden barrels 2C2: heads shall fit tightly into the crozes.

6.1.4.6.7 Maximum capacity of barrel: 250 litres.

6.1.4.6.8 Maximum net mass: 400 kg.

**6.1.4.7 *Fibre drums***

1G

6.1.4.7.1 The body of the drum shall consist of multiple plies of heavy paper or fibreboard (without corrugations) firmly glued or laminated together and may include one or more protective layers of bitumen, waxed kraft paper, metal foil, plastics material, etc.

6.1.4.7.2 Heads shall be of natural wood, fibreboard, metal, plywood, plastics or other suitable material and may include one or more protective layers of bitumen, waxed kraft paper, metal foil, plastics material, etc.

6.1.4.7.3 The body and heads of the drum and their joints shall be of a design appropriate to the capacity of the drum and to its intended use.

6.1.4.7.4 The assembled packaging shall be sufficiently water resistant so as not to delaminate under normal conditions of carriage.

6.1.4.7.5 Maximum capacity of drum: 450 litres.

6.1.4.7.6 Maximum net mass: 400 kg.

**6.1.4.8** *Plastics drums and jerricans*

- 1H1 drums, non-removable head
- 1H2 drums, removable head
- 3H1 jerricans, non-removable head
- 3H2 jerricans, removable head

- 6.1.4.8.1 The packaging shall be manufactured from suitable plastics material and be of adequate strength in relation to its capacity and intended use. Except for recycled plastics material as defined in 1.2.1, no used material other than production residues or regrind from the same manufacturing process may be used. The packaging shall be adequately resistant to ageing and to degradation caused either by the substance contained or by ultra-violet radiation. Any permeation of the substance contained in the package, or recycled plastics material used to produce new packaging, shall not constitute a danger under normal conditions of carriage.
- 6.1.4.8.2 If protection against ultra-violet radiation is required, it shall be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives shall be compatible with the contents and remain effective throughout the life of the packaging. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, retesting may be waived if the carbon black content does not exceed 2% by mass or if the pigment content does not exceed 3% by mass; the content of inhibitors of ultra-violet radiation is not limited.
- 6.1.4.8.3 Additives serving purposes other than protection against ultra-violet radiation may be included in the composition of the plastics material provided that they do not adversely affect the chemical and physical properties of the material of the packaging. In such circumstances, retesting may be waived.
- 6.1.4.8.4 The wall thickness at every point of the packaging shall be appropriate to its capacity and intended use, taking into account the stresses to which each point is liable to be exposed.
- 6.1.4.8.5 Openings for filling, emptying and venting in the bodies or heads of non-removable head drums (1H1) and jerricans (3H1) shall not exceed 7 cm in diameter. Drums and jerricans with larger openings are considered to be of the removable head type (1H2 and 3H2). Closures for openings in the bodies or heads of drums and jerricans shall be so designed and applied that they will remain secure and leakproof under normal conditions of carriage. Gaskets or other sealing elements shall be used with closures unless the closure is inherently leakproof.
- 6.1.4.8.6 Closure devices for removable head drums and jerricans (1H2 and 3H2) shall be so designed and applied that they will remain secure and leakproof under normal conditions of carriage. Gaskets shall be used with all removable heads unless the drum or jerrican design is such that, where the removable head is properly secured, the drum or jerrican is inherently leakproof.
- 6.1.4.8.7 The maximum permissible permeability for flammable liquids shall be 0.008 g/l.h at 23 °C (see 6.1.5.8).
- 6.1.4.8.8 Where recycled plastics material is used for production of new packaging, the specific properties of the recycled material shall be assured and documented regularly as part of a quality assurance programme recognised by the competent authority. The quality assurance programme shall include a record of proper pre-sorting and verification that each batch of recycled plastics material has the proper melt flow rate, density, and tensile yield strength, consistent with that of the design type manufactured from such recycled material. This necessarily includes knowledge about the packaging material from which the recycled plastics have been derived, as well as the awareness of the prior contents of those packagings

if those prior contents might reduce the capability of new packaging produced using that material. In addition, the packaging manufacturer's quality assurance programme under 6.1.1.4 shall include performance of the mechanical design type test in 6.1.5 on packagings manufactured from each batch of recycled plastics material. In this testing, stacking performance may be verified by appropriate dynamic compression testing rather than static load testing.

6.1.4.8.9 Maximum capacity of drums and jerricans: 1H1, 1H2: 450 litres  
3H1, 3H2: 60 litres.

6.1.4.8.10 Maximum net mass: 1H1, 1H2: 400 kg  
3H1, 3H2: 120 kg.

**6.1.4.9 *Boxes of natural wood***

4C1 ordinary  
4C2 with sift-proof walls

6.1.4.9.1 The wood used shall be well seasoned, commercially dry and free from defects that would materially lessen the strength of any part of the box. The strength of the material used and the method of construction shall be appropriate to the capacity and intended use of the box. The tops and bottoms may be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type.

6.1.4.9.2 Fastenings shall be resistant to vibration experienced under normal conditions of carriage. End grain nailing shall be avoided whenever practicable. Joins which are likely to be highly stressed shall be made using clenched or annular ring nails or equivalent fastenings.

6.1.4.9.3 Box 4C2: each part shall consist of one piece or be equivalent thereto. Parts are considered equivalent to one piece when one of the following methods of glued assembly is used: Lindermann joint, tongue and groove joint, ship lap or rabbet joint or butt joint with at least two corrugated metal fasteners at each joint.

6.1.4.9.4 Maximum net mass: 400 kg.

**6.1.4.10 *Plywood boxes***

4D

6.1.4.10.1 Plywood used shall be at least 3-ply. It shall be made from well seasoned rotary cut, sliced or sawn veneer, commercially dry and free from defects that would materially lessen the strength of the box. The strength of the material used and the method of construction shall be appropriate to the capacity and intended use of the box. All adjacent plies shall be glued with water resistant adhesive. Other suitable materials may be used together with plywood in the construction of boxes. Boxes shall be firmly nailed or secured to corner posts or ends or be assembled by equally suitable devices.

6.1.4.10.2 Maximum net mass: 400 kg.

**6.1.4.11 *Reconstituted wood boxes***

4F

6.1.4.11.1 The walls of boxes shall be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type. The strength of the material used and the method of construction shall be appropriate to the capacity of the boxes and to their intended use.



6.1.4.11.2 Other parts of the boxes may be made of other suitable material.

6.1.4.11.3 Boxes shall be securely assembled by means of suitable devices.

6.1.4.11.4 Maximum net mass: 400 kg.

**6.1.4.12 Fibreboard boxes**

4G

6.1.4.12.1 Strong and good quality solid or double-faced corrugated fibreboard (single or multiwall) shall be used, appropriate to the capacity of the box and to its intended use. The water resistance of the outer surface shall be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than  $155 \text{ g/m}^2$  - see ISO 535:1991. It shall have proper bending qualities. Fibreboard shall be cut, creased without scoring, and slotted so as to permit assembly without cracking, surface breaks or undue bending. The fluting of corrugated fibreboard shall be firmly glued to the facings.

6.1.4.12.2 The ends of boxes may have a wooden frame or be entirely of wood or other suitable material. Reinforcements of wooden battens or other suitable material may be used.

6.1.4.12.3 Manufacturing joins in the body of boxes shall be taped, lapped and glued, or lapped and stitched with metal staples. Lapped joins shall have an appropriate overlap.

6.1.4.12.4 Where closing is effected by gluing or taping, a water resistant adhesive shall be used.

6.1.4.12.5 Boxes shall be designed so as to provide a good fit to the contents.

6.1.4.12.6 Maximum net mass: 400 kg.

**6.1.4.13 Plastics boxes**

4H1 expanded plastics boxes

4H2 solid plastics boxes

6.1.4.13.1 The box shall be manufactured from suitable plastics material and be of adequate strength in relation to its capacity and intended use. The box shall be adequately resistant to ageing and to degradation caused either by the substance contained or by ultra-violet radiation.

6.1.4.13.2 An expanded plastics box shall comprise two parts made of a moulded expanded plastics material, a bottom section containing cavities for the inner packagings and a top section covering and interlocking with the bottom section. The top and bottom sections shall be designed so that the inner packagings fit snugly. The closure cap for any inner packaging shall not be in contact with the inside of the top section of this box.

6.1.4.13.3 For dispatch, an expanded plastics box shall be closed with a self-adhesive tape having sufficient tensile strength to prevent the box from opening. The adhesive tape shall be weather resistant and its adhesive compatible with the expanded plastics material of the box. Other closing devices at least equally effective may be used.

6.1.4.13.4 For solid plastics boxes, protection against ultra-violet radiation, if required, shall be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives shall be compatible with the contents and remain effective throughout the life of the box. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, retesting may be waived if the carbon black

content does not exceed 2% by mass or if the pigment content does not exceed 3% by mass; the content of inhibitors of ultra-violet radiation is not limited.

6.1.4.13.5 Additives serving purposes other than protection against ultra-violet radiation may be included in the composition of the plastics material provided that they do not adversely affect the chemical or physical properties of the material of the box. In such circumstances, retesting may be waived.

6.1.4.13.6 Solid plastics boxes shall have closure devices made of a suitable material of adequate strength and so designed as to prevent the box from unintentional opening.

6.1.4.13.7 Where recycled plastics material is used for production of new packaging, the specific properties of the recycled material shall be assured and documented regularly as part of a quality assurance programme recognised by the competent authority. The quality assurance programme shall include a record of proper pre-sorting and verification that each batch of recycled plastics material has the proper melt flow rate, density, and tensile yield strength, consistent with that of the design type manufactured from such recycled material. This necessarily includes knowledge about the packaging material from which the recycled plastics have been derived, as well as the awareness of the prior contents of those packagings if those prior contents might reduce the capability of new packaging produced using that material. In addition, the packaging manufacturer's quality assurance programme under 6.1.1.4 shall include performance of the mechanical design type test in 6.1.5 on packagings manufactured from each batch of recycled plastics material. In this testing, stacking performance may be verified by appropriate dynamic compression testing rather than static load testing.

6.1.4.13.8 Maximum net mass            4H1: 60 kg  
   4H2: 400 kg.

6.1.4.14 ***Steel or aluminium boxes***

- 4A steel
- 4B aluminium

6.1.4.14.1 The strength of the metal and the construction of the box shall be appropriate to the capacity of the box and to its intended use.

6.1.4.14.2 Boxes shall be lined with fibreboard or felt packing pieces or shall have an inner liner or coating of suitable material, as required. If a double seamed metal liner is used, steps shall be taken to prevent the ingress of substances, particularly explosives, into the recesses of the seams.

6.1.4.14.3 Closures may be of any suitable type; they shall remain secured under normal conditions of carriage.

6.1.4.14.4 Maximum net mass: 400 kg.

6.1.4.15 ***Textile bags***

- 5L1 without inner liner or coating
- 5L2 sift-proof
- 5L3 water resistant

6.1.4.15.1 The textiles used shall be of good quality. The strength of the fabric and the construction of the bag shall be appropriate to the capacity of the bag and to its intended use.

- 6.1.4.15.2 Bags, sift-proof, 5L2: the bag shall be made sift-proof, for example by the use of:
- (a) paper bonded to the inner surface of the bag by a water resistant adhesive such as bitumen; or
  - (b) plastics film bonded to the inner surface of the bag; or
  - (c) one or more inner liners made of paper or plastics material.
- 6.1.4.15.3 Bags, water resistant, 5L3: to prevent the entry of moisture the bag shall be made waterproof, for example by the use of:
- (a) separate inner liners of water resistant paper (e.g. waxed kraft paper, tarred paper or plastics-coated kraft paper); or
  - (b) plastics film bonded to the inner surface of the bag; or
  - (c) one or more inner liners made of plastics material.
- 6.1.4.15.4 Maximum net mass: 50 kg.
- 6.1.4.16 *Woven plastics bags***
- 5H1 without inner liner or coating  
 5H2 sift-proof  
 5H3 water resistant
- 6.1.4.16.1 Bags shall be made from stretched tapes or monofilaments of a suitable plastics material. The strength of the material used and the construction of the bag shall be appropriate to the capacity of the bag and to its intended use.
- 6.1.4.16.2 If the fabric is woven flat, the bags shall be made by sewing or some other method ensuring closure of the bottom and one side. If the fabric is tubular, the bag shall be closed by sewing, weaving or some other equally strong method of closure.
- 6.1.4.16.3 Bags, sift-proof, 5H2: the bag shall be made sift-proof, for example by means of:
- (a) paper or a plastics film bonded to the inner surface of the bag; or
  - (b) one or more separate inner liners made of paper or plastics material.
- 6.1.4.16.4 Bags, water resistant, 5H3: to prevent the entry of moisture, the bag shall be made waterproof, for example by means of:
- (a) separate inner liners of water resistant paper (e.g. waxed kraft paper, double-tarred kraft paper or plastics-coated kraft paper); or
  - (b) plastics film bonded to the inner or outer surface of the bag; or
  - (c) one or more inner plastics liners.
- 6.1.4.16.5 Maximum net mass: 50 kg.

**6.1.4.17** *Plastics film bags*

5H4

6.1.4.17.1 Bags shall be made of a suitable plastics material. The strength of the material used and the construction of the bag shall be appropriate to the capacity of the bag and to its intended use. Joins and closures shall withstand pressures and impacts liable to occur under normal conditions of carriage.

6.1.4.17.2 Maximum net mass: 50 kg.

**6.1.4.18** *Paper bags*

5M1 multiwall

5M2 multiwall, water resistant

6.1.4.18.1 Bags shall be made of a suitable kraft paper or of an equivalent paper with at least three plies, the middle ply of which may be net-cloth and adhesive bonding to the outer paper plies. The strength of the paper and the construction of the bags shall be appropriate to the capacity of the bag and to its intended use. Joins and closures shall be sift-proof.

6.1.4.18.2 Bags 5M2: to prevent the entry of moisture, a bag of four plies or more shall be made waterproof by the use of either a water resistant ply as one of the two outermost plies or a water resistant barrier made of a suitable protective material between the two outermost plies; a bag of three plies shall be made waterproof by the use of a water resistant ply as the outermost ply. Where there is a danger of the substance contained reacting with moisture or where it is packed damp, a waterproof ply or barrier, such as double-tarred kraft paper, plastics-coated kraft paper, plastics film bonded to the inner surface of the bag, or one or more inner plastics liners, shall also be placed next to the substance. Joins and closures shall be waterproof.

6.1.4.18.3 Maximum net mass : 50 kg.

**6.1.4.19** *Composite packagings (plastics material)*

- 6HA1 plastics receptacle with outer steel drum
- 6HA2 plastics receptacle with outer steel crate or box
- 6HB1 plastics receptacle with outer aluminium drum
- 6HB2 plastics receptacle with outer aluminium crate or box
- 6HC plastics receptacle with outer wooden box
- 6HD1 plastics receptacle with outer plywood drum
- 6HD2 plastics receptacle with outer plywood box
- 6HG1 plastics receptacle with outer fibre drum
- 6HG2 plastics receptacle with outer fibreboard box
- 6HH1 plastics receptacle with outer plastics drum
- 6HH2 plastics receptacle with outer solid plastics box

**6.1.4.19.1** *Inner receptacle*

6.1.4.19.1.1 The requirements of 6.1.4.8.1 and 6.1.4.8.4 to 6.1.4.8.7 apply to plastics inner receptacles.

6.1.4.19.1.2 The plastics inner receptacle shall fit snugly inside the outer packaging, which shall be free of any projection that might abrade the plastics material.

## 6.1.4.19.1.3 Maximum capacity of inner receptacle:

6HA1, 6HB1, 6HD1, 6HG1, 6HH1:	250 litres
6HA2, 6HB2, 6HC, 6HD2, 6HG2, 6HH2:	60 litres.

## 6.1.4.19.1.4 Maximum net mass:

6HA1, 6HB1, 6HD1, 6HG1, 6HH1:	400 kg
6HA2, 6HB2, 6HC, 6HD2, 6HG2, 6HH2:	75 kg.

6.1.4.19.2 *Outer packaging*

6.1.4.19.2.1 Plastics receptacle with outer steel or aluminium drum 6HA1 or 6HB1; the relevant requirements of 6.1.4.1 or 6.1.4.2, as appropriate, apply to the construction of the outer packaging.

6.1.4.19.2.2 Plastics receptacle with outer steel or aluminium crate or box 6HA2 or 6HB2; the relevant requirements of 6.1.4.14 apply to the construction of the outer packaging.

6.1.4.19.2.3 Plastics receptacle with outer wooden box 6HC; the relevant requirements of 6.1.4.9 apply to the construction of the outer packaging.

6.1.4.19.2.4 Plastics receptacle with outer plywood drum 6HD1; the relevant requirements of 6.1.4.5 apply to the construction of the outer packaging.

6.1.4.19.2.5 Plastics receptacle with outer plywood box 6HD2; the relevant requirements of 6.1.4.10 apply to the construction of the outer packaging.

6.1.4.19.2.6 Plastics receptacle with outer fibre drum 6HG1; the requirements of 6.1.4.7.1 to 6.1.4.7.4 apply to the construction of the outer packaging.

6.1.4.19.2.7 Plastics receptacle with outer fibreboard box 6HG2; the relevant requirements of 6.1.4.12 apply to the construction of the outer packaging.

6.1.4.19.2.8 Plastics receptacle with outer plastics drum 6HH1; the requirements of 6.1.4.8.1 to 6.1.4.8.6 apply to the construction of the outer packaging.

6.1.4.19.2.9 Plastics receptacles with outer solid plastics box (including corrugated plastics material) 6HH2; the requirements of 6.1.4.13.1 and 6.1.4.13.4 to 6.1.4.13.6 apply to the construction of the outer packaging.

6.1.4.20 *Composite packagings (glass, porcelain or stoneware)*

6PA1	receptacle with outer steel drum
6PA2	receptacle with outer steel crate or box
6PB1	receptacle with outer aluminium drum
6PB2	receptacle with outer aluminium crate or box
6PC	receptacle with outer wooden box
6PD1	receptacle with outer plywood drum
6PD2	receptacle with outer wickerwork hamper
6PG1	receptacle with outer fibre drum
6PG2	receptacle with outer fibreboard box
6PH1	receptacle with outer expanded plastics packaging
6PH2	receptacle with outer solid plastics packaging

6.1.4.20.1 *Inner receptacle*

6.1.4.20.1.1 Receptacles shall be of a suitable form (cylindrical or pear-shaped) and be made of good quality material free from any defect that could impair their strength. The walls shall be sufficiently thick at every point and free from internal stresses.

6.1.4.20.1.2 Screw-threaded plastics closures, ground glass stoppers or closures at least equally effective shall be used as closures for receptacles. Any part of the closure likely to come into contact with the contents of the receptacle shall be resistant to those contents. Care shall be taken to ensure that the closures are so fitted as to be leakproof and are suitably secured to prevent any loosening during carriage. If vented closures are necessary, they shall comply with 4.1.1.8.

6.1.4.20.1.3 The receptacle shall be firmly secured in the outer packaging by means of cushioning and/or absorbent materials.

6.1.4.20.1.4 Maximum capacity of receptacle: 60 litres.

6.1.4.20.1.5 Maximum net mass: 75 kg.

6.1.4.20.2 *Outer packaging*

6.1.4.20.2.1 Receptacle with outer steel drum 6PA1; the relevant requirements of 6.1.4.1 apply to the construction of the outer packaging. The removable lid required for this type of packaging may nevertheless be in the form of a cap.

6.1.4.20.2.2 Receptacle with outer steel crate or box 6PA2; the relevant requirements of 6.1.4.14 apply to the construction of the outer packaging. For cylindrical receptacles the outer packaging shall, when upright, rise above the receptacle and its closure. If the crate surrounds a pear-shaped receptacle and is of matching shape, the outer packaging shall be fitted with a protective cover (cap).

6.1.4.20.2.3 Receptacle with outer aluminium drum 6PB1; the relevant requirements of 6.1.4.2 apply to the construction of the outer packaging.

6.1.4.20.2.4 Receptacle with outer aluminium crate or box 6PB2; the relevant requirements of 6.1.4.14 apply to the construction of the outer packaging.

6.1.4.20.2.5 Receptacle with outer wooden box 6PC; the relevant requirements of 6.1.4.9 apply to the construction of the outer packaging.

6.1.4.20.2.6 Receptacle with outer plywood drum 6PD1; the relevant requirements of 6.1.4.5 apply to the construction of the outer packaging.

6.1.4.20.2.7 Receptacle with outer wickerwork hamper 6PD2. The wickerwork hamper shall be properly made with material of good quality. It shall be fitted with a protective cover (cap) so as to prevent damage to the receptacle.

6.1.4.20.2.8 Receptacle with outer fibre drum 6PG1; the relevant requirements of 6.1.4.7.1 to 6.1.4.7.4 apply to the construction of the outer packaging.

6.1.4.20.2.9 Receptacle with outer fibreboard box 6PG2; the relevant requirements of 6.1.4.12 apply to the construction of the outer packaging.

6.1.4.20.2.10 Receptacle with outer expanded plastics or solid plastics packaging (6PH1 or 6PH2); the materials of both outer packagings shall meet the relevant requirements of 6.1.4.13. Outer

solid plastics packaging shall be manufactured from high density polyethylene or some other comparable plastics material. The removable lid for this type of packaging may nevertheless be in the form of a cap.

#### **6.1.4.21**      *Combination packagings*

The relevant requirements of section 6.1.4 for the outer packagings to be used, are applicable.

*NOTE: For the inner and outer packagings to be used, see the relevant packing instructions in Chapter 4.1.*

#### **6.1.4.22**      *Light gauge metal packagings*

0A1    non-removable-head

0A2    removable-head

6.1.4.22.1      The sheet metal for the body and ends shall be of suitable steel, and of a gauge appropriate to the capacity and intended use of the packaging.

6.1.4.22.2      The joints shall be welded, at least double-seamed by wetting or produced by a method ensuring a similar degree of strength and leakproofness.

6.1.4.22.3      Inner coatings of zinc, tin, lacquer, etc. shall be tough and shall adhere to the steel at every point, including the closures.

6.1.4.22.4      Openings for filling, emptying and venting in the bodies or heads of non-removable head (0A1) packagings shall not exceed 7 cm in diameter. Packagings with larger openings shall be considered to be of the removable-head type (0A2).

6.1.4.22.5      The closures of non-removable-head packagings (0A1) shall either be of the screw-threaded type or be capable of being secured by a screwable device or a device at least equally effective. The closures of removable-head packagings (0A2) shall be so designed and fitted that they stay firmly closed and the packagings remain leakproof in normal conditions of carriage.

6.1.4.22.6      Maximum capacity of packagings: 40 litres.

6.1.4.22.7      Maximum net mass: 50 kg.

#### **6.1.5**            *Test requirements for packagings*

##### **6.1.5.1**        *Performance and frequency of tests*

6.1.5.1.1      The design type of each packaging shall be tested as provided in 6.1.5 in accordance with procedures established and approved by the competent authority.

6.1.5.1.2      Tests shall be successfully performed on each packaging design type before such packaging is used. A packaging design type is defined by the design, size, material and thickness, manner of construction and packing, but may include various surface treatments. It also includes packagings which differ from the design type only in their lesser design height.

6.1.5.1.3      Tests shall be repeated on production samples at intervals established by the competent authority. For such tests on paper or fibreboard packagings, preparation at ambient conditions is considered equivalent to the requirements of 6.1.5.2.3.

- 6.1.5.1.4 Tests shall also be repeated after each modification which alters the design, material or manner of construction of a packaging.
- 6.1.5.1.5 The competent authority may permit the selective testing of packagings that differ only in minor respects from a tested type, e.g. smaller sizes of inner packagings or inner packagings of lower net mass; and packagings such as drums, bags and boxes which are produced with small reductions in external dimension(s).
- 6.1.5.1.6 Where an outer packaging of a combination packaging has been successfully tested with different types of inner packagings, a variety of such different inner packagings may also be assembled in this outer packaging. In addition, provided an equivalent level of performance is maintained, the following variations in inner packagings are allowed without further testing of the package:
- (a) Inner packagings of equivalent or smaller size may be used provided:
    - (i) the inner packagings are of similar design to the tested inner packagings (e.g. shape - round, rectangular, etc.);
    - (ii) the material of construction of the inner packagings (glass, plastics, metal, etc.) offers resistance to impact and stacking forces equal to or greater than that of the originally tested inner packaging;
    - (iii) the inner packagings have the same or smaller openings and the closure is of similar design (e.g. screw cap, friction lid, etc.);
    - (iv) sufficient additional cushioning material is used to take up void spaces and to prevent significant movement of the inner packagings; and
    - (v) inner packagings are oriented within the outer packaging in the same manner as in the tested package.
  - (b) A lesser number of the tested inner packagings, or of the alternative types of inner packagings identified in (a) above, may be used provided sufficient cushioning is added to fill the void space(s) and to prevent significant movement of the inner packagings.
- 6.1.5.1.7 Articles or inner packagings of any type for solids or liquids may be assembled and carried without testing in an outer packaging under the following conditions:
- (a) The outer packaging shall have been successfully tested in accordance with 6.1.5.3 with fragile (e.g. glass) inner packagings containing liquids using the packing group I drop height;
  - (b) The total combined gross mass of inner packagings shall not exceed one half the gross mass of inner packagings used for the drop test in (a) above;
  - (c) The thickness of cushioning material between inner packagings and between inner packagings and the outside of the packaging shall not be reduced below the corresponding thicknesses in the originally tested packaging; and if a single inner packaging was used in the original test, the thicknesses of cushioning between inner packagings shall not be less than the thickness of cushioning between the outside of the packaging and the inner packaging in the original test. If either fewer or smaller inner packagings are used (as compared to the inner packagings used in the drop test), sufficient additional cushioning material shall be used to take up void spaces;



- (d) The outer packaging shall have passed successfully the stacking test in 6.1.5.6 while empty. The total mass of identical packages shall be based on the combined mass of inner packagings used for the drop test in (a) above;
- (e) Inner packagings containing liquids shall be completely surrounded with a sufficient quantity of absorbent material to absorb the entire liquid contents of the inner packagings;
- (f) If the outer packaging is intended to contain inner packagings for liquids and is not leakproof, or is intended to contain inner packagings for solids and is not siftproof, a means of containing any liquid or solid contents in the event of leakage shall be provided in the form of a leakproof liner, plastics bag or other equally efficient means of containment. For packagings containing liquids, the absorbent material required in (e) above shall be placed inside the means of containing the liquid contents;
- (g) Packagings shall be marked in accordance with 6.1.3 as having been tested to packing group I performance for combination packagings. The marked gross mass in kilograms shall be the sum of the mass of the outer packaging plus one half of the mass of the inner packaging(s) as used for the drop test referred to in (a) above. Such a package mark shall also contain a letter "V" as described in 6.1.2.4.

6.1.5.1.8 The competent authority may at any time require proof, by tests in accordance with this section, that serially-produced packagings meet the requirements of the design type tests. For verification purposes records of such tests shall be maintained.

6.1.5.1.9 If an inner treatment or coating is required for safety reasons, it shall retain its protective properties even after the tests.

6.1.5.1.10 Provided the validity of the test results is not affected and with the approval of the competent authority, several tests may be made on one sample.

6.1.5.1.11 *Salvage packagings*

Salvage packagings (see 1.2.1) shall be tested and marked in accordance with the requirements applicable to packing group II packagings intended for the carriage of solids or inner packagings, except as follows:

- (a) The test substance used in performing the tests shall be water, and the packagings shall be filled to not less than 98% of their maximum capacity. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass so long as they are placed so that the test results are not affected. Alternatively, in performing the drop test, the drop height may be varied in accordance with 6.1.5.3.4 (b);
- (b) Packagings shall, in addition, have been successfully subjected to the leakproofness test at 30 kPa, with the results of this test reflected in the test report required by 6.1.5.9; and
- (c) Packagings shall be marked with the letter "T" as described in 6.1.2.4.

6.1.5.2 *Preparation of packagings for testing*

6.1.5.2.1 Tests shall be carried out on packagings prepared as for carriage including, with respect to combination packagings, the inner packagings used. Inner or single receptacles or packagings shall be filled to not less than 98% of their maximum capacity for liquids or 95% for solids. For combination packagings where the inner packaging is designed to carry liquids and solids, separate testing is required for both liquid and solid contents. The

substances or articles to be carried in the packagings may be replaced by other substances or articles except where this would invalidate the results of the tests. For solids, when another substance is used it shall have the same physical characteristics (mass, grain size, etc.) as the substance to be carried. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass, so long as they are placed so that the test results are not affected.

6.1.5.2.2 In the drop tests for liquids, when another substance is used, it shall be of similar relative density and viscosity to those of the substance being carried. Water may also be used for the liquid drop test under the conditions in 6.1.5.3.4.

6.1.5.2.3 Paper or fibreboard packagings shall be conditioned for at least 24 hours in an atmosphere having a controlled temperature and relative humidity (r.h.). There are three options, one of which shall be chosen. The preferred atmosphere is  $23 \pm 2$  °C and  $50\% \pm 2\%$  r.h. The two other options are  $20 \pm 2$  °C and  $65\% \pm 2\%$  r.h. or  $27 \pm 2$  °C and  $65\% \pm 2\%$  r.h.

*NOTE: Average values shall fall within these limits. Short-term fluctuations and measurement limitations may cause individual measurements to vary by up to  $\pm 5\%$  relative humidity without significant impairment of test reproducibility.*

6.1.5.2.4 Bung-type barrels made of natural wood shall be left filled with water for at least 24 hours before the tests.

6.1.5.2.5 To check that their chemical compatibility with the liquids is sufficient, plastics drums and jerricans in accordance with 6.1.4.8 and if necessary composite packagings (plastics material) in accordance with 6.1.4.19 shall be subjected to storage at ambient temperature for six months, during which time the test samples shall be kept filled with the goods they are intended to carry.

For the first and last 24 hours of storage, the test samples shall be placed with the closure downwards. However, packagings fitted with a vent shall be so placed on each occasion for five minutes only. After this storage the test samples shall undergo the tests prescribed in 6.1.5.3 to 6.1.5.6.

When it is known that the strength properties of the plastics material of the inner receptacles of composite packagings (plastics material) are not significantly altered by the action of the filling substance, it shall not be necessary to check that the chemical compatibility is sufficient.

A significant alteration in strength properties means:

- (a) distinct embrittlement; or
- (b) a considerable decrease in elasticity, unless related to a not less than proportionate increase in the elongation under load.

Where the behaviour of the plastics material has been established by other means, the above compatibility test may be dispensed with. Such procedures shall be at least equivalent to the above compatibility test and be recognized by the competent authority.

*NOTE: For plastics drums and jerricans and composite packagings (plastics material) made of high or average molecular mass polyethylene, see also 6.1.5.2.6 below.*

## 6.1.5.2.6

For high molecular mass polyethylene drums and jerricans in accordance with 6.1.4.8 and if necessary composite packagings of high molecular mass polyethylene in accordance with 6.1.4.19, conforming to the following specifications:

- relative density at 23 °C after thermal conditioning for one hour at 100 °C  $\geq 0.940$ , in accordance with ISO Standard 1183,
  - melt flow rate at 190 °C/21.6 kg load  $\leq 12$  g/10 min, in accordance with ISO Standard 1133,
- for jerricans in accordance with 6.1.4.8 of packing groups II and III and, if necessary, for composite packagings in accordance with 6.1.4.19 in average molecular mass polyethylene meeting the following specifications:
- relative density at 23 °C after thermal conditioning for one hour at 100 °C  $\geq 0.940$ , in accordance with ISO Standard 1183,
  - melt flow rate at 190 °C/2.16 kg load  $\leq 0.5$  g/10 min and  $\geq 0.1$  g/10 min, in accordance with ISO Standard 1133,
  - melt flow rate at 190 °C/5 kg load  $\leq 3$  g/10 min and  $\geq 0.5$  g/10 min, in accordance with ISO Standard 1133,

chemical compatibility with the liquids listed in 6.1.6.2 may be verified as follows with standard liquids (see 6.1.6.1).

The sufficient chemical compatibility of these packagings may be verified by storage for three weeks at 40 °C with the appropriate standard liquid; where this standard liquid is water, proof of chemical compatibility is not required.

For the first and last 24 hours of storage, the test samples shall be placed with the closure downwards. However, packagings fitted with a vent shall be so placed on each occasion for five minutes only. After this storage, the test samples shall undergo the tests prescribed in 6.1.5.3 to 6.1.5.6.

When a packaging design-type has satisfied the approval tests with a standard liquid, the comparable filling substances listed in 6.1.6.2 may be accepted for carriage without further testing, subject to the following conditions:

- the relative densities of the filling substances shall not exceed that used to determine the height for the drop test and the mass for the stacking test;
- the vapour pressures of the filling substances at 50 °C or 55 °C shall not exceed that used to determine the pressure for the internal pressure test.

The compatibility test for tert-Butyl hydroperoxide with more than 40% peroxide content and peroxyacetic acids of Class 5.2, shall not be carried out using standard liquids. For these substances, proof of sufficient chemical compatibility of the test samples shall be provided during a storage period of six months at ambient temperature with the substances they are intended to carry.

The procedure in accordance with this paragraph also applies to high density, high or average molecular mass polyethylene packagings, the internal surface of which is fluorinated.

6.1.5.2.7 For drums and jerricans conforming to 6.1.4.8, and where necessary composite packagings conforming to 6.1.4.19, made of high or average molecular mass polyethylene, which have passed the test in 6.1.5.2.6, filling substances other than those listed in 6.1.6.2 may also be approved. Such approval shall be based on laboratory tests proving that the effect of such filling substances on the test specimens is less than that of the standard liquids. The processes of deterioration to be taken into account shall be the following: softening through swelling, cracking under stress and molecular degradation. The same conditions as those set out in 6.1.5.2.6 above shall apply with respect to relative density and vapour pressure.

6.1.5.2.8 Provided that the strength properties of the plastics inner packagings of a combination packaging are not significantly altered by the action of the filling substance, proof of chemical compatibility is not necessary. A significant alteration in strength properties means:

- (a) distinct embrittlement;
- (b) a considerable decrease in elasticity, unless related to a not less than proportionate increase in elastic elongation.

### 6.1.5.3 *Drop test*<sup>3</sup>

#### 6.1.5.3.1 *Number of test samples (per design type and manufacturer) and drop orientation*

For other than flat drops the centre of gravity shall be vertically over the point of impact.

Where more than one orientation is possible for a given drop test, the orientation most likely to result in failure of the packaging shall be used.

Packaging	No. of test samples	Drop orientation
(a) Steel drums Aluminium drums Drums of metal other than steel or aluminium Steel jerricans Aluminium jerricans Plywood drums Wooden barrels Fibre drums Plastics drums and jerricans Composite packagings which are in the shape of a drum Light gauge metal packagings	Six (three for each drop)	First drop (using three samples): the packaging shall strike the target diagonally on the chime or, if the packaging has no chime, on a circumferential seam or an edge.  Second drop (using the other three samples): the packaging shall strike the target on the weakest part not tested by the first drop, for example a closure or, for some cylindrical drums, the welded longitudinal seam of the drum body
(b) Boxes of natural wood Plywood boxes Reconstituted wood boxes Fibreboard boxes Plastics boxes Steel or aluminium boxes Composite packagings which are in the shape of a box	Five (one for each drop)	First drop: flat on the bottom Second drop: flat on the top Third drop: flat on the long side Fourth drop: flat on the short side Fifth drop: on a corner

<sup>3</sup> See ISO Standard 2248.

Packaging	No. of test samples	Drop orientation
(c) Bags - single-ply with a side seam	Three (three drops per bag)	First drop: flat on a wide face Second drop: flat on a narrow face Third drop: on an end of the bag
(d) Bags - single-ply without a side seam, or multi-ply	Three (two drops per bag)	First drop: flat on a wide face Second drop: on an end of the bag
(e) Composite packagings (glass, stoneware or porcelain), marked with the symbol "RID/ADR" according to 6.1.3.1 (a) (ii) and which are in the shape of a drum or box	Three (one for each drop)	Diagonally on the bottom chime, or, if there is no chime, on a circumferential seam or the bottom edge

#### 6.1.5.3.2 *Special preparation of test samples for the drop test*

The temperature of the test sample and its contents shall be reduced to  $-18^{\circ}\text{C}$  or lower for the following packagings:

- (a) plastics drums (see 6.1.4.8);
- (b) plastics jerricans (see 6.1.4.8);
- (c) plastics boxes other than expanded plastics boxes (see 6.1.4.13);
- (d) composite packagings (plastics material) (see 6.1.4.19) and;
- (e) combination packagings with plastics inner packagings, other than plastics bags intended to contain solids or articles.

Where test samples are prepared in this way, the conditioning in 6.1.5.2.3 may be waived. Test liquids shall be kept in the liquid state by the addition of anti-freeze if necessary.

#### 6.1.5.3.3 *Target*

The target shall be a rigid, non-resilient, flat and horizontal surface.

#### 6.1.5.3.4 *Drop height*

For solids and liquids, if the test is performed with the solid or liquid to be carried or with another substance having essentially the same physical characteristics:

Packing Group I	Packing Group II	Packing Group III
1.8 m	1.2 m	0.8 m

For liquids if the test is performed with water:

- (a) where the substances to be carried have a relative density not exceeding 1.2:

Packing Group I	Packing Group II	Packing Group III
1.8 m	1.2 m	0.8 m

- (b) where the substances to be carried have a relative density exceeding 1.2, the drop height shall be calculated on the basis of the relative density (d) of the substance to be carried, rounded up to the first decimal, as follows:

Packing Group I	Packing Group II	Packing Group III
$d \times 1.5$ (m)	$d \times 1.0$ (m)	$d \times 0.67$ (m)

- (c) for light-gauge metal packagings, marked with symbol "RID/ADR" according to 6.1.3.1(a) (ii) intended for the carriage of substances having a viscosity at 23 °C greater than 200 mm<sup>2</sup>/s (corresponding to a flow time of 30 seconds with an ISO flow cup having a jet orifice of 6 mm diameter in accordance with ISO Standard 2431:1993)

- (i) if the relative density does not exceed 1.2:

Packing group II	Packing group III
0.6 m	0.4 m

- (ii) where the substances to be carried have a relative density (d) exceeding 1.2 the drop height shall be calculated on the basis of the relative density (d) of the substance to be carried, rounded up to the first decimal place, as follows:

Packing group II	Packing group III
$d \times 0.5$ m	$d \times 0.33$ m

#### 6.1.5.3.5 *Criteria for passing the test*

- 6.1.5.3.5.1 Each packaging containing liquid shall be leakproof when equilibrium has been reached between the internal and external pressures, however for inner packagings of combination packagings and except for inner receptacles of composite packagings (glass, porcelain or stoneware), marked with the symbol "RID/ADR" according to 6.1.3.1 (a) (ii) it is not necessary that the pressures be equalized.
- 6.1.5.3.5.2 Where a packaging for solids undergoes a drop test and its upper face strikes the target, the test sample passes the test if the entire contents are retained by an inner packaging or inner receptacle (e.g. a plastics bag), even if the closure is no longer sift-proof.
- 6.1.5.3.5.3 The packaging or outer packaging of a composite or combination packaging shall not exhibit any damage liable to affect safety during carriage. There shall be no leakage of the filling substance from the inner receptacle or inner packaging(s).
- 6.1.5.3.5.4 Neither the outermost ply of a bag nor an outer packaging may exhibit any damage liable to affect safety during carriage.
- 6.1.5.3.5.5 A slight discharge from the closure(s) upon impact is not considered to be a failure of the packaging provided that no further leakage occurs.
- 6.1.5.3.5.6 No rupture is permitted in packagings for goods of Class 1 which would permit the spillage of loose explosive substances or articles from the outer packaging.

#### 6.1.5.4 *Leakproofness test*

The leakproofness test shall be performed on all design types of packagings intended to contain liquids; however, this test is not required for

- inner packagings of combination packagings;
- inner receptacles of composite packagings (glass, porcelain or stoneware), marked with the symbol "RID/ADR" according to 6.1.3.1 (a) (ii);
- light gauge metal packagings, marked with the symbol "RID/ADR" according to 6.1.3.1 (a) (ii) intended for substances with a viscosity at 23 °C exceeding 200 mm<sup>2</sup>/s.

6.1.5.4.1 *Number of test samples:* three test samples per design type and manufacturer.

6.1.5.4.2 *Special preparation of test samples for the test:* either vented closures shall be replaced by similar non-vented closures or the vent shall be sealed.

6.1.5.4.3 *Test method and pressure to be applied:* the packagings including their closures shall be restrained under water for 5 minutes while an internal air pressure is applied, the method of restraint shall not affect the results of the test.

The air pressure (gauge) to be applied shall be:

Packing Group I	Packing Group II	Packing Group III
Not less than 30 kPa (0.3 bar)	Not less than 20 kPa (0.2 bar)	Not less than 20 kPa (0.2 bar)

Other methods at least equally effective may be used.

6.1.5.4.4 *Criterion for passing the test:* there shall be no leakage.

#### 6.1.5.5 *Internal pressure (hydraulic) test*

##### 6.1.5.5.1 *Packagings to be tested*

The internal pressure (hydraulic) test shall be carried out on all design types of metal, plastics and composite packagings intended to contain liquids. This test is not required for:

- inner packagings of combination packagings;
- inner receptacles of composite packagings (glass, porcelain or stoneware), marked with the symbol "RID/ADR" according to 6.1.3.1 (a) (ii);
- light gauge metal packagings, marked with the symbol "RID/ADR" according to 6.1.3.1 (a) (ii) intended for substances with a viscosity at 23 °C exceeding 200 mm<sup>2</sup>/s.

6.1.5.5.2 *Number of test samples:* three test samples per design type and manufacturer.

6.1.5.5.3 *Special preparation of packagings for testing:* either vented closures shall be replaced by similar non-vented closures or the vent shall be sealed.

6.1.5.5.4 *Test method and pressure to be applied:* metal packagings and composite packagings (glass, porcelain or stoneware), including their closures, shall be subjected to the test pressure for 5 minutes. Plastics packagings and composite packagings (plastics material) including their closures shall be subjected to the test pressure for 30 minutes. This pressure is the one to be included in the marking required by 6.1.3.1 (d). The manner in which the packagings are supported shall not invalidate the test. The test pressure shall be applied continuously and evenly; it shall be kept constant throughout the test period. The hydraulic pressure (gauge) applied, as determined by any one of the following methods, shall be:

- (a) not less than the total gauge pressure measured in the packaging (i.e. the vapour pressure of the filling liquid and the partial pressure of the air or other inert gases, minus 100 kPa) at 55 °C, multiplied by a safety factor of 1.5; this total gauge pressure shall be determined on the basis of a maximum degree of filling in accordance with 4.1.1.4 and a filling temperature of 15 °C; or
- (b) not less than 1.75 times the vapour pressure at 50 °C of the liquid to be carried, minus 100 kPa but with a minimum test pressure of 100 kPa; or
- (c) not less than 1.5 times the vapour pressure at 55 °C of the liquid to be carried, minus 100 kPa but with a minimum test pressure of 100 kPa.

6.1.5.5.5 In addition, packagings intended to contain liquids of packing group I shall be tested to a minimum test pressure of 250 kPa (gauge) for a test period of 5 or 30 minutes depending upon the material of construction of the packaging.

6.1.5.5.6 *Criterion for passing the test:* no packaging may leak.

#### 6.1.5.6 *Stacking test*

All design types of packagings other than bags and other than non-stackable composite packagings (glass, porcelain, or stoneware), marked with the symbol "RID/ADR" according to 6.1.3.1 (a) (ii) shall be subjected to a stacking test.

6.1.5.6.1 *Number of test samples:* three test samples per design type and manufacturer.

6.1.5.6.2 *Test method:* the test sample shall be subjected to a force applied to the top surface of the test sample equivalent to the total weight of identical packages which might be stacked on it during carriage; where the contents of the test sample are liquids with relative density different from that of the liquid to be carried, the force shall be calculated in relation to the latter. The minimum height of the stack including the test sample shall be 3 metres. The duration of the test shall be 24 hours except that plastics drums, jerricans, and composite packagings 6HH1 and 6HH2 intended for liquids shall be subjected to the stacking test for a period of 28 days at a temperature of not less than 40 °C.

For the test in accordance with 6.1.5.2.5, the original filling substance shall be used. For the test in accordance with 6.1.5.2.6, a stacking test shall be carried out with a standard liquid.

6.1.5.6.3 *Criteria for passing the test:* no test sample shall leak. In composite packagings or combination packagings, there shall be no leakage of the filling substance from the inner receptacle or inner packaging. No test sample shall show any deterioration which could adversely affect transport safety or any distortion liable to reduce its strength or cause instability in stacks of packages. Plastics packagings shall be cooled to ambient temperature before the assessment.



**6.1.5.7**      *Cooperage test for bung type wooden barrels*

6.1.5.7.1      *Number of samples:* one barrel.

6.1.5.7.2      *Method of testing:* remove all hoops above the bilge of an empty barrel at least two days old.

6.1.5.7.3      *Criterion for passing test:* the diameter of the cross section of the upper part of the barrel shall not increase by more than 10 %.

**6.1.5.8**      *Supplementary permeability test for plastics drums and jerricans in accordance with 6.1.4.8 and for composite packagings (plastics material) in accordance with 6.1.4.19 intended for the carriage of liquids having a flash-point  $\leq 61$  °C, other than 6HA1 packagings*

Polyethylene packagings need be subjected to this test only if they are to be approved for the carriage of benzene, toluene, xylene or mixtures and preparations containing those substances.

6.1.5.8.1      *Number of test samples:* three packagings per design type and manufacturer.

6.1.5.8.2      *Special preparation of the test sample for the test:* the test samples are to be pre-stored with the original filling substance in accordance with 6.1.5.2.5, or, for high molecular mass polyethylene packagings, with the standard liquid mixture of hydrocarbons (white spirit) in accordance with 6.1.5.2.6.

6.1.5.8.3      *Test method:* the test samples filled with the substance for which the packaging is to be approved shall be weighed before and after storage for 28 days at 23 °C and 50 % relative atmospheric humidity. For high molecular mass polyethylene packagings, the test may be carried out with the standard liquid mixture of hydrocarbons (white spirit) in place of benzene, toluene or xylene.

6.1.5.8.4      *Criterion for passing the test:* permeability shall not exceed 0.008 g/l.h.

**6.1.5.9**      *Test Report*

6.1.5.9.1      A test report containing at least the following particulars shall be drawn up and shall be available to the users of the packaging:

1. Name and address of the test facility;
2. Name and address of applicant (where appropriate);
3. A unique test report identification;
4. Date of the test report;
5. Manufacturer of the packaging;
6. Description of the packaging design type (e.g. dimensions, materials, closures, thickness, etc.), including method of manufacture (e.g. blow moulding) and which may include drawing(s) and/or photograph(s);
7. Maximum capacity;
8. Characteristics of test contents, e.g. viscosity and relative density for liquids and particle size for solids;
9. Test descriptions and results;
10. The test report shall be signed with the name and status of the signatory.

6.1.5.9.2 The test report shall contain statements that the packaging prepared as for carriage was tested in accordance with the appropriate requirements of this section and that the use of other packaging methods or components may render it invalid. A copy of the test report shall be available to the competent authority.

6.1.6 **Standard liquids for verifying the chemical compatibility of high or average molecular mass polyethylene packagings in accordance with 6.1.5.2.6 and list of substances to which the standard liquids may be regarded as equivalents**

6.1.6.1 ***Standard liquids for verifying the chemical compatibility of high or average molecular mass polyethylene packagings in accordance with 6.1.5.2.6***

The following standard liquids shall be used for this plastics material.

- (a) ***Wetting Solution*** for substances causing severe cracking in polyethylene under stress, in particular for all solutions and preparations containing wetting agents.

An aqueous solution of 1 to 10 % of a wetting agent shall be used. The surface tension of this solution shall be 31 to 35 mN/m at 23 °C.

The stacking test shall be carried out on the basis of a relative density of not less than 1.20.

A compatibility test with acetic acid is not required if adequate chemical compatibility is proved with a wetting solution.

For filling substances causing cracking in polyethylene under stress which is resistant to the wetting solution, adequate chemical compatibility may be proved after preliminary storing for three weeks at 40 °C in accordance with 6.1.5.2.6, but with the original filling matter.

- (b) ***Acetic acid*** for substances and preparations causing cracking in polyethylene under stress, in particular for monocarboxylic acids and monovalent alcohols.

Acetic acid in 98 to 100 % concentration shall be used.  
Relative density = 1.05.

The stacking test shall be carried out on the basis of a relative density not less than 1.1.

In the case of filling substances causing polyethylene to swell more than acetic acid and to such an extent that the polyethylene mass is increased by up to 4 %, adequate chemical compatibility may be proved after preliminary storing for three weeks at 40 °C, in accordance with 6.1.5.2.6 but with the original filling matter.

- (c) ***Normal butyl acetate/normal butyl acetate-saturated wetting solution*** for substances and preparations causing polyethylene to swell to such an extent that the polyethylene mass is increased by about 4 % and at the same time causing cracking under stress, in particular for phyto-sanitary products, liquid paints and esters. Normal butyl acetate in 98 to 100 % concentration shall be used for preliminary storage in accordance with 6.1.5.2.6.

For the stacking test in accordance with 6.1.5.6, a test liquid consisting of a 1 to 10 % aqueous wetting solution mixed with 2 % normal butyl acetate conforming to (a) above shall be used.

The stacking test shall be carried out on the basis of a relative density not less than 1.0.

In the case of filling substances causing polyethylene to swell more than normal butyl acetate and to such an extent that the polyethylene mass is increased by up to 7.5 %, adequate chemical compatibility may be proved after preliminary storing for three weeks at 40 °C, in accordance with 6.1.5.2.6 but with the original filling matter.

- (d) *Mixture of hydrocarbons (white spirit)* for substances and preparations causing polyethylene to swell, in particular for hydrocarbons, esters and ketones.

A mixture of hydrocarbons having a boiling range 160 °C to 220 °C, relative density 0.78-0.80, flash-point > 50 °C and an aromatic content 16 % to 21 % shall be used.

The stacking test shall be carried out on the basis of a relative density not less than 1.0.

In the case of filling substances causing polyethylene to swell to such an extent that the polyethylene mass is increased by more than 7.5 %, adequate chemical compatibility may be proved after preliminary storing for three weeks at 40 °C, in accordance with 6.1.5.2.6 but with the original filling matter.

- (e) *Nitric acid* for all substances and preparations having an oxidizing effect on polyethylene and causing molecular degradation identical to or less than 55 % nitric acid.

Nitric acid in a concentration of not less than 55 % shall be used.

The stacking test shall be carried out on the basis of a relative density of not less than 1.4.

In the case of filling substances more strongly oxidizing than 55 % nitric acid or causing degradation of the molecular mass proceed in accordance with 6.1.5.2.5.

The period of use shall be determined in such cases by observing the degree of damage (e.g. two years for nitric acid in not less than 55% concentration).

- (f) *Water* for substances which do not attack polyethylene in any of the cases referred to under (a) to (e), in particular for inorganic acids and lyes, aqueous saline solutions, polyvalent alcohols and organic substances in aqueous solution.

The stacking test shall be carried out on the basis of a relative density of not less than 1.2.

6.1.6.2 *List of substances to which the standard liquids may be regarded as equivalents for the purposes of 6.1.5.2.6*

Class 3

Substance	Standard Liquid
<b>Flammable liquids of packing group II, without subsidiary risk (classification code F1, packing group II)</b>	
Substances having a vapour pressure at 50 °C of not more than 110 kPa (1.1 bar)	
- Crude petroleum and other crude oils	Mixture of hydrocarbons
- Hydrocarbons	Mixture of hydrocarbons
- Halogenated substances	Mixture of hydrocarbons
- Alcohols	Acetic acid
- Ethers	Mixture of hydrocarbons
- Aldehydes	Mixture of hydrocarbons
- Ketones	Mixture of hydrocarbons
- Esters	Normal butyl acetate where the swelling effect is up to 4 % (mass): other cases, mixture of hydrocarbons
Mixtures of above-mentioned substances having a boiling point or initial boiling point exceeding 35 °C, containing not more than 55 % nitrocellulose with a nitrogen content not exceeding 12.6 % (UN No. 2059).	Normal butyl acetate/normal butyl acetate-saturated wetting solution <u>and</u> mixture of hydrocarbons
Viscous substances that meet the classification criteria of 2.2.3.1.4	Mixture of hydrocarbons
<b>Flammable liquids of packing group II, toxic (classification code FT1, packing group II)</b>	
Methanol (UN No.1230)	Acetic acid
<b>Flammable liquids of packing group III, without subsidiary risk (classification code F1, packing group III)</b>	
- Petroleum, solvent naphtha	Mixture of hydrocarbons
- White spirit (turpentine substitute)	Mixture of hydrocarbons
- Hydrocarbons	Mixture of hydrocarbons
- Halogenated substances	Mixture of hydrocarbons
- Alcohols	Acetic acid
- Ethers	Mixture of hydrocarbons
- Aldehydes	Mixture of hydrocarbons
- Ketones	Mixture of hydrocarbons
- Esters	Normal butyl acetate where the swelling effect is up to 4 % (mass): other cases, mixture of hydrocarbons
- Nitrogenous substances	Mixture of hydrocarbons
Mixtures of above-mentioned substances containing not more than 55 % nitrocellulose with a nitrogen content not exceeding 12.6 % (UN No. 2059).	Normal butyl acetate/normal butyl acetate-saturated wetting solution <u>and</u> mixture of hydrocarbons

## Class 5.1

<b>Oxidizing liquids, corrosive (classification code OC1)</b>	
Hydrogen peroxides, aqueous solutions with not less than 20 % but not more than 60 % hydrogen peroxide (UN No. 2014) <sup>4</sup>	Water
Perchloric acid with more than 50 % but not more than 72 % acid (mass) (UN No. 1873)	Nitric acid
<b>Oxidizing liquids, without subsidiary risk (classification code O1)</b>	
Hydrogen peroxide, aqueous solutions with not less than 8 % but less than 20% hydrogen peroxide (UN No. 2984) <sup>4</sup>	Water
Calcium chlorate solution (UN No.2429)	Water
Potassium chlorate solution (UN No. 2427)	Water
Sodium chlorate solution (UN No. 2428)	Water

## Class 5.2

<b>NOTE: tert-butyl hydroperoxide with more than 40 % peroxide content and peroxyacetic acids are excluded.</b>	
All organic peroxides in a technically pure form or in solution in solvents which, as far as their compatibility is concerned, are covered by the standard liquid "mixture of hydrocarbons" in this list (UN Nos. 3101, 3103, 3105, 3107, 3109, 3111, 3113, 3115, 3117, 3119)	Normal butyl acetate/ wetting solution with 2% normal butyl acetate <u>and</u> mixture of hydrocarbons <u>and</u> nitric acid at 55%
Compatibility of vents and gaskets with organic peroxides may be verified, also independently of the design type test, by laboratory tests with nitric acid.	

## Class 6.1

<b>Toxic organic liquids without subsidiary risk (classification code T1)</b>	
Aniline (UN No.1547)	Acetic acid
Furfuryl alcohol (UN No. 2874)	Acetic acid
Phenol solution (UN No. 2821, packing group III)	Acetic acid
<b>Toxic organic liquids, corrosive (classification code TC1)</b>	
Cresols (UN No. 2076) or cresylic acid (UN No. 2022)	Acetic acid

## Class 6.2

All infectious substances (UN Nos. 2814 and 2900, risk group 2, and UN No.3291) considered to be liquids in accordance with 2.1.2.6	Water
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<sup>4</sup> Test to be performed only with a vent.

## Class 8

<b>Corrosive acid inorganic liquids, without subsidiary risk (classification code C1)</b>	
Sulphuric acid (UN Nos. 1830 and 2796)	Water
Sulphuric acid, spent (UN No. 1832)	Water
Nitric acid (UN No. 2031) with not more than 55 % acid	Nitric acid
Perchloric acid with not more than 50 % acid, by mass in aqueous solution (UN No. 1802)	Nitric acid
Hydrochloric acid (UN No. 1789) with not more than 36 % pure acid Hydrobromic acid (UN No. 1788) Hydriodic acid (UN No. 1787)	Water
Hydrofluoric acid (UN No. 1790) with not more than 60 % hydrogen fluoride <sup>5</sup>	Water
Fluoroboric acid (UN No. 1775) with not more than 50 % pure acid	Water
Fluorosilicic acid (UN No. 1778)	Water
Chromic acid solution (UN No. 1755) with not more than 30 % pure acid	Nitric acid
Phosphoric acid (UN No. 1805)	Water
<b>Corrosive acid organic liquids (classification code C3)</b>	
Acrylic acid (UN No. 2218), formic acid (UN No. 1779), acetic acid (UN Nos. 2789 and 2790), thioglycolic acid (UN No. 1940)	Acetic acid
Methacrylic acid (UN No. 2531), propionic acid (UN No. 1848)	Acetic acid
Alkylphenols, liquid, n.o.s. (UN No. 3145, packing group III)	Acetic acid
<b>Corrosive basic inorganic liquids, without subsidiary risk (classification code C5)</b>	
Sodium hydroxide solution (UN No. 1824), potassium hydroxide solution (UN No. 1814)	Water
Ammonia solution (UN No. 2672)	Water
<b>Other corrosive liquids (classification code C9)</b>	
Chlorite solution (UN No. 1906) and hypochlorite solution <sup>6</sup> (UN No. 1791, packing group III)	Nitric acid
Formaldehyde solutions (UN No. 2209)	Water
<b>Corrosive liquids toxic (classification code CT1)</b>	
Hydrazine, aqueous solutions with more than 37 % hydrazine, by mass (UN No. 2030)	Water

<sup>5</sup> Maximum 60 litres; permissible period of use two years.

<sup>6</sup> Test to be carried out only with vent. If the test is carried out with nitric acid as the standard liquid, an acid-resistant vent and gasket shall be used. For hypochlorite solutions, vents and gaskets of the same design type, resistant to hypochlorite (e.g. of silicone rubber) but not resistant to nitric acid, are also permitted.

## CHAPTER 6.2

**REQUIREMENTS FOR THE CONSTRUCTION AND TESTING OF PRESSURE RECEPTACLES,  
AEROSOL DISPENSERS AND SMALL RECEPTACLES CONTAINING GAS  
(GAS CARTRIDGES)****6.2.1 General requirements**

*NOTE: For aerosol dispensers and small receptacles containing gas (gas cartridges) see 6.2.4.*

**6.2.1.1 Design and construction****6.2.1.1.1** Pressure receptacles and their closures shall be designed, calculated, manufactured, tested and equipped in such a way as to withstand all conditions to which they will be subjected during their normal use and during normal conditions of carriage.

In the design of pressure receptacles, all relevant factors shall be taken into account such as:

- internal pressure;
- ambient and operational temperatures, including during carriage;
- dynamic loads.

Normally the wall thickness shall be determined by calculation, accompanied, if needed, by experimental stress analysis. The wall thickness may be determined by experimental means.

Appropriate design calculations for the pressure envelope and supporting components shall be used to ensure the safety of the pressure receptacles concerned.

The minimum wall thickness to withstand pressure shall be calculated in particular with regard to:

- the calculation pressures, which shall not be less than the test pressure;
- the calculation temperatures allowing for appropriate safety margins;
- the maximum stresses and peak stress concentrations where necessary;
- factors inherent to the properties of the material.

Any additional thickness used for the purpose of providing a corrosion allowance shall not be taken into consideration in calculating the thickness of the walls.

For welded pressure receptacles, only metals of weldable quality whose adequate impact strength at an ambient temperature of  $-20^{\circ}\text{C}$  can be guaranteed shall be used.

The test pressure of pressure receptacles is prescribed in packing instruction P200 in 4.1.4.1 for cylinders, tubes, pressure drums and bundles of cylinders. The test pressure for cryogenic receptacles, closed, shall not be less than 1.3 times the maximum working pressure increased by 1 bar for vacuum insulated pressure receptacles.

Material characteristics to be considered are, when applicable:

- yield stress;
- tensile strength;
- time-dependent strength;
- fatigue data;
- Young's modulus (modulus of elasticity);
- appropriate amount of plastic strain;
- impact strength;
- fracture resistance.

6.2.1.1.2 Pressure receptacles for UN No.1001, acetylene, dissolved, shall be filled entirely with a porous material, uniformly distributed, of a type approved by the competent authority and which:

- (a) does not attack the pressure receptacles or form harmful or dangerous compounds either with the acetylene or with the solvent;
- (b) is capable of preventing the spread of decomposition of the acetylene in the mass.

The solvent shall not attack the pressure receptacles.

The above requirements, excluding those for the solvent, apply equally to pressure receptacles for UN No. 3374 acetylene, solvent free.

6.2.1.1.3 The following requirements apply to the construction of closed cryogenic receptacles for refrigerated liquefied gases:

- (a) The mechanical properties of the metal used shall be established for each pressure receptacle at the initial inspection, including the impact strength and the bending coefficient; with regard to the impact strength see 6.8.5.3;
- (b) The pressure receptacles shall be thermally insulated. The thermal insulation shall be protected against impact by means of continuous sheathing. If the space between the pressure receptacle and the sheathing is evacuated of air (vacuum-insulation), the protective sheathing shall be designed to withstand without permanent deformation an external pressure of at least 100 kPa (1 bar). If the sheathing is so closed as to be gas-tight (e.g. in the case of vacuum-insulation), a device shall be provided to prevent any dangerous pressure from developing in the insulating layer in the event of inadequate gas-tightness of the pressure receptacle or its fittings. The device shall prevent moisture from penetrating into the insulation.

6.2.1.1.4 Pressure receptacles assembled in bundles shall be structurally supported and held together as a unit. Pressure receptacles shall be secured in a manner that prevents movement in relation to the structural assembly and movement that would result in the concentration of harmful local stresses. Manifolds shall be designed such that they are protected from impact. For gases with a classification code of 2T, 2TF, 2TC, 2TO, 2TFC or 2TOC, means shall be provided to ensure that each pressure receptacle can be separately filled and that no interchange of pressure receptacle contents can occur during carriage.



### 6.2.1.2 *Materials of pressure receptacles*

The materials of which the pressure receptacles and their closures are made as well as all substances that might come into contact with the contents shall not be liable to attack the contents or form harmful or dangerous compounds therewith.

The following materials may be used:

- (a) carbon steel for compressed, liquefied, refrigerated liquefied gases and dissolved gases as well as for substances not in Class 2 listed in Table 3 of packing instruction P200 in 4.1.4.1;
- (b) alloy steel (special steels), nickel, nickel alloy (such as monel) for compressed, liquefied, refrigerated liquefied gases and dissolved gases as well as for substances not in Class 2 listed in Table 3 of packing instruction P200 in 4.1.4.1;
- (c) copper for:
  - (i) gases of classification codes 1A, 1O, 1F and 1TF, whose filling pressure referred to a temperature of 15 °C does not exceed 2 MPa (20 bar);
  - (ii) gases of classification code 2A and also UN No. 1033 dimethyl ether; UN No.1037 ethyl chloride; UN No.1063 methyl chloride; UN No.1079 sulphur dioxide; UN No.1085 vinyl bromide; UN No. 1086 vinyl chloride; and UN No.3300 ethylene oxide and carbon dioxide mixture with more than 87% ethylene oxide;
  - (iii) gases of classification codes 3A, 3O and 3F;
- (d) aluminium alloy: see special requirement "a" of packing instruction P200 (12) in 4.1.4.1;
- (e) composite material for compressed, liquefied, refrigerated liquefied gases and dissolved gases;
- (f) synthetic materials for refrigerated liquefied gases; and
- (g) glass for the refrigerated liquefied gases of classification code 3A other than UN No.2187 carbon dioxide, refrigerated, liquid or mixtures thereof, and gases of classification code 3O.

### 6.2.1.3 *Service equipment*

#### 6.2.1.3.1 *Openings*

Pressure drums may be provided with openings for filling and discharge and with other openings intended for level gauges, pressure gauges or relief devices. The number of openings shall be kept to a minimum consistent with safe operations. Pressure drums may also be provided with an inspection opening, which shall be closed by an effective closure.

#### 6.2.1.3.2 *Fittings*

- (a) If cylinders are fitted with a device to prevent rolling, this device shall not be integral with the valve cap;

- (b) Pressure drums which are capable of being rolled shall be equipped with rolling hoops or be otherwise protected against damage due to rolling (e.g. by corrosion resistant metal sprayed on to the pressure receptacle surface);
- (c) Pressure drums and cryogenic receptacles, which are not capable of being rolled, shall be fitted with devices (skids, rings, straps,) ensuring that they can be safely handled by mechanical means and so arranged as not to impair the strength of, nor cause undue stresses in, the wall of the pressure receptacle;
- (d) Bundles of cylinders shall be fitted with appropriate devices ensuring that they can be handled and carried safely. The manifold shall have at least the same test pressure as the cylinders. The manifold and the master cock shall be situated so as to be protected against any damage;
- (e) If level gauges, pressure gauges or relief devices are installed, they shall be protected in the same way as is required for valves in 4.1.6.4;
- (f) Pressure receptacles whose filling is measured by volume shall be provided with a level indicator.

#### 6.2.1.3.3 *Safety valves*

Cryogenic receptacles, closed, shall be fitted with one or more pressure relief devices to protect the vessel against excess pressure. Excess pressure means a pressure in excess of 110% of the maximum working pressure due to normal heat leak or in excess of the test pressure due to the loss of vacuum for vacuum insulated pressure receptacles or due to the failure in the open position of a pressure build up system.

#### 6.2.1.4 *Approval of pressure receptacles*

6.2.1.4.1 The conformity of pressure receptacles, having a test pressure capacity product of more than 150 MPa.litre (1 500 bar.litre) with the provisions of Class 2, shall be assessed by one of the following methods:

- (a) Single pressure receptacles shall be examined, tested and approved by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>, on the basis of the technical documentation and declaration of the manufacturer on compliance with the relevant provisions of Class 2.

The technical documentation shall include full specifications on design and construction, and full documentation on the manufacturing and testing; or

- (b) The construction of the pressure receptacles shall be tested and approved by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup> on the basis of the technical documentation with regard to their compliance with the relevant provisions of Class 2.

Pressure receptacles shall furthermore be designed, manufactured and tested according to a comprehensive quality assurance programme for design, manufacture, final inspection and testing. The quality assurance programme shall guarantee the conformity of the pressure receptacles with the relevant provisions of Class 2 and shall be approved and supervised by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>; or

<sup>1</sup> If the country of approval is not a contracting party to ADR, the competent authority of a contracting party to ADR.

- (c) The design type of the pressure receptacles shall be approved by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>. Any pressure receptacle of this design shall be manufactured and tested according to a quality assurance programme for production, final inspection and testing, which shall be approved and supervised by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>; or
- (d) The design type of the pressure receptacles shall be approved by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>. Any receptacle of this design shall be tested under the supervision of a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup> on the basis of a declaration of the manufacturer on compliance with the approved design and the relevant provisions of Class 2.

6.2.1.4.2 The conformity of pressure receptacles having a test pressure capacity product of more than 30 MPa.litre (300 bar.litre) and not more than 150 MPa.litre (1 500 bar.litre) with the provisions of Class 2 shall be assessed by one of the methods described in 6.2.1.4.1 or by one of the following methods:

- (a) The pressure receptacles shall be designed, manufactured and tested according to a comprehensive quality assurance programme for their design, manufacture, final inspection and testing, approved and supervised by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>; or
- (b) The design type of the pressure receptacle shall be approved by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>. The compliance of any pressure receptacle with the approved design shall be declared in writing by the manufacturer on the basis of his quality assurance programme for final inspection and testing of pressure receptacles, approved and supervised by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>; or
- (c) The design type of the pressure receptacle shall be approved by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>. The compliance of any pressure receptacle with the approved design shall be declared in writing by the manufacturer and all pressure receptacles of this type shall be tested under the supervision of a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>;

6.2.1.4.3 The conformity of pressure receptacles, having a test pressure capacity product of not more than 30 MPa.litre (300 bar.litre) with the provisions for Class 2 shall be assessed by one of the methods described in 6.2.1.4.1 or 6.2.1.4.2 or by one of the following methods:

- (a) The compliance of any pressure receptacle with a design, fully specified in technical documentation, shall be declared in writing by the manufacturer and pressure receptacles of this design shall be tested under the supervision of a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>; or
- (b) The design type of the pressure receptacles shall be approved by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>. The compliance of all pressure receptacles with the approved design shall be declared in writing by the manufacturer and all pressure receptacles of this type shall be tested individually.

<sup>1</sup> If the country of approval is not a contracting party to ADR, the competent authority of a contracting party to ADR.

6.2.1.4.4 The requirements of 6.2.1.4.1 to 6.2.1.4.3 shall be deemed to be complied with:

- (a) as regards the quality assurance systems mentioned in 6.2.1.4.1 and 6.2.1.4.2, if they conform to the relevant European Standard of the EN ISO 9000 series;
- (b) in their entirety, if the relevant conformity assessment procedures of Council Directive 99/36/EC<sup>2</sup> have been complied with as follows:
  - (i) for the pressure receptacles listed under 6.2.1.4.1, the modules G, or H1, or B in combination with D, or B in combination with F;
  - (ii) for the pressure receptacles listed under 6.2.1.4.2, the modules H, or B in combination with E, or B in combination C1, or B1 in combination with F, or B1 in combination with D;
  - (iii) for the pressure receptacles listed under 6.2.1.4.3, the modules A1, or D1, or E1.

6.2.1.4.5 *Requirements for manufacturers*

The manufacturer shall be technically competent and shall possess all suitable means required for the satisfactory manufacture of pressure receptacles; this relates in particular to qualified personnel:

- (a) to supervise the entire manufacturing process;
- (b) to carry out joining of materials;
- (c) to carry out the relevant tests.

The proficiency test of a manufacturer shall in all instances be carried out by a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>. The particular certification process the manufacturer intends to apply shall be taken into consideration.

6.2.1.4.6 *Requirements for testing and certifying bodies*

Testing and certifying bodies shall be independent from manufacturing enterprises and technologically competent to the degree required. These requirements shall be deemed to be met if the bodies have been approved on the basis of an accreditation procedure in accordance with the relevant European standards of series EN 45000.

6.2.1.5 *Initial inspection and test*

6.2.1.5.1 New pressure receptacles shall be subjected to testing and inspection during and after manufacture in accordance with the following:

On an adequate sample of pressure receptacles:

- (a) Testing of the mechanical characteristics of the material of construction;

<sup>1</sup> If the country of approval is not a contracting party to ADR, the competent authority of a contracting party to ADR.

<sup>2</sup> Council Directive 99/36/EC concerning transportable pressure equipment (Official Journal of the European Communities, No. L 138 of 1.06.1999).

- (b) Verification of the minimum wall thickness;
- (c) Verification of the homogeneity of the material for each manufacturing batch; and inspection of the external and internal conditions of the pressure receptacles;
- (d) Inspection of the neck threads;
- (e) Verification of the conformance with the design standard;

For all pressure receptacles:

- (f) A hydraulic pressure test. Pressure receptacles shall withstand the test pressure without undergoing permanent deformation or exhibiting cracks;

*NOTE : With the agreement of the inspection body, the hydraulic pressure test may be replaced by a test using a gas, where such an operation does not entail any danger.*

- (g) Inspection and assessment of manufacturing defects and either repairing them or rendering the pressure receptacles unserviceable;
- (h) An inspection of the markings on the pressure receptacles;
- (i) In addition, pressure receptacles intended for the carriage of UN No. 1001 acetylene, dissolved, and UN No. 3374 acetylene, solvent free, shall be inspected to ensure proper installation and condition of the porous material and the quantity of solvent.

#### 6.2.1.5.2

##### *Specific provisions applying to aluminium alloy pressure receptacles*

- (a) In addition to the initial inspection required by 6.2.1.5.1, it is necessary to test for possible intercrystalline corrosion of the inside wall of the pressure receptacles where use is made of an aluminium alloy containing copper, or where use is made of an aluminium alloy containing magnesium and manganese and the manganese content is greater than 3.5% or the manganese content lower than 0.5%.
- (b) In the case of an aluminium/copper alloy the test shall be carried out by the manufacturer at the time of approval of a new alloy by the competent authority; it shall thereafter be repeated in the course of production, for each pour of the alloy.
- (c) In the case of an aluminium/magnesium alloy the test shall be carried out by the manufacturer at the time of approval of a new alloy and of the manufacturing process by the competent authority. The test shall be repeated whenever a change is made in the composition of the alloy or in the manufacturing process.

#### 6.2.1.6

##### *Periodic inspection and test*

##### 6.2.1.6.1

Refillable pressure receptacles shall be subjected to periodic inspections under the supervision of a testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>, in accordance with the periodicities defined in the relevant packing instruction P200 or P203 in 4.1.4.1 and in accordance with the following specifications:

- (a) External examination of the pressure receptacle, equipment and markings;

<sup>1</sup> If the country of approval is not a contracting party to ADR, the competent authority of a contracting party to ADR.

- (b) Internal examination of the pressure receptacle (e.g. by weighing, examination of the internal condition, checks of wall thickness);
- (c) Checking of the neck threads if the fittings are removed;
- (d) The hydraulic pressure test and, if necessary, inspection of the characteristics of the material by suitable tests.

*NOTE 1: With the agreement of the testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>, the hydraulic pressure test may be replaced by a test using a gas, where such operation does not entail any danger, or by an equivalent method based on ultrasound.*

*NOTE 2: With the agreement of the testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>, the hydraulic pressure test of cylinders and tubes may be replaced by an equivalent method based on acoustic emission.*

*NOTE 3: With the agreement of the testing and certifying body approved by the competent authority of the country of approval<sup>1</sup>, the hydraulic pressure test of each welded steel cylinder intended for the carriage of gases of UN No.1965, hydrocarbon gas mixture liquefied, n.o.s., with a capacity below 6,5 l may be replaced by another test ensuring an equivalent level of safety.*

- 6.2.1.6.2 For pressure receptacles intended for the carriage of UN No. 1001 acetylene, dissolved, and UN No. 3374 acetylene, solvent free, only the external condition (corrosion, deformation) and the condition of the porous mass (loosening, settlement) shall be required to be examined.
- 6.2.1.6.3 By derogation from 6.2.1.6.1 (d) closed cryogenic receptacles shall be inspected to verify external conditions, condition and operation of pressure relief devices and subjected to a leakproofness test. The leakproofness test shall be carried out with the gas contained in the pressure receptacle or with an inert gas. Checking shall be performed by means of a pressure gauge or by vacuum measurement. The thermal insulation need not be removed.

#### 6.2.1.7 **Marking of refillable pressure receptacles**

Refillable pressure receptacles shall be marked clearly and legibly with certification and gas or pressure receptacle specific marks. These marks shall be permanently affixed (e.g. stamped, engraved, or etched) on the pressure receptacle. The marks shall be on the shoulder, top end or neck of the pressure receptacle or on a permanently affixed component of the pressure receptacle (e.g. welded collar).

The minimum size of the marks shall be 5 mm for pressure receptacles with a diameter greater than or equal to 140 mm and 2.5 mm for pressure receptacles with a diameter less than 140 mm.

- 6.2.1.7.1 The following certification marks shall be applied:
  - (a) The technical standard used for design, construction and testing, as listed in the table under 6.2.2 or the approval number;
  - (b) The character(s) identifying the country of approval as indicated by the distinguishing signs of motor vehicles in international traffic;

<sup>1</sup> If the country of approval is not a contracting party to ADR, the competent authority of a contracting party to ADR.

- (c) The identity mark or stamp of the inspection body that is registered with the competent authority of the country authorizing the marking;
- (d) The date of the initial inspection, the year (four digits) followed by the month (two digits) separated by a slash (i.e. "/").

6.2.1.7.2 The following operational marks shall be applied:

- (e) The test pressure in bar, preceded by the letters "PH" and followed by the letters "BAR";
- (f) The empty mass of the pressure receptacle including all permanently attached integral parts (e.g. neck ring, foot ring, etc.) in kilograms, followed by the letters "KG". With the exception of pressure receptacles of UN No. 1965 hydrocarbon gas mixture, liquefied, n.o.s., this mass shall not include the mass of valve, valve cap or valve guard, any coating, or porous mass for acetylene. The empty mass shall be expressed to three significant figures rounded up to the last digit. For cylinders of less than 1 kg, the mass shall be expressed to two significant figures rounded up to the last digit;
- (g) The minimum guaranteed wall thickness of the pressure receptacle in millimetres followed by the letters "MM". This mark is not required for pressure receptacles of UN No. 1965 hydrocarbon gas mixture, liquefied, n.o.s., nor for pressure receptacles with a water capacity less than or equal to 1 l or for composite cylinders;
- (h) In the case of pressure receptacles intended for the carriage of compressed gases, UN No. 1001 acetylene, dissolved, and UN No. 3374 acetylene, solvent free, the working pressure in bar, preceded by the letters "PW";
- (i) In the case of liquefied gases, the water capacity in litres expressed to three significant digits rounded down to the last digit, followed by the letter "L". If the value of the minimum or nominal water capacity is an integer, the digits after the decimal point may be neglected;
- (j) In the case of UN No. 1001 acetylene, dissolved, the total of the mass of the empty receptacle, the fittings and accessories not removed during filling, the porous material, the solvent and the saturation gas expressed to two significant figures rounded down to the last digit followed by the letters "KG";
- (k) In the case of UN No. 3374 acetylene, solvent free, the total of the mass of the empty receptacle, the fittings and accessories not removed during filling and the porous material expressed to two significant figures rounded down to the last digit followed by the letters "KG".

6.2.1.7.3 The following manufacturing marks shall be applied:

- (l) Identification of the cylinder thread (e.g. 25E). This mark is not required for pressure receptacles of UN No. 1965 hydrocarbon gas mixture, liquefied, n.o.s.;
- (m) The manufacturer's mark registered by the competent authority. When the country of manufacture is not the same as the country of approval, then the manufacturer's mark shall be preceded by the character(s) identifying the country of manufacture as indicated by the distinguishing signs of motor vehicles in international traffic. The country mark and the manufacturer's mark shall be separated by a space or slash;
- (n) The serial number assigned by the manufacturer;

- (o) In the case of steel pressure receptacles and composite pressure receptacles with steel liner intended for the carriage of gases with a risk of hydrogen embrittlement, the letter "H" showing compatibility of the steel (see ISO 11114-1:1997).

6.2.1.7.4 The above marks shall be placed in three groups.

- Manufacturing marks shall be the top grouping and shall appear consecutively in the sequence given in 6.2.1.7.3.
- The middle grouping shall include the test pressure (e) which shall be immediately preceded by the working pressure (h) when the latter is required.
- Certification marks shall be the bottom grouping and shall appear in the sequence given in 6.2.1.7.1.

6.2.1.7.5 Other marks are allowed in areas other than the side wall, provided they are made in low stress areas and are not of a size and depth that will create harmful stress concentrations. Such marks shall not conflict with required marks.

6.2.1.7.6 In addition to the preceding marks, each refillable pressure receptacle shall be marked indicating the date (year (two digits) followed by the month (two digits) separated by a slash (i.e. "/")) of the last periodic inspection and the registered mark of the inspection body authorized by the competent authority of the country of use.

*NOTE: The month need not be indicated for gases for which the interval between periodic inspections is ten years or more [see 4.1.4.1 packing instructions P200(8) and P203 (8)].*

6.2.1.7.7 For acetylene cylinders, with the agreement of the competent authority, the date of the most recent periodic inspection and the stamp of the expert may be engraved on a ring affixed to the cylinder when the valve is installed and which is removable only by disconnecting the valve from the cylinder.

#### 6.2.1.8 *Marking of non-refillable pressure receptacles*

Non-refillable pressure receptacles shall be marked clearly and legibly with certification and gas or pressure receptacle specific marks. These marks shall be permanently affixed (e.g. stencilled, stamped, engraved, or etched) on the pressure receptacle. Except when stencilled, the marks shall be on the shoulder, top end or neck of the pressure receptacle or on a permanently affixed component of the pressure receptacle (e.g. welded collar). Except for the "DO NOT REFILL" mark, the minimum size of the marks shall be 5mm for pressure receptacles with a diameter greater than or equal to 140 mm and 2.5 mm for pressure receptacles with a diameter less than 140 mm. The minimum size of the "DO NOT REFILL" mark shall be 5 mm.

6.2.1.8.1 The marks listed in 6.2.1.7.1 to 6.2.1.7.3 shall be applied with the exception of (f), (g), and (l). The serial number (n) may be replaced by the batch number. In addition, the words "DO NOT REFILL" in letters of at least 5 mm in height are required.

6.2.1.8.2 The requirements of 6.2.1.7.4 shall apply.

*NOTE: Non-refillable pressure receptacles may, on account of their size, substitute this marking by a label (see 5.2.2.2.1.2).*

6.2.1.8.3 Other marks are allowed provided they are made in low stress areas other than the side wall and are not of a size and depth that will create harmful stress concentrations. Such marks shall not conflict with required marks."



## 6.2.2 Pressure receptacles designed, constructed and tested according to standards

The requirements of 6.2.1 are considered to have been complied with if the following standards, as relevant, are applied:

Reference	Title of document	Applicable sub-sections and paragraphs
<i>for materials</i>		
EN 1797:2001	Cryogenic vessels - Gas/material compatibility	6.2.1.2
EN ISO 11114-1:1997	Transportable gas cylinders - Compatibility of cylinder and valve materials with gas contents-Part 1: Metallic materials.	6.2.1.2
EN ISO 11114-2:2000	Transportable gas cylinders - Compatibility of cylinder and valve materials with gas contents-Part 2: Non-metallic materials.	6.2.1.2
<i>for cylinders</i>		
Annex I, Parts 1 to 3 to 84/525/EEC	Council directive on the approximation of the laws of the Member States relating to seamless steel gas cylinders.	6.2.1.1 and 6.2.1.5
Annex I, Parts 1 to 3 to 84/526/EEC	Council directive on the approximation of the laws of the Member States relating to seamless, unalloyed aluminium and aluminium alloy gas cylinders.	6.2.1.1 and 6.2.1.5
Annex I, Parts 1 to 3 to 84/527/EEC	Council directive on the approximation of the laws of the Member States relating to welded unalloyed steel gas cylinders.	6.2.1.1 and 6.2.1.5
EN 1442:1998	Transportable refillable welded steel cylinders for liquefied petroleum gas (LPG) - Design and construction.	6.2.1.1 and 6.2.1.5
EN 1800:1998/AC: 1999	Transportable gas cylinders - Acetylene cylinders - Basic requirements and definitions.	6.2.1.1.2
EN 1964-1:1999	Transportable gas cylinders - Specifications for the design and construction of refillable transportable seamless steel gas cylinders of capacity from 0.5 litres up to 150 litres - Part 1: Cylinders made of seamless steel with a Rm value of less than 1 100 MPa.	6.2.1.1 and 6.2.1.5
EN 1975:1999 (except Annex G)	Transportable gas cylinders - Specifications for the design and construction of refillable transportable seamless aluminium and aluminium alloy gas cylinders of capacity from 0.5 litres up to 150 litres.	6.2.1.1 and 6.2.1.5
EN ISO 11120:1999	Gas cylinders - Refillable seamless steel tubes for compressed gas transport of water capacity between 150 litres and 3 000 litres - Design, construction and testing.	6.2.1.1 and 6.2.1.5
EN 1964-3: 2000	Transportable gas cylinders-Specifications for the design and construction of refillable transportable seamless steel gas cylinders of capacity from 0.5 litre up to 150 litres - Part 3: Cylinders made of stainless steel.	6.2.1.1 and 6.2.1.5
EN 12862: 2000	Transportable gas cylinders- Specifications for the design and construction of refillable transportable welded aluminium alloy gas cylinders.	6.2.1.1 and 6.2.1.5
EN 1251-2: 2000	Cryogenic vessels- Transportable, vacuum insulated, of not more than 1 000 litres volume- Part 2: Design, fabrication, inspection and testing	6.2.1.1 and 6.2.1.5
EN 1251-3: 2000	Cryogenic vessels- Transportable, vacuum insulated, of not more than 1 000 litres volume- Part 3: Operational requirements	6.2.1.6

Reference	Title of document	Applicable sub-sections and paragraphs
<i>for closures</i>		
EN 849:1996/A2:2001	Transportable gas cylinders - Cylinder valves: Specification and type testing	6.2.1.1

**6.2.3 Requirements for pressure receptacles not designed, constructed and tested according to standards**

Pressure receptacles not designed, constructed and tested according to standards listed in the table of 6.2.2 shall be designed, constructed and tested in accordance with the provisions of a technical code providing the same level of safety and recognised by the competent authority. The requirements of 6.2.1 and the following requirements however shall be met:

**6.2.3.1 *Metal cylinders, tubes, pressure drums and bundles of cylinders***

At the test pressure, the stress in the metal at the most severely stressed point of the pressure receptacle shall not exceed 77% of the guaranteed minimum yield stress ( $R_e$ ).

"Yield stress" means the stress at which a permanent elongation of 2 per thousand (i.e. 0.2%) or, for austenitic steels, 1% of the gauge length on the test-piece, has been produced.

*NOTE: In the case of sheet-metal the axis of the tensile test-piece shall be at right angles to the direction of rolling. The permanent elongation at fracture, shall be measured on a test-piece of circular cross-section in which the gauge length "l" is equal to five times the diameter "d" ( $l=5d$ ); if test pieces of rectangular cross-section are used, the gauge length "l" shall be calculated by the formula:*

$$l = 5.65 \sqrt{F_0}$$

where  $F_0$  indicates the initial cross-sectional area of the test-piece.

Pressure receptacles and their closures shall be made of suitable materials which shall be resistant to brittle fracture and to stress corrosion cracking between  $-20\text{ }^\circ\text{C}$  and  $+50\text{ }^\circ\text{C}$ .

Welds shall be skilfully made and shall afford the fullest safety.

6.2.3.2 *Additional provisions relating to aluminium-alloy pressure receptacles for compressed gases, liquefied gases, dissolved gases and non pressurized gases subject to special requirements (gas samples) as well as articles containing gas under pressure other than aerosol dispensers and small receptacles containing gas (gas cartridges)*

6.2.3.2.1 *The materials of aluminium-alloy pressure receptacles which are to be accepted shall satisfy the following requirements:*

	A	B	C	D
Tensile strength, Rm, in MPa (=N/mm <sup>2</sup> )	49 to 186	196 to 372	196 to 372	343 to 490
Yield stress, Re, in MPa (=N/mm <sup>2</sup> ) (permanent set λg = 0.2%)	10 to 167	59 to 314	137 to 334	206 to 412
Permanent elongation at fracture (l = 5d) in per cent	12 to 40	12 to 30	12 to 30	11 to 16
Bend test (diameter of former d = n × e, where e is the thickness of the test piece)	n=5(Rm ≤ 98) n=6(Rm > 98)	n=6(Rm ≤ 325) n=7(Rm > 325)	n=6(Rm ≤ 325) n=7(Rm > 325)	n=7(Rm ≤ 392) n=8(Rm > 392)
Aluminium Association Series Number <sup>a</sup>	1 000	5 000	6 000	2 000

<sup>a</sup> See "Aluminium Standards and Data", Fifth edition, January 1976, published by the Aluminium Association, 750 Third Avenue, New York.

The actual properties will depend on the composition of the alloy concerned and on the final treatment of the pressure receptacle, but whatever alloy is used the thickness of the pressure receptacle shall be calculated by one of the following formulae:

$$e = \frac{P_{MPa} D}{\frac{2Re}{1.3} + P_{MPa}} \quad \text{or} \quad e = \frac{P_{bar} D}{\frac{20Re}{1.3} + P_{bar}}$$

where e = minimum thickness of pressure receptacle wall, in mm;  
 $P_{MPa}$  = test pressure, in MPa  
 $P_{bar}$  = test pressure, in bar  
 D = nominal external diameter of the pressure receptacle, in mm; and  
 Re = guaranteed minimum proof stress with 0.2% proof stress, in MPa (=N/mm<sup>2</sup>)

In addition, the value of the minimum guaranteed proof stress (Re) introduced into the formula is in no case to be greater than 0.85 times the guaranteed minimum tensile strength (Rm), whatever the type of alloy used.

**NOTE 1:** *The above characteristics are based on previous experience with the following materials used for pressure receptacles:*

Column A: *Aluminium, unalloyed, 99.5 g pure;*

Column B: *Alloys of aluminium and magnesium;*

Column C: Alloys of aluminium, silicon and magnesium, such as ISO/R209-Al-Si-Mg (Aluminium Association 6351);

Column D: Alloys of aluminium, copper and magnesium;

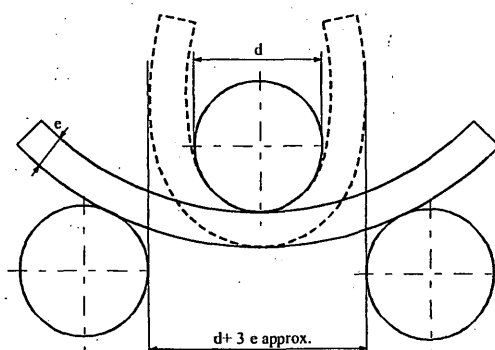
**NOTE 2:** The permanent elongation at fracture is measured by means of test-pieces of circular cross-section in which the gauge length "l" is equal to five times the diameter "d" ( $l = 5d$ ); if test-pieces of rectangular section are used the gauge length shall be calculated by the formula:

$$l = 5.65 \sqrt{F_0}$$

where  $F_0$  is the initial cross-section area of the test-piece.

- NOTE 3:**
- (a) The bend test (see diagram) shall be carried out on specimens obtained by cutting into two equal parts of width  $3e$ , but in no case less than 25 mm, an annular section of a cylinder. The specimens shall not be machined elsewhere than on the edges.
  - (b) The bend test shall be carried out between a mandrel of diameter ( $d$ ) and two circular supports separated by a distance of  $(d + 3e)$ . During the test the inner faces shall be separated by a distance not greater than the diameter of the mandrel.
  - (c) The specimen shall not exhibit cracks when it has been bent inwards around the mandrel until the inner faces are separated by a distance not greater than the diameter of the mandrel.
  - (d) The ratio ( $n$ ) between the diameter of the mandrel and the thickness of the specimen shall conform to the values given in the table.

Diagram of bend test



#### 6.2.3.2.2

A lower minimum elongation value is acceptable on condition that an additional test approved by the competent authority of the country in which the pressure receptacles are made proves that safety of carriage is ensured to the same extent as in the case of pressure receptacles constructed to comply with the characteristics given in the table in 6.2.3.2.1 (see also annex G of EN 1975: 1999).

6.2.3.2.3 The wall thickness of the pressure receptacles at the thinnest point shall be the following:

- where the diameter of the pressure receptacle is less than 50 mm: not less than 1.5 mm;
- where the diameter of the pressure receptacle is from 50 to 150 mm: not less than 2 mm; and
- where the diameter of the pressure receptacle is more than 150 mm: not less than 3 mm.

6.2.3.2.4 The ends of the pressure receptacles shall have a semicircular, elliptical or "basket-handle" section; they shall afford the same degree of safety as the body of the pressure receptacle.

**6.2.3.3 *Pressure receptacles in composite materials***

For composite cylinders, tubes, pressure drums and bundles of cylinders which make use of composite materials i.e. comprising a liner hoop wrapped or fully wrapped with reinforcement material, the construction shall be such that a minimum burst ratio (burst pressure divided by test pressure) is:

- 1.67 for hoop wrapped pressure receptacles;
- 2.00 for fully wrapped pressure receptacles.

**6.2.3.4 *Closed cryogenic receptacles***

The following requirements apply to the construction of closed cryogenic receptacles for refrigerated liquefied gases:

6.2.3.4.1 If non-metallic materials are used, they shall resist brittle fracture at the lowest working temperature of the pressure receptacle and its fittings;

6.2.3.4.2 Pressure receptacles shall be fitted with a safety valve which shall be capable of opening at the working pressure shown on the pressure receptacle. The valves shall be so constructed as to work perfectly even at their lowest working temperature. Their reliability of functioning at that temperature shall be established and checked by testing each valve or a sample of valves of the same type of construction;

6.2.3.4.3 The vents and safety valves of pressure receptacles shall be so designed as to prevent the liquid from splashing out;

**6.2.4 *General requirements for aerosol dispensers and small receptacles containing gas (gas cartridges)***

**6.2.4.1 *Design and construction***

6.2.4.1.1 Aerosol dispensers (UN No.1950 aerosols) containing only a gas or a mixture of gases, and small receptacles containing gas (gas cartridges) (UN No. 2037), shall be made of metal. This requirement shall not apply to aerosols and small receptacles containing gas (gas cartridges) with a maximum capacity of 100 ml for UN No. 1011 butane. Other aerosol dispensers (UN No.1950 aerosols) shall be made of metal, synthetic material or glass. Receptacles made of metal and having an outside diameter of not less than 40 mm shall have a concave bottom.

- 6.2.4.1.2 The capacity of receptacles made of metal shall not exceed 1 000 ml; that of receptacles made of synthetic material or of glass shall not exceed 500 ml.
- 6.2.4.1.3 Each model of receptacles (aerosol dispensers or cartridges) shall, before being put into service, satisfy a hydraulic pressure test carried out in conformity with 6.2.4.2.
- 6.2.4.1.4 The release valves and dispersal devices of aerosol dispensers (UN No.1950 aerosols) and the valves of UN No. 2037 small receptacles containing gas (gas cartridges) shall ensure that the receptacles are so closed as to be leakproof and shall be protected against accidental opening. Valves and dispersal devices which close only by the action of the internal pressure are not to be accepted.

#### 6.2.4.2 *Initial testing*

- 6.2.4.2.1 The internal pressure to be applied (test pressure) shall be 1.5 times the internal pressure at 50 °C, with a minimum pressure of 1 MPa (10 bar).
- 6.2.4.2.2 The hydraulic pressure tests shall be carried out on at least five empty receptacles of each model:
- (a) until the prescribed test pressure is reached, by which time no leakage or visible permanent deformation shall have occurred; and
  - (b) until leakage or bursting occurs; the dished end, if any, shall yield first and the receptacle shall not leak or burst until a pressure 1.2 times the test pressure has been reached or passed.

#### 6.2.4.3 *Reference to standards*

The requirements of this section are deemed to be met if the following standards are complied with:

- for aerosol dispensers (UN No. 1950 aerosols): Annex to Council Directive 75/324/EEC<sup>3</sup> as amended by Commission Directive 94/1/EC<sup>4</sup>;
- for UN No. 2037, small recipients containing gas (gas cartridges) containing UN No. 1965, hydrocarbon gas mixture n.o.s, liquefied: EN 417:1992 Non-refillable metallic gas cartridges for liquefied petroleum gases, with or without a valve, for use with portable appliances - Construction, inspection, testing and marking.

#### 6.2.5 **Requirements for UN certified pressure receptacles**

In addition to the general requirements of 6.2.1.1, 6.2.1.2, 6.2.1.3, 6.2.1.5 and 6.2.1.6, UN certified pressure receptacles shall comply with the requirements of this section, including the standards, as applicable.

*NOTE: With the agreement of the competent authority, more recently published versions of the standards, if available, may be used.*

<sup>3</sup> Council Directive 75/324/EEC of 20 May 1975 on the approximation of the laws of the Member States relating to aerosol dispensers, published in the Official Journal of the European Communities No. L 147 of 9.06.1975.

<sup>4</sup> Commission Directive 94/1/EC of January 1994, adapting some technicalities of Council Directive 75/324/EEC on the approximation of the laws of the relating Member States to aerosol dispensers published in the Official Journal of the European Communities No. L 23 of 28.01.1994.

## 6.2.5.1 *General requirements*

### 6.2.5.1.1 *Service equipment*

Except for pressure relief devices, valves, piping, fittings and other equipment subjected to pressure, shall be designed and constructed to withstand at least 1.5 times the test pressure of the pressure receptacles.

Service equipment shall be configured or designed to prevent damage that could result in the release of the pressure receptacle contents during normal conditions of handling and carriage. Manifold piping leading to shut-off valves shall be sufficiently flexible to protect the valves and the piping from shearing or releasing the pressure receptacle contents. The filling and discharge valves and any protective caps shall be capable of being secured against unintended opening. Valves shall be protected as specified in 4.1.6.4 (a) to (e) or pressure receptacles are carried in an outer packaging, which as prepared for carriage shall be capable of meeting the drop test specified in 6.1.5.3 for the packing group I performance level.

### 6.2.5.1.2 *Pressure relief devices*

Each pressure receptacle used for the carriage of UN No. 1013 carbon dioxide and UN No. 1070 nitrous oxide shall be equipped with approved pressure relief devices or, for other gases, as specified by the competent authority of the country of use, except when forbidden by packing instruction P200 in 4.1.4.1. The type of pressure relief device, the set-to-discharge pressure and relief capacity of pressure relief devices, if required, shall be specified by the competent authority of the country of use.

When fitted, pressure relief devices on manifolded horizontal pressure receptacles filled with flammable gas shall be arranged to discharge freely to the open air in such a manner as to prevent any impingement of escaping gas upon the pressure receptacles under normal conditions of carriage.

## 6.2.5.2 *Design, construction and initial inspection and test*

6.2.5.2.1 The following standards apply for the design, construction, and initial inspection and test of UN certified cylinders:

ISO 9809-1:1999	Gas cylinders - Refillable seamless steel gas cylinders - Design, construction and testing - Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa. <i>NOTE: The note concerning the F factor in section 7.3 of this standard shall not be applied for UN certified cylinders.</i>
ISO 9809-2:2000	Gas cylinders - Refillable seamless steel gas cylinders - Design, construction and testing - Part 2: Quenched and tempered steel cylinders with tensile strength greater than or equal to 1100 MPa.
ISO 9809-3:2000	Gas cylinders - Refillable seamless steel gas cylinders - Design, construction and testing - Part 3: Normalized steel cylinders.
ISO 7866:1999	Gas cylinders - Refillable seamless aluminium alloy gas cylinders - Design, construction and testing <i>NOTE: The note concerning the F factor in section 7.2 of this standard shall not be applied for UN certified cylinders. Aluminium alloy 6351A - T6 or equivalent shall not be authorized.</i>
ISO 11118:1999	Gas cylinders - Non-refillable metallic gas cylinders - Specification and test methods.

- 6.2.5.2.2 The following standards apply for the design, construction, and initial inspection and test of UN certified tubes:

ISO 11120:1999	Gas cylinders - Refillable seamless steel tubes for compressed gas transport, of water capacity between 150 l and 3000 l - Design, construction and testing. <i>NOTE: The note concerning the F factor in section 7.1 of this standard shall not be applied for UN certified tubes.</i>
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- 6.2.5.2.3 The following standards apply for the design, construction and initial inspection and test of UN certified acetylene cylinders:

For the cylinder shell:

ISO 9809-1:1999	Gas cylinders - Refillable seamless steel gas cylinders - Design, construction and testing - Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa. <i>NOTE: The note concerning the F factor in section 7.3 of this standard shall not be applied for UN certified cylinders.</i>
ISO 9809-3:2000	Gas cylinders - Refillable seamless steel gas cylinders - Design, construction and testing - Part 3: Normalized steel cylinders.
ISO 7866:1999	Gas cylinders - Refillable seamless aluminium alloy gas cylinders - Design, construction and testing. <i>NOTE: The note concerning the F factor in section 7.2 of this standard shall not be applied for UN certified cylinders. Aluminium alloy 6351A - T6 or equivalent shall not be authorized.</i>
ISO 11118:1999	Gas cylinders - Non-refillable metallic gas cylinders - Specification and test methods.

For the porous mass in the cylinder:

ISO 3807-1:2000	Cylinders for acetylene - Basic requirements - Part 1: Cylinders without fusible plugs.
ISO 3807-2:2000	Cylinders for acetylene - Basic requirements - Part 2: Cylinders with fusible plugs.

### 6.2.5.3

#### **Materials**

In addition to the material requirements specified in the pressure receptacle design and construction standards, and any restrictions specified in the applicable packing instruction for the gas(es) to be carried (e.g. packing instruction P200), the following standards apply to material compatibility:

ISO 11114-1:1997	Transportable gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 1: Metallic materials.
ISO 11114-2:2000	Transportable gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 2: Non-metallic materials.



#### 6.2.5.4 *Service equipment*

The following standards apply to closures and their protection:

ISO 11117:1998	Gas cylinders - Valve protection caps and valve guards for industrial and medical gas cylinders - Design, construction and tests.
ISO 10297:1999	Gas cylinders - Refillable gas cylinder valves - Specification and type testing.

#### 6.2.5.5 *Periodic inspection and test*

The following standards apply to the periodic inspection and testing of UN certified cylinders:

ISO 6406:1992	Periodic inspection and testing of seamless steel gas cylinders
ISO 10461:1993	Seamless aluminium - alloy gas cylinders - Periodic inspection and testing.
ISO 10462:1994	Cylinders for dissolved acetylene - Periodic inspection and maintenance.

#### 6.2.5.6 *Conformity assessment system and approval of pressure receptacles*

##### 6.2.5.6.1 *Definitions*

For the purposes of this sub-section:

*Conformity assessment system* means a system for competent authority approval of a manufacturer, by pressure receptacle design type approval, approval of manufacturer's quality system and approval of inspection bodies;

*Design type* means a pressure receptacle design as specified by a particular pressure receptacle standard;

*Verify* means confirm by examination or provision of objective evidence that specified requirements have been fulfilled.

##### 6.2.5.6.2 *General requirements*

###### *Competent Authority*

6.2.5.6.2.1 The competent authority that approves the pressure receptacle shall approve the conformity assessment system for the purpose of ensuring that pressure receptacles conform to the requirements of ADR. In instances where the competent authority that approves a pressure receptacle is not the competent authority in the country of manufacture, the marks of the approval country and the country of manufacture shall be indicated in the pressure receptacle marking (see 6.2.5.7 and 6.2.5.8).

The competent authority of the country of approval shall supply, upon request, evidence demonstrating compliance to this conformity assessment system to its counterpart in a country of use.

6.2.5.6.2.2 The competent authority may delegate its functions in this conformity assessment system in whole or in part.

- 6.2.5.6.2.3 The competent authority shall ensure that a current list of approved inspection bodies and their identity marks and approved manufacturers and their identity marks is available.

*Inspection body*

- 6.2.5.6.2.4 The inspection body shall be approved by the competent authority for the inspection of pressure receptacles and shall:

- (a) have a staff with an organisational structure, capable, trained, competent, and skilled, to satisfactorily perform its technical functions;
- (b) have access to suitable and adequate facilities and equipment;
- (c) operate in an impartial manner and be free from any influence which could prevent it from doing so;
- (d) ensure confidentiality of the commercial and proprietary activities of the manufacturer and other bodies;
- (e) maintain clear demarcation between actual inspection body functions and unrelated functions;
- (f) operate a documented quality system;
- (g) ensure that the tests and inspections specified in the relevant pressure receptacle standard and in the ADR are performed; and
- (h) maintain an effective and appropriate report and record system in accordance with 6.2.5.6.6.

- 6.2.5.6.2.5 The inspection body shall perform design type approval, pressure receptacle production testing and inspection and certification to verify conformity with the relevant pressure receptacle standard (see 6.2.5.6.4 and 6.2.5.6.5).

*Manufacturer*

- 6.2.5.6.2.6 The manufacturer shall

- (a) operate a documented quality system in accordance with 6.2.5.6.3;
- (b) apply for design type approvals in accordance with 6.2.5.6.4;
- (c) select an inspection body from the list of approved inspection bodies maintained by the competent authority in the country of approval; and
- (d) maintain records in accordance with 6.2.5.6.6.

*Testing laboratory*

- 6.2.5.6.2.7 The testing laboratory shall have:

- (a) staff with an organisational structure, sufficient in number, competence, and skill; and
- (b) suitable and adequate facilities and equipment to perform the tests required by the manufacturing standard to the satisfaction of the inspection body.

### 6.2.5.6.3 *Manufacturer's quality system*

6.2.5.6.3.1 The quality system shall contain all the elements, requirements, and provisions adopted by the manufacturer. It shall be documented in a systematic and orderly manner in the form of written policies, procedures and instructions.  
The contents shall in particular include adequate descriptions of:

- (a) the organisational structure, responsibilities, and power of the management with regard to design and product quality;
- (b) the design control and design verification techniques, processes, and systematic actions that will be used when designing the pressure receptacles;
- (c) the relevant pressure receptacle manufacturing, quality control, quality assurance, and process operation instructions that will be used;
- (d) quality records, such as inspection reports, test data, and calibration data;
- (e) management reviews to ensure the effective operation of the quality system arising from the audits in accordance with 6.2.5.6.3.2 ;
- (f) the process describing how customer requirements are met;
- (g) the process for control of documents and their revision;
- (h) the means for control of non-conforming pressure receptacles, purchased components, in-process and final materials; and
- (i) training programmes for relevant personnel.

### 6.2.5.6.3.2 Audit of the quality system

The quality system shall be initially assessed to determine whether it meets the requirements in 6.2.5.6.3.1 to the satisfaction of the competent authority.

The manufacturer shall be notified of the results of the audit. The notification shall contain the conclusions of the audit and any corrective actions required.

Periodic audits shall be carried out, to the satisfaction of the competent authority, to ensure that the manufacturer maintains and applies the quality system. Reports of the periodic audits shall be provided to the manufacturer.

### 6.2.5.6.3.3 Maintenance of the quality system

The manufacturer shall maintain the quality system as approved in order that it remains adequate and efficient.

The manufacturer shall notify the competent authority that approved the quality system, of any intended changes. The proposed changes shall be evaluated in order to determine whether the amended quality system will still satisfy the requirements in 6.2.5.6.3.1.

#### 6.2.5.6.4 *Approval process*

##### *Initial design type approval*

6.2.5.6.4.1 The initial design type approval shall consist of approval of the manufacturer's quality system and approval of the pressure receptacle design to be produced. An application for an initial design type approval shall meet the requirements of 6.2.5.6.3, 6.2.5.6.4.2 to 6.2.5.6.4.6 and 6.2.5.6.4.9.

6.2.5.6.4.2 A manufacturer desiring to produce pressure receptacles in accordance with a pressure receptacle standard and with the ADR shall apply for, obtain, and retain a Design Type Approval Certificate issued by the competent authority in the country of approval for at least one pressure receptacle design type in accordance with the procedure given in 6.2.5.6.4.9. This certificate shall, on request, be submitted to the competent authority of the country of use.

6.2.5.6.4.3 An application shall be made for each manufacturing facility and shall include:

- (a) the name and registered address of the manufacturer and in addition, if the application is submitted by an authorised representative, its name and address;
- (b) the address of the manufacturing facility (if different from the above);
- (c) the name and title of the person(s) responsible for the quality system;
- (d) the designation of the pressure receptacle and the relevant pressure receptacle standard;
- (e) details of any refusal of approval of a similar application by any other competent authority;
- (f) the identity of the inspection body for design type approval;
- (g) documentation on the manufacturing facility as specified under 6.2.5.6.3.1 and
- (h) the technical documentation required for design type approval, which shall enable verification of the conformity of the pressure receptacles with the requirements of the relevant pressure receptacle design standard. The technical documentation shall cover the design and method of manufacture and shall contain, as far as is relevant for assessment, at least the following:
  - (i) pressure receptacle design standard, design and manufacturing drawings, showing components and subassemblies, if any;
  - (ii) descriptions and explanations necessary for the understanding of the drawings and intended use of the pressure receptacles;
  - (iii) a list of the standards necessary to fully define the manufacturing process;
  - (iv) design calculations and material specifications; and
  - (v) design type approval test reports, describing the results of examinations and tests carried out in accordance with 6.2.5.6.4.9.

6.2.5.6.4.4 An initial audit in accordance with 6.2.5.6.3.2 shall be performed to the satisfaction of the competent authority.

6.2.5.6.4.5 If the manufacturer is denied approval, the competent authority shall provide written detailed reasons for such denial.

6.2.5.6.4.6 Following approval, changes to the information submitted under 6.2.5.6.4.3 relating to the initial approval shall be provided to the competent authority.

*Subsequent design type approvals*

6.2.5.6.4.7 An application for a subsequent design type approval shall meet the requirements of 6.2.5.6.4.8 and 6.2.5.6.4.9, provided a manufacturer is in the possession of an initial design type approval. In such a case, the manufacturer's quality system according to 6.2.5.6.3 shall have been approved during the initial design type approval and shall be applicable for the new design.

6.2.5.6.4.8 The application shall include:

- (a) the name and address of the manufacturer and in addition, if the application is submitted by an authorised representative, its name and address;
- (b) details of any refusal of approval of a similar application by any other competent authority;
- (c) evidence that initial design type approval has been granted; and
- (d) the technical documentation, as described in 6.2.5.6.4.3 (h).

*Procedure for design type approval*

6.2.5.6.4.9 The inspection body shall:

- (a) examine the technical documentation to verify that:
  - (i) the design is in accordance with the relevant provisions of the standard, and
  - (ii) the prototype lot has been manufactured in conformity with the technical documentation and is representative of the design;
- (b) verify that the production inspections have been carried out as required in accordance with 6.2.5.6.5;
- (c) select pressure receptacles from a prototype production lot and supervise the tests of these pressure receptacles as required for design type approval;
- (d) perform or have performed the examinations and tests specified in the pressure receptacle standard to determine that:
  - (i) the standard has been applied and fulfilled, and
  - (ii) the procedures adopted by the manufacturer meet the requirements of the standard; and
- (e) ensure that the various type approval examinations and tests are correctly and competently carried out.

After prototype testing has been carried out with satisfactory results and all applicable requirements of 6.2.5.6.4 have been satisfied, a design type approval certificate shall be

issued which shall include the name and address of the manufacturer, results and conclusions of the examination, and the necessary data for identification of the design type.

If the manufacturer is denied a design type approval, the competent authority shall provide written detailed reasons for such denial.

#### 6.2.5.6.4.10 Modifications to approved design types

The manufacturer shall inform the issuing competent authority of modifications to the approved design type as specified in the pressure receptacle standard. A subsequent design type approval shall be requested where such modifications constitute a new design according to the relevant pressure receptacle standard. This additional approval shall be given in the form of an amendment to the original Design Type Approval Certificate.

#### 6.2.5.6.4.11 Upon request, the competent authority shall communicate to any other competent authority, information concerning design type approval, modifications of approvals, and withdrawn approvals.

#### 6.2.5.6.5 *Production inspection and certification*

An inspection body, or its delegate, shall carry out the inspection and certification of each pressure receptacle. The inspection body selected by the manufacturer for inspection and testing during production may be different from the inspection body used for the design type approval testing.

Where it can be demonstrated to the satisfaction of the inspection body that the manufacturer has trained and competent inspectors, independent of the manufacturing operations, inspection may be performed by those inspectors. In such a case, the manufacturer shall maintain training records of the inspectors.

The inspection body shall verify that the inspections by the manufacturer and tests performed on those pressure receptacles, fully conform to the standard and the requirements of ADR. Should non-conformance in conjunction with this inspection and testing be determined, the permission to have inspection performed by the manufacturer's inspectors may be withdrawn.

The manufacturer shall, after approval by the inspection body, make a declaration of conformity with the certified design type. The application of the pressure receptacle certification marking shall be considered a declaration that the pressure receptacle complies with the applicable pressure receptacle standards and the requirements of this conformity assessment system and ADR. The inspection body shall affix or delegate the manufacturer to affix the pressure receptacle certification marking and the registered mark of the inspection body to each approved pressure receptacle.

A certificate of compliance, signed by the inspection body and the manufacturer, shall be issued before the pressure receptacles are filled.

#### 6.2.5.6.6 *Records*

Design type approval and certificate of compliance records shall be retained by the manufacturer and the inspection body for not less than 20 years.

### 6.2.5.7 *Marking of UN certified refillable pressure receptacles*

UN certified refillable pressure receptacles shall be marked clearly and legibly with certification and gas and pressure receptacle specific marks. These marks shall be permanently affixed (e.g. stamped, engraved, or etched) on the pressure receptacle. The marks shall be on the shoulder, top end or neck of the pressure receptacle or on a permanently affixed component of the pressure receptacle (e.g. welded collar). Except for the "UN" mark, the minimum size of the marks shall be 5 mm for pressure receptacles with a diameter greater than or equal to 140 mm and 2.5 mm for pressure receptacles with a diameter less than 140 mm. The minimum size of the "UN" mark shall be 10 mm for pressure receptacles with a diameter greater than or equal to 140 mm and 5 mm for pressure receptacles with a diameter less than 140 mm.

6.2.5.7.1 The following certification marks shall be applied:

- (a) The UN packaging symbol



This symbol shall only be marked on pressure receptacles which conform to the requirements of ADR for UN certified pressure receptacles.

- (b) The technical standard (e.g. ISO 9809-1) used for design, construction and testing;
- (c) The character(s) identifying the country of approval as indicated by the distinguishing signs of motor vehicles in international traffic;
- (d) The identity mark or stamp of the inspection body that is registered with the competent authority of the country authorizing the marking;
- (e) The date of the initial inspection, the year (four digits) followed by the month (two digits) separated by a slash (i.e. " / " ).

6.2.5.7.2 The following operational marks shall be applied:

- (f) The test pressure in bar, preceded by the letters "PH" and followed by the letters "BAR";
- (g) The empty mass of the pressure receptacle including all permanently attached integral parts (e.g. neck ring, foot ring, etc.) in kilograms, followed by the letters "KG". This mass shall not include the mass of valve, valve cap or valve guard, any coating, or porous mass for acetylene. The empty mass shall be expressed to three significant figures rounded up to the last digit. For cylinders of less than 1 kg, the mass shall be expressed to two significant figures rounded up to the last digit;
- (h) The minimum guaranteed wall thickness of the pressure receptacle in millimetres followed by the letters "MM". This mark is not required for pressure receptacles with a water capacity less than or equal to 1 l or for composite cylinders;
- (i) In the case of pressure receptacles intended for the carriage of compressed gases, UN No. 1001 acetylene, dissolved, and UN No. 3374 acetylene, solvent free, the working pressure in bar, preceded by the letters "PW";
- (j) In the case of liquefied gases, the water capacity in litres expressed to three significant digits rounded down to the last digit, followed by the letter "L". If the value of the

minimum or nominal water capacity is an integer, the digits after the decimal point may be neglected;


- (k) In the case of UN No. 1001 acetylene, dissolved, the total of the mass of the empty pressure receptacle, the fittings and accessories not removed during filling, the porous material, the solvent and the saturation gas expressed to two significant figures rounded down to the last digit followed by the letters "KG";
- (l) In the case of UN No. 3374 acetylene, solvent free, the total of the mass of the empty pressure receptacle, the fittings and accessories not removed during filling and the porous material expressed to two significant figures rounded down to the last digit followed by the letters "KG".

6.2.5.7.3 The following manufacturing marks shall be applied

- (m) Identification of the cylinder thread (e.g. 25E);
- (n) The manufacturer's mark registered by the competent authority. When the country of manufacture is not the same as the country of approval, then the manufacturer's mark shall be preceded by the character(s) identifying the country of manufacture as indicated by the distinguishing signs of motor vehicles in international traffic. The country mark and the manufacturer's mark shall be separated by a space or slash;
- (o) The serial number assigned by the manufacturer;
- (p) In the case of steel pressure receptacles and composite pressure receptacles with steel liner intended for the carriage of gases with a risk of hydrogen embrittlement, the letter "H" showing compatibility of the steel (see ISO 11114-1:1997).

6.2.5.7.4 The above marks shall be placed in three groups as shown in the example below.

- Manufacturing marks shall be the top grouping and shall appear consecutively in the sequence given in 6.2.5.7.3.
- The middle grouping shall include the test pressure (f) which shall be immediately preceded by the working pressure (i) when the latter is required.
- Certification marks shall be the bottom grouping and shall appear in the sequence given in 6.2.5.7.1.

(m) 25E	(n) D MF	(o) 765432	(p) H	
(i) PW200PH300BAR	(f) 300BAR	(g) 62.1KG	(j) 50L	(h) 5.8MM
(a) 	(b) ISO 9809-1	(c) F	(d) IB	(e) 2000/12



6.2.5.7.5 Other marks are allowed in areas other than the side wall, provided they are made in low stress areas and are not of a size and depth that will create harmful stress concentrations. Such marks shall not conflict with required marks.

6.2.5.7.6 In addition to the preceding marks, each refillable pressure receptacle shall be marked indicating the date (year and month) of the last periodic inspection and the registered mark of the inspection body authorized by the competent authority of the country of use.

**6.2.5.8 *Marking of UN certified non-refillable pressure receptacles***

UN certified non-refillable pressure receptacles shall be marked clearly and legibly with certification and gas or pressure receptacle specific marks. These marks shall be permanently affixed (e.g. stencilled, stamped, engraved, or etched) on the pressure receptacle. Except when stencilled, the marks shall be on the shoulder, top end or neck of the pressure receptacle or on a permanently affixed component of the pressure receptacle (e.g. welded collar). Except for the "UN" mark and the "DO NOT REFILL" mark, the minimum size of the marks shall be 5 mm for pressure receptacles with a diameter greater than or equal to 140 mm and 2.5 mm for pressure receptacles with a diameter less than 140 mm.

The minimum size of the "UN" mark shall be 10 mm for pressure receptacles with a diameter greater than or equal to 140 mm and 5 mm for pressure receptacles with a diameter less than 140 mm.

The minimum size of the "DO NOT REFILL" mark shall be 5 mm.

6.2.5.8.1 The marks listed in 6.2.5.7.1 to 6.2.5.7.3 shall be applied with the exception of (g), (h), and (m). The serial number (o) may be replaced by the batch number. In addition, the words "DO NOT REFILL" in letters of at least 5 mm in height are required.

6.2.5.8.2 The requirements of 6.2.5.7.4 shall apply.

*NOTE: Non-refillable pressure receptacles may, on account of their size, substitute this marking by a label (see 5.2.2.2.1.2).*

6.2.5.8.3 Other marks are allowed provided they are made in low stress areas other than the side wall and are not of a size and depth that will create harmful stress concentrations. Such marks shall not conflict with required marks.


## CHAPTER 6.3

REQUIREMENTS FOR THE CONSTRUCTION AND TESTING OF PACKAGINGS  
FOR CLASS 6.2 SUBSTANCES

**NOTE:** *The requirements of this Chapter don't apply to packagings used for the carriage of Class 6.2 substances according to packing instruction P621 of 4.1.4.1.*

## 6.3.1 General

6.3.1.1 A packaging that meets the requirements of this section and of 6.3.2 shall be marked with:

- (a) the United Nations packaging symbol; 
- (b) the code designating the type of packaging according to the requirements of 6.1.2;
- (c) the text "CLASS 6.2";
- (d) the last two digits of the year of manufacture of the packaging;
- (e) the state authorizing the allocation of the mark, indicated by the distinguishing sign for motor vehicles in international traffic<sup>1</sup>;
- (f) the name of the manufacturer or other identification of the packaging specified by the competent authority;
- (g) for packagings meeting the requirements of 6.3.2.9, the letter "U", inserted immediately following the marking required in (b) above.

Each element of the marking applied in accordance with (a) to (g) shall be clearly separated, e.g. by a slash or space, so as to be easily identifiable.

6.3.1.2 *Example of marking*

4G/CLASS 6.2/92  
S/SP-9989-ERIKSSON

as in 6.3.1.1 (a), (b), (c) and (d)  
as in 6.3.1.1 (e), (f)

6.3.1.3 Manufacturers and subsequent distributors of packagings shall provide information regarding procedures to be followed and a description of the types and dimensions of closures (including required gaskets) and any other components needed to ensure that packages as presented for carriage are capable of passing the applicable performance tests of this Chapter.

## 6.3.2 Test requirements for packagings

6.3.2.1 Other than for packagings for live animals and organisms, samples of each packaging shall be prepared for testing as described in 6.3.2.2 and then subjected to the tests in 6.3.2.4 to 6.3.2.6. If the nature of the packaging makes it necessary, equivalent preparation and tests are permitted, provided that these may be demonstrated to be at least as effective.

<sup>1</sup> *Distinguishing sign for motor vehicles in international traffic prescribed in Vienna Convention on Road Traffic (1968).*

6.3.2.2 Samples of each packaging shall be prepared as for carriage, except that a liquid or solid infectious substance shall be replaced by water or, where conditioning at  $-18^{\circ}\text{C}$  is specified, by water/antifreeze. Each primary receptacle shall be filled to 98% capacity.

6.3.2.3 *Tests required*

Material of					Tests required				
outer packaging			inner packaging		Refer to 6.3.2.5				Refer to 6.3.2.6
Fibre-board	Plastics	Other	Plastics	Other	(a)	(b)	(c)	(d)	
x			x			x	x	when dry ice is used	x
x				x		x			x
	x		x				x		x
	x			x			x		x
		x	x				x		x
		x		x	x				x

6.3.2.4 Packagings prepared as for carriage shall be subjected to the tests in 6.3.2.3, which - for test purposes - categorizes packagings according to their material characteristics. For outer packagings, the headings in the table relate to fibreboard or similar materials whose performance may be rapidly affected by moisture; plastics which may embrittle at low temperature; and other materials such as metal whose performance is not affected by moisture or temperature. If a primary receptacle and a secondary packaging are made of different materials, the material of the primary receptacle determines the appropriate test. In instances where a primary receptacle is made of two materials, the material most liable to damage shall determine the appropriate tests.

6.3.2.5 (a) Samples shall be subjected to free-fall drops on to a rigid, non-resilient, flat, horizontal surface from a height of 9 m. Where the samples are in the shape of a box, five shall be dropped in sequence:

- (i) one flat on to the base,
- (ii) one flat on to the top,
- (iii) one flat on to the long side,
- (iv) one flat on to the short side,
- (v) one on to a corner.

Where the samples are in the shape of a drum, three shall be dropped in sequence:

- (vi) one diagonally on to the top chime, with the centre of gravity directly above the point of impact;
- (vii) one diagonally on to the base chime,
- (viii) one flat on to the side.

Following the appropriate drop sequence, there shall be no leakage from the primary receptacle(s) which shall remain protected by absorbent material in the secondary packaging.

*NOTE: While the sample shall be released in the required orientation, it is accepted that for aerodynamic reasons the impact may not take place in that orientation.*

- (b) The samples shall be subjected to a water spray that simulates exposure to rainfall of approximately 5 cm per hour for at least one hour. It shall then be subjected to the test described in (a).
- (c) The samples shall be conditioned in an atmosphere of -18 °C or less for a period of at least 24 hours and within 15 minutes of removal from that atmosphere be subjected to the test described in (a). Where the samples contain dry ice, the conditioning period may be reduced to 4 hours.
- (d) Where the packaging is intended to contain dry ice, a test additional to that specified in (a) or (b) or (c) shall be carried out. One sample shall be stored so that all the dry ice dissipates and then be subjected to the test described in (a).

6.3.2.6 Packagings with a gross mass of 7 kg or less shall be subjected to the tests described in (a) below and packagings with a gross mass exceeding 7 kg to the tests in (b) below.

- (a) Samples shall be placed on a level hard surface. A cylindrical steel rod with a mass of at least 7 kg, a diameter not exceeding 38 mm and whose impact end edges have a radius not exceeding 6 mm, shall be dropped in a vertical free fall from a height of 1 m, measured from the impact end to the impact surface of the sample. One sample shall be placed on its base. A second sample shall be placed in an orientation perpendicular to that used for the first. In each instance the steel rod shall be aimed to impact the primary receptacle. Following each impact, penetration of the secondary packaging is acceptable, provided that there is no leakage from the primary receptacle(s).
- (b) Samples shall be dropped on to the end of a cylindrical steel rod. The rod shall be set vertically in a level hard surface. It shall have a diameter of 38 mm and the edges of the upper end a radius not exceeding 6 mm. The rod shall protrude from the surface a distance at least equal to that between the primary receptacle(s) and the outer surface of the outer packaging with a minimum of 200 mm. One sample shall be dropped in a vertical free fall from a height of 1 m, measured from the top of the steel rod. A second sample shall be dropped from the same height in an orientation perpendicular to that used for the first. In each instance, the packaging shall be so orientated that the steel rod could penetrate the primary receptacle(s). Following each impact, there shall be no leakage from the primary receptacle(s).

6.3.2.7 The competent authority may permit the selective testing of packagings that differ only in minor respects from a tested type, e.g. smaller sizes of inner packagings or inner packagings of lower net mass; and packagings such as drums, bags and boxes which are produced with small reductions in external dimension(s).

6.3.2.8 Provided an equivalent level of performance is maintained, the following variations in the primary receptacles placed within a secondary packaging are allowed without the need for further testing of the completed packaging:

- (a) Primary receptacles of equivalent or smaller size as compared to the tested primary receptacles may be used provided:
  - (i) the primary receptacles are of similar design to the primary receptacle tested (e.g. shape: round, rectangular, etc.);

- (ii) the material of construction of the primary receptacles (e.g. glass, plastics, metal) offers resistance to impact and stacking forces equivalent to or better than that of the primary receptacles originally tested;
  - (iii) the primary receptacles have the same or smaller openings and the closure is of equivalent design (e.g. screw cap, friction lid, etc.);
  - (iv) sufficient additional cushioning material is used to take up empty spaces and to prevent significant movement of the primary receptacles; and
  - (v) primary receptacles are oriented within the secondary packagings in the same manner as in the tested package.
- (b) A lesser number of the tested primary receptacles, or of the alternative types of primary receptacles identified in (a) above, may be used provided sufficient cushioning is added to fill the void space(s) and to prevent significant movement of the primary receptacles.

## 6.3.2.9

Inner receptacles of any type may be assembled within an intermediate (secondary) packaging and carried without testing in the outer packaging under the following conditions:

- (a) The intermediate/outer packaging combination shall have been successfully tested in accordance with 6.3.2.3 with fragile (e.g. glass) inner receptacles;
- (b) The total combined gross mass of inner receptacles shall not exceed one half the gross mass of inner receptacles used for the drop test in (a) above;
- (c) The thickness of cushioning between inner receptacles and between inner receptacles and the outside of the intermediate packaging shall not be reduced below the corresponding thicknesses in the originally tested packaging; and if a single inner receptacle was used in the original test, the thickness of cushioning between inner receptacles shall not be less than the thickness of cushioning between the outside of the intermediate packaging and the inner receptacle in the original test. When either fewer or smaller inner receptacles are used (as compared to the inner receptacles used in the drop test), sufficient additional cushioning material shall be used to take up the void;
- (d) The outer packaging shall have successfully passed the stacking test in 6.1.5.6 while empty. The total mass of identical packages shall be based on the combined mass of inner receptacles used in the drop test in (a) above;
- (e) For inner receptacles containing liquids, an adequate quantity of absorbent material to absorb the entire liquid content of the inner receptacles shall be present;
- (f) If the outer packaging is intended to contain inner receptacles for liquids and is not leakproof, or is intended to contain inner receptacles for solids and is not siftproof, a means of containing any liquid or solid contents in the event of leakage shall be provided in the form of a leakproof liner; plastics bag or other equally effective means of containment;
- (g) In addition to the markings prescribed in 6.3.1.1(a) to (f), packagings shall be marked in accordance with 6.3.1.1 (g).

**6.3.3 Test report**

6.3.3.1 A test report containing at least the following particulars shall be drawn up and shall be available to the users of the packaging:

1. Name and address of the test facility;
2. Name and address of applicant (where appropriate);
3. A unique test report identification;
4. Date of the test report;
5. Manufacturer of the packaging;
6. Description of the packaging design type (e.g. dimensions, materials, closures, thickness, etc.), including method of manufacture (e.g. blow moulding) and which may include drawing(s) and/or photograph(s);
7. Maximum capacity;
8. Characteristics of test contents, e.g. viscosity and relative density for liquids and particle size for solids;
9. Test descriptions and results;
10. The test report shall be signed with the name and status of the signatory.

6.3.3.2 The test report shall contain statements that the packaging prepared as for carriage was tested in accordance with the appropriate requirements of this Chapter and that the use of other packaging methods or components may render it invalid. A copy of the test report shall be available to the competent authority.

## CHAPTER 6.4

REQUIREMENTS FOR THE CONSTRUCTION, TESTING AND APPROVAL  
OF PACKAGES AND MATERIAL OF CLASS 7

6.4.1 *(Reserved)*

6.4.2 **General requirements**

6.4.2.1 The package shall be so designed in relation to its mass, volume and shape that it can be easily and safely carried. In addition, the package shall be so designed that it can be properly secured in or on the vehicle during carriage.

6.4.2.2 The design shall be such that any lifting attachments on the package will not fail when used in the intended manner and that, if failure of the attachments should occur, the ability of the package to meet other requirements of this Annex would not be impaired. The design shall take account of appropriate safety factors to cover snatch lifting.

6.4.2.3 Attachments and any other features on the outer surface of the package which could be used to lift it shall be designed either to support its mass in accordance with the requirements of 6.4.2.2 or shall be removable or otherwise rendered incapable of being used during carriage.

6.4.2.4 As far as practicable, the packaging shall be so designed and finished that the external surfaces are free from protruding features and can be easily decontaminated.

6.4.2.5 As far as practicable, the outer layer of the package shall be so designed as to prevent the collection and the retention of water.

6.4.2.6 Any features added to the package at the time of carriage which are not part of the package shall not reduce its safety.

6.4.2.7 The package shall be capable of withstanding the effects of any acceleration, vibration or vibration resonance which may arise under routine conditions of carriage without any deterioration in the effectiveness of the closing devices on the various receptacles or in the integrity of the package as a whole. In particular, nuts, bolts and other securing devices shall be so designed as to prevent them from becoming loose or being released unintentionally, even after repeated use.

6.4.2.8 The materials of the packaging and any components or structures shall be physically and chemically compatible with each other and with the radioactive contents. Account shall be taken of their behaviour under irradiation.

6.4.2.9 All valves through which the radioactive contents could otherwise escape shall be protected against unauthorized operation.

6.4.2.10 The design of the package shall take into account ambient temperatures and pressures that are likely to be encountered in routine conditions of carriage.

6.4.2.11 For radioactive material having other dangerous properties the package design shall take into account those properties; see 2.1.3.5.3 and 4.1.9.1.5.

6.4.2.12 Manufacturers and subsequent distributors of packagings shall provide information regarding procedures to be followed and a description of the types and dimensions of closures (including required gaskets) and any other components needed to ensure that packages as

presented for carriage are capable of passing the applicable performance tests of this Chapter.

**6.4.3**        *(Reserved)*

**6.4.4**        **Requirements for excepted packages**

An excepted package shall be designed to meet the requirements specified in 6.4.2.

**6.4.5**        **Requirements for Industrial packages**

6.4.5.1        Industrial packages Types 1, 2, and 3 (Types IP-1, IP-2, and IP-3) shall meet the requirements specified in 6.4.2 and 6.4.7.2.

6.4.5.2        An Industrial package Type 2 (Type IP-2) shall, if it were subjected to the tests specified in 6.4.15.4 and 6.4.15.5, prevent:

- (a) Loss or dispersal of the radioactive contents; and
- (b) Loss of shielding integrity which would result in more than a 20% increase in the radiation level at any external surface of the package.

6.4.5.3        An Industrial package Type 3 (Type IP-3) shall meet all the requirements specified in 6.4.7.2 to 6.4.7.15.

**6.4.5.4**        *Alternative requirements for Industrial packages Types 2 and 3 (Types IP-2 and IP-3)*

6.4.5.4.1       Packages may be used as Industrial package Type 2 (Type IP-2) provided that:

- (a) They satisfy the requirements of 6.4.5.1;
- (b) They are designed to conform to the standards prescribed in Chapter 6.1 or other requirements at least equivalent to those standards; and
- (c) When subjected to the tests required for packing groups I or II in Chapter 6.1, they would prevent:
  - (i) loss or dispersal of the radioactive contents; and
  - (ii) loss of shielding integrity which would result in more than a 20% increase in the radiation level at any external surface of the package.

6.4.5.4.2       Tank-containers and portable tanks may also be used as Industrial package Types 2 or 3 (Types IP-2 or IP-3), provided that:

- (a) They satisfy the requirements of 6.4.5.1;
- (b) They are designed to conform to the standards prescribed in Chapter 6.7 or Chapter 6.8, or other requirements at least equivalent to those standards, and are capable of withstanding a test pressure of 265 kPa; and
- (c) They are designed so that any additional shielding which is provided shall be capable of withstanding the static and dynamic stresses resulting from handling and routine conditions of carriage and of preventing a loss of shielding integrity which would result in more than a 20% increase in the radiation level at any external surface of the portable tanks or tank-containers.



- 6.4.5.4.3 Tanks, other than portable tanks and tank-containers, may also be used as Industrial package Types 2 or 3 (Types IP-2 or IP-3) for carrying LSA-I and LSA-II liquids and gases as prescribed in Table 4.1.9.2.4, provided that they conform to standards at least equivalent to those prescribed in 6.4.5.4.2.
- 6.4.5.4.4 Containers may also be used as Industrial package Types 2 or 3 (Types IP-2 or IP-3), provided that:
- (a) The radioactive contents are restricted to solid materials;
  - (b) They satisfy the requirements of 6.4.5.1; and
  - (c) They are designed to conform to ISO 1496-1:1990: "Series 1 Containers - Specifications and Testing - Part 1: General Cargo Containers" excluding dimensions and ratings. They shall be designed such that if subjected to the tests prescribed in that document and the accelerations occurring during routine conditions of carriage they would prevent:
    - (i) loss or dispersal of the radioactive contents; and
    - (ii) loss of shielding integrity which would result in more than a 20% increase in the radiation level at any external surface of the containers.
- 6.4.5.4.5 Metal intermediate bulk containers may also be used as Industrial package Type 2 or 3 (Type IP-2 or IP-3) provided that:
- (a) They satisfy the requirements of 6.4.5.1; and
  - (b) They are designed to conform to the standards and tests prescribed in Chapter 6.5 for packing groups I or II, but with the drop test conducted in the most damaging orientation, they would prevent:
    - (i) loss or dispersal of the radioactive contents; and
    - (ii) loss of shielding integrity which would result in more than a 20% increase in the radiation level at any external surface of the intermediate bulk container.

## 6.4.6 Requirements for packages containing uranium hexafluoride

- 6.4.6.1 Except as allowed in 6.4.6.4, uranium hexafluoride shall be packaged and carried in accordance with the provisions of ISO 7195:1993 "Packaging of uranium hexafluoride (UF<sub>6</sub>) for transport", and the requirements of 6.4.6.2 and 6.4.6.3. The package shall also meet the requirements prescribed elsewhere in ADR which pertain to the radioactive and fissile properties of the material.
- 6.4.6.2 Each package designed to contain 0.1 kg or more of uranium hexafluoride shall be designed so that it would meet the following requirements:
- (a) Withstand without leakage and without unacceptable stress, as specified in ISO 7195:1993, the structural test as specified in 6.4.21.5;
  - (b) Withstand without loss or dispersal of the uranium hexafluoride the test specified in 6.4.15.4; and
  - (c) Withstand without rupture of the containment system the test specified in 6.4.17.3.

- 6.4.6.3 Packages designed to contain 0.1 kg or more of uranium hexafluoride shall not be provided with pressure relief devices.
- 6.4.6.4 Subject to the approval of the competent authority, packages designed to contain 0.1 kg or more of uranium hexafluoride may be carried if:
- (a) The packages are designed to requirements other than those given in ISO 7195:1993 and 6.4.6.2 and 6.4.6.3 but, notwithstanding, the requirements of 6.4.6.2 and 6.4.6.3 are met as far as practicable;
  - (b) The packages are designed to withstand without leakage and without unacceptable stress a test pressure less than 2.76 MPa as specified in 6.4.21.5; or
  - (c) For packages designed to contain 9 000 kg or more of uranium hexafluoride, the packages do not meet the requirement of 6.4.6.2 (c).

#### 6.4.7 Requirements for Type A packages

- 6.4.7.1 Type A packages shall be designed to meet the general requirements of 6.4.2 and of 6.4.7.2 to 6.4.7.17.
- 6.4.7.2 The smallest overall external dimension of the package shall not be less than 10 cm.
- 6.4.7.3 The outside of the package shall incorporate a feature such as a seal, which is not readily breakable and which, while intact, will be evidence that it has not been opened.
- 6.4.7.4 Any tie-down attachments on the package shall be so designed that, under normal and accident conditions of carriage, the forces in those attachments shall not impair the ability of the package to meet the requirements of ADR.
- 6.4.7.5 The design of the package shall take into account temperatures ranging from  $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  for the components of the packaging. Attention shall be given to freezing temperatures for liquids and to the potential degradation of packaging materials within the given temperature range.
- 6.4.7.6 The design and manufacturing techniques shall be in accordance with national or international standards, or other requirements, acceptable to the competent authority.
- 6.4.7.7 The design shall include a containment system securely closed by a positive fastening device which cannot be opened unintentionally or by a pressure which may arise within the package.
- 6.4.7.8 Special form radioactive material may be considered as a component of the containment system.
- 6.4.7.9 If the containment system forms a separate unit of the package, it shall be capable of being securely closed by a positive fastening device which is independent of any other part of the packaging.
- 6.4.7.10 The design of any component of the containment system shall take into account, where applicable, the radiolytic decomposition of liquids and other vulnerable materials and the generation of gas by chemical reaction and radiolysis.
- 6.4.7.11 The containment system shall retain its radioactive contents under a reduction of ambient pressure to 60 kPa.

- 6.4.7.12 All valves, other than pressure relief valves, shall be provided with an enclosure to retain any leakage from the valve.
- 6.4.7.13 A radiation shield which encloses a component of the package specified as a part of the containment system shall be so designed as to prevent the unintentional release of that component from the shield. Where the radiation shield and such component within it form a separate unit, the radiation shield shall be capable of being securely closed by a positive fastening device which is independent of any other packaging structure.
- 6.4.7.14 A package shall be so designed that if it were subjected to the tests specified in 6.4.15, it would prevent:
- (a) Loss or dispersal of the radioactive contents; and
  - (b) Loss of shielding integrity which would result in more than a 20% increase in the radiation level at any external surface of the package.
- 6.4.7.15 The design of a package intended for liquid radioactive material shall make provision for ullage to accommodate variations in the temperature of the contents, dynamic effects and filling dynamics.

*Type A packages to contain liquids*

- 6.4.7.16 A Type A package designed to contain liquids shall, in addition:
- (a) Be adequate to meet the conditions specified in 6.4.7.14 above if the package is subjected to the tests specified in 6.4.16; and
  - (b) Either
    - (i) be provided with sufficient absorbent material to absorb twice the volume of the liquid contents. Such absorbent material shall be suitably positioned so as to contact the liquid in the event of leakage; or
    - (ii) be provided with a containment system composed of primary inner and secondary outer containment components designed to ensure retention of the liquid contents, within the secondary outer containment components, even if the primary inner components leak.

*Type A packages to contain gas*

- 6.4.7.17 A package designed for gases shall prevent loss or dispersal of the radioactive contents if the package were subjected to the tests specified in 6.4.16. A Type A package designed for tritium gas or for noble gases shall be excepted from this requirement.

**6.4.8 Requirements for Type B(U) packages**

- 6.4.8.1 Type B(U) packages shall be designed to meet the requirements specified in 6.4.2, and of 6.4.7.2 to 6.4.7.15, except as specified in 6.4.7.14 (a), and, in addition, the requirements specified in 6.4.8.2 to 6.4.8.15.
- 6.4.8.2 A package shall be so designed that, under the ambient conditions specified in 6.4.8.4 and 6.4.8.5 heat generated within the package by the radioactive contents shall not, under normal conditions of carriage, as demonstrated by the tests in 6.4.15, adversely affect the package in such a way that it would fail to meet the applicable requirements for containment

and shielding if left unattended for a period of one week. Particular attention shall be paid to the effects of heat, which may:

- (a) Alter the arrangement, the geometrical form or the physical state of the radioactive contents or, if the radioactive material is enclosed in a can or receptacle (for example, clad fuel elements), cause the can, receptacle or radioactive material to deform or melt; or
- (b) Lessen the efficiency of the packaging through differential thermal expansion or cracking or melting of the radiation shielding material; or
- (c) In combination with moisture, accelerate corrosion.

6.4.8.3 A package shall be so designed that, under the ambient condition specified in 6.4.8.4, the temperature of the accessible surfaces of a package shall not exceed 50 °C, unless the package is carried under exclusive use.

6.4.8.4 The ambient temperature shall be assumed to be 38 °C.

6.4.8.5 The solar insolation conditions shall be assumed to be as specified in Table 6.4.8.5.

Table 6.4.8.5: Insolation data

Form and location of surface	Insolation for 12 hours per day (W/m <sup>2</sup> )
Flat surfaces carried horizontally:	
- base	none
- other surfaces	800
Flat surfaces not carried horizontally:	
- each surface	200 <sup>a</sup>
Curved surfaces	400 <sup>a</sup>

<sup>a</sup> Alternatively, a sine function may be used, with an absorption coefficient adopted and the effects of possible reflection from neighbouring objects neglected.

6.4.8.6 A package which includes thermal protection for the purpose of satisfying the requirements of the thermal test specified in 6.4.17.3 shall be so designed that such protection will remain effective if the package is subjected to the tests specified in 6.4.15 and 6.4.17.2 (a) and (b) or 6.4.17.2 (b) and (c), as appropriate. Any such protection on the exterior of the package shall not be rendered ineffective by ripping, cutting, skidding, abrasion or rough handling.

6.4.8.7 A package shall be so designed that, if it were subjected to:

- (a) The tests specified in 6.4.15, it would restrict the loss of radioactive contents to not more than 10<sup>-6</sup> A<sub>2</sub> per hour; and
- (b) The tests specified in 6.4.17.1, 6.4.17.2 (b), 6.4.17.3, and 6.4.17.4 and the tests in
  - (i) 6.4.17.2 (c), when the package has a mass not greater than 500 kg, an overall density not greater than 1 000 kg/m<sup>3</sup> based on the external dimensions, and radioactive contents greater than 1 000 A<sub>2</sub> not as special form radioactive material, or
  - (ii) 6.4.17.2 (a), for all other packages,

it would meet the following requirements:

- retain sufficient shielding to ensure that the radiation level at 1 m from the surface of the package would not exceed 10 mSv/h with the maximum radioactive contents which the package is designed to contain; and
- restrict the accumulated loss of radioactive contents in a period of one week to not more than  $10 A_2$  for krypton-85 and not more than  $A_2$  for all other radionuclides.

Where mixtures of different radionuclides are present, the provisions of 2.2.7.7.2.4 to 2.2.7.7.2.6 shall apply except that for krypton-85 an effective  $A_2(i)$  value equal to  $10 A_2$  may be used. For case (a) above, the assessment shall take into account the external contamination limits of 4.1.9.1.2.

- 6.4.8.8 A package for radioactive contents with activity greater than  $10^5 A_2$  shall be so designed that if it were subjected to the enhanced water immersion test specified in 6.4.18, there would be no rupture of the containment system.
- 6.4.8.9 Compliance with the permitted activity release limits shall depend neither upon filters nor upon a mechanical cooling system.
- 6.4.8.10 A package shall not include a pressure relief system from the containment system which would allow the release of radioactive material to the environment under the conditions of the tests specified in 6.4.15 and 6.4.17.
- 6.4.8.11 A package shall be so designed that if it were at the maximum normal operating pressure and it were subjected to the tests specified in 6.4.15 and 6.4.17, the level of strains in the containment system would not attain values which would adversely affect the package in such a way that it would fail to meet the applicable requirements.
- 6.4.8.12 A package shall not have a maximum normal operating pressure in excess of a gauge pressure of 700 kPa.
- 6.4.8.13 The maximum temperature of any surface readily accessible during carriage of a package shall not exceed 85 °C in the absence of insolation under the ambient conditions specified in 6.4.8.4. The package shall be carried under exclusive use, as specified in 6.4.8.3, if this maximum temperature exceeds 50 °C. Account may be taken of barriers or screens intended to give protection to persons without the need for the barriers or screens being subject to any test.
- 6.4.8.14 *(Reserved)*
- 6.4.8.15 A package shall be designed for an ambient temperature range from -40 °C to +38 °C.
- 6.4.9 Requirements for Type B(M) packages**
- 6.4.9.1 Type B(M) packages shall meet the requirements for Type B(U) packages specified in 6.4.8.1, except that for packages to be carried solely within a specified country or solely between specified countries, conditions other than those given in 6.4.7.5, 6.4.8.4, 6.4.8.5, and 6.4.8.8 to 6.4.8.15 above may be assumed with the approval of the competent authorities of these countries. Notwithstanding, the requirements for Type B(U) packages specified in 6.4.8.8 to 6.4.8.15 shall be met as far as practicable.

6.4.9.2 Intermittent venting of Type B(M) packages may be permitted during carriage, provided that the operational controls for venting are acceptable to the relevant competent authorities.

#### 6.4.10 Requirements for Type C packages

6.4.10.1 Type C packages shall be designed to meet the requirements specified in 6.4.2 and of 6.4.7.2 to 6.4.7.15, except as specified in 6.4.7.14 (a), and of the requirements specified in 6.4.8.2 to 6.4.8.5, 6.4.8.9 to 6.4.8.15, and, in addition, of 6.4.10.2 to 6.4.10.4.

6.4.10.2 A package shall be capable of meeting the assessment criteria prescribed for tests in 6.4.8.7 (b) and 6.4.8.11 after burial in an environment defined by a thermal conductivity of  $0.33 \text{ W.m}^{-1}\text{.K}^{-1}$  and a temperature of  $38 \text{ }^\circ\text{C}$  in the steady state. Initial conditions for the assessment shall assume that any thermal insulation of the package remains intact, the package is at the maximum normal operating pressure and the ambient temperature is  $38 \text{ }^\circ\text{C}$ .

6.4.10.3 A package shall be so designed that, if it were at the maximum normal operating pressure and subjected to:

- (a) The tests specified in 6.4.15, it would restrict the loss of radioactive contents to not more than  $10^{-6} \text{ A}_2$  per hour; and
- (b) The test sequences in 6.4.20.1, it would meet the following requirements:
  - (i) retain sufficient shielding to ensure that the radiation level at 1 m from the surface of the package would not exceed  $10 \text{ mSv/h}$  with the maximum radioactive contents which the package is designed to contain; and
  - (ii) restrict the accumulated loss of radioactive contents in a period of 1 week to not more than  $10 \text{ A}_2$  for krypton-85 and not more than  $\text{A}_2$  for all other radionuclides.

Where mixtures of different radionuclides are present, the provisions of 2.2.7.7.2.4 to 2.2.7.7.2.6 shall apply except that for krypton-85 an effective  $\text{A}_2(i)$  value equal to  $10 \text{ A}_2$  may be used. For case (a) above, the assessment shall take into account the external contamination limits of 4.1.9.1.2.

6.4.10.4 A package shall be so designed that there will be no rupture of the containment system following performance of the enhanced water immersion test specified in 6.4.18.

#### 6.4.11 Requirements for packages containing fissile material

6.4.11.1 Fissile material shall be carried so as to:

- (a) Maintain sub-criticality during normal and accident conditions of carriage; in particular, the following contingencies shall be considered:
  - (i) water leaking into or out of packages;
  - (ii) the loss of efficiency of built-in neutron absorbers or moderators;
  - (iii) rearrangement of the contents either within the package or as a result of loss from the package;
  - (iv) reduction of spaces within or between packages;

- (v) packages becoming immersed in water or buried in snow; and
  - (vi) temperature changes; and
- (b) Meet the requirements:
- (i) of 6.4.7.2 for fissile material contained in packages;
  - (ii) prescribed elsewhere in ADR which pertain to the radioactive properties of the material; and
  - (iii) specified in 6.4.11.3 to 6.4.11.12, unless excepted by 6.4.11.2.

6.4.11.2 Fissile material meeting one of the provisions (a) to (d) of this paragraph is excepted from the requirement to be carried in packages that comply with 6.4.11.3 to 6.4.11.12 as well as the other requirements of ADR that apply to fissile material. Only one type of exception is allowed per consignment.

- (a) A mass limit per consignment such that:

$$\frac{\text{mass of uranium - 235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y}$$

where X and Y are the mass limits defined in Table 6.4.11.2, provided that either:

- (i) each individual package contains not more than 15 g of fissile material; for unpackaged material, this quantity limitation shall apply to the consignment being carried in or on the vehicle; or
- (ii) the fissile material is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass; or
- (iii) there is not more than 5 g of fissile material in any 10 litre volume of material.

Neither beryllium nor deuterium shall be present in quantities exceeding 0.1% of the fissile material mass;

- (b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of uranium-235, provided that the fissile material is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement;
- (c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2;
- (d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those radionuclides.

**Table 6.4.11.2: Consignment mass limits for exceptions from the requirements for packages containing fissile material**

Fissile material	Fissile material mass (g) mixed with substances having an average hydrogen density less than or equal to water	Fissile material mass (g) mixed with substances having an average hydrogen density greater than water
Uranium -235(X)	400	290
Other fissile material (Y)	250	180

- 6.4.11.3 Where the chemical or physical form, isotopic composition, mass or concentration, moderation ratio or density, or geometric configuration is not known, the assessments of 6.4.11.7 to 6.4.11.12 shall be performed assuming that each parameter that is not known has the value which gives the maximum neutron multiplication consistent with the known conditions and parameters in these assessments.
- 6.4.11.4 For irradiated nuclear fuel the assessments of 6.4.11.7 to 6.4.11.12 shall be based on an isotopic composition demonstrated to provide:
- (a) The maximum neutron multiplication during the irradiation history; or
  - (b) A conservative estimate of the neutron multiplication for the package assessments. After irradiation but prior to shipment, a measurement shall be performed to confirm the conservatism of the isotopic composition.
- 6.4.11.5 The packaging, after being subjected to the tests specified in 6.4.15, must prevent the entry of a 10 cm cube.
- 6.4.11.6 The package shall be designed for an ambient temperature range of -40°C to + 38°C unless the competent authority specifies otherwise in the certificate of approval for the package design.
- 6.4.11.7 For a package in isolation, it shall be assumed that water can leak into or out of all void spaces of the package, including those within the containment system. However, if the design incorporates special features to prevent such leakage of water into or out of certain void spaces, even as a result of error, absence of leakage may be assumed in respect of those void spaces. Special features shall include the following:
- (a) Multiple high standard water barriers, each of which would remain watertight if the package were subject to the tests prescribed in 6.4.11.12 (b), a high degree of quality control in the manufacture, maintenance and repair of packagings and tests to demonstrate the closure of each package before each shipment; or
  - (b) For packages containing uranium hexafluoride only:
    - (i) packages where, following the tests prescribed in 6.4.11.12 (b), there is no physical contact between the valve and any other component of the packaging other than at its original point of attachment and where, in addition, following the test prescribed in 6.4.17.3 the valves remain leaktight; and
    - (ii) a high degree of quality control in the manufacture, maintenance and repair of packagings coupled with tests to demonstrate closure of each package before each shipment.



- 6.4.11.8 It shall be assumed that the confinement system shall be closely reflected by at least 20 cm of water or such greater reflection as may additionally be provided by the surrounding material of the packaging. However, when it can be demonstrated that the confinement system remains within the packaging following the tests prescribed in 6.4.11.12 (b), close reflection of the package by at least 20 cm of water may be assumed in 6.4.11.9 (c).
- 6.4.11.9 The package shall be subcritical under the conditions of 6.4.11.7 and 6.4.11.8 with the package conditions that result in the maximum neutron multiplication consistent with:
- (a) Routine conditions of carriage (incident free);
  - (b) The tests specified in 6.4.11.11 (b);
  - (c) The tests specified in 6.4.11.12 (b).
- 6.4.11.10 *(Reserved)*
- 6.4.11.11 For normal conditions of carriage a number "N" shall be derived, such that five times "N" shall be sub-critical for the arrangement and package conditions that provide the maximum neutron multiplication consistent with the following:
- (a) There shall not be anything between the packages, and the package arrangement shall be reflected on all sides by at least 20 cm of water; and
  - (b) The state of the packages shall be their assessed or demonstrated condition if they had been subjected to the tests specified in 6.4.15.
- 6.4.11.12 For accident conditions of carriage a number "N" shall be derived, such that two times "N" shall be sub-critical for the arrangement and package conditions that provide the maximum neutron multiplication consistent with the following:
- (a) Hydrogenous moderation between packages, and the package arrangement reflected on all sides by at least 20 cm of water; and
  - (b) The tests specified in 6.4.15 followed by whichever of the following is the more limiting:
    - (i) the tests specified in 6.4.17.2 (b) and, either 6.4.17.2 (c) for packages having a mass not greater than 500 kg and an overall density not greater than 1 000 kg/m<sup>3</sup> based on the external dimensions, or 6.4.17.2 (a) for all other packages; followed by the test specified in 6.4.17.3 and completed by the tests specified in 6.4.19.1 to 6.4.19.3; or
    - (ii) the test specified in 6.4.17.4; and
  - (c) Where any part of the fissile material escapes from the containment system following the tests specified in 6.4.11.12 (b), it shall be assumed that fissile material escapes from each package in the array and all of the fissile material shall be arranged in the configuration and moderation that results in the maximum neutron multiplication with close reflection by at least 20 cm of water.

**6.4.12 Test procedures and demonstration of compliance**

6.4.12.1 Demonstration of compliance with the performance standards required in 2.2.7.3.3, 2.2.7.3.4, 2.2.7.4.1, 2.2.7.4.2, and 6.4.2 to 6.4.11 must be accomplished by any of the methods listed below or by a combination thereof:

- (a) Performance of tests with specimens representing LSA-III material, or special form radioactive material, or with prototypes or samples of the packaging, where the contents of the specimen or the packaging for the tests shall simulate as closely as practicable the expected range of radioactive contents and the specimen or packaging to be tested shall be prepared as presented for carriage;
- (b) Reference to previous satisfactory demonstrations of a sufficiently similar nature;
- (c) Performance of tests with models of appropriate scale incorporating those features which are significant with respect to the item under investigation when engineering experience has shown results of such tests to be suitable for design purposes. When a scale model is used, the need for adjusting certain test parameters, such as penetrator diameter or compressive load, shall be taken into account;
- (d) Calculation, or reasoned argument, when the calculation procedures and parameters are generally agreed to be reliable or conservative.

6.4.12.2 After the specimen, prototype or sample has been subjected to the tests, appropriate methods of assessment shall be used to assure that the requirements for the test procedures have been fulfilled in compliance with the performance and acceptance standards prescribed in 2.2.7.3.3, 2.2.7.3.4, 2.2.7.4.1, 2.2.7.4.2, and 6.4.2 to 6.4.11.

6.4.12.3 All specimens shall be inspected before testing in order to identify and record faults or damage including the following:

- (a) Divergence from the design;
- (b) Defects in manufacture;
- (c) Corrosion or other deterioration; and
- (d) Distortion of features.

The containment system of the package shall be clearly specified. The external features of the specimen shall be clearly identified so that reference may be made simply and clearly to any part of such specimen.

**6.4.13 Testing the integrity of the containment system and shielding and evaluating criticality safety**

After each of the applicable tests specified in 6.4.15 to 6.4.21:

- (a) Faults and damage shall be identified and recorded;
- (b) It shall be determined whether the integrity of the containment system and shielding has been retained to the extent required in 6.4.2 to 6.4.11 for the package under test; and

- (c) For packages containing fissile material, it shall be determined whether the assumptions and conditions used in the assessments required by 6.4.11.1 to 6.4.11.12 for one or more packages are valid.

#### 6.4.14 Target for drop tests

The target for the drop tests specified in 2.2.7.4.5 (a), 6.4.15.4, 6.4.16 (a), 6.4.17.2 shall be a flat, horizontal surface of such a character that any increase in its resistance to displacement or deformation upon impact by the specimen would not significantly increase the damage to the specimen.

#### 6.4.15 Tests for demonstrating ability to withstand normal conditions of carriage

6.4.15.1 The tests are: the water spray test, the free drop test, the stacking test and the penetration test. Specimens of the package shall be subjected to the free drop test, the stacking test and the penetration test, preceded in each case by the water spray test. One specimen may be used for all the tests, provided that the requirements of 6.4.15.2 are fulfilled.

6.4.15.2 The time interval between the conclusion of the water spray test and the succeeding test shall be such that the water has soaked in to the maximum extent, without appreciable drying of the exterior of the specimen. In the absence of any evidence to the contrary, this interval shall be taken to be two hours if the water spray is applied from four directions simultaneously. No time interval shall elapse, however, if the water spray is applied from each of the four directions consecutively.

6.4.15.3 Water spray test: The specimen shall be subjected to a water spray test that simulates exposure to rainfall of approximately 5 cm per hour for at least one hour.

6.4.15.4 Free drop test: The specimen shall drop onto the target so as to suffer maximum damage in respect of the safety features to be tested.

- (a) The height of drop measured from the lowest point of the specimen to the upper surface of the target shall be not less than the distance specified in Table 6.4.15.4 for the applicable mass. The target shall be as defined in 6.4.14;
- (b) For rectangular fibreboard or wood packages not exceeding a mass of 50 kg, a separate specimen shall be subjected to a free drop onto each corner from a height of 0.3 m;
- (c) For cylindrical fibreboard packages not exceeding a mass of 100 kg, a separate specimen shall be subjected to a free drop onto each of the quarters of each rim from a height of 0.3 m.

**Table 6.4.15.4: Free drop distance for testing packages to normal conditions of carriage**

Package mass (kg)	Free drop distance (m)
Package mass < 5 000	1.2
5 000 ≤ Package mass < 10 000	0.9
10 000 ≤ Package mass < 15 000	0.6
15 000 ≤ Package mass	0.3

6.4.15.5 **Stacking test:** Unless the shape of the packaging effectively prevents stacking, the specimen shall be subjected, for a period of 24 h, to a compressive load equal to the greater of the following:

- (a) The equivalent of 5 times the mass of the actual package; and
- (b) The equivalent of 13 kPa multiplied by the vertically projected area of the package.

The load shall be applied uniformly to two opposite sides of the specimen, one of which shall be the base on which the package would typically rest.

6.4.15.6 **Penetration test:** The specimen shall be placed on a rigid, flat, horizontal surface which will not move significantly while the test is being carried out.

- (a) A bar of 3.2 cm in diameter with a hemispherical end and a mass of 6 kg shall be dropped and directed to fall, with its longitudinal axis vertical, onto the centre of the weakest part of the specimen, so that, if it penetrates sufficiently far, it will hit the containment system. The bar shall not be significantly deformed by the test performance;
- (b) The height of drop of the bar measured from its lower end to the intended point of impact on the upper surface of the specimen shall be 1 m.

#### 6.4.16 **Additional tests for Type A packages designed for liquids and gases**

A specimen or separate specimens shall be subjected to each of the following tests unless it can be demonstrated that one test is more severe for the specimen in question than the other, in which case one specimen shall be subjected to the more severe test.

- (a) **Free drop test:** The specimen shall drop onto the target so as to suffer the maximum damage in respect of containment. The height of the drop measured from the lowest part of the specimen to the upper surface of the target shall be 9 m. The target shall be as defined in 6.4.14;
- (b) **Penetration test:** The specimen shall be subjected to the test specified in 6.4.15.6 except that the height of drop shall be increased to 1.7 m from the 1 m specified in 6.4.15.6 (b).

#### 6.4.17 **Tests for demonstrating ability to withstand accident conditions in carriage**

6.4.17.1 The specimen shall be subjected to the cumulative effects of the tests specified in 6.4.17.2 and 6.4.17.3, in that order. Following these tests, either this specimen or a separate specimen shall be subjected to the effect(s) of the water immersion test(s) as specified in 6.4.17.4 and, if applicable, 6.4.18.

6.4.17.2 **Mechanical test:** The mechanical test consists of three different drop tests. Each specimen shall be subjected to the applicable drops as specified in 6.4.8.7 or 6.4.11.12. The order in which the specimen is subjected to the drops shall be such that, on completion of the mechanical test, the specimen shall have suffered such damage as will lead to the maximum damage in the thermal test which follows.

- (a) For drop I, the specimen shall drop onto the target so as to suffer the maximum damage, and the height of the drop measured from the lowest point of the specimen to the upper surface of the target shall be 9 m. The target shall be as defined in 6.4.14;

- (b) For drop II, the specimen shall drop so as to suffer the maximum damage onto a bar rigidly mounted perpendicularly on the target. The height of the drop measured from the intended point of impact of the specimen to the upper surface of the bar shall be 1 m. The bar shall be of solid mild steel of circular section, (15.0 cm  $\pm$  0.5 cm) in diameter and 20 cm long unless a longer bar would cause greater damage, in which case a bar of sufficient length to cause maximum damage shall be used. The upper end of the bar shall be flat and horizontal with its edges rounded off to a radius of not more than 6 mm. The target on which the bar is mounted shall be as described in 6.4.14;
- (c) For drop III, the specimen shall be subjected to a dynamic crush test by positioning the specimen on the target so as to suffer maximum damage by the drop of a 500 kg mass from 9 m onto the specimen. The mass shall consist of a solid mild steel plate 1 m by 1 m and shall fall in a horizontal attitude. The height of the drop shall be measured from the underside of the plate to the highest point of the specimen. The target on which the specimen rests shall be as defined in 6.4.14.

## 6.4.17.3

Thermal test: The specimen shall be in thermal equilibrium under conditions of an ambient temperature of 38 °C, subject to the solar insolation conditions specified in Table 6.4.8.5 and subject to the design maximum rate of internal heat generation within the package from the radioactive contents. Alternatively, any of these parameters are allowed to have different values prior to and during the test, providing due account is taken of them in the subsequent assessment of package response.

The thermal test shall then consist of:

- (a) Exposure of a specimen for a period of 30 minutes to a thermal environment which provides a heat flux at least equivalent to that of a hydrocarbon fuel/air fire in sufficiently quiescent ambient conditions to give a minimum average flame emissivity coefficient of 0.9 and an average temperature of at least 800 °C, fully engulfing the specimen, with a surface absorptivity coefficient of 0.8 or that value which the package may be demonstrated to possess if exposed to the fire specified, followed by,
- (b) Exposure of the specimen to an ambient temperature of 38 °C, subject to the solar insolation conditions specified in Table 6.4.8.5 and subject to the design maximum rate of internal heat generation within the package by the radioactive contents for a sufficient period to ensure that temperatures in the specimen are everywhere decreasing and/or are approaching initial steady state conditions. Alternatively, any of these parameters are allowed to have different values following cessation of heating, providing due account is taken of them in the subsequent assessment of package response.

During and following the test the specimen shall not be artificially cooled and any combustion of materials of the specimen shall be permitted to proceed naturally.

## 6.4.17.4

Water immersion test: The specimen shall be immersed under a head of water of at least 15 m for a period of not less than eight hours in the attitude which will lead to maximum damage. For demonstration purposes, an external gauge pressure of at least 150 kPa shall be considered to meet these conditions.

## 6.4.18

**Enhanced water immersion test for Type B(U) and Type B(M) packages containing more than 10<sup>5</sup> A<sub>2</sub> and Type C packages**

Enhanced water immersion test: The specimen shall be immersed under a head of water of at least 200 m for a period of not less than one hour. For demonstration purposes, an external gauge pressure of at least 2 MPa shall be considered to meet these conditions.

**6.4.19 Water leakage test for packages containing fissile material**

- 6.4.19.1 Packages for which water in-leakage or out-leakage to the extent which results in greatest reactivity has been assumed for purposes of assessment under 6.4.11.7 to 6.4.11.12 shall be excepted from the test.
- 6.4.19.2 Before the specimen is subjected to the water leakage test specified below, it shall be subjected to the tests in 6.4.17.2 (b), and either 6.4.17.2 (a) or (c) as required by 6.4.11.12, and the test specified in 6.4.17.3.
- 6.4.19.3 The specimen shall be immersed under a head of water of at least 0.9 m for a period of not less than 8 hours and in the attitude for which maximum leakage is expected.

**6.4.20 Tests for Type C packages**

- 6.4.20.1 Specimens shall be subjected to the effects of each of the following test sequences in the orders specified:

- (a) The tests specified in 6.4.17.2 (a), 6.4.17.2 (c), 6.4.20.2 and 6.4.20.3; and
- (b) The test specified in 6.4.20.4.

Separate specimens are allowed to be used for each of the sequences (a) and (b).

- 6.4.20.2 Puncture/tearing test: The specimen shall be subjected to the damaging effects of a solid probe made of mild steel. The orientation of the probe to the surface of the specimen shall be as to cause maximum damage at the conclusion of the test sequence specified in 6.4.20.1 (a).

- (a) The specimen, representing a package having a mass less than 250 kg, shall be placed on a target and subjected to a probe having a mass of 250 kg falling from a height of 3 m above the intended impact point. For this test the probe shall be a 20 cm diameter cylindrical bar with the striking end forming a frustum of a right circular cone with the following dimensions: 30 cm height and 2.5 cm in diameter at the top. The target on which the specimen is placed shall be as specified in 6.4.14;
- (b) For packages having a mass of 250 kg or more, the base of the probe shall be placed on a target and the specimen dropped onto the probe. The height of the drop, measured from the point of impact with the specimen to the upper surface of the probe shall be 3 m. For this test the probe shall have the same properties and dimensions as specified in (a) above, except that the length and mass of the probe shall be such as to incur maximum damage to the specimen. The target on which the base of the probe is placed shall be as specified in 6.4.14.

- 6.4.20.3 Enhanced thermal test: The conditions for this test shall be as specified in 6.4.17.3, except that the exposure to the thermal environment shall be for a period of 60 minutes.

- 6.4.20.4 Impact test: The specimen shall be subject to an impact on a target at a velocity of not less than 90 m/s, at such an orientation as to suffer maximum damage. The target shall be as defined in 6.4.14.

**6.4.21 Inspections for packagings designed to contain 0.1 kg or more of uranium hexafluoride**

- 6.4.21.1 Every manufactured packaging and its service and structural equipment shall, either jointly or separately, undergo an inspection initially before being put into service and periodically thereafter. These inspections shall be performed and certified by agreement with the competent authority.
- 6.4.21.2 The initial inspection shall consist of a check of the design characteristics, a structural test, a leakproofness test, a water capacity test and a check of satisfactory operation of the service equipment.
- 6.4.21.3 The periodic inspections shall consist of a visual examination, a structural test, a leakproofness test and a check of satisfactory operation of the service equipment. The maximum intervals for periodic inspections shall be five years. Packagings which have not been inspected within this five-year period shall be examined before carriage in accordance with a programme approved by the competent authority. They shall not be refilled before completion of the full programme for periodic inspections.
- 6.4.21.4 The check of design characteristics shall demonstrate compliance with the design type specifications and the manufacturing programme.
- 6.4.21.5 For the initial structural test, packagings designed to contain 0.1 kg or more of uranium hexafluoride shall be tested hydraulically at an internal pressure of at least 1.38 MPa but, when the test pressure is less than 2.76 MPa, the design shall require multilateral approval. For retesting packagings, any other equivalent non-destructive testing may be applied subject to multilateral approval.
- 6.4.21.6 The leakproofness test shall be performed in accordance with a procedure which is capable of indicating leakages in the containment system with a sensitivity of 0.1 Pa.l/s ( $10^{-6}$  bar.l/s).
- 6.4.21.7 The water capacity of the packagings shall be established with an accuracy of  $\pm 0.25\%$  at a reference temperature of 15 °C. The volume shall be stated on the plate described in 6.4.21.8.
- 6.4.21.8 A plate made of non-corroding metal shall be durably attached to every packaging in a readily accessible place. The method of attaching the plate must not impair the strength of the packaging. The following particulars, at least, shall be marked on the plate by stamping or by any other equivalent method:
- Approval number;
  - Manufacturer's serial number;
  - Maximum working pressure (gauge pressure);
  - Test pressure (gauge pressure);
  - Contents: uranium hexafluoride;
  - Capacity in litres;
  - Maximum permissible filling mass of uranium hexafluoride;
  - Tare mass;
  - Date (month, year) of the initial test and the most recent periodic test;
  - Stamp of the expert who performed the tests.

**6.4.22 Approvals of package designs and materials**

6.4.22.1 The approval of designs for packages containing 0.1 kg or more of uranium hexafluoride requires that:

- (a) Each design that meets the requirements of 6.4.6.4 shall require multilateral approval;
- (b) After 31 December 2003, each design that meets the requirements of 6.4.6.1 to 6.4.6.3 shall require unilateral approval by the competent authority of the country of origin of the design.

6.4.22.2 Each Type B(U) and Type C package design shall require unilateral approval, except that:

- (a) A package design for fissile material, which is also subject to 6.4.22.4, 6.4.23.7, and 5.1.5.3.1 shall require multilateral approval; and
- (b) A Type B(U) package design for low dispersible radioactive material shall require multilateral approval.

6.4.22.3 Each Type B(M) package design, including those for fissile material which are also subject to the requirements of 6.4.22.4, 6.4.23.7, and 5.1.5.3.1 and those for low dispersible radioactive material, shall require multilateral approval.

6.4.22.4 Each package design for fissile material which is not excepted according to 6.4.11.2 from the requirements that apply specifically to packages containing fissile material shall require multilateral approval.

6.4.22.5 The design for special form radioactive material shall require unilateral approval. The design for low dispersible radioactive material shall require multilateral approval (see also 6.4.23.8).

6.4.22.6 Any design that requires unilateral approval originating in a country Contracting Party to ADR shall be approved by the competent authority of this country; if the country where the package has been designed is not a Contracting Party to ADR, carriage is possible on condition that:

- (a) a certificate has been supplied by this country, proving that the package satisfies the technical requirements of ADR, and that this certificate is countersigned by the competent authority of the first country Contracting Party to ADR reached by the consignment;
- (b) if no certificate and no existing package design approval by a country Contracting Party to ADR has been supplied, the package design is approved by the competent authority of the first country Contracting Party to ADR reached by the consignment.

6.4.22.7 For designs approved under the transitional measures see 1.6.6.

**6.4.23 Applications and approvals for radioactive material carriage**

6.4.23.1 *(Reserved)*

6.4.23.2 An application for shipment approval shall include:

- (a) The period of time, related to the shipment, for which the approval is sought;
- (b) The actual radioactive contents, the expected modes of carriage, the type of vehicle, and the probable or proposed route; and



- (c) The details of how the precautions and administrative or operational controls, referred to in the package design approval certificates issued under 5.1.5.3.1, are to be put into effect.

6.4.23.3 An application for approval of shipments under special arrangement shall include all the information necessary to satisfy the competent authority that the overall level of safety in carriage is at least equivalent to that which would be provided if all the applicable requirements of ADR had been met.

The application shall also include:

- (a) A statement of the respects in which, and of the reasons why, the consignment cannot be made in full accordance with the applicable requirements of ADR; and
- (b) A statement of any special precautions or special administrative or operational controls which are to be employed during carriage to compensate for the failure to meet the applicable requirements of ADR.

6.4.23.4 An application for approval of Type B(U) or Type C package design shall include:

- (a) A detailed description of the proposed radioactive contents with reference to their physical and chemical states and the nature of the radiation emitted;
- (b) A detailed statement of the design, including complete engineering drawings and schedules of materials and methods of manufacture;
- (c) A statement of the tests which have been done and their results, or evidence based on calculative methods or other evidence that the design is adequate to meet the applicable requirements;
- (d) The proposed operating and maintenance instructions for the use of the packaging;
- (e) If the package is designed to have a maximum normal operating pressure in excess of 100 kPa gauge, a specification of the materials of manufacture of the containment system, the samples to be taken, and the tests to be made;
- (f) Where the proposed radioactive contents are irradiated fuel, a statement and a justification of any assumption in the safety analysis relating to the characteristics of the fuel and a description of any pre-shipment measurement as required by 6.4.11.4 (b);
- (g) Any special stowage provisions necessary to ensure the safe dissipation of heat from the package considering the various modes of carriage to be used and type of vehicle or container;
- (h) A reproducible illustration, not larger than 21 cm by 30 cm, showing the make-up of the package; and
- (i) A specification of the applicable quality assurance programme as required 1.7.3.

6.4.23.5 An application for approval of a Type B(M) package design shall include, in addition to the general information required for package approval in 6.4.23.4 for Type B(U) packages:

- (a) A list of the requirements specified in 6.4.7.5, 6.4.8.4, 6.4.8.5 and 6.4.8.8 to 6.4.8.15 with which the package does not conform;

- (b) Any proposed supplementary operational controls to be applied during carriage not regularly provided for in this Annex, but which are necessary to ensure the safety of the package or to compensate for the deficiencies listed in (a) above;
- (c) A statement relative to any restrictions on the mode of carriage and to any special loading, carriage, unloading or handling procedures; and
- (d) The range of ambient conditions (temperature, solar radiation) which are expected to be encountered during carriage and which have been taken into account in the design.

6.4.23.6 The application for approval of designs for packages containing 0.1 kg or more of uranium hexafluoride shall include all information necessary to satisfy the competent authority that the design meets the applicable requirements of 6.4.6.1, and a description of the applicable quality assurance programme as required in 1.7.3.

6.4.23.7 An application for a fissile package approval shall include all information necessary to satisfy the competent authority that the design meets the applicable requirements of 6.4.11.1, and a specification of the applicable quality assurance programme as required by 1.7.3.

6.4.23.8 An application for approval of design for special form radioactive material and design for low dispersible radioactive material shall include:

- (a) A detailed description of the radioactive material or, if a capsule, the contents; particular reference shall be made to both physical and chemical states;
- (b) A detailed statement of the design of any capsule to be used;
- (c) A statement of the tests which have been done and their results, or evidence based on calculative methods to show that the radioactive material is capable of meeting the performance standards, or other evidence that the special form radioactive material or low dispersible radioactive material meets the applicable requirements of ADR;
- (d) A specification of the applicable quality assurance programme as required in 1.7.3; and
- (e) Any proposed pre-shipment actions for use in the consignment of special form radioactive material or low dispersible radioactive material.

6.4.23.9 Each approval certificate issued by a competent authority shall be assigned an identification mark. The identification mark shall be of the following generalized type:

VRI/Number/Type Code

- (a) Except as provided in 6.4.23.10 (b), VRI represents the international vehicle registration identification code of the country issuing the certificate<sup>1</sup>;
- (b) The number shall be assigned by the competent authority, and shall be unique and specific with regard to the particular design or shipment. The shipment approval identification mark shall be clearly related to the design approval identification mark;

<sup>1</sup> See Vienna Convention on Road Traffic (1968).

- (c) The following type codes shall be used in the order listed to indicate the types of approval certificates issued:

AF	Type A package design for fissile material
B(U)	Type B(U) package design [B(U) F if for fissile material]
B(M)	Type B(M) package design [B(M) F if for fissile material]
C	Type C package design (CF if for fissile material)
IF	Industrial package design for fissile material
S	Special form radioactive material
LD	Low dispersible radioactive material
T	Shipment
X	Special arrangement

In the case of package designs for non-fissile or fissile excepted uranium hexafluoride, where none of the above codes apply, then the following type codes shall be used:

H(U)	Unilateral approval
H(M)	Multilateral approval;

- (d) For package design and special form radioactive material approval certificates, other than those issued under transitional packaging the provisions of 1.6.5.2 to 1.6.5.4, and for low dispersible radioactive material approval certificates, the symbols "-96" shall be added to the type code.

6.4.23.10 These type codes shall be applied as follows:

- (a) Each certificate and each package shall bear the appropriate identification mark, comprising the symbols prescribed in 6.4.23.9 (a), (b), (c) and (d) above, except that, for packages, only the applicable design type codes including, if applicable, the symbols "-96", shall appear following the second stroke, that is, the "T" or "X" shall not appear in the identification marking on the package. Where the design approval and shipment approval are combined, the applicable type codes do not need to be repeated. For example:

A/132/B(M)F-96: A Type B(M) package design approved for fissile material, requiring multilateral approval, for which the competent authority of Austria has assigned the design number 132 (to be marked on both the package and on the package design approval certificate);

A/132/B(M)F-96T: The shipment approval issued for a package bearing the identification mark elaborated above (to be marked on the certificate only);

A/137/X: A special arrangement approval issued by the competent authority of Austria, to which the number 137 has been assigned (to be marked on the certificate only);

A/139/IF-96: An industrial package design for fissile material approved by the competent authority of Austria, to which package design number 139 has been assigned (to be marked on both the package and on the package design approval certificate); and

A/145/H(U)-96: A package design for fissile excepted uranium hexafluoride approved by the competent authority of Austria, to which package design number 145 has been assigned (to be marked on

both the package and on the package design approval certificate);

- (b) Where multilateral approval is effected by validation according to 6.4.23.16, only the identification mark issued by the country of origin of the design or shipment shall be used. Where multilateral approval is effected by issue of certificates by successive countries, each certificate shall bear the appropriate identification mark and the package whose design was so approved shall bear all appropriate identification marks.

For example:

A/132/B(M)F-96

CH/28/B(M)F-96

would be the identification mark of a package which was originally approved by Austria and was subsequently approved, by separate certificate, by Switzerland. Additional identification marks would be tabulated in a similar manner on the package;

- (c) The revision of a certificate shall be indicated by a parenthetical expression following the identification mark on the certificate. For example, A/132/B(M)F-96 (Rev.2) would indicate revision 2 of the Austrian package design approval certificate; or A/132/B(M)F-96 (Rev.0) would indicate the original issuance of the Austrian package design approval certificate. For original issuances, the parenthetical entry is optional and other words such as "original issuance" may also be used in place of "Rev.0". Certificate revision numbers may only be issued by the country issuing the original approval certificate;
- (d) Additional symbols (as may be necessitated by national regulations) may be added in brackets to the end of the identification mark; for example, A/132/B(M)F-96(SP503);
- (e) It is not necessary to alter the identification mark on the packaging each time that a revision to the design certificate is made. Such re-marking shall be required only in those cases where the revision to the package design certificate involves a change in the letter type codes for the package design following the second stroke.

6.4.23.11 Each approval certificate issued by a competent authority for special form radioactive material or low dispersible radioactive material shall include the following information:

- (a) Type of certificate;
- (b) The competent authority identification mark;
- (c) The issue date and an expiry date;
- (d) List of applicable national and international regulations, including the edition of the IAEA Regulations for the Safe Transport of Radioactive Material under which the special form radioactive material or low dispersible radioactive material is approved;
- (e) The identification of the special form radioactive material or low dispersible radioactive material;
- (f) A description of the special form radioactive material or low dispersible radioactive material;

- (g) Design specifications for the special form radioactive material or low dispersible radioactive material which may include references to drawings;
- (h) A specification of the radioactive contents which includes the activities involved and which may include the physical and chemical form;
- (i) A specification of the applicable quality assurance programme as required in 1.7.3;
- (j) Reference to information provided by the applicant relating to specific actions to be taken prior to shipment;
- (k) If deemed appropriate by the competent authority, reference to the identity of the applicant;
- (l) Signature and identification of the certifying official.

6.4.23.12 Each approval certificate issued by a competent authority for a special arrangement shall include the following information:

- (a) Type of certificate;
- (b) The competent authority identification mark;
- (c) The issue date and an expiry date;
- (d) Mode(s) of carriage;
- (e) Any restrictions on the modes of carriage, type of vehicle, container, and any necessary routing instructions;
- (f) List of applicable national and international regulations, including the edition of the IAEA Regulations for the Safe Transport of Radioactive Material under which the special arrangement is approved;
- (g) The following statement:

"This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be carried.";
- (h) References to certificates for alternative radioactive contents, other competent authority validation, or additional technical data or information, as deemed appropriate by the competent authority;
- (i) Description of the packaging by a reference to the drawings or a specification of the design. If deemed appropriate by the competent authority, a reproducible illustration, not larger than 21 cm by 30 cm, showing the make-up of the package shall also be provided, accompanied by a brief description of the packaging, including materials of manufacture, gross mass, general outside dimensions and appearance;
- (j) A specification of the authorized radioactive contents, including any restrictions on the radioactive contents which might not be obvious from the nature of the packaging. This shall include the physical and chemical forms, the activities involved (including those of the various isotopes, if appropriate), amounts in grams (for fissile material), and whether special form radioactive material or low dispersible radioactive material, if applicable;

- (k) Additionally, for packages containing fissile material:
  - (i) a detailed description of the authorized radioactive contents;
  - (ii) the value of the criticality safety index;
  - (iii) reference to the documentation that demonstrates the criticality safety of the contents;
  - (iv) any special features, on the basis of which the absence of water from certain void spaces has been assumed in the criticality assessment;
  - (v) any allowance (based on 6.4.11.4 (b)) for a change in neutron multiplication assumed in the criticality assessment as a result of actual irradiation experience; and
  - (vi) the ambient temperature range for which the special arrangement has been approved;
- (l) A detailed listing of any supplementary operational controls required for preparation, loading, carriage, unloading and handling of the consignment, including any special stowage provisions for the safe dissipation of heat;
- (m) If deemed appropriate by the competent authority, reasons for the special arrangement;
- (n) Description of the compensatory measures to be applied as a result of the shipment being under special arrangement;
- (o) Reference to information provided by the applicant relating to the use of the packaging or specific actions to be taken prior to the shipment;
- (p) A statement regarding the ambient conditions assumed for purposes of design if these are not in accordance with those specified in 6.4.8.4, 6.4.8.5, and 6.4.8.15, as applicable;
- (q) Any emergency arrangements deemed necessary by the competent authority;
- (r) A specification of the applicable quality assurance programme as required in 1.7.3;
- (s) If deemed appropriate by the competent authority, reference to the identity of the applicant and to the identity of the carrier;
- (t) Signature and identification of the certifying official.

## 6.4.23.13

Each approval certificate for a shipment issued by a competent authority shall include the following information:

- (a) Type of certificate;
- (b) The competent authority identification mark(s);
- (c) The issue date and an expiry date;
- (d) List of applicable national and international regulations, including the edition of the IAEA Regulations for the Safe Transport of Radioactive Material under which the shipment is approved;

- (e) Any restrictions on the modes of carriage, type of vehicle, container, and any necessary routing instructions;
- (f) The following statement:  

"This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be carried.";
- (g) A detailed listing of any supplementary operational controls required for preparation, loading, carriage, unloading and handling of the consignment, including any special stowage provisions for the safe dissipation of heat or maintenance of criticality safety;
- (h) Reference to information provided by the applicant relating to specific actions to be taken prior to shipment;
- (i) Reference to the applicable design approval certificate(s);
- (j) A specification of the actual radioactive contents, including any restrictions on the radioactive contents which might not be obvious from the nature of the packaging. This shall include the physical and chemical forms, the total activities involved (including those of the various isotopes, if appropriate), amounts in grams (for fissile material), and whether special form radioactive material or low dispersible radioactive material, if applicable;
- (k) Any emergency arrangements deemed necessary by the competent authority;
- (l) A specification of the applicable quality assurance programme as required in 1.7.3;
- (m) If deemed appropriate by the competent authority, reference to the identity of the applicant;
- (n) Signature and identification of the certifying official.

6.4.23.14 Each approval certificate of the design of a package issued by a competent authority shall include the following information:

- (a) Type of certificate;
- (b) The competent authority identification mark;
- (c) The issue date and an expiry date;
- (d) Any restriction on the modes of carriage, if appropriate;
- (e) List of applicable national and international regulations, including the edition of the IAEA Regulations for the Safe Transport of Radioactive Material under which the design is approved;
- (f) The following statement:  

"This certificate does not relieve the consignor from compliance with any requirement of the government of any country through or into which the package will be carried.";
- (g) References to certificates for alternative radioactive contents, other competent authority validation, or additional technical data or information, as deemed appropriate by the competent authority;

- (h) A statement authorizing shipment where shipment approval is required under 5.1.5.2.2, if deemed appropriate;
- (i) Identification of the packaging;
- (j) Description of the packaging by a reference to the drawings or specification of the design. If deemed appropriate by the competent authority, a reproducible illustration, not larger than 21 cm by 30 cm, showing the make-up of the package should also be provided, accompanied by a brief description of the packaging, including materials of manufacture, gross mass, general outside dimensions and appearance;
- (k) Specification of the design by reference to the drawings;
- (l) A specification of the authorized radioactive content, including any restrictions on the radioactive contents which might not be obvious from the nature of the packaging. This shall include the physical and chemical forms, the activities involved (including those of the various isotopes, if appropriate), amounts in grams (for fissile material), and whether special form radioactive material or low dispersible radioactive material, if applicable;
- (m) Additionally, for packages containing fissile material:
  - (i) a detailed description of the authorized radioactive contents;
  - (ii) the value of the criticality safety index;
  - (iii) reference to the documentation that demonstrates the criticality safety of the contents;
  - (iv) any special features, on the basis of which the absence of water from certain void spaces has been assumed in the criticality assessment;
  - (v) any allowance (based on 6.4.11.4 (b)) for a change in neutron multiplication assumed in the criticality assessment as a result of actual irradiation experience; and
  - (vi) the ambient temperature range for which the package design has been approved;
- (n) For Type B(M) packages, a statement specifying those requirements of 6.4.7.5, 6.4.8.4, 6.4.8.5 and 6.4.8.8 to 6.4.8.15 with which the package does not conform and any amplifying information which may be useful to other competent authorities;
- (o) A detailed listing of any supplementary operational controls required for preparation, loading, carriage, unloading and handling of the consignment, including any special stowage provisions for the safe dissipation of heat;
- (p) Reference to information provided by the applicant relating to the use of the packaging or specific actions to be taken prior to shipment;
- (q) A statement regarding the ambient conditions assumed for purposes of design if these are not in accordance with those specified in 6.4.8.4, 6.4.8.5 and 6.4.8.15, as applicable;
- (r) A specification of the applicable quality assurance programme as required in 1.7.3;



- (s) Any emergency arrangements deemed necessary by the competent authority;
- (t) If deemed appropriate by the competent authority, reference to the identity of the applicant;
- (u) Signature and identification of the certifying official.

6.4.23.15 The competent authority shall be informed of the serial number of each packaging manufactured to a design approved by them. The competent authority shall maintain a register of such serial numbers.

6.4.23.16 Multilateral approval may be by validation of the original certificate issued by the competent authority of the country of origin of the design or shipment. Such validation may take the form of an endorsement on the original certificate or the issuance of a separate endorsement, annex, supplement, etc., by the competent authority of the country through or into which the shipment is made.

## CHAPTER 6.5

REQUIREMENTS FOR THE CONSTRUCTION AND TESTING  
OF INTERMEDIATE BULK CONTAINERS (IBCs)

## 6.5.1 General requirements applicable to all types of IBCs

6.5.1.1 *Scope*

6.5.1.1.1 The requirements of this Chapter apply to intermediate bulk containers (IBCs) the use of which is expressly authorized for the carriage of certain dangerous goods according to the packing instructions indicated in Column (8) of Table A in Chapter 3.2. Portable tanks and tank-containers which meet the requirements of Chapter 6.7 or 6.8 respectively are not considered to be IBCs. IBCs which meet the requirements of this Chapter are not considered to be containers for the purposes of ADR. The letters IBC only will be used in the rest of the text to refer to intermediate bulk containers.

6.5.1.1.2 Exceptionally, IBCs and their service equipment not conforming strictly to the requirements herein, but having acceptable alternatives, may be considered by the competent authority for approval. In addition, in order to take into account progress in science and technology, the use of alternative arrangements which offer at least equivalent safety in use in respect of compatibility with the properties of the substances carried and equivalent or superior resistance to impact, loading and fire, may be considered by the competent authority.

6.5.1.1.3 The construction, equipment, testing, marking and operation of IBCs shall be subject to acceptance by the competent authority of the country in which the IBCs are approved.

6.5.1.1.4 Manufacturers and subsequent distributors of IBCs shall provide information regarding procedures to be followed and a description of the types and dimensions of closures (including required gaskets) and any other components needed to ensure that IBCs as presented for carriage are capable of passing the applicable performance tests of this Chapter.

6.5.1.2 *(Reserved)*

6.5.1.3 *(Reserved)*

## 6.5.1.4 Designatory code system for IBCs

6.5.1.4.1 The code shall consist of two Arabic numerals as specified in (a), followed by a capital letter(s) specified in (b), followed, when specified in an individual section, by an Arabic numeral indicating the category of IBC.

(a)

Type	For solids, filled or discharged		For liquids
	by gravity	under pressure of more than 10 kPa (0.1 bar)	
Rigid	11	21	31
Flexible	13	-	-

## (b) Materials

- A. Steel (all types and surface treatments)
- B. Aluminium
- C. Natural wood
- D. Plywood
- F. Reconstituted wood
- G. Fibreboard
- H. Plastics material
- L. Textile
- M. Paper, multiwall
- N. Metal (other than steel or aluminium).

6.5.1.4.2 For composite IBCs, two capital letters in Latin characters shall be used in sequence in the second position of the code. The first shall indicate the material of the inner receptacle of the IBC and the second that of the outer packaging of the IBC.

6.5.1.4.3 The following types and codes of IBC are assigned:

Material	Category	Code	Sub-section
<b>Metal</b>			
A. Steel	for solids, filled or discharged by gravity for solids, filled or discharged under pressure for liquids	11A 21A 31A	6.5.3.1
B. Aluminium	for solids, filled or discharged by gravity for solids, filled or discharged under pressure for liquids	11B 21B 31B	
N. Other than steel or aluminium	for solids, filled or discharged by gravity for solids, filled or discharged under pressure for liquids	11N 21N 31N	
<b>Flexible</b>			
H. Plastics	woven plastics without coating or liner woven plastics, coated woven plastics with liner woven plastics, coated and with liner plastics film	13H1 13H2 13H3 13H4 13H5	6.5.3.2
L. Textile	without coating or liner coated with liner coated and with liner	13L1 13L2 13L3 13L4	
M. Paper	multiwall multiwall, water resistant	13M1 13M2	
H. Rigid plastics	for solids, filled or discharged by gravity, fitted with structural equipment for solids, filled or discharged by gravity, freestanding for solids, filled or discharged under pressure, fitted with structural equipment for solids, filled or discharged under pressure, freestanding for liquids, fitted with structural equipment for liquids, freestanding	11H1 11H2 21H1 21H2 31H1 31H2	6.5.3.3

Material	Category	Code	Sub-section
HZ. Composite with plastics inner receptacle <sup>a</sup>	for solids, filled or discharged by gravity, with rigid plastics receptacle	11HZ1	6.5.3.4
	for solids, filled or discharged by gravity, with flexible plastics receptacle	11HZ2	
	for solids, filled or discharged under pressure, with rigid plastics receptacle	21HZ1	
	for solids, filled or discharged under pressure, with flexible plastics receptacle	21HZ2	
	for liquids, with rigid plastics receptacle	31HZ1	
	for liquids, with flexible plastics receptacle	31HZ2	
G. Fibreboard	for solids, filled or discharged by gravity	11G	6.5.3.5
<b>Wooden</b>			
C. Natural wood	for solids, filled or discharged by gravity with inner liner	11C	6.5.3.6
D. Plywood	for solids, filled or discharged by gravity, with inner liner	11D	
F. Reconstituted wood	for solids, filled or discharged by gravity, with inner liner	11F	

<sup>a</sup> The code shall be completed by replacing the letter Z by a capital letter in accordance with 6.5.1.4.1 (b) to indicate the nature of the material used for the outer casing.

6.5.1.4.4 The letter "W" may follow the IBC code. The letter "W" signifies that the IBC, although of the same type indicated by the code, is manufactured to a specification different from those in 6.5.3 and is considered equivalent in accordance with the requirements in 6.5.1.1.2.

#### 6.5.1.5 Construction requirements

6.5.1.5.1 IBCs shall be resistant to or adequately protected from deterioration due to the external environment.

6.5.1.5.2 IBCs shall be so constructed and closed that none of the contents can escape under normal conditions of carriage including the effect of vibration, or by changes in temperature, humidity or pressure.

6.5.1.5.3 IBCs and their closures shall be constructed of materials compatible with their contents, or be protected internally, so that they are not liable:

- (a) To be attacked by the contents so as to make their use dangerous;
- (b) To cause the contents to react or decompose, or form harmful or dangerous compounds with the IBCs.

6.5.1.5.4 Gaskets, where used, shall be made of materials not subject to attack by the contents of the IBCs.

6.5.1.5.5 All service equipment shall be so positioned or protected as to minimize the risk of escape of the contents owing to damage during handling and carriage.

6.5.1.5.6 IBCs, their attachments and their service and structural equipment shall be designed to withstand, without loss of contents, the internal pressure of the contents and the stresses of normal handling and carriage. IBCs intended for stacking shall be designed for stacking. Any lifting or securing features of IBCs shall be of sufficient strength to withstand the normal

conditions of handling and carriage without gross distortion or failure and shall be so positioned that no undue stress is caused in any part of the IBC.

6.5.1.5.7 Where an IBC consists of a body within a framework it shall be so constructed that:

- (a) The body does not chafe or rub against the framework so as to cause material damage to the body;
- (b) The body is retained within the framework at all times;
- (c) The items of equipment are fixed in such a way that they cannot be damaged if the connections between body and frame allow relative expansion or movement.

6.5.1.5.8 Where a bottom discharge valve is fitted, it shall be capable of being made secure in the closed position and the whole discharge system shall be suitably protected from damage. Valves having lever closures shall be able to be secured against accidental opening and the open or closed position shall be readily apparent. For IBCs containing liquids, a secondary means of sealing the discharge aperture shall also be provided, e.g. a blank flange or equivalent device.

6.5.1.5.9 Each IBC shall be capable of passing the relevant performance tests.

#### 6.5.1.6 *Testing, certification and inspection*

6.5.1.6.1 *Quality assurance:* the IBCs shall be manufactured and tested under a quality assurance programme which satisfies the competent authority, in order to ensure that each manufactured IBC meets the requirements of this Chapter.

6.5.1.6.2 *Test requirements:* IBCs shall be subject to design type tests and, if applicable, to initial and periodic tests in accordance with 6.5.4.14.

6.5.1.6.3 *Certification:* in respect of each design type of IBC a certificate and mark (as in 6.5.2) shall be issued attesting that the design type, including its equipment, meets the test requirements.

6.5.1.6.4 *Inspection:* every metal, rigid plastics and composite IBC shall be inspected to the satisfaction of the competent authority

- (a) before it is put into service, and thereafter at intervals not exceeding five years, with regard to:
  - (i) conformity to design type including marking;
  - (ii) internal and external condition;
  - (iii) proper functioning of service equipment.

Thermal insulation, if any, need be removed only to the extent necessary for a proper examination of the body of the IBC.

- (b) at intervals of not more than two and a half years, with regard to:
  - (i) external condition;
  - (ii) proper functioning of service equipment.

Thermal insulation, if any, need be removed only to the extent necessary for a proper examination of the body of the IBC.

A report of each inspection shall be kept by the owner of the IBC at least until the next inspection. The report shall include the results of the inspection and shall identify the party performing the inspection (see also the marking requirements in 6.5.2.2.1).

6.5.1.6.5 When an IBC is impaired as a result of impact (e.g. accident) or any other cause, it shall be repaired or otherwise maintained (see definition of "*Routine maintenance of IBCs*" in 1.2.1), so as to conform to the design type. The bodies of rigid plastics IBCs and the inner receptacles of composite IBCs that are impaired shall be replaced.

6.5.1.6.6 *Repaired IBCs*

6.5.1.6.6.1 In addition to any other testing and inspection requirements in ADR, an IBC shall be subjected to the full testing and inspection requirements set out in 6.5.4.14.3 and 6.5.1.6.4 (a), and the required reports shall be prepared, whenever it is repaired.

6.5.1.6.6.2 The Party performing the tests and inspections after the repair shall durably mark the IBC near the manufacturer's UN design type marking to show:

- (a) the State in which the tests and inspections were carried out;
- (b) the name or authorized symbol of the party performing the tests and inspections; and
- (c) the date (month, year) of the tests and inspections.

6.5.1.6.6.3 Test and inspections performed in accordance with 6.5.1.6.6.1 may be considered to satisfy the requirements for the two and a half and five year periodic tests and inspections.

6.5.1.6.7 The competent authority may at any time require proof, by tests in accordance with this Chapter, that IBCs meet the requirements of the design type tests.

6.5.2 **Marking**

6.5.2.1 *Primary marking*

6.5.2.1.1 Each IBC manufactured and intended for use according to ADR shall bear markings which are durable, legible and placed in a location so as to be readily visible. Letters, numerals and symbols shall be at least 12 mm high and shall show:

- (a) The United Nations packaging symbol:



For metal IBCs on which the marking is stamped or embossed, the capital letters "UN" may be applied instead of the symbol;






- (b) The code designating the type of IBC according to 6.5.1.4;
- (c) A capital letter designating the packing group(s) for which the design type has been approved:
  - (i) X for packing groups I, II and III (IBCs for solids only);

- (ii) Y for packing groups II and III;
- (iii) Z for packing group III only;
- (d) The month and year (last two digits) of manufacture;
- (e) The State authorizing the allocation of the mark; indicated by the distinguishing sign for motor vehicles in international traffic <sup>1</sup>;
- (f) The name or symbol of the manufacturer and other identification of the IBC as specified by the competent authority;
- (g) The stacking test load in kg. For IBCs not designed for stacking, the figure "0" shall be shown;
- (h) The maximum permissible gross mass in kg.

The primary marking required above shall be applied in the sequence of the subparagraphs below. The marking required by 6.5.2.2 and any further marking authorized by a competent authority shall still enable the parts of the mark to be correctly identified.

Each element of the marking applied in accordance with (a) to (h) and with 6.5.2.2 shall be clearly separated, e.g. by a slash or space, so as to be easily identifiable.

*Examples of markings for various types of IBC in accordance with (a) to (h) above:*

	<p>11A/Y/02 89 NL/Mulder 007 5500/1500</p>	<p>For a metal IBC for solids discharged for instance by gravity and made from steel/for packing groups II and III/ manufactured in February 1989/authorized by the Netherlands/manufactured by Mulder and of a design type to which the competent authority has allocated serial number 007/the stacking test load in kg/the maximum permissible gross mass in kg.</p>
	<p>13H3/Z/03 89 F/Meunier 1713 0/1500</p>	<p>For a flexible IBC for solids discharged for instance by gravity and made from woven plastics with a liner/not designed to be stacked.</p>
	<p>31H1/Y/04 89 GB/9099 10800/1200</p>	<p>For a rigid plastics IBC for liquids made from plastics with structural equipment withstanding the stack load.</p>
	<p>31HA1/Y/05 91 D/Muller 1683 10800/1200</p>	<p>For a composite IBC for liquids with a rigid plastics inner receptacle and a steel outer casing.</p>
	<p>11C/X/01 93 S/Aurigny 9876 3000/910</p>	<p>For a wooden IBC for solids with an inner liner authorized for packing group I solids.</p>

<sup>1</sup> *Distinguishing sign for motor vehicles in international traffic prescribed in Vienna Convention on Road Traffic (1968).*

### 6.5.2.2 *Additional marking*

6.5.2.2.1 Each IBC shall bear the markings required in 6.5.2.1 and, in addition, the following information which may appear on a corrosion-resistant plate permanently attached in a place readily accessible for inspection:

Additional marking	Category of IBC				
	Metal	Rigid plastics	Composite	Fibreboard	Wooden
Capacity in litres <sup>a</sup> at 20 °C	X	X	X		
Tare mass in kg <sup>a</sup>	X	X	X	X	X
Test (gauge) pressure, in kPa or bar <sup>a</sup> , if applicable		X	X		
Maximum filling / discharge pressure in kPa or bar <sup>a</sup> , if applicable	X	X	X		
Body material and its minimum thickness in mm	X				
Date of last leakproofness test, if applicable (month and year)	X	X	X		
Date of last inspection (month and year)	X	X	X		
Serial number of the manufacturer	X				

<sup>a</sup> *The unit used shall be indicated.*

6.5.2.2.2 In addition to the markings required in 6.5.2.1, flexible IBCs may bear a pictogram indicating recommended lifting methods.

6.5.2.2.3 The inner receptacle of composite IBCs shall be marked with at least the following information:

- (a) The name or symbol of the manufacturer and other identification of the IBC as specified by the competent authority as in 6.5.2.1.1 (f);
- (b) The date of manufacture, as in 6.5.2.1.1 (d);
- (c) The distinguishing sign of the State authorizing the allocation of the mark, as in 6.5.2.1.1 (e).

6.5.2.2.4 Where a composite IBCs is designed in such a manner that the outer casing is intended to be dismantled for carriage when empty (such as for return of the IBC for reuse to the original consignor), each of the parts intended to be detached when so dismantled shall be marked with the month and year of manufacture and the name or symbol of the manufacturer and other identification of the IBC as specified by the competent authority (see 6.5.2.1.1 (f)).

### 6.5.2.3 *Conformity to design type*

The marking indicates that IBCs correspond to a successfully tested design type and that the requirements referred to in the certificate have been met.



### 6.5.3 Specific requirements for IBCs

#### 6.5.3.1 *Specific requirements for metal IBCs*

6.5.3.1.1 These requirements apply to metal IBCs intended for the carriage of solids and liquids. There are three categories of metal IBCs:

- (a) those for solids which are filled or discharged by gravity (11A, 11B, 11N);
- (b) those for solids which are filled or discharged at a gauge pressure greater than 10 kPa (0.1 bar) (21A, 21B, 21N); and
- (c) those for liquids (31A, 31B, 31N).

6.5.3.1.2 Bodies shall be made of suitable ductile metal in which the weldability has been fully demonstrated. Welds shall be skilfully made and afford complete safety. Low-temperature performance of the material shall be taken into account when appropriate.

6.5.3.1.3 Care shall be taken to avoid damage by galvanic action due to the juxtaposition of dissimilar metals.

6.5.3.1.4 Aluminium IBCs intended for the carriage of flammable liquids shall have no movable parts, such as covers, closures, etc., made of unprotected steel liable to rust, which might cause a dangerous reaction by coming into frictional or percussive contact with the aluminium.

6.5.3.1.5 Metal IBCs shall be made of metals which meet the following requirements:

- (a) for steel the elongation at fracture, in %, shall not be less than  $\frac{10000}{R_m}$  with an absolute minimum of 20 %;

where  $R_m$  = guaranteed minimum tensile strength of the steel to be used, in  $N/mm^2$ ;

- (b) for aluminium and its alloy the elongation at fracture, in %, shall not be less than  $\frac{10000}{6R_m}$  with an absolute minimum of 8 %.

Specimens used to determine the elongation at fracture shall be taken transversely to the direction of rolling and be so secured that:

$$L_o = 5d \quad \text{or}$$

$$L_o = 5.65\sqrt{A}$$

where:  $L_o$  = gauge length of the specimen before the test  
 $d$  = diameter  
 $A$  = cross-sectional area of test specimen.

6.5.3.1.6 *Minimum wall thickness:*

- (a) for a reference steel having a product of  $R_m \times A_0 = 10\,000$ , the wall thickness shall not be less than:

Capacity (C) in litres	Wall thickness (T) in mm			
	Types 11A, 11B, 11N		Types 21A, 21B, 21N, 31A, 31B, 31N	
	Unprotected	Protected	Unprotected	Protected
$C \leq 1000$	2.0	1.5	2.5	2.0
$1000 < C \leq 2000$	$T = C/2000 + 1.5$	$T = C/2000 + 1.0$	$T = C/2000 + 2.0$	$T = C/2000 + 1.5$
$2000 < C \leq 3000$	$T = C/2000 + 1.5$	$T = C/2000 + 1.0$	$T = C/1000 + 1.0$	$T = C/2000 + 1.5$

where:  $A_0$  = minimum elongation (as a percentage) of the reference steel to be used on fracture under tensile stress (see 6.5.3.1.5);

- (b) for metals other than the reference steel described in (a), the minimum wall thickness is given by the following equivalence formula:

$$e_1 = \frac{21.4 \times e_0}{\sqrt[3]{R_{m1} \times A_1}}$$

where:  $e_1$  = required equivalent wall thickness of the metal to be used (in mm);

$e_0$  = required minimum wall thickness for the reference steel (in mm);

$R_{m1}$  = guaranteed minimum tensile strength of the metal to be used (in  $N/mm^2$ ) (see (c));

$A_1$  = minimum elongation (as a percentage) of the metal to be used on fracture under tensile stress (see 6.5.3.1.5).

However, in no case shall the wall thickness be less than 1.5 mm.

- (c) For purposes of the calculation described in (b), the guaranteed minimum tensile strength of the metal to be used ( $R_{m1}$ ) shall be the minimum value according to national or international material standards. However, for austenitic steels, the specified value for  $R_m$  according to the material standards may be increased by up to 15% when a greater value is attested in the material inspection certificate. When no material standard exists for the material in question, the value of  $R_m$  shall be the minimum value attested in the material inspection certificate.

6.5.3.1.7 **Pressure-relief requirements:** IBCs for liquids shall be capable of releasing a sufficient amount of vapour in the event of fire engulfment to ensure that no rupture of the body will occur. This can be achieved by conventional pressure relief devices or by other constructional means. The start-to-discharge pressure shall not be higher than 65 kPa (0.65 bar) and no lower than the total gauge pressure experienced in the IBC (i.e. the vapour pressure of the filling substance plus the partial pressure of the air or other inert gases, minus 100 kPa (1 bar)) at 55 °C, determined on the basis of a maximum degree of filling as defined in 4.1.1.4. The required relief devices shall be fitted in the vapour space.

### 6.5.3.2 *Specific requirements for flexible IBCs*

6.5.3.2.1 These requirements apply to flexible IBCs of the following types:

13H1	woven plastics without coating or liner
13H2	woven-plastics, coated
13H3	woven plastics with liner
13H4	woven plastics, coated and with liner
13H5	plastics film
13L1	textile without coating or liner
13L2	textile, coated
13L3	textile with liner
13L4	textile, coated and with liner
13M1	paper, multiwall
13M2	paper, multiwall, water resistant

Flexible IBCs are intended for the carriage of solids only.

6.5.3.2.2 Bodies shall be manufactured from suitable materials. The strength of the material and the construction of the flexible IBC shall be appropriate to its capacity and its intended use.

6.5.3.2.3 All materials used in the construction of flexible IBCs of types 13M1 and 13M2 shall, after complete immersion in water for not less than 24 hours, retain at least 85% of the tensile strength as measured originally on the material conditioned to equilibrium at 67% relative humidity or less.

6.5.3.2.4 Seams shall be formed by stitching, heat sealing, gluing or any equivalent method. All stitched seam-ends shall be secured.

6.5.3.2.5 Flexible IBCs shall provide adequate resistance to ageing and to degradation caused by ultraviolet radiation or the climatic conditions, or by the substance contained, thereby rendering them appropriate to their intended use.

6.5.3.2.6 For flexible plastics IBCs where protection against ultraviolet radiation is required, it shall be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives shall be compatible with the contents and remain effective throughout the life of the body. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, re-testing may be waived if changes in the carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.

6.5.3.2.7 Additives may be incorporated into the material of the body to improve the resistance to ageing or to serve other purposes, provided that these do not adversely affect the physical or chemical properties of the material.

6.5.3.2.8 No material recovered from used receptacles shall be used in the manufacture of IBC bodies. Production residues or scrap from the same manufacturing process may, however, be used. Component parts such as fittings and pallet bases may also be used provided such components have not in any way been damaged in previous use.

6.5.3.2.9 When filled, the ratio of height to width shall be not more than 2:1.

6.5.3.2.10 The liner shall be made of a suitable material. The strength of the material used and the construction of the liner shall be appropriate to the capacity of the IBC and the intended use. Joins and closures shall be siftproof and capable of withstanding pressures and impacts liable to occur under normal conditions of handling and carriage.

### 6.5.3.3 *Specific requirements for rigid plastics IBCs*

6.5.3.3.1 These requirements apply to rigid plastics IBCs for the carriage of solids or liquids. Rigid plastics IBCs are of the following types:

- 11H1 fitted with structural equipment designed to withstand the whole load when IBCs are stacked, for solids which are filled or discharged by gravity
- 11H2 freestanding, for solids which are filled or discharged by gravity
- 21H1 fitted with structural equipment designed to withstand the whole load when IBCs are stacked, for solids which are filled or discharged under pressure
- 21H2 freestanding, for solids which are filled or discharged under pressure
- 31H1 fitted with structural equipment designed to withstand the whole load when IBCs are stacked, for liquids
- 31H2 freestanding, for liquids.

6.5.3.3.2 The body shall be manufactured from suitable plastics material of known specifications and be of adequate strength in relation to its capacity and its intended use. The material shall be adequately resistant to ageing and to degradation caused by the substance contained or, where relevant, by ultraviolet radiation. Low temperature performance shall be taken into account when appropriate. Any permeation of the substance contained shall not constitute a danger under normal conditions of carriage.

6.5.3.3.3 Where protection against ultraviolet radiation is required, it shall be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives shall be compatible with the contents and remain effective throughout the life of the body. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, re-testing may be waived if changes in the carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.

6.5.3.3.4 Additives may be incorporated in the material of the body to improve the resistance to ageing or to serve other purposes, provided that these do not adversely affect the physical or chemical properties of the material.

6.5.3.3.5 No used material other than production residues or regrind from the same manufacturing process may be used in the manufacture of rigid plastics IBCs.

### 6.5.3.4 *Specific requirements for composite IBCs with plastics inner receptacles*

6.5.3.4.1 These requirements apply to composite IBCs for the carriage of solids and liquids of the following types:

- 11HZ1 Composite IBCs with a rigid plastics inner receptacle, for solids filled or discharged by gravity
- 11HZ2 Composite IBCs with a flexible plastics inner receptacle, for solids filled or discharged by gravity
- 21HZ1 Composite IBCs with a rigid plastics inner receptacle, for solids filled or discharged under pressure
- 21HZ2 Composite IBCs with a flexible plastics inner receptacle, for solids filled or discharged under pressure
- 31HZ1 Composite IBCs with a rigid plastics inner receptacle, for liquids
- 31HZ2 Composite IBCs with a flexible plastics inner receptacle, for liquids.

This code shall be completed by replacing the letter Z by a capital letter in accordance with 6.5.1.4.1 (b) to indicate the nature of the material used for the outer casing.

- 6.5.3.4.2 The inner receptacle is not intended to perform a containment function without its outer casing. A "rigid" inner receptacle is a receptacle which retains its general shape when empty without closures in place and without benefit of the outer casing. Any inner receptacle that is not "rigid" is considered to be "flexible".
- 6.5.3.4.3 The outer casing normally consists of rigid material formed so as to protect the inner receptacle from physical damage during handling and carriage but is not intended to perform the containment function. It includes the base pallet where appropriate.
- 6.5.3.4.4 A composite IBC with a fully enclosing outer casing shall be so designed that the integrity of the inner receptacle may be readily assessed following the leakproofness and hydraulic pressure tests.
- 6.5.3.4.5 IBCs of type 31HZ2 shall be limited to a capacity of not more than 1 250 litres.
- 6.5.3.4.6 The inner receptacle shall be manufactured from suitable plastics material of known specifications and be of adequate strength in relation to its capacity and its intended use. The material shall be adequately resistant to ageing and to degradation caused by the substance contained or, where relevant, by ultraviolet radiation. Low temperature performance shall be taken into account when appropriate. Any permeation of the substance contained shall not constitute a danger under normal conditions of carriage.
- 6.5.3.4.7 Where protection against ultraviolet radiation is required, it shall be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives shall be compatible with the contents and remain effective throughout the life of the inner receptacle. Where use is made of carbon black, pigments or inhibitors, other than those used in the manufacture of the tested design type, retesting may be waived if changes in carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.
- 6.5.3.4.8 Additives may be incorporated in the material of the inner receptacle to improve the resistance to ageing or to serve other purposes, provided that these do not adversely affect the physical or chemical properties of the material.
- 6.5.3.4.9 No used material other than production residues or regrind from the same manufacturing process may be used in the manufacture of inner receptacles.
- 6.5.3.4.10 The inner receptacle of IBCs type 31HZ2 shall consist of at least three plies of film.
- 6.5.3.4.11 The strength of the material and the construction of the outer casing shall be appropriate to the capacity of the composite IBC and its intended use.
- 6.5.3.4.12 The outer casing shall be free of any projection that might damage the inner receptacle.
- 6.5.3.4.13 Metal outer casings shall be constructed of a suitable metal of adequate thickness.
- 6.5.3.4.14 Outer casings of natural wood shall be of well seasoned wood, commercially dry and free from defects that would materially lessen the strength of any part of the casing. The tops and bottoms may be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type.
- 6.5.3.4.15 Outer casings of plywood shall be made of well seasoned rotary cut, sliced or sawn veneer, commercially dry and free from defects that would materially lessen the strength of the casing. All adjacent plies shall be glued with water resistant adhesive. Other suitable materials may be used with plywood for the construction of casings. Casings shall be firmly nailed or secured to corner posts or ends or be assembled by equally suitable devices.

- 6.5.3.4.16 The walls of outer casings of reconstituted wood shall be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type. Other parts of the casings may be made of other suitable material.
- 6.5.3.4.17 For fibreboard outer casings, strong and good quality solid or double-faced corrugated fibreboard (single or multiwall) shall be used appropriate to the capacity of the casing and to its intended use. The water resistance of the outer surface shall be such that the increase in mass, as determined in a test carried out over 30 minutes by the Cobb method of determining water absorption, is not greater than 155 g/m<sup>2</sup> (see ISO 535:1991). It shall have proper bending qualities. Fibreboard shall be cut, creased without scoring, and slotted so as to permit assembly without cracking, surface breaks or undue bending. The fluting of corrugated fibreboard shall be firmly glued to the facings.
- 6.5.3.4.18 The ends of fibreboard outer casings may have a wooden frame or be entirely of wood. Reinforcements of wooden battens may be used.
- 6.5.3.4.19 Manufacturing joints in the fibreboard outer casing shall be taped, lapped and glued, or lapped and stitched with metal staples. Lapped joints shall have an appropriate overlap. Where closing is effected by gluing or taping, a water resistant adhesive shall be used.
- 6.5.3.4.2. Where the outer casing is of plastics material, the relevant requirements of 6.5.3.4.6 to 6.5.3.4.9 apply, on the understanding that, in this case, the requirements applicable to the inner receptacle are applicable to the outer casing of composite IBCs.
- 6.5.3.4.21 The outer casing of an IBC type 31HZ2 shall enclose the inner receptacle on all sides.
- 6.5.3.4.22 Any integral pallet base forming part of an IBC or any detachable pallet shall be suitable for mechanical handling with the IBC filled to its maximum permissible gross mass.
- 6.5.3.4.23 The pallet or integral base shall be designed so as to avoid any protrusion of the base of the IBC that might be liable to damage in handling.
- 6.5.3.4.24 The outer casing shall be secured to any detachable pallet to ensure stability in handling and carriage. Where a detachable pallet is used, its top surface shall be free from sharp protrusions that might damage the IBC.
- 6.5.3.4.25 Strengthening devices such as timber supports to increase stacking performance may be used but shall be external to the inner receptacle.
- 6.5.3.4.26 Where IBCs are intended for stacking, the bearing surface shall be such as to distribute the load in a safe manner. Such IBCs shall be designed so that the load is not supported by the inner receptacle.
- 6.5.3.5 *Specific requirements for fibreboard IBCs***
- 6.5.3.5.1 These requirements apply to fibreboard IBCs for the carriage of solids which are filled or discharged by gravity. Fibreboard IBCs are of the following type: 11G.
- 6.5.3.5.2 Fibreboard IBCs shall not incorporate top lifting devices.
- 6.5.3.5.3 The body shall be made of strong and good quality solid or double-faced corrugated fibreboard (single or multiwall), appropriate to the capacity of the IBC and to its intended use. The water resistance of the outer surface shall be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 g/m<sup>2</sup> (see ISO 535:1991). It shall have proper bending qualities. Fibreboard shall be cut, creased without scoring, and slotted so as

to permit assembly without cracking, surface breaks or undue bending. The fluting or corrugated fibreboard shall be firmly glued to the facings.

- 6.5.3.5.4 The walls, including top and bottom, shall have a minimum puncture resistance of 15 J measured according to ISO 3036:1975.
- 6.5.3.5.5 Manufacturing joins in the body of IBCs shall be made with an appropriate overlap and shall be taped, glued, stitched with metal staples or fastened by other means at least equally effective. Where joins are effected by gluing or taping, a water resistant adhesive shall be used. Metal staples shall pass completely through all pieces to be fastened and be formed or protected so that any inner liner cannot be abraded or punctured by them.
- 6.5.3.5.6 The liner shall be made of a suitable material. The strength of the material used and the construction of the liner shall be appropriate to the capacity of the IBC and the intended use. Joins and closures shall be siftproof and capable of withstanding pressures and impacts liable to occur under normal conditions of handling and carriage.
- 6.5.3.5.7 Any integral pallet base forming part of an IBC or any detachable pallet shall be suitable for mechanical handling with the IBC filled to its maximum permissible gross mass.
- 6.5.3.5.8 The pallet or integral base shall be designed so as to avoid any protrusion of the base of the IBC that might be liable to damage in handling.
- 6.5.3.5.9 The body shall be secured to any detachable pallet to ensure stability in handling and carriage. Where a detachable pallet is used, its top surface shall be free from sharp protrusions that might damage the IBC.
- 6.5.3.5.10 Strengthening devices such as timber supports to increase stacking performance may be used but shall be external to the liner.
- 6.5.3.5.11 Where IBCs are intended for stacking, the bearing surface shall be such as to distribute the load in a safe manner.
- 6.5.3.6 *Specific requirements for wooden IBCs***
- 6.5.3.6.1 These requirements apply to wooden IBCs for the carriage of solids which are filled or discharged by gravity. Wooden IBCs are of the following types:
- |     |                                      |
|-----|--------------------------------------|
| 11C | Natural wood with inner liner        |
| 11D | Plywood with inner liner             |
| 11F | Reconstituted wood with inner liner. |
- 6.5.3.6.2 Wooden IBCs shall not incorporate top lifting devices.
- 6.5.3.6.3 The strength of the materials used and the method of construction of the body shall be appropriate to the capacity and intended use of the IBC.
- 6.5.3.6.4 Natural wood shall be well seasoned, commercially dry and free from defects that would materially lessen the strength of any part of the IBC. Each part of the IBC shall consist of one piece or be equivalent thereto. Parts are considered equivalent to one piece when a suitable method of glued assembly is used (as for instance Lindermann joint, tongue and groove joint, ship lap or rabbet joint); or butt joint with at least two corrugated metal fasteners at each joint, or when other methods at least equally effective are used.
- 6.5.3.6.5 Bodies of plywood shall be at least 3-ply. They shall be made of well seasoned rotary cut, sliced or sawn veneer, commercially dry and free from defects that would materially lessen

the strength of the body. All adjacent plies shall be glued with water resistant adhesive. Other suitable materials may be used with plywood for the construction of the body.

- 6.5.3.6.6 Bodies of reconstituted wood shall be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type.
- 6.5.3.6.7 IBCs shall be firmly nailed or secured to corner posts or ends or be assembled by equally suitable devices.
- 6.5.3.6.8 The liner shall be made of a suitable material. The strength of the material used and the construction of the liner shall be appropriate to the capacity of the IBC and the intended use. Joints and closures shall be siftproof and capable of withstanding pressures and impacts liable to occur under normal conditions of handling and carriage.
- 6.5.3.6.9 Any integral pallet base forming part of an IBC or any detachable pallet shall be suitable for mechanical handling with the IBC filled to its maximum permissible gross mass.
- 6.5.3.6.10 The pallet or integral base shall be designed so as to avoid any protrusion of the base of the IBC that might be liable to damage in handling.
- 6.5.3.6.11 The body shall be secured to any detachable pallet to ensure stability in handling and carriage. Where a detachable pallet is used, its top surface shall be free from sharp protrusions that might damage the IBC.
- 6.5.3.6.12 Strengthening devices such as timber supports to increase stacking performance may be used but shall be external to the liner.
- 6.5.3.6.13 Where IBCs are intended for stacking, the bearing surface shall be such as to distribute the load in a safe manner.

#### 6.5.4 Test requirements for IBCs

##### 6.5.4.1 *Performance and frequency of tests*

- 6.5.4.1.1 The design type of each IBC shall be tested in accordance with procedures established and approved by the competent authority for each IBC design type before such an IBC is used. An IBC design type is defined by the design, size, material and thickness, manner of construction and means of filling and discharging but may include various surface treatments. It also includes IBCs which differ from the design type only in their lesser external dimensions.
- 6.5.4.1.2 Tests shall be carried out on IBCs prepared for carriage. IBCs shall be filled as indicated in the relevant sections. The substances to be carried in the IBCs may be replaced by other substances except where this would invalidate the results of the tests. For solids, when another substance is used it shall have the same physical characteristics (mass, grain size, etc.) as the substance to be carried. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass, so long as they are placed so that the test results are not affected.
- 6.5.4.1.3 In the drop tests for liquids, when another substance is used, its relative density and viscosity shall be similar to those of the substance to be carried. Water may also be used for the liquid drop test under the following conditions:
  - (a) where the substances to be carried have a relative density not exceeding 1.2, the drop heights shall be those shown in the table in 6.5.4.9.4;



- (b) where the substances to be carried have a relative density exceeding 1.2, the drop heights shall be calculated on the basis of the relative density (d) of the substance to be carried rounded up to the first decimal as follows:

Packing group I	Packing group II	Packing group III
$d \times 1.5$ m	$d \times 1.0$ m	$d \times 0.67$ m

#### 6.5.4.2 *Design type tests*

- 6.5.4.2.1 One IBC of each design type, size, wall thickness and manner of construction shall be submitted to the tests listed in the order shown in 6.5.4.3.5 and as set out in 6.5.4.5 to 6.5.4.12. These design type tests shall be carried out as required by the competent authority.
- 6.5.4.2.2 The competent authority may permit the selective testing of IBCs which differ only in minor respects from a tested type, e.g. with small reductions in external dimensions.
- 6.5.4.2.3 If detachable pallets are used in the tests, the test report issued in accordance with 6.5.4.13 shall include a technical description of the pallets used.

#### 6.5.4.3 *Preparation of IBCs for testing*

- 6.5.4.3.1 Paper and fibreboard IBCs and composite IBCs with fibreboard outer casings shall be conditioned for at least 24 hours in an atmosphere having a controlled temperature and relative humidity (r.h.). There are three options, one of which shall be chosen. The preferred atmosphere is  $23 \pm 2$  °C and  $50 \% \pm 2 \%$  r.h. The two other options are  $20 \pm 2$  °C and  $65 \% \pm 2 \%$  r.h.; or  $27 \pm 2$  °C and  $65 \% \pm 2 \%$  r.h.  
*NOTE: Average values shall fall within these limits. Short-term fluctuations and measurement limitations may cause individual measurements to vary by up to  $\pm 5$  % relative humidity without significant impairment of test reproducibility.*
- 6.5.4.3.2 Additional steps shall be taken to ascertain that the plastics material used in the manufacture of rigid plastics IBCs (types 31H1 and 31H2) and composite IBCs (types 31HZ1 and 31HZ2) complies respectively with the requirements in 6.5.3.3.2 to 6.5.3.3.4 and 6.5.3.4.6 to 6.5.3.4.9.
- 6.5.4.3.3 To prove there is sufficient chemical compatibility with the contained goods, the sample IBC shall be subjected to a preliminary storage for six months, during which the samples shall remain filled with the substances they are intended to contain or with substances which are known to have at least as severe a stress-cracking, weakening or molecular degradation influence on the plastics materials in question, and after which the samples shall be submitted to the applicable tests listed in the table in 6.5.4.3.5.
- 6.5.4.3.4 Where the satisfactory behaviour of the plastics material has been established by other means, the above compatibility test may be dispensed with. Such procedures shall be at least equivalent to the above compatibility test and recognized by the competent authority.

6.5.4.3.5 *Design type tests required and sequential order*

Type of IBC	Bottom lift	Top lift <sup>a</sup>	Stacking <sup>b</sup>	Leak-proofness	Hydraulic pressure	Drop	Tear	Topple	Righting <sup>c</sup>
Metal: 11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B, 31N	1st <sup>a</sup>	2nd	3rd	-	-	4th <sup>e</sup>	-	-	-
Flexible <sup>d</sup>	-	x <sup>c</sup>	x	-	-	x	x	x	x
Rigid plastics: 11H1, 11H2, 21H1, 21H2, 31H1, 31H2	1st <sup>a</sup>	2nd	3rd	-	-	4th	-	-	-
Composite: 11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1, 31HZ2	1st <sup>a</sup>	2nd	3rd	-	-	4th <sup>e</sup>	-	-	-
Fibreboard	1st	-	2nd	-	-	3rd	-	-	-
Wooden	1st	-	2nd	-	-	3rd	-	-	-

<sup>a</sup> When IBCs are designed for this method of handling.

<sup>b</sup> When IBCs are designed to be stacked.

<sup>c</sup> When IBCs are designed to be lifted from the top or the side.

<sup>d</sup> Required test indicated by x; an IBC which has passed one test may be used for other tests, in any order.

<sup>e</sup> Another IBC of the same design may be used for the drop test.

6.5.4.4 *Bottom lift test*6.5.4.4.1 *Applicability*

For all fibreboard and wooden IBCs, and for all types of IBC which are fitted with means of lifting from the base, as a design type test.

6.5.4.4.2 *Preparation of the IBC for test*

The IBC shall be filled. A load shall be added and evenly distributed. The mass of the filled IBC and the load shall be 1.25 times the maximum permissible gross mass.

6.5.4.4.3 *Method of testing*

The IBC shall be raised and lowered twice by a lift truck with the forks centrally positioned and spaced at three quarters of the dimension of the side of entry (unless the points of entry are fixed). The forks shall penetrate to three quarters of the direction of entry. The test shall be repeated from each possible direction of entry.

6.5.4.4.4 *Criteria for passing the test*

No permanent deformation which renders the IBC, including the base pallet, if any, unsafe for carriage and no loss of contents.

**6.5.4.5** *Top lift test***6.5.4.5.1** *Applicability*

For all types of IBC which are designed to be lifted from the top and for flexible IBCs designed to be lifted from the top or the side, as a design type test.

**6.5.4.5.2** *Preparation of the IBC for test*

Metal, rigid plastics and composite IBCs shall be filled. A load shall be added and evenly distributed. The mass of the filled IBC and the load shall be twice the maximum permissible gross mass. Flexible IBCs shall be filled to six times their maximum permissible load, the load being evenly distributed.

**6.5.4.5.3** *Methods of testing*

Metal and flexible IBCs shall be lifted in the manner for which they are designed until clear of the floor and maintained in that position for a period of five minutes.

Rigid plastics and composite IBCs shall be lifted:

- (a) by each pair of diagonally opposite lifting devices, so that the hoisting forces are applied vertically, for a period of five minutes; and
- (b) by each pair of diagonally opposite lifting devices, so that the hoisting forces are applied toward the centre at 45° to the vertical, for a period of five minutes.

**6.5.4.5.4** Other methods of top lift testing and preparation at least equally effective may be used for flexible IBCs.

**6.5.4.5.5** *Criteria for passing the test*

- (a) Metal, rigid plastics and composite IBCs: no permanent deformation which renders the IBC, including the base pallet, if any, unsafe for carriage and no loss of contents.
- (b) Flexible IBCs: no damage to the IBC or its lifting devices which renders the IBC unsafe for carriage or handling.

**6.5.4.6** *Stacking test***6.5.4.6.1** *Applicability*

For all types of IBC which are designed to be stacked on each other, as a design type test.

**6.5.4.6.2** *Preparation of the IBC for test*

The IBC shall be filled to its maximum permissible gross mass. If the specific gravity of the product being used for testing makes this impracticable, the IBC shall additionally be loaded so that it is tested at its maximum permissible gross mass the load being evenly distributed.

**6.5.4.6.3** *Method of testing*

- (a) The IBC shall be placed on its base on level hard ground and subjected to a uniformly distributed superimposed test load (see 6.5.4.6.4). IBCs shall be subjected to the test load for a period of at least:

- (i) 5 minutes, for metal IBCs;
  - (ii) 28 days at 40 °C, for rigid plastics IBCs of types 11H2, 21H2 and 31H2 and for composite IBCs with outer casings of plastics material which bear the stacking load (i.e., types 11HH1, 11HH2, 21HH1, 21HH2, 31HH1 and 31HH2);
  - (iii) 24 hours, for all other types of IBCs;
- (b) The load shall be applied by one of the following methods:
- (i) one or more IBCs of the same type filled to the maximum permissible gross mass stacked on the test IBC;
  - (ii) appropriate weights loaded on to either a flat plate or a reproduction of the base of the IBC, which is stacked on the test IBC.

#### 6.5.4.6.4 *Calculation of superimposed test load*

The load to be placed on the IBC shall be 1.8 times the combined maximum permissible gross mass of the number of similar IBCs that may be stacked on top of the IBC during carriage.

#### 6.5.4.6.5 *Criteria for passing the test*

- (a) All types of IBC other than flexible IBCs: no permanent deformation which renders the IBC including the base pallet, if any, unsafe for carriage and no loss of contents.
- (b) Flexible IBCs: no deterioration of the body which renders the IBC unsafe for carriage and no loss of contents.

#### 6.5.4.7 *Leakproofness test*

##### 6.5.4.7.1 *Applicability*

For those types of IBC used for liquids or for solids filled or discharged under pressure, as a design type test and periodic test.

##### 6.5.4.7.2 *Preparation of the IBC for test*

The test shall be carried out before the fitting of any thermal insulation equipment. Vented closures shall either be replaced by similar non-vented closures or the vent shall be sealed.

##### 6.5.4.7.3 *Method of testing and pressure to be applied*

The test shall be carried out for a period of at least 10 minutes using air at a gauge pressure of not less than 20 kPa (0.2 bar). The air tightness of the IBC shall be determined by a suitable method such as by air-pressure differential test or by immersing the IBC in water or, for metal IBCs, by coating the seams and joints with a soap solution. In the case of immersing a correction factor shall be applied for the hydrostatic pressure. Other methods at least equally effective may be used.

##### 6.5.4.7.4 *Criterion for passing the test*

No leakage of air.

6.5.4.8 *Internal pressure (hydraulic) test*

6.5.4.8.1 *Applicability*

For those types of IBCs used for liquids or for solids filled or discharged under pressure, as a design type test.

6.5.4.8.2 *Preparation of the IBC for test*

The test shall be carried out before the fitting of any thermal insulation equipment. Pressure-relief devices shall be removed and their apertures plugged, or shall be rendered inoperative.

6.5.4.8.3 *Method of testing*

The test shall be carried out for a period of at least 10 minutes applying a hydraulic pressure not less than that indicated in 6.5.4.8.4. The IBCs shall not be mechanically restrained during the test.

6.5.4.8.4 *Pressures to be applied*

6.5.4.8.4.1 *Metal IBCs:*

- (a) For IBCs of types 21A, 21B and 21N, for packing group I solids, a 250 kPa (2.5 bar) gauge pressure;
- (b) For IBCs of types 21A, 21B, 21N, 31A, 31B and 31N, for packing groups II or III substances, a 200 kPa (2 bar) gauge pressure;
- (c) In addition, for IBCs of types 31A, 31B and 31N, a 65kPa (0.65 bar) gauge pressure. This test shall be performed before the 200 kPa (2 bar) test.

6.5.4.8.4.2 *Rigid plastics and composite IBCs:*

- (a) For IBCs of types 21H1, 21H2, 21HZ1 and 21HZ2: 75 kPa (0.75 bar) (gauge);
- (b) For IBCs of types 31H1, 31H2, 31HZ1 and 31HZ2: whichever is the greater of two values, the first as determined by one of the following methods:
  - (i) the total gauge pressure measured in the IBC (i.e. the vapour pressure of the filling substance and the partial pressure of the air or other inert gases, minus 100 kPa) at 55 °C multiplied by a safety factor of 1.5; this total gauge pressure shall be determined on the basis of a maximum degree of filling in accordance with 4.1.1.4 and a filling temperature of 15 °C;
  - (ii) 1.75 times the vapour pressure at 50 °C of the substance to be carried minus 100 kPa, but with a minimum test pressure of 100 kPa;
  - (iii) 1.5 times the vapour pressure at 55 °C of the substance to be carried minus 100 kPa, but with a minimum test pressure of 100 kPa;

and the second as determined by the following method:

- (iv) twice the static pressure of the substance to be carried, with a minimum of twice the static pressure of water;

#### 6.5.4.8.5 *Criteria for passing the test(s):*

- (a) For IBCs of types 21A, 21B, 21N, 31A, 31B and 31N, when subjected to the test pressure specified in 6.5.4.8.4.1 (a) or (b): no leakage;
- (b) For IBCs of types 31A, 31B and 31N, when subjected to the test pressure specified in 6.5.4.8.4.1 (c): no permanent deformation which renders the IBC unsafe for carriage and no leakage;
- (c) For rigid plastics and composite IBCs: no permanent deformation which would render the IBC unsafe for carriage and no leakage.

#### 6.5.4.9 *Drop test*

##### 6.5.4.9.1 *Applicability*

For all types of IBCs, as a design type test.

##### 6.5.4.9.2 *Preparation of the IBC for test*

- (a) Metal IBCs: the IBC shall be filled to not less than 95 % of its capacity for solids or 98% for liquids in accordance with the design type. Pressure-relief devices shall be removed and their apertures plugged, or shall be rendered inoperative;
- (b) Flexible IBCs: the IBC shall be filled to not less than 95% of its capacity and to its maximum permissible gross mass, the contents being evenly distributed;
- (c) Rigid plastics and composite IBCs: the IBC shall be filled to not less than 95 % of its capacity for solids or 98 % for liquids in accordance with the design type. Arrangements provided for pressure relief may be removed and plugged or rendered inoperative. Testing of IBCs shall be carried out when the temperature of the test sample and its contents has been reduced to minus 18 °C or lower. Where test samples of composite IBCs are prepared in this way the conditioning specified in 6.5.4.3.1 may be waived. Test liquids shall be kept in the liquid state, if necessary by the addition of anti-freeze. This conditioning may be disregarded if the materials in question are of sufficient ductility and tensile strength at low temperatures;
- (d) Fibreboard and wooden IBCs: The IBC shall be filled to not less than 95% of its capacity in accordance with the design type.

##### 6.5.4.9.3 *Method of testing*

The IBC shall be dropped on its base onto a rigid, non-resilient, smooth, flat and horizontal surface in such a manner as to ensure that the point of impact is that part of the base of the IBC considered to be the most vulnerable. IBCs of 0.45 m<sup>3</sup> or less capacity shall also be dropped:

- (a) Metal IBCs: on the most vulnerable part other than the part of the base tested in the first drop;
- (b) Flexible IBCs: on the most vulnerable side;
- (c) Rigid plastics, composite, fibreboard and wooden IBCs: flat on a side, flat on the top and on a corner.

The same or different IBCs may be used for each drop.

6.5.4.9.4 *Drop height*

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

6.5.4.9.5 *Criteria for passing the test(s):*

- (a) Metal IBCs: no loss of contents;
- (b) Flexible IBCs: no loss of contents. A slight discharge, e.g. from closures or stitch holes, upon impact shall not be considered to be a failure of the IBC provided that no further leakage occurs after the IBC has been raised clear of the ground;
- (c) Rigid plastics, composite, fibreboard and wooden IBCs: no loss of contents. A slight discharge from a closure upon impact shall not be considered to be a failure of the IBC provided that no further leakage occurs.

6.5.4.10 *Tear test*6.5.4.10.1 *Applicability*

For all types of flexible IBCs, as a design type test.

6.5.4.10.2 *Preparation of the IBC for test*

The IBC shall be filled to not less than 95% of its capacity and to its maximum permissible gross mass, the contents being evenly distributed.

6.5.4.10.3 *Method of testing*

Once the IBC is placed on the ground, a 100 mm knife score, completely penetrating the wall of a wide face, is made at a 45° angle to the principal axis of the IBC, halfway between the bottom surface and the top level of the contents. The IBC shall then be subjected to a uniformly distributed superimposed load equivalent to twice the maximum permissible gross mass. The load shall be applied for at least five minutes. An IBC which is designed to be lifted from the top or the side shall then, after removal of the superimposed load, be lifted clear of the floor and maintained in that position for a period of five minutes.

6.5.4.10.4 *Criteria for passing the test*

The cut shall not propagate more than 25% of its original length.

6.5.4.11 *Topple test*6.5.4.11.1 *Applicability*

For all types of flexible IBC, as a design type test.

6.5.4.11.2 *Preparation of the IBC for test*

The IBC shall be filled to not less than 95% of its capacity and to its maximum permissible gross mass, the contents being evenly distributed.

6.5.4.11.3 *Method of testing*

The IBC shall be caused to topple on to any part of its top on to a rigid, non-resilient, smooth, flat and horizontal surface.

6.5.4.11.4 *Topple height*

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

6.5.4.11.5 *Criteria for passing the test*

No loss of contents. A slight discharge, e.g. from closures or stitch holes, upon impact shall not be considered to be a failure of the IBC provided that no further leakage occurs.

6.5.4.12 *Righting test*

6.5.4.12.1 *Applicability*

For all flexible IBCs designed to be lifted from the top or side, as a design type test.

6.5.4.12.2 *Preparation of the IBC for test*

The IBC shall be filled to not less than 95% of its capacity and to its maximum permissible gross mass, the contents being evenly distributed.

6.5.4.12.3 *Method of testing*

The IBC, lying on its side, shall be lifted at a speed of at least 0.1 m/s to upright position, clear of the floor, by one lifting device or by two lifting devices when four are provided.

6.5.4.12.4 *Criteria for passing the test*

No damage to the IBC or its lifting devices which renders the IBC unsafe for carriage or handling.

6.5.4.13 *Test report*

6.5.4.13.1 A test report containing at least the following particulars shall be drawn up and shall be made available to the users of the IBC:

1. Name and address of the test facility;
2. Name and address of applicant (where appropriate);
3. A unique test report identification;
4. Date of the test report;
5. Manufacturer of the IBC;
6. Description of the IBC design type (e.g. dimensions, materials, closures, thickness, etc.) including method of manufacture (e.g. blow moulding) and which may include drawing(s) and/or photograph(s);
7. Maximum capacity;
8. Characteristics of test contents, e.g. viscosity and relative density for liquids and particle size for solids;
9. Test descriptions and results;
10. The test report shall be signed with the name and status of the signatory.



6.5.4.13.2 The test report shall contain statements that the IBC prepared as for carriage was tested in accordance with the appropriate requirements of this Chapter and that the use of other packaging methods or components may render it invalid. A copy of the test report shall be available to the competent authority.

**6.5.4.14 *Testing of individual metal, rigid plastics and composite IBCs***

6.5.4.14.1 These tests shall be carried out as required by the competent authority.

6.5.4.14.2 Each IBC shall correspond in all respects to its design type.

6.5.4.14.3 Each metal, rigid plastics and composite IBC for liquids, or for solids which are filled or discharged under pressure, shall be subjected to the leakproofness test, as an initial test (i.e. before the IBC is first used for carriage), after repair, and at intervals of not more than two and a half years.

6.5.4.14.4 The results of tests and the identity of the party performing the tests shall be recorded in test reports to be kept by the owner of the IBC at least until the date of the next test.

**CHAPTER 6.6****REQUIREMENTS FOR THE CONSTRUCTION AND TESTING  
OF LARGE PACKAGINGS****6.6.1 General**

6.6.1.1 The requirements of this Chapter do not apply to:

- packagings for Class 2, except large packagings for articles, including aerosols;
- packagings for Class 6.2, except large packagings for clinical waste of UN No. 3291;
- Class 7 packages containing radioactive material.

6.6.1.2 Large packagings shall be manufactured and tested under a quality assurance programme which satisfies the competent authority in order to ensure that each manufactured packaging meets the requirements of this Chapter.

6.6.1.3 The specific requirements for large packagings in 6.6.4 are based on large packagings currently used. In order to take into account progress in science and technology, there is no objection to the use of large packagings having specifications different from those in 6.6.4 provided they are equally effective, acceptable to the competent authority and able successfully to withstand the tests described in 6.6.5. Methods of testing other than those described in ADR are acceptable provided they are equivalent and are recognized by the competent authority.

6.6.1.4 Manufacturers and subsequent distributors of packagings shall provide information regarding procedures to be followed and a description of the types and dimensions of closures (including required gaskets) and any other components needed to ensure that packages as presented for carriage are capable of passing the applicable performance tests of this Chapter.

**6.6.2 Code for designating types of large packagings**

6.6.2.1 The code used for large packagings consist of:

(a) Two Arabic numerals:

50 for rigid large packagings; or  
51 for flexible large packagings; and

(b) A capital letter in Latin character indicating the nature of the material, e.g. wood, steel etc. The capital letters used shall be those shown in 6.1.2.6.

6.6.2.2 The letter "W" may follow the Large Packaging code. The letter "W" signifies that the large packaging, although of the same type indicated by the code, is manufactured to a specification different from those in 6.6.4 and is considered equivalent in accordance with the requirements in 6.6.1.3.

### 6.6.3 Marking

#### 6.6.3.1 Primary marking

Each large packaging manufactured and intended for use in accordance with the provisions of ADR shall bear durable and legible markings showing:

- (a) The United Nations packaging symbol



For metal large packagings on which the marking is stamped or embossed, the capital letters "UN" may be applied instead of the symbol;

- (b) The number "50" designating a large rigid packaging or "51" for flexible large packagings, followed by the material type in accordance with 6.5.1.4.1 (b);
- (c) A capital letter designating the packing group(s) for which the design type has been approved:
- X for packing groups I, II and III  
Y for packing groups II and III  
Z for packing group III only;
- (d) The month and year (last two digits) of manufacture;
- (e) The State authorizing the allocation of the mark; indicated by the distinguishing sign for motor vehicles in international traffic <sup>1</sup>;
- (f) The name or symbol of the manufacturer and other identification of the large packagings as specified by the competent authority;
- (g) The stacking test load in kg. For large packagings not designed for stacking the figure "0" shall be shown;
- (h) The maximum permissible gross mass in kilograms.

The primary marking required above shall be applied in the sequence of the sub-paragraphs.

Each element of the marking applied in accordance with (a) to (h) shall be clearly separated, e.g. by a slash or space, so as to be easily identifiable.

#### 6.6.3.2 Examples of the marking:



50A/X/05 96/N/PQRS  
2500/1000

For a large steel packaging suitable for stacking; stacking load: 2 500 kg; maximum gross mass: 1 000 kg.



50H/Y/04 95/D/ABCD 987  
0/800

For a large plastics packaging not suitable for stacking; maximum gross mass: 800 kg.



51H/Z/0697/S/1999  
0/500

For a large flexible packaging not suitable for stacking; maximum gross mass: 500 kg.

<sup>1</sup> Distinguishing sign for motor vehicles in international traffic prescribed in the Vienna Convention on Road Traffic (1968).

**6.6.4 Specific requirements for large packagings****6.6.4.1 *Specific requirements for metal large packagings***

- 50A steel
- 50B aluminium
- 50N metal (other than steel or aluminium)

6.6.4.1.1 The large packaging shall be made of suitable ductile metal in which the weldability has been fully demonstrated. Welds shall be skilfully made and afford complete safety. Low-temperature performance shall be taken into account when appropriate.

6.6.4.1.2 Care shall be taken to avoid damage by galvanic action due to the juxtaposition of dissimilar metals.

**6.6.4.2 *Specific requirements for flexible material large packagings***

- 51H flexible plastics
- 51M flexible paper

6.6.4.2.1 The large packaging shall be manufactured from suitable materials. The strength of the material and the construction of the flexible large packagings shall be appropriate to its capacity and its intended use.

6.6.4.2.2 All materials used in the construction of flexible large packagings of types 51M shall, after complete immersion in water for not less than 24 hours, retain at least 85% of the tensile strength as measured originally on the material conditioned to equilibrium at 67% relative humidity or less.

6.6.4.2.3 Seams shall be formed by stitching, heat sealing, glueing or any equivalent method. All stitched seam-ends shall be secured.

6.6.4.2.4 Flexible large packagings shall provide adequate resistance to ageing and to degradation caused by ultraviolet radiation or the climatic conditions, or by the substance contained, thereby rendering them appropriate to their intended use.

6.6.4.2.5 For plastics flexible large packagings where protection against ultraviolet radiation is required, it shall be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives shall be compatible with the contents and remain effective throughout the life of the large packaging. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, re-testing may be waived if changes in the carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.

6.6.4.2.6 Additives may be incorporated into the material of the large packaging to improve the resistance to ageing or to serve other purposes, provided that these do not adversely affect the physical or chemical properties of the material.

6.6.4.2.7 When filled, the ratio of height to width shall be not more than 2:1.

**6.6.4.3      *Specific requirements for plastics large packagings***

50H rigid plastics

6.6.4.3.1      The large packaging shall be manufactured from suitable plastics material of known specifications and be of adequate strength in relation to its capacity and its intended use. The material shall be adequately resistant to ageing and to degradation caused by the substance contained or, where relevant, by ultraviolet radiation. Low temperature performance shall be taken into account when appropriate. Any permeation of the substance contained shall not constitute a danger under normal conditions of carriage.

6.6.4.3.2      Where protection against ultraviolet radiation is required, it shall be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives shall be compatible with the contents and remain effective throughout the life of the outer packaging. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, re-testing may be waived if changes in the carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.

6.6.4.3.3      Additives may be incorporated in the material of the large packaging to improve the resistance to ageing or to serve other purposes, provided that these do not adversely affect the physical or chemical properties of the material.

**6.6.4.4      *Specific requirements for fibreboard large packagings***

50G rigid fibreboard

6.6.4.4.1      Strong and good quality solid or double-faced corrugated fibreboard (single or multiwall) shall be used, appropriate to the capacity of the large packagings and to their intended use. The water resistance of the outer surface shall be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than  $155 \text{ g/m}^2$  - see ISO 535:1991. It shall have proper bending qualities. Fibreboard shall be cut, creased without scoring, and slotted so as to permit assembly without cracking, surface breaks or undue bending. The fluting or corrugated fibreboard shall be firmly glued to the facings.

6.6.4.4.2      The walls, including top and bottom, shall have a minimum puncture resistance of 15 J measured according to ISO 3036:1975.

6.6.4.4.3      Manufacturing joins in the outer packaging of large packagings shall be made with an appropriate overlap and shall be taped, glued, stitched with metal staples or fastened by other means at least equally effective. Where joins are effected by gluing or taping, a water resistant adhesive shall be used. Metal staples shall pass completely through all pieces to be fastened and be formed or protected so that any inner liner cannot be abraded or punctured by them.

6.6.4.4.4      Any integral pallet base forming part of a large packaging or any detachable pallet shall be suitable for mechanical handling with the large packaging filled to its maximum permissible gross mass.

6.6.4.4.5      The pallet or integral base shall be designed so as to avoid any protrusion of the base of the large packaging that might be liable to damage in handling.

6.6.4.4.6      The body shall be secured to any detachable pallet to ensure stability in handling and carriage. Where a detachable pallet is used, its top surface shall be free from sharp protrusions that might damage the large packaging.

- 6.6.4.4.7 Strengthening devices such as timber supports to increase stacking performance may be used but shall be external to the liner.
- 6.6.4.4.8 Where large packagings are intended for stacking, the bearing surface shall be such as to distribute the load in a safe manner.
- 6.6.4.5 *Specific requirements for wooden large packagings*
- 50C natural wood  
50D plywood  
50F reconstituted wood
- 6.6.4.5.1 The strength of the materials used and the method of construction shall be appropriate to the capacity and intended use of the large packagings.
- 6.6.4.5.2 Natural wood shall be well seasoned, commercially dry and free from defects that would materially lessen the strength of any part of the large packagings. Each part of the large packagings shall consist of one piece or be equivalent thereto. Parts are considered equivalent to one piece when a suitable method of glued assembly is used as for instance Lindermann joint, tongue and groove joint, ship lap or rabbet joint; or butt joint with at least two corrugated metal fasteners at each joint, or when other methods at least equally effective are used.
- 6.6.4.5.3 Large packagings of plywood shall be at least 3-ply. They shall be made of well seasoned rotary cut, sliced or sawn veneer, commercially dry and free from defects that would materially lessen the strength of the large packaging. All adjacent plies shall be glued with water resistant adhesive. Other suitable materials may be used with plywood for the construction of the large packaging.
- 6.6.4.5.4 Large packagings of reconstituted wood shall be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type.
- 6.6.4.5.5 Large packagings shall be firmly nailed or secured to corner posts or ends or be assembled by equally suitable devices.
- 6.6.4.5.6 Any integral pallet base forming part of a large packaging or any detachable pallet shall be suitable for mechanical handling with the large packaging filled to its maximum permissible gross mass.
- 6.6.4.5.7 The pallet or integral base shall be designed so as to avoid any protrusion of the base of the large packaging that might be liable to damage in handling.
- 6.6.4.5.8 The body shall be secured to any detachable pallet to ensure stability in handling and carriage. Where a detachable pallet is used, its top surface shall be free from sharp protrusions that might damage the large packaging.
- 6.6.4.5.9 Strengthening devices such as timber supports to increase stacking performance may be used but shall be external to the liner.
- 6.6.4.5.10 Where large packagings are intended for stacking, the bearing surface shall be such as to distribute the load in a safe manner.

**6.6.5 Test requirements for large packagings****6.6.5.1 Performance and frequency of test**

6.6.5.1.1 The design type of each large packaging shall be tested as provided in 6.6.5.3 in accordance with procedures established and approved by the competent authority.

6.6.5.1.2 Tests shall be successfully performed on each large packaging design type before such a packaging is used. A large packaging design type is defined by the design, size, material and thickness, manner of construction and packing, but may include various surface treatments. It also includes large packagings which differ from the design type only in their lesser design height.

6.6.5.1.3 Tests shall be repeated on production samples at intervals established by the competent authority. For such tests on fibreboard large packagings, preparation at ambient conditions is considered equivalent to the provisions of 6.6.5.2.3.

6.6.5.1.4 Tests shall also be repeated after each modification which alters the design, material or manner of construction of large packagings.

6.6.5.1.5 The competent authority may permit the selective testing of large packagings that differ only in minor respects from a tested type, e.g. smaller sizes of inner packagings or inner packagings of lower net mass; and large packagings which are produced with small reductions in external dimension(s).

6.6.5.1.6 Where a large packaging has been successfully tested with different types of inner packagings, a variety of such different inner packagings may also be assembled in this large packaging. In addition, provided an equivalent level of performance is maintained, the following variations in inner packagings are allowed without further testing of the package:

- (a) Inner packagings of equivalent or smaller size may be used provided:
  - (i) The inner packagings are of similar design to the tested inner packagings (e.g. shape - round, rectangular, etc);
  - (ii) The material of construction of the inner packagings (glass, plastics, metal, etc.) offers resistance to impact and stacking forces equal to or greater than that of the originally tested inner packaging;
  - (iii) The inner packagings have the same or smaller openings and the closure is of similar design (e.g. screw cap, friction lid, etc);
  - (iv) Sufficient additional cushioning material is used to take up void spaces and to prevent significant movement of the inner packagings; and
  - (v) Inner packagings are oriented within the large packagings in the same manner as in the tested package;
- (b) A lesser number of the tested inner packagings, or of the alternative types of inner packagings identified in (a) above, may be used provided sufficient cushioning is added to fill the void space(s) and to prevent significant movement of the inner packagings.

6.6.5.1.7 The competent authority may at any time require proof, by tests in accordance with this section, that serially-produced large packagings meet the requirements of the design type tests.

- 6.6.5.1.8 Provided the validity of the test results is not affected and with the approval of the competent authority, several tests may be made on one sample.

**6.6.5.2** *Preparation for testing*

- 6.6.5.2.1 Tests shall be carried out on large packagings prepared as for carriage including the inner packagings or articles used. Inner packagings shall be filled to not less than 98% of their maximum capacity for liquids or 95% for solids. For large packagings where the inner packagings are designed to carry liquids and solids, separate testing is required for both liquid and solid contents. The substances in the inner packagings or the articles to be carried in the large packagings may be replaced by other material or articles except where this would invalidate the results of the tests. When other inner packagings or articles are used they shall have the same physical characteristics (mass, etc) as the inner packagings or articles to be carried. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass, so long as they are placed so that the test results are not affected.

- 6.6.5.2.2 Large packagings made of plastics materials and large packagings containing inner packagings of plastic materials - other than bags intended to contain solids or articles - shall be drop tested when the temperature of the test sample and its contents has been reduced to  $-18\text{ }^{\circ}\text{C}$  or lower. This conditioning may be disregarded if the materials in question are of sufficient ductility and tensile strength at low temperatures. Where test sample are prepared in this way, the conditioning in 6.6.5.2.3 may be waived. Test liquids shall be kept in the liquid state by the addition of anti-freeze if necessary.

- 6.6.5.2.3 Large packagings of fibreboard shall be conditioned for at least 24 hours in an atmosphere having a controlled temperature and relative humidity (r.h.). There are three options, one of which shall be chosen.

The preferred atmosphere is  $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  and  $50\% \pm 2\%$  r.h. The two other options are:  $20\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  and  $65\% \pm 2\%$  r.h.; or  $27\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  and  $65\% \pm 2\%$  r.h.

*NOTE: Average values shall fall within these limits. Short term fluctuations and measurement limitations may cause individual measurements to vary by up to  $\pm 5\%$  relative humidity without significant impairment of test reproducibility.*

**6.6.5.3** *Test requirements*

6.6.5.3.1 *Bottom lift test*

6.6.5.3.1.1 *Applicability*

For all types of large packagings which are fitted with means of lifting from the base, as a design type test.

6.6.5.3.1.2 *Preparation of large packaging for test*

The large packaging shall be loaded to 1.25 times its maximum permissible gross mass, the load being evenly distributed.

6.6.5.3.1.3 *Method of testing*

The large packaging shall be raised and lowered twice by a lift truck with the forks centrally positioned and spaced at three quarters of the dimension of the side of entry (unless the points of entry are fixed). The forks shall penetrate to three quarters of the direction of entry. The test shall be repeated from each possible direction of entry.



6.6.5.3.1.4 Criteria for passing the test

No permanent deformation which renders the large packaging unsafe for carriage and no loss of contents.

6.6.5.3.2 *Top lift test*

6.6.5.3.2.1 Applicability

For types of large packagings which are intended to be lifted from the top and fitted with means of lifting, as a design type test.

6.6.5.3.2.2 Preparation of large packaging for test

The large packaging shall be loaded to twice its maximum permissible gross mass. A flexible large packaging shall be loaded to six times its maximum permissible gross mass, the load being evenly distributed.

6.6.5.3.2.3 Method of testing

The large packaging shall be lifted in the manner for which it is designed until clear of the floor and maintained in that position for a period of five minutes.

6.6.5.3.2.4 Criteria for passing the test

No permanent deformation which renders the large packaging unsafe for carriage and no loss of contents.

6.6.5.3.3 *Stacking test*

6.6.5.3.3.1 Applicability

For all types of large packagings which are designed to be stacked on each other, as a design type test.

6.6.5.3.3.2 Preparation of large packaging for test

The large packaging shall be filled to its maximum permissible gross mass.

6.6.5.3.3.3 Method of testing

The large packaging shall be placed on its base on level hard ground and subjected to a uniformly distributed superimposed test load (see 6.6.5.3.3.4) for a period of at least five minutes, large packagings of wood, fibreboard and plastics materials for a period of 24 h.

6.6.5.3.3.4 Calculation of superimposed test load

The load to be placed on the large packagings shall be 1.8 times the combined maximum permissible gross mass of the number of similar large packagings that may be stacked on top of the large packagings during carriage.

6.6.5.3.3.5 Criteria for passing the test

No permanent deformation which renders the large packaging unsafe for carriage and no loss of contents.

6.6.5.3.4 *Drop test*

## 6.6.5.3.4.1 Applicability

For all types of large packagings as a design type test.

## 6.6.5.3.4.2 Preparation of large packaging for testing

The large packaging shall be filled in accordance with 6.6.5.2.1

## 6.6.5.3.4.3 Method of testing

The large packaging shall be dropped onto a rigid, non-resilient, smooth, flat and horizontal surface, in such a manner as to ensure that the point of impact is that part of the base of the large packaging considered to be the most vulnerable.

## 6.6.5.3.4.4 Drop height

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

*NOTE: Large packagings for substances and articles of Class 1, self-reactive substances of Class 4.1 and organic peroxides of Class 5.2 shall be tested at the packing group II performance level.*

## 6.6.5.3.4.5 Criteria for passing the test

6.6.5.3.4.5.1 The large packaging shall not exhibit any damage liable to affect safety during carriage. There shall be no leakage of the filling substance from inner packaging(s) or article(s).

6.6.5.3.4.5.2 No rupture is permitted in large packagings for articles of Class 1 which would permit the spillage of loose explosive substances or articles from the large packaging.

6.6.5.3.4.5.3 Where a large packaging undergoes a drop test, the sample passes the test if the entire contents are retained even if the closure is no longer sift-proof.

6.6.5.4 *Certification and test report*

6.6.5.4.1 In respect of each design type of large packaging a certificate and mark (as in 6.6.3) shall be issued attesting that the design type including its equipment meets the test requirements.

6.6.5.4.2 A test report containing at least the following particulars shall be drawn up and shall be made available to the users of the large packaging:

1. Name and address of the test facility;
2. Name and address of applicant (where appropriate);
3. A unique test report identification;
4. Date of the test report;
5. Manufacturer of the large packaging;
6. Description of the large packaging design type (e.g. dimensions, materials, closures, thickness, etc) and/or photograph(s);
7. Maximum capacity/maximum permissible gross mass;

8. Characteristics of test contents, e.g. types and descriptions of inner packagings or articles used;
9. Test descriptions and results;
10. The test report shall be signed with the name and status of the signatory.

6.6.5.4.3

The test report shall contain statements that the large packaging prepared as for carriage was tested in accordance with the appropriate provisions of this Chapter and that the use of other packaging methods or components may render it invalid. A copy of the test report shall be available to the competent authority.

## CHAPTER 6.7

**REQUIREMENTS FOR THE DESIGN, CONSTRUCTION,  
INSPECTION AND TESTING OF PORTABLE TANKS AND  
UN CERTIFIED MULTIPLE-ELEMENT GAS CONTAINERS (MEGCs)**

**NOTE:** *For fixed tanks (tank-vehicles), demountable tanks and tank-containers and tank swap bodies, with shells made of metallic materials, and battery-vehicles and multiple element gas containers (MEGCs), see Chapter 6.8; for fibre-reinforced plastics tanks, see Chapter 6.9; for vacuum operated waste tanks, see Chapter 6.10.*

**6.7.1 Application and general requirements**

6.7.1.1 The requirements of this Chapter apply to portable tanks intended for the carriage of dangerous goods of Classes 2, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 7, 8 and 9, and to MEGCs intended for the carriage of non-refrigerated gases of Class 2, by all modes of carriage. In addition to the requirements of this Chapter, unless otherwise specified, the applicable requirements of the International Convention for Safe Containers (CSC) 1972, as amended, shall be fulfilled by any multimodal portable tank or MEGC which meets the definition of a "container" within the terms of that Convention. Additional requirements may apply to offshore portable tanks or MEGCs that are handled in open seas.

6.7.1.2 In recognition of scientific and technological advances, the technical requirements of this Chapter may be varied by alternative arrangements. These alternative arrangements shall offer a level of safety not less than that given by the requirements of this Chapter with respect to the compatibility with substances carried and the ability of the portable tank or MEGC to withstand impact, loading and fire conditions. For international carriage, alternative arrangement portable tanks or MEGCs shall be approved by the applicable competent authorities.

6.7.1.3 When a substance is not assigned a portable tank instruction (T1 to T23, T50 or T75) in Column (10) of Table A of in Chapter 3.2, interim approval for carriage may be issued by the competent authority of the country of origin. The approval shall be included in the documentation of the consignment and contain as a minimum the information normally provided in the portable tank instructions and the conditions under which the substance shall be carried.

**6.7.2 Requirements for the design, construction, inspection and testing of portable tanks intended for the carriage of substances of Classes 3 to 9**

**6.7.2.1 Definitions**

For the purposes of this section:

*Alternative arrangement* means an approval granted by the competent authority for a portable tank or MEGC that has been designed, constructed or tested to technical requirements or testing methods other than those specified in this Chapter:

*Portable tank* means a multimodal tank having a capacity of more than 450 litres used for the carriage of substances of Classes 3 to 9. The portable tank includes a shell fitted with service equipment and structural equipment necessary for the carriage of dangerous substances. The portable tank shall be capable of being filled and discharged without the removal of its structural equipment. It shall possess stabilizing members external to the shell, and shall be capable of being lifted when full. It shall be designed primarily to be loaded onto a transport vehicle or ship and shall be equipped with skids, mountings or accessories to

facilitate mechanical handling. Tank-vehicles, tank-wagons, non-metallic tanks and intermediate bulk containers (IBCs) are not considered to fall within the definition for portable tanks;

*Shell* means the part of the portable tank which retains the substance intended for carriage (tank proper), including openings and their closures, but does not include service equipment or external structural equipment;

*Service equipment* means measuring instruments and filling, discharge, venting, safety, heating, cooling and insulating devices;

*Structural equipment* means the reinforcing, fastening, protective and stabilizing members external to the shell;

*Maximum allowable working pressure (MAWP)* means a pressure that shall be not less than the highest of the following pressures measured at the top of the shell while in operating position:

- (a) The maximum effective gauge pressure allowed in the shell during filling or discharge; or
- (b) The maximum effective gauge pressure to which the shell is designed which shall be not less than the sum of:
  - (i) the absolute vapour pressure (in bar) of the substance at 65 °C, minus 1 bar; and
  - (ii) the partial pressure (in bar) of air or other gases in the ullage space being determined by a maximum ullage temperature of 65 °C and a liquid expansion due to an increase in mean bulk temperature of  $t_r - t_f$  ( $t_f$  = filling temperature, usually 15 °C;  $t_r$  = maximum mean bulk temperature, 50 °C);

*Design pressure* means the pressure to be used in calculations required by a recognized pressure vessel code. The design pressure shall be not less than the highest of the following pressures:

- (a) The maximum effective gauge pressure allowed in the shell during filling or discharge; or
- (b) The sum of:
  - (i) the absolute vapour pressure (in bar) of the substance at 65 °C, minus 1 bar;
  - (ii) the partial pressure (in bar) of air or other gases in the ullage space being determined by a maximum ullage temperature of 65 °C and a liquid expansion due to an increase in mean bulk temperature of  $t_r - t_f$  ( $t_f$  = filling temperature usually 15 °C;  $t_r$  = maximum mean bulk temperature, 50 °C); and
  - (iii) a head pressure determined on the basis of the dynamic forces specified in 6.7.2.2.12, but not less than 0.35 bar; or
- (c) Two thirds of the minimum test pressure specified in the applicable portable tank instruction in 4.2.5.2.6;

*Test pressure* means the maximum gauge pressure at the top of the shell during the hydraulic pressure test equal to not less than 1.5 times the design pressure. The minimum test pressure

for portable tanks intended for specific substances is specified in the applicable portable tank instruction in 4.2.5.2.6;

*Leakproofness test* means a test using gas subjecting the shell and its service equipment to an effective internal pressure of not less than 25% of the MAWP;

*Maximum permissible gross mass (MPGM)* means the sum of the tare mass of the portable tank and the heaviest load authorized for carriage;

*Reference steel* means a steel with a tensile strength of 370 N/mm<sup>2</sup> and an elongation at fracture of 27%;

*Mild steel* means a steel with a guaranteed minimum tensile strength of 360 N/mm<sup>2</sup> to 440 N/mm<sup>2</sup> and a guaranteed minimum elongation at fracture conforming to 6.7.2.3.3.3;

*Design temperature range* for the shell shall be -40 °C to 50 °C for substances carried under ambient conditions. For substances handled under elevated temperature conditions the design temperature shall be not less than the maximum temperature of the substance during filling, discharge or carriage. More severe design temperatures shall be considered for portable tanks subjected to severe climatic conditions.

## 6.7.2.2 *General design and construction requirements*

6.7.2.2.1 Shells shall be designed and constructed in accordance with the requirements of a pressure vessel code recognized by the competent authority. Shells shall be made of metallic materials suitable for forming. The materials shall in principle conform to national or international material standards. For welded shells only a material whose weldability has been fully demonstrated shall be used. Welds shall be skilfully made and afford complete safety. When the manufacturing process or the materials make it necessary, the shells shall be suitably heat-treated to guarantee adequate toughness in the weld and in the heat affected zones. In choosing the material, the design temperature range shall be taken into account with respect to risk of brittle fracture, to stress corrosion cracking and to resistance to impact. When fine grain steel is used, the guaranteed value of the yield strength shall be not more than 460 N/mm<sup>2</sup> and the guaranteed value of the upper limit of the tensile strength shall be not more than 725 N/mm<sup>2</sup> according to the material specification. Aluminium may only be used as a construction material when indicated in a portable tank special provision assigned to a specific substance in Column (11) of Table A of Chapter 3.2 or when approved by the competent authority. When aluminium is authorized, it shall be insulated to prevent significant loss of physical properties when subjected to a heat load of 110 kW/m<sup>2</sup> for a period of not less than 30 minutes. The insulation shall remain effective at all temperatures less than 649 °C and shall be jacketed with a material with a melting point of not less than 700 °C. Portable tank materials shall be suitable for the external environment in which they may be carried.

6.7.2.2.2 Portable tank shells, fittings, and pipework shall be constructed from materials which are:

- (a) Substantially immune to attack by the substance(s) intended to be carried; or
- (b) Properly passivated or neutralized by chemical reaction; or
- (c) Lined with corrosion-resistant material directly bonded to the shell or attached by equivalent means.

6.7.2.2.3 Gaskets shall be made of materials not subject to attack by the substance(s) intended to be carried.

- 6.7.2.2.4 When shells are lined, the lining shall be substantially immune to attack by the substance(s) intended to be carried, homogeneous, non porous, free from perforations, sufficiently elastic and compatible with the thermal expansion characteristics of the shell. The lining of every shell, shell fittings and piping shall be continuous, and shall extend around the face of any flange. Where external fittings are welded to the tank, the lining shall be continuous through the fitting and around the face of external flanges.
- 6.7.2.2.5 Joints and seams in the lining shall be made by fusing the material together or by other equally effective means.
- 6.7.2.2.6 Contact between dissimilar metals which could result in damage by galvanic action shall be avoided.
- 6.7.2.2.7 The materials of the portable tank, including any devices, gaskets, linings and accessories, shall not adversely affect the substance(s) intended to be carried in the portable tank.
- 6.7.2.2.8 Portable tanks shall be designed and constructed with supports to provide a secure base during carriage and with suitable lifting and tie-down attachments.
- 6.7.2.2.9 Portable tanks shall be designed to withstand, without loss of contents, at least the internal pressure due to the contents, and the static, dynamic and thermal loads during normal conditions of handling and carriage. The design shall demonstrate that the effects of fatigue, caused by repeated application of these loads through the expected life of the portable tank, have been taken into account.
- 6.7.2.2.10 A shell which is to be equipped with a vacuum-relief device shall be designed to withstand, without permanent deformation, an external pressure of not less than 0.21 bar above the internal pressure. The vacuum-relief device shall be set to relieve at a vacuum setting not greater than minus (-) 0.21 bar unless the shell is designed for a higher external over pressure, in which case the vacuum-relief pressure of the device to be fitted shall be not greater than the tank design vacuum pressure. A shell that is not to be fitted with a vacuum-relief device shall be designed to withstand, without permanent deformation an external pressure of not less than 0.4 bar above the internal pressure.
- 6.7.2.2.11 Vacuum-relief devices used on portable tanks intended for the carriage of substances meeting the flash-point criteria of Class 3, including elevated temperature substances carried at or above their flash-point, shall prevent the immediate passage of flame into the shell, or the portable tank shall have a shell capable of withstanding, without leakage an internal explosion resulting from the passage of flame into the shell.
- 6.7.2.2.12 Portable tanks and their fastenings shall, under the maximum permissible load, be capable of absorbing the following separately applied static forces:
- (a) In the direction of travel: twice the MPGM multiplied by the acceleration due to gravity ( $g$ )<sup>1</sup>;
  - (b) Horizontally at right angles to the direction of travel: the MPGM (when the direction of travel is not clearly determined, the forces shall be equal to twice the MPGM) multiplied by the acceleration due to gravity ( $g$ )<sup>1</sup>;
  - (c) Vertically upwards: the MPGM multiplied by the acceleration due to gravity ( $g$ )<sup>1</sup>; and
  - (d) Vertically downwards: twice the MPGM (total loading including the effect of gravity) multiplied by the acceleration due to gravity ( $g$ )<sup>1</sup>.

<sup>1</sup> For calculation purposes  $g = 9.81 \text{ m/s}^2$ .

- 6.7.2.2.13 Under each of the forces in 6.7.2.2.12, the safety factor to be observed shall be as follows:
- (a) For metals having a clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed yield strength; or
  - (b) For metals with no clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed 0.2% proof strength and, for austenitic steels, the 1% proof strength.

6.7.2.2.14 The values of yield strength or proof strength shall be the values according to national or international material standards. When austenitic steels are used, the specified minimum values of yield strength or proof strength according to the material standards may be increased by up to 15% when these greater values are attested in the material inspection certificate. When no material standard exists for the metal in question, the value of yield strength or proof strength used shall be approved by the competent authority.

6.7.2.2.15 Portable tanks shall be capable of being electrically earthed when intended for the carriage of substances meeting the flash-point criteria of Class 3 including elevated temperature substances carried at or above their flash-point. Measures shall be taken to prevent dangerous electrostatic discharge.

6.7.2.2.16 When required for certain substances by the applicable portable tank instruction indicated in Column (10) of Table A of Chapter 3.2 and described in 4.2.5.2.6 or by a portable tank special provision indicated in Column (11) of Table A of Chapter 3.2 and described in 4.2.5.3, portable tanks shall be provided with additional protection, which may take the form of additional shell thickness or a higher test pressure, the additional shell thickness or higher test pressure being determined in the light of the inherent risks associated with the carriage of the substances concerned.

### 6.7.2.3 *Design criteria*

6.7.2.3.1 Shells shall be of a design capable of being stress-analysed mathematically or experimentally by resistance strain gauges, or by other methods approved by the competent authority.

6.7.2.3.2 Shells shall be designed and constructed to withstand a hydraulic test pressure not less than 1.5 times the design pressure. Specific requirements are laid down for certain substances in the applicable portable tank instruction indicated in Column (10) of Table A of Chapter 3.2 and described in 4.2.5.2.6 or by a portable tank special provision indicated in Column (11) of Table A of Chapter 3.2 and described in 4.2.5.3. Attention is drawn to the minimum shell thickness requirements specified in 6.7.2.4.1 to 6.7.2.4.10.

6.7.2.3.3 For metals exhibiting a clearly defined yield point or characterized by a guaranteed proof strength (0.2% proof strength, generally, or 1% proof strength for austenitic steels) the primary membrane stress  $\sigma$  (sigma) in the shell shall not exceed 0.75 Re or 0.50 Rm, whichever is lower, at the test pressure, where:

Re = yield strength in N/mm<sup>2</sup>, or 0.2% proof strength or, for austenitic steels, 1% proof strength;

Rm = minimum tensile strength in N/mm<sup>2</sup>.

6.7.2.3.3.1 The values of Re and Rm to be used shall be the specified minimum values according to national or international material standards. When austenitic steels are used, the specified minimum values for Re and Rm according to the material standards may be increased by up to 15% when greater values are attested in the material inspection certificate. When no material standard exists for the metal in question, the values of Re and Rm used shall be approved by the competent authority or its authorized body.



- 6.7.2.3.3.2 Steels which have a  $R_e/R_m$  ratio of more than 0.85 are not allowed for the construction of welded shells. The values of  $R_e$  and  $R_m$  to be used in determining this ratio shall be the values specified in the material inspection certificate.
- 6.7.2.3.3.3 Steels used in the construction of shells shall have an elongation at fracture, in %, of not less than  $10\,000/R_m$  with an absolute minimum of 16% for fine grain steels and 20% for other steels. Aluminium and aluminium alloys used in the construction of shells shall have an elongation at fracture, in %, of not less than  $10\,000/6R_m$  with an absolute minimum of 12%.
- 6.7.2.3.3.4 For the purpose of determining actual values for materials, it shall be noted that for sheet metal, the axis of the tensile test specimen shall be at right angles (transversely) to the direction of rolling. The permanent elongation at fracture shall be measured on test specimens of rectangular cross sections in accordance with ISO 6892:1998 using a 50 mm gauge length.
- 6.7.2.4 *Minimum shell thickness***
- 6.7.2.4.1 The minimum shell thickness shall be the greater thickness based on:
- (a) The minimum thickness determined in accordance with the requirements of 6.7.2.4.2 to 6.7.2.4.10;
  - (b) The minimum thickness determined in accordance with the recognized pressure vessel code including the requirements in 6.7.2.3; and
  - (c) The minimum thickness specified in the applicable portable tank instruction indicated in Column (10) of Table A of Chapter 3.2 and described in 4.2.5.2.6 or by a portable tank special provision indicated in Column (11) of Table A of Chapter 3.2 and described in 4.2.5.3.
- 6.7.2.4.2 The cylindrical portions, ends (heads) and manhole covers of shells not more than 1.80 m in diameter shall be not less than 5 mm thick in the reference steel or of equivalent thickness in the metal to be used. Shells more than 1.80 m in diameter shall be not less than 6 mm thick in the reference steel or of equivalent thickness in the metal to be used, except that for powdered or granular solid substances of packing group II or III the minimum thickness requirement may be reduced to not less than 5 mm thick in the reference steel or of equivalent thickness in the metal to be used.
- 6.7.2.4.3 When additional protection against shell damage is provided, portable tanks with test pressures less than 2.65 bar may have the minimum shell thickness reduced, in proportion to the protection provided, as approved by the competent authority. However, shells not more than 1.80 m in diameter shall be not less than 3 mm thick in the reference steel or of equivalent thickness in the metal to be used. Shells more than 1.80 m in diameter shall be not less than 4 mm thick in the reference steel or of equivalent thickness in the metal to be used.
- 6.7.2.4.4 The cylindrical portions, ends (heads) and manhole covers of all shells shall be not less than 3 mm thick regardless of the material of construction.
- 6.7.2.4.5 The additional protection referred to in 6.7.2.4.3 may be provided by overall external structural protection, such as suitable "sandwich" construction with the outer sheathing (jacket) secured to the shell, double wall construction or by enclosing the shell in a complete framework with longitudinal and transverse structural members.

6.7.2.4.6 The equivalent thickness of a metal other than the thickness prescribed for the reference steel in 6.7.2.4.2 shall be determined using the following formula:

$$e_1 = \frac{21.4e_0}{\sqrt[3]{Rm_1 \times A_1}}$$

where:

- $e_1$  = required equivalent thickness (in mm) of the metal to be used;
- $e_0$  = minimum thickness (in mm) of the reference steel specified in the applicable portable tank instruction indicated in Column (10) of Table A of Chapter 3.2 and described in 4.2.5.2.6 or by a portable tank special provision indicated in Column (11) of Table A of Chapter 3.2 and described in 4.2.5.3;
- $Rm_1$  = guaranteed minimum tensile strength (in  $N/mm^2$ ) of the metal to be used (see 6.7.2.3.3);
- $A_1$  = guaranteed minimum elongation at fracture (in %) of the metal to be used according to national or international standards.

6.7.2.4.7 When in the applicable portable tank instruction in 4.2.5.2.6, a minimum thickness of 8 mm or 10 mm is specified, it shall be noted that these thicknesses are based on the properties of the reference steel and a shell diameter of 1.80 m. When a metal other than mild steel (see 6.7.2.1) is used or the shell has a diameter of more than 1.80 m, the thickness shall be determined using the following formula:

$$e_1 = \frac{21.4e_0 d_1}{1.8 \sqrt[3]{Rm_1 \times A_1}}$$

where:

- $e_1$  = required equivalent thickness (in mm) of the metal to be used;
- $e_0$  = minimum thickness (in mm) of the reference steel specified in the applicable portable tank instruction indicated in Column (10) of Table A of Chapter 3.2 and described in 4.2.5.2.6 or by a portable tank special provision indicated in Column (11) of Table A of Chapter 3.2 and described in 4.2.5.3;
- $d_1$  = diameter of the shell (in m), but not less than 1.80 m;
- $Rm_1$  = guaranteed minimum tensile strength (in  $N/mm^2$ ) of the metal to be used (see 6.7.2.3.3);
- $A_1$  = guaranteed minimum elongation at fracture (in %) of the metal to be used according to national or international standards.

6.7.2.4.8 In no case shall the wall thickness be less than that prescribed in 6.7.2.4.2, 6.7.2.4.3 and 6.7.2.4.4. All parts of the shell shall have a minimum thickness as determined by 6.7.2.4.2 to 6.7.2.4.4. This thickness shall be exclusive of any corrosion allowance.

6.7.2.4.9 When mild steel is used (see 6.7.2.1), calculation using the formula in 6.7.2.4.6 is not required.

6.7.2.4.10 There shall be no sudden change of plate thickness at the attachment of the ends (heads) to the cylindrical portion of the shell.

**6.7.2.5 Service equipment**

- 6.7.2.5.1 Service equipment shall be so arranged as to be protected against the risk of being wrenched off or damaged during handling and carriage. When the connection between the frame and the shell allows relative movement between the sub-assemblies, the equipment shall be so fastened as to permit such movement without risk of damage to working parts. The external discharge fittings (pipe sockets, shut-off devices), the internal stop-valve and its seating shall be protected against the danger of being wrenched off by external forces (for example using shear sections). The filling and discharge devices (including flanges or threaded plugs) and any protective caps shall be capable of being secured against unintended opening.
- 6.7.2.5.2 All openings in the shell, intended for filling or discharging the portable tank shall be fitted with a manually operated stop-valve located as close to the shell as reasonably practicable. Other openings, except for openings leading to venting or pressure-relief devices, shall be equipped with either a stop-valve or another suitable means of closure located as close to the shell as reasonably practicable.
- 6.7.2.5.3 All portable tanks shall be fitted with a manhole or other inspection openings of a suitable size to allow for internal inspection and adequate access for maintenance and repair of the interior. Compartmented portable tanks shall have a manhole or other inspection openings for each compartment.
- 6.7.2.5.4 As far as reasonably practicable, external fittings shall be grouped together. For insulated portable tanks, top fittings shall be surrounded by a spill collection reservoir with suitable drains.
- 6.7.2.5.5 Each connection to a portable tank shall be clearly marked to indicate its function.
- 6.7.2.5.6 Each stop-valve or other means of closure shall be designed and constructed to a rated pressure not less than the MAWP of the shell taking into account the temperatures expected during carriage. All stop-valves with screwed spindles shall close by a clockwise motion of the handwheel. For other stop-valves the position (open and closed) and direction of closure shall be clearly indicated. All stop-valves shall be designed to prevent unintentional opening.
- 6.7.2.5.7 No moving parts, such as covers, components of closures, etc., shall be made of unprotected corrodible steel when they are liable to come into frictional or percussive contact with aluminium portable tanks intended for the carriage of substances meeting the flash-point criteria of Class 3 including elevated temperature substances carried at or above their flash-point.
- 6.7.2.5.8 Piping shall be designed, constructed and installed so as to avoid the risk of damage due to thermal expansion and contraction, mechanical shock and vibration. All piping shall be of a suitable metallic material. Welded pipe joints shall be used wherever possible.
- 6.7.2.5.9 Joints in copper tubing shall be brazed or have an equally strong metal union. The melting point of brazing materials shall be no lower than 525 °C. The joints shall not decrease the strength of the tubing as may happen when cutting threads.
- 6.7.2.5.10 The burst pressure of all piping and pipe fittings shall be not less than the highest of four times the MAWP of the shell or four times the pressure to which it may be subjected in service by the action of a pump or other device (except pressure-relief devices).
- 6.7.2.5.11 Ductile metals shall be used in the construction of valves and accessories.

**6.7.2.6 Bottom openings**

6.7.2.6.1 Certain substances shall not be carried in portable tanks with bottom openings. When the applicable portable tank instruction identified in Column (10) of Table A of Chapter 3.2 and described in 4.2.5.2.6 indicates that bottom openings are prohibited there shall be no openings below the liquid level of the shell when it is filled to its maximum permissible filling limit. When an existing opening is closed it shall be accomplished by internally and externally welding one plate to the shell.

6.7.2.6.2 Bottom discharge outlets for portable tanks carrying certain solid, crystallizable or highly viscous substances shall be equipped with not less than two serially fitted and mutually independent shut-off devices. The design of the equipment shall be to the satisfaction of the competent authority or its authorized body and shall include:

- (a) An external stop-valve fitted as close to the shell as reasonably practicable; and
- (b) A liquid tight closure at the end of the discharge pipe, which may be a bolted blank flange or a screw cap.

6.7.2.6.3 Every bottom discharge outlet, except as provided in 6.7.2.6.2, shall be equipped with three serially fitted and mutually independent shut-off devices. The design of the equipment shall be to the satisfaction of the competent authority or its authorized body and include:

- (a) A self-closing internal stop-valve, that is a stop-valve within the shell or within a welded flange or its companion flange, such that:
  - (i) The control devices for the operation of the valve are designed so as to prevent any unintended opening through impact or other inadvertent act;
  - (ii) The valve may be operable from above or below;
  - (iii) If possible, the setting of the valve (open or closed) shall be capable of being verified from the ground;
  - (iv) Except for portable tanks having a capacity of not more than 1 000 litres, it shall be possible to close the valve from an accessible position of the portable tank that is remote from the valve itself; and
  - (v) The valve shall continue to be effective in the event of damage to the external device for controlling the operation of the valve;
- (b) An external stop-valve fitted as close to the shell as reasonably practicable; and
- (c) A liquid tight closure at the end of the discharge pipe, which may be a bolted blank flange or a screw cap.

6.7.2.6.4 For a lined shell, the internal stop-valve required by 6.7.2.6.3 (a) may be replaced by an additional external stop-valve. The manufacturer shall satisfy the requirements of the competent authority or its authorized body.

**6.7.2.7 Safety-relief devices**

6.7.2.7.1 All portable tanks shall be fitted with at least one pressure-relief device. All relief devices shall be designed, constructed and marked to the satisfaction of the competent authority or its authorized body.

### 6.7.2.8 *Pressure-relief devices*

6.7.2.8.1 Every portable tank with a capacity not less than 1 900 litres and every independent compartment of a portable tank with a similar capacity, shall be provided with one or more pressure-relief devices of the spring-loaded type and may in addition have a frangible disc or fusible element in parallel with the spring-loaded devices except when prohibited by reference to 6.7.2.8.3 in the applicable portable tank instruction in 4.2.5.2.6. The pressure-relief devices shall have sufficient capacity to prevent rupture of the shell due to over pressurization or vacuum resulting from filling, discharging, or from heating of the contents.

6.7.2.8.2 Pressure-relief devices shall be designed to prevent the entry of foreign matter, the leakage of liquid and the development of any dangerous excess pressure.

6.7.2.8.3 When required for certain substances by the applicable portable tank instruction indicated in Column (10) of Table A of Chapter 3.2 and described in 4.2.5.2.6, portable tanks shall have a pressure-relief device approved by the competent authority. Unless a portable tank in dedicated service is fitted with an approved relief device constructed of materials compatible with the substance carried, the relief device shall comprise a frangible disc preceding a spring-loaded pressure-relief device. When a frangible disc is inserted in series with the required pressure-relief device, the space between the frangible disc and the pressure-relief device shall be provided with a pressure gauge or suitable tell-tale indicator for the detection of disc rupture, pinholing, or leakage which could cause a malfunction of the pressure-relief system. The frangible disc shall rupture at a nominal pressure 10% above the start to discharge pressure of the relief device.

6.7.2.8.4 Every portable tank with a capacity less than 1 900 litres shall be fitted with a pressure-relief device which may be a frangible disc when this disc complies with the requirements of 6.7.2.11.1. When no spring-loaded pressure-relief device is used, the frangible disc shall be set to rupture at a nominal pressure equal to the test pressure.

6.7.2.8.5 When the shell is fitted for pressure discharge, the inlet line shall be provided with a suitable pressure-relief device set to operate at a pressure not higher than the MAWP of the shell, and a stop-valve shall be fitted as close to the shell as reasonably practicable.

### 6.7.2.9 *Setting of pressure-relief devices*

6.7.2.9.1 It shall be noted that the pressure-relief devices shall operate only in conditions of excessive rise in temperature, since the shell shall not be subject to undue fluctuations of pressure during normal conditions of carriage (see 6.7.2.12.2).

6.7.2.9.2 The required pressure-relief device shall be set to start-to-discharge at a nominal pressure of five-sixths of the test pressure for shells having a test pressure of not more than 4.5 bar and 110% of two-thirds of the test pressure for shells having a test pressure of more than 4.5 bar. After discharge the device shall close at a pressure not more than 10% below the pressure at which the discharge starts. The device shall remain closed at all lower pressures. This requirement does not prevent the use of vacuum-relief or combination pressure-relief and vacuum-relief devices.

### 6.7.2.10 *Fusible elements*

6.7.2.10.1 Fusible elements shall operate at a temperature between 110 °C and 149 °C on condition that the pressure in the shell at the fusing temperature will be not more than the test pressure. They shall be placed at the top of the shell with their inlets in the vapour space and in no case shall they be shielded from external heat. Fusible elements shall not be utilized on portable tanks with a test pressure which exceeds 2.65 bar. Fusible elements used on portable

tanks intended for the carriage of elevated temperature substances shall be designed to operate at a temperature higher than the maximum temperature that will be experienced during carriage and shall be to the satisfaction of the competent authority or its authorized body.

#### 6.7.2.11 *Frangible discs*

6.7.2.11.1 Except as specified in 6.7.2.8.3, frangible discs shall be set to rupture at a nominal pressure equal to the test pressure throughout the design temperature range. Particular attention shall be given to the requirements of 6.7.2.5.1 and 6.7.2.8.3 if frangible discs are used.

6.7.2.11.2 Frangible discs shall be appropriate for the vacuum pressures which may be produced in the portable tank.

#### 6.7.2.12 *Capacity of pressure-relief devices*

6.7.2.12.1 The spring-loaded pressure-relief device required by 6.7.2.8.1 shall have a minimum cross sectional flow area equivalent to an orifice of 31.75 mm diameter. Vacuum-relief devices, when used, shall have a cross sectional flow area not less than 284 mm<sup>2</sup>.

6.7.2.12.2 The combined delivery capacity of the relief devices in condition of complete fire engulfment of the portable tank shall be sufficient to limit the pressure in the shell to 20% above the start-to-discharge pressure of the pressure limiting device. Emergency pressure-relief devices may be used to achieve the full relief capacity prescribed. These devices may be fusible, spring loaded or frangible disc components, or a combination of spring-loaded and frangible disc devices. The total required capacity of the relief devices may be determined using the formula in 6.7.2.12.2.1 or the table in 6.7.2.12.2.3.

6.7.2.12.2.1 To determine the total required capacity of the relief devices, which shall be regarded as being the sum of the individual capacities of all the contributing devices, the following formula shall be used:

$$Q = 12.4 \frac{FA^{0.82}}{LC} \sqrt{\frac{ZT}{M}}$$

where:

Q = minimum required rate of discharge in cubic metres of air per second (m<sup>3</sup>/s) at standard conditions: 1 bar and 0 °C (273 K);

F = is a coefficient with the following value:

for uninsulated shells: F = 1;

for insulated shells: F = U(649 - t)/13.6 but in no case is less than 0.25

where:

U = thermal conductance of the insulation, in kW.m<sup>-2</sup>.K<sup>-1</sup>, at 38 °C;

t = actual temperature of the substance during filling (in °C); when this temperature is unknown, let t = 15 °C;

The value of F given above for insulated shells may be taken provided that the insulation is in accordance with 6.7.2.12.2.4;

- A = total external surface area of shell in  $m^2$ ;
- Z = the gas compressibility factor in the accumulating condition (when this factor is unknown, let Z = 1.0);
- T = absolute temperature in Kelvin ( $^{\circ}C + 273$ ) above the pressure-relief devices in the accumulating condition;
- L = the latent heat of vaporization of the liquid, in kJ/kg, in the accumulating condition;
- M = molecular mass of the discharged gas;
- C = a constant which is derived from one of the following formulae as a function of the ratio k of specific heats:

$$k = \frac{c_p}{c_v}$$

where:

$c_p$  is the specific heat at constant pressure; and  
 $c_v$  is the specific heat at constant volume.

When  $k > 1$ :

$$C = \sqrt{k \left( \frac{2}{k+1} \right)^{\frac{k+1}{k-1}}}$$

When  $k = 1$  or  $k$  is unknown:

$$C = \frac{1}{\sqrt{e}} = 0.607$$

where  $e$  is the mathematical constant 2.7183

C may also be taken from the following table:

k	C	k	C	k	C
1.00	0.607	1.26	0.660	1.52	0.704
1.02	0.611	1.28	0.664	1.54	0.707
1.04	0.615	1.30	0.667	1.56	0.710
1.06	0.620	1.32	0.671	1.58	0.713
1.08	0.624	1.34	0.674	1.60	0.716
1.10	0.628	1.36	0.678	1.62	0.719
1.12	0.633	1.38	0.681	1.64	0.722
1.14	0.637	1.40	0.685	1.66	0.725
1.16	0.641	1.42	0.688	1.68	0.728
1.18	0.645	1.44	0.691	1.70	0.731
1.20	0.649	1.46	0.695	2.00	0.770
1.22	0.652	1.48	0.698	2.20	0.793
1.24	0.656	1.50	0.701		

- 6.7.2.12.2.2 As an alternative to the formula above, shells designed for the carriage of liquids may have their relief devices sized in accordance with the table in 6.7.2.12.2.3. This table assumes an insulation value of  $F = 1$  and shall be adjusted accordingly when the shell is insulated. Other values used in determining this table are:

$$\begin{array}{rcl} M & = & 86.7 \\ L & = & 334.94 \text{ kJ/kg} \\ Z & = & 1 \end{array} \qquad \begin{array}{rcl} T & = & 394 \text{ K} \\ C & = & 0.607 \end{array}$$

- 6.7.2.12.2.3 Minimum required rate of discharge,  $Q$ , in cubic metres per air per second at 1 bar and 0 °C (273 K)

A Exposed area (square metres)	Q (Cubic metres of air per second)	A Exposed area (square metres)	Q (Cubic metres of air per second)
2	0.230	37.5	2.539
3	0.320	40	2.677
4	0.405	42.5	2.814
5	0.487	45	2.949
6	0.565	47.5	3.082
7	0.641	50	3.215
8	0.715	52.5	3.346
9	0.788	55	3.476
10	0.859	57.5	3.605
12	0.998	60	3.733
14	1.132	62.5	3.860
16	1.263	65	3.987
18	1.391	67.5	4.112
20	1.517	70	4.236
22.5	1.670	75	4.483
25	1.821	80	4.726
27.5	1.969	85	4.967
30	2.115	90	5.206
32.5	2.258	95	5.442
35	2.400	100	5.676

- 6.7.2.12.2.4 Insulation systems, used for the purpose of reducing venting capacity, shall be approved by the competent authority or its authorized body. In all cases, insulation systems approved for this purpose shall:

- (a) Remain effective at all temperatures up to 649 °C; and
- (b) Be jacketed with a material having a melting point of 700 °C or greater.



**6.7.2.13**      *Marking of pressure-relief devices*

6.7.2.13.1      Every pressure-relief device shall be clearly and permanently marked with the following particulars:

- (a)    The pressure (in bar or kPa) or temperature (in °C) at which it is set to discharge;
- (b)    The allowable tolerance at the discharge pressure for spring-loaded devices;
- (c)    The reference temperature corresponding to the rated pressure for frangible discs;
- (d)    The allowable temperature tolerance for fusible elements; and
- (e)    The rated flow capacity of the device in standard cubic metres of air per second (m<sup>3</sup>/s);

When practicable, the following information shall also be shown:

- (f)    The manufacturer's name and relevant catalogue number of the device.

6.7.2.13.2      The rated flow capacity marked on the pressure-relief devices shall be determined according to ISO 4126-1:1991.

**6.7.2.14**      *Connections to pressure-relief devices*

6.7.2.14.1      Connections to pressure-relief devices shall be of sufficient size to enable the required discharge to pass unrestricted to the safety device. No stop-valve shall be installed between the shell and the pressure-relief devices except where duplicate devices are provided for maintenance or other reasons and the stop-valves serving the devices actually in use are locked open or the stop-valves are interlocked so that at least one of the duplicate devices is always in use. There shall be no obstruction in an opening leading to a vent or pressure-relief device which might restrict or cut-off the flow from the shell to that device. Vents or pipes from the pressure-relief device outlets, when used, shall deliver the relieved vapour or liquid to the atmosphere in conditions of minimum back-pressure on the relieving devices.

**6.7.2.15**      *Siting of pressure-relief devices*

6.7.2.15.1      Each pressure-relief device inlet shall be situated on top of the shell in a position as near the longitudinal and transverse centre of the shell as reasonably practicable. All pressure-relief device inlets shall under maximum filling conditions be situated in the vapour space of the shell and the devices shall be so arranged as to ensure the escaping vapour is discharged unrestrictedly. For flammable substances, the escaping vapour shall be directed away from the shell in such a manner that it cannot impinge upon the shell. Protective devices which deflect the flow of vapour are permissible provided the required relief-device capacity is not reduced.

6.7.2.15.2      Arrangements shall be made to prevent access to the pressure-relief devices by unauthorized persons and to protect the devices from damage caused by the portable tank overturning.

**6.7.2.16**      *Gauging devices*

6.7.2.16.1      Glass level-gauges and gauges made of other fragile material, which are in direct communication with the contents of the tank shall not be used.

**6.7.2.17** *Portable tank supports, frameworks, lifting and tie-down attachments*

6.7.2.17.1 Portable tanks shall be designed and constructed with a support structure to provide a secure base during carriage. The forces specified in 6.7.2.2.12 and the safety factor specified in 6.7.2.2.13 shall be considered in this aspect of the design. Skids, frameworks, cradles or other similar structures are acceptable.

6.7.2.17.2 The combined stresses caused by portable tank mountings (e.g. cradles, framework, etc.) and portable tank lifting and tie-down attachments shall not cause excessive stress in any portion of the shell. Permanent lifting and tie-down attachments shall be fitted to all portable tanks. Preferably they shall be fitted to the portable tank supports but may be secured to reinforcing plates located on the shell at the points of support.

6.7.2.17.3 In the design of supports and frameworks the effects of environmental corrosion shall be taken into account.

6.7.2.17.4 Forklift pockets shall be capable of being closed off. The means of closing forklift pockets shall be a permanent part of the framework or permanently attached to the framework. Single compartment portable tanks with a length less than 3.65 m need not have closed off forklift pockets provided that:

- (a) The shell including all the fittings are well protected from being hit by the forklift blades; and
- (b) The distance between the centres of the forklift pockets is at least half of the maximum length of the portable tank.

6.7.2.17.5 When portable tanks are not protected during carriage, according to 4.2.1.2, the shells and service equipment shall be protected against damage to the shell and service equipment resulting from lateral or longitudinal impact or overturning. External fittings shall be protected so as to preclude the release of the shell contents upon impact or overturning of the portable tank on its fittings. Examples of protection include:

- (a) Protection against lateral impact which may consist of longitudinal bars protecting the shell on both sides at the level of the median line;
- (b) Protection of the portable tank against overturning which may consist of reinforcement rings or bars fixed across the frame;
- (c) Protection against rear impact which may consist of a bumper or frame;
- (d) Protection of the shell against damage from impact or overturning by use of an ISO frame in accordance with ISO 1496-3:1995.

**6.7.2.18** *Design approval*

6.7.2.18.1 The competent authority or its authorized body shall issue a design approval certificate for any new design of a portable tank. This certificate shall attest that a portable tank has been surveyed by that authority, is suitable for its intended purpose and meets the requirements of this Chapter and where appropriate, the provisions for substances provided in Chapter 4.2 and in Table A of Chapter 3.2. When a series of portable tanks are manufactured without change in the design, the certificate shall be valid for the entire series. The certificate shall refer to the prototype test report, the substances or group of substances allowed to be carried, the materials of construction of the shell and lining (when applicable) and an approval number. The approval number shall consist of the distinguishing sign or mark of the State in whose territory the approval was granted, i.e. the distinguishing sign for use in international

traffic as prescribed by the Convention on Road Traffic, Vienna 1968, and a registration number. Any alternative arrangements according to 6.7.1.2 shall be indicated on the certificate. A design approval may serve for the approval of smaller portable tanks made of materials of the same kind and thickness, by the same fabrication techniques and with identical supports, equivalent closures and other appurtenances.

6.7.2.18.2 The prototype test report for the design approval shall include at least the following:

- (a) The results of the applicable framework test specified in ISO 1496-3:1995;
- (b) The results of the initial inspection and test according to 6.7.2.19.3; and
- (c) The results of the impact test in 6.7.2.19.1, when applicable.

**6.7.2.19** *Inspection and testing*

6.7.2.19.1 For portable tanks meeting the definition of container in the CSC, a prototype representing each design shall be subjected to an impact test. The prototype portable tank shall be shown to be capable of absorbing the forces resulting from an impact not less than 4 times (4 g) the MPGM of the fully loaded portable tank at a duration typical of the mechanical shocks experienced in rail transport. The following is a listing of standards describing methods acceptable for performing the impact test:

Association of American Railroads,  
Manual of Standards and Recommended Practices,  
Specifications for Acceptability of Tank Containers (AAR.600), 1992

Canadian Standards Association (CSA),  
Highway Tanks and Portable Tanks for the Transportation of Dangerous Goods (B620-1987)

Deutsche Bahn AG  
Zentralbereich Technik, Minden  
Portable tanks, longitudinal dynamic impact test

Société Nationale des Chemins de Fer Français  
C.N.E.S.T. 002-1966.  
Tank containers, longitudinal external stresses and dynamic impact tests

Spoornet, South Africa  
Engineering Development Centre (EDC)  
Testing of ISO Tank Containers  
Method EDC/TES/023/000/1991-06

6.7.2.19.2 The shell and items of equipment of each portable tank shall be inspected and tested before being put into service for the first time (initial inspection and test) and thereafter at not more than five-year intervals (5 year periodic inspection and test) with an intermediate periodic inspection and test (2.5 year periodic inspection and test) midway between the 5 year periodic inspections and tests. The 2.5 year inspection and test may be performed within 3 months of the specified date. An exceptional inspection and test shall be performed regardless of the date of the last periodic inspection and test when necessary according to 6.7.2.19.7.

6.7.2.19.3 The initial inspection and test of a portable tank shall include a check of the design characteristics, an internal and external examination of the portable tank and its fittings with due regard to the substances to be carried, and a pressure test. Before the portable tank is placed into service, a leakproofness test and a check of the satisfactory operation of all

service equipment shall also be performed. When the shell and its fittings have been pressure-tested separately, they shall be subjected together after assembly to a leakproofness test.

- 6.7.2.19.4 The 5-year periodic inspection and test shall include an internal and external examination and, as a general rule, a hydraulic pressure test. Sheathing, thermal insulation and the like shall be removed only to the extent required for reliable appraisal of the condition of the portable tank. When the shell and equipment have been pressure-tested separately, they shall be subjected together after assembly to a leakproofness test.
- 6.7.2.19.5 The intermediate 2.5 year periodic inspection and test shall at least include an internal and external examination of the portable tank and its fittings with due regard to the substances intended to be carried, a leakproofness test and a check of the satisfactory operation of all service equipment. Sheathing, thermal insulation and the like shall be removed only to the extent required for reliable appraisal of the condition of the portable tank. For portable tanks intended for the carriage of a single substance, the 2.5 year internal examination may be waived or substituted by other test methods or inspection procedures specified by the competent authority or its authorized body.
- 6.7.2.19.6 A portable tank may not be filled and offered for carriage after the date of expiry of the last 5 year or 2.5 year periodic inspection and test as required by 6.7.2.19.2. However, a portable tank filled prior to the date of expiry of the last periodic inspection and test may be carried for a period not to exceed three months beyond the date of expiry of the last periodic test or inspection. In addition, a portable tank may be carried after the date of expiry of the last periodic test and inspection:
- (a) After emptying but before cleaning, for purposes of performing the next required test or inspection prior to refilling; and
  - (b) Unless otherwise approved by the competent authority, for a period not to exceed six months beyond the date of expiry of the last periodic test or inspection, in order to allow the return of dangerous goods for proper disposal or recycling. Reference to this exemption shall be mentioned in the transport document.
- 6.7.2.19.7 The exceptional inspection and test is necessary when the portable tank shows evidence of damaged or corroded areas, or leakage, or other conditions that indicate a deficiency that could affect the integrity of the portable tank. The extent of the exceptional inspection and test shall depend on the amount of damage or deterioration of the portable tank. It shall include at least the 2.5 year inspection and test according to 6.7.2.19.5.
- 6.7.2.19.8 The internal and external examinations shall ensure that:
- (a) The shell is inspected for pitting, corrosion, or abrasions, dents, distortions, defects in welds or any other conditions, including leakage, that might render the portable tank unsafe for carriage;
  - (b) The piping, valves, heating/cooling system, and gaskets are inspected for corroded areas, defects, or any other conditions, including leakage, that might render the portable tank unsafe for filling, discharge or carriage;
  - (c) Devices for tightening manhole covers are operative and there is no leakage at manhole covers or gaskets;
  - (d) Missing or loose bolts or nuts on any flanged connection or blank flange are replaced or tightened;

- (e) All emergency devices and valves are free from corrosion, distortion and any damage or defect that could prevent their normal operation. Remote closure devices and self-closing stop-valves shall be operated to demonstrate proper operation;
- (f) Linings, if any, are inspected in accordance with criteria outlined by the lining manufacturer;
- (g) Required markings on the portable tank are legible and in accordance with the applicable requirements; and
- (h) The framework, supports and arrangements for lifting the portable tank are in a satisfactory condition.

6.7.2.19.9 The inspections and tests in 6.7.2.19.1, 6.7.2.19.3, 6.7.2.19.4, 6.7.2.19.5 and 6.7.2.19.7 shall be performed or witnessed by an expert approved by the competent authority or its authorized body. When the pressure test is a part of the inspection and test, the test pressure shall be the one indicated on the data plate of the portable tank. While under pressure, the portable tank shall be inspected for any leaks in the shell, piping or equipment.

6.7.2.19.10 In all cases when cutting, burning or welding operations on the shell have been effected, that work shall be to the approval of the competent authority or its authorized body taking into account the pressure vessel code used for the construction of the shell. A pressure test to the original test pressure shall be performed after the work is completed.

6.7.2.19.11 When evidence of any unsafe condition is discovered, the portable tank shall not be returned to service until it has been corrected and the test is repeated and passed.

#### 6.7.2.20 *Marking*

6.7.2.20.1 Every portable tank shall be fitted with a corrosion resistant metal plate permanently attached to the portable tank in a conspicuous place readily accessible for inspection. When for reasons of portable tank arrangements the plate cannot be permanently attached to the shell, the shell shall be marked with at least the information required by the pressure vessel code. As a minimum at least the following information shall be marked on the plate by stamping or by any other similar method.

Country of manufacture			
U	Approval	Approval	For Alternative Arrangements (see 6.7.1.2)
N	country	number	"AA"
Manufacturer's name or mark			
Manufacturer's serial number			
Authorized body for the design approval			
Owner's registration number			
Year of manufacture			
Pressure vessel code to which the shell is designed			
Test pressure _____ bar/kPa (gauge pressure) <sup>2</sup>			
MAWP _____ bar/kPa (gauge pressure) <sup>2</sup>			
External design pressure <sup>3</sup> _____ bar/kPa (gauge pressure) <sup>2</sup>			
Design temperature range _____ °C to _____ °C			
Water capacity at 20 °C _____ litres			
Water capacity of each compartment at 20 °C _____ litres			
Initial pressure test date and witness identification			

<sup>2</sup> The unit used shall be marked.

<sup>3</sup> See 6.7.2.2.10.

MAWP for heating/cooling system \_\_\_\_\_ bar/kPa (gauge pressure) <sup>2</sup>  
 Shell material(s) and material standard reference(s)  
 Equivalent thickness in reference steel \_\_\_\_\_ mm  
 Lining material (when applicable)  
 Date and type of most recent periodic test(s)  
 Month \_\_\_\_\_ Year \_\_\_\_\_ Test pressure \_\_\_\_\_ bar/kPa (gauge pressure) <sup>2</sup>  
 Stamp of expert who performed or witnessed the most recent test

6.7.2.20.2 The following particulars shall be marked either on the portable tank itself or on a metal plate firmly secured to the portable tank:

Name of the operator  
 Name of substance(s) being carried and maximum mean bulk temperature when higher than 50 °C  
 Maximum permissible gross mass (MPGM) \_\_\_\_\_ kg  
 Unladen (tare) mass \_\_\_\_\_ kg

*NOTE: For the identification of the substances being carried, see also Part 5.*

6.7.2.20.3 If a portable tank is designed and approved for handling in open seas, the words "OFFSHORE PORTABLE TANK" shall be marked on the identification plate.

6.7.3 **Requirements for the design, construction, inspection and testing of portable tanks intended for the carriage of non-refrigerated liquefied gases**

#### 6.7.3.1 *Definitions*

For the purposes of this section:

*Alternative arrangement* means an approval granted by the competent authority for a portable tank or MEGC that has been designed, constructed or tested to technical requirements or testing methods other than those specified in this Chapter;

*Portable tank* means a multimodal tank having a capacity of more than 450 litres used for the carriage of non-refrigerated liquefied gases of Class 2. The portable tank includes a shell fitted with service equipment and structural equipment necessary for the carriage of gases. The portable tank shall be capable of being filled and discharged without the removal of its structural equipment. It shall possess stabilizing members external to the shell, and shall be capable of being lifted when full. It shall be designed primarily to be loaded onto a transport vehicle or ship and shall be equipped with skids, mountings or accessories to facilitate mechanical handling. Tank-vehicles, tank-wagons, non-metallic tanks, intermediate bulk containers (IBCs), gas cylinders and large receptacles are not considered to fall within the definition for portable tanks;

*Shell* means the part of the portable tank which retains the non-refrigerated liquefied gas intended for carriage (tank proper), including openings and their closures, but does not include service equipment or external structural equipment;

*Service equipment* means measuring instruments and filling, discharge, venting, safety and insulating devices;

*Structural equipment* means the reinforcing, fastening, protective and stabilizing members external to the shell;

<sup>2</sup> *The unit used shall be marked.*

*Maximum allowable working pressure (MAWP)* means a pressure that shall be not less than the highest of the following pressures measured at the top of the shell while in operating position, but in no case less than 7 bar:

- (a) The maximum effective gauge pressure allowed in the shell during filling or discharge; or
- (b) The maximum effective gauge pressure to which the shell is designed, which shall be:
  - (i) for a non-refrigerated liquefied gas listed in the portable tank instruction T50 in 4.2.5.2.6, the MAWP (in bar) given in T50 portable tank instruction for that gas;
  - (ii) for other non-refrigerated liquefied gases, not less than the sum of:
    - the absolute vapour pressure (in bar) of the non-refrigerated liquefied gas at the design reference temperature minus 1 bar; and
    - the partial pressure (in bar) of air or other gases in the ullage space being determined by the design reference temperature and the liquid phase expansion due to an increase of the mean bulk temperature of  $t_r$  -  $t_r$  ( $t_r$  = filling temperature, usually 15 °C,  $t_r$  = maximum mean bulk temperature, 50 °C);

*Design pressure* means the pressure to be used in calculations required by a recognized pressure vessel code. The design pressure shall be not less than the highest of the following pressures:

- (a) The maximum effective gauge pressure allowed in the shell during filling or discharge; or
- (b) The sum of:
  - (i) the maximum effective gauge pressure to which the shell is designed as defined in (b) of the MAWP definition (see above); and
  - (ii) a head pressure determined on the basis of the dynamic forces specified in 6.7.3.2.9, but not less than 0.35 bar;

*Test pressure* means the maximum gauge pressure at the top of the shell during the pressure test;

*Leakproofness test* means a test using gas subjecting the shell and its service equipment to an effective internal pressure of not less than 25% of the MAWP;

*Maximum permissible gross mass (MPGM)* means the sum of the tare mass of the portable tank and the heaviest load authorized for carriage;

*Reference steel* means a steel with a tensile strength of 370 N/mm<sup>2</sup> and an elongation at fracture of 27%;

*Mild steel* means a steel with a guaranteed minimum tensile strength of 360 N/mm<sup>2</sup> to 440 N/mm<sup>2</sup> and a guaranteed minimum elongation at fracture conforming to 6.7.3.3.3;

*Design temperature range* for the shell shall be  $-40\text{ }^{\circ}\text{C}$  to  $50\text{ }^{\circ}\text{C}$  for non-refrigerated liquefied gases carried under ambient conditions. More severe design temperatures shall be considered for portable tanks subjected to severe climatic conditions;

*Design reference temperature* means the temperature at which the vapour pressure of the contents is determined for the purpose of calculating the MAWP. The design reference temperature shall be less than the critical temperature of the non-refrigerated liquefied gas intended to be carried to ensure that the gas at all times is liquefied. This value for each portable tank type is as follows:

- (a) Shell with a diameter of 1.5 metres or less:  $65\text{ }^{\circ}\text{C}$ ;
- (b) Shell with a diameter of more than 1.5 metres:
  - (i) without insulation or sun shield:  $60\text{ }^{\circ}\text{C}$ ;
  - (ii) with sun shield (see 6.7.3.2.12):  $55\text{ }^{\circ}\text{C}$ ; and
  - (iii) with insulation (see 6.7.3.2.12) :  $50\text{ }^{\circ}\text{C}$ ;

*Filling density* means the average mass of non-refrigerated liquefied gas per litre of shell capacity (kg/l). The filling density is given in portable tank instruction T50 in 4.2.5.2.6.

### 6.7.3.2 *General design and construction requirements*

6.7.3.2.1 Shells shall be designed and constructed in accordance with the requirements of a pressure vessel code recognized by the competent authority. Shells shall be made of steel suitable for forming. The materials shall in principle conform to national or international material standards. For welded shells, only a material whose weldability has been fully demonstrated shall be used. Welds shall be skilfully made and afford complete safety. When the manufacturing process or the materials make it necessary, the shells shall be suitability heat-treated to guarantee adequate toughness in the weld and in the heat affected zones. In choosing the material the design temperature range shall be taken into account with respect to risk of brittle fracture, to stress corrosion cracking and to resistance to impact. When fine grain steel is used, the guaranteed value of the yield strength shall be not more than  $460\text{ N/mm}^2$  and the guaranteed value of the upper limit of the tensile strength shall be not more than  $725\text{ N/mm}^2$  according to the material specification. Portable tank materials shall be suitable for the external environment in which they may be carried.

6.7.3.2.2 Portable tank shells, fittings and pipework shall be constructed of materials which are:

- (a) Substantially immune to attack by the non-refrigerated liquefied gas(es) intended to be carried; or
- (b) Properly passivated or neutralized by chemical reaction.

6.7.3.2.3 Gaskets shall be made of materials compatible with the non-refrigerated liquefied gas(es) intended to be carried.

6.7.3.2.4 Contact between dissimilar metals which could result in damage by galvanic action shall be avoided.

6.7.3.2.5 The materials of the portable tank, including any devices, gaskets, and accessories, shall not adversely affect the non-refrigerated liquefied gas(es) intended for carriage in the portable tank.



- 6.7.3.2.6 Portable tanks shall be designed and constructed with supports to provide a secure base during carriage and with suitable lifting and tie-down attachments.
- 6.7.3.2.7 Portable tanks shall be designed to withstand, without loss of contents, at least the internal pressure due to the contents, and the static, dynamic and thermal loads during normal conditions of handling and carriage. The design shall demonstrate that the effects of fatigue, caused by repeated application of these loads through the expected life of the portable tank, have been taken into account.
- 6.7.3.2.8 Shells shall be designed to withstand an external pressure of at least 0.4 bar (gauge pressure) above the internal pressure without permanent deformation. When the shell is to be subjected to a significant vacuum before filling or during discharge it shall be designed to withstand an external pressure of at least 0.9 bar (gauge pressure) above the internal pressure and shall be proven at that pressure.
- 6.7.3.2.9 Portable tanks and their fastenings shall, under the maximum permissible load, be capable of absorbing the following separately applied static forces:
- (a) In the direction of travel: twice the MPGM multiplied by the acceleration due to gravity ( $g$ )<sup>4</sup>;
  - (b) Horizontally at right angles to the direction of travel: the MPGM (when the direction of travel is not clearly determined, the forces shall be equal to twice the MPGM) multiplied by the acceleration due to gravity ( $g$ )<sup>4</sup>;
  - (c) Vertically upwards: the MPGM multiplied by the acceleration due to gravity ( $g$ )<sup>4</sup>; and
  - (d) Vertically downwards: twice the MPGM (total loading including the effect of gravity) multiplied by the acceleration due to gravity ( $g$ )<sup>4</sup>.
- 6.7.3.2.10 Under each of the forces in 6.7.3.2.9, the safety factor to be observed shall be as follows:
- (a) For steels having a clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed yield strength; or
  - (b) For steels with no clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed 0.2% proof strength and, for austenitic steels, the 1% proof strength.
- 6.7.3.2.11 The values of yield strength or proof strength shall be the values according to national or international material standards. When austenitic steels are used, the specified minimum values of yield strength and proof strength according to the material standards may be increased by up to 15% when these greater values are attested in the material inspection certificate. When no material standard exists for the steel in question, the value of yield strength or proof strength used shall be approved by the competent authority.
- 6.7.3.2.12 When the shells intended for the carriage of non-refrigerated liquefied gases are equipped with thermal insulation, the thermal insulation systems shall satisfy the following requirements:
- (a) It shall consist of a shield covering not less than the upper third but not more than the upper half of the surface of the shell and separated from the shell by an air space about 40 mm across;

<sup>4</sup> For calculation purposes  $g = 9.81 \text{ m/s}^2$ .

- (b) It shall consist of a complete cladding of adequate thickness of insulating materials protected so as to prevent the ingress of moisture and damage under normal conditions of carriage and so as to provide a thermal conductance of not more than  $0.67 \text{ (W.m}^{-2}.\text{K}^{-1}\text{)}$ ;
- (c) When the protective covering is so closed as to be gas-tight, a device shall be provided to prevent any dangerous pressure from developing in the insulating layer in the event of inadequate gas tightness of the shell or of its items of equipment; and
- (d) The thermal insulation shall not inhibit access to the fittings and discharge devices.

6.7.3.2.13 Portable tanks intended for the carriage of flammable non-refrigerated liquefied gases shall be capable of being electrically earthed.

### 6.7.3.3 *Design criteria*

6.7.3.3.1 Shells shall be of a circular cross-section.

6.7.3.3.2 Shells shall be designed and constructed to withstand a test pressure not less than 1.3 times the design pressure. The shell design shall take into account the minimum MAWP values provided in portable tank instruction T50 in 4.2.5.2.6 for each non-refrigerated liquefied gas intended for carriage. Attention is drawn to the minimum shell thickness requirements for these shells specified in 6.7.3.4.

6.7.3.3.3 For steels exhibiting a clearly defined yield point or characterized by a guaranteed proof strength (0.2% proof strength, generally, or 1% proof strength for austenitic steels) the primary membrane stress  $\sigma$  (sigma) in the shell shall not exceed  $0.75 \text{ Re}$  or  $0.50 \text{ Rm}$ , whichever is lower, at the test pressure, where:

$\text{Re} =$  yield strength in  $\text{N/mm}^2$ , or 0.2% proof strength or, for austenitic steels, 1% proof stress;

$\text{Rm} =$  minimum tensile strength in  $\text{N/mm}^2$ .

6.7.3.3.3.1 The values of  $\text{Re}$  and  $\text{Rm}$  to be used shall be the specified minimum values according to national or international material standards. When austenitic steels are used, the specified minimum values for  $\text{Re}$  and  $\text{Rm}$  according to the material standards may be increased by up to 15% when these greater values are attested in the material inspection certificate. When no material standard exists for the steel in question, the values of  $\text{Re}$  and  $\text{Rm}$  used shall be approved by the competent authority or its authorized body.

6.7.3.3.3.2 Steels which have a  $\text{Re/Rm}$  ratio of more than 0.85 are not allowed for the construction of welded shells. The values of  $\text{Re}$  and  $\text{Rm}$  to be used in determining this ratio shall be the values specified in the material inspection certificate.

6.7.3.3.3.3 Steels used in the construction of shells shall have an elongation at fracture, in %, of not less than  $10\,000/\text{Rm}$  with an absolute minimum of 16% for fine grain steels and 20% for other steels.

6.7.3.3.3.4 For the purpose of determining actual values for materials, it shall be noted that for sheet metal, the axis of the tensile test specimen shall be at right angles (transversely) to the direction of rolling. The permanent elongation at fracture shall be measured on test specimens of rectangular cross sections in accordance with ISO 6892:1998 using a 50 mm gauge length.

#### 6.7.3.4 *Minimum shell thickness*

6.7.3.4.1 The minimum shell thickness shall be the greater thickness based on:

- (a) The minimum thickness determined in accordance with the requirements in 6.7.3.4; and
- (b) The minimum thickness determined in accordance with the recognized pressure vessel code including the requirements in 6.7.3.3.

6.7.3.4.2 The cylindrical portions, ends (heads) and manhole covers of shells of not more than 1.80 m in diameter shall be not less than 5 mm thick in the reference steel or of equivalent thickness in the steel to be used. Shells of more than 1.80 m in diameter shall be not less than 6 mm thick in the reference steel or of equivalent thickness in the steel to be used.

6.7.3.4.3 The cylindrical portions, ends (heads) and manhole covers of all shells shall be not less than 4 mm thick regardless of the material of construction.

6.7.3.4.4 The equivalent thickness of a steel other than the thickness prescribed for the reference steel in 6.7.3.4.2 shall be determined using the following formula:

$$e_1 = \frac{21,4e_0}{\sqrt[3]{Rm_1 \times A_1}}$$

where:

- $e_1$  = required equivalent thickness (in mm) of the steel to be used;
- $e_0$  = minimum thickness (in mm) for the reference steel specified in 6.7.3.4.2;
- $Rm_1$  = guaranteed minimum tensile strength (in N/mm<sup>2</sup>) of the steel to be used (see 6.7.3.3.3);
- $A_1$  = guaranteed minimum elongation at fracture (in %) of the steel to be used according to national or international standards.

6.7.3.4.5 In no case shall the wall thickness be less than that prescribed in 6.7.3.4.1 to 6.7.3.4.3. All parts of the shell shall have a minimum thickness as determined by 6.7.3.4.1 to 6.7.3.4.3. This thickness shall be exclusive of any corrosion allowance.

6.7.3.4.6 When mild steel is used (see 6.7.3.1), calculation using the formula in 6.7.3.4.4 is not required.

6.7.3.4.7 There shall be no sudden change of plate thickness at the attachment of the ends (heads) to the cylindrical portion of the shell.

#### 6.7.3.5 *Service equipment*

6.7.3.5.1 Service equipment shall be so arranged as to be protected against the risk of being wrenched off or damaged during handling and carriage. When the connection between the frame and the shell allows relative movement between the sub-assemblies, the equipment shall be so fastened as to permit such movement without risk of damage to working parts. The external discharge fittings (pipe sockets, shut-off devices), the internal stop-valve and its seating shall be protected against the danger of being wrenched off by external forces (for example using shear sections). The filling and discharge devices (including flanges or threaded plugs) and any protective caps shall be capable of being secured against unintended opening.

- 6.7.3.5.2 All openings with a diameter of more than 1.5 mm in shells of portable tanks, except openings for pressure-relief devices, inspection openings and closed bleed holes, shall be fitted with at least three mutually independent shut-off devices in series, the first being an internal stop-valve, excess flow valve or equivalent device, the second being an external stop-valve and the third being a blank flange or equivalent device.
- 6.7.3.5.2.1 When a portable tank is fitted with an excess flow valve, the excess flow valve shall be so fitted that its seating is inside the shell or inside a welded flange or, when fitted externally, its mountings shall be designed so that in the event of impact its effectiveness shall be maintained. The excess flow valves shall be selected and fitted so as to close automatically when the rated flow specified by the manufacturer is reached. Connections and accessories leading to or from such a valve shall have a capacity for a flow more than the rated flow of the excess flow valve.
- 6.7.3.5.3 For filling and discharge openings, the first shut-off device shall be an internal stop-valve and the second shall be a stop-valve placed in an accessible position on each discharge and filling pipe.
- 6.7.3.5.4 For filling and discharge bottom openings of portable tanks intended for the carriage of flammable and/or toxic non-refrigerated liquefied gases the internal stop-valve shall be a quick closing safety device which closes automatically in the event of unintended movement of the portable tank during filling or discharge or fire engulfment. Except for portable tanks having a capacity of not more than 1 000 litres, it shall be possible to operate this device by remote control.
- 6.7.3.5.5 In addition to filling, discharge and gas pressure equalizing orifices, shells may have openings in which gauges, thermometers and manometers can be fitted. Connections for such instruments shall be made by suitable welded nozzles or pockets and not be screwed connections through the shell.
- 6.7.3.5.6 All portable tanks shall be fitted with manholes or other inspection openings of suitable size to allow for internal inspection and adequate access for maintenance and repair of the interior.
- 6.7.3.5.7 External fittings shall be grouped together so far as reasonably practicable.
- 6.7.3.5.8 Each connection on a portable tank shall be clearly marked to indicate its function.
- 6.7.3.5.9 Each stop-valve or other means of closure shall be designed and constructed to a rated pressure not less than the MAWP of the shell taking into account the temperatures expected during carriage. All stop-valves with a screwed spindle shall close by a clockwise motion of the handwheel. For other stop-valves the position (open and closed) and direction of closure shall be clearly indicated. All stop-valves shall be designed to prevent unintentional opening.
- 6.7.3.5.10 Piping shall be designed, constructed and installed so as to avoid the risk of damage due to thermal expansion and contraction, mechanical shock and vibration. All piping shall be of suitable metallic material. Welded pipe joints shall be used wherever possible.
- 6.7.3.5.11 Joints in copper tubing shall be brazed or have an equally strong metal union. The melting point of brazing materials shall be no lower than 525 °C. The joints shall not decrease the strength of tubing as may happen when cutting threads.
- 6.7.3.5.12 The burst pressure of all piping and pipe fittings shall be not less than the highest of four times the MAWP of the shell or four times the pressure to which it may be subjected in service by the action of a pump or other device (except pressure-relief devices).

6.7.3.5.13 Ductile metals shall be used in the construction of valves and accessories.

**6.7.3.6 Bottom openings**

6.7.3.6.1 Certain non-refrigerated liquefied gases shall not be carried in portable tanks with bottom openings when portable tank instruction T50 in 4.2.5.2.6 indicates that bottom openings are not allowed. There shall be no openings below the liquid level of the shell when it is filled to its maximum permissible filling limit.

**6.7.3.7 Pressure-relief devices**

6.7.3.7.1 Portable tanks shall be provided with one or more spring-loaded pressure-relief devices. The pressure-relief devices shall open automatically at a pressure not less than the MAWP and be fully open at a pressure equal to 110% of the MAWP. These devices shall, after discharge, close at a pressure not lower than 10% below the pressure at which discharge starts and shall remain closed at all lower pressures. The pressure-relief devices shall be of a type that will resist dynamic forces including liquid surge. Frangible discs not in series with a spring-loaded pressure-relief device are not permitted.

6.7.3.7.2 Pressure-relief devices shall be designed to prevent the entry of foreign matter, the leakage of gas and the development of any dangerous excess pressure.

6.7.3.7.3 Portable tanks intended for the carriage of certain non-refrigerated liquefied gases identified in portable tank instruction T50 in 4.2.5.2.6 shall have a pressure-relief device approved by the competent authority. Unless a portable tank in dedicated service is fitted with an approved relief device constructed of materials compatible with the load, such device shall comprise a frangible disc preceding a spring-loaded device. The space between the frangible disc and the device shall be provided with a pressure gauge or a suitable tell-tale indicator. This arrangement permits the detection of disc rupture, pinholing or leakage which could cause a malfunction of the pressure-relief device. The frangible discs shall rupture at a nominal pressure 10% above the start-to-discharge pressure of the relief device.

6.7.3.7.4 In the case of multi-purpose portable tanks, the pressure-relief devices shall open at a pressure indicated in 6.7.3.7.1 for the gas having the highest maximum allowable pressure of the gases allowed to be carried in the portable tank.

**6.7.3.8 Capacity of relief devices**

6.7.3.8.1 The combined delivery capacity of the relief devices shall be sufficient that, in the event of total fire engulfment, the pressure (including accumulation) inside the shell does not exceed 120% of the MAWP. Spring-loaded relief devices shall be used to achieve the full relief capacity prescribed. In the case of multi-purpose tanks, the combined delivery capacity of the pressure-relief devices shall be taken for the gas which requires the highest delivery capacity of the gases allowed to be carried in portable tanks.

6.7.3.8.1.1 To determine the total required capacity of the relief devices, which shall be regarded as being the sum of the individual capacities of the several devices, the following formulae<sup>1</sup> shall be used:

<sup>5</sup> This formula applies only to non-refrigerated liquefied gases which have critical temperatures well above the temperature at the accumulating condition. For gases which have critical temperatures near or below the temperature at the accumulating condition, the calculation of the pressure-relief device delivery capacity shall consider further thermodynamic properties of the gas (see for example CGA S-1.2-1995).

$$Q = 12.4 \frac{FA^{0.82}}{LC} \sqrt{\frac{ZT}{M}}$$

where:

Q = minimum required rate of discharge in cubic metres of air per second ( $m^3/s$ ) at standard conditions: 1 bar and 0 °C (273 K);

F = is a coefficient with the following value:

for uninsulated shells:  $F = 1$ ;

for insulated shells:  $F = U(649-t)/13.6$  but in no case is less than 0.25

where:

U = thermal conductance of the insulation, in  $Kw.m^{-2}.K^{-1}$ , at 38 °C;

t = actual temperature of the non-refrigerated liquefied gas during filling (°C); when this temperature is unknown, let  $t=15$  °C;

The value of F given above for insulated shells may be taken provided that the insulation is in accordance with 6.7.3.8.1.2;

where:

A = total external surface area of shell in square metres;

Z = the gas compressibility factor in the accumulating condition (when this factor is unknown, let  $Z=1.0$ );

T = absolute temperature in Kelvin ( $^{\circ}C + 273$ ) above the pressure relief devices in the accumulating condition;

L = the latent heat of vaporization of the liquid, in kJ/kg, in the accumulating condition;

M = molecular mass of the discharged gas;

C = a constant which is derived from one of the following formulae as a function of the ratio k of specific heats

$$k = \frac{c_p}{c_v}$$

where

$c_p$  is the specific heat at constant pressure; and

$c_v$  is the specific heat at constant volume.

when  $k > 1$ :

$$C = \sqrt{k \left( \frac{2}{k+1} \right)^{\frac{k+1}{k-1}}}$$

when  $k = 1$  or  $k$  is unknown:

$$C = \frac{1}{\sqrt{e}} = 0.607$$

where  $e$  is the mathematical constant 2.7183

$C$  may also be taken from the following table:

k	C	k	C	k	C
1.00	0.607	1.26	0.660	1.52	0.704
1.02	0.611	1.28	0.664	1.54	0.707
1.04	0.615	1.30	0.667	1.56	0.710
1.06	0.620	1.32	0.671	1.58	0.713
1.08	0.624	1.34	0.674	1.60	0.716
1.10	0.628	1.36	0.678	1.62	0.719
1.12	0.633	1.38	0.681	1.64	0.722
1.14	0.637	1.40	0.685	1.66	0.725
1.16	0.641	1.42	0.688	1.68	0.728
1.18	0.645	1.44	0.691	1.70	0.731
1.20	0.649	1.46	0.695	2.00	0.770
1.22	0.652	1.48	0.698	2.20	0.793
1.24	0.656	1.50	0.701		

6.7.3.8.1.2 Insulation systems, used for the purpose of reducing the venting capacity, shall be approved by the competent authority or its authorized body. In all cases, insulation systems approved for this purpose shall:

- (a) Remain effective at all temperatures up to 649 °C; and
- (b) Be jacketed with a material having a melting point of 700 °C or greater.

### 6.7.3.9 *Marking of pressure-relief devices*

6.7.3.9.1 Every pressure-relief device shall be plainly and permanently marked with the following particulars:

- (a) The pressure (in bar or kPa) at which it is set to discharge;
- (b) The allowable tolerance at the discharge pressure for spring-loaded devices;
- (c) The reference temperature corresponding to the rated pressure for frangible discs; and
- (d) The rated flow capacity of the device in standard cubic metres of air per second (m<sup>3</sup>/s).

When practicable, the following information shall also be shown:

- (e) The manufacturer's name and relevant catalogue number of the device.

6.7.3.9.2 The rated flow capacity marked on the pressure-relief devices shall be determined according to ISO 4126-1:1991.

**6.7.3.10**      *Connections to pressure-relief devices*

- 6.7.3.10.1      Connections to pressure-relief devices shall be of sufficient size to enable the required discharge to pass unrestricted to the safety device. No stop-valve shall be installed between the shell and the pressure-relief devices except when duplicate devices are provided for maintenance or other reasons and the stop-valves serving the devices actually in use are locked open or the stop-valves are interlocked so that at least one of the duplicate devices is always operable and capable of meeting the requirements of 6.7.3.8. There shall be no obstruction in an opening leading to a vent or pressure-relief device which might restrict or cut-off the flow from the shell to that device. Vents from the pressure-relief devices, when used, shall deliver the relieved vapour or liquid to the atmosphere in conditions of minimum back-pressure on the relieving device.

**6.7.3.11**      *Siting of pressure-relief devices*

- 6.7.3.11.1      Each pressure-relief device inlet shall be situated on top of the shell in a position as near the longitudinal and transverse centre of the shell as reasonably practicable. All pressure relief device inlets shall under maximum filling conditions be situated in the vapour space of the shell and the devices shall be so arranged as to ensure that the escaping vapour is discharged unrestrictedly. For flammable non-refrigerated liquefied gases, the escaping vapour shall be directed away from the shell in such a manner that it cannot impinge upon the shell. Protective devices which deflect the flow of vapour are permissible provided the required relief-device capacity is not reduced.
- 6.7.3.11.2      Arrangements shall be made to prevent access to the pressure-relief devices by unauthorized persons and to protect the devices from damage caused by the portable tank overturning.

**6.7.3.12**      *Gauging devices*

- 6.7.3.12.1      Unless a portable tank is intended to be filled by weight it shall be equipped with one or more gauging devices. Glass level-gauges and gauges made of other fragile material, which are in direct communication with the contents of the shell shall not be used.

**6.7.3.13**      *Portable tank supports, frameworks, lifting and tie-down attachments*

- 6.7.3.13.1      Portable tanks shall be designed and constructed with a support structure to provide a secure base during carriage. The forces specified in 6.7.3.2.9 and the safety factor specified in 6.7.3.2.10 shall be considered in this aspect of the design. Skids, frameworks, cradles or other similar structures are acceptable.
- 6.7.3.13.2      The combined stresses caused by portable tank mountings (e.g. cradles, frameworks, etc.) and portable tank lifting and tie-down attachments shall not cause excessive stress in any portion of the shell. Permanent lifting and tie-down attachments shall be fitted to all portable tanks. Preferably they shall be fitted to the portable tank supports but may be secured to reinforcing plates located on the shell at the points of support.
- 6.7.3.13.3      In the design of supports and frameworks the effects of environmental corrosion shall be taken into account.
- 6.7.3.13.4      Forklift pockets shall be capable of being closed off. The means of closing forklift pockets shall be a permanent part of the framework or permanently attached to the framework. Single compartment portable tanks with a length less than 3.65 m need not have closed off forklift pockets provided that:
- (a)      The shell and all the fittings are well protected from being hit by the forklift blades; and



- (b) The distance between the centres of the forklift pockets is at least half of the maximum length of the portable tank.

6.7.3.13.5 When portable tanks are not protected during carriage, according to 4.2.2.3, the shells and service equipment shall be protected against damage to the shell and service equipment resulting from lateral or longitudinal impact or overturning. External fittings shall be protected so as to preclude the release of the shell contents upon impact or overturning of the portable tank on its fittings. Examples of protection include:

- (a) Protection against lateral impact which may consist of longitudinal bars protecting the shell on both sides at the level of the median line;
- (b) Protection of the portable tank against overturning which may consist of reinforcement rings or bars fixed across the frame;
- (c) Protection against rear impact which may consist of a bumper or frame;
- (d) Protection of the shell against damage from impact or overturning by use of an ISO frame in accordance with ISO 1496-3:1995.

#### 6.7.3.14 *Design approval*

6.7.3.14.1 The competent authority or its authorized body shall issue a design approval certificate for any new design of a portable tank. This certificate shall attest that a portable tank has been surveyed by that authority, is suitable for its intended purpose and meets the requirements of this Chapter and where appropriate the provisions for gases provided in portable tank instruction T50 in 4.2.5.2.6. When a series of portable tanks are manufactured without change in the design, the certificate shall be valid for the entire series. The certificate shall refer to the prototype test report, the gases allowed to be carried, the materials of construction of the shell and an approval number. The approval number shall consist of the distinguishing sign or mark of the State in whose territory the approval was granted, i.e. the distinguishing sign for use in international traffic, as prescribed by the Convention on Road Traffic, Vienna 1968, and a registration number. Any alternative arrangements according to 6.7.1.2 shall be indicated on the certificate. A design approval may serve for the approval of smaller portable tanks made of materials of the same kind and thickness, by the same fabrication techniques and with identical supports, equivalent closures and other appurtenances.

6.7.3.14.2 The prototype test report for the design approval shall include at least the following:

- (a) The results of the applicable framework test specified in ISO 1496-3:1995;
- (b) The results of the initial inspection and test in 6.7.3.15.3; and
- (c) The results of the impact test in 6.7.3.15.1, when applicable.

#### 6.7.3.15 *Inspection and testing*

6.7.3.15.1 For portable tanks meeting the definition of container in the CSC, a prototype representing each design shall be subjected to an impact test. The prototype portable tank shall be shown to be capable of absorbing the forces resulting from an impact not less than 4 times (4 g) the MPGM of the fully loaded portable tank at a duration typical of the mechanical shocks experienced in rail transport. The following is a listing of standards describing methods acceptable for performing the impact test:

Association of American Railroads,  
Manual of Standards and Recommended Practices,  
Specifications for Acceptability of Tank Containers (AAR.600), 1992

Canadian Standards Association (CSA),  
Highway Tanks and Portable Tanks for the Transportation of Dangerous Goods  
(B620-1987)

Deutsche Bahn AG  
Zentralbereich Technik, Minden  
Portable tanks, longitudinal dynamic impact test

Société Nationale des Chemins de Fer Français  
C.N.E.S.T. 002-1966.  
Tank containers, longitudinal external stresses and dynamic impact tests

Spoornet, South Africa  
Engineering Development Centre (EDC)  
Testing of ISO Tank Containers  
Method EDC/TES/023/000/1991-06

- 6.7.3.15.2 The shell and items of equipment of each portable tank shall be inspected and tested before being put into service for the first time (initial inspection and test) and thereafter at not more than five-year intervals (5 year periodic inspection and test) with an intermediate periodic inspection and test (2.5 year periodic inspection and test) midway between the 5 year periodic inspections and tests. The 2.5 year inspection and test may be performed within 3 months of the specified date. An exceptional inspection and test shall be performed regardless of the last periodic inspection and test when necessary according to 6.7.3.15.7.
- 6.7.3.15.3 The initial inspection and test of a portable tank shall include a check of the design characteristics, an internal and external examination of the portable tank and its fittings with due regard to the non-refrigerated liquefied gases to be carried, and a pressure test referring to the test pressures according to 6.7.3.3.2. The pressure test may be performed as a hydraulic test or by using another liquid or gas with the agreement of the competent authority or its authorized body. Before the portable tank is placed into service, a leakproofness test and a test of the satisfactory operation of all service equipment shall also be performed. When the shell and its fittings have been pressure-tested separately, they shall be subjected together after assembly to a leakproofness test. All welds subject to full stress level in the shell shall be inspected during the initial test by radiographic, ultrasonic, or another suitable non-destructive test method. This does not apply to the jacket.
- 6.7.3.15.4 The 5 year periodic inspection and test shall include an internal and external examination and, as a general rule, a hydraulic pressure test. Sheathing, thermal insulation and the like shall be removed only to the extent required for reliable appraisal of the condition of the portable tank. When the shell and equipment have been pressure-tested separately, they shall be subjected together after assembly to a leakproofness test.
- 6.7.3.15.5 The intermediate 2.5 year periodic inspection and test shall at least include an internal and external examination of the portable tank and its fittings with due regard to the non-refrigerated liquefied gases intended to be carried, a leakproofness test and a check of the satisfactory operation of all service equipment. Sheathing thermal insulation and the like shall be removed only to the extent required for reliable appraisal of the condition of the portable tank. For portable tanks intended for the carriage of a single non-refrigerated liquefied gas, the 2.5 year internal examination may be waived or substituted by other test methods or inspection procedures specified by the competent authority or its authorized body.

- 6.7.3.15.6 A portable tank may not be filled and offered for carriage after the date of expiry of the last 5 year or 2.5 year periodic inspection and test as required by 6.7.3.15.2. However a portable tank filled prior to the date of expiry of the last periodic inspection and test may be carried for a period not to exceed three months beyond the date of expiry of the last periodic test or inspection. In addition, a portable tank may be carried after the date of expiry of the last periodic test and inspection:
- (a) After emptying but before cleaning, for purposes of performing the next required test or inspection prior to refilling; and
  - (b) Unless otherwise approved by the competent authority, for a period not to exceed six months beyond the date of expiry of the last periodic test or inspection, in order to allow the return of dangerous goods for proper disposal or recycling. Reference to this exemption shall be mentioned in the transport document.
- 6.7.3.15.7 The exceptional inspection and test is necessary when the portable tank shows evidence of damaged or corroded areas, or leakage, or other conditions that indicate a deficiency that could affect the integrity of the portable tank. The extent of the exceptional inspection and test shall depend on the amount of damage or deterioration of the portable tank. It shall include at least the 2.5 year inspection and test according to 6.7.3.15.5.
- 6.7.3.15.8 The internal and external examinations shall ensure that:
- (a) The shell is inspected for pitting, corrosion, or abrasions, dents, distortions, defects in welds or any other conditions, including leakage, that might render the portable tank unsafe for carriage;
  - (b) The piping, valves, and gaskets are inspected for corroded areas, defects, or any other conditions, including leakage, that might render the portable tank unsafe for filling, discharge or carriage;
  - (c) Devices for tightening manhole covers are operative and there is no leakage at manhole covers or gaskets;
  - (d) Missing or loose bolts or nuts on any flanged connection or blank flange are replaced or tightened;
  - (e) All emergency devices and valves are free from corrosion, distortion and any damage or defect that could prevent their normal operation. Remote closure devices and self-closing stop-valves shall be operated to demonstrate proper operation;
  - (f) Required markings on the portable tank are legible and in accordance with the applicable requirements; and
  - (g) The framework, the supports and the arrangements for lifting the portable tank are in satisfactory condition.
- 6.7.3.15.9 The inspections and tests in 6.7.3.15.1, 6.7.3.15.3, 6.7.3.15.4, 6.7.3.15.5 and 6.7.3.15.7 shall be performed or witnessed by an expert approved by the competent authority or its authorized body. When the pressure test is a part of the inspection and test, the test pressure shall be the one indicated on the data plate of the portable tank. While under pressure, the portable tank shall be inspected for any leaks in the shell, piping or equipment.
- 6.7.3.15.10 In all cases when cutting, burning or welding operations on the shell have been effected, that work shall be to the approval of the competent authority or its authorized body taking into

account the pressure vessel code used for the construction of the shell. A pressure test to the original test pressure shall be performed after the work is completed.

- 6.7.3.15.11 When evidence of any unsafe condition is discovered, the portable tank shall not be returned to service until it has been corrected and the pressure test is repeated and passed.

**6.7.3.16 Marking**

- 6.7.3.16.1 Every portable tank shall be fitted with a corrosion resistant metal plate permanently attached to the portable tank in a conspicuous place readily accessible for inspection. When for reasons of portable tank arrangements, the plate cannot be permanently attached to the shell, the shell shall be marked with at least the information required by the pressure vessel code. As a minimum at least the following information shall be marked on the plate by stamping or by any other similar method:

Country of manufacture  
 U Approval Approval For Alternative Arrangements (see 6.7.1.2)  
 N country number "AA"  
 Manufacturer's name or mark  
 Manufacturer's serial number  
 Authorized body for the design approval  
 Owner's registration number  
 Year of manufacture  
 Pressure vessel code to which the shell is designed  
 Test pressure \_\_\_\_\_ bar/kPa (gauge pressure)<sup>6</sup>  
 MAWP \_\_\_\_\_ bar/kPa (gauge pressure)<sup>6</sup>  
 External design pressure<sup>7</sup> \_\_\_\_\_ bar/kPa (gauge pressure)<sup>6</sup>  
 Design temperature range \_\_\_\_\_ °C to \_\_\_\_\_ °C  
 Design reference temperature \_\_\_\_\_ °C  
 Water capacity at 20°C \_\_\_\_\_ litres  
 Initial pressure test date and witness identification  
 Shell material(s) and material standard reference(s)  
 Equivalent thickness in reference steel \_\_\_\_\_ mm  
 Date and type of most recent periodic test(s)  
 Month \_\_\_\_\_ Year \_\_\_\_\_ Test pressure \_\_\_\_\_ bar/kPa (gauge pressure)<sup>6</sup>  
 Stamp of expert who performed or witnessed the most recent test

- 6.7.3.16.2 The following information shall be marked either on the portable tank itself or on a metal plate firmly secured to the portable tank:

Name of the operator  
 Name of non-refrigerated liquefied gas(es) permitted for carriage  
 Maximum permissible load mass for each non-refrigerated liquefied gas permitted \_\_\_\_\_ kg  
 Maximum permissible gross mass (MPGM) \_\_\_\_\_ kg  
 Unladen (tare) mass \_\_\_\_\_ kg

*NOTE: For the identification of the non-refrigerated liquefied gases being carried, see also Part 5.*

- 6.7.3.16.3 If a portable tank is designed and approved for handling in open seas, the words "OFFSHORE PORTABLE TANK" shall be marked on the identification plate.

<sup>6</sup> The unit used shall be marked.

<sup>7</sup> See 6.7.3.2.8.

## 6.7.4 Requirements for the design, construction, inspection and testing of portable tanks intended for the carriage of refrigerated liquefied gases

### 6.7.4.1 Definitions

For the purposes of this section:

*Alternative arrangement* means an approval granted by the competent authority for a portable tank or MEGC that has been designed, constructed or tested to technical requirements or testing methods other than those specified in this Chapter;

*Portable tank* means a thermally insulated multimodal tank having a capacity of more than 450 litres fitted with service equipment and structural equipment necessary for the carriage of refrigerated liquefied gases. The portable tank shall be capable of being filled and discharged without the removal of its structural equipment. It shall possess stabilizing members external to the tank, and shall be capable of being lifted when full. It shall be designed primarily to be loaded onto a transport vehicle or ship and shall be equipped with skids, mountings or accessories to facilitate mechanical handling. Tank-vehicles, tank-wagons, non-metallic tanks, intermediate bulk containers (IBCs), gas cylinders and large receptacles are not considered to fall within the definition for portable tanks;

*Tank* means a construction which normally consists of either :

- (a) A jacket and one or more inner shells where the space between the shell(s) and the jacket is exhausted of air (vacuum insulation) and may incorporate a thermal insulation system; or
- (b) A jacket and an inner shell with an intermediate layer of solid thermally insulating material (e.g. solid foam);

*Shell* means the part of the portable tank which retains the refrigerated liquefied gas intended for carriage, including openings and their closures, but does not include service equipment or external structural equipment;

*Jacket* means the outer insulation cover or cladding which may be part of the insulation system;

*Service equipment* means measuring instruments and filling, discharge, venting, safety, pressurizing, cooling and thermal insulation devices;

*Structural equipment* means the reinforcing, fastening, protective and stabilizing members external to the shell;

*Maximum allowable working pressure (MAWP)* means the maximum effective gauge pressure permissible at the top of the shell of a loaded portable tank in its operating position including the highest effective pressure during filling and discharge;

*Test pressure* means the maximum gauge pressure at the top of the shell during the pressure test;

*Leakproofness test* means a test using gas subjecting the shell and its service equipment, to an effective internal pressure not less than 90% of the MAWP;

*Maximum permissible gross mass (MPGM)* means the sum of the tare mass of the portable tank and the heaviest load authorized for carriage;

*Holding time* means the time that will elapse from the establishment of the initial filling condition until the pressure has risen due to heat influx to the lowest set pressure of the pressure limiting device(s);

*Reference steel* means a steel with a tensile strength of 370 N/mm<sup>2</sup> and an elongation at fracture of 27%;

*Minimum design temperature* means the temperature which is used for the design and construction of the shell not higher than the lowest (coldest) temperature (service temperature) of the contents during normal conditions of filling, discharge and carriage.

#### 6.7.4.2 *General design and construction requirements*

- 6.7.4.2.1 Shells shall be designed and constructed in accordance with the requirements of a pressure vessel code recognized by the competent authority. Shells and jackets shall be made of metallic materials suitable for forming. Jackets shall be made of steel. Non-metallic materials may be used for the attachments and supports between the shell and jacket, provided their material properties at the minimum design temperature are proven to be sufficient. The materials shall in principle conform to national or international material standards. For welded shells and jackets only materials whose weldability has been fully demonstrated shall be used. Welds shall be skilfully made and afford complete safety. When the manufacturing process or the materials make it necessary, the shell shall be suitably heat treated to guarantee adequate toughness in the weld and in the heat affected zones. In choosing the material, the minimum design temperature shall be taken into account with respect to risk of brittle fracture, to hydrogen embrittlement, to stress corrosion cracking and to resistance to impact. When fine grain steel is used, the guaranteed value of the yield strength shall be not more than 460 N/mm<sup>2</sup> and the guaranteed value of the upper limit of the tensile strength shall be not more than 725 N/mm<sup>2</sup> in accordance with the material specifications. Portable tank materials shall be suitable for the external environment in which they may be carried.
- 6.7.4.2.2 Any part of a portable tank, including fittings, gaskets and pipe-work, which can be expected normally to come into contact with the refrigerated liquefied gas carried shall be compatible with that refrigerated liquefied gas.
- 6.7.4.2.3 Contact between dissimilar metals which could result in damage by galvanic action shall be avoided.
- 6.7.4.2.4 The thermal insulation system shall include a complete covering of the shell(s) with effective insulating materials. External insulation shall be protected by a jacket so as to prevent the ingress of moisture and other damage under normal carriage conditions.
- 6.7.4.2.5 When a jacket is so closed as to be gas-tight, a device shall be provided to prevent any dangerous pressure from developing in the insulation space.
- 6.7.4.2.6 Portable tanks intended for the carriage of refrigerated liquefied gases having a boiling point below minus (-) 182 °C at atmospheric pressure shall not include materials which may react with oxygen or oxygen enriched atmospheres in a dangerous manner, when located in parts of the thermal insulation when there is a risk of contact with oxygen or with oxygen enriched fluid.
- 6.7.4.2.7 Insulating materials shall not deteriorate unduly in service.
- 6.7.4.2.8 A reference holding time shall be determined for each refrigerated liquefied gas intended for carriage in a portable tank.

- 6.7.4.2.8.1 The reference holding time shall be determined by a method recognized by the competent authority on the basis of the following:
- (a) The effectiveness of the insulation system, determined in accordance with 6.7.4.2.8.2;
  - (b) The lowest set pressure of the pressure limiting device(s);
  - (c) The initial filling conditions;
  - (d) An assumed ambient temperature of 30 °C;
  - (e) The physical properties of the individual refrigerated liquefied gas intended to be carried.

6.7.4.2.8.2 The effectiveness of the insulation system (heat influx in watts) shall be determined by type testing the portable tank in accordance with a procedure recognized by the competent authority. This test shall consist of either:

- (a) A constant pressure test (for example at atmospheric pressure) when the loss of refrigerated liquefied gas is measured over a period of time; or
- (b) A closed system test when the rise in pressure in the shell is measured over a period of time.

When performing the constant pressure test, variations in atmospheric pressure shall be taken into account. When performing either tests corrections shall be made for any variation of the ambient temperature from the assumed ambient temperature reference value of 30 °C.

*NOTE: For the determination of the actual holding time before each journey, refer to 4.2.3.7.*

- 6.7.4.2.9 The jacket of a vacuum-insulated double-wall tank shall have either an external design pressure not less than 100 kPa (1 bar) (gauge pressure) calculated in accordance with a recognized technical code or a calculated critical collapsing pressure of not less than 200 kPa (2 bar) (gauge pressure). Internal and external reinforcements may be included in calculating the ability of the jacket to resist the external pressure.
- 6.7.4.2.10 Portable tanks shall be designed and constructed with supports to provide a secure base during carriage and with suitable lifting and tie-down attachments.
- 6.7.4.2.11 Portable tanks shall be designed to withstand, without loss of contents, at least the internal pressure due to the contents, and the static, dynamic and thermal loads during normal conditions of handling and carriage. The design shall demonstrate that the effects of fatigue, caused by repeated application of these loads through the expected life of the portable tank, have been taken into account.
- 6.7.4.2.12 Portable tanks and their fastenings under the maximum permissible load shall be capable of absorbing the following separately applied static forces:
- (a) In the direction of travel: twice the MPGM multiplied by the acceleration due to gravity ( $g$ )<sup>8</sup>;

<sup>8</sup> For calculation purposes  $g = 9.81 \text{ m/s}^2$ .

- (b) Horizontally at right angles to the direction of travel: the MPGM (when the direction of travel is not clearly determined, the forces shall be equal to twice the MPGM) multiplied by the acceleration due to gravity ( $g$ )<sup>8</sup>;
- (c) Vertically upwards: the MPGM multiplied by the acceleration due to gravity ( $g$ )<sup>8</sup>; and
- (d) Vertically downwards: twice the MPGM (total loading including the effect of gravity) multiplied by the acceleration due to gravity ( $g$ )<sup>8</sup>.

6.7.4.2.13 Under each of the forces in 6.7.4.2.12, the safety factor to be observed shall be as follows:

- (a) For materials having a clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed yield strength; and
- (b) For materials with no clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed 0.2% proof strength or, in case of austenitic steels, the 1% proof strength.

6.7.4.2.14 The values of yield strength or proof strength shall be the values according to national or international material standards. When austenitic steels are used, the specified minimum values according to the material standards may be increased by up to 15% when greater values are attested in the material inspection certificate. When no material standard exists for the metal in question, or when non-metallic materials are used the values of yield strength or proof strength shall be approved by the competent authority.

6.7.4.2.15 Portable tanks intended for the carriage of flammable refrigerated liquefied gases shall be capable of being electrically earthed.

### 6.7.4.3 *Design criteria*

6.7.4.3.1 Shells shall be of a circular cross section.

6.7.4.3.2 Shells shall be designed and constructed to withstand a test pressure not less than 1.3 times the MAWP. For shells with vacuum insulation the test pressure shall not be less than 1.3 times the sum of the MAWP and 100 kPa (1 bar). In no case shall the test pressure be less than 300 kPa (3 bar) (gauge pressure). Attention is drawn to the minimum shell thickness requirements, specified in 6.7.4.4.2 to 6.7.4.4.7.

6.7.4.3.3 For metals exhibiting a clearly defined yield point or characterized by a guaranteed proof strength (0.2% proof strength, generally, or 1% proof strength for austenitic steels) the primary membrane stress  $\sigma$  (sigma) in the shell shall not exceed 0.75 Re or 0.50 Rm, whichever is lower, at the test pressure, where:

Re = yield strength in N/mm<sup>2</sup>, or 0.2% proof strength or, for austenitic steels, 1% proof strength;

Rm = minimum tensile strength in N/mm<sup>2</sup>.

6.7.4.3.3.1 The values of Re and Rm to be used shall be the specified minimum values according to national or international material standards. When austenitic steels are used, the specified minimum values for Re and Rm according to the material standards may be increased by up to 15% when greater values are attested in the material inspection certificate. When no material standard exists for the metal in question, the values of Re and Rm used shall be approved by the competent authority or its authorized body.

<sup>8</sup> For calculation purposes  $g = 9.81 \text{ m/s}^2$ .



- 6.7.4.3.3.2 Steels which have a  $R_e/R_m$  ratio of more than 0.85 are not allowed for the construction of welded shells. The values of  $R_e$  and  $R_m$  to be used in determining this ratio shall be the values specified in the material inspection certificate.
- 6.7.4.3.3.3 Steels used in the construction of shells shall have an elongation at fracture, in %, of not less than  $10\,000/R_m$  with an absolute minimum of 16% for fine grain steels and 20% for other steels. Aluminium and aluminium alloys used in the construction of shells shall have an elongation at fracture, in %, of not less than  $10\,000/6R_m$  with an absolute minimum of 12%.
- 6.7.4.3.3.4 For the purpose of determining actual values for materials, it shall be noted that for sheet metal, the axis of the tensile test specimen shall be at right angles (transversely) to the direction of rolling. The permanent elongation at fracture shall be measured on test specimens of rectangular cross sections in accordance with ISO 6892:1988 using a 50 mm gauge length.
- 6.7.4.4 Minimum shell thickness**
- 6.7.4.4.1 The minimum shell thickness shall be the greater thickness based on:
- The minimum thickness determined in accordance with the requirements in 6.7.4.4.2 to 6.7.4.4.7; or
  - The minimum thickness determined in accordance with the recognized pressure vessel code including the requirements in 6.7.4.3.
- 6.7.4.4.2 Shells of not more than 1.80 m in diameter shall be not less than 5 mm thick in the reference steel or of equivalent thickness in the metal to be used. Shells of more than 1.80 m in diameter shall be not less than 6 mm thick in the reference steel or of equivalent thickness in the metal to be used.
- 6.7.4.4.3 Shells of vacuum-insulated tanks of not more than 1.80 m in diameter shall be not less than 3 mm thick in the reference steel or of equivalent thickness in the metal to be used. Such shells of more than 1.80 m in diameter shall be not less than 4 mm thick in the reference steel or of equivalent thickness in the metal to be used.
- 6.7.4.4.4 For vacuum-insulated tanks, the aggregate thickness of the jacket and the shell shall correspond to the minimum thickness prescribed in 6.7.4.4.2, the thickness of the shell itself being not less than the minimum thickness prescribed in 6.7.4.4.3.
- 6.7.4.4.5 Shells shall be not less than 3 mm thick regardless of the material of construction.
- 6.7.4.4.6 The equivalent thickness of a metal other than the thickness prescribed for the reference steel in 6.7.4.4.2 and 6.7.4.4.3 shall be determined using the following formula:

$$e_1 = \frac{21.4e_0}{\sqrt[3]{R_{m_1} \times A_1}}$$

where:

- $e_1$  = required equivalent thickness (in mm) of the metal to be used;
- $e_0$  = minimum thickness (in mm) of the reference steel specified in 6.7.4.4.2 and 6.7.4.4.3;

$R_{m1}$  = guaranteed minimum tensile strength (in  $N/mm^2$ ) of the metal to be used (see 6.7.4.3.3);

$A_1$  = guaranteed minimum elongation at fracture (in %) of the metal to be used according to national or international standards.

6.7.4.4.7 In no case shall the wall thickness be less than that prescribed in 6.7.4.4.1 to 6.7.4.4.5. All parts of the shell shall have a minimum thickness as determined by 6.7.4.4.1 to 6.7.4.4.6. This thickness shall be exclusive of any corrosion allowance.

6.7.4.4.8 There shall be no sudden change of plate thickness at the attachment of the ends (heads) to the cylindrical portion of the shell.

#### 6.7.4.5 *Service equipment*

6.7.4.5.1 Service equipment shall be so arranged as to be protected against the risk of being wrenched off or damaged during handling and carriage. When the connection between the frame and the tank or the jacket and the shell allows relative movement, the equipment shall be so fastened as to permit such movement without risk of damage to working parts. The external discharge fittings (pipe sockets, shut-off devices), the stop-valve and its seating shall be protected against the danger of being wrenched off by external forces (for example using shear sections). The filling and discharge devices (including flanges or threaded plugs) and any protective caps shall be capable of being secured against unintended opening.

6.7.4.5.2 Each filling and discharge opening in portable tanks used for the carriage of flammable refrigerated liquefied gases shall be fitted with at least three mutually independent shut-off devices in series, the first being a stop-valve situated as close as reasonably practicable to the jacket, the second being a stop-valve and the third being a blank flange or equivalent device. The shut-off device closest to the jacket shall be a quick closing device, which closes automatically in the event of unintended movement of the portable tank during filling or discharge or fire engulfment. This device shall also be possible to operate by remote control.

6.7.4.5.3 Each filling and discharge opening in portable tanks used for the carriage of non-flammable refrigerated liquefied gases shall be fitted with at least two mutually independent shut-off devices in series, the first being a stop-valve situated as close as reasonably practicable to the jacket, the second a blank flange or equivalent device.

6.7.4.5.4 For sections of piping which can be closed at both ends and where liquid product can be trapped, a method of automatic pressure relief shall be provided to prevent excess pressure build-up within the piping.

6.7.4.5.5 Vacuum insulated tanks need not have an opening for inspection.

6.7.4.5.6 External fittings shall be grouped together so far as reasonably practicable.

6.7.4.5.7 Each connection on a portable tank shall be clearly marked to indicate its function.

6.7.4.5.8 Each stop-valve or other means of closure shall be designed and constructed to a rated pressure not less than the MAWP of the shell taking into account the temperature expected during carriage. All stop-valves with a screwed spindle shall be closed by a clockwise motion of the handwheel. In the case of other stop-valves the position (open and closed) and direction of closure shall be clearly indicated. All stop-valves shall be designed to prevent unintentional opening.

- 6.7.4.5.9 When pressure-building units are used, the liquid and vapour connections to that unit shall be provided with a valve as close to the jacket as reasonably practicable to prevent the loss of contents in case of damage to the pressure-building unit.
- 6.7.4.5.10 Piping shall be designed, constructed and installed so as to avoid the risk of damage due to thermal expansion and contraction, mechanical shock and vibration. All piping shall be of a suitable material. To prevent leakage due to fire, only steel piping and welded joints shall be used between the jacket and the connection to the first closure of any outlet. The method of attaching the closure to this connection shall be to the satisfaction of the competent authority or its authorized body. Elsewhere pipe joints shall be welded when necessary.
- 6.7.4.5.11 Joints in copper tubing shall be brazed or have an equally strong metal union. The melting point of brazing materials shall be no lower than 525 °C. The joints shall not decrease the strength of the tubing as may happen when cutting threads.
- 6.7.4.5.12 The materials of construction of valves and accessories shall have satisfactory properties at the lowest operating temperature of the portable tank.
- 6.7.4.5.13 The burst pressure of all piping and pipe fittings shall be not less than the highest of four times the MAWP of the shell or four times the pressure to which it may be subjected in service by the action of a pump or other device (except pressure-relief devices).
- 6.7.4.6 *Pressure-relief devices*
- 6.7.4.6.1 Every shell shall be provided with not less than two independent spring-loaded pressure-relief devices. The pressure-relief devices shall open automatically at a pressure not less than the MAWP and be fully open a pressure equal to 110% of the MAWP. These devices shall, after discharge, close at a pressure not lower than 10% below the pressure at which discharge starts and shall remain closed at all lower pressures. The pressure-relief devices shall be of the type that will resist dynamic forces including surge.
- 6.7.4.6.2 Shells for non-flammable refrigerated liquefied gases and hydrogen may in addition have frangible discs in parallel with the spring-loaded devices as specified in 6.7.4.7.2 and 6.7.4.7.3.
- 6.7.4.6.3 Pressure-relief devices shall be designed to prevent the entry of foreign matter, the leakage of gas and the development of any dangerous excess pressure.
- 6.7.4.6.4 Pressure-relief devices shall be approved by the competent authority or its authorized body.
- 6.7.4.7 *Capacity and setting of pressure-relief devices*
- 6.7.4.7.1 In the case of the loss of vacuum in a vacuum-insulated tank or of loss of 20% of the insulation of a tank insulated with solid materials, the combined capacity of all pressure-relief devices installed shall be sufficient so that the pressure (including accumulation) inside the shell does not exceed 120% of the MAWP.
- 6.7.4.7.2 For non-flammable refrigerated liquefied gases (except oxygen) and hydrogen, this capacity may be achieved by the use of frangible discs in parallel with the required safety-relief devices. Frangible discs shall rupture at nominal pressure equal to the test pressure of the shell.
- 6.7.4.7.3 Under the circumstances described in 6.7.4.7.1 and 6.7.4.7.2 together with complete fire engulfment the combined capacity of all pressure-relief devices installed shall be sufficient to limit the pressure in the shell to the test pressure.

6.7.4.7.4 The required capacity of the relief devices shall be calculated in accordance with a well-established technical code recognized by the competent authority<sup>9</sup>.

**6.7.4.8 *Marking of pressure-relief devices***

6.7.4.8.1 Every pressure-relief device shall be plainly and permanently marked with the following particulars:

- (a) The pressure (in bar or kPa) at which it is set to discharge;
- (b) The allowable tolerance at the discharge pressure for spring-loaded devices;
- (c) The reference temperature corresponding to the rated pressure for frangible discs; and
- (d) The rated flow capacity of the device in standard cubic meters of air per second (m<sup>3</sup>/s).

When practicable, the following information shall also be shown:

- (e) The manufacturer's name and relevant catalogue number of the device.

6.7.4.8.2 The rated flow capacity marked on the pressure-relief devices shall be determined according to ISO 4126-1:1991.

**6.7.4.9 *Connections to pressure-relief devices***

6.7.4.9.1 Connections to pressure-relief devices shall be of sufficient size to enable the required discharge to pass unrestricted to the safety device. No stop-valve shall be installed between the shell and the pressure-relief devices except when duplicate devices are provided for maintenance or other reasons and the stop-valves serving the devices actually in use are locked open or the stop-valves are interlocked so that the requirements of 6.7.4.7 are always fulfilled. There shall be no obstruction in an opening leading to a vent or pressure-relief device which might restrict or cut-off the flow from the shell to that device. Pipework to vent the vapour or liquid from the outlet of the pressure-relief devices, when used, shall deliver the relieved vapour or liquid to the atmosphere in conditions of minimum back-pressure on the relieving device.

**6.7.4.10 *Siting of pressure-relief devices***

6.7.4.10.1 Each pressure-relief device inlet shall be situated on top of the shell in a position as near the longitudinal and transverse centre of the shell as reasonably practicable. All pressure-relief device inlets shall under maximum filling conditions be situated in the vapour space of the shell and the devices shall be so arranged as to ensure that the escaping vapour is discharged unrestrictedly. For refrigerated liquefied gases, the escaping vapour shall be directed away from the tank and in such a manner that it cannot impinge upon the tank. Protective devices which deflect the flow of vapour are permissible provided the required relief-device capacity is not reduced.

6.7.4.10.2 Arrangements shall be made to prevent access to the devices by unauthorized persons and to protect the devices from damage caused by the portable tank overturning.

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<sup>9</sup> See for example CGA Pamphlet S-1.2-1995.

**6.7.4.11 Gauging devices**

6.7.4.11.1 Unless a portable tank is intended to be filled by weight, it shall be equipped with one or more gauging devices. Glass level-gauges and gauges made of other fragile material, which are in direct communication with the contents of the shell shall not be used.

6.7.4.11.2 A connection for a vacuum gauge shall be provided in the jacket of a vacuum-insulated portable tank.

**6.7.4.12 Portable tank supports, frameworks, lifting and tie-down attachments**

6.7.4.12.1 Portable tanks shall be designed and constructed with a support structure to provide a secure base during carriage. The forces specified in 6.7.4.2.12 and the safety factor specified in 6.7.4.2.13 shall be considered in this aspect of the design. Skids, frameworks, cradles or other similar structures are acceptable.

6.7.4.12.2 The combined stresses caused by portable tank mountings (e.g. cradles, frameworks, etc.) and portable tank lifting and tie-down attachments shall not cause excessive stress in any portion of the tank. Permanent lifting and tie-down attachments shall be fitted to all portable tanks. Preferably they shall be fitted to the portable tank supports but may be secured to reinforcing plates located on the tank at the points of support.

6.7.4.12.3 In the design of supports and frameworks the effects of environmental corrosion shall be taken into account.

6.7.4.12.4 Forklift pockets shall be capable of being closed off. The means of closing forklift pockets shall be a permanent part of the framework or permanently attached to the framework. Single compartment portable tanks with a length less than 3.65 m need not have closed off forklift pockets provided that:

- (a) The tank and all the fittings are well protected from being hit by the forklift blades; and
- (b) The distance between the centres of the forklift pockets is at least half of the maximum length of the portable tank.

6.7.4.12.5 When portable tanks are not protected during carriage, according to 4.2.3.3, the shells and service equipment shall be protected against damage to the shell and service equipment resulting from lateral or longitudinal impact or overturning. External fittings shall be protected so as to preclude the release of the shell contents upon impact or overturning of the portable tank on its fittings. Examples of protection include:

- (a) Protection against lateral impact which may consist of longitudinal bars protecting the shell on both sides at the level of the median line;
- (b) Protection of the portable tank against overturning which may consist of reinforcement rings or bars fixed across the frame;
- (c) Protection against rear impact which may consist of a bumper or frame;
- (d) Protection of the shell against damage from impact or overturning by use of an ISO frame in accordance with ISO 1496-3:1995;
- (e) Protection of the portable tank from impact or overturning by a vacuum insulation jacket.

### 6.7.4.13 *Design approval*

6.7.4.13.1 The competent authority or its authorized body shall issue a design approval certificate for any new design of a portable tank. This certificate shall attest that a portable tank has been surveyed by that authority, is suitable for its intended purpose and meets the requirements of this Chapter. When a series of portable tanks are manufactured without change in the design, the certificate shall be valid for the entire series. The certificate shall refer to the prototype test report, the refrigerated liquefied gases allowed to be carried, the materials of construction of the shell and jacket and an approval number. The approval number shall consist of the distinguishing sign or mark of the State in whose territory the approval was granted, i.e. the distinguishing sign for use in international traffic, as prescribed by the Convention on Road Traffic, Vienna 1968, and a registration number. Any alternative arrangements according to 6.7.1.2 shall be indicated on the certificate. A design approval may serve for the approval of smaller portable tanks made of materials of the same kind and thickness, by the same fabrication techniques and with identical supports, equivalent closures and other appurtenances.

6.7.4.13.2 The prototype test report for the design approval shall include at least the following:

- (a) The results of the applicable frame-work test specified in ISO 1496-3:1995;
- (b) The results of the initial inspection and test in 6.7.4.14.3; and
- (c) The results of the impact test in 6.7.4.14.1, when applicable.

### 6.7.4.14 *Inspection and testing*

6.7.4.14.1 For portable tanks meeting the definition of container in the CSC, a prototype representing each design shall be subjected to an impact test. The prototype portable tank shall be shown to be capable of absorbing the forces resulting from an impact not less than 4 times (4 g) the MPGM of the fully loaded portable tank at a duration typical of the mechanical shocks experienced in rail transport. The following is a listing of standards describing methods acceptable for performing the impact test:

Association of American Railroads,  
Manual of Standards and Recommended Practices,  
Specifications for Acceptability of Tank Containers (AAR.600), 1992

Canadian Standards Association (CSA),  
Highway Tanks and Portable Tanks for the Transportation of Dangerous Goods (B620-1987)

Deutsche Bahn AG  
Zentralbereich Technik, Minden  
Portable tanks, longitudinal dynamic impact test

Société Nationale des Chemins de Fer Français  
C.N.E.S.T. 002-1966.  
Tank containers, longitudinal external stresses and dynamic impact tests

Spoornet, South Africa  
Engineering Development Centre (EDC)  
Testing of ISO Tank Containers  
Method EDC/EST/023/000/1991-06

- 6.7.4.14.2 The tank and items of equipment of each portable tank shall be inspected and tested before being put into service for the first time (initial inspection and test) and thereafter at not more than five-year intervals (5 year periodic inspection and test) with an intermediate periodic inspection and test (2.5 year periodic inspection and test) midway between the 5 year periodic inspections and tests. The 2.5 year inspection and test may be performed within 3 months of the specified date. An exceptional inspection and test shall be performed regardless of the last periodic inspection and test when necessary according to 6.7.4.14.7.
- 6.7.4.14.3 The initial inspection and test of a portable tank shall include a check of the design characteristics, an internal and external examination of the portable tank shell and its fittings with due regard to the refrigerated liquefied gases to be carried, and a pressure test referring to the test pressures according to 6.7.4.3.2. The pressure test may be performed as a hydraulic test or by using another liquid or gas with the agreement of the competent authority or its authorized body. Before the portable tank is placed into service, a leakproofness test and a check of the satisfactory operation of all service equipment shall also be performed. When the shell and its fittings have been pressure-tested separately, they shall be subjected together after assembly to a leakproofness test. All welds subject to full stress level shall be inspected during the initial test by radiographic, ultrasonic, or another suitable non-destructive-test method. This does not apply to the jacket.
- 6.7.4.14.4 The 5 and 2.5 year periodic inspection and test shall include an external examination of the portable tank and its fittings with due regard to the refrigerated liquefied gases carried, a leakproofness test, a check of the satisfactory operation of all service equipment and a vacuum reading, when applicable. In the case of non-vacuum insulated tanks, the jacket and insulation shall be removed during a 2.5 year and a 5 year periodic inspection but only to the extent necessary for a reliable appraisal.
- 6.7.4.14.5 In addition, at the 5 year periodic inspection and test of non-vacuum insulated tanks the jacket and insulation shall be removed, but only to the extent necessary for a reliable appraisal.
- 6.7.4.14.6 A portable tank may not be filled and offered for carriage after the date of expiry of the last 5 year or 2.5 year periodic inspection and test as required by 6.7.4.14.2. However a portable tank filled prior to the date of expiry of the last periodic inspection and test may be carried for a period not to exceed three months beyond the date of expiry of the last periodic test or inspection. In addition, a portable tank may be carried after the date of expiry of the last periodic test and inspection:
- (a) After emptying but before cleaning, for purposes of performing the next required test or inspection prior to refilling; and
  - (b) Unless otherwise approved by the competent authority, for a period not to exceed six months beyond the date of expiry of the last periodic test or inspection, in order to allow the return of dangerous goods for proper disposal or recycling. Reference to this exemption shall be mentioned in the transport document.
- 6.7.4.14.7 The exceptional inspection and test is necessary when the portable tank shows evidence of damaged or corroded areas, leakage, or any other conditions that indicate a deficiency that could affect the integrity of the portable tank. The extent of the exceptional inspection and test shall depend on the amount of damage or deterioration of the portable tank. It shall include at least the 2.5 year inspection and test according to 6.7.4.14.4.
- 6.7.4.14.8 The internal examination during the initial inspection and test shall ensure that the shell is inspected for pitting, corrosion, or abrasions, dents, distortions, defects in welds or any other conditions, that might render the portable tank unsafe for carriage.

6.7.4.14.9 The external examination shall ensure that:

- (a) The external piping, valves, pressurizing/cooling systems when applicable and gaskets are inspected for corroded areas, defects, or any other conditions, including leakage, that might render the portable tank unsafe for filling, discharge or carriage;
- (b) There is no leakage at any manhole covers or gaskets;
- (c) Missing or loose bolts or nuts on any flanged connection or blank flange are replaced or tightened;
- (d) All emergency devices and valves are free from corrosion, distortion and any damage or defect that could prevent their normal operation. Remote closure devices and self-closing stop-valves shall be operated to demonstrate proper operation;
- (e) Required markings on the portable tank are legible and in accordance with the applicable requirements; and
- (f) The framework, the supports and the arrangements for lifting the portable tank are in satisfactory condition.

6.7.4.14.10 The inspections and tests in 6.7.4.14.1, 6.7.4.14.3, 6.7.4.14.4, 6.7.4.14.5 and 6.7.4.14.7 shall be performed or witnessed by an expert approved by the competent authority or its authorized body. When the pressure test is a part of the inspection and test, the test pressure shall be the one indicated on the data plate of the portable tank. While under pressure, the portable tank shall be inspected for any leaks in the shell, piping or equipment.

6.7.4.14.11 In all cases when cutting, burning or welding operations on the shell of a portable tank have been effected, that work shall be to the approval of the competent authority or its authorized body taking into account the pressure vessel code used for the construction of the shell. A pressure test to the original test pressure shall be performed after the work is completed.

6.7.4.14.12 When evidence of any unsafe condition is discovered, the portable tank shall not be returned to service until it has been corrected and the test is repeated and passed.

#### 6.7.4.15 *Marking*

6.7.4.15.1 Every portable tank shall be fitted with a corrosion resistant metal plate permanently attached to the portable tank in a conspicuous place readily accessible for inspection. When for reasons of portable tank arrangements, the plate cannot be permanently attached to the shell, the shell shall be marked with at least the information required by the pressure vessel code. As a minimum at least the following information shall be marked on the plate by stamping or by any other similar method:

Country of manufacture			
U	Approval	Approval	For Alternative Arrangements (see 6.7.1.2)
N	country	number	"AA"
Manufacturer's name or mark			
Manufacturer's serial number			
Authorized body for the design approval			
Owner's registration number			
Year of manufacture			
Pressure vessel code to which the tank is designed			
Test pressure _____ bar/kPa (gauge pressure) <sup>10</sup>			

<sup>10</sup> *The unit used shall be marked.*



MAWP \_\_\_\_\_ bar/kPa (gauge pressure)<sup>10</sup>  
 Minimum design temperature \_\_\_\_\_ °C  
 Water capacity at 20 °C \_\_\_\_\_ litres  
 Initial pressure test date and witness identification  
 Shell material(s) and material standard reference(s)  
 Equivalent thickness in reference steel \_\_\_\_\_ mm  
 Date and type of most recent periodic test(s)  
 Month \_\_\_\_\_ Year \_\_\_\_\_ Test pressure \_\_\_\_\_ bar/kPa (gauge pressure)<sup>10</sup>  
 Stamp of expert who performed or witnessed the most recent test  
 The name, in full, of the gas(es) for whose carriage the portable tank is approved  
 Either "thermally insulated" or "vacuum insulated" \_\_\_\_\_  
 Effectiveness of the insulation system (heat influx) \_\_\_\_\_ Watts (W)  
 Reference holding time \_\_\_\_\_ days (or hours) and initial  
 pressure \_\_\_\_\_ bar/kPa (gauge pressure)<sup>10</sup> and degree of filling \_\_\_\_\_ in kg for  
 each refrigerated liquefied gas permitted for carriage.

6.7.4.15.2 The following particulars shall be durably marked either on the portable tank itself or on a metal plate firmly secured to the portable tank.

Name of the owner and the operator  
 Name of the refrigerated liquefied gas being carried (and minimum mean bulk temperature)  
 Maximum permissible gross mass (MPGM) \_\_\_\_\_ kg  
 Unladen (tare) mass \_\_\_\_\_ kg  
 Actual holding time for gas being carried \_\_\_\_\_ days (or hours)

*NOTE: For the identification of the refrigerated liquefied gas(es) being carried, see also Part 5.*

6.7.4.15.3 If a portable tank is designed and approved for handling in open seas, the words "OFFSHORE PORTABLE TANK" shall be marked on the identification plate.

**6.7.5 Requirements for the design, construction, inspection and testing of UN certified multiple-element gas containers (MEGCs) intended for the carriage of non-refrigerated gases**

**6.7.5.1 Definitions**

For the purposes of this section:

*Alternative arrangement* means an approval granted by the competent authority for a portable tank or MEGC that has been designed, constructed or tested to technical requirements or testing methods other than those specified in this Chapter;

*Elements* are cylinders, tubes or bundles of cylinders;

*Leakproofness test* means a test using gas subjecting the elements and the service equipment of the MEGC to an effective internal pressure of not less than 20% of the test pressure;

*Manifold* means an assembly of piping and valves connecting the filling and/or discharge openings of the elements;

*Maximum permissible gross mass (MPGM)* means the sum of the tare mass of the MEGC and the heaviest load authorized for carriage;

<sup>10</sup> The unit used shall be marked.

*UN certified Multiple-element gas containers (MEGCs)* are multimodal assemblies of cylinders, tubes and bundles of cylinders which are interconnected by a manifold and which are assembled within a framework. The MEGC includes service equipment and structural equipment necessary for the carriage of gases;

*Service equipment* means measuring instruments and filling, discharge, venting and safety devices;

*Structural equipment* means the reinforcing, fastening, protective and stabilizing members external to the elements.

## 6.7.5.2 *General design and construction requirements*

- 6.7.5.2.1 The MEGC shall be capable of being filled and discharged without the removal of its structural equipment. It shall possess stabilizing members external to the elements to provide structural integrity for handling and carriage. MEGCs shall be designed and constructed with supports to provide a secure base during carriage and with lifting and tie-down attachments which are adequate for lifting the MEGC including when loaded to its maximum permissible gross mass. The MEGC shall be designed to be loaded onto a transport unit or ship and shall be equipped with skids, mountings or accessories to facilitate mechanical handling.
- 6.7.5.2.2 MEGCs shall be designed, manufactured and equipped in such a way as to withstand all conditions to which they will be subjected during normal conditions of handling and carriage. The design shall take into account the effects of dynamic loading and fatigue.
- 6.7.5.2.3 Elements of an MEGC shall be made of seamless steel and be constructed and tested according to 6.2.5. All of the elements in an MEGC shall be of the same design type.
- 6.7.5.2.4 Elements of MEGCs, fittings and pipework shall be:
- (a) compatible with the substances intended to be carried (see ISO 11114-1:1997 and ISO 11114-2:2000); or
  - (b) properly passivated or neutralized by chemical reaction.
- 6.7.5.2.5 Contact between dissimilar metals which could result in damage by galvanic action shall be avoided.
- 6.7.5.2.6 The materials of the MEGC, including any devices, gaskets, and accessories, shall not adversely affect the gas(es) intended for carriage in the MEGC.
- 6.7.5.2.7 MEGCs shall be designed to withstand, without loss of contents, at least the internal pressure due to the contents, and the static, dynamic and thermal loads during normal conditions of handling and carriage. The design shall demonstrate that the effects of fatigue, caused by repeated application of these loads through the expected life of the multiple-element gas container, have been taken into account.
- 6.7.5.2.8 MEGCs and their fastenings shall, under the maximum permissible load, be capable of withstanding the following separately applied static forces:
- (a) in the direction of travel: twice the MPGM multiplied by the acceleration due to gravity ( $g$ )<sup>11</sup>;

<sup>11</sup> For calculation purposes  $g = 9.81 \text{ m/s}^2$ .

- (b) horizontally at right angles to the direction of travel: the MPGM (when the direction of travel is not clearly determined, the forces shall be equal to twice the MPGM) multiplied by the acceleration due to gravity ( $g$ )<sup>11</sup>;
- (c) vertically upwards: the MPGM multiplied by the acceleration due to gravity ( $g$ )<sup>11</sup>; and
- (d) vertically downwards: twice the MPGM (total loading including the effect of gravity) multiplied by the acceleration due to gravity ( $g$ )<sup>11</sup>.

6.7.5.2.9 Under the forces defined in 6.7.5.2.8, the stress at the most severely stressed point of the elements shall not exceed the values given in either the relevant standards of 6.2.5.2 or, if the elements are not designed, constructed and tested according to those standards, in the technical code or standard recognised or approved by the competent authority of the country of use (see 6.2.3).

6.7.5.2.10 Under each of the forces in 6.7.5.2.8, the safety factor for the framework and fastenings to be observed shall be as follows:

- (a) for steels having a clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed yield strength; or
- (b) for steels with no clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed 0.2% proof strength and, for austenitic steels, the 1% proof strength.

6.7.5.2.11 MEGCs intended for the carriage of flammable gases shall be capable of being electrically earthed.

6.7.5.2.12 The elements shall be secured in a manner that prevents undesired movement in relation to the structure and the concentration of harmful localized stresses.

### 6.7.5.3 *Service equipment*

6.7.5.3.1 Service equipment shall be configured or designed to prevent damage that could result in the release of the pressure receptacle contents during normal conditions of handling and carriage. When the connection between the frame and the elements allows relative movement between the sub-assemblies, the equipment shall be so fastened as to permit such movement without damage to working parts. The manifolds, the discharge fittings (pipe sockets, shut-off devices), and the stop-valves shall be protected from being wrenched off by external forces. Manifold piping leading to shut-off valves shall be sufficiently flexible to protect the valves and the piping from shearing, or releasing the pressure receptacle contents. The filling and discharge devices (including flanges or threaded plugs) and any protective caps shall be capable of being secured against unintended opening.

6.7.5.3.2 Each element intended for the carriage of toxic gases (gases of groups T, TF, TC, TO, TFC and TOC) shall be fitted with a valve. The manifold for liquefied toxic gases (gases of classification codes 2T, 2TF, 2TC, 2TO, 2TFC and 2TOC) shall be so designed that the elements can be filled separately and be kept isolated by a valve capable of being sealed. For the carriage of flammable gases (gases of groups F, TF and TFC), the elements shall be isolated by a valve into assemblies of not more than 3 000 litres.

6.7.5.3.3 For filling and discharge openings of the MEGC, two valves in series shall be placed in an accessible position on each discharge and filling pipe. One of the valves may be a non-return valve. The filling and discharge devices may be fitted to a manifold. For sections of piping which can be closed at both ends and where a liquid product can be trapped, a pressure-relief

<sup>11</sup> For calculation purposes  $g = 9.81 \text{ m/s}^2$ .

valve shall be provided to prevent excessive pressure build-up. The main isolation valves on an MEGC shall be clearly marked to indicate their directions of closure. Each stop-valve or other means of closure shall be designed and constructed to withstand a pressure equal to or greater than 1.5 times the test pressure of the MEGC. All stop-valves with screwed spindles shall close by a clockwise motion of the handwheel. For other stop-valves, the position (open and closed) and direction of closure shall be clearly indicated. All stop-valves shall be designed and positioned to prevent unintentional opening. Ductile metals shall be used in the construction of valves or accessories.

6.7.5.3.4 Piping shall be designed, constructed and installed so as to avoid damage due to expansion and contraction, mechanical shock and vibration. Joints in tubing shall be brazed or have an equally strong metal union. The melting point of brazing materials shall be no lower than 525 °C. The rated pressure of the service equipment and of the manifold shall be not less than two thirds of the test pressure of the elements.

#### 6.7.5.4 *Pressure-relief devices*

6.7.5.4.1 One or more pressure relief devices shall be fitted on MEGCs used for the carriage of UN No. 1013 carbon dioxide and UN No. 1070 nitrous oxide. MEGCs for other gases shall be fitted with pressure relief devices as specified by the competent authority for the country of use.

6.7.5.4.2 When pressure relief devices are fitted, every element or group of elements of an MEGC that can be isolated shall then be fitted with one or more pressure relief devices. Pressure relief devices shall be of a type that will resist dynamic forces including liquid surge and shall be designed to prevent the entry of foreign matter, the leakage of gas and the development of any dangerous excess pressure.

6.7.5.4.3 MEGCs used for the carriage of certain non-refrigerated gases identified in portable tank instruction T50 in 4.2.5.2.6 may have a pressure-relief device as required by the competent authority of the country of use. Unless an MEGC in dedicated service is fitted with an approved pressure relief device constructed of materials compatible with the gas carried, such a device shall comprise a frangible disc preceding a spring-loaded device. The space between the frangible disc and the spring-loaded device may be equipped with a pressure gauge or a suitable telltale indicator. This arrangement permits the detection of disc rupture, pinholing or leakage which could cause a malfunction of the pressure relief device. The frangible disc shall rupture at a nominal pressure 10% above the start-to-discharge pressure of the spring-loaded device.

6.7.5.4.4 In the case of multi-purpose MEGCs used for the carriage of low-pressure liquefied gases, the pressure-relief devices shall open at a pressure as specified in 6.7.3.7.1 for the gas having the highest maximum allowable working pressure of the gases allowed to be carried in the MEGC.

#### 6.7.5.5 *Capacity of pressure relief devices*

6.7.5.5.1 The combined delivery capacity of the pressure relief devices when fitted shall be sufficient that, in the event of total fire engulfment of the MEGC, the pressure (including accumulation) inside the elements does not exceed 120% of the set pressure of the pressure relief device. The formula provided in CGA S-1.2-1995 shall be used to determine the minimum total flow capacity for the system of pressure relief devices. CGA S-1.1-1994 may be used to determine the relief capacity of individual elements. Spring-loaded pressure relief devices may be used to achieve the full relief capacity prescribed in the case of low pressure liquefied gases. In the case of multi-purpose MEGCs, the combined delivery capacity of the pressure-relief devices shall be taken for the gas which requires the highest delivery capacity of the gases allowed to be carried in the MEGC.

6.7.5.5.2 To determine the total required capacity of the pressure relief devices installed on the elements for the carriage of liquefied gases, the thermodynamic properties of the gas shall be considered (see, for example, CGA S-1.2-1995 for low pressure liquefied gases and CGA S-1.1-1994 for high pressure liquefied gases).

**6.7.5.6 *Marking of pressure-relief devices***

6.7.5.6.1 Spring loaded pressure relief devices shall be clearly and permanently marked with the following:

- (a) the pressure (in bar or kPa) at which it is set to discharge;
- (b) the allowable tolerance at the discharge pressure;
- (c) the rated flow capacity of the device in standard cubic metres of air per second (m<sup>3</sup>/s);

When practicable, the following information shall also be shown:

- (d) the manufacturer's name and relevant catalogue number.

6.7.5.6.2 The rated flow capacity marked on frangible discs shall be determined according to CGA S-1.1-1994.

6.7.5.6.3 The rated flow capacity marked on spring loaded pressure relief devices for low pressure liquefied gases shall be determined according to ISO 4126-1:1991.

**6.7.5.7 *Connections to pressure-relief devices***

6.7.5.7.1 Connections to pressure-relief devices shall be of sufficient size to enable the required discharge to pass unrestricted to the pressure relief device. No stop-valve shall be installed between the element and the pressure-relief devices, except when duplicate devices are provided for maintenance or other reasons, and the stop-valves serving the devices actually in use are locked open, or the stop-valves are interlocked so that at least one of the duplicate devices is always operable and capable of meeting the requirements of 6.7.5.5. There shall be no obstruction in an opening leading to or leaving from a vent or pressure-relief device which might restrict or cut-off the flow from the element to that device. The opening through all piping and fittings shall have at least the same flow area as the inlet of the pressure relief device to which it is connected. The nominal size of the discharge piping shall be at least as large as that of the pressure relief device outlet. Vents from the pressure-relief devices, when used, shall deliver the relieved vapour or liquid to the atmosphere in conditions of minimum back-pressure on the relieving device.

**6.7.5.8 *Siting of pressure-relief devices***

6.7.5.8.1 Each pressure relief device shall, under maximum filling conditions, be in communication with the vapour space of the elements for the carriage of liquefied gases. The devices, when fitted, shall be so arranged as to ensure that the escaping vapour is discharged upwards and unrestrictedly as to prevent any impingement of escaping gas or liquid upon the MEGC, its elements or personnel. For flammable and oxidizing gases, the escaping gas shall be directed away from the element in such a manner that it cannot impinge upon the other elements. Heat resistant protective devices which deflect the flow of gas are permissible provided the required pressure relief device capacity is not reduced.

6.7.5.8.2 Arrangements shall be made to prevent access to the pressure-relief devices by unauthorized persons and to protect the devices from damage caused by the MEGC overturning.

**6.7.5.9 Gauging devices**

6.7.5.9.1 When an MEGC is intended to be filled by mass, it shall be equipped with one or more gauging devices. Level-gauges made of glass or other fragile material shall not be used.

**6.7.5.10 MEGC supports, frameworks, lifting and tie-down attachments**

6.7.5.10.1 MEGCs shall be designed and constructed with a support structure to provide a secure base during carriage. The forces specified in 6.7.5.2.8 and the safety factor specified in 6.7.5.2.10 shall be considered in this aspect of the design. Skids, frameworks, cradles or other similar structures are acceptable.

6.7.5.10.2 The combined stresses caused by element mountings (e.g. cradles, frameworks, etc.) and MEGC lifting and tie-down attachments shall not cause excessive stress in any element. Permanent lifting and tie-down attachments shall be fitted to all MEGCs. In no case shall mountings or attachments be welded onto the elements.

6.7.5.10.3 In the design of supports and frameworks, the effects of environmental corrosion shall be taken into account.

6.7.5.10.4 When MEGCs are not protected during carriage, according to 4.2.5.3, the elements and service equipment shall be protected against damage resulting from lateral or longitudinal impact or overturning. External fittings shall be protected so as to preclude the release of the elements' contents upon impact or overturning of the MEGC on its fittings. Particular attention shall be paid to the protection of the manifold. Examples of protection include:

- (a) protection against lateral impact which may consist of longitudinal bars;
- (b) protection against overturning which may consist of reinforcement rings or bars fixed across the frame;
- (c) protection against rear impact which may consist of a bumper or frame;
- (d) protection of the elements and service equipment against damage from impact or overturning by use of an ISO frame in accordance with the relevant provisions of ISO 1496-3:1995.

**6.7.5.11 Design approval**

6.7.5.11.1 The competent authority or its authorized body shall issue a design approval certificate for any new design of an MEGC. This certificate shall attest that the MEGC has been surveyed by that authority, is suitable for its intended purpose and meets the requirements of this Chapter, the applicable provisions for gases of Chapter 4.1 and of packing instruction P200. When a series of MEGCs are manufactured without change in the design, the certificate shall be valid for the entire series. The certificate shall refer to the prototype test report, the materials of construction of the manifold, the standards to which the elements are made and an approval number. The approval number shall consist of the distinguishing sign or mark of the country granting the approval, i.e. the distinguishing sign for use in international traffic, as prescribed by the Convention on Road Traffic, Vienna 1968, and a registration number. Any alternative arrangements according to 6.7.1.2 shall be indicated on the certificate. A design approval may serve for the approval of smaller MEGCs made of materials of the same type and thickness, by the same fabrication techniques and with identical supports, equivalent closures and other appurtenances.

6.7.5.11.2 The prototype test report for the design approval shall include at least the following:

- (a) the results of the applicable framework test specified in ISO1496-3:1995;
- (b) the results of the initial inspection and test specified in 6.7.5.12.3;
- (c) the results of the impact test specified in 6.7.5.12.1; and
- (d) certification documents verifying that the cylinders and tubes comply with the applicable standards.

**6.7.5.12** *Inspection and testing*

6.7.5.12.1 For MEGCs meeting the definition of container in the CSC, a prototype representing each design shall be subjected to an impact test. The prototype MEGC shall be shown to be capable of absorbing the forces resulting from an impact not less than 4 times (4 g) the MPGM of the fully loaded MEGC at a duration typical of the mechanical shocks experienced in rail transport. The following is a listing of standards describing methods acceptable for performing the impact test:

Association of American Railroads,  
Manual of Standards and Recommended Practices,  
Specifications for Acceptability of Tank Containers (AAR.600), 1992

Canadian Standards Association (CSA),  
Highway Tanks and Portable Tanks for the Transportation of Dangerous Goods  
(B620-1987)

Deutsche Bahn AG  
Zentralbereich Technik, Minden  
Transportable tanks, longitudinal dynamic impact test

Société Nationale des Chemins de Fer Français  
C.N.E.S.T. 002-1966.  
Tank containers, longitudinal external stresses and dynamic impact tests

Spoornet, South Africa  
Engineering Development Centre (EDC)  
Testing of ISO Tank Containers  
Method EDC/TES/023/000/1991-06.

6.7.5.12.2 The elements and items of equipment of each MEGC shall be inspected and tested before being put into service for the first time (initial inspection and test). Thereafter, MEGCs shall be inspected at no more than five-year intervals (5 year periodic inspection). An exceptional inspection and test shall be performed, regardless of the last periodic inspection and test, when necessary according to 6.7.5.12.5.

6.7.5.12.3 The initial inspection and test of an MEGC shall include a check of the design characteristics, an external examination of the MEGC and its fittings with due regard to the gases to be carried, and a pressure test performed at the test pressures according to packing instruction P200 of 4.1.4.1. The pressure test of the manifold may be performed as a hydraulic test or by using another liquid or gas with the agreement of the competent authority or its authorized body. Before the MEGC is placed into service, a leakproofness test and a test of the satisfactory operation of all service equipment shall also be performed. When the elements and their fittings have been pressure-tested separately, they shall be subjected together after assembly to a leakproofness test.

- 6.7.5.12.4 The 5-year periodic inspection and test shall include an external examination of the structure, the elements and the service equipment in accordance with 6.7.5.12.6. The elements and the piping shall be tested at the periodicity specified in packing instruction P200 and in accordance with the provisions described in 6.2.1.5. When the elements and equipment have been pressure-tested separately, they shall be subjected together after assembly to a leakproofness test.
- 6.7.5.12.5 An exceptional inspection and test is necessary when the MEGC shows evidence of damaged or corroded areas, leakage, or other conditions that indicate a deficiency that could affect the integrity of the MEGC. The extent of the exceptional inspection and test shall depend on the amount of damage or deterioration of the MEGC. It shall include at least the examinations required under 6.7.5.12.6.
- 6.7.5.12.6 The examinations shall ensure that:
- (a) the elements are inspected externally for pitting, corrosion, abrasions, dents, distortions, defects in welds or any other conditions, including leakage, that might render the MEGC unsafe for carriage;
  - (b) the piping, valves, and gaskets are inspected for corroded areas, defects, and other conditions, including leakage, that might render the MEGC unsafe for filling, discharge or carriage;
  - (c) missing or loose bolts or nuts on any flanged connection or blank flange are replaced or tightened;
  - (d) all emergency devices and valves are free from corrosion, distortion and any damage or defect that could prevent their normal operation. Remote closure devices and self-closing stop-valves shall be operated to demonstrate proper operation;
  - (e) required markings on the MEGC are legible and in accordance with the applicable requirements; and
  - (f) the framework, the supports and the arrangements for lifting the MEGC are in satisfactory condition.
- 6.7.5.12.7 The inspections and tests in 6.7.5.12.1, 6.7.5.12.3, 6.7.5.12.4 and 6.7.5.12.5 shall be performed or witnessed by a body authorized by the competent authority. When the pressure test is a part of the inspection and test, the test pressure shall be the one indicated on the data plate of the MEGC. While under pressure, the MEGC shall be inspected for any leaks in the elements, piping or equipment.
- 6.7.5.12.8 When evidence of any unsafe condition is discovered, the MEGC shall not be returned to service until it has been corrected and the applicable tests and verifications are passed.
- 6.7.5.13 **Marking**
- 6.7.5.13.1 Every MEGC shall be fitted with a corrosion resistant metal plate permanently attached to the MEGC in a conspicuous place readily accessible for inspection. The elements shall be marked in accordance with Chapter 6.2. At least the following information shall be marked on the plate by stamping or by any other similar method:



Country of manufacture  
 U Approval Approval For Alternative Arrangements (see 6.7.1.2)  
 N country number "AA"  
 Manufacturer's name or mark  
 Manufacturer's serial number  
 Authorized body for the design approval  
 Year of manufacture  
 Test pressure: \_\_\_\_\_ bar gauge  
 Design temperature range \_\_\_\_\_ °C to \_\_\_\_\_ °C  
 Number of elements \_\_\_\_\_  
 Total water capacity \_\_\_\_\_ litres  
 Initial pressure test date and identification of the authorized body  
 Date and type of most recent periodic tests  
 Month \_\_\_\_\_ Year \_\_\_\_\_  
 Stamp of the authorized body which performed or witnessed the most recent test

*NOTE: No metal plate may be fixed to the elements.*

6.7.5.13.2 The following information shall be marked on a metal plate firmly secured to the MEGC:

Name of the operator  
 Maximum permissible load mass \_\_\_\_\_ kg  
 Working pressure at 15°C: \_\_\_\_\_ bar gauge  
 Maximum permissible gross mass (MPGM) \_\_\_\_\_ kg  
 Unladen (tare) mass \_\_\_\_\_ kg

## CHAPTER 6.8

### REQUIREMENTS FOR THE CONSTRUCTION, EQUIPMENT, TYPE APPROVAL, INSPECTIONS AND TESTS, AND MARKING OF FIXED TANKS (TANK-VEHICLES), DEMOUNTABLE TANKS AND TANK-CONTAINERS AND TANK SWAP BODIES, WITH SHELLS MADE OF METALLIC MATERIALS, AND BATTERY-VEHICLES AND MULTIPLE ELEMENT GAS CONTAINERS (MEGCs)

**NOTE:** For portable tanks see Chapter 6.7, for fibre-reinforced plastics tanks see Chapter 6.9, for vacuum operated waste tanks see Chapter 6.10.

#### 6.8.1 Scope

6.8.1.1 The requirements across the whole width of the page apply both to fixed tanks (tank-vehicles), to demountable tanks and battery-vehicles, and to tank-containers, tank swap bodies and MEGCs. Those contained in a single column apply only:

- to fixed tanks (tank-vehicles), to demountable tanks and battery-vehicles (left hand column);
- to tank-containers, tank swap bodies and MEGCs (right hand column).

6.8.1.2 These requirements shall apply to

fixed tanks (tank-vehicles), demountable tanks and battery-vehicles		tank-containers, tank swap bodies and MEGCs
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used for the carriage of gaseous, liquid, powdery or granular substances.

6.8.1.3 Section 6.8.2 sets out the requirements applicable to fixed tanks (tank-vehicles), to demountable tanks, tank-containers, tank swap bodies intended for the carriage of substances of all classes and battery-vehicles and MEGCs for gases of Class 2. Sections 6.8.3 to 6.8.5 contain special requirements supplementing or modifying the requirements of section 6.8.2.

6.8.1.4 For provisions concerning use of these tanks, see Chapter 4.3.

#### 6.8.2 Requirements applicable to all classes

##### 6.8.2.1 Construction

###### *Basic principles*

6.8.2.1.1 Shells, their attachments and their service and structural equipment shall be designed to withstand without loss of contents (other than quantities of gas escaping through any degassing vents):

- static and dynamic stresses in normal conditions of carriage as defined in 6.8.2.1.2 and 6.8.2.1.13;
- prescribed minimum stresses as defined in 6.8.2.1.15.

- 6.8.2.1.2 The tanks and their fastenings shall be capable of absorbing, under the maximum permissible load, the forces exerted by:
- in the direction of travel: twice the total mass;
  - at right angles to the direction of travel: the total mass;
  - vertically upwards: the total mass;
  - vertically downwards: twice the total mass.
- Tank-containers and their fastenings shall, under the maximum permissible load be capable of absorbing the forces equal to those exerted by:
- in the direction of travel: twice the total mass;
  - horizontally at right angles to the direction of travel: the total mass; (where the direction of travel is not clearly determined, twice the total mass in each direction);
  - vertically upwards: the total mass;
  - vertically downwards: twice the total mass.
- 6.8.2.1.3 The walls of the shells shall have at least the thickness specified in  
6.8.2.1.17 to 6.8.2.1.21 | 6.8.2.1.17 to 6.8.2.1.20.
- 6.8.2.1.4 Shells shall be designed and constructed in accordance with the requirements of a technical code recognized by the competent authority, in which the material is chosen and the shell thickness determined taking into account maximum and minimum filling and working temperatures, but the following minimum requirements of 6.8.2.1.6 to 6.8.2.1.26 shall be met.
- 6.8.2.1.5 Tanks intended to contain certain dangerous substances shall be provided with additional protection. This may take the form of additional thickness of the shell (increased calculation pressure) determined in the light of the dangers inherent in the substances concerned or of a protective device (see the special provisions of 6.8.4).
- 6.8.2.1.6 Welds shall be skilfully made and shall afford the fullest safety. The execution and checking of welds shall comply with the requirements of 6.8.2.1.23.
- 6.8.2.1.7 Measures shall be taken to protect shells against the risk of deformation as a result of a negative internal pressure. Shells, other than shells according to 6.8.2.2.6, designed to be equipped with vacuum valves shall be able to withstand, without permanent deformation, an external pressure of not less than 21 kPa (0.21 bar) above the internal pressure. The vacuum valves shall be set to relieve at a vacuum setting not greater than the tank's design vacuum pressure. Shells, which are not designed to be equipped with a vacuum valve shall be able to withstand, without permanent deformation an external pressure of not less than 40 kPa (0.4 bar) above the internal pressure.
- Materials for shells*
- 6.8.2.1.8 Shells shall be made of suitable metallic materials which, unless other temperature ranges are prescribed in the various classes, shall be resistant to brittle fracture and to stress corrosion cracking between -20 °C and +50 °C.
- 6.8.2.1.9 The materials of shells or of their protective linings which are in contact with the contents shall not contain substances liable to react dangerously (see "Dangerous reaction" in 1.2.1) with the contents, to form dangerous compounds, or substantially to weaken the material.

If contact between the substance carried and the material used for the construction of the shell entails a progressive decrease in the shell thickness, this thickness shall be increased at manufacture by an appropriate amount. This additional thickness to allow for corrosion shall not be taken into consideration in calculating the shell thickness.

- 6.8.2.1.10 For welded shells only materials of faultless weldability whose adequate impact strength at an ambient temperature of  $-20\text{ }^{\circ}\text{C}$  can be guaranteed, particularly in the weld seams and the zones adjacent thereto, shall be used.

If fine-grained steel is used, the guaranteed value of the yield strength  $R_e$  shall not exceed  $460\text{ N/mm}^2$  and the guaranteed value of the upper limit of tensile strength  $R_m$  shall not exceed  $725\text{ N/mm}^2$ , in accordance with the specifications of the material.

- 6.8.2.1.11 Ratios of  $R_e/R_m$  exceeding 0.85 are not allowed for steels used in the construction of welded tanks.

$R_e$  = apparent yield strength for steels having a clearly-defined yield point or  
guaranteed 0.2% proof strength for steels with no clearly-defined yield point  
(1% for austenitic steels)

$R_m$  = tensile strength.

The values specified in the inspection certificate for the material shall be taken as a basis in determining this ratio in each case.

- 6.8.2.1.12 For steel, the elongation at fracture, in % shall be not less than

$$\frac{10\ 000}{\text{determined tensile strength in N/mm}^2}$$

but in any case for fine-grained steels it shall be not less than 16% and not less than 20% for other steels.

For aluminium alloys the elongation at fracture shall be not less than 12%<sup>1</sup>.

#### *Calculation of the shell thickness*

- 6.8.2.1.13 The pressure on which the shell thickness is based shall not be less than the calculation pressure, but the stresses referred to in 6.8.2.1.1 shall also be taken into account, and, if necessary, the following stresses:

In the case of vehicles in which the tank constitutes a stressed self-supporting member, the shell shall be designed to withstand the stresses thus imposed in addition to stresses from other sources.

<sup>1</sup> In the case of sheet metal the axis of the tensile test-piece shall be at right angles to the direction of rolling. The permanent elongation at fracture shall be measured on test-pieces of circular cross-section in which the gauge length  $l$  is equal to five times the diameter  $d$  ( $l = 5d$ ); if test-pieces of rectangular section are used, the gauge length shall be calculated by the formula

$$l = 5,65 \sqrt{F_0},$$

where  $F_0$  indicates the initial cross-section area of the test-piece.

Under these stresses, the stress at the most severely stressed point of the shell and its fastenings shall not exceed the value  $\sigma$  defined in 6.8.2.1.16.

Under each of these stresses the safety factors to be observed shall be the following:

- for metals having a clearly-defined yield point: a safety factor of 1.5 in relation to the apparent yield strength; or
- for metals with no clearly-defined yield point: a safety factor of 1.5 in relation to the guaranteed 0.2% proof strength (1% maximum elongation for austenitic steels).

6.8.2.1.14 The calculation pressure is in the second part of the code (see 4.3.4.1) according to Column (12) of Table A of Chapter 3.2.

When "G" appears, the following requirements shall apply:

- (a) Gravity-discharge shells intended for the carriage of substances having a vapour pressure not exceeding 110 kPa (1.1 bar) (absolute pressure) at 50 °C shall be designed for a calculation pressure of twice the static pressure of the substance to be carried but not less than twice the static pressure of water.
- (b) Pressure-filled or pressure-discharge shells intended for the carriage of substances having a vapour pressure not exceeding 110 kPa (1.1 bar) (absolute pressure) at 50 °C shall be designed for a calculation pressure equal to 1.3 times the filling or discharge pressure.

When the numerical value of the minimum calculation pressure is given (gauge pressure) the shell shall be designed for this pressure which shall not be less than 1.3 times the filling or discharge pressure. The following minimum requirements shall apply in these cases:

- (c) Shells intended for the carriage of substances having a vapour pressure of more than 110 kPa (1.1 bar) but not more than 175 kPa (1.75 bar) (absolute pressure) at 50 °C shall, whatever their filling or discharge system, be designed for a calculation pressure of not less than 150 kPa (1.5 bar) gauge pressure or 1.3 times the filling or discharge pressure, whichever is the higher.
- (d) Shells intended for the carriage of substances having a vapour pressure of more than 175 kPa (1.75 bar) (absolute pressure) at 50 °C shall, whatever their filling or discharge system, be designed for a calculation pressure equal to 1.3 times the filling or discharge pressure but not less than 0.4 MPa (4 bar) (gauge pressure).

6.8.2.1.15 At the test pressure, the stress  $\sigma$  at the most severely stressed point of the shell shall not exceed the material-dependent limits prescribed below. Allowance shall be made for any weakening due to the welds.

6.8.2.1.16 For all metals and alloys, the stress  $\sigma$  at the test pressure shall be lower than the smaller of the values given by the following formulae:

$$\sigma \leq 0.75 Re \text{ or } \sigma \leq 0.5 Rm$$

where

Re = apparent yield strength for steels having a clearly-defined yield point or  
guaranteed 0.2% proof strength for steels with no clearly-defined yield point  
(1% for austenitic steels)

Rm = tensile strength.

The values of Re and Rm to be used shall be specified minimum values according to material standards. If no material standard exists for the metal or alloy in question, the values of Re and Rm used shall be approved by the competent authority or by a body designated by that authority.

When austenitic steels are used, the specified minimum values according to the material standards may be exceeded by up to 15% if these higher values are attested in the inspection certificate. The minimum values shall, however, not be exceeded when the formula given in 6.8.2.1.18 is applied.

**Minimum shell thickness**

6.8.2.1.17 The shell thickness shall not be less than the greater of the values determined by the following formulae:

$$e = \frac{P_T D}{2 \sigma \lambda}$$

$$e = \frac{P_C D}{2 \sigma}$$

where:

e = minimum shell thickness in mm

P<sub>T</sub> = test pressure in MPa

P<sub>C</sub> = calculation pressure in MPa as specified in 6.8.2.1.14

D = internal diameter of shell in mm

σ = permissible stress, as defined in 6.8.2.1.16, in N/mm<sup>2</sup>

λ = a coefficient not exceeding or equal to 1, allowing for any weakening due to welds, and linked to the inspection methods defined in 6.8.2.1.23.

The thickness shall in no case be less than that defined in

6.8.2.1.18 to 6.8.2.1.21.

6.8.2.1.18 to 6.8.2.1.20.

- 6.8.2.1.18 Shells of circular cross-section<sup>2</sup> not more than 1.80 m in diameter other than those referred to in 6.8.2.1.21, shall not be less than 5 mm thick if of mild steel<sup>3</sup>, or of equivalent thickness if of another metal.
- Where the diameter is more than 1.80 m, this thickness shall be increased to 6 mm except in the case of shells intended for the carriage of powdery or granular substances, if the shell is of mild steel<sup>3</sup> or to an equivalent thickness if of another metal.
- Shells shall be not less than 5 mm thick if of mild steel<sup>3</sup> (in conformity with the requirements of 6.8.2.1.11 and 6.8.2.1.12) or of equivalent thickness if of another metal. Where the diameter is more than 1.80 m, this thickness shall be increased to 6 mm except in the case of tanks intended for the carriage of powdery or granular substances, if the shell is of mild steel<sup>3</sup> or to an equivalent thickness if of another metal.
- Whatever the metal used, the shell thickness shall in no case be less than 3 mm.

"Equivalent thickness" means the thickness obtained by the following formula<sup>4</sup>:

$$e_1 = \frac{464e_0}{\sqrt[3]{R_{m1}A_1}}$$

- 6.8.2.1.19 Where protection of the tank against damage through lateral impact or overturning is provided according to 6.8.2.1.20, the competent authority may allow the aforesaid minimum thicknesses to be reduced in proportion to the protection provided; however, the said thicknesses shall not be less than 3 mm in the case of mild steel<sup>3</sup>, or than an equivalent thickness in the case of other materials, for shells not more than 1.80 m in diameter. For shells with a diameter exceeding 1.80 m the aforesaid
- Where protection of the tank against damage is provided according to 6.8.2.1.20, the competent authority may allow the aforesaid minimum thicknesses to be reduced in proportion to the protection provided; however, the said thicknesses shall be not less than 3 mm in the case of mild steel<sup>3</sup>, or than an equivalent thickness in the case of other materials, for shells not more than 1.80 m in diameter. For shells of a diameter exceeding 1.80 m this minimum thickness shall be increased to 4 mm in the case of

<sup>2</sup> For shells not of a circular cross-section, for example box-shaped or elliptical shells, the indicated diameters shall correspond to those calculated on the basis of a circular cross-section of the same area. For such shapes of cross-section the radius of convexity of the shell wall shall not exceed 2 000 mm at the sides or 3 000 mm at the top and bottom.

<sup>3</sup> For the definitions of "mild steel" and "reference steel" see 1.2.1.

<sup>4</sup> This formula is derived from the general formula:

$$e_1 = e_0 \sqrt[3]{\left(\frac{R_{m0}A_0}{R_{m1}A_1}\right)^2}$$

where

- $e_1$  = minimum shell thickness for the metal chosen, in mm;
- $e_0$  = minimum shell thickness for mild steel, in mm, according to 6.8.2.1.18 and 6.8.2.1.19;
- $R_{m0}$  = 370 (tensile strength for reference steel, see definition 1.2.1, in N/mm<sup>2</sup>);
- $A_0$  = 27 (elongation at fracture for reference steel, in %);
- $R_{m1}$  = minimum tensile strength of the metal chosen, in N/mm<sup>2</sup>; and
- $A_1$  = minimum elongation at fracture of the metal chosen under tensile stress, in %.

minimum thickness shall be increased to 4 mm in the case of mild steel<sup>3</sup> and to an equivalent thickness in the case of other metals.

Equivalent thickness means the thickness given by the formula in 6.8.2.1.18.

Except in cases for which 6.8.2.1.21 provide, the thickness of shells with protection against damage in accordance with 6.8.2.1.20 (a) or (b) shall not be less than the values given in the table below.

mild steel<sup>3</sup>, and to an equivalent thickness in the case of other metals.

Equivalent thickness means the thickness given by the formula in 6.8.2.1.18.

The thickness of shells with protection against damage in accordance with 6.8.2.1.20 shall not be less than the values given in the table below.

		Diameter of shell	
		≤ 1.80 m	> 1.80 m
Minimum thickness of shells	Stainless austenitic steels	2.5 mm	3 mm
	Other steels	3 mm	4 mm
	Aluminium alloys	4 mm	5 mm
	Pure aluminium of 99.80%	6 mm	8 mm

## 6.8.2.1.20

For tanks built after 1 January 1990, there is protection against damage as referred to in 6.8.2.1.19 when the following measures or equivalent measures are adopted:

(a) For tanks intended for the carriage of powdery or granular substances, the protection against damage shall satisfy the competent authority.

(b) For tanks intended for the carriage of other substances, there is protection against damage when:

1. For shells with a circular or elliptical cross-section having a maximum radius of curvature of 2 m, the shell is equipped with strengthening members comprising partitions, surge-plates or external or internal rings, so placed that at least one of the following conditions is met:

The protection referred to in 6.8.2.1.19 may consist of:

- overall external structural protection as in "sandwich" construction where the sheathing is secured to the shell; or
- a structure in which the shell is supported by a complete skeleton including longitudinal and transverse structural members; or
- double-wall construction.

Where the tanks are made with double walls, the space between being evacuated of air, the aggregate thickness of the outer metal wall and the shell wall shall correspond to the minimum wall thickness prescribed in 6.8.2.1.18, the thickness of the wall of the shell itself being not less than the minimum thickness prescribed in 6.8.2.1.19.

Where tanks are made with double walls with an intermediate layer of solid materials at least 50 mm thick, the outer wall shall have a thickness of not less than 0.5 mm if it

<sup>3</sup>

For the definitions of "mild steel" and "reference steel" see 1.2.1.



- Distance between two adjacent strengthening elements of not more than 1.75 m.
- Volume contained between two partitions or surge-plates of not more than 7 500 l.

The vertical cross-section of a ring, with the associated coupling, shall have a section modulus of at least 10 cm<sup>3</sup>.

External rings shall not have projecting edges with a radius of less than 2.5 mm.

Partitions and surge-plates shall conform to the requirements of 6.8.2.1.22.

The thickness of the partitions and surge-plates shall in no case be less than that of the shell.

2. For tanks made with double walls, the space between being evacuated of air, the aggregate thickness of the outer metal wall and the shell wall corresponds to the wall thickness prescribed in 6.8.2.1.18, and the thickness of the wall of the shell itself is not less than the minimum thickness prescribed in 6.8.2.1.19.
3. For tanks made with double walls having an intermediate layer of solid materials at least 50 mm thick, the outer wall has a thickness of at least 0.5 mm of mild steel<sup>3</sup> or at least 2 mm of a plastics material reinforced with glass fibre. Solid foam (with an impact absorption capacity like that, for example, of polyurethane foam) may be used as the intermediate layer of solid material.
4. Shells of forms other than in 1, especially box-shaped shells, are provided, all round the mid-point of

is made of mild steel<sup>3</sup> or at least 2 mm if it is made of a plastics material reinforced with glass fibre. Solid foam with an impact absorption capacity such as that, for example, of polyurethane foam, may be used as the intermediate layer of solid material.

<sup>3</sup> For the definitions of "mild steel" and "reference steel" see 1.2.1.

their vertical height and over at least 30% of their height with a protection designed in such a way as to offer specific resilience at least equal to that of a shell constructed in mild steel <sup>3</sup> of a thickness of 5 mm (for a shell diameter not exceeding 1.80 m) or 6 mm (for a shell diameter exceeding 1.80 m). The protection shall be applied in a durable manner to the outside of the shell.

This requirement shall be considered to have been met without further proof of the specific resilience when the protection involves the welding of a plate of the same material as the shell to the area to be strengthened, so that the minimum wall thickness is in accordance with 6.8.2.1.18.

This protection is dependent upon the possible stresses exerted on mild steel <sup>3</sup> shells in the event of an accident, where the ends and walls have a thickness of at least 5 mm for a diameter not exceeding 1.80 m or at least 6 mm for a diameter exceeding 1.80 m. If another metal is used, the equivalent thickness shall be obtained in accordance with the formula in 6.8.2.1.18.

For demountable tanks this protection is not required when they are protected on all sides by the drop sides of the carrying vehicle.

6.8.2.1.21 The thickness of shells designed in accordance with 6.8.2.1.14 (a) which either are of not more than 5 000 litres capacity or are divided into leakproof compartments of not more than 5 000 litres unit capacity may be adjusted to a level which, unless prescribed otherwise in 6.8.3 or 6.8.4, shall however not be less than the appropriate value shown in the following table:

<sup>3</sup> For the definitions of "mild steel" and "reference steel" see 1.2.1.

Maximum radius of curvature of shell (m)	Capacity of shell or shell compartment (m <sup>3</sup> )	Minimum thickness (mm)
		Mild steel
≤ 2	≤ 5.0	3
2 - 3	≤ 3.5	3
	> 3.5 but ≤ 5.0	4

Where a metal other than mild steel<sup>3</sup> is used, the thickness shall be determined by the equivalence formula given in 6.8.2.1.18 and shall not be less than the values given in the following table:

	Maximum radius of curvature of shell (m)	≤ 2	2-3	2-3
	Capacity of shell or shell compartment (m <sup>3</sup> )	≤ 5.0	≤ 3.5	> 3.5 but ≤ 5.0
Minimum thickness of shell	Austenitic stainless steels	2.5 mm	2.5 mm	3 mm
	Other steels	3 mm	3 mm	4 mm
	Aluminium alloys	4 mm	4 mm	5 mm
	Pure aluminium at 99.80%	6 mm	6 mm	8 mm

The thickness of the partitions and surge-plates shall in no case be less than that of the shell.

- 6.8.2.1.22 Surge-plates and partitions shall be dished, with a depth of dish of not less than 10 cm, or shall be corrugated, profiled or otherwise reinforced to give equivalent strength. The area of the surge plate shall be at least 70% of the cross-sectional area of the tank in which the surge-plate is fitted.

<sup>3</sup> For the definitions of "mild steel" and "reference steel" see 1.2.1.

**Welding and inspection of welds**

- 6.8.2.1.23 The manufacturer's qualification for performing welding operations shall be one recognized by the competent authority. Welding shall be performed by skilled welders using a welding process whose effectiveness (including any heat treatments required) has been demonstrated by test. Non-destructive tests shall be carried out by radiography or by ultrasound and must confirm that the quality of the welding is appropriate to the stresses.

The following checks shall be carried out in accordance with the value of the coefficient  $\lambda$  used in determining the thickness of the shell in 6.8.2.1.17:

- $\lambda = 0.8$ : the weld beads shall so far as possible be inspected visually on both faces and shall be subjected to a non-destructive spot check with particular attention to connections;
- $\lambda = 0.9$ : all longitudinal beads throughout their length, all connections, 25% of circular beads, and welds for the assembly of large-diameter items of equipment shall be subjected to non-destructive checks. Beads shall be checked visually on both sides as far as possible;
- $\lambda = 1$ : all beads shall be subjected to non-destructive checks and are so far as possible inspected visually on both sides. A weld test-piece shall be taken.

Where the competent authority has doubts regarding the quality of weld beads, it may require additional checks.

**Other construction requirements**

- 6.8.2.1.24 The protective lining shall be so designed that its leakproofness remains intact, whatever the deformation liable to occur in normal conditions of carriage (see 6.8.2.1.2).
- 6.8.2.1.25 The thermal insulation shall be so designed as not to hinder access to, or the operation of, filling and discharge devices and safety valves.
- 6.8.2.1.26 If shells intended for the carriage of flammable liquids having a flash-point of not more than 61°C are fitted with non-metallic protective linings (inner layers), the shells and the protective linings shall be so designed that no danger of ignition from electrostatic charges can occur.
- |   |  |
|---|--|
| <p>6.8.2.1.27 Shells intended for the carriage of liquids having a flash-point of not more than 61 C or for the carriage of flammable gases, or of UN No.1361 carbon or UN No.1361 carbon black, packing group II, shall be linked to the chassis by means of at least one good electrical connection. Any metal contact capable of causing electrochemical corrosion shall be avoided. Shells shall be provided with at least one earth fitting clearly marked with the symbol "⚡", capable of being electrically connected.</p> | <p>All parts of a tank-container intended for the carriage of liquids having a flash-point of not more than 61 C, flammable gases, or UN No.1361 carbon or UN No.1361 carbon black, packing group II, shall be capable of being electrically earthed. Any metal contact capable of causing electrochemical corrosion shall be avoided.</p> |
|---|--|

6.8.2.1.28 *Protection of fittings mounted on the upper part of the tank*

The fittings and accessories mounted on the upper part of the tank shall be protected against damage caused by overturning. This protection may take the form of strengthening rings, protective canopies or transverse or longitudinal members so shaped that effective protection is given.

6.8.2.2 *Items of equipment*

6.8.2.2.1 Suitable non-metallic materials may be used to manufacture service and structural equipment.

The items of equipment shall be so arranged as to be protected against the risk of being wrenched off or damaged during carriage or handling. They shall exhibit a suitable degree of safety comparable to that of the shells themselves, and shall in particular:

- be compatible with the substances carried; and
- meet the requirements of 6.8.2.1.1.

As many operating parts as possible shall be served by the smallest possible number of openings in the shell. The leakproofness of the service equipment including the closure (cover) of the inspection openings shall be ensured even in the event of overturning of the tank, taking into account the forces generated by an impact (such as acceleration and dynamic pressure). Limited release of the tank contents due to a pressure peak during the impact is however allowed.

The leakproofness of the service equipment shall be ensured even in the event of the overturning of the tank-container.

The gaskets shall be made of a material compatible with the substance carried and shall be replaced as soon as their effectiveness is impaired, for example as a result of ageing.

Gaskets ensuring the leakproofness of fittings requiring manipulation during normal use of tanks shall be so designed and arranged that manipulation of the fittings incorporating them does not damage them.

6.8.2.2.2 Each bottom-filling or bottom-discharge opening in tanks which are referred to, in Column (12) of Table A of Chapter 3.2, with a tank code including the letter "A" in its third part (see 4.3.4.1.1) shall be equipped with at least two mutually independent closures, mounted in series, comprising

- an external stop-valve with piping made of a malleable metal material and
- a closing device at the end of each pipe which may be a screw-threaded plug, a blank flange or an equivalent device.

Each bottom-filling or bottom-discharge opening in tanks which are referred to, in Column (12) of Table A of Chapter 3.2, with a tank code including the letter "B" in its third part (see 4.3.3.1.1 or 4.3.4.1.1) shall be equipped with at least three mutually independent closures, mounted in series, comprising

- an internal stop-valve, i.e. a stop-valve mounted inside the shell or in a welded flange or companion flange;
  - an external stop-valve or an equivalent device<sup>5</sup>
- one at the end of each pipe                      | as near as possible to the shell

and

- a closing device at the end of each pipe, which may be a screw-threaded plug, a blank flange or an equivalent device.

However, in the case of tanks intended for the carriage of certain crystallizable or highly viscous substances and shells fitted with an ebonite or thermoplastic coating, the internal stop-valve may be replaced by an external stop-valve provided with additional protection.

The internal stop-valve shall be operable either from above or from below. Its setting - open or closed - shall so far as possible in each case be capable of being verified from the ground. Internal stop-valve control devices shall be so designed as to prevent any unintended opening through impact or an inadvertent act.

The internal shut-off device shall continue to be effective in the event of damage to the external control device.

In order to avoid any loss of contents in the event of damage to the external fittings (pipes, lateral shut-off devices), the internal stop-valve and its seating shall be protected against the danger of being wrenched off by external stresses or shall be so designed as to resist them. The filling and discharge devices (including flanges or threaded plugs) and protective caps (if any) shall be capable of being secured against any unintended opening.

The position and/or direction of closure of shut-off devices shall be clearly apparent.

All openings of tanks which are referred to in Column (12) of Table A of Chapter 3.2, by a tank code including letter "C" or "D" in its third part (see 4.3.3.1.1 and 4.3.4.1.1) shall be situated above the surface level of the liquid. These tanks shall have no pipes or pipe connections below the surface level of the liquid. The cleaning openings (fist-holes) are, however, permitted in the lower part of the shell for tanks referred to by a tank code including letter "C" in its third part. This opening shall be capable of being sealed by a flange so closed as to be leakproof and whose design shall be approved by the competent authority or by a body designated by that authority.

6.8.2.2.3 Unless otherwise prescribed in the provisions of 6.8.4, tanks may have valves to avoid an unacceptable negative internal pressure, without intervening bursting discs.

6.8.2.2.4 The shell or each of its compartments shall be provided with an opening large enough to permit inspection.

<sup>5</sup> *In the case of tank-containers of less than 1 m<sup>3</sup> capacity, the external stop-valve or other equivalent device may be replaced by a blank flange.*

6.8.2.2.5 (Reserved)

6.8.2.2.6 Tanks intended for the carriage of liquids having a vapour pressure of not more than 110 kPa (1.1 bar) (absolute) at 50 °C shall have a venting system and a safety device to prevent the contents from spilling out if the tank overturns; otherwise they shall conform to 6.8.2.2.7 or 6.8.2.2.8.

6.8.2.2.7 Tanks intended for the carriage of liquids having a vapour pressure of more than 110 kPa (1.1 bar) but not exceeding 175 kPa (1.75 bar) (absolute) at 50 °C shall have a safety valve set at not less than 150 kPa (1.5 bar) (gauge pressure) and which shall be fully open at a pressure not exceeding the test pressure; otherwise they shall conform to 6.8.2.2.8.

6.8.2.2.8 Tanks intended for the carriage of liquids having a vapour pressure of more than 175 kPa (1.75 bar) but not exceeding 300 kPa (3 bar) (absolute) at 50° C shall have a safety valve set at not less than 300 kPa (3 bar) gauge pressure and which shall be fully open at a pressure not exceeding the test pressure; otherwise they shall be hermetically closed<sup>6</sup>.

6.8.2.2.9 Movable parts such as covers, closures, etc., which are liable to come into frictional or percussive contact with aluminium shells intended for the carriage of flammable liquids having a flash-point of not more than 61 °C or for the carriage of flammable gases shall not be made of unprotected corrodible steel.

### 6.8.2.3 Type approval

6.8.2.3.1 The competent authority or a body designated by that authority shall issue in respect of each new type of tank-vehicle, demountable tank, tank-container, tank swap body, battery-vehicle or MEGC a certificate attesting that the type, including fastenings, which it has inspected is suitable for the purpose for which it is intended and meets the construction requirements of 6.8.2.1, the equipment requirements of 6.8.2.2 and the special conditions for the classes of substances carried.

The certificate shall show:

- the results of the test;
- an approval number for the type;

The approval number shall consist of the distinguishing sign<sup>7</sup> of the State in whose territory the approval was granted and a registration number.

- the tank code in accordance with 4.3.3.1.1 or 4.3.4.1.1;
- special construction (TC), equipment (TE) and type approval (TA) requirements of 6.8.4 applicable to the type;
- if required, the substances and/or group of substances for the carriage of which the tank has been approved. These shall be shown with their chemical name or the corresponding collective entry (see 2.1.1.2), together with their classification (Class, classification code and packing group). With the exception of substances of Class 2

<sup>6</sup> For the definition of "hermetically closed tank" see 1.2.1.

<sup>7</sup> Distinguishing sign for use in international traffic prescribed by the Convention on Road Traffic (Vienna, 1968).

and those listed in 4.3.4.1.3, the listing of approved substances may be dispensed with. In such cases, groups of substances permitted on the basis of the tank code shown in the rationalised approach in 4.3.4.1.2 shall be accepted for carriage taking into account any relevant special provision.

The substances referred to in the certificate or the groups of substances approved according to the rationalised approach shall, in general, be compatible with the characteristics of the tank. A reservation shall be included in the certificate if it was not possible to investigate this compatibility exhaustively when the type approval was issued.

- 6.8.2.3.2 If the tanks, battery-vehicles or MECGs are manufactured in series without modification this approval shall be valid for the tanks, battery-vehicles or MECGs manufactured in series or according to the prototype.

A type approval may however serve for the approval of tanks with limited variations of the design that either reduce the loads and stresses on the tanks (e.g. reduced pressure, reduced mass, reduced volume) or increase the safety of the structure (e.g. increased shell thickness, more surge-plates, decreased diameter of openings). The limited variations shall be clearly described in the type approval certificate.

#### 6.8.2.4 *Inspections and tests*

- 6.8.2.4.1 Shells and their equipment shall either together or separately undergo an initial inspection before being put into service. This inspection shall include:

- a check of conformity to the approved type;
- a check of the design characteristics <sup>8</sup>
- an examination of the internal and external conditions;
- a hydraulic pressure test <sup>9</sup> at the test pressure indicated on the plate prescribed in 6.8.2.5.1; and
- a leakproofness test and a check of satisfactory operation of the equipment.

Except in the case of Class 2, the test pressure for the hydraulic pressure test depends on the calculation pressure and shall be at least equal to the pressure indicated below:

Calculation pressure (bar)	Test pressure (bar)
G <sup>10</sup>	G <sup>10</sup>
1.5	1.5
2.65	2.65
4	4
10	4
15	4
21	10 (4) <sup>11</sup>

<sup>8</sup> The check of the design characteristics shall also include, for shells requiring a test pressure of 1 MPa (10 bar) or higher, the taking of weld test-pieces (work samples) in accordance with 6.8.2.1.23 and the tests prescribed in 6.8.5.

<sup>9</sup> In special cases and with the agreement of the expert approved by the competent authority, the hydraulic pressure test may be replaced by a pressure test using another liquid or gas, where such an operation does not present any danger.

<sup>10</sup> G = minimum calculation pressure according to the general requirements of 6.8.2.1.14 (see 4.3.4.1).

<sup>11</sup> Minimum test pressure for UN No. 1744 bromine or UN No. 1744 bromine solution.



The minimum test pressures for Class 2 are given in the table of gases and gas mixtures in 4.3.3.2.5.

The hydraulic pressure test shall be carried out on the shell as a whole and separately on each compartment of compartmented shells.

The test shall be carried out on each compartment at a pressure at least equal to 1.3 times the maximum working pressure.

The hydraulic pressure test shall be carried out before the installation of a thermal insulation as may be necessary.

If the shells and their equipment are tested separately, they shall be jointly subjected to a leakproofness test after assembly in accordance with 6.8.2.4.3.

The leakproofness test shall be carried out separately on each compartment of compartmented shells.

6.8.2.4.2 Shells and their equipment shall undergo periodic inspections at fixed intervals. The periodic inspections shall include: an external and internal examination and, as a general rule, a hydraulic pressure test<sup>9</sup> (for the test pressure for the shells and compartments if applicable, see 6.8.2.4.1).

Sheathing for thermal or other insulation shall be removed only to the extent required for reliable appraisal of the characteristics of the shell.

In the case of tanks intended for the carriage of powdery or granular substances, and with the agreement of the expert approved by the competent authority, the periodic hydraulic pressure test may be omitted and replaced by leakproofness tests in accordance with 6.8.2.4.3.

The maximum intervals for inspection shall be six years. | The maximum intervals for inspections shall be five years.

6.8.2.4.3 In addition, a leakproofness test of the shell with its equipment and a check of the satisfactory operation of all the equipment shall be carried out

at least every three years. | at least every two and a half years.

For this purpose the tank shall be subjected to an effective internal pressure at least equal to the maximum working pressure. For tanks intended for the carriage of liquids, when a gas is used for the leakproofness test it shall be carried out at a pressure at least equal to 25% of the maximum working pressure. In all cases, it shall not be less than 20 kPa (0.2 bar) (gauge pressure).

For tanks equipped with venting systems and a safety device to prevent the contents spilling out if the tank overturns, the pressure test shall be equal to the static pressure of the filling substance.

<sup>9</sup> In special cases and with the agreement of the expert approved by the competent authority, the hydraulic pressure test may be replaced by a pressure test using another liquid or gas, where such an operation does not present any danger.

The leakproofness test shall be carried out separately on each compartment of compartmented shells.

6.8.2.4.4 When the safety of the tank or of its equipment may have been impaired as a result of repairs, alterations or accident, an exceptional check shall be carried out.

6.8.2.4.5 The tests, inspections and checks in accordance with 6.8.2.4.1 to 6.8.2.4.4 shall be carried out by the expert approved by the competent authority. Certificates shall be issued showing the results of these operations. These certificates shall refer to the list of the substances permitted for carriage in this tank or to the tank code in accordance with 6.8.2.3.

#### 6.8.2.5 *Marking*

6.8.2.5.1 Every tank shall be fitted with a corrosion-resistant metal plate permanently attached to the tank in a place readily accessible for inspection. The following particulars at least shall be marked on the plate by stamping or by any other similar method. These particulars may be engraved directly on the walls of the shell itself, if the walls are so reinforced that the strength of the shell is not impaired<sup>12</sup>:

- approval number;
- manufacturer's name or mark;
- manufacturer's serial number;
- year of manufacture;
- test pressure (gauge pressure);
- capacity -in the case of multiple-element shells, the capacity of each element;
- design temperature (only if above +50 °C or below -20 °C);
- date (month and year) of initial test and most recent periodic test in accordance with 6.8.2.4.1 and 6.8.2.4.2;
- stamp of the expert who carried out the tests;
- material of the shell and reference to materials standards, if available and, where appropriate, the protective lining;
- test pressure on the shell as a whole and test pressure by compartment in MPa or bar (gauge pressure) where the pressure by compartment is less than the pressure on the shell.

In addition, the maximum working pressure allowed shall be inscribed on pressure-filled or pressure-discharge tanks.

<sup>12</sup> Add the units of measurement after the numerical values.

- 6.8.2.5.2 The following particulars shall be inscribed on the tank-vehicle itself or on a plate <sup>12</sup>:
- name of owner or operator;
  - unladen mass; and
  - maximum permissible mass.
- These particulars shall not be required in the case of a vehicle carrying demountable tanks.
- The tank code according to 4.3.4.1.1 shall be inscribed on the demountable tank itself or on a plate.
- The following particulars shall be inscribed either on the tank-container itself or on a plate <sup>12</sup>:
- names of owner and of operator;
  - capacity of the shell;
  - tare;
  - maximum permissible laden mass;
  - proper shipping name of substance carried <sup>13</sup>;
  - tank code according to 4.3.4.1.1.

**6.8.2.6 Requirements for tanks which are designed, constructed and tested according to standards**

The requirements of Chapter 6.8 are considered to have been complied with if the following standard is applied:

Applicable paragraphs	Reference	Title of document
6.8.2.4 6.8.3.4	EN 12972:2001 (with the exception of annexes D and E)	Tanks for transport of dangerous goods - testing, inspection and marking of metallic tanks.

**6.8.2.7 Requirements for tanks which are not designed, constructed and tested according to standards**

Tanks which are not designed, constructed and tested in accordance with the standards set out in 6.8.2.6 shall be designed, constructed and tested in accordance with the requirements of a technical code recognized by the competent authority. They shall, however, comply with the minimum requirements of 6.8.2.

**6.8.3 Special requirements applicable to Class 2**

**6.8.3.1 Construction of shells**

6.8.3.1.1 Shells intended for the carriage of compressed or liquefied gases or dissolved gases shall be made of steel. In the case of weldless shells, by derogation from 6.8.2.1.12 a minimum elongation at fracture of 14% and also a stress  $\sigma$  lower than or equal to limits hereafter given according to the material may be accepted:

- (a) When the ratio  $Re/Rm$  (of the minimum guaranteed characteristics after heat treatment) is higher than 0.66 without exceeding 0.85:

$$\sigma \leq 0.75 Re;$$

<sup>12</sup> Add the units of measurement after the numerical values.

<sup>13</sup> A collective description covering a group of substances of a similar nature and equally compatible with the characteristics of the tank may be given instead of the name.

- (b) When the ratio  $R_e/R_m$  (of the minimum guaranteed characteristics after heat treatment) is higher than 0.85:

$$\sigma \leq 0.5 R_m.$$

6.8.3.1.2 The requirements of 6.8.5 apply to the materials and construction of welded shells.

6.8.3.1.3 *(Reserved)*

***Construction of battery-vehicles and MEGCs***

6.8.3.1.4 Cylinders, tubes, pressure drums and bundles of cylinders, as elements of a battery-vehicle or MEGC, shall be constructed in accordance with Chapter 6.2.

*NOTE 1: Bundles of cylinders which are not elements of a battery-vehicle or of a MEGC shall be subject to the requirements of Chapter 6.2.*

*NOTE 2: Tanks as elements of battery-vehicles and MEGCs shall be constructed in accordance with 6.8.2.1 and 6.8.3.1.*

*NOTE 3: Demountable tanks<sup>14</sup> are not to be considered elements of battery-vehicles or MEGCs.*

6.8.3.1.5 Elements and their fastenings shall be capable of absorbing under the maximum permissible load the forces defined in 6.8.2.1.2. Under each force the stress at the most severely stressed point of the element and its fastenings shall not exceed the value defined in 6.2.3.1 for cylinders, tubes, pressure drums and bundles of cylinders and for tanks the value of  $\sigma$  defined in 6.8.2.1.16.

**6.8.3.2 *Items of equipment***

6.8.3.2.1 The discharge pipes of tanks shall be capable of being closed by blank flanges or some other equally reliable device. For tanks intended for the carriage of refrigerated liquefied gases, these blank flanges or other equally reliable devices may be fitted with pressure-release openings of a maximum diameter of 1.5 mm.

6.8.3.2.2 Shells intended for the carriage of liquefied gases may be provided with, in addition to the openings prescribed in 6.8.2.2.2 and 6.8.2.2.4, openings for the fitting of gauges, thermometers, manometers and with bleed holes, as required for their operation and safety.

6.8.3.2.3 Filling and discharge openings of tanks

| with a capacity greater than 1 m<sup>3</sup>

intended for the carriage of liquefied flammable and/or toxic gases shall be equipped with an instant-closing internal safety device which closes automatically in the event of an unintended movement of the shell or of fire. It shall also be possible to operate the closing device by remote control.

6.8.3.2.4 All openings, other than those accommodating safety valves and closed bleed holes, of tanks intended for the carriage of liquefied flammable and/or toxic gases shall, if their nominal diameter is more than 1.5 mm, shall be equipped with an internal shut-off device.

<sup>14</sup> For the definition of "demountable tank" see 1.2.1.

- 6.8.3.2.5 Notwithstanding the requirements of 6.8.2.2.2, 6.8.3.2.3 and 6.8.3.2.4, tanks intended for the carriage of refrigerated liquefied gases may be equipped with external devices in place of internal devices if the external devices afford protection against external damage at least equivalent to that afforded by the wall of the shell.
- 6.8.3.2.6 If the tanks are equipped with gauges in direct contact with the substance carried, the gauges shall not be made of a transparent material. If there are thermometers, they shall not project directly into the gas or liquid through the shell.
- 6.8.3.2.7 Filling and discharge openings situated in the upper part of tanks shall be equipped with, in addition to what is prescribed in 6.8.3.2.3, a second, external, closing device. This device shall be capable of being closed by a blank flange or some other equally reliable device.
- 6.8.3.2.8 Safety valves shall meet the requirements of 6.8.3.2.9 to 6.8.3.2.12 below:
- 6.8.3.2.9 Tanks intended for the carriage of compressed or liquefied gases or dissolved gases, may be fitted with spring-loaded safety valves. These valves shall be capable of opening automatically under a pressure between 0.9 and 1.0 times the test pressure of the tank to which they are fitted. They shall be of such a type as to resist dynamic stresses, including liquid surge. The use of dead weight or counter weight valves is prohibited. The required capacity of the safety valves shall be calculated in accordance with the formula contained in 6.7.3.8.1.1.
- 6.8.3.2.10 Where tanks are intended for carriage by sea, the requirements of 6.8.3.2.9 shall not prohibit the fitting of safety valves conforming to the IMDG Code.
- 6.8.3.2.11 Tanks intended for the carriage of refrigerated liquefied gases shall be equipped with two independent safety valves, each so designed as to allow the gases formed by evaporation during normal operation to escape from the tank in such a way that the pressure does not at any time exceed by more than 10% the working pressure indicated on the tank.
- One of the two safety valves may be replaced by a bursting disc which shall be such as to burst at the test pressure.
- In the event of loss of the vacuum in a double-walled tank, or of destruction of 20% of the insulation of a single-walled tank, the safety valve and the bursting disc shall permit an outflow such that the pressure in the shell cannot exceed the test pressure.
- 6.8.3.2.12 The safety valves of tanks intended for the carriage of refrigerated liquefied gases shall be capable of opening at the working pressure indicated on the tank. They shall be so designed as to function faultlessly even at their lowest working temperature. The reliability of their operation at that temperature shall be established and checked either by testing each valve or by testing a specimen valve of each design-type.
- 6.8.3.2.13 The valves of demountable tanks that can be rolled shall be provided with protective caps. |

**Thermal insulation**

6.8.3.2.14 If tanks intended for the carriage of liquefied gases are equipped with thermal insulation, such insulation shall consist of either:

- a sun shield covering not less than the upper third but not more than the upper half of the tank surface and separated from the shell by an air space at least 4 cm across; or
- a complete cladding, of adequate thickness, of insulating materials.

6.8.3.2.15 Tanks intended for the carriage of refrigerated liquefied gases shall be thermally insulated. Thermal insulation shall be ensured by means of a continuous sheathing. If the space between the shell and the sheathing is under vacuum (vacuum insulation), the protective sheathing shall be so designed as to withstand without deformation an external pressure of at least 100 kPa (1 bar) (gauge pressure). By derogation from the definition of "calculation pressure" in 1.2.1, external and internal reinforcing devices may be taken into account in the calculations. If the sheathing is so closed as to be gas-tight, a device shall be provided to prevent any dangerous pressure from developing in the insulating layer in the event of inadequate gas-tightness of the shell or of its items of equipment. The device shall prevent the infiltration of moisture into the heat-insulating sheath.

6.8.3.2.16 Tanks intended for the carriage of liquefied gases having a boiling point below  $-182^{\circ}\text{C}$  at atmospheric pressure shall not include any combustible material either in the thermal insulation or in the means of attachment.

The means of attachment for vacuum insulated tanks may, with the approval of the competent authority, contain plastics substances between the shell and the sheathing.

6.8.3.2.17 By derogation from the requirements of 6.8.2.2.4 shells intended for the carriage of refrigerated liquefied gases need not have an inspection opening.

Items of equipment for battery-vehicles and MEGCs

6.8.3.2.18 The manifold shall be designed for service in a temperature range of  $-20^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ .

The manifold shall be designed, constructed and installed so as to avoid the risk of damage due to thermal expansion and contraction, mechanical shock and vibration. All piping shall be of suitable metallic material. Welded pipe joints shall be used wherever possible.

Joints in copper tubing shall be brazed or have an equally strong metal union. The melting point of brazing materials shall be no lower than  $525^{\circ}\text{C}$ . The joints shall not decrease the strength of tubing as may happen when cutting threads.

6.8.3.2.19 Except for UN No.1001 acetylene, dissolved, the permissible maximum stress  $\sigma$  of the manifolding arrangement at the test pressure of the receptacles shall not exceed 75% of the guaranteed yield strength of the material.

The necessary wall thickness of the manifolding arrangement for the carriage of UN No.1001 acetylene, dissolved shall be calculated according to an approved code of practice.

**NOTE:** For the yield strength, see 6.8.2.1.11.

The basic requirements of this paragraph shall be deemed to have been complied with if the following standards are applied: (*Reserved*).

- 6.8.3.2.20 By derogation from the requirements of 6.8.3.2.3, 6.8.3.2.4 and 6.8.3.2.7, for cylinders, tubes, pressure drums and bundles of cylinders (frames) forming a battery-vehicle or MEGC, the required closing devices may be provided for within the manifolding arrangement.
- 6.8.3.2.21 If one of the elements is equipped with a safety valve and shut-off devices are provided between the elements, every element shall be so equipped.
- 6.8.3.2.22 The filling and discharge devices may be affixed to a manifold.
- 6.8.3.2.23 Each element, including each individual cylinder of a bundle, intended for the carriage of toxic gases, shall be capable of being isolated by a shut-off valve.
- 6.8.3.2.24 Battery-vehicles or MEGCs intended for the carriage of toxic gases shall not have safety valves, unless the safety valves are preceded by a bursting disc. In the latter case, the arrangement of the bursting disc and safety valve shall be satisfactory to the competent authority.
- 6.8.3.2.25 When battery-vehicles or MEGCs are intended for carriage by sea, the requirements of 6.8.3.2.24 shall not prohibit the fitting of safety valves conforming to the IMDG Code.
- 6.8.3.2.26 Receptacles which are elements of a battery-vehicle or MEGC intended for the carriage of flammable gases shall be combined in groups of not more than 5 000 litres which are capable of being isolated by a shut-off valve.

Each element of a battery-vehicle or MEGC intended for the carriage of flammable gases, when consisting of tanks conforming to this Chapter, shall be capable of being isolated by a shut-off valve.

### 6.8.3.3 *Type approval*

No special requirements.

### 6.8.3.4 *Inspections and tests*

- 6.8.3.4.1 The materials of every welded shell with the exception of cylinders, tubes, pressure drums and cylinders as part of bundles of cylinders which are elements of a battery-vehicle or of a MEGC shall be tested according to the method described in 6.8.5.
- 6.8.3.4.2 The basic requirements for the test pressure are given in 4.3.3.2.1 to 4.3.3.2.4 and the minimum test pressures are given in the table of gases and gas mixtures in 4.3.3.2.5.
- 6.8.3.4.3 The first hydraulic pressure test shall be carried out before thermal insulation is placed in position.
- 6.8.3.4.4 The capacity of each shell intended for the carriage of compressed gases filled by mass, liquefied gases or dissolved gases shall be determined, under the supervision of an expert approved by the competent authority, by weighing or volumetric measurement of the quantity of water which fills the shell; the measurement of shell capacity shall be accurate to within 1%. Determination by a calculation based on the dimensions of the shell is not permitted. The maximum filling masses allowed in accordance with packing instruction P200 or P203 in 4.1.4.1 as well as 4.3.3.2.2 and 4.3.3.2.3 shall be prescribed by an approved expert.
- 6.8.3.4.5 Checking of the welds shall be carried out in accordance with the  $\lambda=1$  requirements of 6.8.2.1.23.

6.8.3.4.6 By derogation from the requirements of 6.8.2.4, the periodic inspections, including the hydraulic pressure test, shall take place:

- a) Every 3 years | Every 2½ years

in the case of tanks intended for the carriage of UN No.1008 boron trifluoride, UN No. 1017 chlorine, UN No. 1048 hydrogen bromide, anhydrous, UN No. 1050 hydrogen chloride, anhydrous, UN No. 1053 hydrogen sulphide, UN No. 1067 dinitrogen tetroxide (nitrogen dioxide), UN No. 1076 phosgene or UN No. 1079 sulphur dioxide;

- b) After 6 years | After 8 years

of service and thereafter every 12 years in the case of tanks intended for the carriage of refrigerated liquefied gases.

A leakproofness test shall be performed by an approved expert 6 years after each periodic inspection.	A leakproofness test may be performed, at the request of the competent authority, between any two successive inspections.
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6.8.3.4.7 In the case of vacuum-insulated tanks, the hydraulic-pressure test and the check of the internal condition may, with the consent of the approved expert, be replaced by a leakproofness test and measurement of the vacuum.

6.8.3.4.8 If, at the time of periodic inspections, openings have been made in shells intended for the carriage of refrigerated liquefied gases, the method by which they are hermetically closed before the shells are returned to service shall be approved by the approved expert and shall ensure the integrity of the shell.

6.8.3.4.9 Leakproofness tests of tanks intended for the carriage of compressed, liquefied gases or dissolved gases shall be performed at a pressure of not less than 0.4 MPa (4 bar) and not more than 0.8 MPa (8 bar) (gauge pressure).

*Inspections and tests for battery-vehicles and MEGCs*

6.8.3.4.10 The elements and items of equipment of each battery-vehicle or MEGC shall be inspected and tested either together or separately before being put into service for the first time (initial inspection and test). Thereafter battery-vehicles or MEGCs the elements of which are receptacles shall be inspected at not more than five-year intervals. Battery-vehicles and MEGCs the elements of which are tanks shall be inspected according to 6.8.3.4.6. An exceptional inspection and test shall be performed regardless of the last periodic inspection and test when necessary according to 6.8.3.4.14.

6.8.3.4.11 The initial inspection shall include:

- a check of conformity to the approved type;
- a check of the design characteristics;
- an examination of the internal and external conditions;
- a hydraulic pressure test <sup>15</sup> at the test pressure indicated on the plate prescribed in 6.8.3.5.10

<sup>15</sup> In special cases and with the agreement of the expert approved by the competent authority, the hydraulic pressure test may be replaced by a pressure test using another liquid or gas, where such an operation does not present any danger.



- a leakproofness test at the maximum working pressure; and
- a check of satisfactory operation of the equipment.

When the elements and their fittings have been pressure-tested separately, they shall be subjected together after assembly to a leakproofness test.

- 6.8.3.4.12 Cylinders, tubes and pressure drums and cylinders as part of bundles of cylinders shall be tested according to packing instruction P200 or P203 in 4.1.4.1.

The test pressure of the manifold of the battery-vehicle or MEGC shall be the same as that of the elements of the battery-vehicle or MEGC. The pressure test of the manifold may be performed as a hydraulic test or by using another liquid or gas with the agreement of the competent authority or its authorised body. By derogation from this requirement, the test pressure for the manifold of battery-vehicle or MEGC shall not be less than 300 bar for UN No. 1001 acetylene, dissolved.

- 6.8.3.4.13 The periodic inspection shall include a leakproofness test at the maximum working pressure and an external examination of the structure, the elements and the service equipment without disassembling. The elements and the piping shall be tested at the periodicity defined in packing instruction P200 of 4.1.4.1 and in accordance with the requirements of 6.2.1.5. When the elements and equipment have been pressure-tested separately, they shall be subjected together after assembly to a leakproofness test.

- 6.8.3.4.14 An exceptional inspection and test is necessary when the battery-vehicle or MEGC shows evidence of damaged or corroded areas, or leakage, or any other conditions, that indicate a deficiency that could affect the integrity of the battery-vehicle or MEGC. The extent of the exceptional inspection and test and, if deemed necessary, the disassembling of elements shall depend on the amount of damage or deterioration of the battery-vehicle or MEGC. It shall include at least the examinations required under 6.8.3.4.15

- 6.8.3.4.15 The examinations shall ensure that:

- (a) the elements are inspected externally for pitting, corrosion, or abrasions, dents, distortions, defects in welds or any other conditions, including leakage, that might render the battery-vehicles or MEGCs unsafe for transport;
- (b) the piping, valves, and gaskets are inspected for corroded areas, defects, and other conditions, including leakage, that might render battery-vehicles or MEGCs unsafe for filling, discharge or transport;
- (c) missing or loose bolts or nuts on any flanged connection or blank flange are replaced or tightened;
- (d) all emergency devices and valves are free from corrosion, distortion and any damage or defect that could prevent their normal operation. Remote closure devices and self-closing stop-valves shall be operated to demonstrate proper operation;
- (e) required markings on the battery-vehicles or MEGCs are legible and in accordance with the applicable requirements; and
- (f) any framework, supports and arrangements for lifting the battery-vehicles or MEGCs are in satisfactory condition.

- 6.8.3.4.16 The tests, inspections and checks in accordance with 6.8.3.4.10 to 6.8.3.4.15 shall be carried out by the expert approved by the competent authority. Certificates shall be issued showing the results of these operations.

These certificates shall refer to the list of the substances permitted for carriage in this battery-vehicle or MEGC in accordance with 6.8.2.3.1.

### 6.8.3.5 *Marking*

6.8.3.5.1 The following additional particulars shall be marked by stamping or by any other similar method on the plate prescribed in 6.8.2.5.1, or directly on the walls of the shell itself if the walls are so reinforced that the strength of the tank is not impaired.

6.8.3.5.2 On tanks intended for the carriage of only one substance:

- the proper shipping name of the gas and, in addition for gases classified under an n.o.s. entry, the technical name<sup>16</sup>

This indication shall be supplemented:

- in the case of tanks intended for the carriage of compressed gases filled by volume (pressure), by an indication of the maximum filling pressure at 15 °C permitted for the tank; and
- in the case of tanks intended for the carriage of compressed gases filled by mass, and of liquefied gases, refrigerated liquefied gases or dissolved gases by an indication of the maximum permissible load mass in kg and of the filling temperature if below -20 °C.

6.8.3.5.3 On multipurpose tanks:

- the proper shipping names of the gases and, in addition for gases classified under an n.o.s. entry, the technical name of the gases<sup>16</sup> for whose carriage the tank is approved.

These particulars shall be supplemented by an indication of the maximum permissible load mass in kg for each gas.

6.8.3.5.4 On tanks intended for the carriage of refrigerated liquefied gases:

- the maximum working pressure allowed.

6.8.3.5.5 On tanks equipped with thermal insulation:

- the inscription "thermally insulated" or "thermally insulated by vacuum".

6.8.3.5.6 In addition to the particulars prescribed in 6.8.2.5.2, the following shall be inscribed on the tank itself or on a plate: | the tank-container itself or on a plate:

<sup>16</sup> Instead of the proper shipping name of the n.o.s. entry followed by the technical name, the use of one of the following names is permitted:

- for UN No. 1078 refrigerant gas, n.o.s: mixture F1, mixture F2, mixture F3;
- for UN No. 1060 methylacetylene and propadiene mixtures, stabilized: mixture P1, mixture P2;
- for UN No. 1965 hydrocarbon gas mixture, liquefied, n.o.s: mixture A, mixture A01, mixture A02, mixture A0, mixture A1, mixture B1, mixture B2, mixture B, mixture C. The names customary in the trade and mentioned in 2.2.2.3, Classification code 2F, UN No. 1965, Note 1 may be used only as a complement.

- (a) - the tank code according to the certificate (see 6.8.2.3.1) with the actual test pressure of the tank;
  - the inscription: "minimum filling temperature allowed :...";
- (b) where the tank is intended for the carriage of one substance only:
  - the proper shipping name of the gas and, in addition for gases classified under an n.o.s. entry, the technical name<sup>16</sup>,
    - for compressed gases which are filled by mass, and for liquefied gases, refrigerated liquefied gases or dissolved gases, the maximum permissible load mass in kg;
- (c) where the tank is a multipurpose tank:
  - the proper shipping name of the gas and, for gases classified under an n.o.s. entry, the technical name<sup>16</sup> of all gases to whose carriage the tank is assigned
    - with an indication of the maximum permissible load mass in kg for each of them;
- (d) where the shell is equipped with thermal insulation:
  - the inscription "thermally insulated" (or "thermally insulated by vacuum"), in an official language of the country of registration and also, if that language is not English, French or German, in English, French or German, unless any agreements concluded between the countries concerned in the transport operation provide otherwise.

6.8.3.5.7 (Reserved)

6.8.3.5.8 These particulars shall not be required in the case of a vehicle carrying demountable tanks.

6.8.3.5.9 (Reserved)

<sup>16</sup> Instead of the proper shipping name of the n.o.s. entry followed by the technical name, the use of one of the following names is permitted:

- for UN No. 1078 refrigerant gas, n.o.s: mixture F1, mixture F2, mixture F3;
- for UN No. 1060 methylacetylene and propadiene mixtures, stabilized: mixture P1, mixture P2;
- for UN No. 1965 hydrocarbon gas mixture, liquefied, n.o.s: mixture A, mixture A01, mixture A02, mixture A0, mixture A1, mixture B1, mixture B2, mixture B, mixture C. The names customary in the trade and mentioned in 2.2.2.3, Classification code 2F, UN No. 1965, Note 1 may be used only as a complement.

**Marking of battery-vehicles and MEGCs**

6.8.3.5.10 Every battery-vehicle and every MEGC shall be fitted with a corrosion-resistant metal plate permanently attached in a place readily accessible for inspection. The following particulars at least shall be marked on the plate by stamping or by any other similar method<sup>17</sup>

- approval number;
- manufacturer's name or mark;
- manufacturer's serial number;
- year of manufacture;
- test pressure (gauge pressure)
- design temperature (only if above +50 °C or below -20 °C);
- date (month and year) of initial test and most recent periodic test in accordance with 6.8.3.4.10 to 6.8.3.4.13;
- stamp of the expert who carried out the tests.

6.8.3.5.11 The following particulars shall be inscribed on the battery-vehicle itself or on a plate<sup>17</sup>:

- names of owner or of operator;
  - number of elements;
  - total capacity of the elements;
- and for battery-vehicles filled by mass:
- unladen mass;
  - maximum permissible mass.

The following particulars shall be inscribed either on the MEGC itself or on a plate<sup>17</sup>:

- names of owner and of operator;
  - number of elements;
  - total capacity of the elements;
  - maximum permissible laden mass;
  - proper shipping name of substance carried<sup>18</sup>;
- and for MEGCs filled by mass:
- tare.

6.8.3.5.12 The frame of a battery-vehicle or MEGC shall bear near the filling point a plate specifying:

- the maximum filling pressure<sup>17</sup> at 15 °C allowed for elements intended for compressed gases;

<sup>17</sup> Add the units of measurements after the numerical values.

<sup>18</sup> A collective description covering a group of substances of a similar nature and equally compatible with the characteristics of the tank may be given instead of the name.

- the proper shipping name of the gas in accordance with Chapter 3.2 and, in addition for gases classified under an n.o.s. entry, the technical name <sup>16</sup>;

and, in addition, in the case of liquefied gases:

- the permissible maximum load per element <sup>17</sup>.

6.8.3.5.13 Cylinders, tubes and pressure drums, and cylinders as part of bundles of cylinders, shall be marked according to 6.2.1.7. These receptacles need not be labelled individually with the danger labels as required in Chapter 5.2.

Battery-vehicles and MEGCs shall be placarded and marked according to Chapter 5.3.

6.8.3.6 *Requirements for battery-vehicles and MEGCs which are designed, constructed and tested according to standards*

*(Reserved)*

6.8.3.7 *Requirements for battery-vehicles and MEGCs which are not designed, constructed and tested according to standards*

Battery-vehicles and MEGCs which are not designed, constructed and tested in accordance with the standards set out in 6.8.3.6 shall be designed, constructed and tested in accordance with the requirements of a technical code recognized by the competent authority. They shall, however, comply with the minimum requirements of 6.8.3.

#### 6.8.4 Special provisions

*NOTE 1: For liquids having a flash-point of not more than 61 °C and for flammable gases, see also 6.8.2.1.26, 6.8.2.1.27 and 6.8.2.2.9.*

*NOTE 2: For requirements for tanks subjected to a pressure test of not less than 1 MPa (10 bar) or for tanks intended for the carriage of refrigerated liquefied gases, see 6.8.5.*

When they are shown under an entry in Column (13) of Table A of Chapter 3.2, the following special provisions apply:

##### (a) Construction (TC)

TC1 The requirements of 6.8.5 are applicable to the materials and construction of these shells.

TC2 Shells, and their items of equipment, shall be made of aluminium not less than 99.5% pure or of suitable steel not liable to cause hydrogen peroxide to decompose.

<sup>16</sup> *Instead of the proper shipping name of the n.o.s. entry followed by the technical name, the use of one of the following names is permitted:*

- *for UN No. 1078 refrigerant gas, n.o.s.: mixture F1, mixture F2, mixture F3;*
- *for UN No. 1060 methylacetylene and propadiene mixtures, stabilized: mixture P1, mixture P2;*
- *for UN No. 1965 hydrocarbon gas mixture, liquefied, n.o.s.: mixture A, mixture A01, mixture A02, mixture A0, mixture A1, mixture B1, mixture B2, mixture B, mixture C. The names customary in the trade and mentioned in 2.2.2.3, Classification code 2F, UN No. 1965, Note 1 may be used only as a complement.*

<sup>17</sup> *Add the units of measurements after the numerical values.*

Where shells are made of aluminium not less than 99.5% pure, the wall thickness need not exceed 15 mm, even where calculation in accordance with 6.8.2.1.17 gives a higher value.

- TC3 The shells shall be made of austenitic steel.
- TC4 Shells shall be provided with an enamel or equivalent protective lining if the material of the shell is attacked by UN No. 3250 chloroacetic acid.
- TC5 Shells shall be provided with a lead lining not less than 5 mm thick or an equivalent lining.
- TC6 Where the use of aluminium is necessary for tanks, such tanks shall be made of aluminium not less than 99.5% pure; the wall thickness need not exceed 15 mm even where calculation in accordance with 6.8.2.1.17 gives a higher value.
- TC7 The effective minimum thickness of the shell shall not be less than 3 mm.

(b) **Items of equipment (TE)**

- TE1 If tanks, battery-vehicles or MEGCs are fitted with safety valves, a bursting disc shall be placed before the valves. The arrangement of the bursting disc and safety valve shall be such as to satisfy the competent authority. A pressure gauge or another suitable indicator shall be provided in the space between the bursting disc and the safety valve, to enable detection of any rupture, perforation or leakage of the disc which may disrupt the action of the safety valve.
- TE2 *(Reserved)*
- TE3 Tanks shall in addition meet the following requirements. The heating device shall not penetrate into, but shall be exterior to the shell. However, a pipe used for extracting the phosphorus may be equipped with a heating jacket. The device heating the jacket shall be so regulated as to prevent the temperature of the phosphorus from exceeding the filling temperature of the shell. Other piping shall enter the shell in its upper part; openings shall be situated above the highest permissible level of the phosphorus and be capable of being completely enclosed under lockable caps. The tank shall be equipped with a gauging system for verifying the level of the phosphorus and, if water is used as a protective agent, with a fixed gauge mark showing the highest permissible level of the water.
- TE4 Shells shall be equipped with thermal insulation made of materials which are not readily flammable.
- TE5 If shells are equipped with thermal insulation, such insulation shall be made of materials which are not readily flammable.
- TE6 Tanks may be equipped with valves opening automatically inwards or outwards under the effect of a difference of pressure of between 20 kPa and 30 kPa (0.2 bar and 0.3 bar).
- TE7 The shell-discharge system shall be equipped with two mutually independent shut-off devices mounted in series, the first taking the form of a quick-closing internal stop-valve of an approved type and the second that of an external stop-valve, one at each end of the discharge pipe. A blank flange, or another device providing the same measure of security, shall also be fitted at the outlet of each external stop-valve. The

internal stop-valve shall be such that if the pipe is wrenched off the stop-valve will remain integral with the shell and in the closed position.

- TE8** The connections to the external pipe-sockets of tanks shall be made of materials not liable to cause decomposition of hydrogen peroxide.
- TE9** Tanks shall be fitted in their upper part with a shut-off device preventing any build-up of excess pressure inside the shell due to the decomposition of the substances carried, any leakage of liquid, and any entry of foreign matter into the shell.
- TE10** The shut-off devices of tanks shall be so designed as to preclude obstruction of the devices by solidified ammonium nitrate during carriage. Where tanks are sheathed in thermally-insulating material, the material shall be of an inorganic nature and entirely free from combustible matter.
- TE11** Shells and their service equipment shall be so designed as to prevent the entry of foreign matter, leakage of liquid or any building up of dangerous excess pressure inside the shell due to the decomposition of the substances carried.
- TE12** Tanks shall be equipped with thermal insulation complying with the requirements of 6.8.3.2.14. If the SADT of the organic peroxide in the tank is 55 °C or less, or the tank is constructed of aluminium, the shell shall be completely insulated. The sun shield and any part of the tank not covered by it, or the outer sheathing of a complete lagging, shall be painted white or finished in bright metal. The paint shall be cleaned before each transport journey and renewed in case of yellowing or deterioration. The thermal insulation shall be free from combustible matter. Tanks shall be fitted with temperature sensing devices.

Tanks shall be fitted with safety valves and emergency pressure-relief devices. Vacuum-relief devices may also be used. Emergency pressure-relief devices shall operate at pressures determined according to both the properties of the organic peroxide and the construction characteristics of the tank. Fusible elements shall not be permitted in the body of the shell.

Tanks shall be fitted with spring-loaded safety valves to prevent significant pressure build-up within the shell of the decomposition products and vapours released at a temperature of 50 °C. The capacity and start-to-discharge pressure of the safety-valve(s) shall be based on the results of the tests specified in special provision TA2. The start-to-discharge pressure shall however in no case be such that liquid could escape from the valve(s) if the tank were overturned.

The emergency-relief devices may be of the spring-loaded or frangible types designed to vent all the decomposition products and vapours evolved during a period of not less than one hour of complete fire-engulfment as calculated by the following formula:

$$q = 70961 \times F \times A^{0.82}$$

where:

q = heat absorption [W]  
 A = wetted area [m<sup>2</sup>]  
 F = insulation factor

F = 1 for non-insulated tanks, or

$$F = \frac{U(923 - T_{PO})}{47032} \text{ for insulated tanks}$$

where:

K = heat conductivity of insulation layer [ $\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ]

L = thickness of insulation layer [m]

U =  $K/L$  = heat transfer coefficient of the insulation [ $\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ ]

$T_{PO}$  = temperature of peroxide at relieving conditions [K]

The start-to-discharge pressure of the emergency-relief device(s) shall be higher than that above specified and based on the results of the tests referred to in special provision TA2. The emergency-relief devices shall be dimensioned in such a way that the maximum pressure in the tank never exceeds the test pressure of the tank.

*NOTE: An example of a method to determine the size of emergency-relief devices is given in Appendix 5 of the Manual of Tests and Criteria.*

For tanks equipped with thermal insulation consisting of a complete cladding, the capacity and setting of the emergency-relief device(s) shall be determined assuming a loss of insulation from 1% of the surface area.

Vacuum-relief devices and spring-loaded safety valves of tanks shall be provided with flame arresters unless the substances to be carried and their decomposition products are non-combustible. Due attention shall be paid to the reduction of the relief capacity caused by the flame arrester.

- TE13** Tanks shall be thermally insulated and fitted with a heating device on the outside.
- TE14** Tanks shall be equipped with thermal insulation. They may also be equipped with pressure-release devices opening automatically inwards or outwards under the effect of a difference of pressure of between 20 kPa and 30 kPa (0.2 bar and 0.3 bar). The thermal insulation directly in contact with the shell shall have an ignition temperature at least 50 °C higher than the maximum temperature for which the tank was designed.
- TE15** Tanks fitted with vacuum valves which open at a negative pressure of not less than 21 kPa (0.21 bar) shall be considered as being hermetically closed.
- TE16** (Reserved)
- TE17** (Reserved)
- TE18** Tanks intended for the carriage of substances filled at a temperature higher than 190 °C shall be equipped with deflectors placed at right angles to the upper filling openings, so as to avoid a sudden localized increase in wall temperature during filling.



**TE19** Fittings and accessories mounted in the upper part of the tank shall be either:

- inserted in a recessed housing; or
- equipped with an internal safety valve; or
- shielded by a cap, or by transverse and/or longitudinal members, or by other equally effective devices, so profiled that in the event of overturning the fittings and accessories will not be damaged.

Fittings and accessories mounted in the lower part of the tank:

Pipe-sockets, lateral shut-off devices, and all discharge devices shall either be recessed by at least 200 mm from the extreme outer edge of the tank or be protected by a rail having a coefficient of inertia of not less than 20 cm<sup>3</sup> transversally to the direction of travel; their ground clearance shall be not less than 300 mm with the tank full.

Fittings and accessories mounted on the rear face of the tank shall be protected by the bumper prescribed in 9.7.6. Their height above the ground shall be such that they are adequately protected by the bumper

**TE20** Notwithstanding the other tank-codes which are permitted in the hierarchy of tanks of the rationalized approach in 4.3.4.1.2, tanks shall be equipped with a safety valve.

**TE21** The closures shall be protected with lockable caps.

**(c) Type approval (TA)**

**TA1** Tanks shall not be approved for the carriage of organic substances.

**TA2** This substance may be carried in fixed or demountable tanks or tank-containers under the conditions laid down by the competent authority of the country of origin, if, on the basis of the tests mentioned below, the competent authority is satisfied that such a transport operation can be carried out safely. If the country of origin is not party to ADR, these conditions shall be recognized by the competent authority of the first ADR country reached by the consignment.

For the type approval tests shall be undertaken:

- to prove the compatibility of all materials normally in contact with the substance during carriage;

- to provide data to facilitate the design of the emergency pressure-relief devices and safety valves taking into account the design characteristics of the tank; and
- to establish any special requirements necessary for the safe carriage of the substance.

The test results shall be included in the report for the type approval.

(d) **Tests (TT)**

- TT1 Tanks of pure aluminium need to be subjected to the initial and periodic hydraulic pressure tests at a pressure of only 250 kPa (2.5 bar) (gauge pressure).
- TT2 The condition of the lining of shells shall be inspected every year by an expert approved by the competent authority, who shall inspect the inside of the shell.
- TT3 By derogation from the requirements of 6.8.2.4.2, periodic inspections shall take place at least every eight years and shall include a thickness check using suitable instruments. For such tanks, the leakproofness test and check for which provision is made in 6.8.2.4.3 shall be carried out at least every four years.
- TT4 *(Reserved)*
- TT5 The hydraulic pressure tests shall take place at least every  

3 years.		2½ years.
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- TT6 The periodic tests, including the hydraulic pressure test, shall be carried out at least every 3 years.
- TT7 Notwithstanding the requirements of 6.8.2.4.2, the periodic internal inspection may be replaced by a programme approved by the competent authority.

(e) **Marking (TM)**

*NOTE: These particulars shall be in an official language of the country of approval, and also, if that language is not English, French or German, in English, French or German, unless any agreements concluded between the countries concerned in the transport operation provide otherwise.*

- TM1 Tanks shall bear in addition to the particulars prescribed in 6.8.2.5.2, the words: **"Do not open during carriage. Liable to spontaneous combustion"** (see also the Note above).
- TM2 Tanks shall bear in addition to the particulars prescribed in 6.8.2.5.2, the words: **"Do not open during carriage. Gives off flammable gases on contact with water"** (see also the Note above).
- TM3 Tanks shall also bear, on the plate prescribed in 6.8.2.5.1, the proper shipping names of the approved substances and the maximum permissible load of the tank in kg.
- TM4 For tanks the following additional particulars shall be marked by stamping or by any other similar method on the plate prescribed in 6.8.2.5.2 or directly on the shell itself, if the walls are so reinforced that the strength of the tank is not impaired: the chemical name with the approved concentration of the substance concerned.

**TM5** Tanks shall bear, in addition to the particulars referred to in 6.8.2.5.1 the date (month, year) of the most recent inspection of the internal condition of the shell.

**TM6** *(Reserved)*

**TM7** The trefoil symbol, as described in 5.2.1.7.6, shall be marked by stamping or any other equivalent method on the plate described in 6.8.2.5.1. This trefoil may be engraved directly on the walls of the shell itself, if the walls are so reinforced that the strength of the shell is not impaired.

**6.8.5** Requirements concerning the materials and construction of fixed welded tanks, demountable welded tanks, and welded shells of tank-containers for which a test pressure of not less than 1 MPa (10 bar) is required, and of fixed welded tanks, demountable welded tanks and welded shells of tank-containers intended for the carriage of refrigerated liquefied gases of Class 2

**6.8.5.1** *Materials and shells*

**6.8.5.1.1** (a) Shells intended for the carriage of:

- compressed, liquefied gases or dissolved gases of Class 2;
- UN Nos. 1366, 1370, 1380, 2003, 2005, 2445, 2845, 2870, 3049, 3050, 3051, 3052, 3053, 3076, 3194 and 3203 of Class 4.2; and
- UN No. 1052 hydrogen fluoride, anhydrous and UN No.1790 hydrofluoric acid with more than 85% hydrogen fluoride of Class 8

shall be made of steel.

(b) Shells constructed of fine-grained steels for the carriage of:

- corrosive gases of Class 2 and UN No. 2073 ammonia solution; and
- UN No. 1052 hydrogen fluoride, anhydrous and UN No.1790 hydrofluoric acid with more than 85% hydrogen fluoride of Class 8

shall be heat-treated for thermal stress relief.

(c) Shells intended for the carriage of refrigerated liquefied gases of Class 2, shall be made of steel, aluminium, aluminium alloy, copper or copper alloy (e.g. brass). However, shells made of copper or copper alloy shall be allowed only for gases containing no acetylene; ethylene, however, may contain not more than 0.005% acetylene.

(d) Only materials appropriate to the lowest and highest working temperatures of the shells and of their fittings and accessories may be used.

**6.8.5.1.2** The following materials shall be allowed for the manufacture of shells:

- (a) steels not subject to brittle fracture at the lowest working temperature (see 6.8.5.2.1):
- mild steels (except for refrigerated liquefied gases of Class 2);
  - fine-grained steels, down to a temperature of -60 °C;

- nickel steels (with a nickel content of 0.5 to 9%), down to a temperature of  $-196^{\circ}\text{C}$ , depending on the nickel content;
- austenitic chrome-nickel steels, down to a temperature of  $-270^{\circ}\text{C}$ ;

- (b) aluminium not less than 99.5% pure or aluminium alloys (see 6.8.5.2.2);
- (c) deoxidized copper not less than 99.9% pure, or copper alloys having a copper content of over 56% (see 6.8.5.2.3).

6.8.5.1.3 (a) Shells made of steel, aluminium or aluminium alloys shall be either seamless or welded.

- (b) Shells made of austenitic steel, copper or copper alloy may be hard-soldered.

6.8.5.1.4 The fittings and accessories may either be screwed to the shells or be secured thereto as follows:

- (a) shells made of steel, aluminium or aluminium alloy: by welding;
- (b) shells made of austenitic steel, of copper or of copper alloy: by welding or hard-soldering.

6.8.5.1.5 The construction of shells and their attachment to the vehicle, to the underframe or in the container frame shall be such as to preclude with certainty any such reduction in the temperature of the load-bearing components as would be likely to render them brittle. The means of attachment of shells shall themselves be so designed that even when the shell is at its lowest working temperature they still possess the necessary mechanical properties.

## 6.8.5.2 *Test requirements*

### 6.8.5.2.1 *Steel shells*

The materials used for the manufacture of shells and the weld beads shall, at their lowest working temperature, but at least at  $-20^{\circ}\text{C}$ , meet at least the following requirements as to impact strength:

- The tests shall be carried out with test-pieces having a V-shaped notch;
- The minimum impact strength (see 6.8.5.3.1 to 6.8.5.3.3) for test-pieces with the longitudinal axis at right angles to the direction of rolling and a V-shaped notch (conforming to ISO R 148) perpendicular to the plate surface, shall be  $34\text{ J/cm}^2$  for mild steel (which, because of existing ISO standards, may be tested with test-pieces having the longitudinal axis in the direction of rolling); fine-grained steel; ferritic alloy steel  $\text{Ni} < 5\%$ , ferritic alloy steel  $5\% \leq \text{Ni} \leq 9\%$ ; or austenitic Cr - Ni steel;
- In the case of austenitic steels, only the weld bead need be subjected to an impact-strength test;
- For working temperatures below  $-196^{\circ}\text{C}$  the impact-strength test is not performed at the lowest working temperature, but at  $-196^{\circ}\text{C}$ .

### 6.8.5.2.2 *Shells made of aluminium or aluminium alloy*

The seams of shells shall meet the requirements laid down by the competent authority.

6.8.5.2.3 *Shells made of copper or copper alloy*

It is not necessary to carry out tests to determine whether the impact strength is adequate.

6.8.5.3 *Impact-strength tests*

6.8.5.3.1 For sheets less than 10 mm but not less than 5 mm thick, test-pieces having a cross-section of 10 mm x e mm, where "e" represents the thickness of the sheet, shall be used. Machining to 7.5 mm or 5 mm is permitted if it is necessary. The minimum value of 34 J/cm<sup>2</sup> shall be required in every case.

*NOTE: No impact-strength test shall be carried out on sheets less than 5 mm thick, or on their weld seams.*

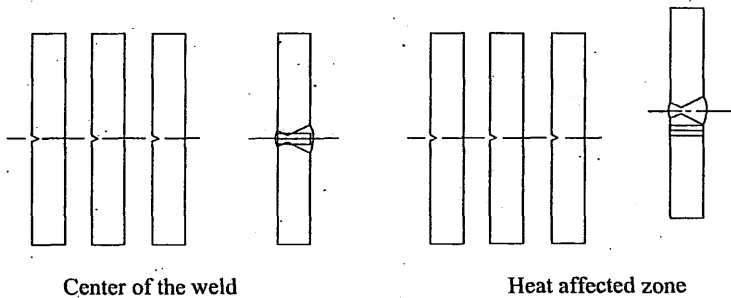
6.8.5.3.2 (a) For the purpose of testing sheets, the impact strength shall be determined on three test-pieces. Test-pieces shall be taken at right angles to the direction of rolling; however, for mild steel they may be taken in the direction of rolling.

(b) For testing weld seams the test-pieces shall be taken as follows:

when  $e \leq 10$  mm:

three test-pieces with the notch at the centre of the weld;

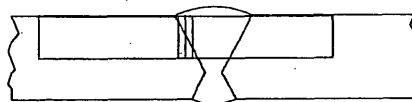
three test-pieces with the notch in the centre of the heat affected zone (the V-notch to cross the fusion boundary at the centre of the specimen);



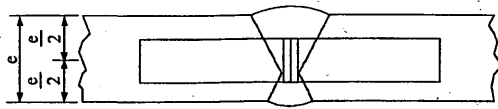
when  $10 \text{ mm} < e \leq 20 \text{ mm}$ :

three test-pieces from the centre of the weld;

three test-pieces from the heat affected zone (the V-notch to cross the fusion boundary at the centre of the specimen);



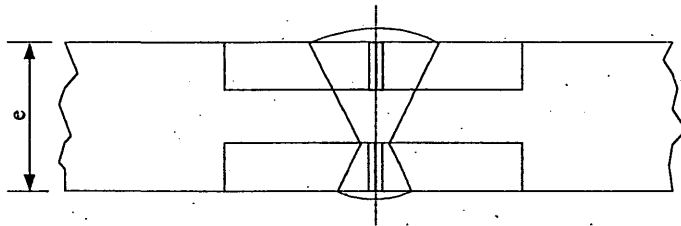
Center of the weld



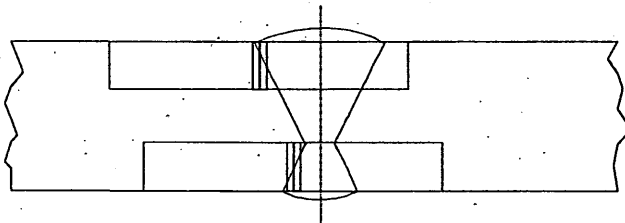
Heat affected zone

when  $e > 20$  mm

two sets of three test-pieces, one set on the upper face, one set on the lower face at each of the points indicated below (the V-notch to cross the fusion boundary at the centre of the specimen for those taken from the heat affected zone)



Center of the weld



Heat affected zone

- 6.8.5.3.3
- For sheets, the average of the three tests shall meet the minimum value of  $34 \text{ J/cm}^2$  indicated in 6.8.5.2.1; not more than one of the individual values may be below the minimum value and then not below  $24 \text{ J/cm}^2$ .
  - For welds, the average value obtained from the three test-pieces taken at the centre of the weld shall not be below the minimum value of  $34 \text{ J/cm}^2$ ; not more than one of the individual values may be below the minimum value and then not below  $24 \text{ J/cm}^2$ .
  - For the heat affected zone (the V-notch to cross the fusion boundary at the centre of the specimen) the value obtained from not more than one of the three test-pieces may be below the minimum value of  $34 \text{ J/cm}^2$ , though not below  $24 \text{ J/cm}^2$ .

6.8.5.3.4 If the requirements prescribed in 6.8.5.3.3 are not met, one retest only may be done if:

- the average value of the first three tests is below the minimum value of  $34 \text{ J/cm}^2$ , or

- (b) more than one of the individual values is less than the minimum value of  $34 \text{ J/cm}^2$  but not below  $24 \text{ J/cm}^2$ .

6.8.5.3.5 In a repeated impact test on sheets or welds, none of the individual values may be below  $34 \text{ J/cm}^2$ . The average value of all the results of the original test and of the retest should be equal to or more than the minimum of  $34 \text{ J/cm}^2$ .

On a repeated impact strength test on the heat-affected zone, none of the individual values may be below  $34 \text{ J/cm}^2$ .

6.8.5.4 *Reference to standards*

The requirements of 6.8.5.2 and 6.8.5.3 shall be deemed to have been complied with if the following relevant standards have been applied:

EN 1252-1:1998 Cryogenic vessels - Materials - Part 1: Toughness requirements for temperature below  $-80 \text{ }^\circ\text{C}$ .

EN 1252-2: 2001 Cryogenic vessels - Materials - Part 2: Toughness requirements for temperature between  $-80 \text{ }^\circ\text{C}$  and  $-20 \text{ }^\circ\text{C}$ .

## CHAPTER 6.9

**REQUIREMENTS FOR THE DESIGN, CONSTRUCTION, EQUIPMENT, TYPE APPROVAL, TESTING AND MARKING OF FIBRE-REINFORCED PLASTICS (FRP) FIXED TANKS (TANK-VEHICLES), DEMOUNTABLE TANKS, TANK-CONTAINERS AND TANK SWAP BODIES**

**NOTE:** *For portable tanks see Chapter 6.7; for fixed tanks (tank-vehicles), demountable tanks and tank-containers and tank swap bodies, with shells made of metallic materials, and battery-vehicles and multiple element gas containers (MEGCs) see Chapter 6.8; for vacuum operated waste tanks see Chapter 6.10.*

**6.9.1 General**

6.9.1.1 FRP tanks shall be designed, manufactured and tested in accordance with a quality assurance programme recognized by the competent authority; in particular, lamination work and welding of thermoplastic liners shall only be carried out by qualified personnel in accordance with a procedure recognized by the competent authority.

6.9.1.2 For the design and testing of FRP tanks, the provisions of 6.8.2.1.1, 6.8.2.1.7, 6.8.2.1.13, 6.8.2.1.14 (a) and (b), 6.8.2.1.25, 6.8.2.1.27, 6.8.2.1.28 and 6.8.2.2.3 shall also apply.

6.9.1.3 Heating elements shall not be used for FRP tanks.

6.9.1.4 For the stability of tank-vehicles, the requirements of 9.7.5.1 shall apply.

**6.9.2 Construction**

6.9.2.1 Shells shall be made of suitable materials, which shall be compatible with the substances to be carried in a service temperature range of between -40°C and +50°C, unless temperature ranges are specified for specific climatic conditions by the competent authority of the country where the transport operation is performed.

6.9.2.2 Shells shall consist of the following three elements :

- internal liner,
- structural layer,
- external layer.

6.9.2.2.1 The internal liner is the inner shell wall zone designed as the primary barrier to provide for the long-term chemical resistance in relation to the substances to be carried, to prevent any dangerous reaction with the contents or the formation of dangerous compounds and any substantial weakening of the structural layer owing to the diffusion of products through the internal liner.

The internal liner may either be a FRP liner or a thermoplastic liner.

6.9.2.2.2 FRP liners shall consist of:

- (a) surface layer ("gel-coat"): adequate resin rich surface layer, reinforced with a veil, compatible with the resin and contents. This layer shall have a fibre mass content of not more than 30 % and have a thickness between 0.25 and 0.60 mm;



- (b) strengthening layer(s): layer or several layers with a minimum thickness of 2 mm, containing a minimum of 900 g/m<sup>2</sup> of glass mat or chopped fibres with a mass content in glass of not less than 30% unless equivalent safety is demonstrated for a lower glass content.

6.9.2.2.3 Thermoplastic liners shall consist of thermoplastic sheet material as referred to in 6.9.2.3.4, welded together in the required shape, to which the structural layers are bonded. Durable bonding between liners and the structural layer shall be achieved by the use of an appropriate adhesive.

*NOTE: For the carriage of flammable liquids the internal layer may require additional measures in accordance with 6.9.2.14, in order to prevent the accumulation of electrical charges.*

6.9.2.2.4 The structural layer of the shell is the zone specially designed according to 6.9.2.4 to 6.9.2.6 to withstand the mechanical stresses. This part normally consists of several fibre reinforced layers in determined orientations.

6.9.2.2.5 The external layer is the part of the shell which is directly exposed to the atmosphere. It shall consist of a resin rich layer with a thickness of at least 0.2 mm. For a thickness larger than 0.5 mm, a mat shall be used. This layer shall have a mass content in glass of less than 30% and shall be capable of withstanding exterior conditions, in particular the occasional contact with the substance to be carried. The resin shall contain fillers or additives to provide protection against deterioration of the structural layer of the shell by ultra-violet radiation.

### 6.9.2.3 *Raw materials*

6.9.2.3.1 All materials used for the manufacture of FRP tanks shall be of known origin and specifications.

#### 6.9.2.3.2 *Resins*

The processing of the resin mixture shall be carried out in strict compliance with the recommendations of the supplier. This concerns mainly the use of hardeners, initiators and accelerators. These resins can be:

- unsaturated polyester resins;
- vinyl ester resins;
- epoxy resins;
- phenolic resins.

The heat distortion temperature (HDT) of the resin, determined in accordance with ISO 75-1:1993 shall be at least 20°C higher than the maximum service temperature of the tank, but shall in any case not be lower than 70 °C.

#### 6.9.2.3.3 *Reinforcement fibres*

The reinforcement material of the structural layers shall be a suitable grade of fibres such as glass fibres of type E or ECR according to ISO 2078:1993. For the internal surface liner, glass fibres of type C according to ISO 2078:1993 may be used. Thermoplastic veils may only be used for the internal liner when their compatibility with the intended contents has been demonstrated.

#### 6.9.2.3.4 *Thermoplastic liner material*

Thermoplastic liners, such as unplasticized polyvinyl chloride (PVC-U), polypropylene (PP), polyvinylidene fluoride (PVDF), polytetrafluoroethylene (PTFE), etc. may be used as lining materials.

#### 6.9.2.3.5 *Additives*

Additives necessary for the treatment of the resin, such as catalysts, accelerators, hardeners and thixotropic substances as well as materials used to improve the tank, such as fillers, colours, pigments etc. shall not cause weakening of the material, taking into account lifetime and temperature expectancy of the design.

#### 6.9.2.4 Shells, their attachments and their service and structural equipment shall be designed to withstand without loss of contents (other than quantities of gas escaping through any degassing vents) during the design lifetime:

- the static and dynamic loads in normal conditions of carriage;
- the prescribed minimum loads as defined in 6.9.2.5 to 6.9.2.10.

#### 6.9.2.5 At the pressures as indicated in 6.8.2.1.14 (a) and (b), and under the static gravity forces caused by the contents with maximum density specified for the design and at maximum filling degree, the design stress $\sigma$ in longitudinal and circumferential direction of any layer of the shell shall not exceed the following value:

$$\sigma \leq \frac{R_m}{K}$$

where:

$R_m$  = the value of tensile strength given by taking the mean value of the test results minus twice the standard deviation of the test results. The tests shall be carried out, in accordance with the requirements of EN 61:1977, on not less than six samples representative of the design type and construction method;

$K$  =  $S \times K_0 \times K_1 \times K_2 \times K_3$

where

$K$  shall have a minimum value of 4, and

$S$  = the safety coefficient. For the general design, if the tanks are referred to in Column (12) of Table A of Chapter 3.2 by a tank code including the letter "G" in its second part (see 4.3.4.1.1), the value for  $S$  shall be equal to or more than 1.5. For tanks intended for the carriage of substances which require an increased safety level, i.e. if the tanks are referred to in Column (12) of Table A of Chapter 3.2 by a tank code including the number "4" in its second part (see 4.3.4.1.1), the value of  $S$  shall be multiplied by a factor of two, unless the shell is provided with protection against damage consisting of a complete metal skeleton including longitudinal and transverse structural members;

$K_0 =$  a factor related to the deterioration in the material properties due to creep and ageing and as a result of the chemical action of the substances to be carried. It shall be determined by the formula:

$$K_0 = \frac{1}{\alpha\beta}$$

where " $\alpha$ " is the creep factor and " $\beta$ " is the ageing factor determined in accordance with EN 978:1997 after performance of the test according to EN 977:1997. Alternatively, a conservative value of  $K_0 = 2$  may be applied. In order to determine  $\alpha$  and  $\beta$  the initial deflection shall correspond to  $2\sigma$ ;

$K_1 =$  a factor related to the service temperature and the thermal properties of the resin, determined by the following equation, with a minimum value of 1:

$$K_1 = 1.25 - 0.0125 (\text{HDT} - 70)$$

where HDT is the heat distortion temperature of the resin, in °C;

$K_2 =$  a factor related to the fatigue of the material; the value of  $K_2 = 1.75$  shall be used unless otherwise agreed with the competent authority. For the dynamic design as outlined in 6.9.2.6 the value of  $K_2 = 1.1$  shall be used;

$K_3 =$  a factor related to curing and has the following values:

- 1.1 where curing is carried out in accordance with an approved and documented process;
- 1.5 in other cases.

- 6.9.2.6 At the dynamic stresses, as indicated in 6.8.2.1.2 the design stress shall not exceed the value specified in 6.9.2.5, divided by the factor  $\alpha$ .
- 6.9.2.7 At any of the stresses as defined in 6.9.2.5 and 6.9.2.6, the resulting elongation in any direction shall not exceed 0.2 % or one tenth of the elongation at fracture of the resin, whichever is lower.
- 6.9.2.8 At the specified test pressure, which shall not be less than the relevant calculation pressure as specified in 6.8.2.1.14 (a) and (b) the maximum strain in the shell shall not be greater than the elongation at fracture of the resin.
- 6.9.2.9 The shell shall be capable of withstanding the ball drop test according to 6.9.4.3.3 without any visible internal or external defects.
- 6.9.2.10 The overlay laminates used in the joints, including the end joints, the joints of the surge plates and the partitions with the shell shall be capable of withstanding the static and dynamic stresses mentioned above. In order to avoid concentrations of stresses in the overlay lamination, the applied taper shall not be steeper than 1:6.

The shear strength between the overlay laminate and the tank components to which it is bonded shall not be less than:

$$\tau = \frac{Q}{l} \leq \frac{\tau_R}{K}$$

where:

- $\tau_R$  is the bending shear strength according to EN 63:1977 with a minimum of  $\tau_R = 10 \text{ N/mm}^2$ , if no measured values are available;
- Q is the load per unit width that the joint shall carry under the static and dynamic loads;
- K is the factor calculated in accordance with 6.9.2.5 for the static and dynamic stresses;
- l is the length of the overlay laminate.

- 6.9.2.11 Openings in the shell shall be reinforced to provide at least the same safety factors against the static and dynamic stresses as specified in 6.9.2.5 and 6.9.2.6 as that for the shell itself. The number of openings shall be minimized. The axis ratio of oval-shaped openings shall be not more than 2.
- 6.9.2.12 For the design of flanges and pipework attached to the shell, handling forces and the fastening of bolts shall also be taken into account.
- 6.9.2.13 The tank shall be designed to withstand, without significant leakage, the effects of a full engulfment in fire for 30 minutes as specified by the test requirements in 6.9.4.3.4. Testing may be waived with the agreement of the competent authority, where sufficient proof can be provided by tests with comparable tank designs.
- 6.9.2.14 ***Special requirements for the transport of substances with a flash-point of not more than 61 °C***

FRP tanks used for the carriage of substances with a flash-point of not more than 61 °C shall be constructed so as to ensure the elimination of static electricity from the various component parts so as to avoid the accumulation of dangerous charges.

  - 6.9.2.14.1 The electrical surface resistance of the inside and outside of the shell as established by measurements shall not be higher than  $10^9$  ohms. This may be achieved by the use of additives in the resin or interlaminar conducting sheets, such as metal or carbon network.
  - 6.9.2.14.2 The discharge resistance to earth as established by measurements shall not be higher than  $10^7$  ohms.
  - 6.9.2.14.3 All components of the shell shall be electrically connected to each other and to the metal parts of the service and structural equipment of the tank and to the vehicle. The electrical resistance between components and equipment in contact with each other shall not exceed 10 ohms.
  - 6.9.2.14.4 The electrical surface-resistance and discharge resistance shall be measured initially on each manufactured tank or a specimen of the shell in accordance with a procedure recognized by the competent authority.
  - 6.9.2.14.5 The discharge resistance to earth of each tank shall be measured as part of the periodic inspection in accordance with a procedure recognized by the competent authority.

### 6.9.3 Items of equipment

6.9.3.1 The requirements of 6.8.2.2.1, 6.8.2.2.2 and 6.8.2.2.4 to 6.8.2.2.8 shall apply.

6.9.3.2 In addition, when they are shown under an entry in Column (13) of Table A of Chapter 3.2, the special provisions of 6.8.4 (b) (TE) shall also apply.

### 6.9.4 Type testing and approval

6.9.4.1 For any design of a FRP tank type, its materials and a representative prototype shall be subjected to the design type testing as outlined below.

#### 6.9.4.2 *Material testing*

6.9.4.2.1 The elongation at fracture according to EN 61:1977 and the heat distortion temperature according to ISO 75-1:1993 shall be determined for the resins to be used.

6.9.4.2.2 The following characteristics shall be determined for samples cut out of the shell. Samples manufactured in parallel may only be used, if it is not possible to use cutouts from the shell. Prior to testing, any liner shall be removed.

The tests shall cover:

- Thickness of the laminates of the central shell wall and the ends;
- Mass content and composition of glass, orientation and arrangement of reinforcement layers;
- Tensile strength, elongation at fracture and modulus of elasticity according to EN 61:1977 in the direction of stresses. In addition, the elongation at fracture of the resin shall be established by means of ultrasound;
- Bending strength and deflection established by the bending creep test according to EN 63:1977 for a period of 1000 hours using a sample with a minimum width of 50 mm and a support distance of at least 20 times the wall thickness. In addition, the creep factor  $\alpha$  and the ageing factor  $\beta$  shall be determined by this test and according to EN 978:1997.

6.9.4.2.3 The interlaminar shear strength of the joints shall be measured by testing representative samples in the tensile test according to EN 61:1977.

6.9.4.2.4 The chemical compatibility of the shell with the substances to be carried shall be demonstrated by one of the following methods with the agreement of the competent authority. This demonstration shall account for all aspects of the compatibility of the materials of the shell and its equipment with the substances to be carried, including chemical deterioration of the shell, initiation of critical reactions of the contents and dangerous reactions between both.

- In order to establish any deterioration of the shell, representative samples taken from the shell, including any internal liners with welds, shall be subjected to the chemical compatibility test according to EN 977:1997 for a period of 1 000 hours at 50°C. Compared with a virgin sample, the loss of strength and elasticity modulus measured by the bending test according to EN 978:1997 shall not exceed 25 %. Cracks, bubbles, pitting effects as well as separation of layers and liners and roughness shall not be acceptable.

- Certified and documented data of positive experiences on the compatibility of the filling substances in question with the materials of the shell with which they come into contact at given temperatures, times and any other relevant service conditions.
- Technical data published in relevant literature, standards or other sources, acceptable to the competent authority.

#### 6.9.4.3 *Type testing*

A representative prototype tank shall be subjected to tests as specified below. For this purpose service equipment may be replaced by other items if necessary.

6.9.4.3.1 The prototype shall be inspected for compliance with the design type specification. This shall include an internal and external visual inspection and measurement of the main dimensions.

6.9.4.3.2 The prototype, equipped with strain gauges at all locations where a comparison with the design calculation is required, shall be subjected to the following loads and the strains shall be recorded:

- Filled with water to the maximum filling degree. The measuring results shall be used to calibrate the design calculation according to 6.9.2.5;
- Filled with water to the maximum filling degree and subjected to accelerations in all three directions by means of driving and braking exercises with the prototype attached to a vehicle. For comparison with the design calculation according to 6.9.2.6 the strains recorded shall be extrapolated in relation to the quotient of the accelerations required in 6.8.2.1.2 and measured;
- Filled with water and subjected to the specified test pressure. Under this load, the shell shall exhibit no visual damage or leakage.

6.9.4.3.3 The prototype shall be subjected to the ball drop test according to EN 976-1:1997, No. 6.6. No visible damage inside or outside the tank shall occur.

6.9.4.3.4 The prototype with its service and structural equipment in place and filled to 80% of its maximum capacity with water, shall be exposed to a full engulfment in fire for 30 minutes, caused by an open heating oil pool fire or any other type of fire with the same effect. The dimensions of the pool shall exceed those of the tank by at least 50 cm to each side and the distance between fuel level and tank shall be between 50 cm and 80 cm. The rest of the tank below liquid level, including openings and closures, shall remain leakproof except for drips.

#### 6.9.4.4 *Type approval*

6.9.4.4.1 The competent authority or a body designated by that authority shall issue in respect of each new type of tank an approval attesting that the design is suitable for the purpose for which it is intended and meets the construction and equipment requirements of this chapter as well as the special provisions applicable to the substances to be carried.

6.9.4.4.2 The approval shall be based on the calculation and the test report, including all material and prototype test results and its comparison with the design calculation, and shall refer to the design type specification and the quality assurance programme.

6.9.4.4.3 The approval shall include the substances or group of substances for which compatibility with the shell is provided. Their chemical names or the corresponding collective entry (see 2.1.1.2), and their class and classification code shall be indicated.

- 6.9.4.4.4 In addition, it shall include design and threshold values (such as life-time, service temperature range, working and test pressures, material data) specified and all precautions to be taken for the manufacture, testing, type approval, marking and use of any tank, manufactured in accordance with the approved design type.
- 6.9.5 Inspections**
- 6.9.5.1 For every tank, manufactured in conformity with the approved design, material tests and inspections shall be performed as specified below.
- 6.9.5.1.1 The material tests according to 6.9.4.2.2, except for the tensile test and for a reduction of the testing time for the bending creep test to 100 hours shall be performed with samples taken from the shell. Samples manufactured in parallel may only be used, if no cutouts from the shell are possible. The approved design values shall be met.
- 6.9.5.1.2 Shells and their equipment shall either together or separately undergo an initial inspection before being put into service. This inspection shall include:
- a check of conformity to the approved design;
  - a check of the design characteristics;
  - an internal and external examination;
  - a hydraulic pressure test at the test pressure indicated on the plate prescribed in 6.8.2.5.1;
  - a check of operation of the equipment;
  - a leakproofness test, if the shell and its equipment have been pressure tested separately.
- 6.9.5.2 For the periodic inspection of tanks the requirements of 6.8.2.4.2 to 6.8.2.4.4 shall apply.
- 6.9.5.3 The inspections and tests in accordance with 6.9.5.1 and 6.9.5.2 shall be carried out by the expert approved by the competent authority. Certificates shall be issued showing the results of these operations. These certificates shall refer to the list of the substances permitted for carriage in this shell in accordance with 6.9.4.4.
- 6.9.6 Marking**
- 6.9.6.1 The requirements of 6.8.2.5 shall apply to the marking of FRP tanks, with the following amendments:
- the tank plate may also be laminated to the shell or be made of suitable plastics materials;
  - the design temperature range shall always be marked.
- 6.9.6.2 In addition, when they are shown under an entry in Column (13) of Table A of Chapter 3.2, the special provisions of 6.8.4 (e) (TM) shall also apply.

## CHAPTER 6.10

## REQUIREMENTS FOR THE CONSTRUCTION, EQUIPMENT, TYPE APPROVAL, INSPECTION AND MARKING OF VACUUM-OPERATED WASTE TANKS

**NOTE 1:** For portable tanks see Chapter 6.7; for fixed tanks (tank-vehicles), demountable tanks and tank containers and tank swap bodies, with shells made of metallic materials, and battery-vehicles and multiple element gas containers (MEGCs) see Chapter 6.8; for fibre-reinforced plastic tanks see Chapter 6.9.

**NOTE 2:** This Chapter applies to fixed tanks, demountable tanks, tank-containers and tank swap bodies.

### 6.10.1 General

#### 6.10.1.1 Definition

**NOTE:** A tank which fully complies with the requirements of Chapter 6.8 is not considered to be a "vacuum-operated waste tank".

6.10.1.1.1 The term "protected area" means the areas located as follows:

- (a) The lower part of the tank in a zone which extends over a 60° angle on either side of the lower generating line;
- (b) The top part of the tank in a zone which extends over a 30° angle on either side of the top generating line;
- (c) On the end front of the tank on motor vehicles;
- (d) On the rear end of the tank inside the protection volume formed by the device stipulated in 9.7.6.

#### 6.10.1.2 Scope

6.10.1.2.1 The special requirements of 6.10.2 to 6.10.4 complete or modify Chapter 6.8 and are applied to vacuum-operated waste tanks.

Vacuum-operated waste tanks may be equipped with openable ends, if the requirements of Chapter 4.3 allow bottom discharge of the substances to be carried (indicated by letters "A" or "B" in Part 3 of the tank code given in Column (12) of Table A of Chapter 3.2, in accordance with 4.3.4.1.1).

Vacuum-operated waste tanks shall comply with all requirements of Chapter 6.8, with the exception of requirements overtaken by a special provision in this Chapter. However the requirements of 6.8.2.1.19, 6.8.2.1.20, and 6.8.2.1.21 shall not apply.

### 6.10.2 Construction

6.10.2.1 Tanks shall be designed for a calculation pressure equal to 1.3 times the filling or discharge pressure but not less than 400 kPa (4 bar) (gauge pressure). For the carriage of substances for which a higher calculation pressure of the tank is specified in Chapter 6.8, this higher pressure shall apply.

6.10.2.2 Tanks shall be designed to withstand a negative internal pressure of 100 kPa (1 bar).



### 6.10.3 Items of equipment

- 6.10.3.1 The items of equipment shall be so arranged as to be protected against the risk of being wrenched off or damaged during carriage or handling. This requirement can be fulfilled by placing the items of equipment in a so called "protected area" (see 6.10.1.1.1).
- 6.10.3.2 The bottom discharge of shells may be constituted by external piping with a stop-valve fitted as close to the shell as practicable and a second closure which may be a blank flange or other equivalent device.
- 6.10.3.3 The position and closing direction of the stop-valve(s) connected to the shell, or to any compartment in the case of compartmented shells, shall be unambiguous, and be able to be checked from the ground.
- 6.10.3.4 In order to avoid any loss of contents in the event of damage to the external filling and discharge fittings (pipes, lateral shut-off devices), the internal stop-valve, or the first external stop-valve (where applicable), and its seatings shall be protected against the danger of being wrenched off by external stresses or shall be so designed as to withstand them. The filling and discharge devices (including flanges or threaded plugs) and protective caps (if any) shall be capable of being secured against any unintended opening.
- 6.10.3.5 The tanks may be equipped with openable ends. Openable ends shall comply with the following conditions:
- (a) The ends shall be designed to be secured leaktight when closed;
  - (b) Unintentional opening shall not be possible;
  - (c) Where the opening mechanism is power operated the end shall remain securely closed in the event of a power failure;
  - (d) A safety or breakseal device shall be incorporated to ensure that the openable end cannot be opened when there is still a residual over pressure in the tank. This requirement does not apply to openable ends which are power-operated, where the movement is positively controlled. In this case the controls shall be of the dead-man type and be so positioned that the operator can observe the movement of the openable end at all times and is not endangered during opening and closing of the openable end; and
  - (e) Provisions shall be made to protect the openable end and prevent it from being forced open during a roll-over of the vehicle, tank-container or tank swap body.
- 6.10.3.6 Vacuum-operated waste tanks which are fitted with an internal piston to assist in the cleaning of the tank or discharging shall be provided with stop-devices to prevent the piston in every operational position being ejected from the tank when a force equivalent to the maximum allowed working pressure of the tank is applied to the piston. The maximum allowed working pressure for tanks or compartments with pneumatic operated piston shall not exceed 100 kPa (1.0 bar). The internal piston shall be constructed in a manner and of materials which will not cause an ignition source when the piston is moved.

The internal piston may be used as a compartment provided it is secured in position. Where any of the means by which the internal piston is secured is external to the tank, it shall be placed in a position not liable to accidental damage.

6.10.3.7 The tanks may be equipped with suction booms if:

- (a) the boom is fitted with an internal or external stop-valve fixed directly to the shell, or directly to a bend that is welded to the shell;
- (b) the stop-valve mentioned in (a) is so arranged that carriage with the valve in an open position is prevented; and
- (c) the boom is constructed in such a way that the tank will not leak as a result of accidental impact on the boom.

6.10.3.8 The tanks shall be fitted with the following additional service equipment:

- (a) The outlet of a pump/exhauster unit shall be so arranged as to ensure that any flammable or toxic vapours are diverted to a place where they will not cause a danger;
- (b) A device to prevent immediate passage of flame shall be fitted to both the inlet and outlet of a vacuum pump/exhauster unit which may create sparks and which is fitted on a tank used for the carriage of flammable wastes;
- (c) Pumps which can deliver a positive pressure shall have a safety device fitted in the pipework which can be pressurised. The safety device shall be set to discharge at a pressure not exceeding the maximum working pressure of the tank;
- (d) A stop-valve shall be fitted between the shell, or the outlet of the overfill prevention device fitted to the shell, and the pipework connecting the shell to the pump/exhauster unit;
- (e) The tank shall be fitted with a suitable pressure/vacuum manometer which shall be mounted in a position where it can be easily read by the person operating the pump/exhauster unit. A distinguishing line shall be marked on the scale to indicate the maximum working pressure of the tank;
- (f) The tank, or in case of compartmented tanks, every compartment, shall be equipped with a level indicating device. Sight glasses may be used as level indicating devices provided:
  - (i) they form a part of the tank wall and have a resistance to the pressure comparable to that of the tank; or they are fitted external to the tank;
  - (ii) the top and bottom connections to the tank are equipped with shut-off valves fixed directly to the shell and so arranged that carriage with the valves in an open position is prevented;
  - (iii) are suitable for operation at the maximum allowed working pressure of the tank; and
  - (iv) are placed in a position where they will not be liable to accidental damage.

6.10.3.9 Shells of vacuum-operated waste tanks shall have a safety valve preceded by a bursting disc.

#### 6.10.4 Inspection

Vacuum-operated waste tanks shall be subject to an internal and external examination at least every three years for fixed and demountable tanks and at least every two and a half years for tank-containers and tank swap bodies.

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## **PART 7**

**Provisions concerning the conditions of  
carriage, loading, unloading  
and handling**

## CHAPTER 7.1

## GENERAL PROVISIONS

- 7.1.1 The carriage of dangerous goods is subject to the mandatory use of a particular type of carriage in accordance with the provisions of this Chapter and Chapter 7.2 for carriage in packages, Chapter 7.3 for carriage in bulk and Chapter 7.4 for carriage in tanks. In addition, the provisions of Chapter 7.5 concerning loading, unloading and handling shall be observed.

Columns (16), (17) and (18) of Table A of Chapter 3.2 show the particular provisions of this Part that apply to specific dangerous goods.

- 7.1.2 In addition to the provisions of this Part, vehicles used for the carriage of dangerous goods shall, as regards their design, construction and, if appropriate, their approval, conform to the relevant requirements of Part 9.

- 7.1.3 Large containers, portable tanks and tank-containers which meet the definition of "container" given in the CSC (1972), as amended, or in UIC leaflets<sup>1</sup> 590 (status at 01.01.1979, 10<sup>th</sup> edition, including amendments Nos. 1 to 4), 591 (status at 01.01.1998, 2<sup>nd</sup> edition), 592-2 (status at 01.07.1996, 5<sup>th</sup> edition), 592-3 (status at 01.01.1998, 2<sup>nd</sup> edition) and 592-4 (status at 01.07.1995, new edition) may not be used to carry dangerous goods unless the large container or the frame of the portable tank or tank-container satisfies the provisions of the CSC or of UIC leaflets 590, 591 and 592-2 to 592-4.

- 7.1.4 A large container may be presented for carriage only if it is structurally serviceable.

"Structurally serviceable" means that the container is free from major defects in its structural components, e.g. top and bottom side rails, doorsill and header, floor cross members, corner posts, and corner fittings. "Major defects" are dents or bends in structural members greater than 19 mm in depth, regardless of length; cracks or breaks in structural members; more than one splice or an improper splice (e.g. a lapped splice) in top or bottom end rails or door headers or more than two splices in any one top or bottom side rail or any splice in a door sill or corner post; door hinges and hardware that are seized, twisted, broken, missing or otherwise inoperative; non-closing gaskets and seals; any distortion of the overall configuration sufficient to prevent proper alignment of handling equipment, mounting and securing on a chassis or vehicle.

In addition, deterioration in any component of the container, such as rusted metal in side walls or disintegrated fibreglass is unacceptable, regardless of the material of construction. Normal wear, including oxidization (rust), slight dents and scratches and other damage that do not affect serviceability or weather-tightness are, however, acceptable.

Prior to loading the container shall also be checked to ensure that it is free from any residue of a previous load and that the interior floor and walls are free from protrusions.

- 7.1.5 Large containers shall meet the requirements concerning the body of the vehicle laid down in this Part and, if appropriate, those laid down in Part 9 for the load in question; the body of the vehicle need not then satisfy those provisions.

However, large containers carried on vehicles whose platforms have insulation and heat-resistant qualities which satisfy those requirements need not then satisfy the said requirements.

<sup>1</sup> UIC leaflets are published by the Union Internationale des chemins de fer, Service Publications - 16, rue Jean Rey - F - 75015 Paris.

This provision also applies to small containers for the carriage of explosive substances and articles of Class 1.

- 7.1.6 Subject to the provisions of the last part of the first sentence of 7.1.5, the fact that dangerous goods are contained in one or more containers shall not affect the conditions to be met by the vehicle by reason of the nature and quantities of the dangerous goods carried.

**CHAPTER 7.2****PROVISIONS CONCERNING CARRIAGE IN PACKAGES**

7.2.1 Unless otherwise provided in 7.2.2 to 7.2.4, packages may be loaded:

- (a) in closed vehicles or in closed containers; or
- (b) in sheeted vehicles or in sheeted containers; or
- (c) in open vehicles or in open containers.

7.2.2 Packages comprising packagings made of materials sensitive to moisture shall be loaded on to closed or on to sheeted vehicles or into closed or sheeted containers.

7.2.3 *(Reserved)*

7.2.4 When they are shown under an entry in Column (16) of Table A of Chapter 3.2, the following special provisions apply:

- V1 Packages shall be loaded on to closed or sheeted vehicles or into closed or sheeted containers.
- V2 (1) Packages shall only be loaded on to EX/II or EX/III vehicles which satisfy the relevant requirements of Part 9. The choice of vehicle depends on the quantity to be carried, which is limited per transport unit in accordance with the provisions concerning loading (see 7.5.5.2).
- (2) Trailers, except semi-trailers, which satisfy the requirements for EX/II or EX/III vehicles may be drawn by motor vehicles which do not satisfy those requirements.

For carriage in containers, see also 7.1.3 to 7.1.6.

Where substances or articles of Class 1 in quantities requiring a transport unit made up of EX/III vehicle(s) are being carried in containers to or from harbour areas, rail terminals or airports of arrival or departure as part of a multimodal journey, a transport unit made up of EX/II vehicle(s) may be used instead, provided that the containers being carried comply with the appropriate requirements of the IMDG Code, the RID or the ICAO Technical Instructions.

- V3 For free-flowing powdery substances and for fireworks the floor of a container shall have a non-metallic surface or covering.
- V4 *(Reserved)*
- V5 Packages may not be carried in small containers.
- V6 Flexible IBCs shall be carried in closed vehicles or in closed containers, in sheeted vehicles or in sheeted containers. The sheet shall be of an impermeable and non-combustible material.
- V7 If packages are carried in a closed vehicle or in a closed container, the vehicle or container shall be provided with adequate ventilation.

- V8 (1) Substances stabilized by temperature control shall be forwarded in such manner that the control temperatures indicated in 2.2.41.1.17 and 2.2.41.4 or in 2.2.52.1.16 and 2.2.52.4, as appropriate, are never exceeded.
- (2) The means of temperature control chosen for the transport operation depends on a number of factors such as:
- the control temperature(s) of the substance(s) to be carried;
  - the difference between the control temperature and the expected ambient temperature;
  - the effectiveness of the thermal insulation;
  - the duration of the transport operation; and
  - the safety margin to be allowed for delays en route.
- (3) Suitable methods to prevent the control temperature from being exceeded are listed below, in ascending order of effectiveness:
- R1 Thermal insulation, provided that the initial temperature of the substance(s) is sufficiently below the control temperature;
- R2 Thermal insulation and coolant system, provided that:
- an adequate quantity of non-flammable coolant (e.g. liquid nitrogen or solid carbon dioxide), allowing a reasonable margin for possible delay, is carried or a means of replenishment is assured;
  - liquid oxygen or air is not used as coolant;
  - there is a uniform cooling effect even when most of the coolant has been consumed; and
  - the need to ventilate the transport unit before entering is clearly indicated by a warning on the door(s);
- R3 Thermal insulation and single mechanical refrigeration, provided that for substances with a flash-point lower than the sum of the emergency temperature plus 5 °C explosion-proof electrical fittings, EEx IIB T3, are used within the cooling compartment to prevent ignition of flammable vapours from the substances;
- R4 Thermal insulation and combined mechanical refrigeration system and coolant system, provided that:
- the two systems are independent of one another; and
  - the requirements of methods R2 and R3 above are met;
- R5 Thermal insulation and dual mechanical refrigeration system, provided that:
- apart from the integral power supply unit, the two systems are independent of one another;

- each system alone is capable of maintaining adequate temperature control; and
  - for substances with a flash-point lower than the sum of the emergency temperature plus 5 °C explosion-proof electrical fittings, EEx IIB T3, are used within the cooling compartment to prevent ignition of flammable vapours from the substances.
- (4) Methods R4 and R5 may be used for all organic peroxides and self-reactive substances.

Method R3 may be used for organic peroxides and self-reactive substances of Types C, D, E and F and, when the maximum ambient temperature to be expected during carriage does not exceed the control temperature by more than 10 °C, for organic peroxides and self-reactive substances of Type B.

Method R2 may be used for organic peroxides and self-reactive substances of Types C, D, E and F when the maximum ambient temperature to be expected during carriage does not exceed the control temperature by more than 30 °C.

Method R1 may be used for organic peroxides and self-reactive substances of Types C, D, E and F when the maximum ambient temperature to be expected during carriage is at least 10 °C below the control temperature.

- (5) Where substances are required to be carried in insulated, refrigerated or mechanically-refrigerated vehicles or containers, these vehicles or containers shall satisfy the requirements of Chapter 9.6.
- (6) If substances are contained in protective packagings filled with a coolant, they shall be loaded in closed or sheeted vehicles or closed or sheeted containers. If the vehicles or containers used are closed they shall be adequately ventilated. Sheeted vehicles and containers shall be fitted with sideboards and a tailboard. The sheets of these vehicles and containers shall be of an impermeable and non-combustible material.
- (7) Any control and temperature sensing devices in the refrigeration system shall be readily accessible and all electrical connections shall be weatherproof. The temperature of the air inside the transport unit shall be measured by two independent sensors and the output shall be recorded so that any change in temperature is readily detectable. When substances having a control temperature of less than +25 °C are carried, the transport unit shall be equipped with visible and audible alarms, powered independently of the refrigeration system and set to operate at or below the control temperature.
- (8) A back-up refrigeration system or spare parts shall be available.

*NOTE: This provision V8 does not apply to substances referred to in 3.1.2.6 when substances are stabilized by the addition of chemical inhibitors such that the SADT is greater than 50 °C. In this latter case, temperature control may be required under conditions of carriage where the temperature may exceed 55 °C.*

V9 (Reserved)

V10 IBCs shall be carried in closed or sheeted vehicles or closed or sheeted containers.



- V11 IBCs other than metal or rigid plastics IBCs shall be carried in closed or sheeted vehicles or closed or sheeted containers.
- V12 IBCs of type 31HZ2 shall be carried in closed vehicles or containers.
- V13 When packed in 5H1, 5L1 or 5 M1 bags, shall be carried in closed vehicles or containers.

## CHAPTER 7.3

## PROVISIONS CONCERNING CARRIAGE IN BULK

7.3.1 Goods may not be carried in bulk in vehicles or containers unless a special provision, identified by the code VV, explicitly authorizing this mode of carriage is indicated in Column (17) of Table A of Chapter 3.2 for these goods and unless the conditions of this special provision are satisfied.

Nevertheless, empty packagings, uncleaned may be carried in bulk if this mode of carriage is not explicitly prohibited by other provisions of ADR.

*NOTE: For carriage in tanks, see Chapters 4.2 and 4.3.*

7.3.2 Suitable measures shall be taken for all carriage in bulk to ensure that none of the contents can escape.

7.3.3 When they are shown under an entry in Column (17) of Table A of Chapter 3.2, the following special provisions apply:

VV1 Carriage in bulk in closed or sheeted vehicles, in closed containers or in large sheeted containers is permitted.

VV2 Carriage in bulk is permitted in closed vehicles with a metal body, closed metal containers and in sheeted vehicles and sheeted large containers covered with a non-combustible sheet and having a metal body or having floor and walls protected from the load.

VV3 Carriage in bulk is permitted in sheeted vehicles and sheeted large containers with adequate ventilation.

VV4 Carriage in bulk is permitted in closed or sheeted vehicles with a metal body, and in closed metal containers or in sheeted large metal containers. For UN Nos. 2008, 2009, 2210, 2545, 2546, 2881, 3189 and 3190, only carriage in bulk of solid waste is permitted.

VV5 Carriage in bulk is permitted in specially equipped vehicles and containers.

The openings used for loading and unloading shall be capable of being closed hermetically.

VV6 *(Reserved)*

VV7 Carriage in bulk in closed or sheeted vehicles, in closed containers or in large sheeted containers is permitted only if the substance is in pieces.

VV8 Carriage in bulk is permitted, as a full load, in closed vehicles, closed containers or sheeted vehicles or large containers covered with an impermeable, non-combustible sheet.

Vehicles and containers shall be so constructed either that the substances contained cannot come into contact with wood or any other combustible material, or that the entire surface of the floor and walls, if made of wood or another combustible material has been provided with an impermeable surfacing resistant to combustion or has been coated with sodium silicate or a similar substance.

- VV9a Carriage in bulk is permitted, as a full load, in sheeted vehicles, closed containers or in sheeted large containers with complete walls.

For substances of Class 8, the body of the vehicle or container shall be equipped with a suitable and sufficiently stout inner lining.

- VV9b Carriage in bulk of full loads (if Class 8, only for wastes) is permitted in closed containers or in sheeted large containers with complete walls. For wastes of Class 8, containers shall be equipped with a suitable and sufficiently stout inner lining.

- VV10 Carriage in bulk is permitted, as a full load, in sheeted vehicles, closed containers or sheeted large containers with complete walls.

The body of vehicles or containers shall be leakproof or rendered leakproof, for example by means of a suitable and sufficiently stout inner lining.

- VV11 Carriage in bulk is permitted in specially equipped vehicles and containers in a manner which avoids risks to humans, animals and the environment, e.g. by loading the wastes in bags or by airtight connections.

- VV12 Substances for which carriage in tank-vehicles, in portable tanks or in tank-containers is unsuitable because of the high temperature and density of the substance may be carried in special vehicles or containers in accordance with standards specified by the competent authority of the country of origin. If the country of origin is not a contracting party to ADR, the conditions laid down shall be recognized by the competent authority of the first country contracting party to ADR reached by the consignment.

- VV13 Carriage in bulk is permitted in specially equipped vehicles or containers in accordance with standards specified by the competent authority of the country of origin. If the country of origin is not a contracting party to ADR, the conditions laid down shall be recognized by the competent authority of the first country contracting party to ADR reached by the consignment.

- VV14 (1) Used batteries may be carried in bulk in specially equipped vehicles or containers. Large plastics containers shall not be permitted. Small plastics containers shall be capable of withstanding, when fully loaded, a drop from a height of 0.8 m onto a hard surface at -18 °C, without breakage.

- (2) The load compartments of vehicles or containers shall be of steel resistant to the corrosive substances contained in the batteries. Less resistant steels may be used when there is a sufficiently great wall thickness or a plastics lining/layer resistant to the corrosive substances.

The design of the load compartments of vehicles or containers shall take account of any residual currents and impact from the batteries.

*NOTE: Steel exhibiting a maximum rate of progressive reduction of 0.1 mm per year under the effects of the corrosive substances may be considered as resistant.*

- (3) It shall be ensured by means of constructional measures that there will be no leakage of corrosive substances from the load compartments of vehicles or containers during carriage. Open load compartments shall be covered. The cover shall be resistant to the corrosive substances.

- (4) Before loading, the load compartments of vehicles or containers, including their equipment, shall be inspected for damage. Vehicles or containers with damaged load compartments shall not be loaded.

The load compartments of vehicles or containers shall not be loaded above the top of their walls.

- (5) No batteries containing different substances and no other goods liable to react dangerously with each other shall be present in the load compartments of vehicles or containers (see "*Dangerous reaction*" in 1.2.1).

During carriage no dangerous residue of the corrosive substances contained in the batteries shall adhere to the outer surface of the load compartments of vehicles or containers.

**CHAPTER 7.4****PROVISIONS CONCERNING CARRIAGE IN TANKS**

7.4.1 Dangerous goods may not be carried in tanks unless a code is indicated in Columns (10) or (12) of Table A of Chapter 3.2 or unless a competent authority approval is granted as detailed in 6.7.1.3. The carriage shall be in accordance with the provisions of Chapters 4.2 or 4.3, and the vehicles, whether they be tank-vehicles (with a fixed or demountable tank), battery-vehicles or vehicles carrying tank-containers or portable tanks, shall satisfy the relevant requirements of Chapters 9.1, 9.2 and 9.7.2 concerning the vehicle to be used, as indicated in Column (14) of Table A of Chapter 3.2.

7.4.2 The vehicles designated by the codes FL, OX or AT in 9.1.1.2 shall be used as follows:

- Where a FL vehicle is prescribed, only an FL vehicle may be used;
- Where a OX vehicle is prescribed, only an OX vehicle may be used;
- Where a AT vehicle is prescribed, AT, FL and OX vehicles may be used.

**CHAPTER 7.5****PROVISIONS CONCERNING LOADING, UNLOADING AND HANDLING****7.5.1 General provisions concerning loading, unloading and handling**

- 7.5.1.1 The vehicle and its driver, upon arrival at the loading and unloading sites, shall comply with the regulatory provisions (especially those concerning safety, cleanliness and satisfactory operation of the vehicle equipment used in loading and unloading).
- 7.5.1.2 The loading shall not be carried out if an examination of the documents and a visual inspection of the vehicle and its equipment show that the vehicle or the driver do not comply with the regulatory provisions.
- 7.5.1.3 The unloading shall not be carried out, if the above-mentioned inspections reveal deficiencies that might affect the safety of the unloading.
- 7.5.1.4 In accordance with the special provisions of 7.3.3 or 7.5.11, in conformity with Columns (17) and (18) of Table A of Chapter 3.2, certain dangerous goods shall only be forwarded as a "full load" (see definition in 1.2.1). In such a case, the competent authorities may require the vehicle or large container used for such carriage to be loaded at only one point and unloaded at only one point.

**7.5.2 Mixed loading prohibition**

- 7.5.2.1 Packages bearing different danger labels shall not be loaded together in the same vehicle or container unless mixed loading is permitted according to the following Table based on the danger labels they bear.

*NOTE: In accordance with 5.4.1.4.2, separate transport documents shall be drawn up for consignments that cannot be loaded together in the same vehicle or container.*

Labels Nos.	1	1.4	1.5	1.6	2.1, 2.2, 2.3	3	4.1	4.1 +1	4.2	4.3	5.1	5.2	5.2 +1	6.1	6.2	7A, B, C	8	9					
1	See 7.5.2.2										d								b				
1.4					a	a	a				a	a	a	a			a	a	a	a	a	a	
1.5																							b
1.6																							b
2.1, 2.2, 2.3		a			X	X	X		X	X	X	X		X	X	X	X	X	X				
3		a			X	X	X		X	X	X	X		X	X	X	X	X	X				
4.1		a			X	X	X		X	X	X	X		X	X	X	X	X	X				
4.1 + 1								X															
4.2		a			X	X	X		X	X	X	X		X	X	X	X	X	X				
4.3		a			X	X	X		X	X	X	X		X	X	X	X	X	X				
5.1	d	a			X	X	X		X	X	X	X		X	X	X	X	X	X				
5.2		a			X	X	X		X	X	X	X		X	X	X	X	X	X				
5.2 + 1													X										
6.1		a			X	X	X		X	X	X	X		X	X	X	X	X	X				
6.2		a			X	X	X		X	X	X	X		X	X	X	X	X	X				
7A, B, C		a			X	X	X		X	X	X	X		X	X	X	X	X	X				
8		a			X	X	X		X	X	X	X		X	X	X	X	X	X				
9	b	a b c	b	b	X	X	X		X	X	X	X		X	X	X	X	X	X				

X Mixed loading permitted.

<sup>a</sup> Mixed loading permitted with 1.4S substances and articles.

<sup>b</sup> Mixed loading permitted between goods of Class 1 and life-saving appliances of Class 9 (UN Nos. 2990, 3072 and 3268).

<sup>c</sup> Mixed loading permitted between air bag inflators, or air bag modules, or seat-belt pretensioners of Division 1.4, compatibility group G, (UN No. 0503) and air bag inflators or air bag modules or seat-belt pretensioners of Class 9 (UN No. 3268).

<sup>d</sup> Mixed loading permitted between blasting explosives (except UN No. 0083 explosive, blasting, type C) and ammonium nitrate and inorganic nitrates of Class 5.1 (UN Nos. 1942 and 2067) provided the aggregate is treated as blasting explosives under Class 1 for the purposes of placarding, segregation, stowage and maximum permissible load.

## 7.5.2.2

Packages containing substances or articles of Class 1, bearing a label conforming to models Nos. 1, 1.4, 1.5 or 1.6 which are assigned to different compatibility groups shall not be loaded together in the same vehicle or container, unless mixed loading is permitted in accordance with the following Table for the corresponding compatibility groups.

Compatibility Group	A	B	C	D	E	F	G	H	J	L	N	S
A	X											
B		X		<sup>a</sup>								X
C			X	X	X		X				<sup>b c</sup>	X
D		<sup>a</sup>	X	X	X		X				<sup>b c</sup>	X
E			X	X	X		X				<sup>b c</sup>	X
F						X						X
G			X	X	X		X					X
H								X				X
J									X			X
L										<sup>d</sup>		
N			<sup>b c</sup>	<sup>b c</sup>	<sup>b c</sup>						<sup>b</sup>	X
S		X	X	X	X	X	x	X	X		X	X

X Mixed loading permitted.

<sup>a</sup> Packages containing articles of compatibility group B and substances and articles of compatibility group D may be loaded together on one vehicle provided they are carried in separate containers or compartments of a design approved by the competent authority or a body designated by it, such that there is no danger of transmission of detonation from the articles of compatibility group B to the substances or articles of compatibility group D.

<sup>b</sup> Different types of articles of division 1.6, compatibility group N, may be carried together as articles of division 1.6, compatibility group N, only when it is proven by testing or analogy that there is no additional risk of sympathetic detonation between the articles. Otherwise they should be treated as hazard division 1.1.

<sup>c</sup> When articles of compatibility group N are carried with substances or articles of compatibility groups C, D or E, the articles of compatibility group N should be considered as having the characteristics of compatibility group D.

<sup>d</sup> Packages containing substances and articles of Compatibility Group L may be loaded together on one vehicle or in one container with packages containing the same type of substances and articles of that compatibility group.



**7.5.2.3** For the purpose of the application of the prohibitions of mixed loading on one vehicle, no account shall be taken of substances contained in closed containers with complete sides. Nevertheless, the mixed loading prohibitions laid down in 7.5.2.1 concerning mixed loading of packages bearing labels conforming to models Nos. 1, 1.4, 1.5 or 1.6 with other packages, and in 7.5.2.2 concerning mixed loading of explosives of different compatibility groups shall also apply between dangerous goods contained in a container and the other dangerous goods loaded on the same vehicle, whether or not the latter goods are enclosed in one or more other containers.

**7.5.3** *(Reserved)*

**7.5.4** **Precautions with respect to foodstuffs, other articles of consumption and animal feeds**

If special provision CV28 is indicated for a substance or article in Column (18) of Table A of Chapter 3.2, precautions with respect to foodstuffs, other articles of consumption and animal feeds shall be taken as follows.

Packages as well as uncleaned empty packagings, including large packagings and intermediate bulk containers (IBCs), bearing labels conforming to models Nos. 6.1 or 6.2 and those bearing labels conforming to model No.9 containing goods of UN Nos. 2212, 2315, 2590, 3151, 3152 or 3245, shall not be stacked on or loaded in immediate proximity to packages known to contain foodstuffs, other articles of consumption or animal feeds in vehicles, in containers and at places of loading, unloading or transhipment.

When these packages, bearing the said labels, are loaded in immediate proximity of packages known to contain foodstuffs, other articles of consumption or animal feeds, they shall be kept apart from the latter:

- (a) by complete partitions which should be as high as the packages bearing the said labels;
- (b) by packages not bearing labels conforming to models Nos. 6.1, 6.2 or 9 or packages bearing labels conforming to model No.9 but not containing goods of UN Nos. 2212, 2315, 2590, 3151, 3152 or 3245; or
- (c) by a space of at least 0.8 m;

unless the packages bearing the said labels are provided with an additional packaging or are completely covered (e.g. by a sheeting, a fibreboard cover or other measures).

**7.5.5** **Limitation of the quantities carried**

**7.5.5.1** If the provisions below or the additional provisions of 7.5.11 require a limitation of the quantity of specific goods that can be carried, in accordance with the information in Column (7) of Table A of Chapter 3.2, the fact that dangerous goods are contained in one or more containers shall not affect the mass limitations per transport unit laid down by these provisions.

**7.5.5.2** *Limitations with respect to explosive substances and articles*

**7.5.5.2.1** *Substances and quantities carried*

The total net mass in kg of explosive substance (or in the case of explosive articles, the total net mass of explosive substance contained in all the articles combined) which may be carried on one transport unit shall be limited as indicated in the table below (see also 7.5.2.2 as regards the prohibition of mixed loading):

Maximum permissible net mass in kg of explosive in Class 1 goods per transport unit

Transport Unit	Division	1.1		1.2	1.3	1.4		1.5 and 1.6	Empty uncleaned packagings
	Compatibility group	1.1A	Other than 1.1A			Other than 1.4S	1.4S		
EX/II <sup>a</sup>		6.25	1 000	3 000	5 000	15 000	Unlimited	5 000	Unlimited
EX/III <sup>a</sup>		18.75	16 000	16 000	16 000	16 000	Unlimited	16 000	Unlimited

<sup>a</sup> For the description of EX/II and EX/III vehicles see Part 9.

7.5.5.2.2 Where substances and articles of different divisions of Class 1 are loaded on one transport unit in conformity with the prohibitions of mixed loading contained in 7.5.2.2, the load as a whole shall be treated as if it belonged to the most dangerous division (in the order 1.1, 1.5, 1.2, 1.3, 1.6, 1.4). However, the net mass of explosives of compatibility group S shall not count towards the limitation of quantities carried.

Where substances classified as 1.5D are carried on one transport unit together with substances or articles of division 1.2, the entire load shall be treated for carriage as if it belonged to division 1.1.

#### 7.5.5.3 Limitations with respect to organic peroxides and self-reactive substances

The quantity of organic peroxides of Class 5.2 and self-reactive substances of Class 4.1 that can be carried in a single transport unit is limited as follows:

Organic peroxide or self-reactive substance	Substances of Type B without temperature control	Substances of Type C without temperature control	Substances of Type D, E or F without temperature control	Substances of Type B with temperature control	Substances of Type C with temperature control	Substances of Type D, E or F with temperature control
Maximum quantity per transport unit	1 000 kg <sup>a</sup>	10 000 kg	20 000 kg	1 000 kg <sup>b</sup>	5 000 kg <sup>c</sup>	20 000 kg

<sup>a</sup> 5 000 kg if the loading space is ventilated at the top and if the transport unit is insulated with heat-resistant material (see 9.3.4).

<sup>b</sup> 5 000 kg if the transport unit is insulated with a heat-resistant material (see 9.3.4)

<sup>c</sup> 10 000 kg if the transport unit is insulated with a heat-resistant material (see 9.3.4)

When substances are carried together in one transport unit, the limits given above shall not be exceeded and the total contents shall not exceed 20 000kg.

#### 7.5.6 (Reserved)

#### 7.5.7 Handling and stowage

7.5.7.1 The various components of a load comprising dangerous goods shall be properly stowed on the vehicle or in the container and secured by appropriate means to prevent them from being significantly displaced in relation to each other and to the walls of the vehicle or container. The load may be protected, for example, by the use of side wall fastening straps, sliding slatboards and adjustable brackets, air bags and anti-slide locking devices. The load is also sufficiently protected within the meaning of the first sentence if each layer of the whole loading space is completely filled with packages.

7.5.7.2 The provisions of 7.5.7.1 also apply to the loading, stowage and unloading of containers on to and from vehicles.

7.5.7.3 The driver or any other member of the crew may not open a package containing dangerous goods.

**7.5.8 Cleaning after unloading**

7.5.8.1 If, when a vehicle or container which has contained packaged dangerous goods is unloaded, some of the contents are found to have escaped, the vehicle or container shall be cleaned as soon as possible and in any case before reloading.

If it is not possible to do the cleaning locally, the vehicle or container shall be carried, with due regard to adequate safety, to the nearest suitable place where cleaning can be carried out.

Carriage is adequately safe if suitable measures have been taken to prevent the uncontrolled release of the dangerous goods that have escaped.

7.5.8.2 Vehicles or containers which have been loaded with dangerous goods in bulk shall be properly cleaned before reloading unless the new load consists of the same dangerous goods as the preceding load.

**7.5.9 Prohibition of smoking**

Smoking shall be prohibited during handling operations in the vicinity of vehicles or containers and inside the vehicles or containers.

**7.5.10 Precautions against electrostatic charges**

In the case of substances with a flash-point of 61 °C or below, a good electrical connection from the chassis of the vehicle, the portable tank or the tank-container to earth shall be established before tanks are filled or emptied. In addition, the rate of filling shall be limited.

**7.5.11 Additional provisions applicable to certain classes or specific goods**

In addition to the provisions of sections 7.5.1 to 7.5.10, the following provisions shall apply when they are shown under an entry indicated in Column (18) of Table A of Chapter 3.2.

- CV1 (1) The following operations are prohibited:
- (a) Loading or unloading goods in a public place in a built-up area without special permission from the competent authorities;
  - (b) Loading or unloading goods in a public place elsewhere than in a built-up area without prior notice thereof having been given to the competent authorities, unless these operations are urgently necessary for reasons of safety.
- (2) If, for any reason, handling operations have to be carried out in a public place, then substances and articles of different kinds shall be separated according to the labels.
- CV2 (1) Before loading, the loading surface of the vehicle or container shall be thoroughly cleaned.

- (2) The use of fire or naked flame shall be prohibited on vehicles and containers carrying goods, in their vicinity and during the loading and unloading of these goods.

CV3 See 7.5.5.2.

CV4 Substances and articles of compatibility group L shall only be carried as a full load.

CV5 to  
CV8 (*Reserved*)

CV9 Packages shall not be thrown or subjected to impact.

Receptacles shall be so stowed in the vehicle or container that they cannot overturn or fall.

CV10 Cylinders as defined in 1.2.1, shall be laid parallel to or at right angles to the longitudinal axis of the vehicle or container; however, those situated near the forward transverse wall shall be laid at right angles to the said axis.

Short cylinders of large diameter (about 30 cm and over) may be stowed longitudinally with their valve-protecting devices directed towards the middle of the vehicle or container.

Cylinders which are sufficiently stable or are carried in suitable devices effectively preventing them from overturning may be placed upright.

Cylinders which are laid flat shall be securely and appropriately wedged, attached or secured so that they cannot shift.

CV11 Receptacles shall always be placed in the position for which they were designed and be protected against any possibility of being damaged by other packages.

CV12 When pallets loaded with articles are stacked, each tier of pallets shall be evenly distributed over the lower tier, if necessary by the interposition of a material of adequate strength.

CV13 If any substances have leaked and been spilled in a vehicle or container, it may not be re-used until after it has been thoroughly cleaned and, if necessary, disinfected or decontaminated. Any other goods and articles carried in the same vehicle or container shall be examined for possible contamination.

CV14 Goods shall be shielded from direct sunlight and heat during carriage.

Packages shall be stored only in cool, well-ventilated places away from heat sources.

CV15 See 7.5.5.3.

CV16 to  
CV19 (*Reserved*)

CV20 The provisions of Chapter 5.3 and special provisions V1 and V8(5) and (6) of Chapter 7.2 shall not apply provided that the substance is packaged in accordance with packing method OP1 or OP2 of packing instruction P520 in 4.1.4.1, as required, and the total quantity of substances to which this derogation applies per transport unit is limited to 10 kg.

CV21 The transport unit shall be thoroughly inspected prior to loading.

Before carriage, the carrier shall be informed:

- about the operation of the refrigeration system, including a list of the suppliers of coolant available en route;
- procedures to be followed in the event of loss of temperature control.

In the case of temperature control in accordance with methods R2 or R4 of special provision V8(3) of Chapter 7.2, a sufficient quantity of non-flammable refrigerant (e.g. liquid nitrogen or dry ice), including a reasonable margin for possible delays, shall be carried unless a means of replenishment is assured.

Packages shall be so stowed as to be readily accessible.

The specified control temperature shall be maintained during the whole transport operation, including loading and unloading, as well as any intermediate stops.

CV22 Packages shall be loaded so that a free circulation of air within the loading space provides a uniform temperature of the load. If the contents of one vehicle or large container exceed 5 000 kg of flammable solids and/or organic peroxides, the load shall be divided into stacks of not more than 5 000 kg separated by air spaces of at least 0.05 m.

CV23 When handling packages, special measures shall be taken to ensure that they do not come into contact with water.

CV24 Before loading, vehicles and containers shall be thoroughly cleaned and in particular be free of any combustible debris (straw, hay, paper, etc.).

The use of readily flammable materials for stowing packages is prohibited.

CV25 (1) Packages shall be so stowed that they are readily accessible.

(2) When packages are to be carried at an ambient temperature of not more than 15 °C or refrigerated, the temperature shall be maintained when unloading or during storage.

(3) Packages shall be stored only in cool places away from sources of heat.

CV26 The wooden parts of a vehicle or container which have come into contact with these substances shall be removed and burnt.

- CV27 (1) Packages shall be so stowed that they are readily accessible.
- (2) When packages are to be carried refrigerated, the functioning of the cooling chain shall be ensured when unloading or during storage.
- (3) Packages shall only be stored in cool places away from sources of heat.

CV28 See 7.5.4.

CV29 to  
CV32 (Reserved)

CV33 **NOTE 1:** "Critical group" means a group of members of the public which is reasonably homogeneous with respect to its exposure for a given radiation source and given exposure pathway and is typical of individual receiving the highest effective dose by the given exposure pathway from the given source.

**NOTE 2:** "Members of the public" means in a general sense, any individuals in the population except when subject to occupational or medical exposure.

**NOTE 3:** "Workers" are any persons who work, whether full time, part-time or temporarily, for an employer and who have recognised rights and duties in relation to occupational radiation protection.

(1) Segregation

(1.1) Packages, overpacks, containers and tanks shall be segregated during carriage:

- (a) from areas where persons other than those referred to in paragraph (c) have regular access;
- (i) in accordance with Table A below; or
- (ii) by a distance calculated to ensure members of the critical group in that area receive less than 1mSv per year;

and

- (b) from undeveloped photographic film and mailbags, in accordance with Table B below;

**NOTE:** Mailbags shall be assumed to contain undeveloped film and plates and therefore be separated from radioactive material in the same way.

and

- (c) from workers in regularly occupied working areas either;
- (i) in accordance with Table A below; or
- (ii) by a distance calculated to ensure that workers in that area receive less than 5mSv per year;

*NOTE: Workers subject to individual monitoring for the purpose of radiation protection shall not be considered for the purpose of segregation.*

and

(d) from other dangerous goods in accordance with 7.5.2.1.

**Table A: Minimum distances between packages of category II-YELLOW or of category III-YELLOW and persons**

Sum of transport indexes not more than	Exposure time per year (hours)			
	Areas where members of the public have regular access		Regularly occupied working areas	
	50	250	50	250
	Segregation distance in metres, no shielding material intervening, from:			
2	1	3	0.5	1
4	1.5	4	0.5	1.5
8	2.5	6	1.0	2.5
12	3	7.5	1.0	3
20	4	9.5	1.5	4
30	5	12	2	5
40	5.5	13.5	2.5	5.5
50	6.5	15.5	3	6.5

- (1.2) Category II-YELLOW or III-YELLOW packages or overpacks shall not be carried in compartments occupied by passengers, except those exclusively reserved for couriers specially authorized to accompany such packages or overpacks.
- (1.3) No persons other than the driver and the other members of the crew shall be permitted in vehicles carrying packages, overpacks or containers bearing category II-YELLOW or III-YELLOW labels.
- (1.4) Radioactive material shall be sufficiently segregated from undeveloped photographic film. The basis for determining segregation distances for this purpose shall be that the radiation exposure of undeveloped photographic film due to the carriage of radioactive material be limited to 0.1 mSv per consignment of such film (see Table B below).

**Table B: Minimum distances between packages of category II-YELLOW or of category III-YELLOW and packages bearing the word "FOTO", or mailbags**

Total number of packages not more than		Sum of transport indexes not more than	Journey or storage duration, in hours							
Category			1	2	4	10	24	48	120	240
III-yellow	II-yellow	Minimum distances in metres								
		0.2	0.5	0.5	0.5	0.5	1	1	2	3
		0.5	0.5	0.5	0.5	1	1	2	3	5
	1	1	0.5	0.5	1	1	2	3	5	7
	2	2	0.5	1	1	1.5	3	4	7	9
	4	4	1	1	1.5	3	4	6	9	13
	8	8	1	1.5	2	4	6	8	13	18
1	10	10	1	2	3	4	7	9	14	20
2	20	20	1.5	3	4	6	9	13	20	30
3	30	30	2	3	5	7	11	16	25	35
4	40	40	3	4	5	8	13	18	30	40
5	50	50	3	4	6	9	14	20	32	45

(2) *Activity limits*

The total activity in a vehicle, for carriage of LSA material or SCO in Industrial Packages Type 1 (Type IP-1), Type 2 (Type IP-2), Type 3 (Type IP-3) or unpackaged, shall not exceed the limits shown in Table C below.

**Table C: Vehicle activity limits for LSA material and SCO in industrial packages or unpackaged**

Nature of material or object	Activity limit for vehicle
LSA-I	No limit
LSA-II and LSA-III non-combustible solids	No limit
LSA-II and LSA-III combustible solids, and all liquids and gases	100 A <sub>2</sub>
SCO	100 A <sub>2</sub>

(3) *Stowage during carriage and storage in transit*

(3.1) Consignments shall be securely stowed.

(3.2) Provided that its average surface heat flux does not exceed 15 W/m<sup>2</sup> and that the immediately surrounding cargo is not in bags, a package or overpack may be carried or stored among packaged general cargo without any special stowage provisions except as may be specifically required by the competent authority in an applicable approval certificate.



(3.3) Loading of containers and accumulation of packages, overpacks and containers shall be controlled as follows:

- (a) Except under the condition of exclusive use, the total number of packages, overpacks and containers aboard a single vehicle shall be so limited that the total sum of the transport indexes aboard the vehicle does not exceed the values shown in Table D below. For consignments of LSA-I material there shall be no limit on the sum of the transport indexes;
- (b) Where a consignment is carried under exclusive use, there shall be no limit on the sum of the transport indexes aboard a single vehicle;
- (c) The radiation level under routine conditions of carriage shall not exceed 2 mSv/h at any point on, and 0.1 mSv/h at 2 m from, the external surface of the vehicle;
- (d) The total sum of the criticality safety indexes in a container and aboard a vehicle shall not exceed the values shown in Table E below.

**Table D: Transport Index limits for containers and vehicles not under exclusive use**

Type of container or vehicle	Limit on total sum of transport indexes in a container or aboard a vehicle
Small container	50
Large container	50
Vehicle	50

**Table E: Criticality Safety Index for containers and vehicles containing fissile material**

Type of container or vehicle	Limit on total sum of criticality safety indexes	
	Not under exclusive use	Under exclusive use
Small container	50	n.a.
Large container	50	100
Vehicle	50	100

(3.4) Any package or overpack having either a transport index greater than 10, or any consignment having a criticality safety index greater than 50, shall be carried only under exclusive use.

(3.5) For consignments under exclusive use, the radiation level shall not exceed:

- (a) 10 mSv/h at any point on the external surface of any package or overpack, and may only exceed 2 mSv/h provided that:

- (i) the vehicle is equipped with an enclosure which, during routine conditions of carriage, prevents the access of unauthorized persons to the interior of the enclosure;
    - (ii) provisions are made to secure the package or overpack so that its position within the vehicle enclosure remains fixed during routine conditions of carriage, and
    - (iii) there is no loading or unloading during the shipment;
  - (b) 2 mSv/h at any point on the outer surfaces of the vehicle, including the upper and lower surfaces, or, in the case of an open vehicle, at any point on the vertical planes projected from the outer edges of the vehicle, on the upper surface of the load, and on the lower external surface of the vehicle; and
  - (c) 0.1 mSv/h at any point 2 m from the vertical planes represented by the outer lateral surfaces of the vehicle, or, if the load is carried in an open vehicle, at any point 2 m from the vertical planes projected from the outer edges of the vehicle.
- (4) *Segregation of packages containing fissile material during carriage and storage in transit*
- (4.1) The number of packages, overpacks and containers containing fissile material stored in transit in any one storage area shall be so limited that the total sum of the criticality safety indexes in any group of such packages, overpacks or containers does not exceed 50. Groups of such packages, overpacks and containers shall be stored so as to maintain a spacing of at least 6 m from other groups of such packages, overpacks or containers.
  - (4.2) Where the total sum of the criticality safety indexes on board a vehicle or in a container exceeds 50, as permitted in Table E above, storage shall be such as to maintain a spacing of at least 6 m from other groups of packages, overpacks or containers containing fissile material or other vehicles carrying radioactive material.
- (5) *Damaged or leaking packages, contaminated packagings*
- (5.1) If it is evident that a package is damaged or leaking, or if it is suspected that the package may have leaked or been damaged, access to the package shall be restricted and a qualified person shall, as soon as possible, assess the extent of contamination and the resultant radiation level of the package. The scope of the assessment shall include the package, the vehicle, the adjacent loading and unloading areas, and, if necessary, all other material which has been carried in the vehicle.

When necessary, additional steps for the protection of persons property and the environment, in accordance with provisions established by the competent authority, shall be taken to overcome and minimize the consequences of such leakage or damage.

- (5.2) Packages damaged or leaking radioactive contents in excess of allowable limits for normal conditions of carriage may be removed to an acceptable interim location under supervision, but shall not be forwarded until repaired or reconditioned and decontaminated.
- (5.3) A vehicle and equipment used regularly for the carriage of radioactive material shall be periodically checked to determine the level of contamination. The frequency of such checks shall be related to the likelihood of contamination and the extent to which radioactive material is carried.
- (5.4) Except as provided in paragraph (5.5), any vehicle, or equipment or part thereof which has become contaminated above the limits specified in 4.1.9.1.2 in the course of carriage of radioactive material, or which shows a radiation level in excess of  $5 \mu\text{Sv/h}$  at the surface, shall be decontaminated as soon as possible by a qualified person and shall not be re-used unless the non-fixed contamination does not exceed the limits specified in 4.1.9.1.2, and the radiation level resulting from the fixed contamination on surfaces after decontamination is less than  $5 \mu\text{Sv/h}$  at the surface.
- (5.5) An overpack, container, tank, intermediate bulk container or vehicle dedicated to the carriage of radioactive material under exclusive use shall be excepted from the requirements of the previous paragraph (5.4) and in 4.1.9.1.4 solely with regard to its internal surfaces and only for as long as it remains under that specific exclusive use.
- (6) *Other provisions*

Where a consignment is undeliverable, the consignment shall be placed in a safe location and the competent authority shall be informed as soon as possible and a request made for instructions on further action.

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**ANNEX B**

**PROVISIONS CONCERNING TRANSPORT EQUIPMENT  
AND TRANSPORT OPERATIONS**

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## **PART 8**

# **Requirements for vehicle crews, equipment, operation and documentation**

**CHAPTER 8.1****GENERAL REQUIREMENTS CONCERNING TRANSPORT UNITS  
AND EQUIPMENT ON BOARD****8.1.1 Transport units**

A transport unit loaded with dangerous goods may in no case include more than one trailer (or semi-trailer).

**8.1.2 Documents to be carried on the transport unit**

8.1.2.1 In addition to the documents required under other regulations, the following documents shall be carried on the transport unit:

- (a) The transport documents prescribed in 5.4.1, covering all the dangerous goods carried and, when appropriate, the container packing certificate prescribed in 5.4.2;
- (b) The instructions in writing prescribed in 5.4.3, relating to all the dangerous goods carried;
- (c) A copy of the main text of the special agreement(s) concluded in accordance with Chapter 1.5, if carriage is carried out on the basis of such agreement(s).

8.1.2.2 Where the provisions of ADR require the following documents to be drawn up, they shall likewise be carried on the transport unit:

- (a) The certificate of approval referred to in 9.1.2 for each transport unit or element thereof;
- (b) The driver's training certificate prescribed in 8.2.1;
- (c) The permit authorizing the transport operation, as prescribed in 5.4.1.2.1 (c), 5.4.1.2.3.3, 2.2.41.1.13 and 2.2.52.1.8.

8.1.2.3 The instructions in writing prescribed in 5.4.3 shall be kept in a readily identifiable form in the driver's cab. The carrier shall ensure that the drivers concerned understand and are capable of carrying out these instructions properly.

8.1.2.4 Instructions in writing which are not applicable to the goods which are on board the vehicle shall be kept separate from pertinent documents in such a way as to prevent confusion.

**8.1.3 Placarding and marking**

Transport units carrying dangerous goods shall be placarded and marked in conformity with Chapter 5.3.

**8.1.4 Fire-fighting equipment**

8.1.4.1 The following provisions apply to transport units carrying dangerous goods other than those referred to in 8.1.4.2:

- (a) Every transport unit shall be equipped with at least one portable fire extinguisher for the inflammability classes<sup>1</sup> A, B and C, with a minimum capacity of 2 kg dry powder (or an equivalent capacity for any other suitable extinguishing agent) suitable for fighting a fire in the engine or cab of the transport unit;
- (b) Additional equipment is required as follows:
  - (i) for transport units with a maximum permissible mass of more than 7.5 tonnes, one or more portable fire extinguishers for the inflammability classes<sup>1</sup> A, B and C, with a minimum total capacity of 12 kg dry powder (or an equivalent capacity for any other suitable extinguishing agent), of which at least one shall have a minimum capacity of 6 kg;
  - (ii) for transport units with a maximum permissible mass of more than 3.5 tonnes up to and including 7.5 tonnes, one or more portable fire extinguishers for the inflammability classes<sup>1</sup> A, B and C, with a minimum total capacity of 8 kg dry powder (or an equivalent capacity for any other suitable extinguishing agent), of which at least one shall have a minimum capacity of 6 kg;
  - (iii) for transport units with a maximum permissible mass of up to and including 3.5 tonnes, one or more portable fire extinguishers for the inflammability classes<sup>1</sup> A, B and C with a minimum total capacity of 4 kg dry powder (or an equivalent capacity for any other suitable extinguishing agent);
- (c) The capacity of the fire extinguisher(s) required under (a) may be deducted from the minimum total capacity of the extinguishers required under (b).

8.1.4.2 Transport units carrying dangerous goods in accordance with 1.1.3.6 shall be equipped with one portable fire extinguisher for the inflammability classes<sup>1</sup> A, B and C, with a minimum capacity of 2 kg dry powder (or an equivalent capacity for any other suitable extinguishing agent).

8.1.4.3 The extinguishing agent shall be suitable for use on a vehicle and shall comply with the relevant requirements of EN 3 Portable fire extinguishers, Parts 1 to 6 (EN 3-1:1996, EN 3-2:1996, EN 3-3:1994, EN 3-4:1996, EN 3-5:1996, EN 3-6:1995).

If the vehicle is equipped with a fixed fire extinguisher, automatic or easily brought into action for fighting a fire in the engine, the portable extinguisher need not be suitable for fighting a fire in the engine. The extinguishing agents shall be such that they are not liable to release toxic gases into the driver's cab or under the influence of the heat of the fire.

8.1.4.4 The portable fire extinguishers conforming to the provisions of 8.1.4.1 or 8.1.4.2 shall be fitted with a seal verifying that they have not been used.

In addition, they shall bear a mark of compliance with a standard recognized by a competent authority and an inscription at least indicating the date (month, year) of the next recurrent inspection or of the maximum permissible period of use, as applicable.

The fire extinguishers shall be subjected to periodic inspections in accordance with authorized national standards in order to guarantee their functional safety.

<sup>1</sup> For the definition of the inflammability classes, see Standard EN 2:1992 Classification of fires.

- 8.1.4.5 The fire extinguishers shall be installed on the transport units in a way that they are easily accessible to the vehicle crew. The installation shall be carried out in such a way that the fire extinguishers shall be protected against effects of the weather so that their operational safety is not affected.

**8.1.5 Miscellaneous equipment**

Every transport unit carrying dangerous goods shall be equipped with:

- (a) The following general purpose safety equipment:
- For each vehicle, at least one chock of a size suited to the weight of the vehicle and to the diameter of the wheels;
  - Two self-standing warning signs (e.g. reflective cones or triangles or flashing amber lights which are independent from the electrical equipment of the vehicle);
  - A suitable warning vest or warning clothing (e.g. as described in European Standard EN 471) for each member of the vehicle crew;
  - A pocket lamp (see also 8.3.4) for each member of the vehicle crew;
- (b) A respiratory protective device in conformity with additional requirement S7 (see Chapter 8.5) if this additional requirement applies according to the indication in Column (19) of Table A of Chapter 3.2;
- (c) The personal protection and the equipment necessary to take the additional and/or special actions referred to in the instructions in writing set out in 5.4.3.



**CHAPTER 8.2****REQUIREMENTS CONCERNING THE TRAINING OF THE VEHICLE CREW****8.2.1 General requirements concerning the training of drivers**

- 8.2.1.1 Drivers of vehicles with a permissible maximum mass exceeding 3.5 tonnes carrying dangerous goods, drivers of vehicles referred to in 8.2.1.3 and drivers of other vehicles referred to in 8.2.1.4 shall hold a certificate issued by the competent authority or by any organization recognized by that authority stating that they have participated in a training course and passed an examination on the particular requirements that have to be met during carriage of dangerous goods.
- 8.2.1.2 Drivers of vehicles specified in 8.2.1.1 shall attend a basic training course. Training shall be given in the form of a course approved by the competent authority. Its main objectives are to make drivers aware of hazards arising in the carriage of dangerous goods and to give them basic information indispensable for minimizing the likelihood of an incident taking place and, if it does, to enable them to take measures which may prove necessary for their own safety and that of the public and the environment, for limiting the effects of an incident. This training, which shall include individual practical exercises, shall act as the basis of training for all categories of drivers covering at least the subjects defined in 8.2.2.3.2.
- 8.2.1.3 Drivers of vehicles carrying dangerous goods in fixed tanks or demountable tanks with a capacity exceeding 1 m<sup>3</sup>, drivers of battery-vehicles with a total capacity exceeding 1 m<sup>3</sup> and drivers of vehicles carrying dangerous goods in tank-containers, portable tanks or MEGCs with an individual capacity exceeding 3 m<sup>3</sup> on a transport unit, shall attend a specialization training course for carriage in tanks covering at least the subjects defined in 8.2.2.3.3.
- 8.2.1.4 Irrespective of the permissible maximum mass of the vehicle, drivers of vehicles carrying substances or articles of Class 1 (see additional requirement S1 in Chapter 8.5) or certain radioactive material (see special provisions S11 and S12 in Chapter 8.5) shall attend specialization training courses covering at least the subjects defined in 8.2.2.3.4 or 8.2.2.3.5.
- 8.2.1.5 By means of appropriate endorsements on his certificate made every five years by the competent authority or by any organization recognized by that authority, a vehicle driver shall be able to show that he has in the year before the date of expiry of his certificate completed a refresher training course and has passed corresponding examinations. The new period of validity shall begin with the date of expiry of the certificate.
- 8.2.1.6 Initial or refresher basic training courses and initial or refresher specialization training courses may be given in the form of comprehensive courses, conducted integrally, on the same occasion and by the same training organization.
- 8.2.1.7 Initial training courses, refresher courses, practical exercises, examinations and the role of competent authorities shall comply with the provisions of 8.2.2.
- 8.2.1.8 All training certificates conforming to the requirements of this section and issued in accordance with the model shown in 8.2.2.8.3 by the competent authority of a Contracting Party or by any organization recognized by that authority shall be accepted during their period of validity by the competent authorities of other Contracting Parties.
- 8.2.1.9 The certificate shall be prepared in the language or one of the languages of the country of the competent authority which issued the certificate or recognized the issuing organization and, if this language is not English, French or German, also in English, French or German, except

where otherwise provided by agreements concluded between the countries concerned with the transport operation.

## **8.2.2 Special requirements concerning the training of drivers**

8.2.2.1 The necessary knowledge and skills shall be imparted by training covering theoretical courses and practical exercises. The knowledge shall be tested in an examination.

8.2.2.2 The training provider shall ensure that the training instructors have a good knowledge of, and take into consideration, recent developments in regulations and training requirements relating to the carriage of dangerous goods. The training shall be practice-related. The training programme shall conform with the approval, on the subjects set out in 8.2.2.3.2 to 8.2.2.3.5. The initial training and refresher training shall also include individual practical exercises (see 8.2.2.4.5).

### **8.2.2.3 *Structure of training***

8.2.2.3.1 Initial and refresher training shall be given in the form of a basic course and, when applicable, specialization courses.

8.2.2.3.2 Subjects to be covered by the basic course will be, at least:

- (a) General requirements governing the carriage of dangerous goods;
- (b) Main types of hazard;
- (c) Information on environmental protection in the control of the transfer of wastes;
- (d) Preventive and safety measures appropriate to the various types of hazard;
- (e) What to do after an accident (first aid, road safety, basic knowledge about the use of protective equipment, etc.);
- (f) Marking, labelling, placarding and orange-coloured plate marking;
- (g) What a driver should and should not do during the carriage of dangerous goods;
- (h) Purpose and the method of operation of technical equipment on vehicles;
- (i) Prohibitions on mixed loading in the same vehicle or container;
- (j) Precautions to be taken during loading and unloading of dangerous goods;
- (k) General information concerning civil liability;
- (l) Information on multimodal transport operations;
- (m) Handling and stowage of packages.

8.2.2.3.3 Special subjects to be covered by the specialization course for carriage in tanks shall be, at least:

- (a) Behaviour of vehicles on the road, including movements of the load;
- (b) Specific requirements of the vehicles;
- (c) General theoretical knowledge of the various and different filling and discharge systems;

- (d) Specific additional provisions applicable to the use of those vehicles (certificates of approval, approval marking, placarding and orange-coloured plate marking, etc.).

8.2.2.3.4 Special subjects to be covered by the specialization course for the carriage of substances and articles of Class 1 shall be, at least:

- (a) Specific hazards related to explosive and pyrotechnical substances and articles;  
 (b) Specific requirements concerning mixed loading of substances and articles of Class 1.

8.2.2.3.5 Special subjects to be covered by the specialization course for the carriage of radioactive material of Class 7 shall be, at least:

- (a) Specific hazards related to ionizing radiation;  
 (b) Specific requirements concerning packing, handling, mixed loading and stowage of radioactive material;  
 (c) Special measures to be taken in the event of an accident involving radioactive material.

#### 8.2.2.4 *Initial training programme*

8.2.2.4.1 The minimum duration of the theoretical element of each initial course or part of the comprehensive course shall be as follows:

Basic course	18 teaching units <sup>1</sup>
Specialization course for carriage in tanks	12 teaching units <sup>1</sup>
Specialization course for carriage of substances and articles of Class 1	8 teaching units
Specialization course for carriage of radioactive material of Class 7	8 teaching units

8.2.2.4.2 The total duration of the comprehensive course may be determined by the competent authority, who shall maintain the duration of the basic course and the specialization course for tanks, but may supplement it with shortened specialization courses for Classes 1 and 7.

8.2.2.4.3 Teaching units are intended to last 45 minutes.

8.2.2.4.4 Normally, not more than eight teaching units are permitted on each day of the course.

8.2.2.4.5 The individual practical exercises shall take place in connection with the theoretical training, and shall at least cover first aid, fire-fighting and what to do in case of an incident or accident.

#### 8.2.2.5 *Refresher training programme*

8.2.2.5.1 Refresher training courses undertaken at regular intervals serve the purpose of bringing the drivers' knowledge up to date; they shall cover new technical, legal and substance-related developments.

<sup>1</sup> Additional teaching units are required for practical exercises referred to in 8.2.2.4.5 below which will vary depending on the number of drivers under instruction.

- 8.2.2.5.2 Refresher courses shall have been completed before the period referred to in 8.2.1.5 has expired.
- 8.2.2.5.3 The duration of each refresher course shall be of at least one day.
- 8.2.2.5.4 Normally, not more than eight teaching units shall be permitted on each day of the course.
- 8.2.2.6 *Approval of training***
- 8.2.2.6.1 The training courses shall be subject to approval by the competent authority.
- 8.2.2.6.2 Approval shall only be given with regard to applications submitted in writing.
- 8.2.2.6.3 The following documents shall be attached to the application for approval:
- (a) A detailed training programme specifying the subjects taught and indicating the time schedule and planned teaching methods;
  - (b) Qualifications and fields of activities of the teaching personnel;
  - (c) Information on the premises where the courses take place and on the teaching materials as well as on the facilities for the practical exercises;
  - (d) Conditions of participation in the courses, such as number of participants.
- 8.2.2.6.4 The competent authority shall organize the supervision of training and examinations.
- 8.2.2.6.5 Approval shall be granted in writing by the competent authority subject to the following conditions:
- (a) The training shall be given in conformity with the application documents;
  - (b) The competent authority shall be granted the right to send authorized persons to be present at the training courses and examinations;
  - (c) The competent authority shall be advised in time of the dates and the places of the individual training courses;
  - (d) The approval may be withdrawn if the conditions of approval are not complied with.
- 8.2.2.6.6 The approval document shall indicate whether the courses concerned are basic or specialization courses, initial or refresher courses.
- 8.2.2.6.7 If the training body, after a training course has been given approval, intends to make any alterations with respect to such details as were relevant to the approval, it shall seek permission in advance from the competent authority. This applies in particular to changes concerning the training programme.
- 8.2.2.7 *Examinations***
- 8.2.2.7.1 *Examinations for the initial basic course*
- 8.2.2.7.1.1 After completion of the basic training, including the practical exercises, an examination shall be held on the basic course.

- 8.2.2.7.1.2 In the examination, the candidate has to prove that he has the knowledge, insight and skill for the practice of professional driver of vehicles carrying dangerous goods as provided in the basic training course.
- 8.2.2.7.1.3 For this purpose the competent authority, or the examination body approved by that authority, shall prepare a catalogue of questions which refer to the items summarized in 8.2.2.3.2. Questions in the examination shall be drawn from this catalogue. The candidates shall not have any knowledge of the questions selected from the catalogue prior to the examination.
- 8.2.2.7.1.4 A single examination for comprehensive courses may be held.
- 8.2.2.7.1.5 Each competent authority shall supervise the modalities of the examination.
- 8.2.2.7.1.6 The examination shall take the form of a written examination or a combination of a written and oral examination. Each candidate shall be asked at least 25 written questions. The duration of the examination shall be at least 45 minutes. The questions may be of a varying degree of difficulty and be allocated a different weighting.
- 8.2.2.7.2 *Examinations for initial specialization courses for carriage in tanks or for carriage of explosive substances and articles or radioactive material*
- 8.2.2.7.2.1 After having sat the examination on the basic course and after having attended the specialization course for carriage in tanks or for the carriage of explosive or radioactive material, the candidate shall be allowed to take part in the corresponding examination.
- 8.2.2.7.2.2 This examination shall be held and supervised on the same basis as in 8.2.2.7.1.
- 8.2.2.7.2.3 At least 15 questions shall be asked with respect to each specialization course.
- 8.2.2.7.3 *Examinations for refresher courses*
- 8.2.2.7.3.1 After having undertaken a refresher training course the candidate shall be allowed to take part in the corresponding examination.
- 8.2.2.7.3.2 The examination shall be held and supervised on the same basis as set out in 8.2.2.7.1.
- 8.2.2.7.3.3 At least 15 questions shall be asked with respect to the refresher training course.
- 8.2.2.8 *Certificate of driver's training*
- 8.2.2.8.1 According to 8.2.1.8, the certificate shall be issued:
- (a) After completion of a basic training course, provided the candidate has successfully passed the examination in accordance with 8.2.2.7.1;
  - (b) If applicable, after completion of a specialization course for carriage in tanks or carriage of explosive substances or articles or of radioactive material, or after having acquired the knowledge referred to in special provisions S1 and S11 in Chapter 8.5, provided the candidate has successfully passed an examination in accordance with 8.2.2.7.2.
- 8.2.2.8.2 The certificate shall be renewed if the candidate furnishes proof of his participation in a refresher course in accordance with 8.2.1.5 and if he has successfully passed an examination in accordance with 8.2.2.7.3.

- 8.2.2.8.3 The certificate shall have the layout of the model below. It is recommended that the format shall be the same as the European national driving permit, namely A7 (105 mm x 74 mm), or a double sheet that can be folded to that format.

**Model of certificate**

**1**

**2**

**ADR - TRAINING CERTIFICATE FOR DRIVERS OF VEHICLES CARRYING DANGEROUS GOODS**

in tanks <sup>1</sup>                      other than in tanks <sup>1</sup>

Certificate No. ....

Distinguishing sign of issuing State .....

Valid for class(es) <sup>1,2</sup>

in tanks                      other than in tanks

- |               |               |
|---------------|---------------|
| 1             | 1             |
| 2             | 2             |
| 3             | 3             |
| 4.1, 4.2, 4.3 | 4.1, 4.2, 4.3 |
| 5.1, 5.2      | 5.1, 5.2      |
| 6.1, 6.2      | 6.1, 6.2      |
| 7             | 7             |
| 8             | 8             |
| 9             | 9             |

until (date) <sup>3</sup> .....

<sup>1</sup> Strike out what does not apply.

<sup>2</sup> For extension to other classes, see page 3.

<sup>3</sup> For renewal, see page 2.

Surname .....

First name(s) .....

Date of birth ..... Nationality .....

Signature of holder .....

Issued by .....

Date .....

Signature <sup>4</sup> .....

Renewed until .....

By .....

.....

Signature <sup>4</sup> .....

<sup>4</sup> and/or seal (or stamp) of issuing authority.

**3**

**4**

**EXTENDED TO CLASS(ES) <sup>5</sup>**

**For national regulations only.**

in tanks

- |               |                                |
|---------------|--------------------------------|
| 1             |                                |
| 2             |                                |
| 3             | Date .....                     |
| 4.1, 4.2, 4.3 |                                |
| 5.1, 5.2      | Signature and/or seal or stamp |
| 6.1, 6.2      | .....                          |
| 7             |                                |
| 8             |                                |
| 9             |                                |

other than in tanks

- |               |                                |
|---------------|--------------------------------|
| 1             |                                |
| 2             |                                |
| 3             | Date .....                     |
| 4.1, 4.2, 4.3 |                                |
| 5.1, 5.2      | Signature and/or seal or stamp |
| 6.1, 6.2      | .....                          |
| 7             |                                |
| 8             |                                |
| 9             |                                |

<sup>5</sup> Strike out what does not apply.

**8.2.3 Training of all persons, other than the drivers referred to in 8.2.1, involved in the carriage of dangerous goods by road**

Persons whose duties concern the carriage of dangerous goods by road shall have received training in the requirements governing the carriage of such goods appropriate to their responsibilities and duties according to Chapter 1.3. This requirement shall apply to individuals such as personnel who are employed by the road vehicle operator or the consignor, personnel who load or unload dangerous goods, personnel in freight forwarding or shipping agencies and drivers not referred to in 8.2.1.



**CHAPTER 8.3**

**MISCELLANEOUS REQUIREMENTS TO BE COMPLIED  
WITH BY THE VEHICLE CREW**

**8.3.1 Passengers**

Apart from members of the vehicle crew, no passengers may be carried in transport units carrying dangerous goods.

**8.3.2 Use of fire-fighting appliances**

The crew of the vehicle shall know how to use the fire-fighting appliances.

**8.3.3 Prohibition on opening packages**

A driver or a driver's assistant may not open a package containing dangerous goods.

**8.3.4 Portable lighting apparatus**

A vehicle may not be entered by persons carrying lighting apparatus comprising a flame. In addition, the lighting apparatus used shall not exhibit any metal surface liable to produce sparks.

**8.3.5 Prohibition on smoking**

Smoking shall be prohibited during handling operations in the vicinity of vehicles and inside the vehicles.

**8.3.6 Running the engine during loading or unloading**

Except where the engine has to be used to drive the pumps or other appliances for loading or unloading the vehicle and the laws of the country in which the vehicle is operating permit such use, the engine shall be shut off during loading and unloading operations.

**8.3.7 Use of the parking brake**

No transport unit carrying dangerous goods may be parked without the parking brakes being applied.

**CHAPTER 8.4****REQUIREMENTS CONCERNING THE SUPERVISION OF VEHICLES**

Vehicles carrying dangerous goods in the quantities shown in special provisions S1 (6) and S14 to S21 of Chapter 8.5 for a given substance according to Column (19) of Table A of Chapter 3.2 shall be supervised or alternatively may be parked, unsupervised, in a secure depot or secure factory premises. If such facilities are not available, the vehicle, after having been properly secured, may be parked in an isolated position meeting the requirements of (a), (b) or (c) below:

- (a) A vehicle park supervised by an attendant who has been notified of the nature of the load and the whereabouts of the driver;
- (b) A public or private vehicle park where the vehicle is not likely to suffer damage from other vehicles; or
- (c) A suitable open space separated from the public highway and from dwellings, where the public does not normally pass or assemble;

The parking facilities permitted in (b) shall be used only if those described in (a) are not available, and those described in (c) may be used only if facilities described in (a) and (b) are not available.

**CHAPTER 8.5****ADDITIONAL REQUIREMENTS RELATING TO PARTICULAR CLASSES OR SUBSTANCES**

In addition to the requirements of Chapters 8.1 to 8.4, when reference is made to them in Column (19) of Table A of Chapter 3.2, the following requirements shall apply to the carriage of the substances or articles concerned. In the event of conflict with the requirements of Chapters 8.1 to 8.4, the requirements of this Chapter shall take precedence.

**S1: Additional requirements concerning the carriage of explosive substances and articles (Class 1)****(1) *Special training of drivers***

- (a) Irrespective of the permissible maximum mass of the vehicle, the requirements of 8.2.1 shall apply to drivers of vehicles carrying substances or articles of Class 1;
- (b) Drivers of vehicles carrying substances or articles of Class 1 shall attend a specialization training course covering at least the subjects defined in 8.2.2.3.4;
- (c) If, according to other regulations applicable in the country of a Contracting Party, a driver has followed equivalent training under a different regime or for a different purpose, covering the subjects referred to in (b), the specialization course may be totally or partially dispensed with.

**(2) *Approved official***

If the national regulations so provide, the competent authority of a country contracting party to ADR may require an approved official to be carried in the vehicle at the carrier's expense.

**(3) *Prohibition of fire and naked flame***

The use of fire or naked flame shall be prohibited on vehicles carrying substances and articles of Class 1, in their vicinity and during the loading and unloading of these substances and articles.

**(4) *Places of loading and unloading***

- (a) Loading or unloading of substances and articles of Class 1 shall not take place in a public place in a built-up area without special permission from the competent authorities;
- (b) Loading or unloading of substances and articles of Class 1 in a public space elsewhere than in a built-up area without prior notice thereof having been given to the competent authorities shall be prohibited, unless operations are urgently necessary for reasons of safety;
- (c) If, for any reason, handling operations have to be carried out in a public place, then substances and articles of different kinds shall be separated according to the labels;

- (d) When vehicles carrying substances and articles of Class 1 are obliged to stop for loading or unloading operations in a public place, a distance of at least 50 m shall be maintained between the stationary vehicles.

(5) *Convoys*

- (a) When vehicles carrying substances and articles of Class 1 travel in convoy, a distance of not less than 50 m shall be maintained between each transport unit and the next;
- (b) The competent authority may lay down rules for the order or composition of convoys.

(6) *Supervision of vehicles*

The requirements of Chapter 8.4 shall be applicable only when substances and articles of Class 1 having a total mass of explosive substance of more than 50 kg are carried in a vehicle.

In addition, these substances and articles shall be supervised at all times in order to prevent any malicious act and to alert the driver and the competent authorities in the event of loss or fire.

Empty uncleaned packagings are exempted.

**S2: Additional requirements concerning the carriage of flammable liquids or gases**

(1) *Portable lamps*

Closed vehicles carrying liquids having a flash-point of not more than 61 °C or flammable substances or article of Class 2, shall not be entered by persons carrying lighting apparatus other than portable lamps so designed and constructed that they cannot ignite any flammable vapours or gases which may have penetrated into the interior of the vehicle.

(2) *Operation of combustion heaters during loading or unloading*

The operation of combustion heaters of vehicles of type FL (see Part 9) is forbidden during loading and unloading and at loading sites.

(3) *Precautions against electrostatic charges*

In the case of vehicles of type FL (see Part 9), a good electrical connection from the vehicle chassis to earth shall be established before tanks are filled or emptied. In addition, the rate of filling shall be limited.

**S3: Special provisions concerning the carriage of infectious substances**

For transport units carrying dangerous substances of Class 6.2, the requirements of 8.1.4.1 (b) and 8.3.4 shall not apply.

**S4: Additional requirements concerning carriage under controlled temperatures**

Maintenance of the prescribed temperature is essential for safe carriage. In general, there shall be:

- thorough inspection of the transport unit prior to loading;
- instructions to the carrier about the operation of the refrigeration system, including a list of the suppliers of coolant available en route;
- procedures to be followed in the event of loss of control;
- regular monitoring of operating temperatures; and
- availability of a back-up refrigeration system or spare parts.

The temperature of the air space within the transport unit shall be measured by two independent sensors and the output shall be so recorded that temperature changes are readily detectable.

The temperature shall be checked every four to six hours and logged.

If the control temperature is exceeded during carriage, an alert procedure shall be initiated involving any necessary repairs to the refrigeration equipment or an increase in the cooling capacity (e.g. by adding liquid or solid coolant). There shall also be frequent checking of the temperature and preparations for implementation of the emergency procedures. If the emergency temperature (see also 2.2.41.1.17 and 2.2.52.1.15 to 2.2.52.1.18) is reached, the emergency procedures shall be set in operation.

*NOTE: This provision S4 does not apply to substances referred to in 3.1.2.6 when substances are stabilized by the addition of chemical inhibitors such that the SADT is greater than 50 °C. In this latter case, temperature control may be required under conditions of carriage where the temperature may exceed 55 °C.*

**S5: Special provisions common to the carriage of radioactive material of Class 7 in excepted packages (UN Nos. 2908, 2909, 2910 and 2911) only**

The requirements of the instructions in writing of 8.1.2.1 (b) and of 8.2.1, 8.3.1 and 8.3.4 shall not apply.

**S6: Special provisions common to the carriage of radioactive material of Class 7 other than in excepted packages**

The provisions of 8.3.1 shall not apply to vehicles carrying only packages, overpacks or containers bearing category I-WHITE labels.

The provisions of 8.3.4 shall not apply provided there is no subsidiary risk.

**Other additional requirements or special provisions****S7: When gases or articles designated with letters T, TO, TF, TC, TFC, TOC are being carried, each member of the vehicle crew shall be provided with a respiratory protective device enabling them to escape (e.g. escape hood or mask with a combined gas/particle cartridge A1B1E1K1-P1 or A2B2E2K2-P2, as described in European standard EN 141).**

- S8:** When a transport unit is loaded with more than 2 000 kg of these substances, stops for service requirements shall as far as possible not be made near inhabited places or frequented places. A longer stop near such places is permissible only with the consent of the competent authorities.
- S9:** During the carriage of these substances, stops for service requirements shall as far as possible not be made near inhabited places or frequented places. A longer stop near such places is permissible only with the consent of the competent authorities.
- S10:** During the period April to October, when a vehicle is stationary, the packages shall, if the legislation of the country in which the vehicle is halted so requires, be effectively protected against the action of the sun, e.g. by means of sheets placed not less than 20 cm above the load.
- S11:**
- (1) Irrespective of the permissible maximum mass of the vehicle, the requirements of 8.2.1 shall apply.
  - (2) Drivers shall attend a specialization training course covering at least the subjects defined in 8.2.2.3.5.
  - (3) If, according to other regulations applicable in the country of a Contracting Party, a driver has followed equivalent training under a different regime or for a different purpose covering the subjects referred to in (2), the specialization course may be totally or partially dispensed with.
- S12:** If the total number of packages containing radioactive material carried does not exceed 10, and the sum of the carriage indices does not exceed 3, special provision S11 need not be applied. However, drivers shall then receive appropriate training, commensurate with and appropriate to their duties, which provides them with an awareness of the radiation hazards involved in the carriage of radioactive material. Such awareness training shall be confirmed by a certificate provided by their employer.
- S13:** When a consignment cannot be delivered, it shall be placed in a safe place; the competent authority should be informed as soon as possible and requested for instructions on how to proceed.
- S14:** The provisions of Chapter 8.4 concerning the supervision of vehicles shall apply when the total mass of these substances in the vehicle exceeds 100 kg.
- S15:** The provisions of Chapter 8.4 concerning the supervision of vehicles shall apply to substances of hazard group 4 whatever their mass and to substances of hazard group 3 when the total mass of such substances in the vehicle exceeds 100 kg. However, the provisions of Chapter 8.4 need not be applied when the loaded compartment is locked and the packages carried are otherwise protected against any illicit unloading.
- S16:** The provisions of Chapter 8.4 concerning the supervision of vehicles shall apply when the total mass of these substances in the vehicle exceeds 500 kg.
- In addition, vehicles carrying more than 500 kg of these substances shall be subject at all times to supervision to prevent any malicious act and to alert the driver and competent authorities in the event of loss or fire.
- S17:** The provisions of Chapter 8.4 concerning the supervision of vehicles shall apply when the total mass of these substances in the vehicle exceeds 1 000 kg.

- S18:** The provisions of Chapter 8.4 concerning the supervision of vehicles shall apply when the total mass of such substances in the vehicle exceeds 2 000 kg.
- S19:** The provisions of Chapter 8.4 concerning the supervision of vehicles shall apply when the total mass of such substances in the vehicle exceeds 5 000 kg.
- S20:** The provisions of Chapter 8.4 concerning the supervision of vehicles shall apply when the total mass of these substances in the vehicle exceeds 10 000 kg.
- S21:** The provisions of Chapter 8.4 concerning the supervision of vehicles shall apply to all material, in whatever mass. In addition, these goods shall be subject at all times to supervision to prevent any malicious act and to alert the driver and the competent authorities in the event of loss or fire. However, the provisions of Chapter 8.4 need not be applied where:
- (a) The loaded compartment is locked or the packages carried are otherwise protected against illicit unloading; and
  - (b) The dose rate does not exceed  $5\mu\text{Sv/h}$  at any accessible point on the outer surface of the vehicle.

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## **PART 9**

# **Requirements concerning the construction and approval of vehicles**



## CHAPTER 9.1

GENERAL REQUIREMENTS CONCERNING THE CONSTRUCTION  
AND APPROVAL OF VEHICLES

## 9.1.1 General provisions

9.1.1.1 *Scope*

The provisions of part 9 shall apply to vehicles of categories N and O, as defined in Annex 7 of the Consolidated Resolution on the Construction of Vehicles (R.E.3),<sup>1</sup> intended for the carriage of dangerous goods.

## 9.1.1.2 For the purposes of Part 9:

"Vehicle": means any vehicle, whether complete (e.g. one stage built vans, lorries, tractors, trailers), incomplete (e.g. chassis, chassis-cab, trailer-chassis) or, completed (e.g. chassis-cab fitted with a bodywork), intended for the carriage of dangerous goods by road;

"Base vehicle": means a chassis-cab vehicle, a tractor for semi-trailer, a trailer-chassis or a trailer with a self-supporting body intended for the carriage of dangerous goods, to which the requirements of Chapter 9.2 apply;

"EX/II vehicle" or

"EX/III vehicle": means a vehicle intended for the carriage of explosives substances and articles (Class 1);

"FL vehicle": means a vehicle intended for the carriage of liquids having a flash-point of not more than 61°C (with the exception of diesel fuel complying with standard EN 590: 1993, gas oil, and heating oil (light) – UN No. 1202 - with a flash-point as specified in standard EN 590: 1993) or flammable gases, in tank-containers, portable tanks or MEGCs of more than 3 m<sup>3</sup> capacity, fixed tanks or demountable tanks of more than 1 m<sup>3</sup> capacity or a battery-vehicle of more than 1 m<sup>3</sup> capacity intended for the carriage of flammable gases;

"OX vehicle": means a vehicle intended for the carriage of hydrogen peroxide, stabilized or hydrogen peroxide, aqueous solution stabilized with more than 60 per cent hydrogen peroxide (Class 5.1, UN No. 2015) in tank-containers or portable tanks of more than 3 m<sup>3</sup> capacity, fixed tanks or demountable tanks of more than 1 m<sup>3</sup> capacity;

"AT vehicle": means a vehicle, other than FL or OX, intended for the carriage of dangerous goods in tank-containers, portable tanks or MEGCs of more than 3 m<sup>3</sup> capacity, fixed tanks or demountable tanks of more than 1 m<sup>3</sup> capacity or a battery vehicle of more than 1 m<sup>3</sup> capacity other than an FL vehicle.

## 9.1.1.3 Vehicles carrying dangerous goods shall comply with the construction requirements for which this Part provides.

<sup>1</sup> Document of the United Nations Economic Commission for Europe, TRANS/WP.29/78/rev.1, as amended.

## 9.1.2 Approval of EX/II, EX/III, FL, OX and AT vehicles

*NOTE: No special certificates of approval shall be required for vehicles other than EX/II, EX/III, FL, OX and AT vehicles, apart from those required by the general safety regulations normally applicable to vehicles in the country of origin.*

### 9.1.2.1 Single approval

9.1.2.1.1 EX/II, EX/III, FL, OX and AT vehicles shall be subject to an annual technical inspection in their country of registration to make sure that they conform to the relevant provisions of this Part, and to the general safety regulations (concerning brakes, lighting, etc.) in force in their country of registration; if these vehicles are trailers or semi-trailers coupled behind a drawing vehicle, the drawing vehicle shall be subject to technical inspection for the same purposes.

When vehicles are required to be fitted with an endurance braking system, the manufacturer of the vehicle or his duly accredited representative shall issue a declaration of conformity with the provisions of 9.2.3.3. This declaration shall be presented at the first technical inspection.

*NOTE: For transitional provisions, see also 1.6.5.1.*

9.1.2.1.2 Conformity of EX/II, EX/III, FL, OX and AT vehicles with the requirements of this Part is subject to a certificate of approval issued by the competent authority of the country of registration for each vehicle whose inspection yields satisfactory results. It shall be drawn up in the language or one of the languages of the country issuing it. It shall conform to the model shown in 9.1.2.1.5. The title of the certificate of approval and any remarks under item 11 shall be drawn up in the language or one of the languages of the country issuing it and also, if that language is not English, French or German, in English, French or German.

9.1.2.1.3 A certificate of approval issued by the competent authorities of one Contracting Party for a vehicle registered in the territory of that Contracting Party shall be accepted, so long as its validity continues, by the competent authorities of the other Contracting Parties.

9.1.2.1.4 The validity of a certificate of approval shall expire not later than one year after the date of the technical inspection of the vehicle preceding the issue of the certificate. The next approval term shall, however, be related to the last nominal expiry date, if the technical inspection is performed within one month before or after that date. However, in the case of tanks subject to compulsory periodic inspection this provision shall not mean that tightness (leakproofness) tests, hydraulic pressure tests or internal inspections of tanks have to be carried out at intervals shorter than those laid down in Chapters 6.8 and 6.9.

9.1.2.1.5 The certificate of approval shall have the same layout as the model below. Its dimensions shall be 210 mm × 297 mm (format A4). Both front and back may be used. The colour shall be white, with a pink diagonal stripe. The approval certificate for a vacuum-operated waste tank-vehicle shall bear the following remark: "vacuum-operated waste tank-vehicle".

**CERTIFICATE OF APPROVAL FOR VEHICLES  
CARRYING CERTAIN DANGEROUS GOODS**

This certificate testifies that the vehicle specified below fulfils the conditions prescribed by the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).

<b>1. Certificate No.:</b>	<b>2. Vehicle manufacturer:</b>	<b>3. Vehicle Identification No.:</b>	<b>4. Registration number (if any):</b>
<b>5. Name and business address of carrier, operator or owner:</b>			
<b>6. Description of vehicle: <sup>1</sup></b>			
<b>7. Vehicle designation(s) according to 9.1.1.2 of ADR: <sup>2</sup></b>			
EX/II	EX/III	FL	OX                      AT
<b>8. Endurance braking system: <sup>3</sup></b>			
<input type="checkbox"/> Not applicable <input type="checkbox"/> The effectiveness according to 9.2.3.3 of ADR is sufficient for a total mass of the transport unit of ___ t <sup>4</sup>			
<b>9. Description of the fixed tank(s)/battery-vehicle (if any):</b>			
9.1 Manufacturer of the tank:			
9.2 Approval number of the tank/battery-vehicle:			
9.3 Tank manufacturer's serial number/identification of elements of battery-vehicle:			
9.4 Year of manufacture:			
9.5 Tank code according to 4.3.3.1 or 4.3.4.1 of ADR:			
9.6 Special provisions according to 6.8.4 of ADR (if applicable):			
<b>10. Dangerous goods authorised for carriage:</b>			
The vehicle fulfils the conditions required for the carriage of dangerous goods assigned to the vehicle designation(s) in No. 7.			
10.1 In the case of an EX/II or EX/III vehicle <sup>3</sup> <input type="checkbox"/> goods of Class 1 including compatibility group J <input type="checkbox"/> goods of Class 1 excluding compatibility group J			
10.2 In the case of a tank-vehicle/battery-vehicle <sup>3</sup>			
<input type="checkbox"/> only the substances permitted under the tank code and any special provisions specified in No. 9 may be carried <sup>5</sup> or <input type="checkbox"/> only the following substances (Class, UN number, and if necessary packing group and proper shipping name) may be carried:			
Only substances which are not liable to react dangerously with the materials of the shell, gaskets, equipment and protective linings (if applicable) may be carried.			
<b>11. Remarks:</b>			
<b>12. Valid until:</b>		Stamp of issuing service	
		Place, Date, Signature	

<sup>1</sup> According to the definitions for power-driven vehicles and for trailers of categories N and O as defined in Annex 7 of the Consolidated Resolution on the Construction of Vehicles (R.E.3) or in Directive 97/27/EC.

<sup>2</sup> Strike out what is not appropriate.

<sup>3</sup> Mark the appropriate.

<sup>4</sup> Enter appropriate value. A value of 44t will not limit the "registration / in-service maximum permissible mass" indicated in the registration document(s).

<sup>5</sup> Substances assigned to the tank code specified in No. 9 or to another tank code permitted under the hierarchy in 4.3.3.1.2 or 4.3.4.1.2, taking account of the special provision(s), if any.

13. Extensions of validity	
Validity extended until	Stamp of issuing service, place, date, signature:

**NOTE:** This certificate shall be returned to the issuing service when the vehicle is taken out of service; if the vehicle is transferred to another carrier, operator or owner, as specified in No. 5; on expiry of the validity of the certificate; and if there is a material change in one or more essential characteristics of the vehicle.

9.1.2.1.6 Certificates of approval conforming to the requirements of ADR in force up to 30 June 2001 may continue to be used until 31 December 2003.

9.1.2.2 *Type approval*

9.1.2.2.1 At the request of the manufacturer or his duly accredited representative, base vehicles of new motor vehicles and their trailers which are subject to approval according to 9.1.2.1 may be type approved by a competent authority in accordance with ECE Regulation No. 105<sup>2</sup> or Directive 98/91/EC<sup>3</sup> provided that the requirements of the said Regulation or the said Directive correspond to those of Chapter 9.2 of this part. This type approval, granted by one Contracting Party, shall be accepted by the other Contracting Parties as ensuring the conformity of the base vehicle when the approval of the complete or completed vehicle is obtained, provided that no modification of the base vehicle alters its validity.

9.1.2.2.2 When the base vehicle has been type-approved, compliance with 9.2.4.7.2, shall be verified on the completed vehicle.

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<sup>2</sup> Regulation No. 105 (Uniform provisions concerning the approval of vehicles intended for the carriage of dangerous goods with regard to their specific constructional features).

<sup>3</sup> Directive 98/91/EC of the European Parliament and of the Council of 14 December 1998 relating to motor vehicles and their trailers intended for the transport of dangerous goods by road and amending Directive 70/156/EEC relating to the type approval of motor vehicles and their trailers (Official Journal of the European Communities No. L 011 of 16.01.1999, p. 0025 – 0036).

**CHAPTER 9.2**

**REQUIREMENTS CONCERNING THE CONSTRUCTION  
OF BASE VEHICLES**

9.2.1 Base vehicles of EX/II, EX/III, FL, OX and AT vehicles shall comply with the requirements of this Chapter, according to the table below.

For vehicles other than of EX/II, EX/III, FL, OX and AT:

- the requirements of 9.2.3.1 are applicable to all vehicles first registered after 30 June 1997;
- the requirements of 9.2.5 are applicable to all motor vehicles with a maximum mass exceeding 12 tonnes registered after 31 December 1987.

TECHNICAL SPECIFICATIONS		VEHICLES						COMMENTS
		EX/II	EX/III	AT	FL	OX		
9.2.2	ELECTRICAL EQUIPMENT							
9.2.2.2	Wiring		X	X <sup>a</sup>	X	X		<sup>a</sup> In the case of AT vehicles carrying tank-containers, portable tanks or MEGCs, this requirement shall apply only to vehicles first registered after 30 June 1997. Applicable to all AT vehicles carrying tank-containers, portable tanks or MEGCs as from 1 January 2005.
9.2.2.3	Battery master switch							
9.2.2.3.1			X		X			
9.2.2.3.2			X		X			
9.2.2.3.3					X			
9.2.2.3.4			X		X			
9.2.2.4	Batteries	X	X		X			
9.2.2.5	Permanently energized circuits							
9.2.2.5.1					X			
9.2.2.5.2			X					
9.2.2.6	Electrical installation at rear of cab		X		X			

TECHNICAL SPECIFICATIONS	VEHICLES					COMMENTS
	EX/II	EX/III	AT	FL	OX	
9.2.3						
9.2.3.1	X	X	X	X	X	
Anti-lock braking system		X <sup>b, d</sup>	X <sup>b, d</sup>	X <sup>b, d</sup>	X <sup>b, d</sup>	<sup>b</sup> Applicable to vehicles first registered after 30 June 1993 in respect of motor vehicles (tractors and rigid vehicles) having a maximum mass exceeding 16 tonnes and trailers (i.e. full trailers, semi-trailers and centre-axle trailers) with a maximum mass exceeding 10 tonnes. Applicable to motor vehicles authorized to tow trailers with a maximum mass exceeding 10 tonnes, first registered after 30 June 1995. Applicable to all vehicles which are first approved in accordance with 9.1.2 after 30 June 2001 regardless of the date on which they were first registered. <sup>d</sup> Mandatory compliance for all vehicles as from 1 January 2010.
Endurance braking system		X <sup>c, g</sup>	X <sup>c, g</sup>	X <sup>c, g</sup>	X <sup>c, g</sup>	<sup>c</sup> Applicable to motor vehicles first registered after 30 June 1993 having a maximum mass exceeding 16 tonnes or authorized to tow a trailer with a maximum mass exceeding 10 tonnes. <sup>g</sup> Mandatory compliance for all motor vehicles as from 1 January 2010.
9.2.3.2						
Emergency braking devices for trailers	X					
9.2.3.2.1						
9.2.3.2.2		X				





**9.2.2 Electrical equipment****9.2.2.1 General provisions**

The electrical installation as a whole shall meet the provisions of 9.2.2.2 to 9.2.2.6 in accordance with the table of 9.2.1.

**9.2.2.2 Wiring**

9.2.2.2.1 The size of conductors shall be large enough to avoid overheating. Conductors shall be adequately insulated. All circuits shall be protected by fuses or automatic circuit breakers, except for the following:

- from the battery to the cold start and stopping systems of the engine;
- from the battery to the alternator;
- from the alternator to the fuse or circuit breaker box;
- from the battery to the starter motor;
- from the battery to the power control housing of the endurance braking system (see 9.2.3.3), if this system is electrical or electromagnetic;
- from the battery to the electrical lifting mechanism for lifting the bogie axle.

The above unprotected circuits shall be as short as possible.

9.2.2.2.2 Cables shall be securely fastened and positioned in such a way that the conductors are adequately protected against mechanical and thermal stresses.

**9.2.2.3 Battery master switch**

9.2.2.3.1 A switch for breaking the electrical circuits shall be placed as close to the battery as practicable.

9.2.2.3.2 A control device to facilitate the disconnecting and reconnecting functions of the switch shall be installed in the driver's cab. It shall be readily accessible to the driver and be distinctively marked. It shall be protected against inadvertent operation by either adding a protective cover, by using a dual movement control device or by other suitable means. Additional control devices may be installed provided they are distinctively marked and protected against inadvertent operation.

9.2.2.3.3 The switch shall have a casing with protection degree IP 65 in accordance with IEC Standard 529.

9.2.2.3.4 The cable connections on the switch shall have protection degree IP 54. However, this does not apply if these connections are contained in a housing which may be the battery box. In this case it is sufficient to insulate the connections against short circuits, for example with a rubber cap.

#### 9.2.2.4 *Batteries*

The battery terminals shall be electrically insulated or covered by the insulating battery box cover. If the batteries are not located under the engine bonnet, they shall be fitted in a vented box.

#### 9.2.2.5 *Permanently energized circuits*

- 9.2.2.5.1 (a) Those parts of the electrical installation including the leads which shall remain energized when the battery master switch is open, shall be suitable for use in hazardous areas. Such equipment shall meet the general requirements of IEC 60079, parts 0 and 14<sup>1</sup> and the additional requirements applicable from IEC 60079, parts 1, 2, 5, 6, 7, 11, 15 or 18<sup>2</sup>;
- (b) For the application of IEC 60079 part 14<sup>1</sup>, the following classification shall be used:

Permanently energized electrical equipment including the leads which is not subject to 9.2.2.3 and 9.2.2.4 shall meet the requirements for Zone 1 for electrical equipment in general or meet the requirements for Zone 2 for electrical equipment situated in the driver's cab. The requirements for explosion group IIC, temperature class T6 shall be met.

However, for permanently energized electrical equipment installed in an environment where the temperature caused by non-electrical equipment situated in that environment exceeds the T6 temperature limit, the temperature classification of the permanently energized electrical equipment shall be at least that of the T4 temperature class.

- 9.2.2.5.2 Bypass connections to the battery master switch for electrical equipment which must remain energized when the battery master switch is open shall be protected against overheating by suitable means, such as a fuse, a circuit breaker or a safety barrier (current limiter).

#### 9.2.2.6 *Provisions concerning that part of the electrical installation situated to the rear of the driver's cab*

The whole installation shall be so designed, constructed and protected such that it cannot provoke any ignition or short-circuit under normal conditions of use of vehicles and that these risks can be minimized in the event of an impact or deformation. In particular:

##### 9.2.2.6.1 *Wiring*

The wiring located to the rear of the driver's cab shall be protected against impact, abrasion and chafing during normal vehicle operation. Examples of appropriate protection are given in figures 1, 2, 3 and 4 below. However, the sensor cables of anti-lock braking devices do not need additional protection.

<sup>1</sup> *The requirements of IEC 60079 part 14 do not take precedence over the requirement of this Part.*

<sup>2</sup> *As an alternative, the general requirements of EN 50014 and the additional requirements of EN 50015, 50016, 50017, 50018, 50019, 50020, 50021 or 50028 may be used*

FIGURES

Figure N°1

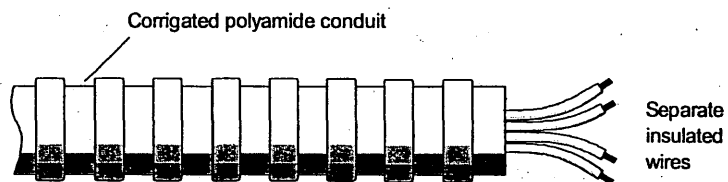


Figure N°2

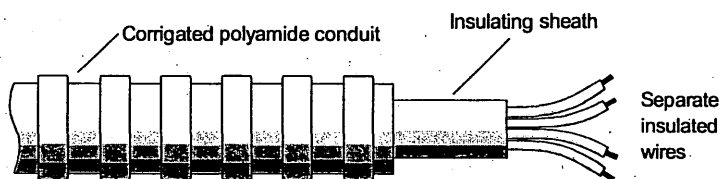


Figure N°3

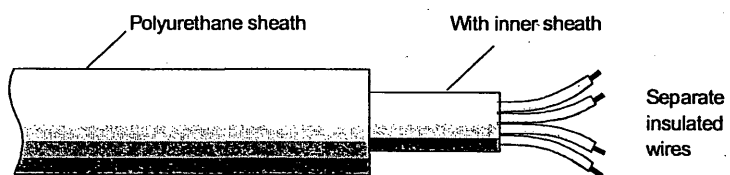
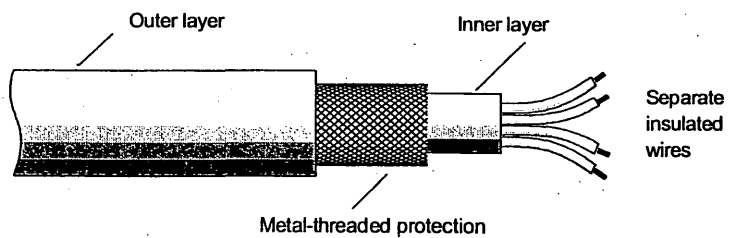


Figure N°4



#### 9.2.2.6.2 *Lighting*

Lamp bulbs with a screw cap shall not be used.

#### 9.2.2.6.3 *Electrical connections*

Electrical connections between motor vehicles and trailers shall have a protection degree IP54 in accordance with IEC standard 529 and be designed to prevent accidental disconnection. Examples of appropriate connections are given in ISO 12 098:1994 and ISO 7638:1985.

### 9.2.3 **Braking equipment**

#### 9.2.3.1 *General provisions*

Motor vehicles and trailers intended for use as transport units for dangerous goods shall fulfil all relevant technical requirements of ECE Regulation No.13<sup>3</sup> or Directive 71/320/EEC<sup>4</sup>, as amended, in accordance with the dates of application specified therein. EX/III, FL, OX and AT vehicles shall fulfil the requirements of ECE Regulation No.13<sup>5</sup>, Annex 5.

#### 9.2.3.2 *Emergency braking devices for trailers*

9.2.3.2.1 Trailers shall be equipped with an effective system for braking or restraining them if they become detached from the motor vehicle towing them.

9.2.3.2.2 Trailers shall be fitted with an effective braking device which acts on all the wheels, is actuated by the drawing vehicle's service-brake control and automatically stops the trailer in the event of breakage of the coupling.

*NOTE: The use of trailers equipped only with an inertia braking system shall be limited to a maximum load of 50 kg net explosive mass.*

### 9.2.4 **Prevention of fire risks**

#### 9.2.4.1 *General provisions*

The following technical provisions shall apply in accordance with the table of 9.2.1.

#### 9.2.4.2 *Vehicle cab*

9.2.4.2.1 Only material not readily flammable shall be used in the construction of the driver's cab. This provision will be deemed to be met if, in accordance with the procedure specified in ISO standard 3795:1989, samples of the following cab components have a burn rate not exceeding 100 mm/min: seat cushions, seat backs, safety belts, head lining, opening roofs, armrests, all trim panels including door, front, rear, and side panels, compartment shelves, head restraints, floor coverings, sun visors, curtains, shades, wheel housing covers, engine compartment covers, mattress covers and any other interior materials, including padding and

<sup>3</sup> ECE Regulation No. 13 (Uniform provisions concerning the approval of vehicles of categories M, N and O with regard to braking).

<sup>4</sup> Directive 71/320/EEC (originally published in the Official Journal of the European Communities No. L202 of 6.9.1971).

<sup>5</sup> ECE Regulation No. 13 (Uniform provisions concerning the approval of vehicles of categories M, N and O with regard to braking) or the corresponding provisions of Directive 71/320/EEC (originally published in the Official Journal of the European Communities No. L 202 of 6.9.1971), as amended.

crash-deployed elements, that are designed to absorb energy on contact by occupants in the event of a crash.

- 9.2.4.2.2 Unless the driver's cab is made of materials which are not readily flammable, a shield made of metal or other suitable material of the same width as the tank shall be fitted at the rear of the cab. Any windows in the rear of the cab or in the shield shall be hermetically closed and made of fire-resistant safety glass with fire-resistant frames. Furthermore, there shall be a clear space of not less than 15 cm between the tank and the cab or the shield.

9.2.4.3 ***Fuel tanks***

The fuel tanks for supplying the engine of the vehicle shall meet the following requirements:

- (a) In the event of any leakage, the fuel shall drain to the ground without coming into contact with hot parts of the vehicle or the load;
- (b) Fuel tanks containing petrol shall be equipped with an effective flame trap at the filler opening or with a closure enabling the opening to be kept hermetically sealed.

9.2.4.4 ***Engine***

The engine propelling the vehicle shall be so equipped and situated to avoid any danger to the load through heating or ignition. In the case of EX/II and EX/III vehicles the engine shall be of compression-ignition construction.

9.2.4.5 ***Exhaust system***

The exhaust system as well as the exhaust pipes shall be so directed or protected to avoid any danger to the load through heating or ignition. Parts of the exhaust system situated directly below the fuel tank (diesel) shall have a clearance of at least 100 mm or be protected by a thermal shield.

9.2.4.6 ***Vehicle endurance braking***

Vehicles equipped with endurance braking systems emitting high temperatures placed behind the rear wall of the driver's cab shall be equipped with a thermal shield securely fixed and located between this system and the tank or load so as to avoid any heating, even local, of the tank wall or the load.

In addition, the thermal shield shall protect the braking system against any outflow or leakage, even accidental, of the load. For instance, a protection including a twin-shell shield shall be considered satisfactory.

9.2.4.7 ***Combustion heaters***

9.2.4.7.1 ***(Reserved)***

- 9.2.4.7.2 The combustion heaters and their exhaust gas routing shall be designed, located, protected or covered so as to prevent any unacceptable risk of heating or ignition of the load. This requirement shall be considered as fulfilled if the fuel tank and the exhaust system of the appliance conform to provisions similar to those prescribed for fuel tanks and exhaust systems of vehicles in 9.2.4.3 and 9.2.4.5 respectively.

9.2.4.7.3 The combustion heaters shall be put out of operation by at least the following methods:

- (a) Intentional manual switching off from the driver's cab;
- (b) Stopping of the vehicle engine; in this case the heating device may be restarted manually by the driver;
- (c) Start up of a feed pump on the motor vehicle for the dangerous goods carried.

9.2.4.7.4 After running is permitted after the combustion heaters have been put out of operation. For the methods of 9.2.4.7.3 (b) and (c) the supply of combustion air shall be interrupted by suitable measures after an afterrunning cycle of not more than 40 seconds. Only heaters shall be used for which proof has been furnished that the heat exchanger is resistant to the reduced afterrunning cycle of 40 seconds for the time of their normal use.

9.2.4.7.5 The combustion heater shall be switched on manually. Programming devices shall be prohibited.

9.2.4.7.6 Combustion heaters with gaseous fuels are not permitted.

#### 9.2.5 Speed limitation device

Motor vehicles (rigid vehicles and tractors for semi-trailers) with a maximum mass exceeding 12 tonnes, shall be equipped with a speed limitation device according to the technical requirements of ECE Regulation No. 89<sup>6</sup>, as amended. The device shall be set in such a way that the speed cannot exceed 90 km/h, bearing in mind the technological tolerance of the device.

#### 9.2.6 Coupling devices of trailers

Coupling devices of trailers shall comply with the technical requirements of ECE Regulation No. 55<sup>7</sup> or Directive 94/20/EC<sup>8</sup>, as amended, in accordance with the dates of application specified therein.

<sup>6</sup> ECE Regulations No. 89: uniform provisions concerning the approval of:

- I. Vehicles with regard to limitation of their maximum speed;
- II. Vehicles with regard to the installation of a speed limitation device (SLD) of an approved type;
- III. Speed limitation devices (SLD).

*As an alternative, the corresponding provisions of directive 92/6/EEC of the Council of 10 February 1992 (originally published in the Official Journal of the European Communities No. L 057 of 02.03.1992) and directive 92/24/EEC of the Council of 31 March 1992 (originally published in the Official Journal of the European Communities No. L 129 of 14.05.1992), as amended, may apply provided that they have been amended in accordance with the latest amended form of ECE Regulation No. 89 applicable at the time of the vehicle approval.*

<sup>7</sup> ECE Regulation No. 55 (Uniform provisions concerning the approval of mechanical coupling components of combinations of vehicles).

<sup>8</sup> Directive 94/20/EC of the European parliament and of the Council of 30 of May 1994 (originally published in the Official Journal of the European Communities No. L 195 of 29.07.1994).

**CHAPTER 9.3****ADDITIONAL REQUIREMENTS CONCERNING COMPLETE OR COMPLETED  
EX/II OR EX/III VEHICLES****9.3.1 Materials to be used in the construction of vehicle bodies**

No materials likely to form dangerous compounds with the explosive substances carried shall be used in the construction of the body.

**9.3.2 Combustion heaters**

Combustion heaters shall not be installed in load compartments of EX/II and EX/III vehicles.

Combustion heaters shall meet the requirements of 9.2.4.7.1, 9.2.4.7.2, 9.2.4.7.5, 9.2.4.7.6 and the following:

- (a) The switch may be installed outside the driver's cab;
- (b) The device may be switched off from outside the load compartment; and
- (c) It is not necessary to prove that the heat exchanger is resistant to the reduced after running cycle.

No fuel tanks, power sources, combustion air or heating air intakes as well as exhaust tube outlets required for the operation of the combustion heater shall be installed in the load compartment. It shall be ensured that the heating air outlet cannot be blocked by cargo. The temperature to which packages are heated shall not exceed 50 °C.

**9.3.3 EX/II vehicles**

The vehicles shall be designed, constructed and equipped so that the explosives are protected from external hazards and the weather. They shall be either closed or sheeted. Sheeting shall be resistant to tearing and be of impermeable material, not readily flammable. It shall be tautened so as to cover the vehicle on all sides, with an overlap of not less than 20 cm down the sides of the vehicle, and be kept in position by a lockable device.

The load carrying compartment of closed vehicles shall not have windows and all openings shall have lockable, close-fitting doors or covers.

**9.3.4 EX/III vehicles**

These vehicles shall be closed. The loading surface, including the front wall, shall be continuous. The insulating and heat resisting properties of the body shall be at least equivalent to those of a partition consisting of a metal outer wall lined with a layer of fire-proofed wood of 10 mm thickness; or the body shall be of a construction which shall ensure that no flame penetration of the wall or hot spots of more than 120 °C on the inner wall surface will occur within 15 minutes from the start of a fire resulting from the operation of the vehicle, such as a tyre fire. All the doors shall be capable of being locked. They shall be so placed and constructed as to overlap the joints.



**9.3.5 Load compartment and engine**

The engine shall be placed forward of the front wall of the load compartment; it may nevertheless be placed under the load compartment, provided this is done in such a way that any excess heat does not constitute a hazard to the load by raising the temperature on the inner surface of the load compartment above 80 °C.

**9.3.6 Load compartment and exhaust system**

The exhaust system of EX/II and EX/III vehicles or others parts of these complete or completed vehicles shall be so constructed and situated that any excess heat shall not constitute a hazard to the load by raising the temperature on the inner surface of the load compartment above 80 °C.

**9.3.7 Electrical equipment**

- 9.3.7.1 The electrical installation on EX/III vehicles shall meet the requirements of 9.2.2.2, 9.2.2.3, 9.2.2.4, 9.2.2.5.2 and 9.2.2.6.
- 9.3.7.2 The rated voltage of the electrical system shall not exceed 24V.
- 9.3.7.3 The electrical installation in the load compartment shall be dust-protected (at least IP54 or equivalent) or, in the case of Compatibility Group J, at least IP65 (e.g. flame-proof Eex d).

**CHAPTER 9.4****ADDITIONAL REQUIREMENTS CONCERNING THE CONSTRUCTION OF THE BODIES OF COMPLETE OR COMPLETED VEHICLES INTENDED FOR THE CARRIAGE OF DANGEROUS GOODS IN PACKAGES (OTHER THAN EX/II AND EX/III VEHICLES)**

- 9.4.1 Combustion heaters shall meet the following requirements:
- (a) The switch may be installed outside the driver's cab;
  - (b) The device may be switched off from outside the load compartment; and
  - (c) It is not necessary to prove that the heat exchanger is resistant to the reduced after running cycle.
- 9.4.2 If the vehicle is intended for the carriage of dangerous goods for which a label conforming to models Nos. 1, 1.4, 1.5, 1.6, 3, 4.1, 4.3, 5.1 or 5.2 is prescribed, no fuel tanks, power sources, combustion air or heating air intakes as well as exhaust tube outlets required for the operation of the combustion heater shall be installed in the load compartment. It shall be ensured that the heating air outlet cannot be blocked by cargo. The temperature to which packages are heated shall not exceed 50° C. Heating devices installed inside the load compartments shall be designed so as to prevent the ignition of an explosive atmosphere under operating conditions.
- 9.4.3 Additional requirements concerning the construction of the bodies of vehicles intended for the carriage of given dangerous goods or specific packagings may be included in Part 7, Chapter 7.2 in accordance with the indications in Column (16) of Table A of Chapter 3.2, for a given substance.

**CHAPTER 9.5****ADDITIONAL REQUIREMENTS CONCERNING THE CONSTRUCTION OF  
THE BODIES OF COMPLETE OR COMPLETED VEHICLES INTENDED  
FOR THE CARRIAGE OF DANGEROUS SOLIDS IN BULK**

- 9.5.1 Combustion heaters shall meet the following requirements:
- (a) The switch may be installed outside the driver's cab;
  - (b) The device may be switched off from outside the load compartment; and
  - (c) It is not necessary to prove that the heat exchanger is resistant to the reduced after running cycle.
- 9.5.2 If the vehicle is intended for the carriage of dangerous goods for which a label conforming to models Nos. 4.1, 4.3 or 5.1 is prescribed, no fuel tanks, power sources, combustion air or heating air intakes as well as exhaust tube outlets required for the operation of the combustion heater shall be installed in the load compartment. It shall be ensured that the heating air outlet cannot be blocked by cargo. The temperature to which the load is heated shall not exceed 50 °C. Heating devices installed inside the load compartments shall be designed so as to prevent the ignition of an explosive atmosphere under operating conditions.
- 9.5.3 Additional requirements concerning the construction of the bodies of vehicles intended for the carriage of dangerous solids in bulk may appear in Part 7, Chapter 7.3 in accordance with the indications in Column (17) of Table A of Chapter 3.2, for a given substance.

## CHAPTER 9.6

**ADDITIONAL REQUIREMENTS CONCERNING COMPLETE OR COMPLETED VEHICLES  
INTENDED FOR THE CARRIAGE OF TEMPERATURE CONTROLLED SUBSTANCES**

- 9.6.1 Insulated, refrigerated and mechanically-refrigerated vehicles intended for the carriage of temperature controlled substances shall conform to the following conditions:
- (a) the vehicle shall be such and so equipped as regards its insulation and means of refrigeration, that the control temperature prescribed in 2.2.41.1.17 and 2.2.52.1.16 and in 2.2.41.4 and 2.2.52.4 for the substance to be carried is not exceeded. The overall heat transfer coefficient shall be not more than  $0.4 \text{ W/m}^2\text{K}$ ;
  - (b) the vehicle shall be so equipped that vapours from the substances or the coolant carried cannot penetrate into the driver's cab;
  - (c) a suitable device shall be provided enabling the temperature prevailing in the loading space to be determined at any time from the cab;
  - (d) the loading space shall be provided with vents or ventilating valves if there is any risk of a dangerous excess pressure arising therein. Care shall be taken where necessary to ensure that refrigeration is not impaired by the vents or ventilating valves;
  - (e) the refrigerant shall not be flammable; and
  - (f) the refrigerating appliance of a mechanically refrigerated vehicle shall be capable of operating independently of the engine used to propel the vehicle.
- 9.6.2. Suitable methods (see V8(3)) to prevent the control temperature from being exceeded are listed in Chapter 7.2 (R1 to R5). Depending on the method used, additional provisions concerning the construction of vehicle bodies may be included in Chapter 7.2.

**CHAPTER 9.7****ADDITIONAL REQUIREMENTS CONCERNING FIXED TANKS (TANK-VEHICLES)  
BATTERY-VEHICLES AND COMPLETE OR COMPLETED VEHICLES USED FOR  
THE CARRIAGE OF DANGEROUS GOODS IN DEMOUNTABLE TANKS WITH  
A CAPACITY GREATER THAN 1 M<sup>3</sup> OR IN TANK-CONTAINERS, PORTABLE  
TANKS OR MEGCs OF A CAPACITY GREATER THAN 3 M<sup>3</sup>  
(FL, OX AND AT VEHICLES)****9.7.1 General provisions**

9.7.1.1 In addition to the vehicle proper, or the units of running gear used in its stead, a tank-vehicle comprises one or more shells, their items of equipment and the fittings for attaching them to the vehicle or to the running-gear units.

9.7.1.2 Once the demountable tank has been attached to the carrier vehicle, the entire unit shall meet the requirements prescribed for tank-vehicles.

**9.7.2 Requirements concerning tanks**

9.7.2.1 Fixed tanks or demountable tanks made of metal shall meet the relevant requirements of Chapter 6.8.

9.7.2.2 Elements of battery-vehicles and of MEGCs shall meet the relevant requirements of Chapter 6.2 in the case of cylinders, tubes, pressure drums and bundles of cylinders and the requirements of Chapter 6.8 in the case of tanks.

9.7.2.3 Tank-containers made of metal shall meet the requirements of Chapter 6.8, portable tanks shall meet the requirements of Chapter 6.7 or, if applicable, those of the IMDG Code (see 1.1.4.2).

9.7.2.4 Tanks made of fibre-reinforced plastics material shall meet the requirements of Chapter 6.9.

9.7.2.5 Vacuum-operated waste tank-vehicles shall meet the requirements of Chapter 6.10.

**9.7.3 Fastenings**

Fastenings shall be designed to withstand static and dynamic stresses in normal conditions of carriage, and minimum stresses as defined in 6.8.2.1.2, 6.8.2.1.11 to 6.8.2.1.15 and 6.8.2.1.16 in the case of tank-vehicles, battery-vehicles, and vehicles carrying demountable tanks.

**9.7.4 Earthing of FL vehicles**

Tanks made of metal or of fibre-reinforced plastics material of FL tank-vehicles and battery elements of FL battery-vehicles shall be linked to the chassis by means of at least one good electrical connection. Any metal contact capable of causing electrochemical corrosion shall be avoided.

*NOTE: See also 6.9.1.2 and 6.9.2.14.3.*

## 9.7.5 Stability of tank-vehicles

9.7.5.1 The overall width of the ground-level bearing surface (distance between the outer points of contact with the ground of the right-hand tyre and the left-hand tyre of the same axle) shall be at least equal to 90% of the height of the centre of gravity of the laden tank-vehicle. In an articulated vehicle the mass on the axles of the load-carrying unit of the laden semi-trailer shall not exceed 60% of the nominal total laden mass of the complete articulated vehicle.

9.7.5.2 In addition, tank-vehicles with fixed tanks with a capacity of more than 3 m<sup>3</sup> intended for the carriage of dangerous goods in the liquid or molten state tested with a pressure of less than 4 bar, shall comply with the technical requirements of ECE Regulation No. 111<sup>1</sup> for lateral stability, as amended, in accordance with the dates of application specified therein. The requirements are applicable to tank-vehicles which are first registered as from 1 July 2003.

## 9.7.6 Rear protection of vehicles

A bumper sufficiently resistant to rear impact shall be fitted over the full width of the tank at the rear of the vehicle. There shall be a clearance of at least 100 mm between the rear wall of the tank and the rear of the bumper (this clearance being measured from the rearmost point of the tank wall or from projecting fittings or accessories in contact with the substance being carried). Vehicles with a tilting shell for the carriage of powdery or granular substances and a vacuum-operated waste tank with a tilting shell with rear discharge do not require a bumper if the rear fittings of the shell are provided with a means of protection which protects the shell in the same way as a bumper.

*NOTE 1: This provision does not apply to vehicles used for the carriage of dangerous goods in tank-containers, MEGCs or portable tanks.*

*NOTE 2: For the protection of tanks against damage by lateral impact or overturning, see 6.8.2.1.20 and 6.8.2.1.21 or, for portable tanks, 6.7.2.4.3 and 6.7.2.4.5.*

## 9.7.7 Combustion heaters

9.7.7.1 Combustion heaters shall meet the requirements of 9.2.4.7.1, 9.2.4.7.2, 9.2.4.7.5 and the following:

- (a) The switch may be installed outside the driver's cab;
- (b) The device may be switched off from outside the load compartment; and
- (c) It is not necessary to prove that the heat exchanger is resistant to the reduced afterrunning cycle.

In addition for FL vehicles, they shall meet the requirements of 9.2.4.7.3 and 9.2.4.7.4.

9.7.7.2 If the vehicle is intended for the carriage of dangerous goods for which a label conforming to models Nos. 3, 4.1, 4.3, 5.1 or 5.2 is prescribed, no fuel tanks, power sources, combustion air or heating air intakes as well as exhaust tube outlets required for the operation of the combustion heater shall be installed in the load compartment. It shall be ensured that the heating air outlet cannot be blocked by cargo. The temperature to which the load is heated shall not exceed 50 °C. Heating devices installed inside the load compartments shall be designed so as to prevent the ignition of an explosive atmosphere under operating conditions.

<sup>1</sup> ECE Regulation No. 111: Uniform provisions concerning the approval of tank-vehicles of categories N and O with regard to rollover stability.

**9.7.8 Electrical equipment**

9.7.8.1 The electrical installation on FL vehicles for which an approval according to 9.1.2 is required shall meet the requirements of 9.2.2.2, 9.2.2.3, 9.2.2.4, 9.2.2.5.1 and 9.2.2.6.

However additions to or modifications of the electrical installations of the vehicle shall meet the requirements for the electrical apparatus of the relevant group and temperature class according to the substances to be carried.

*NOTE: For transitional provisions, see also 1.6.6.*

9.7.8.2 Electrical equipment on FL vehicles, situated in areas where an explosive atmosphere is, or may be expected to be, present in such quantities as to require special precautions, shall be suitable for use in a hazardous area. Such equipment shall meet the general requirements of IEC 60079 parts 0 and 14 and the additional requirements applicable from IEC 60079 parts 1, 2, 5, 6, 7, 11 or 18<sup>2</sup>. The requirements for the electrical apparatus of the relevant group and temperature class according to the substances to be carried shall be met.

For the application of IEC 60079 part 14<sup>2</sup>, the following classification shall be used:

**ZONE 0**

Inside tank compartments, fittings for filling and discharge and vapour recovery lines.

**ZONE 1**

Inside cabinets for equipment used for filling and discharge and within 0.5 m of venting devices and pressure relief safety valves.

9.7.8.3 Permanently energized electrical equipment, including the leads, which is situated outside Zones 0 and 1 shall meet the requirements for Zone 1 for electrical equipment in general or meet the requirements for Zone 2 according to IEC 60079 part 14<sup>2</sup> for electrical equipment situated in the driver's cab. The requirements for the relevant group of electrical apparatus according to the substances to be carried shall be met.

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<sup>2</sup> As an alternative, the general requirements of EN 50014 and the additional requirements of EN 50015, 50016, 50017, 50018, 50019, 50020 or 50028 may be used.

1314

ΜΕΡΟΣ ΙΙ

ΟΙΚΟΝΟΜΙΚΗ ΕΠΙΤΡΟΠΗ ΓΙΑ ΤΗΝ ΕΥΡΩΠΗ

ΕΠΙΤΡΟΠΗ ΕΣΩΤΕΡΙΚΩΝ ΜΕΤΑΦΟΡΩΝ

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## Ευρωπαϊκή Συμφωνία

για τη διεθνή μεταφορά  
επικίνδυνων εμπορευμάτων οδικώς (ADR)  
και πρωτόκολλο υπογραφής

Συνετάγη και υπεγράφη στη Γενεύη την 30 Σεπτεμβρίου 1957

ΤΟΜΟΣ Ι

(Συμφωνία, Πρωτόκολλο υπογραφής, Παράρτημα Α και προσθήκες  
Παραρτήματος Α με τροποποιήσεις έως την 1η Ιανουαρίου 1995)

ΗΝΩΜΕΝΑ ΕΘΝΗ



**ΣΗΜΕΙΩΣΗ**

Οι χρησιμοποιούμενες ονομασίες και η παρουσίαση του υλικού σ' αυτή την έκδοση δεν υποδηλώνουν σε καμία περίπτωση την έκφραση οποιασδήποτε γνώμης εκ μέρους της Γραμματείας των Ηνωμένων Εθνών αναφορικά με το νομικό καθεστώς οποιουδήποτε κράτους, εδάφους, πόλης ή περιοχής, ή των αρχών τους ή την οριοθέτηση των συνόρων ή ορίων τους.

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Τα Τεύχη I και II δεν μπορούν να πωληθούν ανεξάρτητα

#### ΠΡΟΛΟΓΟΣ

Το παρακάτω κείμενο περιλαμβάνει, εκτός από τη Συμφωνία και Πρωτόκολλο Υπογραφής, τα Παραρτήματα με τη μορφή με την οποία τέθηκαν σε ισχύ την 29 Ιουλίου 1968, καθώς και τις τροποποιήσεις αυτών, μέχρι της 1ης Ιανουαρίου 1995.

**ΕΥΡΩΠΑΪΚΗ ΣΥΜΦΩΝΙΑ ΓΙΑ ΤΗ ΔΙΕΘΝΗ ΜΕΤΑΦΟΡΑ  
ΕΠΙΚΙΝΔΥΝΩΝ ΕΜΠΟΡΕΥΜΑΤΩΝ ΟΔΙΚΩΣ (ADR)**

**ΤΑ ΣΥΜΒΑΛΛΟΜΕΝΑ ΜΕΡΗ,**

**ΕΠΙΘΥΜΟΥΝΤΑ** να αυξήσουν την ασφάλεια της διεθνούς οδικής μεταφοράς,

**ΣΥΜΦΩΝΗΣΑΝ** τα παρακάτω:

**Άρθρο 1**

Για την εφαρμογή της παρούσας Συμφωνίας,

- (α) με τον όρο "οχήμα" νοούνται τα αυτοκίνητα, αρθρωτά οχήματα, συρόμενα οχήματα και επικαθήμενα οχήματα, όπως ορίζεται στο άρθρο 4 της Σύμβασης Περί Οδικής Κυκλοφορίας της 19ης Σεπτεμβρίου 1949, εκτός των οχημάτων που ανήκουν ή τελούν υπό τις διαταγές των ενόπλων δυνάμεων του Συμβαλλόμενου Μέρους,
- (β) με τον όρο "επικίνδυνα εμπορεύματα" νοούνται οι ύλες και τα είδη των οποίων η διεθνής οδική μεταφορά απαγορεύεται από, ή επιτρέπεται μόνον υπό ορισμένους όρους από τα Παραρτήματα Α και Β,
- (γ) με τον όρο "διεθνής μεταφορά" νοείται οποιαδήποτε επιχείρηση μεταφοράς, εκτελούμενη στην εδαφική περιοχή (επικράτεια) δύο τουλάχιστον Συμβαλλόμενων Μερών με οχήματα που ορίζονται στη πιο πάνω παράγραφο (α).

**Άρθρο 2**

1. Υπό την επιφύλαξη των διατάξεων του άρθρου 4, παράγραφος 3, επικίνδυνα εμπορεύματα η μεταφορά των οποίων αποκλείεται από το Παράρτημα Α δεν θα γίνονται δεκτά για διεθνή μεταφορά.
2. Η διεθνής μεταφορά άλλων επικίνδυνων εμπορευμάτων θα εξουσιοδοτείται υπό την επιφύλαξη της τηρήσεως των:
  - (α) όρων του Παραρτήματος Α για τα στο θέμα εμπορεύματα, ειδικότερα όσον αφορά τη συνεργασία και επικετοποίησή του και των
  - (β) όρων του Παραρτήματος Β, ειδικότερα όσον αφορά τη κατασκευή, εξοπλισμό και λειτουργία του οχήματος του μεταφέροντος τα στο θέμα εμπορεύματα, υπό την επιφύλαξη των διατάξεων του άρθρου 4, παράγραφος 2.

**Άρθρο 3**

Τα Παραρτήματα της παρούσας Συμφωνίας θα αποτελούν αναπόσπαστο τμήμα αυτής.

**Άρθρο 4**

1. Κάθε Συμβαλλόμενο Μέρος θα έχει το δικαίωμα να ρυθμίζει ή απαγορεύει, για λόγους εκτός της ασφαλείας διαρκούς της μεταφοράς, την εισαγωγή επικίνδυνων εμπορευμάτων στην εδαφική του περιοχή (επικράτεια).
2. Οχήματα σε υπηρεσία στην επικράτεια του Συμβαλλόμενου Μέρους όταν τεθεί σε ισχύ η παρούσα Συμφωνία ή τιθέμενα σε υπηρεσία στην επικράτεια αυτή εντός δύο μηνών από της θέσεώς της σε ισχύ θα επιτρέπεται για χρονική περίοδο τριών ετών από της θέσεώς της σε ισχύ, να εκτελούν τη διεθνή μεταφορά επικίνδυνων εμπορευμάτων ακόμη και εάν η κατασκευή και ο εξοπλισμός τους δεν είναι ολωσδιόλου σύμφωνα με τις διατάξεις του Παραρτήματος Β για την στο θέμα επιχείρηση μεταφοράς. Δυνάμει ειδικών άρθρων του Παραρτήματος Β, όμως, η περίοδος αυτή μπορεί να μειωθεί.
3. Τα Συμβαλλόμενα Μέρη θα έχουν το δικαίωμα να κανονίζουν, με ειδικές διμερείς ή πολυμερείς συμφωνίες, όπως ορισμένα από τα επικίνδυνα εμπορεύματα τα οποία σύμφωνα με τη παρούσα Συμφωνία αποκλείονται από όλες τις διεθνείς μεταφορές μπορούν, υπό την επιφύλαξη ορισμένων όρων, να γίνονται δεκτά για διεθνή μεταφορά στις επικράτειές τους, ή όπως επικίνδυνα εμπορεύματα τα οποία σύμφωνα με τη παρούσα Συμφωνία γίνονται δεκτά για διεθνή μεταφορά μόνον υπό ειδικούς όρους μπορούν να γίνονται δεκτά για διεθνή μεταφορά στις επικράτειές τους υπό όρους λιγότερο αυστηρούς από εκείνους των Παραρτημάτων της παρούσας Συμφωνίας. Οι διμερείς ή πολυμερείς ειδικές συμφωνίες οι αναφερόμενες στη παρούσα παράγραφο θα ανακοινώνονται στο Γενικό Γραμματέα των Ηνωμένων Εθνών, ο οποίος θα ανακοινώνει αυτές στα Συμβαλλόμενα Μέρη τα οποία δεν έχουν υπογράψει τις συμφωνίες αυτές.

**Άρθρο 5**

Οι επιχειρήσεις μεταφοράς στις οποίες η παρούσα Συμφωνία έχει εφαρμογή θα παραμένουν υπό την επιφύλαξη των εθνικών ή διεθνών κανονισμών που ισχύουν γενικά στην οδική κυκλοφορία, στη διεθνή οδική μεταφορά και στο διεθνές εμπόριο.

**Άρθρο 6**

1. Χώρες - μέλη της Οικονομικής Επιτροπής για την Ευρώπη και χώρες που έγιναν δεκτές στην Επιτροπή με συμβουλευτική ιδιότητα κατά τη παράγραφο 8 των όρων παραπομπής της Επιτροπής μπορούν να γίνουν Συμβαλλόμενα Μέρη της παρούσας Συμφωνίας
  - (α) υπογράφοντας αυτήν,
  - (β) επικυρώνοντας αυτήν μετά την υπογραφή της υπό την επιφύλαξη της επικυρώσεως,
  - (γ) προσχωρώντας σ' αυτήν.
2. Χώρες που μπορούν να μετάσχουν σε ορισμένες δραστηριότητες της Οικονομικής Επιτροπής για την Ευρώπη σύμφωνα με τη παράγραφο II των όρων

παραπομπής της Επιτροπής μπορούν να γίνουν Συμβαλλόμενα Μέρη της παρούσας Συμφωνίας με τη προσχώρησή τους σ' αυτή αφού τεθεί σε ισχύ.

3. Η Συμφωνία θα είναι ανοικτή για υπογραφή μέχρι της 15ης Δεκεμβρίου 1957. Μετά θα είναι ανοικτή για προσχώρηση.
4. Επικύρωση ή προσχώρηση θα πραγματοποιείται με την κατάθεση εγγράφου στο Γενικό Γραμματέα των Ηνωμένων Εθνών.

#### Άρθρο 7

1. Η παρούσα Συμφωνία θα τεθεί σε ισχύ ένα μήνα μετά την ημερομηνία κατά την οποία ο αριθμός των χωρών των αναφερομένων στο άρθρο 6, παράγραφος 1, οι οποίες υπέγραψαν αυτή χωρίς επιφύλαξη επικυρώσεως ή οι οποίες κατέθεσαν τα έγγραφα επικυρώσεως ή προσχωρήσεως του ανέλθει συνολικά σε πέντε. Όμως, τα Παραρτήματα αυτής δεν θα έχουν εφαρμογή μέχρι έξι μήνες από της θέσεως σε ισχύ της Συμφωνίας.

2. Για οποιαδήποτε χώρα που επικυρώνει ή προσχωρεί στη παρούσα Συμφωνία μετά την υπογραφήν αυτής χωρίς επιφύλαξη επικυρώσεως ή την κατάθεση των εγγράφων επικυρώσεως ή προσχωρήσεως των πέντε χωρών των αναφερόμενων στο άρθρο 6, παράγραφος 1, η παρούσα Συμφωνία θα τεθεί σε ισχύ ένα μήνα αφότου ή χώρα αυτή καταθέσει το έγγραφο της επικυρώσεως ή προσχωρήσεως και τα Παραρτήματα αυτής θα έχουν εφαρμογή για τη χώρα αυτή είτε την αυτήν ημερομηνίαν, εάν είναι ήδη σε ισχύ μέχρι της ημερομηνίας αυτής, είτε, εάν δεν είναι σε ισχύ μέχρι της ημερομηνίας αυτής, την ημερομηνία κατά την οποία θα ισχύουν σύμφωνα με τις διατάξεις της παραγράφου 1 του παρόντος άρθρου.

#### Άρθρο 8

1. Οποιοδήποτε Συμβαλλόμενο Μέρος μπορεί να καταγγείλει τη παρούσα Συμφωνία ειδοποιώντας σχετικά τον Γενικό Γραμματέα των Ηνωμένων Εθνών.
2. Η καταγγελία θα τίθεται σε ισχύ δώδεκα μήνες μετά την παραλαβή από τον Γενικό Γραμματέα της γνωστοποίησεως της καταγγελίας.

#### Άρθρο 9

1. Η παρούσα Συμφωνία θα παύσει να ισχύει εάν, αφού τεθεί σε ισχύ, ο αριθμός των Συμβαλλόμενων Μερών είναι μικρότερος των πέντε κατά τη διάρκεια δώδεκα συναπτών μηνών.

2. Στη περίπτωση που θα συναφθεί παγκόσμια συμφωνία για τη ρύθμιση της μεταφοράς επικίνδυνων εμπορευμάτων, οποιαδήποτε διάταξη της παρούσας Συμφωνίας είναι αντίθετη προς οποιαδήποτε διάταξη της παγκόσμιας αυτής συμφωνίας, από της ημερομηνίας κατά την οποία η τελευταία θα τεθεί σε ισχύ, θα παύει αυτομάτως να έχει εφαρμογή στις σχέσεις μεταξύ των Συμβαλλόμενων της παρούσας Συμφωνίας Μερών που γίνονται συμβαλλόμενα μέρη της παγκόσμιας συμφωνίας και αυτομάτως θα αντικαθίστανται από τη σχετική διάταξη της παγκόσμιας αυτής συμφωνίας.

**Άρθρο 10**

1. Οποιαδήποτε χώρα μπορεί, κατά την υπογραφή της παρούσας Συμφωνίας χωρίς επιφύλαξη επικυρώσεως ή την κατάθεση του εγγράφου της επικυρώσεως ή προσχωρήσεως ή οποτεδήποτε μετέπειτα, να δηλώσει με γνωστοποίηση απευθυνόμενη στο Γενικό Γραμματέα των Ηνωμένων Εθνών ότι η παρούσα Συμφωνία θα επεκταθεί σε όλες ή οποιεσδήποτε από τις επικράτειες για τις διεθνείς σχέσεις των οποίων είναι υπεύθυνη. Η Συμφωνία και τα Παραρτήματα αυτής θα επεκτείνονται στην επικράτεια ή επικράτειες που κατονομάζονται στη γνωστοποίηση ένα μήνα μετά τη παραλαβή αυτής από τον Γενικό Γραμματέα.

2. Οποιαδήποτε χώρα που προέβη σε δήλωση, σύμφωνα με τη παράγραφο 1 του παρόντος άρθρου, ότι επεκτείνει την παρούσα Συμφωνία σε οποιαδήποτε επικράτεια για τις διεθνείς σχέσεις της οποίας είναι υπεύθυνη, μπορεί να καταγγείλει τη Συμφωνία χωριστά για την επικράτεια αυτή σύμφωνα με τις διατάξεις του Άρθρου 8.

**Άρθρο 11**

1. Οποιαδήποτε διαφορά μεταξύ δύο ή περισσότερων Συμβαλλόμενων Μερών σχετική με την ερμηνεία ή την εφαρμογή της παρούσας Συμφωνίας θα τακτοποιείται εφόσον είναι δυνατόν με μεταξύ τους διαπραγματεύσεις.

2. Οποιαδήποτε διαφορά που δεν τακτοποιείται με διαπραγμάτευση θα παραπέμπεται σε διαιτησία εάν οποιοδήποτε από τα έχοντα τη διαφορά Συμβαλλόμενο Μέρος το ζητήσει και κατά συνέπεια θα παραπέμπεται σε ένα ή περισσότερους διαιτητές που θα επιλέγονται κατόπιν συμφωνίας των εχόντων τη διαφορά Μερών. Εάν εντός τριών μηνών από της ημερομηνίας της αιτήσεως διαιτησίας τα έχοντα τη διαφορά Μέρη αδυνατούν να συμφωνήσουν στην επιλογή διαιτητού ή διαιτητών, οποιοδήποτε των Μερών αυτών μπορεί να ζητήσει από τον Γραμματέα των Ηνωμένων Εθνών να διορίσει ένα διαιτητή στον οποίο θα παραπεμφθεί η διαφορά για την έκδοση αποφάσεως.

3. Η απόφαση του διαιτητή ή διαιτητών των διορισθέντων σύμφωνα με τη παράγραφο 2 του παρόντος άρθρου θα είναι δεσμευτική για τα έχοντα τη διαφορά Συμβαλλόμενα Μέρη.

**Άρθρο 12**

1. Κάθε Συμβαλλόμενο Μέρος μπορεί, κατά την υπογραφή, επικύρωση, ή προσχώρηση στην παρούσα Συμφωνία, να δηλώσει ότι δεν θεωρεί εαυτό δεσμευμένο από το άρθρο 11. Άλλα Συμβαλλόμενα Μέρη δεν θα δεσμεύονται από το άρθρο 11 σε σχέση με οποιοδήποτε Συμβαλλόμενο Μέρος το οποίο διατύπωσε τέτοια επιφύλαξη.

2. Οποιοδήποτε Συμβαλλόμενο Μέρος που διατύπωσε την επιφύλαξη που προβλέπεται στη παράγραφο 1 του παρόντος άρθρου μπορεί οποτεδήποτε να αποσύρει την επιφύλαξη αυτή γνωστοποιώντας σχετικά στον Γενικό Γραμματέα των Ηνωμένων Εθνών.

### Άρθρο 13

1. Μετά τη τριετή ισχύ της παρούσας Συμφωνίας, οποιοδήποτε Συμβαλλόμενο Μέρος μπορεί, με γνωστοποίηση προς τον Γενικό Γραμματέα των Ηνωμένων Εθνών, να ζητήσει όπως συγκληθεί διάσκεψη προς τον σκοπό της αναθεώρησης του κειμένου της Συμφωνίας. Ο Γενικός Γραμματέας οφείλει να γνωστοποιήσει σ' όλα τα Συμβαλλόμενα Μέρη την αίτηση και διάσκεψη αναθεώρησης θα συγκληθεί από τον Γενικό Γραμματέα εάν, εντός περιόδου τεσσάρων μηνών από της ημερομηνίας της γνωστοποίησης από τον Γενικό Γραμματέα, όχι λιγότερα του ενός τετάρτου των Συμβαλλόμενων Μερών γνωστοποιήσουν εις αυτόν ότι συμφωνούν με την αίτηση.

2. Εάν διάσκεψη συγκληθεί σύμφωνα με τη παράγραφο 1 του παρόντος άρθρου, ο Γενικός Γραμματέας οφείλει να γνωστοποιήσει αυτό σ' όλα τα Συμβαλλόμενα Μέρη και να προσκαλέσει αυτά να υποβάλουν εντός περιόδου τριών μηνών τις προτάσεις που μπορεί να επιθυμούν να συζητηθούν στη Διάσκεψη. Ο Γενικός Γραμματέας οφείλει να κυκλοφορήσει σ' όλα τα Συμβαλλόμενα Μέρη τη προσωρινή ημερήσια διάταξη της διασκέψεως, μαζί με τα κείμενα των προτάσεων αυτών, τρεις μήνες τουλάχιστο προ της ημερομηνίας της διεξαγωγής της διασκέψεως.

3. Ο Γενικός Γραμματέας οφείλει να προσκαλέσει σε διάσκεψη, συγκληθείσα σύμφωνα με το παρόν άρθρο, όλες τις χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος 1 και χώρες που γίνηκαν Συμβαλλόμενα Μέρη δυνάμει του άρθρου 6, παράγραφος 2.

### Άρθρο 14<sup>1/</sup>

1. Ανεξάρτητα της διαδικασίας αναθεώρησης της προβλεπόμενης από το άρθρο 13, Συμβαλλόμενο Μέρος μπορεί να προτείνει μία ή περισσότερες τροποποιήσεις των Παραρτημάτων της παρούσας Συμφωνίας. Προς τον σκοπόν αυτόν οφείλει να διαβιβάσει το κείμενο αυτών στον Γενικό Γραμματέα των Ηνωμένων Εθνών. Ο Γενικός Γραμματέας μπορεί επίσης να προτείνει τροποποιήσεις των Παραρτημάτων της παρούσας Συμφωνίας προς τον σκοπό της εξασφάλισης συμφωνίας (αρμονίας) μεταξύ των Παραρτημάτων αυτών και λοιπών διεθνών συμφωνιών σχετικών με την μεταφοράν επικίνδυνων εμπορευμάτων.

2. Ο Γενικός Γραμματέας οφείλει να διαβιβάσει οποιαδήποτε πρόταση που υποβλήθηκε σύμφωνα με τη παράγραφο 1 του παρόντος άρθρου σ' όλα τα Συμβαλλόμενα Μέρη και να πληροφορήσει σχετικά τις λοιπές χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος 1.

3. Οποιαδήποτε προταθείσα τροποποίηση των Παραρτημάτων θα θεωρείται ότι έγινε δεκτή εάν, εντός τριών μηνών από της ημερομηνίας κατά την οποία ο Γενικός Γραμματέας την κυκλοφορήσει, το ένα τρίτο τουλάχιστο των Συμβαλλόμενων Μερών, ή πέντε τούτων εάν το ένα τρίτο υπερβαίνει τον αριθμό αυτό, έχει δώσει στο Γενικό Γραμματέα γραπτή γνωστοποίηση της αντιρρήσεώς του προς την προταθείσα τροποποίηση. Εάν η τροποποίηση θεωρηθεί ότι έγινε δεκτή, θα τεθεί σε ισχύ για όλα τα Συμβαλλόμενα Μέρη, στη λήξη συμπληρωματικής περιόδου τριών μηνών, εκτός από τις παρακάτω περιπτώσεις:

- α) Σε περιπτώσεις όπου παρόμοιες τροποποιήσεις έγιναν ή ενδέχεται να γίνουν στις λοιπές διεθνείς συμφωνίες τις αναφερόμενες στη παράγραφο 1 του παρόντος άρθρου, η τροποποίηση θα τεθεί σε ισχύ στη λήξη περιόδου η διάρκεια της οποίας θα καθορισθεί από τον Γενικό Γραμματέα κατά τρόπο ώστε να επιτραπεί, οπουδήποτε είναι δυνατό, η ταυτόχρονη θέση σε ισχύ της τροποποίησης και εκείνων που έγιναν ή ενδέχεται να γίνουν στις λοιπές αυτές συμφωνίες, η περίοδος αυτή, δεν θα είναι μικρότερης διάρκειας από ένα μήνα.
- β) Το Συμβαλλόμενο Μέρος που υποβάλει την προτεινόμενη τροποποίηση μπορεί να ορίσει στην πρότασή του, για το σκοπό της θέσεως σε ισχύ της τροποποίησης, εάν τυχόν αυτή γίνει δεκτή, μία περίοδο διάρκειας μεγαλύτερης από τρεις μήνες.

4. Ο Γενικός Γραμματέας οφείλει, το ταχύτερο δυνατό, να γνωστοποιήσει σ' όλα τα Συμβαλλόμενα Μέρη και σ' όλες τις χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος 1, οποιαδήποτε αντίρρηση σε προτεινόμενη τροποποίηση που μπορεί να ληφθεί από τα Συμβαλλόμενα Μέρη.

5. Εάν η προτεινόμενη τροποποίηση των Παραρτημάτων δεν θεωρείται ότι έγινε δεκτή, αλλά εάν τουλάχιστον ένα Συμβαλλόμενο Μέρος, εκτός του Συμβαλλόμενου Μέρους που πρότείνει την τροποποίηση έχει δώσει στον Γενικό Γραμματέα γραπτή γνωστοποίηση της συμφωνίας του με την πρόταση, συνέλευσης όλων των Συμβαλλόμενων Μερών και όλων των χωρών των αναφερομένων στο άρθρο 6, παράγραφος 1, θα συγκληθεί από τον Γενικό Γραμματέα εντός τριών μηνών από της λήξεως της περιόδου των τριών μηνών εντός της οποίας, συμφώνως προς την παράγραφο 3 του παρόντος άρθρου, γνωστοποίηση πρέπει να δοθεί της αντιρρήσεως προς την τροποποίηση. Ο Γενικός Γραμματέας μπορεί επίσης να προσκαλέσει στη συνέλευση αυτή εκπροσώπους των:

- (α) διακρατικών οργανισμών που ενδιαφέρονται για ζητήματα μεταφοράς,
- (β) διεθνών μη-κρατικών οργανισμών οι δραστηριότητες των οποίων σχετίζονται απ' ευθείας με τη μεταφορά επικίνδυνων εμπορευμάτων στις επικράτειες των Συμβαλλόμενων Μερών.

6. Τροποποίηση που υιοθετήθηκε από περισσότερα του μισού του συνολικού αριθμού των Συμβαλλόμενων Μερών σε συνέλευση συγκληθείσα σύμφωνα με τη παράγραφο 5 του παρόντος άρθρου θα τίθεται σε ισχύ για όλα τα Συμβαλλόμενα Μέρη σύμφωνα με τη διαδικασία τη συμφωνηθείσα στη Συνέλευση αυτή από τη πλειοψηφία των παριστάμενων στη Συνέλευση Συμβαλλόμενων Μερών.



**Άρθρο 15**

Επιπροσθέτως των γνωστοποιήσεων των προβλεπόμενων από το άρθρα 13 και 14 ο Γενικός Γραμματέας των Ηνωμένων Εθνών οφείλει να γνωστοποιήσει στις χώρες τις αναφερόμενες στο άρθρο 6, παράγραφος 1 και στις χώρες που έγιναν Συμβαλλόμενα Μέρη δυνάμει του άρθρου 6, παράγραφος 2,

- (α) τις υπογραφές, επικυρώσεις και προσχωρήσεις σύμφωνα με το άρθρο 6,
- (β) τις ημερομηνίες στις οποίες η παρούσα Συμφωνία και τα Παραρτήματα αυτής τέθηκαν σε ισχύ σύμφωνα με το άρθρο 7,
- (γ) τις καταγγελίες σύμφωνα με το άρθρο 8,
- (δ) τη λήξη της Συμφωνίας σύμφωνα με το άρθρο 9,
- (ε) κοινοποιήσεις και καταγγελίες που λήφθηκαν σύμφωνα με το άρθρο 10,
- (στ) δηλώσεις και γνωστοποιήσεις που λήφθηκαν σύμφωνα με το άρθρο 12, παράγραφοι 1 και 2,
- (ζ) την αποδοχή και την ημερομηνία θέσεως σε ισχύ των τροποποιήσεων σύμφωνα με το άρθρο 14, παράγραφοι 3 και 6.

**Άρθρο 16**

1. Το Πρωτόκολλο Υπογραφής της παρούσας Συμφωνίας θα έχει την αυτή ισχύ, αποτέλεσμα και διάρκεια όπως η Συμφωνία, της οποίας θα θεωρείται σαν αναπόσπαστο τμήμα.

2. Ουδμία θα επιτρέπεται επιφύλαξη για τη παρούσα Συμφωνία, πλην εκείνων που διατυπώθηκαν στο Πρωτόκολλο Υπογραφής και εκείνων που έγιναν σύμφωνα με το άρθρο 12.

**Άρθρο 17**

Μετά την 15ην Δεκεμβρίου 1957, το πρωτότυπο της παρούσας Συμφωνίας θα κατατεθεί στον Γενικό Γραμματέα των Ηνωμένων Εθνών, ο οποίος οφείλει να διαβιβάσει επικυρωμένα αληθή αντίγραφα αυτού σε κάθε μία από τις χώρες που αναφέρονται στο άρθρο 6, παράγραφος 1.

**ΣΕ ΠΙΣΤΩΣΗ ΤΩΝ ΟΠΟΙΩΝ** οι υπογεγραμμένοι, εξουσιοδοτημένοι δεόντως προς τούτο, υπέγραψαν την παρούσα Συμφωνία.

**ΚΑΤΑΡΤΙΣΤΗΚΕ** στη Γενεύη, σήμερα την τριακοστή Σεπτεμβρίου Χίλια Εννιακόσια Πενήντα Επτά, σε ένα αντίγραφο στην Αγγλική και Γαλλική γλώσσα για το κείμενο της κυρίας Συμφωνίας και στη Γαλλική γλώσσα για τα Παραρτήματα, κάθε δε κείμενο είναι εξ ίσου αυθεντικό κείμενο της κυρίας Συμφωνίας.

Ο Γενικός Γραμματέας των Ηνωμένων Εθνών παρακαλείται να ετοιμάσει μετάφραση των Παραρτημάτων στην Αγγλική γλώσσα και επισυνάψει αυτήν στα επικυρωμένα αληθή αντίγραφα τα αναφερόμενα στο άρθρο 17.

**ΠΡΩΤΟΚΟΛΛΟ ΥΠΟΓΡΑΦΗΣ**

## ΠΡΩΤΟΚΟΛΛΟ ΥΠΟΓΡΑΦΗΣ

### ΤΗΣ ΕΥΡΩΠΑΪΚΗΣ ΣΥΜΦΩΝΙΑΣ ΓΙΑ ΤΗ ΔΙΕΘΝΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΕΜΠΟΡΕΥΜΑΤΩΝ ΟΔΙΚΩΣ (ADR)

Προβαίνοντας στην υπογραφή της Ευρωπαϊκής Συμφωνίας για τη Διεθνή Οδική Μεταφορά Επικίνδυνων Εμπορευμάτων (ADR) ο υπογεγραμμένος, δεόντως εξουσιοδοτημένος,

1. **ΘΕΩΡΩΝΤΑΣ** ότι οι όροι οι διέποντες την θαλάσσια μεταφορά επικίνδυνων εμπορευμάτων προς ή από το Ηνωμένο Βασίλειο διαφέρουν βασικά από εκείνους που περιέχονται στο Παράρτημα Α της ADR και ότι είναι αδύνατο να τροποποιηθούν ώστε να συμφωνούν με το τελευταίο στο εγγύς μέλλον,

**ΛΑΜΒΑΝΟΝΤΑΣ ΥΠΟΨΗ** την υπόσχεση τη δοθείσα από το ΗΝΩΜΕΝΟ ΒΑΣΙΛΕΙΟ να υποβάλει σαν τροποποίηση του πιο πάνω αναφερθέντος Παραρτήματος Α ειδικό παράρτημα περιέχον ειδικές διατάξεις για οδική - θαλάσσια μεταφορά επικίνδυνων εμπορευμάτων μεταξύ της Ηπείρου και του Ηνωμένου Βασιλείου,

**ΣΥΜΦΩΝΗΣΑ** ότι, μέχρι της θέσεως σε ισχύ του πιο πάνω αναφερθέντος ειδικού παραρτήματος, επικίνδυνα εμπορεύματα μεταφερόμενα δυνάμει της ADR προς ή από το Ηνωμένο Βασίλειο, θα συμμορφούνται προς τις διατάξεις του Παραρτήματος Α της ADR καθώς και προς τους όρους του Ηνωμένου Βασιλείου για τη θαλάσσια μεταφορά επικίνδυνων εμπορευμάτων,

2. **ΛΑΜΒΑΝΩ ΣΗΜΕΙΩΣΗ** της δηλώσεως του αντιπροσώπου της Γαλλίας κατά την οποία η Κυβέρνησις της Γαλλικής Δημοκρατίας επιφυλάσσει του δικαιώματος, κατά παρέκβαση των διατάξεων του άρθρου 4, παράγραφος 2, να αρνηθεί να επιτρέψει όπως οχήματα σε υπηρεσία στην επικράτεια άλλου Συμβαλλόμενου Μέρους, οποιαδήποτε κι αν ήταν η ημερομηνία που τέθηκαν σε υπηρεσία, χρησιμοποιηθούν για τη μεταφορά επικίνδυνων προϊόντων στη Γαλλική επικράτεια, εκτός εάν τα οχήματα αυτά πληρούν είτε τους για τη μεταφορά αυτή όρους του Παραρτήματος Β είτε τους για τη μεταφορά των στο θέμα εμπορευμάτων όρους του Γαλλικού Κανονισμού που διέπει την οδική μεταφορά επικίνδυνων εμπορευμάτων,
3. **ΠΡΟΤΕΙΝΩ** όπως, προ της υποβολής σύμφωνα προς το άρθρο 14, παράγραφος 1, ή άρθρο 13, παράγραφος 2, οι προτεινόμενες τροποποιήσεις της παρούσας Συμφωνίας ή των Παραρτημάτων αυτής συζητηθούν κατ' αρχήν, εφόσον είναι δυνατόν, σε συνεδριάσεις εμπειρογνομώνων των Συμβαλλόμενων Μερών και εάν χρειασθεί, των λοιπών χωρών των αναφερομένων, στο άρθρο 6, παράγραφος 1, της Συμφωνίας και των διεθνών οργανισμών των αναφερόμενων στο άρθρο 14, παράγραφο 5, της Συμφωνίας.

## ΠΑΡΑΡΤΗΜΑ Α

ΔΙΑΤΑΞΕΙΣ ΣΧΕΤΙΚΕΣ ΜΕ ΤΙΣ ΕΠΙΚΙΝΔΥΝΕΣ ΥΛΕΣ & ΕΙΔΗ  
ΠΙΝΑΚΑΣ ΠΕΡΙΕΧΟΜΕΝΩΝ ΠΑΡΑΡΤΗΜΑΤΟΣ Α

(ΤΕΥΧΟΣ Ι)

## ΔΙΑΤΑΞΕΙΣ ΣΧΕΤΙΚΕΣ ΜΕ ΤΙΣ ΕΠΙΚΙΝΔΥΝΕΣ ΥΛΕΣ &amp; ΕΙΔΗ

## Μέρος Ι. ΟΡΙΣΜΟΣ ΚΑΙ ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ

	Περιθωριακά
Ορισμοί .....	2000 και 2001
Γενικές διατάξεις .....	2002 έως 2099

## Μέρος ΙΙ. ΚΑΤΑΣΤΑΣΗ ΥΛΩΝ ΚΑΙ ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΓΙΑ ΤΙΣ ΔΙΑΦΟΡΕΣ ΚΛΑΣΕΙΣ

Κλάση 1	Εκρηκτικές ύλες και είδη .....	2100 και επόμενα
Κλάση 2	Αέρια: πεπιεσμένα, υγροποιημένα ή διαλυμένα υπό πίεση .....	2200 και επόμενα
Κλάση 3	Εύφλεκτα υγρά .....	2300 και επόμενα
Κλάση 4.1	Εύφλεκτα στερεά .....	2400 και επόμενα
Κλάση 4.2	Υλες υποκείμενες σε αυτόματο ή αυτογενή ανάφλεξη .....	2430 και επόμενα
Κλάση 4.3	Υλες που βγάζουν εύφλεκτα αέρια σε επαφή με το νερό .....	2470 και επόμενα
Κλάση 5.1	Οξειδωτικές ύλες .....	2500 και επόμενα
Κλάση 5.2	Οργανικά υπεροξειδία .....	2550 και επόμενα
Κλάση 6.1	Τοξικές ύλες .....	2600 και επόμενα
Κλάση 6.2	Μολυσματικές ύλες .....	2650 και επόμενα
Κλάση 7	Ραδιενεργείς ύλες .....	2700 και επόμενα
Κλάση 8	Διαβρωτικές ύλες .....	2800 και επόμενα
Κλάση 9	Διάφορες επικίνδυνες ύλες και είδη .....	2900 και επόμενα

**Πίνακας Περιεχομένων**  
(συνέχεια)

**Μέρος ΙΙΙ. ΠΡΟΣΘΗΚΕΣ ΠΑΡΑΡΤΗΜΑΤΟΣ Α**

	<b>Περιθωριακά</b>
<b>Προσθήκη Α.1</b>	
Α. Όροι σταθερότητας και ασφάλειας διέποντες τις εκρηκτικές ύλες και είδη, νιτρικά μείγματα νιτροκυτταρίνης, αυτο-αντιδρούσες ύλες και οργανικά υπεροξειδία .....	3100 και επόμενα
Β. Λεξιλόγιο ονομάτων του περιθωριακού 2101 .....	3170 και επόμενα
<b>Προσθήκη Α.2</b>	
Α. Διατάξεις σχετικές με τη φύση των από κράμα αλουμινίου δοχείων για ορισμένα αέρια της Κλάσης 2 .....	3200 και επόμενα
Β. Απαιτήσεις σχετικές με τα υλικά και τη κατασκευή των δοχείων των προοριζόμενων για τη μεταφορά των βαθιά - κατεψυγμένων (deeply refrigerated) υγροποιημένων αερίων της Κλάσης 2 .....	3250 και επόμενα
Γ. Διατάξεις διέπουσες τις δοκιμές σε διανεμητές αεροζόλ και μη ξαναγεμιζόμενα δοχεία για αέρια υπό πίεση, της Κλάσης 2, 10° και 11° .....	3291 και επόμενα
<b>Προσθήκη Α.3</b>	
Α. Δοκιμές σχετικές με εύφλεκτα υγρά των Κλάσεων 3 και 6.1 και 8 (Δοκιμή για τον προσδιορισμό του σημείου αναφλέξεως, δοκιμή για τον προσδιορισμό του περιεχόμενου υπεροξειδίου, δοκιμή για τον προσδιορισμό της ευφλεκτότητας) .....	3300 και επόμενα
Β. Δοκιμή για τον προσδιορισμό της ρευστότητας .....	3310 και επόμενα
Γ. Δοκιμές σχετικές με τα εύφλεκτα στερεά της Κλάσης 4.1 ..	3320 και επόμενα
Δ. Δοκιμές σχετικές με τις ύλες τις υποκείμενες σε αυτόματο ή αυτογενή ανάφλεξη της Κλάσης 4.2 .....	3330 και επόμενα
Ε. Δοκιμή σχετική με τις ύλες της Κλάσης 4.3, οι οποίες βγάζουν εύφλεκτα αέρια σε επαφή με το νερό .....	3340 και επόμενα
ΣΤ. Δοκιμές σχετικές με τις στερεές οξειδωτικές ύλες της Κλάσης 5.1 .....	3350 και επόμενα
Ζ. Δοκιμές για τον προσδιορισμό της οικοτοξικότητας, της διατήρησης και της βιοσυσσώρευσης υλών στο υδρόβιο περιβάλλον προς ταξινόμηση στην Κλάση 9 .....	3360 και επόμενα
<b>Προσθήκη Α.4</b>	
Υπό επιφύλαξη .....	3400 και επόμενα

**Πίνακας Περιεχομένων**  
(συνέχεια)

	<b>Περιθωριακά</b>
Προσθήκη Α.5 Γενικές διατάξεις συσκευασίας, τύποι συσκευασίας, απαιτήσεις εφαρμοστέες στη συσκευασία, απαιτήσεις δοκιμασίας για τις συσκευασίες .....	3500 και επόμενα
Προσθήκη Α.6 Διατάξεις σχετικές με τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC) .....	3600 και επόμενα
Προσθήκη Α.7 Διατάξεις σχετικές με ραδιενεργείς ύλες Κλάσης 7 .....	3700 και επόμενα
Προσθήκη Α.8 Υπό επιφύλαξη .....	3800 και επόμενα
Προσθήκη Α.9 Διατάξεις σχετικές με ετικέτες κινδύνου, επεξήγηση συμβόλων, ετικέτες κινδύνου .....	3900 και επόμενα

\* \* \*

## Μέρος I. ΟΡΙΣΜΟΙ ΚΑΙ ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ

## ΟΡΙΣΜΟΙ

2000 (1) Για την εφαρμογή του παρόντος Παραρτήματος:

- με τον όρο "αρμόδια αρχή" νοείται η αρχή που διορίστηκε σαν αρμόδια αρχή σε κάθε χώρα και για κάθε ειδική περίπτωση από τη Κυβέρνηση,
- με τον όρο "εύθραυστο κόλο" νοείται κόλο περιέχον εύθραυστο δοχείο (π.χ. δοχείο κατασκευασμένο από γυαλί, πορσελάνη, πηλό ή παρόμοια υλικά) που δεν κλείνεται σε συσκευασία με αποτελεσματική προστασία όλων των πλευρών του σε περίπτωση κρούσεως (βλέπε επίσης περιθωριακό 2001(5)),
- με τον όρο "αέριο" νοείται αέριο ή ατμός,
- με τον όρο "επικίνδυνες ύλες", όταν χρησιμοποιείται μόνος, νοούνται οι ύλες και τα είδη που ορίστηκαν σαν ύλες και είδη αυτής της Οδηγίας,
- με τον όρο "μεταφορά χύμα" νοείται η μεταφορά στερεάς ύλης χωρίς συσκευασία,
- ο όρος "RID" σημαίνει Κανονισμούς που διέπουν τη διεθνή μεταφορά επικίνδυνων εμπορευμάτων σιδηροδρομικώς οι οποίοι αποτελούν το Παράρτημα I της COTIF - Σύμβαση σχετική με τη διεθνή μεταφορά σιδηροδρομικώς, Προσθήκη Β - Ενιαίοι κανόνες σχετικοί με το σύμβολο για διεθνείς μεταφορές σιδηροδρομικώς (CIM).

(2) Για την εφαρμογή του παρόντος Παραρτήματος, οι δεξαμενές (βλέπε ορισμούς Παραρτήματος Β) δεν τοποθετούνται στην αυτή βάση με τα δοχεία, του όρου "δοχείο" χρησιμοποιούμενου υπό την περιοριστική αυτού έννοια. Διατάξεις σχετικές με τα δοχεία έχουν εφαρμογή σε σταθερές δεξαμενές, συστοιχίες δοχείων, αφαιρετές δεξαμενές και εμπορευματοκιβώτια-δεξαμενές μόνον εάν αυτό συνομολογείται ρητά.

(3) Με τον όρο "πλήρες φορτίο" νοείται οποιοδήποτε φορτίο προερχόμενο από έναν αποστολέα, για το οποίο φορτίο επιφυλάσσεται αποκλειστικά η χρήση οχήματος ή μεγάλου εμπορευματοκιβωτίου και όλες οι εργασίες για τη φόρτωση και εκφόρτωση του οποίου διεξάγονται σύμφωνα με τις οδηγίες του αποστολέα ή του παραλήπτη.

(4) Για τους σκοπούς αυτής της Οδηγίας, "εγγραφή ε.α.ο. (εκτός άλλως ορίζεται)" νοείται μία συλλογική εγγραφή η οποία αποδίδεται σε ύλες, μείγματα, διαλύματα ή είδη εάν:

- (a) δεν αναφέρονται ονομαστικά στα περιεχόμενα των καταλόγων των υλών, και
- (b) παρουσιάζουν χημικές, φυσικές και/ή επικίνδυνες ιδιότητες αναλογούσες στην Κλάση, το είδος, το γράμμα και το όνομα της εγγραφής ε.α.ο.

(5) Τα απόβλητα είναι ύλες, διαλύματα, μείγματα ή είδη για τα οποία δεν προβλέπεται απ' ευθείας χρήση αλλά μεταφέρονται για επανεπεξεργασία, απόθεση, εξάλειψη διά αποτεφρώσεως ή άλλες μεθόδους διάθεσης.

## Ορισμοί και γενικές διατάξεις

2001 (1) Οι εξής μονάδες μετρήσεως<sup>1/</sup> εφαρμόζονται στο παρόν Παράρτημα και στο Παράρτημα Β:

Μέτρηση	Μονάδα SI <sup>2/</sup>	Δεκτές εναλλακτικές μονάδες	Συσχέτιση μεταξύ μονάδων
Μήκος	m (metre)	--	--
Επιφάνεια	m <sup>2</sup> (square metre)	--	--
Όγκος	m <sup>3</sup> (cubic metre)	l <sup>3/</sup> (litre)	1 l = 10 <sup>-3</sup> m <sup>3</sup>
Χρόνος	s (second)	min (minute)	1 min = 60 s
		h (hour)	1 h = 3 600 s
		d (day)	1 d = 86 400 s
		g (gramme)	1 g = 10 <sup>-3</sup> kg
Μάζα	kg (kilogramme)	t (ton)	1 t = 10 <sup>3</sup> kg
		kg/l	1 kg/l = 10 <sup>3</sup> kg/m <sup>3</sup>
Πυκνότη. Μάζας	kg/m <sup>3</sup>	kg/l	1 kg/l = 10 <sup>3</sup> kg/m <sup>3</sup>
Θερμοκρασία	K (kelvin)	°C (degree Celsius)	0 °C = 273.15 K
Διαφορά θερμοκρασίας	K (kelvin)	°C "	1 °C = 1 K
Δύναμη	N (newton)	--	1 N = 1 kgXm/s <sup>2</sup>
Πίεση	Pa (pascal)	bar (bar)	1 bar = 10 <sup>5</sup> Pa
		1 Pa	= 1 N/m <sup>2</sup>
Τάση	N/m <sup>2</sup>	N/mm <sup>2</sup> 1 N/mm <sup>2</sup> = 1 MPa	
Έργο )	J (joule)	kWh (kilowatt hour)	1 kWh = 3.6 MJ
Ενέργεια )		1 J	= 1 N.m = 1 W.s
Ποσότητα ) θερμότητας)	W (watt)	eV (electronvolt)	1 eV = 0.1602X10 <sup>-18</sup> J
Ηλεκτρ. Ισχύς		--	1 W = 1 J/s = 1 NXm/s
Κινηματικό ιξώδες	m <sup>2</sup> /s	mm <sup>2</sup> /s	1 mm <sup>2</sup> /s = 10 <sup>-6</sup> m <sup>2</sup> /s
Δυναμικό ιξώδες	PaXs	mPaXs	1 mPaXs = 10 <sup>-3</sup> PaXs
Δραστηκότητα <sup>4/</sup>	Bq (becquerel)		
Ισοδύναμο δόσης <sup>5/</sup>	Sv (sievert)		

<sup>1/</sup> Οι εξής στρογγυλοποιημένοι αριθμοί χρησιμοποιούνται για την μετατροπή των μέχρι τούδε χρησιμοποιουμένων μονάδων σε μονάδες SI

Δύναμη

$$1 \text{ kg} = 9.807 \text{ N}$$

$$1 \text{ N} = 0.102 \text{ kg } \ell$$

Τάση

$$1 \text{ kg/mm}^2 = 9.807 \text{ N/mm}^2$$

$$1 \text{ N/mm}^2 = 0.102 \text{ kg/mm}^2$$

[Συνέχεια Υποσημειώσεων στη σελίδα 3]



## Ορισμοί και γενικές διατάξεις

**2001** Τα δεκαδικά πολλαπλάσια και υπο-πολλαπλάσια μιας μονάδος μπορούν να σχηματίζονται με (συνέχ.) προθέματα που θα έχουν τις εξής σημασίες και θα τοποθετούνται προ του ονόματος της μονάδος:

<u>Συντελεστής</u>			<u>Πρόθεμα</u>	<u>Σύμβολο</u>
1 000 000 000 000 000 000	= $10^{18}$	πεντάκις εκ.	exa	E
1 000 000 000 000 000	= $10^{15}$	τετράκις εκ.	peta	P
1 000 000 000 000	= $10^{12}$	τρεις εκ.	tera	T
1 000 000 000	= $10^9$	δύς εκ.	giga	G
1 000 000	= $10^6$	εκατομύριο	mega	M
1 000	= $10^3$	χίλια	kilo	k
100	= $10^2$	εκατό	hecto	h
10	= $10^1$	δέκα	deca	da
0.1	= $10^{-1}$	δέκατο	deci	d
0.01	= $10^{-2}$	Εκατοστό	centi	c
0.001	= $10^{-3}$	χιλιοστό	milli	m
0.000 001	= $10^{-6}$	εκατομυρ/στό	micro	μ
0.000 000 001	= $10^{-9}$	δύς εκ/στό	nano	n
0.000 000 000 001	= $10^{-12}$	τρεις εκ/στό	pico	p
0.000 000 000 000 001	= $10^{-15}$	τετράκις εκ/στό	femto	f
0.000 000 000 000 000 001	= $10^{-18}$	πεντάκις εκ/στό	atto	a

**ΠΑΡΑΤΗΡΗΣΗ:**  $10^9$  (δισεκατομύριο) χρησιμοποιείται από τα Ηνωμένα Έθνη. Ανάλογο δε είναι το δισεκατομμυριοστό ( $10^{-9}$ ).

[Συνέχεια Υποσημειώσεων από τη σελίδα 2]

Πίεση

1 Pa	= $1 \text{ N/m}^2 = 10^{-3} \text{ bar}$	= $1.02 \times 10^{-3} \text{ kg/cm}^2$	= $0.75 \times 10^{-2} \text{ torr}$
1 bar	= $10^5 \text{ Pa}$	= $1.02 \text{ kg/cm}^2$	= 750 torr
1 kg/cm <sup>2</sup>	= $9.807 \times 10^4 \text{ Pa}$	= 0.9807 bar	= 736 torr
1 torr	= $1.33 \times 10^2 \text{ Pa}$	= $1.33 \times 10^{-3} \text{ bar}$	= $1.36 \times 10^{-3} \text{ kg/cm}^2$

Ενέργεια, Έργο, Ποσότητα θερμότητας

1 J	= 1 Nm	= $0.278 \times 10^{-6} \text{ kWh}$	= 0.102 kgm	= $0.239 \times 10^{-3} \text{ kcal}$
1 kWh	= $3.6 \times 10^6 \text{ J}$	= $367 \times 10^3 \text{ kgm}$	= 860 kcal	
1 kgm	= 9.807 J	= $2.72 \times 10^{-6} \text{ kWh}$	= $2.34 \times 10^{-3} \text{ kcal}$	
1 kcal	= $4.19 \times 10^3 \text{ J}$	= $1.16 \times 10^{-3} \text{ kWh}$	= 427 kgm	

Ηλεκτρ. ΙσχύςΚινηματικό ιζώδες

1 W	= 0.102 kgm/s	= 0.86 kcal/h	1 m <sup>2</sup> /s	= $10^4 \text{ St (Stokes)}$
1 kgm/s	= 9.807 W	= 8.43 kcal/h	1 St	= $10^{-4} \text{ m}^2/\text{s}$
1 kcal/h	= 1.16 W	= 0.119 kgm/s		

Δυναμικό ιζώδες

1 PaXs	= $1 \text{ Ns/m}^2$	= 10 P (poise)	= $0.102 \text{ kgs/m}^2$
1 P	= 0.1 PaXs	= $0.1 \text{ Ns/m}^2$	= $1.02 \times 10^{-2} \text{ kgs/m}^2$
1 kgs/m <sup>2</sup>	= 9.807 PaXs	= 9.807 Ns/m <sup>2</sup>	= 98.07 P

[Συνέχεια Υποσημειώσεων στη σελίδα 4]

## Ορισμοί και γενικές διατάξεις

2001 (2) 'Όπου χρησιμοποιείται η λέξη "βάρος" στο παρόν Παράρτημα και στο Παράρτημα Β, (συνεχ.) σημαίνει "μάζα".

(3) 'Όποτε το βάρος ενός κόλου αναφέρεται στο παρόν Παράρτημα και στο Παράρτημα Β, νοείται η μικτή μάζα, εκτός αν δηλώνεται άλλως. Η μάζα των εμπορευματοκιβώτια ή των δεξαμενών για την μεταφορά των εμπορευμάτων δεν περιλαμβάνεται στην μικτή μάζα.

(4) Αν δεν δηλώνεται ρητά κάτι διαφορετικό, το σύμβολο "%" στο παρόν Παράρτημα και στο Παράρτημα Β αντιστοιχεί:

(a) Στην περίπτωση μειγμάτων στερεών ή υγρών, επίσης στην περίπτωση διαλυμάτων ή στερεών που έχουν διαβραχεί με υγρό: ποσοστό μάζας βάσει της συνολικής μάζας του μείγματος, του διαλύματος ή του διαποτισμένου στερεού.

(b) Στην περίπτωση συμπιεσμένων αερίων μειγμάτων: ποσοστό κατ'όγκον βάσει του συνολικού όγκου του αερίωδου μείγματος. Στην περίπτωση μειγμάτων υγροποιημένων αερίων και αερίων διαλυμένων υπό πίεση: ποσοστό κατά βάρος βάσει του συνολικού βάρους του μείγματος.

(5) Πίεσεις κάθε είδους σχετικές με τα δοχεία (όπως πίεση δοκιμασίας, εσωτερική πίεση, πίεση ανοίγματος βαλβίδας ασφαλείας), σημειώνονται πάντα σαν πιέσεις θλιβομέτρου (πίεσεις μεγαλύτερες από την ατμοσφαιρική πίεση). Ωστόσο, η πίεση ατμού των ουσιών εκφράζεται πάντα σε απόλυτη πίεση.

(6) 'Όπου το παρόν Παράρτημα Β καθορίζει βαθμό πληρώσεως δοχείων ή δεξαμενών, ο βαθμός αυτός πληρώσεως αναφέρεται πάντα σε θερμοκρασία 15° C των ουσιών, εκτός αν σημειώνεται κάποια άλλη θερμοκρασία.

(7) Εύθραυστα δοχεία ασφαλισμένα, είτε μόνα τους είτε σε ομάδες, με αποσβεστικά υλικά (κτυπημάτων) σε μεγάλο δοχείο με ισχυρά τοιχώματα, δεν θεωρούνται εύθραυστα δοχεία, εάν και εφ' όσον το γερό δοχείο είναι στεγανό και με τέτοιο τρόπο σχεδιασμένο και μελετημένο ώστε σε περίπτωση θραύσης ή διαρροής των εύθραυστων δοχείων να μην μπορεί το περιεχόμενο τους να διαφύγει από το γερό δοχείο και η μηχανική αντοχή του τελευταίου να μην μπορεί να εξασθενήσει από διάβρωση κατά την διάρκεια της μεταφοράς.

(8) Θεσπίζεται ο εξής τύπος μετατροπής (μετασηματισμού) κατά προσέγγιση μέχρις ότου οι μονάδες SI ενσωματωθούν εντελώς και σε όλα τα κείμενα του παρόντος Παραρτήματος και του Παραρτήματος Β:

$$1 \text{ kg/mm}^2 = 10 \text{ N/mm}^2$$

$$1 \text{ kg/cm}^2 = 1 \text{ bar}$$

[Συνέχεια Υποσημειώσεων από τη σελίδα 3]

<sup>2</sup> Το διεθνές σύστημα μονάδων (SI) είναι αποτέλεσμα αποφάσεων που ελήφθησαν στην Γενική Συνδιάσκεψη Μέτρων και Σταθμών (Διεύθυνση: Pavillon de Breteuil, Parc de St-Cloud, F-92 310 Sevres).

<sup>3</sup> Η συντομογραφία "L" για το λίτρο μπορεί επίσης να χρησιμοποιείται αντί της συντομογραφίας "l" όταν δεν υπάρχει στη γραφομηχανή διαφορά ανάμεσα στον αριθμό "1" και το γράμμα "l".

<sup>4</sup> Για λόγους σαφήνειας, η ένταση ραδιενέργειας μπορεί επίσης να σημειώνεται, μέσα σε παρένθεση, σε Ci (curie) (η σχέση ανάμεσα στις μονάδες είναι: 1 Ci = 3.7 x 10<sup>10</sup> Bq). Από τον τύπο μετατροπής μπορούν αν εξαχθούν στρογγυλεμένες τιμές.

<sup>5</sup> Για λόγους σαφήνειας, το ισοδύναμο δόσης μπορεί επίσης να σημειώνεται, σε παρένθεση, σε rem (η σχέση ανάμεσα στις μονάδες είναι: 1 rem = 0.01 Sv).

## Ορισμοί και γενικές διατάξεις

## ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ

2002 (1) Το παρόν Παράρτημα καθορίζει τα επικίνδυνα εμπορεύματα τα οποία εξαιρούνται της διεθνούς οδικής μεταφοράς και τα επικίνδυνα εμπορεύματα τα οποία γίνονται δεκτά για τέτοια μεταφορά υπό ορισμένους όρους. Ομαδοποιεί τα επικίνδυνα εμπορεύματα σε περιοριστικές και μη-περιοριστικές Κλάσεις. Εκ των επικίνδυνων εμπορευμάτων των καλυπτόμενων από τους τίτλους των περιοριστικών Κλάσεων (Κλάσεις 1, 2 και 7), εκείνα που απαριθμούνται στα άρθρα τα σχετικά με τις Κλάσεις αυτές (περιθώρια 2101, 2201, και 2701) γίνονται δεκτά για μεταφορά υπό όρους οριζόμενους στα άρθρα αυτά, και άλλα εξαιρούνται από τη μεταφορά. Μερικά από τα επικίνδυνα εμπορεύματα τα καλυπτόμενα από τους τίτλους των μη-περιοριστικών Κλάσεων (Κλάσεις 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 8 και 9), με σημειώσεις που παραθέτονται στα άρθρα τα σχετικά με τις διάφορες Κλάσεις, εξαιρούνται από τη μεταφορά. Εκ των λοιπών εμπορευμάτων των καλυπτόμενων από τους τίτλους των μη-περιοριστικών Κλάσεων, εκείνα που αναφέρονται ή ορίζονται στα άρθρα τα σχετικά με τις Κλάσεις αυτές (περιθώρια 2301, 2401, 2431, 2471, 2501, 2551, 2601, 2651, 2801 και 2901) γίνονται δεκτά για μεταφορά μόνον υπό όρους οριζόμενους εις τα άρθρα αυτά, και εκείνα που δεν αναφέρονται ή ορίζονται εις αυτά δεν θεωρούνται ότι είναι επικίνδυνα εμπορεύματα για τους σκοπούς της παρούσας Συμφωνίας και γίνονται δεκτά για μεταφορά χωρίς οποιουδήποτε ειδικού όρους.

(2) Οι Κλάσεις του Παραρτήματος αυτού είναι οι παρακάτω:

Κλάση 1	Εκρηκτικές ύλες και είδη	Περιοριστική
Κλάση 2	Αέρια: πεπιεσμένα, υγροποιημένα, ή διαλυμένα υπό πίεση	Περιοριστική
Κλάση 3	Εύφλεκτα υγρά	Μη-περιοριστική
Κλάση 4.1	Εύφλεκτα στερεά	Μη-περιοριστική
Κλάση 4.2	Ύλες υποκειμένες σε αυτόματο ή αυτογενή ανάφλεξη	Μη-περιοριστική
Κλάση 4.3	Ύλες που βγάζουν εύφλεκτα αέρια σε επαφή με το νερό	Μη-περιοριστική
Κλάση 5.1	Οξειδωτικές ύλες	Μη-περιοριστική
Κλάση 5.2	Οργανικά υπεροξειδία	Μη-περιοριστική
Κλάση 6.1	Τοξικές ύλες	Μη-περιοριστική
Κλάση 6.2	Μολυσματικές ύλες	Μη-περιοριστική
Κλάση 7	Ραδιενεργείς ύλες	Περιοριστική
Κλάση 8	Διαβρωτικές ύλες	Μη-περιοριστική
Κλάση 9	Διάφορες επικίνδυνες ύλες και είδη	Μη-περιοριστική

(3) Κάθε μεταφορά εμπορευμάτων διεπομένη από το παρόν Παράρτημα θα πρέπει να συνοδεύεται και από τα δύο παρακάτω έγγραφα:

## Ορισμοί και γενικές διατάξεις

2002  
(συνεχ.)

(a) ένα έγγραφο μεταφοράς το οποίο θα περιέχει τουλάχιστον τις παρακάτω πληροφορίες (για την Κλάση 7, βλέπε επίσης και το περιθωριακό 2709):

- μία περιγραφή των εμπορευμάτων συμπεριλαμβανομένου και του αριθμού αναγνώρισης της ύλης (όπου αυτή είναι διαθέσιμη)<sup>6</sup>
- την Κλάση<sup>6</sup>
- τον αριθμό είδους μαζί με το σχετικό τυχόν γράμμα<sup>6</sup>
- τα αρχικά ADR ή RID<sup>6</sup>
- τον αριθμό και μία περιγραφή των κόλων ή των IBC
- την συνολική ποσότητα των επικινδυνών εμπορευμάτων (σε όγκο ή μικτή μάζα ή καθαρή μάζα και επιπρόσθετα, στην περίπτωση εκρηκτικών υλών και ειδών της Κλάσης 1, σε συνολική καθαρή μάζα εκρηκτικών περιεχομένων).

**ΣΗΜΕΙΩΣΗ 1:** Αυτή η πληροφορία δεν απαιτείται στην περίπτωση μη καθαρισμένων, άδειων συσκευασιών, εμπορευματοκιβωτίων ή δεξαμενών.

**ΣΗΜΕΙΩΣΗ 2:** Στην περίπτωση εφαρμογής του περιθωριακού 10 011, οι ποσότητες μεταφερόμενων επικινδύνων εμπορευμάτων ανά μονάδα μεταφοράς θα εκφράζονται σε μικτή μάζα.

- το όνομα και τη διεύθυνση του αποστολέα
- το όνομα και τη διεύθυνση του(ων) παραλήπτη(ων)
- μία δήλωση όπως απαιτείται από τους όρους κάθε ειδικής συμφωνίας.

Το έγγραφο που περιέχει αυτές τις πληροφορίες μπορεί να είναι εκείνο που απαιτείται από άλλες ισχύουσες διατάξεις για άλλο τρόπο μεταφοράς. Ο αποστολέας οφείλει να γνωστοποιήσει γραπτώς τις σχετικές πληροφορίες στον μεταφορέα.

Οι λεπτομέρειες που θα καταχωρούνται στο έγγραφο μεταφοράς θα είναι συντεταγμένες στην επίσημη γλώσσα της προωθούσας (τα εμπορεύματα) χώρας, και επίσης, εάν η γλώσσα αυτή δεν είναι η Αγγλική, ή η Γαλλική, ή η Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός εάν, τυχόν, δασμολόγια (TARIFFS) διεθνούς οδικής μεταφοράς, ή συμφωνίες συναφθείσες μεταξύ των ενδιαφερομένων για την επιχείρηση της μεταφοράς χωρών, προβλέπουν αλλιώς.

(b) οδηγίες που θα εφαρμοσθούν σε περίπτωση ατυχήματος (βλέπε Παράρτημα Β, περιθωριακό 10385), (εκτός εάν εξαιρείται σύμφωνα με το περιθωριακό 10 011).

(4) Εάν λόγω του μεγέθους του φορτίου μια αποστολή δεν μπορεί να φορτωθεί ολόκληρη σε ένα μεταφορικό μέσο, τουλάχιστο τόσα χωριστά, ή αντίγραφα του ενός εγγράφου, θα εκδίδονται όσα και τα φορτωθέντα μεταφορικά μέσα. Επί πλέον, σ' όλες τις περιπτώσεις, χωριστά έγγραφα μεταφοράς θα εκδίδονται για αποστολές ή τμήματα αποστολών τα οποία δεν μπορούν να φορτωθούν μαζί στο αυτό όχημα λόγω των απαγορεύσεων του Παραρτήματος Β.

<sup>6</sup> Αυτές και άλλες λεπτομέρειες μπορούν να βρεθούν στο τμήμα 2.Β "Λεπτομέρειες του εγγράφου μεταφοράς" για κάθε Κλάση ή στα προγράμματα της Κλάσης 7.

## Ορισμοί και γενικές διατάξεις

**2002** (5) Εξωτερικές συσκευασίες συμπληρωματικές εκείνων που ορίζει το παρόν Παράρτημα (συνεχ.) μπορούν να χρησιμοποιούνται υπό τον όρον ότι δεν αντίκεινται στο πνεύμα των διατάξεων του παρόντος Παραρτήματος των σχετικών με τις εξωτερικές συσκευασίες. Εάν τέτοιες πρόσθετες συσκευασίες χρησιμοποιηθούν, οι προβλεπόμενες ενδείξεις και ετικέτες θα εφαρμοσθούν σ' αυτές.

(6) Εάν η μικτή συσκευασία διαφόρων επικίνδυνων υλών, μεταξύ των, ή με άλλα εμπορεύματα επιτρέπεται από τις διατάξεις της παραγράφου Α.3 των ισχυουσών για τις διάφορες Κλάσεις διατάξεων, οι εσωτερικές συσκευασίες οι περιέχουσες διάφορες επικίνδυνες ύλες θα χωρίζονται προσεκτικά και αποτελεσματικά ή μια από την άλλη στις συλλογικές συσκευασίες εάν ενδέχεται να προκύψουν επικίνδυνες αντενέργειες, όπως η παραγωγή επικίνδυνης θερμότητας, η ανάφλεξη, ο σχηματισμός μεγμάτων που είναι ευαίσθητα στην τριβή ή κρούση, και η απελευθέρωση εύφλεκτων ή τοξικών αερίων, ως αποτέλεσμα βλάβης (ζημίας) ή καταστροφής των εσωτερικών συσκευασιών. Ειδικότερα, εάν εύθραυστα δοχεία χρησιμοποιηθούν και συγκεκριμένα εάν τα ρηθέντα δοχεία περιέχουν υγρά, ο κίνδυνος σχηματισμού επικίνδυνων μεγμάτων θα αποφεύγεται και προς τον σκοπόν αυτόν θα λαμβάνονται όλα τα κατάλληλα μέτρα, όπως η χρήση κατάλληλου αποσβεστικού υλικού σε επαρκή ποσότητα, η ασφάλεια των δοχείων με δεύτερη, γερή συσκευασία, και η υποδιαίρεση των συλλογικών συσκευασιών σε πολλά διαμερίσματα. Για τις μικτές συσκευασίες υλών της Κλάσης 7, βλέπε περιθωριακό 3711 της Προσθήκης Α7.

(7) Εάν μικτή συσκευασία χρησιμοποιηθεί, οι διατάξεις του παρόντος Παραρτήματος οι σχετικές με τις λεπτομέρειες στο έγγραφο μεταφοράς θα ισχύουν σε σχέση με κάθε μία από τα διάφορα είδη των επικίνδυνων υλών που περιέχονται στο συλλογικό κόλο, και το συλλογικό κόλο θα φέρουν όλες τις επιγραφές και όλες τις ετικέτες κινδύνου τις προβλεπόμενες στο παρόν Παράρτημα για τις επικίνδυνες ύλες που το συλλογικό κόλο περιέχει.

(8) Οι παρακάτω διατάξεις θα εφαρμόζονται σε ύλες, διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα<sup>7)</sup>) που δεν αναφέρονται ονομαστικά στον κατάλογο υλών των διαφόρων Κλάσεων:

**ΣΗΜΕΙΩΣΗ 1:** *Διαλύματα και μείγματα που περιέχουν δύο ή περισσότερα συστατικά. Αυτά τα συστατικά μπορεί να είναι είτε ύλες αυτής της Οδηγίας είτε ύλες που δεν είναι υποκείμενες στις διατάξεις αυτής της Οδηγίας.*

**ΣΗΜΕΙΩΣΗ 2:** *Διαλύματα και μείγματα που περιέχουν ένα ή περισσότερα συστατικά μία περιοριστικής Κλάσης δεν θα γίνονται δεκτά για μεταφορά εκτός εάν τα συστατικά αυτά έχουν καταχωρηθεί ονομαστικά στον κατάλογο των υλών της περιοριστικής Κλάσης.*

**ΣΗΜΕΙΩΣΗ 3:** *Διαλύματα και μείγματα με ειδική ένταση ραδιενέργειας που υπερβαίνει τα 70 kBq/kg (2nCi/g) είναι ύλες της Κλάσης 7 [βλέπε περιθωριακό 2700 (1)].*

(a) Ένα διάλυμα ή μείγμα που περιέχει μία επικίνδυνη ύλη καταχωρημένη ονομαστικά σ' αυτήν την Οδηγία μαζί με μία ή περισσότερες μη επικίνδυνες ύλες, πρέπει να θεωρούνται ως η επικίνδυνη ύλη, η καταχωρημένη ονομαστικά, εκτός εάν:

1. Το διάλυμα ή το μείγμα είναι συγκεκριμένα καταχωρημένο ονομαστικά κάπου αλλού σ' αυτήν την Οδηγία, ή
2. Είναι προφανές από το είδος για την επικίνδυνη ύλη ότι αυτό είναι εφαρμόσιμο μόνο για την καθαρή ή την τεχνικά καθαρή ύλη, ή
3. Η Κλάση, φυσική κατάσταση ή ομάδα συσκευασίας (γράμμα), του διαλύματος ή μείγματος είναι διαφορετική από εκείνη της επικίνδυνης ύλης.

<sup>7)</sup> Βλέπε περιθωριακό 2000 (5).

### Ορισμοί και γενικές διατάξεις

2002  
(συνεχ.)

Για τέτοια διαλύματα και μείγματα, ή λέξη "διάλυμα" ή "μείγμα" θα προστίθεται ως τμήμα του ονόματος στο έγγραφο μεταφοράς για λόγους σαφήνειας στην περιγραφή, για παράδειγμα, "διάλυμα ασετόνης".

Εάν η Κλάση, φυσική κατάσταση ή ομάδα συσκευασίας είναι διαφορετικές από εκείνη της καθαρής ύλης, το διάλυμα ή μείγμα θα κατατάσσεται σε μία κατάλληλη εγγραφή ε.α.ο., ανάλογα τον βαθμό κινδύνου.

(b) Ύλες που έχουν περισσότερα από ένα χαρακτηριστικά κινδύνου και διαλύματα και μείγματα που περιέχουν δύο ή περισσότερα συστατικά υποκείμενα σ' αυτήν την Οδηγία θα κατατάσσονται υπό ένα είδος και γράμμα της κατάλληλης Κλάσης σε συμφωνία με τα χαρακτηριστικά κινδύνου τους. Αυτή η κατάταξη σύμφωνα με τα χαρακτηριστικά κινδύνου θα εκτελείται ως ακολούθως:

1.1 Τα φυσικά και χημικά χαρακτηριστικά και οι φυσιολογικές ιδιότητες θα καθορίζονται με μέτρηση ή υπολογισμό και θα κατατάσσονται σύμφωνα με τα κριτήρια των διαφόρων Κλάσεων.

1.2 Εάν αυτός ο καθορισμός δεν είναι δυνατός χωρίς δυσανάλογο κόστος ή προσπάθεια (όπως για ορισμένα είδη αποβλήτων), τα διαλύματα ή μείγματα θα τοποθετούνται στην Κλάση του συστατικού που παρουσιάζει τον υπερισχύοντα κίνδυνο.

2. Εάν μία ύλη παρουσιάζει περισσότερα από ένα χαρακτηριστικά κινδύνου ή εάν ένα μείγμα ή διάλυμα περιέχει περισσότερα από ένα συστατικά των Κλάσεων ή ομάδων των υλών που παρατίθενται παρακάτω, θα κατατάσσεται στην Κλάση ή στην ομάδα υλών που παρουσιάζει τον υπερισχύοντα κίνδυνο.

2.1 Εάν δεν υπάρχει υπερισχύων κίνδυνος, η κατάταξη θα βασίζεται στην ακόλουθη σειρά προτεραιότητας:

- ύλες και είδη της Κλάσης 1
- ύλες και είδη της Κλάσης 2
- αυτο-αντιδρούσες και σχετικές ύλες και εκρηκτικές ύλες σε μη εκρηκτική κατάσταση (βρεγμένες ή αδρανοποιημένες εκρηκτικές ύλες) της Κλάσης 4.1
- πυροφορικές ύλες της Κλάσης 4.2
- ύλες της Κλάσης 5.2
- ύλες και είδη της Κλάσης 2
- ύλες της Κλάσης 6.1 ή Κλάσης 3 οι οποίες, στην βάση της διά της αναπνοής τοξικότητάς τους, κατατάσσονται υπό το γράμμα (a) των διαφόρων ειδών (εξαιρουμένων των υλών, διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα) που ικανοποιούν τα κριτήρια κατάταξης της Κλάσης 8 και έχουν μία διά της αναπνοής τοξικότητα της σκόνης και αχλύος (LC<sub>50</sub>) στο φάσμα της ομάδας (a) και μία διά του στόματος ή διά του δέρματος τοξικότητα μόνο στο φάσμα της ομάδας (c) ή λιγότερο, όπως ύλες, διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα) θα κατατάσσονται στην Κλάση 8).
- μολυσματικές ύλες της Κλάσης 6.2.

## Ορισμοί και γενικές διατάξεις

2002  
(συνεχ.)

- 2.2 Εάν τα χαρακτηριστικά κινδύνου εμπίπτουν σε περισσότερες από μία Κλάσεις ή ομάδες υλών που δεν αναφέρθηκαν στον 2.1, οι ύλες, μείγματα ή διαλύματα θα κατατάσσονται στην Κλάση ή τις ομάδες υλών που παρουσιάζουν τον υπερισχύοντα κίνδυνο.
- 2.3 Εάν δεν υπάρχει υπερισχύων κίνδυνος, ή ύλη, διάλυμα ή μείγμα θα κατατάσσεται ως ακολούθως:
- 2.3.1 Κατάταξη σε μία Κλάση θα πραγματοποιείται στην βάση των διαφόρων χαρακτηριστικών κινδύνου ή συστατικών σε συμφωνία με τον παρακάτω Πίνακα<sup>B</sup>. Για τις Κλάσεις 3, 4.1, 4.2, 4.3, 5.1, 6.1, 8 και 9, θα υπολογίζεται ο βαθμός κινδύνου που σημειώνεται από τα γράμματα (a), (b) ή (c) των διαφόρων ειδών [βλέπε περιθωριακά 2300 (3), 2400 (3), 2430 (3), 2470 (3), 2500 (3), 2600 (1), 2800 (1) και 2900].

**ΣΗΜΕΙΩΣΗ:** Παράδειγμα επεξηγηματικό της χρήσης του Πίνακα<sup>B</sup>:

Περιγραφή του Μείγματος:

Μείγμα που αποτελείται από ένα εύφλεκτο υγρό καταχωρημένο υπό την Κλάση 3, γράμμα (c), μία τοξική ύλη καταχωρημένη υπό την Κλάση 6.1, γράμμα (b) και διαβρωτική ύλη καταχωρημένη υπό την Κλάση 8, γράμμα (a).

Διαδικασία:

Η τομή της γραμμής 3(c) με την στήλη 6.1(b) δίνει 6.1(b). Η τομή της γραμμής 6.1(b) με την στήλη 8(a) δίνει 8(a). Αυτό το μείγμα κατατάσσεται συνεπώς υπό την Κλάση 8, γράμμα (a).

<sup>B</sup>

Ο Πίνακας παρουσιάζεται στις σελίδες 10 και 11.

2002

(συνεχ.)

Πίνακας [βλέπε περιγραφικό 2002 (8) (b) 2.3.1]

Κλάση και περιγραφή	4.1 b)	4.2 b)	4.2 c)	4.3 a)	4.3 b)	4.3 c)	5.1 a) V	5.1 b) V	5.1 c) V	6.1 a) V DERMAL	6.1 b) V	6.1 c) V	8 a) V	8 b) V	8 c) V	9
3 a) V	SO <sub>2</sub> LIQ 4.1 V 3 a)	SO <sub>2</sub> LIQ 4.2 V 3 a)	SO <sub>2</sub> LIQ 4.2 V 3 a)	4.3 a)	4.3 a)	4.3 a)	SOL LIQ 5.1 a) 3 a)	SOL LIQ 5.1 a) 3 a)	SOL LIQ 5.1 a) 3 a)	3 a)	3 a)	3 a)	3 a)	3 a)	3 a)	3 a)
3 b) V	SO <sub>2</sub> LIQ 4.1 V 3 b)	SO <sub>2</sub> LIQ 4.2 V 3 b)	SO <sub>2</sub> LIQ 4.2 V 3 b)	4.3 a)	4.3 b)	4.3 b)	SO <sub>2</sub> LIQ 5.1 b) 3 b)	SO <sub>2</sub> LIQ 5.1 b) 3 b)	SO <sub>2</sub> LIQ 5.1 b) 3 b)	3 a)	3 b)	3 b)	8 a)	3 b)	3 b)	3 b)
3 c) V	SO <sub>2</sub> LIQ 4.1 V 3 c)	SO <sub>2</sub> LIQ 4.2 V 3 c)	SO <sub>2</sub> LIQ 4.2 V 3 c)	4.3 a)	4.3 b)	4.3 c)	SOL LIQ 5.1 b) 3 c)	SOL LIQ 5.1 b) 3 c)	SOL LIQ 5.1 c) 3 c)	6.1 a)	6.1 b)	3 c) B/	8 a)	8 b)	3 c)	3 c) V
4.1 b)		4.2 b)	4.2 b)	4.3 a)	4.3 b)	4.3 b)	5.1 a)	4.1 b)	4.1 b)	6.1 a)	SOL LIQ 4.1 b) 6.1 b)	SOL LIQ 4.1 b) 6.1 b)	8 c)	SOL LIQ 4.1 b) 8 b)	SOL LIQ 4.1 b) 8 b)	4.1 b)
4.1 c)		4.2 b)	4.2 c)	4.3 a)	4.3 b)	4.3 c)	5.1 a)	4.1 b)	4.1 c)	6.1 a)	6.1 b)	SOL LIQ 4.1 c) 6.1 c)	8 a)	8 b)	SOL LIQ 4.1 c) 8 c)	4.1 c) V
4.2 b)				4.3 a)	4.3 b)	4.3 b)	5.1 a)	4.2 b)	4.2 b)	6.1 a)	4.2 b)	4.2 b)	8 a)	4.2 b)	4.2 b)	4.2 b)
4.2 c)				4.3 a)	4.3 b)	4.3 c)	5.1 a)	5.1 b)	4.2 c)	6.1 a)	4.2 c)	4.2 c)	8 a)	8 b)	4.2 c)	4.2 c) V
4.3 a)							5.1 a)	4.3 a)	4.3 a)	6.1 a)	4.3 a)	4.3 a)	4.3 a)	4.3 a)	4.3 a)	4.3 a)
4.3 b)							5.1 a)	4.3 b)	4.3 b)	6.1 a)	4.3 b)	4.3 b)	8 a)	4.3 b)	4.3 b)	4.3 b)
4.3 c)							5.1 a)	4.3 c)	4.3 c)	6.1 a)	4.3 c)	4.3 c)	8 a)	8 b)	4.3 c)	4.3 c) V
5.1 a) V	V						5.1 a)	5.1 b)	5.1 b)	5.1 a)	5.1 a)	5.1 a)	5.1 a)	5.1 a)	5.1 a)	5.1 a)
5.1 b) V	V									6.1 a)	5.1 b)	5.1 b)	8 a)	5.1 b)	5.1 b)	5.1 b)
5.1 c) V	V									6.1 a)	6.1 b)	5.1 c)	8 a)	8 b)	5.1 c)	5.1 c) V
6.1 a) V DERMAL													SOL LIQ 6.1 a) 8 a)	6.1 a)	6.1 a)	6.1 a)
6.1 b) V ORAL													SOL LIQ 6.1 b) 8 b)	6.1 b)	6.1 b)	6.1 b)
6.1 b) V INHAL													SOL LIQ 6.1 b) 8 b)	6.1 b)	6.1 b)	6.1 b)
6.1 b) V DERMAL													SOL LIQ 6.1 b) 8 b)	6.1 b)	6.1 b)	6.1 b)
6.1 b) V ORAL													SOL LIQ 6.1 b) 8 b)	6.1 b)	6.1 b)	6.1 b)
6.1 c) V													8 a)	8 b)	8 c)	6.1 c) V
8 a) V																8 a)
8 b) V																8 b)
8 c) V																8 c) V

SOL = Στερεός υλικός και μίγματα  
 LIQ = Υγρά υλικά, μίγματα και διαλύματα  
 DERMAL = Από τον δερματικό τομέα  
 ORAL = Από τον στόμαχο τομέα  
 INHAL = Από την αναπνευστική τομέα



2002 Υποσημειώσεις του Πίνακα  
(συνεχ.)

*1/* Αυτά τα μείγματα και διαλύματα μπορούν να έχουν εφικτικές ιδιότητες, στην περίπτωση αυτή δεν θα γίνονται δεκτά για μεταφορά παρά μόνο εάν ικανοποιούν τις απαιτήσεις της Κλάσης 1.

*2/* Διαλύματα ή μείγματα που περιέχουν ύλες της Κλάσης 3, περιθωριακό 2301, 6°, 12° ή 13° θα τοποθετούνται σ' αυτή την Κλάση υπό αυτά τα είδη.

*3/* Διαλύματα ή μείγματα που περιέχουν ύλες της Κλάσης 6.1, περιθωριακό 2601, 1° έως 3° θα τοποθετούνται σ' αυτή την Κλάση υπό αυτά τα είδη.

*4/* Διαλύματα ή μείγματα που περιέχουν ύλες της Κλάσης 8, περιθωριακό 2801, 6°, 14° και 15° θα τοποθετούνται σ' αυτή την Κλάση υπό αυτά τα είδη.

*5/* Κατάζή σε μία Κλάση και ένα γράμμα ενός είδους μπορεί να βασίζεται στην διαδικασία δοκιμής (βλέπε Προσθήκη Α.3).

*6/* Διαλύματα ή μείγματα που περιέχουν ύλες της Κλάσης 9, περιθωριακό 2901, 2°(b), θα τοποθετούνται σ' αυτή την Κλάση υπό αυτά τα είδη, αρκεί να μην περιέχουν επίσης ύλες που σημειώνονται στις παραπάνω υποσημειώσεις *1/* έως *4/*. Εάν περιέχουν τέτοιες ύλες τότε θα κατατάσσονται αντίστοιχα.

*7/* Δεν υπάρχει σήμερα κανένα κριτήριο δοκιμής για τον καθαρισμό του βαθμού κινδύνου (ομάδα συσκευασίας) για υγρά της Κλάσης 5.1. Ο βαθμός κινδύνου (ομάδα συσκευασίας) γι' αυτές τις ύλες μπορεί να καθοριστεί μόνο με τη σύγκριση με ύλες που έχουν καταταχθεί ανά όνομα υπό κάποιο είδος και μία ομάδα που ορίζεται από τα γράμματα (a), (b) ή (c).

*8/* Κλάση 6.1 για φωτοφάρμακα.

## Ορισμοί και γενικές διατάξεις

2002  
(συνέχ.)

- 2.3.2 Η κατάταξη υπό μία εγγραφή ε.α.ο. ή ένα είδος μίας Κλάσης που καθορίζεται σύμφωνα με το 2.3.1 στη βάση των χαρακτηριστικών κινδύνου των διαφόρων συστατικών του διαλύματος ή του μείγματος. Η κατάταξη υπό μία γενική εγγραφή ε.α.ο. επιτρέπεται μόνο όταν η κατάταξη υπό μία ορισμένη εγγραφή ε.α.ο. δεν είναι δυνατή.

**ΣΗΜΕΙΩΣΗ:** Παραδείγματα για την κατάταξη μειγμάτων και διαλυμάτων υπό Κλάσεις και είδη:

Ένα διάλυμα φαινόλης της Κλάσης 6.1, 14° (b), σε βενζόλιο της Κλάσης 3, 3° (b) κατατάσσεται στην Κλάση 3, 3° (b). αυτό το διάλυμα κατατάσσεται υπό την εγγραφή 1992 εύφλεκτα υγρά, τοξικά, ε.α.ο.

Ένα στερεό μείγμα αρσενικό άλας νατρίου της Κλάσης 6.1, 51° (b) και υδροξείδιο νατρίου της Κλάσης 8, 41° (b) κατατάσσεται υπό την εγγραφή 1557 αρσενική ένωση, στερεά, ε.α.ο. στην Κλάση 6, 51° (b).

Ένα διάλυμα ακατέργαστου ή διυλισμένου ναφθαλινίου της Κλάσης 4.1, 6° (c) σε βενζίνη της Κλάσης 3, 3° (b), κατατάσσεται υπό την εγγραφή 3295 υδρογονάνθρακες, υγροί, ε.α.ο. στην Κλάση 3, 3° (b).

*Ορισμοί και γενικές διατάξεις*

20b (12) Ραδιενεργείς ύλες των οποίων η συγκεκριμένη ένταση ραδιενέργειας υπερβαίνει τα 70 kBq/kg (2 nCi/g) και οι οποίες

- (a) ικανοποιούν τα κριτήρια για μεταφορά υπό το Πρόγραμμα 1 της Κλάσης 7 και
- (b) έχουν επικίνδυνες ιδιότητες που καλύπτονται από τον τίτλο κάθε άλλης Κλάσης ή άλλων Κλάσεων,

θα αποκλείονται της μεταφοράς εάν καλύπτονται από τον τίτλο μίας περιοριστικής Κλάσης στην οποία δεν αναφέρονται.

(13) Ραδιενεργείς ύλες των οποίων η συγκεκριμένη ένταση ραδιενέργειας υπερβαίνει τα 70 kBq/kg (2 nCi/g) και οι οποίες

- (a) ικανοποιούν τα κριτήρια για μεταφορά υπό το Πρόγραμμα 1 της Κλάσης 7 και
- (b) έχουν επικίνδυνες ιδιότητες που καλύπτονται από τον τίτλο κάθε άλλης Κλάσης ή άλλων Κλάσεων,

επιπρόσθετα της ικανοποίησης των απαιτήσεων του Προγράμματος 1 της Κλάσης 7, θα υπόκεινται στους παρακάτω όρους μεταφοράς:

- (i) στην περιοριστική Κλάση, εάν μία από τις ενεχόμενες Κλάσεις είναι περιοριστική Κλάση, και η ύλη αναφέρεται σ' αυτή,

ή

- (ii) στην Κλάση που αντιστοιχεί στον υπερισχύοντα κίνδυνο που εκτίθεται από την ύλη κατά τη μεταφορά, εάν καμία από τις ενεχόμενες Κλάσεις δεν είναι περιοριστική Κλάση.

(14) Για τους σκοπούς αυτής της Οδηγίας, ύλες, διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα) οι οποίες δεν μπορούν να καταταχθούν στις Κλάσεις 1 έως 8 ή 9, 1<sup>ο</sup> έως 8<sup>ο</sup>, 13<sup>ο</sup> και 14<sup>ο</sup>, αλλά οι οποίες μπορούν να καταταχθούν στην Κλάση 9, 11<sup>ο</sup> ή 12<sup>ο</sup>, στη βάση των μεθόδων και κριτηρίων των δοκιμών σύμφωνα με την Προσθήκη Α.3, τμήμα Ζ, περιθωριακά 3390 έως 3396, θα θεωρούνται ότι μολύνουν το υδρόβιο περιβάλλον. Διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα) για τα οποία οι τιμές της κατάταξης σύμφωνα με τα κριτήρια κατάταξης δεν είναι διαθέσιμες, θα θεωρούνται ότι μολύνουν το υδρόβιο περιβάλλον εάν το  $LC_{50}$ <sup>9/</sup> υπολογιζόμενο σύμφωνα με τον παρακάτω τύπο:

$$LC_{50} = \frac{LC_{50} \text{ της μολύνουσας ύλης} \times 100}{\text{ποσοστό της μολύνουσας ύλης (κατά βάρος)}}$$

είναι ίσο ή μικρότερο από:

- (a) 1 mg/l,
- (b) 10 mg/l εάν η μολύνουσα ύλη δεν αποσυντίθεται εύκολα ή, εάν αποσυντεθημένη έχει  $\log P_{ow} \geq 3.0$ .

**ΣΗΜΕΙΩΣΗ:** Για ύλες των Κλάσεων 1 έως 8 και Κλάσεων 9, 1<sup>ο</sup> έως 8<sup>ο</sup>, 13<sup>ο</sup> και 14<sup>ο</sup>, οι οποίες μολύνουν το υδρόβιο περιβάλλον σύμφωνα με τα κριτήρια της Προσθήκης Α.3, τμήμα Ζ, περιθωριακά 3390 έως 3396, δεν εφαρμόζονται επιπρόσθετοι όροι μεταφοράς.

<sup>9/</sup>

Σύμφωνα με τον ορισμό που περιέχεται στο περιθωριακό 3396.

*Ορισμοί και γενικές διατάξεις*

206 (1) Το παρόν Παράρτημα περιέχει για κάθε Κλάση πλην της Κλάσης 7:

(a) κατάλογο των επικίνδυνων υλών των αποτελούντων την Κλάση, και όπου έχει εφαρμογή, υπό μορφή περιθωριακού έχοντος αριθμό λήγοντα στο γράμμα "a", τις εξαιρέσεις τις επιτρεπόμενες από τις διατάξεις αυτής της Οδηγίας για μερικές από τις ύλες αυτές εάν συμμορφώνονται προς ορισμένους όρους,

(b) διατάξεις υποδιαριθμούμενες όπως παρακάτω:

## A. Κόλα

1. Γενικοί όροι συσκευασίας
2. Ειδικοί όροι συσκευασίας
3. Μικτή συσκευασία
4. Ενδείξεις και ετικέτες κινδύνου επάνω στα κόλα

## B. Λεπτομέρειες (στοιχεία) του εγγράφου μεταφοράς

## C. Κενές συσκευασίες

## D. (όπου ενδείκνυται) Άλλες διατάξεις

(2) Διατάξεις σχετικές με:

- την αποστολή χύμα, μέσα σε εμπορευματοκιβώτια και σε δεξαμενές,
- τη μέθοδο διεκπεραίωσης (προωθήσεως) και περιορισμούς στη προώθηση,
- απαγορεύσεις στη μικτή φόρτωση και τον
- εξοπλισμό μεταφοράς

μπορούν να βρεθούν στο Παράρτημα Β και στις προσθήκες του, που περιέχουν επίσης σχετικές διατάξεις εφαρμοζόμενες ειδικά στην οδική μεταφορά.

(3) Για την Κλάση 7, οι διατάξεις συνοψίζονται υπό μορφή προγραμμάτων που περιέχουν τους παρακάτω τίτλους:

1. Ύλες
2. Συσκευασία κόλου
3. Ανώτατο επίπεδο ακτινοβολίας κόλου
4. Μόλυνση στα κόλα, στα οχήματα, στα εμπορευματοκιβώτια, στις δεξαμενές και στις υπερ-συσκευασίες
5. Απολύμανση και χρήση οχημάτων, εξοπλισμού ή τμήματά τους.
6. Μικτή συσκευασία
7. Μικτή φόρτωση
8. Ενδείξεις και ετικέτες κινδύνου επάνω στα κόλα, εμπορευματοκιβώτια, δεξαμενές και υπερ-συσκευασίες

*Ορισμοί και γενικές διατάξεις*

- 20 (συνεχ.) 9. Ενδείξεις και επικείμετες κινδύνου σε οχήματα εκτός των οχημάτων-δεξαμενών
10. Έγγραφα μεταφοράς
11. Αποθήκευση και προώθηση
12. Μεταφορά κόλων, εμπορευματοκιβωτίων, δεξαμενών και υπερ-συσκευασιών
13. Άλλες διατάξεις

(4) Οι Προσθήκες του Παραρτήματος αυτού περιέχουν:

*Προσθήκη Α.1:* Όροι σταθερότητας και ασφάλειας σχετικά με τις εκρηκτικές ύλες και είδη, τα νιτρικά μείγματα νιτροκυτταρίνης, αυτο-αντιδρούσες ύλες και οργανικά υπεροξειδία, μαζί με λεξιλόγιο ονομάτων στο περιθωριακό 2101.

*Προσθήκη Α.2:* Διατάξεις σχετικές με τη φύση (προέλευση) των εκ κράματος αλουμινίου δοχείων για ορισμένα αέρια της Κλάσης 2, διατάξεις σχετικές με τα υλικά και την κατασκευή δοχείων, προοριζόμενων για τη μεταφορά βαθιά - κατεψυγμένων υγροποιημένων αερίων της Κλάσης 2, και διατάξεις σχετικές με δοκιμές σε διανεμητές αεροζόλ και μη-ξαναγεμιζόμενα εμπορευματοκιβώτια για αέρια υπό πίεση της Κλάσης 2, 10° και 11°.

*Προσθήκη Α.3:* Δοκιμές (έλεγχοι) σχετικές με εύφλεκτα υγρά των Κλάσεων 3, 6.1 και 8, δοκιμή προσδιορισμού ρευστότητας, δοκιμές σχετικές με εύφλεκτα στερεά της Κλάσης 4.1, δοκιμές σχετικές με ύλες της Κλάσης 4.2 υποκείμενες σε αυτογενή ανάφλεξη, δοκιμή σχετική με τις ύλες της Κλάσης 4.3 η οποίες βγάζουν εύφλεκτα αέρια σε επαφή με το νερό, δοκιμή σχετική με οξειδωτικά στερεά της Κλάσης 5.1, δοκιμές για τον προσδιορισμό της οικοτοξικότητας, της διατήρησης και της βιοσυσσώρευσης των υλών στο υδρόβιο περιβάλλον προς ταξινόμηση στην Κλάση 9.

*Προσθήκη Α.5:* Γενικές συνθήκες συσκευασίας, είδη συσκευασιών, απαιτήσεις εφαρμόσιμες στις συσκευασίες, απαιτήσεις δοκιμών για τις συσκευασίες.

*Προσθήκη Α.6:* Γενικές συνθήκες για την χρήση ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά χύμα (IBC), ειδών IBC, απαιτήσεων σχετικών με την κατασκευή IBC και προδιαγραφές δοκιμών των IBC.

*Προσθήκη Α.7:* Διατάξεις σχετικές με ραδιενεργές ύλες της Κλάσης 7.

*Προσθήκη Α.9:* Διατάξεις σχετικές με τις επικείμετες κινδύνου, και την επεξήγηση των συμβόλων.

Οι Προσθήκες Α.4 και Α.8 είναι υπό επιφύλαξη.

2004

2005 Όπου οι διατάξεις οι σχετικές με τη μεταφορά "πλήρους φορτίου" έχουν εφαρμογή, οι αρμόδιες αρχές ενδέχεται να απαιτήσουν όπως το όχημα ή μεγάλο εμπορευματοκιβώτιο το χρησιμοποιούμενο για τη σχετική επιχείρηση μεταφοράς φορτωθεί μόνο σε ένα σημείο και εκφορτωθεί μόνο σε ένα σημείο.

2006 (1) Εάν το όχημα που εκτελεί μεταφορά που υπόκειται στις διατάξεις αυτής της Οδηγίας μεταφερθεί σε τμήμα του ταξιδιού όχι με οδική έλξη, τότε οποιοσδήποτε εθνικές ή διεθνείς διατάξεις οι οποίες, στο αναφερόμενο τμήμα, διέπουν την μεταφορά επικίνδυνων εμπορευμάτων με τον τρόπο της μεταφοράς τον χρησιμοποιηθέντα για τη μεταφορά του οχήματος της οδού, θα έχουν και μόνο εφαρμογή για το αναφερόμενο τμήμα του ταξιδιού.

(2) Στις περιπτώσεις όπου η μεταφορά που υπόκειται στις διατάξεις αυτής της Οδηγίας υπόκειται επίσης στο σύνολο ή σε μέρος του οδικού ταξιδιού στις διατάξεις μιας διεθνούς σύμβασης η οποία καθορίζει την μεταφορά επικίνδυνων εμπορευμάτων με κάποιο τρόπο

*Ορισμοί και γενικές διατάξεις*

**200** μεταφοράς εκτός της οδικής μεταφοράς δυνάμει διατάξεων που εκτείνουν την εφαρμοσιμότητα (συνεχ.) της σύμβασης αυτής σε ορισμένες υπηρεσίες μηχανοκίνητων οχημάτων, τότε οι διατάξεις αυτής της διεθνούς σύμβασης θα εφαρμόζονται στο εν λόγω ταξίδι συγχρόνως με εκείνες αυτής της Οδηγίας οι οποίες δεν είναι ασύμβατες με εκείνες, οι υπόλοιπες διατάξεις αυτής της Οδηγίας δεν θα εφαρμόζονται κατά την διάρκεια του εν λόγω ταξιδιού.

**2007** Κόλα, συμπεριλαμβανομένων των ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά χύμα (IBC), τα οποία δεν καλύπτουν πλήρως τις απαιτήσεις αυτής της Οδηγίας για συσκευασία, μικτή συσκευασία και ετικετοποίηση αλλά είναι συμμορφωμένα με τις απαιτήσεις για θαλάσσια ή αεροπορική μεταφορά επικινδύνων εμπορευμάτων<sup>10/</sup> θα γίνεται αποδεκτή για μεταφορά εάν είτε προηγουμένως είτε στη συνέχεια του οδικού ταξιδιού είχε αποτελέσει αντικείμενο θαλάσσιας ή αεροπορικής μεταφοράς υπό τις παρακάτω προϋποθέσεις:

- (a) Εάν τα κόλα δεν φέρουν ετικέτα σύμφωνη μ' αυτήν την Οδηγία, πρέπει να φέρουν ετικέτα σύμφωνη με τις διατάξεις της θαλάσσιας ή της αεροπορικής μεταφοράς<sup>10/</sup>
- (b) Οι διατάξεις για θαλάσσια ή αεροπορική μεταφορά<sup>10/</sup> πρέπει να είναι εφαρμοστέες και για μικτές συσκευασίες εντός ενός κόλου.
- (c) Επιπρόσθετα στις λεπτομέρειες που ορίζονται απ' αυτήν την Οδηγία, οι λέξεις "Μεταφορά υπό το Περιθωριακό 2007 της ADR" πρέπει να αναγράφονται στο έγγραφο μεταφοράς.

**2008-  
2009**

**2010** Προς τον σκοπό της διεξαγωγής των απαραίτητων δοκιμών (ελέγχων) προς τροποποίηση των διατάξεων του παρόντος Παραρτήματος για να εφαρμοσθούν στις τεχνολογικές και βιομηχανικές αναπτύξεις, οι αρμόδιες αρχές των Κρατών Μελών μπορούν να συμφωνήσουν απ' ευθείας μεταξύ τους να εξουσιοδοτήσουν ορισμένες επιχειρήσεις μεταφοράς στις εδαφικές τους περιοχές (επικράτειες) με προσωρινή ανάκληση των διατάξεων του παρόντος Παραρτήματος. Η περίοδος ισχύος της προσωρινής ανάκλησης δεν μπορεί να υπερβαίνει τα πέντε χρόνια από την ημέρα που ετέθη σε ισχύ. Η προσωρινή ανάκληση λήγει αυτομάτως την ημερομηνία κατά την οποία ετέθη σε ισχύ η σχετική τροποποίηση του Παραρτήματος αυτού.

**2011-  
2009**

<sup>10/</sup> Αυτές οι απαιτήσεις καθορίζονται στον Διεθνή Κώδικα για τη Θαλάσσια Μεταφορά Επικινδύνων Εμπορευμάτων (IMDG) που εκδίδεται από τον Διεθνή Οργανισμό Θαλάσσιων Μεταφορών (IMO), που εδρεύει στο Λονδίνο και στις Τεχνικές Οδηγίες για της Ασφαλή Μεταφορά Επικινδύνων Εμπορευμάτων Αεροπορικής που εκδίδεται από τον Διεθνή Οργανισμό Πολιτικής Αεροπορίας (ICAO), που εδρεύει στο Μόντρεαλ.

**Μέρος ΙΙ. ΚΑΤΑΛΟΓΟΣ ΥΛΩΝ ΚΑΙ ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ  
ΓΙΑ ΤΙΣ ΔΙΑΦΟΡΕΣ ΚΛΑΣΕΙΣ**

**ΚΛΑΣΗ 1. ΕΚΡΗΚΤΙΚΕΣ ΥΛΕΣ ΚΑΙ ΕΙΔΗ**

**1. Κατάλογος υλών και ειδών**

**2100 (1)** Ανάμεσα στις ύλες και τα είδη που καλύπτονται από τον τίτλο της Κλάσης 1, μόνον εκείνα που αναφέρονται στο περιθωριακό 2101 ή καταχωρούνται σε μία ε.α.ο. καταχώρηση στο περιθωριακό 2101 θα γίνονται δεκτά για μεταφορά. Αυτές οι ύλες και τα είδη θα γίνονται δεκτά για μεταφορά μόνον υπό τους όρους που τίθενται στα περιθωριακά 2100 (2) έως 2116, Προσθήκη Α.1 και Παράρτημα Β. Θεωρούνται τότε ως ύλες και είδη αυτής της Οδηγίας.

(2) Η κλάση 1 περιλαμβάνει:

- (a) Εκρηκτικές ύλες: στερεές ή υγρές ύλες (ή μείγματα υλών) ικανές με χημική αντίδραση να παράγουν αέρια σε τέτοια θερμοκρασία και πίεση και σε τέτοια ταχύτητα ώστε να προκαλέσουν ζημιά στον περιβάλλοντα χώρο.

Πυροτεχνικές ύλες: ύλες ή μείγματα υλών σχεδιασμένα να παράγουν θερμότητα, φως, ήχο, αέριο ή καπνό ή έναν συνδυασμό αυτών ως αποτέλεσμα μη-εκρηκτικών αυτοσυντηρούμενων εξώθερμων χημικών αντιδράσεων.

**ΣΗΜΕΙΩΣΗ 1:** Εκρηκτικές ύλες οι οποίες είναι υπερβολικά ευαίσθητες ή υπόκεινται σε αυτόματη αντίδραση δεν θα γίνονται δεκτές για μεταφορά.

**ΣΗΜΕΙΩΣΗ 2:** Ύλες οι οποίες δεν είναι από μόνες τους εκρηκτικές αλλά οι οποίες μπορούν να σχηματίσουν ένα εκρηκτικό μείγμα αερίου, ατμού ή σκόνης δεν είναι ύλες της Κλάσης 1.

**ΣΗΜΕΙΩΣΗ 3:** Επίσης δεν συμπεριλαμβάνονται στην Κλάση 1: εκρηκτικά βρεγμένα με νερό ή αλκοόλη των οποίων η περιεκτικότητα σε νερό ή αλκοόλη υπερβαίνει τα όρια που υποδεικνύονται στο περιθωριακό 2101 και εκείνα που περιέχουν πλαστικοποιητές - αυτά τα εκρηκτικά καταχωρούνται στην Κλάση 4.1 (περιθωριακό 2401, 21°, 22° και 24°) - και εκείνα τα εκρηκτικά τα οποία, με βάση τον βασικό τους κίνδυνο, καταχωρούνται στην Κλάση 5.2.

- (b) Εκρηκτικά είδη: είδη που περιέχουν μία ή περισσότερες εκρηκτικές ύλες και ή πυροτεχνικές ύλες.

**ΣΗΜΕΙΩΣΗ:** Συσκευές που περιέχουν εκρηκτικές και ή πυροτεχνικές ύλες σε τέτοια μικρή ποσότητα ή τέτοιου χαρακτήρα ώστε η ακούσια ή τυχαία ανάφλεξη ή πυροδότηση τους κατά τη διάρκεια της μεταφοράς να μην προκαλεί οποιαδήποτε εκδήλωση εκτίναξης, φωτιάς, καπνού, θερμότητας ή υψηλού θορύβου εξωτερικά της συσκευής δεν υπόκεινται στις απαιτήσεις της Κλάσης 1.

- (c) Ύλες και είδη που δεν αναφέρονται στα (a) ή (b) παραπάνω που κατασκευάζονται με σκοπό την παραγωγή διασκευαστικού εφέ με έκρηξη ή πυροτεχνικού εφέ.

(3) Εκρηκτικές ύλες και είδη θα πρέπει να έχουν καταχωρηθεί σε μία ονομασία στο περιθωριακό 2101 σε συμφωνία με τις μεθόδους ελέγχου για τον προσδιορισμό των εκρηκτικών ιδιοτήτων και τις διαδικασίες ταξινόμησης που τίθενται στην Προσθήκη Α.1 και θα πρέπει να ικανοποιούν τους όρους που αρμόζουν σ' εκείνη την ονομασία ή θα πρέπει να καταχωρούνται σε μία ε.α.ο. καταχώρηση στο περιθωριακό 2101 σε συμφωνία με αυτές τις μεθόδους ελέγχου και τις διαδικασίες ταξινόμησης.

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**2.1.4.** Καταχώρηση υλών και ειδών που δεν αναφέρονται με την ονομασία τους σε μία ε.α.ο. (συνεχ.) καταχώρηση θα πρέπει να γίνεται από την αρμόδια αρχή της χώρας προέλευσης.

Υλες και είδη που καταχωρούνται σε μία ε.α.ο. καταχώρηση θα πρέπει να μεταφέρονται μόνον με την έγκριση της αρμόδιας αρχής της χώρας προέλευσης και υπό τους όρους που επιβάλλονται από εκείνη την αρχή.

Εάν η χώρα προέλευσης δεν είναι Κράτος Μέλος, τα όρια που επιβάλλονται θα πρέπει να αναγνωρίζονται από την αρμόδια αρχή του πρώτου Κράτους Μέλους που προσεγγίζεται από την αποστολή.

Η έγκριση θα πρέπει να δίνεται γραπτά.

(4) Υλες και είδη της Κλάσης I, άλλα από κενές συσκευασίες, ακαθάριστες, της 51<sup>ο</sup>, θα πρέπει να έχουν καταχωρηθεί σε μια υποδιαίρεση σε συμφωνία με την παράγραφο (6) και σε μία ομάδα συμβατότητας σε συμφωνία με την παράγραφο (7). Η υποδιαίρεση θα πρέπει να βασίζεται στα αποτελέσματα των ελέγχων που περιγράφονται στην Προσθήκη Α.1 και να ταιριάζει στους ορισμούς στην παράγραφο (6). Η ομάδα συμβατότητας θα πρέπει να προσδιορίζεται σε συμφωνία με τους ορισμούς στην παράγραφο (7). Ο κωδικός ταξινόμησης θα πρέπει να συνίσταται από τον αριθμό υποδιαίρεσης και το γράμμα της ομάδας συμβατότητας.

(5) Υλες και είδη της Κλάσης I καταχωρούνται στην ομάδα συσκευασίας II (βλέπε Προσθήκη Α.5).

(6) Ορισμός των υποδιαίρεσεων

- 1.1 Υλες και είδη που έχουν κίνδυνο έκρηξης μάζας. (Έκρηξη μάζας είναι μία έκρηξη που προσβάλλει σχεδόν όλο το φορτίο σχεδόν ακαριαία).
- 1.2 Υλες και είδη που έχουν κίνδυνο εκτίναξης αλλά όχι κίνδυνο έκρηξης μάζας.
- 1.3 Υλες και είδη που έχουν κίνδυνο φωτιάς και είτε μικρότερο κίνδυνο έκρηξης είτε μικρότερο κίνδυνο εκτίναξης είτε και τα δύο, αλλά όχι κίνδυνο έκρηξης μάζας.
  - (a) η ανάφλεξη των οποίων δημιουργεί σημαντική εκπέμπουσα θερμότητα, ή
  - (b) που καίγονται η μία μετά την άλλη, παράγοντας μικρότερες εκρήξεις ή εκτινάξεις ή και τα δύο.
- 1.4 Υλες και είδη που παρουσιάζουν μόνον έναν μικρό κίνδυνο έκρηξης σε περίπτωση ανάφλεξης ή πυροδότησης κατά τη διάρκεια της μεταφοράς. Τα αποτελέσματα περιορίζονται κατά πολύ στο κόλο και δεν αναμένεται εκτίναξη θραυσμάτων σημαντικού μεγέθους ή εύρους. Μία εξωτερική φωτιά δεν θα πρέπει να προκαλεί ουσιαστικά ακαριαία έκρηξη σχεδόν όλου του περιεχομένου του κόλου.
- 1.5 Πολύ λίγο ευαίσθητες ύλες με κίνδυνο έκρηξης μάζας που είναι τόσο λίγο ευαίσθητες ώστε υπάρχει πολύ μικρή πιθανότητα πυροδότησης ή μετάβασης από την καύση στην έκρηξη υπό κανονικούς όρους μεταφοράς. Ως ελάχιστη απαίτηση δεν πρέπει να εκρήγνυνται στον έλεγχο εξωτερικής φωτιάς.
- 1.6 Εξαιρετικά μη-ευαίσθητα είδη που δεν έχουν κίνδυνο έκρηξης μάζας. Τα είδη περιέχουν μόνον εξαιρετικά μη-ευαίσθητες εκρηκτικές ύλες και εμφανίζουν αμελητέα πιθανότητα τυχαίας πυροδότησης ή εξάπλωσης.



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(συνεχ.)**ΣΗΜΕΙΩΣΗ:** Ο κίνδυνος από είδη της Υποδιαίρεσης 1.6 περιορίζεται στην έκρηξη ενός μόνου είδους.

- (7) Ορισμός ομάδων συμβατότητας υλών και ειδών:
- A Κύρια εκρηκτική ύλη
  - B Είδος που περιέχει μία κύρια εκρηκτική ύλη και που δεν έχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Μερικά είδη, τέτοια όπως πυροκροτητές για ανατινάξεις, συνδεσμολογίες πυροκροτητών για ανατινάξεις και εγχυτές, τύπου φυσίγγιου, περιλαμβάνονται, παρ' όλο που δεν περιέχουν κύρια εκρηκτικά.
  - C Προωθητική εκρηκτική ύλη ή άλλη αναφλεγόμενη εκρηκτική ύλη ή είδος που περιέχει τέτοια εκρηκτική ύλη
  - D Δευτερεύουσα εκρηκτική ύλη ή μαύρη πυρίτιδα ή είδος που περιέχει μία δευτερεύουσα εκρηκτική ύλη, σε κάθε περίπτωση χωρίς μέσον πυροδότησης και χωρίς προωθητική γόμωση, ή είδος που περιέχει μία κύρια εκρηκτική ύλη και που έχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά
  - E Είδος που περιέχει μία δευτερεύουσα εκρηκτική ύλη, χωρίς μέσον πυροδότησης, με προωθητική γόμωση (άλλο από είδος που περιέχει ένα άφλεκτο υγρό ή τζέλ ή υπερβολικά υγρά)
  - F Είδος που περιέχει μία δευτερεύουσα εκρηκτική ύλη με δικό του μέσον πυροδότησης, με προωθητική γόμωση (άλλο από είδος που περιέχει ένα άφλεκτο υγρό ή τζέλ ή υπερβολικά υγρά) ή χωρίς προωθητική γόμωση
  - G Πυροτεχνική ύλη, ή είδος που περιέχει μία πυροτεχνική ύλη, ή είδος που περιέχει και μία εκρηκτική ύλη και μία φωτιστική, εμπρηστική, δακρυγόνα ή καπνογόνα ύλη (άλλο αποενεργοποιημένο με νερό ή της παρουσίας υπερβολικών υγρών, φωσφιδία, μία πυροφορική ύλη, ένα εύφλεκτο υγρό ή τζέλ ή υπερβολικά υγρά)
  - H Είδος που περιέχει και μία εκρηκτική ύλη και λευκό φωσφόρο
  - J Είδος που περιέχει και μία εκρηκτική ύλη και ένα άφλεκτο υγρό ή τζέλ
  - K Είδος που περιέχει και μία εκρηκτική ύλη και έναν τóξικό χημικό παράγοντα
  - L Εκρηκτική ύλη ή είδος που περιέχει μία εκρηκτική ύλη και που παρουσιάζει έναν ειδικό κίνδυνο (π.χ. λόγω ενεργοποίησης με νερό ή της παρουσίας υπερβολικών υγρών, φωσφιδία ή μίας πυροφορικής ύλης) που καθιστά αναγκαία την απομόνωση κάθε τύπου
  - N Είδη που περιέχουν μόνον εξαιρετικά μη-ευαίσθητες εκρηκτικές ύλες
  - S Ύλη ή είδος έτσι συσκευασμένο ή σχεδιασμένο ώστε οποιαδήποτε επικίνδυνα αποτελέσματα που εμφανίζονται από τυχαία λειτουργία, περιορίζονται μέσα στο κόλο εκτός εάν το κόλο έχει αλλοιωθεί από φωτιά, στην οποία περίπτωση όλα τα αποτελέσματα έκρηξης ή εκτίναξης περιορίζονται στο βαθμό που δεν δυσχεραίνουν σημαντικά ή παρεμποδίζουν τις προσπάθειες για ενέργειες πυρόσβεσης ή άλλες ενέργειες κινδύνου στην άμεσα γύρω περιοχή του κόλου.

**Ορισμοί και γενικές διατάξεις**2100  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ 1:** Κάθε ύλη ή είδος, συσκευασμένο σε μία καθορισμένη συσκευασία, μπορεί να καταχωρείται σε μία ομάδα συμβατότητας μόνον. Εφ' όσον το κριτήριο της ομάδας συμβατότητας S είναι εμπειρικό, η καταχώρηση σ' αυτήν την ομάδα συνδέεται αναγκαστικά με τους ελέγχους για καταχώρηση ενός κωδικού ταξινόμησης.

**ΣΗΜΕΙΩΣΗ 2:** Είδη των ομάδων συμβατότητας D ή E μπορούν να τοποθετούνται ή να συσκευάζονται μαζί με το δικό τους μέσον πυροδότησης υπό την προϋπόθεση ότι τέτοιο μέσον έχει τουλάχιστον δύο αποτελεσματικά προστατευτικά χαρακτηριστικά σχεδιασμένα να αποτρέπουν μία έκρηξη σε περίπτωση τυχαίας λειτουργίας του μέσου πυροδότησης. Τέτοια κόλα θα πρέπει να καταχωρούνται στις ομάδες συμβατότητας D ή E.

**ΣΗΜΕΙΩΣΗ 3:** Είδη των ομάδων συμβατότητας D ή E μπορούν να συσκευάζονται μαζί με το δικό τους μέσον πυροδότησης, που δεν έχει δύο αποτελεσματικά προστατευτικά χαρακτηριστικά (δηλ. μέσον πυροδότησης καταχωρημένο στην ομάδα συμβατότητας B), υπό την προϋπόθεση ότι είναι σύμφωνα με τις απαιτήσεις του περιθωριακού 2104 (6). Τέτοια κόλα θα πρέπει να καταχωρούνται στις ομάδες συμβατότητας D ή E.

**ΣΗΜΕΙΩΣΗ 4:** Είδη μπορούν να τοποθετούνται ή να συσκευάζονται μαζί με το δικό τους μέσον ανάφλεξης υπό την προϋπόθεση ότι το μέσον ανάφλεξης δεν μπορεί να λειτουργήσει κατά τη διάρκεια κανονικών συνθηκών μεταφοράς.

**ΣΗΜΕΙΩΣΗ 5:** Είδη των ομάδων συμβατότητας C, D και E μπορούν να συσκευάζονται μαζί. Τέτοια κόλα θα πρέπει να καταχωρούνται στην ομάδα συμβατότητας E.

(8) Ύλες της ομάδας συμβατότητας A και είδη της ομάδας συμβατότητας K, σε συμφωνία με την παράγραφο (7), θα πρέπει να μην γίνονται δεκτά για μεταφορά.

(9) Για τους σκοπούς των απαιτήσεων αυτής της Κλάσης και με απόκλιση από το περιθωριακό 3510 (3), ο όρος "κόλο" θα πρέπει επίσης να περιλαμβάνει ένα ασυσκευαστο είδος εφ' όσον εκείνο το είδος γίνεται δεκτό για μεταφορά ασυσκευαστο.

**2101** Οι ύλες και τα είδη της Κλάσης 1 που θα γίνονται δεκτά για μεταφορά αναφέρονται στον Πίνακα 1 παρακάτω. Εκρηκτικές ύλες και είδη που αναφέρονται στο περιθωριακό 3170 μπορούν να καταχωρούνται στις διάφορες ονομασίες στο περιθωριακό 2101 μόνον εάν οι ιδιότητες, η σύνθεση, η δομή και η προβλεπόμενη χρήση τους αντιστοιχούν σε μία από τις περιγραφές που περιέχονται στην Προσθήκη A.1.

21  
(σ.λ.)

Πίνακας 1 : Κατάλογος υλών και ειδών

Είδος	Χαρακτηριστικός αριθμός και ονομασία της ύλης ή του είδους	Κωδικός ταξινόμησης σε συμφωνία με το περιθ. 2100 (6) και (7)	Συσκευασία	
			Μέθοδοι συσκευα-σίας [βλέπε περιθ. 2103 (6)]	Ειδικές απαιτήσεις συσκευα-σίας [βλέπε περιθ. 2103 (7)]
1	2	3	4	5
1°	<b>ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.1B</b>			
	<u>0029</u> <u>Πυροκροτητές, όχι ηλεκτρικοί για ανατινάξεις</u>	1.1 B	E 105	21, 22, 24
	<u>0030</u> <u>Πυροκροτητές, ηλεκτρικοί για ανατινάξεις</u>	1.1 B	E 104	-
	<u>0073</u> <u>Πυροκροτητές για πυρομαχικά</u>	1.1 B	E 128	23, 36
	<u>0106</u> <u>Πυροσωλήνες-εκρηκτικοί</u>	1.1 B	E 137	38, 56
	<u>0225</u> <u>Ενισχυτές με πυροκροτητές</u>	1.1 B	E 108	23
	<u>0360</u> <u>Συνδεσιμολογίες πυροκροτητών, όχι-ηλεκτρικών, για ανατινάξεις</u>	1.1 B	E 105 A	-
	<u>0377</u> <u>Εγγυτές, τύπου φυσηγίου</u>	1.1 B	E 142	41
	<u>0461</u> <u>Εξαρτήματα, μηχανισμοί γραμμών εκρηκτικών, ε.α.ο.<sup>2/</sup></u>	1.1 B	E 103	-
2°	<b>ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.1C</b>			
	<u>0160</u> <u>Πυρίτιδα, άκαπνη</u>	1.1 C	E 22	8, 9, 10
	<u>0433</u> <u>Συσσωματωμένη πυρίτιδα (πάστα πυρίτιδας), νωπή, με όχι λιγότερο από 17 % αλκοόλη κατά βάρος</u>	1.1 C	E 103	-
	<u>0474</u> <u>Υλες, εκρηκτικές, ε.α.ο.<sup>2/</sup></u>	1.1 C	E 103	-
	<u>0497</u> <u>Προωθητική γόμωση, υγρή</u>  <i>ΣΗΜΕΙΩΣΗ: Εκτός εάν μπορεί να αποδειχθεί με δοκιμή ότι η ευαισθησία της όταν είναι παγωμένη δεν είναι μεγαλύτερη απ' ότι όταν είναι υγρή, η προωθητική γόμωση θα πρέπει να παραμένει υγρή κατά τη διάρκεια κανονικών συνθηκών μεταφοράς και να μην παγώνει σε θερμοκρασίες πάνω από -15 °C.</i>	1.1 C	E 159 (a) E 159 (b)	58 59
	<u>0498</u> <u>Προωθητική γόμωση, στερεά</u>	1.1 C	E 22	8, 9, 10

<sup>1/</sup> Οι αριθμοί ταυτότητας λαμβάνονται από τις Υποδείξεις των Ηνωμένων Εθνών για τη Μεταφορά Επικίνδυνων Εμπορευμάτων.

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

## Κλάση 1

2  
(α.α.α.)

1	2	3	4	5
3°	<b>ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.1C</b>			
	<u>0271</u> Γομώσεις, προωθητικές	1.1 C	E 158	8, 10
	<u>0279</u> Γομώσεις, προωθητικές για κανόνια	1.1 C	E 119	-
	<u>0280</u> Κινητήρες πυραύλων	1.1 C	E 146	-
	<u>0326</u> Φυσίγγια για όπλα, άσφαιρα	1.1 C	E 112	13
	<u>0462</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.1 C	E 103	-
4°	<b>ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.1D</b>			
	<u>0004</u> πικρικό αμμώνιο, ξηρό ή νοπό με λιγότερο από 10 % νερό κατά βάρος	1.1 D	E 2	1, 2
	<u>0027</u> Μαύρη πυρίτιδα (μπαρούτι) κοκκώδης ή ως αβρή σκόνη	1.1 D	E 4	-
	<u>0028</u> Μαύρη πυρίτιδα (μπαρούτι), πεπιεσμένη, ή μαύρη πυρίτιδα (μπαρούτι), σε σβόλους	1.1 D	E 5	-
	<u>0072</u> Κυκλοτριμεθυλενοτρινιτραμίνη (κυκλονίτης, εξογόνο, RDX) νοπή με όχι λιγότερο από 15 % νερό κατά βάρος	1.1 D	E 6 a)	-
	<u>0075</u> Διαιττική διαιθυλενογλυκόλη, απευαισθητοποιημένη, με όχι λιγότερο από 25% μη-πιπτικό αδιάλυτο στο νερό αδρανοποιητή κατά βάρος	1.1 D	E 103	-
	<u>0076</u> Διαιτροφαινόλη, ξηρή ή νοπή με λιγότερο από 15 % νερό κατά βάρος	1.1 D	E 2	1, 2
	<u>0078</u> Διαιτρορεζορσινόλη, ξηρή ή νοπή με λιγότερο από 15 % νερό κατά βάρος	1.1 D	E 2	1, 2
	<u>0079</u> Εξαντροδιφαινυλαμίνη, (διπκυρλαμίνη, εξύλιο)	1.1 D	E 11	-
	<u>0081</u> Εκρηκτικές ύλες για ανατινάξεις, τύπου A	1.1 D	E 8	-
	<i>ΣΗΜΕΙΩΣΗ: ύλες που περιέχουν περισσότερο από 40 % υγρούς νιτρικούς εστέρες πρέπει να ικανοποιούν τον έλεγχο επίδρασης που ορίζεται στην Προσθήκη Α.1, περιθωριακό 3101 (4)</i>			
	<u>0082</u> Εκρηκτικές ύλες για ανατινάξεις, τύπου B	1.1 D	E 8	-
	<u>0083</u> Εκρηκτικές ύλες για ανατινάξεις, τύπου C	1.1 D	E 10	-

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

1	2	3	4	5
4° (συνεχ.)	<u>0084</u> <u>Εκρηκτικές ύλες για ανατινάξεις τύπου D</u>	1.1 D	E 11	-
	<u>0118</u> <u>Εξολίτης (εξοτόλη), ξηρός ή νοπός με λιγότερο από 15 % νερό κατά βάρος</u>	1.1 D	E 13	-
	<u>0133</u> <u>Εξανιτρική μαννιτόλη (νιτρομαννιτικής), νοπή με όχι λιγότερο από 40 % νερό κατά βάρος, ή μείγμα αλκοόλης και νερού</u>	1.1 D	E 14	-
	<u>0143</u> <u>Νιτρογλυκερίνη, απευαισθητοποιημένη με όχι λιγότερο από 40 % μη-πτητικό υδατοδιαλυτό αδρανοποιητή κατά βάρος</u>	1.1 D	E 103	-
	<u>0144</u> <u>Διάλυμα νιτρογλυκερίνης σε αλκοόλη με περισσότερο από 1 % αλλά όχι περισσότερο από 10 % νιτρογλυκερίνη</u>  <i>ΣΗΜΕΙΩΣΗ: 3064 διάλυμα νιτρογλυκερίνης σε αλκοόλη με περισσότερο από 1 % αλλά όχι περισσότερο από 5 % νιτρογλυκερίνη, (που μεταφέρεται υπό ειδικούς όρους συσκευασίας, είναι όλη της Κλάσης 3 (βλέπε περιθωριακό 2301, 6°)</i>	1.1 D	E 17	47
	<u>0146</u> <u>Νιτράμυλο, ξηρό ή νοπό με λιγότερο από 20 % νερό κατά βάρος</u>	1.1 D	E 19	7
	<u>0147</u> <u>Νιτρο-ουρία</u>	1.1 D	E 2	1
	<u>0150</u> <u>Τετρανιτρικός πενταερυθρίτης, (τετρανιτρική πενταερυθριτόλη, PETN), νοπός με όχι λιγότερο από 25 % νερό κατά βάρος, ή απευαισθητοποιημένος με όχι λιγότερο από 15 % αδρανοποιητή κατά βάρος</u>	1.1 D	E 6	-
	<u>0151</u> <u>Πεντολίτης, ξηρός ή νοπός με λιγότερο από 15 % νερό κατά βάρος</u>	1.1 D	E 13	-
	<u>0153</u> <u>Τρινιτροανιλίνη (πικραμίδιο)</u>	1.1 D	E 2	1
	<u>0154</u> <u>Τρινιτροφαινόλη (πικρικό οξύ), ξηρή ή νοπή με λιγότερο από 30% νερό κατά βάρος</u>	1.1 D	E 2	1,2
	<u>0155</u> <u>Τρινιτρογλωροβενζόλιο (γλωριούχο πικρύλιο)</u>	1.1 D	E 2	1
	<u>0207</u> <u>Τετρανιτροανιλίνη</u>	1.1 D	E 2	1
	<u>0208</u> <u>Τρινιτροφαινόλομεθυλονιτραμί-νη (τετρύλιο)</u>	1.1 D	E 11	-

1	2	3	4	5
4° (συνεχ.)	<u>0209</u> Τρινιτροτολουόλιο (τολίτης, TNT) ξηρό ή νοπό με λιγότερο από 30 % νερό κατά βάρος	1.1 D	E 26	53
	<u>0213</u> Τρινιτρανισόλη	1.1 D	E 2	1
	<u>0214</u> Τρινιτροβενζόλιο, ξηρό ή νοπό με λιγότερο από 30 % νερό κατά βάρος	1.1 D	E 2	1
	<u>0215</u> Τρινιτροβενζοϊκό οξύ, ξηρό ή νοπό με λιγότερο από 30 % νερό, κατά βάρος	1.1 D	E 11	-
	<u>0216</u> Τρινιτρο-m-κρεζόλη	1.1 D	E 2	1, 2
	<u>0217</u> Τρινιτροναφθαλένιο	1.1 D	E 2	1
	<u>0218</u> Τρινιτροφαινετόλη	1.1 D	E 2	1
	<u>0219</u> Τρινιτρορεζορσινόλη (ατροφικό οξύ), ξηρή ή νοπή με λιγότερο από 20 % νερό κατά βάρος (ή μείγμα αλκοόλης και νερού)	1.1 D	E 2	1, 2
	<u>0220</u> Νιτρική ουρία, ξηρή ή νοπή με λιγότερο από 20 % νερό κατά βάρος	1.1 D	E 2	1
	<u>0222</u> Νιτρικό αμμώνιο που περιέχει περισσότερο από 0.2 % καύσιμων υλών, συμπεριλαμβανομένης οποιασδήποτε οργανικής ύλης υπολογιζόμενης ως άνθρακα, χωρίς να συμπεριλαμβάνεται οποιαδήποτε άλλη προστιθέμενη ύλη	1.1 D	E 1	-
	<u>0223</u> Λίπασμα νιτρικού αμμωνίου, που είναι περισσότερο υποκείμενο σε έκρηξη από νιτρικό αμμώνιο με 0.2 % καύσιμη ύλη, συμπεριλαμβανομένης οποιασδήποτε οργανικής ύλης υπολογιζόμενης ως άνθρακα, χωρίς να συμπεριλαμβάνεται οποιαδήποτε άλλη ύλη	1.1 D	E 1	-
	<u>0226</u> Κυκλοτετραμεθυλενοτετρανιτραμίνη, (HMX, οκτώγωνο), νοπή με όχι λιγότερο από 15 % νερό κατά βάρος	1.1 D	E 6 (a)	-
	<u>0241</u> Έκρηκτικές ύλες για ανατινάξεις, τύπου E	1.1 D	E 8	-
	<u>0266</u> Οκτολίτης (Οκτόλη), ξηρός ή νοπός με λιγότερο από 15 % νερό κατά βάρος	1.1 D	E 13	-
	<u>0282</u> Νιτρογουανιδίνη (πικρίτης), ξηρή ή νοπή με λιγότερο από 20 % νερό κατά βάρος	1.1 D	E 18	-

1	2	3	4	5
4° (συνεχ.)	<u>0340</u> <u>Νιτροκυτταρίνη</u> , ξηρή ή νωπή με λιγότερο από 25 % νερό (ή αλκοόλη) κατά βάρος	1.1 D	E 103	-
	<u>0341</u> <u>Νιτροκυτταρίνη</u> , μη τροποποιημένη ή πλαστικοποιημένη με λιγότερο από 18 % πλαστικοποιητική ύλη κατά βάρος	1.1 D	E 103	-
	<u>0385</u> <u>5-Νιτροβενζοτρίαζόλη</u>	1.1 D	E 2	1
	<u>0386</u> <u>Τρινιτροβενζολοσουλφονικό οξύ</u>	1.1 D	E 2	1, 2
	<u>0387</u> <u>Τρινιτροφθορενόνη</u>	1.1 D	E 2	1
	<u>0388</u> <u>Μείγματα τρινιτρολουολίου (TNT) και τρινιτροβενζολίου ή μείγματα τρινιτρολουολίου (TNT) και εξανιτροσπλβίνης</u>	1.1 D	E 2	1
	<u>0389</u> <u>Μείγματα τρινιτρολουολίου (TNT) που περιέχουν τρινιτροβενζόλιο και εξανιτροσπλβίνη</u>	1.1 D	E 2	1
	<u>0390</u> <u>Τριτονάλη</u>	1.1 D	E 2	1
	<u>0391</u> <u>Μείγματα κυκλοτριμεθυλενοτρινιτραμίνης (κυκλονίτης, εξογόνο RDX) και κυκλοτετραμεθυλενοτετρανιτραμίνης (HMX, οκτογόνο), νωπά με όχι λιγότερο από 15 % νερό κατά βάρος, ή μείγματα κυκλοτριμεθυλενοτρινιτραμίνης (κυκλονίτης, εξογόνο, RDX) και κυκλοτετραμεθυλενοτετρανιτραμίνης (HMX, οκτογόνο) απευαισθητοποιημένα με όχι λιγότερο από 10 % αδρανοποιητής κατά βάρος</u>	1.1 D	E 6	-
	<u>0392</u> <u>Εξανιτροσπλβίνης</u>	1.1 D	E 11	-
	<u>0393</u> <u>Εξοτονάλη, γυτή</u>	1.1 D	E 13	-
	<u>0394</u> <u>Τρινιτρορεζορσινόλη (στουφνικό οξύ), νωπή με όχι λιγότερο από 20 % νερό κατά βάρος (ή μείγμα νερού και αλκοόλης)</u>	1.1 D	E 24	2
	<u>0401</u> <u>Θειούχο διπικρόλιο ξηρό ή νωπό με λιγότερο από 10 % νερό κατά βάρος</u>	1.1 D	E 2	1

2.01  
(X.)

1	2	3	4	5
4° (συνεχ.)	<p><u>0402</u> Υπερχλωρικό αμμώνιο</p> <p><i>ΣΗΜΕΙΩΣΗ: Η ταξινόμηση αυτής της ύλης θα πρέπει να είναι σε συμφωνία με τα αποτελέσματα των ελέγχων της Προσθήκης Α.1. Ανάλογα με το μέγεθος των σωματιδίων και τη συσκευασία της ύλης, βλέπε επίσης Κλάση 5.1. [περιθωριακό 2501, 12° b)]</i></p> <p><u>0411</u> Τετρανιτρικός πενταερυθρίτης (Τετρανιτρική πενταερυθριτόλη, <u>ΡΕΤΝ</u>) με όχι λιγότερο από 7% κερί, κατά βάρος</p> <p><u>0475</u> Υλες, εκρηκτικές, ε.α.ο.<sup>2</sup></p> <p><u>0483</u> Κυκλοτριμεθυλενοτριτραμίνη (κυκλονίτης, εξόνο, <u>RDX</u>) απευαισθητοποιημένη</p> <p><u>0484</u> Κυκλοτετραμεθυλενοτετρανιτραμίνη (οκτογόνο, <u>HMX</u>) απευαισθητοποιημένη</p> <p><u>0489</u> Δινιτρογλυκολουρόλιο (DINGU)</p> <p><u>0490</u> Νιτροτριαζολόνη (NTO)</p> <p><u>0496</u> Οκτωνάλη</p>	<p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p>	<p>E.2</p> <p>E 22 (a)</p> <p>E 103</p> <p>E 6</p> <p>E 6</p> <p>E 2</p> <p>E 2</p> <p>E 13</p>	<p>1</p> <p>11</p> <p>-</p> <p>-</p> <p>-</p> <p>1</p> <p>1</p> <p>-</p>
5°	<p>ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.1D</p> <p><u>0034</u> Βόμβες με εκρηκτική γόμωση</p> <p><u>0038</u> Βόμβες, φωτιστικές</p> <p><u>0042</u> Ενισχυτές, χωρίς πυρόκροτητή</p> <p><u>0043</u> Διαρρήκτες, εκρηκτικοί</p> <p><u>0048</u> Γομώσεις, για καταστροφές</p> <p><u>0056</u> Γομώσεις, βυθού</p> <p><u>0059</u> Γομώσεις, μορφοποιημένες, εμπορικές, χωρίς πυρόκροτητή</p> <p><u>0060</u> Γομώσεις, συμπληρωματικές, εκρηκτικές</p> <p><u>0065</u> Καλώδια, εκρηκτικά εύκαμπτα</p> <p><u>0099</u> Θραυστικές συσκευές, εκρηκτικές, χωρίς πυρόκροτητές, για πετρελαιοπηγές</p> <p><u>0124</u> Αεριοθούμενα διεισδυτικά όπλα, γομωμένα, πετρελαιοπηγών, χωρίς πυρόκροτητή</p>	<p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p> <p>1.1 D</p>	<p>E 106</p> <p>E 106</p> <p>E 107 (a) E 107 (b)</p> <p>E 109</p> <p>E 117</p> <p>E 106</p> <p>E 120</p> <p>E 122</p> <p>E 124</p> <p>E 134</p> <p>E 140</p>	<p>49</p> <p>49</p> <p>57 -</p> <p>28</p> <p>57</p> <p>49</p> <p>30, 31</p> <p>-</p> <p>33</p> <p>-</p> <p>-</p>



2<sup>οι</sup>  
(6. α.α.)

1	2	3	4	5	
5 <sup>ο</sup> (συνεχ.)	0137	<u>Νάρκες</u> με εκρηκτική γόμωση	1.1 D	E 106	49
	0168	<u>Βλήματα</u> με εκρηκτική γόμωση	1.1 D	E 106	49
	0221	<u>Κεφαλές, τορπίλης</u> , με εκρηκτική γόμωση	1.1 D	E 106	49
	0284	<u>Βομβίδες, χειρός ή όπλου</u> , με εκρηκτική γόμωση	1.1 D	E 138	-
	0286	<u>Κεφαλές, πυραύλου</u> , με εκρηκτική γόμωση	1.1 D	E 106	49
	0288	<u>Γομώσεις, μορφοποιημένες, εύκαμπτες, ευθύγραμμες</u>	1.1 D	E 121	32, 57
	0290	<u>Καλώδια (πυροσωλήνα)</u> , εκρηκτικά, με μεταλλική επένδυση	1.1 D	E 125	34
	0374	<u>Συσκευές βολιδοσκόπησης, εκρηκτικές</u>	1.1 D	E 153	46
	0408	<u>Πυροσωλήνες, εκρηκτικοί, με προστατευτικά χαρακτηριστικά</u>	1.1 D	E 137	38
	0442	<u>Γομώσεις, εκρηκτικές, εμπορικές χωρίς πυροκροτητή</u>	1.1 D	E 156	-
	0451	<u>Τορπίλες</u> με εκρηκτική γόμωση	1.1 D	E 146	-
	0457	<u>Γομώσεις, εκρηκτικές, με πλαστικούς συνδέσμους</u>	1.1 D	E 157	-
	0463	<u>Είδη, εκρηκτικά, ε.α.ο.</u> <sup>2/</sup>	1.1 D	E 103	-
6 <sup>ο</sup>	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.1E				
	0006	<u>Φυσίγγια για όπλα</u> , με εκρηκτική γόμωση	1.1 E	E 112	13
	0181	<u>Πύραυλοι</u> με εκρηκτική γόμωση	1.1 E	E 146	-
	0329	<u>Τορπίλες</u> με εκρηκτική γόμωση	1.1 E	E 146	-
	0464	<u>Είδη, εκρηκτικά, ε.α.ο.</u> <sup>2/</sup>	1.1 E	E 103	-
7 <sup>ο</sup>	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.1F				
	0005	<u>Φυσίγγια για όπλα</u> με εκρηκτική γόμωση	1.1 F	E 112	13
	0033	<u>Βόμβες</u> με εκρηκτική γόμωση	1.1 F	E 106	49
	0037	<u>Βόμβες, φωτιστικές</u>	1.1 F	E 106	49

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

2<sup>ο</sup> (συνεχ.)

1	2	3	4	5
7 <sup>ο</sup> (συνεχ.)	<u>0136</u> <u>Νάρκες με εκρηκτική γόμωση</u>	1.1 F	E 106	49
	<u>0167</u> <u>Βλήματα με εκρηκτική γόμωση</u>	1.1 F	E 106	49
	<u>0180</u> <u>Πύραυλοι με εκρηκτική γόμωση</u>	1.1 F	E 146	-
	<u>0292</u> <u>Βομβίδες, χειρός ή όπλου, με εκρηκτική γόμωση</u>	1.1 F	E 138	-
	<u>0296</u> <u>Συσκευές βολιδοσκόπησης, εκρηκτικές</u>	1.1 F	E 153	46
	<u>0330</u> <u>Τορπίλες με εκρηκτική γόμωση</u>	1.1 F	E 146	-
	<u>0369</u> <u>Κεφαλές, πυραύλου, με εκρηκτική γόμωση</u>	1.1 F	E 106	49
	<u>0465</u> <u>Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup></u>	1.1 F	E 103	-
8 <sup>ο</sup>	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ 1.1G			
	<u>0094</u> <u>Πυρίτιδα ανάφλεξης</u>	1.1 G	E 20	55
	<u>0476</u> <u>Υλεις, εκρηκτικές, ε.α.ο. <sup>2/</sup></u>	1.1 G	E 103	-
9 <sup>ο</sup>	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ 1.1G			
	<u>0049</u> <u>Φυσίγια, ανάφλεξης</u>	1.1 G	E 115	-
	<u>0121</u> <u>Αναφλεκτικά συστήματα</u>	1.1 G	E 139	28
	<u>0192</u> <u>Σηματοδότες, σιδηροδρομικών γραμμών, εκρηκτικοί</u>	1.1 G	E 151	43, 44, 45
	<u>0194</u> <u>Σηματοδότες, κινδύνου, πλοίων</u>	1.1 G	E 150	12
	<u>0196</u> <u>Σηματοδότες, κατινού</u>	1.1 G	E 150	12
	<u>0333</u> <u>Πυροτεχνήματα</u>	1.1 G	E 129	37
	<u>0418</u> <u>Φωτοβολίδες, επιφάνειας</u>	1.1 G	E 133	-
	<u>0420</u> <u>Φωτοβολίδες, αέρος</u>	1.1 G	E 133	-
<u>0428</u> <u>Είδη, πυροτεχνικά για τεχνικούς σκοπούς</u>	1.1 G	E 109	28	
10 <sup>ο</sup>	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ 1.1J			
	<u>0397</u> <u>Πύραυλοι, υγρών καυσίμων, με εκρηκτική γόμωση</u>	1.1 J	E 103	-
	<u>0399</u> <u>Βόμβες με εύφλεκτο υγρό, με εκρηκτική γόμωση</u>	1.1 J	E 103	-
<u>0449</u> <u>Τορπίλες, υγρών καυσίμων, με ή χωρίς εκρηκτική γόμωση</u>	1.1 J	E 146	-	

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

2<sup>η</sup> (6 σελ.)

1	2	3	4	5
11°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.1L <u>0357</u> Υλες, εκρηκτικές, ε.α.ο. <sup>2/</sup>	1.1 L	E 103	-
12°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ 1.1L <u>0354</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.1 L	E 103	-
13°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ 1.2B <u>0107</u> Πυροσωλήνες, εκρηκτικοί <u>0268</u> Ενισχυτές, με πυροκροτητή <u>0364</u> Πυροκροτητές, για πυρομαχικά <u>0382</u> Εξαρτήματα, γραμμών εκρηκτικών, ε.α.ο. <sup>2/</sup>	1.2 B 1.2 B 1.2 B 1.2 B	E 137 E 108 E 128 E 103	38, 56 23 23, 36 -
14°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.2C (επιφυλασσόμενο)	1.2 C		
15°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.2C <u>0281</u> Κινητήρες πυραύλων <u>0328</u> Φυσίγγια για όπλα, αδρανή βλήματα <u>0381</u> Φυσίγγια, συσκευών ισχύος <u>0413</u> Φυσίγγια για όπλα, άσφαιρα <u>0414</u> Γομώσεις, προωθητικές, για κανόνια <u>0415</u> Γομώσεις, προωθητικές <u>0436</u> Πύραυλοι με διαρροή γόμωσης <u>0466</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.2 C 1.2 C 1.2 C 1.2 C 1.2 C 1.2 C 1.2 C 1.2 C	E 146 E 112 E 114 E 112 E 119 E 158 E 146 E 103	- 13 - 13 - 8, 10 - -
16°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.2D (επιφυλασσόμενο)	1.2 D		

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

2.101  
(α.ε.χ.)

1	2	3	4	5
17°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.2D			
	<u>0035</u> Βόμβες με εκρηκτική γόμωση	1.2 D	E 106	49
	<u>0102</u> Καλώδια (πυροσώληνα) εκρηκτικά, με μεταλλική επένδυση	1.2 D	E 125	34
	<u>0138</u> Νάρκες με εκρηκτική γόμωση	1.2 D	E 106	49
	<u>0169</u> Βλήματα με εκρηκτική γόμωση	1.2 D	E 106	49
	<u>0283</u> Ενισχυτές χωρίς πυροκροτητή	1.2 D	E 107 (a) E 107 (b)	57 -
	<u>0285</u> Βομβίδες, χειρός ή όπλου, με εκρηκτική γόμωση	1.2 D	E 138	-
	<u>0287</u> Κεφαλές, πυραύλου, με εκρηκτική γόμωση	1.2 D	E 106	49
	<u>0346</u> Βλήματα με διαρρήκτη ή διαρροή γόμωσης	1.2 D	E 106	49
	<u>0375</u> Συσκευές βολιδοσκόπησης, εκρηκτικές	1.2 D	E 153	46
	<u>0409</u> Πυροσώληνες, εκρηκτικοί με προστατευτικά χαρακτηριστικά	1.2 D	E 137	38
	<u>0439</u> Γομώσεις, μορφοποιημένες, εμπορικές χωρίς πυροκροτητή	1.2 D	E 120	30, 31
	<u>0443</u> Γομώσεις, εκρηκτικές, εμπορικές χωρίς πυροκροτητή	1.2 D	E 156	-
	<u>0458</u> Γομώσεις, εκρηκτικές, με πλαστικούς συνδέσμους	1.2 D	E 157	-
	<u>0467</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.2 D	E 103	-
18°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.2E			
	<u>0182</u> Πύραυλοι με εκρηκτική γόμωση	1.2 E	E 146	-
	<u>0321</u> Φυσίγγια για όπλα με εκρηκτική γόμωση	1.2 E	E 112	13
	<u>0468</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.2 E	E 103	-
19°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.2F			
	<u>0007</u> Φυσίγγια για όπλα, με εκρηκτική γόμωση	1.2 F	E 112	13
	<u>0204</u> Συσκευές βολιδοσκόπησης, εκρηκτικές	1.2 F	E 153	46

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

## Κλάση 1

1	2	3	4	5
19° (συνεχ.)	<u>0291</u> Βόμβες με εκρηκτική γόμωση	1.2 F	E 106	49
	<u>0293</u> Βομβίδες, χειρός ή όπλου, με εκρηκτική γόμωση	1.2 F	E 138	-
	<u>0294</u> Νάρκες με εκρηκτική γόμωση	1.2 F	E 106	49
	<u>0295</u> Πύραυλοι με εκρηκτική γόμωση	1.2 F	E 146	-
	<u>0324</u> Βλήματα με εκρηκτική γόμωση	1.2 F	E 106	49
	<u>0426</u> Βλήματα με διαρρήκτη ή διαρροή γόμωσης εξώθησης	1.2 F	E 106	49
	<u>0469</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.2 F	E 103	-
20°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.2G (επιφλασσόμενο)	1.2G		
21°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.2G			
	<u>0009</u> Πυρομαχικά, εμπρηστικά με ή χωρίς ρήγμα, με διαρροή γόμωσης ή προωθητικής γόμωσης	1.2 G	E 102	13, 48, 49
	<u>0015</u> Πυρομαχικά, καπνού με ή χωρίς ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης	1.2 G	E 102	13, 48, 49
	<u>0018</u> Πυρομαχικά δακρυγόνα με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης	1.2 G	E 102	13, 48, 49
	<u>0039</u> Βόμβες, φωτιστικές	1.2 G	E 106	49
	<u>0171</u> Πυρομαχικά, φωτιστικά με ή χωρίς ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης	1.2 G	E 102	13, 48, 49
	<u>0238</u> Πύραυλοι, σχηματισμού γραμμής	1.2 G	E 147	-
	<u>0313</u> Σηματοδότες, καπνού	1.2 G	E 150	12
	<u>0314</u> Αναφλεκτικά συστήματα	1.2 G	E 139	-
	<u>0334</u> Πυροτεχνήματα	1.2 G	E 130	37
	<u>0372</u> Βομβίδες, γυμνασίων, χειρός ή όπλου	1.2 G	E 138	-

<sup>2/</sup>

Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

27<sup>ο</sup>  
(δ. 27.)

1	2	3	4	5
21° (συνεχ.)	<u>0419</u> <u>Φωτοβολίδες, επιφάνειας</u>	1.2 G	E 133	-
	<u>0421</u> <u>Φωτοβολίδες, αέρα</u>	1.2 G	E 133	-
	<u>0429</u> <u>Είδη, πυροτεχνικά για τεχνικούς σκοπούς</u>	1.2 G	E 109	28
	<u>0434</u> <u>Βλήματα με διαρρήκτη ή διαρροή γόμωσης</u>	1.2 G	E 106	-
22°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.2H			
	<u>0243</u> <u>Πυρομαγικά, εμπρηστικά, λευκού φωσφόρου, με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης</u>	1.2 H	E 102	13, 48, 49
	<u>0245</u> <u>Πυρομαγικά, καπνού, λευκού φωσφόρου, με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης</u>	1.2 H	E 102	13, 48, 49
23°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.2J			
	<u>0395</u> <u>Κινητήρες πυραύλων, υγρών καυσίμων</u>	1.2 J	E 103	-
	<u>0398</u> <u>Πύραυλοι υγρών καυσίμων με εκρηκτική γόμωση</u>	1.2 J	E 103	-
	<u>0400</u> <u>Βόμβες με εύφλεκτο υγρό, με εκρηκτική γόμωση</u>	1.2 J	E 103	-
24°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.2L			
	<u>0358</u> <u>Υλεις, εκρηκτικές, ε.α.ο.<sup>2/</sup></u>	1.2 L	E 103	-
25°	ΑΝΤΙΚΕΙΜΕΝΑ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.2L			
	<u>0248</u> <u>Συσκευές, ενεργοποιημένες με νερό με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης</u>	1.2 L	E 123	35, 49
	<u>0322</u> <u>Κινητήρες πυραύλων με υπερβολικά υγρά με ή χωρίς διαρροή γόμωσης</u>	1.2 L	E 149	42, 50
	<u>0355</u> <u>Είδη, εκρηκτικά, ε.α.ο.<sup>2/</sup></u>	1.2 L	E 103	-
	<u>0380</u> <u>Είδη, πυροφορικά</u>	1.2 L	E 103	-

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

2091  
(εκ.)

1	2	3	4	5
26°	<b>ΥΛΕΣ ΤΑΞΙΝΟΗΜΕΝΕΣ ΩΣ 1.3C</b>			
	<u>0077</u> <u>Δινιτροφαινολικά άλατα</u> όλων των αλκαλιμετάλλων, ξηρά ή νοπά με λιγότερο από 15 % νερό κατά βάρος	1.3 C	E 2	1, 2
	<u>0132</u> <u>Αναφλέξιμα μεταλλικά άλατα αρωματικών νιτρο-παραγώγων, ε.α.ο.<sup>2/</sup></u>	1.3 C	E 2	1, 2
	<u>0158</u> <u>Μετά καλίου άλατα αρωματικών νιτρο-παραγώγων, εκρηκτικά</u>	1.3 C	E 21	2
	<u>0159</u> <u>Συσσωματωμένη πυρίτιδα (πάστα πυρίτιδας), νοπή με όχι λιγότερο από 25 % νερό κατά βάρος</u>	1.3 C	E 19	7
	<u>0161</u> <u>Πυρίτιδα, άκαπνη</u>	1.3 C	E 22	8, 9, 10
	<u>0203</u> <u>Μετά νατρίου άλατα αρωματικών νιτρο-παραγώγων, ε.α.ο., εκρηκτικά<sup>2/</sup></u>	1.3 C	E 21	2
	<u>0234</u> <u>Δινιτρο-ο-κρεζολικό νάτριο, ξηρό ή νοπά με λιγότερο από 15 % νερό κατά βάρος</u>	1.3 C	E 2	1, 2
	<u>0235</u> <u>Πικραμικό νάτριο, ξηρό ή νοπά με λιγότερο από 20 % νερό κατά βάρος</u>	1.3 C	E 2	1, 2
	<u>0236</u> <u>Πικραμικό ζιρκόνιο, ξηρό ή νοπά με λιγότερο από 20 % νερό κατά βάρος</u>	1.3 C	E 2	1, 2
	<u>0342</u> <u>Νιτροκυτταρίνη, νοπή με όχι λιγότερο από 25 % αλκοόλη κατά βάρος</u>	1.3 C	E 15	-
	<b>ΣΗΜΕΙΩΣΗ:</b> Για νιτροκυτταρίνη με όχι λιγότερο από 25 % αλκοόλη κατά βάρος και με περιεκτικότητα σε άζωτο όχι μεγαλύτερη από 12.6 % κατά βάρος νιτροκυτταρίνης, υπό ειδικούς όρους συσκευασίας, βλέπε Κλάση 4.1 (περιθωριακό 2401, 7°)			
	<u>0343</u> <u>Νιτροκυτταρίνη, πλαστικοποιημένη με όχι λιγότερο από 18 % πλαστικοποιητή κατά βάρος</u>	1.3 C	E 15	-
	<b>ΣΗΜΕΙΩΣΗ:</b> Για νιτροκυτταρίνη με όχι περισσότερο από 12.6 % άζωτο κατά βάρος επί ξηρού με πλαστικοποιητή, υπό ειδικούς όρους συσκευασίας, βλέπε Κλάση 4.1 [περιθωριακό 2401, 24° (α)]			

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].



1	2	3	4	5
26° (συνεχ.)	0406 <u>Δινιτροδοβενζόλιο</u>	1.3 C	E 25	-
	0477 <u>Υγες, εκρηκτικές, ε.α.ο.<sup>2/</sup></u>	1.3 C	E 103	-
	0495 <u>Προωθητικά, υγρά</u>	1.3 C	E 159 (a) E 159 (b)	58 59
	<i>ΣΗΜΕΙΩΣΗ: Εκτός εάν μπορεί να αποδειχθεί με δοκιμή ότι η εναισθήσια τους όταν είναι παγωμένα δεν είναι μεγαλύτερη απ' όταν είναι υγρά, τα προωθητικά θα πρέπει να παραμένουν υγρά κατά τη διάρκεια κανονικών συνθηκών μεταφοράς και να μην ψύχεται σε θερμοκρασίες μεγαλύτερες από -15 °C.</i>			
	0499 <u>Προωθητικά, στερεά</u>	1.3 C	E 22	8, 9, 10
27°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.3C			
	0183 <u>Πύραυλοι με αδρανή κεφαλή</u>	1.3 C	E 146	-
	0186 <u>Κινητήρες πυραύλων</u>	1.3 C	E 146	-
	0242 <u>Γομώσεις, προωθητικές, για κανόνια</u>	1.3 C	E 119	-
	0272 <u>Γομώσεις, προωθητικές</u>	1.3 C	E 158	8, 10
	0275 <u>Φυσίγγια, συσκευών ισχύος</u>	1.3 C	E 114	-
	0277 <u>Φυσίγγια, πετρελαιοπηγών</u>	1.3 C	E 113	-
	0327 <u>Φυσίγγια για όπλα, άσφαιρα ή φυσίγγια, μικρών όπλων, άσφαιρα</u>	1.3 C	E 112	13
	0417 <u>Φυσίγγια για όπλα, αδρανή βλήματα ή φυσίγγια, μικρών όπλων</u>	1.3 C	E 112	13
	0437 <u>Πύραυλοι με διαρροή γόμωσης</u>	1.3 C	E 146	-
	0447 <u>Δοχεία, καύσιμων, κενά, χωρίς εγχυτή</u>	1.3 C	E 116	-
0470 <u>Είδη, εκρηκτικά, ε.α.ο.<sup>2/</sup></u>	1.3 C	E 103	-	
28°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.3F (επιφυλασσόμενο)	1.3 F		

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].





1	2	3	4	5
29°	<b>ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.3G</b>			
	<u>0305</u> <u>Πυρίτιδα ανάφλεξης</u>	1.3 G	E 20	55
	<u>0478</u> <u>Υλες, εκρηκτικές, ε.α.ο.<sup>2/</sup></u>	1.3 G	E 103	-
30°	<b>ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.3G</b>			
	<u>0010</u> <u>Πυρομαγικά, εμπρηστικά με ή χωρίς ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης</u>	1.3 G	E 102	13, 48, 49
	<u>0016</u> <u>Πυρομαγικά, καπνού με ή χωρίς ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης</u>	1.3 G	E 102	13, 48, 49
	<u>0019</u> <u>Πυρομαγικά, δακρυγόνα με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης</u>	1.3 G	E 102	13, 48, 49
	<u>0050</u> <u>Φυσίγγια, ανάφλεξης</u>	1.3 G	E 115	-
	<u>0054</u> <u>Φυσίγγια, σηματοδότησης</u>	1.3 G	E 115	-
	<u>0092</u> <u>Φωτοβολίδες, επιφάνειας</u>	1.3 G	E 133	-
	<u>0093</u> <u>Φωτοβολίδες, αέρα</u>	1.3 G	E 133	-
	<u>0101</u> <u>Πυροσωλήνες, ακαριαίος, μη-εκρηκτικός (quickmatch)</u>	1.3 G	E 135	-
	<u>0195</u> <u>Σηματοδότες, κινδύνου, πλοίων</u>	1.3 G	E 150	12
	<u>0212</u> <u>Ανιχνευτές για πυρομαγικά</u>	1.3 G	E 156	-
	<u>0240</u> <u>Πύραυλοι, line-throwing</u>	1.3 G	E 147	-
	<u>0254</u> <u>Πυρομαγικά, φωτιστικά, με ή χωρίς ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης</u>	1.3 G	E 102	13, 48, 49
	<u>0299</u> <u>Βόμβες, φωτιστικές</u>	1.3 G	E 106	49
	<u>0315</u> <u>Αναφλεκτικά συστήματα</u>	1.3 G	E 139	-
	<u>0316</u> <u>Πυροσωλήνες, ανάφλεξης</u>	1.3 G	E 137	38
	<u>0318</u> <u>Βομβίδες, γυμνασίων, χειρός ή όπλου</u>	1.3 G	E 138	-
	<u>0319</u> <u>Εγγυτές, σωληνοειδείς</u>	1.3 G	E 143	-
	<u>0335</u> <u>Πυροτεχνήματα</u>	1.3 G	E 130	37
	<u>0424</u> <u>Βλήματα, αδρανή με ανιχνευτή</u>	1.3 G	E 106	49

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

2  
(δυναμ.)

1	2	3	4	5
30° (συνεχ.)	<u>0430</u> <u>Είδη, πυροτεχνικά για τεχνικούς σκοπούς</u> <u>0487</u> <u>Σηματοδότες, καπνού</u> <u>0488</u> <u>Πυρομαγικά, γυμνασίων</u> <u>0492</u> <u>Σηματοδότες, σιδηροδρομικών γραμμών, εκρηκτικοί</u>	1.3 G 1.3 G 1.3 G 1.3 G	E 134 E 150 E 102 E 151	- 12 13, 48, 49 43, 44, 45
31°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.3H <u>0244</u> <u>Πυρομαγικά, εμπρηστικά, λευκού φωσφόρου με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης</u> <u>0246</u> <u>Πυρομαγικά, καπνού, λευκού φωσφόρου με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης</u>	1.3 H 1.3 H	E 102 E 102	13, 48, 49 13, 48, 49
32°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.3J <u>0247</u> <u>Πυρομαγικά, εμπρηστικά, υγρά ή σε μορφή τζελ, με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης</u> <u>0396</u> <u>Κινητήρες πυραύλων, υγρών καυσίμων</u> <u>0450</u> <u>Τορπίλες, υγρών καυσίμων, με αδρανή κεφαλή</u>	1.3 J 1.3 J 1.3 J	E 102 E 103 E 146	13, 48, 49 - -
33°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.3L <u>0359</u> <u>Υλεις, εκρηκτικές, ε.α.ο.<sup>2/</sup></u>	1.3 L	E 103	-
34°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.3L <u>0249</u> <u>Συσκευές, ενεργοποιημένες με νερό με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης</u> <u>0250</u> <u>Κινητήρες πυραύλων με υπερβολικά υγρά, με ή χωρίς διαρροή γόμωσης</u> <u>0356</u> <u>Είδη, εκρηκτικά, ε.α.ο.</u>	1.3 L 1.3 L 1.3 L	E 123 E 149 E 103	35, 49 42, 50 -
35°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.4B <u>0255</u> <u>Πυροκροτητές, ηλεκτρικοί, για ανατινάξεις</u>	1.4 B	E 104	-

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

## Κλάση 1

(09, 8X.)

1	2	3	4	5
35° (συνεχ.)	<u>0257</u> Πυροσωλήνες, εκρηκτικοί	1.4 B	E 137	38
	<u>0267</u> Πυροκροτητές, όχι ηλεκτρικοί, για ανατινάξεις	1.4 B	E 105	21, 22, 24
	<u>0350</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.4 B	E 103	-
	<u>0361</u> Συνδεσμολογίες πυροκροτητών, όχι ηλεκτρικοί, για ανατινάξεις	1.4 B	E 105 A	-
	<u>0365</u> Πυροκροτητές για πυρομαχικά	1.4 B	E 128	23, 36
	<u>0378</u> Εγχυτές, τύπου κανυλλίου	1.4 B	E 142	41
	<u>0383</u> Εξαρτήματα, γραμμών εκρηκτικών, ε.α.ο. <sup>2/</sup>	1.4 B	E 103	-
36°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.4C			
	<u>0407</u> Τετραζολ-1-οξικό οξύ	1.4 C	E 25	-
	<u>0448</u> 5-Μερκαπτοτετραζολ-1-οξικό οξύ	1.4 C	E 25	-
	<u>0479</u> Υλες, εκρηκτικές, ε.α.ο. <sup>2/</sup>	1.4 C	E 103	-
37°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.4C			
	<u>0276</u> Φυσίγγια, συσκευών ισχύος	1.4 C	E 114	-
	<u>0278</u> Φυσίγγια, πετρελαιοπηγών	1.4 C	E 113	-
	<u>0338</u> Φυσίγγια για όπλα, άσφαιρα ή φυσίγγια, μικρών όπλων, άσφαιρα	1.4 C	E 112	13
	<u>0339</u> Φυσίγγια για όπλα, αδρανή βλήματα ή φυσίγγια, μικρών όπλων	1.4 C	E 112	13
	<u>0351</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.4 C	E 103	-
	<u>0379</u> Θήκες, φυσιγγίων, κενές με εγχυτή	1.4 C	E 116	-
	<u>0438</u> Πύραυλοι με διαρροή γόμωσης	1.4 C	E 146	-
	<u>0446</u> Δοχεία, καύσιμων, κενά, χωρίς εγχυτή	1.4 C	E 116	-
	<u>0491</u> Γομώσεις προωθητικές	1.4 C	E 158	8, 10
38°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.4D			
	<u>0480</u> Υλες, εκρηκτικές, ε.α.ο. <sup>2/</sup>	1.4 D	E 103	-

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

1	2	3	4	5
39°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.4D			
	<u>0104</u> Καλώδια (πυροσωλήνα), εκρηκτικά ή πίου αποτελέσματος, με μεταλλική επένδυση	1.4 D	E 125	34
	<u>0237</u> Γομώσεις, μορφοποιημένες, εύκαμπτες, ευθύγραμμες	1.4 D	E 121	32, 57
	<u>0289</u> Καλώδια, εκρηκτικά, εύκαμπτα	1.4 D	E 124	33
	<u>0344</u> Βλήματα με εκρηκτική γόμωση	1.4 D	E 106	49
	<u>0347</u> Βλήματα με διαρρήκτη ή διαρροή γόμωσης εξώθησης	1.4 D	E 106	49
	<u>0352</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.4 D	E 103	-
	<u>0370</u> Κεφαλές, πυραύλου, με διαρρήκτη ή διαρροή γόμωσης εξώθησης	1.4 D	E 106	49
	<u>0410</u> Πυροσωλήνες, εκρηκτικοί, με προστατευτικά χαρακτηριστικά	1.4 D	E 137	38
	<u>0440</u> Γομώσεις, μορφοποιημένες, εμπορικές, χωρίς πυροκροτητή	1.4 D	E 120	30, 31
	<u>0444</u> Γομώσεις, εκρηκτικές, εμπορικές χωρίς πυροκροτητή	1.4 D	E 156	-
	<u>0459</u> Γομώσεις, εκρηκτικές, με πλαστικούς συνδέσμους	1.4 D	E 157	-
	<u>0494</u> Αεριοθούμενα διεσδυτικά όπλα, γομωμένα πετρελαιοπηγών, χωρίς πυροκροτητή	1.4 D	E 140	-
40°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.4E			
	<u>0412</u> Φυσίγγια για όπλα, με εκρηκτική γόμωση	1.4 E	E 112	13
	<u>0471</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.4 E	E 103	-
41°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.4F			
	<u>0348</u> Φυσίγγια για όπλα, με εκρηκτική γόμωση	1.4 F	E 112	13
	<u>0371</u> Κεφαλές πυραύλου, με διαρρήκτη ή διαρροή γόμωσης	1.4 F	E 106	49
	<u>0427</u> Βλήματα, με διαρρήκτη ή διαρροή γόμωσης	1.4 F	E 106	49
	<u>0472</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.4 F	E 103	-

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

2/ (α.α.ο.)

1	2	3	4	5
42°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.4G <u>0485</u> Υλες, εκρηκτικές, ε.α.ο. <sup>2/</sup>	1.4 G	E 103	-
43°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.4G			
	<u>0066</u> Καλώδια ανάφλεξης	1.4 G	E 126	-
	<u>0103</u> Πυροσωλήνες ανάφλεξης, σωληνοειδής, με μεταλλική επένδυση	1.4 G	E 135	-
	<u>0191</u> Συσκευές σηματοδότησης, χειρός	1.4 G	E 150	12
	<u>0197</u> Σηματοδότες, καπνού	1.4 G	E 150	12
	<u>0297</u> Πυρομαχικά, φωτιστικά, με ή χωρίς ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης	1.4 G	E 102	13, 48, 49
	<u>0300</u> Πυρομαχικά, εμπρηστικά με ή χωρίς ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης	1.4 G	E 102	13, 48, 49
	<u>0301</u> Πυρομαχικά, δακρυγόνα, με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης	1.4 G	E 102	13, 48, 49
	<u>0303</u> Πυρομαχικά, καπνού με ή χωρίς ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης	1.4 G	E 102	13, 48, 49
	<u>0306</u> Ανιχνευτές για πυρομαχικά	1.4 G	E 156	-
	<u>0312</u> Φυσίγγια, σηματοδότησης	1.4 G	E 115	-
	<u>0317</u> Πυροσωλήνες ανάφλεξης	1.4 G	E 137	38
	<u>0320</u> Εγγυτές, σωληνοειδείς	1.4 G	E 143	-
	<u>0325</u> Αναφλεκτικά συστήματα	1.4 G	E 141	-
	<u>0336</u> Πυροτεχνήματα	1.4 G	E 130	37
	<u>0353</u> Είδη, εκρηκτικά, ε.α.ο. <sup>2/</sup>	1.4 G	E 103	-
	<u>0362</u> Πυρομαχικά, γυμνασίων	1.4 G	E 102	13, 48, 49
	<u>0363</u> Πυρομαχικά, δοκιμαστικά	1.4 G	E 102	13, 48, 49
	<u>0403</u> Φωτοβολίδες, αέρα	1.4 G	E 133	-
	<u>0425</u> Βλήματα, αδρανή με ανιχνευτή	1.4 G	E 106	49
	<u>0431</u> Είδη, πυροτεχνικά για τεχνικούς σκοπούς	1.4 G	E 134	-

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

2  
(συνεχ.)

1	2	3	4	5
43° (συνεχ.)	<u>0435</u> Βλήματα με διαρρήκτη ή διαρροή γόμωσης εξώθησης	1.4 G	E 106	-
	<u>0452</u> Βομβίδες, γυμνασίων, χειρός ή όπλου	1.4 G	E 138	-
	<u>0453</u> Πύραυλοι, σχηματισμού γραμμής	1.4 G	E 147	-
	<u>0493</u> Σηματοδότες, σιδηροδρομικών γραμμών, εκρηκτικοί	1.4 G	E 151	43, 44, 45
44°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.4L (επιφυλασσόμενο)	1.4 L		
45°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.4L (επιφυλασσόμενο)	1.4 L		
46°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.4S			
	<u>0481</u> Υλεις, εκρηκτικές, ε.α.ο. <sup>2/</sup>	1.4 S	E 103	-
47°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.4S			
	<u>0012</u> Φυσίγγια για όπλα, αδρανή βλήματα ή φυσίγγια, μικρών όπλων	1.4 S	E 112	13
	<u>0014</u> Φυσίγγια για όπλα, άσφαιρα ή φυσίγγια, μικρών όπλων, άσφαιρα	1.4 S	E 112	13
	<u>0044</u> Εγγυτές, τύπου κανυλλίου	1.4 S	E 142	41
	<u>0055</u> Θήκες φυσιγγίων, κενές, με εγγυτή	1.4 S	E 116	-
	<u>0070</u> Κοπήρες καλωδίων, εκρηκτικοί	1.4 S	E 127	-
	<u>0105</u> Πυροσωλήνας ασφαλείας	1.4 S	E 136	32, 49
	<u>0110</u> Βομβίδες, γυμνασίων, χειρός ή όπλου	1.4 S	E 138	-
	<u>0131</u> Αναπήρες, πυροσωλήνων	1.4 S	E 141	-
	<u>0173</u> Συσκευές απελευθέρωσης, εκρηκτικές	1.4 S	E 145	-
	<u>0174</u> Στελέχη, εκρηκτικά	1.4 S	E 145	-
	<u>0193</u> Σηματοδότες, σιδηροδρομικών γραμμών, εκρηκτικοί	1.4 S	E 151	43, 44, 45
	<u>0323</u> Φυσίγγια, συσκευών ισχύος	1.4 S	E 114	-
	<u>0337</u> Πυροτεχνήματα	1.4 S	E 103	-

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

1	2	3	4	5	
47° (συνεχ.)	0345	<u>Βλήματα, αδρανή, με ανιχνευτή</u>	1.4 S	E 106	49
	0349	<u>Είδη, εκρηκτικά, ε.α.ο.<sup>2/</sup></u>	1.4 S	E 103	-
	0366	<u>Πυροκροτητές για πυρομαχικά</u>	1.4 S	E 128	23, 36
	0367	<u>Πυροσωλήνες, εκρηκτικοί</u>	1.4 S	E 137	38
	0368	<u>Πυροσωλήνες ανάφλεξης</u>	1.4 S	E 137	38
	0373	<u>Συσκευές σηματοδότησης, χειρός</u>	1.4 S	E 150	12
	0376	<u>Εγγυτές, σωληνοειδείς</u>	1.4 S	E 143	-
	0384	<u>Εξαρτήματα, γραμμών εκρηκτικών, ε.α.ο.<sup>2/</sup></u>	1.4 S	E 103	-
	0404	<u>Φωτοβολίδες, αέρα</u>	1.4 S	E 133	-
	0405	<u>Φυσίγια σηματοδότησης</u>	1.4 S	E 115	-
	0432	<u>Είδη, πυροτεχνικά για τεχνικούς σκοπούς</u>	1.4 S	E 134	-
	0441	<u>Γομώσεις, μορφοποιημένες, εμπορικές, χωρίς πυροκροτητή</u>	1.4 S	E 120	30, 31
	0445	<u>Γομώσεις, εκρηκτικές, εμπορικές, χωρίς πυροκροτητή</u>	1.4 S	E 156	-
	0454	<u>Αναφλεκτικά συστήματα</u>	1.4 S	E 141	-
	0455	<u>Πυροκροτητές, όχι ηλεκτρικοί, για ανατινάξεις</u>	1.4 S	E 105	21, 22, 24
	0456	<u>Πυροκροτητές, ηλεκτρικοί, για ανατινάξεις</u>	1.4 S	E 104	-
0460	<u>Γομώσεις, εκρηκτικές, με πλαστικούς συνδέσμους</u>	1.4 S	E 157	-	
48°	ΥΛΕΣ ΤΑΞΙΝΟΜΗΜΕΝΕΣ ΩΣ 1.5D				
	0331	<u>Εκρηκτικά, για ανατινάξεις, τύπου Β</u>	1.5 D	E 8/9	-
	0332	<u>Εκρηκτικά, για ανατινάξεις, τύπου Ε</u>	1.5 D	E 12	-
	0482	<u>Υλες, εκρηκτικές, πολύ λίγο ευαίσθητες, ε.α.ο. (Υλες, EVI, ε.α.ο.)<sup>2/</sup></u>	1.5 D	E 103	-
49°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.5D (επιφυλασσόμενο)		1.5 D		
50°	ΕΙΔΗ ΤΑΞΙΝΟΜΗΜΕΝΑ ΩΣ 1.6N				
	0486	<u>Είδη, εκρηκτικά, εξαιρετικά μικρής ευαισθησίας (είδη EEI)</u>	1.6 N	E 106	49
51°	<u>Κενές συσκευασίες, ακαθάριστες</u>		-	-	-

<sup>2/</sup> Μεταφορά μόνον με την έγκριση της αρμόδιας αρχής [βλέπε περιθωριακό 2100 (3)].

## Κλάση 1

## 2. Όροι μεταφοράς

## A. Κόλα

## I. Γενικοί όροι συσκευασίας

2102 (1) Οι εξωτερικές συσκευασίες θα πρέπει να συμφωνούν με τις απαιτήσεις της Προσθήκης Α.5.

(2) Σε συμφωνία με τις διατάξεις των περιθωριακών 2100 (5) και 3511, συσκευασίες της ομάδας συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X" θα πρέπει να χρησιμοποιούνται για ύλες και είδη της Κλάσης 1.

(3) Οι απαιτήσεις του περιθωριακού 3500 (2), θα πρέπει να ισχύουν για τα μέρη των συσκευασιών που είναι σε άμεση επαφή με το περιεχόμενο.

(4) Καρφιά, συνδετήρες και άλλα μέσα κλεισίματος κατασκευασμένα από μέταλλο που δεν έχουν προστατευτική επικάλυψη δεν θα πρέπει να εισχωρούν στο εσωτερικό της εξωτερικής συσκευασίας εκτός εάν η εσωτερική συσκευασία προστατεύει επαρκώς τις εκρηκτικές ύλες και τα είδη έναντι της επαφής με το μέταλλο.

(5) Η συσκευή κλεισίματος των δοχείων που περιέχουν υγρά εκρηκτικά θα πρέπει να εξασφαλίζει διπλή προστασία έναντι διαρροής.

(6) Εσωτερικές συσκευασίες, εξαρτήματα και προστατευτικά υλικά και η θέση των εκρηκτικών υλών ή ειδών στα κόλα θα πρέπει να είναι τέτοια ώστε καμία επικίνδυνη μετακίνηση να μην μπορεί να συμβεί μέσα στα κόλα κατά τη διάρκεια της μεταφοράς.

(7) Εκεί που σημαντική εσωτερική πίεση είναι πιθανόν να αναπτυχθεί στα δοχεία, τέτοια δοχεία θα πρέπει να είναι έτσι κατασκευασμένα ώστε έκρηξη να μην είναι δυνατή εξ αιτίας αύξησης στην εσωτερική πίεση από εσωτερικά ή εξωτερικά αίτια.

(8) Τα προστατευτικά υλικά θα πρέπει να ταιριάζουν στη φύση του περιεχομένου. Συγκεκριμένα, πρέπει να είναι απορροφητικά εάν το περιεχόμενο είναι υγρό ή μπορεί να αποβάλλει υγρό.

## 2. Ειδικό όροι συσκευασίας

2103 (1) Ύλες και είδη θα πρέπει να είναι συσκευασμένα όπως υποδεικνύεται στο περιθωριακό 2101, Πίνακας 1, στήλες 4 και 5, και όπως τίθεται με λεπτομέρεια στις παραγράφους (5), Πίνακας 2 και (6), Πίνακας 3.

(2) Εάν το σώμα των χαλύβδινων βαρελιών είναι διπλής ραφής, μέτρα θα πρέπει να λαμβάνονται για την παρεμπόδιση της εισόδου των εκρηκτικών υλών μέσα στις εσοχές των ραφών. Η συσκευή κλεισίματος των χαλύβδινων ή αλουμινένιων βαρελιών θα πρέπει να περιλαμβάνει μία κατάλληλη φλάντζα. Εάν η συσκευή κλεισίματος περιλαμβάνει έναν σπειρωτό κοχλία, η είσοδος των εκρηκτικών υλών μέσα στον σπειρωτό κοχλία δεν θα πρέπει να είναι δυνατή.

(3) Εάν κιβώτια με μεταλλική επένδυση χρησιμοποιούνται για τη συσκευασία εκρηκτικών υλών, αυτά τα κιβώτια θα πρέπει να είναι φτιαγμένα με τέτοιον τρόπο ώστε η μεταφερόμενη εκρηκτική ύλη να μην μπορεί να μπει μεταξύ της επένδυσης και των πλευρών ή τον πυθμένα του κιβωτίου.

(4) Μόνον τσέρκια από σκληρό ξύλο θα πρέπει να επιτρέπονται για ξύλινα βαρέλια προοριζόμενα για τη μεταφορά εκρηκτικών υλών.

(5) Πλαστικές συσκευασίες δεν θα πρέπει να υπόκεινται στην πρόκληση ή την συσσώρευση αρκετού στατικού ηλεκτρισμού ώστε μία αποφόρτιση να μπορούσε να προκαλέσει στο συσκευασμένο εκρηκτικό ανάφλεξη ή στο συσκευασμένο είδος λειτουργία.



## Κλάση 1

27  
(συμπλ.)

## (6) Πίνακας : Μέθοδοι συσκευασίας

**ΣΗΜΕΙΩΣΗ:** Για τις μεθόδους συσκευασίας που πρέπει να χρησιμοποιούνται για τις διάφορες ύλες και είδη, βλέπε περιθωριακό 2101, Πίνακα 1, στήλη 4.

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 1 (a)	Όχι απαραίτητες	Σάκοι χαρτί, πολλαπλών τοιχωμάτων, αδιάβροχο (5M2) ύφασμα, αδιαπέραστο (5L2) ύφασμα, αδιάβροχο (5L3) πλεγμένο πλαστικό, αδιαπέραστο (5H2) πλεγμένο πλαστικό, αδιάβροχο (5H3) πλαστικό φύλλο (5H4)
(b)	Σάκοι χαρτί, kraft πλαστικό Φύλλα πλαστικό	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2)
E 2	Δοχεία μέταλλο χαρτί πλαστικό  Φύλλα πλαστικό Σάκοι χαρτί, πολλαπλών τοιχωμάτων, αδιάβροχο πλεγμένο πλαστικό	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάιμπερ (4G) Βαρέλια φάιμπερ (1G) χάλυβας, μετακινούμενης κεφαλής (1A2)  <i>ΣΗΜΕΙΩΣΗ: Επιπλέον, για το 0219 της 4<sup>ο</sup> (Τρινητρορεζορσινόλη) πλαστικά βαρέλια, μετακινούμενης κεφαλής (1H2)</i>
E 4 (a)	Δοχεία φύλλο φάιμπερ μέταλλο χαρτί πλαστικό ύφασμα επενδεδυμένο με καιουτσούκ	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, αδιαπέραστων τοιχωμάτων (4C2) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A)
(b)		Βαρέλια αλουμίνιο, μετακινούμενης κεφαλής (1B2) φάιμπερ (1G) χάλυβας, μετακινούμενης κεφαλής 1A2, (αδιαπέραστο)
E 5	Σάκοι πλαστικό Φύλλα χαρτί, kraft, χαρτί, κερωμένο	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, αδιαπέραστων τοιχωμάτων (4C2) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 6 (a)	<p><u>Νωπές ύλες</u></p> <p>1. Σάκοι πλαστικό ύφασμα, επενδεδυμένο με καουτσούκ</p> <p>2. Σάκοι καουτσούκ ύφασμα, επενδεδυμένο με καουτσούκ</p> <p><u>Ενδιάμεσες: για (a)2</u></p> <p>Σάκοι καουτσούκ ύφασμα, επενδεδυμένο με καουτσούκ πλαστικό</p>	<p>Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2)</p> <p>Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F)</p> <p>Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2) φάιμπερ (1G)</p> <p>Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2)</p> <p>Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2) φάιμπερ (1G)</p>
(b)	<p>Απευαισθητοποιημένες ύλες</p> <p>Ομοίως όπως για νωπές ύλες εκτός του ότι οποιαδήποτε κιβώτια από φύλλο φάιμπερ μπορούν να χρησιμοποιούνται ως εσωτερική συσκευασία και οποιοδήποτε σάκοι από ύφασμα ως ενδιάμεση συσκευασία.</p>	
E 8	<p>Δοχεία αδιάβροχο υλικό</p> <p>Φύλλα αδιάβροχα</p>	<p>Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2)</p> <p>Κιβώτια κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) αλουμίνιο (4B) πλαστικό, στερεό (4H2)</p> <p>Βαρέλια φάιμπερ (1G) χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)</p>

13  
(συνέχ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 9	Σάκοι ανθεκτικοί στο λάδι Φύλλα πλαστικό Μπιτόνια μέταλλο	Σάκοι χαρτί, πολλαπλών τοιχωμάτων, αδιάβροχο (5M2) ύφασμα, αδιαπέραστο (5L2) ύφασμα, αδιάβροχο (5L3) πλεγμένο πλαστικό, χωρίς εσωτερική επένδυση ή επικάλυψη (5H1) πλεγμένο πλαστικό, αδιάβροχο (5H3) πλεγμένο πλαστικό, αδιαπέραστο (5H2) πλαστικό φιλμ (5H4)  <i>ΣΗΜΕΙΩΣΗ: Εάν σάκοι σε πλεγμένο πλαστικό (5H2) ή (5H3), ή σάκοι σε πλαστικό φιλμ (5H4), χρησιμοποιούνται, καμία εσωτερική συσκευασία δεν είναι απαραίτητη.</i>  Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) Βαρέλια φάιμπερ (1G) χάλυβας, μετακινούμενης κεφαλής (1A2)
E 10	Σάκοι χαρτί, κερωμένο πλαστικό ύφασμα, επενδεδυμένο με καουτσούκ  Φύλλα χαρτί, κερωμένο πλαστικό ύφασμα επενδεδυμένο με καουτσούκ	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F)
E 11	Σάκοι χαρτί, κερωμένο πλαστικό ύφασμα ύφασμα, επενδεδυμένο με καουτσούκ  Φύλλα χαρτί, κερωμένο πλαστικό ύφασμα ύφασμα, επενδεδυμένο με καουτσούκ	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) Βαρέλια φάιμπερ (1G)

2  
(συνολ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 12	Σάκοι ανθεκτικοί στο λάδι Φύλλα πλαστικό	Σάκοι χαρτί, πολλαπλών τοιχωμάτων, αδιάβροχο (5M2) πλεγμένο πλαστικό, αδιάπεραστο (5H2) πλεγμένο πλαστικό, χωρίς εσωτερική επένδυση ή επικάλυψη (5H1) πλεγμένο πλαστικό, αδιάβροχο (5H3) πλαστικό φιλμ (5H4) ύφασμα, αδιάπεραστο (5L2) ύφασμα, αδιάβροχο (5L3) Κιβώτια κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) γάλυβας (4A) αλουμίνιο (4B) πλαστικό, στερεό (4H2) Βαρέλια φάιμπερ (1G) γάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)  <i><b>ΣΗΜΕΙΩΣΗ:</b> Εάν σάκοι σε πλεγμένο πλαστικό (5H2) ή (5H3), ή σάκοι σε πλαστικό φιλμ (5H4) χρησιμοποιούνται, καμία εσωτερική συσκευασία δεν είναι απαραίτητη.</i>
E 13 (a)	<u>Νωπές ύλες</u> Σάκοι πλαστικό πλεγμένο πλαστικό χαρτί, πολλαπλών τοιχωμάτων, αδιάβροχο Φύλλα πλαστικό	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) Βαρέλια φάιμπερ (1G)
(b)	<u>Ξηρές ύλες</u> Σάκοι χαρτί πλαστικό πλεγμένο πλαστικό χαρτί, πολλαπλών τοιχωμάτων, αδιάβροχο Κιβώτια φύλλο φάιμπερ Φύλλα πλαστικό	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) Βαρέλια φάιμπερ (1G)
E 14	Σάκοι καουτσούκ ύφασμα ύφασμα, επενδεδυμένο με καουτσούκ  <u>Ενδιάμεσες:</u> Σάκοι καουτσούκ ύφασμα, επενδεδυμένο με καουτσούκ	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Βαρέλια γάλυβας, μετακινούμενης κεφαλής (1A2)

## Κλάση 1

2  
(συν.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 15 (a)	Όχι απαραίτητες	Βαρέλια αλουμίνιο, μετακινούμενης κεφαλής (1B2) χάλυβας, μετακινούμενης κεφαλής (1A2)
(b)	Σάκοι χαρτί, αδιάβροχο πλαστικό ύφασμα, επενδεδυμένο με καουτσούκ  Φύλλα πλαστικό ύφασμα, επενδεδυμένο με καουτσούκ	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάϊμπερ (4G) Βαρέλια φάϊμπερ (1G)
E 17	Μπιτόνια μέταλλο  Δοχεία γυαλί πλαστικό	Κιβώτια φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F)
E 18	Σάκοι χαρτί πλαστικό Φύλλα πλαστικό	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια φύλλο φάϊμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) Βαρέλια φάϊμπερ (1G) κόντρα πλακέ (1D) χάλυβας, μετακινούμενης κεφαλής (1A2)
E 19 (a)	Όχι απαραίτητες	Βαρέλια αλουμίνιο, μετακινούμενης κεφαλής (1B2) χάλυβας, μετακινούμενης κεφαλής (1A2) πλαστικά, μετακινούμενης κεφαλής (1H2)
(b)	Σάκοι πλαστικό Φύλλα πλαστικό	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) Βαρέλια φάϊμπερ (1G)

2303  
(σέχ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 20	Δοχεία μέταλλο πλαστικό ξύλινο φύλλο φάιμπερ	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) αλουμίνιο (4B) πλαστικό, στερεό (4H2) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) Βαρέλια φάιμπερ (1G)
E 21	Κιβώτια φύλλο φάιμπερ Μπιτόνια μέταλλο Δοχεία χαρτί, αδιάβροχο πλαστικό, όχι υποκείμενο στην πρόκληση στατικού ηλεκτρισμού από περιεχόμενες ύλες	Κιβώτια φυσικό ξύλο, αδιαπέραστων τοιχωμάτων (4C2) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F)
E 22 (a)	Σάκοι χαρτί, kraft πλαστικό ύφασμα ύφασμα, επενδεδυμένο με καουτσούκ	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) φυσικό ξύλο, αδιαπέραστο (4C2) χάλυβας (4A) Βαρέλια φάιμπερ (1G) κόντρα πλακέ (1D)
(b)	Δοχεία φύλλο φάιμπερ μέταλλο πλαστικό	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) φυσικό ξύλο, αδιαπέραστων τοιχωμάτων (4C2) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) χάλυβας (4A)
(c)	Όχι απαραίτητες	Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2) φάιμπερ (1G) κόντρα πλακέ (1D) Μπιτόνια χάλυβας, μη-μετακινούμενης κεφαλής (3A1) χάλυβας, μετακινούμενης κεφαλής (3A2)

## Κλάση 1

2003  
(00. εχ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 24 (a)	Σάκοι καουτσούκ ύφασμα, επενδεδυμένο με καουτσούκ πλαστικό	Κιβώτια φύλλο φάιμπερ (4G)
(b)	Σάκοι καουτσούκ ύφασμα, επενδεδυμένο με καουτσούκ πλαστικό  Ενδιάμεσες: για (b) Σάκοι καουτσούκ ύφασμα, επενδεδυμένο με καουτσούκ πλαστικό	Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2)
E 25	Σάκοι πλαστικό	Βαρέλια φάιμπερ (1G) χάλυβας, μετακινούμενης κεφαλής (1A2)
E 26	Δοχεία μέταλλο χαρτί πλαστικό Φύλλα πλαστικό Σάκοι πλαστικό	Βαρέλια, ξύλινα μετακινούμενης κεφαλής (2C2) Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) Βαρέλια φάιμπερ (1G) Σάκοι πλεγμένο πλαστικό, αδιαπέραστο (5H2) χαρτί χαρτί, πολλαπλών τοιχωμάτων, αδιάβροχο
E 102	Όπως ορίζεται από την αρμόδια αρχή στη χώρα προέλευσης	Κιβώτια φυσικό ξύλο, κοινό (4C1) φυσικό ξύλο, κοινό (4C1), με επένδυση αλουμίνιο (4B) τεταμένο πλαστικό (4H1) πλαστικό, στερεό (4H2) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάιμπερ (4G) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2) φάιμπερ (1G) αλουμίνιο, μετακινούμενης κεφαλής (1B2)
E 103	Όπως ορίζεται από την αρμόδια αρχή στη χώρα προέλευσης	

## Κλάση 1

103  
(σέχ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 104	Δοχεία φύλλο φάιμπερ μέταλλο χαρτί πλαστικό	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)
E 105	Δοχεία φύλλο φάιμπερ μέταλλο πλαστικό  <u>Ενδιάμεσες</u> Κιβώτια φύλλο φάιμπερ ξύλινες	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)
E 105A	Σάκοι χαρτί πλαστικό Κιβώτια φύλλο φάιμπερ Δοχεία φύλλο φάιμπερ	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)
E 106	Όχι απαραίτητες	Κιβώτια κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) αλουμίνιο (4B) πλαστικό, στερεό (4H2) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2)
E 107 (a)	Ενισχυτές που είναι επεξεργασμένα είδη αποτελούμενα από κλειστά δοχεία από μέταλλο, πλαστικό ή φύλλο φάιμπερ που περιέχουν ένα εκρηκτικό, ή αποτελούμενα από ένα εκρηκτικό με πλαστικούς συνδέσμους.  Όχι απαραίτητες	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) χάλυβας (4A) αλουμίνιο (4B)



## Κλάση 1

2  
(Ου.έ.χ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 107 (συνεχ.) (b)	Άχρηστοι ή πεπεσμένοι ενισχυτές σε σωλήνες ή κάψουλες χωρίς κλεισίματα στην άκρη.  Δοχεία φύλλο φάιμπερ μέταλλο πλαστικό Φύλλα πλαστικό χαρτί	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) χάλυβας (4A) αλουμίνιο (4B)
E 108	Διαχωριστικά τμήματα στην εξωτερική συσκευασία Δοχεία μέταλλο πλαστικό ξύλινα	Κιβώτια φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)
E 109	Δοχεία μέταλλο πλαστικό ξύλινα χαρτί φύλλο φάιμπερ	Κιβώτια φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)
E 112	Όχι απαραίτητες	Κιβώτια φύλλο φάιμπερ (4G) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) αλουμίνιο (4B) πλαστικό, στερεό (4H2) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2)
E 113	Δοχεία φύλλο φάιμπερ πλαστικό μέταλλο	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φυσικό ξύλο, με αδιαπέραστα τοιχώματα (4C2) χάλυβας (4A)
E 114	Δοχεία φύλλο φάιμπερ πλαστικό ξύλινα μέταλλο	Κιβώτια κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) αλουμίνιο (4B) φυσικό ξύλο, με αδιαπέραστα τοιχώματα (4C2) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2)

2  
(συν. εχ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 115	<p>Δοχεία φύλλο φάιμπερ μέταλλο πλαστικό ξύλινα</p> <p><i>ΣΗΜΕΙΩΣΗ: Για είδη των 43°, Αριθμ. 0312 και 47°, Αριθμ. 0405, δοχεία, από χαρτί kraft, μπορούν επίσης να χρησιμοποιούνται</i></p>	<p>Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B) τεταμένο πλαστικό (4H1) πλαστικό, στερεό (4H2)</p>
E 116	<p>Διαχωριστικά τμήματα στην εξωτερική συσκευασία Κιβώτια φύλλο φάιμπερ πλαστικό ξύλινο</p> <p><i>ΣΗΜΕΙΩΣΗ: Για μικρές θήκες, (φυσίγγια), σάκοι πλαστικοί ή από ύφασμα μπορούν επίσης να χρησιμοποιούνται</i></p>	<p>Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)</p>
E 117	Όχι απαραίτητες	<p>Κιβώτια φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B) φύλλο φάιμπερ (4G)</p>
E 119	Όχι απαραίτητες	<p>Κιβώτια φυσικό ξύλο, αδιαπέραστων τοιχωμάτων (4C2) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) χάλυβας (4A) αλουμίνιο (4B) φύλλο φάιμπερ (4G) πλαστικό, στερεό (4H2) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)</p> <p><i>ΣΗΜΕΙΩΣΗ: Για γομώσεις σε θήκες, κιβώτια σε φυσικό ξύλο, κοινό (4C1), μπορούν επίσης να χρησιμοποιούνται.</i></p>
E 120	<p>Διαχωριστικά τμήματα στην εξωτερική συσκευασία Σωλήνες φύλλο φάιμπερ ή ισοδύναμο υλικό</p>	<p>Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F)</p>

2193  
(α. εχ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 121	Όχι απαραίτητες	Κιβώτια κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) αλουμίνιο (4B) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)
E 122	Κιβώτια φύλλο φάιμπερ μέταλλο πλαστικό ξύλινα	Κιβώτια κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) αλουμίνιο (4B)
E 123	Διαχωριστικά τμήματα στην εξωτερική συσκευασία Δοχεία φύλλο φάιμπερ μέταλλο πλαστικό	Κιβώτια φυσικό ξύλο, κοινό (4C1) με μεταλλική επένδυση κόντρα πλακέ (4D) με μεταλλική επένδυση ανασυσταμένο ξύλο (4F) με μεταλλική επένδυση χάλυβας (4A) αλουμίνιο (4B) τεταμένο πλαστικό (4H1)
E 124	Καρούλια Δοχεία μέταλλο	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B) Βαρέλια φάιμπερ (1G) χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)
E 125	Σάκοι πλαστικό Καρούλια Φύλλα χαρτί, kraft πλαστικό	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο, (4F) χάλυβας (4A) αλουμίνιο (4B) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)
E 126	Καρούλια Δοχεία φύλλο φάιμπερ	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) χάλυβας (4A) αλουμίνιο (4B) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)

## Κλάση 1

2  
(συν. ελ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 127	Δοχεία φύλλο φάιμπερ μέταλλο πλαστικό	Κιβώτια φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) χάλυβας (4A) αλουμίνιο (4B) φύλλο φάιμπερ (4G)
E 128	Κιβώτια με διαχωριστικά τμήματα φύλλο φάιμπερ πλαστικό ξύλινα Δίσκοι με διαχωριστικά τμήματα φύλλο φάιμπερ πλαστικό ξύλινοι Μπιτόνια με διαχωριστικά τμήματα μέταλλο	Κιβώτια φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B) φύλλο φάιμπερ (4G)
E 129	Δοχεία φύλλο φάιμπερ πλαστικό Φύλλα χαρτί	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) Βαρέλια φάιμπερ (1G)
E 130	Δοχεία φύλλο φάιμπερ πλαστικό μέταλλο Φύλλα χαρτί	Κιβώτια κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) αλουμίνιο (4B) τεταμένο πλαστικό (4H1) Βαρέλια φάιμπερ (1G) πλαστικό, μετακινούμενης κεφαλής (1H2) χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)
E 133	Διαχωριστικά τμήματα στην εξωτερική συσκευασία Δοχεία μέταλλο πλαστικό φύλλο φάιμπερ Φύλλα χαρτί, kraft	Κιβώτια φύλλο φάιμπερ (4G) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) πλαστικό, στερεό (4H2) αλουμίνιο (4B) τεταμένο πλαστικό (4H1) Βαρέλια φάιμπερ (1G) πλαστικό, μετακινούμενης κεφαλής (1H2) χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)

## Κλάση 1

(0,0,0,0)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 134	Δοχεία φύλλο φάιμπερ μέταλλο πλαστικό ξύλινα	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)
E 135	Σάκοι πλαστικό Καρούλια Φύλλα χαρτί, kraft πλαστικό	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F)
E 136	Όχι απαραίτητες	Κιβώτια κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) αλουμίνιο (4B) πλαστικό, στερεό (4H2) Βαρέλια φάιμπερ (1G) χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)
E 137	Διαχωριστικά τμήματα στην εξωτερική συσκευασία Δοχεία φύλλο φάιμπερ μέταλλο πλαστικό ξύλινα Δίσκοι πλαστικό ξύλινοι	Κιβώτια φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B) φύλλο φάιμπερ (4G) πλαστικό, στερεό (4H2)

## Κλάση 1

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 138	Όπως ορίζεται από την αρμόδια αρχή στη χώρα προέλευσης	Κιβώτια φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B) πλαστικό, στερεό (4H2)
E 139	Δοχεία μέταλλο πλαστικό ξύλινα φύλλο φάιμπερ	Κιβώτια φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2)
E 140	Σάκοι αδιάβροχοι	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)
E 141	Δοχεία φύλλο φάιμπερ μέταλλο ξύλινα Φύλλα χαρτί Δίσκοι πλαστικό	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)
E 142	Κιβώτια φύλλο φάιμπερ μέταλλο πλαστικό ξύλινα Μπιτόνια μέταλλο Δίσκοι φύλλο φάιμπερ πλαστικό  Ενδιάμεσες (όχι απαραίτητες με εσωτερικά κιβώτια αλλά υποχρεωτικές με δίσκους) Κιβώτια φύλλο φάιμπερ	Κιβώτια φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) φύλλο φάιμπερ (4G) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)

2-93  
(α. ε.χ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 143	Κιβώτια φύλλο φάιμπερ μέταλλο ξύλινα Σωλήνες φύλλο φάιμπερ Δίσκοι πλαστικό	Κιβώτια φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)
E 145	Δοχεία φύλλο φάιμπερ πλαστικό ξύλινα  <i>ΣΗΜΕΙΩΣΗ: Για είδη της 47<sup>ο</sup>, Αριθμ. 0174, μεταλλικά δοχεία μπορούν επίσης να χρησιμοποιούνται</i>	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)
E 146	Όχι απαραίτητες	Όπως ορίζεται από την αρμόδια αρχή στη χώρα προέλευσης
E 147	Δοχεία φύλλο φάιμπερ μέταλλο	Κιβώτια κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) Βαρέλια φάιμπερ (1G)
E 149	Όπως ορίζεται από την αρμόδια αρχή στη χώρα προέλευσης	Κιβώτια φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) πλαστικό, στερεό (4H2) χάλυβας (4A) αλουμίνιο (4B)
E 150	Κιβώτια φύλλο φάιμπερ μέταλλο  Δοχεία μέταλλο πλαστικό Φύλλα χαρτί, kraft	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B) τεταμένο πλαστικό (4H1) πλαστικό, στερεό (4H2) Βαρέλια φάιμπερ (1G) χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2) πλαστικό, μετακινούμενης κεφαλής (1H2)

2  
(Ολοέχ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 151	Δοχεία φύλλο φάιμπερ μέταλλο πλαστικό ξύλινα	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B) Βαρέλια φάιμπερ (1G)
E 153	Φύλλα φύλλο φάιμπερ συρρικνωμένο Σωλήνες φύλλο φάιμπερ  <u>Ενδιάμεσες:</u> Δοχεία φύλλο φάιμπερ μέταλλο πλαστικό	Κιβώτια φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)
E 156	Διαχωριστικά τμήματα στην εξωτερική συσκευασία Σάκοι πλαστικό Κιβώτια φύλλο φάιμπερ Σωλήνες φύλλο φάιμπερ πλαστικό μέταλλο	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) χάλυβας (4A) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) αλουμίνιο (4B)
E 157	Όχι απαραίτητες	Κιβώτια φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) χάλυβας (4A) αλουμίνιο (4B)



## Κλάση 1

2  
(συν. εχ.)

Μέθοδος	Εσωτερικές συσκευασίες	Εξωτερικές συσκευασίες
E 158 (a)	Σάκοι χαρτί, kraft πλαστικό ύφασμα ύφασμα, επενδεδυμένο με καουτσούκ	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) φυσικό ξύλο, αδιαπέραστων τοιχωμάτων (4C2) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) πλαστικό στερεό (4H2) Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2) φάιμπερ (1G) κόντρα πλακέ (1D)
(b)	Δοχεία φύλλο φάιμπερ μέταλλο πλαστικό	Κιβώτια φύλλο φάιμπερ (4G) φυσικό ξύλο, κοινό (4C1) φυσικό ξύλο, αδιαπέραστων τοιχωμάτων (4C2) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F) πλαστικό, στερεό (4H2)
(c)		Σύνθετες συσκευασίες Δοχεία, πλαστικά, σε κιβώτιο από στερεό πλαστικό υλικό (6HH2)
E 159 (a)	Δοχεία πλαστικό  <u>Ενδιάμεσες:</u> Σάκοι πλαστικοί σε δοχεία μέταλλο	Κιβώτια φυσικό ξύλο, κοινό (4C1) κόντρα πλακέ (4D) ανασυσταμένο ξύλο (4F)
(b)	Δοχεία πλαστικό  <u>Ενδιάμεσες:</u> Βαρέλια μέταλλο	Βαρέλια χάλυβας, μετακινούμενης κεφαλής (1A2) αλουμίνιο, μετακινούμενης κεφαλής (1B2)

93  
(π.έχ.)

## (7) Πίνακας 3: Ειδικές απαιτήσεις συσκευασίας

**ΣΗΜΕΙΩΣΗ:** Για τις ειδικές απαιτήσεις συσκευασίας που ισχύουν για τις διάφορες ύλες και είδη, βλέπε περιθωριακό 2101, Πίνακα 1, στήλη 5.

No.	Απαίτηση
1	Οι υδατοδιαλυτές ύλες πρέπει να είναι συσκευασμένες σε αδιάβροχα δοχεία.
2	Τα κόλα πρέπει να είναι ελεύθερα μολύβδου.
7	Τα μεταλλικά βαρέλια πρέπει να είναι έτσι κατασκευασμένα ώστε έκρηξη να μην είναι δυνατή λόγω αύξησης στην εσωτερική πίεση από εσωτερικά ή εξωτερικά αίτια.
8	Το εσωτερικό των μεταλλικών συσκευασιών θα πρέπει να είναι γαλβανισμένο, βαμμένο ή αλλιώς προστατευμένο. Γυμνός χάλυβας δεν θα πρέπει να έρχεται σ' επαφή με το προωθητικό.
9	Τα βαρέλια ή μηπίτνια από χάλυβα πρέπει να είναι φτιαγμένα χωρίς θυλάκια ή ρωγμές στις οποίες η ύλη θα μπορούσε να αποκλειστεί ή να παραμείνει.
10	Τα μεταλλικά δοχεία πρέπει να είναι έτσι κατασκευασμένα ώστε να μειώνεται ο κίνδυνος έκρηξης, εξ αιτίας αύξησης στην εσωτερική πίεση από εσωτερικά ή εξωτερικά αίτια.
11	Οι εσωτερικές συσκευασίες πρέπει να είναι ερμητικά κλειστές.
12	Τα εξωτερικά κιβώτια από φυσικό ξύλο πρέπει να είναι εφοδιασμένα με επικασσιτερωμένη επένδυση που έχει ένα ερμητικά κλειστό καπάκι.
13	Οι ανοιχτές άκρες των εσωτερικών συσκευασιών πρέπει να είναι εφοδιασμένες με επικαλυμμένα πώματα ή η εξωτερική συσκευασία πρέπει να είναι επικαλυμμένη.
21	Δεν μπορούν να συσκευάζονται περισσότερες από 10 εσωτερικές συσκευασίες σε μία ενδιάμεση συσκευασία.
22	Οι εσωτερικές ή ενδιάμεσες συσκευασίες πρέπει να διαχωρίζονται από την εξωτερική συσκευασία με κενό τουλάχιστον 25 mm με τη χρήση διαχωριστήρων (σανίδες) ή προστατευτικό υλικό, π.χ. πριονίδι.
23	Οι εσωτερικές συσκευασίες πρέπει να διαχωρίζονται από την εξωτερική συσκευασία με κενό όχι μικρότερο από 25 mm γεμάτο με προστατευτικό υλικό, π.χ. πριονίδι, ξυλοβάμβακα.
24	Είδη σε μεταλλικές εσωτερικές συσκευασίες πρέπει να ασφαλιζονται με προστατευτικό υλικό και στις δύο άκρες.
28	Οι μεταλλικές εσωτερικές συσκευασίες πρέπει να είναι επικαλυμμένες με προστατευτικό υλικό.
30	Οι μορφοποιημένες γομώσεις πρέπει να είναι έτσι συσκευασμένες ώστε να παρεμποδίζεται η επαφή μεταξύ τους.
31	Τα κωνικά κοιλώματα των μορφοποιημένων γομώσεων πρέπει να βλέπουν προς τα μέσα κατά ζευγάρια ή ομάδες για την ελαχιστοποίηση της (προωθητικής) δράσης της μορφοποιημένης γόμωσης σε περίπτωση τυχαίας πυροδότησης.
32	Εκτός εάν οι άκρες του είδους είναι σφραγισμένες, πλαστικοί σάκοι θα πρέπει να χρησιμοποιούνται ως εσωτερική συσκευασία.
33	Οι άκρες του εκρηκτικού καλωδίου πρέπει να σφραγίζονται και να δένονται σφιχτά.
34	Οι άκρες του εκρηκτικού καλωδίου πρέπει να σφραγίζονται. Τα κενά πρέπει να γεμίζονται με προστατευτικό υλικό.
35	Οι συσκευασίες θα πρέπει να σφραγίζονται έναντι της εισόδου νερού.
36	Τα είδη πρέπει να προστατεύονται με προστατευτικό για την παρεμπόδιση οποιασδήποτε επαφής μεταξύ τους.

No.	Απαίτηση
37	Οι χράνες Βεντούρι των πυραύλων (πυροτεχνήματα) πρέπει να είναι παωματισμένες και τα μέσα ανάφλεξης πλήρως προστατευμένα.
38	Οι πυροσωλήνες θα πρέπει να διαχωρίζονται ο ένας από τον άλλο στην εσωτερική συσκευασία.
41	Οι εγγυτές πρέπει να συσκευάζονται με απορροφητικά των κρούσεων στρώματα από τσόχα, χαρτί ή πλαστικό για την αποφυγή εξάπλωσης μέσα στην εξωτερική συσκευασία.
42	Οι εξωτερικές πλαστικές συσκευασίες θα πρέπει να ενισχύονται με μέταλλο στις γωνίες και τις ακμές.
43	Τα είδη πρέπει να διαχωρίζονται για την αποφυγή επαφής μεταξύ τους και να τηρούνται μακριά από τον πυθμένα, τα τοιχώματα και το καπάκι της εξωτερικής συσκευασίας, π.χ. με προστατευτικό υλικό.
44	Όπου τα είδη περιέχονται σε γεμιστήρες για εφοδιασμό σε αυτόματες μονάδες, ο γεμιστήρας μπορεί να αντικαταστήσει την εσωτερική συσκευασία υπό την προϋπόθεση ότι χρησιμοποιείται αρκετό προστατευτικό υλικό.
45	Οι επικασσιτερωμένες εσωτερικές συσκευασίες πρέπει να ασφαλιζονται.
46	Τα είδη πρέπει να τυλιγούνται ένα-ένα σε συρρικνωμένα φύλλα φάϊμπερ ή να εισάγονται σε σωλήνες από φύλλο φάϊμπερ.
47	Απορροφητικό προστατευτικό υλικό πρέπει να εισάγεται.
48	Μεγάλα είδη χωρίς προωθητική γόμωση και χωρίς μέσον ανάφλεξης ή πυροδότησης μπορούν να μεταφέρονται ασυσκευάστα.
49	Μεγάλα είδη χωρίς το μέσο πυροδότησης τους ή με το μέσον πυροδότησης τους να περιέχει τουλάχιστον δύο αποτελεσματικά προστατευτικά χαρακτηριστικά, μπορούν να μεταφέρονται ασυσκευάστα.
50	Μεγάλα είδη χωρίς το μέσον ανάφλεξης τους μπορούν να μεταφέρονται ασυσκευάστα.
51	Μεγάλα είδη μπορούν να μεταφέρονται ασυσκευάστα.
53	Σάκοι, από πλεγμένο πλαστικό, αδιαπέραστοι (5H2), μπορούν να χρησιμοποιούνται μόνον για TNT σε νιφάδες ή ψημένοι στην ξηρή κατάσταση και με μέγιστο καθαρό βάρος 30 kg ανά κόλο.
55	Δεν μπορεί να συσκευάζεται περισσότερο από 50 g ύλης σε μία εσωτερική συσκευασία.
56	Κιβώτια από φύλλο φάϊμπερ (4G) θα πρέπει να μην χρησιμοποιούνται ως εξωτερική συσκευασία.
57	Επένδυση ή εσωτερική επικάλυψη απαιτείται για μεταλλικές εξωτερικές συσκευασίες (π.χ., 4A, 4B, 1A2, 1B2) εκτός εάν κάποιο άλλο μέσον όπως η χρήση μίας εσωτερικής συσκευασίας ή ενός προστατευτικού υλικού προστατεύει την εκρηκτική ύλη από επαφή με την μεταλλική εξωτερική συσκευασία κατά τη διάρκεια κανονικών συνθηκών μεταφοράς.
58	Τα πλαστικά δοχεία θα πρέπει να έχουν κλεισίματα βιδωτού πώματος ασφαλισμένα με ταινία και να είναι χωρητικότητας όχι μεγαλύτερης από 5 λίτρα το καθένα. Κάθε δοχείο θα πρέπει να περιέχεται μέσα σε μία ενδιάμεση συσκευασία. Κάθε πλαστικός σάκος θα πρέπει να περιβάλλεται απ' όλες τις πλευρές με τουλάχιστον 50 mm μη-καύσιμο απορροφητικού προστατευτικού υλικού. Μεταλλικά μπιτόνια στο εξωτερικό κιβώτιο θα πρέπει επίσης να προστατεύονται το ένα από το άλλο σε όλες τις κατευθύνσεις. Το καθαρό βάρος του προωθητικού θα πρέπει να περιορίζεται σε 30 kg για κάθε κόλο.
59	Το ενδιάμεσο βαρέλι θα πρέπει να περιβάλλεται απ' όλες τις πλευρές με τουλάχιστον 50 mm μη-καύσιμο απορροφητικού προστατευτικού υλικού. Μία σύνθετη συσκευασία αποτελούμενη από ένα πλαστικό δοχείο σε ένα μεταλλικό βαρέλι μπορεί να χρησιμοποιείται αντί της εσωτερικής και ενδιάμεσης συσκευασίας. Ο καθαρός όγκος του προωθητικού σε κάθε κόλο θα πρέπει να μην υπερβαίνει τα 120 λίτρα.

## Κλάση 1

## 3. Μικτή συσκευασία

2104 (1) Ύλες και είδη που καλύπτονται από τον ίδιο χαρακτηριστικό αριθμό<sup>3/</sup>, με την εξαίρεση των υλών και ειδών της Ομάδας Συμβατότητας L και των υλών και ειδών που είναι καταχωρημένα σε μία ε.α.ο. καταχώρηση, μπορούν να συσκευάζονται μαζί.

(2) Εκτός άλλως ειδικά ορίζεται παρακάτω, ύλες και είδη που έχουν διαφορετικούς χαρακτηριστικούς αριθμούς δεν μπορούν να συσκευάζονται μαζί.

(3) Ύλες και είδη της Κλάσης 1 δεν μπορούν να συσκευάζονται μαζί με ύλες άλλων Κλάσεων ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

(4) Είδη των ομάδων συμβατότητας C, D και E μπορούν να συσκευάζονται μαζί.

(5) Είδη των ομάδων συμβατότητας D ή E μπορούν να συσκευάζονται μαζί με το δικό τους μέσον πυροδότησης υπό την προϋπόθεση ότι τέτοιο μέσον έχει τουλάχιστον δύο αποτελεσματικά προστατευτικά χαρακτηριστικά που παρεμποδίζουν την έκρηξη ενός είδους σε περίπτωση τυχαίας λειτουργίας του μέσου πυροδότησης.

(6) Είδη των ομάδων συμβατότητας D ή E μπορούν να συσκευάζονται μαζί με το δικό τους μέσον πυροδότησης που δεν έχουν δύο αποτελεσματικά προστατευτικά χαρακτηριστικά (δηλ. μέσον πυροδότησης καταχωρημένο στην ομάδα συμβατότητας B), υπό την προϋπόθεση ότι, κατά τη γνώμη της αρμόδιας αρχής της χώρας προέλευσης, η τυχαία λειτουργία του μέσου πυροδότησης δεν προκαλεί την έκρηξη ενός είδους υπό κανονικές συνθήκες μεταφοράς.

(7) Ύλες και είδη της ομάδας συμβατότητας L δεν μπορούν να συσκευάζονται μαζί με έναν διαφορετικό τύπο ύλης ή είδους εκείνης της ομάδας συμβατότητας.

(8) Είδη μπορούν να συσκευάζονται μαζί με το δικό τους μέσον ανάφλεξης υπό την προϋπόθεση ότι το μέσον ανάφλεξης δεν θα πρέπει να λειτουργεί υπό κανονικές συνθήκες μεταφοράς.

(9) Εμπορεύματα με τους χαρακτηριστικούς αριθμούς που εμφανίζονται στον πίνακα 4 μπορούν να περιλαμβάνονται στο ίδιο κόλο υπό τις συνθήκες που υποδεικνύονται.

## Επεξηγήσεις του πίνακα 4:

A. Ύλες και είδη με αυτούς τους χαρακτηριστικούς αριθμούς μπορούν να περιλαμβάνονται στο ίδιο κόλο χωρίς οποιονδήποτε ειδικό περιορισμό βάρους.

B. Ύλες και είδη με αυτούς τους χαρακτηριστικούς αριθμούς μπορούν να περιλαμβάνονται στο ίδιο κόλο μέχρι ενός συνολικού βάρους 30 kg εκρηκτικών υλών.

(10) Για μικτή συσκευασία, πρέπει να λαμβάνεται υπόψη μία δυνατή τροποποίηση της ταξινόμησης των κόλων σε συμφωνία με το περιθωριακό 2100.

(11) Για την περιγραφή εμπορευμάτων στο έγγραφο μεταφοράς στην περίπτωση της μικτής συσκευασίας υλών και ειδών της Κλάσης 1, βλέπε περιθωριακό 2110 (4).

<sup>3/</sup> Αριθμός ταυτότητας της ύλης ή του είδους σύμφωνα με τις Υποδείξεις των Ηνωμένων Εθνών για τη Μεταφορά Επικίνδυνων Εμπορευμάτων (βλέπε περιθωριακό 2101, υποσημείωση 1).



## Κλάση 1

4. *Μαρκάρισμα και ετικέτες κινδύνου στα κόλα (βλέπε Προσθήκη Α.9)**Μαρκάρισμα*

- 2105 (1) Τα κόλα θα πρέπει να φέρουν τον χαρακτηριστικό αριθμό και μία από τις ονομασίες της ύλης ή τους είδους που υπογραμμίζονται, στο περιθωριακό 2101, Πίνακας 1, στήλη 2. Για ύλες και είδη καταχωρημένα σε μία ε.α.ο. καταχώρηση, καθώς και για άλλα είδη των 25° και 34°, η τεχνική ονομασία των εμπορευμάτων θα πρέπει να δίνεται επιπλέον της ονομασίας της ε.α.ο. καταχώρησης. Για ύλες της 4°, Αριθμ. 0081, 0082, 0083, 0084 και 0241, και ύλες της 48°, Αριθμ. 0331 και 0332, η εμπορική ονομασία του συγκεκριμένου εκρηκτικού θα πρέπει να ορίζεται επιπλέον του τύπου. Για άλλες ύλες και είδη, η εμπορική ή τεχνική ονομασία μπορεί να προστίθεται. Το μαρκάρισμα, που θα πρέπει να είναι καθαρά ευανάγνωστο και ανεξίτηλο, θα πρέπει να είναι σε μία επίσημη γλώσσα της χώρας προέλευσης και επίσης, εάν εκείνη η γλώσσα δεν είναι αγγλικά, γαλλικά ή γερμανικά, στα αγγλικά, γαλλικά ή γερμανικά, εκτός εάν οποιεσδήποτε συμφωνίες μεταξύ των χωρών που εμπλέκονται στη επιχείρηση μεταφοράς ορίζουν αλλιώς.

*Ετικέτες κινδύνου*

- (2) Κόλα που περιέχουν ύλες ή είδη των 1° έως 34° θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 1. Ο κωδικός ταξινόμησης σύμφωνα με το περιθωριακό 2101, Πίνακα 1, στήλη 3, θα πρέπει να φαίνεται στο χαμηλότερο μέρος της ετικέτας. Κόλα που περιέχουν ύλες ή είδη των 35° έως 47° θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 1.4 και κόλα που περιέχουν ύλες της 48° και είδη της 49° θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 1.5 και εκείνες που περιέχουν είδη του είδους 50° θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 1.6. Η ομάδα συμβατότητας σύμφωνα με το περιθωριακό 2101, Πίνακας 1, στήλη 3, θα πρέπει να φαίνεται στο χαμηλότερο μέρος της ετικέτας.

- (3) Κόλα που περιέχουν ύλες και είδη των

4°, Αριθμ. 0076 και 0143,  
21°, Αριθμ. 0018,  
26°, Αριθμ. 0077,  
30°, Αριθμ. 0019 και  
43°, Αριθμ. 0301

θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1.

Κόλα που περιέχουν είδη των

21°, Αριθμ. 0015 και 0018,  
30°, Αριθμ. 0016 και 0019 και  
43°, Αριθμ. 0301 και 0303

θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8.

2106-  
2109

B. *Εγγραφές στο έγγραφο μεταφοράς*

- 2110 (1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς και μία από τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2101, Πίνακας 1, στήλη 2. Για ύλες και είδη καταχωρημένα σε μία ε.α.ο. καταχώρηση, καθώς και για άλλα είδη των 25° και 34°, η τεχνική ονομασία των εμπορευμάτων θα πρέπει να δίνεται επιπλέον της ονομασίας της ε.α.ο. καταχώρησης. Η περιγραφή των εμπορευμάτων θα πρέπει να ακολουθείται από τον κωδικό ταξινόμησης τον Αριθμ. Είδους

## Κλάση 1

**2110** (περιθωριακό 2101, Πίνακας 1, στήλες 3 και 1) και να συμπληρώνεται από το καθαρό βάρος σε kg (συνεχ.) της εκρηκτικής ύλης και τα αρχικά "ADR" (ή "RID") (π.χ.: 0160 Πυρίτιδα, άκαπνη, 1.1 C, 2°, 4,600 kg, ADR).

(2) Για ύλες της 4°, Αριθμ. 0081, 0082, 0083, 0084 και 0241 και για ύλες της 48°, Αριθμ. 0331 και 0332, η εμπορική ονομασία του εκρηκτικού θα πρέπει να καθορίζεται καθώς και ο τύπος του εκρηκτικού. Για άλλες ύλες και είδη, η εμπορική ονομασία ή τεχνική ονομασία μπορεί να προστίθεται.

(3) Για πλήρη φορτία, το έγγραφο μεταφοράς θα πρέπει να αναφέρει τον αριθμό κόλων, το βάρος κάθε κόλου σε κιλά και το συνολικό καθαρό βάρος σε κιλά της εκρηκτικής ύλης.

(4) Για μικτή συσκευασία δύο διαφορετικών εμπορευμάτων, η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει τους χαρακτηριστικούς αριθμούς και τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2101, Πίνακας 1, στήλη 2 και των δύο υλών ή ειδών. Εάν περισσότερα από δύο διαφορετικά εμπορεύματα περιέχονται στο ίδιο κόλο σε συμφωνία με το περιθωριακό 2104, το έγγραφο μεταφοράς θα πρέπει να αναφέρει κάτω από την περιγραφή των εμπορευμάτων τους χαρακτηριστικούς αριθμούς όλων των υλών και των ειδών που περιέχονται στο κόλο, στη μορφή, "Εμπορεύματα με Αριθμ. ...".

(5) Για τη μεταφορά υλών και ειδών καταχωρημένων σε μία ε.α.ο. καταχώρηση, ένα αντίγραφο της έγκρισης της αρμόδιας αρχής με τους όρους μεταφοράς θα πρέπει να επισυνάπτεται στο έγγραφο μεταφοράς. Θα πρέπει να είναι σε μία επίσημη γλώσσα της χώρας αποστολής και επίσης, εάν εκείνη η γλώσσα δεν είναι αγγλικά, γαλλικά ή γερμανικά, στα αγγλικά, γαλλικά ή γερμανικά εκτός εάν συμφωνίες, εάν υπάρχουν, μεταξύ των χωρών που εμπλέκονται στην επιχείρηση μεταφοράς ορίζουν αλλιώς.

2111-  
2114

**C. Κενές συσκευασίες**

**2115** (1) Κενές συσκευασίες, ακαθάριστες, της 51° θα πρέπει να είναι με ασφάλεια κλεισμένες και να είναι στεγανές στον ίδιο βαθμό σαν να ήταν γεμάτες.

(2) Κενές συσκευασίες, ακαθάριστες, της 51° θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνου σαν να ήταν γεμάτες.

(3) Η καταχώρηση στο έγγραφο μεταφοράς θα πρέπει να είναι: "Κενές συσκευασίες, 1, 51° ADR".

**D. Ειδικές διατάξεις**

**2116** Ύλες και είδη της Κλάσης 1, που ανήκουν στις ένοπλες δυνάμεις ενός Κράτους Μέλους, που ήταν συσκευασμένες πριν από την 1 Ιανουαρίου 1990 σε συμφωνία με τις διατάξεις της ADR που ίσχυε τότε, μπορούν να μεταφέρονται μετά την 1 Ιανουαρίου 1990 υπό την προϋπόθεση ότι η συσκευασία διατηρούν την ακεραιότητά τους και δηλώνονται στο έγγραφο μεταφοράς ως στρατιωτικά εμπορεύματα συσκευασμένα πριν από την 1 Ιανουαρίου 1990. Οι άλλες διατάξεις που εφαρμόζονται από την 1 Ιανουαρίου 1990 για αυτήν την Κλάση, θα πρέπει να ισχύουν.

2117-  
2199

**ΚΛΑΣΗ 2. ΑΕΡΙΑ: ΠΕΠΗΣΜΕΝΑ, ΥΓΡΟΠΟΙΗΜΕΝΑ Ή ΔΙΑΛΥΜΕΝΑ ΥΠΟ ΠΙΕΣΗ****1. Κατάλογος Υλών**

**2200** (1) Μεταξύ των υλών και ειδών που καλύπτονται από τον τίτλο της Κλάσης 2, μόνον τα απαριθμούμενα στο περιθωριακό 2201 θα γίνονται δεκτά για μεταφορά και τότε μόνον υπό την επιφύλαξη των διατάξεων του παρόντος Παραρτήματος και των διατάξεων του Παραρτήματος Β. Οι ύλες και είδη που γίνονται δεκτά για μεταφορά υπό ορισμένους όρους θα θεωρούνται ως ύλες και είδη αυτής της Οδηγίας.

(2) Οι ύλες που έχουν κρίσιμη θερμοκρασία κατώτερη των 50 °C ή, εις 50 °C, πίεση ατμού μεγαλύτερη των 300 KPa (3 bar) θεωρούνται ως ύλες της Κλάσης 2.

**ΣΗΜΕΙΩΣΗ:** Για την κατάταξη των διαλυμάτων και των μειγμάτων (όπως παρασκευάσματα και μείγματα) τα οποία περιέχουν ένα ή περισσότερα συστατικά που αναφέρονται στο περιθωριακό 2201, βλέπε επίσης περιθωριακό 2002 (8).

(3) Οι ύλες και τα είδη της Κλάσης 2 ταξινομούνται ως κάτωθι:

- A. Πεπυσμένα αέρια έχοντα κρίσιμη θερμοκρασία κάτω των -10 °C.
- B. Υγροποιημένα αέρια έχοντα κρίσιμη θερμοκρασία -10 °C ή άνω:
  - a. Υγροποιημένα αέρια έχοντα κρίσιμη θερμοκρασία 70 °C ή άνω.
  - b. Υγροποιημένα αέρια έχοντα κρίσιμη θερμοκρασία -10 °C ή άνω, αλλά κάτω των 70 °C.
- C. Βαθιά κατεψυγμένα υγροποιημένα αέρια.
- D. Αέρια διαλυμένα υπό πίεση.
- E. Διανεμητές Αεροζόλ και μη-ξαναγεμιζόμενα εμπορευματοκιβώτια αερίων υπό πίεση.
- F. Αέρια υποκείμενα σε ειδικούς όρους.
- G. Κενά δοχεία και κενές δεξαμενές.

Οι ύλες και τα είδη της Κλάσης 2, υποδιαίρονται σύμφωνα με τις χημικές τους ιδιότητες, όπως παρακάτω:

- (a) άφλεκτα
- (at) άφλεκτα, τοξικά
- (b) εύφλεκτα
- (bt) εύφλεκτα, τοξικά
- (c) χημικώς ασταθή
- (ct) χημικώς ασταθή, τοξικά

Εκτός εάν ορίζεται διαφορετικά, οι χημικώς ασταθείς ύλες πρέπει να θεωρούνται ως εύφλεκτες.

Τις ονομασίες των διαβρωτικών και οξειδωτικών αερίων και των ειδών που περιέχουν τέτοια αέρια, θα πρέπει να ακολουθούν οι λέξεις "διαβρωτικό" ή "οξειδωτικό" αντίστοιχα, σε εισαγωγικά.



## Κλάση 2

**2200** (4) Οι ύλες της Κλάσης 2 που απαριθμούνται μεταξύ των χημικών ασταθών αερίων, θα (συνεχ.) γίνονται δεκτές για μεταφορά, μόνον εάν τα απαραίτητα μέτρα έχουν παρθεί ώστε να αποφεύγεται η επικίνδυνη αποσύνθεση, αυτοξειδοαναγωγή ή πολυμερισμός τους, κατά τη διάρκεια της μεταφοράς. Για τον σκοπό αυτό, πρέπει να λαμβάνεται ειδικότερη μέριμνα να εξασφαλίζεται ότι τα δοχεία και οι δεξαμενές δεν περιέχουν ύλες υποκείμενες στην προαγωγή αυτών των αντιδράσεων.

**2201 A. Πεπιεσμένα αέρια** [βλέπε επίσης περιθωριακό 2201a υπό 2201 στοιχείο (a). Για αέρια της 10 (a) και (b) και 20(a) μέσα σε διανεμητές αεροζόλ ή σε μη-ξαναγεμιζόμενα εμπορευματοκιβώτια για αέρια υπό πίεση, βλέπε υπό στοιχεία 10° και 11°].

Αέρια που έχουν κρίσιμη θερμοκρασία κάτω των -10 °C, θεωρούνται ότι είναι πεπιεσμένα αέρια για τους σκοπούς αυτής της Οδηγίας.

1° Καθαρά αέρια και τεχνικώς-καθαρά αέρια

(a) Άφλεκτα

Αργό, ήλιο, κρυπτό, νέον, άζωτο, οξυγόνο (οξειδωτικό), τετραφθορομεθάνιο (R 14).

(at) Άφλεκτα, τοξικά

Τριφθοριούγο βόριο, φθόριο (οξειδωτικό), τριφθοριούγο άζωτο, τετραφθοριούγο πυρίτιο (διαβρωτικό).

(b) Εύφλεκτα

Δευτέριο, υδρογόνο, μεθάνιο.

(bt) Εύφλεκτα, τοξικά

Μονοξειδίο του άνθρακα.

(ct) Χημικώς ασταθή, τοξικά

Νιτρικό οξείδιο (μονοξειδίο του αζώτου) NO (άφλεκτο).

2° Μείγματα αερίων

(a) Άφλεκτα

Μείγματα δύο ή περισσότερων από τα παρακάτω αέρια: σπάνια αέρια (περιέχοντα όχι περισσότερο από 10%, ξένο κατ' όγκο), άζωτο, οξυγόνο, διοξειδίο του άνθρακα (όχι περισσότερο του 30% κατ' όγκο). Άφλεκτα μείγματα δύο ή περισσότερων από τα παρακάτω αέρια: υδρογόνο, μεθάνιο, άζωτο, σπάνια αέρια (περιέχοντα όχι περισσότερο από 10% ξένο κατ' όγκο), όχι περισσότερο από 30% διοξειδίο του άνθρακα κατ' όγκο. Άζωτο, περιέχον όχι περισσότερο από 6% αιθυλένιο κατ' όγκο. Αέρας.

**ΣΗΜΕΙΩΣΗ :** Μείγματα περιέχοντα περισσότερο από 25 % (κατ' όγκο) οξυγόνο, θεωρούνται οξειδωτικά.

## Κλάση 2

2201  
(συνεχ.)(b) Εύφλεκτα

Μείγματα του μεθανίου (με όχι λιγότερο από 90 % μεθάνιο κατ' όγκο) με υδρογονάνθρακες των 3° (b) και 5° (b). Εύφλεκτα μείγματα δύο ή περισσότερων από τα παρακάτω αέρια: υδρογόνο, μεθάνιο, άζωτο, σπάνια αέρια (περιέχοντα όχι περισσότερο από 10% ξένο κατ' όγκο), όχι περισσότερο από 30% διοξείδιο του άνθρακα κατ' όγκο. Μείγματα φυσικού αερίου περιέχοντα όχι περισσότερο από 10 % σιλάνιο κατ' όγκο με ένα ή περισσότερα από τα παρακάτω αέρια: υδρογόνο, άζωτο, αργό, ήλιο, κρυπτό, νέον, δευτέριο και μεθάνιο.

(bt) Εύφλεκτα, τοξικά

Αέριο πόλης (δήμου): μείγματα υδρογόνου με όχι περισσότερο από 10% υδροσελήνιο ή φωσφίνη ή γερμάνιο κατ' όγκο ή με όχι περισσότερο από 15% αρσίνη κατ' όγκο. Μείγματα αζώτου ή σπανίων αερίων (περιεχόντων όχι περισσότερο από 10% ξένο κατ' όγκο) με όχι περισσότερο από 10% υδροσελήνιο ή φωσφίνη ή γερμάνιο κατ' όγκον ή με όχι περισσότερο από 15% αρσίνη κατ' όγκον. Υδραέριο. Αέριο σύνθεσης (π.χ. εκ της μεθόδου FISCHER-TROPSCH). Μείγματα μονοξειδίου του άνθρακα με υδρογόνο ή με μεθάνιο.

(ct) Χημικώς ασταθή, τοξικά

Μείγματα υδρογόνου με όχι περισσότερο από 10% διβοράνιο κατ' όγκο. Μείγματα αζώτου ή σπανίων αερίων (περιεχόντων όχι περισσότερο από 10% ξένο κατ' όγκο) με όχι περισσότερο από 10% διβοράνιο κατ' όγκο.

**B. Υγροποιημένα αέρια** [βλέπε επίσης περιθωριακό 2201a υπό στοιχεία (b) και (e). Για αέρια των 3° έως 6° μέσα σε διανεμητές αεροζόλ ή μέσα σε μη-ξαναγεμιζόμενα εμπορευματοκιβώτια αερίων υπό πίεση, βλέπε υπό στοιχεία 10° και 11°).

Αέρια έχοντα κρίσιμη θερμοκρασία -10 °C ή παραπάνω, θεωρούνται ως υγροποιημένα αέρια για τους σκοπούς αυτής της Οδηγίας.

**a. Υγροποιημένα αέρια έχοντα κρίσιμη θερμοκρασία 70° C ή παραπάνω:**

3° Καθαρά αέρια και τεχνικώς-καθαρά αέρια

(a) Άφλεκτα

Βρωμοχλωροδιφθορομεθάνιο (R 12 B 1), χλωροδιφθορομεθάνιο (R 22), χλώρο-πενταφθοροαιθάνιο (R 115), 1-γλώρο-1,2,2,2-τετραφθοροαιθάνιο (R 124), 1-γλώρο-2,2,2-τροφθοροαιθάνιο (R 133a), διγλώροδιφθορομεθάνιο (R 12), διγλώροφθορομεθάνιο (R 21), 1,2-διγλώρο-1,1,2,2-τετραφθοροαιθάνιο (R 114), οκταφθοροβουτ-2-ένιο (R 1318), οκταφθοροκυκλοβουτάνιο (RC 318), οκταφθοροπροπάνιο, 1,1,1,2-τετραφθοροαιθάνιο (R 134a).

(at) Άφλεκτα, τοξικά

Αμμωνία, τριγλωριούχο βόριο (διαβρωτικό), γλώριο (διαβρωτικό), τριφθοριούχο γλώριο (διαβρωτικό), εξαφθοροαικετόνη, εξαφθοροπροπυλένιο (R 1216), υδροβρώμιο (διαβρωτικό), μεθυλοβρωμίδιο, νιτροδολογλωρίδιο (διαβρωτικό), διοξείδιο του αζώτου NO<sub>2</sub> (υπεροξειδίου του αζώτου, τετροξειδίου του αζώτου N<sub>2</sub>O<sub>4</sub>) (οξειδωτικό), φωσγένιο (διαβρωτικό), διοξείδιο του θείου, σουλφουρυλοφθορίδιο, εξαφθοριούχο βολφράμιο.

## Κλάση 2

2201  
(συνεχ.)(b) Εύφλεκτα

Βουτάνιο, 1-Βουτυλένιο (1-βουτένιο), 1-γλωρο-1,1-διφθοροαιθάνιο (R 142b), cis-2-βουτυλένιο (cis-2-βουτένιο), κυκλοπροπάνιο, 1,1-διφθοροαιθάνιο (R 152a), διμεθυλαιθέρας, 2,2-διμεθυλοπροπάνιο, ισοβουτάνιο, ισοβουτυλένιο (ισοβουτένιο), μεθυλοσιλάνιο, προπάνιο, προπιλένιο, trans-2-βουτυλένιο (trans-2-βουτένιο), 1,1,1-τριφθοροαιθάνιο.

(bt) Εύφλεκτα, τοξικά

Αρσίνη, καρβονυλοσουλφίδιο (διαβρωτικό), διγλωροσιλάνιο, διμεθυλαμίνη, διμεθυλοσιλάνιο, αιθυλαμίνη, αιθυλογλωρίδιο, υδροσελίνιο, υδρόθειο, μεθυλαμίνη, μεθυλογλωρίδιο, μεθυλομερκαπτάνη, τριμεθυλαμίνη, τριμεθυλοσιλάνιο.

(c) Χημικός ασταθή

1,2-βουταδιένιο, 1,3-βουταδιένιο, προπαδιένιο, αδρανές, βινυλογλωρίδιο.

**ΣΗΜΕΙΩΣΗ:** Σε δοχεία περιέχοντα 1,2-Βουταδιένιο, η συμπίκνωση οξυγόνου στην αέρια φάση δεν θα πρέπει να υπερβαίνει τα 50 ml/m<sup>3</sup>

(ct) Χημικός ασταθή, τοξικά

Κυανογόνο, γλωροκυανίδιο (άφλεκτο) (διαβρωτικό), αιθυλενοξειδίο, υδροϊώδιο άνυδρο (άφλεκτο) (διαβρωτικό), μεθυλοβινυλαιθέρας, τριφθορογλωροαιθυλένιο (R 1113), βινυλοβρωμίδιο.

**ΣΗΜΕΙΩΣΗ:** Στην περίπτωση των αλογονωμένων υδρογονανθράκων, επιτρέπεται επίσης η χρήση ονομασιών συνήθων στο εμπόριο, όπως οι παρακάτω: Algoftene, Arcton, Edifren, Fluvene, Forane, Freon, Fresane, Frigen, Isceon, Kaltron, ακολουθούμενες από τον αριθμό αναγνώρισης της ύλης χωρίς το γράμμα R.

4° Μείγματα αερίων(a) Άφλεκτα

Μείγματα υλών της 3° (a), με ή χωρίς εξαφθοροπροπιλένιο της 3° (at), τα οποία ως:

Μείγμα F 1, έχει τάση ατμών στους 70 °C όχι μεγαλύτερη από 1.3 MPa (13 bar) και πυκνότητα στους 50 °C όχι μικρότερη από αυτή του διγλωροφθορομεθανίου (1.30).

Μείγμα F 2, έχει τάση ατμών στους 70 °C όχι μεγαλύτερη από 1.9 MPa (19 bar) και πυκνότητα στους 50 °C όχι μικρότερη από αυτήν του διγλωροδιφθορομεθανίου (1.21).

Μείγμα F 3, έχει τάση ατμών στους 70 °C όχι μεγαλύτερη από 3 MPa (30 bar) και πυκνότητα στους 50 °C όχι μικρότερη από αυτήν του γλωροδιφθορομεθανίου (1.09).

**ΣΗΜΕΙΩΣΗ 1:** Το τριγλωροφθορομεθάνιο (R 11), το τριγλωροτριφθοροαιθάνιο (R 113) και το χλωροτριφθοροαιθάνιο (R 133) δεν θεωρούνται υγροποιημένα αέρια κατά την έννοια αυτής της Οδηγίας και συνεπώς δεν υπόκεινται στους όρους αυτής της Οδηγίας. Μπορούν, παρ'όλα αυτά, να συμπεριληφθούν στη σύνθεση των μειγμάτων F 1 έως F 3.

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(συνεχ.)**ΣΗΜΕΙΩΣΗ 2:** Βλέπε ΣΗΜΕΙΩΣΗ υπό στοιχείο 3°.

Το αζεotropicό μείγμα διχλωροδιφθορομεθάνιου (R 12) και 1,1-διφθορο-αιθάνιου (R 152a), γνωστό ως R 500.

Το αζεotropicό μείγμα χλωροπενταφθοροαιθάνιου (R 115) και χλωροδιφθορομεθάνιου (R 22), γνωστό ως R 502.

Το μείγμα περιεκτικότητας 19 έως 21 % κατά βάρος σε διχλωροδιφθορομεθάνιο (R 12) και 79 έως 81 % κατά βάρος σε βρωμοχλωροδιφθορομεθάνιο (R 12 B1).

(at) Αφλεκτα, τοξικά

Μείγματα μεθυλοβρωμίδιου και χλωροπικρίνης, έχοντα τάση ατμών μεγαλύτερη από 300 kPa (3 bar) στους 50 °C. Μείγματα διχλωροδιφθορομεθάνιου και αιθυλενοξειδίου, περιέχοντα όχι περισσότερο από 12 % (κατά βάρος) αιθυλενοξείδιο.

(b) Εύφλεκτα

Μείγματα υδρογονανθράκων της 3° (b) και αιθάνιου και αιθυλενίου της 5° (b), τα οποία ως:

Μείγμα Α, έχει τάση ατμών στους 70 °C όχι μεγαλύτερη από 1.1 MPa (11 bar) και σχετική πυκνότητα στους 50 °C όχι μικρότερη από 0.525.

Μείγμα Α Ο, έχει τάση ατμών στους 70°C όχι μεγαλύτερη από 1.6 MPa (16 bar) και σχετική πυκνότητα στους 50°C όχι μικρότερη από 0.495.

Μείγμα Α 1, έχει τάση ατμών στους 70°C όχι μεγαλύτερη από 2.1 MPa (21 bar) και σχετική πυκνότητα στους 50°C όχι μικρότερη από 0.485.

Μείγμα Β, έχει τάση ατμών στους 70°C όχι μεγαλύτερη από 2.6 MPa (26 bar) και σχετική πυκνότητα στους 50°C όχι μικρότερη από 0.450.

Μείγμα C, έχει τάση ατμών στους 70°C όχι μεγαλύτερη από 3.1 MPa (31 bar) και σχετική πυκνότητα στους 50°C όχι μικρότερη από 0.440.

**ΣΗΜΕΙΩΣΗ:** Στην περίπτωση των ανωτέρω μειγμάτων, επιτρέπεται η χρήση των παρακάτω συνήθων στο εμπόριο ονομασιών για τη περιγραφή των υλών αυτών:

Ονομασία υπό στοιχείο 4° (b)                      Ονομασία συνήθης στο εμπόριο

Μείγμα Α, μείγμα Α Ο

βουτάνιο

Μείγμα C

προπάνιο

Μείγματα υδρογονανθράκων των 3° (b) και 5° (b), περιέχοντα μεθάνιο.

(bt) Εύφλεκτα, τοξικά

Μείγματα δύο ή περισσότερων από τα παρακάτω αέρια: μεθυλοσιλάνιο, διμεθυλοσιλάνιο, τριμεθυλοσιλάνιο. Μεθυλοχλωρίδιο και μεθυλενοχλωρίδιο σε μείγματα, έχοντα τάση ατμών μεγαλύτερη από 300 kPa (3 bar) στους 50°C. Μείγματα μεθυλοχλωρίδιου και χλωροπικρίνης και μείγματα μεθυλοβρωμίδιου και

## Κλάση 2

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(συνεχ.)

αιθυλενοβρωμίδιου, έχοντα σε κάθε περίπτωση, τάση ατμών μεγαλύτερη από 300 kPa (3 bar) στους 50°C.

(c) Χημικός ασταθή

Μείγματα 1,3-βουταδιενίου και υδρογονανθράκων της 3° (b), έχοντα τάση ατμών στους 70°C όχι μεγαλύτερη από 1.1 MPa (11 bar) και πυκνότητα στους 50°C όχι μικρότερη από 0.525. Προπαδιένιο με 1 % έως 4 % μεθυλακετυλένιο σταθεροποιημένο.

μείγματα μεθυλακετυλενίου και προπαδιενίου με τους υδρογονάνθρακες της 3° (b), τα οποία ως:

μείγμα P 1, περιέχουν όχι περισσότερο από 63 % μεθυλακετυλένιο και προπαδιένιο κατ' όγκο και όχι περισσότερο από 24 % προπάνιο και προπυλένιο κατ' όγκο, ενώ το ποσοστό των C<sub>4</sub>-κορεσμένων υδρογονανθράκων είναι όχι μικρότερο από 14 % κατ' όγκο και ως

μείγμα P 2, περιέχουν όχι περισσότερο από 48 % μεθυλακετυλένιο και προπαδιένιο κατ' όγκο και όχι περισσότερο από 50 % προπάνιο και προπυλένιο κατ' όγκο, ενώ το ποσοστό των C<sub>4</sub>-κορεσμένων υδρογονανθράκων είναι όχι μικρότερο από 5 % κατ' όγκο.

(ct) Χημικός ασταθή, τοξικά

Αιθυλενοξειδίου περιέχον όχι περισσότερο από 10 % διοξειδίου του άνθρακα κατά βάρος. Αιθυλενοξειδίου περιέχον όχι περισσότερο από 50 % μυρμηκικό μεθυλεστέρα κατά βάρος, με άζωτο έως ολικής πίεσης όχι μεγαλύτερης από 1 MPa(10 bar) στους 50°C. Αιθυλενοξειδίου με άζωτο έως ολικής πίεσης 1 MPa(10 bar) στους 50°C.

b. Υγροποιημένα αέρια έχοντα κρίσιμη θερμοκρασία -10 °C ή μεγαλύτερη, αλλά μικρότερη από 70 °C:5° Καθαρά αέρια και τεχνικός-καθαρά αέρια(a) Άφλεκτα

Βρωμοτριφθορομεθάνιο (R 13 B 1), διοξειδίου του άνθρακα, γλωροτριφθορομεθάνιο (R 13), εξαφθοροαιθάνιο (R 116), υποξειδίου του αζώτου N<sub>2</sub>O (οξειδωτικό), πενταφθοροαιθάνιο (R 125), θειοφθορίδιο, τριφθορομεθάνιο (R 23), ξένο.

Σχετικά με το διοξειδίου του άνθρακα, βλέπε επίσης περιθωριακό 2201a υπό στοιχείο (c).

**ΣΗΜΕΙΩΣΗ 1:** Το υποξείδιου του αζώτου θα γίνεται δεκτό για μεταφορά, μόνο εάν είναι όχι λιγότερο από 99 % καθαρό.

**ΣΗΜΕΙΩΣΗ 2:** Βλέπε ΣΗΜΕΙΩΣΗ υπό στοιχείο 3°.

(at) Άφλεκτα, τοξικά

Υδρογλώριο (διαβρωτικό).

(b) Εύφλεκτα

Αιθάνιο, αιθυλένιο, σιλάνιο.

## Κλάση 2

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(συνεχ.)(bt) Εύφλεκτα, τοξικά  
Γερμάνιο, φωσφίνη.(c) Χημικώς ασταθή  
1,1-διφθοροαιθυλένιο, βινυλοφθορίδιο.(ct) Χημικώς ασταθή, τοξικά  
Διβοράνιο.6° Μείγματα αερίων(a) Άφλεκτα

Διοξείδιο του άνθρακα περιέχον όχι λιγότερο από 1 % και όχι περισσότερο από 10 % άζωτο, οξυγόνο, αέρα ή σπάνια αέρια κατά βάρος. Το αζεοτροπικό μείγμα χλωροτριφθορομεθάνιου (R 13) και τριφθορομεθάνιου (R 23), γνωστό ως R 503.

**ΣΗΜΕΙΩΣΗ:** Διοξείδιο του άνθρακα περιέχον λιγότερο από 1 % άζωτο, οξυγόνο, αέρα ή σπάνια αέρια κατά βάρος, είναι ύλη της 5° (a).

(c) Χημικώς ασταθή

Διοξείδιο του άνθρακα περιέχον όχι περισσότερο από 35 % αιθυλενοξείδιο κατά βάρος.

(ct) Χημικώς ασταθή, τοξικά

Αιθυλενοξείδιο περιέχον περισσότερο από 10 % αλλά όχι περισσότερο από 50 % διοξείδιο του άνθρακα κατά βάρος.

## C. Βαθιά-κατεψυγμένα υγροποιημένα αέρια

7° Καθαρά αέρια και τεχνικώς-καθαρά αέρια(a) Άφλεκτα

Αργό, διοξείδιο του άνθρακα, ήλιο, κρυπτό, νέον, άζωτο, υποξείδιο του άζώτου N<sub>2</sub>O (οξειδωτικό), οξυγόνο (οξειδωτικό), ξένο.

(b) Εύφλεκτα

Αιθάνιο, αιθυλένιο, υδρογόνο, μεθάνιο.

8° Μείγματα αερίων(a) Άφλεκτα

Αέρας, μείγματα υλών της 7° (a).

**ΣΗΜΕΙΩΣΗ:** Μείγματα της 8° (a), περιέχοντα περισσότερο από 32 % (κατά βάρος) υποξείδιο του άζώτου, ο αέρας και μείγματα περιέχοντα περισσότερο από 20 % (κατά βάρος) οξυγόνο, θεωρούνται ως οξειδωτικά.

## Κλάση 2

2201  
(συνεχ.)(b) Εύφλεκτα

Μείγματα υλών της 7<sup>ο</sup> (b), φυσικό αέριο, μείγμα περιέχον τουλάχιστον 71.5 % αιθυλένιο (κατ' όγκο) με όχι περισσότερο από 22.5 % ακετυλένιο (κατ' όγκο) και όχι περισσότερο από 6 % προπυλένιο (κατ' όγκο).

## D. Αέρια διαλυμένα υπό πίεση

9<sup>ο</sup> Καθαρά αέρια και τεχνικός-καθαρά αέρια(at) Αφλεκτα, τοξικά

Αμμωνία διαλυμένη σε νερό με περισσότερο από 35 % αλλά όχι περισσότερο από 40 % αμμωνία κατά βάρος, αμμωνία διαλυμένη σε νερό με περισσότερο από 40 % αλλά όχι περισσότερο από 50 % αμμωνία κατά βάρος.

**ΣΗΜΕΙΩΣΗ:** 2672 Διάλυμα αμμωνίας, σχετικής πυκνότητας μεταξύ 0.880 και 0.957 στους 15 °C σε νερό, με περισσότερο από 10 % αλλά όχι περισσότερο από 35 % αμμωνία, είναι ύλη της Κλάσης 8 [βλέπε περιθωριακό 2801, 43<sup>ο</sup> (c)].

(c) Χημικός ασταθής

Ακετυλένιο διαλυμένο σε διαλύτη (π.χ. ακετόνη) απορροφούμενο από πορώδεις ύλες.

## E. Διανεμητές αεροζόλ και μη-ξαναγεμιζόμενα εμπορευματοκιβώτια αερίου υπό πίεση [βλέπε επίσης περιθωριακό 2201a υπό στοιχείο (d)]

**ΣΗΜΕΙΩΣΗ 1:** Οι διανεμητές αεροζόλ είναι δοχεία τα οποία μπορούν να χρησιμοποιηθούν μόνο μία φορά, είναι εφοδιασμένα με βαλβίδα απελευθέρωσης ή μηχανισμό διασποράς και περιέχουν, υπό πίεση, αέριο ή μείγμα αερίων του περιθωριακού 2208 (2), ή περιέχουν ενεργή ύλη (εντομοκτόνο, καλλυντική ύλη κλπ.) μαζί με αέριο ή μείγμα αερίων ως προωθητική γόμωση.

**ΣΗΜΕΙΩΣΗ 2:** Μη-ξαναγεμιζόμενα εμπορευματοκιβώτια αερίου υπό πίεση είναι δοχεία τα οποία μπορούν να χρησιμοποιηθούν μόνο μία φορά και περιέχουν αέριο ή μείγμα αερίων του περιθωριακού 2208 (2) και (3) (π.χ. βουτάνιο για συσκευές μαγειρέματος κατασκευασμένων, ψυκτικά αέρια, κλπ.), αλλά δεν είναι εφοδιασμένα με βαλβίδα απελευθέρωσης.

**ΣΗΜΕΙΩΣΗ 3:** Ο όρος "εύφλεκτες ύλες" σημαίνει:

(i) Αέρια (προωθητική γόμωση διανεμητών αεροζόλ, περιεχόμενο μη-ξαναγεμιζόμενων εμπορευματοκιβωτίων αερίου υπό πίεση), των οποίων τα μείγματα με αέρα μπορούν να αναφλεγούν και έχουν κατώτερο και ανώτερο όριο ανάφλεξης.

(ii) Υγρά (ενεργές ύλες διανεμητών αεροζόλ) της Κλάσης 3.

**ΣΗΜΕΙΩΣΗ 4:** Ο όρος "χημικός ασταθής", εφαρμόζεται σε περιεχόμενο το οποίο ελλείπει ειδικών προφυλάξεων, υφίσταται επικίνδυνη αποσύνθεση ή αυτο-πολυμερισμό σε θερμοκρασία όχι μεγαλύτερη από 70 °C.

## Κλάση 2

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(συνεχ.)10° Διανεμητές αεροζόλ(a) Άφλεκτοι

Με άφλεκτο περιεχόμενο.

(at) Άφλεκτοι τοξικοί

Με άφλεκτο τοξικό περιεχόμενο.

(b) Εύφλεκτοι

1. Με όχι περισσότερο από 45 % εύφλεκτο περιεχόμενο κατά βάρος.

2. Με περισσότερο από 45 % εύφλεκτο περιεχόμενο κατά βάρος.

(bt) Εύφλεκτοι τοξικοί

1. Με τοξικό περιεχόμενο και όχι περισσότερο από 45 % εύφλεκτο περιεχόμενο κατά βάρος.

2. Με τοξικό περιεχόμενο και περισσότερο από 45 % εύφλεκτο περιεχόμενο κατά βάρος.

(c) Χημικώς ασταθείς

Με χημικώς-ασταθές περιεχόμενο.

(ct) Χημικώς ασταθείς, τοξικοί

Με χημικώς-ασταθές τοξικό περιεχόμενο.

11° Μη-ξαναγεμίζόμενα εμπορευματοκιβώτια αερίου υπό πίεση(a) Άφλεκτα

Με άφλεκτο περιεχόμενο.

(at) Άφλεκτα, τοξικά

Με άφλεκτο τοξικό περιεχόμενο.

(b) Εύφλεκτα

Με εύφλεκτο περιεχόμενο.

(bt) Εύφλεκτα, τοξικά

Με εύφλεκτο τοξικό περιεχόμενο.

(c) Χημικώς ασταθή

Με χημικώς-ασταθές περιεχόμενο.



## Κλάση 2

2201  
(συνεχ.)(ct) Χημικώς ασταθή, τοξικά

Με χημικώς-ασταθές τοξικό περιεχόμενο.

## F. Αέρια υποκείμενα σε ειδικούς όρους

12° Διάφορα μείγματα αερίων

Μείγματα περιέχοντα αέρια αναφερόμενα με άλλους αριθμούς είδους αυτής της Κλάσης και μείγματα ενός ή περισσότερων αερίων αναφερομένων με άλλους αριθμούς είδους αυτής της Κλάσης με έναν ή περισσότερους ατμούς υλών που δεν εξαιρούνται από τη μεταφορά σύμφωνα μ' αυτήν την Οδηγία, υπό τον όρο ότι κατά τη μεταφορά:

1. το μείγμα παραμένει πλήρως αεριοποιημένο και
2. αποκλείεται κάθε πιθανότητα επικίνδυνης αντίδρασης.

13° Αέρια δοκιμών

Αέρια και μείγματα αερίων μη αναφερόμενα με άλλους αριθμούς είδους αυτής της Κλάσης που χρησιμοποιούνται μόνο για εργαστηριακές δοκιμές, υπό τον όρο ότι κατά τη μεταφορά:

- (a) το αέριο ή μείγμα αερίων παραμένει πλήρως αεριοποιημένο και
- (b) αποκλείεται κάθε πιθανότητα επικίνδυνης αντίδρασης.

## G. Κενά δοχεία και κενές δεξαμενές

14° Κενά δοχεία, κενά οχήματα-δεξαμενές ή κενά εμπορευματοκιβώτια-δεξαμενές ακαθάριστα, τα οποία περιείχαν ύλες της Κλάσης 2.

**ΣΗΜΕΙΩΣΗ:** Δοχεία και δεξαμενές, οι οποίες μετά το άδειασμά τους από ύλες της κλάσης 2, περιέχουν ακόμη μικρές ποσότητες υπολειμμάτων, θεωρούνται κενά δοχεία ή κενές δεξαμενές, ακαθάριστες.

2201a Αέρια και είδη που παραδίδονται για μεταφορά σύμφωνα με τις παρακάτω διατάξεις, δεν υπόκεινται στους όρους ή τις διατάξεις τις σχετικές με αυτήν την Κλάση που ρυθμίζονται αλλού σ' αυτό το Παράρτημα ή στο Παράρτημα Β:

- (a) Πεπιεσμένα αέρια, τα οποία δεν είναι ούτε εύφλεκτα ούτε τοξικά ούτε διαβρωτικά και η πίεση των οποίων στο δοχείο, αναφερόμενη σε θερμοκρασία 15 °C, δεν υπερβαίνει τα 200 KPa (2 bar). Ο ίδιος κανόνας ισχύει για μείγματα αερίων περιέχοντα όχι περισσότερο από 2 % εύφλεκτα συστατικά.
- (b) Υγροποιημένα αέρια περιεχόμενα, σε ποσότητες όχι μεγαλύτερες από 60 λίτρα, ή σε ποσότητες μικρότερες από 5 λίτρα με όχι περισσότερο από 25 g υδρογόνο, μέσα σε ψυκτικές συσκευές (ψυγεία, μηχανές πάγου, κλπ.) και είναι απαραίτητα για τη λειτουργία τους. Αυτές οι ψυκτικές συσκευές πρέπει να προστατεύονται και να φορτώνονται με τέτοιο τρόπο, ώστε να αποφεύγεται η οποιαδήποτε αλλαγή στο ψυκτικό τους κύκλωμα.
- (c) Διοξείδιο του άνθρακα και υποξείδιο του αζώτου (N<sub>2</sub>O) της 5° (a) σε μεταλλικές κάψουλες (sodors, sparklets; cream capsules), εάν το διοξείδιο του άνθρακα και το υποξείδιο του αζώτου στην αεριοποιημένη κατάσταση δεν περιέχουν περισσότερο από 0.5% αέρα και οι κάψουλες περιέχουν όχι περισσότερο από 25 g διοξείδιο του άνθρακα ή υποξειδίου του αζώτου ανά cm<sup>3</sup> χωρητικότητας.
- (d) Είδη των 10° και 11° χωρητικότητας όχι μεγαλύτερης από 50 cm<sup>3</sup>. Κάθε κόλο ειδών, δεν θα πρέπει να ζυγίζει περισσότερο από 10 kg.

## Κλάση 2

- 2201a (e) Υγροποιημένα αέρια πετρελαίου περιεχόμενα σε δεξαμενές μηχανοκίνητων οχημάτων σταθερά στερεωμένες στα οχήματα. Η στρόφιγγα του καυσίμου μεταξύ της δεξαμενής και της μηχανής θα πρέπει να είναι κλειστή και η ηλεκτρική επαφή ανουκτιή.

## 2. Διατάξεις

## A. Κόλα

## I. Γενικοί όροι συσκευασίας

- 2202 (1) Τα υλικά από τα οποία είναι κατασκευασμένα τα δοχεία και τα κλεισίματά τους, δεν πρέπει να υπόκεινται σε προσβολή από το περιεχόμενο ή σε σχηματισμό βλαβερών ή επικίνδυνων ενώσεων με αυτά.

**ΣΗΜΕΙΩΣΗ:** Μέριμνα πρέπει να λαμβάνεται ώστε να μην επιτρέπεται η είσοδος υγρασίας στα δοχεία όταν γεμίζονται και τα δοχεία να στεγνώνουν πλήρως μετά τις δοκιμές υδραυλικής πίεσης (βλέπε περιθωριακό 2216) που γίνονται με νερό ή με υδατικά διαλύματα..

(2) Οι συσκευασίες, συμπεριλαμβανομένων των κλεισμάτων των, θα πρέπει να είναι επαρκώς άκαμπτες και γερές σε όλα τα μέρη τους, ώστε να αποφεύγεται οποιαδήποτε χαλάρωση κατά τη διάρκεια της μεταφοράς και να τηρούνται οι κανονικοί όροι της μεταφοράς. Όταν ορίζονται εξωτερικές συσκευασίες, τα δοχεία θα πρέπει να στερεώνονται στερεά μέσα σ' αυτές. Εκτός εάν ορίζεται διαφορετικά στο άρθρο με τίτλο "Συσκευασία μιας μόνης ύλης ή ειδών του ίδιου τύπου", οι εσωτερικές συσκευασίες μπορούν να κλείνονται μέσα σε εξωτερικές συσκευασίες, είτε μία - μία, είτε ομαδικά.

(3) Μεταλλικά δοχεία προοριζόμενα για τη μεταφορά αερίων των 1° έως 6° και της 9°, θα πρέπει να περιέχουν μόνο το αέριο για το οποίο δοκιμάστηκαν και του οποίου η ονομασία έχει γραφεί πάνω στο δοχείο [βλέπε περιθωριακό 2218 (1) (a)].

Ανακλήσεις επιτρέπονται:

1. Για μεταλλικά δοχεία δοκιμασμένα για μία από τις ύλες των 3° (a) ή 4° (a) ή για βρωμοτριφθορομεθάνιο, χλωροτριφθορομεθάνιο ή τριφθοριομεθάνιο της 5° (a). Τα δοχεία αυτά, μπορούν επίσης να γεμισθούν με κάποια άλλη ύλη των προαναφερθέντων ειδών, υπό τον όρο ότι η προβλεπόμενη για την ύλη αυτή ελάχιστη πίεση δοκιμής, δεν υπερβαίνει την πίεση δοκιμής του δοχείου και ότι η ονομασία της ύλης και το επιτρεπτόν μέγιστο βάρος γεμίματος γι' αυτήν, αναγράφονται πάνω στο δοχείο.
2. Για μεταλλικά δοχεία δοκιμασμένα για υδρογονάνθρακες των 3° (b) ή 4° (b). Τα δοχεία αυτά μπορούν επίσης να γεμισθούν με κάποιον άλλον υδρογονάνθρακα, υπό τον όρον ότι η προβλεπόμενη για την ύλη αυτή ελάχιστη πίεση δοκιμής, δεν υπερβαίνει τη πίεση δοκιμής του δοχείου και ότι η ονομασία της ύλης και το επιτρεπτόν μέγιστο βάρος γεμίματος γι' αυτήν, αναγράφονται πάνω στο δοχείο.

Για 1. και 2., βλέπε επίσης περιθωριακά 2215, 2218 (1) (a) και 2220, (1) έως (3).

(4) Αλλαγή της χρήσης που έχει ορισθεί για ένα δοχείο, επιτρέπεται καταρχήν εάν δεν αντιβαίνει στους εθνικούς κανονισμούς, απαιτείται όμως η έγκριση της αρμόδιας αρχής και η αντικατάσταση των προηγούμενων ενδείξεων με τις ενδείξεις τις σχετικές με τη νέα χρήση.

## Κλάση 2

## 2. Συσκευασία μίας μόνης ύλης ή ειδών του ίδιου τύπου

**ΣΗΜΕΙΩΣΗ:** Για διοξείδιο του άνθρακα και υποξείδιο του αζώτου της 7<sup>ο</sup> (a), μείγματα περιέχοντα διοξείδιο του άνθρακα και υποξείδιο του αζώτου της 8<sup>ο</sup> (a) και τα αέρια της 7<sup>ο</sup> (b) και 8<sup>ο</sup> (b), βλέπε Παράρτημα Β, περιθωριακό 21 105.

## a. Φύση των δοχείων

- 2203** (1) Δοχεία προοριζόμενα για τη μεταφορά αερίων των 1<sup>ο</sup> έως 6<sup>ο</sup>, 9<sup>ο</sup>, 12<sup>ο</sup> και 13<sup>ο</sup>, θα πρέπει να είναι έτσι κλεισμένα και στεγανά, ώστε να αποφεύγεται οποιαδήποτε διαρροή των αερίων.
- (2) Τα δοχεία αυτά θα πρέπει να είναι κατασκευασμένα από ανθρακούχο χάλυβα ή κράμα χάλυβα (ειδικό χάλυβες).

Τα παρακάτω μπορούν, εντούτοις, να χρησιμοποιούνται:

## (a) χάλκινα δοχεία για:

1. πεπιεσμένα αέρια των 1<sup>ο</sup>, (a), (b) και (bt), και 2<sup>ο</sup>, (a) και (b), των οποίων η πίεση γεμίματος αναφερόμενη σε θερμοκρασία 15 °C, δεν υπερβαίνει τα 2 MPa (20 bar) και
2. υγροποιημένα αέρια της 3<sup>ο</sup> (a), διοξείδιο του θείου της 3<sup>ο</sup> (at), διμεθυλαιθέρας της 3<sup>ο</sup> (b), αιθυλοχλωρίδιο και μεθυλοχλωρίδιο της 3<sup>ο</sup> (bt), βινυλοχλωρίδιο της 3<sup>ο</sup> (c), βινυλοβρωμίδιο της 3<sup>ο</sup> (ct), μείγματα F 1, F 2 και F 3 της 4<sup>ο</sup> (a), και αιθυλενοξείδιο περιέχον όχι περισσότερο από 10 % διοξείδιο του άνθρακα κατά βάρος της 4<sup>ο</sup> (ct)

## (b) δοχεία από κράμα αλουμινίου (βλέπε Προσθήκη A.2) για:

1. πεπιεσμένα αέρια της 1<sup>ο</sup>, (a), (b) και (bt), οξείδιο του αζώτου (μονοξείδιο το αζώτου) NO της 1<sup>ο</sup> (ct) και πεπιεσμένα της 2<sup>ο</sup>, (a), (b) και (bt),
2. υγροποιημένα αέρια της 3<sup>ο</sup> (a), διοξείδιο του θείου της 3<sup>ο</sup> (at), υγροποιημένα αέρια της 3<sup>ο</sup> (b) άλλα από το μεθυλοσιλάνιο, υδροσελήνιο και μεθυλομερκαπτάνη της 3<sup>ο</sup> (bt), αιθυλενοξείδιο της 3<sup>ο</sup> (ct), υγροποιημένα αέρια της 4<sup>ο</sup>, (a) και (b), αιθυλενοξείδιο περιέχον όχι περισσότερο από 10 % διοξείδιο του άνθρακα κατά βάρος, της 4<sup>ο</sup> (ct) και υγροποιημένα αέρια της 5<sup>ο</sup>, (a) και (b), και 6<sup>ο</sup>, (a) και (c). Διοξείδιο του θείου της 3<sup>ο</sup> (at) και ύλες της 3<sup>ο</sup> (a) και 4<sup>ο</sup> (a) θα πρέπει να είναι ξηρές και
3. διαλυμένο ακετυλένιο της 9<sup>ο</sup> (c).

Όλα τα αέρια τα οποία πρόκειται να μεταφερθούν σε δοχεία από κράμα αλουμινίου, θα πρέπει να είναι απαλλαγμένα από αλκαλικές ακαθαρσίες.

- 2204** (1) Τα δοχεία για διαλυμένο ακετυλένιο της 9<sup>ο</sup> (c), θα πρέπει να είναι πλήρως γεμάτα με πορώδες υλικό, ομοιόμορφα κατανομημένο, τύπου εγκεκριμένου από την αρμόδια αρχή και το οποίο

- (a) δεν προσβάλλει τα δοχεία και δεν σχηματίζει επιβλαβείς ή επικίνδυνες ενώσεις είτε με το ακετυλένιο είτε με τον διαλύτη,
- (b) δεν εκτινάσσεται, ακόμη και μετά από παρατεταμένη χρήση ή από τράνταγμα, σε θερμοκρασίες μέχρι 60 °C,
- (c) είναι ικανό να εμποδίσει την εξάπλωση της αποσυνθέσεως του ακετυλενίου στη μάζα.

## Κλάση 2

(2) Ο διαλύτης δεν θα πρέπει να προσβάλει τα δοχεία.

**2205** (1) Τα παρακάτω υγροποιημένα αέρια μπορούν, επιπλέον, να μεταφέρονται μέσα σε γυάλινους σωλήνες με χονδρά τοιχώματα, υπό τον όρον ότι η ποσότητα της ύλης σε κάθε σωλήνα και ο βαθμός πλήρωσης των σωλήνων, δεν υπερβαίνουν τις παρακάτω αναφερόμενες τιμές:

Όνομασίες αερίων	Ποσότητα ύλης	Βαθμός πλήρωσης του σωλήνα
Διοξείδιο του άνθρακα, υποξείδιο του αζώτου N <sub>2</sub> O της 5° (a) αιθάνιο, αιθυλένιο της 5° (b)	3 g	μισό της χωρητικότητας
Αμμωνία, χλωρίο, μεθυλοβρωμίδιο της 3° (at), κυκλοπροπάνιο της 3° (b), αιθυλόχλωριδίο της 3° (bt)	20 g	δύο τρίτα της χωρητικότητας
Φωσγένιο, διοξείδιο του θείου της 3° (at)	100 g	τρία τέταρτα της χωρητικότητας

(2) Οι γυάλινοι σωλήνες θα πρέπει να είναι στεγανοί κατά της φλόγας και ασφαλισμένοι χωριστά με γη διατόμων σε κλειστές κάψουλες από έλασμα, οι οποίες θα πρέπει να τοποθετούνται σε ξύλινο κιβώτιο ή σε κάποια άλλη εξωτερική συσκευασία κατάλληλης αντοχής (βλέπε επίσης περιθωριακό 2222).

(3) Για διοξείδιο του θείου της 3° (at), επιτρέπονται επίσης γερά γυάλινα σιφόνια περιέχοντα όχι περισσότερο από 1.5 kg ύλης και γεμάτα όχι περισσότερο από 88% της χωρητικότητάς τους. Τα σιφόνια θα πρέπει να ασφαλιζονται με γη διατόμων, πριονίδι ή κονιοποιημένο ανθρακικό ασβέστιο, ή με μείγμα των δύο τελευταίων, μέσα σε γερά ξύλινα κιβώτια ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg. Εάν ζυγίζει περισσότερο από 30 kg, θα πρέπει να είναι εφοδιασμένο με χειρολαβές.

**2206** (1) Αέρια των 3° (a), 3° (b) εκτός του μεθυλοσιλανίου, 3° (bt) εκτός της αρσίνης, του διχλωροσιλανίου, του διμεθυλοσιλανίου, του υδροσεληνίου και του τριμεθυλοσιλανίου, 3° (c), 3° (ci) εκτός του χλωροκυανιδίου και μείγματα της 4° (a) και 4° (b), μπορούν επίσης, υπό τον όρον ότι το βάρος του περιεχομένου ανά λίτρο υγρού, δεν υπερβαίνει είτε το μέγιστο βάρος του περιεχομένου όπως ορίζεται στο περιθωριακό 2220, είτε 150 g ανά σωλήνα, να περιληφθούν σε γυάλινους σωλήνες με χονδρό τοίχωμα, ή σε μεταλλικούς σωλήνες με χονδρό τοίχωμα κατασκευασμένους από μέταλλο επιτρεπόμενο από το περιθωριακό 2203 (2). Οι σωλήνες θα πρέπει να είναι απαλλαγμένοι από βλάβες που μπορούν να εξασθενήσουν την αντοχή τους. Ειδικότερα, οι εσωτερικές τάσεις των γυάλινων σωλήνων θα πρέπει να έχουν ελαττωθεί κατάλληλα και το πάχος των τοιχωμάτων του σωλήνα δε θα πρέπει να είναι μικρότερο από 2 mm. Η στεγανότητα του συστήματος κλεισίματος θα πρέπει να εξασφαλίζεται με πρόσθετο μηχανισμό (κάλυμμα, κορώνα, σφραγίδα, δέσιμο, κλπ.) ικανό να εμποδίζει οποιαδήποτε χαλάρωση του συστήματος κλεισίματος κατά τη διάρκεια της μεταφοράς. Οι σωλήνες θα πρέπει να ασφαλιζονται με αποσβεστικό υλικό σε μικρά κουτιά κατασκευασμένα από ξύλο ή ινώδη σανίδα, ο δε αριθμός των σωλήνων ανά κουτί θα πρέπει να είναι τέτοιος, ώστε το βάρος του υγρού του περιεχομένου στο κουτί μην υπερβαίνει τα 600 g. Τα μικρά αυτά κουτιά θα πρέπει να τοποθετούνται σε ξύλινα κιβώτια ή σε κάποια άλλη εξωτερική συσκευασία επαρκούς αντοχής. Εάν το υγρό περιεχόμενο του κιβωτίου ζυγίζει περισσότερο από 5 kg, το κιβώτιο θα πρέπει να επενδύεται με έλασμα μαλακής συγκόλλησης.

(2) Κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 75 kg.

**2207** (1) Τα αέρια της 7° και 8° θα πρέπει να κλείνονται σε μεταλλικά δοχεία τα οποία θα είναι έτσι μονωμένα, ώστε να μη μπορούν να επικαλυφθούν από δρόσο ή παγετό. Τα δοχεία θα πρέπει να είναι εφοδιασμένα με βαλβίδες ασφαλείας.

## Κλάση 2

(2) Τα αέρια της 7<sup>ο</sup> (a) εκτός του διοξειδίου του άνθρακα και της 8<sup>ο</sup> (a) εκτός των μειγμάτων που περιέχουν διοξείδιο του άνθρακα, μπορούν επίσης να κλείνονται σε δοχεία τα οποία δεν είναι ερμητικά κλεισμένα και τα οποία είναι:

(a) γυάλινα δοχεία διπλού τοιχώματος με μανδύα κενού, επενδεδυμένα με μία απορροφητική μονωτική ύλη. Τα δοχεία αυτά θα πρέπει να προστατεύονται με συρμάτινα καλάθια και να τοποθετούνται σε μεταλλικά κιβώτια, ή

(b) μεταλλικά δοχεία προστατευόμενα κατά της μετάδοσης της θερμότητας κατά τέτοιο τρόπο ώστε να μη μπορούν να επικαλυφθούν με δρόσο ή παγετό. Η χωρητικότητα των δοχείων αυτών δε θα πρέπει να υπερβαίνει τα 100 λίτρα.

(3) Τα μεταλλικά κιβώτια που αναφέρονται στο εδάφιο (2) (a) και τα δοχεία που αναφέρονται στο εδάφιο (2) (b) παραπάνω, θα πρέπει να είναι εφοδιασμένα με χειρολαβές. Τα ανοίγματα των δοχείων που αναφέρονται στα εδάφια (2) (a) και (b), θα πρέπει να είναι εφοδιασμένα με μηχανισμούς που θα επιτρέπουν στα αέρια να διαφεύγουν, εμποδίζοντας πιεσίλιμμα του υγρού και στερεωμένους έτσι ώστε να μην πέφτουν. Στην περίπτωση του οξυγόνου της 7<sup>ο</sup>(a) και μειγμάτων περιεχόντων οξυγόνο της 8<sup>ο</sup>(a), οι παραπάνω αναφερόμενοι μηχανισμοί και η απορροφητική μονωτική ύλη που περιβάλλει τα δοχεία που αναφέρεται στο εδάφιο (2)(a) θα πρέπει να είναι από άκαυστο υλικό.

**2208** (1) Οι διανεμητές αεροζόλ (10<sup>ο</sup>) και τα μη-ξαναγεμιζόμενα εμπορευματοκιβώτια για αέριο υπό πίεση (11<sup>ο</sup>), θα πρέπει να ικανοποιούν τους παρακάτω όρους:

(a) οι διανεμητές αεροζόλ που περιέχουν ένα μόνο αέριο ή μείγμα αερίων και τα μη-ξαναγεμιζόμενα εμπορευματοκιβώτια για αέριο υπό πίεση, θα πρέπει να είναι κατασκευασμένα από μέταλλο. Η διάταξη αυτή δε θα ισχύει για μη-ξαναγεμιζόμενα εμπορευματοκιβώτια για αέριο υπό πίεση με μέγιστη χωρητικότητα 100 ml για βουτάνιο. Άλλοι διανεμητές αεροζόλ θα μπορούν να είναι κατασκευασμένοι από μέταλλο, πλαστική ύλη ή γυαλί. Δοχεία κατασκευασμένα από μέταλλο και έχοντα εξωτερική διάμετρο όχι μικρότερη των 40 mm, θα πρέπει να έχουν κοίλο πυθμένα.

(b) δοχεία κατασκευασμένα από υλικά υποκείμενα σε θρυμματισμό, όπως το γυαλί ή ορισμένες πλαστικές ύλες, θα πρέπει να κλείνονται σε κάποια συσκευή (στενά πλεγμένο συρμάτινο δίχτυ, ευκαμπτο κάλυμμα κατασκευασμένο από πλαστική ύλη κλπ.) που θα παρέχει προστασία έναντι δημιουργίας και διασποράς θραυσμάτων. Δοχεία των οποίων η χωρητικότητα δεν υπερβαίνει τα 150 cm<sup>3</sup> και των οποίων η εσωτερική πίεση στους 20 °C είναι μικρότερη από 150 kPa (1.5 bar), εξαιρούνται από τον όρο αυτό.

(c) Η χωρητικότητα των δοχείων που είναι κατασκευασμένα από μέταλλο, δε θα πρέπει να υπερβαίνει τα 1000 cm<sup>3</sup>, ενώ των δοχείων που είναι κατασκευασμένα από πλαστική ύλη ή γυαλί δε θα πρέπει να υπερβαίνει τα 500 cm<sup>3</sup>.

(d) Κάθε μοντέλο δοχείου, προτού τεθεί σε υπήρεια, θα πρέπει να ικανοποιεί δοκιμή υδραυλικής πίεσης διεξαγόμενη σύμφωνα με την Προσθήκη A.2, περιθωριακό 3291. Η εσωτερική πίεση που θα εφαρμόζεται (πίεση δοκιμής), θα πρέπει να είναι 1.5 φορά την εσωτερική πίεση στους 50° C, με ελάχιστη πίεση 1 MPa (10 bar).

(e) Οι βαλβίδες απελευθέρωσης των διανεμητών αεροζόλ και οι μηχανισμοί διασποράς (διανομής) τους, θα πρέπει να εξασφαλίζουν για τους διανεμητές να είναι έτσι κλεισμένοι, ώστε να είναι στεγανοί και θα πρέπει να προστατεύονται από τυχαίο άνοιγμα. Οι βαλβίδες και οι μηχανισμοί διασποράς (διανομής) που κλείνουν μόνο με τη δράση της εσωτερικής πίεσης, δε θα πρέπει να γίνονται δεκτοί.

**2208**

(συνεχ.) (2) Τα παρακάτω αέρια θα γίνονται δεκτά ως προωθητές, ή ως συστατικά προωθητών, ή ως πληρωτικά αέρια, για διανεμητές αεροζόλ: αέρια της 1<sup>ο</sup>, (a) και (b), 2<sup>ο</sup>, (a) και (b), 3<sup>ο</sup>, (a) και (b) εκτός του μεθυλοσουλανίου, αιθυλοχλωρίδιο της 3<sup>ο</sup> (bt), 1,3 - βουταδιένιο της 3<sup>ο</sup> (c), τριφθοροχλωροαιθυλένιο

## Κλάση 2

της 3 (ct), αέρια της 4, (a), (b) και (c), αέρια της 5°, (a) και (b) εκτός του σιλανιού, αέρια της 5° (c) και 6 (a) και (c).

(3) Όλα τα αέρια της (2) και, επιπροσθέτως, τα παρακάτω αέρια, θα γίνονται δεκτά ως πληρωτικά αέρια για μη-ξαναγεμιζόμενα εμπορευματοκιβώτια για αέριο υπό πίεση: μεθυλοβρωμίδιο της 3 (at), διμεθυλαμίνη, αιθυλαμίνη, μεθυλαμίνη, μεθυλομερκαπτάνη και τριμεθυλαμίνη της 3° (bt), αιθυλονοξειδίο, μεθυλοβινυλαιθέρας και βινυλοβρωμίδιο της 3° (ct), αιθυλενοξειδίο περιέχον όχι περισσότερο από 10% διοξειδίο του άνθρακα κατά βάρος, της 4° (ci).

**2209** (1) Η εσωτερική πίεση στους 50 °C των διανεμητών αεροζόλ και των μη - ξαναγεμιζόμενων εμπορευματοκιβωτίων αερίου υπό πίεση, δεν θα πρέπει να υπερβαίνει ούτε τα δύο τρίτα της πίεσης δοκιμής του δοχείου, ούτε τα 1.2 MPa (12 bar).

(2) Οι διανεμητές αεροζόλ και τα μη - ξαναγεμιζόμενα εμπορευματοκιβώτια αερίου υπό πίεση, θα πρέπει να είναι έτοιμα γεμισμένα, ώστε στους 50 °C η υγρή φάση να μην υπερβαίνει το 95% της χωρητικότητάς τους. Η χωρητικότητα των διανεμητών αεροζόλ, είναι ο διαθέσιμος όγκος σε κλειστό διανεμητή εφοδιασμένο με το υποστήριγμα της βαλβίδας, την βαλβίδα και το σωλήνα εμβάπτισης.

(3) Όλοι οι διανεμητές αεροζόλ και τα μη - ξαναγεμιζόμενα εμπορευματοκιβώτια για αέριο υπό πίεση, θα πρέπει να ικανοποιούν δοκιμή στεγανότητας, σύμφωνα με την Προσθήκη A.2, περιθωριακό 3292.

**2210** (1) Οι διανεμητές αεροζόλ και τα μη - ξαναγεμιζόμενα εμπορευματοκιβώτια αερίου υπό πίεση θα πρέπει να τοποθετούνται σε ξύλινα κιβώτια ή γερή ινώδη σανίδα ή μεταλλικά κουτιά. Οι διανεμητές αεροζόλ που είναι κατασκευασμένοι από γυαλί ή πλαστική ύλη και υπόκεινται σε θρυμματισμό, θα πρέπει να διαχωρίζονται ο ένας από τον άλλον με ενδιάμεσα φύλλα από ινώδη σανίδα ή άλλη κατάλληλη ύλη.

(2) Κάθε κόλο δε θα πρέπει να ζυγίζει περισσότερο από 50 kg, εάν χρησιμοποιούνται κουτιά από ινώδη σανίδα, ή περισσότερο από 75 kg εάν χρησιμοποιούνται άλλα μέσα συσκευασίας.

(3) Σε περίπτωση μεταφοράς πλήρους φορτίου, οι μεταλλικοί διανεμητές αεροζόλ, μπορούν επίσης να συσκευάζονται ως εξής: οι διανεμητές μπορούν να ομαδοποιούνται σε μονάδες πάνω σε δίσκους και να κρατούνται στη θέση τους με κατάλληλο πλαστικό κάλυμμα. Οι μονάδες αυτές θα πρέπει να στοιβάζονται και να ασφαλιζονται κατάλληλα, πάνω σε παλέτες.

*b. Όροι που διέπουν τα μεταλλικά δοχεία*

(Οι όροι αυτοί δεν εφαρμόζονται στην περίπτωση των μεταλλικών σωλήνων που αναφέρονται στο περιθωριακό 2206, των δοχείων που αναφέρονται στο περιθωριακό 2207 (2) (b), ή των διανεμητών αεροζόλ ή μη-ξαναγεμιζόμενων μεταλλικών εμπορευματοκιβωτίων για αέριο υπό πίεση, που αναφέρονται στο περιθωριακό 2208).

1. Κατασκευή και εξαρτήματα (βλέπε επίσης περιθωριακό 2238).

**2211** (1) Στην πίεση δοκιμής, η τάση του μετάλλου στο σημείο της μεγαλύτερης τάσης του δοχείου (περιθωριακά 2215, 2219 και 2220) δεν θα πρέπει να υπερβαίνει τα τρία τέταρτα της εγγυημένης ελάχιστης τάσης απόδοσης (Re). Με τον όρο "τάση απόδοσης", εννοείται η τάση στην οποία παρήχθη μόνιμη επιμήκυνση κατά 2% (δηλ. 0.2%) ή, για χάλυβες με ωστενίτη, 1% του μήκους του πεζομέτρου πάνω στο τεμάχιο δοκιμής.

**ΣΗΜΕΙΩΣΗ:** Στην περίπτωση φύλλου μετάλλου (ελάσματος), ο άξονας του τεμαχίου δοκιμής αντοχής σε εφελκυσμό, θα πρέπει να είναι σε ορθές γωνίες προς τη κατεύθυνση της κλίσης. Η μόνιμη επιμήκυνση του θραύσματος (l=5 d) θα πρέπει να μετράται πάνω σε τεμάχιο δοκιμής κυκλικής διατομής, στο οποίο το μήκος του πεζομέτρου l είναι ίσο με πέντε φορές τη διάμετρο d. Εάν χρησιμοποιηθούν τεμάχια - δοκιμής ορθογώνιας διατομής, το μήκος του πεζομέτρου θα υπολογίζεται με τον τύπο

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1409

Κλάση 2

$$l = 5.65 \sqrt{F_0}$$

όπου  $F_0$  το αρχικό εμβαδόν της διατομής του δοχείου δοκιμής.

## Κλάση 2

- 2211** (2) (a) Χαλύβδινα δοχεία των οποίων η πίεση δοκιμής υπερβαίνει τα 60 MPa (6 bar), θα πρέπει να είναι κατασκευασμένα χωρίς ραφές, ή συγκολλημένα. Για συγκολλημένα δοχεία, θα πρέπει να χρησιμοποιούνται χάλυβες (ανθρακούχοι ή κράματα) πλήρως ικανοποιητικής ικανότητας συγκόλλησης.
- (b) Δοχεία των οποίων η πίεση - δοκιμής δεν υπερβαίνει τα 60 kg/cm<sup>2</sup>, θα πρέπει είτε να είναι σύμφωνα με τις διατάξεις του παραπάνω εδαφίου (a), είτε να είναι πριτσινωμένα, είτε να υποστούν σκληρή συγκόλληση, υπό τον όρον ότι ο κατασκευαστής εγγυάται την εργασία του πριτσινώματος και της σκληρής συγκόλλησης και ότι οι αρμόδιες αρχές της χώρας προέλευσης έχουν δώσει την έγκρισή τους.
- (3) Τα δοχεία από κράμα αλουμινίου, θα πρέπει να είναι χωρίς ραφές ή συγκολλημένα.
- (4) Συγκολλημένα δοχεία γίνονται δεκτά, μόνον υπό τον όρον ότι ο κατασκευαστής εγγυάται την ποιότητα της εργασίας της συγκόλλησης και ότι οι αρμόδιες αρχές της χώρας προέλευσης έχουν δώσει την έγκρισή τους.
- 2212** (1) Γίνεται διάκριση μεταξύ των παρακάτω τύπων δοχείων:
- (a) Κύλινδροι χωρητικότητας όχι μεγαλύτερης από 150 λίτρα.
- (b) Δοχεία με χωρητικότητα όχι μικρότερη από 100 λίτρα [με εξαίρεση των κυλίνδρων που είναι σύμφωνα με το εδάφιο (a)] και όχι μεγαλύτερη από 1.000 λίτρα (π.χ. κυλινδρικά δοχεία εφοδιασμένα με τέρκια (στεφάνες) σπειροειδείς και δοχεία σε πέλματα), με εξαίρεση των δοχείων που είναι σύμφωνα με το (e).
- (c) Δεξαμενές (βλέπε Παράρτημα Β).
- (d) Συγκροτήματα, γνωστά ως "πλαίσια", κυλίνδρων, σύμφωνα με το εδάφιο (1) (a), στα οποία οι κύλινδροι είναι συνδεδεμένοι μεταξύ τους με σωλήνωση και συγκρατούνται σταθερά μεταξύ τους με μεταλλικό εξάρτημα.
- (e) Δοχεία σύμφωνα με περιθωριακό 2207, με χωρητικότητα όχι μεγαλύτερη από 1000 λίτρα.
- (2) (a) Εάν, σύμφωνα με τους κανονισμούς της χώρας αναχώρησης, οι κύλινδροι που αναφέρονται στο εδάφιο (1) (a) είναι υποχρεωτικό να είναι εφοδιασμένοι με μηχανισμό πρόληψης της κύλισης, ο μηχανισμός αυτός δεν θα πρέπει να είναι αναπόσπαστος από το πόμα της βαλβίδας [περιθωριακό 2213 (2)].
- (b) Δοχεία σύμφωνα με το εδάφιο (1) (b), τα οποία είναι ικανά να κυλήσουν, θα πρέπει να είναι εφοδιασμένα με κυλιόμενες στεφάνες ή αλλιώς να προστατεύονται από ζημιές οφειλόμενες στη κύλιση (π.χ. με μέταλλο ανθεκτικό στη διάβρωση, ψεκασμένο πάνω στην εξωτερική επιφάνεια του δοχείου). Δοχεία σύμφωνα με τα εδάφια (1) (b) και (1) (c) τα οποία είναι ικανά να κυλήσουν, θα πρέπει να είναι εφοδιασμένα με μηχανισμούς (πέλματα, δακτύλιοι, ταινίες) που να εξασφαλίζουν ότι μπορούν ασφαλώς να χειρισθούν με μηχανικό μέσο και έτσι διευθετημένους, ώστε να μην εξασθενείται η αντοχή και να μην προκαλούνται αδικαιολόγητες τάσεις στο τοίχωμα του δοχείου.
- (c) Πλαίσια κυλίνδρων, σύμφωνα με το εδάφιο (1) (d), θα πρέπει να είναι εφοδιασμένα με μηχανισμούς που να εξασφαλίζουν ότι μπορούν να χειρισθούν ασφαλώς. Η σωλήνωση και ο κύριος κρουνός, θα πρέπει να βρίσκονται μέσα στο πλαίσιο και να είναι έτσι στερεωμένα ώστε να προστατεύονται από οποιασδήποτε ζημιά.
- (3) (a) Με εξαίρεση τα αέρια της 7<sup>ο</sup> και 8<sup>ο</sup>, τα αέρια της κλάσης 2, μπορούν να μεταφέρονται μέσα σε κυλίνδρους σύμφωνα με το εδάφιο (1) (a).



## Κλάση 2

2212  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ:** Για πιθανούς περιορισμούς στην χωρητικότητα των κολώνδρων για ορισμένα αέρια, βλέπε περιθωριακό 2219.

- (b) Με εξαίρεση τα: φθόριο, τριφθοριούχο άζωτο και τετραφθοριούχο πυρίτιο της 1<sup>ο</sup> (at), μονοξειδίο του αζώτου (NO) της 1<sup>ο</sup> (ct), μείγματα υδρογόνου με όχι περισσότερο από 10 % υδροσελήνιο ή φωσφίνη ή γερμανομεθάνιο κατ' όγκο ή με όχι περισσότερο από 15 % αρσίνη κατ' όγκο, μείγματα αζώτου ή σπάνιων αερίων (περιέχοντα όχι περισσότερο από 10 % ξένο κατ' όγκο) με όχι περισσότερο από 10 % υδροσελήνιο ή φωσφίνη ή γερμανομεθάνιο κατ' όγκο ή με όχι περισσότερο από 15 % αρσίνη κατ' όγκο της 2<sup>ο</sup> (bt), μείγματα υδρογόνου με όχι περισσότερο από 10 % διβοράνιο κατ' όγκο, μείγματα αζώτου ή σπάνιων αερίων (περιέχοντα όχι περισσότερο από 10 % ξένο κατ' όγκο) με όχι περισσότερο από 10 % διβοράνιο κατ' όγκο της 2<sup>ο</sup> (ct), οκταφθοροβουτένιο-2 (R 1318) και οκταφθοροπροπάνιο της 3<sup>ο</sup> (a), τριχλωριούχο βόριο, τριφθοριούχο χλώριο, εξαφθοροακετόνη, νιτροδυλοχλωρίδιο, σουλφουρυλοφθορίδιο και εξαφθοριούχο βολφράμιο της 3<sup>ο</sup> (at), 2,2-διμεθυλοπροπάνιο και μεθυλοσιλάνιο της 3<sup>ο</sup> (b), αρσίνη, καρβονυλοσουλφίδιο, διχλωροσιλάνιο, διμεθυλοσιλάνιο, υδροσελήνιο και τριμεθυλοσιλάνιο της 3<sup>ο</sup> (bt), προπαδιένιο, αδρανές, της 3<sup>ο</sup> (c), χλωροκυανίδιο, κυανογόνο, αιθυλενοξειδίο και υδροϊώδιο, άνυδρο, της 3<sup>ο</sup> (ct), μείγματα μεθυλοσιλανίων της 4<sup>ο</sup> (bt), προπαδιένιο με 1 % έως 4 % μεθυλοακετυλένιο, σταθεροποιημένο, της 4<sup>ο</sup> (c), αιθυλενοξειδίο περιέχον όχι περισσότερο από 50 % μυρμηκικό μεθυλεστέρα κατά βάρος, της 4<sup>ο</sup> (ct), υποξειδίο του αζώτου της 5<sup>ο</sup> (a), σιλάνιο της 5<sup>ο</sup> (b), και ύλες της 5<sup>ο</sup> (bt), 5<sup>ο</sup> (ct), 7<sup>ο</sup>, 8<sup>ο</sup>, 12<sup>ο</sup> και 13<sup>ο</sup>, αέρια της κλάσης 2 μπορούν να μεταφερθούν σε δοχεία σύμφωνα με το εδάφιο (1) (b).
- (c) Με εξαίρεση τα: τριφθοριούχο άζωτο και τετραφθοριούχο πυρίτιο της 1<sup>ο</sup> (at), μονοξειδίο του αζώτου της 1<sup>ο</sup> (ct), μείγματα υδρογόνου με όχι περισσότερο από 10 % υδροσελήνιο ή φωσφίνη ή γερμανομεθάνιο κατ' όγκο ή με όχι περισσότερο από 15 % αρσίνη κατ' όγκο, μείγματα αζώτου ή σπάνιων αερίων (περιέχοντα όχι περισσότερο από 10 % ξένο κατ' όγκο) με όχι περισσότερο από 10 % υδροσελήνιο ή φωσφίνη ή γερμανομεθάνιο κατ' όγκο ή με όχι περισσότερο από 15 % αρσίνη κατ' όγκο της 2<sup>ο</sup> (bt), μείγματα υδρογόνου με όχι περισσότερο από 10 % διβοράνιο κατ' όγκο, μείγματα αζώτου ή σπάνιων αερίων (περιέχοντα όχι περισσότερο από 10 % ξένο κατ' όγκο) με όχι περισσότερο από 10 % διβοράνιο κατ' όγκο της 2<sup>ο</sup> (ct), οκταφθοροβουτένιο-2 (R 1318) και οκταφθοροπροπάνιο της 3<sup>ο</sup> (a), τριχλωριούχο βόριο, τριφθοριούχο χλώριο, νιτροδυλοχλωρίδιο, εξαφθοροακετόνη, σουλφουρυλο-χλωρίδιο και εξαφθοριούχο βολφράμιο της 3<sup>ο</sup> (at), 2,2-διμεθυλοπροπάνιο και μεθυλοσιλάνιο της 3<sup>ο</sup> (b), αρσίνη, καρβονυλοσουλφίδιο, διχλωροσιλάνιο, διμεθυλο-σιλάνιο, υδροσελήνιο και τριμεθυλοσιλάνιο της 3<sup>ο</sup> (bt), προπαδιένιο, αδρανές, της 3<sup>ο</sup> (c), χλωροκυανίδιο, κυανογόνο, αιθυλενοξειδίο και υδροϊώδιο, άνυδρο της 3<sup>ο</sup> (ct), μείγματα μεθυλοσιλανίων της 4<sup>ο</sup> (bt), ύλες της 4<sup>ο</sup> (c) και 4<sup>ο</sup> (ct), υποξειδίο του αζώτου της 5<sup>ο</sup> (a), σιλάνιο της 5<sup>ο</sup> (b), και ύλες της 5<sup>ο</sup> (bt), 5<sup>ο</sup> (ct), 7<sup>ο</sup>, 8<sup>ο</sup>, 12<sup>ο</sup> και 13<sup>ο</sup>, αέρια της κλάσης 2 μπορούν να μεταφερθούν μέσα σε πλαίσια κολώνδρων σύμφωνα με το εδάφιο (1) (d). Κάθε κολώνδρος μέσα σε ένα πλαίσιο κολώνδρων θα πρέπει να περιέχει μόνο ένα και το ίδιο πεπιεσμένο αέριο, υγροποιημένο αέριο ή αέριο διαλυμένο υπό πίεση. Κάθε κολώνδρος σε ένα πλαίσιο κολώνδρων για φθόριο της 1<sup>ο</sup> (at) ή διαλυμένο ακετυλένιο της 9<sup>ο</sup> (c) θα πρέπει, παρ' όλα αυτά, να είναι εφοδιασμένος με κρουνό. Οι κολώνδροι σε ένα πλαίσιο κολώνδρων για ακετυλένιο, θα πρέπει όλοι να περιέχουν το ίδιο πορώδες υλικό (περιθωριακό 2204).
- (d) Για δοχεία σύμφωνα με το (1) (e), βλέπε περιθωριακό 2207.

2213

(1) Τα ανοίγματα για γέμισμα και άδειασμα δοχείων θα πρέπει να είναι εφοδιασμένα με βαλβίδες τύπου θυρίδας ή βελονοειδείς βαλβίδες. Βαλβίδες άλλων τύπων μπορούν να γίνουν, όμως, δεκτές εάν παρέχουν ίδιες εγγυήσεις ασφαλείας και έχουν εγκριθεί στη χώρα προέλευσης. Παρ' όλα αυτά, οποιοσδήποτε τύπος βαλβίδας υιοθετηθεί, το σύστημα προσαρτήσεώς της πρέπει να είναι γερό και τέτοιο ώστε η ικανοποιητική της κατάσταση να επαληθεύεται εύκολα πριν από κάθε γέμισμα.

## Κλάση 2

**2213** (συνεχ.) Εκτός από την ανθρωποθυρίδα, η οποία, εάν παρέχεται, θα είναι κλειστή με αποτελεσματικό κλείσιμο (κάλυμμα) και τις απαραίτητες οπές για την αφαίρεση των ιζημάτων, τα δοχεία και οι δεξαμενές σύμφωνα με το περιθωριακό 2212 (1) (b) και (c), θα πρέπει να είναι εφοδιασμένα με περισσότερα από δύο ανοίγματα, για γέμισμα και άδειασμα αντίστοιχα. Εντούτοις, δοχεία χωρητικότητας όχι μικρότερης από 100 λίτρα προοριζόμενα για τη μεταφορά διαλυμένου ακετυλενίου της 9<sup>ο</sup> (c), μπορούν να έχουν περισσότερα από δύο ανοίγματα (οπές) για γέμισμα και άδειασμα.

Ομοίως, δοχεία και δεξαμενές σύμφωνα με το περιθωριακό 2212 (1), (b) και (c), προοριζόμενα για τη μεταφορά των υλών της 3<sup>ο</sup> (b) και 4<sup>ο</sup> (b), μπορούν να διαθέτουν και άλλα ανοίγματα, προοριζόμενα ειδικότερα για την επαλήθευση της στάθμης του υγρού και της πίεσης του πιεζομέτρου.

(2) Οι βαλβίδες (κρουνοί) θα πρέπει να προστατεύονται αποτελεσματικά με πώματα ή μόνιμες φλάντζες. Τα πώματα θα πρέπει να διαθέτουν οπές αερισμού επαρκούς διατομής για την εκκένωση των αερίων σε περίπτωση διαρροής στις βαλβίδες. Τα πώματα ή οι φλάντζες θα πρέπει να προστατεύουν επαρκώς τη βαλβίδα εάν ο κύλινδρος πέσει κατά τη διάρκεια της μεταφοράς και στοιβασίας. Για βαλβίδες τοποθετημένες εσωτερικά του λαμού των δοχείων και προστατευόμενες από κοχλιοτό πώμα και δοχεία που μεταφέρονται συσκευασμένα σε προστατευτικά κιβώτια, δε θα απαιτείται πώμα. Ομοίως, δεν θα απαιτείται προστατευτικό πώμα για βαλβίδες (κρουνοί) σε πλαίσια κυλίνδρων.

(3) Δοχεία περιέχοντα φθόριο της 1<sup>ο</sup> (at), τριφθοριούχο χλώριο της 3<sup>ο</sup> (at), ή χλωροκτανίδιο της 3<sup>ο</sup> (ct), ανεξαρτήτως εάν μεταφέρονται ή όχι συσκευασμένα σε προστατευτικά κιβώτια, θα πρέπει να είναι εφοδιασμένα με πώματα από χάλυβα. Τα πώματα αυτά δε θα έχουν ανοίγματα και, καθ' όλη τη διάρκεια της μεταφοράς, θα είναι εφοδιασμένα με παρέμβυσμα, που θα εξασφαλίζει την αέριο - στεγανότητα και θα είναι κατασκευασμένο από υλικό που δεν κινδυνεύει να προσβληθεί από το περιεχόμενο του δοχείου.

**2214** (1) Στην περίπτωση δοχείων που περιέχουν τριφθοριούχο βόριο ή φθόριο της 1<sup>ο</sup> (at), τριφθοριούχο χλώριο ή υγροποιημένη αμμωνία της 3<sup>ο</sup> (at), αμμωνία διαλυμένη στο νερό της 9<sup>ο</sup> (at), νιτροδυσλχωρίδιο της 3<sup>ο</sup> (at), ή διμεθυλαμίνη, αιθυλαμίνη, μεθυλαμίνη ή τριμεθυλαμίνη της 3<sup>ο</sup> (bt), βαλβίδες κατασκευασμένες από χαλκό ή οποιοδήποτε άλλο μέταλλο που θα μπορούσε να προσβληθεί από τα αέρια, αυτά δε θα γίνονται δεκτές.

(2) Η χρήση υλικών που περιέχουν λίπος ή λάδι για την εξασφάλιση της στεγανότητας των ενώσεων (ραφών) ή για τη συντήρηση των μηχανισμών κλεισίματος των δοχείων που χρησιμοποιούνται για οξυγόνο της 1<sup>ο</sup> (a), φθόριο της 1<sup>ο</sup> (at), μείγματα με οξυγόνο της 2<sup>ο</sup> (a), διοξείδιο του αζώτου, τριφθοριούχο χλώριο της 3<sup>ο</sup> (at), υποξείδιο του αζώτου της 5<sup>ο</sup> (a), ή μείγματα της 12<sup>ο</sup> περιέχοντα περισσότερο από 10% οξυγόνο κατ' όγκο, απαγορεύεται.

(3) Οι παρακάτω όροι θα πρέπει να ισχύουν για την κατασκευή των δοχείων που αναφέρονται στο περιθωριακό 2207 (1):

(a) Τα υλικά και η κατασκευή των δοχείων, θα πρέπει να είναι σύμφωνα με τους όρους της Προσθήκης A.2, B, περιθωριακά 3250 έως 3254. Όλα τα μηχανικά και τεχνολογικά χαρακτηριστικά του χρησιμοποιηθέντος υλικού θα πρέπει να καθορίζονται για κάθε δοχείο κατά την πρώτη δοκιμή, αναφορικά με την αντοχή σε κρούση και το συντελεστή κάμψης. Βλέπε Προσθήκη A.2, B, περιθωριακά 3265 έως 3285.

(b) Τα δοχεία θα πρέπει να είναι εφοδιασμένα με βαλβίδα ασφαλείας η οποία θα είναι ικανή να ανοίγει στη καθορισμένη πίεση λειτουργίας, που αναφέρεται πάνω στο δοχείο. Οι βαλβίδες θα πρέπει να είναι έτσι κατασκευασμένες, ώστε να λειτουργούν άριστα ακόμη και στην χαμηλότερη θερμοκρασία λειτουργίας. Η αξιοπιστία της λειτουργίας τους στη θερμοκρασία αυτή θα καθορίζεται και ελέγχεται με δοκιμή κάθε βαλβίδας ή δείγματος βαλβίδων του ίδιου τύπου κατασκευής.

## Κλάση 2

**2214**  
(συνεχ.)

- (c) Οι σπές αερισμού και οι βαλβίδες ασφαλείας των δοχείων, θα πρέπει να έχουν σχεδιασθεί έτσι, ώστε να εμποδίζουν το πτώσιμα του υγρού.
- (d) Οι μηχανισμοί κλεισίματος, θα πρέπει να είναι έτσι ρυθμισμένοι, ώστε να μην είναι δυνατό το άνοιγμά τους από αναρμόδια πρόσωπα.
- (e) Δοχεία των οποίων το γέμισμα μετράται κατ' όγκον, θα πρέπει να διαθέτουν δείκτη στάθμης.
- (f) Τα δοχεία θα πρέπει να είναι θερμικά μονωμένα. Η θερμική μόνωση θα πρέπει να προστατεύεται έναντι της κρούσης, με συνεχή μεταλλική επένδυση. Εάν ο χώρος μεταξύ του δοχείου και της μεταλλικής επένδυσης δεν περιέχει αέρα (μόνωση υπό κενό), η προστατευτική επένδυση θα πρέπει να σχεδιαστεί έτσι ώστε να αντέχει χωρίς παραμόρφωση σε εξωτερική πίεση τουλάχιστον 100 KPa (1 bar). Εάν η επένδυση έχει έτσι κλεισθεί, ώστε να είναι αέριο-στεγής (π.χ. στη περίπτωση της μόνωσης υπό κενό), θα πρέπει να διατίθεται μηχανισμός ο οποίος να εμποδίζει την ανάπτυξη οποιασδήποτε επικίνδυνης πίεσης στο μονωτικό στρώμα, σε περίπτωση ακατάλληλης αέριο - στεγανότητας του δοχείου ή των εξαρτημάτων του. Ο μηχανισμός θα πρέπει να εμποδίζει την υγρασία να εισχωρήσει στη μόνωση.

(4) Στην περίπτωση δοχείων περιεχόντων μείγματα της P1 ή P2 της 4<sup>ο</sup> (c), μείγμα αιθυλενίου με ακετυλένιο και προπυλένιο της 8<sup>ο</sup> (b) ή διαλυμένο ακετυλένιο της 9<sup>ο</sup> (c), τα μεταλλικά τμήματα των μηχανισμών κλεισίματος που έρχονται σε επαφή με το περιεχόμενο, δεν θα πρέπει να περιέχουν περισσότερο από 70% χαλκό. Δοχεία για διαλυμένο ακετυλένιο της 9<sup>ο</sup> (c), μπορούν επίσης να διαθέτουν ατμοφράκτες.

(5) Δοχεία περιέχοντα οξυγόνο των 1<sup>ο</sup> (a) έως 7<sup>ο</sup> (a) και εφαρμοσμένα σε ιχθυοδεξαμενές, θα γίνονται ομοίως δεκτά, εάν διαθέτουν συσκευές παρέχουσες στο οξυγόνο τη δυνατότητα να διαφεύγει βαθμιαία.

2. Επίσημος έλεγχος δοχείων (για δοχεία από κράμα αλουμινίου, βλέπε επίσης Προσθήκη A.2)

**2215**

(1) Τα μεταλλικά δοχεία θα πρέπει να υποβάλλονται σε αρχικούς και περιοδικούς ελέγχους υπό την επίβλεψη εμπειρογνώμονα εγκεκριμένου από την αρμόδια αρχή. Η φύση των ελέγχων αυτών, καθορίζεται στα περιθωριακά 2216 και 2217.

(2) Για να εξασφαλισθεί ότι τηρούνται οι διατάξεις των περιθωριακών 2204 και 0221 (2), οι έλεγχοι των δοχείων που προορίζονται να περιέχουν διαλυμένο ακετυλένιο της 9<sup>ο</sup> (c), θα πρέπει να περιλαμβάνουν, επιπλέον, εξέταση της φύσης του πορώδους υλικού και της ποσότητας του διαλύτη.

**2216**

(1) Ο αρχικός έλεγχος καινούργιων ή αμεταχειριστων δοχείων, θα πρέπει να περιλαμβάνει:

A. Για κατάλληλο δείγμα δοχείων:

- (a) Έλεγχο του υλικού κατασκευής, τουλάχιστον σε σχέση με την τάση απόδοσης, την αντοχή σε εφελκυσμό και τη μόνιμη επιμήκυνση του θραύσματος. Οι τιμές που προκύπτουν από αυτούς τους ελέγχους, θα πρέπει να συμφωνούν με τους εθνικούς κανονισμούς.
- (b) Μέτρηση του πάχους στο λεπτότερο σημείο του τοιχώματος και υπολογισμός της τάσης.
- (c) Έλεγχο της ομοιογένειας του υλικού για κάθε παρτίδα κατασκευής και επιθεώρηση της εξωτερικής και εσωτερικής κατάστασης των δοχείων.

## Κλάση 2

2216 B. Για όλα τα δοχεία:  
(συνεχ.)

- (d) Έλεγχο υδραυλικής πίεσης, σύμφωνα με τις διατάξεις των περιθωριακών 2219 - 2221.

**ΣΗΜΕΙΩΣΗ:** Με τη σύμφωνη γνώμη του εμπειρογνώμονα που είναι εγκεκριμένος από την αρμόδια αρχή, ο έλεγχος υδραυλικής πίεσης, μπορεί να αντικατασταθεί από έλεγχο με τη χρήση αερίου, όπου μία τέτοια ενέργεια δεν συνεπάγεται κανέναν κίνδυνο.

- (e) Επιθεώρηση των ενδείξεων πάνω στα δοχεία (βλέπε περιθωριακό 2218).

C. Επιπλέον, για δοχεία προορισμένα για τη μεταφορά διαλυμένου ακετυλενίου της 9° (c):

- (f) Επιθεώρηση όπως απαιτείται από τους εθνικούς κανονισμούς.

(2) Τα δοχεία θα πρέπει να αντέχουν στη πίεση ελέγχου χωρίς να υφίστανται μόνιμη παραμόρφωση ή να παρουσιάζουν ρωγμές.

(3) Στις περιοδικές επιθεωρήσεις, θα πρέπει να επαναλαμβάνονται τα παρακάτω: ο έλεγχος υδραυλικής πίεσης, έλεγχος της εξωτερικής και εσωτερικής κατάστασης του δοχείου (π.χ. με ζύγισμα, εσωτερική επιθεώρηση, έλεγχος του πάχους του τοιχώματος), επαλήθευση του εξοπλισμού και των ενδείξεων και, εάν χρειασθεί, επαλήθευση των χαρακτηριστικών του υλικού με κατάλληλους ελέγχους.

**ΣΗΜΕΙΩΣΗ:** Με τη σύμφωνη γνώμη του εμπειρογνώμονα που έχει εγκριθεί από την αρμόδια αρχή, ο έλεγχος υδραυλικής πίεσης μπορεί να αντικατασταθεί από μία ισοδύναμη μέθοδο βασισμένη στους υπερήχους..

Περιοδικές επιθεωρήσεις θα πρέπει να διεξάγονται:

- (a) Κάθε 2 χρόνια στην περίπτωση των δοχείων που προορίζονται για τη μεταφορά αερίων της 1° (at) και 1° (ct), αέριο πόλης της 2° (bt), αέρια της 3° (at) εκτός της αμμωνίας, εξαφθοροπροπυλένιο και μεθυλοβρωμίδιο, χλωροκυανίδιο της 3° (ct), και ύλης της 5° (at).
- (b) Κάθε 5 χρόνια στην περίπτωση των δοχείων που προορίζονται για τη μεταφορά άλλων πεπεσμένων και υγροποιημένων αερίων (με την επιφύλαξη των διατάξεων του παρακάτω εδαφίου (c)) και δοχείων για τη μεταφορά αμμωνίας διαλυμένης υπό πίεση της 9° (at).
- (c) Κάθε 10 χρόνια στην περίπτωση των δοχείων που προορίζονται για τη μεταφορά αερίων της 1° (a) εκτός του οξυγόνου, μειγμάτων αζώτου με σπάνια αέρια, της 2° (a), αερίων της 3° (a) και 3° (b) εκτός του 1-χλωρο-1,1-διφθοροαιθάνιου, 1,1-διφθοροαιθάνιου, διμεθυλαιθέρα, μεθυλοσιλάνιου και 1,1,1-τριφθοροαιθάνιου, και μειγμάτων αερίων της 4° (a) και 4° (b), εάν τα δοχεία έχουν χωρητικότητα όχι μεγαλύτερη από 150 λίτρα και η χώρα προέλευσης δεν προβλέπει μικρότερο χρονικό διάστημα.
- (d) Στην περίπτωση των δοχείων που προορίζονται για τη μεταφορά διαλυμένου ακετυλενίου της 9° (c), το περιθωριακό 2217 (1) θα ισχύει και στην περίπτωση των δοχείων που είναι σύμφωνα με το περιθωριακό 2207(1), το περιθωριακό 2217 (2) θα ισχύει.

2217 (1) Η εξωτερική κατάσταση (διάβρωση, παραμόρφωση) και η κατάσταση (χαλάρωση, καθίζηση) του πορώδους υλικού σε δοχεία προοριζόμενα για τη μεταφορά διαλυμένου ακετυλενίου της 9° (c), θα πρέπει να ελέγχονται κάθε 5 χρόνια. Η δειγματοληψία θα εκτελείται με κοπή, εάν θεωρηθεί απαραίτητο, κατάλληλου αριθμού δοχείων και επιθεώρησής τους εσωτερικά για διάβρωση και για οποιοδήποτε αλλαγές που ενδέχεται να προέκυψαν στα συστατικά υλικά και το πορώδες υλικό.

## Κλάση 2

2217 (2) Τα δοχεία που είναι σύμφωνα με το περιθωριακό 2207(1), θα πρέπει να υποβάλλονται κάθε 5 χρόνια σε εξωτερική επιθεώρηση και σε έλεγχο της στεγανότητας. Ο έλεγχος στεγανότητας θα διεξάγεται με το αέριο που περιέχει το δοχείο ή με αδρανές αέριο σε πίεση 0,2 MPa (2 bar). Ο έλεγχος θα εκτελείται με πιεζόμετρο ή με μέτρηση με κενό. Η θερμική μόνωση δε θα πρέπει να αφαιρείται. Η πίεση δε θα πρέπει να μειώνεται κατά τη διάρκεια της 8-ωρης περιόδου ελέγχου. Αλλαγές που απορρέουν από τη φύση του αερίου δοκιμής (ελέγχου) ή από τη διακύμανση της θερμοκρασίας, θα λαμβάνονται υπ' όψη.

(3) Οι κύλινδροι που αναφέρονται στο περιθωριακό 2212 (1) (a) μπορούν να μεταφερθούν μετά τη λήξη του χρονικού ορίου που έχει τεθεί για τον περιοδικό έλεγχο που ορίζεται περιθωριακό 2215, με σκοπό τη διεξαγωγή του ελέγχου.

## 3. Ενδείξεις πάνω στα δοχεία

2218 (1) Τα μεταλλικά δοχεία θα πρέπει να φέρουν τα παρακάτω στοιχεία με καθαρούς ευανάγνωστους και διαρκείας χαρακτήρες:

(a) Μία από τις ονομασίες του αερίου ή του μείγματος αερίων, πλήρη, όπως δίνεται ιστο περιθωριακό 2201, 1° έως 9°, την επωνυμία ή το σήμα του κατασκευαστή ή ιδιοκτήτη και τον αριθμό του δοχείου [βλέπε επίσης περιθωριακό 2202 (3)]. Στην περίπτωση αλογονωμένων υδρογονανθράκων της 1° (a), 3° (a), 3° (at), 3° (b), 3° (ct), 4° (a), 5° (a) και 6° (a), επιτρέπεται επίσης η χρήση του γράμματος R, ακολουθούμενου από τον αριθμό αναγνώρισης της ύλης.

(b) Το απόβαρο του δοχείου, χωρίς εξαρτήματα και συμπληρώματα.

(c) Επιπλέον, στην περίπτωση που τα δοχεία προορίζονται για υγροποιημένα αέρια, το απόβαρο του δοχείου, συμπεριλαμβανομένων ορισμένων εξαρτημάτων και συμπληρωμάτων όπως βαλβίδων, μεταλλικών παωμάτων κλπ., εκτός του προστατευτικού καλύμματος.

*ΣΗΜΕΙΩΣΗ στις (b) και (c): Αντά τα στοιχεία βάρους, στην περίπτωση που δεν αναγράφονται ήδη πάνω στο δοχείο, θα πρέπει να αναγραφούν έτσι κατά τον επόμενο περιοδικό έλεγχο.*

(d) Την πίεση δοκιμής (βλέπε περιθωριακά 2219 έως 2221) και την ημερομηνία (μήνα, έτος) της τελευταίας δοκιμής (ελέγχου) που έγινε (βλέπε περιθωριακά 2216 και 2217).

(e) Τη σφραγίδα του εμπειρογνώμονα που διεξήγαγε τους ελέγχους και τις επιθεωρήσεις και, επιπλέον,

(f) στην περίπτωση πεπιεσμένων αερίων ή μειγμάτων πεπιεσμένων αερίων της 1°, 2°, 12° και 13° : την μέγιστη πίεση πλήρωσης στους 15°C που επιτρέπεται για το συγκεκριμένο δοχείο (βλέπε περιθωριακό 2219).

(g) Στην περίπτωση τριφθοριούχου βορίου της 1° (at), υγροποιημένων αερίων των 3° έως 6° και αμμωνίας διαλυμένης στο νερό της 9° (at): το επιτρεπόμενο ανάτοπο γέμισμα, και τη χωρητικότητα. Στην περίπτωση βαθιά κατεψυγμένων αερίων των 7° και 8°: τη χωρητικότητα.

(h) Στην περίπτωση ακετυλενίου διαλυμένου σε διαλύτη της 9° (c): την επιτρεπόμενη πίεση πλήρωσης [βλέπε περιθωριακό 2221 (2)] και το βάρος του κενού δοχείου, συμπεριλαμβανομένου του βάρους των εξαρτημάτων και παρακολουθημάτων, του πορώδους υλικού, και του διαλύτη.

## Κλάση 2

2118  
(συνεχ.)

- (i) Στην περίπτωση μειγμάτων αερίων της 12° και αερίων δοκιμών (ελέγχων) της 13°, οι λέξεις "μείγματα αερίων" ή "αέρια ελέγχων", ανάλογα με την περίπτωση, θα χαράσσονται στο δοχείο σαν γενική ένδειξη του περιεχομένου. Ακριβής περιγραφή του περιεχομένου θα πρέπει να εικονίζεται με ανθεκτικό τρόπο, καθ' όλη τη διάρκεια της μεταφοράς.
- (k) Στην περίπτωση μεταλλικών δοχείων τα οποία, σύμφωνα με το περιθωριακό 2202 (3), γίνονται δεκτά για τη μεταφορά ενός αριθμού διαφορετικών αερίων (δοχεία πολλαπλής χρήσεως), ακριβής περιγραφή του περιεχομένου θα πρέπει να εικονίζεται με ανθεκτικό τρόπο καθ' όλη τη διάρκεια της μεταφοράς.

(2) Οι ενδείξεις θα πρέπει να χαράσσονται είτε πάνω σε κάποιο ενισχυμένο τμήμα του δοχείου, είτε πάνω σε κάποιο δακτύλιο, είτε πάνω σε πλάκα δεδομένων, τοποθετημένη σταθερά πάνω στο δοχείο. Επιπλέον, η ονομασία της ύλης μπορεί να αναφέρεται πάνω στο δοχείο με ευκρινώς ορατή επιγραφή με βαφή ή οποιαδήποτε άλλη ισοδύναμη μέθοδο.

c. Πίεση δοκιμής, βαθμός πλήρωσης και όριο χωρητικότητας των δοχείων (βλέπε επίσης περιθωριακά 2238, 211 180, 211 184 και 212 180).

2219

(1) Στην περίπτωση δοχείων προοριζόμενων για τη μεταφορά πεπιεσμένων αερίων των 1°, 2° και 12°, η εσωτερική πίεση (πίεση δοκιμής) που πρέπει να εφαρμοστεί για τον έλεγχο υδραυλικής πίεσης, θα πρέπει να είναι τουλάχιστον μιάμιση φορά την πίεση πλήρωσης στους 15°C που αναφέρεται πάνω στο δοχείο, αλλά όχι μικρότερη από 1 MPa (10 bar).

(2) Στην περίπτωση δοχείων προοριζόμενων για τη μεταφορά υλών της 1° (a) εκτός των τετραφθορομεθανίου, δευτερίου και υδρογόνου της 1°(b), ή αερίων της 2°(a), η πίεση πλήρωσης δεν θα πρέπει να υπερβαίνει τα 30 MPa (300 bar) αναφερόμενα σε θερμοκρασία 15°C. Στην περίπτωση δεξαμενών, η πίεση πλήρωσης δεν θα πρέπει να υπερβαίνει τα 25 MPa (250 bar), αναφερόμενα σε θερμοκρασία 15°C.

Στην περίπτωση δοχείων και δεξαμενών προοριζόμενων για τη μεταφορά άλλων αερίων των 1° και 2°, η πίεση πλήρωσης δεν θα πρέπει να υπερβαίνει τα 20 MPa (200 bar), αναφερόμενα σε θερμοκρασία 15°C.

(3) Στην περίπτωση δοχείων προοριζόμενων για τη μεταφορά φθορίου της 1° (at) η εσωτερική πίεση (πίεση ελέγχου) που πρέπει να εφαρμοστεί για τον έλεγχο της υδραυλικής πίεσης, θα πρέπει να είναι 20 MPa (200 bar) και η πίεση πλήρωσης δεν θα πρέπει να υπερβαίνει τα 2.8 MPa (28 bar) σε θερμοκρασία 15°C. Επιπλέον, κανένα δοχείο δεν θα πρέπει να περιέχει περισσότερο από 5 kg φθόριο.

Στην περίπτωση δοχείων προοριζόμενων για τη μεταφορά τριφθοριούχου βορίου της 1°(at), η υδραυλική πίεση που πρέπει να εφαρμοστεί στην πίεση δοκιμής (ελέγχου), θα πρέπει να είναι είτε 30 MPa (300 bar), οπότε το μέγιστο βάρος του περιεχομένου ανά λίτρο χωρητικότητας, δεν θα πρέπει να υπερβαίνει τα 0.86 kg, είτε 22.5 MPa (225 bar), οπότε το μέγιστο βάρος του περιεχομένου ανά λίτρο χωρητικότητας, δεν θα πρέπει να υπερβαίνει τα 0.715 kg.

(4) Στην περίπτωση δοχείων προοριζόμενων για τη μεταφορά μονοξειδίου του αζώτου NO της 1° (ct), η χωρητικότητα θα πρέπει να περιορίζεται στα 50 λίτρα, η υδραυλική πίεση που πρέπει να εφαρμοστεί κατά την δοκιμή (πίεση δοκιμής), θα πρέπει να είναι 20 MPa (200 bar) και η πίεση πλήρωσης δεν θα πρέπει να υπερβαίνει τα 5 MPa (50 bar) σε θερμοκρασία 15°C.

(5) Στην περίπτωση δοχείων προοριζόμενων για τη μεταφορά μειγμάτων υδρογόνου με όχι περισσότερο από 10 % υδροσελήνιο ή φωσφίνη ή γερμανομεθάνιο κατ' όγκο ή με όχι περισσότερο από 15 % αρσίνη κατ' όγκο, μειγμάτων αζώτου ή σπάνιων αερίων (περιεχόντων όχι περισσότερο από 10 % ξένο κατ' όγκο) με όχι περισσότερο από 10 % υδροσελήνιο ή φωσφίνη ή γερμανομεθάνιο κατ' όγκο ή με όχι περισσότερο από 15 % αρσίνη κατ' όγκο, της 2° (bt), μειγμάτων υδρογόνου με όχι περισσότερο από 10 % διβόριο κατ' όγκο, ή μειγμάτων αζώτου ή σπანიών αερίων (περιεχόντων όχι περισσότερο από 10 % ξένο κατ' όγκο) με όχι περισσότερο

## Κλάση 2

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(συνεχ.)

από 10 % διβοράνιο κατ' όγκο, της 2° (ct), η χωρητικότητα θα πρέπει να περιορίζεται σε 50 λίτρα, η υδραυλική πίεση που πρέπει να εφαρμοστεί στον έλεγχο (πίεση ελέγχου), θα πρέπει να είναι όχι μικρότερη από 20 MPa (200 bar) και η πίεση πλήρωσης δεν θα πρέπει να υπερβαίνει τα 5 MPa (50 bar) σε θερμοκρασία 15 °C.

(6) Ο βαθμός πλήρωσης των δοχείων που είναι σύμφωνα με το περιθωριακό 2207 (1) και προορίζονται για τη μεταφορά αερίων της 7° (b) και 8° (b), θα πρέπει να παραμένουν κάτω από το όριο, στο οποίο, εάν το περιεχόμενο ανέβαινε στη θερμοκρασία στην οποία η τάση ατμών εξισώνεται με την πίεση ανοίγματος της βαλβίδας, ο όγκος του υγρού θα έφτανε το 95 % της χωρητικότητας του δοχείου σ' αυτή τη θερμοκρασία. Δοχεία προοριζόμενα για τη μεταφορά αερίων της 7° (a) και 8° (a), μπορούν να γεμίζονται έως το 98 % στην θερμοκρασία γεμίσματος και την πίεση γεμίσματος. Όταν μεταφέρεται οξυγόνο της 7° (a), θα πρέπει να λαμβάνονται μέτρα, για αποφυγή οποιουδήποτε χυσίματος της υγρής φάσης.

(7) Όταν μεταφέρεται διαλυμένο ακετυλένιο της 9°(c) σε δοχεία σύμφωνα με το περιθωριακό 2212 (1) (b), η χωρητικότητα των δοχείων δεν θα πρέπει να υπερβαίνει τα 150 λίτρα.

(8) Η χωρητικότητα των δοχείων που προορίζονται για τη μεταφορά μειγμάτων αερίων της 12°, δεν θα πρέπει να υπερβαίνει τα 50 λίτρα. Η πίεση του μείγματος δεν θα πρέπει να υπερβαίνει τα 15 MPa (150 bar) σε θερμοκρασία 15 °C.

(9) Η χωρητικότητα των δοχείων που προορίζονται για τη μεταφορά αερίων δοκιμής (ελέγχου) της 13°, δεν θα πρέπει να υπερβαίνει τα 50 λίτρα. Η πίεση πλήρωσης σε θερμοκρασία 15°C, δεν θα πρέπει να υπερβαίνει το 7% της πίεσης (ελέγχου) του δοχείου.

(10) Στην περίπτωση του εξαφθοριούχου βολφραμίου της 3° (at), η χωρητικότητα των δοχείων θα πρέπει να περιορίζεται στα 60 λίτρα.

Η χωρητικότητα δοχείων για τετραφθοριούχο πυρίτιο της 1° (at), τριγλωριούχο βόριο, νιτροδυλογλωρίδιο και σουλφουρυλοφθορίδιο της 3° (at), μεθυλοσιλάνιο της 3° (b), αρσίνη, διχλωροσιλάνιο, διμεθυλοσιλάνιο, υδροσελίνιο και τριμεθυλοσιλάνιο, της 3° (bt), χλωροκυανίδιο και κυανογόνο της 3° (ct), μέγιστα μεθυλοσιλανίων της 4° (bt), αιθυλενοξείδιο περιέχον όχι περισσότερο από 50 % μυρμηκικό μεθυλεστερά κατά βάρος, της 4° (ct), σιλάνιο, της 5° (b), και ύλες της 5° (bt) και (ct), θα πρέπει να περιορίζεται σε 50 λίτρα.

(11) Στην περίπτωση δοχείων προοριζόμενων για τριφθοριούχο χλώριο της 3° (at), η χωρητικότητα θα πρέπει να περιορίζεται στα 40 λίτρα. Μετά το γέμισμα, δοχείο περιέχον τριφθοριούχο χλώριο της 3° (at), πριν παραδοθεί για μεταφορά, θα πρέπει να κρατείται για όχι λιγότερο από 7 ημέρες για επαλήθευση της στεγανότητάς του.

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(1) Στην περίπτωση δοχείων προοριζόμενων για τη μεταφορά υγροποιημένων αερίων των 3° έως 6° και δοχείων προοριζόμενων για τη μεταφορά αερίων διαλυμένων υπό πίεση της 9°, η υδραυλική πίεση που πρέπει να εφαρμοστεί κατά τη δοκιμή (πίεση δοκιμής), δεν θα πρέπει να είναι μικρότερη από 1 MPa (10 bar).

(2) Στην περίπτωση υγροποιημένων αερίων των 3° και 4° θα πρέπει να τηρούνται οι παρακάτω τιμές για την υδραυλική πίεση που πρέπει να εφαρμοστεί στο δοχεία κατά τη δοκιμή (πίεση δοκιμής) και για τον μέγιστο επιτρεπόμενο ανώτατο βαθμό πλήρωσης.<sup>1/</sup>

<sup>1/</sup>

Βλέπε ΣΗΜΕΙΩΣΕΙΣ στο τέλος του πίνακα της παραγράφου (2).

Περιγραφή ύλης	Αριθμός είδους	Ελάχιστη πίεση δοκιμής MPa	Μέγιστο βάρος περιεχομένου ανά λίτρο χωρητικότητας (kg)
Βρωμοχλωροδιφθορομεθάνιο (R12 B1)	3° (a)	1	1.61
Χλωροδιφθορομεθάνιο (R 22)	3° (a)	2.9	1.03
Χλωροπενταφθοροαιθάνιο (R 115)	3° (a)	2.5	1.06
1-χλωρο-1,2,2,2-τετραφθοροαιθάνιο (R 124)	3° (a)	1.2	1.20
1-χλωρο-2,2,2-τριφθοροαιθάνιο (R 133a)	3° (a)	1	1.18
Διχλωροδιφθορομεθάνιο (R 12)	3° (a)	1.8	1.15
Διχλωροφθορομεθάνιο (R 21)	3° (a)	1	1.23
1,2-Διχλώρο-1,1,2,2-τετραφθοροαιθάνιο (R 114)	3° (a)	1	1.30
Οκταφθοροβουτένιο-2 (R 1318)	3° (a)	1.2	1.34
Οκταφθοροκυκλοβουτάνιο (RC 318)	3° (a)	1.1	1.34
Οκταφθοροπροπάνιο	3° (a)	2.5	1.09
1,1,1,2-τετραφθοροαιθάνιο (R 134a)	3° (a)	2.2	1.04
Αμμωνία	3° (at)	3.3	0.53
Τριχλωριούχο βόριο	3° (at)	1	1.19
Χλώριο	3° (at)	2.2	1.25
Τριφθοριούχο χλώριο	3° (at)	3	1.40
Εξαφθοροακετόνη	3° (at)	2.2	1.08
Εξαφθοροπροπυλένιο (R 1216)	3° (at)	2.2	1.11
Υδροβρώμιο	3° (at)	6	1.54
Μεθυλοβρωμίδιο	3° (at)	1	1.51
Διοξείδιο του αζώτου	3° (at)	1	1.30
Νιτροδυλοχλωρίδιο	3° (at)	1.3	1.10
Φωσγένιο	3° (at)	2	1.23
Διοξείδιο του θείου	3° (at)	1.4	1.23
Σουλφουρυλοφθορίδιο	3° (at)	5	1.10
Εξαφθοριούχο βολφράμιο	3° (at)	1	2.70
Βουτάνιο	3° (b)	1	0.51
Βουτένιο-1	3° (b)	1	0.53
1-Χλωρο-1, 1-διφθοροαιθάνιο (R 142b)	3° (b)	1	0.99
Cis-βουτένιο-2	3° (b)	1	0.55
Κυκλοπροπάνιο	3° (b)	2	0.53
1,1-Διφθοροαιθάνιο (R 152a)	3° (b)	1.8	0.79
Διμεθυλαιθέρας	3° (b)	1.8	0.58
2,2-Διμεθυλοπροπάνιο	3° (b)	1.0	0.53
Ισοβουτάνιο	3° (b)	1	0.49



Περιγραφή ύλης	Αριθμός είδους	Ελάχιστη πίεση δοκιμής MPa	Μέγιστο βάρος περιεχομένου ανά λίτρο χωρητικότητας (kg)
Ισοβουτένιο	3° (b)	1	0.52
Μεθυλοσιλάνιο	3° (b)	22.5	0.39
Προπάνιο	3° (b)	2.5	0.42
Προπυλένιο	3° (b)	3	0.43
Trans-βουτένιο-2	3° (b)	1	0.54
1,1,1-Τριφθοροαιθάνιο	3° (b)	3.5	0.75
Αρσίνη	3° (bt)	4.2	1.10
Καρβονυλοσουλφίδιο	3° (bt)	2.6	0.84
Διχλωροσιλάνιο	3° (bt)	1	0.90
Διμεθυλαμίνη	3° (bt)	1	0.59
Διμεθυλοσιλάνιο	3° (bt)	22.5	0.39
Αιθυλαμίνη	3° (bt)	1	0.61
Αιθυλοχλωρίδιο	3° (bt)	1	0.80
Υδροσελήνιο	3° (bt)	3.1	1.60
Υδρόθειο	3° (bt)	5.5	0.67
Μεθυλαμίνη	3° (bt)	1.3	0.58
Μεθυλοχλωρίδιο	3° (bt)	1.7	0.81
Μεθυλομερκαπτάνη	3° (bt)	1	0.78
Τριμεθυλαμίνη	3° (bt)	1	0.56
Τριμεθυλοσιλάνιο	3° (bt)	22.5	0.39
1,2-Βουταδιένιο	3° (c)	1	0.59
1,3-Βουταδιένιο	3° (c)	1	0.55
Προπαδιένιο, αδρανές	3° (c)	2.2	0.50
Βινυλοχλωρίδιο	3° (c)	1.2	0.81
Κυανογόνο	3° (ct)	10	0.70
Χλωροκυανίδιο	3° (ct)	2	1.03
Αιθυλενοξειδίο	3° (ct)	1	0.78
Υδροϊώδιο, άνυδρο	3° (ct)	2.3	2.25
Μεθυλοβινυλαιθέρας	3° (ct)	1	0.67
Τριφθοροχλωροαιθυλένιο (R 1113)	3° (ct)	1.9	1.13
Βινυλοβρωμίδιο	3° (ct)	1	1.37
Μείγμα F 1	4° (a)	1.2	1.23
Μείγμα F 2	4° (a)	1.8	1.15
Μείγμα F 3	4° (a)	2.9	1.03
Μείγμα αερίων R 500	4° (a)	2.2	1.01
Μείγμα αερίων R 502	4° (a)	3.1	1.05

Περιγραφή ύλης	Αριθμός είδους	Ελάχιστη πίεση δοκιμής MPa	Μέγιστο βάρος περιεχομένου ανά λίτρο χωρητικότητας (kg)
Μείγμα με 19 έως 21 % κατά βάρος διγλωροδιφθορομεθάνιο (R12) και 79 έως 81 % κατά βάρος βρωμοχλωροδιφθορομεθάνιο (R 12 B 1)	4° (a)	1.2	1.50
Μείγματα διγλωροδιφθορομεθάνιου και αιθυλενοξειδίου περιέχον όχι περισσότερο από 12 % αιθυλενοξείδιο κατά βάρος	4° (at)	1.8	1.09
Μείγματα μεθυλοβρωμίδιου και χλωροπικρίνης	4° (at)	1	1.51
Μείγμα Α (εμπορική ονομασία: βουτάνιο)	4° (b)	1	0.50
Μείγμα Α Ο (εμπορική ονομασία: βουτάνιο)	4° (b)	1.5	0.47
Μείγμα Α 1	4° (b)	2	0.46
Μείγμα Β	4° (b)	2.5	0.43
Μείγμα C (εμπορική ονομασία: προπάνιο)	4° (b)	3	0.42
Μείγματα υδρογονανθράκων περιέχοντα μεθάνιο	4° (b)	22.5 30	0.187 0.244
Μείγματα μεθυλοσιλανίων	4° (bt)	22.5	0.39
Μείγματα μεθυλοχλωριδίου και μεθυλενοχλωριδίου	4° (bt)	1.7	0.81
Μείγματα μεθυλοχλωριδίου και χλωροπικρίνης	4° (bt)	1.7	0.81
Μείγματα μεθυλοβρωμίδιου και αιθυλενοβρωμίδιου	4° (bt)	1	1.51
Μείγματα 1,3-βουταδιενίου και υδρογονανθράκων της 3° (b)	4° (c)	1	0.50
Μείγματα μεθυλακετυλένιου / προπαδιενίου και υδρογονανθράκων	3° (b)		
Μείγμα Ρ 1	4° (c)	3	0.49
Μείγμα Ρ 2	4° (c)	2.4	0.47
Προπαδιένιο με 1 % έως 4 % μεθυλακετυλένιο, σταθεροποιημένο	4° (c)	2.2	0.50
Αιθυλενοξείδιο περιέχον όχι περισσότερο από 10 % διοξείδιο του άνθρακα κατά βάρος	4° (ct)	2.8	0.73
Αιθυλενοξείδιο περιέχον όχι περισσότερο από 50 % μυρμηκικού μεθυλεστερα κατά βάρος, με άζωτο έως μέγιστης ολικής πίεσης 1 MPa (10 bar) στους 50°C	4° (ct)	2.5	0.80
Αιθυλενοξείδιο με άζωτο έως ολικής πίεσης 1 MPa (10 bar) στους 50°C	4° (ct)	1.5	0.78

**ΣΗΜΕΙΩΣΗ 1:** Οι προβλεπόμενες πιέσεις δοκιμής/ελέγχου, είναι τουλάχιστον ίσες προς τις πιέσεις ατμού των υγρών στους 70 °C, μειωμένες κατά 100 KPa (1 bar), η απαιτούμενη όμως ελάχιστη πίεση δοκιμής/ελέγχου είναι, εντούτοις, 1 MPa (10 bar).

**ΣΗΜΕΙΩΣΗ 2:** Δεδομένου του υψηλού βαθμού τοξικότητας του φωσγενείου της 3°(at) και του χλωροκυανιδίου της 3° (ct), η ελάχιστη πίεση δοκιμής/ελέγχου για τα αέρια αυτά, έχει ορισθεί στα 2 MPa (20 bar).

**ΣΗΜΕΙΩΣΗ 3:** Οι μέγιστες προβλεπόμενες τιμές για τον βαθμό πλήρωσης σε kg/l έχουν, καθορισθεί ως εξής: Μέγιστο βάρος περιεχομένου ανά λίτρο χωρητικότητας = 0.95 φορές την πυκνότητα της υγρής φάσης στους 50 °C, επιπλέον, η φάση ατμού θα πρέπει να μην εξαφανίζεται κάτω από τους 60 °C.

(3) Στην περίπτωση δοχείων προοριζόμενων να περιέχουν υγροποιημένα αέρια των 5° και 6°, ο βαθμός πλήρωσης θα είναι τέτοιος, ώστε η εσωτερική πίεση στους 65°C να μην υπερβαίνει την πίεση δοκιμής/ελέγχου των δοχείων. Οι παρακάτω τιμές θα πρέπει να τηρούνται (βλέπε επίσης παράγραφο (4):

Περιγραφή ύλης	Αριθμός είδους	Ελάχιστη πίεση δοκιμής MPa	Μέγιστο βάρος περιεχομένου ανά λίτρο χωρητικότητας (kg)
Βρωμοτριφθορομεθάνιο (R 13 B 1)	5° (a)	4.2	1.13
		12	1.44
		25	1.60
Διοξείδιο του άνθρακα	5° (a)	19	0.66
		25	0.75
Χλωροτριφθορομεθάνιο (R 13)	5° (a)	10	0.83
		12	0.90
		19	1.04
		25	1.10
Εξαφθοροαιθάνιο (R 116)	5° (a)	20	1.10
Υποξείδιο του αζώτου N <sub>2</sub> O	5° (a)	18	0.68
		22.5	0.74
		25	0.75
Πενταφθοροαιθάνιο (R 125)	5° (a)	3.6	0.95
Θειοφθορίδιο	5° (a)	7	1.04
		14	1.33
		16	1.37
Τριφθορομεθάνιο (R 23)	5° (a)	19	0.87
		25	0.95
Ξένο	5° (a)	13	1.24
Υδροχλώριο	5° (at)	10	0.30
		12	0.56
		15	0.67
		20	0.74
Αιθάνιο	5° (b)	9.5	0.25
		12	0.29
		30	0.39
Αιθυλένιο	5° (b)	22.5	0.34
		30	0.37
Σιλάνιο	5° (b)	22.5	0.32
		25	0.41
Γερμανομεθάνιο	5° (bt)	25	1.02

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Περιγραφή ύλης	Αριθμός είδους	Ελάχιστη πίεση δοκιμής MPa	Μέγιστο βάρος περιεχομένου ανά λίτρο χωρητικότητας (kg)	
Φωσφίνη	5° (bt)	22.5 25	0.30 0.51	
1,1-Διφθοροαιθυλένιο	5° (c)	25	0.77	
Βινυλοφθοριδίο	5° (c)	25	0.64	
Διβοράνιο	5° (ct)	25	0.072	
Συστατικά (% κατά βάρος)				
Διοξειδίο του άνθρακα περιέχον 1-10 % άζωτο, οξυγόνο, αέρα ή σπάνια αέρια κατά βάρος	6° (a)	19	1	0.64
		19	1 - 10	0.48
		25	1	0.73
		25	1 - 10	0.59
Μείγμα αερίων R 503	6° (a)	3.1		0.11
		4.2		0.20
		10		0.66
Διοξειδίο του άνθρακα περιέχον όχι περισσότερο από 35 % αιθυλενοξειδίο κατά βάρος	6° (c)	19		0.66
		25		0.75
Αιθυλενοξειδίο περιέχον περισσότερο από 10 % αλλά όχι περισσότερο από 50 % διοξειδίο του άνθρακα κατά βάρος	6° (ct)	19		0.66
		25		0.75

(4) Για τις ύλες της 5° εκτός από υδρογλώριο της 5° (at), γερμιομεθάνιο και φωσφίνη της 5° (bt), και διβοράνιο της 5° (ct), και για ύλες της 6°, η χρήση δοχείων ελεγμένων σε πίεση μικρότερη από αυτήν που αναφέρεται στην παράγραφο (3) για τη συγκεκριμένη ύλη, επιτρέπεται, αλλά η ποσότητα της ύλης ανά δοχείο δεν θα πρέπει να υπερβαίνει εκείνη, η οποία στους 65°C θα παρήγαγε μέσα στο δοχείο πίεση ίση με την πίεση δοκιμής/ ελέγχου. Στην περίπτωση αυτή, το επιτρεπόμενο μέγιστο φορτίο θα καθορίζεται από τον εμπειρογνώμονα που έχει εγκριθεί από την αρμόδια αρχή.

2221

(1) Στην περίπτωση αερίων διαλυμένων υπό πίεση, της 9°, οι παρακάτω τιμές θα τηρούνται για την υδραυλική πίεση που πρέπει να εφαρμοστεί στα δοχεία κατά την δοκιμή / έλεγχο (πίεση δοκιμής/ελέγχου) και για τον επιτρεπόμενο μέγιστο βαθμό πλήρωσης:

Περιγραφή ύλης	Αριθμός είδους	Ελάχιστη πίεση δοκιμής MPa	Μέγιστο βάρος περιεχομένου ανά λίτρο χωρητικότητας (kg)
Αμμωνία διαλυμένη υπό πίεση σε νερό με περισσότερο από 35 % αλλά όχι περισσότερο από 40 % αμμωνία κατά βάρος	9° (at)	1	0.80
	9° (at)	1.2	0.77
με περισσότερο από 40 % αλλά όχι περισσότερο από 50 % αμμωνία κατά βάρος			
Διαλυμένο ακετυλένιο	9° (c)	6	βλέπε υπό στοιχείο (2)

(2) Στην περίπτωση διαλυμένου ακετυλενίου της 90(c), εφόσον η ισορροπία έχει επιτευχθεί στους 15°C, η πίεση πλήρωσης του κυλίνδρου, δεν θα πρέπει να υπερβαίνει την τιμή που προβλέπεται από την αρμόδια αρχή για την πορώδη μάζα, η οποία τιμή θα πρέπει να είναι χαραγμένη πάνω στον κύλινδρο. Η ποσότητα του διαλύτη και η ποσότητα του ακετυλενίου, θα πρέπει να αντιστοιχούν κι αυτές στις τιμές που ορίζονται στην έγκριση.

## Κλάση 2

## 3. Μικτή συσκευασία

- 2222 (1) Οι ύλες της Κλάσης αυτής, εκτός των υλών των 7° και 8°, μπορούν να κλεισθούν στο ίδιο κόλο ή μία με την άλλη, εάν περιέχονται :
- (a) σε μεταλλικά δοχεία πίεσης όγκου όχι μεγαλύτερου από 10 λίτρα,
- (b) σε γυάλινους σωλήνες χονδρού τοιχώματος ή γυάλινα σιφόνια σύμφωνα με τα περιθωριακά 2205 και 2206, υπό τον όρο ότι, τα εύθραυστα αυτά δοχεία ασφαρίζονται σύμφωνα με τις διατάξεις του περιθωριακού 2201(7). Τα αποσβεστικά υλικά θα πρέπει να ταιριάζουν στις ιδιότητες του περιεχομένου. Οι εσωτερικές συσκευασίες θα πρέπει να τοποθετούνται σε εξωτερική συσκευασία, στην οποία θα πρέπει να διατηρούνται αποτελεσματικά, χωριστά η μία από την άλλη.
- (2) Είδη των 10° και 11°, μπορούν να κλείνονται στο ίδιο κόλο η μία με την άλλη, υπό τους όρους που προβλέπονται στο περιθωριακό 2210.
- (3) Επιπλέον, ύλες συσκευασμένες σύμφωνα με τα περιθωριακά 2205 και 2206, μπορούν να κλείνονται στο ίδιο κόλο η μία με την άλλη, υπό τους παρακάτω ειδικούς όρους.
- (4) Κόλοτο οποίο θα πληρεί τους όρους των (1) και (3), δεν θα πρέπει να ζυγίσει πάνω από 100 kg, ή πάνω από 75 kg, εάν περιέχει εύθραυστα δοχεία.

Ειδικοί όροι:

Αριθμός ή γράμμα είδους	Περιγραφή ύλης	Μέγιστη ποσότητα		Ειδικοί Όροι
		ανά δοχείο	ανά κόλο	
(a) (at)	<u>Αέρια συσκευασμένα σύμφωνα με το περιθωριακό 2205</u> Όλα τα αέρια που αναφέρονται σ' αυτό το περιθωριακό	Στις ποσότητες που ορίζονται στο περιθωριακό 2205	6 kg	Χλώριο της 3° (at) δεν θα πρέπει να συσκευάζονται μαζί με διοξείδιο του θείου της 3° (at)
	Αφλεκτα αέρια			Δεν θα πρέπει να συσκευάζονται μαζί με ύλες των κλάσεων 1, 3, 4.2, 5.2 ή 7
Αφλεκτα τοξικά αέρια	Δεν θα πρέπει να συσκευάζονται μαζί με ύλες των κλάσεων 1, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 7 ή 8			
(b)	Εύφλεκτα αέρια			
(a) (at)	<u>Αέρια συσκευασμένα σύμφωνα με το περιθωριακό 2206</u> Όλα τα αέρια που αναφέρονται στο περιθωριακό, εκτός της αμμωνίας και του κυκλοπροπάνιου	150 g	6 kg	Δεν θα πρέπει να συσκευάζονται μαζί με ύλες των κλάσεων 1, 3, 4.2, 5.2 ή 7
	Αφλεκτα αέρια			
(at)	Αφλεκτα τοξικά αέρια			

2222

(6.8X)

Αριθμός ή γράμμα είδους	Περιγραφή ύλης	Μέγιστη ποσότητα		Ειδικοί Όροι
		ανά δοχείο	ανά κόλο	
(b)	Εύφλεκτα αέρια	150 g	6 kg	Δεν θα πρέπει να συσκευάζονται μαζί με όλες των κλάσεων 1, 3, 4.1, 4.2, 4.3, 5.1, 5.2 ή 7
(bt)	Εύφλεκτα τοξικά αέρια			
(c)	Χημικώς ασταθή αέρια			
(ct)	Χημικώς ασταθή τοξικά αέρια			
3° (at) 3° (b)	Αμμωνία Κυκλοπροπάνιο	20 g	6 kg	Δεν θα πρέπει να συσκευάζονται μαζί με όλες των κλάσεων 1, 3, 4.1, 4.2, 4.3, 5.1, 5.2, ή 7.

#### 4. Ενδείξεις και ετικέτες στα κόλα (βλέπε Προσθήκη Α.9)

##### Ενδειξη

- 2223** (1) Κάθε κόλο περιέχον δοχεία με αέρια των 1° έως 9°, 12° ή 13° ή μην ξαναγεμιζόμενα εμπορευματοκιβώτια αερίου υπό πίεση της 11°, θα πρέπει να μαρκάρεται ευανάγνωστα και ανεξίτηλα με μία ένδειξη του περιεχομένου τους, με την προσθήκη "Κλάση 2". Το μαρκάρισμα αυτό θα πρέπει να είναι σε μία επίσημη γλώσσα του Κράτους Μέλους αναχώρησης και επίσης, εάν η γλώσσα αυτή δεν είναι η Αγγλική, η Γαλλική, ή η Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός εάν προβλέπεται διαφορετικά από τυχόν συμφωνίες που έχουν γίνει μεταξύ των Κρατών Μελών τις οποίες αφορά η διαδικασία της μεταφοράς.

Αυτή η διάταξη δεν χρειάζεται να τηρηθεί, εάν τα δοχεία και οι ενδείξεις τους είναι σαφώς ορατά.

- (2) Κόλα που περιέχουν διανεμητές αεροζόλ της 10°, θα πρέπει να μαρκάρονται με τη λέξη "ΑΕΡΟΖΟΛ", με γράμματα ευανάγνωστα και ανεξίτηλα.

- (3) Όταν μία αποστολή αποτελεί ένα πλήρες φορτίο, οι ενδείξεις που αναφέρονται στην παράγραφο (1), δεν είναι υποχρεωτικές.

##### Ετικέτες κινδύνου

- 2224** **ΣΗΜΕΙΩΣΗ:** Ως κόλο, νοείται οποιαδήποτε συσκευασία που περιέχει δοχεία, διανεμητές αεροζόλ ή μη-ξαναγεμιζόμενα εμπορευματοκιβώτια αερίου υπό πίεση, ή οποιοδήποτε δοχείο χωρίς εξωτερική συσκευασία.

- (1) Κόλα που περιέχουν ύλες και είδη της κλάσης 2, εκτός αυτών που αναφέρονται στην παράγραφο (2), Πίνακας 2 και στην παράγραφο (3) αυτού του περιθωριακού, θα πρέπει να φέρουν τις ετικέτες που ορίζονται παρακάτω:

## Κλάση 2

222s  
(συνεχ.)

## Πίνακας 1

Υλεις και ειδη	Αριθμοι υποδειγματος ετικετας
Ταξινομημένα υπό (a)	2
Ταξινομημένα υπό (at)	6.1
Ταξινομημένα υπό (b)	3
Ταξινομημένα υπό (bt)	6.1 + 3
Ταξινομημένα υπό (c)	3
Ταξινομημένα υπό (ct)	6.1 + 3

(2) Κόλα περιέχοντα ύλεις και είδη που περιγράφονται στον Πίνακα 2 παρακάτω, θα πρέπει να φέρουν τις ετικέτες που ορίζονται:

## Πίνακας 2

Αριθμός είδους	Υλεις και ειδη	Αριθμοι υποδειγματος ετικετας
1° (a)	Οξυγόνο	2 + 05
1° (at)	Φθόριο	6.1 + 05
1° (at)	Τετραφθοριούχο πυρίτιο	6.1 + 8
1° (ct)	Μονοξειδίο του αζώτου	6.1
2° (a)	Μείγματα με περισσότερο από 25 % οξυγόνο (κατ' όγκο)	2 + 05
3° (at)	Χλωριούχο βόριο, χλώριο, τριφθοριούχο χλώριο, υδροβρώμιο, νιτροχλωρίδιο και φωσγένιο	6.1 + 8
3° (at)	Διοξείδιο του αζώτου	6.1 + 05
3° (bt)	Καρβονυλοσουλφίδιο	3 + 6.1 + 8
3° (ct)	Χλωροκυανίδιο, υδροϊώδιο, άνυδρο	6.1 + 8
5° (a)	Υποξείδιο του αζώτου	2 + 05
5° (at)	Υδροχλώριο	6.1 + 8
7° (a)	Οξυγόνο, υποξείδιο του αζώτου	2 + 05
8° (a)	Αέρας και μείγματα περιέχοντα περισσότερο από 20 % οξυγόνο (κατά βάρος), μείγματα περιέχοντα περισσότερο από 32 % υποξείδιο του αζώτου (κατά βάρος)	2 + 05
10° (a)	Διανεμητές αεροζόλ	Χωρίς ετικέτα
10° (b)1	Διανεμητές αεροζόλ	Χωρίς ετικέτα
10° (bt)1	Διανεμητές αεροζόλ	6.1



## Κλάση 2

2221 (3) Σύμφωνα με τις επικίνδυνες ιδιότητες των υλών, τα κόλλα που περιέχουν ύλες των I2° και (συνεχ.) I3°, θα πρέπει να φέρουν:

- ετικέτα σε συμφωνία με το μοντέλο Αριθμ. 3 για εύφλεκτα αέρια,
- ετικέτα σε συμφωνία με το μοντέλο Αριθμ. 6.1 για τοξικά αέρια,
- ετικέτες σε συμφωνία με τα μοντέλα Αριθμ. 6.1 και 8 για διαβρωτικά αέρια,
- ετικέτες σε συμφωνία με τα μοντέλα Αριθμ. 2 και 05 για οξειδωτικά αέρια,
- ετικέτες σε συμφωνία με τα μοντέλα Αριθμ. 6.1 και 3 για εύφλεκτα τοξικά αέρια,
- ετικέτες σε συμφωνία με τα μοντέλα Αριθμ. 3, 6.1 και 8 για εύφλεκτα διαβρωτικά αέρια,
- ετικέτα σε συμφωνία με το μοντέλο Αριθμ. 2 για αέρια τα οποία δεν είναι εύφλεκτα, τοξικά, διαβρωτικά ή οξειδωτικά,
- ετικέτες σε συμφωνία με τα μοντέλα Αριθμ. 6.1 και 05 για μείγματα περιέχοντα φθόριο και εκείνα που περιέχουν διοξείδιο του αζώτου.

(4) Τα κόλλα τα οποία περιέχουν δοχεία κατασκευασμένα από υλικά υποκειμένα σε θραύση, όπως γυαλί ή ορισμένα πλαστικά υλικά, θα πρέπει να φέρουν ετικέτα σε συμφωνία με το μοντέλο Αριθμ. 12.

(5) Κάθε κόλλα που περιέχει αέρια της 7°(a) ή 8°(a), θα πρέπει να φέρει, σε δύο αντίθετες πλευρές, ετικέτες σε συμφωνία με το μοντέλο Αριθμ. 11 και αν οι ύλες τις οποίες περιέχει είναι κλεισμένες σε γυάλινα δοχεία [περιθωριακό 2207(2) (a)], πρέπει, επιπλέον, να φέρει ετικέτα σε συμφωνία με το μοντέλο Αριθμ. 12.

(6) Οι ετικέτες πάνω σε κυλίνδρους αερίου, μπορούν να προσαρτηθούν στο "αφτί" του κυλίνδρου και μπορούν να έχουν μικρότερες διαστάσεις αναλόγως, υπό την προϋπόθεση ότι παραμένουν καθαρά ορατές.

## 2225

## B. Αναγραφές στο έγγραφο μεταφοράς

2226 (1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς, πρέπει να υπάρχει:

- (a) στην περίπτωση των καθαρών και τεχνικώς - καθαρών αερίων των 1°, 3°, 5°, 7° ή 9°, των διανεμητών αεροζόλ της 10°, των μη-ξαναγεμιζόμενων εμπορευματοκιβωτίων αερίου υπό πίεση της 11°, μία από τις ονομασίες που είναι υπογραμμισμένες στο περιθωριακό 2201,
- (b) στην περίπτωση των μειγμάτων αερίων των 2°, 4°, 6°, 8°, 12° ή 13° : "μείγμα αερίων". Η περιγραφή αυτή, πρέπει να συμπληρώνεται με μία ένδειξη της σύνθεσης του μείγματος αερίων κατ' όγκο στα εκατό, ή βάρος στα εκατό. Συστατικά μέρη κάτω από 1%, δεν χρειάζεται να αναφέρονται. Στην περίπτωση των μειγμάτων αερίων των 2°(a), 2°(b), 2°(bt), 4°(a), 4°(b), 4°(c), 4°(ct), 6°(a), 8°(a) ή 8°(b), οι περιγραφές ή οι συνήθειες στο εμπόριο ονομασίες, που είναι υπογραμμισμένες στο περιθωριακό 2201, μπορούν ομοίως να χρησιμοποιούνται, χωρίς το καθορισμό της σύνθεσης.

Στην περίπτωση των μειγμάτων A, AO και C της 4° (b) μεταφερόμενων σε δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές, όμως, οι συνήθειες στο εμπόριο ονομασίες που αναφέρονται στη ΣΗΜΕΙΩΣΗ, μπορούν να χρησιμοποιούνται μόνο ως συμπλήρωμα.

## Κλάση 2

**2226** Οι περιγραφές αυτές πρέπει να ακολουθούνται από στοιχεία της Κλάσης, τον αριθμό είδους (συνεχ.) (μαζί με το γράμμα, αν υπάρχει) και τα αρχικά "ADR" (ή "RID") π.χ. 2, 5° (at), ADR.

(2) Στην περίπτωση δεξαμενών που περιέχουν αέρια της 7° (a) ή 8° (a), εκτός του διοξειδίου του άνθρακα και υποξειδίου του αζώτου, το έγγραφο μεταφοράς, θα πρέπει να φέρει την παρακάτω εγγραφή:

**"Η δεξαμενή είναι σε μόνιμη επικοινωνία με την ατμόσφαιρα".**

(3) Για τη μεταφορά κυλίνδρων σύμφωνα με το περιθωριακό 2212 (1) (a) υπό τους όρους του περιθωριακού 2217 (3), η παρακάτω εγγραφή θα πρέπει να συμπεριλαμβάνεται στο έγγραφο μεταφοράς:

**"Μεταφορά σύμφωνα με το περιθωριακό 2217 (3)".**

**2227-  
2236**

**C. Κενές συσκευασίες**

**2237** (1) Τα δοχεία και οι δεξαμενές της 14°, θα πρέπει να κλείνονται με τον ίδιο τρόπο, σαν να ήταν γεμάτα.

(2) Τα ακαθάριστα κενά δοχεία της 14°, θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνου, σαν να ήταν γεμάτα.

(3) Η περιγραφή στο έγγραφο μεταφοράς, θα πρέπει να είναι σύμφωνη με τις ονομασίες που δίνονται στην 14°, π.χ. "Κενό δοχείο, ακαθάριστο, 2, 14°, ADR". Η περιγραφή θα πρέπει να συμπληρώνεται με την προσθήκη των λέξεων "Τελευταίο φορτίο", μαζί με την ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία π.χ. "Τελευταίο φορτίο: γλώριο, 3° (at)".

(4) Τα δοχεία της 14°, που αναφέρονται στο περιθωριακό 2212 (1) (a), (b) και (d), μπορούν να μεταφέρονται μετά τη λήξη του χρονικού ορίου που τίθεται για την περιοδική δοκιμή που καθορίζεται στο περιθωριακό 2215, προκειμένου να υποβληθούν στη δοκιμή.

**D. Μεταβατικές διατάξεις**

**2238** Οι παρακάτω μεταβατικές διατάξεις θα πρέπει να εφαρμόζονται στα δοχεία για πεπεσμένα ή υγροποιημένα αέρια ή αέρια διαλυμένα υπό πίεση:

(a) Δοχεία ήδη σε υπηρεσία, θα πρέπει, με την επιφύλαξη των παρακάτω εξαιρέσεων, να γίνονται δεκτά, εφ' όσον το επιτρέπουν οι διατάξεις του Κράτους Μέλους στο οποίο διεξήχθησαν οι δοκιμασίες σύμφωνα με το περιθωριακό 2216 και εφ' όσον έχουν τηρηθεί οι προθεσμίες που προβλέπονται από τα περιθωριακά 2216 (3) και 2217 για τις περιοδικές επιθεωρήσεις.

(b) Στην περίπτωση δοχείων που έχουν κατασκευαστεί σύμφωνα με το προηγούμενο σύστημα (επιτρεπόμενη τάση δύο τρίτα αντί τριών-τετάρτων, της τάσης απόδοσης), δεν θα επιτρέπεται καμία αύξηση ούτε στη πίεση δοκιμής, ούτε στη πίεση πλήρωσης [βλέπε περιθωριακό 2211 (1)].

(c) Μεταβατικά μέτρα για δεξαμενές: βλέπε περιθωριακά 211 180 και 211 184.

(d) Μεταβατικά μέτρα για εμπορευματοκιβώτια-δεξαμενές: βλέπε περιθωριακό 212 180.

**2239-  
2299**

**ΚΛΑΣΗ 3. ΕΥΦΛΕΚΤΑ ΥΓΡΑ****1. Κατάλογος υλών**

**2300** (1) Ανάμεσα στις ύλες και τα μείγματα που καλύπτονται από τον τίτλο της Κλάσης 3, εκείνα που αναφέρονται στο περιθωριακό 2301 ή που υπάγονται σ' ένα συγκεντρωτικό τίτλο εκείνου του περιθωριακού και είδη περιέχοντα τέτοιες ύλες, υπόκεινται στους όρους που ορίζονται στα περιθωριακά 2300 (2) έως 2322 και στις διατάξεις αυτού του Παραρτήματος και του Παραρτήματος Β και είναι συνεπώς ύλες αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ:** Για τις ποσότητες των υλών που αναφέρονται στο περιθωριακό 2301, οι οποίες δεν υπόκεινται στις διατάξεις για αυτήν την Κλάση, είτε σ' αυτό το Παράρτημα είτε στο Παράρτημα Β, βλέπε περιθωριακό 2301α.

(2) Ο τίτλος της Κλάσης 3, καλύπτει ύλες και είδη που περιέχουν ύλες αυτής της Κλάσης, οι οποίες:

- είναι υγρά σε μέγιστη θερμοκρασία 20 °C, ή για ιξώδεις ύλες για τις οποίες δεν μπορεί να οριστεί ένα συγκεκριμένο σημείο τήξης, είναι εξαιρετικά ιξώδεις σύμφωνα με τα κριτήρια ελέγχου με πενετρόμετρο (βλέπε Προσθήκη Α.3, περιθωριακό 3310), ή είναι υγρά σύμφωνα με την μέθοδο ελέγχου ASTM D 4359-90,
- έχουν στους 50 °C τάση ατμών όχι μεγαλύτερη από 300 kPa (3 bar),
- έχουν σημείο ανάφλεξης όχι υψηλότερο από 61 °C.

Ο τίτλος της Κλάσης 3, καλύπτει επίσης εύφλεκτες υγρές ύλες και τετηγμένες στερεές ύλες με σημείο ανάφλεξης υψηλότερο από 61°C και οι οποίες μεταφέρονται ή παραδίδονται για μεταφορά ενώ θερμαίνονται σε θερμοκρασίες ίσες ή υψηλότερες από το σημείο ανάφλεξής τους.

Υλες με σημείο ανάφλεξης πάνω από 35 °C, μη-τοξικές και μη-διαβρωτικές, οι οποίες, κάτω από τους δεδομένους όρους ελέγχου, δεν υφίστανται ανάφλεξη (βλέπε Προσθήκη Α.3, περιθωριακό 3304) δεν συμπεριλαμβάνονται. Εάν όμως αυτές οι ύλες παραδίδονται για μεταφορά και μεταφέρονται ενώ θερμαίνονται σε θερμοκρασίες ίσες με ή υψηλότερες από το σημείο ανάφλεξής τους, είναι ύλες αυτής της Κλάσης.

Εύφλεκτα υγρά τα οποία, λόγω πρόσθετων επικίνδυνων ιδιοτήτων, αναφέρονται σε, ή προορίζονται για άλλες κλάσεις, επίσης δεν συμπεριλαμβάνονται. Το σημείο ανάφλεξης θα καθορίζεται όπως υποδεικνύεται στην προσθήκη Α.3, περιθωριακά 3300 έως 3302.

**ΣΗΜΕΙΩΣΗ 1:** Για γκαζόιλ, πετρέλαιο καύσιμο, καύσιμο θέρμανσης (ελαφρύ) (χαρακτηριστικός αριθμός 1202) με σημείο ανάφλεξης πάνω από 61 °C βλέπε, παρ' όλα αυτά, ΣΗΜΕΙΩΣΗ υπό περιθωριακό 2301, 31° (c).

**ΣΗΜΕΙΩΣΗ 2:** Για ύλες με σημείο ανάφλεξης πάνω από 61 °C οι οποίες μεταφέρονται ή παραδίδονται για μεταφορά στο ή πάνω από το σημείο ανάφλεξής τους, βλέπε παρ' όλα αυτά, περιθωριακό 2301, 61° (c).

(3) Οι ύλες και τα είδη της Κλάσης 3, υποδιαιρούνται ως εξής:

- A. Υλες με σημείο ανάφλεξης κάτω από 23 °C μη τοξικές, μη διαβρωτικές.
- B. Υλες με σημείο ανάφλεξης κάτω από 23 °C και τοξικές.
- C. Υλες με σημείο ανάφλεξης κάτω από 23 °C και διαβρωτικές.
- D. Υλες με σημείο ανάφλεξης κάτω από 23 °C, τοξικές και διαβρωτικές και είδη περιέχοντα εκείνες τις ύλες.

## Κλάση 3

2300  
(συνεχ.)

- E. Υλεις με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων, οι οποίες θα μπορούσαν να είναι ελαφρώς τοξικές και/ή ελαφρώς διαβρωτικές.
- F. Υλεις και παρασκευάσματα χρησιμοποιούμενα ως παρασιτοκτόνα, με σημείο ανάφλεξης κάτω από 23 °C.
- G. Υλεις με σημείο ανάφλεξης πάνω από 61 °C οι οποίες μεταφέρονται ή παραδίδονται για μεταφορά στο ή πάνω από το σημείο ανάφλεξής τους.
- H. Κενές συσκευασίες.

Υλεις και είδη της Κλάσης 3, εκτός εκείνων των 6°, 12°, 13°, και 28° ταξινομημένα υπό τους διάφορους αριθμούς του περιθωριακού 2301, θα πρέπει να κατατάσσονται σε μία από τις παρακάτω ομάδες που διακρίνονται με το γράμμα (a), (b) ή (c) σύμφωνα με τον βαθμό κινδύνου τους:

γράμμα (a): πολύ επικίνδυνες ύλες: εύφλεκτα υγρά με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C, και εύφλεκτα υγρά με σημείο ανάφλεξης κάτω από 23 °C, τα οποία είναι είτε εξαιρετικά τοξικά σύμφωνα με τα κριτήρια του περιθωριακού 2600 είτε εξαιρετικά διαβρωτικά σύμφωνα με τα κριτήρια του περιθωριακού 2800,

γράμμα (b): επικίνδυνες ύλες: εύφλεκτα υγρά με σημείο ανάφλεξης κάτω από 23 °C τα οποία δεν κατατάσσονται στο γράμμα (a), με εξαίρεση τις ύλες του περιθωριακού 2301, 5° (c),

γράμμα (c): ύλες που παρουσιάζουν μικρό κίνδυνο: εύφλεκτα υγρά με σημείο ανάφλεξης από 23 °C έως 61 °C συμπεριλαμβανομένων και ύλες του περιθωριακού 2301, 5° (c).

- (4) Εάν ύλες της Κλάσης 3, σαν αποτέλεσμα προσηκόντων, μεταπηδήσουν σε διαφορετικές κατηγορίες κινδύνου από εκείνες στις οποίες οι ύλες που αναφέρονται ειδικά στο περιθωριακό 2301 ανήκουν, αυτά τα μείγματα ή διαλύματα θα πρέπει να κατατάσσονται στα είδη και γράμματα στα οποία ανήκουν στη βάση του πραγματικού βαθμού κινδύνου τους.

**ΣΗΜΕΙΩΣΗ:** Για την κατάταξη των διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα), βλέπε επίσης περιθωριακό 2002 (8).

- (5) Στη βάση των διαδικασιών ελέγχου σε συμφωνία με την Προσθήκη Α.3, περιθωριακά 3300 έως 3302, 3304 και 3310, και τα κριτήρια που έχουν τεθεί στην (2), μπορεί επίσης να καθοριστεί εάν η φύση ενός διαλύματος ή ενός μείγματος ειδικά αναφερόμενου ή περιέχοντος μία ειδικά αναφερόμενη ύλη είναι τέτοια ώστε το διάλυμα ή μείγμα να μην υπόκειται στις διατάξεις για αυτήν την Κλάση.

- (6) Ορισμένες εξαιρετικά τοξικές εύφλεκτες υγρές ύλες με σημείο ανάφλεξης κάτω από 23 °C είναι ύλες της Κλάσης 6.1 (περιθωριακό 2601, 1° έως 10°).

- (7) Υλεις της Κλάσης 3 οι οποίες είναι υποκείμενες στο σχηματισμό υπεροξειδίων εύκολα (όπως συμβαίνει με τους αιθέρες ή με ορισμένες εταιροκυκλικές οξειδωμένες ύλες) θα γίνονται δεκτές για μεταφορά, μόνον εάν το περιεχόμενό του σε υπεροξείδια, υπολογιζόμενο ως υπεροξείδιο του υδρογόνου (H<sub>2</sub>O<sub>2</sub>), δεν υπερβαίνει το 0.3 %. Το περιεχόμενο σε υπεροξείδια θα καθορίζεται όπως ορίζεται στην προσθήκη Α.3, περιθωριακό 3303.

- (8) Οι χημικώς ασταθείς ύλες της Κλάσης 3 θα γίνονται δεκτές για μεταφορά μόνο εάν έχουν ληφθεί τα απαραίτητα μέτρα για την αποφυγή της επικίνδυνης αποσύνθεσης ή πολυμερισμού τους κατά τη διάρκεια της μεταφοράς. Για το σκοπό αυτό, θα βεβαιώνεται ειδικά ότι τα δοχεία δεν περιέχουν οποιαδήποτε ύλη υποκείμενη σε τέτοιες δράσεις.

## Κλάση 3

2ο1 Α. Υγες με σημείο ανάφλεξης κάτω από 23 °C, μη τοξικές, μη διαβρωτικές.

1° Υγες, διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα) με τάση ατμών στους 50 °C μεγαλύτερη από 175 kPa (1.75 bar):

- (a) 1089 ακεταλδεΐδη (αιθανάλη), 1108 1-πεντένιο (n-αμυλένιο), 1144 κροτονυλένιο (2-βουτίνιο), 1243 μυρμηκικός μεθυλεστέρας, 1265 πεντάνια υγρό (ισοπεντάνιο), 1267 αργό πετρέλαιο, 1303 γλωριούχο βινυλιδένιο, αδρανές (1,1-διγλωροαιθυλένιο, αδρανές), 1308 ζιρκόνιο σε εναιώρημα σε εύφλεκτο υγρό, 1863 καύσιμο στροβιλοκινητήρων αεροπορίας, 2371 ισοπεντένια, 2389 φουράνιο, 2456 2-γλωροπροπένιο, 2459 2-μεθυλο-1-βουτένιο, 2561 3-μεθυλο-1-βουτένιο (1-ισοαμυλένιο) (ισοπροπυλαιθυλένιο), 2749 τετραμεθυλοσιλάνιο, 1268 κλάσματα πετρελαίου, ε.α.ο. ή 1268 προϊόντα πετρελαίου, ε.α.ο., 3295 υδρογονάνθρακες, υγροί, ε.α.ο., 1993 εύφλεκτο υγρό, ε.α.ο.

2° Υγες, διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα) με τάση ατμών στους 50 °C μεγαλύτερη από 110 kPa (1.10 bar) αλλά όχι μεγαλύτερη από 175 kPa (1.75 bar):

- (a) 1155 διαιθυλαιθέρας (αιθυλαιθέρας), 1167 διβινυλαιθέρας αδρανής, 1218 ισοπρένιο, αδρανές, 1267 αργό πετρέλαιο, 1280 προπυλενοξείδιο, αδρανές, 1302 βινυλαιθυλαιθέρας, αδρανής, 1308 ζιρκόνιο σε εναιώρημα σε εύφλεκτο υγρό, 1863 καύσιμο, στροβιλοκινητήρων αεροπορίας, 2356 2-γλωροπροπάνιο, 2363 αιθυλομερκαπτανή, 1268 κλάσματα πετρελαίου, ε.α.ο. ή 1268 προϊόντα πετρελαίου, ε.α.ο., 3295 υδρογονάνθρακες, υγροί, ε.α.ο., 1993 εύφλεκτο υγρό, ε.α.ο.,

- (b) 1164 διμεθυλοσουλφίδιο, 1234 μεθυάλη (διμαιοξυμεθάνιο), 1265 πεντάνια υγρό (n-πεντάνιο), 1267 αργό πετρέλαιο, 1278 1-γλωροπροπάνιο (προπυλοχλωρίδιο), 1308 ζιρκόνιο σε εναιώρημα σε εύφλεκτο υγρό, 1863 καύσιμο στροβιλοκινητήρων αεροπορίας, 2246 κυκλοπεντένιο, 2460 2-μεθυλο-2-βουτένιο, 2612 μεθυλο προπυλαιθέρας, 1224 κετόνες, ε.α.ο., 1987 αλκοόλες, εύφλεκτες, ε.α.ο., 1989 αλδεΐδες, εύφλεκτες, ε.α.ο., 1268 κλάσματα πετρελαίου, ε.α.ο. ή 1268 προϊόντα πετρελαίου, ε.α.ο., 3295 υδρογονάνθρακες, υγροί, ε.α.ο., 1993 εύφλεκτο υγρό, ε.α.ο.

3° Υγες, διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα) με τάση ατμών στους 50 °C όχι μεγαλύτερη από 110 kPa (1.10 bar):

- (b) 1203 οινόπνευμα κινητήρων, 1267 αργό πετρέλαιο, 1863 καύσιμο στροβιλοκινητήρων αεροπορίας, 1268 κλάσματα πετρελαίου, ε.α.ο. ή 1268 προϊόντα πετρελαίου, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Ενώ σε ορισμένες κλιματολογικές συνθήκες το πετρέλαιο (γκαζολίνη) μπορεί να έχει τάση ατμών στους 50 °C μεγαλύτερη από 110 kPa (1.10 bar) αλλά όχι μεγαλύτερη από 150 kPa (1.50 bar), θα πρέπει να συνεχίσει να κατατάσσεται κάτω από αυτόν τον αριθμό είδους.

Υδρογονάνθρακες:

1114 βενζόλιο, 1136 κλάσματα λιθανθρακόπισσας, 1145 κυκλοεξάνιο, 1146 κυκλοπεντάνιο, 1175 αιθυλοβενζόλιο, 1206 επτάνια, 1208 εξάνια, 1216 ισοοκτένια, 1262 οκτάνια, 1288 ασφαλτούχος σιγστόλιθος, 1294 τολουόλιο, 1300 υποκατάστατο τερεβινθίνης (white spirit), 1307 ξυλένια

## Κλάση 3

2391  
(συνεχ.)

(ο-ξυλένιο, διμεθυλοβενζόλια), 2050 διίσοβουτυλένιο, ισομερικές ενώσεις, 2057 τριπροπυλένιο (προπυλένιο τριμερές), 2241 κυκλοεπτάνιο, 2242 κυκλοεπτένιο, 2251 δικυκλο-(2.2.1)-επτα-2.5-διένιο, αδρανές (2.5-νορμποραδιένιο, αδρανές), 2256 κυκλοεξένιο, 2263 διμεθυλοκυκλοεξάνια, 2278 η-επτένιο, 2287 ισοεπτένια, 2288 ισοεξένια, 2296 μεθυλοκυκλοεξάνιο, 2298 μεθυλοκυκλοπεντάνιο, 2309 οκταδιένια, 2358 κυκλοοκτατετραένιο, 2370 1-εξένιο, 2457 2,3-διμεθυλοβουτάνιο, 2458 εξαδιένια, 2461 μεθυλοπενταδιένια, 3295 υδρογονάνθρακες, υγροί ε.α.ο..

Αλογονωμένες ύλες:

1107 αμυλογλωρίδια, 1126 1-βρωμοβουτάνιο, (η-βουτυλοβρωμίδιο), 1127 χλωροβουτάνια (βουτυλογλωρίδια), 1150 1,2-διγλωροαιθυλένιο, 1279 1,2-διγλωροπροπάνιο, (διγλωριούχο προπυλένιο) 2047 διγλωροπροπένια, 2338 βενζοτριφθορίδιο, 2339 2-βρωμοβουτάνιο, 2340 2-βρωμοαιθυλαιθυλ αιθέρας, 2342 βρωμομεθυλοπροπάνια, 2343 2-βρωμοπεντάνιο, 2344 βρωμοπροπάνια, 2345 3-βρωμοπροπίνιο, 2362 1,1-διγλωροαιθάνιο (αιθυλιδενογλωρίδιο), 2387 φθοροβενζόλιο, 2388 φθοροτολουόλια, 2390 2-ιωδοβουτάνιο, 2391 ιωδομεθυλοπροπάνια, 2554 μεθυλαλλυλογλωρίδιο.

Αλκοόλες:

1105 αμυλοπνεύματα, 1120 βουτανόλες, 1148 διακετοναλκοόλη τεχνική, 1170 αιθανόλη (αιθυλική αλκοόλη) ή 1170 αιθανόλη (αιθυλική αλκοόλη) σε υδατικό διάλυμα περιέχον περισσότερο από 70 % αλκοόλη κατ' όγκο, 1219 ισοπροπανόλη (ισοπροπυλική αλκοόλη), 1274 η-προπανόλη (προπυλική αλκοόλη, κανονική), 3065 αλκοολούχα ποτά περιέχοντα περισσότερο από 70 % αλκοόλη κατ' όγκο, 1987 αλκοόλες, εύφλεκτες, ε.α.ο..

**ΣΗΜΕΙΩΣΗ:** Αλκοολούχα ποτά περιέχοντα περισσότερο από 24 % και όχι περισσότερο από 70 % αλκοόλη κατ' όγκο, είναι ύλες της 31° (c).

Αιθέρες:

1088 ακετάλη (1,1-διαιθοξυαιθάνιο), 1159 διίσοπροπυλαιθέρας, 1165 διοξάνιο, 1166 διοξολάνιο, 1179 αιθυλοβουτυλαιθέρας, 1304 βινυλοίσοβουτυλαιθέρας, αδρανής, 2056 τετραϊδροφουράνιο, 2252 1,2-διμεθοξυαιθάνιο, 2301 2-μεθυλοφουράνιο, 2350 βουτυλομεθυλαιθέρας, 352 βουτυλοβινυλαιθέρας, αδρανής, 2373 διαιθοξυμεθάνιο, 2374 3,3-διαιθοξυπροπένιο, 2376 2,3-διϊδροπυράνη, 2377 1,1-διμεθοξυαιθάνιο, 2384 δι-η-προπυλαιθέρας, 2398 τριτοταγής μεθυλοβουτυλαιθέρας, 2536 μεθυλοτετραϊδροφουράνιο, 2615 αιθυλοπροπυλαιθέρας, 2707 διμεθυλοδιοξάνια, 3022 1,2-βουτυλενοξείδιο, σταθεροποιημένο, 3271 αιθέρες, ε.α.ο..

Αλδεύδες:

1129 βουτυραλδεύδη, 1178 2-αιθυλοβουτυραλδεύδη, 1275 προπιοναλδεύδη, 2045 ισοβουτυραλδεύδη (ισοβουτυλαλδεύδη), 2058 βαλεριανάλδεύδη, 2367 α-μεθυλοβαλεριανάλδεύδη, 1989 αλδεύδες, εύφλεκτες, ε.α.ο..

## Κλάση 3

2301  
(συνεχ.)

Κετόνες:

1090 ακετόνη, 1156 διαιθυλοκετόνη, 1193 μεθυλαιθυλοκετόνη (αιθυλομεθυλοκετόνη), 1245 μεθυλοϊσοβουτυλοκετόνη, 1246 μεθυλοϊσοπροπενυλοκετόνη, αδρανής, 1249 μεθυλοπροπυλοκετόνη, 1251 μεθυλοβινυλοκετόνη, 2346 βουτανοδιόνη (διακετυλική), 2397 3-μεθυλοβουταν-2-όνη, 1224 κετόνες, ε.α.ο.,

Εστέρες:

1123 οξικοί βουτλεστέρες, 1128 n- μυρμηκικός βουτλεστέρας, 1161 καρβονικός διμεθυλεστέρας, 1173 οξικός αιθυλεστέρας, 1176 βορικός αιθυλεστέρας, 1190 μυρμηκικός αιθυλεστέρας, 1195 προπιονικός αιθυλεστέρας, 1213 οξικός ισοβουτλεστέρας, 1220 οξικός ισοπροπυλεστέρας, 1231 οξικός μεθυλεστέρας, 1237 βουτυρικός μεθυλεστέρας, 1247 μονομερές του μεθακρυλικού μεθυλεστέρα, αδρανής, 1248 προπιονικός μεθυλεστέρας, 1276 n-οξικός προπυλεστέρας, 1281 μυρμηκικός προπυλεστέρας, 1301 οξικός βινυλεστέρας, αδρανής, 1862 κροτονικός αιθυλεστέρας, 1917 ακρυλικός αιθυλεστέρας, αδρανής, 1919 ακρυλικός μεθυλεστέρας αδρανής, 2277 μεθακρυλικός αιθυλεστέρας, 2385 ισοβουτυρικός αιθυλεστέρας, 2393 μυρμηκικός ισοβουτλεστέρας, 2394 προπιονικός ισοβουτλεστέρας, 2400 ισοβαλεριανικός μεθυλεστέρας, 2403 οξικός ισοπροπενυλεστέρας, 2406 ισοβουτυρικός ισοπροπυλεστέρας, 2409 προπιονικός ισοπροπυλεστέρας, 2416 βορικός τριμεθυλεστέρας, 2616 βορικός τριϊσοπροπυλεστέρας, 2838 βουτυρικός βινυλεστέρας, αδρανής, 3272 εστέρες, ε.α.ο.,

Υλεις περιέχουσες θείο:

1111 αμυλομερκαπτάνες, 2347 βουτυλομερκαπτάνες, 2375 διαιθυλοσουλφίδια, 2381 διμεθυλοδισουλφίδια, 2402 προπανοθειόλες (προπυλομερκαπτάνες), 2412 τετραϋδροθειοφένια (θειολάννιο), 2414 θειοφένιο, 2436 θειοξεικό οξύ.

Υλεις περιέχουσες άζωτο:

1113 νιτρώδες αμόλιο, 1222 νιτρικό ισοπροπίλιο, 1261 νιτρομεθάνιο, 1282 πυριδίνη, 1648 ακετονιτρίλιο (μεθυλοκυανίδιο), 1865 n-νιτρικό πρόπυλιο, 2351 νιτρώδη άλατα του βουτυλίου, 2372 1,2 δι-(διμεθυλαμινο)αιθάνιο (τετραμεθυλαιθυλενοδιαμίνη), 2410 1, 2, 3, 6-τετραϋδροπυριδίνη,

Άλλες εύφλεκτες ύλες και μείγματα και παρασκευάσματα περιέχοντα εύφλεκτα υγρά:

1091 ακετονέλαια, 1201 ζυμέλαιο, 1293 βάμματα, φαρμακευτικά, 1308 ζιρκόνιο σε εναίωρημα σε εύφλεκτο υγρό, 2380 διμεθυλοδιαθοξυσιλάνιο, 1993 εύφλεκτο υγρό, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για ιξώδεις ύλες, μείγματα και παρασκευάσματα, βλέπε 5°.

4° Διαλύματα νιτροκυτταρίνης σε μείγματα των υλών της 1° έως 3° περιέχοντα περισσότερο από 20 % αλλά όχι περισσότερο από 55 % νιτροκυτταρίνη με περιεκτικότητα σε άζωτο όχι μεγαλύτερη από 12.6 % (κατά βάρος επί ξηρού):

- (a) 2059 διάλυμα νιτροκυτταρίνης, εύφλεκτο.
- (b) 2059 διάλυμα νιτροκυτταρίνης, εύφλεκτο.

## Κλάση 3

2301  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ 1:** Μείγματα με σημείο ανάφλεξης κάτω από 23 °C και περιέχοντα περισσότερο από 55 % νιτροκυταρίνη, ασχέτως της περιεκτικότητάς της σε άζωτο ή περιέχοντα όχι περισσότερο από 55 % νιτροκυταρίνη με περιεκτικότητα σε άζωτο πάνω από 12.6 % (κατά βάρος επί ξηρού), είναι όλες της Κλάσης 1, (βλέπε περιθωριακό 2101, 4°, χαρακτηριστικός αριθμός 0340, ή 26°, χαρακτηριστικός αριθμός 0342), ή της Κλάσης 4.1 (βλέπε περιθωριακό 2401, 24°).

**ΣΗΜΕΙΩΣΗ 2:** Μείγματα περιέχοντα 20 % ή λιγότερο νιτροκυταρίνη με περιεκτικότητα σε άζωτο όχι μεγαλύτερη από 12.6 % (κατά βάρος επί ξηρού) είναι όλες της 5°.

5° Υγρά ή ιξώδη μείγματα και παρασκευάσματα, συμπεριλαμβανομένων εκείνων που περιέχουν 20 % ή λιγότερο νιτροκυταρίνη με περιεκτικότητα σε άζωτο όχι μεγαλύτερο από 12.6 % (κατά βάρος επί ξηρού):

(a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C υπό την προϋπόθεση ότι, δεν βρίσκονται κάτω από την (c):

1133 κόλλες, 1139 επικαλυπτικό διάλυμα, 1169 εκχυλίσματα, αρωματικά, υγρά, 1197 εκχυλίσματα, γευστικά, υγρά, 1210 μελάνη τυπογραφίας, 1263 χρώμα (συμπεριλαμβάνοντας χρώμα, λάκα, σμάλτο, βαφή, σέλακ, βερνίκι, λούστρο, υγρό πληρωτικό υλικό και υγρή βάση λάκας) ή 1263 υλικό σχετιζόμενο με χρώμα (συμπεριλαμβάνοντας ένωση λέπτυνσης ή μείωσης του χρώματος), 1266 προϊόντα αρωματοποίησης, 1286 ρητινέλαιο, 1287 διάλυμα καουτσούκ, 1306 συντηρητικά ξύλου, 1866 διάλυμα ρητίνης,

(b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C υπό την προϋπόθεση ότι, δεν βρίσκονται κάτω από την (c):

1133 κόλλες, 1139 επικαλυπτικό διάλυμα, 1169 εκχυλίσματα, αρωματικά, υγρά, 1197 εκχυλίσματα, γευστικά, υγρά, 1210 μελάνη τυπογραφίας, 1263 χρώμα (συμπεριλαμβάνοντας χρώμα, λάκα, σμάλτο, βαφή, σέλακ, βερνίκι, λούστρο, υγρό πληρωτικό υλικό και υγρή βάση λάκας) ή 1263 υλικό σχετιζόμενο με χρώμα (συμπεριλαμβάνοντας ένωση λέπτυνσης ή μείωσης του χρώματος), 1266 προϊόντα αρωματοποίησης, 1286 ρητινέλαιο, 1287 διάλυμα καουτσούκ, 1306 συντηρητικά ξύλου, 1866 διάλυμα ρητίνης, 1999 πίσσες, υγρές συμπεριλαμβάνοντας άσφαλο δρόμων και οδέλαια, βιτούμιο και υπολείμματα, 3269 κτ πολυεστερικής ρητίνης,

(c) 1133 κόλλες, 1139 επικαλυπτικό διάλυμα, 1169 εκχυλίσματα, αρωματικά, υγρά, 1197 εκχυλίσματα, γευστικά, υγρά, 1210 μελάνη τυπογραφίας, 1263 χρώμα (συμπεριλαμβάνοντας χρώμα, λάκα, σμάλτο, βαφή, σέλακ, βερνίκι, λούστρο, υγρό πληρωτικό υλικό και υγρή βάση λάκας) ή 1263 υλικό σχετιζόμενο με χρώμα (συμπεριλαμβάνοντας ένωση λέπτυνσης ή μείωσης του χρώματος), 1266 προϊόντα αρωματοποίησης, 1286 ρητινέλαιο, 1287 διάλυμα καουτσούκ, 1306 συντηρητικά ξύλου, 1866 διάλυμα ρητίνης, 1999 πίσσες, υγρές συμπεριλαμβάνοντας άσφαλο δρόμων και οδέλαια, βιτούμιο και υπολείμματα, 3269 κτ πολυεστερικής ρητίνης, 1993 εύφλεκτο υγρό, ε.α.ο.

Ταξινόμηση υπό το γράμμα (c) είναι μόνο δυνατή εάν καλύπτονται οι παρακάτω απαιτήσεις:



## Κλάση 3

2301  
(συνεχ.)

1. ότι το ύψος του διαχωρισμένου στρώματος διαλύτη είναι λιγότερο από 3 % του ολικού ύψους στον έλεγχο διαχωρισμού του διαλύτη,<sup>1/</sup> και
2. ότι το ιξώδες<sup>2/</sup> και το σημείο ανάφλεξης είναι σε συμφωνία με τον παρακάτω πίνακα:

Κινηματικό ιξώδες (εκτιμώμενο) (σε σχεδόν μηδενικό βαθμό διάτμησης) mm <sup>2</sup> /s στους 23 °C	Χρόνος ροής t σε συμφωνία με ISO 2431:1984		Σημείο ανάφλεξης  σε °C
	σε s	Διάμετρος αναβλυστήρα σε mm	
20 < g ≤ 80	20 < t ≤ 60	4	πάνω από 17
80 < g ≤ 135	60 < t ≤ 100	4	πάνω από 10
135 < g ≤ 220	20 < t ≤ 32	6	πάνω από 5
220 < g ≤ 300	32 < t ≤ 44	6	πάνω από -1
300 < g ≤ 700	44 < t ≤ 100	6	πάνω από -5
700 < g ≤	100 < t	6	-5 και κάτω

**ΣΗΜΕΙΩΣΗ 1:** Μείγματα περιέχοντα περισσότερο από 20 % αλλά όχι περισσότερο από 55 % νιτροκυτταρίνη με περιεκτικότητα σε άζωτο όχι μεγαλύτερη από 12.6 % κατά βάρος επί ξηρού, είναι όλες της 4°.

Μείγματα με σημείο ανάφλεξης κάτω από 23 °C και περιέχοντα:

- περισσότερο από 55 % νιτροκυτταρίνη, ασχέτως περιεκτικότητας σε, ή
- όχι περισσότερο από 55 % νιτροκυτταρίνη με περιεκτικότητα σε άζωτο πάνω από 12.6 % κατά βάρος επί ξηρού,

είναι όλες της Κλάσης 1 (βλέπε περιθωριακό 2101, 4°, Αριθμ. 0340, ή 22°, Αριθμ. 0342) ή της Κλάσης 4.1 (βλέπε περιθωριακό 2401, 24°).

**ΣΗΜΕΙΩΣΗ 2:** Καμία όλη αυτής της Οδηγίας αναφερόμενη με την ονομασία της κάτω από άλλες εγγραφές δεν μπορεί να μεταφέρεται κάτω από την εγγραφή 1263 Χρώμα ή 1263 Υλικό σχετιζόμενο με χρώμα. Υλές υπό χαρακτηριστικό αριθμό 1263 μπορούν να περιέχουν όχι περισσότερο από 20 % νιτροκυτταρίνη υπό την προϋπόθεση ότι, η περιεκτικότητα σε άζωτο δεν υπερβαίνει το 12.6 % κατά βάρος επί ξηρού.

<sup>1/</sup> Έλεγχος διαχωρισμού του διαλύτη: αυτός ο έλεγχος διεξάγεται στους 23 °C με τη χρήση ενός βαθμονομημένου μετρητικού κυλίνδρου των 100 ml πωματισμένου τύπου συνολικού ύψους περίπου 25 cm και ομοιόμορφης εσωτερικής διαμέτρου περίπου 3 cm πάνω από το διαβαθμισμένο τμήμα. Η ύλη ανακινείται μέχρι να αποκτήσει ομοιόμορφη πυκνότητα και χύνεται μέσα στον μετρητικό κύλινδρο έως το σημάδι των 100 ml. Το πάμα μπαίνει και ο κύλινδρος μένει χωρίς ανακίνηση για 24 ώρες. Μετά από 24 ώρες το ύψος του υπερκείμενου διαχωρισμένου στρώματος μετράται και υπολογίζεται το ύψος του στρώματος ως ποσοστό του συνολικού ύψους του δείγματος.

<sup>2/</sup> Προσδιορισμός του ιξώδους: Εάν η συγκεκριμένη ύλη είναι μη-Νευτώνια, ή εάν η μέθοδος προσδιορισμού του ιξώδους από ροή είναι ακατάλληλη, χρησιμοποιείται για την ύλη ένα ιξωδόμετρο μεταβλητού ρυθμού διάτμησης, στους 23 °C, για έναν αριθμό ρυθμών διάτμησης, οι λαμβανόμενες τιμές σημειώνονται σε σχέση με τον αντίστοιχο ρυθμό διάτμησης και στη συνέχεια παρεκτείνονται για μηδενικό ρυθμό διάτμησης. Το δυναμικό ιξώδες που λαμβάνεται με αυτόν τον τρόπο, διαφαιρούμενο με τη πυκνότητα, δίνει το φαινομενικό κινηματικό ιξώδες σε μία περιοχή κοντά στο μηδενικό ρυθμό διάτμησης.

## Κλάση 3

2301  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ 3:** 3269 Τα κит πολυεστερικής ρητίνης έχουν δύο συστατικά: ένα βασικό προϊόν [ΚΛΑΣΗ 3, Ομάδα(b) ή (c)], και έναν ενεργοποιητή (οργανικό υπεροξείδιο), το καθένα συσκευασμένο ξεχωριστά σε μία εσωτερική συσκευασία. Το οργανικό υπεροξείδιο θα πρέπει να είναι των τύπων D, E ή F, χωρίς να απαιτεί ρύθμιση της θερμοκρασίας και περιορισμένο σε 125 ml υγρό και 500 g στερεό ανά εσωτερική συσκευασία. Τα συστατικά μπορούν να τοποθετούνται στην ίδια εξωτερική συσκευασία, υπό την προϋπόθεση ότι, δεν αντιδρούν επικίνδυνα μεταξύ τους σε περίπτωση διαρροής.

- 6° 3064 διάλυμα νιτρογλυκερίνης σε αλκοόλη με περισσότερο από 1 % αλλά όχι περισσότερο από 5 % νιτρογλυκερίνη.

**ΣΗΜΕΙΩΣΗ:** Ειδικοί όροι συσκευασίας εφαρμόζονται για αυτή την ύλη (βλέπε περιθωριακό 2303), βλέπε επίσης κλάση 1, περιθωριακό 2101, 4°, χαρακτηριστικός αριθμός 0144.

- 7° (b) 1204 διάλυμα δινιτρογλυκερίνης σε αλκοόλη με όχι περισσότερο από 1 % νιτρογλυκερίνη.

- B. Ύλες με σημείο ανάφλεξης κάτω από 23 °C και τοξικές.

**ΣΗΜΕΙΩΣΗ 1:** Τοξικές ύλες με σημείο ανάφλεξης 23 °C ή παραπάνω, και μερικές ύλες που αναφέρονται με την ονομασία τους στα 1° έως 10° του περιθωριακού 2601 είναι ύλες της Κλάσης 6.1.

**ΣΗΜΕΙΩΣΗ 2:** Για κριτήρια τοξικότητας, βλέπε περιθωριακό 2600.

- 11° Νιτρίλια ή ισονιτρίλια (ισοκυανίδια):

- (a) 1093 ακρυλονιτρίλιο, αδρανές, 3079 μεθακρυλονιτρίλιο, αδρανές, 3273 νιτρίλιο, εύφλεκτα, τοξικά, ε.α.ο.,  
(b) 2284 ισοβουτυρονιτρίλιο, 2378 2-διμεθυλο-αμινακετονιτρίλιο, 2404 προπυλονιτρίλιο, 2411 βουτυρονιτρίλιο, 3273 νιτρίλιο, εύφλεκτα, τοξικά, ε.α.ο.

- 12° 1921 προπυλενιμίνη, αδρανής.

**ΣΗΜΕΙΩΣΗ:** Ειδικοί όροι συσκευασίας εφαρμόζονται για αυτή την ύλη (βλέπε περιθωριακό 2304).

- 13° 2481 Ισοκυανικός αιθυλεστέρας.

**ΣΗΜΕΙΩΣΗ:** Ειδικοί όροι συσκευασίας εφαρμόζονται για αυτή την ύλη (βλέπε περιθωριακό 2304).

- 14° Άλλοι ισοκυανικοί εστέρες:

- (a) 2483 ισοκυανικός ισοπροπυλεστέρας, 2605 ισοκυανικός μεθοξυμεθυλεστέρας,  
(b) 2486 ισοκυανικός ισοβουτυλεστέρας, 2478 ισοκυανικοί εστέρες, εύφλεκτοι, τοξικοί, ε.α.ο., ή 2478 διάλυμα ισοκυανικών εστέρων, εύφλεκτο, τοξικό, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Διαλύματα ισοκυανικών εστέρων με σημείο ανάφλεξης όχι μικρότερο από 23 °C, είναι ύλες της Κλάσης 6.1 (βλέπε περιθωριακό 2601, 18° ή 19°).

## Κλάση 3

- 2301** 15° Άλλες ύλες περιέχουσες άζωτο:  
(συνεχ.)
- (a) 1194 νιτροδες αιθύλιο, διάλυμα.
- 16° Αλογονωμένες οργανικές ύλες:
- (a) 1099 αλλυλοβρωμίδιο, 1100 αλλυλογλωρίδιο, 1991 γλωροπρένιο, αδρανές,
- (b) 1184 διγλωριούχο αιθυλένιο (1,2-διγλωροαιθάνιο), 2354 γλωρομεθυλαιθυλαιθέρας.
- 17° Οξυγονωμένες οργανικές ύλες:
- (a) 2336 μυρμηγκικός αλλυλεστέρας, 2983 μείγμα αιθυλενοξειδίου και προπιλενοξειδίου, με όχι περισσότερο από 30 % αιθυλενοξείδιο, 1986 αλκοόλες, εύφλεκτες, τοξικές, ε.α.ο., 1988 αλδεΐδες, εύφλεκτες, τοξικές, ε.α.ο.,
- (b) 1230 μεθανόλη, 2333 οξικός αλλυλεστέρας, 2335 αλλυλαιθυλαιθέρας, 2360 διαλλυλαιθέρας, 2396 μεθακρυλαλδεΐδη, αδρανής, 2622 γλυκιδαλδεΐδη, 1986 αλκοόλες, εύφλεκτες, τοξικές, ε.α.ο., 1988 αλδεΐδες, εύφλεκτες, τοξικές, ε.α.ο.
- 18° Οργανικές ύλες περιέχουσες θείο:
- (a) 1131 διθειούχος άνθρακας (θειούχος άνθρακας),
- (b) 1228 μερκαπτάνες, υγρές, εύφλεκτες, τοξικές, ε.α.ο., ή 1228 μείγμα μερκαπτάνης, υγρό, εύφλεκτο, τοξικό, ε.α.ο.
- 19° Ύλες, διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα), με σημείο ανάφλεξης κάτω από 23 °C και τοξικά τα οποία δεν μπορούν να ταξινομηθούν υπό άλλο συγκεντρωτικό τίτλο:
- (a) 1992 εύφλεκτο υγρό, τοξικό, ε.α.ο.,
- (b) 2603 κυκλοεπτατριένιο, 3248 φάρμακο, υγρό, εύφλεκτο, τοξικό, ε.α.ο., 1992 εύφλεκτο υγρό, τοξικό, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Φαρμακευτικά προϊόντα έτοιμα για χρήση, π.χ καλλυντικά, ναρκωτικά και φάρμακα, τα οποία είναι ύλες που παρασκευάζονται και συσκευάζονται σε συσκευασίες, τύπου που προορίζεται για λιανική πώληση ή διανομή για προσωπική ή οικιακή κατανάλωση, τα οποία θα ήταν αλλιώς ύλες του είδους 19° (b), δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

**C.** Ύλες με σημείο ανάφλεξης κάτω από 23 °C και διαβρωτικές

**ΣΗΜΕΙΩΣΗ 1:** Διαβρωτικά υγρά με σημείο ανάφλεξης 23 °C ή παραπάνω είναι ύλες της Κλάσης 8 (βλέπε περιθωριακό 2801).

**ΣΗΜΕΙΩΣΗ 2:** Ορισμένα εύφλεκτα διαβρωτικά υγρά με σημείο ανάφλεξης κάτω από 23°C και σημείο βρασμού πάνω από 35°C, είναι ύλες της Κλάσης 8 [βλέπε περιθωριακό 2800 (7) (α)].

## Κλάση 3

2301  
(συνεχ.)**ΣΗΜΕΙΩΣΗ 3:** Για κριτήρια διαβρωτικότητας, βλέπε περιθωριακό 2800.

21° Χλωροσιλάνια:

- (a) 1250 μεθυλοτριγλωροσιλάνιο, 1305 βινυλοτριγλωροσιλάνιο, αδρανές,  
 (b) 1162 διμεθυλοδιγλωροσιλάνιο, 1196 αιθυλοτριγλωροσιλάνιο, 1298 τριμεθυλογλωροσιλάνιο, 2985 γλωροσιλάνια, εύφλεκτα, διαβρωτικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Χλωροσιλάνια τα οποία παράγουν εύφλεκτα αέρια σε επαφή με το νερό, είναι όλες της Κλάσης 4.3, 1° (a) [βλέπε περιθωριακό 2471, 1° (a)].

22° Αμίνες και διαλύματά τους:

- (a) 1221 ισοπροπυλαμίνη, 1297 υδατικό διάλυμα τριμεθυλαμίνης, περιέχον 30 % έως 50 % τριμεθυλαμίνη (κατά βάρος), 2733 αμίνες, εύφλεκτες, διαβρωτικές, ε.α.ο. ή 2733 πολυαμίνες, εύφλεκτες, διαβρωτικές, ε.α.ο.,  
 (b) 1106 αμυλαμίνες (n-αμυλαμίνη, τριτοταγής-αμυλαμίνη), 1125 n-βουτυλαμίνη, 1154 διαιθυλαμίνη, 1158 διίσοπροπυλαμίνη, 1160 υδατικό διάλυμα διμεθυλαμίνης, 1214 ισοβουτυλαμίνη, 1235 υδατικό διάλυμα μεθυλαμίνης, 1277 προπυλαμίνη, 1296 τριαθυλαμίνη, 1297 υδατικό διάλυμα τριμεθυλαμίνης, με όχι περισσότερο από 30 % τριμεθυλαμίνη κατά βάρος, 2266 N,N-διμεθυλοπροπυλαμίνη (διμεθυλο-N-προπυλαμίνη), 2270 υδατικό διάλυμα αιθυλαμίνης με όχι λιγότερο από 50 % αλλά όχι περισσότερο από 70 % αιθυλαμίνη (κατά βάρος), 2379 1, 3- διμεθυλοβουτυλαμίνη, 2383 διπροπυλαμίνη, 2945 N-μεθυλοβουτυλαμίνη, 2733 αμίνες, εύφλεκτες, διαβρωτικές, ε.α.ο. ή 2733 πολυαμίνες, εύφλεκτες, διαβρωτικές, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Η άνοδρη διμεθυλοαμίνη, η αιθυλαμίνη, η μεθυλαμίνη και η τριμεθυλαμίνη είναι όλες της Κλάσης 2 [βλέπε περιθωριακό 2201, 3° (bt)].

23° Άλλες ύλες περιέχουσες άζωτο:

- (b) 1922 πυρρολιδίνη, 2386 1-αιθυλοπυριδίνη, 2399 1-μεθυλοπυριδίνη, 2401 πυριδίνη, 2493 εξαμεθυλενοϊμίνη, 2535 4-μεθυλομορφολίνη (N-μεθυλομορφολίνη).

24° Διαλύματα αλκοολικών αλάτων:

- (b) 1289 διάλυμα μεθυλικού νατρίου σε αλκοόλη, 3274 διάλυμα αλκοολικών αλάτων, ε.α.ο. σε αλκοόλη.

25° Άλλες αλογονωμένες διαβρωτικές ύλες:

- (b) 1717 ακετυλογλωρίδιο, 1723 αλλυλοϊωδιδιο, 1815 προπιονυλογλωρίδιο, 2353 βουτυρυλογλωρίδιο, 2395 ισοβουτυρυλογλωρίδιο.

26° Ύλες, διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα) με σημείο ανάφλεξης κάτω από 23 °C και εξαερετικά διαβρωτικά, διαβρωτικά ή λίγο διαβρωτικά, τα οποία δεν μπορούν να ταξινομηθούν κάτω από άλλο συλλογικό τίτλο:

## Κλάση 3

2301  
(συνεχ.)

- (a) 2924 εύφλεκτο υγρό, διαβρωτικό, ε.α.ο.,  
 (b) 2924 εύφλεκτο υγρό, διαβρωτικό, ε.α.ο.

D. Υγες με σημείο ανάφλεξης κάτω από 23 °C, τοξικές και διαβρωτικές και είδη περιέχοντα εκείνες τις ύλες

- 27° (a) 3286 εύφλεκτο υγρό, τοξικό, διαβρωτικό, ε.α.ο.,  
 (b) 2359 διαλλυλαμίνη,  
3286 εύφλεκτο υγρό, τοξικό, διαβρωτικό, ε.α.ο.

28° 3165 δεξαμενή καυσίμου μονάδας υδραυλικής ισχύος αεροσκάφους περιέχον μείγμα άνυδρης υδραζίνης και μεθυλυδραζίνης.

*ΣΗΜΕΙΩΣΗ:* Ειδικοί όροι συσκευασίας εφαρμόζονται για αυτές τις δεξαμενές (βλέπε περιθωριακό 2309).

E. Υγες με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων οι οποίες θα μπορούσαν να είναι λίγο τοξικές ή λίγο διαβρωτικές

*ΣΗΜΕΙΩΣΗ:* Μη-τοξικά και μη-διαβρωτικά διαλύματα και ομογενή μείγματα με σημείο ανάφλεξης 23 °C ή παραπάνω (ιξώδεις ύλες, χρώματα ή βερνίκια, εκτός από ύλες περιέχουσες περισσότερο από 20 % νιτροκυταρίνη) συσκευασμένα σε δοχεία με λιγότερο από 450 λίτρα χωρητικότητα, υπόκεινται μόνο στις απαιτήσεις του περιθωριακού 2314 εάν, στον έλεγχο διαχωρισμού του διαλύτη, όπως περιγράφεται στην υποσημείωση <sup>11</sup> στην 5°, το ύψος του διαχωρισμένου στρώματος διαλύτη είναι μικρότερο από 3 % του ολικού ύψους, και εάν οι ύλες στους 23 °C έχουν, στο πάμα ροής σύμφωνα με το ISO 2431:1984 με αναβλυστήρα διαμέτρου 6 mm, χρόνο ροής:

- (a) όχι μικρότερο από 60 δευτερόλεπτα, ή  
 (b) όχι μικρότερο από 40 δευτερόλεπτα και περιέχουν όχι περισσότερο από 60 % ύλες της Κλάσης 3.

31° Υγες, διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα) με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων, όχι λίγο τοξικά και όχι λίγο διαβρωτικά:

- (c) 1202 πετρέλαιο καύσιμο ή 1202 γκαζόιλ ή 1202 καύσιμο θέρμανσης (ελαφρύ), 1223 κηροζίνη, 1267 αργό πετρέλαιο, 1863 καύσιμο στροβιλομηχανών αεροπορίας, 1268 κλάσματα πετρελαίου, ε.α.ο. ή 1268 προϊόντα πετρελαίου, ε.α.ο.

*ΣΗΜΕΙΩΣΗ:* Με έκπτωση από το περιθωριακό 2300 (2), το πετρέλαιο καύσιμο, το γκαζόιλ και το καύσιμο θέρμανσης (ελαφρύ) με σημείο ανάφλεξης πάνω από 61 °C, θα θεωρούνται ύλες της 31° (c), χαρακτηριστικός αριθμός ύλης 1202.

## Κλάση 3

2301  
(συνεχ.)

Υδρογονάνθρακες:

1136 κλάσματα λιθανθρακόπισσας, 1147 δεκαϋδروναφθαλένιο (δεκαλίνη), 1288 ασφαλτούχος σχιστόλιθος, 1299 τερεβινθίνη, 1300 υποκατάστατο τερεβινθίνης (white spirit), 1307 ξυλένια (π-ξυλένιο, p-ξυλένιο, διμεθυλοβενζόλια), 1918 ισοπροπυλοβενζόλιο (κουμένιο), 1920 εννείνια, 1999 πίσσες, γυρές συμπεριλαμβάροντας άσφαλτο δρόμων και οδέλια, βιτούμιο και υπολείμματα, 2046 κυμένια (o-,m-,p-) (μεθυλισοπροπυλοβενζόλια), 2048 δικυκλοπενταδιέριο, 2049 διαιθυλοβενζόλια (o-,m-,p-), 2052 διπεντέριο (λιμονένιο), 2055 στυρέριο μονομερές, αδρανές (βινυλοβενζόλιο μονομερές αδρανές), 2057 τριπροπυλέριο (προπυλέριο τριμερές), 2247 n-δεκάνιο, 2286 πενταμεθυλοεπτάνιο (ισοδαδεκάνιο), 2303 ισοπροπενυλοβενζόλιο, 2324 τρισοβουτυλέριο, 2325 1.3.5-τριμεθυλοβενζόλιο (μεστυλέριο), 2330 ενδεκάνιο, 2364 n- προπυλοβενζόλιο, 2368 α-πινένιο, 2520 κυκλοοκταδιένια, 2541 τερπινολένιο, 2618 βινυλοτολουόλια, αδρανή (o-,m-,p-), 2709 βουτυλοβενζόλια, 2850 προπυλέριο τετραμερές (τετραπροπυλέριο), 2319 τερπενικοί υδρογονάνθρακες, ε.α.ο., 3295 υδρογονάνθρακες, υγροί, ε.α.ο.

Αλογονωμένες ύλες:

1134 γλωροβενζόλιο (φαινυλοχλωρίδιο), 1152 διγλωροπεντάνια, 2047 διγλωροπροπένια, 2234 γλωροβενζοτριφθορίδια (o-,m-,p-), 2238 γλωροτολουόλια (o-,m-,p-), 2341 1-βρωμο- 3-μεθυλοβουτάνιο, 2392 ιωδοπροπάνια, 2514 βρωμοβενζόλια, 2711 m-διβρωμοβενζόλιο,

Αλκοόλες:

1105 αμυλαλκοόλες, 1120 βουτανόλες, 1148 διακετονική αλκοόλη χημικός καθαρή, 1170 διάλυμα αιθανόλης (διάλυμα αιθυλικής αλκοόλης) περιέχον περισσότερο από 24 % και όχι περισσότερο από 70 % αλκοόλη, 1171 μονοαιθυλαιθέρας της αιθυλενογλυκόλης (2-αιθοξυ-αιθανόλη), 1188 μονομεθυλαιθέρας της αιθυλενογλυκόλης (2-μεθοξυ- αιθανόλη), 1212 ισοβουτανόλη (ισοβουτυλική αλκοόλη), 1274 n-προπανόλη, (προπυλική αλκοόλη, κανονική), 2053 μεθυλοϊσοβουτυλική καρβινόλη (μεθυλαμυλική αλκοόλη), 2244 κυκλοπεντανόλη, 2275 2-αιθυλοβουτανόλη, 2282 εξανόλες, 2560 2- μεθυλοπεντανόλη-2, 2614 μεταλλυλική αλκοόλη, 2617 μεθυλοκυκλοεξανόλες, εύφλεκτες, 2686 διαιθυλαμινοαιθανόλη, 3065 αλκοολούχα ποτά περιέχοντα όχι περισσότερο από 24 % και όχι περισσότερο από 70 % αλκοόλη κατ' όγκο, 3092 1-μεθοξυ-2-προπανόλη, 1987 αλκοόλες, εύφλεκτες, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ 1:** Υδατικά διαλύματα αιθυλικής αλκοόλης και αλκοολούχα ποτά περιέχοντα όχι περισσότερο από 24 % αλκοόλη κατ' όγκο, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 2:** Αλκοολούχα ποτά περιέχοντα περισσότερο από 24 % και όχι περισσότερο από 70 % αλκοόλη κατ' όγκο, υπόκεινται στις διατάξεις αυτής της Οδηγίας μόνο εάν μεταφέρονται σε δοχεία με χωρητικότητα μεγαλύτερη από 250 λίτρα ή σε οχήματα-δεξαμενές, εμπορευματοκιβώτια-δεξαμενές ή αποσυναρμολογούμενες δεξαμενές.

Αιθέρες:

1149 διβουτυλαιθέρας, 1153 διαιθυλαιθέρας της αιθυλενογλυκόλης (1, 2- διαιθοξυαιθάνιο), 2219 αλλυλικός γλυκιδυλαιθέρας, 2222 ανισόλη (φαινυλομεθυλαιθέρας), 2707 διμεθυλοδιοξάνια, 2752 1.2-εποξυ-3-αιθοξυπροπάνιο, 3271 αιθέρες, ε.α.ο.,

## Κλάση 3

2301  
(συνεχ.)

## Αλδεύδες:

1191 οκτυλαλδεύδες (αιθυλεξάλδεύδες) (2-αιθυλεξάλδευδη) (3-αιθυλεξάλδευδη), 1199 φουρφοουράλη (φουρφοουραλδεύδη), 1207 εξάλδευδη, 1264 παραλδεύδη, 2498 1,2,3,6-τετραϋδοβενζάλδευδη, 2607 ακρολείνη διμερής, σταθεροποιημένη, 3056 n-επταλδεύδη, 1989 αλδεύδες, εύφλεκτες, ε.α.ο.,

## Κετόνες:

1110 n-αμυλομεθυλοκετόνη, 1157 δύσσοβουτυλοκετόνη, 1229 μεσιτυλοξείδιο, 1915 κυκλοεξανόνη, 2245 κυκλοπεντανόνη, 2271 αιθυλοαμυλοκετόνες, 2293 4-μεθοξυ-4 μεθυλοπεντανόνη-2, 2297 μεθυλοκυκλοεξανόνες, 2302 5-μεθυλοεξανόνη - 2, 2310 πεντανοδιόνη-2.4 (ακετυλακετόνη), 2621 ακετυλομεθυλοκαρβινόλη, 2710 διπροτυλοκετόνη, 1224 κετόνες, ε.α.ο.,

## Εστέρες:

1104 οξικός αμυλεστέρας, 1109 μυρμηκικός αμυλεστέρας, 1123 οξικός βουτυλεστέρας, 1172 οξικός μονοαιθυλαιθέρας της αιθυλενογλυκόλης (2-οξικός αιθοξαιθυλεστέρας), 1177 οξικός αιθυλοβουτυλεστέρας, 1180 βουτυρικός αιθυλεστέρας, 1189 οξικός μονομεθυλαιθέρας της αιθυλενογλυκόλης, 1192 γαλακτικός αιθυλεστέρας, 1233 οξικός μεθυλαμυλεστέρας, 1292 πυριτικός τετρααιθυλεστέρας, 1914 n-προπιονικός βουτυλεστέρας, 2227 n-μεθακρυλικός βουτυλεστέρας, αδρανής, 2243 οξικός κυκλοεξυλεστέρας, 2283 μεθακρυλικός ισοβουτυλεστέρας, αδρανής, 2323 φωσφοράδες τριαθύλιο, 2329 φωσφοράδες τριμεθύλιο, 2348 n-ακρυλικός βουτυλεστέρας αδρανής, 2366 καρβονικός διαιθυλεστέρας (καρβονικός αιθυλεστέρας), 2405 βουτυρικός ισοπροπυλεστέρας, 2413 ορθοτιτανικός τετραπροπυλεστέρας, 2524 ορθομυρμηκικός αιθυλεστέρας, 2527 ακρυλικός ισοβουτυλεστέρας αδρανής, 2528 ισοβουτυρικός ισοβουτυλεστέρας, 2616 βορικός τριϊσοπροπυλεστέρας, 2620 βουτυρικός αμυλεστέρας, 2708 βουτοξύλιο (3-μεθοξυ-1-ακετοξυβουτάνιο), 2933 2-γλωροπροπιονικός μεθυλεστέρας, 2934 2-γλωροπροπιονικός ισοπροπυλεστέρας, 2935 2-γλωροπροπιονικός αιθυλεστέρας, 2947 γλωροξικός ισοπροπυλεστέρας, 3272 εστέρας, ε.α.ο.,

## Υλεις περιέχουσες άζωτο:

1112 νιτρικό αμόλιο, 2054 μορφολίνη, 2265 N,N-διμεθυλοφορμαμίδιο, 2313 πικολίνες (μεθυλοπυριδίνες) 2332 οξίμη ακεταλδεύδης, 2351 νιτρούδη βουτύλια, 2608 νιτροπροπάνια, 2840 βουτυραλδοξίμη, 2842 νιτροαιθάνιο, 2906 διάλυμα τριϊσοκονατοϊσοκονουρικών ή ισοφορονεδίϊσοκονικικών αλάτων, (70 % κατά βάρος), 2943 τετραϋδροφουρφοουραμίνη.

## Υλεις περιέχουσες θείο:

3054 κυκλοεξυλομερκαπτάνη.

## Κλάση 3

2301  
(συνεχ.)

Άλλες εύφλεκτες ύλες, μείγματα και παρασκευάσματα περιέχοντα εύφλεκτα υγρά:

1130 καμφορέλαιο, 1133 κόλλες, 1139 επικαλυπτικό διάλυμα, 1169 εκχυλίσματα αρωματικά, υγρά, 1197 εκχυλίσματα, γευστικά, υγρά, 1201 ζυμέλαιο, 1210 μελάνη τυπογραφίας, 1263 χρώμα (συμπεριλαμβάνοντας χρώμα, λάκα, σμάλτο, βαφή, σέλακ, βερνίκι, λούστρο, υγρό πληρωτικό υλικό και υγρή βάση λάκας) ή 1263 υλικό σγετιζόμενο με χρώμα (συμπεριλαμβάνοντας ένωση λέπτυνσης ή μείωσης χρώματος), 1266 προϊόντα αρωματοποίησης, 1272 έλαιο πεύκου, 1286 ρητινέλαιο, 1287 διάλυμα καουτσούκ, 1293 βάμματα, φαρμακευτικά, 1306 συντηρητικά ζύλου, υγρά, 1308 ζιρκόνιο σε εναιώρημα σε εύφλεκτο υγρό, 1866 διάλυμα ρητίνης, 3269 πολυεστερικής ρητίνης, 1993 εύφλεκτο υγρό, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Μείγματα περιέχοντα περισσότερο από 20 % αλλά όχι περισσότερο από 55 % νιτροκυταρίνη με περιεκτικότητα σε άζωτο όχι μεγαλύτερη από 12,6 % (κατά βάρος επί ξηρού), είναι ύλες του 34° (c).

**ΣΗΜΕΙΩΣΗ 2:** Για 3269 εξαρτήματα πολυεστερικής ρητίνης, βλέπε 5° ΣΗΜΕΙΩΣΗ 3.

32° Υλες, διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα) με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων, λίγο τοξικά:

- (c) 2841 δι-η-αμυλαμίνη, 1228 μερκαπτανές, υγρές, εύφλεκτες, τοξικές, ε.α.ο. ή 1228 μείγμα μερκαπτανής, υγρό, εύφλεκτο, τοξικό, ε.α.ο., 1986 αλκοόλες εύφλεκτες, τοξικές, ε.α.ο., 1988 αλδεΐδες εύφλεκτες, τοξικές, ε.α.ο., 2478 ισοκτανικά άλατα, εύφλεκτα, τοξικά, ε.α.ο. ή 2478 διάλυμα ισοκτανικών αλάτων, εύφλεκτο, τοξικό, ε.α.ο., 3248 φάρμακο, υγρό, εύφλεκτο, τοξικό, ε.α.ο., 1992 εύφλεκτο, υγρό, τοξικό, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Προϊόντα φαρμακοποιίας έτοιμα για χρήση, π.χ. καλλυντικά, ναρκωτικά και φάρμακα, τα οποία είναι ύλες που παρασκευάζονται και συσκευάζονται σε συσκευασίες, τύπου που προορίζεται για λιανική αγορά ή διανομή για προσωπική ή οικιακή κατανάλωση, οι οποίες θα μπορούσαν αλλιώς να είναι ύλες της 32° (c), δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

33° Υλες, διαλύματα και μείγματα (όπως παρασκευάσματα και απόβλητα) με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων, λίγο διαβρωτικά:

- (c) 1106 αμυλαμίνη (sec-αμυλαμίνη), 1198 διάλυμα φορμαλδεΐδης, εύφλεκτο, 1289 διάλυμα μεθυλικού νατρίου σε αλκοόλη, 1297 υδατικό διάλυμα τριμεθυλαμίνης, (όχι περισσότερο από 30 % τριμεθυλαμίνη, κατά βάρος), 2260 τριπροπυλαμίνη, 2276 2-αιθυλεξυλαμίνη, 2361 δίσοβουτυλαμίνη, 2526 φουρφορυλαμίνη, 2529 ισοβουτυρικό οξύ, 2530 ισοβουτυρικός ανυδρίδιο, 2610 τριαλλυλαμίνη, 2684 διαιθυλαμινοπροπυλαμίνη, 2733 αμίνες, εύφλεκτες, διαβρωτικές, ε.α.ο. ή 2733 πολυαμίνες, εύφλεκτες, διαβρωτικές, ε.α.ο., 2924 εύφλεκτο υγρό, διαβρωτικό, ε.α.ο.



## Κλάση 3

**2301** 34° Δ ιαλύματα νιτροκυτταρίνης σε μείγματα υλών της 31° (c) περιέχοντα περισσότερο (συνεχ.) από 20 % αλλά όχι περισσότερο από 55 % νιτροκυτταρίνη με περιεκτικότητα σε άζωτο όχι μεγαλύτερη από 12.6 % (κατά βάρος επί ξηρού):

(c) 2059 διάλυμα νιτροκυτταρίνης, εύφλεκτο.

**ΣΗΜΕΙΩΣΗ:** Μείγματα περιέχοντα περισσότερο από 55 % νιτροκυτταρίνη, ασχέτως της περιεκτικότητάς της σε άζωτο, ή περιέχοντα όχι περισσότερο από 55 % νιτροκυτταρίνη με περιεκτικότητα σε άζωτο πάνω από 12.6 % (κατά βάρος επί ξηρού), είναι ύλες της Κλάσης 1 (βλέπε περιθωριακό 2101, 4°, χαρακτηριστικός αριθμός 0340 ή 26°, χαρακτηριστικός αριθμός 0342) ή της Κλάσης 4.1 (βλέπε περιθωριακό 2401, 24°).

**F. Ύλες και παρασκευάσματα χρησιμοποιούμενα ως παρασιτοκτόνα με σημείο ανάφλεξης κάτω από 23 °C**

**ΣΗΜΕΙΩΣΗ 1:** Εύφλεκτες υγρές ύλες και παρασκευάσματα, χρησιμοποιούμενα ως παρασιτοκτόνα, οι οποίες είναι εξαιρετικά τοξικά, τοξικά ή λίγο τοξικά και έχουν σημείο ανάφλεξης 23 °C ή παραπάνω, είναι ύλες της Κλάσης 6.1 (βλέπε περιθωριακό 2601, 71° έως 87°).

**ΣΗΜΕΙΩΣΗ 2:** Στους πίνακες, τα παρασιτοκτόνα υποδιαιρούνται σε είδη 41° έως 57° ως εξής:

- εξαιρετικά τοξικές ύλες και παρασκευάσματα
- τοξικές ύλες και παρασκευάσματα
- λίγο τοξικές ύλες και παρασκευάσματα

**ΣΗΜΕΙΩΣΗ 3:** Όλες οι ενεργές ύλες και τα παρασκευάσματά τους τα χρησιμοποιούμενα ως παρασιτοκτόνα, θα κατατάσσονται υπό τις 41° έως 57° εξαιρετικά τοξικά, τοξικά και λίγο τοξικά, σε συμφωνία με το περιθωριακό 2600 (3).

**ΣΗΜΕΙΩΣΗ 4:** Εάν είναι γνωστή μόνο η τιμή  $LD_{50}$  της ενεργής ύλης και όχι εκείνη των παρασκευασμάτων της ενεργής ύλης, τα παρασκευάσματα μπορούν να καταταγούν υπό τις 41° έως 57° εξαιρετικά τοξικά, τοξικά και βλαβερά χρησιμοποιώντας τους παρακάτω πίνακες, όπου οι τιμές που εμφανίζονται στις στήλες "εξαιρετικά τοξικά", "τοξικά" και "λίγο τοξικά" της 41° έως 57° αντιπροσωπεύουν το ποσοστό της ενεργής παρασιτοκτόνου ύλης στα παρασκευάσματα.

**ΣΗΜΕΙΩΣΗ 5:** Για τις ύλες οι οποίες δεν ονομάζονται στον κατάλογο, και για τις οποίες μόνο η τιμή  $LD_{50}$  της ενεργής ύλης είναι γνωστή και όχι η τιμή  $LD_{50}$  των διαφόρων παρασκευασμάτων, η κατάταξη ενός παρασκευάσματος μπορεί να καθοριστεί από τον πίνακα στο περιθωριακό 2600(3), χρησιμοποιώντας μία τιμή  $LD_{50}$  λαμβανόμενη από πολλαπλασιασμό της τιμής  $LD_{50}$  της ενεργής ύλης επί  $100/X$ , όπου  $x$  είναι το ποσοστό της ενεργής ύλης κατά βάρος, σύμφωνα με τον παρακάτω τύπο:

$$\text{Τιμή } LD_{50} = \frac{\text{τιμή της } LD_{50} \text{ της ενεργούς ύλης} \times 100}{\text{ποσοστό της ενεργούς ύλης κατά βάρος}}$$

**ΣΗΜΕΙΩΣΗ 6:** Η κατάταξη σύμφωνα με τις παραπάνω ΣΗΜΕΙΩΣΕΙΣ 4 και 5 δεν θα χρησιμοποιούνται όταν τα παρασκευάσματα περιέχουν πρόσθετα τα οποία επηρεάζουν την τοξικότητα της ενεργής ύλης ή όταν ένα παρασκεύασμα περιέχει περισσότερο από μία ενεργή ύλη. Σε τέτοιες περιπτώσεις η κατάταξη θα βασίζεται στην τιμή  $LD_{50}$  του συγκεκριμένου παρασκευάσματος, σύμφωνα με τα κριτήρια στο περιθωριακό 2600 (3). Εάν η τιμή  $LD_{50}$  δεν είναι γνωστή, η ύλη θα κατατάσσεται στα εξαιρετικά τοξικά της 41° έως 57°.

## Κλάση 3

2301 41° 2784 οργανοφωσφορικά παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης  
(συνεχ.) μικρότερο από 23 °C

- (a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
(b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά, τέτοια όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Azinphos-ethyl</u>	-	100->25	25-2
<u>Azinphos-methyl</u>	-	100->10	10-1
<u>Bromophos-ethyl</u>	-	-	100-14
<u>Carbophenotion</u>	-	100->20	20-2
<u>Chlorfenvinphos</u>	-	100->20	20-2
<u>Chlormephos</u>	-	100->15	15-1
<u>Chlorpyrifos</u>	-	-	100-10
<u>Chlorthiophos</u>	-	100->15	15-1
<u>Crotoxyphos</u>	-	-	100-15
<u>Crufomate</u>	-	-	100-90
<u>Cyanophos</u>	-	-	100-55
<u>DLF</u>	-	-	100-40
<u>Demethion</u>	100->0	-	-
<u>Demeton</u>	100->30	30->3	3->0
<u>Demeton-O-(Systox)</u>	100->34	34->3,4	3,4-0,34
<u>Demeton-O-methyl</u>	-	-	100-35
<u>Demeton-S-methyl</u>	-	100->80	80-10
<u>Demeton-S-methylsulfone</u>	-	100->74	74-7,4
<u>Dialifos</u>	-	100->10	10-1
<u>Diazinon</u>	-	-	100-15
<u>Dichlofenthion</u>	-	-	100-54
<u>Dichlorvos</u>	-	100->35	35-7
<u>Dicrotophos</u>	-	100->25	25-2
<u>Dimefox</u>	100->20	20->2	2->0
<u>Dimethoate</u>	-	-	100-29
<u>Dioxathion</u>	-	100->40	40-4
<u>Disulfoton</u>	100->40	40->4	4->0
<u>Edifenphos</u>	-	-	100-30
<u>Endothion</u>	-	100->45	45-4
<u>EPN</u>	100->62	62->12,5	12,5-2,5
<u>Ethion</u>	-	100->25	25-2
<u>Ethoate-methyl</u>	-	-	100-25
<u>Ethoprophos</u>	100->65	65->13	13-2
<u>Fenamiphos</u>	100->40	40->4	4->0
<u>Fenitrothion</u>	-	-	100-48
<u>Fensulfothion</u>	100->40	40->4	4->0
<u>Fenthion</u>	-	-	100-38
<u>Fonophos</u>	100->60	60->6	6-0,5
<u>Formothion</u>	-	-	100-65
<u>Heptenophos</u>	-	-	100-19
<u>Iprobenfos</u>	-	-	100-95
<u>Isofenphos</u>	-	100->60	60-6

## Κλάση 3

2301  
(συνεχ.)

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Isothioate</u>	-	-	100-25
<u>Isoxathion</u>	-	-	100-20
<u>Mecarbam</u>	-	100->30	30-3
<u>Mephosfolan</u>	100->25	25->5	5-0,5
<u>Methamidophos</u>	-	100->15	15-1,5
<u>Methidathion</u>	-	100->40	40-4
<u>Methyltrithion</u>	-	-	100-19
<u>Mevinphos</u>	100->60	60->5	5-0,5
<u>Monocrotophos</u>	-	100->25	25-2,5
<u>Naled</u>	-	-	100-50
<u>Omethoate</u>	-	-	100-10
<u>Oxydemeton-methyl</u>	-	100->93	93-9
<u>Oxydisulfoton</u>	100->70	70->5	5-0,5
<u>Paraoxon</u>	100->35	35->3	3-0,35
<u>Parathion</u>	100->40	40->4	4-0,4
<u>Parathion-methyl</u>	-	100->12	12-1,2
<u>Phenkapton</u>	-	-	100-10
<u>Phenthoat</u>	-	-	100-70
<u>Phorate</u>	100->20	20->2	2->0
<u>Phosalone</u>	-	-	100-24
<u>Phosfolan</u>	-	100->15	15-1
<u>Phosmet</u>	-	-	100-18
<u>Phosphamidon</u>	-	100->34	34-3
<u>Pirimiphos-ethyl</u>	-	-	100-28
<u>Propaphos</u>	-	100->75	75-15
<u>Prothoate</u>	-	100->15	15-1
<u>Pyrazophos</u>	-	-	100-45
<u>Pyrazoxon</u>	100->80	80->8	8-0,5
<u>Quinalphos</u>	-	100->52	52-5
<u>Salithion</u>	-	-	100-25
<u>Schradan</u>	-	100->18	18-3,6
<u>Sulfotep</u>	-	100->10	10-1
<u>Sulprofos</u>	-	-	100-18
<u>Temphos</u>	-	-	100-90
<u>TEPP</u>	100->10	10->0	-
<u>Terbufos</u>	100->15	15->3	3-0,74
<u>Thiomethon</u>	-	100->50	50-5
<u>Thionazine</u>	100->70	70->5	5-0,5
<u>Triamiphos</u>	-	100->20	20-1
<u>Triazophos</u>	-	-	100-13
<u>Trichlorfon</u>	-	-	100-23
<u>Trichloronat</u>	-	100->30	30-3
<u>Vamidothion</u>	-	-	100-10

## Κλάση 3

2301 42° 2762 Παρασιτοκτόνα οργανοχλωρίου, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης  
(συνεχ.) μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,

όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Aldrin</u>	-	100->75	75-7
<u>Allidochlor</u>	-	-	100-35
<u>Camphechlor</u>	-	-	100-15
<u>Chlordane</u>	-	-	100-55
<u>Chlordimeforme</u>	-	-	100-50
<u>Chlordimeforme, hydrochloride</u>	-	-	100-70
<u>Chlorophacinone</u>	100->40	40->4	1-0,4
<u>Crimidin</u>	100->25	25->2	2->0
<u>DDT</u>	-	-	100-20
<u>Διβρωμο-1,2-γλωρο-3-προπάνιο</u>	-	-	100-34
<u>Dieldrine</u>	-	100->75	75-7
<u>Endosulfan</u>	-	100->80	80-8
<u>Endrin</u>	100->60	60->6	6-0,5
<u>Heptachlor</u>	-	100->80	80-8
<u>Isobenzane</u>	100->10	10->2	2-0,4
<u>Isodrin</u>	-	100->14	14-1
<u>Lindane (gBHC)</u>	-	-	100-15
<u>Mirex</u>	-	-	100-60
<u>Πενταγλωροφαινόλη</u>	-	100->54	54-5

43° 2766 φαινοξικά παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,

όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>2,4-D</u>	-	-	100-75
<u>2,4-DB</u>	-	-	100-40
<u>2,4,5-T</u>	-	-	100-60
<u>Triadimefon</u>	-	-	100-7

## Κλάση 3

2301 44° 2758 καρβαμικά παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης  
(συνεχ.) μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,
- b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,  
όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Aldicarb</u>	100->15	15->1	1->0
<u>Aminocarb</u>	-	100->60	60-6
<u>Bendiocarb</u>	-	100->65	65-5
<u>Benfuracarb</u>	-	-	100-20
<u>Butocarboxim</u>	-	-	100-30
<u>Carbaryl</u>	-	-	100-10
<u>Carbofuran</u>	-	100->10	10-1
<u>Cartap HCl</u>	-	-	100-40
<u>Diallate</u>	-	-	100-75
<u>Dimetan</u>	-	-	100-24
<u>Dimetilan</u>	-	100->50	50-5
<u>Dioxacarb</u>	-	-	100-10
<u>Formetanate</u>	-	100->40	40-4
<u>Isolan</u>	-	100->20	20-2
<u>Isoprocarb</u>	-	-	100-35
<u>Mercaptodimethur</u>	-	100->70	70-7
<u>Methasulfocarb</u>	-	-	100-20
<u>Methomyl</u>	-	100->34	34-3
<u>Mexacarbate</u>	-	100->28	28-2
<u>Mobam</u>	-	-	100-14
<u>Oxamyl</u>	-	100->10	10-1
<u>Pirimicarb</u>	-	-	100-29
<u>Promcarb</u>	-	-	100-14
<u>Promorit (Muritan)</u>	100->5,6	5.6->0,56	0,56->0
<u>Propoxur</u>	-	-	100-18

45° 2 778 παρασιτοκτόνα με βάση τον υδράργυρο, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C

- (a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,
- (b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,  
όπως:

## Κλάση 3

2301  
(συνεχ.)

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Οξικός φαινυλιδράργυρος II</u> (PMA)	-	100->60	60-6
<u>Χλωριούχος υδράργυρος II</u>	-	100->70	70-7
<u>Χλωρομεθοξυαιθυλιδράργυρος</u>	-	100->40	40-4
<u>Οξείδιο του υδραργύρου</u>	-	100->35	35-3
<u>Phenylmercury pyrocatechin</u> (PMB)	-	100->60	60-6

46° 2787 οργανοκασσιτερικά παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή λίγο τοξικά,  
b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,

όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Fentin acetate</u>	-	-	100-25
<u>Cyhexatin</u>	-	-	100-35
<u>Fentine hydróxide</u>	-	-	100-20

47° 3024 Παρασιτοκτόνα παραγώγων της κουμαρίνης, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,

όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Brodifacoum</u>	100->5	5->0,5	0,5-0,05
<u>Coumachlor</u>	-	-	100-10
<u>Coumafuryl</u>	-	-	100-80
<u>Coumaphos</u>	-	100->30	30-3
<u>Coumatetralyl (Racumin)</u>	-	100->34	34-3,4
<u>Dicoumarol</u>	-	-	100-10
<u>Difenacoum</u>	100->35	35->3,5	3,5-0,35
<u>Warfarin (και άλατα του warfarin)</u>	100->60	60->6	6-0,6

## Κλάση 3

2301 48° 2782 Παρασιτοκτόνα διτυριδίου, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C (συνεχ.)

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
 b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,  
 όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Diquat</u> <u>Paraquat</u>	-	100-40	100-45 40-8

49° 2760 Αρσενικούχα παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
 b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,  
 όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Τριοξειδίο του αρσενικού</u>	-	100->40	40-4
<u>Αρσενικό ασβέστιο</u>	-	100->40	40-4
<u>Αρσενίτης του νατρίου</u>	-	100->20	20-2

50° 2776 Παρασιτοκτόνα με βάση τον γαλκό, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης λιγότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
 b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,  
 όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Θεικός γαλκός</u>	-	-	100-20

51° 2780 Παρασιτοκτόνα υποκατεστημένης νιτροφαινόλης, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,

## Κλάση 3

2301  
(συνεχ.)

- b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,

όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Binapacryl</u>	-	-	100-25
<u>Dinobuton</u>	-	-	100-10
<u>Dinoseb</u>	-	100->40	40-8
<u>Dinoseb acetate</u>	-	-	100-10
<u>Dinoterb</u>	-	100->50	50-5
<u>Dinoterb acetate</u>	-	100->50	50-5
<u>DNOC</u>	-	100->50	50-5
<u>Medinoterb</u>	-	100->80	80-8

52° 2764 Παρασιτοκτόνα τριαζίνης, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,

όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Cyanazine</u>	-	-	100-35
<u>Terbumeton</u>	-	-	100-95

53° 2770 Παρασιτοκτόνα βενζοϊκών παραγώγων, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,

όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Tricamba</u>	-	-	100-60

54° 2774 Παρασιτοκτόνα παραγώγων της φθαλιμιδής, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,



## Κλάση 3

2301  
(συνεχ.)

- b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,

όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
... <sup>3/</sup>	-	-	-

55° 2768 Παρασιτοκτόνα φαινυλουρίας, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,

όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
... <sup>3/</sup>	-	-	-

56° 2772 Διθειοκαρβαμικά παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά, σημείο ανάφλεξης μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικό ή λίγο τοξικά,

όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Metam-sodium</u>	-	-	100-35

57° 3021 παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά, ε.α.ο., σημείο ανάφλεξης μικρότερο από 23 °C

- a) με σημείο βρασμού ή αρχικό σημείο βρασμού όχι μεγαλύτερο από 35 °C και/ή εξαιρετικά τοξικά,  
b) με σημείο βρασμού ή αρχικό σημείο βρασμού μεγαλύτερο από 35 °C και τοξικά ή λίγο τοξικά,

<sup>3/</sup>

Κανένα παρασιτοκτόνο δεν είναι προς το παρόν καταχωρημένο σ' αυτό το είδος.

## Κλάση 3

2301  
(συνεχ.)

Αζωτούχες οργανικές ενώσεις, όπως:

	Εξαιρετικά τοξικές	Τοξικές	Λίγο τοξικές
	%	%	%
<u>Benquinox</u>	-	-	100-20
<u>Chinomethionate</u>	-	-	100-50
<u>Cycloheximide</u>	100->40	40->4	4->0
<u>Drazoxolon</u>	-	-	100-25

Αλκαλοειδή, όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Παρασκευάσματα νικοτίνης</u>	-	100->25	25-5
<u>Στραγχίνη</u>	100->20	20->0	-

Άλλες οργανο-μεταλλικές ενώσεις, όπως:

	Εξαιρετικά τοξικές	Τοξικές	Λίγο τοξικές
	%	%	%
... <sup>3/</sup>	-	-	-

Ανόργανες ενώσεις του φθορίου, όπως:

	Εξαιρετικά τοξικές	Τοξικές	Λίγο τοξικές
	%	%	%
<u>Πυριτιοφθοριούχο βάριο</u>	-	-	100-35
<u>Πυριτιοφθοριούχο νάτριο</u>	-	-	100-25

Ανόργανες ενώσεις του θαλλίου, όπως:

	Εξαιρετικά τοξικές	Τοξικές	Λίγο τοξικές
	%	%	%
<u>Θεικό θάλλιο</u>	-	100->30	30-3

<sup>3/</sup>

Κανένα παρασιτοκτόνο δεν είναι προς το παρόν καταχωρημένο σ' αυτό το είδος.

## Κλάση 3

2301 Άλλα παρασιτοκτόνα, όπως:  
(συνεχ.)

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>ANTU</u>	100->40	40->4	4-0,8
<u>Blasticidine-S-3</u>	-	-	100-10
<u>Bromoxynil</u>	-	-	100-38
<u>Dazomet</u>	-	-	100-60
<u>Diphacinone</u>	100->25	25->3	3-0,2
<u>Difenzoquat</u>	-	-	100-90
<u>Dimexano</u>	-	-	100-48
<u>Endothal-sodium</u>	-	100->75	75-7
<u>Fenaminosulph</u>	-	100->50	50-10
<u>Fenpropathrin</u>	-	-	100-10
<u>Fluoracetamide</u>	-	100->25	25-2,5
<u>Imazalil</u>	-	-	100-64
<u>Ioxynil</u>	-	-	100-20
<u>Kelevan</u>	-	-	100-48
<u>Norbormide</u>	100->88	88->8,8	8,8-0,8
<u>Pindone (και άλατα του Pindone)</u>	-	-	100-55
<u>Rotenone</u>	-	-	100-25

Πυρεθρινοειδή, όπως:

	Εξαιρετικά τοξικά	Τοξικά	Λίγο τοξικά
	%	%	%
<u>Cypermethrin</u>	-	-	100-32

G. Ύλες με σημείο ανάφλεξης πάνω από 61 °C οι οποίες μεταφέρονται ή παραδίδονται για μεταφορά στο ή πάνω από το σημείο ανάφλεξής τους

61° (c) 3256 υγρά υψηλής θερμοκρασίας, εύφλεκτα, ε.α.ο., με σημείο ανάφλεξης πάνω από 61 °C, στο ή πάνω από το σημείο ανάφλεξής τους.

H. Κενές συσκευασίες

71° Κενές συσκευασίες συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά χύμα, (IBC), κενές οχήματα-δεξαμενές, κενές αποσυναρμιολογούμενες δεξαμενές, κενά εμπορευματοκιβώτια-δεξαμενές, ακαθάριστα που περιείχαν ύλες της Κλάσης 3.

2301a Ούτε οι όροι γι' αυτήν την κλάση που περιέχονται σ' αυτό το Παράρτημα ούτε εκείνοι που περιέχονται στο Παράρτημα Β εφαρμόζονται στα παρακάτω:

(1) Ύλες των 1° έως 5°, 21° έως 26° και 31° έως 34° και λίγο τοξικές ύλες των 41° έως 57° που μεταφέρονται σε συμφωνία με τους παρακάτω όρους:

(a) Ύλες ταξινομημένες υπό την (α) κάθε είδους: όχι περισσότερο από 500 ml ανά εσωτερική συσκευασία και όχι περισσότερο από 1 λίτρο ανά κόλο.

## Κλάση 3

- 2301a** (συνεχ.)
- (b) Ύλες ταξινομημένες υπό την (b) κάθε είδους εκτός της 5° (b) και αλκοολούχων ποτών της 3° (b): όχι περισσότερο από 3 λίτρα ανά εσωτερική συσκευασία και όχι περισσότερο από 12 λίτρα ανά κόλο.
  - (c) Αλκοολούχα ποτά της 3° (b): όχι περισσότερο από 5 λίτρα ανά εσωτερική συσκευασία.
  - (d) Ύλες ταξινομημένα υπό την 5° (b): όχι περισσότερο από 5 λίτρα ανά εσωτερική συσκευασία και όχι περισσότερο από 20 λίτρα ανά κόλο.
  - (e) Ύλες ταξινομημένες υπό την (c) κάθε είδους: όχι περισσότερο από 5 λίτρα ανά εσωτερική συσκευασία και όχι περισσότερο από 45 λίτρα ανά κόλο.

Αυτές οι ποσότητες των υλών θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες σύμφωνα τουλάχιστον με τους όρους του περιθωριακού 3538.

Οι "Γενικοί όροι συσκευασίας" του περιθωριακού 3500 (1), (2) και (5) έως (7) θα πρέπει να τηρούνται.

**ΣΗΜΕΙΩΣΗ:** Στην περίπτωση ομογενών μειγμάτων περιεχόντων νερό, οι ορισμένες ποσότητες σχετίζονται μόνο με την όλη αυτής της κλάσης που περιέχεται σε εκείνα τα μείγματα.

- (2) Αλκοολικά ποτά της 31° (c) σε συσκευασίες περιέχουσες όχι περισσότερο από 250 λίτρα.
- (3) Το καύσιμο κινητήρων που περιέχεται στις δεξαμενές οχημάτων μεταφοράς για την κίνησή τους ή τη λειτουργία των εξειδικευμένων συσκευών τους (π.χ. ψυγεία). Οι κρουνοί καυσίμου μεταξύ της μηχανής και της δεξαμενής καυσίμου των μοτοσυκλετών και μοτοποδηλάτων των οποίων οι δεξαμενές περιέχουν καύσιμο, θα πρέπει να είναι κλειστοί κατά τη διάρκεια της μεταφοράς και επιπλέον, αυτές οι μοτοσυκλέτες και τα μοτοποδήλατα θα πρέπει να φορτώνονται σε όρθια θέση και στερεωμένες ώστε να μην πέφτουν.

## 2. Διατάξεις

## A. Κόλα

## 1. Γενικοί όροι συσκευασίας

- 2302**
- (1) Οι συσκευασίες θα πρέπει να ικανοποιούν τους όρους του Παραρτήματος Α.5, εκτός εάν ορίζονται ειδικοί όροι για τη συσκευασία ορισμένων υλών στα περιθωριακά 2303 έως 2310.
  - (2) Τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC) θα πρέπει να ικανοποιούν τους όρους της προσθήκης Α.6.
  - (3) Σε συμφωνία με τις διατάξεις των περιθωριακών 2300 (3) και 3511 (2) ή 3611 (2), οι παρακάτω θα πρέπει να χρησιμοποιούνται:
    - Συσκευασίες της ομάδας συσκευασίας 1, μαρκαρισμένες με το γράμμα "X", προκειμένου για πολύ επικίνδυνες ύλες ταξινομημένες στο γράμμα (a) κάθε είδους.
    - Συσκευασίες της ομάδας συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X", ή IBC της ομάδας συσκευασίας II, μαρκαρισμένα με το γράμμα "Y", για τις επικίνδυνες ύλες που ταξινομούνται στο γράμμα (b) κάθε είδους.
    - Συσκευασίες της ομάδας συσκευασίας III, II ή I, μαρκαρισμένες με το γράμμα "Z", "Y" ή "X", ή IBC της ομάδας συσκευασίας III ή II, μαρκαρισμένα με το γράμμα "Z" ή "Y", για τις λιγότερο επικίνδυνες ύλες που ταξινομούνται υπό το γράμμα (c) κάθε είδους.

## Κλάση 3

**2302 ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά των υλών της Κλάσης 3 σε οχήματα-δεξαμενές, (συνεχ.) αποσυναρμιολογούμενες δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές, βλέπε Παράρτημα Β.

**2. Ειδικοί όροι για τη συσκευασία ορισμένων υλών**

**2303** Διάλυμα νιτρογλυκερίνης σε αλκοόλη, της 6<sup>ο</sup> θα πρέπει να συσκευάζεται σε μεταλλικούς τενεκέδες με όχι μεγαλύτερη από 1 λίτρο χωρητικότητα ο καθένας, υπερσυσκευασμένοι σε ξύλινα κιβώτια ικανά να περιέχουν όχι περισσότερο από 5 λίτρα διαλύματος. Οι μεταλλικοί τενεκέδες θα πρέπει να είναι πλήρως περιτυλιγμένοι με απορροφητικό επικαλυπτικό υλικό. Τα ξύλινα κιβώτια θα πρέπει να είναι πλήρως επενδεδυμένα με κατάλληλο υλικό αδιαπέραστο από το νερό και τη νιτρογλυκερίνη.

Τα κόλα αυτού του είδους θα πρέπει να ικανοποιούν τις απαιτήσεις ελέγχου για συνδυασμένες συσκευασίες σε συμφωνία με την προσθήκη Α.5 για ομάδα συσκευασίας II.

**2304** (1) Προπυλενμίνη της 12<sup>ο</sup> θα πρέπει να συσκευάζεται:

- (a) σε χαλύβδινα δοχεία επαρκούς πάχους, τα οποία θα πρέπει να κλείνονται με σπειρωτό πώμα ή τάπα στεγανή και προς το υγρό και προς τον ατμό με κατάλληλη φλάντζα. Τα δοχεία θα πρέπει αρχικά και περιοδικά, τουλάχιστον κάθε πέντε χρόνια, να ελέγχονται σε πίεση όχι μικρότερη από 0.3 MPa (3 bar) πίεση πιεζομέτρου σε συμφωνία με τα **περιθωριακά 2215 (1)** και 2216. Κάθε δοχείο θα πρέπει να ασφαλίεται με απορροφητικά επικαλυπτικά υλικά σε γερή στεγανή προστατευτική μεταλλική συσκευασία. Η προστατευτική συσκευασία θα πρέπει να κλείνεται ερμητικά και το κλείσιμό της θα πρέπει να ασφαλίεται έναντι οποιουδήποτε ανοίγματος από αμέλεια. Η μάζα του περιεχομένου δεν θα πρέπει να υπερβαίνει τα 0.67 kg ανά λίτρο χωρητικότητας. Ένα κόλο δε θα πρέπει να ζυγίζει περισσότερο από 75 kg. Κόλα που ζυγίζουν περισσότερο από 30 kg, εκτός εκείνων που αποστέλλονται ως πλήρες φορτίο, θα πρέπει να είναι εφοδιασμένα με μέσα χειρισμού, ή
- (b) σε χαλύβδινα δοχεία επαρκούς πάχους, τα οποία θα πρέπει να κλείνονται με σπειρωτό πώμα και σπειρωτή προστατευτική κάψουλα ή ισοδύναμο μέσο στεγανό και προς το υγρό και προς τον ατμό. Τα δοχεία θα πρέπει αρχικά και περιοδικά, τουλάχιστον κάθε πέντε χρόνια, να ελέγχονται σε πίεση τουλάχιστον 1 MPa (10 bar) πίεση πιεζομέτρου σε συμφωνία με τα **περιθωριακά 2215 (1)** και 2216. Η μάζα του περιεχομένου δεν θα πρέπει να υπερβαίνει τα 0.67 kg ανά λίτρο χωρητικότητας. Ένα κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 75 kg.
- (c) Δοχεία σε συμφωνία με τα (a) και (b) θα φέρουν, με καθαρά ευανάγνωστους και διαρκείας χαρακτήρες:
  - την ονομασία ή μάρκα του κατασκευαστή και τον αριθμό του δοχείου,
  - τη λέξη "προπυλενμίνη",
  - το απόβαρο του δοχείου και το μέγιστο επιτρεπόμενο βάρος του όταν είναι γεμάτο
  - την ημερομηνία (μήνα και χρόνο) του αρχικού ελέγχου και του πιο πρόσφατου ελέγχου στον οποίο υπεβλήθη,
  - τη σφραγίδα του εμπειρογνώμονα που διεξήγαγε τους ελέγχους και τις εξετάσεις.

(2) Ισοκυανικός αιθυλεστέρας της 13<sup>ο</sup>, θα πρέπει να συσκευάζεται:

- (a) σε ερμητικά κλειστά δοχεία κατασκευασμένα από καθαρό αλουμίνιο και με χωρητικότητα όχι μεγαλύτερη από 1 λίτρο, τα οποία δεν θα πρέπει να γεμίζονται πέρα από το 90 % της χωρητικότητάς τους. Τα δοχεία θα πρέπει να ασφαρίζονται, όχι

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(συνεχ.)

περισσότερα από 10 σε ένα κιβώτιο, με κατάλληλο προστατευτικό υλικό σε ξύλινο κιβώτιο. Τα κόλα αυτού του είδους θα πρέπει να ικανοποιούν τις απαιτήσεις ελέγχου για συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538 για ομάδα συσκευασίας I και δεν θα πρέπει να ζυγίζουν περισσότερο από 30 kg, ή

- (b) σε δοχεία κατασκευασμένα από καθαρό αλουμίνιο με πάχος τοιχωμάτων όχι μικρότερο από 5 mm ή σε δοχεία ανοξείδωτου χάλυβα. Τα δοχεία θα πρέπει να είναι πλήρως συγκολλημένα και θα πρέπει αρχικά και περιοδικά, τουλάχιστον κάθε πέντε χρόνια, να ελέγχονται σε πίεση τουλάχιστον 0.5 MPa (5 bar) πίεση πιεζομέτρου σε συμφωνία με τα περιθωριακά 2215 (1) και 2216. Θα πρέπει να κλείνονται έτσι ώστε να είναι στεγανά με δύο πώματα, το ένα πάνω στο άλλο, ένα από τα οποία θα πρέπει να είναι σπειρωτό ή να ασφαρίζεται με έναν ομοίως αποτελεσματικό τρόπο. Ο βαθμός πλήρωσης θα πρέπει να είναι όχι μεγαλύτερος από 90 %.

Βαρέλια που ζυγίζουν περισσότερο από 100 kg θα πρέπει να είναι εφοδιασμένα με τσέρκα κύλισης ή πλευρά ενίσχυσης.

- (c) Δοχεία σε συμφωνία με τα (b) θα φέρουν, με καθαρά ευανάγνωστα και διαρκείας χαρακτήρες:
- την ονομασία ή μάρκα του κατασκευαστή και τον αριθμό του δοχείου,
  - τη λέξη "ισοκυανικός αιθυλεστέρας",
  - Το απόβαρο του δοχείου και το μέγιστο επιτρεπόμενο βάρος του όταν είναι γεμάτο,
  - την ημερομηνία (μήνα και έτος ) του αρχικού ελέγχου και του πιο πρόσφατου ελέγχου στον οποίο υπεβλήθη,
  - τη σφραγίδα του εμπειρογνώμονα που διεξήγαγε τους ελέγχους και τις εξετάσεις.

2305 Υγες που ταξινομούνται υπό την (a) των διαφόρων ειδών, θα πρέπει να συσκευάζονται:

- (a) σε χαλύβδινα βαρέλια με μη-μετακινούμενη κεφαλή σύμφωνα με το περιθωριακό 3520, ή
- (b) σε αλουμινένια βαρέλια με μη-μετακινούμενη κεφαλή σύμφωνα με το περιθωριακό 3521, ή
- (c) σε χαλύβδινα μπιτόνια με μη-μετακινούμενη κεφαλή σύμφωνα με το περιθωριακό 3522, ή
- (d) σε πλαστικά βαρέλια με μη-μετακινούμενη κεφαλή χωρητικότητας όχι μεγαλύτερης από 60 λίτρα ή πλαστικά μπιτόνια με μη-μετακινούμενη κεφαλή σύμφωνα με το περιθωριακό 3526, ή
- (e) σε σύνθετες συσκευασίες (πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) σε συνδυασμένες συσκευασίες με εσωτερικές συσκευασίες από γυαλί, πλαστικό υλικό ή μέταλλο, σύμφωνα με το περιθωριακό 3538.

2306 (1) Υγες ταξινομημένες υπό τα (b) των διαφόρων ειδών, θα πρέπει να συσκευάζονται:

- (a) σε χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
- (b) σε βαρέλια αλουμινίου σύμφωνα με το περιθωριακό 3521, ή

## Κλάση 3

2306  
(συνεχ.)

- (c) σε χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
- (d) σε πλαστικά βαρέλια ή μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
- (e) σε σύνθετες συσκευασίες (πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538.

*ΣΗΜΕΙΩΣΗ 1 στα (a), (b), (c) και (d): Νιτρομεθάνιο της 3<sup>ο</sup> (b) δεν θα πρέπει να μεταφέρεται σε συσκευασίες με μετακινούμενη κεφαλή.*

*ΣΗΜΕΙΩΣΗ 2 στα (a), (b), (c) και (d): Απλοποιημένοι όροι εφαρμόζονται στα βαρέλια ή μπιτόνια κινούμενης κεφαλής για ιξώδεις ύλες με ιξώδες πάνω από 200 mm<sup>2</sup>/s στους 23 °C (βλέπε περιθωριακά 3512, 3553, 3554 και 3560).*

(2) Ύλες ταξινομημένες υπό την (b) των 3°, 15°, 17°, 22°, 24° και 25° όπως επίσης και οι λίγο τοξικές ύλες που ταξινομούνται υπό την (b) των 41° έως 57° μπορούν επίσης να συσκευάζονται σε σύνθετες συσκευασίες (γυαλί, πορσελάνη ή πυρίμαχα) σύμφωνα με το περιθωριακό 3539.

(3) Ύλες ταξινομημένες υπό την (b) των διαφόρων ειδών με εξαίρεση το νιτρομεθάνιο της 3<sup>ο</sup> (b) οι οποίες έχουν τάση αιμών στους 50 °C όχι μεγαλύτερη από 110 kPa (1.10 bar) μπορούν επίσης να συσκευάζονται σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, σε άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624 ή σε σύνθετα IBC με άκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625.

2307

- (1) Ύλες ταξινομημένες υπό την (c) των διαφόρων ειδών θα πρέπει να συσκευάζονται:
- (a) σε χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
  - (b) σε βαρέλια αλουμινίου σύμφωνα με το περιθωριακό 3521, ή
  - (c) σε χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
  - (d) σε πλαστικά βαρέλια ή μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
  - (e) σε σύνθετες συσκευασίες (πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
  - (f) σε σύνθετες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
  - (g) σε σύνθετες συσκευασίες (γυαλί, πορσελάνη ή πυρίμαχα) σύμφωνα με το περιθωριακό 3539.

*ΣΗΜΕΙΩΣΗ στα (a), (b), (c) και (d): Απλοποιημένοι όροι μπορούν να εφαρμοστούν στα βαρέλια και μπιτόνια κινούμενης κεφαλής για ιξώδεις ύλες με ιξώδες μεγαλύτερο από 200 mm<sup>2</sup>/s στους 23 °C (βλέπε περιθωριακά 3512, 3553, 3554 και 3560).*

(2) Ύλες ταξινομημένες υπό την (c) των διαφόρων ειδών μπορούν επίσης να συσκευάζονται σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, σε άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624 ή σε σύνθετα IBC με άκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625.

2308

- (1) Αιθυλική αλκοόλη και υδατικά διαλύματά της και αλκοολούχα ποτά των 3° (b) και 31° (c) μπορούν επίσης να συσκευάζονται σε ξύλινα βαρέλια τύπου-πάματος σύμφωνα με το περιθωριακό 3524.
- (2) Αλκοολούχα ποτά περιέχοντα περισσότερο από 24 % αλκοόλη αλλά όχι περισσότερο από 70 % κατ' όγκο, όταν μεταφέρονται ως μέρος της διαδικασίας παραγωγής, μπορούν να

## Κλάση 3

**2308** μεταφέρονται σε ξύλινα βαρέλια χωρητικότητας όχι μεγαλύτερης από 500 λίτρα, αποκλίνοντας (συνεχ.) από τους όρους της προσθήκης A.5 υπό τους παρακάτω όρους:

- (a) τα βαρέλια θα πρέπει να ελέγχονται και να δένονται πριν το γέμισμα,
- (b) Επαρκές συμπλήρωμα (όχι λιγότερο από 3 %) θα πρέπει να αφήνεται ώστε να επιτρέπει τη διαστολή του υγρού,
- (c) τα βαρέλια θα πρέπει να μεταφέρονται με το πάμα προ τα πάνω και,
- (d) τα βαρέλια θα πρέπει να μεταφέρονται σε εμπορευματοκιβώτια σύμφωνα με τις απαιτήσεις του Διεθνούς Συνεδρίου για Ασφαλή Εμπορευματοκιβώτια (CSC),<sup>4/</sup> όπως έχει διορθωθεί. Κάθε βαρέλι θα πρέπει να ασφαρίζεται σε επί τούτου κατασκευασμένες βάσεις και να σφηνώνεται με κατάλληλο τρόπο ώστε να αποτρέπεται η μετακίνησή του καθ'οποιοδήποτε τρόπο κατά τη διάρκεια της μεταφοράς.

(3) Ύλες των 3° (b), 4° (b), 5° (b) και (c), 31° (c), 32° (c), 33° (c), 34° (c) και οι λίγο τοξικές ύλες που είναι ταξινομημένες υπό την (b) των 41° έως 57° μπορούν επίσης να συσκευάζονται σε μεταλλικές συσκευασίες ελαφρού περιτυπώματος σύμφωνα με το περιθωριακό 3540. Απλοποιημένοι όροι μπορούν να εφαρμοστούν στις μεταλλικές συσκευασίες ελαφρού περιτυπώματος μετακινούμενης κεφαλής για ιξώδεις ύλες με ιξώδες μεγαλύτερο από 200 mm<sup>2</sup>/s στους 23°C και για ύλες της 5° (c). (Βλέπε περιθωριακά 3512 και 3552 έως 3554).

**ΣΗΜΕΙΩΣΗ:** *Νιτρομεθάνιο της 3° (b) δεν θα πρέπει να μεταφέρεται σε συσκευασίες μετακινούμενης κεφαλής.*

(4) Οι παρακάτω ύλες: 1133 κόλλες, 1210 μελάνη τυπογραφίας, 1263 χρώμα, 1263 υλικά σχετιζόμενα με χρώμα, 1866 διάλυμα ρητίνης και 3269 εξάρτημα πολυεστερικής ρητίνης των 5° (b), 5° (c) και 31° (c) μπορούν να μεταφέρονται σε ποσότητες όχι μεγαλύτερες από 5 λίτρα σε μεταλλικές ή πλαστικές συσκευασίες σύμφωνα μόνο με τις απαιτήσεις του περιθωριακού 3500 (1), (2) και (5) έως (7), υπό τον όρο ότι, οι συσκευασίες ασφαρίζονται πάνω σε παλέτες με ψάντες, με συρρικνούμενο ή εκτεινόμενο υλικό περιτυλίγματος ή με άλλο κατάλληλο τρόπο, ή υπό τον όρο ότι, οι συσκευασίες είναι εσωτερικές συσκευασίες μίας σύνθετης συσκευασίας με μέγιστο ολικό μικτό βάρος 40 kg. Οι πληροφορίες στο έγγραφο μεταφοράς θα πρέπει να είναι σύμφωνες με το περιθωριακό 2314 (1) και (3).

**2309** Οι δεξαμενές καυσίμου της μονάδας υδραυλικής ισχύος των αεροσκαφών της 28° αναγνωρίζονται ως υποκείμενες σε καθέναν από τους παρακάτω όρους.

- (a) η μονάδα θα πρέπει να συνίσταται σε ένα αλουμινένιο δοχείο πίεσης που έχει κατασκευαστεί από σύστημα σωληνώσεων και έχει συγκολλημένες κεφαλές. Η κυρίως συγκράτηση του καυσίμου μέσα σ' αυτό το δοχείο θα έγκειται σε μία αλουμινένια κύστη με μέγιστο εσωτερικό όγκο 46 λίτρα. Το εξωτερικό δοχείο θα πρέπει να έχει ελάχιστη πίεση (πιεζομέτρου) σχεδιασμού 1.275 kPa και ελάχιστη πίεση (πιεζομέτρου) έκρηξης 2.755 kPa. Κάθε δοχείο θα πρέπει να είναι ελεγχόμενο για διαρροή κατά τη διάρκεια της κατασκευής και πριν την φόρτωση και θα πρέπει να βρίσκεται στεγανό. Η πλήρης εσωτερική μονάδα θα πρέπει να συσκευάζεται με ασφάλεια σε μη-εύφλεκτο προστατευτικό υλικό, όπως βερμικουλίτης, σε γερή εξωτερική σφιστά κλεισμένη μεταλλική συσκευασία η οποία θα πρέπει επαρκώς να προστατεύει όλα τα εξαρτήματα. Η μέγιστη ποσότητα καυσίμου ανά μονάδα και κόλο είναι 42 λίτρα, ή

<sup>4/</sup> Παγκόσμιο Συνέδριο για Ασφαλή Δοχεία (Γενεύη, 1972), όπως διορθώθηκε, δημοσίευση από τον Διεθνή Ναυπλιακό Οργανισμό, 4 Albert Embankment, London SE1 7SR.



## Κλάση 3

**2309** (b) η μονάδα θα πρέπει να συνίσταται σε ένα αλουμινένιο δοχείο πίεσης. Η κυρίως (συνεχ.) συγκράτηση του καυσίμου σ' αυτό το δοχείο θα έγκειται σε ένα συγκολλημένο ερμητικά σφραγισμένο τμήμα καυσίμου με μία ελαστομερή κύστη με μέγιστη εσωτερικό όγκο 46 λίτρα. Το δοχείο πίεσης θα πρέπει να έχει ελάχιστη πίεση (πιεζόμετρου) σχεδιασμού 2.860 kPa και ελάχιστη πίεση (πιεζόμετρου) έκρηξης 5.170 kPa. Κάθε δοχείο θα πρέπει να ελέγχεται για διαρροή κατά τη διάρκεια της κατασκευής και πριν τη φόρτωση και θα πρέπει να βρίσκεται στεγανό. Η πλήρης εσωτερική μονάδα θα πρέπει να συσκευάζεται με ασφάλεια σε μη-εύφλεκτο προστατευτικό υλικό, όπως βερμικουλίτης, σε γερή εξωτερική σφικτά κλεισμένη μεταλλική συσκευασία η οποία θα πρέπει επαρκώς να προστατεύει όλα τα εξαρτήματα. Η μέγιστη ποσότητα καυσίμου ανά μονάδα και κόλο είναι 42 λίτρα.

**2310** Δοχεία ή IBC, περιέχοντα παρασκευάσματα των 31° (c), 32° (c), και 33° (c), τα οποία αναδίδουν μικρές ποσότητες διοξειδίου του άνθρακα και/ή αζώτο, θα πρέπει να εξαερίζονται, σε συμφωνία με **περιθωριακά 3500 (8) ή 3601 (6)**.

### 3. Μικτές συσκευασίες

**2311** (1) Ύλες που καλύπτονται από τον ίδιο αριθμό είδους μπορούν να συσκευάζονται μαζί σε σύνθετη συσκευασία σύμφωνα με το **περιθωριακό 3538**.

(2) Ύλες ή είδη διαφορετικών μερών αυτής της Κλάσης σε ποσότητες όχι μεγαλύτερες από 5 λίτρα ανά εσωτερική συσκευασία, μπορούν να συσκευάζονται μαζί και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας σε συνδυασμένη συσκευασία σύμφωνα με το **περιθωριακό 3538**, υπό τον όρο ότι, δεν αντιδρούν επικίνδυνα μεταξύ τους.

(3) Ύλες των 6°, 7°, 12° και 13° δεν θα πρέπει να συσκευάζονται με άλλα εμπορεύματα.

(4) Ύλες ταξινομημένες υπό την (α) των διαφόρων ειδών, δεν θα πρέπει να συσκευάζονται μαζί με ύλες και είδη των κλάσεων 1 και 5.2 (εκτός από σκληρυντές και συστήματα ενώσεων) και υλικά της Κλάσης 7.

(5) Εκτός άλλως ορίζεται ειδικά, οι ύλες που είναι ταξινομημένες υπό την (α) των διαφόρων ειδών, σε ποσότητες όχι μεγαλύτερες από 0.5 λίτρο ανά εσωτερική συσκευασία και 1 λίτρο ανά κόλο και ύλες που είναι ταξινομημένες υπό τις (b) ή (c) των διαφόρων ειδών, σε ποσότητες όχι μεγαλύτερες από 5 λίτρα ανά εσωτερική συσκευασία, μπορούν να συσκευάζονται μαζί σε συνδυασμένη συσκευασία σύμφωνα με το **περιθωριακό 3538** με ύλες ή είδη άλλων Κλάσεων, υπό την προϋπόθεση ότι, μικτή συσκευασία επιτρέπεται επίσης για ύλες ή είδη αυτών των Κλάσεων και/ή με εμπορεύματα τα οποία δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας, υπό τον όρο ότι, δεν αντιδρούν επικίνδυνα μεταξύ τους.

(6) Οι παρακάτω θεωρούνται ως επικίνδυνες αντιδράσεις:

- (a) καύση και/ή έκλυση σημαντικού ποσού θερμότητας,
- (b) εκπομπή εύφλεκτων και/ή τοξικών αερίων,
- (c) σχηματισμός διαβρωτικών υγρών,
- (d) σχηματισμός ασταθών υλών.

(7) Η μικτή συσκευασία όξινων υλών με βασικές ύλες σε ένα κόλο, δεν θα επιτρέπεται εάν οι δύο ύλες είναι συσκευασμένες σε εύθραυστα δοχεία.

(8) Οι όροι των **περιθωριακών 2001 (7), 2002 (6) και (7) και 2302** θα πρέπει να ισχύουν.

(9) Εάν χρησιμοποιούνται ξύλινα κιβώτια ή κιβώτια από φύλλο φάιμπερ, ένα κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg.

## Κλάση 3

4. *Μαρκαρίσματα και ετικέτες κινδύνου στα κόλα (βλέπε Προσθήκη A9)**Μαρκαρίσματα*

- 2312 (1) Κάθε κόλα θα πρέπει καθαρά να μαρκάρεται με τον χαρακτηριστικό αριθμό των εμπορευμάτων που πρόκειται να εισαχθούν στο έγγραφο μεταφοράς, ακολουθούμενο από τα γράμματα "UN".

*Ετικέτες κινδύνου*

- (2) Κόλα περιέχοντα ύλες ή είδη αυτής της Κλάσης, θα πρέπει να φέρουν ετικέτα, σύμφωνα με το υπόδειγμα Αριθμ. 3.
- (3) Κόλα περιέχοντα ύλες των 11° έως 19°, 32° και 41° έως 57° θα πρέπει να φέρουν επιπλέον ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1.
- (4) Κόλα περιέχοντα ύλες των 21° έως 26° και 33° θα πρέπει να φέρουν επιπλέον ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8.
- (5) Κόλα περιέχοντα ύλες ή είδη των 27° και 28° θα πρέπει να φέρουν επιπλέον ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1 και ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8.
- (6) Κόλα περιέχοντα εύθραυστα δοχεία όχι ορατά απ' έξω, θα πρέπει επιπλέον να φέρουν σε δύο πλευρές, ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 12.
- (7) Κόλα περιέχοντα δοχεία, τα πόματα των οποίων δεν είναι ορατά απ' έξω και κόλα περιέχοντα εξαεριζόμενα δοχεία ή εξαεριζόμενα δοχεία χωρίς εξωτερική συσκευασία θα πρέπει επιπλέον να φέρουν σε δύο αντίθετες πλευρές, ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

2313

B. *Καταγραφές στο έγγραφο μεταφοράς*

- 2314 (1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς, θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς και τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2301.

Εάν η ύλη δεν αναφέρεται με την ονομασία της, αλλά είναι καταχωρημένη ως ε.α.ο., ή σε μία άλλη συγκεντρωτική καταχώρηση, η περιγραφή των προϊόντων θα πρέπει να συνίσταται από τον χαρακτηριστικό αριθμό και τον χαρακτηρισμό ε.α.ο. ή τον χαρακτηρισμό συγκεντρωτικής καταχώρησης, ακολουθούμενα από τη χημική ή τεχνική ονομασία<sup>5/</sup>

Η περιγραφή των προϊόντων θα πρέπει να ακολουθείται από καταγραφές της Κλάσης, τον αριθμό είδους, εάν εφαρμόζεται, το γράμμα, και τα αρχικά "ADR" (ή "RID"), (π.χ. "3, 1° (a), ADR").

Για ύλες και παρασκευάσματα των 41° έως 57°, η ονομασία θα πρέπει να εισάγεται για τα πιο επικίνδυνα συστατικά, τόσο του παρασιτοκτόνου στοιχείου<sup>6/</sup> όσο και του εύφλεκτου υγρού στοιχείου (π.χ. "παραθείο σε εξάνιο").

<sup>5/</sup> Η τεχνική ονομασία θα πρέπει να είναι μία ονομασία που ήδη χρησιμοποιείται σε επιστημονικά και τεχνικά εγχειρίδια, περιοδικά και κείμενα. Εμπορικές ονομασίες δεν θα πρέπει να χρησιμοποιούνται για αυτόν τον σκοπό.

<sup>6/</sup> Για την περιγραφή του παρασιτοκτόνου στοιχείου, θα πρέπει να χρησιμοποιείται η ονομασία σύμφωνα με το Πρότυπο ISO 1750:1981 (βλέπε περιθωριακό 2601), εάν εμφανίζεται εκεί.

## Κλάση 3

**2314** Για τη μεταφορά αποβλήτων (βλέπε περιθωριακό 2000 (5)), η περιγραφή των εμπορευμάτων θα είναι: "Απόβλητα περιέχοντα ...", το(α) δε συστατικό(ά) που χρησιμοποιείται(ούνται) για την ταξινόμηση των αποβλήτων υπό το περιθωριακό 2002 (8), θα εισάγεται(ονται) με τη(τις) χημική(ές) ονομασία(ες) του(ς), π.χ. "Απόβλητα, περιέχοντα 1230 μεθανόλη, 3, 17° (b)".

Για τη μεταφορά διαλυμάτων ή μειγμάτων (όπως παρασκευάσματα και απόβλητα) περιεχόντων διάφορα συστατικά που υπόκεινται στις διατάξεις αυτής της Οδηγίας, δεν θα είναι γενικά αναγκαίο να γίνεται αναφορά σε περισσότερα από δύο συστατικά τα οποία κυρίως συμβάλουν στον κίνδυνο ή τους κινδύνους των διαλυμάτων και μειγμάτων.

Για τη μεταφορά διαλυμάτων ή μειγμάτων περιεχόντων μόνο ένα συστατικό υποκείμενο στις διατάξεις αυτής της Οδηγίας, οι λέξεις "διάλυμα" ή "μείγμα" θα πρέπει να προστίθενται ως μέρος της ονομασίας στο έγγραφο μεταφοράς [βλέπε περιθωριακό 2002 (8)].

Εάν ένα διάλυμα ή μείγμα με συγκεκριμένη ονομασία ή περιέχον μία ύλη με συγκεκριμένη ονομασία, δεν υπόκειται στους όρους αυτής της Κλάσης σε συμφωνία με το περιθωριακό 2300 (5), ο αποστολέας μπορεί να καταχωρήσει στο έγγραφο μεταφοράς "Όχι εμπορεύματα της Κλάσης 3".

(2) Για αποστολές σε συμφωνία με τη ΣΗΜΕΙΩΣΗ υπό την Ε του περιθωριακού 2301, ο αποστολέας θα πρέπει να καταχωρήσει στο έγγραφο μεταφοράς "Μεταφορά σε συμφωνία με τη ΣΗΜΕΙΩΣΗ υπό την Ε του περιθωριακού 2301".

(3) Για αποστολές σε συμφωνία με το περιθωριακό 2308 (4), ο αποστολέας θα πρέπει να καταχωρήσει στο έγγραφο μεταφοράς "Μεταφορά σε συμφωνία με το περιθωριακό 2308 (4)".

2315-  
2321

## C. Κενές συσκευασίες

**2322** (1) Οι κενές συσκευασίες, συμπεριλαμβανομένων των κενών IBC, ακαθάριστες, της 71°, θα πρέπει να κλείνονται με τον ίδιο τρόπο και τον ίδιο βαθμό στεγανότητας, σαν να ήταν γεμάτες.

(2) Οι κενές συσκευασίες, συμπεριλαμβανομένων των κενών IBC, ακαθάριστες, της 71°, θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνου, σαν να ήταν γεμάτες.

(3) Η περιγραφή στο έγγραφο μεταφοράς, θα πρέπει να είναι σε συμφωνία με μία από τις ονομασίες που υπογραμμίζονται στην 71°, π.χ. "Κενή συσκευασία 3, 71°, ADR".

Στην περίπτωση κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών και κενών εμπορευματοκιβωτιών-δεξαμενών, ακαθάριστων, αυτή η περιγραφή θα πρέπει να συμπληρώνεται με την προσθήκη των λέξεων "Τελευταίο φορτίο", μαζί με την ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ. "Τελευταίο φορτίο 1089 ακεταλδεϋδη, 1° (a)".

2323-  
2324

## D. Μεταβατικά μέτρα

**2325** Υλεις της Κλάσης 3 μπορούν να μεταφέρονται έως την 30η Ιουνίου 1995 σε συμφωνία με τις απαιτήσεις που εφαρμόζονται για την κλάση 3 έως την 31η Δεκεμβρίου 1994. Το έγγραφο μεταφοράς θα φέρει σε τέτοιες περιπτώσεις την εγγραφή "Μεταφορά σε συμφωνία με την ADR σε ισχύ πριν την 1η Ιανουαρίου 1995"

2326-  
2399

**ΚΛΑΣΗ 4.1. ΕΥΦΛΕΚΤΑ ΣΤΕΡΕΑ****1. Κατάλογος υλών**

2400 (1) Ανάμεσα στις ύλες και τα είδη που καλύπτονται από τον τίτλο της κλάσης 4.1, εκείνα που αναφέρονται στο περιθωριακό 2401 ή καλύπτονται από μία συγκεντρωτική καταχώρηση σε εκείνο το περιθωριακό, υπόκεινται στις συνθήκες που τίθενται στα περιθωριακά 2400 (2) έως 2422 και στις διατάξεις αυτού του παραρτήματος και του παραρτήματος Β. Θεωρούνται τότε ύλες και είδη αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ:** Για τις ποσότητες υλών που αναφέρονται στο περιθωριακό 2401 που δεν υπόκεινται στις διατάξεις για αυτήν την Κλάση, είτε σ' αυτό το Παράρτημα είτε στο Παράρτημα Β, βλέπε περιθωριακό 2401α.

(2) Ο τίτλος της κλάσης 4.1 καλύπτει ύλες και είδη που έχουν σημείο τήξης μεγαλύτερο από 20 °C ή είναι κολλώδεις, σύμφωνα με τα κριτήρια του ελέγχου με πενετρόμετρο (βλέπε Προσθήκη Α.3, περιθωριακό 3310) ή δεν είναι υγρές σύμφωνα με την μέθοδο ελέγχου ASTM D 4359-90, ή που είναι αυτενεργά υγρά. Τα παρακάτω καταχωρούνται στην Κλάση 4.1:

- Άμεσα εύφλεκτες στερεές ύλες και είδη, και εκείνα που μπορούν να αναφλεγούν από σπινθήρες ή μπορούν να προκαλέσουν φωτιά μέσω τριβής,
- αυτενεργές ύλες που (σε κανονικές ή αυξημένες θερμοκρασίες), υπόκεινται σε ισχυρά εξώθερμη αποσύνθεση δημιουργούμενη από υπερβολικά υψηλές θερμοκρασίες μεταφοράς ή από επαφή με ακαθαρσίες,
- ύλες της οικογένειας των αυτενεργών υλών, που διακρίνονται από τις τελευταίες με το να έχουν θερμοκρασία αυτο-επιταχυνόμενης αποσύνθεσης μεγαλύτερη από 75 °C και υπόκεινται σε ισχυρά εξώθερμη αποσύνθεση και μπορεί, σε ορισμένες συσκευασίες, να ικανοποιούν τα κριτήρια για εκρηκτικές ύλες της κλάσης 1,
- εκρηκτικά, που είναι βρεγμένα με τέτοια ποσότητα νερού ή αλκοόλης ή που περιέχουν τέτοια ποσότητα πλαστικοποιητικού ή αδρανοποιητικού μέσου, ώστε οι εκρηκτικές ιδιότητές του εξουδετερώνονται.

**ΣΗΜΕΙΩΣΗ 1:** Οι αυτενεργές ύλες και τα παρασκευάσματα αυτενεργών υλών, δεν θεωρούνται αυτενεργές ύλες της κλάσης 4.1 εάν:

- είναι εκρηκτικά σύμφωνα με τα κριτήρια της κλάσης 1,
- είναι οξειδωτικές ύλες σύμφωνα με τη διαδικασία καταχώρησης της κλάσης 5.1,
- είναι οργανικά υπεροξειδία σύμφωνα με τα κριτήρια της κλάσης 5.2,
- η θερμότητα αποσύνθεσής τους είναι μικρότερη από 300 J/g,
- η θερμοκρασία αυτο-επιταχυνόμενης αποσύνθεσης (SADT) είναι μεγαλύτερη από 75 °C για ένα κόλο 50 kg,
- δοκιμές έχουν αποδείξει ότι, εξαιρούνται ως τύπου G [βλέπε Προσθήκη Α.1, περιθωριακό 3104 (2) (g)].

**ΣΗΜΕΙΩΣΗ 2:** Η θερμότητα αποσύνθεσης μπορεί να υπολογιστεί χρησιμοποιώντας οποιαδήποτε διεθνώς αναγνωρισμένη μέθοδο π.χ. Διαφορική Θερμιδομετρία Σάρωσης και αδιαβατική θερμιδομετρία.

## Κλάση 4.1

**2400 ΣΗΜΕΙΩΣΗ 3:** Η θερμοκρασία αυτο-επιταχυνόμενης αποσύνθεσης (SADT) είναι η χαμηλότερη (συνεχ.) θερμοκρασία στην οποία μπορεί να συμβεί αυτο-επιταχυνόμενη αποσύνθεση με μία ύλη στη συσκευασία που χρησιμοποιείται κατά τη διάρκεια της μεταφοράς. Απαιτήσεις για τον υπολογισμό της SADT δίνονται στην Προσθήκη Α.1, περιθωριακό 3103.

(3) Οι ύλες και τα είδη της κλάσης 4.1 υποδιαιρούνται ως εξής:

- A. Στερεές οργανικές εύφλεκτες ύλες και είδη
- B. Στερεές ανόργανες εύφλεκτες ύλες και είδη
- C. Εκρηκτικές ύλες σε μη-εκρηκτική κατάσταση
- D. Ύλες της οικογένειας των αυτενεργών υλών
- E. Αυτενεργές ύλες που δεν απαιτούν έλεγχο της θερμοκρασίας
- F. Αυτενεργές ύλες που απαιτούν έλεγχο της θερμοκρασίας
- G. Κενές συσκευασίες

Ύλες και είδη της κλάσης 4.1, με εξαίρεση τις ύλες των 5° και 15°, που ταξινομούνται στα διάφορα είδη του περιθωριακού 2401, θα πρέπει να καταχωρούνται σε μία από τις παρακάτω ομάδες που προσδιορίζονται από το γράμμα (a), (b) ή (c) σύμφωνα με τον βαθμό κινδύνου τους:

- (a) πολύ επικίνδυνες
- (b) επικίνδυνες
- (c) λιγότερο επικίνδυνες

Όλες οι στερεές ύλες, κανονικά βρεγμένες, πο., εάν στην ξηρή κατάσταση, θα κατατάσσονταν ως εκρηκτικές, καταχωρούνται στο γράμμα (a) των διαφόρων ειδών.

Οι αυτενεργές ύλες καταχωρούνται στο γράμμα (b) των διαφόρων ειδών.

Ύλες της οικογένειας των αυτενεργών υλών καταχωρούνται στα γράμματα (b) ή (c) των διαφόρων ειδών.

(4) Η καταχώρηση υλών και ειδών χωρίς συγκεκριμένη ονομασία στα 3° έως 8° του περιθωριακού 2401, καθώς και μέσα σ' αυτά τα είδη στα γράμματα, μπορεί να βασιστεί στην εμπειρία ή στα αποτελέσματα των διαδικασιών ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3320 και 3321. Η καταχώρηση στα 11° έως 14°, 16° και 17° καθώς και μέσα σ' αυτά τα είδη στα γράμματα, θα πρέπει να βασίζεται στα αποτελέσματα της διαδικασίας ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3320 και 3321. Η εμπειρία θα πρέπει επίσης να λαμβάνεται υπόψη όταν οδηγεί σε μία καταχώρηση σε πιο αυστηρή βάση.

(5) Όταν ύλες ή είδη χωρίς συγκεκριμένη ονομασία καταχωρούνται στα είδη του περιθωριακού 2401 βάσει των διαδικασιών ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3320 και 3321, τα παρακάτω κριτήρια εφαρμόζονται:

- (a) Άμεσα εύφλεκτες, σε μορφή σκόνης, κοκκώδεις ή κολλώδεις ύλες των 1°, 4°, 6° έως 8°, 11°, 12°, 14°, 16° και 17°, θα πρέπει να καταχωρούνται στην Κλάση 4.1 εάν μπορούν να αναφλεγούν εύκολα από σύντομη επαφή με μία πηγή σπινθήρα (π.χ. ένα αναμμένο σπίρτο), ή εάν, στην περίπτωση ανάφλεξης, η φλόγα απλώνεται γρήγορα, ο χρόνος ανάφλεξης είναι μικρότερος από 45 δευτερόλεπτα για μετρημένη απόσταση 100 mm ή η ταχύτητα της ανάφλεξης είναι μεγαλύτερη από 2.2 mm/s.

## Κλάση 4.1

2400  
(συνεχ.)

- (b) Σκόνες μετάλλων ή σκόνες κραμάτων μετάλλων της 13° θα πρέπει να καταχωρούνται στην Κλάση 4.1 εάν μπορούν να αναφλεγούν από μία φλόγα και η αντίδραση απλώνεται πάνω απ'όλο το δείγμα σε λιγότερο από 10 λεπτά.
- (6) Όταν ύλες και είδη χωρίς συγκεκριμένη ονομασία καταχωρούνται στα γράμματα των ειδών του περιθωριακού 2401 βάσει των διαδικασιών ελέγχου σε συμφωνία με την προσθήκη A.3, περιθωριακά 3320 και 3321, τα παρακάτω κριτήρια εφαρμόζονται:
- (a) Τα εύφλεκτα στερεά των 4°, 6° έως 8°, 11°, 12°, 14°, 16° και 17°, που, όταν δοκιμάζονται, έχουν χρόνο ανάφλεξης μικρότερο από 45 δευτερόλεπτα πάνω από μετρημένη απόσταση 100 mm θα πρέπει να καταχωρούνται στα:
- (i) γράμμα (b) εάν η φλόγα περνάει την βρεγμένη ζώνη,
- (ii) γράμμα (c) εάν η βρεγμένη ζώνη σταματάει την φλόγα για τουλάχιστον τέσσερα λεπτά,
- (b) Σκόνες μετάλλων ή σκόνες κραμάτων μετάλλων των 13° στα οποία, όταν δοκιμάζονται, η αντίδραση:
- (i) απλώνεται πάνω απ'όλο το μήκος του δείγματος σε πέντε λεπτά, θα πρέπει να καταχωρούνται στο γράμμα (b),
- (ii) απλώνεται πάνω απ'όλο το μήκος σε περισσότερο από πέντε λεπτά, θα πρέπει να καταχωρούνται στο γράμμα (c).
- (7) Εάν ύλες της κλάσης 4.1, ως αποτέλεσμα προσμείξεων, μεταβαίνουν σε διαφορετικές κατηγορίες κινδύνου από εκείνες στις οποίες οι ύλες του περιθωριακού 2401 ανήκουν, αυτά τα μείγματα θα πρέπει να καταχωρούνται στα είδη και γράμματα στα οποία ανήκουν βάσει του πραγματικού βαθμού κινδύνου τους.
- ΣΗΜΕΙΩΣΗ:** Για την ταξινόμηση διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα) βλέπε επίσης περιθωριακό 2002 (8).
- (8) Όταν ύλες και είδη έχουν συγκεκριμένη ονομασία σε περισσότερα από ένα γράμματα του ίδιου είδους του περιθωριακού 2401, το σχετικό γράμμα μπορεί να υπολογιστεί βάσει των αποτελεσμάτων των διαδικασιών ελέγχου σε συμφωνία με την προσθήκη A.3, περιθωριακά 3320 και 3321 και τα κριτήρια που τίθενται στην (6).
- (9) Βάσει των διαδικασιών ελέγχου σε συμφωνία με την προσθήκη A.3, τα περιθωριακά 3320 και 3321 και τα κριτήρια που τίθενται στην (6), μπορεί επίσης να υπολογιστεί εάν η φύση μίας ύλης με συγκεκριμένη ονομασία είναι τέτοια ώστε εκείνη η ύλη να μην υπόκειται στις διατάξεις για αυτήν την Κλάση (βλέπε περιθωριακό 2414).
- (10) Οι χημικά ασταθείς ύλες της κλάσης 4.1 θα γίνονται δεκτές για μεταφορά μόνον εάν έχουν ληφθεί τα αναγκαία μέτρα για την αποφυγή της επικίνδυνης αποσύνθεσης ή πολυμερισμού τους κατά τη διάρκεια της μεταφοράς. Για το σκοπό αυτό, θα πρέπει ειδικά να βεβαιώνεται ότι εκείνα τα δοχεία δεν περιέχουν οποιαδήποτε ύλη υποκείμενη στην προαγωγή αυτών των αντιδράσεων.
- (11) Εύφλεκτα στερεά, οξειδωτικά, καταχωρημένα στον χαρακτηριστικό αριθμό 3097 των Υποδείξεων των Ηνωμένων Εθνών πάνω στη Μεταφορά Επικίνδυνων Εμπορευμάτων, δεν θα γίνονται δεκτά για μεταφορά (βλέπε, όμως, περιθωριακό 2002 (8), υποσημείωση στον πίνακα της παραγράφου 2.3.1).

## Κλάση 4.1

2400  
(συνεχ.)Αυτενεργές ύλες

(12) Η αποσύνθεση των αυτενεργών υλών μπορεί να αρχίσει από θερμότητα, επαφή με καταλυτικές προσμείξεις (π.χ. οξέα, ενώσεις βαρέων μετάλλων, βάσεις), τριβή ή σύγκρουση. Ο ρυθμός της αποσύνθεσης αυξάνει με τη θερμοκρασία και ποικίλει ανάλογα με την ύλη. Η αποσύνθεση, ειδικά εάν δεν συμβεί ανάφλεξη, μπορεί να οδηγήσει στην έκκλιση τοξικών αερίων ή ατμών. Για ορισμένες αυτενεργές ύλες, η θερμοκρασία θα πρέπει να ελέγχεται. Μερικές αυτενεργές ύλες, μπορεί να αποσυντεθούν εκρηκτικά ειδικά εάν είναι κλεισμένες σε περιορισμένο χώρο.

Αυτό το χαρακτηριστικό μπορεί να μεταβληθεί από την προσθήκη διαλυτών ή από την χρήση κατάλληλων συσκευασιών. Μερικές αυτενεργές ύλες καίγονται ζωηρά. Αυτενεργές ύλες είναι, για παράδειγμα, μερικές ενώσεις των τύπων που αναφέρονται παρακάτω:

αλειφατικές αζωενώσεις (-C-N=N-C-),  
οργανικά αζίδια (-C-N<sub>3</sub>),  
διαζωνικά άλατα (-CN<sub>2</sub><sup>+</sup> Z<sup>-</sup>),  
N-νιτρωδοενώσεις (-N-N=O), και  
αρωματικά σουλφοϋδραζίδια (-SO<sub>2</sub>-NH-NH<sub>2</sub>).

Αυτός ο κατάλογος δεν είναι εξαντλητικός και ύλες με άλλες ενεργές ομάδες και μερικά μείγματα υλών μπορεί να έχουν παρόμοιες ιδιότητες.

(13) Οι αυτενεργές ύλες ταξινομούνται σε επτά τύπους σύμφωνα με τον βαθμό κινδύνου. Οι αρχές που πρέπει να εφαρμόζονται στην ταξινόμηση των υλών που δεν αναφέρονται στο περιθωριακό 2401 τίθενται στην προσθήκη Α.1, περιθωριακό 3104. Οι τύποι μίας αυτενεργής ύλης ποικίλει από τον τύπο Α, που δεν γίνεται δεκτός για μεταφορά στη συσκευασία στην οποία δοκιμάστηκε, έως τον τύπο G, που δεν υπόκειται στις διατάξεις για αυτενεργές ύλες της κλάσης 4.1 [βλέπε περιθωριακό 2414 (5)]. Η ταξινόμηση των τύπων Β έως F σχετίζεται άμεσα με τη μέγιστη επιτρεπόμενη ποσότητα σε μία συσκευασία.

(14) Οι παρακάτω αυτενεργές ύλες δεν θα επιτρέπονται για μεταφορά:

- αυτενεργές ύλες τύπου Α [βλέπε Προσθήκη Α.1, περιθωριακό 3104 (2) (α)],

(15) Αυτενεργές ύλες και συνθέσεις αυτενεργών υλών που αναφέρονται στο περιθωριακό 2401, καταχωρούνται στα 31° έως 50°, χαρακτηριστικοί αριθμοί 3221 έως 3240.

Οι ταξινομήσεις για ύλες των 31° έως 50° βασίζονται στην τεχνικά καθαρή ύλη (εκτός όπου καθορίζεται συγκέντρωση μικρότερη από 100 %). Για άλλες συγκεντρώσεις, η ύλη μπορεί να ταξινομηθεί διαφορετικά ακολουθώντας τις διαδικασίες στην προσθήκη Α.1, περιθωριακό 3104.

Οι συγκεντρωτικές καταχωρήσεις προδιαγράφουν:

- αυτενεργές ύλες των τύπων Β έως F, βλέπε παράγραφο (13) παραπάνω,
- φυσική κατάσταση (υγρό / στερεό) και
- έλεγχο θερμοκρασίας (όταν απαιτείται), βλέπε παράγραφο (20) παρακάτω.

(16) Η ταξινόμηση των αυτενεργών υλών ή συνθέσεων των αυτενεργών υλών που δεν αναφέρονται στο περιθωριακό 2401 και η εγγραφή σε μία συγκεντρωτική καταχώρηση θα πρέπει να γίνεται από την αρμόδια αρχή του Κράτους Μέλους προέλευσης.

## Κλάση 4.1

**2400 (17)** Ενεργοποιητές, όπως ενώσεις ψευδαργύρου, μπορεί να προστεθούν σε μερικές (συνεχ.) αυτενεργές ύλες για αλλαγή της δραστηρότητάς τους. Ανάλογα με τον τύπο και την συγκέντρωση του ενεργοποιητή, αυτό μπορεί να οδηγήσει σε μείωση της θερμικής σταθερότητας και αλλαγή των εκρηκτικών ιδιοτήτων. Εάν οποιαδήποτε από αυτές τις ιδιότητες μεταβληθεί, η νέα σύνθεση θα πρέπει να εκτιμάται σε συμφωνία με τη διαδικασία ταξινόμησης.

(18) Δείγματα αυτενεργών υλών ή συνθέσεων αυτενεργών υλών που δεν αναφέρονται στο περιθωριακό 2401, για τα οποία δεν είναι διαθέσιμη μία πλήρης σειρά αποτελεσμάτων δοκιμών και που πρόκειται να μεταφερθούν για περαιτέρω δοκιμή και αξιολόγηση, θα πρέπει να καταχωρούνται σε μία από τις κατάλληλες καταχωρήσεις για αυτενεργές ύλες τύπου C, υπό την προϋπόθεση ότι ικανοποιούνται οι παρακάτω συνθήκες:

- Τα διαθέσιμα δεδομένα δείχνουν ότι το δείγμα δεν θα ήταν πιο επικίνδυνο από αυτενεργές ύλες τύπου B,
- το δείγμα είναι συσκευασμένο σε συμφωνία με τη μέθοδο συσκευασίας OP2A ή OP2B και η ποσότητα ανά μονάδα μεταφοράς περιορίζεται σε 10 kg,
- τα διαθέσιμα δεδομένα δείχνουν ότι η θερμοκρασία ελέγχου, εάν υπάρχει, είναι αρκετά χαμηλή για την αποφυγή οποιασδήποτε επικίνδυνης αποσύνθεσης και αρκετά υψηλή για την αποφυγή οποιουδήποτε επικίνδυνου διαχωρισμού φάσης.

(19) Για να εξασφαλιστεί η ασφάλεια κατά τη διάρκεια της μεταφοράς, οι αυτενεργές ύλες σε πολλές περιπτώσεις απευαισθητοποιούνται με τη χρήση διαλύτη. Όπου ορίζεται ένα ποσοστό μίας ύλης, αυτό αναφέρεται στο ποσοστό κατά βάρος, στρογγυλοποιημένο στον κοντινότερο ακέραιο αριθμό. Εάν χρησιμοποιείται διαλύτης, η αυτενεργή ύλη θα πρέπει να δοκιμάζεται με τον διαλύτη παρόντα στη συγκέντρωση και τη μορφή που χρησιμοποιείται στη μεταφορά. Διαλύτες που μπορεί να επιτρέψουν σε μία αυτενεργή ύλη να συγκεντρωθεί σ' επικίνδυνο βαθμό σε περίπτωση διαρροής από μία συσκευασία, δεν θα πρέπει να χρησιμοποιούνται. Οποιοσδήποτε διαλύτης θα πρέπει να είναι συμβατός με την αυτενεργή ύλη. Υπό αυτό το πρίσμα, συμβατοί διαλύτες είναι εκείνα τα στερεά ή υγρά που δεν έχουν ανεπιθύμητη επίδραση στη θερμική σταθερότητα και τον τύπο επικινδυνότητας της αυτενεργής ύλης. Υγροί διαλύτες σε συνθέσεις που απαιτούν έλεγχο της θερμοκρασίας [βλέπε παράγραφο (20)] θα πρέπει να έχουν σημείο βρασμού τουλάχιστον 60 °C και σημείο ανάφλεξης όχι μικρότερο από 5 °C. Το σημείο βρασμού του υγρού θα πρέπει να είναι τουλάχιστον 50 °C υψηλότερο από την θερμοκρασία ελέγχου της αυτενεργής ύλης.

(20) Η θερμοκρασία ελέγχου είναι η μέγιστη θερμοκρασία στην οποία η αυτενεργή ύλη μπορεί να μεταφερθεί με ασφάλεια. Θεωρείται ότι η θερμοκρασία των άμεσων περιβλημάτων ενός κόλου υπερβαίνει μόνον τους 55 °C κατά τη διάρκεια της μεταφοράς για ένα σχετικά σύντομο χρονικό διάστημα μέσα σε μία περίοδο 24 ωρών. Σε περίπτωση απώλειας του ελέγχου της θερμοκρασίας, μπορεί να είναι αναγκαίο να εφαρμοστούν διαδικασίες κινδύνου. Η θερμοκρασία κινδύνου είναι η θερμοκρασία στην οποία θα πρέπει να εφαρμοστούν τέτοιες διαδικασίες.

Οι θερμοκρασίες ελέγχου και κινδύνου απορρέουν από την SADT (βλέπε Πίνακα 1). Η SADT θα πρέπει να καθορίζεται για να αποφασιστεί εάν μία ύλη θα πρέπει να υπόκειται σε έλεγχο θερμοκρασίας κατά τη διάρκεια της μεταφοράς. Διατάξεις για τον καθορισμό της SADT δίνονται στην προσθήκη A.1, περιθωριακό 3103.

**Πίνακας 1: Υπολογισμός θερμοκρασιών ελέγχου και κινδύνου**

SADT	Θερμοκρασία ελέγχου	Θερμοκρασία κινδύνου
20 °C ή μικρότερη	20 °C κάτω από την SADT	10 °C κάτω από την SADT
πάνω από 20 °C έως 35 °C	15 °C κάτω από την SADT	10 °C κάτω από την SADT
πάνω από 35 °C	10 °C κάτω από την SADT	5 °C κάτω από την SADT



## Κλάση 4.1

**2400** Αυτενεργές ύλες με SADT όχι μεγαλύτερη από 55 °C, θα πρέπει να υπόκεινται σε έλεγχο (συνεχ.) θερμοκρασίας κατά τη διάρκεια της μεταφοράς. Όπου είναι εφαρμόσιμες, οι θερμοκρασίες ελέγχου και κινδύνου αναφέρονται στο περιθωριακό 2401. Η πραγματική θερμοκρασία κατά τη διάρκεια της μεταφοράς μπορεί να είναι χαμηλότερη από τη θερμοκρασία ελέγχου αλλά θα πρέπει να επιλέγεται έτσι ώστε να αποφεύγεται επικίνδυνος διαχωρισμός φάσεων.

**2401** Α. Στερεές οργανικές εύφλεκτες ύλες και είδη

1° Υλεις λαμβανόμενες από την επεξεργασία καουτσούκ σε εύφλεκτη μορφή:

(b) 1345 ψήγματα καουτσούκ, τρίμματα ή 1345 καουτσούκ άχρηστο, σε σκόνη ή σε κόκκους.

2° Εύφλεκτα είδη σε εμπορική μορφή:

(c) 1331 σπίρτα που ανάβουν παντού, 1944 σπίρτα ασφάλειας (βιβλίο, κάρτα ή κουτί), 1945 σπίρτα επαλειμμένα με κερί, 2254 σπίρτα μεγάλα, 2623 προσανάμματα, στερεά, με εύφλεκτο υγρό.

3° Είδη παραγόμενα από ελαφρώς νιτρομένη νιτροκυτταρίνη:

(c) 1324 φιλμ νιτροκυτταρινικής βάσης, καλυμμένα με ζελατίνη, εκτός από ψήγματα, 2000 κυτταρινοειδή σε κομμάτια, ράβδους, κυλίνδρους, φύλλα, σωλήνες κλπ., εκτός από ψήγματα, 1353 ίνες νοπές με ελαφρώς νιτρομένη νιτροκυτταρίνη, ε.α.ο. ή 1353 υφάσματα νοπά με ελαφρώς νιτρομένη νιτροκυτταρίνη, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 2006 πλαστικά, νιτροκυτταρινικής βάσης, αυτοθερμαινόμενα, ε.α.ο., και 2002 κυτταρινοειδή ψήγματα είναι ύλες της κλάσης 4.2 (βλέπε περιθωριακό 2431, 4°).

4° (c) 3175 στερεά ή μείγματα στερεών (όπως παρασκευάσματα και απόβλητα) που περιέχουν εύφλεκτα υγρά ε.α.ο. με σημείο ανάφλεξης έως 100 °C.

5° Οργανικές εύφλεκτες ύλες στην τετηγμένη κατάσταση:

2304 ναφθαλίνιο, τετηγμένο, 3176 εύφλεκτες στερεές, οργανικές, τετηγμένες, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 1334 το ναφθαλίνιο, ακατέργαστο ή καθαρισμένο, είναι ύλη του 6°.

6° Οργανικά εύφλεκτα στερεά, μη-τοξικά και μη-διαβρωτικά και μείγματα οργανικών εύφλεκτων στερεών, μη-τοξικά και μη-διαβρωτικά (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν κάτω από άλλες συγκεντρωτικές καταχωρήσεις:

(b) 1325 εύφλεκτά στερεά, οργανικά, ε.α.ο.,

(c) 1312 βορνεόλη, 1328 εξαμεθυλενοτετραμίνη, 1332 μεταλδεϋδη, 1334 ναφθαλίνιο, ακατέργαστο ή 1334 ναφθαλίνιο, καθαρισμένο, 2213 παραφορμαλδεϋδη, 2538 νιτροναφθαλίνιο, 2717 καμφορά, συνθετική, 1325 εύφλεκτα στερεά, οργανικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 2304 το ναφθαλίνιο, τετηγμένο, είναι ύλη του 5°.

7° Οργανικά εύφλεκτα στερεά, τοξικά, και μείγματα οργανικών εύφλεκτων στερεών, τοξικά (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν κάτω από άλλα συγκεντρωτικά κεφάλαια:

## Κλάση 4.1

- 2401 (συνεχ.) (b) 2926 εύφλεκτα στερεά, τοξικά, οργανικά, ε.α.ο.,  
 (c) 2926 εύφλεκτα στερεά, τοξικά, οργανικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια τοξικότητας, βλέπε περιθωριακό 2600 (3).

- 8° Οργανικά εύφλεκτα στερεά, διαβρωτικά, και μείγματα οργανικών εύφλεκτων στερεών, διαβρωτικά (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν κάτω από άλλα συγκεντρωτικά κεφάλαια:

- (b) 2925 εύφλεκτα στερεά, διαβρωτικά, οργανικά, ε.α.ο.,  
 (c) 2925 εύφλεκτα στερεά, διαβρωτικά, οργανικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια διαβρωτικότητας βλέπε περιθωριακό 2800 (3).

**B. Στερεές ανόργανες εύφλεκτες ύλες και είδη**

- 11° Ανόργανες μη-μεταλλικές ύλες σε εύφλεκτη μορφή:

- (b) 1339 επταθειούχος φωσφόρος (P<sub>4</sub>S<sub>7</sub>) ελεύθερος από κίτρινο και λευκό φωσφόρο, 1341 πολυθειούχος φωσφόρος (P<sub>4</sub>S<sub>3</sub>) ελεύθερος από κίτρινο και λευκό φωσφόρο, 1343 τριθειούχος φωσφόρος (P<sub>4</sub>S<sub>6</sub>) ελεύθερος από κίτρινο και λευκό φωσφόρο, 2989 φωσφορώδης μόλυβδος, διβασικός, 3178 εύφλεκτες στερεές, ανόργανες, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ:** Θειούχα άλατα του φωσφόρου που δεν είναι ελεύθερα από κίτρινο και λευκό φωσφόρο δεν θα γίνονται δεκτά για μεταφορά.

- (c) 1338 φωσφόρος, άμορφος, 1350 θείο (επίσης άνθη θείου), 2989 φωσφορώδης μόλυβδος, διβασικός, 2687 νιτρικό δικυκλοεξυλαμμώνιο, 3178 εύφλεκτες στερεές, ανόργανες, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 2448 το θείο, τετηγμένο, είναι ύλη του 15°.

- 12° Εύφλεκτα μεταλλικά άλατα οργανικών ενώσεων:

- (b) 3181 μεταλλικά άλατα οργανικών ενώσεων, εύφλεκτα, ε.α.ο.,  
 (c) 1313 αβιετικό ασβέστιο, 1314 αβιετικό ασβέστιο, τετηγμένο, 1318 αβιετικό κοβάλτιο, συμπυκνωμένο, 1330 αβιετικό μαγγάνιο, 2001 ναφθενικά άλατα κοβαλτίου, σε σκόνη, 2714 αβιετικός ψευδάργυρος, 2715 αβιετικό αλουμίνιο, 3181 μεταλλικά άλατα οργανικών ενώσεων, εύφλεκτα, ε.α.ο.

- 13° Μέταλλα και μεταλλικά κράματα σε σκόνη ή άλλη εύφλεκτη μορφή:

**ΣΗΜΕΙΩΣΗ 1:** Μέταλλα και μεταλλικά κράματα σε σκόνη ή άλλη εύφλεκτη μορφή, υποκείμενα σε αυτόματη ανάφλεξη, είναι ύλες της κλάσης 4.2 (βλέπε περιθωριακό 2431, 12°).

**ΣΗΜΕΙΩΣΗ 2:** Μέταλλα και μεταλλικά κράματα σε σκόνη ή άλλη εύφλεκτη μορφή που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια είναι ύλες της κλάσης 4.3 (βλέπε περιθωριακό 2471, 11° έως 15°).

## Κλάση 4.1

2401  
(συνεχ.)

(b) 1309 αλουμίνιο σε σκόνη, επικαλυμμένο, 1323 σιδηροδημήτριο, 1326 άφνιο σε σκόνη, βρεγμένο με όχι λιγότερο από 25 % (κατά βάρος) νερό, 1333 δημήτριο, πλάκες, ράβδοι, 1352 τιτάνιο σκόνη, βρεγμένο με όχι λιγότερο από 25 % (κατά βάρος) νερό, 1358 ζirkόνιο σκόνη, βρεγμένο με όχι λιγότερο από 25 % (κατά βάρος) νερό, 3089 μεταλλική σκόνη, εύφλεκτη, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ 1:** Άφνιο, τιτάνιο και ζirkόνιο σε σκόνη θα πρέπει να περιέχουν ορατή ποσότητα νερού.

**ΣΗΜΕΙΩΣΗ 2:** Άφνιο, τιτάνιο και ζirkόνιο σε σκόνη, βρεγμένα, παραγόμενα μηχανικά, μεγέθους κόκκων 53 μικρών και πάνω, ή παραγόμενα χημικά, μεγέθους κόκκων 840 μικρών και πάνω, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

(c) 1309 αλουμίνιο σκόνη, επικαλυμμένο, 1346 πυρίτιο σκόνη, άμορφο, 1869 μαγνήσιο ή 1869 κράμα μαγνησίου, σε σβόλους, τονναρίσματα ή ταινίες, 2858 ζirkόνιο, ξηρό, σε μορφή σπειροειδούς σύρματος, τελειωμένων μεταλλικών φύλλων, λωρίδων (λεπτότερον από 254 μικρά αλλά όχι λεπτότερον από 18 μικρά), 2878 τιτάνιο σπογγώδες σε κόκκους ή 2878 τιτάνιο σπογγώδες σε σκόνη, 3089 μέταλλα σε σκόνη, εύφλεκτα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Κράματα μαγνησίου με όχι περισσότερο από 50 % μαγνήσιο δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 2:** Πυρίτιο σε σκόνη σε οποιαδήποτε άλλη μορφή, δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 3:** 2009 ζirkόνιο, ξηρό, σε μορφή τελειωμένων φύλλων, λωρίδων ή σπειροειδούς σύρματος, σε πάχος μικρότερο από 18 μικρά, είναι ύλη της κλάσης 4.2 [βλέπε περιθωριακό 2431, 12° (c)]. Ζirkόνιο, ξηρό, σε μορφή τελειωμένων φύλλων, λωρίδων, σπειροειδούς σύρματος, σε πάχος 254 μικρών ή παραπάνω, δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

14° Εύφλεκτα υδρίδια μετάλλων:

(b) 1437 υδρίδιο ζirkόνιου, 1871 υδρίδιο τιτανίου, 3182 υδρίδια μετάλλων, εύφλεκτα, ε.α.ο.,

(c) 3182 υδρίδια μετάλλων, εύφλεκτα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Υδρίδια μετάλλων που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια, είναι ύλες της κλάσης 4.3 (βλέπε περιθωριακό 2471, 16°).

**ΣΗΜΕΙΩΣΗ 2:** 2870 βοροϋδρίδιο του αλουμινίου ή 2870 βοροϋδρίδιο του αλουμινίου σε συσκευές, είναι ύλη της κλάσης 4.2 [βλέπε περιθωριακό 2431, 17° (a)].

15° Η παρακάτω ανόργανη εύφλεκτη ύλη σε τετηγμένη μορφή:

2448 θείο, τετηγμένο.

**ΣΗΜΕΙΩΣΗ 1:** 1350 το στερεό θείο είναι ύλη της 11° (c).

**ΣΗΜΕΙΩΣΗ 2:** Άλλες ανόργανες εύφλεκτες ύλες σε τετηγμένη μορφή δεν θα γίνονται δεκτές για μεταφορά.

16° Ανόργανα εύφλεκτα στερεά, τοξικά, και μείγματα ανόργανων εύφλεκτων στερεών, τοξικών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

## Κλάση 4.1

2401 (συνεχ.) (b) 1868 δεκαβοράνιο, 3179 εύφλεκτα στερεά, τοξικά, ανόργανα, ε.α.ο.,

(c) 3179 εύφλεκτα στερεά, τοξικά, ανόργανα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια τοξικότητας, βλέπε περιθωριακό 2600 (3).

17° Ανόργανα εύφλεκτα στερεά, διαβρωτικά, και μείγματα ανόργανων εύφλεκτων στερεών, διαβρωτικά (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(b) 3180 εύφλεκτα στερεά, διαβρωτικά, ανόργανα, ε.α.ο.,

(c) 3180 εύφλεκτα στερεά, διαβρωτικά, ανόργανα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια διαβρωτικότητας, βλέπε περιθωριακό 2800 (3).

C. Εκρηκτικές ύλες στην μη-εκρηκτική κατάσταση

**ΣΗΜΕΙΩΣΗ 1:** Εκρηκτικές ύλες στη μη-εκρηκτική κατάσταση, άλλες από εκείνες που αναφέρονται στα 21° έως 25°, δεν θα γίνονται δεκτές για μεταφορά ως ύλες της κλάσης 4.1.

**ΣΗΜΕΙΩΣΗ 2:** Ειδικές απαιτήσεις συσκευασίας εφαρμόζονται για ύλες των 21° έως 26° (βλέπε περιθωριακό 2404).

21° Οι παρακάτω βρεγμένες με νερό εκρηκτικές ύλες:

- (a) 1310 πικρικό αμμώνιο, βρεγμένο με όχι λιγότερο από 10 % (κατά βάρος) νερό,  
1322 δινιτροεξορσίνη, βρεγμένη με όχι λιγότερο από 15 % (κατά βάρος) νερό,  
1336 νιτρογουανιδίνη (πικρίτης), βρεγμένη με όχι λιγότερο από 20 % (κατά βάρος) νερό,  
1337 νιτράμωλο, βρεγμένο με όχι λιγότερο από 20 % (κατά βάρος) νερό,  
1344 τρινιτροφαινόλη, βρεγμένη με όχι λιγότερο από 30 % (κατά βάρος) νερό,  
1347 πικρικός άργυρος, βρεγμένος με όχι λιγότερο από 30 % (κατά βάρος) νερό,  
1349 πικραμικό νάτριο, βρεγμένο με όχι λιγότερο από 20 % (κατά βάρος) νερό,  
1354 τρινιτροβενζόλιο, βρεγμένο με όχι λιγότερο από 30 % (κατά βάρος) νερό,  
1355 τρινιτροβεβζοϊκό οξύ, βρεγμένο με όχι λιγότερο από 30 % (κατά βάρος) νερό,  
1356 τρινιτροτολουόλιο, βρεγμένο με όχι λιγότερο από 30 % (κατά βάρος) νερό,  
1357 νιτρική ουρία, βρεγμένη με όχι λιγότερο από 20 % (κατά βάρος) νερό,  
1517 πικραμικό ζιρκόνιο, βρεγμένο με όχι λιγότερο από 20 % (κατά βάρος) νερό,  
2852 διπικρυλοσουλφίδιο, βρεγμένο με όχι λιγότερο από 10 % (κατά βάρος) νερό.

**ΣΗΜΕΙΩΣΗ 1:** Εκρηκτικές ύλες με περιεκτικότητα σε νερό μικρότερη από τα αναφερόμενα όρια, είναι ύλες της κλάσης 1.

**ΣΗΜΕΙΩΣΗ 2:** Το νερό θα πρέπει να κατανέμεται ομοιογενώς πάνω από όλη την εκρηκτική ύλη. Κατά τη διάρκεια της μεταφοράς, δεν θα πρέπει να συμβαίνει κανένας διαχωρισμός του μείγματος που να μειώνει το δράνοποιητικό αποτέλεσμα.

## Κλάση 4.1

**2401 (συνεχ.)** **ΣΗΜΕΙΩΣΗ 3:** Εκρηκτικά βρεγμένα με νερό δεν θα πρέπει να είναι ικανά να έλθουν σε έκρηξη από τη δράση του κοινού πυροκροτητή<sup>1/</sup> και δεν θα πρέπει να είναι ικανά να έλθουν σε εκτόνωση μάζας από την επίδραση ενός ισχυρού ενισχυτή.

22° Οι παρακάτω τοξικές βρεγμένες με νερό εκρηκτικές ύλες:

- (a) 1320 δινιτροφαινόλη, βρεγμένη με όχι λιγότερο από 15 % (κατά βάρος) νερό,  
1321 δινιτροφαινολικά άλατα, βρεγμένα με όχι λιγότερο από 15 % (κατά βάρος) νερό,  
1348 δινιτρο-ο-κρεζολικό νάτριο, βρεγμένο με όχι λιγότερο από 15 % (κατά βάρος) νερό.

**ΣΗΜΕΙΩΣΗ 1:** Εκρηκτικές ύλες με περιεκτικότητα σε νερό μικρότερη από τα αναφερόμενα όρια, είναι ύλες της κλάσης 1.

**ΣΗΜΕΙΩΣΗ 2:** Το νερό θα πρέπει να κατανέμεται ομοιογενώς πάνω από όλη την εκρηκτική ύλη. Κατά τη διάρκεια της μεταφοράς δεν θα πρέπει να συμβαίνει κανένας διαχωρισμός του μείγματος που να μειώνει το αδρανοποιητικό αποτέλεσμα.

**ΣΗΜΕΙΩΣΗ 3:** Εκρηκτικά βρεγμένα με νερό δεν θα πρέπει να είναι ικανά να έλθουν σε έκρηξη από τη δράση του κοινού πυροκροτητή<sup>1/</sup> και δεν θα πρέπει να είναι ικανά να έλθουν σε εκτόνωση μάζας από την επίδραση ενός ισχυρού ενισχυτή.

23° Η παρακάτω εκρηκτική ύλη που έχει καταστεί αδρανής:

- (b) 2907 μείγμα δινιτρικού ισοσορβιδίου με όχι λιγότερο από 60 % λακτόζη, μανόζη, άμυλο ή όξινο φωσφορικό ασβέστιο ή με άλλους επιβραδυντές, υπό την προϋπόθεση ότι ένας τέτοιος επιβραδυντής έχει αδρανοποιητικές ιδιότητες που είναι τουλάχιστον τόσο αποτελεσματικές.

24° Τα παρακάτω μείγματα νιτρομένης κυταρίνης:

- (a) 2555 νιτροκυταρίνη με όχι λιγότερο από 25 % (κατά βάρος) νερό,  
2556 νιτροκυταρίνη με όχι λιγότερο από 25 % (κατά βάρος) αλκοόλη και όχι περισσότερο από 12.6 % άζωτο επί ξηρής μάζας,  
2557 νιτροκυταρίνη, με όχι περισσότερο από 12.6 % άζωτο, κατά βάρος επί ξηρού, μείγμα με ή χωρίς πλαστικοποιητή, με ή χωρίς χρώμα.

**ΣΗΜΕΙΩΣΗ 1:** 2556 νιτροκυταρίνη με όχι λιγότερο από 25 % (κατά βάρος) αλκοόλη, ή 2557 νιτροκυταρίνη με όχι περισσότερο από 12.6 % άζωτο, κατά βάρος επί ξηρού, μείγμα με ή χωρίς πλαστικοποιητή, με ή χωρίς χρώμα, θα πρέπει να συσκευάζονται σε δοχεία έτσι κατασκευασμένα ώστε να μην είναι δυνατή η έκρηξη λόγω αυξημένης εσωτερικής πίεσης.

**ΣΗΜΕΙΩΣΗ 2:** Μείγματα νιτροκυταρίνης με περιεκτικότητα σε νερό, περιεκτικότητα σε αλκοόλη ή περιεκτικότητα σε πλαστικοποιητή μικρότερη από τα αναφερόμενα όρια, είναι ύλες της κλάσης 1 (βλέπε περιθωριακό 2101, 4° και 26°).

<sup>1/</sup> Βλέπε "Υποδείξεις για τη Μεταφορά Επικίνδυνων Εμπορευμάτων, Έλεγχοι και Κριτήρια", Μέρος I, Παράρτημα 1, ST/SG/AC.10/11/Rev.1.

## Κλάση 4.1

2401 25° Το παρακάτω τοξικό αζίδιο:  
(συνεχ.)

- (a) 1571 αζίδιο του βαρίου, βρεγμένο με όχι λιγότερο από 50 % (κατά βάρος) νερό.

**ΣΗΜΕΙΩΣΗ:** Αζίδιο του βαρίου με περιεκτικότητα σε νερό μικρότερη από το αναφερόμενο όριο, δεν θα γίνεται δεκτό για μεταφορά.

D. Ύλες της οικογένειας των αυτενεργών υλών.

26° Οι παρακάτω ύλες της οικογένειας των αυτενεργών υλών:

- (b)3242 αζοδικαρβοναμίδιο

- (c) 2956 5-τριτοπαγές βουτυλο-2,4,6-τρινιτρο-*m*-ξυλένιο (ξυλένιο μόσχου)  
3251 μονονιτρικό ισοσορβίδιο-5.

**ΣΗΜΕΙΩΣΗ 1:** Ειδικές απαιτήσεις συσκευασίας εφαρμόζονται για ύλες της 26° [βλέπε περιθωριακό 2404 (3)].

**ΣΗΜΕΙΩΣΗ 2:** Μονονιτρικό ισοσορβίδιο-5 ή συνθέσεις αυτής της ύλης που έχουν δείξει από την εκτέλεση της σειράς δοκιμών 2 της διαδικασίας καταχώρησης της κλάσης 1 [βλέπε Προσθήκη Α.1, περιθωριακό 3101 (1)] ότι είναι πολύ όχι-ευαίσθητες για να συμπεριληφθούν στην Κλάση 1, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

E. Αυτενεργές ύλες που δεν απαιτούν έλεγχο θερμοκρασίας

31° (b)3221 αυτενεργά υγρά τύπου Β<sup>2/</sup>

32° (b)3222 αυτενεργά υγρά τύπου Β, όπως:

Ύλη	Συγκέντρωση (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2405)
<u>2-διαζώ-1-ναφθολο-4-σουλφονυλογλωρίδιο</u>	100	OP5B
<u>2-διαζώ-1-ναφθολο-5-σουλφονυλογλωρίδιο</u>	100	OP5B

33° (b)3223 αυτενεργά υγρά τύπου C, όπως

Ύλη	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2405)
αυτενεργό υγρό, <u>δείγμα<sup>3/</sup></u>	OP2A

<sup>2/</sup> Καμία αυτενεργή ύλη δεν συμπεριλαμβάνεται προς το παρόν σ' αυτό το είδος.

<sup>3/</sup> Βλέπε περιθωριακό 2400 (18).

## Κλάση 4.1

2401 34° (b) 3224 αυτενεργά στερεά, τύπου C, όπως:  
(συνεχ.)

Υλη	Συγκέντρωση (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2405)
<u>N,N'-δινιτροδο-N,N'-διμεθυλοτερεφθαλαμίδιο</u> σε μορφή πάστας	72	OP6B
<u>N,N'-δινιτροδοπενταμεθυλενοτετραμίνη</u> <sup>4/</sup> αυτενεργό στερεό, δείγμα <sup>5/</sup>	82	OP6B OP2B

35° (b) 3225 αυτενεργά υγρά τύπου D.<sup>6/</sup>

36° (b) 3226 αυτενεργά στερεά τύπου D, όπως:

Υλη	Συγκέντρωση (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2405)
<u>1,1'-σζωδι-(εξαιδροβενζονιτρίλιο)</u>	100	OP7B
<u>1,3-δισουλφονυλδραζιογό βενζόλιο</u> , σε μορφή πάστας	52	OP7B
<u>σουλφονυλδραζιογό βενζόλιο</u>	100	OP7B
<u>γλωριούχος 4-(βενζυλο(αιθυλ)αμινο)-3-αιθοξυβενζολοδιαζωνικός ψευδάργυρος</u>	100	OP7B
<u>γλωριούχος 3-γλωρο-4-διαιθυλαμινοβενζολοδιαζωνικός ψευδάργυρος</u>	100	OP7B
<u>4,4'-δισουλφονυλδραζιογό διφαινυλοξείδιο</u>	100	OP7B
<u>γλωριούχος 4-διπροπυλαμινοβενζολοδιαζωνικός ψευδάργυρος</u>	100	OP7B
<u>4-μεθυλοβενζολοσουλφονυλδραζίδιο</u>	100	OP7B
<u>2-διαζω-1-ναφθολο-4-σουλφονικό νάτριο</u>	100	OP7B
<u>2-διαζω-1-ναφθολο-5-σουλφονικό νάτριο</u>	100	OP7B
	100	OP7B

37° (b) 3227 αυτενεργά υγρά τύπου E.<sup>6/</sup>

38° (b) 3228 αυτενεργά στερεά τύπου E.<sup>6/</sup>

39° (b) 3229 αυτενεργά υγρά τύπου F.<sup>6/</sup>

40° (b) 3230 αυτενεργά στερεά τύπου F.<sup>6/</sup>

**F. Αυτενεργές ύλες που απαιτούν έλεγχο θερμοκρασίας.**

**ΣΗΜΕΙΩΣΗ:** Υλες των 41° έως 50° είναι αυτενεργές ύλες που αποσυντίθενται εύκολα σε κανονικές θερμοκρασίες και θα πρέπει συνεπώς να μεταφέρονται μόνον κάτω από συνθήκες επαρκούς ψύξης. Για αυτές τις αυτενεργές ύλες, η μέγιστη θερμοκρασία κατά τη διάρκεια της μεταφοράς δεν θα πρέπει να υπερβαίνει την ενδεικνυόμενη θερμοκρασία ελέγχου.

<sup>4/</sup> Με συμβατό διαλύτη με σημείο βρασμού όχι μικρότερο από 150 °C.

<sup>5/</sup> Βλέπε περιθωριακό 2400 (18).

<sup>6/</sup> Καμία αυτενεργή ύλη δεν συμπεριλαμβάνεται προς το παρόν σ' αυτό το είδος.

## Κλάση 4.1

2401 41° (b) 3231 αυτενεργά υγρά τύπου Β, υπό ελεγχόμενη θερμοκρασία<sup>g/</sup>  
(συνεχ.)

42° (b) 3232 αυτενεργά στερεά τύπου Β, υπό ελεγχόμενη θερμοκρασία, όπως:

Υλη	Συγκέντρωση (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2405)
<u>σύνθεση αζωδικαρβοναμίδιου τύπου Β<sup>z/</sup></u>	< 100	OP5B

43° (b) αυτενεργά υγρά τύπου C, υπό ελεγχόμενη θερμοκρασία, όπως:

Υλη	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2405)
<u>αυτενεργό υγρό, δείγμα, υπό ελεγχόμενη θερμοκρασία</u> <sup>g/</sup>	OP2A

44° (b) 3234 αυτενεργά στερεά τύπου C, υπό ελεγχόμενη θερμοκρασία, όπως:

Υλη	Συγκέντρωση (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2405)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)
<u>σύνθεση αζωδικαρβοναμίδιου τύπου C<sup>z/</sup></u>	<100	OP6B		
<u>2,2'-αζωδι(ισοβουτυρονιτρίλιο) τετραφθοροβορικό 3-μεθυλο-4-(πυρρολιδιν-1-ύλο) βενζολοδιαζώλιο</u> <u>αυτενεργό στερεό, δείγμα, υπό ελεγχόμενη θερμοκρασία</u> <sup>g/</sup>	100	OP6B	+40	+45
	95	OP6B	+45	+50
<u>νιτρικό τετραμινοπαλλάδιο (II)</u>	100	OP2B OP6B	+30	+35

45° (b) 3235 αυτενεργά υγρά τύπου D, υπό ελεγχόμενη θερμοκρασία, όπως:

Υλη	Συγκέντρωση (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2405)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)
<u>2,2'-αζωδι(αιθυλο 2-μεθυλοπροπιονικό άλας)</u>	100	OP7A	+20	+25

46° (b) 3236 αυτενεργά στερεά τύπου D, υπό ελεγχόμενη θερμοκρασία, όπως:

<sup>g/</sup> Καμία αυτενεργή ύλη δεν συμπεριλαμβάνεται προς το παρόν σ' αυτό το είδος.

<sup>z/</sup> Συνθέσεις αζωδικαρβοναμίδιου που πληρούν τα κριτήρια της προσθήκης Α.1, περιθωριακό 3104 (2) (b). Οι θερμοκρασίες ελέγχου και κινδύνου θα πρέπει να προσδιορίζονται από τη διαδικασία στο περιθωριακό 2400 (20).

<sup>g/</sup> Βλέπε περιθωριακό 2400 (18).



Κλάση 4.1

2401  
(συνεχ.)

Υλη	Συγκέντρωση (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2405)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)
σύνθεση αζωδικαρθοναμίδιου τύπου D <sup>9)</sup>				
<u>2,2'-αζωδι(2,4-δι-μεθυλο-4-μεθοξυβαλεριανονιτρίλιο</u>	<100	OP7B		
<u>2,2'-αζωδι(2,4-διμεθυλοβαλεριανονιτρίλιο)</u>	100	OP7B	-5	+5
<u>2,2'-αζωδι(2-μεθυλοβουτυρονιτρίλιο)</u>	100	OP7B	+10	+15
<u>χλωριούχος 4-(βενζυλο(μεθυλο)αμινο)-3-αιθοξυβενζολοδιαζωνικός ψευδάργυρος</u>	100	OP7B	+35	+40
<u>χλωριούχος 2,5-διαιθοξυ-4-μορφολινο-βενζολοδιαζωνικός ψευδάργυρος</u>				
<u>χλωριούχος 2,5-διαιθοξυ-4-μορφολινο-βενζολοδιαζωνικός ψευδάργυρος</u>	100	OP7B	+40	+45
<u>τετραφθοροβορικό 2,5-διαιθοξυ-4-μορφολινο-βενζολοδιαζωνιο</u>				
<u>χλωριούχο 2,5-διαιθοξυ-4-(φαινυλοσουλφονυλο) βενζολοδιαζωνιο</u>	67-100	OP7B	+35	+40
<u>χλωριούχος 2,5-διμεθοξυ-4(4-μεθυλοφαινυλο-σουλφονυλο)-βενζολοδιαζωνικός ψευδάργυρος</u>	66	OP7B	+40	+45
<u>χλωριούχος 4-διμεθυλαμινο-6-(2-δι-μεθυλο-αμινοαιθοξυ)-τολουόλο-2-διαζωνικός ψευδάργυρος</u>	100	OP7B	+30	+35
<u>χλωριούχος 2-(2-υδροξυαιθοξυ)-1-(πυρρολιδιν-1-υλ)-βενζολο-4- διαζωνικός ψευδάργυρος</u>	67	OP7B	+40	+45
<u>χλωριούχος 2-(2-υδροξυαιθοξυ)-1-(πυρρολιδιν-1-υλ)-βενζολο-4- διαζωνικός ψευδάργυρος</u>	79	OP7B	+40	+45
<u>χλωριούχος 3-(2-υδροξυαιθοξυ)-4-πυρρολιδιν-1-υλ-βενζολο- διαζωνικός ψευδάργυρος</u>	100	OP7B	+40	+45
<u>N-φορμυλο-2-(νιτρομεθυλενο)1,3-υπερυδροθειαζίνη</u>				
<u>4-νιτροδοφαινόλη</u>	100	OP7B	+45	+50
<u>χλωριούχος 2-(N,N-αιθοξυκαρβονυλοφαινυλαμινο)-3-μεθοξυ-4-(N-μεθυλο-N-κυκλο-εξυλαμινο)-βενζολοδιαζωνικός ψευδάργυρος</u>	100	OP7B	+40	+45
<u>χλωριούχος 2-(N,N-αιθοξυκαρβονυλοφαινυλαμινο)-3-μεθοξυ-4-(N-μεθυλο-N-κυκλο-εξυλαμινο)-βενζολοδιαζωνικός ψευδάργυρος</u>	100	OP7B	+45	+50
<u>χλωριούχος 2-(N,N-αιθοξυκαρβονυλοφαινυλαμινο)-3-μεθοξυ-4-(N-μεθυλο-N-κυκλο-εξυλαμινο)-βενζολοδιαζωνικός ψευδάργυρος</u>	100	OP7B	+35	+40
<u>όξινο θειικό 2-(N,N-μεθυλαμινοαιθυλο-καρβονυλο)-4-(3,4-διμεθυλο-φαινυλοσουλφονυλο) βενζολο- διαζώνιο</u>	63-92	OP7B	+40	+45
	62	OP7B	+35	+40
	96	OP7B	+45	+50

<sup>9)</sup> Σύνθεσεις αζωδικαρθοναμίδιου που πληρούν τα κριτήρια της προσθήκης A.1, περιθωριακό 3104 (2) (b). Οι θερμοκρασίες ελέγχου και κινδύνου θα πρέπει να προσδιορίζονται από τη διαδικασία στο περιθωριακό 2400 (20).

## Κλάση 4.1

- 2401 47° (b) 3237 αυτενεργά υγρά τύπου E, υπό ελεγχόμενη θερμοκρασία<sup>10/</sup>  
(συνεχ.)  
48° (b) 3238 αυτενεργά στερεά τύπου E, υπό ελεγχόμενη θερμοκρασία<sup>10/</sup>  
49° (b) 3239 αυτενεργά υγρά τύπου F, υπό ελεγχόμενη θερμοκρασία<sup>10/</sup>  
50° (b) 3240 αυτενεργά στερεά τύπου F, υπό ελεγχόμενη θερμοκρασία<sup>10/</sup>

## G. Κενές συσκευασίες

- 51° Κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά χύμα (IBC), κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών και κενών εμπορευματοκιβωτίων-δεξαμενών, ακαθάρσιτων, καθώς και κενών οχημάτων για μεταφορά χύμα και κενών μικρών εμπορευματοκιβωτίων για μεταφορά χύμα, ακαθάρσιτων, που περιείχαν ύλες της κλάσης 4.1.
- 2401a Ύλες των 1° έως 4°, 6° και 11° έως 14°, μεταφερόμενων σε συμφωνία με τους παρακάτω όρους, δεν θα πρέπει να υπόκεινται στις συνθήκες για αυτή την Κλάση που περιέχονται σε αυτό το Παράρτημα και στο παράρτημα B):

- (a) Ύλες ταξινομημένες υπό την (b) κάθε είδους, έως 3 kg ανά εσωτερική συσκευασία και 12 kg ανά κόλο,  
(b) Ύλες ταξινομημένες υπό την (c) κάθε είδους, έως 6 kg ανά εσωτερική συσκευασία και 24 kg ανά κόλο.

Αυτές οι ποσότητες υλών θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες που τουλάχιστον ικανοποιούν τις συνθήκες του περιθωριακού 3538.

Οι "Γενικές συνθήκες συσκευασίας" του περιθωριακού 3500 (1) και (2) καθώς και (5) έως (7) θα πρέπει να τηρούνται.

## 2. Διατάξεις

## A. Κόλα

## 1. Γενικές συνθήκες συσκευασίας

- 2402 (1) Οι συσκευασίες θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.5, εκτός εάν καθορίζονται ειδικές συνθήκες στα περιθωριακά 2403 έως 2405 και 2408 για τη συσκευασία ορισμένων υλών.

Τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC), θα πρέπει να είναι σύμφωνα με τις συνθήκες της προσθήκης A.6.

- (2) Σε συμφωνία με τις διατάξεις των περιθωριακών 2400 (3) και 3511 (2) ή 3611 (2) αντίστοιχα, θα πρέπει να χρησιμοποιούνται τα παρακάτω:

συσκευασίες της ομάδας συσκευασίας 1, μαρκαρισμένες με το γράμμα "X", για πολύ επικίνδυνες ύλες ταξινομημένες υπό την (a) κάθε είδους,

<sup>10/</sup>

Καμία αυτενεργή ύλη δεν συμπεριλαμβάνεται προς το παρόν σ' αυτό το είδος.

## Κλάση 4.1

**2402** (συνεχ.) συσκευασίες των ομάδων συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X", ή IBC της ομάδας συσκευασίας ομάδα II, μαρκαρισμένα με το γράμμα "Y", για επικίνδυνες ύλες ταξινομημένες υπό την (b) κάθε είδους,

συσκευασίες των ομάδων συσκευασίας III, II ή I, μαρκαρισμένες με το γράμμα "Z", "Y" ή "X", ή IBC των ομάδων συσκευασίας III ή II, μαρκαρισμένα με το γράμμα "Z" ή "Y", για λιγότερο επικίνδυνες ύλες ταξινομημένες υπό την (c) κάθε είδους.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά υλών της κλάσης 4.1 σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές, καθώς και για μεταφορά χύμα, βλέπε Παράρτημα Β.

2. Ειδικές συνθήκες για τη συσκευασία ορισμένων υλών

**2403** Ύλες της 5<sup>ο</sup> και τετηγμένο θείο της 15<sup>ο</sup> μπορούν να μεταφέρονται μόνο σε οχήματα-δεξαμενές (βλέπε Προσθήκη Β.1a) ή σε εμπορευματοκιβώτια-δεξαμενές (βλέπε Προσθήκη Β.1b).

**2404** (1) Ύλες των 21<sup>ο</sup>, 22<sup>ο</sup>, 23<sup>ο</sup> και 25<sup>ο</sup> θα πρέπει να συσκευάζονται:

- (a) σε βαρέλια σύμφωνα με το περιθωριακό 3523 για κόντρα-πλακέ, το περιθωριακό 3525 για φύλλο φάιμπερ ή το περιθωριακό 3526 για πλαστικά υλικά, σε κάθε περίπτωση με έναν ή περισσότερους αδιαπέραστους από την υγρασία εσωτερικούς σάκους, ή
- (b) σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538 με αδιαπέραστες από την υγρασία εσωτερικές συσκευασίες. Πάντως, καμία εσωτερική ή εξωτερική συσκευασία από μέταλλο δεν θα πρέπει να επιτρέπεται.

Οι συσκευασίες θα πρέπει να είναι έτσι σχεδιασμένες ώστε η περιεκτικότητα σε νερό ή η περιεκτικότητα σε αδρανοποιητή, που προστίθεται στην ύλη για να την καταστήσει αδρανή, να μην μπορεί να μειωθεί κατά τη διάρκεια της μεταφοράς.

(2) Ύλες της 24<sup>ο</sup> θα πρέπει να συσκευάζονται σε:

- (a) χαλύβδινα βαρέλια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3520, ή
- (b) αλουμινένια βαρέλια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3521, ή
- (c) χαλύβδινα μπιτόνια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3522, ή
- (d) βαρέλια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3523, ή
- (e) βαρέλια από φάιμπερ σύμφωνα με το περιθωριακό 3525, ή
- (f) κιβώτια από φύλλα φάιμπερ σύμφωνα με το περιθωριακό 3530, ή
- (g) χαλύβδινα ή αλουμινένια κιβώτια σύμφωνα με το περιθωριακό 3532, ή
- (h) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, όμως, καμία εσωτερική ή εξωτερική συσκευασία από μέταλλο δεν θα πρέπει να επιτρέπεται.

Τα μεταλλικά δοχεία θα πρέπει να είναι έτσι κατασκευασμένα και κλεισμένα ώστε να αποδίδουν σε εσωτερική πίεση όχι μεγαλύτερη από 300 kPa (3 bar).

2555 νιτροκυτταρίνη με όχι λιγότερο από 25 % (κατά βάρος) νερό μπορεί επίσης να συσκευάζεται σε πλαστικά βαρέλια και μπιτόνια σύμφωνα με το περιθωριακό 3526.

## Κλάση 4.1

**2404** Εάν 2557 νιτροκυτταρίνη, με όχι περισσότερο από 12.6 % άζωτο, κατά βάρος επί ξηρού, μείγμα (συνεχ.) με ή χωρίς πλαστικοποιητή, με ή χωρίς χρώμα συσκευάζεται σε μεταλλικά δοχεία, θα πρέπει να χρησιμοποιείται εσωτερικός σάκος με τοιχώματα από πολλαπλά φύλλα χαρτιού.

Εάν 2555 νιτροκυτταρίνη με όχι λιγότερο από 25 % (κατά βάρος) νερό ή 2556 νιτροκυτταρίνη με όχι λιγότερο από 25 % (κατά βάρος) αλκοόλη συσκευάζεται σε βαρέλια από κόντρα-πλακέ, βαρέλια από φάιμπερ ή κιβώτια από φύλλα φάιμπερ, θα πρέπει να χρησιμοποιείται εσωτερικός σάκος αδιαπέραστος από την υγρασία, επένδυση με πλαστικό στρώμα ή εσωτερική επικάλυψη από πλαστικό υλικό.

Όλες οι συσκευασίες θα πρέπει να είναι έτσι σχεδιασμένες ώστε το νερό, η αλκοόλη ή ο αδρανιστικός που περιέχεται να μην μπορεί να μειωθεί κατά τη διάρκεια της μεταφοράς.

(3) (a) Ύλες του είδους 26° θα πρέπει να συσκευάζονται σε βαρέλια από φάιμπερ σύμφωνα με το περιθωριακό 3525 με πλαστική επένδυση ή μία εξίσου αποτελεσματική εσωτερική επικάλυψη. Ένα κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 50 kg.

(b) 3242 αζωδικαρβοναμίδιο της 26° (b) μπορεί επίσης να συσκευάζεται:

- μία εσωτερική συσκευασία ενός μόνου πλαστικού σάκου σε ένα κιβώτιο από φύλλα φάιμπερ, μέγιστου περιεχομένου 50 kg, ή

- εσωτερικές συσκευασίες πλαστικών φιαλών, βάζων, σάκων ή κιβωτίων, μέγιστου περιεχομένου 5 kg η καθεμία, μέσα σε μία εξωτερική συσκευασία κιβωτίου από φύλλα φάιμπερ ή βαρελιού από φάιμπερ μέγιστου περιεχομένου 25 kg.

**2405** (1) Οι ύλες της 31° θα πρέπει να συσκευάζονται χρησιμοποιώντας μεθόδους συσκευασίας που αναφέρονται στον Πίνακα 2 και χαρακτηρίζονται OP1A έως OP8A για υγρά και OP1B έως OP8B για στερεά. Οι ύλες θα πρέπει να συσκευάζονται όπως υποδεικνύεται στο περιθωριακό 2401 και όπως τίθεται με λεπτομέρειες στον Πίνακα 2 (A) και 2 (B). Μία μέθοδος συσκευασίας που αντιστοιχεί σε μικρότερο μέγεθος κόλου (δηλ. με χαμηλότερο αριθμό OP) μπορεί να χρησιμοποιείται, αλλά μία μέθοδος συσκευασίας που αντιστοιχεί σε μεγαλύτερο μέγεθος κόλου (δηλ. με υψηλότερο αριθμό OP) δεν θα πρέπει να χρησιμοποιείται. Μεταλλικές συσκευασίες που ικανοποιούν τα κριτήρια ελέγχου της ομάδας συσκευασίας I δεν θα πρέπει να χρησιμοποιούνται. Για συνδυασμένες συσκευασίες, τα προστατευτικά υλικά δεν θα πρέπει να είναι άμεσα εύφλεκτα και δεν θα πρέπει να προκαλούν αποσύνθεση της αυτενεργής ύλης σε περίπτωση διαρροής.

(2) Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 01 σε συμφωνία με το περιθωριακό 2412 (5), θα πρέπει να είναι σύμφωνες με τις διατάξεις του περιθωριακού 2102 (4) και (6).

(3) Για αυτενεργές ύλες ή συνθέσεις αυτενεργών υλών που δεν αναφέρονται στο περιθωριακό 2401, η παρακάτω διαδικασία θα πρέπει να χρησιμοποιείται ώστε να καθορίζεται η κατάλληλη μέθοδος συσκευασίας:

(a) αυτενεργές ύλες τύπου B:

Οι ύλες θα πρέπει να καταχωρούνται στη μέθοδο συσκευασίας OP5A ή OP5B υπό την προϋπόθεση ότι ικανοποιούν τα κριτήρια της προσθήκης Α.1, περιθωριακό 3104 (2) (b) σε μία από τις συσκευασίες που υποδεικνύονται. Εάν η αυτενεργή ύλη μπορεί μόνον να ικανοποιεί αυτά τα κριτήρια σε μικρότερη συσκευασία από εκείνες που αναφέρονται για τη μέθοδο συσκευασίας OP5A ή OP5B (δηλ. μία από τις συσκευασίες που αναφέρονται για OP1A έως OP4A ή OP1B έως OP4B), τότε θα πρέπει να καταχωρείται η αντίστοιχη μέθοδος συσκευασίας με τον μικρότερο αριθμό OP.

## Κλάση 4.1

2405  
(συνεχ.)

(b) αυτενεργές ύλες τύπου C:

Οι ύλες θα πρέπει να καταχωρούνται στη μέθοδο συσκευασίας OP6A ή OP6B υπό την προϋπόθεση ότι ικανοποιούν τα κριτήρια της προσθήκης A.1, περιθωριακό 3104 (2) (c) σε μία από τις συσκευασίες που υποδεικνύονται. Εάν η αυτενεργή ύλη μπορεί μόνον να ικανοποιεί αυτά τα κριτήρια σε μικρότερη συσκευασία από εκείνες που αναφέρονται για τη μέθοδο συσκευασίας OP6A ή OP6B τότε θα πρέπει να καταχωρείται η αντίστοιχη μέθοδος συσκευασίας με τον μικρότερο αριθμό OP.

(c) αυτενεργές ύλες τύπου D:

Η μέθοδος συσκευασίας OP7A ή OP7B θα πρέπει να χρησιμοποιείται.

(d) αυτενεργές ύλες τύπου E:

Η μέθοδος συσκευασίας OP8A ή OP8B θα πρέπει να χρησιμοποιείται.

(e) αυτενεργές ύλες τύπου F:

Η μέθοδος συσκευασίας OP8A ή OP8B θα πρέπει να χρησιμοποιείται.

(4) Ύλες των 39° (b), 40° (b), 49° (b) ή 50° (b) μπορούν να μεταφέρονται σε IBC υπό συνθήκες που θεσπίζονται από την αρμόδια αρχή της χώρας προέλευσης όταν, βάσει του ελέγχου, η αρμόδια αρχή ικανοποιείται ότι τέτοια μεταφορά μπορεί να διεξαχθεί με ασφάλεια. Οι έλεγχοι θα πρέπει να περιλαμβάνουν εκείνα τα απαραίτητα στοιχεία ώστε:

- να αποδεικνύουν ότι η αυτενεργή ύλη είναι σύμφωνη με τις αρχές για την ταξινόμηση που δίνονται στην προσθήκη A.1, περιθωριακό 3104 (2) (f),
- να αποδεικνύουν την συμβατότητα με όλα τα υλικά που κανονικά είναι σε επαφή με την ύλη κατά τη διάρκεια της μεταφοράς,
- να καθορίζουν, όταν έχουν εφαρμογή, τις θερμοκρασίες ελέγχου και κινδύνου που σχετίζονται με τη μεταφορά της ύλης στο συγκεκριμένο IBC όπως απορρέει από την SADT,
- να σχεδιάζουν, όταν έχουν εφαρμογή, τις συσκευές αναγκαστικής εκτόνωσης, και
- να καθορίζουν εάν είναι αναγκαίες οποιοσδήποτε ειδικές απαιτήσεις.

(5) Για την αποφυγή εκρηκτικής θραύσης των μεταλλικών IBC ή των σύνθετων IBC με μεταλλικό περίβλημα πλήρους τοιχώματος, οι συσκευές αναγκαστικής εκτόνωσης θα πρέπει να σχεδιάζονται έτσι ώστε να εξαερίζουν όλα τα προϊόντα αποσύνθεσης και τους ατμούς που παράγονται κατά τη διάρκεια μίας περιόδου όχι μικρότερης από μία ώρα εξέλιξης της φωτιάς (φορτίο θερμότητας 110 kW/m<sup>2</sup>) ή αυτο-επιταχυνόμενης αποσύνθεσης.

(6) Δοχεία ή IBC, που περιέχουν ύλες των 31° (b), 33° (b), 35° (b), 37° (b), 39° (b), 41° (b), 43° (b), 45° (b), 47° (b) ή 49° (b), που εκλύουν μικρές ποσότητες αερίων, θα πρέπει να εξαερίζονται, σε συμφωνία με το περιθωριακό 3500 (8) ή 3601 (6).

Πίνακας 2 (Α) : ΚΑΤΑΛΟΓΟΣ ΣΥΣΚΕΥΑΣΙΩΝ ΓΙΑ ΑΥΤΕΝΕΡΓΙΑ ΥΓΡΑ ΚΑΙ ΜΕΤΕΣΤΗ ΠΟΣΟΤΗΤΑ Ή ΚΑΘΑΡΟ ΒΑΡΟΣ ΑΝΑ ΚΩΔΟ  
(βλέπε περιθωριακό 2405)

Τύπος και υλικό	Κωδικός συσκευασίας (βλέπε περιθωριακό 3514)	Μέθοδος συσκευασίας <sup>1/</sup>										
		OP1A <sup>2/</sup>	OP2A <sup>2/</sup>	OP3A <sup>2/</sup>	OP4A <sup>2/</sup>	OP5A <sup>2/</sup>	OP6A <sup>2/</sup>	OP7A	OP8A			
Χαλύβδινο βαρέλι	1A1	*	*	*	*	*	*	*	*	*	60 l	225 l
Χαλύβδινο βαρέλι <sup>3/</sup>	1A2	*	*	*	*	*	*	*	*	*	50 kg	200 kg
Αλουμινόχο βαρέλι	1B1	*	*	*	*	*	*	*	*	*	60 l	225 l
Βαρέλι από φάμιτερ <sup>3/</sup>	1G	0,5 kg	0,5/10kg	5 kg	5/25 kg	25 kg	50 kg	60 l	60 l	50 kg	200 kg	200 kg
Πλαστικό βαρέλι	1H1	0,5 l	0,5 l	5 l	5 l	30 l	60 l	60 l	60 l	60 l	60 l	60 l
Πλαστικό μπιτόνι	3H1	0,5 l	0,5 l	5 l	5 l	30 l	60 l	60 l	60 l	60 l	60 l	60 l
Ξύλινο κβόλιτο <sup>3/</sup>	4C1	0,5 kg	0,5/10kg	5 kg	5 kg	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	100 kg
Κβόλιτο από τσίχρα-πλασ <sup>3/</sup>	4D	0,5 kg	0,5/10kg	5 kg	5/25 kg <sup>h</sup>	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	100 kg
Κβόλιτο από φύλλο φάμιτερ <sup>3/</sup>	4G	0,5 kg	0,5/10kg	5 kg	5/25 kg	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	100 kg
Πλαστικό δοχείο με εξωτερικό χαλύβδινο βαρέλι	6HA1	*	*	*	5/25 kg	*	*	*	*	*	60 l	225 l
Πλαστικό δοχείο με εξωτερικό αλουμινόχο βαρέλι	6HB1	*	*	*	*	*	*	*	*	*	60 l	225 l
Πλαστικό δοχείο με εξωτερικό βαρέλι από φάμιτερ	6HG1	0,5 l	0,5 l	5 l	5 l	30 l	60 l	60 l	60 l	60 l	60 l	225 l
Πλαστικό δοχείο με εξωτερικό κβόλιτο από φύλλο φάμιτερ	6HG2	0,5 l	0,5 l	5 l	5 l	30 l	60 l	60 l	60 l	60 l	60 l	60 l
Πλαστικό δοχείο με εξωτερικό πλαστικό βαρέλι	6HH1	0,5 l	0,5 l	5 l	5 l	30 l	60 l	60 l	60 l	60 l	60 l	225 l
Πλαστικό δοχείο με εξωτερικό στερεό πλαστικό κβόλιτο	6HH2	0,5 l	0,5 l	5 l	5 l	30 l	60 l	60 l	60 l	60 l	60 l	60 l

\* Απαγορεύεται για αυτενεργία υγρά τύπων B και C.

<sup>1/</sup> Εάν δίνονται δύο τιμές, η πρώτη εφαρμόζεται στο μέγιστο καθαρό βάρος ανά εσωτερική συσκευασία και η δεύτερη στο μέγιστο καθαρό βάρος του πλήρους κάδου.

<sup>2/</sup> Για συνδυασμένες συσκευασίες που περιέχουν αυτενεργό υγρό τύπου B ή C, μόνον πλαστικές φιάλες, πλαστικά βάζα, γυάλινες φιάλες ή γυάλινες αμπούλες θα πρέπει να χρησιμοποιούνται ως εσωτερικές συσκευασίες. Όμως, γυάλινα δοχεία θα πρέπει να χρησιμοποιούνται μόνον ως εσωτερικές συσκευασίες για τις μεθόδους συσκευασίας OP1A και OP2A.

<sup>3/</sup> Επιτρέπεται μόνον ως μέρος μιας συνδυασμένης συσκευασίας. Οι εσωτερικές συσκευασίες θα πρέπει να είναι κατάλληλες για υγρά.

Πίνακας 2 (B) : ΚΑΤΑΛΟΓΟΣ ΣΥΣΚΕΥΑΣΙΩΝ ΓΙΑ ΑΥΤΕΝΕΡΓΑ ΣΤΕΡΕΑ ΚΑΙ ΜΕΤΙΣΤΟ ΚΑΘΑΡΟ ΒΑΡΟΣ ΑΝΑ ΚΟΛΟ  
(βλ.επε περιθωριακό 2405)

Τύπος και υλικό	Κωδικός συσκευασίας (βλ.επε περιθωριακό 3514)	Μέθοδος συσκευασίας 1/												
		OP1B 2/	OP2B 2/3/	OP3B 2/	OP4B 2/	OP5B 2/	OP6B 2/	OP7B	OP8B					
Χαλύβδινο βαρέλι Αλουμινένιο βαρέλι Βαρέλι από φάμπριπ Πλαστικό βαρέλι Ξύλινο κίβωτο 3/	1A2	*	*	*	*	*	*	*	*	*	*	200 kg	50 kg	200 kg
	1B2	*	*	*	*	*	*	*	*	*	*	200 kg	50 kg	200 kg
	1G	0,5 kg	0,5/10 kg	5 kg	5725 kg	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	200 kg	50 kg	200 kg
	1H2	0,5 kg	0,5/10 kg	5 kg	5725 kg	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	100 kg	50 kg	100 kg
	4C1	0,5 kg	0,5/10 kg	5 kg	5725 kg	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	100 kg	50 kg	100 kg
	4D	0,5 kg	0,5/10 kg	5 kg	5725 kg	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	100 kg	50 kg	100 kg
	4G	0,5 kg	0,5/10 kg	5 kg	5725 kg	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	100 kg	50 kg	100 kg
	6HA1	*	*	*	*	*	*	*	*	*	*	200 kg	50 kg	200 kg
	6HB1	*	*	*	*	*	*	*	*	*	*	200 kg	50 kg	200 kg
	6HG1	0,5 kg	0,5 kg	5 kg	5 kg	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	200 kg	50 kg	200 kg
	6HG2	0,5 kg	0,5 kg	5 kg	5 kg	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	75 kg	50 kg	75 kg
	6HH1	0,5 kg	0,5 kg	5 kg	5 kg	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	200 kg	50 kg	200 kg
	6HH2	0,5 kg	0,5 kg	5 kg	5 kg	25 kg	50 kg	50 kg	50 kg	50 kg	50 kg	75 kg	50 kg	75 kg

\* Απαγορεύεται για αυτενέργο στερεό τύπων B και C.

1/ Εάν δίνονται δύο τιμές, η πρώτη εφαρμόζεται στο μέγιστο καθαρό βάρος ανά εσωτερική συσκευασία και η δεύτερη στο μέγιστο καθαρό βάρος του πλήρους κελού.

2/ Για συνδυασμένες συσκευασίες που περιέχουν αυτενέργο στερεό τύπων B και C, μόνον μη-μεταλλικές συσκευασίες επιτρέπονται. Όμως, γυάλινα δοχεία θα πρέπει να χρησιμοποιούνται μόνον ως εσωτερικές συσκευασίες για μεθόδους συσκευασίας OP1B και OP2B.

3/ Εάν χρησιμοποιούνται χωρίσματα επιβραδυντικά της φωτιάς, το μέγιστο καθαρό βάρος του πλήρους κελού, θα πρέπει να είναι 25 kg.

4/ Επιτρέπεται μόνον ως μέρος μιας συνδυασμένης συσκευασίας. Η εσωτερική συσκευασία θα πρέπει να είναι κατάλληλη για τις ύλες που πρόκειται να μεταφέρονται.

## Κλάση 4.1

- 2406 (1) Ύλες ταξινομημένες υπό το (b) των 1° έως 17° θα πρέπει να συσκευάζονται σε:
- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
  - (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
  - (c) χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
  - (d) πλαστικά βαρέλια και μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
  - (e) σύνθετες συσκευασίες (πλαστικά υλικά) σύμφωνα με το περιθωριακό 3537, ή
  - (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
  - (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη, ψαμμάργυλος) σύμφωνα με το περιθωριακό 3539, ή
  - (h) μεταλλικά IBC σύμφωνα με το περιθωριακό 3622.
- (2) Ύλες ταξινομημένες υπό το (b) των 1° έως 17° με σημείο τήξης παραπάνω από 45 °C ή που είναι κολλώδη σύμφωνα με τα κριτήρια του ελέγχου με πενετρόμετρο (βλέπε Προσθήκη Α.3 περιθωριακό 3310), ή που δεν είναι υγρές σύμφωνα με τη μέθοδο ελέγχου ASTM D 4359-90 μπορούν επίσης να συσκευάζονται σε:
- (a) βαρέλια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3523 ή βαρέλια από φάϊμπερ σύμφωνα με το περιθωριακό 3525, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
  - (b) κιβώτια σύμφωνα με το περιθωριακό 3532 για χαλύβδινα ή αλουμινένια, περιθωριακό 3527 για φυσικό ξύλο, περιθωριακό 3528 για κόντρα-πλακέ, περιθωριακό 3529 για ανασυσταμένο ξύλο, περιθωριακό 3530 για φύλλο φάϊμπερ, ή περιθωριακό 3531 για πλαστικό, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
  - (c) αδιαπέραστους σάκους σύμφωνα με το περιθωριακό 3533 για υφαντουργικά προϊόντα, περιθωριακό 3534 για πλεκτό πλαστικό, περιθωριακό 3535 για πλαστική μεμβράνη ή περιθωριακό 3536 για χαρτί, υπό την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται ως πλήρες φορτίο ή οι σάκοι φορτώνονται πάνω σε παλέτες.
- (3) Ύλες ταξινομημένες υπό το (b) των 1°, 6°, 7°, 8°, 12°, 13°, 16° και 17° μπορούν επίσης να συσκευάζονται σε:
- (a) άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624, ή
  - (b) σύνθετα IBC με πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625, εκτός των τύπων 11HZ2 και 31HZ2.
- (4) Ύλες ταξινομημένες υπό το (b) των 1°, 6°, 12° και 13° με σημείο τήξης παραπάνω από 45 °C ή που είναι κολλώδεις σύμφωνα με τα κριτήρια ελέγχου με πενετρόμετρο (βλέπε Προσθήκη Α.3, περιθωριακό 3310), ή που δεν είναι υγρά σύμφωνα με τη μέθοδο ελέγχου ASTM D 4359-90 μπορούν επίσης να συσκευάζονται σε:
- (a) IBC από φύλλο φάϊμπερ σύμφωνα με το περιθωριακό 3626, ή
  - (b) ξύλινα IBC σύμφωνα με το περιθωριακό 3627.



## Κλάση 4.1

**2406** (5) Υγες ταξινομημένες υπό το (b) των 1°, 6°, και 12° με σημείο τήξης παραπάνω από 45 °C ή (συνεχ.) που είναι κολλώδεις σύμφωνα με τα κριτήρια ελέγχου με πενετρόμετρο (βλέπε Προσθήκη Α.3, περιθωριακό 3310), ή που δεν είναι υγρές σύμφωνα με την μέθοδο ελέγχου ASTM D 4359-90 μπορούν να συσκευάζονται σε εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623, εκτός των τύπων 13H1, 13L1 και 13M1, υπό την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται ως πλήρες φορτίο ή τα εύκαμπτα IBC φορτώνονται πάνω σε παλέτες.

**2407** (1) Υγες ταξινομημένες υπό του (c) των 1° έως 17° θα πρέπει να συσκευάζονται σε:

- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
- (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
- (c) χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
- (d) πλαστικά βαρέλια και μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
- (e) σύνθετες συσκευασίες (πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
- (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη, ψαμμάργυλος) σύμφωνα με το περιθωριακό 3539, ή
- (h) μεταλλικές συσκευασίες ελαφρού περιτυπώματος σύμφωνα με το περιθωριακό 3540, ή
- (i) μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, ή
- (j) άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624, ή
- (k) σύνθετα IBC με πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625, εκτός των τύπων 11HZ2 και 31HZ2.

(2) Υγες ταξινομημένες υπό το (c) των 1° έως 17° με σημείο τήξης παραπάνω από 45 °C ή που είναι κολλώδεις σύμφωνα με τα κριτήρια ελέγχου με πενετρόμετρο (βλέπε Προσθήκη Α.3, περιθωριακό 3310), ή που δεν είναι υγρές σύμφωνα με τη μέθοδο ελέγχου ASTM D 4359-90 μπορούν επίσης να συσκευάζονται σε:

- (a) βαρέλια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3523 ή βαρέλια από φάϊμπερ σύμφωνα με το περιθωριακό 3525, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
- (b) κιβώτια σύμφωνα με το περιθωριακό 3532 για χαλύβδινα και αλουμινένια, περιθωριακό 3527 για φυσικό ξύλο, περιθωριακό 3528 για κόντρα-πλακέ, περιθωριακό 3529 για ανασυσταμένο ξύλο, περιθωριακό 3530 για φύλλο φάϊμπερ, ή περιθωριακό 3531 για πλαστικό, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
- (c) αδιαπέραστους σάκους σύμφωνα με το περιθωριακό 3533 για προϊόντα υφαντουργίας, περιθωριακό 3534 για πλεκτά πλαστικά, περιθωριακό 3535 για πλαστική μεμβράνη, περιθωριακό 3536 για χαρτί.

(3) Υγες ταξινομημένες υπό το (c) των 6°, 11° έως 14°, 16° και 17° με σημείο τήξης παραπάνω από 45 °C ή που είναι κολλώδεις σύμφωνα με τα κριτήρια ελέγχου με πενετρόμετρο (βλέπε Προσθήκη Α.3, περιθωριακό 3310), ή που δεν είναι υγρές σύμφωνα με την μέθοδο ελέγχου ASTM D 4359-90 μπορούν επίσης να συσκευάζονται σε:

## Κλάση 4.1

- 2407 (συνεχ.)
- (a) εύκαμτα IBC σύμφωνα με το περιθωριακό 3623, εκτός των τύπων 13H1, 13L1 και 13M1, ή
  - (b) IBC από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3626, ή
  - (c) ξύλινα IBC σύμφωνα με το περιθωριακό 3627 ή
  - (d) σύνθετα IBC με πλαστικό εσωτερικό δοχείο τύπου 11HZ2 σύμφωνα με το περιθωριακό 3625.

2408 Κυτταροειδή σε φύλλα της 3<sup>ο</sup> (c) μπορούν επίσης να μεταφέρονται ασυσκευάστα πάνω σε παλέτες, περιτυλιγμένα σε πλαστική μεμβράνη και ασφαλισμένα με κατάλληλο τρόπο, όπως χαλύβδινους μιάντες, ως πλήρες φορτίο σε κλειστά οχήματα. Κάθε παλέτα δεν θα πρέπει να ζυγίζει περισσότερο από 1 000 kg.

2409-  
2410

### 3. Μικτή συσκευασία

- 2411
- (1) Ύλες που ανήκουν στο ίδιο είδος μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538.
  - (2) Ύλες των 21° έως 26° και 31° έως 50° δεν θα πρέπει να συσκευάζονται με άλλα εμπορεύματα.
  - (3) Εκτός από τις ύλες που αναφέρονται στην παράγραφο (2) και εκτός εάν ειδικές συνθήκες με αντίθετο περιεχόμενο καθορίζονται στην παράγραφο (7), οι ύλες της κλάσης 4.1 σε ποσότητες που δεν υπερβαίνουν τα 5 kg ανά δοχείο μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538, με ύλες ή είδη άλλων κλάσεων - υπό την προϋπόθεση ότι μικτή συσκευασία επίσης επιτρέπεται για ύλες και είδη αυτών των κλάσεων - και ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας, υπό την προϋπόθεση ότι δεν αναδρούν επικίνδυνα μεταξύ τους.
  - (4) Τα παρακάτω θα πρέπει να θεωρούνται επικίνδυνες αντιδράσεις:
    - (a) ανάφλεξη και ή εκπομπή σημαντικής θερμότητας,
    - (b) έκλυση εύφλεκτων και/ή τοξικών αερίων,
    - (c) σχηματισμός διαβρωτικών υγρών,
    - (d) σχηματισμός ασταθών υλών.
  - (5) Οι διατάξεις των περιθωριακών 2001 (7), 2002 (6) και (7) και 2402 θα πρέπει να τηρούνται.
  - (6) Όπου χρησιμοποιείται ξύλινο κιβώτιο ή κιβώτιο από φύλλο φάιμπερ, κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg.
  - (7) Ύλες ταξινομημένες υπό την (b) ή (c) των 1° έως 5° και 11° έως 14° δεν θα πρέπει να συσκευάζονται μαζί με ύλες της κλάσης 5.1 ταξινομημένες υπό τα (a) ή (b) των διαφόρων ειδών του περιθωριακού 2501.

## Κλάση 4.1

4. *Μαρκάρισμα και ετικέτες κινδύνου πάνω σε κόλα (βλέπε Προσθήκη Α.9)**Μαρκάρισμα*

- 2412 (1) Κάθε κόλα θα πρέπει να μαρκάρεται καθαρά και με τρόπο διαρκείας με τον χαρακτηριστικό αριθμό των εμπορευμάτων που πρόκειται να εγγραφεί στο έγγραφο μεταφοράς, μετά από τα γράμματα "UN".

*Ετικέτες κινδύνου*

- (2) Κόλα που περιέχουν ύλες της κλάσης 4.1 θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.1.

- (3) Κόλα που περιέχουν ύλες των 7°, 16°, 22° ή 25° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1 και κόλα που περιέχουν ύλες των 8° και 17° να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8.

- (4) Κόλα που περιέχουν αυτενεργές ύλες των ειδών 31°, 32°, 41° και 42° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 01 εκτός εάν η αρμόδια αρχή έχει επιτρέψει την παράληψη της ετικέτας για τον τύπο συσκευασίας που δοκιμάστηκε επειδή τα αποτελέσματα απέδειξαν ότι η αυτενεργή ύλη σε τέτοια συσκευασία δεν εμφανίζει εκρηκτική συμπεριφορά [βλέπε περιθωριακό 2414 (4)].

- (5) Κόλα που περιέχουν εύθραυστα δοχεία μη-ορατά από έξω, θα πρέπει να φέρουν σε δύο απέναντι πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 12.

- (6) Κόλα που περιέχουν υγρά σε συσκευασίες τα πάματα των οποίων δεν είναι ορατά από έξω, κόλα που περιέχουν εξαεριζόμενες συσκευασίες ή εξαεριζόμενες συσκευασίες χωρίς εξωτερικές συσκευασίες, θα πρέπει επιπλέον να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

## 2413

B. *Στοιχεία στο έγγραφο μεταφοράς*

- 2414 (1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς, θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς και τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2401.

Εάν η ύλη δεν αναφέρεται με ονομασία, αλλά αναφέρεται σε μία ε.α.ο. καταχώρηση ή συγκεντρωτική καταχώρηση, η περιγραφή των εμπορευμάτων θα πρέπει να συνίσταται από τον χαρακτηριστικό αριθμό και τον χαρακτηρισμό ε.α.ο. ή συγκεντρωτική καταχώρηση, ακολουθούμενη από τη χημική ή τεχνική ονομασία της ύλης<sup>1/</sup>.

Η περιγραφή των εμπορευμάτων θα πρέπει να ακολουθείται από στοιχεία της κλάσης, τον αριθμό είδους, εάν εφαρμόζονται, το γράμμα, και τα αρχικά "ADR" (ή "RID"), π.χ. "4.1, 6°(b), ADR".

Για τη μεταφορά αποβλήτων [βλέπε περιθωριακό 2000 (4)] η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "Απόβλητα που περιέχουν ...", ενώ το(τα) συστατικό(α) που χρησιμοποιείται(ούνται) για την ταξινόμηση των αποβλήτων στο περιθωριακό 2002 (8) θα πρέπει να εισάγεται(ονται) με τη(τις) χημική(ές) ονομασία(ες) του(ς), π.χ. "Απόβλητα, γαίες που περιέχουν τολουόλιο 4.1, 4° (c), ADR".

<sup>1/</sup> Η τεχνική ονομασία θα πρέπει να είναι μία ονομασία που χρησιμοποιείται ήδη σε επιστημονικά και τεχνικά εγχειρίδια, περιοδικά και κείμενα. Εμπορικές ονομασίες δεν θα πρέπει να χρησιμοποιούνται για αυτό το σκοπό.

## Κλάση 4.1

**2414** (συνεχ.) Για τη μεταφορά διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα) που περιέχουν διάφορα συστατικά και υπόκεινται στις διατάξεις αυτής της Οδηγίας, δεν θα είναι γενικά αναγκαίο να γίνεται αναφορά σε περισσότερα από δύο συστατικά που κατά προτεραιότητα συμβάλουν στον κίνδυνο ή τους κινδύνους των διαλυμάτων και μειγμάτων.

Εάν μία επώνυμη ύλη σε συμφωνία με το περιθωριακό 2400 (9) δεν υπόκειται στη συνθήκη αυτής της κλάσης, ο αποστολέας μπορεί να εισάγει στο έγγραφο μεταφοράς: "Όχι εμπορεύματα της κλάσης 4.1."

(2) Όταν ύλες μεταφέρονται υπό συνθήκες κανονισμένες από την αρμόδια αρχή (βλέπε περιθωριακά 2400 (16) και 2405 (4)), η παρακάτω αναφορά θα πρέπει να συμπεριλαμβάνεται στο έγγραφο μεταφοράς:

"Μεταφορά σε συμφωνία με το περιθωριακό 2414 (2)."

(3) Όταν ένα δείγμα αυτενεργής ύλης μεταφέρεται σε συμφωνία με τα περιθωριακά 2400 (18) και 2405 (6), η παρακάτω αναφορά θα πρέπει να συμπεριλαμβάνεται στο έγγραφο μεταφοράς:

"Μεταφορά σε συμφωνία με το περιθωριακό 2414 (3)."

(4) Όταν, με άδεια της αρμόδιας αρχής σε συμφωνία με το περιθωριακό 2412 (4), ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 01 δεν απαιτείται, η παρακάτω αναφορά θα πρέπει να συμπεριλαμβάνεται στο έγγραφο μεταφοράς:

"Η ετικέτα κινδύνου σύμφωνα με το υπόδειγμα Αριθμ. 01 δεν απαιτείται."

(5) Όταν αυτενεργές ύλες τύπου G (βλέπε Προσθήκη Α.1 περιθωριακό 3104 (2) (g)) μεταφέρονται, η παρακάτω αναφορά μπορεί να δίνεται στο έγγραφο μεταφοράς:

"Όχι αυτενεργή ύλη της κλάσης 4.1."

(6) Για αυτενεργές ύλες που απαιτούν έλεγχο θερμοκρασίας κατά τη διάρκεια της μεταφοράς, η παρακάτω αναφορά θα πρέπει να δίνεται στο έγγραφο μεταφοράς:

"Θερμοκρασία ελέγχου: .....°C      Θερμοκρασία κινδύνου: .....°C"

(7) Για τα διαλύματα και τα μείγματα που περιέχουν μόνον ένα συστατικό που υπόκειται στις διατάξεις αυτής της Οδηγίας, η λέξη "διάλυμα" ή "μείγμα" θα πρέπει να προστίθεται ως μέρος της ονομασίας στο έγγραφο μεταφοράς [βλέπε περιθωριακό 2002 (8) (a)].

(8) Όταν ένα στερεό παραδίδεται για μεταφορά στην τετηγμένη κατάσταση, η περιγραφή των εμπορευμάτων θα πρέπει επιπλέον να αναφέρει "τετηγμένο", εκτός εάν ο όρος ήδη εμφανίζεται στην ονομασία.

**2415-  
2421**

**C. Κενές συσκευασίες**

**2422** (1) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, εκτός από εκείνα που αναφέρονται στην παράγραφο (2), ακαθάριστα, της 51°, θα πρέπει να είναι κλεισμένα με τον ίδιο τρόπο και να παρουσιάζουν τον ίδιο βαθμό στεγανότητας σαν να ήταν γεμάτες.

(2) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, της 51°, στα εξωτερικά τμήματα των οποίων έχουν κολλήσει υπολείμματα από το προηγούμενο περιεχόμενό τους, θα πρέπει να μεταφέρονται σε στεγανές συσκευασίες.

## Κλάση 4.1

2422 (3) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, που περιείχαν βρεγμένες με νερό ύλες της 13° (b) ή ύλες των 21° έως 25° δεν θα γίνονται δεκτές για μεταφορά εκτός εάν τα υπολείμματα είναι έτσι συσκευασμένα ώστε η περιεκτικότητα του νερού ή των άλλων αδρανοποιητών που προστίθενται στις ύλες για να τις καταστήσουν αδρανείς να μην μπορεί να μειωθεί.

Ακαθάριστες κενές συσκευασίες που περιείχαν ύλες των 31° έως 50° δεν θα γίνονται δεκτές για μεταφορά εκτός εάν έχουν ληφθεί μέτρα για την αποφυγή επικίνδυνης αποσύνθεσης.

(4) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, της 51°, και συσκευασίες σύμφωνες με το (2) θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνου σαν να ήταν γεμάτες.

(5) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μία από τις ονομασίες που υπογραμμίζονται στην 51°, π.χ. "Κενή συσκευασία, 4.1, 41°, ADR". Στην περίπτωση ακαθάρσιτων κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών και κενών μικρών εμπορευματοκιβωτίων, η περιγραφή θα πρέπει να συμπληρώνεται από την προσθήκη των λέξεων "Τελευταίο φορτίο" μαζί με την ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ. "Τελευταίο φορτίο: 2304 ναφθαλίνο, τετηγμένο, 5°".

2423-  
2424

## D. Μεταβατικά μέτρα

2425 Ύλες και είδη της κλάσης 4.1 μπορούν να μεταφέρονται μέχρι τις 30 Ιουνίου 1993 σε συμφωνία με τις διατάξεις της κλάσης 4.1 όπως εφαρμόζονταν μέχρι τις 31 Δεκεμβρίου 1992. Το έγγραφο μεταφοράς θα πρέπει, σε τέτοιες περιπτώσεις, να φέρει την επιγραφή: "Μεταφορά σε συμφωνία με την ADR που ισχύει πριν την 1 January 1993."

2426-  
2429

**ΚΛΑΣΗ 4.2. ΥΛΕΣ ΥΠΟΚΕΙΜΕΝΕΣ ΣΕ ΑΥΤΟΜΑΤΗ ΑΝΑΦΛΕΞΗ****1. Κατάλογος υλών**

2430 (1) Ανάμεσα στις ύλες και τα είδη που καλύπτονται από τον τίτλο της κλάσης 4.2, εκείνα που αναφέρονται στο περιθωριακό 2431 ή καλύπτονται από ένα συγκεντρωτικό κεφάλαιο σε εκείνο το περιθωριακό, υπόκεινται στις συνθήκες που τίθενται στα περιθωριακά 2430 (2) έως 2452 και στις διατάξεις αυτού του παραρτήματος και του παραρτήματος Β. Θεωρούνται τότε ως ύλες και είδη αυτής της Οδηγίας.

(2) Ο τίτλος της κλάσης 4.2 καλύπτει:

- ύλες, συμπεριλαμβανομένων διαλυμάτων και μειγμάτων (υγρά ή στερεά), που ακόμα και σε μικρές ποσότητες αναφλέγονται με επαφή με τον αέρα μέσα σε πέντε λεπτά. Περιγράφονται ως ύλες υποκείμενες σε αυτόματη ανάφλεξη (πυροφορικές ύλες),

- ύλες και είδη, συμπεριλαμβανομένων διαλυμάτων και μειγμάτων, που, σε επαφή με τον αέρα, υπόκεινται σε θέρμανση χωρίς καμία εισαγωγή ενέργειας. Αυτές οι ύλες μπορούν να αναφλεγούν μόνον σε μεγάλες ποσότητες (κιλά) και μετά από μακρά χρονική περίοδο (ώρες ή μέρες). Περιγράφονται ως αυτοθερμαινόμενες ύλες.

(3) Οι ύλες και τα είδη της κλάσης 4.2 υποδιαιρούνται ως εξής:

A. Οργανικές ύλες υποκείμενες σε αυτόματη ανάφλεξη.

B. Ανόργανες ύλες υποκείμενες σε αυτόματη ανάφλεξη.

C. Οργανομεταλλικές ενώσεις υποκείμενες σε αυτόματη ανάφλεξη.

D. Κενές συσκευασίες.

Υλες και είδη της κλάσης 4.2 ταξινομημένες σε διάφορα είδη του περιθωριακού 2431, θα πρέπει να καταχωρούνται σε μία από τις παρακάτω ομάδες που χαρακτηρίζονται με τα γράμματα (a), (b) ή (c), σύμφωνα με το βαθμό κινδύνου τους:

(a) υποκείμενες σε αυτόματη ανάφλεξη (πυροφορικές),

(b) αυτοθερμαινόμενες,

(c) ελαφρά αυτοθερμαινόμενες.

(4) Η καταχώρηση υλών και ειδών χωρίς συγκεκριμένη ονομασία στα 3° έως 5°, 12°, 15°, 16°, 31° και 32° του περιθωριακού 2431, καθώς και μέσα σ'αυτά τα είδη στα γράμματα, μπορεί να βασίζεται στην εμπειρία ή στα αποτελέσματα της διαδικασίας ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3330 έως 3333. Η καταχώρηση στις 6° έως 10°, 14°, 17° έως 21° και 33°, καθώς και μέσα σ'αυτά στα γράμματα, θα πρέπει να βασίζεται στα αποτελέσματα της διαδικασίας ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3330 έως 3333. Η εμπειρία θα πρέπει επίσης να λαμβάνεται υπόψη όταν οδηγεί σε μία πιο αυστηρά βασισμένη καταχώρηση.

(5) Όταν ύλες ή είδη χωρίς συγκεκριμένη ονομασία καταχωρούνται στα είδη του περιθωριακού 2431 με βάση τις διαδικασίες ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3330 έως 3333, εφαρμόζονται τα παρακάτω κριτήρια:

## Κλάση 4.2

2430  
(συνεχ.)

- (a) Στερεά υποκείμενα σε αυτόματη ανάφλεξη (πυροφορικά) θα πρέπει να καταχωρούνται στην Κλάση 4.2 όταν αναφλέγονται στην περίπτωση που πέφτουν από ένα ύψος ενός μέτρου ή μέσα σε πέντε λεπτά,
- (b) Υγρά υποκείμενα σε αυτόματη ανάφλεξη (πυροφορικά) θα πρέπει να καταχωρούνται στην Κλάση 4.2 όταν:
- όταν χύνονται πάνω σε κάποιο αδρανή φορέα, αναφλέγονται μέσα σε πέντε λεπτά, ή
  - σε περίπτωση αρνητικού αποτελέσματος του ελέγχου σύμφωνα με το (i), όταν χύνονται πάνω σε κάποιο ξηρό, χαραγμένο χάρτινο φίλτρο (φίλτρο Whatman Αριθμ. 3), το αναφλέγουν ή απανθρακώνουν μέσα σε πέντε λεπτά,
- (c) Ύλες στις οποίες, σε δείγμα-κύβο 10 εκατοστών, στους 140 °C θερμοκρασία ελέγχου, παρατηρείται αυτόματη ανάφλεξη ή αύξηση της θερμοκρασίας πάνω από 200 °C μέσα σε 24 ώρες, θα πρέπει να καταχωρούνται στην Κλάση 4.2. Αυτό το κριτήριο βασίζεται στην θερμοκρασία της αυτόματης ανάφλεξης του ξυλάνθρακα, που είναι στους 50 °C για ένα δείγμα-κύβο όγκου 27 m<sup>3</sup>. Ύλες με θερμοκρασία αυτόματης ανάφλεξης μεγαλύτερη από 50 °C για έναν όγκο 27 m<sup>3</sup> δεν θα καταχωρούνται στην κλάση 4.2.
- (6) Όταν ύλες και είδη χωρίς συγκεκριμένη ονομασία καταχωρούνται στα γράμματα των ειδών του περιθωριακού 2431 βάσει των διαδικασιών ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3330 έως 3333, τα παρακάτω κριτήρια θα πρέπει να εφαρμόζονται:
- Ύλες υποκείμενες σε αυτόματη ανάφλεξη (πυροφορικές) θα πρέπει να καταχωρούνται στο γράμμα (a),
  - Αυτοθερμαινόμενες ύλες και είδη στις οποίες, σε ένα δείγμα-κύβο 2.5 εκατοστών, στους 140 °C θερμοκρασία ελέγχου, παρατηρείται αυτόματη ανάφλεξη ή αύξηση της θερμοκρασίας πάνω από 200 °C μέσα σε 24 ώρες, θα πρέπει να καταχωρούνται στο γράμμα (b),
  - Ελαφρά αυτοθερμαινόμενες ύλες στις οποίες, τα φαινόμενα που αναφέρονται σε ένα δείγμα-κύβο 2.5 εκατοστών, υπό την (b) δεν παρατηρούνται, στις δεδομένες συνθήκες, αλλά στις οποίες σε ένα δείγμα-κύβο 10 εκατοστών στους 140 °C θερμοκρασία ελέγχου παρατηρείται αυτόματη ανάφλεξη ή αύξηση της θερμοκρασίας πάνω από 200 °C μέσα σε 24 ώρες, θα πρέπει να καταχωρούνται στο γράμμα (c).
- (7) Εάν ύλες της κλάσης 4.2, ως αποτέλεσμα προσμείξεων, μεταβαίνουν σε διαφορετικές κατηγορίες κινδύνου από εκείνες στις οποίες ανήκουν οι ύλες του περιθωριακού 2431, αυτά τα μείγματα θα πρέπει να καταχωρούνται στα είδη και τα γράμματα στα οποία ανήκουν βάσει του πραγματικού βαθμού κινδύνου τους.
- ΣΗΜΕΙΩΣΗ:** Για την ταξινόμηση διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα), βλέπε επίσης περιθωριακό 2002 (8).
- (8) Όταν ύλες έχουν συγκεκριμένη ονομασία σε περισσότερα από ένα γράμματα του ίδιου είδους στο περιθωριακό 2431, το σχετικό γράμμα μπορεί να καθοριστεί βάσει των αποτελεσμάτων της διαδικασίας ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3330 έως 3333, και τα κριτήρια που τίθενται στο (6).
- (9) Βάσει της διαδικασίας ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3330 έως 3333, και των κριτηρίων που τίθενται στο (6), μπορεί επίσης να καθοριστεί εάν η φύση μίας ύλης με συγκεκριμένη ονομασία είναι τέτοια ώστε η ύλη να μην υπόκειται στις διατάξεις για αυτήν την Κλάση (βλέπε περιθωριακό 2444).

## Κλάση 4.2

2430 (10) Ύλες και μείγματα υλών με σημείο τήξης υψηλότερο από 45 °C θα πρέπει να θεωρούνται (συνεχ.) ότι είναι στερεά όπως καθορίζεται στις απαιτήσεις συσκευασίας των περιθωριακών 2435 (2), 2436 (2) και 2437 (3) και (4).

(11) Αυτοθερμαινόμενα στερεά, οξειδωτικά, που καταχωρούνται στον χαρακτηριστικό αριθμό 3127 των Υποδείξεων για τη Μεταφορά Επικίνδυνων Εμπορευμάτων των Ηνωμένων Εθνών, δεν θα πρέπει να γίνονται δεκτά για μεταφορά (βλέπε, πάντως, περιθωριακό 2002 (8), υποσημείωση<sup>1/</sup> στον πίνακα στην παράγραφο 2.3.1).

2431 A. Οργανικές ύλες υποκείμενες σε αυτόματη ανάφλεξη

1° Άνθρακας, σε σκόνη, σε κόκκους ή σε κομμάτια

(b) 1361 άνθρακας ή 1361 αιθάλη, ζωικής ή φυτικής προέλευσης

(c) 1361 άνθρακας ή 1361 αιθάλη, ζωικής ή φυτικής προέλευσης, 1362 άνθρακας, ενεργοποιημένος.

**ΣΗΜΕΙΩΣΗ 1:** Άνθρακες παραγόμενοι από διαδικασία ενεργοποίησης ατμού και μη-ενεργοποιημένη αιθάλη ορυκτής προέλευσης δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 2:** Μη-ενεργοποιημένοι άνθρακες ορυκτής προέλευσης και σκόνη άνθρακα σε κατάσταση μη υποκείμενη σε αυτόματη θέρμανση δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

2° Ζωικές και φυτικές ύλες:

(b) 1374 ιχθυόλευρο, (υπολείμματα ψαριών), αποσταθεροποιημένο,

(c) 1363 κόπρα, 1386 πύγμα σπόρων που περιέχει περισσότερο από 1.5 % (κατά βάρος) λάδι και με όχι περισσότερο από 11 % (κατά βάρος) υγρασία, 2217 πύγμα σπόρων που περιέχει όχι περισσότερο από 1.5 % (κατά βάρος) λάδι και με όχι περισσότερο από 11 % (κατά βάρος) υγρασία.

3° Βιομηχανικά-παραγόμενα νήματα, υφάσματα και παρόμοια προϊόντα:

(c) 1364 απόβλητα βαμβακιού, ελαιώδη, 1365 βαμβάκι, νωπό, 1379 γαρτί, ακόρεστο λάδι κατεργασμένο, ατελώς αποξηραμένο (συμπεριλαμβανομένου του χαρτιού από άνθρακα), 1373 νήματα, ζωικά ή φυτικά ή συνθετικά, ε.α.ο. διαποτισμένα με λάδι, ή 1373 υφάσματα, ζωικά ή φυτικά ή συνθετικά, ε.α.ο. διαποτισμένα με λάδι.

4° Ύλες παραγόμενες από ασθενώς νιτρωμένη κυτταρίνη:

(c) 2002 κυτταρινοειδή, υπολείμματα,

2006 πλαστικά, νιτροκυτταρινικής βάσης, αυτοθερμαινόμενα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 1353 νήματα ή υφάσματα διαποτισμένα με ασθενώς νιτρωμένη κυτταρίνη, μη-αυτοθερμαινόμενα και 2000 κυτταρινοειδή είναι είδη της κλάσης 4.1 [βλέπε περιθωριακό 2401, 3° (c)].

5° Στερεές οργανικές αυτόματα εύφλεκτες μη-τοξικές και μη-διαβρωτικές ύλες και μείγματα στερεών οργανικών αυτόματα εύφλεκτων μη-τοξικών και μη-διαβρωτικών υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 2846 πυροφορικά στερεά, οργανικά, ε.α.ο.,



## Κλάση 4.2

2431  
(συνεχ.)(b) 1369 p-νιτρωδοδιμεθυλανιλίνη, 2940 9-φωσφαδικυκλοεπενείνια (κυκλοοκταδιενοφωσφίνες), 3088 αυτοθερμαινόμενα στερεά, οργανικά, ε.α.ο.,(c) 3088 αυτοθερμαινόμενα στερεά, οργανικά, ε.α.ο.

6° Υγρά οργανικά αυτόματα, εύφλεκτα, μη-τοξικά και μη-διαβρωτικές ύλες και μείγματα οργανικών αυτόματα εύφλεκτων, μη-τοξικών και μη-διαβρωτικών υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 2845 πυροφορικά υγρά, οργανικά, ε.α.ο.,*ΣΗΜΕΙΩΣΗ: Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτήν την ύλη (βλέπε περιθωριακό 2433).*(b) 3183 αυτοθερμαινόμενα υγρά, οργανικά, ε.α.ο.,(c) 3183 αυτοθερμαινόμενα υγρά, οργανικά, ε.α.ο.

7° Στερεές οργανικές αυτόματα εύφλεκτης τοξικές ύλες και μείγματα στερεών οργανικών αυτόματα εύφλεκτων τοξικών υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(b) 3128 αυτοθερμαινόμενα στερεά, τοξικά, οργανικά, ε.α.ο.,(c) 3128 αυτοθερμαινόμενα στερεά, τοξικά, οργανικά, ε.α.ο.*ΣΗΜΕΙΩΣΗ: Για κριτήρια τοξικότητας, βλέπε περιθωριακό 2600 (3).*

8° Υγρές οργανικές αυτόματα εύφλεκτης τοξικές ύλες και μείγματα οργανικών αυτόματα εύφλεκτων τοξικών υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(b) 3184 αυτοθερμαινόμενα υγρά, τοξικά, οργανικά, ε.α.ο.,(c) 3184 αυτοθερμαινόμενα υγρά, τοξικά, οργανικά, ε.α.ο.*ΣΗΜΕΙΩΣΗ: Για κριτήρια τοξικότητας, βλέπε περιθωριακό 2600 (3).*

9° Οργανικά αυτόματα εύφλεκτα διαβρωτικά στερεά και μείγματα οργανικών αυτόματα εύφλεκτων διαβρωτικών στερεών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(b) 3126 αυτοθερμαινόμενα στερεά, διαβρωτικά, οργανικά, ε.α.ο.,(c) 3126 αυτοθερμαινόμενα στερεά, διαβρωτικά, οργανικά, ε.α.ο.*ΣΗΜΕΙΩΣΗ: Για κριτήρια διαβρωτικότητας, βλέπε περιθωριακό 2800 (3).*

10° Οργανικά αυτόματα εύφλεκτα διαβρωτικά υγρά και μείγματα οργανικών αυτόματα εύφλεκτων διαβρωτικών υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

## Κλάση 4.2

- (b) 3185 αυτοθερμαινόμενα υγρά, διαβρωτικά, οργανικά, ε.α.ο.,  
 (c) 3185 αυτοθερμαινόμενα υγρά, διαβρωτικά, οργανικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια διαβρωτικότητας, βλέπε περιθωριακό 2800 (3).

## B. Ανόργανες ύλες υποκείμενες σε αυτόματη ανάφλεξη

## 11° Φωσφόρος

- (a) 1381 φωσφόρος, λευκός ή κίτρινος, ξηρός ή 1381 φωσφόρος, λευκός ή κίτρινος, κάτω από νερό ή 1381 φωσφόρος, λευκός ή κίτρινος, σε διάλυμα.

**ΣΗΜΕΙΩΣΗ:** 2447 φωσφόρος, λευκός ή κίτρινος, τετηγμένος είναι ύλη της 22°.

## 12° Μέταλλα και μεταλλικά κράματα σε σκόνη, λεπτή σκόνη ή σε κοκκώδη μορφή ή σε άλλη αυτόματα εύφλεκτη μορφή:

- (a) 1854 κράμα βαρίου, πυροφορικό, 1855 ασβέστιο, πυροφορικό ή 1855 κράμα ασβεστίου, πυροφορικό, 2008 ζιρκόνιο σε σκόνη, ξηρό, 2545 άφνιο σε σκόνη, ξηρό, 2546 τιτάνιο σε σκόνη, ξηρό, 2881 καταλύτης μετάλλου, ξηρός, 1383 πυροφορικά μέταλλα, ε.α.ο. ή 1383 πυροφορικά κράματα, ε.α.ο.,  
 (b) 1378 καταλύτης μετάλλου, βρεγμένος με ορατή περίσσεια υγρού, 2008 ζιρκόνιο σε σκόνη, ξηρό, 2545 άφνιο σε σκόνη, ξηρό, 2546 τιτάνιο σε σκόνη, ξηρό, 2881 καταλύτης μετάλλου, ξηρός, 3189 αυτοθερμαινόμενα μέταλλα σε σκόνη, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ** στα (a) και (b): Οι χαρακτηριστικοί αριθμοί 1378 και 2881 περιλαμβάνουν μόνον μεταλλικούς καταλύτες με βάση το νικέλιο, το κοβάλτιο, τον χαλκό, το μαγγάνιο ή ενώσεις τους.

- (c) 1932 υπολείμματα ζιρκόνιου, 2008 ζιρκόνιο σε σκόνη, ξηρό, 2009 ζιρκόνιο, ξηρό, σε επεξεργασμένα φύλλα, λωρίδες ή σπειροειδές σύρμα (λιγότερο από 18 mm παχύ), 2545 άφνιο σε σκόνη, ξηρό, 2546 τιτάνιο σε σκόνη, ξηρό, 2793 σιδηρομεταλλικά γρέζια, ροκανίδια, торναρίσματα ή κοιμιάτια σε αυτοθερμαινόμενη μορφή, 2881 καταλύτης μετάλλου, ξηρός, 3189 αυτοθερμαινόμενη σκόνη μετάλλου, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** 2858 προϊόντα επεξεργασμένου ζιρκόνιου πάχους 18 mm ή περισσότερο είναι ύλες της κλάσης 4.1 [βλέπε περιθωριακό 2401, 13° (c)].

**ΣΗΜΕΙΩΣΗ 2:** 1326 σκόνες άφνιου, 1352 σκόνες τιτανίου ή 1358 σκόνες ζιρκόνιου, βρεγμένες, με όχι λιγότερο από 25 % νερό, είναι ύλες της κλάσης 4.1 (βλέπε περιθωριακό 2401, 13°).

**ΣΗΜΕΙΩΣΗ 3:** Λεπτή σκόνη και σκόνη μετάλλων σε μη-αυτόματα εύφλεκτη μορφή, που παρ'όλα αυτά, σε επαφή με νερό, εκλύουν εύφλεκτα αέρια, είναι ύλες της κλάσης 4.3 (βλέπε περιθωριακό 2471, 13°).

## Κλάση 4.2

2431 13° Σουλφίδια, υδροσουλφίδια και θειονώδη άλατα σε αυτόματα εύφλεκτη μορφή:  
(συνεχ.)

- (b) 1382 θειούχο κάλιο, άνυδρο ή 1382 θειούχο κάλιο με λιγότερο από 30 % νερό από κρυστάλλωση, 1384 διθειονώδες νάτριο (υδροθειώδες νάτριο), 1385 θειώδες νάτριο, άνυδρο ή 1385 θειώδες νάτριο με λιγότερο από 30 % νερό από κρυστάλλωση, 1923 διθειονώδες ασβέστιο (υδροθειώδες ασβέστιο), 1929 διθειονώδες κάλιο (υδροθειώδες κάλιο), 2318 υδροθειούχο νάτριο με λιγότερο από 25 % νερό από κρυστάλλωση,

**ΣΗΜΕΙΩΣΗ:** 1847 θειούχο κάλιο, ενυδατωμένο, με όχι λιγότερο από 30 % νερό από κρυστάλλωση και 2949 υδροθειούχο νάτριο με όχι λιγότερο από 25 % νερό από κρυστάλλωση είναι ύλες της κλάσης 8 [βλέπε περιθωριακό 2801, 45° (b) 1.]

- (c) 3174 διθειούχο τιτάνιο

14° Μεταλλικά άλατα και αλκοολικά άλατα, μη-τοξικά και μη-διαβρωτικά, σε αυτόματα εύφλεκτη μορφή:

- (b) 3205 αλκοολικά άλατα μετάλλων αλκαλικών γαιών, ε.α.ο.,

- (c) 3205 αλκοολικά άλατα μετάλλων αλκαλικών γαιών, ε.α.ο.

15° Μεταλλικά άλατα και αλκοολικά άλατα, διαβρωτικά, σε αυτόματα εύφλεκτη μορφή:

- (a) 2441 τριχλωριούχο τιτάνιο, πυροφορικό ή 2441 μείγματα τριχλωριούχου τιτανίου, πυροφορικά,

- (b) 1431 μεθυλικό νάτριο, 3206 αλκαλικά αλκοολικά άλατα μετάλλων, αυτοθερμαινόμενα, διαβρωτικά, ε.α.ο.,

- (c) 3206 αλκαλικά αλκοολικά άλατα μετάλλων, αυτοθερμαινόμενα, διαβρωτικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 2869 τριχλωριούχο τιτάνιο ή μείγμα τριχλωριούχου τιτανίου, μη-πυροφορικό, είναι ύλη της κλάσης 8 [βλέπε περιθωριακό 2801, 11° (b) ή (c)].

16° Αυτόματα εύφλεκτα, μη-τοξικά και μη-διαβρωτικά ανόργανα στερεά και μείγματα αυτόματα εύφλεκτων μη-τοξικών και μη-διαβρωτικών ανόργανων στερεών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3200 πυροφορικά στερεά, ανόργανα, ε.α.ο.,

- (b) 2004 διαμίδιο του μαγνησίου, 3190 αυτοθερμαινόμενα στερεά, ανόργανα, ε.α.ο.,

- (c) 1376 οξειδίο του σιδήρου, χρησιμοποιημένο, ή 1376 σπογγώδης σίδηρος, χρησιμοποιημένος, λαμβανόμενος από τον καθαρισμό φωταερίου, 2210 maneb (μαγνανιούχο αιθυλένιο 1,2-bis (διθειοκαρβαμικό)) ή 2210 παρασκευάσματα maneb με όχι λιγότερο από 60 % maneb, 3190 αυτοθερμαινόμενα στερεά, ανόργανα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 2968 maneb ή 2968 παρασκευάσματα maneb που είναι σταθεροποιημένα έναντι της αυτοθέρμανσης και που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια, είναι ύλες της κλάσης 4.3 [βλέπε περιθωριακό 2471, 20° (c)].

## Κλάση 4.2

2431 17° Ανόργανα αυτόματα εύφλεκτα, μη-τοξικά και μη-διαβρωτικά υγρά και μείγματα αυτόματα εύφλεκτων ανόργανων μη-τοξικών και μη-διαβρωτικών υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 2870 βοροϋδρίδιο του αλουμινίου ή 2870 βοροϋδρίδιο του αλουμινίου που περιέχεται σε συσκευές, 3194 πυροφορικά υγρά, ανόργανα, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ 1:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ'αυτές τις ύλες (βλέπε περιθωριακό 2433).

**ΣΗΜΕΙΩΣΗ 2:** Άλλα μεταλλικά υδρίδια σε εύφλεκτη μορφή, είναι ύλες της κλάσης 4.1 (βλέπε περιθωριακό 2401, 14°).

**ΣΗΜΕΙΩΣΗ 3:** Μεταλλικά υδρίδια που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια, είναι ύλες της κλάσης 4.3 (βλέπε περιθωριακό 2471, 16°).

- (b) 3186 αυτοθερμαινόμενα υγρά, ανόργανα, ε.α.ο.,

- (c) 3186 αυτοθερμαινόμενα υγρά, ανόργανα, ε.α.ο.

18° Ανόργανα αυτόματα εύφλεκτα τοξικά στερεά και μείγματα ανόργανων αυτόματα εύφλεκτων τοξικών στερεών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (b) 3191 αυτοθερμαινόμενα στερεά, τοξικά, ανόργανα, ε.α.ο.,

- (c) 3191 αυτοθερμαινόμενα στερεά, τοξικά, ανόργανα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια τοξικότητας, βλέπε περιθωριακό 2600 (3).

19° Ανόργανα αυτόματα εύφλεκτα τοξικά υγρά και μείγματα ανόργανων αυτόματα εύφλεκτων τοξικών υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 1380 πενταβοράνιο,

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ'αυτή την ύλη (βλέπε περιθωριακό 2433).

- (b) 3187 αυτοθερμαινόμενα υγρά, τοξικά, ανόργανα, ε.α.ο.,

- (c) 3187 αυτοθερμαινόμενα υγρά, τοξικά, ανόργανα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια τοξικότητας, βλέπε περιθωριακό 2600 (3).

20° Ανόργανα αυτόματα εύφλεκτα διαβρωτικά στερεά και μείγματα ανόργανων αυτόματα εύφλεκτων διαβρωτικών στερεών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (b) 3192 αυτοθερμαινόμενα στερεά, διαβρωτικά, ανόργανα, ε.α.ο.,

- (c) 3192 αυτοθερμαινόμενα στερεά, διαβρωτικά, ανόργανα, ε.α.ο.

## Κλάση 4.2

2431  
(συνεχ.)**ΣΗΜΕΙΩΣΗ:** Για κριτήρια διαβρωτικότητας, βλέπε περιθωριακό 2800 (3).

- 21° Ανόργανα αυτόματα εύφλεκτα διαβρωτικά υγρά και μείγματα ανόργανων αυτόματα εύφλεκτων διαβρωτικών υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(b) 3188 αυτοθερμαινόμενα υγρά, διαβρωτικά, ανόργανα, ε.α.ο.,(c) 3188 αυτοθερμαινόμενα υγρά, διαβρωτικά, ανόργανα, ε.α.ο.**ΣΗΜΕΙΩΣΗ:** Για κριτήρια διαβρωτικότητας, βλέπε περιθωριακό 2800 (3).

- 22° 2447 φωσφόρος, λευκός τετηγμένος.

**C. Οργανομεταλλικές ενώσεις υποκείμενες σε αυτόματη ανάφλεξη****ΣΗΜΕΙΩΣΗ 1:** Οργανομεταλλικές ενώσεις και διαλύματά τους που δεν είναι υποκείμενα σε αυτόματη ανάφλεξη αλλά, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια, είναι όλες της κλάσης 4.3 (βλέπε περιθωριακό 2471, 3°).**ΣΗΜΕΙΩΣΗ 2:** Εύφλεκτα διαλύματα με οργανομεταλλικών ενώσεων που δεν είναι υποκείμενες σε αυτόματη ανάφλεξη και, σε επαφή με το νερό, δεν εκλύουν εύφλεκτα αέρια, είναι όλες της κλάσης 3.**ΣΗΜΕΙΩΣΗ 3:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται στις ύλες των 31° έως 33° (βλέπε περιθωριακό 2433).

- 31° Αυτόματα εύφλεκτα αλκάλια μετάλλων και αρύλια μετάλλων

(a) 1366 διαιθυλοψευδάργυρος, 1370 διμεθυλοψευδάργυρος, 2005 διφενύλιο μαγνησίου, 2445 αλκάλια λιθίου, 3051 αλκάλια αλουμινίου, 3053 αλκάλια μαγνησίου, 2003 αλκάλια μετάλλων, ε.α.ο. ή 2003 αρύλια μετάλλων, ε.α.ο.,

- 32° Άλλες αυτόματα εύφλεκτες οργανομεταλλικές ενώσεις

(a) 3052 αλκυλαλογονούχες ενώσεις αλουμινίου, 3076 αλκυλαλογονούχες ενώσεις αλουμινίου, 3049 αλκυλαλογονούχες ενώσεις μετάλλων, ε.α.ο. ή 3049 αρυλαλογονούχες ενώσεις μετάλλων, ε.α.ο., 3050 αλκυλοϋδρίδια μετάλλων, ε.α.ο. ή 3050 αρυλοϋδρίδια μετάλλων, ε.α.ο.

- 33° Αυτόματα εύφλεκτες οργανομεταλλικές ενώσεις

(a) 3203 πυροφορική οργανομεταλλική ένωση, ε.α.ο.**D. Κενές συσκευασίες**

- 41° Κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά χύμα (IBC), κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών οχημάτων και κενών εμπορευματοκιβωτίων-δεξαμενών, ακαθάριστων, καθώς και κενά οχήματα για μεταφορά χύμα και κενά μικρά εμπορευματοκιβώτια για μεταφορά χύμα, ακαθάριστα, που περιείχαν όλες της κλάσης 4.2.

## Κλάση 4.2

**2431 (συνεχ.)** **ΣΗΜΕΙΩΣΗ:** Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά χύμα (IBC), κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών και κενών μικρών εμπορευματοκιβωτίων που περιέχουν ύλες της 4<sup>ο</sup> (c), χαρακτηριστικός αριθμός 2002, της 12<sup>ο</sup> (c), χαρακτηριστικός αριθμός 1932, 2009 και 2793, και της 16<sup>ο</sup> (c), χαρακτηριστικός αριθμός 1376, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

## 2. Διατάξεις

## A. Κόλα

## 1. Γενικές συνθήκες συσκευασίας

**2432** (1) Οι συσκευασίες θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.5, εκτός εάν ειδικές συνθήκες για τη συσκευασία ορισμένων υλών καθορίζονται στο περιθωριακό 2433.

Τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC), θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.6.

(2) Με εξαίρεση τις συσκευασίες που αναφέρονται στο περιθωριακό 2436 (2) (a) και (b) και (3) και στο περιθωριακό 2437 (3) (a) και (b), (4) και (5), οι (εσωτερικές) συσκευασίες θα πρέπει να είναι ερμητικά κλεισμένες.

(3) Σε συμφωνία με τις διατάξεις των περιθωριακών 2430 (3) και 3511 (2) ή 3611 (2) αντίστοιχα, θα πρέπει να χρησιμοποιούνται τα παρακάτω:

- συσκευασίες της ομάδας συσκευασίας I, μαρκαρισμένες με το γράμμα "X", για ύλες υποκείμενες σε αυτόματη ανάφλεξη (πυροφορικές) ταξινομημένες υπό το (a) κάθε είδους,
- συσκευασίες της ομάδας συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X", ή IBC της ομάδας συσκευασίας II, μαρκαρισμένα με το γράμμα "Y", για αυτοθερμαινόμενες ύλες ταξινομημένες υπό το (b) κάθε είδους,
- συσκευασίες των ομάδων συσκευασίας III, II ή I, μαρκαρισμένες με το γράμμα "Z", "Y" ή "X", ή IBC των ομάδων συσκευασίας III ή II, μαρκαρισμένα με το γράμμα "Z" ή "Y", για αυτοθερμαινόμενες ύλες ταξινομημένες υπό το (c) κάθε είδους.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά υλών της κλάσης 4.2 σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές, καθώς και για μεταφορά χύμα, βλέπε Προσθήκη B.

## 2. Συσκευασία μεμονωμένων υλών

**2433** (1) Πυροφορικά υγρά των 6<sup>ο</sup> (a), 17<sup>ο</sup> (a) με εξαίρεση το βοροϋδρίδιο του αλουμινίου σε συσκευές, 19<sup>ο</sup> (a) και 31<sup>ο</sup> έως 33<sup>ο</sup>, θα πρέπει να συσκευάζονται σε μεταλλικά δοχεία που κλείνουν ερμητικά, που δεν προσβάλλονται από το περιεχόμενο και έχουν χωρητικότητα όχι μεγαλύτερη από 450 λίτρα. Τα δοχεία θα πρέπει να υπόκεινται στον αρχικό έλεγχο και σε περιοδικούς ελέγχους κάθε πέντε χρόνια σε πίεση όχι μικρότερη από 1MPa (10 bar) (πίεση πιεζομέτρου). Τα δοχεία δεν θα πρέπει να γεμίζονται περισσότερο από 90 % της χωρητικότητας τους, όμως ένας χώρος τουλάχιστον 5 % θα πρέπει να παραμένει κενός για ασφάλεια όταν το υγρό είναι σε μέση θερμοκρασία 50 °C. Κατά τη διάρκεια της μεταφοράς, το υγρό θα πρέπει να είναι κάτω από ένα στρώμα αδρανούς αερίου η πίεση πιεζομέτρου του οποίου θα πρέπει να είναι όχι μικρότερη από 50 kPa (0.5 bar). Τα δοχεία θα πρέπει να φέρουν μία πλάκα δεδομένων με τα παρακάτω στοιχεία αναγραφόμενα σε μορφή διαρκείας:

## Κλάση 4.2

2433  
(συνεχ.)

- ύλη ή ύλες<sup>1/</sup> που γίνονται δεκτές για μεταφορά,
- το απόβαρο<sup>2/</sup> του δοχείου, συμπεριλαμβανομένων των εξαρτημάτων,
- πίεση ελέγχου<sup>2/</sup> (πίεση πιεζομέτρου),
- ημερομηνία (μήνας, χρόνος) του τελευταίου ελέγχου που έγινε,
- σφραγίδα του εμπειρογνώμονα που διεξήγαγε τον έλεγχο,
- χωρητικότητα<sup>2/</sup> του δοχείου,
- μέγιστο επιτρεπόμενο βάρος πλήρωσης<sup>2/</sup>.

(2) Αυτές οι ύλες μπορούν επίσης να συσκευάζονται σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538 με γυάλινη εσωτερική συσκευασία και χαλύβδινη ή αλουμινένια εξωτερική συσκευασία σύμφωνα με το περιθωριακό 3532. Τα δοχεία δεν θα πρέπει να γεμίζονται περισσότερο από 90 % της χωρητικότητάς τους. Κάθε κόλο θα πρέπει να περιέχει μία μόνη εσωτερική συσκευασία. Τέτοιες συνδυασμένες συσκευασίες θα πρέπει να συμφωνούν σ'έναν τύπο σχεδιασμού που έχει ελεγχθεί και εγκριθεί σε συμφωνία με την προσθήκη A.5 για την ομάδα συσκευασίας I.

2434 Φωσφόρος της 22° θα πρέπει να μεταφέρεται μόνον σε οχήματα-δεξαμενές και αποσυναρμολογούμενες δεξαμενές (βλέπε Προσθήκη B.1a) ή σε εμπορευματοκιβώτια-δεξαμενές (βλέπε Προσθήκη B.1b).

2435 (1) Ύλες ταξινομημένες υπό το (a) των 5°, 12°, 15° και 16° θα πρέπει να συσκευάζονται σε:

- (a) χαλύβδινα βαρέλια μη-αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3520, ή
- (b) αλουμινένια βαρέλια μη-αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3521, ή
- (c) χαλύβδινα μπιτόνια μη-αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3522, ή
- (d) πλαστικά βαρέλια μη-αφαιρούμενης κεφαλής με μέγιστη χωρητικότητα 60 λίτρα και σε πλαστικά μπιτόνια μη-αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3526, ή
- (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) συνδυασμένες συσκευασίες με γυάλινες, πλαστικού υλικού ή μεταλλικές εσωτερικές συσκευασίες σύμφωνα με το περιθωριακό 3538.

(2) Στερεά όπως ορίζονται στο περιθωριακό 2430 (10) μπορούν επίσης να συσκευάζονται σε βαρέλια αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3520 για χαλύβδινα, περιθωριακό 3521 για αλουμινένια, ή περιθωριακό 3526 για πλαστικού υλικού, ή σε μπιτόνια αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3522 για χαλύβδινα ή περιθωριακό 3526 για πλαστικού υλικού.

<sup>1/</sup> Η ονομασία μπορεί να αντικατασταθεί από μία γενική περιγραφή που καλύπτει ύλες παρόμοιās φύσης και επίσης συμβατές με τα χαρακτηριστικά του δοχείου.

<sup>2/</sup> Οι μονάδες μέτρησης πρέπει να προστίθενται κάθε φορά μετά από τις αριθμητικές τιμές.

## Κλάση 4.2

- 2435 (3) Λευκός ή κίτρινος φωσφόρος της 11° (a) θα πρέπει να συσκευάζονται σε:  
(συνεχ.)
- (a) χαλύβδινα βαρέλια μη-αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3520,
  - (b) χαλύβδινα μπιτόνια μη-αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3522,
  - (c) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538 με μεταλλικές εσωτερικές συσκευασίες.
- (4) Βοροϋδρίδιο του αλουμινίου που περιέχεται σε συσκευές της 17° (a) θα πρέπει να συσκευάζεται σε:
- (a) χαλύβδινα βαρέλια αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3520, ή
  - (b) αλουμινένια βαρέλια αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3521, ή
  - (c) πλαστικά βαρέλια αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3526, ή
  - (d) χαλύβδινα ή αλουμινένια κιβώτια σύμφωνα με το περιθωριακό 3532.
- 2436 (1) Ύγρες ταξινομημένες στο (b) των διαφόρων ειδών θα πρέπει να συσκευάζονται σε:
- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
  - (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
  - (c) χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
  - (d) πλαστικά βαρέλια και μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
  - (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
  - (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
  - (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη, ψαμμίργιλος) σύμφωνα με το περιθωριακό 3539, ή
  - (h) μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, ή
  - (i) άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624, ή
  - (j) σύνθετα IBC με πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625, με εξαίρεση τους τύπους 11HZ2 και 31HZ2.
- (2) Στερεά όπως ορίζονται στο περιθωριακό 2430 (10) μπορούν επίσης να συσκευάζονται σε:
- (a) βαρέλια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3523 ή σε βαρέλια από φάιμπερ σύμφωνα με το περιθωριακό 3525, εάν είναι αναγκαίο, με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
  - (b) σάκους με πλαστική μεμβράνη σύμφωνα με το περιθωριακό 3535, υπό την προϋπόθεση ότι συνθέτουν ένα πλήρες φορτίο ή είναι φορτωμένα πάνω σε παλέτες.
- (3) Ιχθυάλευρο της 2° (b) μπορεί επίσης να συσκευάζεται σε εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623, με εξαίρεση τους τύπους 13H1, 13L1 και 13M1, υπό την προϋπόθεση ότι συνθέτουν ένα πλήρες φορτίο ή ότι τα εύκαμπτα IBC είναι φορτωμένα πάνω σε παλέτες.



## Κλάση 4.2

2437 (1) Ύλες ταξινομημένες στο (c) των διαφόρων ειδών, θα πρέπει να συσκευάζονται σε:

- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
- (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
- (c) χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
- (d) πλαστικά βαρέλια και μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
- (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
- (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργυλος) σύμφωνα με το περιθωριακό 3539, ή
- (h) μεταλλικές συσκευασίες ελαφρού περιτυπώματος σύμφωνα με το περιθωριακό 3540.

**ΣΗΜΕΙΩΣΗ:** Οι μεταλλικές συσκευασίες για ύλες της 4<sup>ο</sup> θα πρέπει να είναι έτσι κατασκευασμένες και κλεισμένες ώστε να αποδίδουν όταν η εσωτερική πίεση φτάνει μία τιμή όχι μεγαλύτερη από 300 kPa (3 bar).

(2) Με εξαίρεση τις ύλες της 4<sup>ο</sup>, οι ύλες μπορεί επίσης να συσκευάζονται σε:

- (a) μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, ή
- (b) άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624, ή
- (c) σύνθετα IBC με πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625 με εξαίρεση τους τύπους 11HZ2 και 31HZ2.

(3) Στερεά όπως ορίζονται στο περιθωριακό 2430 (10) μπορούν επίσης να συσκευάζονται σε:

- (a) βαρέλια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3523, ή σε βαρέλια από φάιμπερ σύμφωνα με το περιθωριακό 3525, εάν είναι αναγκαίο, με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
- (b) σάκους με πλαστική μεμβράνη σύμφωνα με το περιθωριακό 3535.

(4) Με εξαίρεση τις ύλες της 4<sup>ο</sup>, στερεά όπως ορίζονται στο περιθωριακό 2430 μπορούν επίσης να συσκευάζονται σε εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623, με εξαίρεση τους τύπους 13H1, 13L1 και 13M1.

(5) Ύλες των 2<sup>ο</sup> (c) και 3<sup>ο</sup> (c) μπορούν επίσης να συσκευάζονται σε μη-ελεγμένες συσκευασίες, που χρειάζεται μόνον να ικανοποιήσουν τις διατάξεις του περιθωριακού 3500 (1), (2) και (4) έως (7). Απόβλητα βαμβακιού με περιεκτικότητα σε λάδι μικρότερη από 5 % (κατά βάρος) και βαμβάκι της 3<sup>ο</sup> (c) μπορούν επίσης να μεταφέρονται σε στερεά ασφαλισμένες σφαίρες.

## Κλάση 4.2

- 2438 (1) Τα ανοίγματα των δοχείων για τη μεταφορά υγρών με ιξώδες, στους 23 °C, μικρότερο από 200 mm<sup>2</sup>/s, με εξαίρεση τις γυάλινες αμπούλες και τους κυλίνδρους πίεσης, θα πρέπει να σφραγίζονται ερμητικά με δύο συσκευές στη σειρά, μία από τις οποίες θα πρέπει να είναι κλειστή με βίδες ή ασφαλισμένη με έναν ισοδύναμο τρόπο.

**ΣΗΜΕΙΩΣΗ:** Για IBC, πάντως, βλέπε περιθωριακό 3621 (8).

- (2) Χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, που περιέχουν βρεγμένο καταλύτη μετάλλου της 12° (b), θα πρέπει να είναι εφοδιασμένα με εξαεριστήρα σε συμφωνία με το περιθωριακό 3500 (8).

2439-  
2440

### 3. Μικτή συσκευασία

- 2441 (1) Υγες ταξινομημένες στο ίδιο είδος μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538.

- (2) Υγες των 6° (a), 11°, 17° (a), 19° (a), και 31° έως 33° δεν θα πρέπει να συσκευάζονται μαζί με ύλες ή είδη άλλων ειδών της κλάσης 4.2, με ύλες ή είδη άλλων κλάσεων ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

- (3) Με εξαίρεση τις ύλες που αναφέρονται στο (2) παραπάνω, ύλες της κλάσης 4.2, σε ποσότητες που δεν ξεπερνούν τα 3 λίτρα για υγρά και/ή 6 kg για στερεά, ανά δοχείο, μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538, με ύλες ή είδη άλλων κλάσεων - υπό την προϋπόθεση ότι μικτή συσκευασία επιτρέπεται επίσης για ύλες και είδη εκείνων των κλάσεων - και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας, υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.

Για ύλες ταξινομημένες στην ομάδα (a), η καθαρή ποσότητα ανά κόλο δεν θα πρέπει να υπερβαίνει τα 3 kg για στερεά, 3 λίτρα για υγρά.

- (4) Οι παρακάτω θα πρέπει να θεωρούνται επικίνδυνες αντιδράσεις:

- (a) ανάφλεξη και/ή εκπομπή αξιοσημείωτης θερμότητας,
- (b) Έκλυση εύφλεκτων και/ή τοξικών αερίων,
- (c) σχηματισμός διαβρωτικών υγρών,
- (d) σχηματισμός ασταθών υλών.

- (5) Οι διατάξεις των περιθωριακών 2001 (7), 2002 (6) και (7) και 2432 θα πρέπει να τηρούνται.

- (6) Κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg όταν χρησιμοποιούνται ξύλινα κασόνια ή κασόνια από φύλλο φάιμπερ.

## Κλάση 4.2

4. *Μαρκάρισμα και επικέτες κινδύνου πάνω στα κόλα (βλέπε Προσθήκη Α.9)**Μαρκάρισμα*

- 2442 (1) Κάθε κόλο θα πρέπει να είναι μαρκαρισμένο καθαρά και με τρόπο διάρκειας με τον χαρακτηριστικό αριθμό των εμπορευμάτων που θα αναγράφονται στο έγγραφο μεταφοράς, μετά από τα γράμματα "UN".

*Ετικέτες κινδύνου*

- (2) Κόλα που περιέχουν ύλες της κλάσης 4.2 θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.2.
- (3) Κόλα που περιέχουν ύλες της 17° (a), maneb ή παρασκευάσματα maneb της 16° (c), και ύλες των 31° έως 33°, θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.3.
- (4) Κόλα που περιέχουν ύλες των 7°, 8°, 11°, 18° και 19° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1.
- (5) Κόλα που περιέχουν ύλες των 9°, 10°, 15°, 20° και 21° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8.
- (6) Κόλα που περιέχουν εύθραυστα δοχεία όχι ορατά από έξω, θα πρέπει να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 12.
- (7) Κόλα που περιέχουν υγρά, τα πάματα των οποίων δεν είναι ορατά από έξω, κόλα που περιέχουν δοχεία εφοδιασμένα με εξαεριστήρες ή δοχεία εφοδιασμένα με εξαεριστήρες χωρίς εξωτερική συσκευασία και κόλα που περιέχουν φωσφόρο καλυμμένο με νερό της 11° (a), θα πρέπει να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

2443

**B. Στοιχεία στο έγγραφο μεταφοράς**

- 2444 Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να συμφώνει με έναν από τους χαρακτηριστικούς αριθμούς και ονομασίες που υπογραμμίζονται στο περιθωριακό 2431. Εάν η ύλη δεν αναφέρεται με την ονομασία της, αλλά είναι καταχωρημένη σε μία ε.α.ο. καταχώρηση, η περιγραφή των εμπορευμάτων θα πρέπει να συνίσταται από τον χαρακτηριστικό αριθμό και τον χαρακτηρισμό ε.α.ο., ακολουθούμενο από τη χημική ή τεχνική ονομασία της ύλης<sup>3/</sup>.

Η περιγραφή των εμπορευμάτων θα πρέπει να ακολουθείται από στοιχεία της κλάσης, τον αριθμό είδους, εάν εφαρμόζεται, το γράμμα και τα αρχικά "ADR" (ή "RID"), π.χ. "4.2. 13° (b), ADR".

Για τη μεταφορά των αποβλήτων [βλέπε περιθωριακό 2000 (5)] η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "Απόβλητα που περιέχουν ..." και το(τα) συστατικό(ά) που χρησιμοποιείται(ούνται) για την ταξινόμηση των αποβλήτων στο περιθωριακό 2002 (8) θα αναγράφεται(ονται) με τη(τις) χημική(ές) ονομασία(ες) του(ς), π.χ. "Απόβλητα, γαίες που περιέχουν 1381 λευκό φωσφόρος κάτω από νερό 4.2, 11° (a) ADR".

<sup>3/</sup> Η τεχνική ονομασία θα πρέπει να είναι μία ονομασία που ήδη χρησιμοποιείται σε επιστημονικά και τεχνικά εγχειρίδια, περιοδικά και κείμενα. Εμπορικές ονομασίες δεν θα πρέπει να χρησιμοποιούνται για αυτό το σκοπό.

## Κλάση 4.2

2444 (συνεχ.) Για τη μεταφορά διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα) που περιέχουν διάφορα συστατικά υποκείμενα στις διατάξεις αυτής της Οδηγίας, δεν θα είναι γενικά αναγκαίο να αναφέρονται περισσότερα από δύο συστατικά που κυρίως συμβάλουν στον κίνδυνο ή τους κινδύνους των διαλυμάτων και μειγμάτων.

Εάν μία επώνυμη ύλη σε συμφωνία με το περιθωριακό 2430 (9) δεν υπόκειται στις συνθήκες αυτής της Κλάσης, ο αποστολέας μπορεί να γράψει στο έγγραφο μεταφοράς: "Όχι εμπορεύματα της κλάσης 4.2".

Για τα διαλύματα και μείγματα που περιέχουν μόνον ένα συστατικό υποκείμενο στις διατάξεις αυτής της Οδηγίας, η λέξη "διάλυμα" ή "μείγμα" θα πρέπει να προστίθεται ως μέρος της ονομασίας στο έγγραφο μεταφοράς [βλέπε περιθωριακό 2002 (8) (a)].

Όταν ένα στερεό παραδίδεται για μεταφορά στην τετηγμένη κατάσταση, η περιγραφή των εμπορευμάτων θα πρέπει επιπλέον να αναφέρουν "τετηγμένο", εκτός εάν ο όρος ήδη εμφανίζεται στην ονομασία.

2445-  
2451

## C. Κενές συσκευασίες

2452 (1) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC της 41° θα πρέπει να κλείνονται με τον ίδιο τρόπο και να είναι στεγανές στον ίδιο βαθμό σαν να ήταν γεμάτες.

(2) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC της 41° θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνου σαν να ήταν γεμάτες.

(3) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μία από τις ονομασίες που υπογραμμίζονται στο 41°, π.χ. "Κενή συσκευασία, 4.2, 41°, ADR". Στην περίπτωση κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών ή κενών μικρών εμπορευματοκιβωτίων, ακαθάριστων, αυτή η περιγραφή θα πρέπει να συνοδεύεται από τις λέξεις "Τελευταίο φορτίο" και την ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία π.χ. "Τελευταίο φορτίο: 1381 λευκός φωσφόρος, ξηρός, 11° (a)".

2453-  
2469

**ΚΛΑΣΗ 4.3. ΥΛΕΣ ΠΟΥ, ΣΕ ΕΠΑΦΗ ΜΕ ΤΟ ΝΕΡΟ,  
ΕΚΛΥΟΥΝ ΕΥΦΛΕΚΤΑ ΑΕΡΙΑ**

**1. Κατάλογος υλών**

- 2470** (1) Ανάμεσα στις ύλες που καλύπτονται από τον τίτλο της κλάσης 4.3, εκείνα που αναφέρονται στο περιθωριακό 2471 ή καλύπτονται από ένα συγκεντρωτικό κεφάλαιο εκείνου του περιθωριακού, υπόκεινται στις συνθήκες που τίθενται στα περιθωριακά 2470 (2) έως 2492 και στις διατάξεις αυτού του παραρτήματος και του παραρτήματος Β. Θεωρούνται τότε ως ύλες αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ:** Για τις ποσότητες υλών που αναφέρονται στο περιθωριακό 2471 που δεν υπόκεινται στις διατάξεις για αυτήν την Κλάση, είτε σε αυτό το Παράρτημα είτε στο Παράρτημα Β, βλέπε περιθωριακό 2471α.

- (2) Ο τίτλος της κλάσης 4.3 καλύπτει ύλες που αντιδρούν με το νερό προς έκλυση εύφλεκτων αερίων υποκείμενων στο σχηματισμό εκρηκτικών μειγμάτων με τον αέρα.

**ΣΗΜΕΙΩΣΗ:** Ο όρος "ενεργή με το νερό" που χρησιμοποιείται στις ε.α.ο. καταχωρήσεις του περιθωριακού 2471, δηλώνει μία ύλη που σε επαφή με το νερό εκλύει εύφλεκτα αέρια.

- (3) Οι ύλες της κλάσης 4.3 υποδιαιρούνται ως εξής:

- A. Οργανικές ύλες, οργανομεταλλικές ενώσεις και ύλες σε οργανικούς διαλύτες, που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια,
- B. Ανόργανες ύλες που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια,
- C. Κενές συσκευασίες.

Υλες της κλάσης 4.3 ταξινομημένες στα διάφορα είδη του περιθωριακού 2471, θα πρέπει να καταχωρούνται σε μία από τις παρακάτω ομάδες, που χαρακτηρίζονται από το γράμμα (a), (b) ή (c), σύμφωνα με το βαθμό κινδύνου τους:

- (a) πολύ επικίνδυνες,
- (b) επικίνδυνες,
- (c) λιγότερο επικίνδυνες.

- (4) Καταχώρηση υλών που δεν αναφέρονται με συγκεκριμένη ονομασία στο περιθωριακό 2471, 1°, 3°, 11°, 13°, 14°, 16° και 20° έως 25°, και μέσα σ' αυτά τα είδη στα γράμματα, θα πρέπει να βασίζεται στα αποτελέσματα της διαδικασίας ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3340 και 3341. Η εμπειρία θα πρέπει επίσης να λαμβάνεται υπόψη όταν οδηγεί σε μία περισσότερο αυστηρά βασισμένη καταχώρηση.

- (5) Όταν ύλες χωρίς συγκεκριμένη ονομασία καταχωρούνται στα είδη του περιθωριακού 2471 βάσει της διαδικασίας ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3340 και 3341, εφαρμόζονται τα παρακάτω κριτήρια:

Μία ύλη θα πρέπει να καταχωρείται στην κλάση 4.3 εάν:

- (a) κατά τη διάρκεια οποιασδήποτε φάσης του ελέγχου το αέριο που εκλύεται αναφλέγεται αυτόματα, ή
- (b) ο ρυθμός εκπομπής εύφλεκτου αερίου ανά ώρα είναι ίσος ή μεγαλύτερος από 1 λίτρο ανά χιλιόγραμμο ανά ώρα της ύλης που είναι υπό έλεγχο.

## Κλάση 4.3

**2470** (6) Όταν ύλες χωρίς συγκεκριμένη ονομασία καταχωρούνται στα γράμματα των ειδών στο (συνεχ.) περιθωριακό 2471 βάσει της διαδικασίας ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3340 και 3341, τα παρακάτω κριτήρια θα πρέπει να εφαρμόζονται:

- (a) Οποιαδήποτε ύλη που αντιδρά ζωηρά με το νερό σε θερμοκρασία περιβάλλοντος προς παραγωγή αερίου που αναφλέγεται αυτόματα, ή αερίου που αντιδρά άμεσα με το νερό σε θερμοκρασίες περιβάλλοντος τέτοιες ώστε ο ρυθμός εκπομπής εύφλεκτου αερίου μέσα σ'ένα λεπτό είναι ίσος ή μεγαλύτερος από 10 λίτρα ανά χιλιόγραμμο ύλης, θα πρέπει να καταχωρείται στο γράμμα (a),
- (b) Οποιαδήποτε ύλη που αντιδρά άμεσα με το νερό σε θερμοκρασία περιβάλλοντος τέτοια ώστε ο μέγιστος ρυθμός εκπομπής εύφλεκτου αερίου ανά ώρα είναι ίσος ή μεγαλύτερος από 20 λίτρα ανά χιλιόγραμμο ύλης, και που δεν ικανοποιεί τα κριτήρια του γράμματος (a), θα πρέπει να καταχωρείται στο γράμμα (b),
- (c) Οποιαδήποτε ύλη που αντιδρά αργά με το νερό σε θερμοκρασία περιβάλλοντος τέτοια ώστε ο μέγιστος ρυθμός εκπομπής εύφλεκτου αερίου ανά ώρα είναι ίσος ή μεγαλύτερος από 1 λίτρο ανά χιλιόγραμμο ύλης, και που δεν ικανοποιεί τα κριτήρια των γραμμάτων (a) ή (b), θα πρέπει να καταχωρείται στο γράμμα (c).

(7) Εάν ύλες της κλάσης 4.3, ως αποτέλεσμα προσμείξεων, μπαίνουν σε διαφορετικές κατηγορίες κινδύνου από εκείνες στις οποίες ανήκουν οι ύλες του περιθωριακού 2471, αυτά τα μείγματα θα πρέπει να καταχωρούνται στα είδη και γράμματα στα οποία ανήκουν βάσει του πραγματικού βαθμού κινδύνου τους.

**ΣΗΜΕΙΩΣΗ:** Για την ταξινόμηση διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και ασόβλητα) βλέπε επίσης περιθωριακό 2002 (8).

(8) Όταν ύλες έχουν συγκεκριμένη ονομασία σε περισσότερα από ένα γράμματα του ίδιου είδους του περιθωριακού 2471, το σχετικό γράμμα μπορεί να καθοριστεί βάσει των αποτελεσμάτων της διαδικασίας ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3340 και 3341, και τα κριτήρια που τίθενται στην παράγραφο (6).

(9) Βάσει της διαδικασίας ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3340 και 3341, και τα κριτήρια που τίθενται στην παράγραφο (6), μπορεί επίσης να καθοριστεί εάν η φύση μίας συγκεκριμένης ονομασίας ύλης είναι τέτοια ώστε η ύλη να μην υπόκειται στις διατάξεις για αυτήν την Κλάση (βλέπε περιθωριακό 2484).

(10) Ύλες και μείγματα υλών με σημείο τήξης υψηλότερο από 45 °C θα πρέπει να θεωρούνται ως στερεά για τους σκοπούς των συνθηκών συσκευασίας στα περιθωριακά 2474 (2), 2475 (3) και 2476 (2).

(11) Ενεργά με το νερό στερεά, εύφλεκτα, που καταχωρούνται στον χαρακτηριστικό αριθμό 3132, ενεργά με το νερό στερεά, οξειδωτικά, που καταχωρούνται στον χαρακτηριστικό αριθμό 3133 και ενεργά με το νερό στερεά, αυτοθερμαινόμενα, που καταχωρούνται στον χαρακτηριστικό αριθμό 3135 των Υποδείξεων για τη Μεταφορά Επικίνδυνων Εμπορευμάτων των Ηνωμένων Εθνών, δεν θα πρέπει να γίνονται δεκτά για μεταφορά (βλέπε, όμως, περιθωριακό 2002 (8), υποσημείωση<sup>1/</sup> στον πίνακα στην παράγραφο 2.3.1).

## Κλάση 4.3

2471 Α. Οργανικές ύλες, οργανομεταλλικές ενώσεις και ύλες σε οργανικούς διαλύτες που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια

1° Χλωροσιλάνια:

- (a) 1183 αιθυλοδιγλωροσιλάνιο, 1242 μεθυλοδιγλωροσιλάνιο, 1295 τριγλωροσιλάνιο, 2988 γλωροσιλάνια, ενεργά με το νερό, εύφλεκτα, διαβρωτικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ'αυτές τις ύλες [βλέπε περιθωριακό 2473 (1)].

**ΣΗΜΕΙΩΣΗ 2:** Χλωροσιλάνια με σημείο ανάφλεξης μικρότερο από 23 °C και που, σε επαφή με το νερό, δεν εκλύουν εύφλεκτα αέρια, είναι ύλες της κλάσης 3 [βλέπε περιθωριακό 2301, 21° (a)].

**ΣΗΜΕΙΩΣΗ 3:** Χλωροσιλάνια με σημείο ανάφλεξης ίσο ή μεγαλύτερο από 23 °C και που, σε επαφή με το νερό, δεν εκλύουν εύφλεκτα αέρια, είναι ύλες της κλάσης 8 (βλέπε περιθωριακό 2801, 37°).

2° Το παρακάτω σύμπλεγμα τριφθοριούχου βορίου:

- (a) 2965 διμεθυλαιθερικό τριφθοριούχο βόριο.

3° Οργανομεταλλικές ενώσεις και μείγματα αυτών:

- (a) 1928 βρωμιούχο μεθυλομαγνήσιο σε αιθυλαιθέρα, 3207 οργανομεταλλική ένωση, ενεργή με το νερό, εύφλεκτη, ε.α.ο. ή 3207 διάλυμα οργανομεταλλικής ένωσης, ενεργό με το νερό, εύφλεκτο, ε.α.ο. ή 3207 εναιώρημα οργανομεταλλικής ένωσης, ενεργό με το νερό, εύφλεκτο, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ'αυτές τις ύλες [βλέπε περιθωριακό 2473 (2)].

- (b) 3207 οργανομεταλλική ένωση, ενεργή με το νερό, εύφλεκτη, ε.α.ο. ή 3207 διάλυμα οργανομεταλλικής ένωσης, ενεργό με το νερό, εύφλεκτο, ε.α.ο. ή 3207 εναιώρημα οργανομεταλλικής ένωσης, ενεργό με το νερό, εύφλεκτο, ε.α.ο.,

- (c) 3207 οργανομεταλλική ένωση, ενεργή με το νερό, εύφλεκτη, ε.α.ο. ή 3207 διάλυμα οργανομεταλλικής ένωσης, ενεργό με το νερό, εύφλεκτο, ε.α.ο. ή 3207 εναιώρημα οργανομεταλλικής ένωσης, ενεργό με το νερό, εύφλεκτο, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Οργανομεταλλικές ενώσεις και μείγματα αυτών που αναφλέγονται αυτόματα, είναι ύλες της κλάσης 4.2 (βλέπε περιθωριακό 2431, 31° έως 33°).

**ΣΗΜΕΙΩΣΗ 2:** Εύφλεκτα μείγματα με οργανομεταλλικές ενώσεις σε συγκεντρώσεις που, σε επαφή με το νερό, ούτε εκλύουν εύφλεκτα αέρια σε επικίνδυνες ποσότητες ούτε αναφλέγονται αυτόματα, είναι ύλες της κλάσης 3.

## Κλάση 4.3

2471 Β. Ανόργανες ύλες που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια (συνεχ.)

**ΣΗΜΕΙΩΣΗ 1:** Ο όρος "αλκαλιμέταλλα" συμπεριλαμβάνει τα στοιχεία λίθιο, νάτριο, κάλιο, ρουβίδιο και καίσιο.

**ΣΗΜΕΙΩΣΗ 2:** Ο όρος μέταλλα "της σειράς των αλκαλικών γαιών" συμπεριλαμβάνει τα στοιχεία μαγνήσιο, ασβέστιο, στρόντιο και βάριο.

11° Αλκαλιμέταλλα και μέταλλα της σειράς των αλκαλικών γαιών και κράματα και μεταλλικές ενώσεις τους:

(a) 1389 αμάλγαμα αλκαλιμετάλλου, 1391 εναίωρημα αλκαλιμετάλλου ή 1391 εναίωρημα μετάλλου της σειράς των αλκαλικών γαιών, 1392 αμάλγαμα μετάλλου της σειράς των αλκαλικών γαιών, 1407 καίσιο, 1415 λίθιο, 1420 κάλιο μεταλλικό κράμα, 1422 κράμα καλίου νατρίου, 1423 ρουβίδιο, 1428 νάτριο, 2257 κάλιο, 1421 κράμα αλκαλιμετάλλου. υγρό. ε.α.ο.,

(b) 1400 βάριο, 1401 ασβέστιο, 1393 κράμα μετάλλου της σειράς των αλκαλικών γαιών. ε.α.ο.,

(c) 2950 μαγνήσιο κοκκώδες, επικαλυμμένο με μέγεθος κόκκου όχι μικρότερο από 149 μικρά.

**ΣΗΜΕΙΩΣΗ 1:** Μέταλλα της σειράς των αλκαλικών γαιών και κράματα μετάλλων της σειράς των αλκαλικών γαιών σε πυροφορική μορφή, είναι ύλες της κλάσης 4.2 (βλέπε περιθωριακό 2431, 12°).

**ΣΗΜΕΙΩΣΗ 2:** 1869 μαγνήσιο ή 1869 κράμα μαγνησίου που περιέχει περισσότερο από 50 % μαγνήσιο σε μορφή σβόλων, ροκανιδίων ή ροδέλων, είναι ύλες της κλάσης 4.1 [βλέπε περιθωριακό 2401, 13° (c)].

**ΣΗΜΕΙΩΣΗ 3:** 1418 μαγνήσιο σε σκόνη και 1418 κράμα μαγνησίου σε μορφή σκόνης είναι ύλες του 14°.

12° Κράματα πυριτίου και πυριτιούχα μέταλλα:

(b) 1405 πυριτιούχο ασβέστιο, 1417 λιθιοπυρίτιο, 2624 πυριτιούχο μαγνήσιο, 2830 λιθιοσιδηροπυρίτιο,

(c) 1405 πυριτιούχο ασβέστιο, 2844 ασβεστιομαγνησιοπυρίτιο.

**ΣΗΜΕΙΩΣΗ:** Για τις ύλες του (c) βλέπε επίσης περιθωριακό 2471a.

13° Άλλα μέταλλα, κράματα και μείγματα μετάλλων, μη-τοξικά, που σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια:

(a) 3208 μεταλλικές ύλες, ενεργές με το νερό. ε.α.ο.,

(b) 1396 αλουμίνιο σε σκόνη, μη-επικαλυμμένο, 3078 δημήτριο, σε τορναρίσματα ή αμμώδη σκόνη, 3170 υπο-προϊόντα επεξεργασίας αλουμινίου, 3208 μεταλλική ύλη, ενεργή με το νερό. ε.α.ο.,

(c) 1398 αλουμνιοπυρίτιο σε σκόνη, μη-επικαλυμμένο, 1435 τέφρες ψευδάργυρου, 3170 υποπροϊόντα επεξεργασίας αλουμινίου, 3208 μεταλλική ύλη, ενεργή με το νερό. ε.α.ο.



## Κλάση 4.3

2471  
(συνεχ.)**ΣΗΜΕΙΩΣΗ 1:** Λεπτή σκόνη και σκόνη μετάλλων σε πυροφορική μορφή, είναι ύλες της κλάσης 4.2 (βλέπε περιθωριακό 2431, 12°).**ΣΗΜΕΙΩΣΗ 2:** Αλουμινοπυρίτιο σε σκόνη, επικαλυμμένο, δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.**ΣΗΜΕΙΩΣΗ 3:** 1333 δημήτριο σε πλάκες, ράβδους ή πλινθώματα είναι ύλη της κλάσης 4.1 [βλέπε περιθωριακό 2401, 13° (b)].

14° Μέταλλα και κράματα μετάλλων στη μορφή σκόνης ή σε οποιαδήποτε άλλη μορφή, που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια και είναι ικανά για αυτοθέρμανση:

(a) 1436 ψευδάργυρος σε σκόνη ή 1436 ψευδάργυρος σε λεπτή σκόνη, 3209 μεταλλική ύλη, ενεργή με το νερό, αυτοθερμαινόμενη, ε.α.ο.,(b) 1418 μαγνήσιο σε σκόνη ή 1418 κράμα μαγνησίου σε σκόνη, 1436 ψευδάργυρος σε σκόνη ή 1436 ψευδάργυρος σε λεπτή σκόνη, 3209 μεταλλική ύλη, ενεργή με το νερό, αυτοθερμαινόμενη, ε.α.ο.,(c) 1436 ψευδάργυρος σε σκόνη ή 1436 ψευδάργυρος σε λεπτή σκόνη, 3209 μεταλλική ύλη, ενεργή με το νερό, αυτοθερμαινόμενη, ε.α.ο.**ΣΗΜΕΙΩΣΗ 1:** Μέταλλα και κράματα μετάλλων σε πυροφορική μορφή, είναι ύλες της κλάσης 4.2 (βλέπε περιθωριακό 2431, 12°).**ΣΗΜΕΙΩΣΗ 2:** Μέταλλα και κράματα μετάλλων που, σε επαφή με το νερό, δεν εκλύουν εύφλεκτα αέρια και δεν είναι πυροφορικά ή αυτοθερμαινόμενα, αλλά που αναφλέγονται εύκολα, είναι ύλες της κλάσης 4.1 (βλέπε περιθωριακό 2401, 13°).

15° Μέταλλα και κράματα μετάλλων, τοξικά:

(b) 1395 αλουμινοσιδηροπυρίτιο σε σκόνη,(c) 1408 σιδηροπυρίτιο με 30 % ή περισσότερο αλλά λιγότερο από 90 % πυρίτιο.**ΣΗΜΕΙΩΣΗ:** Σιδηροπυρίτιο που περιέχει λιγότερο από 30 % ή όχι λιγότερο από 90 % (κατά βάρος) πυρίτιο, δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

16° Υδρίδια μετάλλων:

(a) 1404 υδρίδιο ασβεστίου, 1410 υδρίδιο λιθιοαλουμινίου, 1411 υδρίδιο λιθιοαλουμινίου, αιθερικό, 1413 βοροϋδρίδιο λιθίου, 1414 υδρίδιο λιθίου, 1426 βοροϋδρίδιο νατρίου, 1427 υδρίδιο νατρίου, 1870 βοροϋδρίδιο καλίου, 2010 υδρίδιο μαγνησίου, 2463 υδρίδιο αλουμινίου, 1409 υδρίδια μετάλλων, ενεργά με το νερό, ε.α.ο.,(b) 2805 υδρίδιο λιθίου, στερεό, σε χυτά τεμάχια, 2835 υδρίδιο νατραλουμινίου, 1409 υδρίδια μετάλλων, ενεργά με το νερό, ε.α.ο.**ΣΗΜΕΙΩΣΗ 1:** 1871 υδρίδιο τιτανίου και 1437 υδρίδιο ζirkόνιου είναι ύλες της κλάσης 4.1 (βλέπε περιθωριακό 2401, 14°).**ΣΗΜΕΙΩΣΗ 2:** 2870 το βοροϋδρίδιο αλουμινίου είναι ύλη της κλάσης 4.2 [βλέπε περιθωριακό 2431, 17° (a)].

## Κλάση 4.3

2471 17° Καρβίδια μετάλλων και νιτρίδια μετάλλων:  
(συνεχ.)

- (a) 2806 νιτρίδιο λιθίου,  
(b) 1394 καρβίδιο αλουμινίου, 1402 καρβίδιο ασβεστίου.

18° Φωσφίδια μετάλλων, τοξικά:

- (a) 1360 φωσφίδιο ασβεστίου, 1397 φωσφίδιο αλουμινίου, 1419 φωσφίδιο μαγνησιοαλουμινίου, 1432 φωσφίδιο νατρίου, 1433 φωσφίδια κασσίτερου, 1714 φωσφίδιο ψευδάργυρου, 2011 φωσφίδιο μαγνησίου, 2012 φωσφίδιο καλίου, 2013 φωσφίδιο στροντίου.

**ΣΗΜΕΙΩΣΗ 1:** Ενώσεις φωσφόρου με βαριά μέταλλα όπως σίδηρος, χαλκός, κ.λπ., δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 2:** 3048 παρασιτοκτόνα φωσφίδια του αλουμινίου, με πρόσθετα που παρεμποδίζουν την εκπομπή εύφλεκτων αερίων, είναι ύλες της κλάσης 6.1 [βλέπε περιθωριακό 2601, 43°, (a)].

19° Αμιδία μετάλλων και κυαναμίδια μετάλλων:

- (b) 1390 αμιδία αλκαλιμετάλλων,  
(c) 1403 κυαναμίδιο ασβεστίου με περισσότερο από 0.1 % (κατά βάρος) καρβίδιο ασβεστίου.

**ΣΗΜΕΙΩΣΗ 1:** Κυαναμίδιο ασβεστίου που περιέχει όχι περισσότερο από 0.1 % (κατά βάρος) καρβίδιο ασβεστίου, δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 2:** το 2004 διαμίδιο μαγνησίου, είναι ύλη της κλάσης 4.2 [βλέπε περιθωριακό 2431, 16° (b)].

20° Ανόργανες στερεές ύλες και μείγματα (όπως παρασκευάσματα και απόβλητα) που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια, μη-τοξικά και μη-διαβρωτικά και που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 2813 ενεργά με το νερό στερεά, ε.α.ο.,  
(b) 1340 πενταθειούχος φωσφόρος (P<sub>2</sub>S<sub>5</sub>) ελεύθερος από κίτρινο και λευκό φωσφόρο, 2813 ενεργά με το νερό στερεά, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ:** Πενταθειούχος φωσφόρος όχι ελεύθερος από κίτρινο και λευκό φωσφόρο, δεν θα γίνεται δεκτός για μεταφορά.

- (c) 2968 maneb (1,2-bis(διθειοκαρβαμικό) μαγναισιοαιθυλένιο), σταθεροποιημένο έναντι της αυτοθέρμανσης, ή 2968 παρασκεύασμα maneb, σταθεροποιημένο έναντι της αυτοθέρμανσης, 2813 ενεργά με το νερό στερεά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 2210 maneb ή 2210 παρασκευάσματα maneb σε αυτοθερμαινόμενη μορφή, είναι ύλες της κλάσης 4.2 [βλέπε περιθωριακό 2431, 16° (c)], όμως, βλέπε επίσης περιθωριακό 2471a, (c).

## Κλάση 4.3

2471 21° Ανόργανες υγρές ύλες και διαλύματα ανόργανων υλών (όπως παρασκευάσματα και απόβλητα) που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια, μη-τοξικά και μη-διαβρωτικά και που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 3148 ενεργά με το νερό υγρά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτή την ύλη [βλέπε περιθωριακό 2473 (2)].

(b) 3148 ενεργά με το νερό υγρά, ε.α.ο.

(c) 3148 ενεργά με το νερό υγρά, ε.α.ο.

22° Ανόργανες στερεές ύλες και μείγματα (όπως παρασκευάσματα και απόβλητα) που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια, τοξικά και που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 3134 ενεργά με το νερό στερεά, τοξικά, ε.α.ο.

(b) 3134 ενεργά με το νερό στερεά, τοξικά, ε.α.ο.

(c) 3134 ενεργά με το νερό στερεά, τοξικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια τοξικότητας, βλέπε περιθωριακό 2600 (3).

23° Ανόργανες υγρές ύλες και διαλύματα ανόργανων υλών (όπως παρασκευάσματα και απόβλητα) που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια, τοξικά και που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 3130 ενεργά με το νερό υγρά, τοξικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτή την ύλη [βλέπε περιθωριακό 2473 (2)].

(b) 3130 ενεργά με το νερό υγρά, τοξικά, ε.α.ο.

(c) 3130 ενεργά με το νερό υγρά, τοξικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια τοξικότητας, βλέπε περιθωριακό 2600 (3).

24° Ανόργανες στερεές ύλες και μείγματα (όπως παρασκευάσματα και απόβλητα) που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια, διαβρωτικά και που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 3131 ενεργά με το νερό στερεά, διαβρωτικά, ε.α.ο.

(b) 3131 ενεργά με το νερό στερεά, διαβρωτικά, ε.α.ο.

(c) 3131 ενεργά με το νερό στερεά, διαβρωτικά, ε.α.ο.

## Κλάση 4.3

2471 (συνεχ.) **ΣΗΜΕΙΩΣΗ:** Για κριτήρια διαβρωτικότητας, βλέπε περιθωριακό 2800 (3).

25° Ανόργανες υγρές ύλες και διαλύματα ανόργανων υλών (όπως παρασκευάσματα και απόβλητα) που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια, διαβρωτικά και που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 3129 ενεργά με το νερό υγρά, διαβρωτικά, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτή την ύλη [βλέπε περιθωριακό 2473 (2)].

(b) 3129 ενεργά με το νερό υγρά, διαβρωτικά, ε.α.ο.,

(c) 3129 ενεργά με το νερό υγρά, διαβρωτικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια διαβρωτικότητας, βλέπε περιθωριακό 2800 (3).

**C. Κενές συσκευασίες**

31° Κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά χύμα (IBC), κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών και κενών εμπορευματοκιβωτίων-δεξαμενών, ακαθάριστων, καθώς και κενά οχήματα για μεταφορά χύμα και κενά μικρά εμπορευματοκιβώτια για μεταφορά χύμα, ακαθάριστα, που περιείχαν ύλες της κλάσης 4.3.

2471a Ύλες των διαφόρων ειδών που μεταφέρονται υπό τους παρακάτω όρους, δεν υπόκεινται στις διατάξεις για αυτή την Κλάση που περιέχονται σε αυτό το Παράρτημα και στο Παράρτημα Β:

(a) Ύλες ταξινομημένες στο (a) κάθε είδους, δεν καλύπτονται από αυτό το περιθωριακό,

(b) Ύλες ταξινομημένες στο (b) κάθε είδους:  
υγρά: έως 500 ml ανά εσωτερική συσκευασία,  
αλουμίνιο σε σκόνη της 13° (b): έως 1 kg ανά εσωτερική συσκευασία,  
άλλα στερεά: έως 500 g ανά εσωτερική συσκευασία,

(c) Ύλες ταξινομημένες στο (c) κάθε είδους:  
υγρά: έως 1 λίτρο ανά εσωτερική συσκευασία,  
στερεά: έως 1 kg ανά εσωτερική συσκευασία.

Αυτές οι ποσότητες υλών, θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες που ικανοποιούν τουλάχιστον τους όρους του περιθωριακού 3538. Κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 30 kg.

Οι "Γενικές συνθήκες συσκευασίας" του περιθωριακού 3500 (1), (2) και (5) έως (7) θα πρέπει να τηρούνται.

## Κλάση 4.3

## 2. Διατάξεις

## Α. Κόλα

## 1. Γενικές συνθήκες συσκευασίας

2472 (1) Οι συσκευασίες θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης Α.5, εκτός εάν ειδικές συνθήκες για τη συσκευασία ορισμένων υλών ορίζονται στο περιθωριακό 2473.

Τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC), θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης Α.6.

(2) Οι συσκευασίες θα πρέπει να είναι ερμητικά κλεισμένες έτσι ώστε να αποφεύγεται οποιαδήποτε διείσδυση υγρασίας ή οποιαδήποτε απώλεια περιεχομένου. Δεν θα πρέπει να έχουν εξαεριστήρες σε συμφωνία με τα περιθωριακά 3500 (8) ή 3601 (6).

(3) Σε συμφωνία με τις διατάξεις των περιθωριακών 2470 (3) και 3511 (2) ή 3611 (2) αντίστοιχα, θα πρέπει να χρησιμοποιούνται τα παρακάτω:

- συσκευασίες της ομάδας συσκευασίας I, μαρκαρισμένες με το γράμμα "X", για πολύ επικίνδυνες ύλες ταξινομημένες υπό το (a) κάθε είδους,
- συσκευασίες της ομάδας συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X", ή IBC της ομάδας συσκευασίας II, μαρκαρισμένα με το γράμμα "Y", για επικίνδυνες ύλες ταξινομημένες υπό το (b) κάθε είδους,
- συσκευασίες της ομάδας συσκευασίας III, II ή I, μαρκαρισμένες με το γράμμα "Z", "Y" ή "X", ή IBC της ομάδας συσκευασίας III ή II, μαρκαρισμένα με το γράμμα "Z" ή "Y", για λιγότερο επικίνδυνες ύλες ταξινομημένες υπό το (c) κάθε είδους.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά υλών της κλάσης 4.3 σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές και για μεταφορά χύμα, βλέπε Παράρτημα Β.

## 2. Ειδικές συνθήκες για συσκευασία ορισμένων υλών

2473 (1) Χλωροσιλάνια της 1<sup>ο</sup> (a), θα πρέπει να συσκευάζονται σε ανθεκτικά στη διάβρωση χαλύβδινα δοχεία με μέγιστη χωρητικότητα 450 λίτρα. Τα δοχεία θα πρέπει να υπόκεινται στον αρχικό έλεγχο και σε περιοδικούς ελέγχους κάθε πέντε χρόνια σε πίεση όχι μικρότερη από 0.4 MPa (4 bar) (πίεση πιεζομέτρου). Η συσκευή κλεισίματος του δοχείου θα πρέπει να προστατεύεται από κάλυμμα. Το μέγιστο επιτρεπτό βάρος πλήρωσης ανά λίτρο χωρητικότητας για τριγλωροσιλάνιο, αιθυλοδιγλωροσιλάνιο και μεθυλοδιγλωροσιλάνιο, δεν θα πρέπει να υπερβαίνει τα 1.14 kg, 0.93 kg ή 0.95 kg αντίστοιχα, εάν η πλήρωση γίνεται κατά βάρος, εάν η πλήρωση είναι κατ'όγκο, ο βαθμός πλήρωσης δεν θα πρέπει να υπερβαίνει το 85 %. Τα δοχεία θα πρέπει επίσης να φέρουν μία πλακέτα που να δείχνει τα παρακάτω στοιχεία σε μορφή διαρκείας:

- χλωροσιλάνια, Κλάση 4.3,
- περιγραφή του(των) χλωροσιλάνιου(ων) που γίνεται(ονται) δεκτό(ά) για μεταφορά,
- το απόβαρο <sup>1/</sup> του δοχείου, συμπεριλαμβανομένων των εξαρτημάτων,
- πίεση ελέγχου <sup>1/</sup> (πίεση πιεζομέτρου),

<sup>1/</sup> Οι μονάδες μέτρησης πρέπει να προστίθενται κάθε φορά μετά από τις αριθμητικές τιμές.

## Κλάση 4.3

- 2473  
(συνεχ.)
- ημερομηνία (μήνα, έτος) του τελευταίου ελέγχου που έγινε,
  - σφραγίδα του εμπειρογνώμονα που διεξήγαγε τον έλεγχο,
  - την χωρητικότητα <sup>1/</sup> του δοχείου,
  - μέγιστο επιτρεπόμενο βαθμό πλήρωσης κατά βάρος <sup>1/</sup> για κάθε ύλη που γίνεται δεκτή για μεταφορά.

(2) Ύλες των 3° (a), 21° (a), 23° (a) και 25° (a), θα πρέπει να συσκευάζονται σε μεταλλικά δοχεία που κλείνουν ερμητικά, που δεν προσβάλλονται από το περιεχόμενο και έχουν χωρητικότητα όχι μεγαλύτερη από 450 λίτρα. Τα δοχεία θα πρέπει να υπόκεινται στον αρχικό έλεγχο και σε περιοδικούς ελέγχους κάθε πέντε χρόνια σε πίεση τουλάχιστον 1 MPa (10 bar) (πίεση πιεζόμετρου).

Τα δοχεία δεν θα πρέπει να γεμίζονται περισσότερο από το 90 % της χωρητικότητάς τους, όμως, ένας χώρος 5 % θα πρέπει να παραμένει κενός για ασφάλεια όταν το υγρό είναι σε μία μέση θερμοκρασία 50 °C. Κατά τη διάρκεια της μεταφοράς, το υγρό θα πρέπει να είναι κάτω από ένα στρώμα αδρανούς αερίου, η πίεση πιεζόμετρου του οποίου θα πρέπει να είναι όχι μικρότερη από 50 kPa (0.5 bar). Τα δοχεία θα πρέπει να φέρουν πλακέτα που να δείχνει τα παρακάτω στοιχεία σε μορφή διαρκείας:

- ύλη ή ύλες <sup>2/</sup> γίνονται δεκτές για μεταφορά,
- απόβαρο <sup>3/</sup> του δοχείου, συμπεριλαμβανομένων των εξαρτημάτων,
- πίεση ελέγχου <sup>3/</sup> (πίεση πιεζόμετρου),
- ημερομηνία (μήνας, χρόνος) του τελευταίου ελέγχου που έγινε,
- σφραγίδα του εμπειρογνώμονα που διεξήγαγε τον έλεγχο,
- χωρητικότητα <sup>3/</sup> του δοχείου,
- μέγιστο επιτρεπόμενο βάρος πλήρωσης <sup>3/</sup>.

(3) Ύλες που αναφέρονται στην παράγραφο (2) παραπάνω, μπορούν επίσης να συσκευάζονται σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538 με γυάλινη εσωτερική συσκευασία και χαλύβδινη ή αλουμινένια εξωτερική συσκευασία σύμφωνα με το περιθωριακό 3532. Τα δοχεία δεν θα πρέπει να γεμίζονται περισσότερο από το 90 % της χωρητικότητάς τους. Κάθε κόλο θα πρέπει να περιέχει μία μόνη εσωτερική συσκευασία. Τέτοιες συνδυασμένες συσκευασίες θα πρέπει να συμφωνούν σ'έναν τύπο σχεδιασμού που έχει ελεγχθεί και εγκριθεί σε συμφωνία με την προσθήκη A.5 για την ομάδα συσκευασίας I.

<sup>1/</sup> Οι μονάδες μέτρησης πρέπει να προστίθενται κάθε φορά μετά από τις αριθμητικές τιμές.

<sup>2/</sup> Η ονομασία αντικαθίσταται από μία συγκεντρωτική περιγραφή που καλύπτει ύλες παρόμοιας φύσης και ομοίως συμβατές με τις ιδιότητες του δοχείου.

<sup>3/</sup> Οι μονάδες μέτρησης πρέπει να προστίθενται κάθε φορά μετά από τις αριθμητικές τιμές.

## Κλάση 4.3

- 2474 (1) Ύλες ταξινομημένες στα (α) των 2°, 11°, 13°, 14°, 16° έως 18°, 20°, 22° και 24°, θα πρέπει να συσκευάζονται σε:
- (a) χαλύβδινα βαρέλια μη-μετακινούμενης κεφαλής, σύμφωνα με το περιθωριακό 3520, ή
  - (b) αλουμινένια βαρέλια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3521, ή
  - (c) χαλύβδινα μπιτόνια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3522, ή
  - (d) πλαστικά βαρέλια μη-μετακινούμενης κεφαλής με μέγιστη χωρητικότητα 60 λίτρα και πλαστικά μπιτόνια μη-αφαιρούμενης κεφαλής σύμφωνα με το περιθωριακό 3526, ή
  - (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
  - (f) συνδυασμένες συσκευασίες με γυάλινα, πλαστικού υλικού ή μεταλλικά εσωτερικά δοχεία σύμφωνα με το περιθωριακό 3538.
- (2) Στερεά όπως ορίζονται στο περιθωριακό 2470 (10) μπορούν επίσης να συσκευάζονται σε:
- (a) βαρέλια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3520 για χαλύβδινα, περιθωριακό 3521 για αλουμινένια, περιθωριακό 3526 για πλαστικού υλικού, ή σε μπιτόνια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3522 για χαλύβδινα ή περιθωριακό 3526 για πλαστικού υλικού, ή
  - (b) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538 με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους.
- 2475 (1) Ύλες ταξινομημένες στα (b) των διαφόρων ειδών, θα πρέπει να συσκευάζονται σε:
- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
  - (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
  - (c) χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
  - (d) πλαστικά βαρέλια και μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
  - (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
  - (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
  - (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη, ψαμμάργιλος) σύμφωνα με το περιθωριακό 3539.
- (2) Ύλες των 12° έως 17° και 20° μπορούν επίσης να συσκευάζονται σε:
- (a) μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, ή
  - (b) άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624, ή
  - (c) σύνθετα IBC με πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625, με εξαίρεση των τύπων 11HZ2 και 31HZ2.

## Κλάση 4.3

- 2475 (3) Στερεά όπως ορίζονται στο περιθωριακό 2470 (10) μπορούν επίσης να συσκευάζονται σε:  
(συνεχ.)
- (a) βαρέλια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3523 ή βαρέλια από φάιμπερ σύμφωνα με το περιθωριακό 3525, εάν είναι αναγκαίο, με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους ή
  - (b) σάκους με πλαστική μεμβράνη σύμφωνα με το περιθωριακό 3535, υπό την προϋπόθεση ότι συνθέτουν ένα πλήρες φορτίο ή είναι φορτωμένοι πάνω σε παλέτες.
- 2476 (1) Υλεις ταξινομημένες στα (c) των διαφόρων ειδών, θα πρέπει να συσκευάζονται σε:
- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
  - (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
  - (c) χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
  - (d) πλαστικά βαρέλια και μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
  - (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
  - (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
  - (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη, ψαμμάργιλος) σύμφωνα με το περιθωριακό 3539, ή
  - (h) ελαφρού περιτυπώματος μεταλλικές συσκευασίες σύμφωνα με το περιθωριακό 3540, ή
  - (i) μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, ή
  - (j) άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624, ή
  - (k) σύνθετα IBC με πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625 με εξαίρεση των τύπων 11HZ2 και 31HZ2.
- (2) Στερεά όπως ορίζονται στο περιθωριακό 2470 (10) μπορούν επίσης να συσκευάζονται σε:
- (a) βαρέλια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3523 ή βαρέλια από φάιμπερ σύμφωνα με το περιθωριακό 3525, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
  - (b) σάκους με πλαστική μεμβράνη σύμφωνα με το περιθωριακό 3535, ή
  - (c) εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623, με εξαίρεση τους τύπους 13H1, 13L1 και 13M1.

**ΣΗΜΕΙΩΣΗ:** Υλεις της 15° (c) μπορούν επίσης να συσκευάζονται σε συσκευασίες, που χρειάζεται μόνον να ικανοποιούν τις απαιτήσεις του περιθωριακού 3500 (1), (2) και (5) έως (7), και μπορούν επιπλέον να συσκευάζονται σε IBC του τύπου 13H1.

- 2477 Τα ανοίγματα των δοχείων για ύλες της 23° θα πρέπει να είναι σφιστά κλεισμένα με δύο συσκευές στη σειρά, μία από τις οποίες θα πρέπει να είναι βιδωμένη ή ασφαλισμένη με ισοδύναμο τρόπο.

**ΣΗΜΕΙΩΣΗ:** Για τα IBC, βλέπε, πάντως, περιθωριακό 3621 (8).



## Κλάση 4.3

2478-  
2480

## 3. Μικτή συσκευασία

- 2481 (1) Ύλες ταξινομημένες στα ίδια είδη μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία, σύμφωνα με το περιθωριακό 3538.
- (2) Ύλες ταξινομημένες στα (α) των διαφόρων ειδών, δεν μπορούν να συσκευάζονται μαζί με ύλες των διαφόρων ειδών της κλάσης 4.3, με ύλες και είδη άλλων κλάσεων ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.
- (3) Με εξαίρεση τις ύλες που αναφέρονται στη (2), ύλες των διαφόρων ειδών της κλάσης 4.3, σε ποσότητες όχι μεγαλύτερες από 3 λίτρα για υγρά και/ή 6 kg για στερεά ανά δοχείο, μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538 η μία με την άλλη, με ύλες ή είδη άλλων κλάσεων - υπό την προϋπόθεση ότι μικτή συσκευασία επιτρέπεται επίσης για ύλες και είδη εκείνων των κλάσεων - και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας, υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.
- (4) Οι παρακάτω θα πρέπει να θεωρούνται επικίνδυνες αντιδράσεις:
- ανάφλεξη και/ή έκλυση αξιοσημείωτης θερμότητας,
  - εκπομπή εύφλεκτων και/ή τοξικών αερίων,
  - σχηματισμός διαβρωτικών υγρών,
  - σχηματισμός ασταθών υλών.
- (5) Οι διατάξεις των περιθωριακών 2001 (7), 2002 (6) και (7) και 2472 θα πρέπει να τηρούνται.
- (6) Εάν χρησιμοποιούνται κιβώτια ξύλινα ή από φύλλο φάιμπερ, κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg.

## 4. Μαρκάρισμα και ετικέτες κινδύνου στα κόλα (βλέπε Προσθήκη Α.9)

2482 *Μαρκάρισμα*

- (1) Κάθε κόλο θα πρέπει να είναι καθαρά και με διάρκεια μαρκαρισμένη με τον χαρακτηριστικό αριθμό των εμπορευμάτων που θα εγγραφεί στο έγγραφο μεταφοράς, μετά από τα γράμματα "UN".

*Ετικέτες κινδύνου*

- (2) Κόλα που περιέχουν ύλες της κλάσης 4.3, θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.3.
- (3) Κόλα που περιέχουν ύλες των 1° και 2°, θα πρέπει, επί πλέον, να φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 3 και 8.
- (4) Κόλα που περιέχουν ύλες της 3° και υδρίδιο λιθιοαλουμινίου, αιθερικό, της 16° (α), θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 3.
- (5) Κόλα που περιέχουν ύλες της 14° θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.2.

## Κλάση 4.3

2482 (6) Κόλα που περιέχουν ύλες των 15°, 18°, 22° και 23°, θα πρέπει, επιπλέον, να φέρουν ετικέτα (συνεχ.) σύμφωνα με το υπόδειγμα Αριθμ. 6.1.

(7) Κόλα που περιέχουν ύλες των 24° και 25°, θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8.

(8) Κόλα που περιέχουν εύθραυστα δοχεία που δεν είναι ορατά από έξω, θα πρέπει, επιπλέον, να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 12.

(9) Κόλα που περιέχουν υγρά σε δοχεία τα πώματα των οποίων δεν είναι ορατά από έξω, θα πρέπει να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

2483

## B. Στοιχεία στο έγγραφο μεταφοράς

2484 Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς, θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς και τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2471.

Εάν η ύλη δεν αναφέρεται με την ονομασία της, αλλά έχει εγγραφεί σε μία ε.α.ο. καταχώρηση, η περιγραφή των εμπορευμάτων θα πρέπει να συνίσταται από τον χαρακτηριστικό αριθμό και τον χαρακτηρισμό ε.α.ο., ακολουθούμενο από τη χημική ή τεχνική ονομασία της ύλης<sup>4/</sup>.

Η περιγραφή των εμπορευμάτων θα πρέπει να ακολουθείται από στοιχεία της κλάσης, τον αριθμό είδους, εάν εφαρμόζεται, το γράμμα και τα αρχικά "ADR" (ή "RID") π.χ. "4.3, 1° (a), ADR".

Για τη μεταφορά αποβλήτων [βλέπε περιθωριακό 2000 (5)], η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "Απόβλητα που περιέχουν ...", και το(τα) συστατικό(α) που χρησιμοποιείται(ούνται) για την ταξινόμηση των αποβλήτων στο περιθωριακό 2002 (8), θα εγγράφεται(ονται) κάτω από τη(τις) χημική(ές) ονομασία(ες) του(ς), π.χ. "Απόβλητα, γαίες που περιέχουν 1428 νάτριο, 4.3, 11° (a), ADR".

Για τη μεταφορά διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα) που περιέχουν διάφορα συστατικά που υπόκεινται στις διατάξεις αυτής της Οδηγίας, δεν θα είναι γενικά αναγκαίο να αναφέρονται περισσότερο από δύο συστατικά που κυρίως συμβάλλουν στον κίνδυνο ή τους κινδύνους του διαλύματος και του μείγματος.

Εάν μία επώνυμη ύλη σε συμφωνία με το περιθωριακό 2470 (9) δεν υπόκειται στις συνθήκες αυτής της κλάσης, ο αποστολέας μπορεί να γράψει στο έγγραφο μεταφοράς: "Όχι εμπορεύματα της κλάσης 4.3".

Για τα διαλύματα και μείγματα που περιέχουν μόνον ένα συστατικό που υπόκειται στις διατάξεις αυτής της Οδηγίας, η λέξη "διάλυμα" ή "μείγμα" θα πρέπει να προστίθεται ως μέρος της ονομασίας στο έγγραφο μεταφοράς [βλέπε περιθωριακό 2002 (8) (a)].

Όταν ένα στερεό παραδίδεται για μεταφορά στην τετηγμένη κατάσταση, η περιγραφή των εμπορευμάτων θα πρέπει επιπλέον να διευκρινίζει "τετηγμένο", εκτός εάν ο όρος ήδη εμφανίζεται στην ονομασία.

2485-

2491

<sup>4/</sup> Η τεχνική ονομασία θα πρέπει να είναι μία ήδη χρησιμοποιούμενη σε επιστημονικά και τεχνικά εγχειρίδια, περιοδικά και κείμενα. Εμπορικές ονομασίες δεν θα πρέπει να χρησιμοποιούνται για αυτό το σκοπό.

## Κλάση 4.3

## C. Κενές συσκευασίες

- 2492 (1) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, της 31<sup>ο</sup> θα πρέπει να είναι κλεισμένες με τον ίδιο τρόπο και στεγανές έναντι διαρροής στον ίδιο βαθμό σαν να ήταν γεμάτες.
- (2) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, της 31<sup>ο</sup> θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνου, σαν να ήταν γεμάτες.
- (3) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μία από τις ονομασίες που υπογραμμίζονται στην 31<sup>ο</sup>, π.χ. "Κενή συσκευασία, 4.3, 31<sup>ο</sup>, ADR". Στην περίπτωση κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών και κενών μικρών εμπορευματοκιβωτίων, ακαθάριστων, αυτή η περιγραφή θα πρέπει να συμπληρώνεται από τις λέξεις "Τελευταίο φορτίο" μαζί με την ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ. "Τελευταίο φορτίο: 1295 τριχλωροσίλάνιο, 1<sup>ο</sup> (a)".

2493-  
2499

**ΚΛΑΣΗ 5.1. ΟΞΕΙΔΩΤΙΚΕΣ ΥΛΕΣ****1. Κατάλογος υλών**

**2500** (1) Ανάμεσα στις ύλες που καλύπτονται από τον τίτλο της κλάσης 5.1, εκείνες που αναφέρονται στο περιθωριακό 2501 ή καλύπτονται από ένα συγκεντρωτικό κεφάλαιο σε εκείνο το περιθωριακό, υπόκεινται στις συνθήκες που τίθενται στα περιθωριακά 2500 (2) έως 2522 και στις διατάξεις αυτού του παραρτήματος και του παραρτήματος Β. Θεωρούνται τότε ως ύλες αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ:** Για τις ποσότητες υλών που αναφέρονται στο περιθωριακό 2501 και που δεν υπόκεινται στις διατάξεις για αυτήν την Κλάση, είτε σε αυτό το Παράρτημα είτε στο Παράρτημα Β, βλέπε περιθωριακό 2501a.

(2) Ο τίτλος της κλάσης 5.1 καλύπτει ύλες που, ενώ από μόνες τους δεν είναι απαραίτητα εύφλεκτες, μπορεί, γενικά με προσθήκη οξυγόνου, να προκαλέσουν την ή συμβάλουν στην ανάφλεξη ενός άλλου υλικού.

(3) Οι ύλες της κλάσης 5.1, υποδιαιρούνται ως εξής:

- A. Υγρές οξειδωτικές ύλες και υδατικά διαλύματά τους
- B. Στερεές οξειδωτικές ύλες και υδατικά διαλύματά τους
- C. Κενές συσκευασίες

Ύλες της κλάσης 5.1 (άλλες από τις ύλες των 5° και 20°) που ταξινομούνται στα διάφορα είδη του περιθωριακού 2501, θα πρέπει να καταχωρούνται σε μία από τις παρακάτω ομάδες χαρακτηρίζονται από το γράμμα (a), (b) ή (c), σύμφωνα με το βαθμό κινδύνου τους.

- (a) εξαιρετικά οξειδωτικές,
- (b) οξειδωτικές,
- (c) ελαφρώς οξειδωτικές.

(4) Στερεές οξειδωτικές ύλες χωρίς συγκεκριμένη ονομασία, μπορούν να καταχωρούνται στην κλάση 5.1 είτε με βάση την εμπειρία, είτε σε συμφωνία με τη μέθοδο ελέγχου, τη διαδικασία και τα κριτήρια που τίθενται στην προσθήκη Α.3, περιθωριακά 3350 και 3351. Σε περίπτωση απόκλισης μεταξύ των αποτελεσμάτων του ελέγχου και της γνώστης εμπειρίας, η κρίση που βασίζεται σε γνώστη εμπειρία, θα πρέπει να έχει προτεραιότητα έναντι των αποτελεσμάτων ελέγχου. Υγρές οξειδωτικές ύλες χωρίς συγκεκριμένη ονομασία, θα πρέπει να καταχωρούνται στην κλάση 5.1 με βάση την εμπειρία.

(5) Όταν ύλες χωρίς συγκεκριμένη ονομασία καταχωρούνται στα είδη του περιθωριακού 2501 με βάση τη διαδικασία ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3350 και 3351, το παρακάτω κριτήριο εφαρμόζεται:

Μία ύλη θα πρέπει να καταχωρείται στην κλάση 5.1 εάν, σε κάθε συγκέντρωση στην οποία δοκιμάζεται, ο μέσος χρόνος καύσης του πριονιδίου που υπολογίζεται μετά από τρεις ελέγχους, είναι ίσος με ή μικρότερος από εκείνον του μέσου όρου τριών ελέγχων με μείγμα υπερθευκού αμμωνίου.

(6) Όταν ύλες χωρίς συγκεκριμένη ονομασία καταχωρούνται στα γράμματα των ειδών του περιθωριακού 2501 με βάση τη διαδικασία ελέγχου σε συμφωνία με την προσθήκη Α.3, περιθωριακά 3350 και 3351, τα παρακάτω κριτήρια εφαρμόζονται:

μία ύλη θα πρέπει να καταχωρείται στο γράμμα (a) όταν, σε κάθε συγκέντρωση στην οποία δοκιμάζεται, παρουσιάζει χρόνο καύσης μικρότερο απ' ό,τι με βρωμικό κάλιο,

## Κλάση 5.1

- 2500** - μία ύλη θα πρέπει να καταχωρείται στο γράμμα (b) όταν, σε κάθε συγκέντρωση στην οποία ελέγχεται, παρουσιάζει χρόνο καύσης ίσο με ή μικρότερο απ' ό,τι με υπερχλωρικό κάλιο και τα κριτήρια για το γράμμα (a) δεν ικανοποιούνται,
- (συνεχ.) - μία ύλη θα πρέπει να καταχωρείται στο γράμμα (c) όταν, σε κάθε συγκέντρωση στην οποία ελέγχεται, παρουσιάζει χρόνο καύσης ίσο με ή μικρότερο απ' ό,τι με υπερθεϊκό αμμώνιο και τα κριτήρια για τα γράμματα ομάδων (a) ή (b) δεν ικανοποιούνται.

(7) Εάν ύλες της κλάσης 5.1, ως αποτέλεσμα προσμείξεων, μεταβαίνουν σε διαφορετικές κατηγορίες κινδύνου από εκείνες στις οποίες οι ύλες του περιθωριακού 2501 ανήκουν, αυτά τα μείγματα ή διαλύματα θα πρέπει να καταχωρούνται στα είδη και γράμματα στα οποία ανήκουν με βάση τον πραγματικό βαθμό κινδύνου τους.

**ΣΗΜΕΙΩΣΗ:** Για την ταξινόμηση των διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα), βλέπε επίσης περιθωριακό 2002 (8).

(8) Όταν ύλες έχουν συγκεκριμένη ονομασία σε περισσότερα από ένα γράμματα του ίδιου είδους του περιθωριακού 2501, το σχετικό γράμμα μπορεί να καθοριστεί με βάση τα αποτελέσματα της διαδικασίας ελέγχου σε συμφωνία με την προσθήκη A.3, περιθωριακά 3350 και 3351, και τα κριτήρια που τίθενται στην παράγραφο (6).

(9) Με βάση τη διαδικασία ελέγχου σε συμφωνία με την προσθήκη A.3, περιθωριακά 3350 και 3351 και τα κριτήρια που τίθενται στην παράγραφο (6), μπορεί επίσης να καθοριστεί εάν η φύση μίας ειδικά επώνυμης ύλης είναι τέτοια ώστε η ύλη να μην υπόκειται στις διατάξεις για αυτήν την Κλάση (βλέπε περιθωριακό 2514).

(10) Για τις απαιτήσεις συσκευασίας των περιθωριακών 2506 (2), 2507 (2) και 2508 (2), ύλες ή μείγματα υλών με σημείο τήξης μεγαλύτερο από 45 °C θεωρούνται ως στερεά.

(11) Οι χημικώς ασταθείς ύλες της κλάσης 5.1, θα πρέπει να γίνονται δεκτές για μεταφορά μόνον εάν έχουν ληφθεί τα αναγκαία μέτρα για την αποφυγή επικίνδυνης αποσύνθεσης ή πολυμερισμού τους κατά τη διάρκεια της μεταφοράς. Γι' αυτό το σκοπό, θα πρέπει ειδικά να βεβαιώνεται ότι εκείνα τα δοχεία δεν περιέχουν κανένα υλικό υποκειμένο στην προαγωγή αυτών των αντιδράσεων.

(12) Οξειδωτικά στερεά, αυτοθερμαινόμενα, που καταχωρούνται στον χαρακτηριστικό αριθμό 3100, οξειδωτικά στερεά, ενεργά με το νερό, που καταχωρούνται στον χαρακτηριστικό αριθμό 3121 και οξειδωτικά στερεά, εύφλεκτα, που καταχωρούνται στον χαρακτηριστικό αριθμό 3137 των Υποδείξεων για τη Μεταφορά των Επικίνδυνων Εμπορευμάτων των Ηνωμένων Εθνών, δεν θα πρέπει να γίνονται δεκτά για μεταφορά (βλέπε, όμως, περιθωριακό 2002 (8), υποσημείωση 1/ στον πίνακα που περιέχεται στην παράγραφο 2.3.1).

**2501 A. Υγρές οξειδωτικές ύλες και υδατικά διαλύματά τους**

1° Υπεροξειδίου του υδρογόνου και διαλύματά του, ή μείγματα του υπεροξειδίου του υδρογόνου με ένα άλλο υγρό σε υδατικό διάλυμα:

- (a) 2015 υπεροξείδιο του υδρογόνου, σταθεροποιημένο, ή 2015 υδατικό διάλυμα του υπεροξειδίου του υδρογόνου, σταθεροποιημένο με περισσότερο από 60 % υπεροξείδιο του υδρογόνου,

**ΣΗΜΕΙΩΣΗ 1:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτές τις ύλες (βλέπε περιθωριακό 2503).

**ΣΗΜΕΙΩΣΗ 2:** Υπεροξείδιο του υδρογόνου, όχι σταθεροποιημένο ή υδατικό διάλυμα του υπεροξειδίου του υδρογόνου, όχι σταθεροποιημένο που περιέχει περισσότερο από 60 % υπεροξείδιο του υδρογόνου, δεν θα γίνονται δεκτά για μεταφορά.

## Κλάση 5.1

- 2501 (συνεχ.) (b) 2014 υδατικό διάλυμα του υπεροξειδίου του υδρογόνου, με όχι λιγότερο από 20 % αλλά όχι περισσότερο από 60 % υπεροξειδίου του υδρογόνου (σταθεροποιημένο όπως χρειάζεται), 3149 υπεροξειδίου του υδρογόνου και μείγμα υπεροξοξικού οξέος, σταθεροποιημένο, με οξύ(οξέα), νερό και όχι περισσότερο από 5 % υπεροξοξικό οξύ,

**ΣΗΜΕΙΩΣΗ:** Αυτό το μείγμα υπεροξειδίου του υδρογόνου και υπεροξοξικού οξέος (Αριθμ. 3149), θα πρέπει σε εργαστηριακό έλεγχο<sup>1/</sup>, ούτε να εκρήγνυται στην τρβώδη κατάσταση ούτε να αναφλέγεται καθόλου και δεν θα πρέπει να δείχνει καμία επίδραση όταν θερμαίνεται υπό περιορισμό, ούτε καμία εκρηκτική ισχύ. Η σύνθεση θα πρέπει να είναι θερμικά σταθερή (θερμοκρασία αυτο-επιταχυνόμενης απόσυνθεσης 60 °C ή υψηλότερη για ένα κόλο 50 kg), και θα πρέπει να χρησιμοποιείται ένα υγρό συμβατό με το υπεροξοξικό οξύ για απευαισθητοποίηση. Συνθέσεις που δεν ικανοποιούν αυτά τα κριτήρια θα πρέπει να θεωρούνται ως ύλες της κλάσης 5.2 [βλέπε Προσθήκη Α.1, περιθωριακό 3106 (2) (g)].

- (c) 2984 υδατικό μείγμα υπεροξειδίου του υδρογόνου, με όχι λιγότερο από 8 % αλλά λιγότερο από 20 % υπεροξειδίου του υδρογόνου (σταθεροποιημένο όπως χρειάζεται).

**ΣΗΜΕΙΩΣΗ:** Υδατικά μείγματα υπεροξειδίου του υδρογόνου, που περιέχουν λιγότερο από 8 % υπεροξειδίου του υδρογόνου, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

## 2° Τετρανιτρομεθάνιο:

- (a) 1510 τετρανιτρομεθάνιο.

**ΣΗΜΕΙΩΣΗ:** Τετρανιτρομεθάνιο όχι ελεύθερο από εύφλεκτες προσμείξεις δεν θα γίνεται δεκτό για μεταφορά.

## 3° Διάλυμα υπερχλωρικού οξέος:

- (a) 1873 υπερχλωρικό οξύ σε υδατικό διάλυμα με περισσότερο από 50 % αλλά όχι περισσότερο από 72 % οξύ, κατά βάρος.

**ΣΗΜΕΙΩΣΗ 1:** Διαλύματα υπερχλωρικού οξέος που περιέχουν περισσότερο από 72 % (κατά βάρος) οξύ, ή μείγματα υπερχλωρικού οξέος με οποιοδήποτε υγρό άλλο από νερό, δεν θα γίνονται δεκτά για μεταφορά.

**ΣΗΜΕΙΩΣΗ 2:** 1802 υπερχλωρικό οξύ με όχι περισσότερο από 50 %, κατά βάρος, σε υδατικό διάλυμα, οξύ, είναι ύλη της κλάσης 8 [βλέπε περιθωριακό 2801, 4° (b)].

## 4° Διάλυμα χλωρικού οξέος:

- (b) 2626 υδατικό διάλυμα χλωρικού οξέος, με όχι περισσότερο από 10 % χλωρικό οξύ.

**ΣΗΜΕΙΩΣΗ:** Διάλυμα χλωρικού οξέος που περιέχει περισσότερο από 10 % χλωρικό οξύ ή μείγματα χλωρικού οξέος με οποιοδήποτε υγρό άλλο από νερό, δεν θα γίνεται δεκτό για μεταφορά.

## 5° Οι παρακάτω αλογονωμένες ενώσεις του φθορίου:

1745 πενταφθοριούχο βρώμιο, 1746 τριφθοριούχο βρώμιο, 2495 πενταφθοριούχο ιώδιο.

1/

Βλέπε Υποδείξεις των Ηνωμένων Εθνών για τη Μεταφορά Επικίνδυνων Εμπορευμάτων, παράγραφος 11.3.3.

## Κλάση 5.1

**2501** *ΣΗΜΕΙΩΣΗ 1:* Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτές τις ύλες (βλέπε (συνεχ.) περιθωριακό 2504).

*ΣΗΜΕΙΩΣΗ 2:* Άλλες αλογωνωμένες ενώσεις του φθορίου, δεν θα γίνονται δεκτές για μεταφορά ως ύλες της κλάσης 5.1.

**B. Στερεές οξειδωτικές ύλες και υδατικά διαλύματά τους**

11° Χλωρικά άλατα και μείγματα χλωρικών αλάτων με βορικά άλατα ή υγροσκοπικά χλωρίδια (όπως χλωριούχο μαγνήσιο ή χλωριούχο ασβέστιο):

- (b) 1452 χλωρικό ασβέστιο, 1458 μείγμα χλωρικού και βορικού άλατος, 1459 μείγμα χλωρικού άλατος και χλωριούχου μαγνησίου, 1485 χλωρικό κάλιο, 1495 χλωρικό νάτριο, 1506 χλωρικό στρόντιο, 1513 χλωρικός ψευδάργυρος, 2427 υδατικό διάλυμα χλωρικού καλίου, 2428 υδατικό διάλυμα χλωρικού νατρίου, 2429 υδατικό διάλυμα χλωρικού ασβεστίου, 2721 χλωρικός γαλκός, 2723 χλωρικό μαγνήσιο, 1461 χλωρικά άλατα, ανόργανα, ε.α.ο., 3210 υδατικά διαλύματα ανόργανων χλωρικών αλάτων, ε.α.ο.

*ΣΗΜΕΙΩΣΗ 1:* Βλέπε επίσης 29°.

*ΣΗΜΕΙΩΣΗ 2:* Χλωρικό αμμώνιο και μείγματα χλωρικού άλατος με άλας αμμωνίου, δεν θα γίνονται δεκτά για μεταφορά.

12° Υπερχλωρικό αμμώνιο:

- (b) 1442 υπερχλωρικό αμμώνιο.

*ΣΗΜΕΙΩΣΗ:* Η ταξινόμηση αυτής της ύλης θα πρέπει να είναι σε συμφωνία με τα αποτελέσματα των ελέγχων στην προσθήκη Α.1. Ανάλογα με το μέγεθος κόκκων και τη συσκευασία της ύλης, βλέπε επίσης Κλάση 1 (περιθωριακό 2101, 4°, Αριθμ. 0402).

13° Υπερχλωρικά άλατα (με εξαίρεση το υπερχλωρικό αμμώνιο, βλέπε 12°):

- (b) 1455 υπερχλωρικό ασβέστιο, 1475 υπερχλωρικό μαγνήσιο, 1489 υπερχλωρικό κάλιο, 1502 υπερχλωρικό νάτριο, 1508 υπερχλωρικό στρόντιο, 1481 υπερχλωρικά άλατα, ανόργανα, ε.α.ο., 3211 υδατικά διαλύματα ανόργανων υπερχλωρικών αλάτων ε.α.ο.

*ΣΗΜΕΙΩΣΗ:* Βλέπε επίσης 29°.

14° Χλωριώδη άλατα:

- (b) 1453 χλωριώδες ασβέστιο, 1496 χλωριώδες νάτριο, 1462 χλωριώδη άλατα, ανόργανα, ε.α.ο.

*ΣΗΜΕΙΩΣΗ 1:* 1908 διάλυμα χλωριώδους άλατος είναι ύλη της κλάσης 8 [βλέπε περιθωριακό 2801, 61° (b) ή (c)].

*ΣΗΜΕΙΩΣΗ 2:* Χλωριώδες αμμώνιο και μείγματα χλωριώδους άλατος με άλας αμμωνίου, δεν θα γίνονται δεκτά για μεταφορά.

## Κλάση 5.1

2501 15° Υποχλωριώδη άλατα:  
(συνεχ.)

- (b) 1471 υποχλωριώδες λίθιο, Ξηρό ή 1471 μείγματα υποχλωριώδους λιθίου, 1748 υποχλωριώδες ασβέστιο, Ξηρό ή 1748 μείγμα υποχλωριώδους ασβεστίου, Ξηρό με περισσότερο από 39 % διαθέσιμο χλώριο (8.8 % διαθέσιμο οξυγόνο), 2880 υποχλωριώδες ασβέστιο, ενυδατωμένο ή 2880 ενυδατωμένο μείγμα υποχλωριώδους ασβεστίου με όχι λιγότερο από 5.5 % αλλά όχι περισσότερο από 10 % νερό, 3212 υποχλωριώδη άλατα, ανόργανα, ε.α.ο.,
- (c) 2208 μείγμα υποχλωριώδους ασβεστίου, Ξηρό με περισσότερο από 10 % αλλά όχι περισσότερο από 39 % διαθέσιμο χλώριο.

**ΣΗΜΕΙΩΣΗ 1:** Μείγματα υποχλωριώδους ασβεστίου, ξηρά, που περιέχουν όχι περισσότερο από 10 % διαθέσιμο χλώριο, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 2:** 1791 διάλυμα υποχλωριώδους άλατος είναι ύλη της κλάσης 3 [βλέπε περιθωριακό 2801, 61° (b) ή (c)].

**ΣΗΜΕΙΩΣΗ 3:** Μείγματα υποχλωριώδους άλατος με άλας αμμωνίου, δεν θα γίνονται δεκτά για μεταφορά.

**ΣΗΜΕΙΩΣΗ 4:** Βλέπε επίσης 29°.

16° Βρωμικά άλατα:

- (b) 1473 βρωμικό μαγνήσιο, 1484 βρωμικό κάλιο, 1494 βρωμικό νάτριο, 1450 βρωμικά άλατα, ανόργανα, ε.α.ο., 3213 υδατικά διαλύματα ανόργανων βρωμικών αλάτων, ε.α.ο.,
- (c) 2469 βρωμικός ψευδάργυρος, 3213 υδατικά διαλύματα ανόργανων βρωμικών αλάτων, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Βρωμικό αμμώνιο και μείγματα βρωμικού άλατος με άλας αμμωνίου, δεν θα γίνονται δεκτά για μεταφορά.

**ΣΗΜΕΙΩΣΗ 2:** Βλέπε επίσης 29°.

17° Υπερμαγγανικά άλατα:

- (b) 1456 υπερμαγγανικό ασβέστιο, 1490 υπερμαγγανικό κάλιο, 1503 υπερμαγγανικό νάτριο, 1515 υπερμαγγανικός ψευδάργυρος, 1482 υπερμαγγανικά άλατα, ανόργανα, ε.α.ο., 3214 διαλύματα ανόργανων υπερμαγγανικών αλάτων, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Υπερμαγγανικό αμμώνιο και μείγματα υπερμαγγανικού άλατος με άλας αμμωνίου, δεν θα γίνονται δεκτά για μεταφορά.

**ΣΗΜΕΙΩΣΗ 2:** Βλέπε επίσης 29°.



## Κλάση 5.1

2501 18° Υπερθειικά άλατα:  
(συνεχ.)

- (c) 1444 υπερθειικό αμμώνιο, 1492 υπερθειικό κάλιο, 1505 υπερθειικό νάτριο, 3215 υπερθειικά άλατα, ανόργανα, ε.α.ο., 3216 διαλύματα ανόργανων υπερθειικών αλάτων, ε.α.ο.

19° Υπερανθρακικά άλατα:

- (c) 2467 υπερανθρακικά άλατα νατρίου, 3217 υπερανθρακικά άλατα, ανόργανα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Το υπεροξυ-ενδρο ανθρακικό νάτριο, δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

20° Διαλύματα νιτρικού αμμωνίου:

2426 νιτρικό αμμώνιο, υγρό, θερμό συμπυκνωμένο διάλυμα, σε συγκέντρωση μεγαλύτερη από 80 % , αλλά όχι μεγαλύτερη από 93 % , υπό την προϋπόθεση ότι:

1. το pH είναι μεταξύ 5 και 7 μετρημένο σε υδατικό διάλυμα 10 % της μεταφερόμενης ύλης,
2. το διάλυμα δεν περιέχει περισσότερο από 0.2 % εύφλεκτα υλικά ή ενώσεις χλωρίου σε ποσότητες τέτοιες ώστε το επίπεδο του χλωρίου να υπερβαίνει το 0.02 %.

**ΣΗΜΕΙΩΣΗ:** Υδατικά διαλύματα νιτρικού αμμωνίου, σε συγκέντρωση όχι μεγαλύτερη από 80 % , δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

21° Νιτρικό αμμώνιο και λιπάσματα νιτρικού αμμωνίου<sup>2/</sup>:

- (c) 1942 νιτρικό αμμώνιο με όχι περισσότερο από 0.2 % εύφλεκες ύλες, συμπεριλαμβανομένης οποιασδήποτε οργανικής ύλης υπολογιζόμενης ως άνθρακας και εξαιρουμένης οποιασδήποτε άλλης προστιθέμενης ύλης,  
2067 λιπάσματα νιτρικού αμμωνίου, τύπου A1: ομοιογενή μη-διαχωριζόμενα μείγματα νιτρικού αμμωνίου με προστετημένη ύλη που είναι ανόργανη και χημικώς αδρανής με το νιτρικό αμμώνιο, με όχι λιγότερο από 90 % νιτρικό αμμώνιο και όχι περισσότερο από 0.2 % εύφλεκτων υλικών (συμπεριλαμβανομένων οργανικών υλικών υπολογιζόμενων ως άνθρακας), ή με περισσότερο από 70 % αλλά λιγότερο από 90 % νιτρικό αμμώνιο και όχι περισσότερο από 0.4 % ολικά εύφλεκτα υλικά,  
2068 λιπάσματα νιτρικού αμμωνίου, τύπου A2: ομοιογενή μη-διαχωριζόμενα μείγματα νιτρικού αμμωνίου με ανθρακικό ασβέστιο και/ή δολομίτη, με περισσότερο από 80 % αλλά λιγότερο από 90 % νιτρικό αμμώνιο και όχι περισσότερο από 0.4 % ολικά εύφλεκτα υλικά,

<sup>2/</sup> Λιπάσματα που περιέχουν νιτρικό αμμώνιο που καταχωρίζονται στον αριθμό ταυτότητας 2071 των Υποδείξεων των Ηνωμένων Εθνών δεν υπόκειται στις διατάξεις αυτής της Οδηγίας. Λιπάσματα που περιέχουν νιτρικό αμμώνιο που καταχωρίζονται στον αριθμό ταυτότητας 2072 των Υποδείξεων των Ηνωμένων Εθνών, δεν θα γίνονται δεκτά για μεταφορά.

## Κλάση 5.1

2501  
(συνεχ.)

2069 λιπάσματα νιτρικού αμμωνίου, τύπου A3: ομοιογενή μη-διαχωριζόμενα μείγματα νιτρικού αμμωνίου και θειικού αμμωνίου, με περισσότερο από 45 % αλλά όχι περισσότερο από 70 % νιτρικό αμμώνιο και όχι περισσότερο από 0.4 % ολικά εύφλεκτα υλικά,

2070 λιπάσματα νιτρικού αμμωνίου, τύπου A4: ομοιογενή μη-διαχωριζόμενα μείγματα φωσφορικού αζώτου ή αζώτου τύπου ποτάσας ή πλήρη λιπάσματα φωσφορικού αζώτου τύπου ποτάσας, με περισσότερο από 70 % αλλά λιγότερο από 90 % νιτρικό αμμώνιο και όχι περισσότερο από 0.4 % ολικά εύφλεκτα υλικά.

**ΣΗΜΕΙΩΣΗ 1:** Νιτρικό αμμώνιο που περιέχει περισσότερο από 0.2 % εύφλεκτη ύλη (συμπεριλαμβανομένης οποιασδήποτε οργανικής ύλης υπολογιζόμενης ως άνθρακας) δεν θα γίνεται δεκτό για μεταφορά εκτός εάν είναι συστατικό μίας ύλης ή ενός είδους της κλάσης 1.

**ΣΗΜΕΙΩΣΗ 2:** Στον προσδιορισμό της περιεκτικότητας σε νιτρικό αμμώνιο, όλα τα νιτρικά ιόντα για τα οποία ένα μοριακό ισοδύναμο ιόντων αμμωνίου είναι παρόν στο μείγμα θα πρέπει να υπολογίζονται ως νιτρικό αμμώνιο.

**ΣΗΜΕΙΩΣΗ 3:** Λιπάσματα με περιεκτικότητα σε νιτρικό αμμώνιο ή περιεκτικότητα σε εύφλεκτη ύλη μεγαλύτερη από τις τιμές που φαίνονται δεν θα γίνονται δεκτά για μεταφορά, παρά μόνο κάτω από τις συνθήκες που εφαρμόζονται στην κλάση 1. Βλέπε επίσης Σημείωση 5.

**ΣΗΜΕΙΩΣΗ 4:** Λιπάσματα με περιεκτικότητα σε νιτρικό αμμώνιο κάτω από τις τιμές ορίου που υποδεικνύονται δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 5:** Λιπάσματα νιτρικού αμμωνίου, ομοιογενή μη-διαχωριζόμενα μείγματα φωσφορικού αζώτου ή αζώτου τύπου ποτάσας ή πλήρη λιπάσματα φωσφορικού αζώτου τύπου ποτάσας των οποίων η μοριακή περίσσεια νιτρικών ιόντων επί των ιόντων αμμωνίου (υπολογιζόμενα ως νιτρικό κάλιο) είναι μικρότερη από 10 %, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας, υπό την προϋπόθεση ότι:

- (a) η περιεκτικότητά τους σε νιτρικό αμμώνιο είναι όχι μεγαλύτερη από 70 % και η ολική περιεκτικότητά τους σε εύφλεκτα υλικά είναι όχι μεγαλύτερη από 0.4 %, ή
- (b) η περιεκτικότητά τους σε νιτρικό αμμώνιο είναι όχι μεγαλύτερη από 45 % ανεξάρτητα από την περιεκτικότητά τους σε εύφλεκτα υλικά.

22° Νιτρικά άλατα (με εξαίρεση τις ύλες των 20°, 21° και 29°):

- (b) 1493 νιτρικός άργυρος, 1514 νιτρικός ψευδάργυρος, 1477 νιτρικά άλατα, ανόργανα, ε.α.ο., 3218 υδατικά διαλύματα ανόργανων νιτρικών αλάτων, ε.α.ο.,
- (c) 1438 νιτρικό αλουμίνιο, 1451 νιτρικό καίσιο, 1454 νιτρικό ασβέστιο, 1465 νιτρικό διδύμο, 1466 νιτρικό άλας τρισθενούς σιδήρου, 1467 νιτρική γουανιδίνη, 1474 νιτρικό μαγνήσιο, 1486 νιτρικό κάλιο, 1498 νιτρικό νάτριο, 1499 μείγματα νιτρικού νατρίου και νιτρικού καλίου, 1507 νιτρικό στρόντιο, 2720 νιτρικό χρώμιο, 2722 νιτρικό λίθιο, 2724 νιτρικό μαγνήσιο, 2725 νιτρικό νικέλιο, 2728 νιτρικό ζirkόνιο, 1477 νιτρικά άλατα, ανόργανα, ε.α.ο., 3218 υδατικά διαλύματα ανόργανων νιτρικών αλάτων, ε.α.ο.

## Κλάση 5.1

2501  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ 1:** Τα: 1625 νιτρικός υδράργυρος (II), 1627 νιτρικός υδράργυρος (I) και 2727 νιτρικό θάλλιο είναι ύλες της κλάσης 6.1 [βλέπε περιθωριακό 2601, 52° (b) και 68° (b)]. Τα: 2976 νιτρικό θόριο, στερεό, 2980 διάλυμα εξα-ενδρου νιτρικού ουρανύλιου και 2981 νιτρικό ουρανύλιο, στερεό είναι ύλες της κλάσης 7 (βλέπε περιθωριακό 2704, κατάλογοι 5, 6, 9, 10, 11 και 13).

**ΣΗΜΕΙΩΣΗ 2:** Η εμπορική ποιότητα λιπάσματος νιτρικού ασβεστίου, που συνίσταται κυρίως από ένα διπλό άλας (νιτρικό ασβέστιο και νιτρικό αμμώνιο) και που περιέχει όχι περισσότερο από 10 % νιτρικό αμμώνιο και τουλάχιστον 12 % νερό από κρυστάλλωση, δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

23° Νιτρώδη άλατα:

(b) 1488 νιτρώδες κάλιο, 1512 νιτρώδες ψευδαργυραμμώνιο, 2627 νιτρώδη άλατα, ανόργανα, ε.α.ο., 3219 υδατικά διαλύματα ανόργανων νιτρωδών αλάτων, ε.α.ο.,

(c) 1500 νιτρώδες νάτριο, 2726 νιτρώδες νικέλιο, 3219 υδατικά διαλύματα ανόργανων νιτρωδών αλάτων, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Νιτρώδες αμμώνιο και μείγματα ανόργανου νιτρώδους άλατος με άλας αμμωνίου, δεν θα γίνονται δεκτά για μεταφορά.

**ΣΗΜΕΙΩΣΗ 2:** Το νιτρώδες ψευδαργυραμμώνιο δεν επιτρέπεται να μεταφέρεται από θαλάσσιες οδούς.

24° Μείγματα νιτρικών και νιτρωδών αλάτων των ειδών 22° και 23°.

(b) 1487 μείγμα νιτρικού καλίου και νιτρώδους νατρίου.

**ΣΗΜΕΙΩΣΗ:** Μείγματα με άλας αμμωνίου, δεν θα γίνονται δεκτά για μεταφορά.

25° Υπεροξειδία και υπέρ-υπεροξειδία:

(a) 1491 υπεροξειδίο του καλίου, 1504 υπεροξειδίο του νατρίου, 2466 υπερ-υπεροξειδίο του καλίου, 2547 υπερ-υπεροξειδίο του νατρίου,

(b) 1457 υπεροξειδίο του ασβεστίου, 1472 υπεροξειδίο του λιθίου, 1476 υπεροξειδίο του μαγνησίου, 1509 υπεροξειδίο του στροντίου, 1516 υπεροξειδίο του ψευδάργυρου, 1483 υπεροξειδία, ανόργανα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Βλέπε επίσης 29°.

26° Χλωροϊσοκυανουρικά οξέα και άλατα αυτών:

(b) 2465 διχλωροϊσοκυανουρικό οξύ, ξηρό ή 2465 άλατα του διχλωροϊσοκυανουρικού οξέος, 2468 τριχλωροϊσοκυανουρικό οξύ, ξηρό.

**ΣΗΜΕΙΩΣΗ:** Το ένδρο άλας του διχλωροϊσοκυανουρικού οξέος με νάτριο, δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

## Κλάση 5.1

**2501 27°** Στερεές οξειδωτικές ύλες, μη-τοξικές, μη-διαβρωτικές, και μείγματα αυτών των υλών (τέτοια (συνεχ.) όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 1479 οξειδωτικά στερεά, ε.α.ο.,
- (b) 1439 διγρωμικό αμμώνιο, 3247 υπεροξυβορικό νάτριο, άνδρο, 1479 οξειδωτικά στερεά, ε.α.ο.,
- (c) 1479 οξειδωτικά στερεά, ε.α.ο.

**28°** Υδατικά διαλύματα στερεών οξειδωτικών υλών, μη-τοξικών, μη-διαβρωτικών και μειγμάτων αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (b) 3139 οξειδωτικά υγρά, ε.α.ο.,
- (c) 3139 οξειδωτικά υγρά, ε.α.ο.

**29°** Στερεές οξειδωτικές ύλες, τοξικές και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3087 οξειδωτικά στερεά, τοξικά, ε.α.ο.,
- (b) 1445 γλωρικό βάριο, 1446 νιτρικό βάριο, 1447 υπεργλωρικό βάριο, 1448 υπερμαγγανικό βάριο, 1449 υπεροξειδίο του βαρίου, 1469 νιτρικός μόλυβδος, 1470 υπεργλωρικός μόλυβδος, 2464 νιτρικό βηρύλλιο, 2573 γλωρικό θάλλιο, 2719 βρωμικό βάριο, 2741 υπογλωριώδες βάριο με περισσότερο από 22 % διαθέσιμο χλώριο, 3087 οξειδωτικά στερεά, τοξικά, ε.α.ο.,
- (c) 1872 διοξειδίο του μολύβδου, 3087 οξειδωτικά στερεά, τοξικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια τοξικότητας, βλέπε περιθωριακό 2600 (3).

**30°** Υδατικά διαλύματα στερεών οξειδωτικών υλών, τοξικών και μειγμάτων αυτών των υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3099 οξειδωτικά υγρά, τοξικά, ε.α.ο.,
- (b) 3099 οξειδωτικά υγρά, τοξικά, ε.α.ο.,
- (c) 3099 οξειδωτικά υγρά, τοξικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια τοξικότητας, βλέπε περιθωριακό 2600 (3).

## Κλάση 5.1

2501 31° Στερεές οξειδωτικές ύλες, διαβρωτικές και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3085 οξειδωτικά στερεά, διαβρωτικά, ε.α.ο.,
- (b) 1463 τριοξειδίο του χρωμίου, άνυδρο (στερεό χρωμικό οξύ),  
3085 οξειδωτικά στερεά, διαβρωτικά, ε.α.ο.,
- (c) 1511 ουριοϋπεροξειδίο του υδρογόνου,  
3085 οξειδωτικά στερεά, διαβρωτικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Για κριτήρια διαβρωτικότητας, βλέπε περιθωριακό 2800 (3).

**ΣΗΜΕΙΩΣΗ 2:** 1755 διάλυμα χρωμικού οξέος είναι ύλη της κλάσης 8 [βλέπε περιθωριακό 2801, 17° (b) ή (c)].

32° Υδατικά διαλύματα στερεών οξειδωτικών υλών, διαβρωτικών και μειγμάτων αυτών των υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3098 οξειδωτικά υγρά, διαβρωτικά, ε.α.ο.,
- (b) 3098 οξειδωτικά υγρά, διαβρωτικά, ε.α.ο.,
- (c) 3098 οξειδωτικά υγρά, διαβρωτικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Για κριτήρια διαβρωτικότητας, βλέπε περιθωριακό 2800 (3).

### C. Κενές συσκευασίες

**ΣΗΜΕΙΩΣΗ:** Κενές συσκευασίες με υπολείμματα από το προηγούμενο περιεχόμενό τους κολλημένα στο εξωτερικό τους, δεν θα γίνονται δεκτές για μεταφορά.

41° Κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά χύμα (IBC), κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών και κενών εμπορευματοκιβωτίων-δεξαμενών, ακαθάριστων καθώς και κενά οχήματα για μεταφορά χύμα και κενά μικρά εμπορευματοκιβώτια για μεταφορά χύμα, ακαθάριστα, που περιείχαν ύλες της κλάσης 5.1.

## Κλάση 5.1

2501a Υγες των διαφόρων ειδών, μεταφερόμενες σε συμφωνία με τις παρακάτω διατάξεις, δεν υπόκεινται ούτε στις διατάξεις για αυτήν την Κλάση που περιέχονται σε αυτό το Παράρτημα ούτε σε εκείνες που περιέχονται στο παράρτημα Β:

- (a) Υγες ταξινομημένες στο (a) κάθε είδους, δεν καλύπτονται από αυτό το περιθωριακό.
- (b) Υγες ταξινομημένες στο (b) κάθε είδους:  
υγρά: όχι περισσότερο από 500 ml ανά εσωτερική συσκευασία,  
στερεά: όχι περισσότερο από 500 g ανά εσωτερική συσκευασία,
- (c) Υγες ταξινομημένες στο (c) κάθε είδους:  
υγρά: όχι περισσότερο από 1 λίτρο ανά εσωτερική συσκευασία,  
στερεά: όχι περισσότερο από 1 kg ανά εσωτερική συσκευασία.

Αυτές οι ποσότητες υλών, θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες που ικανοποιούν τουλάχιστον τις συνθήκες του περιθωριακού 3538. Κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 30 kg.

Οι "Γενικές συνθήκες συσκευασίας" του περιθωριακού 3500(1), (2) και (5) έως (7) θα πρέπει να τηρούνται.

## 2. Διατάξεις

## Α. Κόλα

## 1. Γενικές συνθήκες συσκευασίας

2502 (1) Οι συσκευασίες θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης Α.5, εκτός εάν ειδικές συνθήκες για τη συσκευασία ορισμένων υλών καθορίζονται στα περιθωριακά 2503 και 2504.

(2) Τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC), θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης Α.6.

(3) Σε συμφωνία με τις διατάξεις των περιθωριακών 2500(3) και 3511(2) ή 3611(2) αντίστοιχα θα πρέπει να χρησιμοποιούνται τα παρακάτω:

- συσκευασίες της ομάδας συσκευασίας I, μαρκαρισμένες με το γράμμα "X" για τις ισχυρά οξειδωτικές ύλες που ταξινομούνται στο γράμμα (a) κάθε είδους,
- συσκευασίες της ομάδας συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X", ή IBC της ομάδας συσκευασίας II, μαρκαρισμένα με το γράμμα "Y", για τις οξειδωτικές ύλες που ταξινομούνται στο γράμμα (b) κάθε είδους,
- συσκευασίες της ομάδας συσκευασίας III, II ή I, μαρκαρισμένες με το γράμμα "Z", "Y", ή "X", ή IBC της ομάδας συσκευασίας III ή II, μαρκαρισμένα με το γράμμα "Z" ή "Y", για τις ελαφρώς οξειδωτικές ύλες που ταξινομούνται στο γράμμα (c) κάθε είδους.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά υλών της κλάσης 5.1 σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές και για τη μεταφορά χύμα στερεών αυτής της κλάσης, βλέπε Παράρτημα Β.

## Κλάση 5.1

2. *Ειδικές συνθήκες για τη συσκευασία ορισμένων υλών*

2503 (1) Ύλες της 1<sup>ο</sup> (α) θα πρέπει να συσκευάζονται σε:

- (α) βαρέλια μη-μετακινούμενης κεφαλής από αλουμίνιο καθαρότητας τουλάχιστον 99.5 %, σύμφωνα με το περιθωριακό 3521, ή σε βαρέλια μη-μετακινούμενης κεφαλής από ειδικό χάλυβα, που δεν υπόκειται στην πρόκληση αποσύνθεσης του υπεροξειδίου του υδρογόνου, σύμφωνα με το περιθωριακό 3520, ή
- (β) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538 με εσωτερικές συσκευασίες από γυαλί, πλαστικό ή μέταλλο που δεν υπόκειται στην πρόκληση αποσύνθεσης του υπεροξειδίου του υδρογόνου. Μία εσωτερική συσκευασία κατασκευασμένη από γυαλί ή πλαστικό, δεν θα πρέπει να περιέχει περισσότερο από 2 λίτρα: μία από μέταλλο, όχι περισσότερο από 5 λίτρα.

Οι συσκευασίες θα πρέπει να είναι εφοδιασμένες με εξαεριστήρα σύμφωνα με το περιθωριακό 3500 (8). Αυτές οι συνδυασμένες συσκευασίες θα πρέπει να συμφωνούν σ'έναν τύπο σχεδιασμού που έχει ελεγχθεί και εγκριθεί σε συμφωνία με την προσθήκη A.5 για την ομάδα συσκευασίας I.

(2) Οι συσκευασίες δεν θα πρέπει να γεμίζονται περισσότερο από το 90 % της χωρητικότητας τους.

(3) Κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 125 kg.

2504 Ύλες της 5<sup>ο</sup> θα πρέπει να μεταφέρονται σε κυλίνδρους με χωρητικότητα όχι μεγαλύτερη από 150 λίτρα, ή δοχεία με χωρητικότητα όχι μεγαλύτερη από 1 000 λίτρα (π.χ. κυλινδρικά δοχεία με κυλιόμενα τσέρκια ή σφαιρικά δοχεία), κατασκευασμένα από ανθρακούχο χάλυβα ή από κατάλληλο κράμα χάλυβα.

- (α) Τα δοχεία θα πρέπει να είναι σύμφωνα με τις σχετικές διατάξεις της κλάσης 2 [βλέπε περιθωριακά 2211 και 2213(1) και (2)]. Τα δοχεία θα πρέπει να είναι σχεδιασμένα για μία υπολογιζόμενη πίεση όχι μικρότερη από 2.1 MPa (21 bar) (πίεση πιεζομέτρου). Το πάχος τοιχωμάτων των δοχείων, δεν θα πρέπει να είναι, όμως, μικρότερο από 3mm. Πριν από την πρώτη τους χρήση, τα δοχεία θα πρέπει να υπόκεινται σε υδραυλική πίεση ελέγχου με πίεση πιεζομέτρου όχι μικρότερη από 1 MPa (10 bar). Αυτός ο έλεγχος θα πρέπει να επαναλαμβάνεται κάθε 8 χρόνια, συνοδευόμενος από μία εσωτερική επιθεώρηση του δοχείου και έλεγχο των εξαρτημάτων. Τα δοχεία θα πρέπει επιπλέον να επιθεωρούνται για διάβρωση κάθε 2 χρόνια με κατάλληλες συσκευές μέτρησης (π.χ. υπέρηχοι) και επίσης όσον αφορά στην κατάσταση των εξαρτημάτων. Για τους ελέγχους και επιθεωρήσεις οι σχετικές διατάξεις της κλάσης 2 θα πρέπει να εφαρμόζονται (βλέπε περιθωριακά 2215 και 2216).
- (β) Τα δοχεία δεν θα πρέπει να γεμίζονται περισσότερο από το 92 % της χωρητικότητας τους.
- (γ) Τα παρακάτω στοιχεία θα πρέπει να φαίνονται πάνω στα δοχεία καθαρά με ευανάγνωστο και μόνιμο τρόπο:
  - ονομασία του κατασκευαστή ή η κατασκευαστική μάρκα και ο αριθμός του δοχείου,
  - περιγραφή της ύλης σύμφωνα με το περιθωριακό 2501, 5<sup>ο</sup>,
  - απόβαρο του δοχείου και επιτρεπόμενο μέγιστο βάρος του γεμάτου δοχείου,
  - ημερομηνία (μήνας, χρόνος) του αρχικού ελέγχου και του τελευταίου περιοδικού ελέγχου,
  - σφραγίδα του εμπειρογνώμονα που διεξήγαγε τους ελέγχους και τις επιθεωρήσεις.

## Κλάση 5.1

- 2505** Διαλύματα νιτρικού αμμωνίου της 20<sup>ο</sup> θα πρέπει να μεταφέρονται μόνον σε οχήματα-δεξαμενές και αποσυναρμολογούμενες δεξαμενές (βλέπε Προσθήκη Β.1a) ή σε εμπορευματοκιβώτια-δεξαμενές (βλέπε Προσθήκη Β.1b).
- 2506** (1) Ύλες ταξινομημένες στο (a) των διαφόρων ειδών, άλλο από το 1<sup>ο</sup> (a), του περιθωριακού 2501 θα πρέπει να συσκευάζονται σε:
- (a) χαλύβδινα βαρέλια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3520, ή
  - (b) αλουμινένια βαρέλια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3521, ή
  - (c) χαλύβδινα μπιτόνια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3522, ή
  - (d) πλαστικά βαρέλια μη-μετακινούμενης κεφαλής χωρητικότητας όχι μεγαλύτερης από 60 λίτρα ή πλαστικά μπιτόνια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3526, ή
  - (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
  - (f) συνδυασμένες συσκευασίες με εσωτερικές συσκευασίες από γυαλί, πλαστικό ή μέταλλο σύμφωνα με το περιθωριακό 3538.
- (2) Υπερχλωρικό οξύ της 3<sup>ο</sup> (a) μπορεί επίσης να συσκευάζεται σε σύνθετες συσκευασίες (γυαλί) σύμφωνα με το περιθωριακό 3539.
- (3) Στερεές ύλες κατά την έννοια του περιθωριακού 2500 (10) μπορεί επίσης να συσκευάζονται σε:
- (a) βαρέλια μετακινούμενης κεφαλής σύμφωνα με τα περιθωριακά 3520 για χάλυβα, 3521 για αλουμίνιο, 3523 για κόντρα-πλακέ, 3525 για φύλλο φάϊμπερ, ή 3526 για πλαστικό υλικό, ή σε μπιτόνια μετακινούμενης κεφαλής σύμφωνα με περιθωριακά 3522 για χάλυβα ή 3526 για πλαστικό υλικό, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
  - (b) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους.
- 2507** (1) Ύλες ταξινομημένες στο (b) των διαφόρων ειδών του περιθωριακού 2501, θα πρέπει να συσκευάζονται σε:
- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
  - (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
  - (c) χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
  - (d) πλαστικά βαρέλια ή πλαστικά μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
  - (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
  - (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
  - (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργιλος) σύμφωνα με το περιθωριακό 3539, ή
  - (h) μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, ή



## Κλάση 5.1

- 2507 (i) άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624, ή  
(συνεχ.) (j) σύνθετα IBC με πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625 με εξαίρεση των τύπων 11HZ2 και 31HZ2.

*ΣΗΜΕΙΩΣΗ στα (a), (b), (c) και (d): Απλοποιημένες συνθήκες εφαρμόζονται στα βαρέλια και μπιτόνια μετακινούμενης κεφαλής για ιξώδεις ύλες με ιξώδες μεγαλύτερο από 200 mm<sup>2</sup>/s στους 23 °C και για στερεές ύλες (βλέπε περιθωριακά 3512, 3553, 3554 και 3560).*

- (2) Στερεές ύλες κατά την έννοια του περιθωριακού 2500 (10) μπορούν επίσης να συσκευάζονται σε:
- (a) βαρέλια σύμφωνα με το περιθωριακό 3523 για κόντρα-πλακέ ή 3525 για φύλλο φάιμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
  - (b) αδιαπέραστους σάκους σύμφωνα με τα περιθωριακά 3533 για υλικά υφαντουργίας, 3534 για πλεγμένα πλαστικά υλικά ή 3535 για πλαστικές μεμβράνες ή 3536 για αδιάβροχο χαρτί, υπό την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται ως ένα πλήρες φορτίο ή οι σάκοι είναι ασφαλισμένοι πάνω σε παλέτες, ή
  - (c) εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623 με εξαίρεση των τύπων 13H1, 13L1 και 13M1, υπό την προϋπόθεση ότι η μεταφορά περιορίζεται σε πλήρη φορτία.

- 2508 (1) Ύλες ταξινομημένες στο (c) των διαφόρων ειδών του περιθωριακού 2501, θα πρέπει να συσκευάζονται σε:

- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
- (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
- (c) χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
- (d) πλαστικά βαρέλια ή πλαστικά μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
- (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
- (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργιλος) σύμφωνα με το περιθωριακό 3539, ή
- (h) ελαφρού περιτυπώματος μεταλλικές συσκευασίες σύμφωνα με το περιθωριακό 3540, ή
- (i) μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, ή
- (j) άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624, ή
- (k) σύνθετα IBC με πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625, με εξαίρεση τους τύπους 11HZ2 και 31HZ2.

*ΣΗΜΕΙΩΣΗ στα (a), (b), (c), (d) και (h): Απλοποιημένες συνθήκες εφαρμόζονται στα βαρέλια μετακινούμενης κεφαλής, μπιτόνια και ελαφρού περιτυπώματος μεταλλικές συσκευασίες για ιξώδεις ύλες με ιξώδες μεγαλύτερο από 200 mm<sup>2</sup>/s στους 23 °C και για στερεές ύλες (βλέπε περιθωριακά 3512, 3552 έως 3554 και 3560).*

## Κλάση 5.1

- 2508** (2) Στερεές ύλες κατά την έννοια του περιθωριακού 2500 (10) μπορούν επίσης να συσκευάζονται σε:
- (α) βαρέλια σύμφωνα με το περιθωριακό 3523 για κόντρα-πλακέ ή 3525 για φύλλο φάιμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
- (β) αδιαπέραστους σάκους σύμφωνα με τα περιθωριακά 3533 για υλικά υφαντουργίας, 3534 για πλεγμένα πλαστικά υλικά ή 3535 για πλαστικές μεμβράνες ή 3536 για αδιάβροχο χαρτί, ή
- (γ) εύκαμπτα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC) με εξαίρεση τους τύπους 13H1, 13L1 και 13M1, σύμφωνα με το περιθωριακό 3623. Ύλες των 21° και 22° (c) μπορούν να μεταφέρονται σε όλους τους τύπους των εύκαμπτων IBC σύμφωνα με το περιθωριακό 3623.

**2509** Συσκευασίες ή IBC που περιέχουν ύλες της 1° (b) ή 1° (c) θα πρέπει να είναι εφοδιασμένα με εξαραιστήρα σύμφωνα με το περιθωριακό 3500 (8) ή 3601 (6) αντίστοιχα.

**2510**

### 3. Μικτή συσκευασία

**2511** (1) Ύλες που καλύπτονται από τον ίδιο αριθμό είδους, μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538.

(2) Ύλες διαφορετικών ειδών αυτής της κλάσης, σε ποσότητες όχι μεγαλύτερες, ανά δοχείο, από 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί και/ή με εμπορεύματα όχι υποκείμενα στις διατάξεις αυτής της Οδηγίας, σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538 υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.

(3) Εκτός εάν ειδικά αλλιώς προβλέπεται στην παράγραφο (7), οι ύλες αυτής της κλάσης, σε ποσότητες όχι μεγαλύτερες, ανά δοχείο, από 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538, με ύλες ή είδη άλλων κλάσεων, υπό την προϋπόθεση ότι μικτή συσκευασία επίσης επιτρέπεται για τις ύλες και τα είδη αυτών των κλάσεων και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας, υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.

(4) Οι παρακάτω θεωρούνται επικίνδυνες αντιδράσεις:

- (a) ανάφλεξη και/ή εκπομπή αξιοσημείωτης θερμότητας,
- (b) εκπομπή εύφλεκτων και/ή τοξικών αερίων,
- (c) σχηματισμός διαβρωτικών υγρών,
- (d) σχηματισμός ασταθών υλών.

(5) Οι διατάξεις των περιθωριακών 2001 (7), 2002 (6) και (7) και 2502, θα πρέπει να ισχύουν.

(6) Εάν χρησιμοποιούνται κιβώτια ξύλινα ή από φύλλο φάιμπερ, κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg.

(7) Για ύλες των 1° (a), 2°, 4°, 5°, 11°, 12°, 13°, 14°, 16° (b), 17°, 25° και 27° έως 32° και ύλες ταξινομημένες στο (a) στα υπόλοιπα είδη, μικτή συσκευασία δεν επιτρέπεται. Όμως, για υπερχλωρικό οξύ με περισσότερο από 50 % οξύ της 3° (a), μικτή συσκευασία επιτρέπεται με υπερχλωρικό οξύ της κλάσης 8, περιθωριακό 2801, 4° (b).

## Κλάση 5.1

4. **Μαρκάρισμα και ετικέτες κινδύνου πάνω στα κόλα (βλέπε Προσθήκη Α.9)****Μαρκάρισμα**

- 2512 (1) Κάθε κόλο θα πρέπει να είναι μαρκαρισμένο καθαρά και ανθεκτικά με τον χαρακτηριστικό αριθμό των εμπορευμάτων που θα εγγραφεί στο έγγραφο μεταφοράς, μετά από τα γράμματα "UN".

**Ετικέτες κινδύνου**

(2) Κόλα που περιέχουν ύλες της κλάσης 5.1, θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 5.1.

(3) Κόλα που περιέχουν ύλες των 2°, 5°, 29° ή 30°, θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1. Κόλα που περιέχουν ύλες των 1° (a), 1° (b), 3° (a), 5°, 31° ή 32°, θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8.

(4) Κόλα που περιέχουν εύθραυστα δοχεία όχι ορατά από έξω, θα πρέπει να φέρουν σε δύο εγκάρσιες αντίθετες πλευρές ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 12.

(5) Κόλα που περιέχουν υγρές ύλες σε δοχεία, τα πόματα των οποίων δεν είναι ορατά από έξω, καθώς και κόλα που περιέχουν εξαεριζόμενα δοχεία ή εξαεριζόμενα δοχεία χωρίς εξωτερική συσκευασία, θα πρέπει να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

## 2513

**B. Στοιχεία στο έγγραφο μεταφοράς**

- 2514 Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς και μία από τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2501.

Εάν η ύλη δεν αναφέρεται με την ονομασία της αλλά έχει εγγραφεί σε μία ε.α.ο. καταχώρηση, η περιγραφή των εμπορευμάτων θα πρέπει να συνίσταται από τον χαρακτηριστικό αριθμό και τον χαρακτηρισμό ε.α.ο., ακολουθούμενο από τη χημική ή τεχνική ονομασία της ύλης<sup>9/</sup>.

Η περιγραφή των εμπορευμάτων θα πρέπει να ακολουθείται από στοιχεία της κλάσης, τον αριθμό είδους, εάν εφαρμόζεται, το γράμμα, και τα αρχικά "ADR" (ή "RID"), π.χ. "5.1, 11° (b), ADR".

Για τη μεταφορά αποβλήτων (βλέπε περιθωριακό 2000 (4)) η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "Απόβλητα, που περιέχουν ...", και το(τα) συστατικό(ά) που χρησιμοποιείται(ούνται) για την ταξινόμηση των αποβλήτων στο περιθωριακό 2002 (8) θα εγγράφονται με τη(τις) χημική(ές) ονομασία(ες) του(ς) π.χ. "Απόβλητα γαίες που περιέχουν 1513 χλωρικό ψευδάργυρο, 5.1, 11° (b), ADR".

Για τη μεταφορά διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα) που περιέχουν διάφορα συστατικά που υπόκεινται στις διατάξεις αυτής της Οδηγίας, δεν θα είναι γενικά αναγκαίο να αναφέρονται περισσότερα από δύο συστατικά που κυρίως συμβάλουν στον κίνδυνο ή τους κινδύνους των διαλυμάτων και μειγμάτων.

Εάν μία επώνυμη ύλη σε συμφωνία με το περιθωριακό 2500 (9), δεν υπόκειται στις συνθήκες αυτής της κλάσης, ο αποστολέας μπορεί να γράψει στο έγγραφο μεταφοράς: "Όχι εμπορεύματα της κλάσης 5.1".

<sup>9/</sup> Η τεχνική ονομασία θα πρέπει να είναι μία ονομασία που ήδη χρησιμοποιείται σε επιστημονικά και τεχνικά εγχειρίδια, περιοδικά και κείμενα. Εμπορικές ονομασίες δεν θα πρέπει να χρησιμοποιούνται για αυτό το σκοπό.

## Κλάση 5.1

**2514** Για τα διαλύματα και μείγματα που περιέχουν μόνον ένα συστατικό που υπόκειται στις διατάξεις (συν.) αυτής της Οδηγίας, η λέξη "διάλυμα" ή "μείγμα" θα πρέπει να προστίθεται ως μέρος της ονομασίας στο έγγραφο μεταφοράς [βλέπε περιθωριακό 2002 (8) (a)].

Όταν ένα στερεό παραδίδεται για μεταφορά στην τετηγμένη κατάσταση, η περιγραφή των εμπορευμάτων θα πρέπει επιπλέον να διευκρινίζει "τετηγμένο", εκτός εάν ο όρος ήδη εμφανίζεται στην ονομασία.

2515-  
2521

**C. Κενές συσκευασίες**

**2522** (1) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, της 41°, θα πρέπει να είναι κλεισμένες με τον ίδιο τρόπο και με τον ίδιο βαθμό στεγανότητας σαν να ήταν γεμάτες.

(2) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, της 41° θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνους σαν να ήταν γεμάτες.

(3) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μία από τις ονομασίες που υπογραμμίζονται στο 41°, π.χ. "Κενές συσκευασίες, 5.1, 41°, ADR". Στην περίπτωση κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών και κενών μικρών εμπορευματοκιβωτίων για μεταφορά χύμα, ακαθάριστων, αυτή η περιγραφή θα πρέπει να συμπληρώνεται από την προσθήκη των λέξεων "Τελευταίο φορτίο" μαζί με την ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ. "Τελευταίο φορτίο: 2015 υπεροξειδίου του υδρογόνου, αδρανές 1° (a)".

2523-  
2549

**ΚΛΑΣΗ 5.2. ΟΡΓΑΝΙΚΑ ΥΠΕΡΟΞΕΙΔΙΑ****1. Κατάλογος υλών**

**2550** (1) Ανάμεσα στις ύλες και τα είδη που καλύπτονται από τον τίτλο της κλάσης 5.2, μόνον εκείνα που αναφέρονται στο περιθωριακό 2551 ή καλύπτονται από ένα συγκεντρωτικό κεφάλαιο εκείνου του περιθωριακού υπόκεινται στις συνθήκες που τίθενται στα περιθωριακά 2550 (4) έως 2567 και στις διατάξεις αυτού του παραρτήματος και του παραρτήματος Β. Θεωρούνται τότε ως ύλες και είδη αυτής της Οδηγίας<sup>1/</sup>.

**ΣΗΜΕΙΩΣΗ:** Για την ταξινόμηση των διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα), βλέπε επίσης περιθωριακό 2002 (8).

(2) Οργανικά υπεροξειδία και συνθέσεις οργανικών υπεροξειδίων δεν θεωρούνται ύλες της κλάσης 5.2, εάν:

- περιέχουν όχι περισσότερο από 1.0 % διαθέσιμο οξυγόνο από τα οργανικά υπεροξειδία όταν περιέχουν όχι περισσότερο από 1.0 % υπεροξειδίου του υδρογόνου,
- περιέχουν όχι περισσότερο από 0.5 % διαθέσιμο οξυγόνο από τα οργανικά υπεροξειδία όταν περιέχουν περισσότερο από 1.0 % αλλά όχι περισσότερο από 7.0 % υπεροξειδίου του υδρογόνου, ή
- δοκιμές έχουν αποδείξει ότι είναι του τύπου G [βλέπε παράγραφο (6)].

**ΣΗΜΕΙΩΣΗ:** Η περιεκτικότητα σε διαθέσιμο οξυγόνο (%) μίας σύνθεσης οργανικού υπεροξειδίου δίνεται από τον τύπο  $16 \times S (n_i \times c_i / m_i)$  όπου:

$n_i$  - ο αριθμός των ομάδων υπεροξυγόνου ανά μόριο οργανικού υπεροξειδίου  $i$ ,

$c_i$  - η συγκέντρωση (% κατά βάρος) του οργανικού υπεροξειδίου  $i$ , και

$m_i$  - το μοριακό βάρος του οργανικού υπεροξειδίου  $i$ .

(3) Τα παρακάτω οργανικά υπεροξειδία δεν θα πρέπει να γίνονται δεκτά για μεταφορά κάτω από τις διατάξεις της κλάσης 5.2:

- οργανικά υπεροξειδία τύπου Α [βλέπε Προσθήκη Α.1, περιθωριακό 3104 (2)(α)].

**Ορισμός**

(4) Η κλάση 5.2 καλύπτει οργανικές ύλες που περιέχουν τη δισθενή -O-O- δομή και μπορούν να θεωρηθούν παράγωγα του υπεροξειδίου του υδρογόνου, όπου το ένα ή και τα δύο άτομα υδρογόνου έχουν αντικατασταθεί από οργανικές ρίζες.

**Ιδιότητες**

(5) Τα οργανικά υπεροξειδία είναι θερμικά ασταθείς ύλες που υπόκεινται σε εξώθερμη αυτο-επιταχυνόμενη αποσύνθεση σε κανονικές ή αυξημένες θερμοκρασίες. Η αποσύνθεση μπορεί να ξεκινήσει από θερμότητα, επαφή με προσμείξεις (π.χ. οξέα, βαριά-μέταλλα ενώσεις, αμίνες), τριβή ή χτύπημα. Ο ρυθμός αποσύνθεσης αυξάνει με τη θερμοκρασία και ποικίλει ανάλογα με τη σύνθεση του οργανικού υπεροξειδίου. Η αποσύνθεση μπορεί να οδηγήσει στην παραγωγή βλαβερών, ή εύφλεκτων αερίων ή ατμών. Μερικά οργανικά υπεροξειδία μπορούν να αποσυντίθενται εκρηκτικά, ειδικά εάν είναι περιορισμένα. Αυτό το χαρακτηριστικό μπορεί να μεταβληθεί από την προσθήκη

<sup>1/</sup> Για τις ποσότητες υλών που αναφέρονται στο περιθωριακό 2551 που δεν υπόκεινται στις διατάξεις για αυτήν την Κλάση, είτε σε αυτό το Παράρτημα είτε στο παράρτημα Β, βλέπε περιθωριακό 2551α.

## Κλάση 5.2

**2550** διαλυτών ή από τη χρήση κατάλληλων συσκευασιών. Πολλά οργανικά υπεροξειδία καίγονται (συν.) ζωηρά. Η επαφή των οργανικών υπεροξειδίων με τα μάτια θα πρέπει να αποφεύγεται. Μερικά οργανικά υπεροξειδία μπορούν να προκαλέσουν σοβαρή βλάβη στον κερατοειδή χιτώνα, μετά ακόμα και από σύντομη επαφή, ή μπορούν να είναι διαβρωτικά στο δέρμα.

*Ταξινόμηση των οργανικών υπεροξειδίων*

(6) Τα οργανικά υπεροξειδία ταξινομούνται σε επτά τύπους σύμφωνα με τον βαθμό κινδύνου. Οι αρχές που εφαρμόζονται στην ταξινόμηση υλών που δεν αναφέρονται στο περιθωριακό 2551 τίθενται στην προσθήκη A.1, περιθωριακό 3104. Οι τύποι των οργανικών υπεροξειδίων κυμαίνονται από τον τύπο A, που δεν είναι δεκτός για μεταφορά στη συσκευασία στην οποία ελέγχεται, έως τον τύπο G, που δεν υπόκειται στις διατάξεις της κλάσης 5.2 [βλέπε περιθωριακό 2561 (5)]. Η ταξινόμηση των τύπων B έως F σχετίζεται άμεσα με τη μέγιστη επιτρεπτή ποσότητα σε μία συσκευασία.

(7) Οργανικά υπεροξειδία και συνθέσεις οργανικών υπεροξειδίων που αναφέρονται στο περιθωριακό 2551, καταχωρούνται στα συγκεντρωτικά κεφάλαια:

- 1° έως 20°, χαρακτηριστικοί αριθμοί 3101 έως 3120.

Τα συγκεντρωτικά κεφάλαια προσδιορίζουν:

- τον τύπο (B έως F) του οργανικού υπεροξειδίου, βλέπε παράγραφο (6),
- την φυσική κατάσταση (υγρό/στερεό), βλέπε περιθωριακό 2553 (1), και
- τον έλεγχο θερμοκρασίας (όταν απαιτείται), βλέπε παράγραφο (16) έως (19).

Μείγματα αυτών των συνθέσεων μπορούν να ταξινομηθούν ως ο ίδιος τύπος οργανικού υπεροξειδίου με εκείνον του πιο επικίνδунου συστατικού και να μεταφέρεται κάτω από τις συνθήκες μεταφοράς που δίνονται για αυτόν τον τύπο. Όμως, όπως δύο σταθερά συστατικά μπορούν να σχηματίσουν ένα θερμικά λιγότερο σταθερό μείγμα, η θερμοκρασία αυτο-επιταχυνόμενης αποσύνθεσης του μείγματος θα πρέπει να προσδιορίζεται και, εάν είναι αναγκαίο, η θερμοκρασία ελέγχου και κινδύνου που απορρέει από την SADT σε συμφωνία με το περιθωριακό 2550 (17).

(8) Η ταξινόμηση των οργανικών υπεροξειδίων, συνθέσεων ή μειγμάτων οργανικών υπεροξειδίων που δεν αναφέρονται στο περιθωριακό 2551 και η καταχώρηση σ'ένα συγκεντρωτικό κεφάλαιο, θα πρέπει να γίνεται από την αρμόδια αρχή της χώρας προέλευσης.

(9) Δείγματα οργανικών υπεροξειδίων ή συνθέσεων οργανικών υπεροξειδίων που δεν αναφέρονται στο περιθωριακό 2551, για τα οποία δεν είναι διαθέσιμο ένα πλήρες σετ αποτελεσμάτων ελέγχου και που πρόκειται να μεταφερθούν για περαιτέρω έλεγχο ή αξιολόγηση, θα πρέπει να καταχωρούνται σε μία από τις κατάλληλες καταχωρήσεις για τα οργανικά υπεροξειδία τύπου C, υπό την προϋπόθεση ότι τηρούνται οι παρακάτω συνθήκες:

- τα διαθέσιμα δεδομένα δείχνουν ότι το δείγμα θα ήταν όχι περισσότερο επικίνδυνο από τα οργανικά υπεροξειδία τύπου B,
- το δείγμα είναι συσκευασμένο σε συμφωνία με τη μέθοδο συσκευασίας OP2A ή OP2B και η ποσότητα ανά μονάδα μεταφοράς περιορίζεται στα 10 kg,

## Κλάση 5.2

- 2550 - τα διαθέσιμα δεδομένα δείχνουν ότι η θερμοκρασία ελέγχου, εάν υπάρχει, είναι (συνεχ.) επαρκώς χαμηλή για την αποφυγή οποιασδήποτε επικίνδυνης αποσύνθεσης και επαρκώς υψηλή για την αποφυγή οποιουδήποτε επικίνδυνου διαχωρισμού φάσης.

*Απευαισθητοποίηση των οργανικών υπεροξειδίων*

(10) Για την εξασφάλιση της ασφάλειας κατά τη διάρκεια της μεταφοράς, τα οργανικά υπεροξειδία σε πολλές περιπτώσεις απευαισθητοποιούνται από οργανικά υγρά ή στερεά, ανόργανα στερεά ή νερό. Όπου το ποσοστό μίας ύλης συμφωνείται, αυτό αναφέρεται στο ποσοστό κατά βάρος, στρογγυλοποιημένο στον πλησιέστερο ακέραιο αριθμό. Γενικά, η απευαισθητοποίηση θα πρέπει να είναι τέτοια ώστε, σε περίπτωση χυσίματος, το οργανικό υπεροξείδιο να μην συμπεκνώνεται σε επικίνδυνο βαθμό.

(11) Εκτός εάν αναφέρεται διαφορετικά για σύνθεση του μεμονωμένου οργανικού υπεροξειδίου, ο(οι) παρακάτω ορισμός(οί) θα πρέπει να εφαρμόζεται(ονται) στους διαλύτες που χρησιμοποιούνται για την απευαισθητοποίηση:

- οι διαλύτες τύπου Α είναι οργανικά υγρά που είναι συμβατά με το οργανικό υπεροξείδιο και που έχει σημείο βρασμού όχι μικρότερο από 150 °C. Διαλύτες τύπου Α μπορούν να χρησιμοποιούνται για την απευαισθητοποίηση όλων των οργανικών υπεροξειδίων.
- οι διαλύτες τύπου Β είναι οργανικά υγρά που είναι συμβατά με το οργανικό υπεροξείδιο και που έχει σημείο βρασμού μικρότερο από 150 °C αλλά όχι μικρότερο από 60 °C και σημείο ανάφλεξης όχι μικρότερο από 5 °C.

Διαλύτες τύπου Β μπορούν μόνον να χρησιμοποιηθούν για την απευαισθητοποίηση οργανικών υπεροξειδίων για τα οποία απαιτείται έλεγχος της θερμοκρασίας. Το σημείο βρασμού του υγρού θα πρέπει να είναι τουλάχιστον 50 °C υψηλότερο από τη θερμοκρασία ελέγχου του οργανικού υπεροξειδίου.

(12) Διαλύτες, άλλοι από τους τύπους Α ή Β, μπορούν να προστίθενται σε συνθέσεις οργανικού υπεροξειδίου όπως αναφέρεται στο περιθωριακό 2551, υπό την προϋπόθεση ότι είναι συμβατοί και δεν αλλάζουν την ταξινόμηση.

(13) Το νερό μπορεί μόνο να χρησιμοποιείται για την απευαισθητοποίηση οργανικών υπεροξειδίων που αναφέρονται στο περιθωριακό 2551 ή στην απόφαση της αρμόδιας αρχής σύμφωνα με την παράγραφο (8) ως υπάρχοντα "με νερό" ή "ως σταθερό εναιώρημα σε νερό". Δείγματα οργανικών υπεροξειδίων ή συνθέσεις οργανικών υπεροξειδίων που δεν αναφέρονται στο περιθωριακό 2551, μπορούν επίσης να απευαισθητοποιούνται με νερό υπό την προϋπόθεση ότι οι απαιτήσεις της παραγράφου (9) τηρούνται.

(14) Οργανικά και ανόργανα στερεά μπορούν να χρησιμοποιούνται για την απευαισθητοποίηση των οργανικών υπεροξειδίων υπό την προϋπόθεση ότι είναι συμβατά.

(15) Συμβατά υγρά και στερεά είναι εκείνα που δεν έχουν επιβλαβή επίδραση στη θερμική σταθερότητα και τον τύπο κινδύνου της σύνθεσης του οργανικού υπεροξειδίου.

*Διατάξεις για τον έλεγχο της θερμοκρασίας*

(16) Ορισμένα οργανικά υπεροξειδία μπορούν να μεταφέρονται μόνον κάτω από συνθήκες ελεγχόμενης θερμοκρασίας. Η θερμοκρασία ελέγχου είναι η μέγιστη θερμοκρασία στην οποία το οργανικό υπεροξείδιο μπορεί να μεταφερθεί με ασφάλεια. Θεωρείται ότι η θερμοκρασία των άμεσων περιβλημάτων ενός κόλου υπερβαίνει μόνον τους 55 °C κατά τη διάρκεια της μεταφοράς για ένα σχετικά μικρό χρονικό διάστημα σε μία περίοδο 24 ωρών. Σε περίπτωση απώλειας του ελέγχου της θερμοκρασίας, μπορεί να είναι αναγκαίο να εφαρμοστούν διαδικασίες κινδύνου. Η θερμοκρασία κινδύνου είναι η θερμοκρασία στην οποία τέτοιες διαδικασίες θα πρέπει να εφαρμόζονται.

## Κλάση 5.2

**2550** (17) Οι θερμοκρασίες ελέγχου και κινδύνου απορρέουν από τη θερμοκρασία αυτο-επιταχυνόμενης (συν.) αποσύνθεσης (SADT) που ορίζεται ως η χαμηλότερη θερμοκρασία στην οποία μπορεί να συμβεί αυτο-επιταχυνόμενη αποσύνθεση με μία ύλη στη συσκευασία που χρησιμοποιείται κατά τη διάρκεια της μεταφοράς (βλέπε Πίνακα 1). Η SADT θα πρέπει να προσδιορίζεται για να αποφασιστεί εάν μία ύλη θα πρέπει να υπόκειται σε έλεγχο της θερμοκρασίας κατά τη διάρκεια της μεταφοράς. Διατάξεις για τον καθορισμό της SADT δίνονται στην προσθήκη Α.1, περιθωριακό 3103.

Πίνακας 1. Υπολογισμός των θερμοκρασιών ελέγχου και κινδύνου

SADT	Θερμοκρασία ελέγχου	Θερμοκρασία κινδύνου
20 °C ή χαμηλότερη	20 °C κάτω από την SADT	10 °C κάτω από την SADT
πάνω από 20 °C έως 35 °C	15 °C κάτω από την SADT	10 °C κάτω από την SADT
πάνω από 35 °C	10 °C κάτω από την SADT	5 °C κάτω από την SADT

(18) Τα παρακάτω οργανικά υπεροξειδία θα πρέπει να υπόκεινται σε έλεγχο της θερμοκρασίας κατά τη διάρκεια της μεταφοράς:

- οργανικά υπεροξειδία των τύπων Β και C με SADT μικρότερη ή ίση από 50 °C,
- οργανικά υπεροξειδία τύπου D που εμφανίζουν βίαιη ή μέση επίδραση όταν θερμαίνονται υπό περιορισμό με SADT μικρότερη ή ίση από 50 °C ή εμφανίζουν χαμηλή ή καθόλου επίδραση όταν θερμαίνονται υπό περιορισμό με SADT μικρότερη ή ίση από 45 °C, και
- οργανικά υπεροξειδία των τύπων E και F με SADT μικρότερη ή ίση από 45 °C.

**ΣΗΜΕΙΩΣΗ:** Διατάξεις για τον προσδιορισμό των επιδράσεων της θέρμανσης υπό περιορισμό δίνονται στην προσθήκη Α.1, περιθωριακό 3103.

(19) Όπου εφαρμόζονται, οι θερμοκρασίες ελέγχου και κινδύνου αναφέρονται στο περιθωριακό 2551. Η πραγματική θερμοκρασία κατά τη διάρκεια της μεταφοράς μπορεί να είναι χαμηλότερη από την θερμοκρασία ελέγχου αλλά θα πρέπει να επιλέγεται έτσι ώστε να αποφεύγεται ο επικίνδυνος διαχωρισμός φάσεων.

**2551 Α. Οργανικά υπεροξειδία που δεν απαιτούν έλεγχο της θερμοκρασίας**

1° (b) 3101 οργανικά υπεροξειδία τύπου Β, υγρά, όπως:

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου Α (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
<u>Υπεροξυ-3,5,5-τριμεθυλοεξανικός τριτοταγής αμιλεστεράς</u>	≤ 100		OP5A	01
<u>Υπεροξοξικός τριτοταγής βουτυλεστεράς</u>	53-77	≥ 23	OP5A	01
<u>1,1-Δι-(τριτοταγές βουτυλοϋπεροξυ)κυκλοεξάνιο</u>	81-100		OP5A	01
<u>1,1-Δι-(τριτοταγές-βουτυλοϋπεροξυ)-3,3,5-τριμεθυλοκυκλοεξάνιο</u>	58-100		OP5A	01
<u>Υπεροξειδίο(α) της μεθυλοαιθυλοκετόνης</u>	≤ 52	≥ 48	OP5A	01,8



## Κλάση 5.2

2551  
(συνεχ.)

2° b)

3102 οργανικά υπεροξειδία τύπου Β, στερεά, όπως:

Υλη	Συγκέντρωση (%)	Αδρανές στερεό (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακός 2554)	Πρόσθετη επισήμανση (βλέπε περιθωριακός 2559)
<u>Μονοϋπεροξυ-μηλεϊνικός τριτοταγής βουτυλεστέρας</u>	53-100			OP5B	01
<u>Μονοϋπεροξυ-φθαλικός βουτυλεστέρας</u>	≤ 100			OP5B	01
<u>3-Χλωροϋπεροξυβενζοϊκό οξύ</u>	58-86	≥ 14		OP1B	01
<u>Υπεροξείδιο του διβενζοϋλίου</u>	52-100	≤ 48		OP2B	01
<u>Υπεροξείδιο του διβενζοϋλίου</u>	78-94		≥ 6	OP4B	01
<u>Υπεροξείδιο του δι-4-γλωροβενζοϋλίου</u>	≤ 77		≥ 23	OP5B	01
<u>Υπεροξείδιο του δι-2,4-διγλωροβενζοϋλίου</u>	≤ 77		≥ 23	OP5B	01
<u>2,2-Διϋδροϋπεροξυπροπάνιο</u>	≤ 27	≥ 73		OP5B	01
<u>2,5-Διμεθυλο-2,5-δι-(βενζοϋλυπεροξυ)-εξάνιο</u>	83-100			OP5B	01
<u>Υπεροξυδιτανθρακικός δι-(2-φαινοξυαιθυλ)εστέρας</u>	86-100			OP5B	01
<u>Υπεροξείδιο του διηλεκτρικού οξέος<sup>3/</sup></u>	73-100			OP4B	01
<u>3,3,6,6,9,9-Εξαμεθυλο-1,2,4,5-τετραοξακυκλο-εννεάνιο</u>	53-100			OP4B	01

<sup>3/</sup>

Προσθήκη νερού θα μειώσει τη θερμική σταθερότητα.

## Κλάση 5.2

2551 3° (b) 3103 οργανικά υπεροξείδια τύπου C, υγρά, όπως:  
(συνεχ.)

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
<u>4.4-Δι-(τριτοταγές βουτυλοϋπεροξυ)-βαλεριανικός η-βουτυλεστέρας</u>	53-100			OP5A	
<u>Υδροϋπεροξείδιο του τριτοταγούς βουτυλίου</u>	73-90		≥ 10	OP5A	8
<u>Υδροϋπεροξείδιο του τριτοταγούς βουτυλίου + υπεροξείδιο του διτριτοταγούς βουτυλίου</u>	≤ 82 + ≥ 9		≥ 7	OP5A	8
<u>Μονοϋπεροξυ-μηλεϊνικός τριτοταγής βουτυλεστέρας</u>	≤ 52	≥ 48		OP6A	
<u>Υπεροξοξικός τριτοταγής βουτυλεστέρας</u>	≤ 52	≥ 48		OP6A	
<u>Υπεροξυβενζοϊκός τριτοταγής βουτυλεστέρας</u>	78 - 100	≤ 22		OP5A	
<u>Ισοπροπυλανθρακικό τριτοταγές βουτυλυπεροξείδιο</u>	≤ 77	≥ 23		OP5A	
<u>2.2-Δι-(τριτοταγές βουτυλοϋπεροξυ)-βουτάνιο</u>	≤ 52	≥ 48		OP6A	
<u>1.1-Δι-(τριτοταγές βουτυλοϋπεροξυ)-κυκλοεξάνιο</u>	53-80	≥ 20		OP5A	
<u>2.5-Διμεθυλο-2.5-δι-(τριτοταγές βουτυλοϋπεροξυ) εξάνιο-3</u>	53-100			OP5A	
<u>3.3-Δι-(τριτοταγές βουτυλο-υπεροξυ)-βουτυρικός αιθυλεστέρας</u>	78-100			OP5A	
Οργανικό υπεροξείδιο, υγρό, δείγμα <sup>4/</sup>				OP2A	

4° (b) 3104 οργανικά υπεροξείδια τύπου C, στερεά, όπως:

Υλη	Συγκέντρωση (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
<u>Υπεροξείδιο(α) της κυκλοεξανόνης</u>	≤ 91	≥ 9	OP6B	8
<u>Υπεροξείδιο του διβενζοϊλίου</u>	≤ 77	≥ 23	OP6B	
<u>2.5-Διμεθυλο-2.5-δι-(βενζοϊλοϋπεροξυ)-εξάνιο</u>	≤ 82	≥ 18	OP5B	

<sup>4/</sup> Βλέπε περιθωριακό 2550 (9).

## Κλάση 5.2

Υλη	Συγκέν- τρωση (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περι- θωριακό 2554)	Πρόσθετη επισήμανση (βλέπε περι- θωριακό 2559)
Οργανικό υπεροξειδίο, στερεό, δείγμα <sup>4/</sup>			OP2B	

## Κλάση 5.2

5° (b) 3105 οργανικά υπεροξειδια τύπου D, υγρά, όπας:

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
<u>Υπεροξειδίο της ακετυλακετόνης</u> <sup>5/</sup>	≤ 42	≥ 48	≥ 8	OP7A	
<u>Υπεροξειδίο του ακετυλοβενζοϋλίου</u>	≤ 45	≥ 55		OP7A	
<u>Υπεροξυβενζοϊκός τριτοταγής αμυλεστέρας</u>	≤ 96	≥ 4		OP7A	
<u>κουμπούπεροξειδίο του τριτοταγούς βουτυλίου</u>	≤ 100			OP7A	
<u>Υδρούπεροξειδίο του τριτοταγούς βουτυλίου</u> <sup>6/</sup>	≤ 80	≥ 20		OP7A	8
<u>Υπεροξυβενζοϊκός τριτοταγής βουτυλεστέρας</u>	53 - 77	≥ 23		OP7A	
<u>Υπεροξυκροτονικός τριτοταγής βουτυλεστέρας</u>	≤ 77	≥ 23		OP7A	
<u>Υπεροξυδιαιθυλο-οξικός τριτοταγής βουτυλεστέρας+ υπεροξυβενζοϊκός τριτοταγής βουτυλεστέρας</u>	≤ 33 + ≤ 33	≥ 33		OP7A	
<u>Υπεροξυ-3,5,5-τριμεθυλοεξανικός τριτοταγής βουτυλεστέρας</u>	≤ 100			OP7A	
<u>Υπεροξειδίο(α) της κυκλοεξανόνης</u> <sup>7/</sup>	≤ 72	≤ 28		OP7A	
<u>1,1 Δι-(τριτοταγής βουτυλοϋπεροξυ)κυκλοεξάνιο</u>	≤ 52	≥ 48		OP7A	
<u>Φθαλικό δι-(τριτοταγής βουτυλοϋπεροξειδίο)</u>	43 - 52	≥ 48		OP7A	
<u>2,2-Δι-(τριτοταγής βουτυλοϋπεροξυ)προπάνιο</u>	≤ 52	≥ 48		OP7A	
<u>2,2-Διμεθυλο-2,5-δι-(τριτοταγής βουτυλοϋπεροξυ) εξάνιο</u>	53 - 100			OP7A	
<u>2,5-Διμεθυλο-2,5-δι-(3,5,5-τριμεθυλοεξανουλοϋπεροξυ)-εξάνιο</u>	≤ 77	≥ 23		OP7A	
<u>3,3-Δι-(τριτοταγής αμυλο-υπεροξυ)βουτυρικός αιθυλαιθέρας</u>	≤ 67	≥ 33		OP7A	
<u>3,3-Δι-(τριτοταγής βουτυλο-υπεροξυ)βουτυρικός αιθυλαιθέρας</u>	≤ 77	≥ 23		OP7A	
<u>3,3,6,6,9,9-Εξαμεθυλο-1,2,4,5-τετραοξυ-κυκλοεπεννάνιο</u>	≤ 52	≥ 48		OP7A	
<u>p-Υδροϋπεροξειδίο του μενθυλίου</u>	56 - 100			OP7A	8

<sup>5/</sup> Διαθέσιμο οξυγόνο □ 4.7 %.<sup>6/</sup> Ο διαλύτης μπορεί να αντικατασταθεί από υπεροξειδίο του δι-τριτοταγούς βουτυλίου.<sup>7/</sup> Διαθέσιμο οξυγόνο □ 9.0 %.

## Κλάση 5.2

2551  
(d) (x)

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
Υπεροξειδιο(α) της μεθυλοαιθυλοκετόνης <sup>8/</sup>	≤ 45	≥ 55		OP7A	
Υπεροξειδιο(α) της μεθυλοϊσοβουτυλοκετόνης <sup>9/</sup>	≤ 62	≥ 19		OP7A	
Υπεροξοϊκό οξύ, τύπου D, σταθεροποιημένο <sup>10/</sup>	≤ 43			OP7A	8
Υδροϋπεροξειδιο του πιναυλίου	56 - 100			OP7A	8
Υδροϋπεροξειδιο του 1,1,3,3-Τετραμεθυλοβουτυλίου	≤ 100			OP7A	

6° (b) 3106 οργανικά υπεροξειδια τύπου D, στερεά, όπως:

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A (%)	Αδρανές στερεό (%)	Νερό	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)
Υπεροξειδιο της ακετυλακετόνης <sup>11/</sup> ως πάστα	≤ 32				OP7B
4,4-δι-(τριτοταγές βουτυλοϋπεροξυ) βαλεριανικός η-βουτυλεστέρας	≤ 52		≥ 48		OP7B
Υπεροξυβενζοϊκός τριτοταγής βουτυλεστέρας	≤ 52		≥ 48		OP7B
Υπεροξυ-2-αιθυλο-εξανικός τριτοταγής βουτυλεστέρας+ 2,2-δι-(τριτοταγές βουτυλοϋπεροξυ)βουτάνιο	≤12 + ≤14	≥ 14	≥ 60		OP7B
3-τριτοταγές βουτυλοϋπεροξυ-3-φαινολ-φθαλίδιο	≤ 100				OP7B
Στεαρυλανθρακικό τριτοταγές βουτυλοϋπεροξειδιο	≤ 100				OP7B
3-Χλωροϋπεροξυβενζοϊκό οξύ	≤ 57		≥ 3	≥ 40	OP7B
Υπεροξειδιο(α) της κυκλοεξανόνης, <sup>11/ 12/</sup> ως πάστα	≤ 72				OP7B

<sup>8/</sup> Διαθέσιμο οξυγόνο □ 10.0 %.<sup>9/</sup> Με □ 19 % μεθυλοϊσοβουτυλική κετόνη επιπλέον του διαλύτη τύπου A.<sup>10/</sup> Μείγματα υπεροξοϊκού οξέος με υπεροξειδιο του υδρογόνου, νερό και οξεία που πληρούν τα κριτήρια της προσθήκης A.1, περιθωριακό 3104 (2) (d).<sup>11/</sup> Με διαλύτη τύπου A, με ή χωρίς νερό.<sup>12/</sup> Διαθέσιμο οξυγόνο □ 9.0 %.

2551  
(σ γ.)

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A (%)	Αδρανές στερεό (%)	Νερό	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)
<u>Υπεροξειδίο του διβενζοϋλίου</u>	≤ 62		≥ 28	≥ 10	OP7B
<u>Υπεροξειδίο του διβενζοϋλίου<sup>III</sup> ως πάστα</u>	53 - 62				OP7B
<u>Υπεροξειδίο του διβενζοϋλίου</u>	36 - 52		≥ 48		OP7B
<u>1.1-Δι-(τριτοταγές βουτυλοϋπεροξυ)κυκλοεξάνιο</u>	≤ 42	≥ 13	≥ 45		OP7B
<u>2.2-Δι-(4.4-τριτοταγές βουτυλοϋπεροξυκυκλοεξυλο)-προπάνιο</u>	≤ 42		≥ 58		OP7B
<u>Δι-(2-τριτοταγές βουτυλοϋπεροξυϊσοπροπυλο) βενζόλιο(α)</u>	43 - 100		≥ 57		OP7B
<u>Φθαλικό δι-(τριτοταγές βουτυλοϋπεροξειδίο)<sup>III</sup> ως πάστα</u>	≤ 52				OP7B
<u>2.2-Δι-(τριτοταγές βουτυλοϋπεροξυ)προπάνιο</u>	≤ 42	≥ 13	≥ 45		OP7B
<u>1.1-Δι-(τριτοταγές βουτυλοϋπεροξυ)-3.3.5-τριμεθυλοκυκλοεξάνιο</u>	≤ 57		≥ 43		OP7B
<u>Υπεροξειδίο του δι-4-γλωροβενζοϋλίου<sup>IV</sup> ως πάστα</u>	≤ 52				OP7B
<u>Υπεροξειδίο του δι-2.4-δγλωροβενζοϋλίου ως πάστα με πυριτέλαιο</u>	≤ 52				OP7B
<u>Υπεροξειδίο του δι-(1-υδροξυκυκλοεξυλίου)</u>	≤ 100				OP7B
<u>Υπεροξειδίο του διγρυσουλίου</u>	≤ 100				OP7B
<u>2.5-Διμεθυλο-2.5-δι-(βενζοϋλοϋπεροξυ)εξάνιο</u>	≤ 82		≥ 18		OP7B
<u>2.5-Διμεθυλο-2.5-δι-(τριτοταγές βουτυλοϋπεροξυ)εξάνιο-3</u>	≤ 52		≥ 48		OP7B
<u>Υπεροξυδιτανθρακικό δι-(2-φenoξυαιθύλιο</u>	≤ 85		≥ 15		OP7B
<u>Υπεροξυδιτανθρακικό διστεαρύλιο</u>	≤ 87		≥ 13		OP7B
<u>3.3-δι-(τριτοταγές βουτυλοϋπεροξυ)βουτυρικός αιθυλεστέρας</u>	≤ 52		≥ 48,		OP7B
<u>3.3.6.6.9.9-Εξαμεθυλο-1.2.4.5-τετραοξυκυκλοεξονεάνιο</u>	≤ 52		≥ 48		OP7B
<u>Υδροϋπεροξειδίο του τετραϋδρωναφθυλίου</u>	≤ 100				OP7B

## Κλάση 5.2

7° (b) 3107 οργανικά υπεροξειδία τύπου E, υγρά, όπως:

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
Υδροϋπεροξειδίο του τριτοταγούς αμυλίου	≤ 88	≥ 6	≥ 6	OP8A	
Υπεροξειδίο του δι-τριτοταγούς αμυλίου	≤ 100			OP8A	
Υπεροξειδίο του δι-τριτοταγούς βουτυλίου	≤ 100			OP8A	
1,1-Δι-(τριτοταγές βουτυλοϋπεροξυ)κυκλοεξάνιο <sup>13/</sup>	≤ 27	≥ 36		OP8A	
Φθαλικό δι-(τριτοταγές βουτυλοϋπεροξειδίο)	≤ 42	≥ 58		OP8A	
1,1-Δι-(τριτοταγές βουτυλοϋπεροξυ)-3,3,5-τριμεθυλοκυκλοεξάνιο	≤ 57	≥ 43		OP8A	
Υπεροξειδίο(α) της μεθυλοαιθυλο κετόνης <sup>14/</sup>	≤ 40	≥ 60		OP8A	
Υπεροξοξικό οξύ, τύπου E, σταθεροποιημένο <sup>15/</sup>	≤ 43			OP8A	

8° (b) 3108 οργανικά υπεροξειδία τύπου E, στερεά, όπως:

Υλη	Συγκέντρωση %	Μέθοδος συσκευασίας (βλέπε περιθ. 2554)
Μονοϋπεροξυμηλεϊνικό τριτοταγές βουτύλιο <sup>16/</sup> ως πάστα	≤ 42	OP8B
Υπεροξειδίο του διβενζοϋλίου <sup>16/</sup> ως πάστα	≤ 52	OP8B

<sup>13/</sup> Με □ 36 % αιθυλοβενζόλιο επιπλέον του διαλύτη τύπου A.<sup>14/</sup> Διαθέσιμο οξυγόνο □ 8.2 %.<sup>15/</sup> Μείγματα υπεροξοξικού οξέος με υπεροξειδίο του υδρογόνου, νερό και οξέα που πληρούν τα κριτήρια της προσθήκης A.1, περιθωριακό 3104 (2) (e).<sup>16/</sup> Με διαλύτη τύπου A, με ή χωρίς νερό.

## Κλάση 5.2

25. 9° (b) 3109 οργανικά υπεροξειδία τύπου F, υγρά, όπως:  
(συνεχ.)

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
<u>Υδροϋπεροξειδίο του τριτοταγούς βουτυλίου</u>	≤ 72		≥ 28	OP8A	8
<u>Υδροϋπεροξειδίο του Κουμυλίου</u>	80 - 90	≥ 10		OP8A	8
<u>Υδροϋπεροξειδίο του Κουμυλίου</u>	≤ 80	≥ 20		OP8A	
<u>Υπεροξειδίο του διγερυσουλίου ως σταθερό εναιώρημα σε νερό</u>	≤ 42			OP8A	
<u>Υδροϋπεροξειδίο του ισοπροπυλοκουμυλίου</u>	≤ 72	≥ 28		OP8A	8
<u>Υδροϋπεροξειδίο του p-μενθυλίου</u>	≤ 55	≥ 45		OP8A	
<u>Υπεροξοξικό οξύ, τύπου F, σταθεροποιημένο <sup>17/</sup></u>	≤ 43			OP8A	8
<u>Υδροϋπεροξειδίο του πιναυλίου</u>	≤ 55	≥ 45		OP8A	

10° (b) 3110 οργανικά υπεροξειδία τύπου F, στερεά, όπως:

Υλη	Συγκέντρωση %	Αδρανές στερεό %	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)
<u>Υπεροξειδίο του δικουμυλίου</u>	43 - 100	≤ 57	OP8B

**B. Οργανικά υπεροξειδία που απαιτούν έλεγχο της θερμοκρασίας**

**ΣΗΜΕΙΩΣΗ:** Υλεις των 11° έως 20° είναι οργανικά υπεροξειδία που αποσυντίθενται εύκολα σε κανονικές θερμοκρασίες και θα πρέπει συνέπώς να μεταφέρονται μόνον υπό συνθήκες επαρκούς ψύξης. Για αυτά τα οργανικά υπεροξειδία, η μέγιστη θερμοκρασία κατά τη διάρκεια της μεταφοράς, δεν θα πρέπει να υπερβαίνει την θερμοκρασία ελέγχου που υποδεικνύεται.

11° (b) 3111 οργανικά υπεροξειδία τύπου B, υγρά, με ελεγχόμενη θερμοκρασία, όπως:

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A ή B (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
<u>Υπεροξυϊσοβουτυρικό τριτοταγές βουτύλιο</u>	53-77	≥ 23	OP5A	+15	+20	01
<u>Υπεροξειδίο του δίσουβουτυριλίου</u>	33-52	≥ 48	OP5A	-20	-10	01

<sup>17/</sup> Μείγματα υπεροξοξικού οξέος με υπεροξειδίο του υδρογόνου, νερό και οξέα που πληρούν τα κριτήρια της προσθήκης A.1, περιθωριακό 3104 (2) (f).



## Κλάση 5.2

255α  
(συνεχ.)

12° (b) 3112 οργανικά υπεροξειδία τύπου Β, στερεά, ελεγχόμενης θερμοκρασίας, όπως:

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου Α ή Β (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
<u>Υπεροξειδίο του ακετυλοκυκλοεξανο σουλφονυλίου</u>	≤ 82	≥ 12	OP4B	-10	0	01
<u>Υπεροξυδιτανθρακικό διβενζύλιο</u>	≤ 87	≥ 13	OP5B	+25	+30	01
<u>Υπεροξυδιτανθρακικό δικυκλοεξύλιο</u>	92-100		OP5B	+5	+10	01
<u>Υπεροξυδιτανθρακικό διϊσοπροπύλιο</u>	53-100		OP2B	-15	-5	01
<u>Υπεροξειδίο του δι-(2-μεθυλοβενζουίλιου)</u>	≤ 87	≥ 13	OP5B	+30	+35	01

13° (b) 3113 οργανικά υπεροξειδία τύπου C, υγρά, ελεγχόμενης θερμοκρασίας, όπως:

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου Α ή Β (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)
<u>Υπεροξυπιβαλικό τριτοταγές αμύλιο</u>	≤ 77	≥ 23	OP5A	+10	+15
<u>Υπεροξυδιαιθυλοξικό τριτοταγές βουτύλιο</u>	≤ 100		OP5A	+20	+25
<u>Υπεροξυ-2-αιθυλοεξανικό τριτοταγές βουτύλιο</u>	53-100		OP6A	+20	+25
<u>Υπεροξυπιβαλικό τριτοταγές βουτύλιο</u>	68-77	≥ 23 <sup>18/</sup>	OP5A	0	+10
<u>Υπεροξυδιτανθρακικό δι-sec-βουτύλιο</u>	53-100		OP4A	-20	-10
<u>Υπεροξυδιτανθρακικό δι-(2-αιθυλοεξύλιο)</u>	78-100		OP5A	-20	-10
<u>Υπεροξυδιτανθρακικό δι-π-προπύλιο</u>	≤ 100		OP4A	-25	-15
Οργανικό υπεροξειδίο, υγρό, δείγμα, ελεγχόμενης θερμοκρασίας <sup>19/</sup>			OP2A		

<sup>18/</sup> Μόνον διαλύτης τύπου Α θα πρέπει να χρησιμοποιείται.<sup>19/</sup> Βλέπε περιθωριακό 2550 (9).

## Κλάση 5.2

2551 14° (b) 3114 οργανικά υπεροξειδία τύπου C, στερεά, ελεγχόμενης θερμοκρασίας, όπως:  
(συνεχ.)

Υλη	Συγκέντρωση (%)	Νερό (%) ή B (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)
<u>Υπεροξυδιτανθρακικό δι-(4-τριτοταγές βουτυλοκυκλοεξύλιο)</u>	≤ 100		OP6B	+30	+35
<u>Υπεροξυδιτανθρακικό δικυκλοεξύλιο</u>	≤ 91	≥ 9	OP3B	+5	+10
<u>Υπεροξειδίο του διδεκανούλιου</u>	≤ 100		OP6B	+15	+20
<u>Υπεροξειδίο του δι-η-στανούλιου</u>	≤ 100		OP5B	+10	+15
Οργανικό υπεροξειδίο, στερεό, δείγμα, ελεγχόμενης θερμοκρασίας <sup>19/</sup>			OP2B		

15° (b) 3115 οργανικά υπεροξειδία τύπου D, υγρά, ελεγχόμενης θερμοκρασίας, όπως:

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A ή B (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
<u>Υπεροξειδίο του ακετυλοκυκλοεξανοσουλφονιλίου</u>	≤ 32	≥ 68		OP7A	-10	0	
<u>Υπεροξυ-2-αιθυλοεξανικό τριτοταγές αμύλιο</u>	≤ 100			OP7A	+20	+25	
<u>Υπεροξυνεοδεκαενεανικό τριτοταγές αμύλιο</u>	≤ 77	≥ 23		OP7A	0	+10	
<u>Υπεροξυ-2-αιθυλοεξανικό τριτοταγές βουτύλιο+2,2,- δι-(τριτοταγές βουτυλοϋπεροξυ)βουτάνιο</u>	≤ 31 + ≤ 36	≥ 33		OP7A	+35	+40	
<u>Υπεροξυϊσοβουτυρικό τριτοταγές βουτύλιο</u>	≤ 52	≥ 48		OP7A	+15	+20	
<u>Υπεροξυνεοδεκαενεανικό τριτοταγές βουτύλιο</u>	78-100			OP7A	-5	+5	
<u>Υπεροξυνεοδεκαενεανικό τριτοταγές βουτύλιο</u>	≤ 77	≥ 23		OP7A	0	+10	
<u>Υπεροξυπιβαλικό τριτοταγές βουτύλιο</u>	≤ 67	≥ 33		OP7A	0	+10	
<u>Υπεροξυνεοδεκαενεανικό κουμύλιο</u>	≤ 77	≥ 23		OP7A	-10	0	

19/

Βλέπε περιθωριακό 2550 (9).

Κλάση 5.2

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A ή B (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
<u>Υπεροξυπυβαλικό κομύλιο</u>	≤ 77	≥ 23		OP7A	- 5	+ 5	

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A ή B (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)	Πρόσθετη επισήμανση (βλέπε περιθωριακό 2559)
<u>Υπεροξειδία αλκοολικής διακετόνης</u> <sup>20/</sup>	≤ 57	≥ 26	≥ 8	OP7A	+30	+35	8
<u>Υπεροξείδιο του διακετυλίου</u> <sup>21/</sup>	≤ 27	≥ 73		OP7A	+20	+25	
<u>Υπεροξυδιτανθρακικό δι-π-βουτύλιο</u>	28-52	≥ 48		OP7A	-15	-5	
<u>Υπεροξυδιτανθρακικό δι-sec-βουτύλιο</u>	≤ 52	≥ 48		OP7A	-15	-5	
<u>Υπεροξυδιτανθρακικό δι-(2-αιθυλοεξύλιο</u>	≤ 77	≥ 23		OP7A	-15	-5	
<u>Υπεροξυδιτανθρακικό διαιθύλιο</u>	≤ 27	≥ 73		OP7A	-10	0	
<u>Υπεροξείδιο του δίσσοβουτυριλίου</u>	≤ 32	≥ 68		OP7A	-20	-10	
<u>Υπεροξυδιτανθρακικό δίσσοπροπύλιο</u>	≤ 52	≥ 48		OP7A	-10	0	
<u>Υπεροξυδιτανθρακικό δίσσοτριδεκύλιο</u>	≤ 100			OP7A	-10	0	
<u>2,5-Διμεθυλο-2,5-δι-(2-αιθυλοεξανουλο)υπεροξυεξάνιο</u>	≤ 100			OP7A	+20	+25	
<u>Δι-(3,5,5-τριμεθυλοεξανουλο)υπεροξείδιο</u>	≤ 82	≥ 18 <sup>22/</sup>		OP7A	0	+10	
<u>Υπεροξείδιο(α) της μεθυλοκυκλοεξανόνης</u>	≤ 67	≥ 33		OP7A	+35	+40	
<u>Υπεροξυ-2-αιθυλοεξανικό 1,1,3,3-τετραμεθυλο-βουτύλιο</u>	≤ 100			OP7A	+20	+25	
<u>Υπεροξυφenoξoξικό2,4,4-τριμεθυλο-πεντύλιο-2</u>	≤ 37	≥ 63		OP7A	-10	0	

<sup>20/</sup> Με  9 % υπεροξείδιο του υδρογόνου, διαθέσιμο οξυγόνο  10.0 %.

<sup>21/</sup> Μόνον μη-μεταλλικές συσκευασίες θα πρέπει να χρησιμοποιούνται.

<sup>22/</sup> Μόνον διαλύτης τύπου A θα πρέπει να χρησιμοποιείται.

16° (b) 3116 οργανικά υπεροξειδία τύπου D, στερεά, ελεγχόμενης θερμοκρασίας, όπως:

Υλη	Συγκέντρωση (%)	Αδρανές στερεό (%)	Νερό (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακός 2554)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)
<u>Υπεροξιδιτανθρακικό δικετύλιο</u>	≤ 100			OP7B	+20	+25
<u>Υπεροξιδιτανθρακικό διμυριστύλιο</u>	≤ 100			OP7B	+20	+25
<u>Υπεροξειδίο του δι-π-εννεανοϋλίου</u>	≤ 100			OP7B	0	+10
<u>Διυπεροξυαζελαϊκό οξύ</u>	≤ 27	≥ 73		OP7B	+35	+40
<u>Δισόξινο διυπεροξυωδεκάνιο</u>	14-42	≥ 58		OP7B	+40	+45
<u>Υπεροξειδίο του διηλεκτρικού οξέος</u>	≤ 72		≥ 28	OP7B	+10	+15
<u>Δι-(3,5,5-τριμεθυλο-1,2-διοξολανυλο-3)υπεροξειδίο</u> <sup>23/</sup> ως πάστα	≤ 52			OP7B	+30	+35

17° (b) 3117 οργανικά υπεροξειδία τύπου E, υγρά, ελεγχόμενης θερμοκρασίας, όπως:

Υλη	Συγκέντρωση (%)	Διαλύτης τύπου A ή B (%)	Μέθοδος συσκευασίας (βλέπε περιθ. 2554)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)
<u>Υπεροξυ-2-αιθυλοεξανικό τριτοταγές βουτύλιο</u>	≤ 52	≥ 48	OP8A	+20	+25
<u>Υπεροξιδιτανθρακικό δι-π-βουτύλιο</u>	≤ 27	≥ 73	OP8A	-10	0
<u>Υπεροξιδιτανθρακικό δι-(2-αιθυλοεξύλιο) ως σταθερό εναιώρημα σε νερό</u>	≤ 42		OP8A	-15	-5
<u>Υπεροξειδίο του διπροπιονυλίου</u>	≤ 27	≥ 73	OP8A	+15	+20

<sup>23/</sup>

Με διαλύτη τύπου A, με ή χωρίς νερό.

## Κλάση 5.2

2551

(σ' Ψ.)

18° (b) 3118 οργανικά υπεροξειδία τύπου E, στερεά, ελεγχόμενης θερμοκρασίας, όπως:

Υλη	Συγκέντρωση (%)	Μέθοδος συσκευασίας (βλέπε περιθ. 2554)	Θερμοκρασία ελέγχου (°C)	Θερμοκρασία κινδύνου (°C)
<u>Υπεροξυδιτανθρακικό δι-(2-αιθυλοεξύλιο)</u> ως σταθερό εναιώρημα σε νερό (κατεψυγμένο)	≤ 42	OP8B	-15	-5

19° (b) 3119 οργανικά υπεροξειδία τύπου F, υγρά, ελεγχόμενης θερμοκρασίας, όπως:

Υλη	Συγκέντρωση (%)	Μέθοδος συσκευασίας (βλέπε περιθωριακό 2554)	Θερμοκρασία ελέγχου (%)	Θερμοκρασία κινδύνου (°C)
<u>Υπεροξυδιτανθρακικό δι-(4-τριτοπαγές βουτυλοκυκλοεξύλιο)</u> ως σταθερό εναιώρημα σε νερό	≤ 42	OP8A	+30	+35
<u>Υπεροξυδιτανθρακικό δικετύλιο</u> ως σταθερό εναιώρημα σε νερό	≤ 42	OP8A	+30	+35
<u>Υπεροξυδιτανθρακικό διμυριστύλιο</u> ως σταθερό εναιώρημα σε νερό	≤ 42	OP8A	+20	+25

20° (b) 3120 οργανικά υπεροξειδία τύπου F, στερεά, ελεγχόμενης θερμοκρασίας

Κανένα οργανικό υπεροξειδίο δεν συμπεριλαμβάνεται προς το παρόν σ' αυτό το είδος.

## C. Κενές συσκευασίες

31° Κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά γύμα (IBC), κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών και κενών εμπορευματοκιβωτίων-δεξαμενών, ακαθάρτιστων, που περιείχαν ύλες της κλάσης 5.2.

2551a Εξαρτήματα ελέγχου ή επισκευής, ή άλλα είδη, που περιέχουν μικρές ποσότητες υλών που υποδεικνύονται παρακάτω, μεταφερόμενα σε συμφωνία με τις παρακάτω διατάξεις, δεν υπόκεινται στις διατάξεις για αυτήν την Κλάση που περιέχονται σε αυτό το Παράρτημα ή στο Παράρτημα B:

(a) υγρά των 1°, 3°, 5°, 7°, ή 9°: όχι περισσότερο από 25 ml ανά εσωτερική συσκευασία,

(b) στερεά των 2°, 4°, 6°, 8°, ή 10°: όχι περισσότερο από 100 g ανά εσωτερική συσκευασία.

Αυτές οι ποσότητες υλών, θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες που τουλάχιστον ικανοποιούν τις συνθήκες του περιθωριακού 3538. Το συνολικό μκτό βάρος του κόλου, δεν θα πρέπει να υπερβαίνει τα 30 kg. Αυτές οι ποσότητες υλών, μπορούν να συσκευάζονται μαζί με άλλα είδη ή ύλες, υπό την προϋπόθεση ότι δεν θα αντιδράσουν επικίνδυνα σε περίπτωση διαρροής.

## Κλάση 5.2

**51a** Οι παρακάτω θεωρούνται επικίνδυνες αντιδράσεις:  
(συνεχ.)

- (a) ανάφλεξη και/ή έκλυση αξιοσημείωτης θερμότητας,
- (b) εκπομπή εύφλεκτων και/ή τοξικών αερίων,
- (c) σχηματισμός διαβρωτικών υγρών,
- (d) σχηματισμός ασταθών υλών.

Οι "Γενικές συνθήκες συσκευασίας" του περιθωριακού 3500 (1), (2) και (5) έως (7) θα πρέπει να τηρούνται.

## 2. Διατάξεις

## A. Κόλα

## 1. Γενικές συνθήκες συσκευασίας

**2552** (1) Οι συσκευασίες θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.5 και θα πρέπει να είναι έτσι κατασκευασμένες ώστε κανένα από τα υλικά που είναι σε επαφή με το περιεχόμενο να μην επιδρά επικίνδυνα στο περιεχόμενο. Ο βαθμός πλήρωσης δεν θα πρέπει να υπερβαίνει το 93 %. Για συνδυασμένες συσκευασίες, τα προστατευτικά υλικά δεν θα πρέπει να είναι άμεσα εύφλεκτα και δεν θα πρέπει να προκαλούν αποσύνθεση του οργανικού υπορροξείδιου σε περίπτωση διαρροής.

(2) Τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC), θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.6.

(3) Σε συμφωνία με τις διατάξεις των περιθωριακών 3511 (2) ή 3611 (2), συσκευασίες των ομάδων συσκευασίας II ή I μαρκαρισμένες με το γράμμα "Y" ή "X" ή IBC της ομάδας συσκευασίας II, μαρκαρισμένα με το γράμμα "Y", θα πρέπει να χρησιμοποιούνται. Μεταλλικές συσκευασίες της ομάδας συσκευασίας I, όμως, δεν θα πρέπει να χρησιμοποιούνται.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά υλών της κλάσης 5.2 σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές, βλέπε Παράρτημα B.

## 2. Ειδικές συνθήκες για τη συσκευασία ορισμένων υλών και ειδών

**2553** (1) Οι μέθοδοι συσκευασίας για ύλες της κλάσης 5.2 αναφέρονται στον Πίνακα 2 και χαρακτηρίζονται OP1A έως OP8A για υγρά και OP1B έως OP8B για στερεά. Ιξώδεις ύλες με χρόνο εκροής από ένα DIN-CUP με 4 mm διάμετρο εξόδου στους 20 °C μεγαλύτερο από 10 λεπτά (που αντιστοιχεί σε χρόνο εκροής μεγαλύτερο από 690 δευτερόλεπτα στους 20 °C από ένα πώμα περάσματος 4, ή μεγαλύτερο από  $2,68 \times 10^{-3} \text{ m}^3/\text{s}$ ), θα πρέπει να θεωρούνται ως στερεά.

(2) Οι ύλες και τα είδη θα πρέπει να συσκευάζονται όπως υποδεικνύεται στο περιθωριακό 2551 και όπως τίθεται λεπτομερειακά στον Πίνακα 2(A) και 2(B). Μία μέθοδος συσκευασίας για ένα κόλο μικρότερου μεγέθους (δηλ. με μικρότερο αριθμό OP) μπορεί να χρησιμοποιηθεί. Αυτή η διάταξη δεν εφαρμόζεται, όμως, σε μία μέθοδο συσκευασίας για ένα κόλο μεγαλύτερου μεγέθους (δηλ. με μεγαλύτερο αριθμό OP).

(3) Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 01, θα πρέπει να είναι σύμφωνες με τις διατάξεις του περιθωριακού 2102 (4) και (6).

(4) Δοχεία ή IBC, που περιέχουν ύλες των 1° (b), 3° (b), 5° (b), 7° (b), 9° (b), 11° (b), 13° (b), 15° (b), 17° (b) ή 19° (b), που εκπέμπουν μικρές ποσότητες αερίων, θα πρέπει να εξαερίζονται, σε συμφωνία με το περιθωριακό 3500 (8) ή 3601 (6).

## Κλάση 5.2

25. (1) Για οργανικά υπεροξειδία ή συνθέσεις οργανικών υπεροξειδίων που δεν αναφέρονται στο περιθωριακό 2551, η παρακάτω διαδικασία θα πρέπει να χρησιμοποιείται για τον καθορισμό της κατάλληλης μεθόδου συσκευασίας:

(a) Οργανικά υπεροξειδία τύπου B:

Οι ύλες και τα είδη θα πρέπει να καταχωρούνται στη μέθοδο συσκευασίας OP5A ή OP5B, υπό την προϋπόθεση ότι ικανοποιούν τα κριτήρια της προσθήκης A.1, περιθωριακό 3104 (2) (b) σε μία από τις συσκευασίες που υποδεικνύονται. Εάν το οργανικό υπεροξειδίο μπορεί μόνον να ικανοποιεί αυτά τα κριτήρια σε μικρότερη συσκευασία από εκείνες που αναφέρονται για τη μέθοδο συσκευασίας OP5A ή OP5B (δηλ. μία από τις συσκευασίες που αναφέρονται για OP1A έως OP4A ή OP1B έως OP4B), τότε η αντίστοιχη μέθοδος συσκευασίας με τον μικρότερο αριθμό OP θα πρέπει να καταχωρείται.

(b) Οργανικά υπεροξειδία τύπου C:

Οι ύλες και τα είδη θα πρέπει να καταχωρούνται στη μέθοδο συσκευασίας OP6A ή OP6B υπό την προϋπόθεση ότι ικανοποιούν τα κριτήρια της προσθήκης A.1, περιθωριακό 3104 (2)(c) σε μία από τις συσκευασίες που υποδεικνύονται. Εάν το οργανικό υπεροξειδίο μπορεί μόνον να ικανοποιεί αυτά τα κριτήρια σε μικρότερη συσκευασία από εκείνες που αναφέρονται για τη μέθοδο συσκευασίας OP6A ή OP6B τότε η αντίστοιχη μέθοδος συσκευασίας με τον μικρότερο αριθμό OP θα πρέπει να καταχωρείται.

(c) Οργανικά υπεροξειδία τύπου D:

Η μέθοδος συσκευασίας OP7A ή OP7B θα πρέπει να καταχωρείται.

(d) Οργανικά υπεροξειδία τύπου E:

Η μέθοδος συσκευασίας OP8A ή OP8B θα πρέπει να καταχωρείται.

(e) Οργανικά υπεροξειδία τύπου F:

Η μέθοδος συσκευασίας OP8A ή OP8B θα πρέπει να καταχωρείται.



(2) Πίνακας 2 (Α): ΚΑΤΑΛΟΓΟΣ ΣΥΣΚΕΥΑΣΙΩΝ ΓΙΑ ΥΓΡΑ ΟΡΓΑΝΙΚΑ ΥΠΕΡΟΞΕΙΔΙΑ

Τύπος και υλικό	Κωδικός συσκευασίας (βλέπε περιφερειακό 3514)	Μέγιστη ποσότητα ή καθαρός βάρος ανά κόλο 1/								
		OP1A 2/	OP2A 2/	OP3A 2/	OP4A 2/	OP5A 2/	OP6A 2/	OP7A	OP8A	
Χαλύβδινο βαρέλι	1A1	*	*	*	*	*	*	*	60 l	225 l
Χαλύβδινο βαρέλι 2/	1A2	*	*	*	*	*	*	*	50 kg	200 kg
Αλουμινένιο βαρέλι	1B1	*	*	*	*	*	*	*	60 l	225 l
Βαρέλι από φάιμπερ 3/	1G	0.5 kg	0.5/10kg	5 kg	5/25 kg	25 kg	50 kg	50 kg	50 kg	200 kg
Πλαστικό βαρέλι	1H1	0.5 l	0.5 l	5 l	5 l	30 l	60 l	60 l	60 l	225 l
Πλαστικό μπατόνι	3H1	0.5 l	0.5 l	5 l	5 l	30 l	60 l	60 l	60 l	60 l
Ξύλινο κβότσο 2/	4C1	0.5 kg	0.5/10kg	5 kg	5/25 kg	25 kg	50 kg	50 kg	50 kg	100 kg
Κβότσο από κόντρα-πλακέ 2/	4D	0.5 kg	0.5/10kg	5 kg	5/25 kg	25 kg	50 kg	50 kg	50 kg	100 kg
Κβότσο από φύλλο φάιμπερ 2/	4G	0.5 kg	0.5/10kg	5 kg	5/25 kg	25 kg	50 kg	50 kg	50 kg	100 kg
Πλαστικό δοχείο με εξωτερικό χαλύβδινο βαρέλι	6HA1	*	*	*	*	*	*	*	60 l	225 l
Πλαστικό δοχείο με εξωτερικό αλουμινένιο βαρέλι	6HB1	*	*	*	*	*	*	*	60 l	225 l
Πλαστικό δοχείο με εξωτερικό βαρέλι από φάιμπερ	6HG1	0.5 l	0.5 l	5 l	5 l	30 l	60 l	60 l	60 l	225 l
Πλαστικό δοχείο με εξωτερικό κβότσο από φύλλο φάιμπερ	6HG2	0.5 l	0.5 l	5 l	5 l	30 l	60 l	60 l	60 l	60 l
Πλαστικό δοχείο με εξωτερικό πλαστικό βαρέλι	6HH1	0.5 l	0.5 l	5 l	5 l	30 l	60 l	60 l	60 l	225 l
Πλαστικό δοχείο με εξωτερικό στερεό πλαστικό κβότσο	6HH2	0.5 l	0.5 l	5 l	5 l	30 l	60 l	60 l	60 l	60 l

\* Απαγορεύεται για οργανικά υπεροξείδια των τύπων Β και C.

1/ Εάν δύο τιμές δίνονται, η πρώτη εφαρμόζεται στο μέγιστο καθαρό βάρος ανά εσωτερικό δοχείο και η δεύτερη στο μέγιστο καθαρό βάρος του πλήρους κόλου.

2/ Για συνδυασμένες συσκευασίες που περιέχουν οργανικό υπεροξείδιο τύπου Β ή C, μόνον, πλαστικές φιάλες, πλαστικά βάζα, γυάλινες φιάλες ή γυάλινες αμπούλες μπορούν να χρησιμοποιούνται ως εσωτερικές συσκευασίες.

Όμως, γυάλινα δοχεία μπορούν να χρησιμοποιούνται ως εσωτερικά δοχεία για τις μεθόδους συσκευασίας OPIA και OP2A.

3/ Αυτές οι συσκευασίες επιτρέπονται μόνον ως μέρος μίας συνδυασμένης συσκευασίας. Οι εσωτερικές συσκευασίες θα πρέπει να είναι κατάλληλες για υγρά.

(3) Πίνακας 2 (B): ΚΑΤΑΛΟΓΟΣ ΣΥΣΚΕΥΑΣΙΩΝ ΓΙΑ ΣΤΕΡΕΑ ΟΡΓΑΝΙΚΑ ΥΠΕΡΟΞΕΙΔΙΑ

Τύπος και υλικό	Κωδικός συσκευασίας (βλέπε περιθωριακό 3514)	Μέγιστη ποσότητα ή καθαρό βάρος ανά κόλο <sup>1/</sup>										
		OP1B <sup>2/</sup>	OP2B <sup>2/3/</sup>	OP3B <sup>2/</sup>	OP4B <sup>2/</sup>	OP5B <sup>2/</sup>	OP6B <sup>2/</sup>	OP7B	OP8B			
Χαλύβδινο βαρέλι	1A2	*	*	*	*	*	*	*	*	*	*	200 kg
Αλουμινένιο βαρέλι	1B2	*	*	*	*	*	*	*	*	*	*	200 kg
Βαρέλι από φάιμπερ	1G	0.5 kg	0.5/10 kg	5 kg	5/25 kg	5 kg	5/25 kg	25 kg	50 kg	50 kg	50 kg	200 kg
Πλαστικό βαρέλι	1H2	0.5 kg	0.5/10 kg	5 kg	5/25 kg	5 kg	5/25 kg	25 kg	50 kg	50 kg	50 kg	200 kg
Ξύλινο κβότσο <sup>4/</sup>	4C1	0.5 kg	0.5/10 kg	5 kg	5/25 kg	5 kg	5/25 kg	25 kg	50 kg	50 kg	50 kg	100 kg
Κβότσο από κόντρα-πλακέ <sup>4/</sup>	4D	0.5 kg	0.5/10 kg	5 kg	5/25 kg	5 kg	5/25 kg	25 kg	50 kg	50 kg	50 kg	100 kg
Κβότσο από φύλλο φάιμπερ <sup>4/</sup>	4G	0.5 kg	0.5/10 kg	5 kg	5/25 kg	5 kg	5/25 kg	25 kg	50 kg	50 kg	50 kg	100 kg
Πλαστικό δοχείο με εξωτερικό χαλύβδινο βαρέλι	6HA1	*	*	*	*	*	*	*	*	*	*	200 kg
Πλαστικό δοχείο με εξωτερικό αλουμινένιο βαρέλι	6HB1	*	*	*	*	*	*	*	*	*	*	200 kg
Πλαστικό δοχείο με εξωτερικό βαρέλι από φάιμπερ	6HG1	0.5 kg	0.5 kg	5 kg	5 kg	5 kg	5 kg	25 kg	50 kg	50 kg	50 kg	200 kg
Πλαστικό δοχείο με εξωτερικό κβότσο από φύλλο φάιμπερ	6HG2	0.5 kg	0.5 kg	5 kg	5 kg	5 kg	5 kg	25 kg	50 kg	50 kg	50 kg	75 kg
Πλαστικό δοχείο με εξωτερικό πλαστικό βαρέλι	6HH1	0.5 kg	0.5 kg	5 kg	5 kg	5 kg	5 kg	25 kg	50 kg	50 kg	50 kg	200 kg
Πλαστικό δοχείο με εξωτερικό στερεό πλαστικό βαρέλι	6HH2	0.5 kg	0.5 kg	5 kg	5 kg	5 kg	5 kg	25 kg	50 kg	50 kg	50 kg	75 kg

\* Απογορεύεται για οργανικά υπεροξείδια των τύπων B και C.

<sup>1/</sup> Εάν δίνονται δύο τιμές, η πρώτη εφαρμόζεται στο μέγιστο καθαρό βάρος ανά εσωτερικό δοχείο και η δεύτερη στο μέγιστο καθαρό βάρος του πλήρους κόλου.

<sup>2/</sup> Για συνδυασμένες συσκευασίες που περιέχουν οργανικό υπεροξείδιο τύπου B ή C, μόνον μη-μεταλλικές συσκευασίες μπορούν να χρησιμοποιούνται. Όμως, γυάλινα δοχεία μπορούν μόνον να χρησιμοποιούνται ως εσωτερικά δοχεία για τις μεθόδους συσκευασίας OP1B και OP2B.

<sup>3/</sup> Εάν χρησιμοποιούνται διαμερίσματα επιβραδυντικά της φωτιάς, το μέγιστο καθαρό βάρος του πλήρους κόλου μπορεί να είναι 2.5 kg.

<sup>4/</sup> Αντές οι συσκευασίες επιτρέπονται μόνον ως μέρος μίας συνδυασμένης συσκευασίας. Οι εσωτερικές συσκευασίες θα πρέπει να είναι κατάλληλες για τις τιμές που πρόκειται να μεταφερθούν.

## Κλάση 5.2

2555 (1) Οι ύλες του περιθωριακού 2551, 9° (b), 10° (b), 19° (b) ή 20° (b) μπορούν να μεταφέρονται σε IBC υπό συνθήκες που επιβάλλονται από την αρμόδια αρχή τις χώρες προέλευσης όταν, με βάση τον έλεγχο, η αρμόδια αρχή ικανοποιείται ότι τέτοια μεταφορά μπορεί να διεξαχθεί με ασφάλεια. Οι έλεγχοι θα πρέπει να συμπεριλαμβάνουν τα παρακάτω αναγκαία:

- να αποδείξουν ότι το οργανικό υπεροξειδίο είναι σύμφωνο με τις αρχές για την ταξινόμηση που δίνονται στην προσθήκη Α.1, περιθωριακό 3104 (2) (f),
- να αποδείξουν τη συμβατότητα με όλα τα υλικά που είναι κανονικά σε επαφή με την ύλη κατά τη διάρκεια της μεταφοράς,
- να προσδιορίσουν, όταν εφαρμόζεται, τις θερμοκρασίες ελέγχου και κινδύνου συσχετισμένες με τη μεταφορά της ύλης στα συγκεκριμένα IBC όπως απορρέει από την SADT,
- να σχεδιάσουν, όταν εφαρμόζεται, συσκευές εκτόνωσης κινδύνου, και
- να προσδιορίσουν εάν οποιεσδήποτε ειδικές απαιτήσεις είναι αναγκαίες.

(2) Τα παρακάτω οργανικά υπεροξειδία τύπου F μπορούν να μεταφέρονται σε IBC του εμφανιζόμενου τύπου, χωρίς να είναι σύμφωνα με τις συνθήκες της παραγράφου (1):

Υλη	Τύπος IBC	Μέγιστη χωρητικότητα (λίτρα)	Θερμοκρασία ελέγχου	Θερμοκρασία κινδύνου
3109 ΟΡΓΑΝΙΚΑ ΥΠΕΡΟΞΕΙΔΙΑ ΤΥΠΟΥ F, ΥΓΡΑ: - υπεροξειδίο του διωδεκανοϋλίου, όχι περισσότερο από 42 %, σταθερό εναίωρημα, σε νερό	31HA1	1 000		
3119 ΟΡΓΑΝΙΚΑ ΥΠΕΡΟΞΕΙΔΙΑ ΤΥΠΟΥ F, ΥΓΡΑ, ΕΛΕΓΧΟΜΕΝΗΣ ΘΕΡΜΟΚΡΑΣΙΑΣ - υπεροξυδιτανθρακικό δι-(4-τριτοαγές βουτυλοκυκλοεξύλιο), όχι περισσότερο από 42 %, σταθερό εναίωρημα, σε νερό	31HA1	1 000	+30 °C	+35 °C
- υπεροξυδιτανθρακικό δικετύλιο, όχι περισσότερο από 42 %, σταθερό εναίωρημα, σε νερό	31HA1	1 000	+30 °C	+35 °C
- υπεροξυδιτανθρακικό διμυριστύλιο, όχι περισσότερο από 42 %, σταθερό εναίωρημα, σε νερό	31HA1	1 000	+15 °C	+15 °C

(3) Για την αποφυγή εκρηκτικής θραύσης των μεταλλικών IBC ή σύνθετων IBC με μεταλλικό περίβλημα πλήρων τοιχωμάτων, οι συσκευές εκτόνωσης κινδύνου θα πρέπει να σχεδιάζονται ώστε να εξαερίζονται όλα τα προϊόντα αποσύνθεσης και οι ατμοί που εκλύονται κατά τη διάρκεια μίας περιόδου όχι μικρότερης από μία ώρα δράσης της φωτιάς (φορτίο θερμότητας 110 kW/m<sup>2</sup>) ή αυτο-επιταχυνόμενης αποσύνθεσης.

## Κλάση 5.2

## 3. Μικτή συσκευασία

- 2558 Ύλες της κλάσης 5.2 δεν θα πρέπει να συσκευάζονται μαζί με ύλες ή είδη άλλων κλάσεων ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

## 4. Μαρκάρισμα και ετικέτες κινδύνου στα κόλα (βλέπε Προσθήκη Α.9)

## Μαρκάρισμα

- 2559 (1) Κάθε κόλα θα πρέπει να είναι καθαρά και με διάρκεια μαρκαρισμένο με τον χαρακτηριστικό αριθμό των εμπορευμάτων που θα καταχωρηθεί στο έγγραφο μεταφοράς, μετά από τα γράμματα "UN".

## Ετικέτες κινδύνου

- (2) Κόλα που περιέχουν ύλες της κλάσης 5.2, θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 5.2.

(3) Κόλα που περιέχουν οργανικά υπεροξειδία των 1°, 2°, 11° και 12°, θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 01, εκτός εάν η αρμόδια αρχή έχει επιτρέψει την παράλειψη αυτής της ετικέτας για τον τύπο της συσκευασίας που ελέγχεται διότι τα αποτελέσματα έχουν αποδείξει ότι το οργανικό υπεροξειδίο σε τέτοια συσκευασία δεν εμφανίζει εκρηκτική συμπεριφορά [βλέπε περιθωριακό 2561 (4)].

(4) Όταν μία ύλη είναι εξαιρετικά διαβρωτική ή διαβρωτική σύμφωνα με τα κριτήρια της κλάσης 8 [βλέπε περιθωριακό 2800 (1)], τα κόλα θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8. Αυτό υποδεικνύεται στο περιθωριακό 2551 (πρόσθετη επισήμανση) ή, όταν απαιτείται, στις εγκεκριμένες συνθήκες μεταφοράς [βλέπε περιθωριακό 2550 (8)].

(5) Κόλα που περιέχουν εύθραυστα δοχεία όχι ορατά από έξω, θα πρέπει να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 12.

(6) Κόλα που περιέχουν υγρά σε συσκευασίες τα πάματα των οποίων δεν είναι ορατά από έξω, κόλα που περιέχουν εξαεριζόμενες συσκευασίες ή εξαεριζόμενες συσκευασίες χωρίς εξωτερικές συσκευασίες, θα πρέπει να φέρουν σε δύο αντίθετες πλευρές, ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

2560

## B. Στοιχεία στο έγγραφο μεταφοράς

- 2561 (1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς και το αντίστοιχο συγκεντρωτικό κεφάλαιο που υπογραμμίζεται στο περιθωριακό 2551 ακολουθούμενη από τη χημική ονομασία (σε παρένθεση).

Αυτή η περιγραφή θα πρέπει να ακολουθείται από στοιχεία της κλάσης, τον αριθμό είδους, εάν εφαρμόζεται, το γράμμα και τα αρχικά "ADR" (ή "RID"), π.χ. "3108, οργανικό υπεροξειδίο τύπου E, στερεό, (υπεροξειδίο του διβενζοϋλίου), 5.2, 8° (b), ADR".

Για τη μεταφορά αποβλήτων [βλέπε περιθωριακό 2000 (5)], η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "Απόβλητα που περιέχουν ..." και το(τα) συστατικό(ά) που έχει(έχουν) χρησιμοποιηθεί για την ταξινόμηση των αποβλήτων στο περιθωριακό 2002 (8) θα πρέπει να εγγράφονται με τη(τις) χημική(ές) ονομασία(ες) του(ς), π.χ. "Απόβλητα, που περιέχουν 3107 οργανικό υπεροξειδίο τύπου E, υγρό, (υπεροξοξικό οξύ), 5.2, 7° (b), ADR". Γενικά, δεν χρειάζεται να εμφανίζονται περισσότερα από τα δύο συστατικά που κυρίως συμβάλουν στον κίνδυνο ή τους κινδύνους των αποβλήτων.

## Κλάση 5.2

- 2561 (2) Όταν ύλες και είδη μεταφέρονται υπό συνθήκες κανονισμένες από την αρμόδια αρχή (συνεχ.) (βλέπε περιθωριακά 2550 (8), 2555 (1), 211 511 και 212 511, η παρακάτω αναφορά θα πρέπει να συμπεριλαμβάνεται στο έγγραφο μεταφοράς:

"Μεταφορά σε συμφωνία με το περιθωριακό 2561 (2)".

Ένα αντίγραφο της απόφασης της αρμόδιας αρχής με τις συνθήκες μεταφοράς, θα πρέπει να επισυνάπτεται στο έγγραφο μεταφοράς.

- (3) Όταν ένα δείγμα ενός οργανικού υπεροξειδίου μεταφέρεται σε συμφωνία με το περιθωριακό 2550 (9), η παρακάτω αναφορά θα πρέπει να συμπεριλαμβάνεται στο έγγραφο μεταφοράς:

"Μεταφορά σε συμφωνία με το περιθωριακό 2561 (3)".

- (4) Όταν, με άδεια της αρμόδιας αρχής σε συμφωνία με το περιθωριακό 2559 (2), ετικέτα σύμφωνα με το υπόδειγμα Αριθμ.01 δεν απαιτείται, η παρακάτω αναφορά θα πρέπει να συμπεριλαμβάνεται στο έγγραφο μεταφοράς:

"Ετικέτα κινδύνου σύμφωνα με το υπόδειγμα Αριθμ.01 δεν απαιτείται".

- (5) Όταν οργανικά υπεροξειδία τύπου G [βλέπε Προσθήκη Α.1, περιθωριακό 3104 (2)(g)] μεταφέρονται, η παρακάτω αναφορά μπορεί να δίνεται στο έγγραφο μεταφοράς:

"Όχι ύλη της κλάσης 5.2".

- (6) Για οργανικά υπεροξειδία που απαιτούν έλεγχο της θερμοκρασίας κατά τη διάρκεια της μεταφοράς, η παρακάτω αναφορά θα πρέπει να δίνεται στο έγγραφο μεταφοράς:

"Θερμοκρασία ελέγχου: ...°C"

Θερμοκρασία κινδύνου: ...°C".

2562-  
2566

### C. Κενές συσκευασίες

- 2567 (1) Κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, ακαθάριστων, της 31° θα πρέπει να είναι κλεισμένα με τον ίδιο τρόπο και με τον ίδιο βαθμό στεγανότητας σαν να ήταν γεμάτες.

- (2) Κενές συσκευασίες συμπεριλαμβανομένων κενών IBC, ακαθάριστων, της 31° θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνου σαν να ήταν γεμάτες.

- (3) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μία από τις ονομασίες που υπογραμμίζονται στο 31°, π.χ. "Κενές συσκευασίες, 5.2, 31°, ADR". Στην περίπτωση κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών, ακαθάριστων, αυτή η περιγραφή θα πρέπει να συμπληρώνεται από την προσθήκη των λέξεων "Τελευταίο φορτίο" μαζί με τη χημική ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ. "Τελευταίο φορτίο: 3109 οργανικό υπεροξείδιο τύπου F, υγρό, (υδροϋπεροξείδιο του τριτοταγούς βουτυλίου), 9° (b)".

2568-  
2599

## ΚΛΑΣΗ 6.1 - ΤΟΞΙΚΕΣ ΥΛΕΣ

## 1. Κατάλογος υλών

**2600** (1) Ανάμεσα στις ύλες και τα είδη που καλύπτονται από τον τίτλο της κλάσης 6.1, εκείνα που αναφέρονται στο περιθωριακό 2601 ή καλύπτονται από ένα συγκεντρωτικό κεφάλαιο εκείνου του περιθωριακού, υπόκεινται στις συνθήκες που τίθενται στα περιθωριακά 2600(2) έως 2622 και στις διατάξεις αυτού του παραρτήματος και του παραρτήματος Β. Θεωρούνται τότε ως ύλες και είδη αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ:** Για τις ποσότητες υλών του περιθωριακού 2601 που δεν υπόκεινται στις διατάξεις για αυτήν την κλάση είτε σε αυτό το Παράρτημα είτε στο Παράρτημα Β, βλέπε περιθωριακό 2601a.

(2) Ο τίτλος της κλάσης 6.1 καλύπτει τις τοξικές ύλες για τις οποίες είναι γνωστό από την εμπειρία ή σχετικά με τις οποίες θεωρείται ως δεδομένο από πειράματα σε ζώα ότι, σε σχετικά μικρή ποσότητα, είναι ικανές με μία μόνη δράση ή με δράση μικρής διάρκειας να προκαλέσουν βλάβη στην ανθρώπινη υγεία, ή θάνατο, από εισπνοή, από δερματική απορρόφηση ή από κατάποση.

Οι ύλες της κλάσης 6.1, υποδιαιρούνται ως εξής:

- A. Ύλες που είναι εξαιρετικά τοξικές σε περίπτωση εισπνοής με σημείο ανάφλεξης κάτω από 23 °C, που δεν είναι ύλες της κλάσης 3,
  - B. Οργανικές ύλες που έχουν σημείο ανάφλεξης όχι μικρότερο από 23 °C ή μη-εύφλεκτες οργανικές ύλες,
  - C. Οργανομεταλλικές ενώσεις ή καρβονύλια,
  - D. Ανόργανες ύλες που μπορούν να απελευθερώσουν τοξικά αέρια σε περίπτωση επαφής με το νερό (ή την ατμοσφαιρική υγρασία), υδατικά διαλύματα ή οξέα και άλλες τοξικές ενεργές με το νερό<sup>1/</sup> ύλες,
  - E. Άλλες ανόργανες ύλες και μεταλλικά άλατα οργανικών υλών,
  - F. Ύλες και παρασκευάσματα που χρησιμοποιούνται ως παρασιτοκτόνα,
  - G. Ύλες που προορίζονται για εργαστήρια και πειράματα και για την παραγωγή φαρμακευτικών προϊόντων, εάν δεν αναφέρονται σε άλλα είδη αυτής της κλάσης,
  - H. Κενές συσκευασίες.
- (3) Ύλες και είδη της κλάσης 6.1, άλλα από τις ύλες των 1° έως 5°, που ταξινομούνται στα διάφορα είδη του περιθωριακού 2601, θα πρέπει να καταχωρούνται σε μία από τις παρακάτω ομάδες, που χαρακτηρίζονται με τα γράμματα (a), (b) ή (c), σύμφωνα με τον βαθμό τοξικότητάς τους:
- (a) εξαιρετικά τοξικές ύλες
  - (b) τοξικές ύλες
  - (c) ελαφρώς τοξικές ύλες

Ύλες, μείγματα και διαλύματα, συμπεριλαμβανομένων παρασιτοκτόνων των 71° έως 87°, που δεν αναφέρονται ρητά, θα πρέπει να ταξινομούνται στα κατάλληλα είδη και γράμματα σύμφωνα με τα παρακάτω κριτήρια:

<sup>1/</sup> Ο όρος "ενεργή με το νερό" δηλώνει μία ύλη που, σε επαφή με το νερό, εκλύει εύφλεκτα αέρια.

## Κλάση 6.1

- 2600· 1. (συνεχ.) Για την εκτίμηση του βαθμού τοξικότητας, θα πρέπει να λαμβάνεται υπόψη η ανθρώπινη εμπειρία περιπτώσεων τυχαίας δηλητηρίασης, καθώς και ειδικές ιδιότητες των οποιωνδήποτε μεμονωμένων υλών: υγρή κατάσταση, υψηλή πεπτικότητα, οποιαδήποτε ειδική πιθανότητα δερματικής απορρόφησης και ειδικές βιολογικές επιδράσεις.
2. Σε περίπτωση έλλειψης παρατηρήσεων σε ανθρώπους, ο βαθμός τοξικότητας θα πρέπει να εκτιμάται με τη χρήση των διαθέσιμων δεδομένων από πειράματα σε ζώα σε συμφωνία με τον παρακάτω πίνακα:

	Υποδιαίρεση σε ομάδες μέσα σ'ένα είδος	Στοματική τοξικότητα LD <sub>50</sub> (mg/kg)	Δερματική τοξικότητα LD <sub>50</sub> (mg/kg)	Τοξικότητα σε περίπτωση εισπνοής LC <sub>50</sub> σκόνης και νέφη (mg/l)
Εξαιρετικά τοξικά	(a)	≤ 5	≤ 40	≤ 0.5
Τοξικά	(b)	> 5-50	> 40-200	> 0.5-2
Ελαφρώς τοξικά	(c) <sup>2/</sup>	στερεά: > 50-200 υγρά: > 50-500	> 200-1 000	> 2-10

- 2.1 Όπου μία ύλη εμφανίζει διαφορετικούς βαθμούς τοξικότητας για δύο ή περισσότερα είδη έκθεσης, θα πρέπει να ταξινομείται στον υψηλότερο τέτοιο βαθμό τοξικότητας.
- 2.2 Ύλες που ικανοποιούν τα κριτήρια της κλάσης 8 και με τοξικότητα εισπνοής σκόνης και νέφους (LC<sub>50</sub>) που οδηγεί στην Ομάδα συσκευασίας I, θα πρέπει μόνον να γίνονται δεκτές για καταμερισμό στην κλάση 6.1 εάν η τοξικότητα μέσω στοματικής κατάποσης ή δερματικής επαφής είναι τουλάχιστον στην κλίμακα της ομάδας (a) ή (b). Αλλιώς, θα πρέπει να γίνεται καταχώρηση στην κλάση 8, εάν είναι κατάλληλη (βλέπε υποσημείωση 1/, περιθωριακό 2800).

**Τιμή LD<sub>50</sub> για έντονη στοματική τοξικότητα**

- 2.3 Εκείνη η παρεχόμενη δόση της ύλης που εξετάζεται, που είναι περισσότερο πιθανό να προκαλέσει θάνατο μέσα σε 14 ημέρες στον μισό πληθυσμό και των αρσενικών και των θηλυκών νέων ώριμων λευκοπαθικών αρουραίων. Ο αριθμός των ζώων που ελέγχονται θα πρέπει να είναι αρκετός για να δώσει ένα στατιστικώς ενδεικτικό αποτέλεσμα και θα πρέπει να είναι σε συμφωνία με την καλή φαρμακολογική πρακτική. Το αποτέλεσμα εκφράζεται σε mg ανά kg βάρους σώματος.

**Τιμή LD<sub>50</sub> για έντονη δερματική τοξικότητα**

- 2.4 Εκείνη η δόση της ύλης που, παρεχόμενη με συνεχή επαφή για 24 ώρες με το γυμνό δέρμα των λευκοπαθικών κουνελιών, είναι πολύ πιθανό να προκαλέσει θάνατο μέσα σε 14 ημέρες στο μισό πληθυσμό των ζώων που ελέγχονται. Ο αριθμός των ζώων που ελέγχονται θα πρέπει να είναι επαρκής ώστε να δώσει ένα στατιστικώς ενδεικτικό αποτέλεσμα και θα πρέπει να είναι σε συμφωνία με την καλή φαρμακολογική πρακτική. Το αποτέλεσμα εκφράζεται σε mg ανά kg βάρους σώματος.

<sup>2/</sup> Δακρυγόνα αέρια θα πρέπει να συμπεριλαμβάνονται στην ομάδα (b) ακόμα και τα δεδομένα για την τοξικότητα τους αντιστοιχούν με κριτήρια της ομάδας (c).

## Κλάση 6.1

**Τιμή LC<sub>50</sub> για έντονη τοξικότητα σε περίπτωση εισπνοής**2600  
(συνεχ.)

- 2.5 Εκείνη η συγκέντρωση ατμού, νέφους ή σκόνης που, παρεχόμενη με συνεχή εισπνοή για μία ώρα και στους αρσενικούς και θηλυκούς νέους ώριμους λευκοπαθικούς αρουραίους, είναι πολύ πιθανόν να προκαλέσει θάνατο μέσα σε 14 ημέρες στο μισό πληθυσμό των ζώων που ελέγχονται. Εάν η ύλη παρέχεται στα ζώα ως σκόνη ή νέφος, περισσότερο από 90 % των σωματιδίων που είναι διαθέσιμα για εισπνοή στον θάλαμο ελέγχου, θα πρέπει να έχουν διάμετρο 10 μm ή μικρότερη, υπό την προϋπόθεση ότι είναι λογικά προβλεπόμενο ότι τέτοιες συγκεντρώσεις θα μπορούσαν να έλθουν σ'επαφή με ανθρώπους κατά τη διάρκεια της μεταφοράς. Το αποτέλεσμα εκφράζεται σε mg ανά λίτρο αέρα για σκόνες και νέφη και σε ml ανά m<sup>3</sup> αέρα (ppm) για ατμό.
- 2.6 Αυτά τα κριτήρια για τοξικότητα εισπνοής σκόνης και νέφους βασίζονται στα δεδομένα για την LC<sub>50</sub> σχετιζόμενη με έκθεση 1 ώρας και όπου τέτοιες πληροφορίες είναι διαθέσιμες θα πρέπει να χρησιμοποιούνται. Όμως, όπου μόνον δεδομένα για την LC<sub>50</sub> σχετιζόμενη με έκθεση 4 ωρών είναι διαθέσιμα, τέτοιες τιμές μπορούν να πολλαπλασιάζονται επί τέσσερα και το αποτέλεσμα να αντικαθίσταται στα παραπάνω κριτήρια, δηλ. η τιμή LC<sub>50</sub> πολλαπλασιαζόμενη επί τέσσερα (για 4 ώρες) θεωρείται ισοδύναμη με την τιμή LC<sub>50</sub> (για 1 ώρα).

**Τοξικότητα εισπνοής ατμών**

3. Υγρά που εκπέμπουν τοξικό ατμό, θα πρέπει να ταξινομούνται στις παρακάτω ομάδες όπου "V" είναι η συγκέντρωση κορεσμένου ατμού (σε ml/m<sup>3</sup> αέρα) (πητικότητα) στους 20 °C και κανονική ατμοσφαιρική πίεση:

	Υποδιαίρεση σε ομάδες μέσα σε ένα είδος	
Εξαιρετικά τοξικά	(a)	Όπου $V \geq 10 LC_{50}$ και $LC_{50} \leq 1\ 000\ \text{ml/m}^3$
Τοξικά	(b)	Όπου $V \geq LC_{50}$ και $LC_{50} \leq 3\ 000\ \text{ml/m}^3$ και τα κριτήρια για το (a) δεν ικανοποιούνται
Ελαφρώς τοξικά	(c)	Όπου $V \geq 1/5 LC_{50}$ και $LC_{50} \leq 5\ 000\ \text{ml/m}^3$ και τα κριτήρια για τα (a) και (b) δεν ικανοποιούνται

Αυτά τα κριτήρια για τοξικότητα εισπνοής ατμών βασίζονται στα δεδομένα για την LC<sub>50</sub> σχετιζόμενη με έκθεση 1 ώρας και όπου τέτοιες πληροφορίες είναι διαθέσιμες, θα πρέπει να χρησιμοποιούνται.

Όμως, όπου μόνον δεδομένα για την LC<sub>50</sub> σχετιζόμενη με έκθεση 4 ωρών στους ατμούς είναι διαθέσιμα, τέτοιες τιμές μπορούν να πολλαπλασιάζονται επί δύο και το αποτέλεσμα να αντικαθίσταται στα παραπάνω κριτήρια, δηλ. η LC<sub>50</sub> (για 4 ώρες) x 2 θεωρείται ισοδύναμη της LC<sub>50</sub> (για 1 ώρα).



2600 Τοξικότητα εισπνοής ατμών  
(συνεχ.)

ΟΡΙΑ ΤΩΝ ΟΜΑΔΩΝ

Σε αυτές τις τιμές, τα κριτήρια εκφράζονται σε γραφική μορφή, ως βοήθημα για εύκολη ταξινόμηση. Όμως, λόγω της χοντρικής προσέγγισης που επιτυγχάνεται με τη χρήση των γραφημάτων, ύλες που πέφτουν πάνω ή κοντά στα όρια των ομάδων, θα πρέπει να ελέγχονται με τη χρήση αριθμητικών κριτηρίων.

#### Μείγματα υγρών

4. Μείγματα υγρών που είναι τοξικά σε περίπτωση εισπνοής, θα πρέπει να καταχωρούνται σε κατηγορίες κινδύνου σύμφωνα με τα παρακάτω κριτήρια:
- 4.1 Εάν η  $LC_{50}$  είναι γνωστή για καθεμία από τις τοξικές ύλες που απαρτίζουν το μείγμα, η ομάδα μπορεί να προσδιορίζεται ως εξής:
  - (α) υπολογισμός της  $LC_{50}$  του μείγματος:

$$LC_{50} (mixture) = \frac{1}{\sum_{i=1}^n \frac{f_i}{LC_{50i}}}$$

Όπου  $f_i$  = μοριακό κλάσμα του συστατικού  $i$  του μείγματος.

$LC_{50i}$  = μέση θανάσιμη συγκέντρωση του συστατικού  $i$  σε  $ml/m^3$ .

## Κλάση 6.1

2600  
(συνεχ.)

- (b) υπολογισμός της πτητικότητας κάθε συστατικού του μείγματος:

$$V_i = P_i \times \frac{10^6}{101.3} \text{ ml/m}^3$$

όπου  $P_i$  = μερική πίεση του συστατικού  $i$  σε kPa στους 20 °C και σε κανονική ατμοσφαιρική πίεση.

- (c) υπολογισμός του λόγου της πτητικότητας προς την
- $LC_{50}$
- :

$$R = \frac{\sum_{i=1}^n V_i}{LC_{50i}}$$

- (d) οι υπολογιζόμενες τιμές για την
- $LC_{50}$
- (μείγμα) και
- $R$
- χρησιμοποιούνται τότε για τον προσδιορισμό της ομάδας του μείγματος:

Ομάδα (a)  $R \geq 10$  και  $LC_{50}$  (μείγμα)  $\leq 1\,000 \text{ ml/m}^3$ Ομάδα (b)  $R \geq 1$  και  $LC_{50}$  (μείγμα)  $\leq 3\,000 \text{ ml/m}^3$ , εάν το μείγμα δεν ικανοποιεί τα κριτήρια για το (a)Ομάδα (c)  $R \geq 1/5$  και  $LC_{50}$  (μείγμα)  $\leq 5\,000 \text{ ml/m}^3$ , εάν το μείγμα δεν ικανοποιεί τα κριτήρια της ομάδας (a) ή της ομάδας (b).

4.2 Σε περίπτωση απουσίας δεδομένων για την  $LC_{50}$  των τοξικών συστατικών υλών, το μείγμα μπορεί να καταχωρείται σε μία ομάδα βάσει των παρακάτω απλοποιημένων ελέγχων για το κατώφλι τοξικότητας. Όταν αυτοί οι έλεγχοι κατωφλίου χρησιμοποιούνται, η περισσότερη περιοριστική ομάδα θα πρέπει να προσδιορίζεται και να χρησιμοποιείται για τη μεταφορά του μείγματος.

4.3 Ένα μείγμα καταχωρείται στην ομάδα (a) μόνον εάν ικανοποιεί και τα δύο από τα παρακάτω κριτήρια:

- (i) Ένα δείγμα του υγρού μείγματος εξατμίζεται και διαλύεται με αέρα για την παραγωγή μίας ατμόσφαιρας ελέγχου  $1\,000 \text{ ml/m}^3$  εξατμισμένου μείγματος σε αέρα. Δέκα λευκοπαθικοί αρουραίοι (5 αρσενικοί και 5 θηλυκοί) εκτίθενται στην ατμόσφαιρα ελέγχου για 1 ώρα και παρακολουθείται για 14 ημέρες. Εάν πέντε ή περισσότερα από τα ζώα πεθάνουν μέσα σε 14 ημερών περίοδο παρακολούθησης, το μείγμα θεωρείται ότι έχει  $LC_{50}$  ίσο με ή μικρότερο από  $1000 \text{ ml/m}^3$ .

- (ii) Ένα δείγμα ατμού σε ισορροπία με το υγρό μείγμα διαλύεται με 9 ίσους όγκους αέρα για το σχηματισμό μίας ατμόσφαιρας ελέγχου. Δέκα λευκοπαθικοί αρουραίοι (5 αρσενικοί και 5 θηλυκοί) εκτίθενται στην ατμόσφαιρα ελέγχου για 1 ώρα και παρατηρούνται για 14 ημέρες. Εάν πέντε ή περισσότερα από τα ζώα πεθάνουν μέσα σε μία περίοδο παρακολούθησης 14 ημερών, το μείγμα θεωρείται ότι έχει πτητικότητα ίση με ή μεγαλύτερη από 10 φορές την  $LC_{50}$  του μείγματος.

4.4 Ένα μείγμα καταχωρείται στην ομάδα (b) μόνον εάν ικανοποιεί και τα δύο από τα παρακάτω κριτήρια και δεν ικανοποιεί τα κριτήρια για την ομάδα (a):

- (i) Ένα δείγμα του υγρού μείγματος εξατμίζεται και διαλύεται με αέρα για την παραγωγή μίας ατμόσφαιρας ελέγχου  $3\,000 \text{ ml/m}^3$  εξατμισμένου μείγματος σε αέρα. Δέκα λευκοπαθικοί αρουραίοι (5 αρσενικοί και 5 θηλυκοί) εκτίθενται στην ατμόσφαιρα ελέγχου για 1 ώρα και παρακολουθούνται για 14 ημέρες. Εάν πέντε ή περισσότερα ζώα πεθάνουν μέσα σε μία περίοδο παρακολούθησης 14 ημερών, το μείγμα θεωρείται ότι έχει  $LC_{50}$  ίση με ή μικρότερη από  $3\,000 \text{ ml/m}^3$ .

## Κλάση 6.1

2600  
(συνεχ.)

- (ii) Ένα δείγμα του ατμού σε ισορροπία με το υγρό μείγμα χρησιμοποιείται για το σχηματισμό μίας ατμόσφαιρας ελέγχου. Δέκα λευκοπαθικοί αρουραίοι (5 αρσενικοί και 5 θηλυκοί) εκτίθενται στην ατμόσφαιρα ελέγχου για 1 ώρα και παρακολουθούνται για 14 ημέρες. Εάν πέντε ή περισσότερα από τα ζώα πεθάνουν μέσα σε μία περίοδο παρακολούθησης 14 ημερών, το μείγμα θεωρείται ότι έχει πτητικότητα ίση με ή μεγαλύτερη από την LC<sub>50</sub> του μείγματος.

4.5 Ένα μείγμα καταχωρείται στην ομάδα (c) μόνον εάν ικανοποιεί και τα δύο από τα παρακάτω κριτήρια και δεν ικανοποιεί τα κριτήρια για τις ομάδες (a) ή (b):

- (i) Ένα δείγμα του υγρού μείγματος εξατμίζεται και διαλύεται με αέρα για την παραγωγή μίας ατμόσφαιρας ελέγχου 5 000 ml/m<sup>3</sup> εξατμισμένου μείγματος σε αέρα. Δέκα λευκοπαθικοί αρουραίοι (5 αρσενικοί και 5 θηλυκοί) εκτίθενται στην ατμόσφαιρα ελέγχου για 1 ώρα και παρακολουθούνται για 14 ημέρες. Εάν πέντε ή περισσότερα ζώα πεθάνουν μέσα σε μία περίοδο παρακολούθησης 14 ημερών, το μείγμα θεωρείται ότι έχει LC<sub>50</sub> ίση με ή μικρότερη από 5 000 ml/m<sup>3</sup>.
- (ii) Η συγκέντρωση ατμού (πτητικότητα) του υγρού μείγματος μετράται και εάν η συγκέντρωση ατμού είναι ίση με ή μεγαλύτερη από 1 000 ml/m<sup>3</sup>, το μείγμα θεωρείται ότι έχει πτητικότητα ίση με ή μεγαλύτερη από το 1/5 της LC<sub>50</sub> του μείγματος.

(4) Όταν, ως αποτέλεσμα προσθηκών, ύλες της κλάσης 6.1 μεταβαίνουν σε άλλες κατηγορίες κινδύνου από εκείνες στις οποίες οι αναφερόμενες με την ονομασία τους στο περιθωριακό 2601 ύλες ανήκουν, αυτά τα μείγματα ή διαλύματα θα πρέπει να καταχωρούνται στα είδη και τα γράμματα στα οποία ανήκουν, με βάση τον πραγματικό βαθμό κινδύνου τους.

**ΣΗΜΕΙΩΣΗ:** Για την ταξινόμηση των διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα), βλέπε επίσης περιθωριακό 2002 (8).

(5) Με βάση τα κριτήρια της παραγράφου (3), μπορεί επίσης να προσδιορίζεται εάν η φύση ενός διαλύματος ή μείγματος που αναφέρεται με συγκεκριμένη ονομασία ή που περιέχει μία ύλη που αναφέρεται με συγκεκριμένη ονομασία, είναι τέτοια ώστε το διάλυμα ή το μείγμα να μην υπόκειται στις απαιτήσεις για αυτήν την Κλάση.

(6) Εύφλεκτα υγρά που είναι τοξικά σε περίπτωση εισπνοής, με σημείο ανάφλεξης κάτω από 23 °C, εκτός από τις ύλες των 1° έως 10°, είναι ύλες της κλάσης 3 (βλέπε περιθωριακό 2301, 11° έως 19°).

(7) Εύφλεκτα υγρά ελαφρώς τοξικά, με εξαίρεση τις ύλες και τα παρασκευάσματα που χρησιμοποιούνται ως παρασιτοκτόνα, με σημείο ανάφλεξης μεταξύ 23 °C έως 61 °C, συμπεριλαμβανομένων, είναι ύλες της κλάσης 3 (βλέπε περιθωριακό 2301).

(8) Αυτοθερμαινόμενες ύλες ελαφρώς τοξικές είναι ύλες της κλάσης 4.2 (βλέπε περιθωριακό 2431).

(9) Ενεργές με το νερό ύλες ελαφρώς τοξικές είναι ύλες της κλάσης 4.3 (βλέπε περιθωριακό 2471).

(10) Οξειδωτικές ύλες ελαφρώς τοξικές είναι ύλες της κλάσης 5.1 (βλέπε περιθωριακό 2501).

(11) Ύλες ελαφρώς τοξικές και ελαφρώς διαβρωτικές είναι ύλες της κλάσης 8 (βλέπε περιθωριακό 2801).

(12) Χημικώς ασταθείς ύλες της κλάσης 6.1 δεν θα πρέπει να γίνονται δεκτές για μεταφορά, εκτός εάν έχουν ληφθεί τα αναγκαία μέτρα για την αποφυγή της επικίνδυνης αποσύνθεσης ή πολυμερισμού τους κατά τη διάρκεια της μεταφοράς. Για το σκοπό αυτό, θα πρέπει ειδικά να βεβαιώνεται ότι εκείνα τα δοχεία δεν περιέχουν οποιαδήποτε (οποιοσδήποτε) ύλη(ες) που πιθανώς να προκαλέσει(ουν) τέτοια αντίδραση.

## Κλάση 6.1

- 2600** (13) Ύλες και μείγματα υλών με σημείο τήξης παραπάνω από 45 °C, θεωρούνται ως στερεά (συνεχ.) κατά την έννοια των απαιτήσεων συσκευασίας των περιθωριακών 2606 (2), 2607 (4) και 2608 (3).
- (14) Το σημείο ανάφλεξης που αναφέρεται παρακάτω, θα πρέπει να προσδιορίζεται με τον τρόπο που περιγράφεται στην προσθήκη Α.3.
- 2601** **A.** Εξαιρετικά τοξικές ύλες με σημείο ανάφλεξης κάτω από 23 °C που δεν είναι ύλες της κλάσης 3
- 1° Υδροκάνιο, σταθεροποιημένο:
- 1051 υδροκάνιο, σταθεροποιημένο, που περιέχει όχι περισσότερο από 3 % νερό, 1614 υδροκάνιο, σταθεροποιημένο, που περιέχει όχι περισσότερο από 3 % νερό και είναι προσροφημένο σε πορώδες αδρανές υλικό.
- ΣΗΜΕΙΩΣΗ 1:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτή την ύλη [βλέπε περιθωριακό 2603 (1)].
- ΣΗΜΕΙΩΣΗ 2:** Άνδρο υδροκάνιο που δεν ικανοποιεί αυτή τη συνθήκη δεν θα γίνεται δεκτό για μεταφορά.
- ΣΗΜΕΙΩΣΗ 3:** Υδροκάνιο (Υδροκυανικό οξύ) που περιέχει λιγότερο από 3 % νερό είναι σταθερό, εάν η τιμή του pH είναι  $2.5 \pm 0.5$  και το υγρό είναι καθαρό και άχρωμο.
- 2° Μείγματα υδροκυανίου:
- 1613 υδατικό διάλυμα υδροκυανίου, (υδροκυανικό οξύ), με όχι περισσότερο από 20 % υδροκάνιο.
- 3294 υδροκάνιο, διάλυμα σε αλκοόλη, με όχι περισσότερο από 45 % υδροκάνιο.
- ΣΗΜΕΙΩΣΗ 1:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτές τις ύλες [βλέπε περιθωριακό 2603 (2)].
- ΣΗΜΕΙΩΣΗ 2:** Διαλύματα υδροκυανίου που δεν συμφωνούν με αυτές τις συνθήκες δεν θα γίνονται δεκτά για μεταφορά.
- 3° Καρβονύλια μετάλλων:
- 1259 καρβονύλιο νικελίου, 1994 πεντακαρβονύλιο σιδήρου.
- ΣΗΜΕΙΩΣΗ 1:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτές τις ύλες (βλέπε περιθωριακό 2604).
- ΣΗΜΕΙΩΣΗ 2:** Άλλα καρβονύλια μετάλλων με σημείο ανάφλεξης κάτω από 23 °C δεν θα γίνονται δεκτά για μεταφορά.
- 4° 1185 αιθυλοενεΐμίνη, αδρανής.
- ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτή την ύλη [βλέπε περιθωριακό 2605 (1)].

## Κλάση 6.1

2601 5° 2480 ισοκουανικός μεθυλεστέρας.  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτή την ύλη [βλέπε περιθωριακό 2605 (2)].

6° Άλλα ισοκουανικά άλατα με σημείο ανάφλεξης κάτω από 23 °C:

(a) 2482 ισοκουανικός n-προπυλεστέρας, 2484 ισοκουανικός τριτοταγής βουτυλεστέρας, 2485 ισοκουανικός n-βουτυλεστέρας.

7° Αζωτούχες ύλες:

(a) 1. 1163 διμεθυλυδραζίνη, ασυμμετρική, 1244 μεθυλυδραζίνη,  
2. 2334 αλλυλαμίνη, 2382 διμεθυλυδραζίνη, συμμετρική.

8° Οξυγονωμένες ύλες:

(a) 1092 ακρολεϊνη, αδρανής, 1098 αλλυλική αλκοόλη, 1143 κροτοναλδεϋδη, σταθεροποιημένη, 2606 ορθοπυρρικός μεθυλεστέρας.

9° Αλογονωμένες ύλες:

(a) 1239 μεθυλοχλωρομεθυλαιθέρας.

10° Διαβρωτικές αλογονωμένες ύλες:

(a) 1182 γλωρομυρμηκικός αιθυλεστέρας, 1238 γλωρομυρμηκικός μεθυλεστέρας, 2407 γλωρομυρμηκικός ισοπροπυλεστέρας, 2438 τριμεθυλοακετυλοχλωρίδιο.

**B. Οργανικές ύλες που έχουν σημείο ανάφλεξης 23 °C ή μεγαλύτερο ή μη-εύφλεκτες οργανικές ύλες**

**ΣΗΜΕΙΩΣΗ:** Οργανικές ύλες και παρασκευάσματα που χρησιμοποιούνται ως παρασιτοκτόνα είναι ύλες των 71° έως 78° και 81° έως 87°.

11° Αζωτούχες ύλες με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων:

(a) 3275 νιτρίλια, τοξικά, εύφλεκτα, ε.α.ο.,

(b) 2668 γλωροακετονιτρίλιο, 3073 βινυλοπυριδίνες, αδρανή, 3275 νιτρίλια, τοξικά, εύφλεκτα, ε.α.ο.

12° Αζωτούχες ύλες με σημείο ανάφλεξης μεγαλύτερο από 61 °C:

(a) 1541 κυανυδρίνη της ακετόνης, σταθεροποιημένη, 3276 νιτρίλια, τοξικά, ε.α.ο.,

(b) 1547 ανιλίνη, 1577 γλωροδιητροβενζόλια, 1578 γλωρονιτροβενζόλια, 1590 διγλωροανιλίνες, 1596 διητροανιλίνες, 1597 διητροβενζόλια, 1598 διητρο-ο-κρεζόλη, 1599 διάλυμα διητροφαινόλης, 1650 β-ναφθυλαμίνη, 1652 ναφθυλουρία, 1661 νιτροανιλίνες (ο-,m-p-), 1662 νιτροβενζόλιο, 1664 νιτροτολουόλια (ο-,m-p-), 1665 νιτροξυλένια, (ο-,m-p-) 1708 τολουϊδίνες, 1711 ξυλιδίνες, 1843 διητρο-ο-κρεζολικό αμμώνιο, 1885 βενζιδίνη, 2018 γλωροανιλίνες, στερεές, 2019 γλωροανιλίνες, υγρές, 2038 διητροτολουόλια,

## Κλάση 6.1

2601  
(συνεχ.)

2224 βενζονιτρίλιο, 2253 N,N-διμεθυλανιλίνη, 2306 νιτροβενζοτριφθορίδια, 2307 3-νιτρο-4-γλωροβενζοτριφθορίδιο, 2522 μεθακρυλικός διμεθυλαμινοαιθυλεστέρας, 2572 φαιλυδραζίνη, 2647 μαλονονιτρίλιο, 2671 αμινοπυριδίνες (ο-,m-p-), 2673 2-αμινο-4-γλωροφαινόλη, 2690 N,n-βουτυλοϊμιδαζόλη, 2738 N-βουτυλανιλίνη, 2754 N-αιθυλοτολουϊδίνες, 2822 2-γλωροπυριδίνη, 3276 νιτρίλια, τοξικά, ε.α.ο.

- (c) 1548 υδρογλωρική ανιλίνη, 1599 διάλυμα δινιτροφαινόλης, 1663 νιτροφαινόλες (ο-,m-,p-), 1673 φαιλυενοδιαμίνες (ο-,m-,p-), 1709 2,4-τολουένοδιαμίνη, 2074 ακρυλαμίδιο, 2077 α-ναφθυλαμίνη, 2205 αδιπονιτρίλιο, 2272 N-αιθυλανιλίνη, 2273 2-αιθυλανιλίνη, 2274 N-αιθυλο-N-βενζυλανιλίνη, 2294 N-μεθυλανιλίνη, 2300 2-μεθυλο-5-αιθυλοπυριδίνη, 2311 φαινετιδίνες, 2431 ανισιδίνες, 2432 N,N-διαιθυλανιλίνη, 2446 νιτροκρεζόλες, 2470 φαιλυακετονιτρίλιο, υγρό, 2512 αμινοφαινόλες(ο-,m-,p-), 2651 4,4'-διαμινοδιφαιλυλομεθάνιο, 2656 κινολίνη, 2660 νιτροτολουϊδίνες (μονο), 2666 κυανοξικός αιθυλεστέρας, 2713 ακριδίνη, 2730 νιτροανισόλη, 2732 νιτροβρωμοβενζόλιο, 2753 N-αιθυλοβενζυλοτολουϊδίνες, 2873 διβουτυλαμινοαιθανόλη, 2941 φθορανιλίνες, 2942 2-τριφθορομεθυλανιλίνη, 2946 2-αμινο-5-διαιθυλαμινοπεντάνιο, 3276 νιτρίλια, τοξικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** *Ισοκτανικά άλατα με σημείο ανάφλεξης μεγαλύτερο από 61 °C είναι ύλες της 19°.*

13° Οξυγονωμένες ύλες με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων:

- (a) 2521 δικετένιο, αδρανές.

14° Οξυγονωμένες ύλες με σημείο ανάφλεξης μεγαλύτερο από 61 °C:

- (b) 1594 θειικό διαιθύλιο, 1671 φαινόλη, στερεά, 2261 Ξυλενόλες, 2587 βενζοκινόνη, 2669 γλωροκρεζόλες, 2821 διάλυμα φαινόλης, 2839 αλδόλη,
- (c) 2369 μονοβουτυλαιθέρας της αιθυλενογλυκόλης, 2525 οξάλικός αιθυλεστέρας, 2609 βορικός τριαλλυλεστέρας, 2662 υδροκινόνη, 2716 1,4-βουτινοδιόλη, 2821 διάλυμα φαινόλης, 2874 φουρφορυλαλκοόλη, 2876 ρεζορσίνη, 2937 α-μεθυλοβενζυλαλκοόλη, 2938 βενζοϊικός μεθυλεστέρας.

15° Αλογωνωμένοι υδρογονάνθρακες:

- (a) 1605 αιθυλενοδιβρωμίδιο, 1647 μείγμα μεθυλοβρωμιδίου και αιθυλενοδιβρωμιδίου, υγρό, 2646 εξαγλωροκυκλοπενταδιένιο,

**ΣΗΜΕΙΩΣΗ:** *Μείγματα αιθυλενοδιβρωμιδίου (συμ-διβρωμοαιθανίου) με μεθυλοβρωμίδιο που έχουν, στους 50 °C, τάση ατμών μεγαλύτερη από 300 kPa (3 bar) είναι ύλες της κλάσης 2 [βλέπε περιθωριακό 2201, 4° (b)].*

- (b) 1669 πενταγλωροαιθάνιο, 1701 Ξυλοβρωμίδιο, 1702 1,1,2,2-τετραγλωροαιθάνιο, 1846 τετραγλωράνθρακας, 1886 βενζυλοϊδενογλωρίδιο, 1891 αιθυλοβρωμίδιο, 2322 τριγλωροβουτένιο, 2644 μεθυλοϊωδίδιο, 2653 βενζυλοϊωδίδιο,
- (c) 1591 ο-δγλωροβενζόλιο, 1593 διγλωρομεθάνιο (μεθυλενογλωρίδιο), 1710 τριγλωροαιθυλένιο, 1887 βρωμογλωρομεθάνιο, 1888 γλωροφόρμιο, 1897 τετραγλωροαιθυλένιο, 2279 εξαγλωροβουταδιένιο, 2321 τριγλωροβενζόλια, υγρά, 2504 τετραβρωμοαιθάνιο, 2515 βρωμοφόρμιο, 2516 τετραβρωμάνθρακας,

## Κλάση 6.1

2601  
(συνεχ.)2664 διβρωμοαιθάνιο, 2688 1-βρωμο-3-γλωροπροπάνιο, 2729 εξαγλωροβενζόλιο, 2831 1,1,1-τριγλωροαιθάνιο, 2872 διβρώμογλωροπροπάνια.

**ΣΗΜΕΙΩΣΗ:** Μείγματα μεθυλοχλωριδίου με μεθυλοχλωρίδιο (διγλωρομεθάνιο) που έχουν, στους 50 °C, τάση ατμών μεγαλύτερη από 300 kPa (3 bar), είναι όλες της κλάσης 2 [βλέπε περιθωριακό 2201, 4° (bt)].

16° Άλλες αλογονωμένες ύλες με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων:

- (a) 1135 αιθυλενογλωροδρίνη, 2558 επιβρωμωδρίνη,
- (b) 1181 γλωροξικός αιθυλεστέρας, 1569 βρωμοακετόνη, 1603 βρωμοξικός αιθυλεστέρας, 1916 2,2'-διγλωροδιαιθυλαιθέρας, 2023 επγλωροδρίνη, 2295 γλωροξικός μεθυλεστέρας, 2589 γλωροξικός βινυλεστέρας, 2611 προπυλενογλωροδρίνη.

17° Άλλες αλογονωμένες ύλες με σημείο ανάφλεξης μεγαλύτερο από 61 °C:

- (a) 1580 γλωροπικρίνη, 1670 υπεργλωρομεθυλομερκαπτάνη, 1672 γλωριούχο φαινυλοκαρβουλαμίνη, 1694 βρωμοβενζυλοκυανίδια, 2232 γλωρακεταλδεύδη, 2628 φθοροξικό κάλιο, 2629 φθοροξικό νάτριο, 2642 φθοροξικό οξύ, 1583 μείγμα γλωροπικρίνης, ε.α.ο., 1610 αλογονωμένα ερεθιστικά υγρά, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ:** Μείγματα μεθυλοβρωμιδίου ή μεθυλοχλωριδίου με γλωροπικρίνη, που έχουν, στους 50 °C, τάση ατμών μεγαλύτερη από 300 kPa (3 bar) είναι όλες της κλάσης 2 [βλέπε περιθωριακό 2201, 4° (σε) ή 4° (bt)].

- (b) 1695 γλωρακετόνη, σταθεροποιημένη, 1697 γλωρακετοφαινόνη, 2075 γλωράλη, άνυδρη, αδρανής, 2490 διγλωροϊσοπροπυλαιθέρας, 2552 εξαφθορακετόνη ένυδρη, 2567 πενταγλωροφαινικό νάτριο, 2643 βρωμοξικός μεθυλεστέρας, 2645 φαινακυλοβρωμίδιο, 2648 1,2-διβρωμοβουτανόνη-3, 2649 1,3-διγλωρακετόνη, 2650 1,1-διγλωρο-1-νιτροαιθάνιο, 2750 1,3-διγλωροπροπανόλη-2, 2948 3-τριφθορομεθυλανιλίνη, 3155 πενταγλωροφαινόλη, 1583 μείγμα γλωροπικρίνης, ε.α.ο., 1610 αλογονωμένα ερεθιστικά υγρά, ε.α.ο.,
- (c) 1579 υδρογλωροική 4-γλωρο-ο-τολουϊδίνη, 2020 γλωροφαινόλες, στερεές, 2021 γλωροφαινόλες, υγρές, 2233 γλωραμισιδίνες, 2235 γλωροβενζυλογλωρίδια, 2237 γλωρονιτροανιλίνες, 2239 γλωροτολουϊδίνες, 2299 διγλωροξικός μεθυλεστέρας, 2433 γλωρονιτροτολουόλια, 2533 τριγλωροξικός μεθυλεστέρας, 2659 γλωροξικό νάτριο, 2661 εξαγλωρακετόνη, 2689 α-μονογλωροδρίνη της γλυκερίνης, 2747 γλωροφορμικός τριτοταγής βουτυλοκυκλοεξυλεστέρας, 2849 3-γλωροπροπανόλη-1, 2875 εξαγλωροφαινόλη, 3241 2-βρωμο-2-νιτροπροπανοδιόλη-1,3, 1583 μείγμα γλωροπικρίνης, ε.α.ο., 1610 αλογονωμένα ερεθιστικά υγρά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Χλωροφορμικά άλατα με επικρατέστερα διαβρωτικές ιδιότητες είναι όλες της κλάσης 8 (βλέπε περιθωριακό 2801, 64°).

## Κλάση 6.1

2601  
(συνεχ.)

18° Ισοκυανικά άλατα με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων:

- (b) 2285 ισοκυανατοβενζοτριφθορίδια, 2487 ισοκυανικός φαινυλεστέρας, 2488 ισοκυανικός κυκλοεξυλεστέρας, 3080 ισοκυανικά άλατα, τοξικά, εύφλεκτα, ε.α.ο. ή 3080 διάλυμα ισοκυανικού άλατος, τοξικό, εύφλεκτο, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Διάλυμα αυτών των ισοκυανικών αλάτων με σημείο ανάφλεξης κάτω από 23 °C είναι ύλες της κλάσης 3 [βλέπε περιθωριακό 2301, 14° (b)].

19° Ισοκυανικά άλατα με σημείο ανάφλεξης παραπάνω από 61 °C:

- (b) 2078 διϊσοκυανικό τολουόλιο και ισομερή μείγματα, 2236 ισοκυανικός 3-γλωρο-4-μεθυλοφαινυλεστέρας, 2250 ισοκυανικοί διγλωροφαινυλεστέρες, 2281 διϊσοκυανικό εξαμεθυλένιο, 2206 ισοκυανικά άλατα, τοξικά, ε.α.ο. ή 2206 διαλύματα ισοκυανικών αλάτων, τοξικά, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ 1:** Διάλυμα αυτών των ισοκυανικών αλάτων με σημείο ανάφλεξης κάτω από 23 °C είναι ύλες της κλάσης 3 (βλέπε περιθωριακό 2301, 14°).

**ΣΗΜΕΙΩΣΗ 2:** Διάλυμα αυτών των ισοκυανικών αλάτων με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων, είναι ύλες του 18° (b).

- (c) 2290 ισοφορονοδιϊσοκυανικό άλας, 2328 διϊσοκυανικό τριμεθυλοεξαμεθυλένιο και ισομερή μείγματα, 2489 4,4'-διϊσοκυανικό διφαινυλομεθάνιο, 2206 ισοκυανικά άλατα, τοξικά, ε.α.ο. ή 2206 διαλύματα ισοκυανικών αλάτων, τοξικά, ε.α.ο.

20° Ύλες που περιέχουν θείο και με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων:

- (a) 2337 φαινυλομερκαπτάνη,  
 (b) 1545 ισοθειοκυανικός αλλυλεστέρας, αδρανής, 2477 ισοθειοκυανικός μεθυλεστέρας, 3023 τριτοταγής οκτυλομερκαπτάνη, 3071 μερκαπτάνες, υγρές, τοξικές, εύφλεκτες, ε.α.ο. ή 3071 μείγμα μερκαπτάνης, υγρό, τοξικό, εύφλεκτο, ε.α.ο.

21° Ύλες που περιέχουν θείο και με σημείο ανάφλεξης παραπάνω από 61 °C:

- (b) 1651 ναφθυλθειουρία, 2474 θειοφωσγένιο, 2936 θειογαλακτικό οξύ, 2966 θειογλυκόλη,  
 (c) 2785 4-θειαπεντανάλη.

22° Ύλες που περιέχουν φωσφόρο και με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων:

- (a) 3279 οργανοφωσφορικές ενώσεις, τοξικές, εύφλεκτες, ε.α.ο.,  
 (b) 3279 οργανοφωσφορικές ενώσεις, τοξικές, εύφλεκτες, ε.α.ο.

23° Ύλες που περιέχουν φωσφόρο και με σημείο ανάφλεξης παραπάνω από 61 °C:

- (a) 3278 οργανοφωσφορικές ενώσεις, τοξικές, ε.α.ο.,



## Κλάση 6.1

2601  
(συνεχ.)

- (b) 1611 τετραφωσφορικό εξααιθύλιο, 1704 διθειοπυροφωσφορικό τετρααιθύλιο, 2501 διάλυμα του οξειδίου της τρις-(1-αζιριδινυλο)φωσφίνης, 2574 φωσφορικό τρικρεζύλιο με περισσότερο από 3 % ορθο ισομερές, 3278 οργανοφωσφορικές ενώσεις, τοξικές, ε.α.ο.,
- (c) 2501 διάλυμα του οξειδίου της τρις-(1-αζιριδινυλο)φωσφίνης, 3278 οργανοφωσφορικές ενώσεις, τοξικές, ε.α.ο.

24° Τοξικές οργανικές ύλες μεταφερόμενες στην τετηγμένη κατάσταση:

- (b) 1. 1600 δινιτροτολουόλια, τετηγμένα, 2312 φαινόλη, τετηγμένη,  
2. 3250 γλωροξικό οξύ, τετηγμένο.

25° Οργανικές ύλες και είδη και διαλύματα και μείγματα οργανικών υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλο συγκεντρωτικό κεφάλαιο:

- (a) 1601 απολυμαντικά, στερεά, τοξικά, ε.α.ο.,  
1602 βαφές, υγρές, τοξικές, ε.α.ο. ή 1602 ενδιάμεσα βαφών, υγρά, τοξικά, ε.α.ο.,  
1693 ύλες δακρυγόνων αερίων, υγρές ή στερεές, ε.α.ο.,  
3142 απολυμαντικά, υγρά, τοξικά, ε.α.ο.,  
3143 βαφές, στερεές, τοξικές, ε.α.ο. ή 3143 ενδιάμεσα βαφών, στερεά, τοξικά, ε.α.ο.,  
2810 τοξικά υγρά, οργανικά, ε.α.ο.,  
2811 τοξικά στερεά, οργανικά, ε.α.ο.,

*ΣΗΜΕΙΩΣΗ: 2,3,7,8-τετραχλωροδιβενζο-p-διοξίνη (TCDD) σε συγκεντρώσεις που θεωρούνται εξαιρετικά τοξικές σύμφωνα με τα κριτήρια στο περιθωριακό 2600(3), δεν θα γίνεται δεκτή για μεταφορά.*

- (b) 2016 πυρομαχικά, τοξικά, μη-εκρηκτικά χωρίς ρήγμα ή διαρροή φορτίου, μη-τετηγμένα,  
1601 απολυμαντικά, στερεά, τοξικά, ε.α.ο.,  
1602 βαφές, υγρές, τοξικές, ε.α.ο. ή 1602 ενδιάμεσα βαφών, υγρά, τοξικά, ε.α.ο.,  
1693 ύλες δακρυγόνων αερίων, υγρές ή στερεές, ε.α.ο.,  
3142 απολυμαντικά, υγρά, τοξικά, ε.α.ο.,  
3143 βαφές, στερεές, τοξικές, ε.α.ο., ή 3143 ενδιάμεσα βαφών, στερεά, τοξικά, ε.α.ο.,  
2810 τοξικά υγρά, οργανικά, ε.α.ο.,  
2811 τοξικά στερεά, οργανικά, ε.α.ο.,

- (c) 2518 1,5,9-κυκλοωδεκατριένιο, 2667 βουτυλοτολουόλια,  
1601 απολυμαντικά, στερεά, τοξικά, ε.α.ο.,  
1602 βαφές, υγρές, τοξικές, ε.α.ο. ή 1602 ενδιάμεσα βαφών, υγρά, τοξικά, ε.α.ο.,  
3142 απολυμαντικά, υγρά, τοξικά, ε.α.ο.,  
3143 βαφές, στερεές, τοξικές, ε.α.ο. ή 3143 ενδιάμεσα βαφών, στερεά, τοξικά, ε.α.ο.,  
2810 τοξικά υγρά, οργανικά, ε.α.ο.,  
2811 τοξικά στερεά, οργανικά, ε.α.ο.,

26° Εύφλεκτες τοξικές οργανικές ύλες, είδη που περιέχουν εύφλεκτες τοξικές οργανικές ύλες και διαλύματα και μείγματα εύφλεκτων τοξικών οργανικών υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλο συγκεντρωτικό κεφάλαιο:

## Κλάση 6.1

2601  
(συνεχ.)

- (a) 1. 2929 τοξικά υγρά, εύφλεκτα, οργανικά, ε.α.ο.,  
2. 2930 τοξικά στερεά, εύφλεκτα, οργανικά, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ:** Διγλωρομεθυλαιθέρας, συμμετρικός, (Χαρακτηριστικός αριθμός 2249), δεν θα γίνεται δεκτός για μεταφορά.

- (b) 1. 2929 τοξικά υγρά, εύφλεκτα, οργανικά, ε.α.ο.,  
2. 1700 κεριά δακρυγόνων αερίων,  
2930 τοξικά στερεά, εύφλεκτα, οργανικά, ε.α.ο.,

27° Διαβρωτικές τοξικές οργανικές ύλες, είδη που περιέχουν τέτοιες ύλες και διαλύματα και μείγματα διαβρωτικών τοξικών οργανικών υλών (όπως παρασκευάσματα και απόβλητα):

- (a) 1595 θειικό διμεθύλιο, 1752 γλωρακετυλογλωρίδιο, 1889 βρωμιούχο κυανογόνο,  
3246 μεθανοσουλφονυλογλωρίδιο,  
2927 τοξικά υγρά, διαβρωτικά, οργανικά, ε.α.ο.,  
2928 τοξικά στερεά, διαβρωτικά, οργανικά, ε.α.ο.,
- (b) 1737 βενζυλοβρωμίδιο, 1738 βενζυλογλωρίδιο, 1750 διάλυμα γλωροξικού οξέος,  
1751 γλωροξικό οξύ, στερεό, 2017 πυρομαγικά, που προκαλούν δάκρυα, μη-εκρηκτικά  
χωρίς ρήγμα ή διαρροή φορτίου, μη-τετηγμένα, 2022 κρεζυλικό οξύ,  
2076 κρεζόλες (ο-, m-, p-), 2267 διμεθυλοθειοφωσφορυλογλωρίδιο, 2745 γλωρομυρμηκικός  
γλωρομεθυλεστέρας, 2746 γλωρομυρμηκικός φαινυλεστέρας, 2748 γλωρομυρμηκικός  
2-αιθυλοεξυλεστέρας,  
3277 γλωρομυρμηκικοί εστέρες, τοξικοί, διαβρωτικοί, ε.α.ο.,  
2927 τοξικά υγρά, διαβρωτικά, οργανικά, ε.α.ο.,  
2928 τοξικά στερεά, διαβρωτικά, οργανικά, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ:** Χλωρομυρμηκικοί εστέρες με κυρίαρχα διαβρωτικές ιδιότητες είναι ύλες της κλάσης 8 (βλέπε περιθωριακό 2801, 64°).

28° Εύφλεκτοι διαβρωτικοί τοξικοί γλωρομυρμηκικοί εστέρες:

- (a) 1722 γλωρομυρμηκικός αλλυλεστέρας, 2740 γλωρομυρμηκικός n-προτυλεστέρας,
- (b) 2743 γλωρομυρμηκικός n-βουτυλεστέρας, 2744 γλωρομυρμηκικός κυκλοβουτυλεστέρας,  
2742 γλωρομυρμηκικοί εστέρες, τοξικοί, διαβρωτικοί, εύφλεκτοι, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Χλωρομυρμηκικοί εστέρες με κυρίαρχα διαβρωτικές ιδιότητες είναι ύλες της κλάσης 8 (βλέπε περιθωριακό 2801, 64°).

## C. Οργανομεταλλικές ενώσεις και καρβονύλια

**ΣΗΜΕΙΩΣΗ 1:** Τοξικές οργανομεταλλικές ενώσεις που χρησιμοποιούνται ως παρασποκτόνα, είναι ύλες των 75° και 76°.

**ΣΗΜΕΙΩΣΗ 2:** Αντόματα εύφλεκτες οργανομεταλλικές ενώσεις είναι ύλες της κλάσης 4.2 (βλέπε περιθωριακό 2431, 31° έως 33°).

**ΣΗΜΕΙΩΣΗ 3:** Ενεργές με το νερό οργανομεταλλικές ενώσεις, εύφλεκτες, είναι ύλες της κλάσης 4.3 (βλέπε περιθωριακό 2471, 3°).

## Κλάση 6.1

- 2601 31° Οργανικές ενώσεις του μολύβδου:  
(συνεχ.)
- (a) 1649 μείγμα αντιεκρηκτικών καυσίμων κινητήρων (τετρααιθυλομόλυβδος, τετραμεθυλομόλυβδος).
- 32° Οργανικές ενώσεις του κασσίτερου:
- (a) 2788 οργανοκασσιτερικές ενώσεις υγρές, ε.α.ο.,  
3146 οργανοκασσιτερικές ενώσεις στερεές, ε.α.ο.,
- (b) 2788 οργανοκασσιτερικές ενώσεις υγρές, ε.α.ο.,  
3146 οργανοκασσιτερικές ενώσεις στερεές, ε.α.ο.,
- (c) 2788 οργανοκασσιτερικές ενώσεις υγρές, ε.α.ο.,  
3146 οργανοκασσιτερικές ενώσεις στερεές, ε.α.ο.,
- 33° Οργανικές ενώσεις του υδραργύρου:
- (a) 2026 φαινυλδραργυρικές ενώσεις, ε.α.ο.,
- (b) 1674 οξικός φαινυλδράργυρος, 1894 υδροξείδιο του φαινυλδραργύρου, 1895 νιτρικός φαινυλδράργυρος,  
2026 φαινυλδραργυρικές ενώσεις, ε.α.ο.,
- (c) 2026 φαινυλδραργυρικές ενώσεις, ε.α.ο.,
- 34° Οργανικές ενώσεις του αρσενικού:
- (a) 1698 γλωραρσίνη της διφαινυλαμίνης, 1699 διφαινυλογλωραρσίνη,  
1892 αιθυλοδιγλωραρσίνη,  
3280 οργανοαρσενικές ενώσεις, ε.α.ο.,
- (b) 3280 οργανοαρσενικές ενώσεις, ε.α.ο.,
- (c) 2473 αρσανικό νάτριο,  
3280 οργανοαρσενικές ενώσεις, ε.α.ο.,
- 35° Άλλες οργανομεταλλικές ενώσεις:
- (a) 3282 οργανομεταλλικές ενώσεις, τοξικές, ε.α.ο.,
- (b) 3282 οργανομεταλλικές ενώσεις, τοξικές, ε.α.ο.,
- (c) 3282 οργανομεταλλικές ενώσεις, τοξικές, ε.α.ο.,
- 36° Καρβονύλια:
- (a) 3281 καρβονύλια μετάλλων, ε.α.ο.,
- (b) 3281 καρβονύλια μετάλλων, ε.α.ο.,
- (c) 3281 καρβονύλια μετάλλων, ε.α.ο.,

## Κλάση 6.1

2601 D. **Ανόργανες ύλες που, σε επαφή με το νερό (ή την ατμοσφαιρική υγρασία), μπορεί να εκλύουν τοξικά αέρια, υδατικά διαλύματα ή οξέα και άλλες τοξικές ενεργές με το νερό ύλες (συνεχ.)**

41° **Ανόργανα κυανιούχα άλατα:**

- (a) 1565 κυανιούχο βάριο, 1575 κυανιούχο ασβέστιο, 1626 υδραργυρικό κάλιο, 1680 κυανιούχο κάλιο, 1689 κυανιούχο νάτριο, 1713 κυανιούχος ψευδάργυρος, 2316 γαλκοκυανιούχο νάτριο, στερεό, 2317 διάλυμα γαλκοκυανιούχου νατρίου, 1588 κυανιούχα άλατα, ανόργανα, στερεά, ε.α.ο., 1935 διάλυμα κυανιούχου αλάτος, ε.α.ο.,
- (b) 1587 κυανιούχος γαλκός, 1620 κυανιούχος μόλυβδος, 1636 κυανιούχος υδράργυρος, 1642 οξυκυανιούχος υδράργυρος, απευαισθητοποιημένος, 1653 κυανιούχο νικέλιο, 1679 γαλκοκυανιούχο κάλιο, 1684 κυανιούχος άργυρος, 1588 κυανιούχα άλατα, ανόργανα, στερεά, ε.α.ο., 1935 διαλύματα κυανιούχων αλάτων, ε.α.ο.,
- (c) 1588 κυανιούχα άλατα, ανόργανα, στερεά, ε.α.ο., 1935 διαλύματα κυανιούχων αλάτων, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Σιδηροκυανιούχα άλατα, σιδηροκυανιούχα άλατα του σιδήρου, αλκαλικά θειοκυανικά άλατα και θειοκυανικό αμμώνιο δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 2:** Διαλύματα ανόργανων κυανιούχων αλάτων με ολική περιεκτικότητα σε ιόντα κυανιδίου μεγαλύτερη από 30 % θα πρέπει να ταξινομούνται στο γράμμα (a), διαλύματα με ολική περιεκτικότητα σε ιόντα κυανιδίου μεγαλύτερη από 3 % και όχι μεγαλύτερη από 30 % στο γράμμα (b) και διαλύματα με περιεκτικότητα σε ιόντα κυανιδίου μεγαλύτερη από 0.3 % και όχι μεγαλύτερη από 3 % στο γράμμα (c).

42° **Αζίδια:**

- (b) 1687 αζίδια του νατρίου.

**ΣΗΜΕΙΩΣΗ 1:** 1571 αζίδιο του βαρίου, βρεγμένο, είναι ύλη της κλάσης 4.1 (βλέπε περιθωριακό 2401, 25°).

**ΣΗΜΕΙΩΣΗ 2:** Αζίδιο του βαρίου στην ξηρή κατάσταση ή με λιγότερο από 50 % νερό ή αλκοόλη, δεν θα γίνεται δεκτό για μεταφορά.

43° **Παρασκευάσματα φωσφιδίων που περιέχουν πρόσθετα που παρεμποδίζουν την εκπομπή εύφλεκτων αερίων:**

- (a) 3048 Παρασιτοκτόνα φωσφιδίου του αλουμινίου.

**ΣΗΜΕΙΩΣΗ 1:** Αυτά τα παρασκευάσματα δεν θα γίνονται δεκτά για μεταφορά εκτός εάν περιέχουν πρόσθετα που παρεμποδίζουν την εκπομπή εύφλεκτων αερίων.

**ΣΗΜΕΙΩΣΗ 2:** 1397 φωσφίδιο του αλουμινίου, 2011 φωσφίδιο του μαγνησίου, 1714 φωσφίδιο του ψευδαργύρου, 1432 φωσφίδιο του νατρίου, 1360 φωσφίδιο του ασβεστίου και 2013 φωσφίδιο του στροντίου είναι ύλες της κλάσης 4.3 (βλέπε περιθωριακό 2471, 18°).

## Κλάση 6.1

2601 44° Άλλες ενεργές με το νερό τοξικές ύλες:  
(συνεχ.)

- (b) 3123 τοξικά υγρά, ενεργά με το νερό, ε.α.ο.,  
3125 τοξικά στερεά, ενεργά με το νερό, ε.α.ο.,
- (c) 3123 τοξικά υγρά, ενεργά με το νερό, ε.α.ο.,  
3125 τοξικά στερεά, ενεργά με το νερό, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Ο όρος "ενεργή με το νερό" δηλώνει μία ύλη που, σε επαφή με το νερό, εκλύει εύφλεκτα αέρια.

E. Άλλες ανόργανες ύλες και μεταλλικά άλατα οργανικών υλών

51° Αρσενικό και ενώσεις του αρσενικού:

- (a) 1553 αρσενικό οξύ, υγρό, 1560 τριχλωριούχο αρσενικό,  
1556 ενώσεις αρσενικού, υγρές, ε.α.ο., (αρσενικά άλατα, αρσενίτες και  
αρσενικά σουλφίδια),  
1557 ενώσεις αρσενικού, στερεές, ε.α.ο., (αρσενικά άλατα, αρσενίτες και αρσενικά  
σουλφίδια),
- (b) 1546 αρσενικό αμμώνιο, 1554 αρσενικό οξύ, στερεό, 1555 βρωμιούχο αρσενικό,  
1558 αρσενικό, 1559 πεντοξειδίο του αρσενικού, 1561 τριοξειδίο του αρσενικού, 1562 σκόνη  
με αρσενικό, 1572 κακοδυλικό οξύ, 1573 αρσενικό ασβέστιο, 1574 μείγμα αρσενικού  
ασβεστίου και αρσενίτη του ασβεστίου, στερεό, 1585 ακεταρσενίτης του χαλκού, 1586  
αρσενίτης του χαλκού, 1606 αρσενικός σίδηρος (III), 1607 αρσενίτης του σιδήρου (III),  
1608 αρσενικός σίδηρος (II), 1617 αρσενικά άλατα του μολύβδου, 1618 αρσενίτες του  
μολύβδου, 1621 πορφυρό του Λονδίνου, 1622 αρσενικό μαγνήσιο, 1623 αρσενικός  
υδράργυρος, 1677 αρσενικό κάλιο, 1678 αρσενίτης του καλίου, 1683 αρσενίτης του  
αργύρου, 1685 αρσενικό νάτριο, 1686 υδατικό διάλυμα του αρσενίτη του νατρίου,  
1688 κακοδυλικό νάτριο, 1691 αρσενίτης του στροντίου, 1712 αρσενικός ψευδάργυρος ή  
1712 αρσενίτης του ψευδάργυρου ή 1712 μείγμα αρσενικού ψευδάργυρου και αρσενίτη  
του ψευδάργυρου, 2027 αρσενίτης του νατρίου, στερεός,  
1556 ενώσεις του αρσενικού, υγρές, ε.α.ο. (αρσενικά άλατα, αρσενίτες και αρσενικά  
σουλφίδια), 1557 ενώσεις του αρσενικού, στερεές, ε.α.ο. (αρσενικά άλατα, αρσενίτες και  
αρσενικά σουλφίδια),
- (c) 1686 υδατικό διάλυμα του αρσενίτη του νατρίου,  
1556 ενώσεις του αρσενικού, υγρές, ε.α.ο. (αρσενικά άλατα, αρσενίτες και αρσενικά  
σουλφίδια),  
1557 ενώσεις του αρσενικού, στερεές, ε.α.ο. (αρσενικά άλατα, αρσενίτες και αρσενικά  
σουλφίδια).

**ΣΗΜΕΙΩΣΗ:** Υλες και παρασκευάσματα που περιέχουν αρσενικό και που χρησιμοποιούνται ως παρασιτοκτόνα είναι ύλες της 79°.

52° Ενώσεις του υδράργυρου:

- (a) 2024 ενώσεις του υδράργυρου, υγρές, ε.α.ο.,  
2025 ενώσεις του υδραργύρου, στερεές, ε.α.ο.,
- (b) 1624 γλωριούχος υδράργυρος, 1625 νιτρικός υδράργυρος, 1627 νιτρικός υφιδράργυρος,  
1629 οξικός υδράργυρος, 1630 γλωριούχο υδραργυραμμώνιο, 1631 βενζοϊκός υδράργυρος,  
1634 βρωμιούχα άλατα του υδράργυρου, 1637 γλυκονικός υδράργυρος, 1638 ιωδιούχος  
υδράργυρος, 1639 νουκλεϊκός υδράργυρος, 1640 ελαϊκός υδράργυρος, 1641 οξειδίο του  
υδράργυρου, 1643 ιωδιούχο

## Κλάση 6.1

2601  
(συνεχ.)

υδραργυροκάλιο, 1644 σαλικυλικός υδράργυρος, 1645 θειικός υδράργυρος,  
1646 θειοκυανικός υδράργυρος,  
2024 ενώσεις του υδραργύρου, υγρές, ε.α.ο.,  
2025 ενώσεις του υδραργύρου, στερεές, ε.α.ο.,

- (c) 2024 ενώσεις του υδραργύρου, υγρές, ε.α.ο.,  
2025 ενώσεις του υδραργύρου, στερεές, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ 1:** Υλεις και παρασκευάσματα που περιέχουν υδράργυρο και που χρησιμοποιούνται ως παρασιτοκτόνα, είναι ύλες του 75°.

**ΣΗΜΕΙΩΣΗ 2:** Ο χλωριούχος υφιδράργυρος (καλομέλας) είναι ύλη της κλάσης 9 [βλέπε περιθωριακό 2901, 12 °(c)]. Το κιννάβαρι δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 3:** Τα βροντώδη άλατα του υδράργυρου δεν θα γίνονται δεκτά για μεταφορά.

53° Ενώσεις του θαλλίου:

- (b) 1707 ενώσεις του θαλλίου, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Υλεις και παρασκευάσματα που περιέχουν θάλλιο και που χρησιμοποιούνται ως παρασιτοκτόνα είναι ύλες της 85°.

**ΣΗΜΕΙΩΣΗ 2:** 2727 το νιτρικό θάλλιο είναι ύλη της 68°.

54° Βηρύλλιο και ενώσεις του βηρυλλίου:

- (b) 1. 1567 βηρύλλιο, σκόνη,  
 2. 1566 ενώσεις βηρυλλίου, ε.α.ο.,

- (c) 1566 ενώσεις βηρυλλίου, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 2464 το νιτρικό βηρύλλιο είναι ύλη της κλάσης 5.1 [βλέπε περιθωριακό 2501, 29° (b)].

55° Σελήνιο και ενώσεις σελήνιου:

- (a) 2630 σεληνικά άλατα ή 2630 σεληνίτες,  
3283 ενώσεις σελήνιου, ε.α.ο.,

- (b) 2657 διθειούχο σελήνιο,  
3283 ενώσεις σελήνιου, ε.α.ο.,

- (c) 2658 σελήνιο σε σκόνη,  
3283 ενώσεις σελήνιου, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 1905 το σεληνικό οξύ είναι ύλη της κλάσης 8 [βλέπε περιθωριακό 2801, 16° (a)].

56° Ενώσεις οσμίου:

- (a) 2471 τετροξειδίο του οσμίου.

57° Ενώσεις τελλουρίου:

- (b) 3284 ενώσεις τελλουρίου, ε.α.ο.,

- (c) 3284 ενώσεις τελλουρίου, ε.α.ο.

## Κλάση 6.1

2601 58° Ενώσεις βαναδίου:  
(συνεχ.)

- (b) 2859 μεταβαναδικό αμμώνιο, 2861 πολυβαναδικό αμμώνιο, 2862 πεντοξείδιο του βαναδίου, μη-τετηγμένη μορφή, 2863 βαναδικό νατραμμώνιο, 2864 μεταβαναδικό κάλιο, 2931 θειικό βαναδύλιο, 3285 ενώσεις βαναδίου, ε.α.ο.,
- (c) 3285 ενώσεις βαναδίου, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** 2443 οξυτριχλωριούχο βανάδιο, 2444 τετραχλωριούχο βανάδιο και 2475 τριχλωριούχο βανάδιο είναι όλες της κλάσης 8 (βλέπε περιθωριακό 2801, 11° και 12°).

**ΣΗΜΕΙΩΣΗ 2:** Το πεντοξείδιο του βαναδίου, τετηγμένο και στερεοποιημένο, δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

59° Αντιμόνιο και ενώσεις αντιμονίου:

- (c) 1550 γαλακτικό αντιμόνιο, 1551 παρτρικό αντιμονοκάλιο, 2871 αντιμόνιο σε σκόνη, 1549 ενώσεις αντιμονίου, στερεές, ε.α.ο., 3141 ενώσεις αντιμονίου, ανόργανες, υγρές, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** 1730 πενταφθοριούχο αντιμόνιο, υγρό, 1731 διάλυμα πενταφθοριούχου αντιμονίου, 1733 τριχλωριούχο αντιμόνιο και 1732 πενταφθοριούχο αντιμόνιο είναι όλες της κλάσης 8 (βλέπε περιθωριακό 2801, 10°, 11° και 12°).

**ΣΗΜΕΙΩΣΗ 2:** Οξείδια αντιμονίου και θειούχο αντιμόνιο με περιεκτικότητα σε αρσενικό όχι μεγαλύτερη από του 0.5 % του συνολικού βάρους, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

60° Ενώσεις βαρίου:

- (b) 1564 ενώσεις βαρίου, ε.α.ο.,
- (c) 1884 οξείδιο του βαρίου, 1564 ενώσεις βαρίου, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** 1445 χλωρικό βάριο, 1446 νιτρικό βάριο, 1447 υπερχλωρικό βάριο, 1448 υπερμαγγανικό βάριο 1449 υπεροξείδιο του βαρίου είναι όλες της κλάσης 5.1 (βλέπε περιθωριακό 2501, 29°).

**ΣΗΜΕΙΩΣΗ 2:** 1571 αζίδιο του βαρίου, βρεγμένο, είναι όλη της κλάσης 4.1 (βλέπε περιθωριακό 2401, 25°).

**ΣΗΜΕΙΩΣΗ 3:** Στεαρικό βάριο, θειικό βάριο και τιτανικό βάριο δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

## Κλάση 6.1

2601 61° Ενώσεις καδμίου:  
(συνεχ.)

- (a) 2570 ενώσεις καδμίου,
- (b) 2570 ενώσεις καδμίου,
- (c) 2570 ενώσεις καδμίου.

**ΣΗΜΕΙΩΣΗ:** Χρωστικές καδμίου, όπως θειούχα άλατα του καδμίου, σουλφοσεληνιούχα άλατα καδμίου και άλατα καδμίου με υψηλότερα λιπαρά οξέα (π.χ. στεατικό κάδμιο), δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

62° Ενώσεις μολύβδου:

- (c) 1616 οξικός μολύβδος,  
2291 ενώσεις μολύβδου, διαλυτές, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** 1469 νιτρικός μολύβδος και 1470 υπερχλωρικός μολύβδος είναι ύλες της κλάσης 5.1 (βλέπε περιθωριακό 2501, 29°).

**ΣΗΜΕΙΩΣΗ 2:** Άλατα μολύβδου και χρωστικές μολύβδου που, όταν αναμειγνύονται σε μία αναλογία 1:1 000 με 0.07 M υδροχλωρικού οξέος και αναδεύονται για μία ώρα σε θερμοκρασία 23 °C ± 2 °C, εμφανίζουν διαλυτότητα 5 % ή μικρότερη, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

63° Φθοριούχα άλατα διαλυτά στο νερό:

- (c) 1690 φθοριούχο νάτριο, 1812 φθοριούχο κάλιο, 2505 φθοριούχο αμμώνιο.

**ΣΗΜΕΙΩΣΗ:** Διαβρωτικά φθοριούχα άλατα είναι ύλες της κλάσης 8 (βλέπε περιθωριακό 2801, 6° έως 10°).

64° Φθοροπυριτικά άλατα:

- (c) 2655 φθοροπυριτικό κάλιο, 2674 φθοροπυριτικό νάτριο, 2853 φθοροπυριτικό μαγνήσιο, 2854 φθοροπυριτικό αμμώνιο, 2855 φθοροπυριτικός ψευδάργυρος,  
2856 φθοροπυριτικά άλατα, ε.α.ο.

65° Ανόργανες ύλες και διαλύματα και μείγματα ανόργανων υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλο συγκεντρωτικό κεφάλαιο:

- (a) 3287 τοξικά υγρά, ανόργανα, ε.α.ο.,  
3288 τοξικά στερεά, ανόργανα, ε.α.ο.,
- (b) 3243 στερεά που περιέχουν τοξικά υγρά, ε.α.ο.,  
3287 τοξικά υγρά, ανόργανα, ε.α.ο.,  
3288 τοξικά στερεά, ανόργανα, ε.α.ο.,

**ΣΗΜΕΙΩΣΗ:** Μείγματα στερεών και τοξικών υγρών που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας μπορούν να μεταφέρονται υπό τον αριθμό 3243 χωρίς τα κριτήρια ταξινόμησης για την Κλάση 6.1 να εφαρμόζονται σ' αυτά, υπό την προϋπόθεση ότι καμία υπερχειλίση υγρού δεν είναι ορατή κατά τη διάρκεια της φόρτωσης ή όταν η μονάδα συσκευασίας ή μεταφοράς κλείνεται. Κάθε συσκευασία θα πρέπει να αντιστοιχεί σε ένα τύπο σχεδιασμού που έχει περάσει τον έλεγχο στεγανότητας για την ομάδα συσκευασίας II. Αυτός αριθμός δεν θα πρέπει να χρησιμοποιείται για στερεά που περιέχουν υγρό ταξινομημένο στο γράμμα (α).



## Κλάση 6.1

2601  
(συνεχ.)

- (c) 3293 υδατικό διάλυμα υδραζίνης, με όχι περισσότερο από 37 % υδραζίνη κατά βάρος, 3287 τοξικά υγρά, ανόργανα, ε.α.ο., 3288 τοξικά στερεά, ανόργανα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 2030 υδραζίνη ενυδατωμένη και 2030 υδατικό διάλυμα υδραζίνης, με όχι λιγότερο από 37 % και όχι περισσότερο από 64 % υδραζίνη, κατά βάρος, είναι ύλες της κλάσης 8 [βλέπε περιθωριακό 2801, 44°(b)].

66° Τοξικές, αυτοθερμαινόμενες ύλες:

- (a) 3124 τοξικά στερεά, αυτοθερμαινόμενα, ε.α.ο.,

- (b) 3124 τοξικά στερεά, αυτοθερμαινόμενα, ε.α.ο.

67° Τοξικές ύλες, διαβρωτικές:

- (a) 3289 τοξικά υγρά, διαβρωτικά, ανόργανα, ε.α.ο., 3290 τοξικά στερεά, διαβρωτικά, ανόργανα, ε.α.ο.,

- (b) 3289 τοξικά υγρά, διαβρωτικά, ανόργανα, ε.α.ο., 3290 τοξικά στερεά, διαβρωτικά, ανόργανα, ε.α.ο.

68° Τοξικές ύλες, οξειδωτικές:

- (a) 3086 τοξικές στερεές, οξειδωτικές, ε.α.ο., 3122 τοξικά υγρά, οξειδωτικά, ε.α.ο.,

- (b) 2727 νιτρικό θάλλιο, 3086 τοξικά στερεά, οξειδωτικά, ε.α.ο., 3122 τοξικά υγρά, οξειδωτικά, ε.α.ο.

**F. Ύλες και παρασκευάσματα που χρησιμοποιούνται ως παρασιτοκτόνα**

**ΣΗΜΕΙΩΣΗ 1:** Εύφλεκτες υγρές ύλες και παρασκευάσματα, που χρησιμοποιούνται ως παρασιτοκτόνα, που είναι εξαιρετικά τοξικές, τοξικές ή επιβλαβείς και έχουν σημείο ανάφλεξης χαμηλότερο από 23 °C, είναι ύλες της κλάσης 3 (βλέπε περιθωριακό 2301, 41° έως 57°).

**ΣΗΜΕΙΩΣΗ 2:** (a) Είδη διαποτισμένα με ύλες και παρασκευάσματα που χρησιμοποιούνται ως παρασιτοκτόνα των 71° έως 87°, όπως πλάκες από φύλλο φάιμπερ, λωρίδες χαρτιού, σφαίρες ακατέργαστου βαμβακιού, φύλλα από πλαστικό υλικό, κ.λπ. σε αεροστεγή, ερμητικά κλεισμένα περιτυλίγματα, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

(b) Ύλες όπως χόρτα και δημητριακά διαποτισμένα με ύλες και παρασκευάσματα που χρησιμοποιούνται ως παρασιτοκτόνα των 71° έως 87° ή άλλες ύλες της κλάσης 6.1 θα πρέπει να ταξινομούνται σύμφωνα με την τοξικότητα τους (βλέπε περιθωριακό 2600(3) και ΣΗΜΕΙΩΣΗ 3 παρακάτω).

71° έως 87°: Σε αυτά τα είδη, ύλες και παρασκευάσματα που χρησιμοποιούνται ως παρασιτοκτόνα ταξινομούνται σε ομάδες που χαρακτηρίζονται με τα γράμματα (a), (b), (c):

- (a) εξαιρετικά τοξικές ύλες και παρασκευάσματα,  
(b) τοξικές ύλες και παρασκευάσματα,  
(c) ελαφρώς τοξικές ύλες και παρασκευάσματα.

## Κλάση 6.1

2601  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ 1:** Όλες οι ενεργές ύλες και τα παρασκευάσματα τους που χρησιμοποιούνται ως παρασιτοκτόνα, θα πρέπει να ταξινομούνται στα 71° έως 87° (a), (b) και (c) σε συμφωνία με το περιθωριακό 2600 (3).

**ΣΗΜΕΙΩΣΗ 2:** Εάν είναι γνωστή μόνον η τιμή της  $LD_{50}$  της ενεργούς ύλης και όχι εκείνη των παρασκευασμάτων της ενεργούς ύλης, τα παρασκευάσματα μπορούν να ταξινομούνται στις 71° έως 87° (a), (b) ή (c) χρησιμοποιώντας τους παρακάτω πίνακες, όπου οι τιμές που εμφανίζονται στις στήλες (a), (b) και (c) των 71° έως 87° αντιπροσωπεύουν το ποσοστό της ενεργούς ύλης του παρασιτοκτόνου στα παρασκευάσματα.

**ΣΗΜΕΙΩΣΗ 3:** Ο στόχος των παρακάτω πινάκων είναι να δείξουν το φάσμα των παρασιτοκτόνων και των παρασκευασμάτων τους σε σχέση με τις διαφορετικές ομάδες συσκευασίας σύμφωνα με τη συγκέντρωση της ενεργούς ύλης. Εάν η τιμή της  $LD_{50}$  του παρασκευάσματος είναι γνωστή και εάν οι ομάδες συσκευασίας που προσδιορίζονται από την εφαρμογή των κριτηρίων στο περιθωριακό 2600 (3) δεν αντιστοιχούν στις ομάδες συσκευασίας που υποδεικνύονται στους παρακάτω πίνακες με βάση τη συγκέντρωση της ενεργούς ύλης στο παρασκεύασμα, η ομάδα συσκευασίας που προσδιορίζεται σε συμφωνία με τα κριτήρια στο περιθωριακό 2600 (3) θα πρέπει να έχει προτεραιότητα.

**ΣΗΜΕΙΩΣΗ 4:** Για ύλες που δεν ονομάζονται στον κατάλογο και για τις οποίες μόνον η τιμή της  $LD_{50}$  της ενεργούς ύλης είναι γνωστή και όχι η τιμή της  $LD_{50}$  των διαφόρων παρασκευασμάτων, η ταξινόμηση ενός παρασκευάσματος μπορεί να καθορίζεται από τον πίνακα στο περιθωριακό 2600 (3), χρησιμοποιώντας μία τιμή της  $LD_{50}$  που λαμβάνεται από πολλαπλασιασμό της τιμής της  $LD_{50}$  της ενεργούς ύλης με: 100.

X

όπου X είναι το ποσοστό της ενεργούς ύλης κατά βάρος, σύμφωνα με τον παρακάτω τύπο:

$$LD_{50} \text{ του παρασκευάσματος} = \frac{\text{τιμή της } LD_{50} \text{ της ενεργούς ύλης} \times 100}{\text{ποσοστό της ενεργούς ύλης κατά βάρος}}$$

**ΣΗΜΕΙΩΣΗ 5:** Η ταξινόμηση σύμφωνα με τις Σημειώσεις 2, 3 και 4 παραπάνω, δεν θα πρέπει να χρησιμοποιούνται όταν τα παρασκευάσματα περιέχουν πρόσθετα που επιδρούν στην τοξικότητα της ενεργής ύλης ή όταν ένα παρασκεύασμα περιέχει περισσότερες από μία ενεργή ύλη. Σε τέτοιες περιπτώσεις, η ταξινόμηση θα πρέπει να βασίζεται στην τιμή της  $LD_{50}$  του υπό συζήτηση παρασκευάσματος σύμφωνα με τα κριτήρια στο περιθωριακό 2600 (3). Εάν η τιμή της  $LD_{50}$  δεν είναι γνωστή, η ύλη θα πρέπει να ταξινομείται στο (a) των 71° έως 87°.

- 71° 2783 οργανοφωσφορικά παρασιτοκτόνα, στερεά, τοξικά  
3017 οργανοφωσφορικά παρασιτοκτόνα, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι χαμηλότερο από 23 °C,  
3018 οργανοφωσφορικά παρασιτοκτόνα, υγρά, τοξικά, συμπεριλαμβανομένων:

	71° (a)	71° (b)	71° (c)	
	%	%	στερεό %	υγρό %
<u>Azinphos-ethyl</u>	-	100->25	25-6	25-2
<u>Azinphos-methyl</u>	-	100->10	10-2	10-1
<u>Bromophos-ethyl</u>	-	-	100-35	100-14
<u>Carbophenothion</u>	-	100->20	20-5	20-2
<u>Chlorfenvinphos</u>	-	100->20	20-5	20-2
<u>Chlormephos</u>	-	100->15	15-3	15-1
<u>Chlorpyrifos</u>	-	-	100-40	100-10
<u>Chlorthiophos</u>	-	100->15	15-4	15-1

## Κλάση 6.1

2601  
(συνεχ.)

	71° (a)	71° (b)	71° (c)	
	%	%	στερεό %	υγρό %
<u>Crotoxyphos</u>	-	-	100-35	100-15
<u>Cruformate</u>	-	-	-	100-90
<u>Cyanophos</u>	-	-	100-55	100-55
<u>DEF</u>	-	-	-	100-40
<u>Demephion</u>	100->0	-	-	-
<u>Demeton</u>	100->30	30->3	3-0,5	3->0
<u>Demeton-O-(Systox)</u>	100->34	34->3,4	3,4-0,85	3,4-0,34
<u>Demeton-O-methyl</u>	-	-	100-90	100-35
<u>Demeton-S-methyl</u>	-	100->80	80-30	80-10
<u>Demeton-S-methylsulfone</u>	-	100->74	74-18,5	74-7,4
<u>Dialifos</u>	-	100->10	10-2,5	10-1
<u>Diazinon</u>	-	-	100-38	100-15
<u>Dichlofenθeiton</u>	-	-	-	100-54
<u>Dichlorvos</u>	-	100->35	35-7	35-7
<u>Dicrotophos</u>	-	100->25	25-6	25-2
<u>Dimefox</u>	100->20	20->2	2-0,5	2->0
<u>Dimethoate</u>	-	-	100-73	100-29
<u>Dioxathion</u>	-	100->40	40-10	40-4
<u>Disulfoton</u>	100->40	40->4	4-1	4->0
<u>Edifenphos</u>	-	-	100-75	100-30
<u>Endothion</u>	-	100->45	45-10	45-4
<u>EPN</u>	100->62	62->12,5	12,5-2,5	12,5-2,5
<u>Ethion</u>	-	100->25	25-5	25-2
<u>Ethoate-methyl</u>	-	-	100-60	100-25
<u>Ethoprophos</u>	100->65	65->13	13-2	13-2
<u>Fenaminphos</u>	100->40	40->4	4-1	4->0
<u>Fenitrothion</u>	-	-	-	100-48
<u>Fensulfotthion</u>	100->40	40->4	4-1	4->0
<u>Fenthion</u>	-	-	100-95	100-38
<u>Fonophos</u>	100->60	60->6	6-1	6-0,5
<u>Formothion</u>	-	-	-	100-65
<u>Heptenophos</u>	-	-	100-48	100-19
<u>Iprobenfos</u>	-	-	-	100-95
<u>Isafenphos</u>	-	100->60	60-15	60-6
<u>Isothioate</u>	-	-	100-25	100-25
<u>Isoxathion</u>	-	-	100-55	100-20
<u>Mecarbam</u>	-	100->30	30-7	30-3
<u>Mephosfolan</u>	100->25	25->5	5-0,5	5-0,5
<u>Methamidophos</u>	-	100->15	15-3	15-1,5
<u>Methidaθeiton</u>	-	100->40	40-10	40-4
<u>Methyltrithion</u>	-	-	100-49	100-19
<u>Mevinphos</u>	100->60	60->5	5-1	5-0,5
<u>Monocrotophos</u>	-	100->25	25-7	25-2,5
<u>Naled</u>	-	-	-	100-50
<u>Omethoate</u>	-	-	100-25	100-10
<u>Oxydemeton-methyl</u>	-	100->93	93-23	93-9
<u>Oxydisulfoton</u>	100->70	70->5	5-1,5	5-0,5
<u>Paraoxon</u>	100->35	35->3	3-0,9	3-0,35
<u>Parathion</u>	100->40	40->4	4-1	4-0,4
<u>Parathion-methyl Phenkaption</u>	-	100->12	12-3	12-1,2
<u>Phenthoate</u>	-	-	100-25	100-10
<u>Phorate</u>	-	-	100-70	100-70
<u>Phosalone</u>	100->20	20->2	2-0,5	2->0
<u>Phosfolan</u>	-	-	100-60	100-24
<u>Phosmet</u>	-	100->15	15-4	15-1
<u>Phosphamidon</u>	-	-	100-45	100-18
<u>Pirimiphos-ethyl</u>	-	100->34	34-8	34-3
<u>Propaphos</u>	-	-	100-70	100-28
	-	100->75	75-15	75-15

## Κλάση 6.1

260A  
(συν.)

	71° (a)	71° (b)	71° (c)	
	%	%	στερεό %	υγρό %
<u>Prothoate</u>	-	100->15	15-4	15-1
<u>Pyrazophos</u>	-	-	-	100-45
<u>Pyrazoxon</u>	100->80	80->8	8-2	8-0,5
<u>Quinalphos</u>	-	100->52	52-13	52-5
<u>Salithion</u>	-	-	100-60	100-25
<u>Schradan</u>	-	100->18	18-9	18-3,6
<u>Sulfotep</u>	-	100->10	10-2	10-1
<u>Sulprofos</u>	-	-	100-45	100-18
<u>Temephos</u>	-	-	100-90	100-90
<u>TEPP</u>	100->10	10->0	-	-
<u>Terbufos</u>	100->15	15->3	3-0,74	3-0,74
<u>Thiometon</u>	-	100->50	50-10	50-5
<u>Thionazin</u>	100->70	70->5	5-1	5-0,5
<u>Triamphos</u>	-	100->20	20-5	20-1
<u>Triazophos</u>	-	-	100-33	100-13
<u>Trichlorfon</u>	-	-	100-70	100-23
<u>Trichloronat</u>	-	100->30	30-8	30-3
<u>Vamidothion</u>	-	-	100-30	100-10

- 72° 2761 οργανογλωρικά παρασιτοκτόνα, στερεά, τοξικά,  
 2995 οργανογλωρικά παρασιτοκτόνα, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι χαμηλότερο  
 από 23 °C,  
 2996 οργανογλωρικά παρασιτοκτόνα, υγρά, τοξικά, συμπεριλαμβανομένων:

	72° (a)	72° (b)	72° (c)	
	%	%	στερεό %	υγρό %
<u>Aldrin</u>	-	100->75	75-19	75-7
<u>Allidochlor</u>	-	-	100-35	100-35
<u>Camphechlor</u>	-	-	100-40	100-15
<u>Chlordane</u>	-	-	-	100-55
<u>Chlordimeform</u>	-	-	-	100-50
<u>Chlordimeform hydrochloride</u>	-	-	-	100-70
<u>Chlorophacinone</u>	100->40	40->4	4-1	1-0,4
<u>Crimidine</u>	100->25	25->2	2-0,5	2->0
<u>DDT</u>	-	-	100-55	100-20
<u>1-2διβρωμο-3-γλωροπροπάνιο</u>	-	-	100-85	100-34
<u>Dieldrin</u>	-	100->75	75-19	75-7
<u>Endosulfan</u>	-	100->80	80-20	80-8
<u>Endrin</u>	100->60	60->6	6-1	6-0,5
<u>Heptachlor</u>	-	100->80	80-20	80-8
<u>Isobenzane</u>	100->10	10->2	2-0,4	2-0,4
<u>Isodrin</u>	-	100->14	14-3	14-1
<u>Lindane (γBHC)</u>	-	-	100-44	100-15
<u>Mirex</u>	-	-	-	100-60
<u>Πενταγλωροφαινόλη</u>	-	100->54	54-13	54-5

## Κλάση 6.1

- 2601 73° 2765 φαινοξυικά παρασιτοκτόνα, στερεά, τοξικά  
(συνεχ.) 2999 φαινοξυικά παρασιτοκτόνα, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι χαμηλότερο από 23 °C,  
3000 φαινοξυικά παρασιτοκτόνα, υγρά, τοξικά, συμπεριλαμβανομένων:

	73° (a)	73° (b)	73° (c)	
	%	%	στερεό %	υγρό %
<u>2,4-D</u>	-	-	-	100-75
<u>2,4-DB</u>	-	-	-	100-40
<u>2,4,5-T</u>	-	-	-	100-60
<u>Triadimefon</u>	-	-	-	100-70

- 74° 2757 καρβαμικά παρασιτοκτόνα, στερεά, τοξικά,  
2991 καρβαμικά παρασιτοκτόνα, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι χαμηλότερο από 23 °C,  
2992 καρβαμικά παρασιτοκτόνα, υγρά, τοξικά, συμπεριλαμβανομένων:

	74° (a)	74° (b)	74° (c)	
	%	%	στερεό %	υγρό %
<u>Aldicarb</u>	100->15	15->1	1->0	1->0
<u>Aminocarb</u>	-	100->60	60-15	60-6
<u>Bendiocarb</u>	-	100->65	65-15	65-5
<u>Benfuracarb</u>	-	-	100-55	100-20
<u>Butocarboxim</u>	-	-	100-75	100-30
<u>Carbaryl</u>	-	-	100-30	100-10
<u>Carbofuran</u>	-	100->10	10-2	10-1
<u>Cartap HCL</u>	-	-	100-40	100-40
<u>Di-allate</u>	-	-	-	100-75
<u>Dimetan</u>	-	-	100-60	100-24
<u>Dimetilan</u>	-	100->50	50-12	50-5
<u>Dioxacarbe</u>	-	-	100-30	100-10
<u>Formetanate</u>	-	100->40	40-10	40-4
<u>Isolan</u>	-	100->20	20-5	20-2
<u>Isoprocarb</u>	-	-	100-85	100-35
<u>Mercaptodimethur</u>	-	100->70	70-17	70-7
<u>Methasulfocarb</u>	-	-	100-55	100-20
<u>Methomyl</u>	-	100->34	34-8	34-3
<u>Mexacarbate</u>	-	100->28	28-7	28-2
<u>Mobam</u>	-	-	100-35	100-14
<u>Oxamyl</u>	-	100->10	10-2,5	10-1
<u>Pirimicarb</u>	-	-	100-73	100-29
<u>Promecarbe</u>	-	-	100-35	100-14
<u>Promurit (Muritan)</u>	100->5,6	5,6->0,56	0,56-0,14	0,56->0
<u>Proxopur</u>	-	-	100-45	100-18

## Κλάση 6.1

- 2601 75° 2777 παρασιτοκτόνα με βάση τον υδράργυρο, στερεά, τοξικά,  
 (συνεχ.) 3011 παρασιτοκτόνα με βάση τον υδράργυρο, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι  
χαμηλότερο από 23 °C,  
3012 παρασιτοκτόνα με βάση τον υδράργυρο, υγρά, τοξικά, συμπεριλαμβανομένων:

	75° (a)	75° (b)	75° (c)	
	%	%	στερεό %	υγρό %
<u>Οξικός φαινυλδράργυρος (PMA)</u>	-	100->60	60-15	60-6
<u>Χλωριούχος υδράργυρος</u>	-	100->70	70-17	70-7
<u>Χλωρο-μεθοξαιθυλδράργυρος</u>	-	100->40	40-10	40-4
<u>Οξείδιο του υδραργύρου</u>	-	100->35	35-8	35-3
<u>Πυροκατεχίνη φαινυλδραργύρου (PMB)</u>	-	100->60	60-15	60-6

- 76° 2786 οργανοκασσιτερικά παρασιτοκτόνα, στερεά, τοξικά,  
3019 οργανοκασσιτερικά παρασιτοκτόνα, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι  
χαμηλότερο από 23 °C,  
3020 οργανοκασσιτερικά παρασιτοκτόνα, υγρά, τοξικά, συμπεριλαμβανομένων:

	76° (a)	76° (b)	76° (c)	
	%	%	στερεό %	υγρό %
<u>Fentin acetate</u>	-	-	100-62	100-25
<u>Cyhexatin</u>	-	-	100-95	100-35
<u>Fentin hydroxide</u>	-	-	100-54	100-20

- 77° 3025 παρασιτοκτόνα παραγώγων της κουμαρίνης, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι  
χαμηλότερο από 23 °C,  
3026 παρασιτοκτόνα παραγώγων της κουμαρίνης, υγρά, τοξικά,  
3027 παρασιτοκτόνα παραγώγων της κουμαρίνης, στερεά, τοξικά, συμπεριλαμβανομένων:

	77° (a)	77° (b)	77° (c)	
	%	%	στερεό %	υγρό %
<u>Brodifacoum</u>	100->5	5->0,5	0,5-0,13	0,5-0,05
<u>Coumachlor</u>	-	-	100-25	100-10
<u>Coumafuryl</u>	-	-	-	100-80
<u>Coumaphos</u>	-	100->30	30-8	30-3
<u>Coumatetralyl (Racumin)</u>	-	100->34	38-8,5	34-3,4
<u>Dicoumarol</u>	-	-	100-25	100-10
<u>Difenacoum</u>	100->35	35->3,5	3,5-0,9	3,5-0,35
<u>Warfarin (και άλατα αυτού)</u>	100->60	60->6	6-1,5	6-0,6

## Κλάση 6.1

- 2601 78° 2781 παρασιτοκτόνα διτυριδιλίου, στερεά, τοξικά,  
 (συνεχ.) 3015 παρασιτοκτόνα διτυριδιλίου, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι χαμηλότερο  
 από 23 °C,  
 3016 παρασιτοκτόνα διτυριδιλίου, υγρά, τοξικά, συμπεριλαμβανομένων:

	78° (a)	78° (b)	78° (c)	
	%	%	στερεό %	υγρό %
<u>Diquat</u> <u>Paraquat</u>	-	-	-	100-45
	-	100->40	40-8	40-8

- 79° 2759 παρασιτοκτόνα με αρσενικό, στερεά, τοξικά,  
 2993 παρασιτοκτόνα με αρσενικό, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι χαμηλότερο  
 από 23 °C  
 2994 παρασιτοκτόνα με αρσενικό, υγρά, τοξικά, συμπεριλαμβανομένων:

	79° (a)	79° (b)	79° (c)	
	%	%	στερεό %	υγρό %
<u>Ανυδρίδιο του αρσενικού</u>	-	100->40	40-10	40-4
<u>Αρσενικό ασβέστιο</u>	-	100->40	40-10	40-4
<u>Αρσενίτης του νατρίου</u>	-	100->20	20- 5	20-2

- 80° 2775 παρασιτοκτόνα με βάση το χαλκό, στερεά, τοξικά,  
 3009 παρασιτοκτόνα με βάση το χαλκό, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι  
 χαμηλότερο από 23 °C,  
 3010 παρασιτοκτόνα με βάση το χαλκό, υγρά, τοξικά, συμπεριλαμβανομένων:

	80° (a)	80° (b)	80° (c)	
	%	%	στερεό %	υγρό %
<u>Θειικός χαλκός</u>	-	-	100-50	100-20

## Κλάση 6.1

- 2601 (συνεχ.) 81° 2779 παρασιτοκτόνα υποκατεστημένης νιτροφαινόλης, στερεά, τοξικά,  
3013 παρασιτοκτόνα υποκατεστημένης νιτροφαινόλης, υγρά, τοξικά, εύφλεκτα, με σημείο  
ανάφλεξης όχι χαμηλότερο από 23 °C,  
3014 παρασιτοκτόνα υποκατεστημένης νιτροφαινόλης, υγρά, τοξικά, συμπεριλαμβανομένων:

	81° (a)	81° (b)	81° (c)	
	%	%	στερεό %	υγρό %
<u>Binapacryl</u>	-	-	100-65	100-25
<u>Dinobuton</u>	-	-	100-25	100-10
<u>Dinoseb</u>	-	100->40	40-8	40-8
<u>Dinoseb acetate</u>	-	-	100-30	100-10
<u>Dinoterb</u>	-	100->50	50-10	50-5
<u>dinoterb acetate</u>	-	100->50	50-12	50-5
<u>DNOC</u>	-	100->50	50-12	50-5
<u>Medinoterb</u>	-	100->80	80-20	80-8

- 82° 2763 παρασιτοκτόνα τριαζίνης, στερεά, τοξικά,  
2997 παρασιτοκτόνα τριαζίνης, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι χαμηλότερο από  
23 °C,  
2998 παρασιτοκτόνα τριαζίνης, υγρά, τοξικά, συμπεριλαμβανομένων:

	82° (a)	82° (b)	82° (c)	
	%	%	στερεό %	υγρό %
<u>Cyanazin</u>	-	-	100-90	100-35
<u>Termubeton</u>	-	-	-	100-95

- 83° 2769 παρασιτοκτόνα βενζοϊκών παραγώγων, στερεά, τοξικά,  
3003 παρασιτοκτόνα βενζοϊκών παραγώγων, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι  
χαμηλότερο από 23 °C,  
3004 παρασιτοκτόνα βενζοϊκών παραγώγων, υγρά, τοξικά, συμπεριλαμβανομένων:

	83° (a)	83° (b)	83° (c)	
	%	%	στερεό %	υγρό %
<u>Tricamba</u>	-	-	-	100-60

- 84° 2773 παρασιτοκτόνα παραγώγων της φθαλιμίδης, στερεά, τοξικά,  
3007 παρασιτοκτόνα παραγώγων της φθαλιμίδης, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι  
χαμηλότερο από 23 °C,  
3008 παρασιτοκτόνα παραγώγων της φθαλιμίδης, υγρά, τοξικά,  
συμπεριλαμβανομένων:

	84° (a)	84° (b)	84° (c)	
	%	%	στερεό %	υγρό %
... <sup>3/</sup>	-	-	-	-

<sup>3/</sup> Κανένα παρασιτοκτόνο δεν βρίσκεται προς το παρόν σ' αυτήν την συγκεντρωτική καταχώριση.



## Κλάση 6.1

- 2601 85° 2767 παρασιτοκτόνα φαινυλουρίας, στερεά, τοξικά,  
(συνεχ.) 3001 παρασιτοκτόνα φαινυλουρίας, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι χαμηλότερο  
από 23 °C,  
3002 παρασιτοκτόνα φαινυλουρίας, υγρά, τοξικά, συμπεριλαμβανομένων:

	85° (a)	85° (b)	85° (c)	
	%	%	στερεό %	υγρό %
... <sup>3/</sup>	-	-	-	-

- 86° 2771 διθειοκαρβαμικά παρασιτοκτόνα, στερεά, τοξικά,  
3005 διθειοκαρβαμικά παρασιτοκτόνα, υγρά, τοξικά, εύφλεκτα, με σημείο ανάφλεξης όχι χαμηλότερο  
από 23 °C,  
3006 διθειοκαρβαμικά παρασιτοκτόνα, υγρά, τοξικά, συμπεριλαμβανομένων:

	86° (a)	86° (b)	86° (c)	
	%	%	στερεό %	υγρό %
<u>Metam sodium</u>	-	-	100-85	100-35

- 87° Παρασιτοκτόνα που δεν μπορούν να ταξινομηθούν στα είδη 71° έως 86°:  
2588 παρασιτοκτόνα, στερεά, τοξικά, ε.α.ο.,  
2902 παρασιτοκτόνα, υγρά, τοξικά, ε.α.ο.,  
2903 παρασιτοκτόνα, υγρά, τοξικά, εύφλεκτα, ε.α.ο., με σημείο ανάφλεξης όχι χαμηλότερο από 23  
°C, όπως:

Οργανοαζωτούχες ενώσεις

	87° (a)	87° (b)	87° (c)	
	%	%	στερεό %	υγρό %
<u>Benquinox</u>	-	-	100-50	100-20
<u>Chinomethionate</u>	-	-	100-50	100-50
<u>Cycloheximide</u>	100->40	40->4	4-1	4->0
<u>Drazoxolon</u>	-	-	100-63	100-25

Αλκαλοειδή

	87° (a)	87° (b)	87° (c)	
	%	%	στερεό %	υγρό %
<u>Παρασκευάσματα νικοτίνης</u>	-	100->25	25-5	25-5
<u>Σπρυχνίνη</u>	100->20	20->0	-	-

<sup>3/</sup>

Κανένα παρασιτοκτόνο δεν βρίσκεται προς το παρόν σ' αυτήν την συγκεντρωτική καταχώριση.

## Κλάση 6.1

2601  
(συνεχ.)

Άλλες οργανομεταλλικές ενώσεις

	87° (a)	87° (b)	87° (c)	
	%	%	στερεό %	υγρό %
... <sup>3/</sup>	-	-	-	-

Ανόργανες ενώσεις του φθορίου

	87° (a)	87° (b)	87° (c)	
	%	%	στερεό %	υγρό %
<u>Πυρτιοφθοριούχο βάριο</u>	-	-	100-88	100-35
<u>Πυρτιοφθοριούχο νάτριο</u>	-	-	100-62	100-25

Ανόργανες ενώσεις του θαλλίου

	87° (a)	87° (b)	87° (c)	
	%	%	στερεό %	υγρό %
<u>Θεικό θάλλιο</u>	-	100->30	30-8	30-3

Άλλα παρασιτοκτόνα

	87° (a)	87° (b)	87° (c)	
	%	%	στερεό %	υγρό %
<u>ANTU</u>	100->40	40->4	4-1	4-0.8
<u>Blasticidin-S-3</u>	-	-	100-25	100-10
<u>Bromoxynil</u>	-	-	100-95	100-38
<u>Dazomet</u>	-	-	-	100-60
<u>Defenzoquat</u>	-	-	-	100-90
<u>Dimexano</u>	-	-	-	100-48
<u>Diphacinone</u>	100->25	25->3	3-0.7	3-0.2
<u>Endothal-sodium</u>	-	100->75	75-19	75-7
<u>Fenaminosulph</u>	-	100->50	50-10	50-10
<u>Fenpropathrin</u>	-	-	100-30	100-10
<u>Fluoracetamide</u>	-	100->25	5-6.7	25-2.5
<u>Imazalil</u>	-	-	-	100-64
<u>Ioxynil</u>	-	-	100-80	100-20
<u>Kelevan</u>	-	-	-	100-48
<u>Norbormide</u>	100->88	88->8.8	8.8-2.2	8.8-0.8
<u>Pindone και άλατα αυτού</u>	-	-	-	100-55
<u>Rotenon</u>	-	-	100-65	100-25

<sup>3/</sup>

Κανένα παρασιτοκτόνο δεν βρίσκεται προς το παρόν σ' αυτήν την συγκεντρωτική καταχώριση.

## Κλάση 6.1

2601  
(συνεχ.)

Πυρεθρινοειδή

	87° (a)	87° (b)	87° (c)	
	%	%	στερεό %	υγρό %
<u>Cypermethrin</u>	-	-	100-80	100-32

**ΣΗΜΕΙΩΣΗ:** Τα παρασιτοκτόνα του φωσφιδίου του αλουμινίου είναι ύλες του 43° (a).

G. Ενεργές ύλες όπως εκείνες που προορίζονται για εργαστήρια και πειράματα και για την παραγωγή φαρμακευτικών προϊόντων, εάν δεν αναφέρονται σε άλλα είδη αυτής της κλάσης.

90° Ενεργές ύλες, συμπεριλαμβανομένων:

- (a) 1570 βρυκίνη, 1692 στρυγγίνη ή 1692 άλατα στρυγγίνης, 1544 αλκαλοειδή, στερεά, ε.α.ο. ή 1544 αλκαλοειδή άλατα, στερεά, ε.α.ο., 1655 ενώσεις νικοτίνης, στερεές, ε.α.ο. ή 1655 παρασκευάσματα νικοτίνης, στερεά, ε.α.ο., 3140 αλκαλοειδή, υγρά, ε.α.ο. ή 3140 αλκαλοειδή άλατα, υγρά, ε.α.ο., 3144 ενώσεις νικοτίνης, υγρά, ε.α.ο. ή 3144 παρασκευάσματα νικοτίνης, υγρά, ε.α.ο., 3172 τοξίνες, εκχυλισμένες από ζωντανές πηγές, ε.α.ο.
- (b) 1654 νικοτίνη, 1656 υδροχλωρική νικοτίνη ή 1656 διάλυμα υδροχλωρικής νικοτίνης, 1657 σαλικυλική νικοτίνη, 1658 θειική νικοτίνη, στερεή ή 1658 διάλυμα θειικής νικοτίνης, 1659 ταρταρική νικοτίνη, 1544 αλκαλοειδή, στερεά, ε.α.ο. ή 1544 αλκαλοειδή άλατα, στερεά, ε.α.ο., 1655 ενώσεις νικοτίνης, στερεές, ε.α.ο. ή 1655 παρασκευάσματα νικοτίνης, στερεά, ε.α.ο., 1851 φάρμακα, υγρά, τοξικά, ε.α.ο., 3140 αλκαλοειδή, υγρά, ε.α.ο. ή 3140 αλκαλοειδή άλατα, υγρά, ε.α.ο., 3144 ενώσεις νικοτίνης, υγρά, ε.α.ο. ή 3144 παρασκευάσματα νικοτίνης, υγρά, ε.α.ο., 3172 τοξίνες εκχυλισμένες από ζωντανές πηγές, ε.α.ο., 3249 φάρμακα, στερεά, τοξικά, ε.α.ο.
- (c) 1544 αλκαλοειδή, στερεά, ε.α.ο. ή 1544 αλκαλοειδή άλατα, στερεά, ε.α.ο., 1655 ενώσεις νικοτίνης, στερεές, ε.α.ο. ή 1655 παρασκευάσματα νικοτίνης, στερεά, ε.α.ο., 1851 φάρμακα, υγρά, τοξικά, ε.α.ο., 3140 αλκαλοειδή, υγρά, ε.α.ο. ή 3140 αλκαλοειδή άλατα, υγρά, ε.α.ο., 3144 ενώσεις νικοτίνης, υγρές, ε.α.ο. ή 3144 παρασκευάσματα νικοτίνης, υγρά, ε.α.ο., 3172 τοξίνες εκχυλισμένες από ζωντανές πηγές, ε.α.ο., 3249 φάρμακα, στερεά, τοξικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Οι ενεργές ύλες και κονιοποιήσεις ή μείγματα υλών της 90° με άλλες ύλες θα πρέπει να ταξινομούνται σύμφωνα με την τοξικότητά τους [βλέπε περιθωριακό 2600 (3)].

**ΣΗΜΕΙΩΣΗ 2:** Φαρμακευτικά προϊόντα έτοιμα για χρήση, π.χ. καλλυντικά, ναρκωτικά και φάρμακα, που είναι ύλες που παράγονται και συσκευάζονται σε συσκευασίες τύπου που προορίζεται για λιανική πώληση ή διανομή για προσωπική ή οικιακή κατανάλωση, που αλλιώς θα ήταν ύλες της 90° δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 3:** Υλες και παρασκευάσματα που περιέχουν αλκαλοειδή ή νικοτίνη που χρησιμοποιούνται ως παρασιτοκτόνα είναι ύλες του 87°.

## Κλάση 6.1

2601 Η. Κενές συσκευασίες  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ:** Κενές συσκευασίες με υπολείμματα από το προηγούμενο περιεχόμενο τους κολλημένα στις εξωτερικές πλευρές δεν θα γίνονται δεκτές για μεταφορά.

91° Κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά γύμα (IBC) κενών οχημάτων-δεξαμενών, κ ενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών, κενών οχημάτων για μεταφορά γύμα και κενών εμπορευματοκιβωτίων για μεταφορά γύμα, ακαθάριστων, που περιείχαν ύλες της κλάσης 6.1.

2601a Ύλες των 11°, 12°, 14° έως 28°, 32° έως 36°, 41°, 42°, 44°, 51° έως 55°, 57° έως 68°, 71° έως 87° και 90° μεταφερόμενες σε συμφωνία με τις παρακάτω διατάξεις δεν υπόκεινται ούτε στις διατάξεις για αυτήν την Κλάση που περιέχονται σε αυτό το Παράρτημα, ούτε σ' εκείνες που περιέχονται στο παράρτημα Β:

(a) Ύλες ταξινομημένες στο (b) κάθε είδους:

- υγρά: όχι περισσότερο από 500 ml ανά εσωτερική συσκευασία και όχι περισσότερο από 2 λίτρα ανά κόλο,
- στερεά: όχι περισσότερο από 1 kg ανά εσωτερική συσκευασία και όχι περισσότερο από 4 kg ανά κόλο.

(b) Ύλες ταξινομημένες στο (c) κάθε είδους:

- υγρά: όχι περισσότερο από 3 λίτρα ανά εσωτερική συσκευασία και όχι περισσότερο από 12 λίτρα ανά κόλο.
- στερεά: όχι περισσότερο από 6 kg ανά εσωτερική συσκευασία και όχι περισσότερο από 24 kg ανά κόλο.

Αυτές οι ποσότητες υλών θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες σύμφωνες τουλάχιστον με τις συνθήκες του περιθωριακού 3538.

Οι "Γενικές συνθήκες συσκευασίας" του περιθωριακού 3500 (1), (2) και (5) έως (7) θα πρέπει να τηρούνται.

## 2. Διατάξεις

## Α. Κόλα

## 1. Γενικές συνθήκες συσκευασίας

- 2602 (1) Οι συσκευασίες θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης Α.5, εκτός εάν ειδικές συνθήκες για τη συσκευασία ορισμένων υλών καθορίζονται στα περιθωριακά 2603 έως 2608.
- (2) Τα Ενδιάμεσα Εμπορευματοκιβώτια για Μεταφορά γύμα (IBC) θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης Α.6.
- (3) Σε συμφωνία με τις διατάξεις των περιθωριακών 2600 (3) και 3511 (2) ή 3611 (2) θα πρέπει να χρησιμοποιούνται τα παρακάτω:
- συσκευασίες της ομάδας συσκευασίας Ι, μαρκιαρισμένες με το γράμμα "X", για τις εξαιρετικά τοξικές ύλες ταξινομημένες στο γράμμα (a) κάθε είδους,

## Κλάση 6.1

- 2602** - συσκευασίες της ομάδας συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X",  
(συνεχ.) ή IBC της ομάδας συσκευασίας II, μαρκαρισμένα με το γράμμα "Y", για τις τοξικές ύλες που είναι ταξινομημένες στο γράμμα (b) κάθε είδους,
- συσκευασίες της ομάδας συσκευασίας III, II ή I, μαρκαρισμένες με το γράμμα "Z", "Y" ή "X", ή IBC της ομάδας συσκευασίας III ή II, μαρκαρισμένα με το γράμμα "Z" ή "Y", για τις ελαφρώς τοξικές ύλες που είναι ταξινομημένες στο γράμμα (c) κάθε είδους.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά υλών της κλάσης 6.1 σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές και για τη μεταφορά χύμα στερεών αυτής της κλάσης, βλέπε Παράρτημα Β.

**2. Ειδικές συνθήκες για τη συσκευασία ορισμένων υλών**

- 2603** (1) Σταθεροποιημένο υδροκυάνιο της 1<sup>ο</sup> θα πρέπει να συσκευάζεται:
- (a) όταν είναι πλήρως απορροφημένο από αδρανές πορώδες υλικό: σε γερά μεταλλικά δοχεία χωρητικότητας όχι μεγαλύτερης από 7.5 λίτρα, τοποθετημένα σε ξύλινα κιβώτια με τέτοιο τρόπο ώστε να μην μπορούν να έλθουν σ' επαφή μεταξύ τους. Μία τέτοια συνδυασμένη συσκευασία θα πρέπει να είναι σύμφωνη με τις παρακάτω συνθήκες:
1. τα δοχεία θα πρέπει να ελέγχονται σε πίεση όχι μικρότερη από 0.6 MPa (6 bar) (πίεση πιεζομέτρου),
  2. τα δοχεία θα πρέπει να γεμίζονται πλήρως με το πορώδες υλικό. Το πορώδες υλικό δεν θα πρέπει να κατακάθεται ή να σχηματίζει επικίνδυνα κενά ακόμη και μετά από παρατεταμένη χρήση ή από χτύπημα, ακόμα και σε θερμοκρασίες έως 50 °C. Η ημερομηνία πλήρωσης θα πρέπει να είναι με διάρκεια μαρκαρισμένη στο καπάκι κάθε δοχείου,
  3. η συνδυασμένη συσκευασία θα πρέπει να ελέγχεται και εγκρίνεται, σε συμφωνία με την προσθήκη A.5, για την ομάδα συσκευασίας I. Το κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 120 kg,
- (b) όταν είναι υγρό, αλλά όχι απορροφημένο από πορώδες υλικό: σε κυλίνδρους από κοινό χάλυβα ανθεκτικούς στην πίεση, που θα πρέπει να ικανοποιούν τις παρακάτω συνθήκες:
1. πριν χρησιμοποιηθούν για πρώτη φορά, οι ανθεκτικοί στην πίεση κύλινδροι θα πρέπει να υπόκεινται σε υδραυλικό έλεγχο της πίεσης σε πίεση όχι μικρότερη από 10 MPa (100 bar) (πίεση πιεζομέτρου). Ο έλεγχος της πίεσης θα πρέπει να επαναλαμβάνεται κάθε δύο χρόνια και θα πρέπει να περιλαμβάνει λεπτομερή επιθεώρηση του εσωτερικού του δοχείου και έλεγχο του απόβαρου,
  2. Οι κύλινδροι θα πρέπει να είναι σύμφωνοι με τις σχετικές διατάξεις της κλάσης 2 (βλέπε περιθωριακά 2211, 2212 (1) (a), 2213, 2215 και 2218),
  3. μέγιστο επιτρεπτό βάρος του περιεχομένου: 0.55 kg ανά λίτρο χωρητικότητας.
- (2) Δυσάλυματα υδροκυανικού οξέος της 2<sup>ο</sup> θα πρέπει να συσκευάζονται σε σφραγισμένες με φλόγα γυάλινες αμπούλες, που περιέχουν όχι περισσότερο από 50 g, ή σε γυάλινες φιάλες έτσι κλεισμένες ώστε να είναι στεγανές σε διαρροή και που περιέχουν όχι περισσότερο από 250 g.

Οι αμπούλες ή φιάλες θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες που ικανοποιούν τις παρακάτω συνθήκες:

## Κλάση 6.1

- 2603 (συνεχ.)
- (a) Οι αμπούλες και φιάλες θα πρέπει να ασφαλιζονται με απορροφητικά προστατευτικά υλικά σε στεγανές σε διαρροή χαλύβδινες ή αλουμιμένες εξωτερικές συσκευασίες. Κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 15 kg, ή
  - (b) Οι αμπούλες και φιάλες θα πρέπει να ασφαλιζονται με απορροφητικά προστατευτικά υλικά σε ξύλινα κιβώτια με στεγανή σε διαρροή επικασιτερωμένη επένδυση. Κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 75 kg.

Οι συνδυασμένες συσκευασίες που αναφέρονται στα (a) και (b), θα πρέπει να ελέγχονται και εγκρίνονται, σε συμφωνία με την προσθήκη Α.5, για την ομάδα συσκευασίας I.

- 2604 Πεντακαρβονύλιο του σιδήρου και τετρακαρβονύλιο του νικέλιου της 3<sup>ο</sup> θα πρέπει να συσκευάζονται ως εξής:

(1) Σε φιάλες χωρίς ραφές χιτές από καθαρό αλουμίνιο χωρητικότητας όχι μεγαλύτερης από 1 λίτρο και με πάχος τοιχωμάτων όχι μικρότερο από 1 mm, που θα πρέπει να ελέγχονται σε πίεση όχι μικρότερη από 1 MPa (10 bar) (πίεση πιεζομέτρου). Οι φιάλες θα πρέπει να είναι κλεισμένες με μεταλλικό βιδωτό πώμα με αδρανή φλάντζα και το βιδωτό πώμα θα πρέπει να βιδώνεται στέρεα στο λαμό της φιάλης και να ασφαλιζεται έτσι ώστε να μην μπορεί να χαλαρώσει σε κανονικές συνθήκες μεταφοράς.

Το πολύ τέσσερις αλουμιμένες φιάλες αυτού του τύπου μπορούν να ασφαλιζονται σε εξωτερικές συσκευασίες από ξύλο ή φύλλο φάιμπερ από μη-εύφλεκτο απορροφητικό προστατευτικό υλικό. Μία τέτοια συνδυασμένη συσκευασία θα πρέπει να συμφωνεί με έναν τύπο σχεδιασμού που έχει ελεγχθεί και εγκριθεί για την ομάδα συσκευασίας I σε συμφωνία με την προσθήκη Α.5.

Κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 10 kg.

(2) Σε μεταλλικά δοχεία εφοδιασμένα με συσκευές για πλήρως στεγανό σε διαρροή κλείσιμο, που θα πρέπει να ασφαλιζονται, εάν είναι αναγκαίο, έναντι μηχανικής ζημιάς, με προστατευτικά καλύμματα. Χαλύβδινα δοχεία χωρητικότητας όχι μεγαλύτερης από 150 λίτρα, θα πρέπει να έχουν ελάχιστο πάχος τοιχωμάτων 3 mm και μεγαλύτερα χαλύβδινα δοχεία και δοχεία κατασκευασμένα από άλλα υλικά θα πρέπει να έχουν τοιχώματα τουλάχιστον αρκετά παχιά ώστε να εγγώνονται ισοδύναμη μηχανική αντοχή. Η μέγιστη επιτρεπόμενη χωρητικότητα των δοχείων, θα πρέπει να είναι 250 λίτρα. Το βάρος του περιεχομένου θα πρέπει να είναι όχι μεγαλύτερο από 1 kg υγρού ανά λίτρο χωρητικότητας.

Πριν χρησιμοποιηθούν για πρώτη φορά, τα δοχεία θα πρέπει να υπόκεινται σε υδραυλικό έλεγχο της πίεσης σε πίεση όχι μικρότερη από 1 MPa (10 bar) (πίεση πιεζομέτρου). Ο έλεγχος της πίεσης θα πρέπει να επαναλαμβάνεται κάθε πέντε χρόνια και θα πρέπει να περιλαμβάνει λεπτομερή επιθεώρηση του εσωτερικού του δοχείου και έλεγχο του απόβαρου. Τα μεταλλικά δοχεία θα πρέπει να φέρουν τα παρακάτω στοιχεία με καθαρά ευανάγνωστους και διαρκείας χαρακτήρες:

- (a) την πλήρη ονομασία της ύλης (οι ονομασίες και των δύο υλών μπορούν επίσης να φαίνονται δίπλα-δίπλα σε περίπτωση εναλλακτικής χρήσης),
- (b) την ονομασία του ιδιοκτήτη του δοχείου,
- (c) το απόβαρο του δοχείου, συμπεριλαμβανομένων τέτοιων προσαρτήσεων και εξαρτημάτων όπως βαλβίδες, προστατευτικά καλύμματα κ.λπ.,
- (d) την ημερομηνία (μήνα, χρόνο) του αρχικού ελέγχου και του πιο πρόσφατου ελέγχου και τη σφράγιδα του εμπειρογνώμονα που διεξήγαγε τον έλεγχο,
- (e) το μέγιστο επιτρεπτό βάρος του περιεχομένου του δοχείου σε kg,

## Κλάση 6.1

- 2604 (f) την εσωτερική πίεση (πίεση ελέγχου) που πρέπει να εφαρμόζεται στον υδραυλικό έλεγχο της πίεσης.
- (συνεχ.)
- 2605 (1) (a) Αιθυλενεϊμίνη, αδρανής, της 4<sup>ο</sup> θα πρέπει να συσκευάζεται σε χαλύβδινα δοχεία επαρκούς πάχους, που θα πρέπει να είναι κλεισμένα με βιδωτό πώμα ή τάπα στεγανά σε διαρροή τόσο υγρού όσο και ατμού, με κατάλληλη φλάντζα. Τα δοχεία, θα πρέπει αρχικά και περιοδικά, τουλάχιστον κάθε πέντε χρόνια, να ελέγχονται σε πίεση όχι μικρότερη από 0.3 MPa (3 bar) (πίεση πιεζομέτρου) σε συμφωνία με τα περιθωριακά 2215 (1) και 2216. Κάθε δοχείο θα πρέπει να ασφαλιζονται με απορροφητικά προστατευτικά υλικά σε γερή στεγανή προστατευτική μεταλλική συσκευασία. Η προστατευτική συσκευασία θα πρέπει να είναι ερμητικά κλεισμένη και το πώμα της θα πρέπει να ασφαλιζεται έναντι οποιουδήποτε ακούσιου ανοίγματος. Το βάρος του περιεχομένου δεν θα πρέπει να υπερβαίνει τα 0.67 kg ανά λίτρο χωρητικότητας. Κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 75 kg. Κόλα που ζυγίζουν περισσότερο από 30 kg, άλλες από εκείνες που αποστέλλονται ως πλήρες φορτίο, θα πρέπει να είναι εφοδιασμένες με λαβές.
- (b) Αιθυλενεϊμίνη, αδρανής, της 4<sup>ο</sup> μπορεί επίσης να συσκευάζεται σε χαλύβδινα δοχεία επαρκούς πάχους, που θα πρέπει να είναι κλεισμένα με βιδωτό πώμα και βιδωτό προστατευτικό κάλυμμα ή ισοδύναμη συσκευή στεγανή σε διαρροή τόσο υγρού όσο και ατμού. Τα δοχεία θα πρέπει αρχικά και περιοδικά, τουλάχιστον κάθε πέντε χρόνια, να ελέγχονται σε πίεση τουλάχιστον 1 MPa (10 bar) (πίεση πιεζομέτρου) σε συμφωνία με τα περιθωριακά 2215 (1) και 2216. Το βάρος του περιεχομένου δεν θα πρέπει να υπερβαίνει τα 0.67 kg ανά λίτρο χωρητικότητας. Κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 75 kg.
- (c) Δοχεία σε συμφωνία με τα (a) και (b), θα πρέπει να φέρουν, με καθαρά ενανάντωντους και διαρκείας χαρακτήρες:
- την ονομασία ή τη μάρκα του κατασκευαστή και τον αριθμό του δοχείου,
  - τη λέξη "αιθυλενεϊμίνη",
  - το απόβαρο του δοχείου και το μέγιστο επιτρεπόμενο βάρος του όταν είναι γεμάτο,
  - την ημερομηνία (μήνα και χρόνο) του αρχικού ελέγχου και του πιο πρόσφατου ελέγχου που έγινε,
  - την σφραγίδα του εμπειρογνώμονα που διεξήγαγε τους ελέγχους και τις εξετάσεις.
- (2) Ο ισοκυανικός μεθυλεστεράς της 5<sup>ο</sup> θα πρέπει να συσκευάζεται:
- (a) σε ερμητικά κλεισμένα δοχεία κατασκευασμένα από καθαρό αλουμίνιο και με χωρητικότητα όχι μεγαλύτερη από ένα λίτρο, που δεν θα πρέπει να γεμίζονται πάνω από το 90 % της χωρητικότητάς τους. Τα δοχεία θα πρέπει να ασφαλιζονται, όχι περισσότερα από 10 σε κάθε κιβώτιο, με κατάλληλο προστατευτικό υλικό σε ξύλινο κιβώτιο. Τα κόλα αυτού του είδους θα πρέπει να ικανοποιούν τις απαιτήσεις ελέγχου για συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538 για την ομάδα συσκευασίας I και δεν θα πρέπει να ζυγίζουν περισσότερο από 30 kg, ή
- (b) σε δοχεία κατασκευασμένα από καθαρό αλουμίνιο με πάχος τοιχωμάτων όχι μικρό-τερο από 5 mm ή σε δοχεία από ανοξείδωτο χάλυβα. Τα δοχεία θα πρέπει να είναι πλήρως οξυγονοκολλημένα και θα πρέπει αρχικά και περιοδικά, τουλάχιστον κάθε πέντε χρόνια, να ελέγχονται σε πίεση τουλάχιστον 0.5 MPa (5 bar) (πίεση πιεζο-μέτρου) σε συμφωνία με τα περιθωριακά 2215 (1) και 2216. Θα πρέπει να είναι έτσι κλεισμένα ώστε να είναι στεγανά, με δύο πώματα, το ένα πάνω από το άλλο, το ένα από τα οποία θα πρέπει να είναι βιδωμένο ή ασφαλισμένο με έναν ισοδύναμο αποτε-λεσματικό τρόπο. Ο βαθμός πλήρωσης θα πρέπει να είναι όχι μεγαλύτερος από 90 %.

## Κλάση 6.1

2605  
(συνεχ.)

Βαρέλια που ζυγίζουν περισσότερο από 100 kg, θα πρέπει να είναι εφοδιασμένα με κυλιόμενα τσέρκια ή ενισχυτικές νευρώσεις.

- (c) Δοχεία σε συμφωνία με το (b), θα πρέπει να φέρουν, με καθαρά ευανάγνωστους και διαρκείας χαρακτήρες:
- την ονομασία ή μάρκα του κατασκευαστή και τον αριθμό του δοχείου,
  - τις λέξεις "ισοκυανικός μεθυλεστέρας",
  - το απόβαρο του δοχείου και το μέγιστο επιτρεπόμενο βάρος του όταν είναι γεμάτο,
  - την ημερομηνία (μήνα και χρόνο) του αρχικού ελέγχου και του πιο πρόσφατου ελέγχου που έγινε,
  - τη σφραγίδα του εμπειρογνώμονα που διεξήγαγε τους ελέγχους και τις εξετάσεις.

2606 (1) Ύλες ταξινομημένες στο (a) των διαφόρων ειδών, θα πρέπει να συσκευάζονται:

- (a) σε χαλύβδινα βαρέλια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3520, ή
- (b) σε αλουμινένια βαρέλια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3521, ή
- (c) σε χαλύβδινα μπιτόνια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3522, ή
- (d) σε πλαστικά βαρέλια μη-μετακινούμενης κεφαλής χωρητικότητας όχι μεγαλύτερης από 60 λίτρα ή πλαστικά μπιτόνια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3526, ή
- (e) σε σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) σε συνδυασμένες συσκευασίες με εσωτερική συσκευασία από γυαλί, πλαστικό ή μέταλλο σύμφωνα με το περιθωριακό 3538.

(2) Στερεές ύλες κατά την έννοια του περιθωριακού 2600 (13) μπορούν επίσης να συσκευάζονται:

- (a) σε βαρέλια μετακινούμενης κεφαλής σύμφωνα με τα περιθωριακά 3520 για χάλυβα, 3521 για αλουμίνιο, 3523 για κόντρα-πλακέ, 3525 για φύλλο φάιμπερ, ή 3526 για πλαστικό υλικό, ή σε μπιτόνια μετακινούμενης κεφαλής σύμφωνα με τα περιθωριακά 3522 για χάλυβα ή 3526 για πλαστικό υλικό, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
- (b) σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους.

(3) Το κυανιούχο νάτριο της 41° (a) μπορεί επίσης να συσκευάζεται σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622 ή σε ξύλινα IBC με αδιαπέραστη εσωτερική επένδυση σύμφωνα με το περιθωριακό 3627, υπό την προϋπόθεση ότι μεταφέρεται ως πλήρες φορτίο.

2607 (1) Ύλες ταξινομημένες στο (b) των διαφόρων ειδών, θα πρέπει να συσκευάζονται:

- (a) σε χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
- (b) σε αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή



## Κλάση 6.1

2607  
(συνεχ.)

- (c) σε χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
- (d) σε πλαστικά βαρέλια ή πλαστικά μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
- (e) σε σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538.

**ΣΗΜΕΙΩΣΗ** στα (a), (b), (c) και (d): Απλοποιημένες συνθήκες εφαρμόζονται στα βαρέλια και μπιτόνια μετακινούμενης κεφαλής για ιξώδεις ύλες με ιξώδες μεγαλύτερο από 200 mm<sup>2</sup>/s στους 23 °C και για στερεά (βλέπε περιθωριακά 3512, 3553, 3554 και 3560).

(2) Ύλες ταξινομημένες στο (b) των διαφόρων ειδών, που έχουν τάση ατμών στους 50 °C όχι μεγαλύτερη από 110 kPa (1.10 bar), μπορούν επίσης να συσκευάζονται σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622 ή σε άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624 ή σε σύνθετα IBC με άκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625.

(3) Ύλες ταξινομημένες στην 15°(b) μπορούν επίσης να συσκευάζονται σε σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργιλος) σύμφωνα με το περιθωριακό 3539.

(4) Στερεές ύλες κατά την έννοια του περιθωριακού 2600 (13) μπορούν επίσης να συσκευάζονται:

- (a) σε βαρέλια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3523 για κόντρα-πλακέ ή 3525 για φύλλο φάϊμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
- (b) σε αδιάβροχους σάκους σύμφωνα με το περιθωριακό 3533 για υλικά υφαντουργίας, 3534 για πλεγμένα πλαστικά υλικά, 3535 για πλαστική μεμβράνη ή 3536 για αδιάβροχο χαρτί, υπό την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται ως πλήρες φορτίο ή οι σάκοι ασφαλιζονται πάνω σε παλέτες, ή
- (c) σε σύνθετα IBC με εύκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625, IBC από φύλλο φάϊμπερ σύμφωνα με το περιθωριακό 3626 ή ξύλινα IBC σύμφωνα με το περιθωριακό 3627, ή
- (d) σε εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623, με εξαίρεση τα IBC των τύπων 13H1, 13L1, 13M1, υπό την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται ως πλήρες φορτίο ή τα εύκαμπτα IBC είναι φορτωμένα πάνω σε παλέτες.

2608 (1) Ύλες ταξινομημένες στο (c) των διαφόρων ειδών, θα πρέπει να συσκευάζονται:

- (a) σε χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
- (b) σε αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
- (c) σε χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
- (d) σε πλαστικά βαρέλια ή πλαστικά μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
- (e) σε σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
- (g) σε σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργιλος) σύμφωνα με το περιθωριακό 3539, ή

## Κλάση 6.1

- 2608 (συνεχ.) (h) σε ελαφρού περιτυπώματος μεταλλικές συσκευασίες σύμφωνα με το περιθωριακό 3540.

*ΣΗΜΕΙΩΣΗ στα (a), (b), (c), (d) και (h): Απλοποιημένες συνθήκες εφαρμόζονται στα βαρέλια, μπιτόνια και ελαφρού περιτυπώματος μεταλλικές συσκευασίες μετακινούμενης κεφαλής για ιξώδεις ύλες με ιξώδες μεγαλύτερο από 200 mm<sup>2</sup>/s σε 23 °C και για στερεά (βλέπε περιθωριακά 3512, 3552 έως 3554 και 3560).*

(2) Ύλες ταξινομημένες στο (c) των διαφόρων ειδών, που έχουν τάση ατμών στους 50 °C όχι μεγαλύτερη από 110 kPa (1.10 bar), μπορούν επίσης να συσκευάζονται σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, σε άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624 ή σε σύνθετα IBC με άκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625.

(3) Στερεές ύλες κατά την έννοια του περιθωριακού 2600 (13) μπορούν επίσης να συσκευάζονται:

- (a) σε βαρέλια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3523 για κόντρα-πλακέ, ή 3525 για φύλλο φάιμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
- (b) σε αδιάβροχους σάκους σύμφωνα με τα περιθωριακά 3533 για υλικά υφαντουργίας, 3534 για πλεγμένα πλαστικά υλικά, 3535 για πλαστικές μεμβράνες ή 3536 για αδιάβροχο χαρτί, ή
- (c) σε εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623 με εξαίρεση τα IBC των τύπων 13H1, 13L1 και 13M1, σε σύνθετα IBC με εύκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625, σε IBC από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3626 ή σε ξύλινα IBC σύμφωνα με το περιθωριακό 3627.

2609-  
2610

### 3. Μικτή συσκευασία

- 2611 (1) Ύλες που καλύπτονται από τον ίδιο αριθμό ειδους, μπορούν να συσκευάζονται μαζί σε συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538.

(2) Ύλες διαφορετικών ειδών της κλάσης 6.1 σε ποσότητες όχι μεγαλύτερες, ανά εσωτερική συσκευασία, από 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί και/ή με εμπορεύματα όχι υποκείμενα στις διατάξεις αυτής της Οδηγίας, σε συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538, υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.

(3) Ύλες των 1°, 3°, 4° και 5°, δεν θα πρέπει να συσκευάζονται με άλλα εμπορεύματα.

(4) Ύλες της 2° και ύλες ταξινομημένες στο (a) των διαφόρων ειδών, δεν θα πρέπει να συσκευάζονται μαζί με ύλες και είδη των κλάσεων 1 και 5.2 και υλικά της κλάσης 7.

(5) Εκτός εάν ειδικά προβλέπεται διαφορετικά, ύλες της 2° και υγρές ύλες ταξινομημένες στο (a) των διαφόρων ειδών, σε ποσότητες όχι μεγαλύτερες από 0.5 λίτρο ανά εσωτερική συσκευασία και 1 λίτρο ανά κόλο και ύλες ταξινομημένες στο (b) και (c) των διαφόρων ειδών, σε ποσότητες όχι μεγαλύτερες, ανά εσωτερική συσκευασία, από 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538, με ύλες ή είδη άλλων κλάσεων, υπό την προϋπόθεση ότι μικτή συσκευασία είναι επίσης επιτρεπόμενη για τις ύλες αυτών των κλάσεων και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας, υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.

## Κλάση 6.1

2611 (6) Οι παρακάτω θεωρούνται επικίνδυνες αντιδράσεις:  
(συνεχ.)

- (a) ανάφλεξη και/ή εκπομπή αξιοσημείωτης θερμότητας,
- (b) εκπομπή εύφλεκτων και/ή τοξικών αερίων,
- (c) σχηματισμός διαβρωτικών υγρών,
- (d) σχηματισμός ασταθών υλών.

(7) Η μικτή συσκευασία όξινων υλών με βασικές ύλες σε ένα κόλο, δεν θα πρέπει να επιτρέπεται εάν οι δύο ύλες είναι συσκευασμένες σε εύθραυστα δοχεία.

(8) Οι διατάξεις των περιθωριακών 2001 (7), 2002 (6) και (7) και 2602 θα πρέπει να τηρούνται.

(9) Εάν χρησιμοποιούνται ξύλινα κιβώτια ή κιβώτια από φύλλο φάιμπερ, κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg.

4. *Μαρκάρισμα και επικέτες κινδύνου πάνω στα κόλα (Βλέπε Προσθήκη Α.9)*

*Μαρκάρισμα*

2612 (1) Κάθε κόλο θα πρέπει να είναι καθαρά και με διάρκεια μαρκαρισμένη με τον χαρακτηριστικό αριθμό των εμπορευμάτων που πρόκειται να εγγραφεί στο έγγραφο μεταφοράς, μετά από τα γράμματα "UN".

*Επικέτες κινδύνου*

(2) Κόλα που περιέχουν ύλες ή είδη αυτής της κλάσης, θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1.

(3) Κόλα που περιέχουν ύλες των 1° έως 6°, 7° (a) 2., 8°, 9°, 11°, 13°, 16°, 18°, 20°, 22° ή 26° (a) 1. ή (b) 1. θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 3.

(4) Κόλα που περιέχουν εύφλεκτα παρασιτοκτόνα των 71° έως 87° με σημείο ανάφλεξης 23 °C ή παραπάνω, θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 3.

(5) Κόλα που περιέχουν ύλες των 7° (a) 1., 10° ή 28°, θα πρέπει, επιπλέον, να φέρουν ετικέτες σύμφωνα με τα υποδείγματα Αριθμ. 3 και 8.

(6) Κόλα που περιέχουν ύλες των 26° (a) 2. ή (b) 2. ή 54° (b) 1., θα πρέπει, επιπλέον, να φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 4.1.

(7) Κόλα που περιέχουν ύλες της 66° θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.2.

(8) Κόλα που περιέχουν ύλες της 44° θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.3.

(9) Κόλα που περιέχουν ύλες της 68° θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 05.

(10) Κόλα που περιέχουν ύλες των 24° (b) 2., 27° ή 67° θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8.

(11) Κόλα που περιέχουν εύθραυστα δοχεία όχι ορατά από έξω, θα πρέπει, επιπλέον, να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 12.

## Κλάση 6.1

**2612** (12) Κόλα που περιέχουν υγρά σε δοχεία, τα πόματα των οποίων δεν είναι ορατά από έξω, κόλα (συνεχ.) που περιέχουν δοχεία με εξαεριστήρες και δοχεία με εξαεριστήρες αλλά χωρίς εξωτερική συσκευασία, θα πρέπει, επιπλέον, να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

**2613**

### B. Στοιχεία στο έγγραφο μεταφοράς

**2614** Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς, θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς ύλης και μία από τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2601.

Εάν η ύλη δεν αναφέρεται με συγκεκριμένη ονομασία αλλά είναι εγγεγραμμένες σε μία ε.α.ο. καταχώρηση, ή σε μία άλλη συγκεντρωτική καταχώρηση, η περιγραφή των εμπορευμάτων θα πρέπει να συνίσταται από τον χαρακτηριστικό αριθμό, τον χαρακτηρισμό ε.α.ο. ή τον χαρακτηρισμό της συγκεντρωτικής καταχώρησης, ακολουθούμενο από τη χημική ή τεχνική ονομασία.<sup>4/</sup>

Η περιγραφή των εμπορευμάτων θα πρέπει να ακολουθείται από στοιχεία της κλάσης, τον αριθμό είδους, εάν εφαρμόζεται, το γράμμα, και τα αρχικά "ADR" (ή "RID") π.χ. "6.1, 11°(a), ADR".

Για τη μεταφορά αποβλήτων [βλέπε περιθωριακό 2000 (5)], η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "Απόβλητα που περιέχουν ..." και το(τα) συστατικό(ά) που χρησιμοποιείται(ούνται) για την ταξινόμηση των αποβλήτων στο περιθωριακό 2002 (8) θα πρέπει να εγγράφεται(ονται) με τη(τις) χημική(ές) ονομασία(ές) του(ς), π.χ. "Απόβλητα, που περιέχουν 2570 ενώσεις καδμίου, 6.1, 61°(c) ADR".

Για τη μεταφορά διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα) που περιέχουν διάφορα συστατικά που υπόκεινται στις διατάξεις αυτής της Οδηγίας, δεν θα είναι γενικά αναγκαίο να αναφέρονται περισσότερα από δύο συστατικά που πιο κύρια συμβάλουν στον κίνδυνο ή τους κινδύνους των διαλυμάτων και μειγμάτων.

Για τη μεταφορά διαλυμάτων και μειγμάτων που περιέχουν μόνον ένα συστατικό που υπόκειται στις διατάξεις αυτής της Οδηγίας, οι λέξεις "διάλυμα" ή "μείγμα" θα πρέπει να προστίθενται ως μέρος της ονομασίας στο έγγραφο μεταφοράς [βλέπε περιθωριακό 2002 (8)].

Όταν μία στερεή ύλη παραδίδεται για μεταφορά στην τετηγμένη κατάσταση, η περιγραφή των εμπορευμάτων θα πρέπει να συμπληρώνεται από τη λέξη "τετηγμένο", εκτός εάν ήδη συμπεριλαμβάνεται στην ονομασία.

Εάν ένα διάλυμα ή μείγμα που περιέχει μία ύλη με ονομασία σε συμφωνία με το περιθωριακό 2600 (5), δεν υπόκειται στις συνθήκες αυτής της κλάσης, ο αποστολέας μπορεί να εγγράψει στο έγγραφο μεταφοράς "Όχι εμπορεύματα της κλάσης 6.1".

**2615-  
2621**

<sup>4/</sup> Η τεχνική ονομασία θα πρέπει να είναι μία ονομασία που ήδη χρησιμοποιείται σε επιστημονικά και τεχνικά εγχειρίδια, περιοδικά και κείμενα. Εμπορικές ονομασίες δεν θα πρέπει να χρησιμοποιούνται για αυτόν τον σκοπό. Στην περίπτωση παρασιτοκτόνων, η ονομασία που θα καταχωρίζεται θα πρέπει να είναι εκείνη που δίνεται στο Πρότυπο ISO 1750:1891 εάν αναφέρεται.

## Κλάση 6.1

## C. Κενές συσκευασίες

- 2622 (1) Εάν οι κενές συσκευασίες, ακαθάριστες, της 91<sup>ο</sup> είναι σάκοι ή εύκαμπτα IBC, αυτές θα πρέπει να τοποθετούνται σε κιβώτια ή αδιάβροχους σάκους για την αποφυγή οποιασδήποτε διαρροής της ύλης.
- (2) Άλλες κενές συσκευασίες, συμπεριλαμβανομένων ακαθάριστων κενών IBC της 91<sup>ο</sup>, θα πρέπει να είναι κλεισμένες με τον ίδιο τρόπο και με τον ίδιο βαθμό στεγανότητας σαν να ήταν γεμάτες.
- (3) Κενές συσκευασίες, συμπεριλαμβανομένων ακαθάριστων κενών IBC της 91<sup>ο</sup> θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνου σαν να ήταν γεμάτες.
- (4) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μία από τις ονομασίες που υπογραμμίζονται στο 91<sup>ο</sup>, π.χ.: "Κενή συσκευασία, 6.1, 91<sup>ο</sup> ADR".

Στην περίπτωση κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών καθώς και κενών οχημάτων για μεταφορά χύμα και κενών εμπορευματοκιβωτίων για μεταφορά χύμα, ακαθάριστων, αυτή η περιγραφή θα πρέπει να συμπληρώνεται από την προσθήκη των λέξεων "Τελευταίο φορτίο" μαζί με την ονομασία και το είδος των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ.: "Τελευταίο φορτίο: 2312 φαινόλη, τετηγμένη, 24<sup>ο</sup> (b)".

2623-  
2624

## D. Μεταβατικά μέτρα

- 2625 Υλεις της κλάσης 6.1 μπορούν να μεταφέρονται μέχρι τις 30 Ιουνίου 1995 σε συμφωνία με τις απαιτήσεις για την Κλάση 6.1 που εφαρμόζονται μέχρι τις 31 Δεκεμβρίου 1994. Το έγγραφο μεταφοράς θα πρέπει, σε τέτοιες περιπτώσεις, να φέρει την επιγραφή "Μεταφορά σε συμφωνία με την ADR που ισχύει πριν την 1 Ιανουαρίου 1995".

2626-  
2649

## ΚΛΑΣΗ 6.2 - ΜΟΛΥΣΜΑΤΙΚΕΣ ΥΛΕΣ

## 1. Κατάλογος υλών

2650 (1) Ανάμεσα στις ύλες <sup>1/</sup> που καλύπτονται από τον τίτλο της κλάσης 6.2, εκείνες που αναφέρονται στο περιθωριακό 2651 ή καλύπτονται από ένα συγκεντρωτικό κεφάλαιο εκείνου του περιθωριακού, υπόκεινται στις συνθήκες που τίθενται στο περιθωριακό 2650 (2) έως το περιθωριακό 2675 και στις διατάξεις αυτού του παραρτήματος και του παραρτήματος Β. Θεωρούνται τότε ως ύλες αυτής της Οδηγίας.

(2) Η κλάση 6.2 περιλαμβάνει ύλες που περιέχουν βιώσιμους μικρο-οργανισμούς, συμπεριλαμβανομένων βακτηρίων, ιών, παρασίτων, μυκήτων, επίσης ως επανασυνδυασμένων, υβριδίων ή μεταλλαγμένων μικρο-οργανισμών, για τους οποίους είναι γνωστό ή λογικά πιστεύεται ότι προκαλούν ασθένειες σε ζώα ή ανθρώπους. Υπόκεινται στις διατάξεις αυτής της κλάσης εάν είναι ικανές να εξαπλώσουν ασθένειες σε ανθρώπους ή ζώα, σε περίπτωση έκθεσης σ' αυτές.

**ΣΗΜΕΙΩΣΗ 1:** Γενετικά τροποποιημένοι μικρο-οργανισμοί και οργανισμοί, βιολογικά προϊόντα, διαγνωστικά δείγματα και μολυσμένα ζωντανά ζώα θα πρέπει να καταχωρούνται σ' αυτήν την Κλάση εάν ικανοποιούν τις συνθήκες για αυτήν την Κλάση.

**ΣΗΜΕΙΩΣΗ 2:** Τοξικές τοξίνες από φυτικές, ζωικές ή βακτηριακές προελεύσεις που δεν περιέχουν οποιεσδήποτε μολυσματικές ύλες ή οργανισμούς ή που δεν περιέχονται σ' αυτές, είναι ύλες της κλάσης 6.1 (βλέπε περιθωριακό 2601, 90°, χαρακτηριστικός αριθμός 3172).

(3) Οι ύλες της κλάσης 6.2 υποδιαιρούνται ως εξής:

- A. Μολυσματικές ύλες με υψηλή δυνατότητα κινδύνου
- B. Άλλες μολυσματικές ύλες
- C. Κενές συσκευασίες.

Οι ύλες του περιθωριακού 2651, 3° και 4°, καταχωρούνται στην ομάδα που χαρακτηρίζονται από το γράμμα (b) με βάση τον βαθμό κινδύνου:

- (b) επικίνδυνες ύλες.

(4) Η καταχώρηση υλών που δεν αναφέρονται με συγκεκριμένη ονομασία στις 1°, 2° και 3° του περιθωριακού 2651, θα πρέπει να γίνεται, με βάση την τρέχουσα επιστημονική γνώση, σε συμφωνία με τις παρακάτω ομάδες κινδύνου <sup>2/</sup>:

- (i) Η ομάδα κινδύνου IV (υψηλός ατομικός κίνδυνος, υψηλός κοινωνικός κίνδυνος) καλύπτει μικρο-οργανισμούς που μπορούν να προκαλέσουν σοβαρή ασθένεια σε ανθρώπους ή ζώα, που μπορούν να παρουσιάσουν υψηλό κίνδυνο εξάπλωσης και για τους οποίους δεν υπάρχει συνήθως διαθέσιμη αποτελεσματική προφύλαξη ή θεραπεία.

<sup>1/</sup> Για τους σκοπούς αυτής της κλάσης, οι μικρο-οργανισμοί καθώς και είδη μολυσμένα με αυτούς θα πρέπει να θεωρούνται ως ύλες αυτής της κλάσης.

<sup>2/</sup> Βλέπε το "Εγχειρίδιο Εργαστηριακής Βιοασφάλειας" του Παγκόσμιου Οργανισμού Υγείας (WHO), Έκδοση 1983, και Οδηγία 90/679/EEC (Επίσημη Εφημερίδα της Ευρωπαϊκής Κοινότητας, Αριθμ. L 374 της 31 Δεκεμβρίου 1990, σ.1). Δεν είναι ανταλλάξιμες με τις ομάδες συσκευασίας σε συμφωνία με π.χ. την προσθήκη Α.5.

## Κλάση 6.2

- 2650 (συνεχ.)
- (ii) Η ομάδα κινδύνου III (υψηλός ατομικός κίνδυνος, χαμηλός κοινωνικός κίνδυνος) καλύπτει μικρο-οργανισμούς που μπορούν να προκαλέσουν σοβαρή ασθένεια σε ανθρώπους ή ζώα και μπορούν να παρουσιάσουν υψηλό κίνδυνο εξάπλωσης, αλλά για τους οποίους υπάρχει συνήθως διαθέσιμη αποτελεσματική προφύλαξη ή θεραπεία.
  - (iii) Η ομάδα κινδύνου II (μέτριος ατομικός κίνδυνος, περιορισμένος κοινωνικός κίνδυνος) καλύπτει μικρο-οργανισμούς που μπορούν να προκαλέσουν ασθένεια σε ανθρώπους ή ζώα, που είναι πιθανόν να εξαπλωθούν και για τους οποίους υπάρχει συνήθως διαθέσιμη αποτελεσματική προφύλαξη ή θεραπεία.
  - (iv) Η ομάδα κινδύνου I (χαμηλός ατομικός και κοινωνικός κίνδυνος) καλύπτει μικρο-οργανισμούς που είναι απίθανο να προκαλέσουν ασθένεια σε ανθρώπους ή ζώα.

**ΣΗΜΕΙΩΣΗ 1:** Μικρο-οργανισμοί κινδύνου της ομάδας I, δεν είναι μολυσματικές ύλες κατά την έννοια αυτής της κλάσης.

**ΣΗΜΕΙΩΣΗ 2:** Γενετικά τροποποιημένοι μικρο-οργανισμοί και οργανισμοί <sup>3)</sup> είναι μικρο-οργανισμοί και οργανισμοί στους οποίους το γενετικό υλικό έχει επίτηδες τροποποιηθεί με τεχνικές μεθόδους ή με τρόπο που δεν μπορεί να συμβεί φυσικά στη φύση.

**ΣΗΜΕΙΩΣΗ 3:** Γενετικά τροποποιημένοι μικρο-οργανισμοί που είναι μολυσματικοί κατά την έννοια αυτής της κλάσης, είναι ύλες των 1<sup>ο</sup>, 2<sup>ο</sup> ή 3<sup>ο</sup>. Δεν μπορούν όμως να καταχωρούνται στην 4<sup>ο</sup>. Γενετικά τροποποιημένοι μικρο-οργανισμοί που δεν είναι μολυσματικές ύλες κατά την έννοια αυτής της κλάσης, μπορούν να είναι ύλες της κλάσης 9 (βλέπε περιθωριακό 2901, 13<sup>ο</sup>, χαρακτηριστικός αριθμός 3245).

**ΣΗΜΕΙΩΣΗ 4:** Γενετικά τροποποιημένοι οργανισμοί, για τους οποίους είναι γνωστό ή υπάρχει η υποψία ότι είναι επικίνδυνοι για ανθρώπους, ζώα ή το περιβάλλον, θα πρέπει να μεταφέρονται σε συμφωνία με τις συνθήκες που ορίζονται από την αρμόδια αρχή της χώρας προέλευσης.

(5) Ύλες και μείγματα υλών αυτής της κλάσης, θα πρέπει να θεωρούνται ως στερεά για τις διατάξεις συσκευασίας των περιθωριακών 2654 και 2655 όσο δεν περιέχουν ελεύθερο υγρό σε θερμοκρασία μικρότερη από 45 °C.

(6) "Βιολογικά προϊόντα" είναι:

- τελικά βιολογικά παρασκευάσματα για ανθρώπινη ή κτηνιατρική χρήση που παράγονται σε συμφωνία με τις απαιτήσεις των εθνικών αρχών δημόσιας υγείας και διακινούνται υπό ειδική έγκριση ή άδεια από τέτοιες αρχές, εάν απαιτείται, ή
- βιολογικά προϊόντα που μεταφέρονται πριν τη λήψη άδειας για λόγους έρευνας ή ανάπτυξης, ή
- τελικά παρασκευάσματα για χρήση στην πειραματική θεραπεία ανθρώπων ή ζώων που παράγονται σε συμφωνία με τις απαιτήσεις των εθνικών αρχών δημόσιας υγείας.

Καλύπτουν επίσης βιολογικά προϊόντα παρασκευασμένα σε συμφωνία με διαδικασίες εξειδικευμένων κυβερνητικών αντιπροσωπειών.

<sup>3)</sup> Βλέπε επίσης Οδηγία 90/219/EEC, Επίσημη Εφημερίδα της Ευρωπαϊκής Κοινότητας Αριθμ. L 117 της 8 Μαΐου 1990, σελίδα 1.

## Κλάση 6.2

**2650** (συνεχ.) Διαγνωστικά δείγματα είναι οποιοδήποτε υλικό από άνθρωπο ή ζώο συμπεριλαμβανομένων, χωρίς να είναι μόνον αυτά, περιτωμάτων, υπολειμμάτων, αίματος και των συστατικών του, ιστών και υγρών των ιστών που μεταφέρονται για λόγους διάγνωσης ή έρευνας, αλλά εκτός των ζωντανών μολυσμένων ζώων.

**ΣΗΜΕΙΩΣΗ:** "Βιολογικά προϊόντα" και "διαγνωστικά δείγματα" δεν θεωρούνται ως ύλες αυτής της κλάσης εάν είναι γνωστό ότι δεν περιέχουν μολυσματικές ύλες.

(7) Ζωντανά σπονδυλωτά ή ασπόνδυλα ζώα δεν θα πρέπει να χρησιμοποιούνται για τη μεταφορά ενός μολυσματικού παράγοντα, εκτός εάν ο παράγοντας δεν μπορεί να μεταφερθεί με οποιονδήποτε άλλον τρόπο. Τέτοια ζώα θα πρέπει να συσκευάζονται, μαρκαρισμένα, με ενδείξεις και μεταφερόμενα σε συμφωνία με τους σχετικούς κανονισμούς που διέπουν τη μεταφορά των ζώων.<sup>4/</sup>

(8) Για τη μεταφορά υλών αυτής της κλάσης, η διατήρηση μίας συγκεκριμένης θερμοκρασίας μπορεί να είναι αναγκαία.

#### A. Μολυσματικές ύλες με υψηλή δυνατότητα κινδύνου

**2651** 1° 2814 μολυσματική ύλη, που προσβάλλει ανθρώπους,  
2900 μολυσματική ύλη, που προσβάλλει ζώα μόνον.

**ΣΗΜΕΙΩΣΗ 1:** Ύλες που, σε συμφωνία με το περιθωριακό 2650 (4), καταχωρούνται στην ομάδα κινδύνου IV, θα πρέπει να καταχωρούνται σ' αυτό το είδος.

**ΣΗΜΕΙΩΣΗ 2:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτές τις ύλες (βλέπε περιθωριακά 2653 και 2654).

2° 2814 μολυσματική ύλη, που προσβάλλει ανθρώπους,  
2900 μολυσματική ύλη, που προσβάλλει ζώα μόνον.

**ΣΗΜΕΙΩΣΗ 1:** Ύλες που, σε συμφωνία με το περιθωριακό 2650 (4), καταχωρούνται στην ομάδα κινδύνου III, θα πρέπει να καταχωρούνται σ' αυτό το είδος.

**ΣΗΜΕΙΩΣΗ 2:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτές τις ύλες (βλέπε περιθωριακά 2653 και 2654).

#### B. Άλλες μολυσματικές ύλες

3° (b) 2814 μολυσματική ύλη, που προσβάλλει ανθρώπους,  
2900 μολυσματική ύλη, που προσβάλλει ζώα μόνον.

**ΣΗΜΕΙΩΣΗ:** Ύλες που, σε συμφωνία με το περιθωριακό 2650 (4), καταχωρούνται στην ομάδα κινδύνου II, θα πρέπει να καταχωρούνται σ' αυτό το είδος.

4° (b) 3291 κλινικά απόβλητα, μη-ορισμένα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Μη-ορισμένα απόβλητα προερχόμενα από ιατρική/κτηνιατρική θεραπεία ανθρώπων/ζώων ή από βιολογική έρευνα και που είναι πιθανόν να περιέχουν ύλες αυτής της κλάσης, θα πρέπει να καταχωρούνται σ' αυτό το είδος.

<sup>4/</sup> Τέτοιοι κανονισμοί περιέχονται, π.χ. στην Οδηγία 91/628/EEC (Επίσημη Εφημερίδα της Ευρωπαϊκής Κοινότητας Αριθμ. L 340 της 11 Δεκεμβρίου 1992, σ. 17) και στις Υποδείξεις του Συμβουλίου της Ευρώπης (Υπουργική Επιτροπή) για τη μεταφορά ορισμένων ειδών ζώων.



## Κλάση 6.2

**2651** *ΣΗΜΕΙΩΣΗ 2:* Τα συγκεκριμένα απόβλητα θα πρέπει να καταχωρούνται στα 1°, 2° ή 3°.  
(συνεχ.)

*ΣΗΜΕΙΩΣΗ 3:* Απολυμασμένα κλινικά απόβλητα ή απόβλητα προερχόμενα από βιολογική έρευνα που προηγουμένως περιείχαν μολυσματικές ύλες, δεν υπόκεινται στις διατάξεις αυτής της κλάσης.

## C. Κενές συσκευασίες

11° Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά χύμα (IBC), κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών και κενών εμπορευματοκιβωτίων-δεξαμενών, ακαθάριστων, που περιείχαν ύλες της κλάσης 6.2 (βλέπε περιθωριακό 2672).

## 2. Διατάξεις

## A. Κόλα

## I. Γενικές συνθήκες συσκευασίας

**2652** (1) Οι συσκευασίες θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.5, εκτός εάν ειδικές συνθήκες για τη συσκευασία ορισμένων υλών καθορίζονται στα περιθωριακά 2653 και 2656.

Τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC), θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.6.

(2) Σε συμφωνία με τις διατάξεις των περιθωριακών 2650 (3) και 3511 (2) ή 3611 (2), θα πρέπει να χρησιμοποιούνται τα παρακάτω:

συσκευασίες της ομάδας συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X", ή IBC της ομάδας συσκευασίας II, μαρκαρισμένα με το γράμμα "Y" για επικίνδυνες ύλες ταξινομημένες στο γράμμα (b) κάθε είδους.

*ΣΗΜΕΙΩΣΗ:* Για τη μεταφορά υλών της κλάσης 6.2 σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές, βλέπε Παράρτημα B.

## 2. Ειδικές συνθήκες για συσκευασία ορισμένων υλών

**2653** (1) Συσκευασίες για ύλες των 1° και 2° θα πρέπει να περιλαμβάνουν τα παρακάτω απαραίτητα στοιχεία:

(a) Μία εσωτερική συσκευασία που περιλαμβάνει:

- ένα στεγανό κύριο δοχείο,
- μία στεγανή δευτερεύουσα συσκευασία,
- απορροφητικό υλικό τοποθετημένο μεταξύ του κύριου δοχείου και της δευτερεύουσας συσκευασίας: εάν διάφορα αρχικά δοχεία είναι τοποθετημένα σε μία μόνη δευτερεύουσα συσκευασία, θα πρέπει να είναι μεμονωμένα περιτυλιγμένα έτσι ώστε να αποφεύγεται η επαφή μεταξύ τους. Το απορροφητικό υλικό, όπως ακατέργαστο βαμβάκι, θα πρέπει να είναι σε επαρκή ποσότητα ώστε να απορροφά όλο το περιεχόμενο των αρχικών δοχείων.

Οποιαδήποτε κι αν είναι η προοριζόμενη θερμοκρασία της αποστολής, το κύριο δοχείο ή η δευτερεύουσα συσκευασία θα πρέπει να είναι ικανές να αντέχουν χωρίς διαρροή μία εσωτερική πίεση που δημιουργεί διαφορετική πίεση όχι μικρότερη από 95 kPa (0.95 bar) και θερμοκρασίες στο διάστημα από -40 °C έως +55 °C.

## Κλάση 6.2

**2653 ΣΗΜΕΙΩΣΗ:** *Εσωτερικές συσκευασίες που περιέχουν μολυσματικές ύλες δεν θα πρέπει να (συνεχ.) ενοικιοούνται σε μία εξωτερική συσκευασία με άλλους τύπους εμπορευμάτων.*

(b) Μία εξωτερική συσκευασία επαρκούς στερεότητας για την χωρητικότητα, το βάρος και την προοριζόμενη χρήση της και με ελάχιστη εξωτερική διάσταση 100 mm.

(2) Συσκευασίες σύμφωνα με την παράγραφο (1) θα πρέπει να ελέγχονται σε συμφωνία με τις διατάξεις του περιθωριακού 2654. Ο τύπος σχεδιασμού για την συσκευασία θα πρέπει να είναι ένας από τους επιτρεπόμενους από την αρμόδια αρχή. Κάθε συσκευασία που κατασκευάζεται σε συμφωνία με τον εγκεκριμένο τύπο σχεδιασμού, θα πρέπει να είναι μαρκαρισμένη σε συμφωνία με το περιθωριακό 3512.

*Ελεγχι για συσκευασίες σε συμφωνία με το περιθωριακό 2653*

**2654** (1) Εκτός αν πρόκειται για συσκευασίες για ζωντανά ζώα και οργανισμούς, δείγματα κάθε συσκευασίας θα πρέπει να προετοιμάζονται για έλεγχο όπως περιγράφεται στην παράγραφο (2) και τότε να υπόκεινται στους ελέγχους των παραγράφων (3) έως (5). Εάν η φύση της συσκευασίας το κάνει αναγκαίο, ισοδύναμη προετοιμασία και έλεγχοι επιτρέπονται, υπό την προϋπόθεση ότι μπορούν να επιδειχθούν ότι είναι τουλάχιστον ίσης αποτελεσματικότητας.

(2) Δείγματα κάθε συσκευασίας θα πρέπει να προετοιμάζονται σαν για μεταφορά, εκτός του ότι η ύλη που πρόκειται να μεταφερθεί, θα αντικαθίσταται από νερό, ή, όπου καθορίζονται συνθήκες στους -18 °C, από ένα μείγμα νερού/αντιψυκτικού. Κάθε κύριο δοχείο θα πρέπει να γεμίζεται έως το 98 % της χωρητικότητας.

(3) Συσκευασίες προετοιμαζόμενες σαν για μεταφορά, θα πρέπει να υπόκεινται στους ελέγχους του πίνακα, που, για λόγους ελέγχου, κατηγοριοποιεί τις συσκευασίες σύμφωνα με τα χαρακτηριστικά του υλικού τους. Για εξωτερικές συσκευασίες, τα κεφάλαια στον πίνακα σχετίζονται με:

- φύλλο φάιμπερ ή παρόμοια υλικά των οποίων η απόδοση μπορεί γρήγορα να προσβληθεί από την υγρασία,
- πλαστικά που μπορούν σπάσουν σε χαμηλή θερμοκρασία, και
- άλλα υλικά όπως μέταλλα των οποίων η απόδοση δεν προσβάλλεται από την υγρασία ή τη θερμοκρασία.

Εάν ένα κύριο δοχείο και μία δευτερεύουσα συσκευασία [βλέπε περιθωριακό 2653 (1) (a)] είναι κατασκευασμένα από διαφορετικά υλικά, το υλικό του κύριου δοχείου καθορίζει τον κατάλληλο έλεγχο. Σε περιπτώσεις όπου ένα κύριο δοχείο είναι κατασκευασμένο από δύο υλικά, το υλικό το περισσότερο υποκείμενο σε ζημιά, θα πρέπει να καθορίζει τους κατάλληλους ελέγχους.

## Κλάση 6.2

## Πίνακας

2654  
(συνεχ.)

Υλικό της					Απαιτούμενοι έλεγχοι				
Εξωτερικής συσκευασίας			Εσωτερικής συσκευασίας		Γράμμα, σε συμφωνία με το (3)				Σε συμφωνία με το (4)
Φύλλο φάιμπερ	Πλαστικό	Άλλο	Πλαστικό	Άλλο	(a)	(b)	(c)	(d)	
X			X			X	X	Όταν χρησιμοποιείται ξηρός πάγος	X
X				X		X			X
	X		X				X		X
	X		X	X			X		X
		X		X	X		X		X

(a) Τα δείγματα θα πρέπει να υπόκεινται σε ελεύθερες πτώσεις πάνω σε άκαμπτη, μη-ελαστική, επίπεδη, οριζόντια επιφάνεια από ύψος 9 μέτρων. Όπου τα δείγματα είναι στο σχήμα κιβωτίου, πέντε θα πρέπει να πέφτουν στη σειρά:

- ένα με τον πάτο,
- ένα με την από πάνω πλευρά,
- ένα με την μακριά πλευρά,
- ένα με την κοντή πλευρά,
- ένα με μία γωνία.

Όπου τα δείγματα είναι στο σχήμα βαρελιού, τρία θα πρέπει να πέφτουν στη σειρά:

- ένα διαγωνίως με την πάνω κόγχη, με το κέντρο βάρους ακριβώς πάνω από το σημείο κρούσης,
- ένα διαγωνίως με την κάτω κόγχη,
- ένα με την πλευρά.

Μετά την κατάλληλη σειρά πτώσεων, δεν θα πρέπει να υπάρχει διαρροή από το(τα) κύριο(α) δοχείο(α), που θα πρέπει να παραμένει(ουν) προστατευμένο(α) από το απορροφητικό υλικό στη δευτερεύουσα συσκευασία.

- (b) Τα δείγματα θα πρέπει να εμβαπτίζονται πλήρως σε νερό για μία περίοδο τουλάχιστον 5 λεπτών και στη συνέχεια να αφήνονται να στραγγίζουν για όχι περισσότερο από 30 λεπτά στους 23 °C και  $50 \pm 2\%$  σχετική υγρασία. Θα πρέπει τότε να υπόκεινται στον έλεγχο που περιγράφεται στο (a).
- (c) Τα δείγματα θα πρέπει να παραμένουν σε μία ατμόσφαιρα θερμοκρασίας -18 °C ή χαμηλότερη για μία περίοδο τουλάχιστον 24 ωρών και μέσα σε 15 λεπτά από την απομάκρυνσή τους από εκείνη την ατμόσφαιρα να υπόκεινται στον έλεγχο που περιγράφεται στο (a). Όπου τα δείγματα περιέχουν ξηρό πάγο, η περίοδος παραμονής μπορεί να μειωθεί στις τέσσερις ώρες.
- (d) Όπου η συσκευασία προορίζεται να περιέχει ξηρό πάγο, θα πρέπει να διεξάγεται ένας έλεγχος επιπλέον εκείνου που ορίζεται στο (a) ή (b) ή (c). Ένα δείγμα θα πρέπει να αποθηκεύεται έτσι ώστε όλος ο ξηρός πάγος να διαλύεται και τότε να υπόκειται στον έλεγχο που περιγράφεται στο (a).

## Κλάση 6.2

2654 (4) Συσκευασίες με μικτό βάρος 7 kg ή λιγότερο, θα πρέπει να υπόκεινται στους ελέγχους που (συνεχ.) περιγράφονται στο (α) παρακάτω και συσκευασίες με μικτό βάρος μεγαλύτερο από 7 kg, στους ελέγχους του (b) παρακάτω.

- (a) Τα δείγματα θα πρέπει να τοποθετούνται σε μία επίπεδη σκληρή επιφάνεια. Μία κυλινδρική χαλύβδινη ράβδος βάρους τουλάχιστον 7 kg και διαμέτρου όχι μεγαλύτερης από 38 mm και της οποίας οι ακριανές ακμές κρούσης έχουν ακτίνα όχι μεγαλύτερη από 6 mm, θα πρέπει να πέφτει σε κάθετη ελεύθερη πτώση από ύψος 1 μέτρου, μετρημένο από την άκρη κρούσης έως την επιφάνεια κρούσης του δείγματος. Ένα δείγμα θα πρέπει να τοποθετείται πάνω στη βάση του. Ένα δεύτερο δείγμα θα πρέπει να τοποθετείται με προσανατολισμό κάθετο σ' εκείνο που χρησιμοποιήθηκε για το πρώτο. Σε κάθε περίπτωση, η χαλύβδινη ράβδος θα πρέπει να ρίχνεται προς σύγκρουση με το κύριο δοχείο. Μετά από κάθε σύγκρουση, διείδυση στη δευτερεύουσα συσκευασία είναι αποδεκτή, υπό την προϋπόθεση ότι δεν υπάρχει διαρροή από το(τα) κύριο(α) δοχείο(α).
- (b) Τα δείγματα θα πρέπει να πέφτουν στην άκρη μίας κυλινδρικής χαλύβδινης ράβδου. Η ράβδος θα πρέπει να έχει τοποθετηθεί κάθετα σε μία επίπεδη σκληρή επιφάνεια. Θα πρέπει να έχει διάμετρο 38 mm και οι ακμές της επάνω άκρης ακτίνα όχι μεγαλύτερη από 6 mm. Η ράβδος θα πρέπει να προεξέχει από την επιφάνεια κατά μία απόσταση τουλάχιστον ίση με εκείνη μεταξύ του(των) κύριου(ων) δοχείου(ων) και της εξωτερικής επιφάνειας της εξωτερικής συσκευασίας με ελάχιστη τιμή τα 200 mm. Ένα δείγμα θα πρέπει να πέφτει σε κάθετη ελεύθερη πτώση από ένα ύψος 1 μέτρου, μετρημένο από την κορυφή της χαλύβδινης ράβδου. Ένα δεύτερο δείγμα θα πρέπει να πέφτει από το ίδιο ύψος με προσανατολισμό κάθετο σ' εκείνον που χρησιμοποιείται για το πρώτο. Σε κάθε περίπτωση, η συσκευασία θα πρέπει να είναι έτσι προσανατολισμένη ώστε η χαλύβδινη ράβδος να μπορεί να διεισδύσει στο(στα) κύριο(α) δοχείο(α). Μετά από κάθε κρούση, διείδυση στην δευτερεύουσα συσκευασία είναι αποδεκτή, υπό την προϋπόθεση ότι δεν υπάρχει διαρροή από το(τα) κύριο(α) δοχείο(α).

(5) Εφ' όσον διατηρείται ένα ισοδύναμο επίπεδο απόδοσης, οι παρακάτω παραλλαγές στα κύρια δοχεία που είναι τοποθετημένα μέσα στη δευτερεύουσα συσκευασία, επιτρέπονται χωρίς την ανάγκη για περαιτέρω έλεγχο της πλήρους συσκευασίας.

Κύρια δοχεία ισοδύναμου ή μικρότερου μεγέθους όπως προκύπτει από σύγκριση με τα ελεγχόμενα κύρια δοχεία, μπορούν να χρησιμοποιούνται υπό την προϋπόθεση ότι:

- (a) τα κύρια δοχεία είναι παρόμοιου σχεδιασμού με το κύριο δοχείο που ελέγχεται (π.χ. στρογγυλοποιημένο, ορθογώνιο),
- (b) το υλικό κατασκευής των κύριων δοχείων (π.χ. γυαλί, πλαστικό, μέταλλο) έχει αντοχή σε κρούση και συσσωρευμένη πίεση ισοδύναμη με ή καλύτερη από εκείνες των κύριων δοχείων που αρχικά ελέγχθηκαν,
- (c) τα κύρια δοχεία έχουν τα ίδια ή μικρότερα ανοίγματα και το πάμα είναι ισοδύναμο σχεδιασμού (π.χ. βιδωτό πάμα, τάπα),
- (d) επαρκές πρόσθετο προστατευτικό υλικό χρησιμοποιείται για να γεμίσει τον κενό χώρο και για την αποφυγή σημαντικής κίνησης των κύριων δοχείων και
- (e) τα κύρια δοχεία είναι προσανατολισμένα μέσα στις δευτερεύουσες συσκευασίες, με τον ίδιο τρόπο όπως στο ελεγχθέν κόλο.

## Κλάση 6.2

- 2655 (1) Υλεις ταξινομημένες στα 3° (b) και 4° (b), θα πρέπει να συσκευάζονται σε:
- χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
  - αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
  - χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
  - πλαστικά βαρέλια ή μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
  - σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
  - συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
  - σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργιλος) σύμφωνα με το περιθωριακό 3539, ή
  - μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, ή
  - άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624, ή
  - (επιφλασσόμενο)
  - σύνθετα IBC με πλαστικά εσωτερικά δοχεία σύμφωνα με το περιθωριακό 3625, με εξαίρεση τα IBC των τύπων 11HZ2 και 31HZ2.
- (2) Στερεές ύλες κατά την έννοια του περιθωριακού 2650 (5) μπορούν επίσης να συσκευάζονται σε βαρέλια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3523 ή σε βαρέλια από φάιμπερ σύμφωνα με το περιθωριακό 3525, εάν είναι αναγκαίο με έναν ή περισσότερους στεγανούς εσωτερικούς σάκους.
- 2656 Βιολογικά προϊόντα και διαγνωστικά δείγματα των 1° έως 3° όπου υπάρχει μία σχετικά χαμηλή πιθανότητα να υπάρχουν μολυσματικές ύλες π.χ. για συνήθεις ελέγχους ή αρχική διάγνωση, πρέπει να ικανοποιούν όλες τις διατάξεις αυτής της κλάσης εκτός όπου οι παρακάτω συνθήκες ικανοποιούνται:
- Τα κύρια δοχεία δεν περιέχουν περισσότερο από 50 ml για βιολογικά προϊόντα, 100 ml για διαγνωστικά δείγματα,
  - Η εξωτερική συσκευασία δεν περιέχει περισσότερο από:
    - 50 ml για βιολογικά προϊόντα όταν εύθραυστα κύρια δοχεία χρησιμοποιούνται,
    - 100 ml για βιολογικά προϊόντα όταν άλλα εκτός από εύθραυστα κύρια δοχεία χρησιμοποιούνται,
    - 500 ml για διαγνωστικά δείγματα.
  - Τα κύρια δοχεία είναι στεγανά, και
  - Η συσκευασία είναι σε συμφωνία με τις διατάξεις αυτής της κλάσης, όμως δεν χρειάζεται να υπόκειται στους ελέγχους.
- 2657 Όταν ύλες αυτής της Κλάσης μεταφέρονται σε βαθιά κατεψυγμένο υγρό άζωτο, οι εσωτερικές συσκευασίες θα πρέπει να είναι σύμφωνες με τις διατάξεις για αυτήν την Κλάση και τα εμπορευματοκιβώτια για το άζωτο θα πρέπει να είναι σύμφωνα με τις διατάξεις της κλάσης 2.
- 2658 (1) Τα ανοίγματα των κύριων δοχείων για υγρά των 1° και 2° θα πρέπει να είναι κλεισμένα έτσι ώστε να είναι στεγανά με δύο συσκευές τοποθετημένες στη σειρά, μία από τις οποίες θα πρέπει να είναι βιδωμένη ή ασφαλισμένη με έναν ισοδύναμο τρόπο.

## Κλάση 6.2

- 2658 (2) Δοχεία για ύλες των 3° και 4° που παράγουν αέρια και που μεταφέρονται σε θερμοκρασία (συνεχ.) περιβάλλοντος μεγαλύτερη από 15 °C, θα πρέπει να είναι εφοδιασμένα με ειδικό στεγανό στους παθογόνους μικροοργανισμούς εξαεριστήρα στο καπάκι, που θα πρέπει να προστατεύεται έναντι εξωτερικών μηχανικών καταπονήσεων.

Με επαναχρησιμοποιούμενα δοχεία, το φίλτρο του εξαεριστήρα θα πρέπει να αντικαθίσταται πριν την επαναπλήρωση.

(3) Συσκευασίες από πλαστικό ή φύλλο φάϊμπερ που προορίζονται για τη μεταφορά αποβλήτων της 4° θα πρέπει να είναι ανθεκτικές και, εάν τα απόβλητα περιέχουν αιχμηρά αντικείμενα, θα πρέπει να είναι αδιαπέραστες από τέτοια αντικείμενα.

(4) Το πάμα των συσκευασιών για ύλες της 4°, θα πρέπει να είναι έτσι κατασκευασμένο ώστε να είναι ερμητικά κλεισμένες μετά την πλήρωση και έτσι σχεδιασμένο ώστε οποιοδήποτε επακόλουθο άνοιγμα να είναι αμέσως εμφανές.

2659-  
2660

### 3. Μικτή συσκευασία

- 2661 (1) Ύλες που καλύπτονται από τον ίδιο αριθμό είδους μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538.

(2) Ύλες των 1°, 2° και 3° μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538, εάν το κόλο είναι ελεγμένο και εγκεκριμένο σύμφωνα με τις διατάξεις για τις ύλες των 1° και 2°.

(3) Ύλες της κλάσης 6.2 δεν θα πρέπει να συσκευάζονται μαζί με ύλες και είδη άλλων κλάσεων, ούτε με εμπορεύματα όχι υποκείμενα στις διατάξεις αυτής της Οδηγίας. Αυτό δεν εφαρμόζεται σε βιολογικά προϊόντα και διαγνωστικά δείγματα που είναι συσκευασμένα σε συμφωνία με το περιθωριακό 2656 ή σε ύλες μεταφερόμενες ως ψυκτικά μέσα, π.χ. πάγος, ξηρός πάγος ή βαθιά κατεψυγμένο υγρό άζωτο.

(4) Οι διατάξεις των περιθωριακών 2001 (7), 2002 (6) και (7) και 2652 θα πρέπει να τηρούνται.

(5) Εάν χρησιμοποιούνται κιβώτια ξύλινα ή από φύλλο φάϊμπερ, κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg.

### 4. Μαρκάρισμα και ετικέτες κινδύνου πάνω στα κόλα (Βλέπε Προσθήκη Α.9)

#### Μαρκάρισμα

- 2662 (1) Κάθε κόλο θα πρέπει να είναι μαρκαρισμένο καθαρά και με τρόπο διαρκείας με τον χαρακτηριστικό αριθμό των εμπορευμάτων που πρόκειται να καταχωρηθεί στο έγγραφο μεταφοράς, μετά από τα γράμματα "UN".

#### Ετικέτες κινδύνου

(2) Κόλα που περιέχουν ύλες αυτής της κλάσης θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.2.

(3) Κόλα που περιέχουν ύλες αυτής της κλάσης μεταφερόμενες σε βαθιά κατεψυγμένο υγρό άζωτο, θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 2.

(4) Κόλα περιέχουν ύλες των 3° και 4° σε εύθραυστα δοχεία που δεν είναι ορατά από έξω θα πρέπει, επιπλέον, να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 12.

## Κλάση 6.2

2662 (5) Κόλα που περιέχουν υγρές ύλες της 3<sup>ο</sup> σε δοχεία, τα πάματα των οποίων δεν είναι ορατά (συνεχ.) από έξω, καθώς και κόλα που περιέχουν εξαεριζόμενα δοχεία και εξαεριζόμενα δοχεία χωρίς εξωτερική συσκευασία, θα πρέπει, επιπλέον, να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

2663

## B. Στοιχεία στο έγγραφο μεταφοράς

2664 Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς και μία από τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2651, ακολουθούμενα από την βιολογική ονομασία της ύλης<sup>9/</sup> για ύλες των 1<sup>ο</sup> έως 3<sup>ο</sup>.

(1) Εάν η μολυσματική ύλη είναι γενετικά τροποποιημένη ύλη, οι λέξεις "γενετικά τροποποιημένοι μικρο-οργανισμοί" θα πρέπει να προστίθενται.

(2) Για βιολογικά προϊόντα και διαγνωστικά δείγματα που προσφέρονται για μεταφορά υπό τις συνθήκες του περιθωριακού 2656, η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "Βιολογικό προϊόν/διαγνωστικό δείγμα, που περιέχει ..." και θα καταχωρείται η μολυσματική ύλη που καθορίζει την ταξινόμηση στα 1<sup>ο</sup>, 2<sup>ο</sup> ή 3<sup>ο</sup>.

Η περιγραφή των εμπορευμάτων θα πρέπει να ακολουθείται από στοιχεία της κλάσης, τον αριθμό είδους, εάν εφαρμόζεται, το γράμμα και τα αρχικά "ADR" (ή "RID"), π.χ. "6.2, 3<sup>ο</sup> (b), ADR".

Για τη μεταφορά αποβλήτων [βλέπε περιθωριακό 2000 (5)] η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "απόβλητα, που περιέχουν ...", και το(τα) συστατικό(ά) που καθορίζει(ουν) την ταξινόμηση των αποβλήτων στο περιθωριακό 2002(8) θα εγγράφεται(ονται) κάτω από τη(τις) χημική(ές) ή βιολογική(ές) ονομασία(ες) του(ς), π.χ.: "Απόβλητα, που περιέχουν 2814. Μολυσματική ύλη, που προσβάλλει ανθρώπους, ιός Marburg, 6.2, 2<sup>ο</sup> ADR".

Για τη μεταφορά διαλυμάτων ή μειγμάτων (όπως παρασκευάσματα και απόβλητα) που περιέχουν δύο ή περισσότερα συστατικά που υπόκεινται σ' αυτή την Οδηγία, γενικά δεν είναι ανάγκη να εμφανίζονται περισσότερα από τα δύο συστατικά που πιο κύρια συμβάλουν στον κίνδυνο ή τους κινδύνους των διαλυμάτων ή μειγμάτων. Για απόβλητα της 4<sup>ο</sup>, η περιγραφή που υπογραμμίζεται είναι επαρκής: "3291 Κλινικά Απόβλητα, μη-οριζόμενα, ε.α.ο. 6.2, 4<sup>ο</sup> (b), ADR".

Για τη μεταφορά εύκολα αλλοιώσιμων υλών, θα πρέπει να δίνονται κατάλληλες πληροφορίες, π.χ. "Ψύξη στους +2/+4 °C" ή "μεταφορά σε κατεψυγμένη κατάσταση" ή "όχι κατάψυξη".

2665-  
2671

## C. Κενές συσκευασίες

2672 (1) Κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, ακαθάριστων, της 11<sup>ο</sup> θα πρέπει να είναι κλεισμένες με τον ίδιο τρόπο και με τον ίδιο βαθμό στεγανότητας σαν να ήταν γεμάτες.

<sup>9/</sup> Η βιολογική ονομασία που δίνεται θα πρέπει κανονικά να είναι εκείνη που χρησιμοποιείται σε βιβλία αναφοράς, τακτικά εμφανιζόμενες εκδόσεις και επιστημονικά και τεχνικά κείμενα. Εμπορικές ονομασίες δεν θα πρέπει να χρησιμοποιούνται για αυτό το σκοπό.

## Κλάση 6.2

2672 (2) Κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, ακαθάριστων, της 11° θα πρέπει να (συνεχ.) φέρουν τις ίδιες ετικέτες κινδύνου σαν να ήταν γεμάτες.

(3) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μία από τις περιγραφές που υπογραμμίζονται στο 11°, π.χ. "Κενές συσκευασίες, 6.2, 11°, ADR". Στην περίπτωση κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών και κενών μικρών εμπορευματοκιβωτίων, ακαθάριστων, αυτή η περιγραφή θα πρέπει να συμπληρώνεται από την προσθήκη των λέξεων "Τελευταίο φορτίο", μαζί με την ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ.: "Τελευταίο φορτίο: 2900 Μολυσματική ύλη, που προσβάλλει ζώα, 3° (b)".

2673

## D. Άλλες διατάξεις

2674 Άλλες διατάξεις για ύλες αυτής της κλάσης, που ορίζονται για λόγους άλλους εκτός από λόγους ασφάλειας, δεν υιοθετούνται (π.χ. εκείνες που αφορούν εισαγωγή και εξαγωγή, εμπορία ή διανομή, προστασία στην εργασία, κτηνιατρικοί λόγοι).

## E. Μεταβατικές διατάξεις

2675 Ύλες της κλάσης 6.2 μπορούν να μεταφέρονται μέχρι τις 31 Δεκεμβρίου 1995 σε συμφωνία με τις διατάξεις που εφαρμόζονται για την Κλάση 6.2 μέχρι τις 31 Δεκεμβρίου 1994. Σε τέτοιες περιπτώσεις, το έγγραφο μεταφοράς θα πρέπει να φέρει την επιγραφή: "Μεταφορά σε συμφωνία με την ADR που ισχύει πριν την 1 Ιανουαρίου 1995".

2676-

2699



## ΚΛΑΣΗ 7. ΡΑΔΙΕΝΕΡΓΑ ΥΛΙΚΑ

## 2700 (1) Σκοπός

- (a) Ανάμεσα στα υλικά με ειδική δραστηριότητα μεγαλύτερη από 70 kBq/kg (2 nCi/g) και είδη που περιέχουν τέτοια υλικά, μόνον εκείνα που αναφέρονται ή καταχωρούνται σε μία ε.α.ο. καταχώρηση στο περιθωριακό 2701, θα γίνονται δεκτά για μεταφορά και τότε, μόνον κάτω από τις συνθήκες<sup>1/</sup> που τίθενται στα κατάλληλα προγράμματα του περιθωριακού 2704 και στην προσθήκη Α.7 (περιθωριακά 3700 έως 3799).
- (b) Τα υλικά και είδη που αναφέρονται στο (a) είναι υλικά και είδη αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ:** Καρδιακοί βηματοδότες που περιέχουν ραδιενεργό υλικό, όταν έχουν εμφυτευτεί χειρουργικά σε κλινικούς ασθενείς, ή ράδιο-φαρμακευτικά χορηγούμενα σ' έναν ασθενή στα πλαίσια φαρμακευτικής θεραπείας, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

## (2) Ορισμοί και Επεξηγήσεις

A<sub>1</sub> και A<sub>2</sub>

1. A<sub>1</sub> θα σημαίνει τη μέγιστη δραστηριότητα ειδικής μορφής ραδιενεργού υλικού που επιτρέπεται σε ένα κόλο Τύπου Α. A<sub>2</sub> θα σημαίνει τη μέγιστη δραστηριότητα ραδιενεργού υλικού, άλλου εκτός από ειδικής μορφής ραδιενεργού υλικού, που επιτρέπεται σε ένα κόλο Τύπου Α. (Βλέπε Προσθήκη Α.7, Πίνακα 1).

<sup>1/</sup> Οι διατάξεις της κλάσης 7 βασίζονται στις παρακάτω αρχές και διατάξεις της Διεθνούς Ατομικής Αντιπροσωπείας (ΙΑΕΑ):

*Κανονισμοί για την Ασφαλή Μεταφορά Ραδιενεργού Υλικού, Σειρά Ασφάλειας Αριθμ. 6, Έκδοση 1985, που επίσης περιλαμβάνει τις γενικές αρχές για Προστασία από Ακτινοβολία.*

*Κανονισμοί για την Ασφαλή Μεταφορά Ραδιενεργού Υλικού, Σειρά Ασφάλειας Αριθμ. 6 Συμπλήρωμα 1988.*

*Επεξηγήσεις και περαιτέρω πληροφορίες για αυτούς τους κανονισμούς μπορούν να βρεθούν στα παρακάτω έγγραφα:*

1. ΙΑΕΑ "Συμβουλευτικό Υλικό για την Εφαρμογή των Κανονισμών Μεταφοράς της ΙΑΕΑ" Σειρά Ασφάλειας Αριθμ. 37, Έκδοση 1987.
2. ΙΑΕΑ "Επεξηγηματικό Υλικό για την Εφαρμογή των Κανονισμών Μεταφοράς της ΙΑΕΑ" Σειρά Ασφάλειας Αριθμ. 7, Έκδοση 1987.
3. ΙΑΕΑ "Βασικά Πρότυπα Ασφάλειας για Προστασία από Ακτινοβολία" Σειρά Ασφάλειας Αριθμ. 9, Έκδοση.
4. ΙΑΕΑ "Σχέδιο Ενεργειών Κινδύνου και Ετοιμότητα για Ατυχήματα Μεταφοράς που εμπεριέχουν Ραδιενεργό Υλικό" Σειρά Ασφάλειας Αριθμ. 87, Έκδοση 1988.
5. ΙΑΕΑ "Σχέδιο Απαιτήσεων για τη Μεταφορά Καθορισμένων Τύπων Υλικού Ραδιενεργών Φορτίων" Σειρά Ασφάλειας Αριθμ. 80 (Όπως διορθώθηκε το 1990).

## Κλάση 7

2700  
(συνεχ.)*Άλφα Εκπομποί Χαμηλής Τοξικότητας*

2. *Χαμηλής τοξικότητας άλφα εκπομποί* θα σημαίνει φυσικό ουράνιο, εξαντλημένο ουράνιο, φυσικό θόριο, ουράνιο-235 ή ουράνιο-238, θόριο-232, θόριο-228 και θόριο-230 όταν περιέχονται σε μεταλλεύματα και φυσικά ή χημικά συμπυκνώματα, ραδιονουκλεΐδια με χρόνο υποδιπλασιασμού μικρότερο από δέκα ημέρες.

*Έγκριση*

3. *Πολυμερής έγκριση* θα σημαίνει έγκριση από τη σχετική αρμόδια αρχή τόσο της χώρας προέλευσης του σχεδιασμού ή φόρτωσης, όσο και της κάθε χώρας μέσω της οποίας ή στην οποία η αποστολή πρόκειται να μεταφερθεί.
4. *Μονομερής έγκριση* θα σημαίνει έγκριση ενός σχεδιασμού που απαιτείται να δοθεί από την αρμόδια αρχή της χώρας προέλευσης του σχεδιασμού μόνον.

*Εμπορευματοκιβώτιο*

5. Ένα *εμπορευματοκιβώτιο* για τη μεταφορά υλικού αυτής της κλάσης, θα πρέπει να είναι μόνιμου έγκλειστου χαρακτήρα, άκαμπτο και γερό αρκετά για επαναλαμβανόμενη χρήση. Μπορεί να χρησιμοποιείται ως συσκευασία εάν οι εφαρμόσιμες διατάξεις ικανοποιούνται και μπορεί επίσης να χρησιμοποιείται για να εκτελεί τις λειτουργίες μίας υπερσυσκευασίας.

*Σύστημα ανάσχεσης*

6. *Σύστημα ανάσχεσης* θα σημαίνει την συγκέντρωση συστατικών της συσκευασίας που ορίζονται από τον σχεδιαστή ως προοριζόμενα για τη συγκράτηση του ραδιενεργού υλικού κατά τη διάρκεια της μεταφοράς.

*Μόλυνση*

7. *Μόλυνση* θα σημαίνει την παρουσία μίας ραδιενεργής ύλης σε μία επιφάνεια σε ποσότητες μεγαλύτερες από  $0.4 \text{ Bq/cm}^2$  ( $10^{-5} \text{ mi/cm}^2$ ) για βήτα και γάμα εκπομπούς και χαμηλής τοξικότητας άλφα εκπομπούς, ή  $0.04 \text{ Bq/cm}^2$  ( $10^{-6} \text{ mi/cm}^2$ ) για όλους τους άλλους άλφα εκπομπούς.

*Μόνιμη μόλυνση* θα σημαίνει μόλυνση άλλη εκτός από μη-μόνιμη μόλυνση.

*Μη-μόνιμη μόλυνση* θα σημαίνει μόλυνση που μπορεί να απομακρυνθεί από μία επιφάνεια κατά τη διάρκεια κανονικού χειρισμού.

*Σχεδιασμός*

8. *Σχεδιασμός* θα σημαίνει την περιγραφή ειδικής μορφής ραδιενεργού υλικού, κόλου, ή συσκευασίας που καθιστά ικανά τέτοια είδη να είναι πλήρως προσδιορισμένα. Η περιγραφή μπορεί να περιλαμβάνει προδιαγραφές, μηχανικά σχέδια, αναφορές που δείχνουν συμμόρφωση με ρυθμιστικές διατάξεις και άλλα σχετικά έγγραφα.

## Κλάση 7

2700  
(συνεχ.)*Αποκλειστική χρήση*

9. *Αποκλειστική χρήση* θα σημαίνει την μοναδική χρήση, από έναν μόνο αποστολέα, ενός οχήματος ή ενός μεγάλου εμπορευματοκιβωτίου με ελάχιστο μήκος 6 m, σχετικά με την οποία όλη η αρχική, ενδιάμεση, και τελική φόρτωση και εκφόρτωση διεξάγεται σε συμφωνία με τις οδηγίες του αποστολέα ή παραλήπτη.

*Σχάσιμο υλικό*

10. *Σχάσιμο υλικό* θα σημαίνει ουράνιο-233, ουράνιο-235, πλουτόνιο-238, πλουτόνιο-239, πλουτόνιο-241, ή οποιοσδήποτε συνδυασμός αυτών των ραδιονουκλεϊδίων. Μη-εκπέμπον φυσικό ουράνιο και εξαντλημένο ουράνιο και φυσικό ουράνιο ή εξαντλημένο ουράνιο που έχει τεθεί για εκπομπή σε θερμικούς αντιδραστήρες μόνον, δεν περιλαμβάνονται σε αυτόν τον ορισμό.

*Χαμηλής σχετικής δραστηρότητας υλικό*

11. *Χαμηλής σχετικής δραστηρότητας (LSA) υλικό* θα σημαίνει ραδιενεργό υλικό που από την φύση του έχει περιορισμένη σχετική δραστηρότητα, ή ραδιενεργό υλικό για το οποίο εφαρμόζονται όρια στην υπολογιζόμενη μέση σχετική δραστηρότητα. Εξωτερικά προστατευτικά υλικά που περιβάλλουν το LSA υλικό, δεν θα πρέπει να υπολογίζονται στον καθορισμό της υπολογιζόμενης μέσης σχετικής δραστηρότητας.

Το LSA υλικό θα πρέπει να είναι σε μία από τις τρεις ομάδες:

## (a) LSA-I

- (i) Μεταλλεύματα που περιέχουν φυσικά παραγόμενα ραδιονουκλεϊδια (π.χ. ουράνιο, θόριο), και συμπυκνώματα ουράνιου ή θόριου τέτοιων μεταλλευμάτων.
- (ii) Στερεό μη-εκπέμπον φυσικό ουράνιο ή μη-εκπέμπον εξαντλημένο ουράνιο ή μη-εκπέμπον φυσικό θόριο ή στερεές ή υγρές ενώσεις τους ή μείγματα, ή
- (iii) Ραδιενεργό υλικό, άλλο από σχάσιμο υλικό, για το οποίο η τιμή  $A_2$  είναι χωρίς όριο.

## (b) LSA-II

- (i) Νερό με συγκέντρωση σε τρίτιο έως 0.8 TBq/l (20 Ci/l), ή
- (ii) Άλλο υλικό στο οποίο η δραστηρότητα είναι κατανεμημένη απ' άκρου εις άκρον και η υπολογιζόμενη μέση σχετική δραστηρότητα δεν υπερβαίνει τα  $10^{-4}$   $A_2/g$  για στερεά και αέρια και  $10^{-5}$   $A_2/g$  για υγρά.

## (c) LSA-III

Στερεά (π.χ. ενοποιημένα απόβλητα, ενεργοποιημένο υλικό) στα οποία:

- (i) Το ραδιενεργό υλικό είναι κατανεμημένο απ' άκρου εις άκρον ενός στερεού ή ενός συνόλου στερεών αντικειμένων, ή είναι ουσιαδώς ομοιόμορφα κατανεμημένο σε ένα στερεό συμπαγές συνδετικό μέσο (όπως τσιμέντο, βιτούμιο, κεραμικό κ.λπ.).

## Κλάση 7

2700  
(συνεχ.)

- (ii) Το ραδιενεργό υλικό είναι σχετικά αδιάλυτο, ή περιέχεται ουσιαστικά σε ένα σχετικά αδιάλυτο πλέγμα, έτσι ώστε, ακόμα και σε περίπτωση απώλειας της συσκευασίας, η απώλεια του ραδιενεργού υλικού ανά κόλο με διήθηση όταν τοποθετείται σε νερό για επτά ημέρες, να μην υπερβαίνει τα 0.1 A<sub>2</sub> και
- (iii) Η υπολογιζόμενη μέση σχετική δραστηριότητα του στερεού, εκτός του οποιουδήποτε προστατευτικού υλικού, δεν υπερβαίνει τα  $2 \times 10^{-3}$  A<sub>2</sub>/g.

*Μέγιστη κανονική πίεση λειτουργίας*

12. *Μέγιστη κανονική πίεση λειτουργίας* θα σημαίνει τη μέγιστη πίεση πάνω από την ατμοσφαιρική πίεση σε μέσο επίπεδο θάλασσας που θα ανέπτυξε στο σύστημα ανάσχεσης σε μία περίοδο ενός χρόνου υπό τις συνθήκες θερμοκρασίας και ηλιακής ακτινοβολίας που αντιστοιχούν σε περιβαλλοντικές συνθήκες μεταφοράς με απουσία εξαερισμού, εξωτερική ψύξη από ένα βοηθητικό σύστημα, ή λειτουργικούς ελέγχους κατά τη διάρκεια μεταφοράς.

*Υπερσυσκευασία*

13. *Υπερσυσκευασία* θα σημαίνει μία περιβάλλουσα συσκευασία, όπως ένα κιβώτιο ή σάκο, που δεν χρειάζεται να ικανοποιεί τις διατάξεις για ένα εμπορευματοκιβώτιο και που χρησιμοποιείται από έναν μόνο αποστολέα για την ενοποίηση σε μία μονάδα χειρισμού μίας αποστολής δύο ή περισσότερων κόλων για ευκολία χειρισμού, αποθήκευσης και μεταφοράς. Η υπερσυσκευασία δεν ταυτίζεται με την εξωτερική συσκευασία όπως ορίζεται στο περιθωριακό 3510.

*Κόλο*

14. *Κόλο* θα σημαίνει τη συσκευασία με το ραδιενεργό περιεχόμενο της όπως παρουσιάζεται για μεταφορά. Τα μέτρα απόδοσης των κόλων και συσκευασιών, σε όρους διατήρησης της ακεραιότητας των μέσων ανάσχεσης και προστασίας, εξαρτώνται από την ποσότητα και τη φύση του ραδιενεργού υλικού που μεταφέρεται.

Τα μέτρα απόδοσης που εφαρμόζονται στα κόλα είναι διαβαθμισμένα ώστε να λαμβάνουν υπόψη συνθήκες μεταφοράς που χαρακτηρίζονται από τα παρακάτω επίπεδα σοβαρότητας:

- συνθήκες που απαντώνται συνήθως σε κοινές μεταφορές (σε συνθήκες ελεύθερες επεισοδίων),
- συνθήκες μεταφοράς λαμβάνοντας υπόψη δευτερεύοντα ατυχήματα, και
- συνθήκες μεταφοράς για απρόβλεπτα γεγονότα.

Τα μέτρα απόδοσης περιλαμβάνουν διατάξεις και ελέγχους σχεδιασμού. Κάθε κόλο θα πρέπει να ταξινομείται ως εξής:

- (a) *Εξαιρούμενο κόλο* είναι συσκευασία που περιέχει ραδιενεργό υλικό (βλέπε Προσθήκη Α.7, Πίνακα V) που είναι σχεδιασμένη να ικανοποιεί τις γενικές διατάξεις σχεδιασμού για όλα τα κόλα (βλέπε περιθωριακό 3732).
- (b) (i) *Βιομηχανικά Κόλα Τύπου 1 (IP-1)* είναι συσκευασία δεξαμενή ή εμπορευματοκιβώτιο που περιέχει LSA υλικό ή SCO, (βλέπε ορισμούς 11 και 22) που είναι σχεδιασμένα να ικανοποιούν τις γενικές διατάξεις σχεδιασμού για όλες τις συσκευασίες και τα κόλα (βλέπε περιθωριακό 3732) και, επιπλέον, για τη σχετική διάταξη σχεδιασμού (βλέπε περιθωριακό 3733).

## Κλάση 7

2700  
(συνεχ.)

- (II) *Βιομηχανικό Κόλο Τύπου 2 (IP-2)* είναι συσκευασία, δεξαμενή ή εμπορευματοκιβώτιο που περιέχει LSA υλικό ή SCO (βλέπε ορισμούς 11 και 22) που είναι σχεδιασμένα να ικανοποιούν τις γενικές διατάξεις σχεδιασμού για όλες τις συσκευασίες και τα κόλα (βλέπε περιθωριακό 3732) και, επιπλέον, τις παρακάτω σχετικές διατάξεις σχεδιασμού:
- (i) για κόλο, βλέπε περιθωριακό 3734,
  - (ii) για δεξαμενή, βλέπε περιθωριακό 3736 και Προσθήκες Β.1α και Β.1b,
  - (iii) για εμπορευματοκιβώτιο, βλέπε περιθωριακό 3736.
- (III) *Βιομηχανικό Κόλο Τύπου 3 (IP-3)* είναι συσκευασία, δεξαμενή ή εμπορευματοκιβώτιο που περιέχει LSA υλικό ή SCO, (βλέπε ορισμούς 11 και 22) που είναι σχεδιασμένα να ικανοποιούν τις γενικές διατάξεις σχεδιασμού για όλες τις συσκευασίες και τα κόλα (βλέπε περιθωριακό 3732) και, επιπλέον, τις παρακάτω σχετικές διατάξεις σχεδιασμού:
- (i) για κόλο, βλέπε περιθωριακό 3735,
  - (ii) για δεξαμενή, βλέπε περιθωριακό 3736 και Προσθήκες Β.1α και Β.1b,
  - (iii) για εμπορευματοκιβώτιο, βλέπε περιθωριακό 3736.
- (c) *Κόλο Τύπου Α* είναι συσκευασία, δεξαμενή ή εμπορευματοκιβώτιο που περιέχει δραστηριότητα έως Α<sub>1</sub> εάν πρόκειται για Ειδικής Μορφής Ραδιενεργό Υλικό, ή έως Α<sub>2</sub> εάν δεν πρόκειται για Ειδικής Μορφής Ραδιενεργό Υλικό, που είναι σχεδιασμένα να ικανοποιούν τις γενικές διατάξεις σχεδιασμού για όλες τις συσκευασίες και τα κόλα (βλέπε περιθωριακό 3732) και τις σχετικές διατάξεις σχεδιασμού στο περιθωριακό 3737 ως κατάλληλες.
- (d) *Κόλο τύπου Β* είναι συσκευασία, δεξαμενή ή εμπορευματοκιβώτιο που περιέχει δραστηριότητα που μπορεί να υπερβαίνει το Α<sub>1</sub>, εάν πρόκειται για Ειδικής Μορφής Ραδιενεργό Υλικό, ή να υπερβαίνει το Α<sub>2</sub> εάν δεν πρόκειται για Ειδικής Μορφής Ραδιενεργό Υλικό, που είναι σχεδιασμένα να ικανοποιούν τις γενικές διατάξεις σχεδιασμού για όλες τις συσκευασίες και τα κόλα (βλέπε περιθωριακό 3732) και τις σχετικές διατάξεις σχεδιασμού στο περιθωριακό 3737 και, ως κατάλληλες, περιθωριακά 3738-3740.

*Συσκευασία*

15. *Συσκευασία* θα σημαίνει το σύνολο των συστατικών που είναι αναγκαία για τον πλήρη εγκλεισμό του ραδιενεργού περιεχομένου. Μπορεί, ειδικά, να συνίσταται από ένα ή περισσότερα δοχεία, απορροφητικά υλικά, κατασκευές αραίωσης, μέσα προστασίας από ακτινοβολία, συσκευές εξυπηρέτησης για πλήρωση, άδειασμα, εξαερισμό και εκτόνωση πίεσης και συσκευές για ψύξη, για την απορρόφηση μηχανικών χτυπημάτων, για παροχή χειρισμών και δυνατότητα καθήλωσης, για θερμική μόνωση και συσκευές εξυπηρέτησης αναπόσπαστα του κόλου. Η συσκευασία μπορεί να είναι ένα κιβώτιο, βαρέλι ή παρόμοιο δοχείο, ή μπορεί επίσης να είναι ένα εμπορευματοκιβώτιο ή μία δεξαμενή που συνίσταται σύμφωνα με τον ορισμό 14.

## Κλάση 7

2700  
(συνεχ.)*Εξασφάλιση ποιότητας*

16. *Εξασφάλιση ποιότητας* θα σημαίνει ένα συστηματικό πρόγραμμα ελέγχων και επιθεωρήσεων εφαρμοζόμενων από οποιονδήποτε οργανισμό ή σώμα που εμπλέκεται στη μεταφορά του ραδιενεργού υλικού που στοχεύει στην παροχή επαρκούς βεβαιότητας ότι τα βασικά της ασφάλειας που καθορίζονται στην προσθήκη Α.7, επιτυγχάνονται στην πράξη.

*Επίπεδο ακτινοβολίας*

17. *Επίπεδο ακτινοβολίας* θα σημαίνει την αντίστοιχη δόση που είναι ισοδύναμη με το ρυθμό εκφρασμένο σε millisievert (millirem) ανά ώρα<sup>2/</sup>.

*Ραδιενεργό περιεχόμενο*

18. *Ραδιενεργό περιεχόμενο* θα σημαίνει το ραδιενεργό υλικό μαζί με οποιαδήποτε μολυσμένα στερεά, υγρά και αέρια μέσα στη συσκευασία.

*Ειδική ρύθμιση*

19. *Ειδική ρύθμιση* θα σημαίνει εκείνες τις διατάξεις, που είναι εγκεκριμένες από την αρμόδια αρχή, κάτω από τις οποίες μία αποστολή που δεν ικανοποιεί όλες τις εφαρμόσιμες διατάξεις των Προγραμμάτων 5-12 του περιθωριακού 2704, μπορεί να μεταφερθεί. Αποστολές αυτού του τύπου απαιτούν πολυμερή έγκριση.

*Ειδικής μορφής ραδιενεργό υλικό*

20. *Ειδικής μορφής ραδιενεργό υλικό* θα σημαίνει είτε ένα μη-διασπαρόμενο στερεό ραδιενεργό υλικό είτε μία σφραγισμένη κάψουλα που περιέχει ραδιενεργό υλικό (βλέπε περιθωριακό 3731).

*Σχετική δραστηριότητα*

21. *Σχετική δραστηριότητα* θα σημαίνει την δραστηριότητα ενός ραδιονουκλεϊδίου ανά μονάδα βάρους εκείνου του νουκλεϊδίου. Η σχετική δραστηριότητα ενός υλικού στο οποίο το ραδιονουκλεϊδιο είναι ουσιαστικά ομοιόμορφα κατανεμημένο, είναι η δραστηριότητα ανά μονάδα βάρους του υλικού.

*Επιφανειακά μολυσμένο αντικείμενο*

22. *Επιφανειακά μολυσμένο αντικείμενο (SCO)* θα σημαίνει ένα στερεό αντικείμενο που δεν είναι αφ' εαυτού ραδιενεργό αλλά που έχει ραδιενεργό υλικό κατανεμημένο στις επιφάνειές του. Τα SCO θα πρέπει να είναι σε μία από τις δύο ομάδες:

- (a) SCO-I: Ένα στερεό αντικείμενο πάνω στο οποίο:

<sup>2/</sup> Για χάρη σαφήνειας, το επίπεδο ακτινοβολίας μπορεί επίσης να υποδεικνύεται, σε παρενθέσεις, σε millirem ανά ώρα. Αναγνωρίζεται ότι τα millisievert ή τα millirem δεν είναι οι σωστές μονάδες που θα έπρεπε να εφαρμόζονται για την έκθεση σε ακτινοβολία σε όλες τις περιπτώσεις, παρ' όλα αυτά, αυτές οι μονάδες χρησιμοποιούνται αποκλειστικά για ευκολία.

## Κλάση 7

2700  
(συνεχ.)

- (i) η μη-μόνιμη μόλυνση πάνω στην προστιθέ επιφάνεια υπολογιζόμενη κατά μέσον όρο πάνω από  $300 \text{ cm}^2$  (ή στο εμβαδό της επιφάνειας εάν είναι μικρότερο από  $300 \text{ cm}^2$ ) δεν υπερβαίνει τα  $4 \text{ Bq/cm}^2$  ( $10^{-4} \text{ mCi/cm}^2$ ) για βήτα και γάμα εκπομπούς και χαμηλής τοξικότητας άλφα εκπομπούς ή  $0.4 \text{ Bq/cm}^2$  ( $10^{-5} \text{ mCi/cm}^2$ ) για όλους τους άλλους άλφα εκπομπούς, και
- (ii) η μόνιμη μόλυνση πάνω στην προστιθέ επιφάνεια υπολογιζόμενη κατά μέσον όρο πάνω από  $300 \text{ cm}^2$  (ή στο εμβαδό της επιφάνειας εάν είναι μικρότερο από  $300 \text{ cm}^2$ ) δεν υπερβαίνει τα  $4 \times 10^4 \text{ Bq/cm}^2$  ( $1 \text{ mCi/cm}^2$ ) για βήτα και γάμα εκπομπούς και χαμηλής τοξικότητας άλφα εκπομπούς ή  $4 \times 10^3 \text{ Bq/cm}^2$  ( $0.1 \text{ mCi/cm}^2$ ) για όλους τους άλλους άλφα εκπομπούς, και
- (iii) η μη-μόνιμη μόλυνση συν η μόνιμη μόλυνση πάνω στην απρόσιτη επιφάνεια υπολογιζόμενη κατά μέσον όρο πάνω από  $300 \text{ cm}^2$  (ή στο εμβαδόν της επιφάνειας εάν είναι μικρότερο από  $300 \text{ cm}^2$ ) δεν υπερβαίνει τα  $4 \times 10^4 \text{ Bq/cm}^2$  ( $1 \text{ mCi/cm}^2$ ) για βήτα και γάμα εκπομπούς και χαμηλής τοξικότητας άλφα εκπομπούς ή  $4 \times 10^3 \text{ Bq/cm}^2$  ( $0.1 \text{ mCi/cm}^2$ ) για όλους τους άλλους άλφα εκπομπούς.
- (b) SCO-II: Ένα στερεό αντικείμενο στο οποίο είτε η μόνιμη είτε η μη-μόνιμη μόλυνση πάνω στην επιφάνεια υπερβαίνει τα εφαρμόσιμα όρια που ορίζονται για τα SCO-I στο (a) παραπάνω στο οποίο:
- (i) η μη-μόνιμη μόλυνση στην προστιθέ επιφάνεια υπολογιζόμενη κατά μέσον όρο πάνω από  $300 \text{ cm}^2$  (ή στο εμβαδόν της επιφάνειας εάν είναι μικρότερο από  $300 \text{ cm}^2$ ) δεν υπερβαίνει τα  $400 \text{ Bq/cm}^2$  ( $10^{-2} \text{ mCi/cm}^2$ ) για βήτα και γάμα εκπομπούς και χαμηλής τοξικότητας άλφα εκπομπούς ή  $40 \text{ Bq/cm}^2$  ( $10^{-3} \text{ mCi/cm}^2$ ) για όλους τους άλλους άλφα εκπομπούς, και
- (ii) η μόνιμη μόλυνση πάνω στην προστιθέ επιφάνεια υπολογιζόμενη κατά μέσον όρο πάνω από  $300 \text{ cm}^2$  (ή στο εμβαδόν της επιφάνειας εάν είναι μικρότερο από  $300 \text{ cm}^2$ ) δεν υπερβαίνει τα  $8 \times 10^5 \text{ Bq/cm}^2$  ( $20 \text{ mCi/cm}^2$ ) για βήτα και γάμα εκπομπούς και χαμηλής τοξικότητας άλφα εκπομπούς ή  $8 \times 10^4 \text{ Bq/cm}^2$  ( $2 \text{ mCi/cm}^2$ ) για όλους τους άλλους άλφα εκπομπούς, και
- (iii) η μη-μόνιμη μόλυνση συν την μόνιμη μόλυνση πάνω στην απρόσιτη επιφάνεια υπολογιζόμενη κατά μέσον όρο πάνω από  $300 \text{ cm}^2$  (ή στο εμβαδόν της επιφάνειας εάν είναι μικρότερο από  $300 \text{ cm}^2$ ) δεν υπερβαίνει τα  $8 \times 10^5 \text{ Bq/cm}^2$  ( $20 \text{ mCi/cm}^2$ ) για βήτα και γάμα εκπομπούς και χαμηλής τοξικότητας άλφα εκπομπούς ή  $8 \times 10^4 \text{ Bq/cm}^2$  ( $2 \text{ mCi/cm}^2$ ) για όλους τους άλλους άλφα εκπομπούς.

## Δείκτης μεταφοράς

23. Δείκτης μεταφοράς (ΠΙ) θα σημαίνει έναν μόνο αριθμό καταχωρούμενο σε ένα κύκλο, υπερσυσκευασία, δεξαμενή ή εμπορευματοκιβώτιο, ή σε μη-συσκευασμένα LSA-I ή SCO-I, που χρησιμοποιείται για να παρέχει έλεγχο πάνω τόσο στην ασφάλεια πυρηνικής κρισιμότητας όσο και στην έκθεση σε ακτινοβολία (βλέπε περιθωριακό 3715). Επίσης χρησιμοποιείται για τον καθορισμό ορίων σε ορισμένα κύκλα, υπερσυσκευασίες, δεξαμενές και εμπορευματοκιβώτια, τον καθορισμό κατηγοριών για επισήμανση, τον προσδιορισμό εάν μεταφορά υπό αποκλειστική χρήση θα πρέπει να απαιτείται, τον καθορισμό διατάξεων αραίωσης κατά τη διάρκεια της αποθήκευσης σε διαμετακόμιση, τον καθορισμό περιορισμών στις μικτές φορτώσεις κατά τη διάρκεια μεταφοράς υπό ειδικές ρυθμίσεις και κατά τη διάρκεια αποθήκευσης σε διαμετακόμιση και τον καθορισμό του επιτρεπόμενου αριθμού κύκλων σε ένα εμπορευματοκιβώτιο ή πάνω σ' ένα όχημα (βλέπε Τομέα II της προσθήκης A.7).

## Κλάση 7

2700  
(συνεχ.)

*Μη-εκπέμπον θόριο*

24. *Μη-εκπέμπον θόριο* θα σημαίνει θόριο που περιέχει όχι περισσότερο από  $10^{-7}$  g ουράνιο-233 ανά γραμ. θόριου 232.

*Μη-εκπέμπον ουράνιο*

25. *Μη-εκπέμπον ουράνιο* θα σημαίνει ουράνιο που περιέχει όχι περισσότερο από  $10^{-6}$  g πλουτόνιο ανά γραμ. ουράνιο-235 και όχι περισσότερο από 9 MBq (0.20 mCi) σχάσιμων προϊόντων ανά γραμ. ουράνιο-235.

*Ουράνιο - φυσικό, εξαντλημένο, εμπλουτισμένο*

26. *Φυσικό ουράνιο* θα σημαίνει χημικώς απομονωμένο ουράνιο που περιέχει την φυσικά παραγόμενη κατανομή ισοτόπων του ουράνιου (περίπου 99.28% ουράνιο-238 και 0.72% ουράνιο-235). *Εξαντλημένο ουράνιο* θα σημαίνει ουράνιο που περιέχει μικρότερο ποσοστό βάρους ουράνιου-235 απ' ότι το φυσικό ουράνιο. *Εμπλουτισμένο ουράνιο* θα σημαίνει ουράνιο που περιέχει μεγαλύτερο ποσοστό βάρους ουράνιου-235 απ' ότι το φυσικό ουράνιο. Σε όλες τις περιπτώσεις ένα πολύ μικρό ποσοστό βάρους ουράνιου-234 είναι παρόν.



## 2701 (1) Κατάλογος υλών

Χαρακτηριστικός αριθμός <sup>3/</sup> και ονομασία της ύλης ή του αντικείμενου	Πρόγραμμα
<u>2910 Ραδιενεργό υλικό, εξαιρούμενο κόλο</u> - όργανα ή είδη - περιορισμένη ποσότητα υλικού - είδη παραγόμενα από φυσικό ή εξαντλημένο ουράνιο ή φυσικό θόριο - κενή συσκευασία	2 1 3 4
<u>2912 Ραδιενεργό υλικό, χαμηλή σχετική δραστικότητα (LSA), ε.α.ο.</u> - LSA-I - LSA-II - LSA-III - υπό ειδική ρύθμιση	5 6 7 13
<u>2913 Ραδιενεργό υλικό, επιφανειακά μολυσμένα αντικείμενα (SCO)</u> - SCO-I και SCO-II - υπό ειδική ρύθμιση	8 13
<u>2918 Ραδιενεργό υλικό, σγάζιμο, ε.α.ο.</u> - σε κόλα Τύπου IF, Τύπου AF, Τύπου B(U)F ή Τύπου B(M)F - υπό ειδική ρύθμιση	12 13
<u>2974 Ραδιενεργό υλικό, ειδική μορφή ε.α.ο.</u> - σε κόλα Τύπου A - σε κόλα Τύπου B(U) - σε κόλα Τύπου B(M) - υπό ειδική ρύθμιση	9 10 11 13
<u>2975 Μεταλλικό θόριο, πυροφορικό</u> - σε κόλα Τύπου A - σε κόλα Τύπου B(U) - σε κόλα Τύπου B(M) - υπό ειδική ρύθμιση	9 10 11 12

270  
(συν.)

Χαρακτηριστικός αριθμός <sup>3/</sup> και ονομασία της ύλης ή του αντικείμενου.	Πρόγραμ- μα
<u>2976</u> <u>Νιτρικό θόριο, στερεό</u>  - <u>LSA-I</u> - <u>LSA-II</u> - σε κόλλα Τύπου A - σε κόλλα Τύπου B(U) - σε κόλλα Τύπου B(M) - υπό ειδική ρύθμιση	  5 6 9 10 11 13
<u>2977</u> <u>Εξαφθοριούχο ουράνιο, σγάζσιμο που περιέχει περισσότερο από 1% ουράνιο - 235</u>  - σε εγκεκριμένα κόλλα - υπό ειδική ρύθμιση	  12 13
<u>2978</u> <u>Εξαφθοριούχο ουράνιο, σγάζσιμο εξαιρούμενο ή μη-σγάζσιμο</u>  - <u>LSA-I</u> - <u>LSA-II</u> - υπό ειδική ρύθμιση	  5 6 13
<u>2979</u> <u>Μεταλλικό ουράνιο, πυροφορικό</u>  - σε κόλλα Τύπου A - σε κόλλα Τύπου B(U) - σε κόλλα Τύπου B(M) - υπό ειδική ρύθμιση	  9 10 11 13
<u>2981</u> <u>Νιτρικό ουρανύλιο, στερεό</u>  - <u>LSA-I</u> - <u>LSA-II</u> - σε κόλλα Τύπου A - σε κόλλα Τύπου B(U) - σε κόλλα Τύπου B(M) - υπό ειδική ρύθμιση	  5 6 9 10 11 13
<u>2982</u> <u>Ραδιενεργό υλικό ε.α.ο.</u>  - σε κόλλα Τύπου A - σε κόλλα Τύπου B(U) - σε κόλλα Τύπου B(M)	  9 10 11

<sup>3/</sup> Αυτοί οι αριθμοί έχουν ληφθεί από την Υπόδειξη των Ηνωμένων Εθνών για την Μεταφορά Επικίνδυνων Εμπορευμάτων.

1621

Κλάση 7

270<sup>3</sup>  
(συν.)

Χαρακτηριστικός αριθμός <sup>3/</sup> και ονομασία της ύλης ή του αντικείμενου	Πρόγραμ- μα
- υπό ειδική ρύθμιση	13

<sup>3/</sup> Αυτοί οι αριθμοί έχουν ληφθεί από την Υπόδειξη των Ηνωμένων Εθνών για την Μεταφορά Επικίνδυνων Εμπορευμάτων.

## Κλάση 7

**2701** (2) Τα υλικά και είδη αυτής της κλάσης περιέχουν ένα ή περισσότερα από τα ραδιονουκλεΐδια (συνεχ.) που αναφέρονται στον Τομέα 1 της προσθήκης A.7 (περιθωριακά 3700 και 3701).

(3) Ο παρακάτω κατάλογος θέτει τα προγράμματα του περιθωριακού 2704:

1. Περιορισμένες Ποσότητες Ραδιενεργού Υλικού σε Εξαιρούμενα Κόλα.
2. Όργανα ή Είδη σε Εξαιρούμενα Κόλα.
3. Είδη Παραγόμενα από Φυσικό Ουράνιο, Εξαντλημένο Ουράνιο ή Φυσικό Θόριο ως Εξαιρούμενα Κόλα.
4. Κενές Συσκευασίες ως Εξαιρούμενα Κόλα.
5. Χαμηλής Σχετικής Δραστικότητας Υλικό (LSA-I).
6. Χαμηλής Σχετικής Δραστικότητας Υλικό (LSA-II).
7. Χαμηλής Σχετικής Δραστικότητας Υλικό (LSA-III).
8. Επιφανειακά Μολυσμένα Αντικείμενα (SCO-I και SCO-II).
9. Ραδιενεργό Υλικό σε Κόλα Τύπου A.
10. Ραδιενεργό Υλικό σε Κόλα Τύπου B(U).
11. Ραδιενεργό Υλικό σε Κόλα Τύπου B(M).
12. Σχάσιμο Υλικό.
13. Ραδιενεργό Υλικό Μεταφερόμενο υπό Ειδική Ρύθμιση.

(4) Οι διατάξεις για τους διάφορους τύπους αποστολής περιέχονται σε 13 κεφάλαια σε συμφωνία με το περιθωριακό 2003 (3):

(i) Κοινές διατάξεις για τα Προγράμματα 1 έως 4 συνοψίζονται στο περιθωριακό 2702,

(ii) Κοινές διατάξεις για τα Προγράμματα 5 έως 13 συνοψίζονται στο περιθωριακό 2703.

**2702 Κοινές Διατάξεις για τα Προγράμματα 1 έως 4 του περιθωριακού 2704:**

1. Υλικά  
Βλέπε κατάλληλο πρόγραμμα.
2. Συσκευασία/Κόλο  
Βλέπε κατάλληλο πρόγραμμα.
3. Μέγιστο Επίπεδο Ακτινοβολίας  
5 mSv/h (0.5 mrem/h) σε οποιοδήποτε σημείο πάνω στην εξωτερική επιφάνεια του κόλου.

## Κλάση 7

- 2702 4. Μόλυνση πάνω στα Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες (συνεχ.)

Η μη-μόνιμη μόλυνση σε όλες τις εξωτερικές επιφάνειες και επιπλέον στις εσωτερικές επιφάνειες των οχημάτων, εμπορευματοκιβωτίων, δεξαμενών και υπερσυσκευασιών που χρησιμοποιούνται για τη μεταφορά εξαιρούμενων κόλων θα πρέπει να διατηρείται όσο χαμηλή είναι πρακτικά δυνατόν και δεν θα πρέπει να υπερβαίνει τα παρακάτω όρια:

- (a) Βήτα / γάμα / χαμηλής-τοξικότητας άλφα εκπομποί

$$0.4 \text{ Bq/cm}^2 (10^{-5} \text{ mCi/cm}^2)$$

- (b) Όλοι οι άλλοι άλφα εκπομποί

$$0.04 \text{ Bq/cm}^2 (10^{-6} \text{ mCi/cm}^2)$$

5. Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών

Οχήματα, συσκευές ή μέρη αυτών που έχουν μολυνθεί, θα πρέπει να απολυμνούνται το συντομότερο δυνατόν και σε οποιαδήποτε περίπτωση πριν από την επαναχρησιμοποίηση, με τα επίπεδά να μην υπερβαίνουν:

- (a) για μη-μόνιμη μόλυνση,

$$0.4 \text{ Bq/cm}^2 (10^{-5} \text{ mCi/cm}^2) \text{ για βήτα και γάμα εκπομπούς και χαμηλής τοξικότητας άλφα εκπομπούς, και}$$

$$0.04 \text{ Bq/cm}^2 (10^{-6} \text{ mCi/cm}^2) \text{ για όλους τους άλλους άλφα εκπομπούς.}$$

- (b) επίπεδο ακτινοβολίας 5 mSv/h (0.5 mrem/h) στην επιφάνεια λόγω μόνιμης μόλυνσης.

6. Μικτή Συσκευασία

Δεν υπάρχουν διατάξεις.

7. Μικτή Φόρτωση

Δεν υπάρχουν διατάξεις.

8. Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτιο, Δεξαμενές και Υπερσυσκευασίες

Βλέπε κατάλληλο πρόγραμμα.

9. Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές

Βλέπε κατάλληλο πρόγραμμα.

10. Έγγραφα μεταφοράς

Βλέπε κατάλληλο πρόγραμμα.

11. Αποθήκευση και Αποστολή

Δεν υπάρχουν διατάξεις.

## Κλάση 7

2702 12. Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών  
(συνεχ.)

Δεν υπάρχουν διατάξεις.

13. Άλλες Διατάξεις

(a) Διατάξεις ατυχήματος: βλέπε περιθωριακά 2710 και 3712.

(b) Φθαρμένα ή διαρρέοντα κόλα: βλέπε περιθωριακό 3712.

(c) Έρευνες μόλυνσης: βλέπε περιθωριακό 3712 (3).

(d) Εξασφάλιση ποιότητας: βλέπε περιθωριακό 3766.

(e) Μη-παραλαμβανόμενες αποστολές: βλέπε περιθωριακό 2715.

2703 Κοινές Διατάξεις για τα Προγράμματα 5 έως 13 του περιθωριακού 2704:

1. Υλικά

Βλέπε κατάλληλο πρόγραμμα.

2. Συσκευασία/Κόλο

Βλέπε κατάλληλο πρόγραμμα.

3. Μέγιστο Επίπεδο Ακτινοβολίας

(a) Τα επίπεδα ακτινοβολίας για κόλα ή υπερσυσκευασίες όχι μεταφερόμενες υπό αποκλειστική χρήση δεν θα πρέπει να υπερβαίνουν:

(i) 2 mSv/h (200 mrem/h) σε οποιοδήποτε σημείο σε οποιαδήποτε εξωτερική επιφάνεια, και

(ii) 0.1 mSv/h (10 mrem/h) σε 1 μέτρο από εκείνη την επιφάνεια.

(b) Τα επίπεδα επιφανειακής ακτινοβολίας για κόλα ή υπερσυσκευασίες μεταφερόμενες υπό αποκλειστική χρήση μπορούν να υπερβαίνουν τα 2 mSv/h (200 mrem/h) αλλά σε καμία περίπτωση δεν θα πρέπει να υπερβαίνουν τα 10 mSv/h (1 000 mrem/h), υπό την προϋπόθεση ότι:

(i) το όχημα είναι εξοπλισμένο με περίφραξη που παρεμποδίζει μη-εξουσιοδοτημένη πρόσβαση στο φορτίο κατά τη διάρκεια της μεταφοράς, και

(ii) το κόλο ή υπερσυσκευασία είναι ασφαλισμένη ώστε να διατηρεί τη θέση της μέσα στην περίφραξη κατά τη διάρκεια συνήθους μεταφοράς, και

(iii) δεν υπάρχουν διαδικασίες φόρτωσης ή εκφόρτωσης μεταξύ την έναρξη και το πέρας της αποστολής.

4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες

Η μη-μόνιμη μόλυνση σε όλες τις εξωτερικές επιφάνειες και επιπλέον στις εσωτερικές επιφάνειες οχημάτων, εμπορευματοκιβωτίων, δεξαμενών και υπερσυσκευασιών που χρησιμοποιούνται για μεταφορά κόλων θα πρέπει να διατηρείται όσο χαμηλή είναι πρακτικά δυνατόν και δεν θα πρέπει να υπερβαίνει τα παρακάτω όρια:

## Κλάση 7

2703  
(συνεχ.)

- (a) Βήτα/γάμμα/χαμηλής-τοξικότητας άλφα εκπομποί:
- 0.4 Bq/cm<sup>2</sup> (10<sup>-5</sup> mCi/cm<sup>2</sup>) για αποστολές που επίσης περιλαμβάνουν εξαιρούμενα κόλα και/ή μη-ραδιενεργά εμπορεύματα,
- 4 Bq/cm<sup>2</sup> (10<sup>-4</sup> mCi/cm<sup>2</sup>) για όλες τις άλλες αποστολές.
- (b) Όλοι οι άλλοι άλφα εκπομποί:
- 0.04 Bq/cm<sup>2</sup> (10<sup>-6</sup> mCi/cm<sup>2</sup>) για αποστολές που επίσης περιλαμβάνουν εξαιρούμενα κόλα και/ή μη-ραδιενεργά εμπορεύματα,
- 0.4 Bq/cm<sup>2</sup> (10<sup>-5</sup> mCi/cm<sup>2</sup>) για όλες τις άλλες αποστολές.

## 5. Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών

Όχηματα, εξαρτήματα ή μέρη αυτών που έχουν μολυνθεί πάνω από τα όρια της παραγράφου 4, ή που εμφανίζουν επίπεδο επιφανειακής ακτινοβολίας μεγαλύτερο από 5mSv/h (0.5 mrem/h) θα πρέπει να απολυμαίνονται το συντομότερο δυνατόν και σε οποιαδήποτε περίπτωση πριν την επαναχρησιμοποίηση, σε επίπεδα όχι μεγαλύτερα από:

- (a) για μη-μόνιμη μόλυνση, βλέπε διατάξεις στο 4,
- (b) επίπεδο ακτινοβολίας 5 mSv/h (0.5 mrem/h) στην επιφάνεια λόγω μόνιμης μόλυνσης.

## 6. Μικτή Συσκευασία

Βλέπε περιθωριακό 3711 (1).

## 7. Μικτή Φόρτωση

- (a) Κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 7Α, 7Β ή 7C δεν θα πρέπει να φορτώνονται μαζί στο ίδιο όχημα με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.
- (b) Σε όλες τις άλλες περιπτώσεις μικτή φόρτωση είναι επιτρεπόμενη. Όμως, μικτή φόρτωση σε αποστολή υπό αποκλειστική χρήση θα πρέπει να κανονίζεται μόνον από τον αποστολέα.

## 8. Μαρκάρισμα και Ετικέτες κινδύνου στα Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες

Οι παρακάτω διατάξεις εφαρμόζονται σε κόλα, εμπορευματοκιβώτια, δεξαμενές και υπερσυσκευασίες με μη-σχάσιμο υλικό.

Για κόλα που περιέχουν σχάσιμο υλικό και για εμπορευματοκιβώτια και υπερσυσκευασίες που περιέχουν κόλα με σχάσιμο υλικό, βλέπε επιπλέον Πρόγραμμα 12.

- (a) Κόλα και υπερσυσκευασίες, πέραν από εμπορευματοκιβώτια ή δεξαμενές.

## Κλάση 7

2703  
(συνεχ.)

- (i) Τέτοια κόλα και υπερσυσκευασίες θα πρέπει, ανάλογα με την κατηγορία (βλέπε περιθωριακό 3718), να φέρουν ετικέτες σύμφωνα με τα υποδείγματα Αριθμ. 7Α, 7Β ή 7C, συμπληρωμένες σε συμφωνία με το περιθωριακό 2706 (3). Οι ετικέτες θα πρέπει να τοποθετούνται σε δύο αντίθετες πλευρές των κόλων και υπερσυσκευασιών.
- (ii) Κάθε ετικέτα θα πρέπει να είναι μαρκαρισμένη με τη μέγιστη δραστηκότητα του ραδιενεργού περιεχομένου κατά τη διάρκεια της μεταφοράς.
- (iii) Κάθε κίτρινη ετικέτα θα πρέπει να είναι μαρκαρισμένη με τον δείκτη μεταφοράς για το κόλο ή υπερσυσκευασία.
- (iv) Στην περίπτωση υλών των παρακάτω χαρακτηριστικών αριθμών που αναφέρονται στο περιθωριακό 2701 (1), θα πρέπει επίσης να τοποθετούνται οι παρακάτω πρόσθετες ετικέτες:
- |      |  |                        |
|------|--|------------------------|
| 2975 | Μεταλλικό θόριο, πυροφορικό  | )                      |
|      |  | ) Υπόδειγμα Αριθμ. 4.2 |
| 2979 | Μεταλλικό ουράνιο, πυροφορικό  | )                      |
| 2976 | Νιτρικό θόριο, στερεό  | )                      |
|      |  | ) Υπόδειγμα Αριθμ. 05  |
| 2981 | Νιτρικό ουρανύλιο, στερεό  | )                      |
| 2977 | Εξαφθοριούχο ουράνιο<br>σχάσιμο, που περιέχει περισσότερο)<br>από 1% ουράνιο 235 | )                      |
|      |  | )                      |
| 2978 | Εξαφθοριούχο ουράνιο,<br>σχάσιμο εξαιρούμενο ή<br>μη-σχάσιμο                     | )                      |
|      |  | ) Υπόδειγμα Αριθμ. 8   |
|      |  | )                      |
| 2980 | Διάλυμα νιτρικού ουρανύλιου<br>εξα-ένυδρο  | )                      |
|      |  | )                      |
- (v) Κόλα με μικτό βάρος μεγαλύτερο από 50 kg θα πρέπει να είναι μαρκαρισμένα καθαρά και με τρόπο διαρκείας με το επιτρεπτό μικτό βάρος τους στην εξωτερική πλευρά.
- (vi) Κάθε κόλο εκτός από εμπορευματοκιβώτια-δεξαμενές και υπερσυσκευασίες θα πρέπει να είναι καθαρά μαρκαρισμένο με τον χαρακτηριστικό αριθμό των εμπορευμάτων που θα εγγραφεται στο έγγραφο μεταφοράς, μετά από τα γράμματα "UN".
- (vii) Οποιοσδήποτε ετικέτες που δεν σχετίζονται με το περιεχόμενο θα πρέπει να αφαιρούνται ή να καλύπτονται.
- (b) Εμπορευματοκιβώτια, επίσης όταν που χρησιμοποιούνται ως υπερσυσκευασίες, και δεξαμενές.
- (i) Τέτοια εμπορευματοκιβώτια και δεξαμενές θα πρέπει, ανάλογα με την κατηγορία (βλέπε περιθωριακό 3718), να φέρουν ετικέτες σύμφωνα με τα υποδείγματα Αριθμ. 7Α, 7Β ή 7C, συμπληρωμένες σε συμφωνία με το περιθωριακό 2706 (3).
- Δεξαμενές, καθώς και μεγάλα εμπορευματοκιβώτια που περιέχουν κόλα άλλα από εξαιρούμενα κόλα, θα πρέπει επιπλέον να φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 7D.



## Κλάση 7

2703  
(συνεχ.)

Αντί για ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 7Α, 7Β ή 7C και επιπλέον ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 7D, μεγεθυμένες ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 7Α, 7Β ή 7C με τις διαστάσεις του υποδείγματος Αριθμ. 7D μπορούν να χρησιμοποιηθούν.

Οι ετικέτες θα πρέπει να τοποθετούνται και στις τέσσερις πλευρές των εμπορευματοκιβωτίων και εμπορευματοκιβωτίων-δεξαμενών, και στις δύο πλευρές και το πίσω μέρος των οχημάτων-δεξαμενών.

(ii) Στην περίπτωση υλών των παρακάτω χαρακτηριστικών αριθμών που αναφέρονται στο περιθωριακό 2701 (1), οι παρακάτω πρόσθετες ετικέτες θα πρέπει επίσης να τοποθετούνται:

2975 Μεταλλικό θόριο, πυροφορικό	)	) Υπόδειγμα Αριθμ. 4.2
2979 Μεταλλικό ουράνιο, πυροφορικό	)	
2976 Νιτρικό θόριο, στερεό	)	) Υπόδειγμα Αριθμ. 05
2981 Νιτρικό ουρανόλιο, στερεό	)	
2977 Εξαφθοριούχο ουράνιο σχάσιμο, που περιέχει περισσότερο από 1% ουράνιο 235	) ) )	) Υπόδειγμα Αριθμ. 8
2978 Εξαφθοριούχο ουράνιο, σχάσιμο εξαιρούμενο ή μη-σχάσιμο	) ) )	
2980 Διάλυμα νιτρικού ουρανόλιου εξα-ένυδρο	) )	

(iii) Οχήματα-δεξαμενές και εμπορευματοκιβώτια-δεξαμενές καθώς και οχήματα και εμπορευματοκιβώτια για μεταφορά χύμα θα πρέπει να είναι μαρκαρισμένα σε συμφωνία με το περιθωριακό 10 500 και Προσθήκη Β.5.

(iv) Εκτός εάν πρόκειται για μικτά φορτία, κάθε ετικέτα θα πρέπει να είναι μαρκαρισμένη με τη μέγιστη δραστηριότητα του ραδιενεργού περιεχομένου του εμπορευματοκιβωτίου ή της υπερσυσκευασίας κατά τη διάρκεια της μεταφοράς, αθροισμένη για όλο το περιεχόμενο. Για μικτά φορτία, βλέπε περιθωριακό 2706 (3).

(v) Κάθε κίτρινη ετικέτα θα πρέπει να είναι μαρκαρισμένη με τον δείκτη μεταφοράς για το εμπορευματοκιβώτιο ή την υπερσυσκευασία.

(vi) Τα εμπορευματοκιβώτια και δεξαμενές θα πρέπει να είναι καθαρά και μαρκαρισμένα με τρόπο διαρκείας στην εξωτερική πλευρά με το επιτρεπτό μικτό βάρος τους.

(vii) Οποιοδήποτε μαρκάρισμα ή ετικέτα κινδύνου που δεν σχετίζεται με το περιεχόμενο θα πρέπει να αφαιρείται ή να καλύπτεται.

9. Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές

(a) (i) Για αποστολές συσκευασμένου ή μη-συσκευασμένου ραδιενεργού υλικού, ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 7D θα πρέπει να τοποθετούνται με κάθετο προσανατολισμό στα δύο πλευρικά τοιχώματα και στο πίσω τοίχωμα της μονάδας μεταφοράς.

## Κλάση 7

2703 (συνεχ.) (ii) Στην περίπτωση υλών των παρακάτω χαρακτηριστικών αριθμών που αναφέρονται στο περιθωριακό 2701 (1), θα πρέπει επίσης να τοποθετούνται οι παρακάτω πρόσθετες ετικέτες:

2975 Μεταλλικό θόριο, πυροφορικό	)	Υπόδειγμα Αριθμ. 4.2
2979 Μεταλλικό ουράνιο, πυροφορικό	)	
2976 Νιτρικό θόριο, στερεό	)	Υπόδειγμα Αριθμ. 05
2981 Νιτρικό ουρανύλιο, στερεό	)	
2977 Εξαφθοριούχο ουράνιο, σχάσιμο, που περιέχει περισσότερο από 1% ουράνιο-235	)	
2978 Εξαφθοριούχο ουράνιο, σχάσιμο εξαιρούμενο ή μη-σχάσιμο	)	Υπόδειγμα Αριθμ. 8
2980 Διάλυμα νιτρικού ουρανύλιου εξα-ένυδρο	)	

(b) Οποιαδήποτε ετικέτα κινδύνου που δεν σχετίζεται με το περιεχόμενο θα πρέπει να αφαιρείται ή να καλύπτεται.

## 10. Έγγραφα μεταφοράς

Βλέπε κατάλληλο πρόγραμμα.

## 11. Αποθήκευση και Αποστολή

(a) Κατά τη διάρκεια της αποθήκευσης απαιτείται διαχωρισμός από άλλα επικίνδυνα εμπορεύματα και από άτομα και μη-εμφανισμένες φωτογραφικές πλάκες και φιλμ:

- (i) για διαχωρισμό από άλλα επικίνδυνα εμπορεύματα - βλέπε τις διατάξεις στο κεφάλαιο 7,
- (ii) για διαχωρισμό από άτομα, από κόλα μαρκαρισμένα με 'FOTO' και από ταχυδρομικούς σάκους - βλέπε περιθωριακό 2711 για πίνακες διαχωρισμού.

(b) Περιορισμός συνολικού δείκτη μεταφοράς για αποθήκευση εκτός από LSA-I:

- (i) Ο αριθμός των κόλων, υπερσυσκευασιών, δεξαμενών και εμπορευματοκιβωτίων της κατηγορίας II-κίτρινο και της κατηγορίας III-κίτρινο, που αποθηκεύονται σε οποιοδήποτε μέρος, θα πρέπει να περιορίζεται έτσι ώστε το ολικό άθροισμα των δεικτών μεταφοράς σε οποιαδήποτε μεμονωμένη ομάδα τέτοιων κόλων, υπερσυσκευασιών, δεξαμενών ή εμπορευματοκιβωτίων να μην υπερβαίνει το 50. Τέτοιες ομάδες θα πρέπει να αποθηκεύονται έτσι ώστε να διατηρούν διάστημα τουλάχιστον 6 m το ένα από το άλλο.
- (ii) Όπου ο δείκτης μεταφοράς ενός μεμονωμένου κόλου, υπερσυσκευασίας, δεξαμενής ή εμπορευματοκιβωτίου υπερβαίνει το 50 ή ο συνολικός δείκτης μεταφοράς σ' ένα όχημα υπερβαίνει το 50, η αποθήκευση θα πρέπει να γίνεται έτσι ώστε να διατηρεί διάστημα τουλάχιστον 6 m από τα άλλα κόλα, υπερσυσκευασίες, δεξαμενές, εμπορευματοκιβώτια ή οχήματα που μεταφέρουν ραδιενεργό υλικό.

## Κλάση 7

2703  
(συνεχ.)

## 12. Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών

- (1) Βλέπε κατάλληλο πρόγραμμα.
- (2) (a) Κατά τη διάρκεια της μεταφοράς απαιτείται διαχωρισμός από άλλα επικίνδυνα εμπορεύματα και από άτομα και μη-εμφανισμένα φωτογραφικά φιλμ και πλάκες:
  - (i) για διαχωρισμό από άλλα επικίνδυνα εμπορεύματα - βλέπε τις διατάξεις στο κεφάλαιο 7,
  - (ii) για διαχωρισμό από άτομα, από κόλα μαρκαρισμένα ως 'FOTO' και από ταχυδρομικούς σάκους - βλέπε περιθωριακό 2711 για πίνακες διαχωρισμού.
- (b) Περιορισμός συνολικού δείκτη μεταφοράς για μεταφορά εκτός από LSA-I:
 

Ο συνολικός αριθμός κόλων, υπερσυσκευασιών, δεξαμενών και εμπορευματοκιβωτίων σε ένα μόνο όχημα θα πρέπει να περιορίζεται έτσι, ώστε το άθροισμα των δεικτών μεταφοράς να μην υπερβαίνει το 50. Για αποστολές υπό αποκλειστική χρήση αυτό το όριο δεν εφαρμόζεται - βλέπε περιθωριακό 3711 (3).
- (c) Οποιοδήποτε κόλο ή υπερσυσκευασία με δείκτη μεταφοράς μεγαλύτερο από 10, θα πρέπει να μεταφέρεται μόνον υπό αποκλειστική χρήση.
- (d) Μέγιστα επίπεδα ακτινοβολίας για οχήματα:
  - (i) 2 mSv/h (200 mrem/h) στην επιφάνεια των οχημάτων,
  - (ii) 0.1 mSv/h (10 mrem/h) σε 2 μέτρα από την επιφάνεια των οχημάτων,
  - (iii) 0.02 mSv/h (2 mrem/h) σε οποιαδήποτε κανονικά κατειλημμένη θέση σε ένα όχημα, εάν δεν χρησιμοποιούνται προσωπικές συσκευές ένδειξης.

## 13. Άλλες Διατάξεις

- (a) Προσδιορισμός δείκτη μεταφοράς: βλέπε περιθωριακό 3715.
- (b) Διατάξεις ατυχήματος: βλέπε περιθωριακά 2710, 3712 και 10 385.
- (c) Φθαρμένα ή διαρρέοντα κόλα: βλέπε περιθωριακό 3712.
- (d) Έρευνες μόλυνσης: βλέπε περιθωριακό 3712 (3).
- (e) Εξασφάλιση ποιότητας: βλέπε περιθωριακό 3766.
- (f) Μη-παραλαμβανόμενες αποστολές: βλέπε περιθωριακό 2715.
- (g) Εξαρτήματα και λειτουργίες μεταφοράς: βλέπε Παράρτημα Β, Μέρος I και περιθωριακό 71 000 και επόμενα.

## Κλάση 7

## 2704 Πρόγραμμα 1

## ΠΕΡΙΟΡΙΣΜΕΝΕΣ ΠΟΣΟΤΗΤΕΣ ΡΑΔΙΕΝΕΡΓΟΥ ΥΛΙΚΟΥ ΣΕ ΕΞΑΙΡΟΥΜΕΝΑ ΚΟΛΑ

**ΣΗΜΕΙΩΣΗ 1:** Ραδιενεργό υλικό σε ποσότητες που προσφέρουν έναν πολύ περιορισμένο κίνδυνο ακτινοβολίας, μπορεί να μεταφέρεται σε εξαιρούμενα κόλα.

**ΣΗΜΕΙΩΣΗ 2:** Για άλλες επικίνδυνες ιδιότητες, βλέπε τις διατάξεις στα περιθωριακά 2002 (12) και (13), και 3770.

## 1. Υλικά

2910 Ραδιενεργό υλικό, εξαιρούμενο κόλο, περιορισμένη ποσότητα υλικού.

- (a) Μη-σχάσιμο ραδιενεργό υλικό σε ποσότητες που δεν υπερβαίνουν τα όρια που ορίζονται στον Πίνακα 1.
- (b) Σχάσιμο υλικό με δραστηκότητα που δεν υπερβαίνει τα όρια που ορίζονται στον Πίνακα 1 και επιπλέον, που ικανοποιεί όσον αφορά στις ποσότητες, στη μορφή και στη συσκευασία τις διατάξεις που δίνονται στο περιθωριακό 3741 της προσθήκης A.7. επιτρέποντάς τους να τακτοποιούνται ως κόλα μη-σχάσιμου ραδιενεργού υλικού.

**Πίνακας 1:** Όρια δραστηκότητας, ως τιμές των  $A_1$  ή  $A_2$  για εξαιρούμενα κόλα που περιέχουν ραδιενεργό υλικό<sup>4/</sup>,<sup>5/</sup>.

Φύση περιεχομένου	Όρια κόλου
Στερεά:	
Ειδική Μορφή	$10^3 A_1$
Άλλες Μορφές	$10^3 A_2$
Υγρά	$10^4 A_2$
Αέρια:	
Τρίτιο	$2 \times 10^2 A_2$
Ειδική Μορφή	$10^3 A_1$
Άλλες Μορφές	$10^3 A_2$

<sup>4/</sup> Για συγκεκριμένες τιμές των  $A_1$  και  $A_2$ , βλέπε Πίνακα 1 του περιθωριακού 3700 της Προσθήκης A.7.

<sup>5/</sup> Για μείγματα ραδιονουκλεϊδίων, οι μέθοδοι για τον προσδιορισμό των  $A_1$  και  $A_2$  δίνονται στο περιθωριακό 3701 (3) της προσθήκης A.7.

**2. Συσκευασία/Κόλο**

Ραδιενεργό υλικό σε περιορισμένες ποσότητες μπορεί να μεταφέρεται σε συσκευασίες, δεξαμενές και εμπορευματοκιβώτια, υπό την προϋπόθεση ότι:

- (a) Η συσκευασία θα πρέπει να είναι σε συμφωνία με τις γενικές διατάξεις για όλες τις συσκευασίες και τα κόλα που δίνονται στο περιθωριακό 3732 της προσθήκης Α.7 και επιπλέον, για δεξαμενές, Προσθήκες Β.1α και Β.1b.
- (b) Κόλα που περιέχουν σχάσιμο υλικό θα πρέπει να ικανοποιούν τουλάχιστον μία από τις διατάξεις που ορίζονται στο περιθωριακό 3741 της προσθήκης Α.7.
- (c) Ειδικά, το κόλο θα πρέπει να σχεδιάζεται έτσι ώστε κατά τη διάρκεια συνήθους μεταφοράς να μην υπάρχει διαρροή του ραδιενεργού περιεχομένου. Ραδιενεργό υλικό δεν θα πρέπει να μεταφέρεται χύμα.

**3. Μέγιστο Επίπεδο Ακτινοβολίας**

Βλέπε περιθωριακό 2702.

**4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**

Βλέπε περιθωριακό 2702.

**5. Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών**

Βλέπε περιθωριακό 2702.

**6. Μικτή Συσκευασία**

Δεν υπάρχουν διατάξεις.

**7. Μικτή Φόρτωση**

Δεν υπάρχουν διατάξεις.

**8. Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες****(a) Κόλα**

- (i) Μαρκάρισμα: βλέπε περιθωριακό 2702  
Επισήμανση: Δεν υπάρχουν διατάξεις

- (ii) Η συσκευασία θα πρέπει να είναι μαρκαρισμένη ως "Ραδιενεργό" σε μία εσωτερική επιφάνεια ως προειδοποίηση για την παρουσία ραδιενεργού υλικού κατά το άνοιγμα του κόλου.

**(b) Εμπορευματοκιβώτια**

Δεν υπάρχουν διατάξεις.

## (c) Δεξαμενές

Βλέπε Προσθήκη B.1a/ B.1b, περιθωριακό 211 760/ 212 760 και Προσθήκη B.5.

## (d) Υπερσυσκευασίες

Δεν υπάρχουν διατάξεις.

9. **Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές**

Δεν υπάρχουν διατάξεις.

10. **Έγγραφο μεταφοράς**

Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει την περιγραφή "2910 Ραδιενεργό υλικό, εξαιρούμενο κόλο, περιορισμένη ποσότητα υλικού, 7, Πρόγραμμα 1, ADR (ή RID)".

11. **Αποθήκευση και Αποστολή**

Δεν υπάρχουν διατάξεις.

12. **Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών**

Δεν υπάρχουν διατάξεις.

13. **Άλλες Διατάξεις**

Βλέπε περιθωριακό 2702.

## Κλάση 7

2704 Πρόγραμμα 2  
(συνεχ.)

**ΟΡΓΑΝΑ Η ΕΙΔΗ ΣΕ ΕΞΑΙΡΟΥΜΕΝΑ ΚΟΛΑ**

**ΣΗΜΕΙΩΣΗ 1:** Ορισμένες ποσότητες ραδιενεργού υλικού, που είναι κλεισμένες σε ή σχηματίζουν ένα συστατικό μέρος ενός οργάνου ή άλλου κατασκευασμένου είδους και που προσφέρουν πολύ περιορισμένο κίνδυνο ακτινοβολίας, μπορούν να μεταφέρονται σε εξαιρούμενα κόλα.

**ΣΗΜΕΙΩΣΗ 2:** Για άλλες επικίνδυνες ιδιότητες, βλέπε επίσης τις διατάξεις στο περιθωριακό 3770.

**1. Υλικά****2910 Ραδιενεργό υλικό, εξαιρούμενο κόλο, όργανα ή είδη.**

- (a) Όργανα και κατασκευασμένα είδη όπως ρολόγια, ηλεκτρονικοί σωλήνες ή συσκευές που έχουν ως συστατικό μέρος, ραδιενεργό υλικό σε ποσότητες που δεν υπερβαίνουν τα όρια είδους και κόλου που ορίζονται στις στήλες 2 και 3 του Πίνακα 2, υπό την προϋπόθεση ότι το επίπεδο ακτινοβολίας σε 10 cm από την εξωτερική επιφάνεια οποιουδήποτε μη-συσκευασμένου οργάνου ή είδους, δεν υπερβαίνει τα 0.1 mSv/h (10  $\mu$ rem/h).
- (b) Όργανα και κατασκευασμένα είδη που έχουν σχάσιμο υλικό σε ποσότητες που δεν υπερβαίνουν τα όρια που ορίζονται στον Πίνακα 2 και επιπλέον, ικανοποιούν όσον αφορά στις ποσότητες, στη μορφή και στη συσκευασία τις διατάξεις που δίνονται στο περιθωριακό 3741 της προσθήκης A.7 επιτρέποντάς τους να τακτοποιούνται ως κόλα μη-σχάσιμου ραδιενεργού υλικού, υπό την προϋπόθεση ότι το επίπεδο ακτινοβολίας σε 10 cm από την εξωτερική επιφάνεια οποιουδήποτε μη-συσκευασμένου οργάνου ή είδους, δεν υπερβαίνει τα 0.1 mSv/h (10  $\mu$ rem/h).

**2. Συσκευασία/Κόλο**

- (a) Η συσκευασία θα πρέπει να είναι σε συμφωνία με τις γενικές διατάξεις για όλα τα κόλα που δίνονται στο περιθωριακό 3732 της προσθήκης A.7.
- (b) Κόλα που περιέχουν σχάσιμο υλικό θα πρέπει να ικανοποιούν τουλάχιστον μία από τις διατάξεις που ορίζονται στο περιθωριακό 3741 της προσθήκης A.7.
- (c) Τα όργανα και είδη θα πρέπει να συσκευάζονται με ασφάλεια.
- (d) Μεταφορά μη-συσκευασμένου ραδιενεργού υλικού δεν επιτρέπεται.

2704  
Πρόγραμμα 2  
(συνεχ.)

**Πίνακας 2: Όρια Δραστηκότητας, ως τιμές των  $A_1$  ή  $A_2$  για εξαιρούμενα κόλα που περιέχουν όργανα και είδη<sup>6/</sup>,<sup>7/</sup>.**

Φύση περιεχομένου	Όρια Είδους	Όρια κόλου
Στερεά:		
Ειδική Μορφή	$10^{-2} A_1$	$A_1$
Άλλες Μορφές	$10^{-2} A_2$	$A_2$
Υγρά	$10^{-3} A_2$	$10^{-1} A_2$
Αέρια:		
Τρίτιο	$2 \times 10^{-3} A_2$	$2 \times 10^{-1} A_2$
Ειδική Μορφή	$10^{-3} A_1$	$10^{-2} A_1$
Άλλες Μορφές	$10^{-3} A_2$	$10^{-2} A_2$

**3. Μέγιστο Επίπεδο Ακτινοβολίας**

Βλέπε περιθωριακό 2702.

**4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**

Βλέπε περιθωριακό 2702.

**5. Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών**

Βλέπε περιθωριακό 2702.

**6. Μικτή Συσκευασία**

Δεν υπάρχουν διατάξεις.

**7. Μικτή Φόρτωση**

Δεν υπάρχουν διατάξεις.

<sup>6/</sup> Για συγκεκριμένες τιμές των  $A_1$  και  $A_2$ , βλέπε Πίνακα I του περιθωριακού 3700 της προσθήκης A.7.

<sup>7/</sup> Για μείγματα ραδιονουκλεϊδίων, οι μέθοδοι για τον προσδιορισμό των  $A_1$  και  $A_2$  δίνονται στο περιθωριακό 3701 (3) της προσθήκης A.7.



8. **Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**
- (a) Όργανα ή είδη  
Κάθε όργανο ή είδος (εκτός από ραδιο-ακτινοβόλα ρολόγια ή συσκευές) θα πρέπει να φέρουν το μαρκάρισμα "Ραδιενεργό".
- (b) Κόλα  
Βλέπε περιθωριακό 2702
- (c) Εμπορευματοκιβώτια  
Δεν υπάρχουν διατάξεις.
- (d) Δεξαμενές  
Δεν εφαρμόζονται.
- (e) Υπερσυσκευασίες  
Δεν υπάρχουν διατάξεις.
9. **Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές**  
Δεν υπάρχουν διατάξεις.
10. **Έγγραφα μεταφοράς**  
Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει την περιγραφή "2910 Ραδιενεργό υλικό, εξαιρούμενο κόλο συσκευασία, όργανα ή είδη, 7, Πρόγραμμα 2, ADR (ή RID)".
11. **Αποθήκευση και Αποστολή**  
Δεν υπάρχουν διατάξεις.
12. **Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών**  
Δεν υπάρχουν διατάξεις.
13. **Άλλες Διατάξεις**  
Βλέπε περιθωριακό 2702.

270<sup>α</sup> Πρόγραμμα 3  
(συνεχ.)

**ΕΙΔΗ ΚΑΤΑΣΚΕΥΑΣΜΕΝΑ ΑΠΟ ΦΥΣΙΚΟ ΟΥΡΑΝΙΟ, ΕΞΑΝΤΛΗΜΕΝΟ ΟΥΡΑΝΙΟ Η ΦΥΣΙΚΟ ΘΟΡΙΟ ΩΣ ΕΞΑΙΡΟΥΜΕΝΑ ΚΟΛΑ**

**ΣΗΜΕΙΩΣΗ 1:** *Είδη κατασκευασμένα από μη-εκπέμπον φυσικό ουράνιο, μη-εκπέμπον εξαντλημένο ουράνιο ή μη-εκπέμπον φυσικό θόριο που προσφέρουν πολύ περιορισμένο κίνδυνο ακτινοβολίας μπορούν να μεταφέρονται ως εξαιρούμενα κόλα.*

**ΣΗΜΕΙΩΣΗ 2:** *Για άλλες επικίνδυνες ιδιότητες, βλέπε επίσης τις διατάξεις στο περιθωριακό 3770.*

**1. Υλικά**

2910 Ραδιενεργό υλικό, εξαιρούμενο κόλο, είδη κατασκευασμένα από φυσικό ουράνιο ή εξαντλημένο ουράνιο ή φυσικό θόριο.

Κατασκευασμένα είδη στα οποία το μόνο ραδιενεργό υλικό είναι μη-εκπέμπον φυσικό ουράνιο, μη-εκπέμπον εξαντλημένο ουράνιο ή μη-εκπέμπον φυσικό θόριο, υπό την προϋπόθεση ότι η εξωτερική επιφάνεια του ουράνιου ή θόριου είναι κλεισμένη σε ένα ανενεργό περιβλήμα κατασκευασμένο από μέταλλο ή κάποιο άλλο ανθεκτικό υλικό.

**ΣΗΜΕΙΩΣΗ:** *Τέτοια είδη μπορούν για παράδειγμα να είναι αχρησιμοποιήτες συσκευασίες που προορίζονται για την μεταφορά ραδιενεργού υλικού.*

**2. Συσκευασία/Κόλο**

Το είδος που εξυπηρετεί ως συσκευασία θα πρέπει να είναι σε συμφωνία με τις γενικές διατάξεις για όλες τις συσκευασίες και τα κόλα που δίνονται στο περιθωριακό 3732 της προσθήκης Α.7.

**3. Μέγιστο Επίπεδο Ακτινοβολίας**

Βλέπε περιθωριακό 2702.

**4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**

Βλέπε περιθωριακό 2702.

**5. Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών**

Βλέπε περιθωριακό 2702.

**6. Μικτή Συσκευασία**

Δεν υπάρχουν διατάξεις.

**7. Μικτή Φόρτωση**

Δεν υπάρχουν διατάξεις.

8. **Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**
- (a) Κόλα  
Βλέπε περιθωριακό 2702
- (b) Εμπορευματοκιβώτια  
Δεν υπάρχουν διατάξεις.
- (c) Δεξαμενές  
Δεν εφαρμόζονται.
- (d) Υπερσυσκευασίες  
Δεν υπάρχουν διατάξεις.
9. **Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές**  
Δεν υπάρχουν διατάξεις.
10. **Έγγραφο μεταφοράς**  
Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει την περιγραφή "2910 Ραδιενεργό υλικό, εξαιρούμενο κόλο, είδη κατασκευασμένα από φυσικό ουράνιο ή εξαντλημένο ουράνιο ή φυσικό θόριο, 7, Πρόγραμμα 3, ADR (ή RID)".
11. **Αποθήκευση και Αποστολή**  
Δεν υπάρχουν διατάξεις.
12. **Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών**  
Δεν υπάρχουν διατάξεις.
13. **Άλλες Διατάξεις**  
Βλέπε περιθωριακό 2702.

## Κλάση 7

## 2704 Πρόγραμμα 4

(συνεχ.)

**ΚΕΝΕΣ ΣΥΣΚΕΥΑΣΙΕΣ ΩΣ ΕΞΑΙΡΟΥΜΕΝΑ ΚΟΛΑ**

**ΣΗΜΕΙΩΣΗ 1:** Κενές ακαθάριστες συσκευασίες που έχουν χρησιμοποιηθεί για τη μεταφορά ραδιενεργού υλικού και που προσφέρουν πολύ περιορισμένο κίνδυνο ακτινοβολίας, μπορούν να μεταφέρονται ως εξαιρούμενα κόλα.

**ΣΗΜΕΙΩΣΗ 2:** (a) Κενές ακαθάριστες συσκευασίες που, ως αποτέλεσμα φθοράς ή άλλης μηχανικής ατέλειας, δεν μπορούν πιά να είναι κλεισμένες με ασφάλεια, θα πρέπει, εάν δεν μπορούν να μεταφέρονται σε άλλες συσκευασίες σε συμφωνία με τις διατάξεις αυτής της κλάσης, να μεταφέρονται υπό ειδικές ρυθμίσεις (Πρόγραμμα 13).

(b) Κενές ακαθάριστες συσκευασίες στις οποίες η εσωτερική μη-μόνιμη μόλυνση (δραστικότητα του υπολείμματος) υπερβαίνει τις μέγιστες τιμές που δίνονται στον Τομέα 1 (c) μπορούν να μεταφέρονται μόνον ως κόλα σε συμφωνία με τα διάφορα προγράμματα (περιθωριακό 2701 (3)), ανάλογα με την ποσότητα και τη μορφή της απομένουσας δραστηρότητας και μόλυνσης τους.

(c) Κενές συσκευασίες που έχουν καθαριστεί σε τέτοιο βαθμό ώστε να μην υπάρχει περαιτέρω μόλυνση μεγαλύτερη από την τιμή των  $0.4 \text{ Bq/cm}^2$  ( $10^{-3} \text{ mCi/cm}^2$ ) για βήτα- ή γάμα-εκπομπούς και  $0.04 \text{ Bq/cm}^2$  ( $10^{-6} \text{ mCi/cm}^2$ ) για άλφα-εκπομπούς και που δεν περιέχουν οποιοδήποτε ραδιενεργό υλικό με σχετική δραστηρότητα μεγαλύτερη από  $70 \text{ kBq/kg}$  ( $2 \text{ nCi/g}$ ) δεν υπόκεινται πιά στις διατάξεις αυτής της κλάσης.

**ΣΗΜΕΙΩΣΗ 3:** Για άλλες επικίνδυνες ιδιότητες, βλέπε επίσης τις διατάξεις στο περιθωριακό 3770.

**1. Υλικά**2910 Ραδιενεργό υλικό, εξαιρούμενο κόλο, κενή συσκευασία

- (a) Κενές ακαθάριστες συσκευασίες περιλαμβάνουν κενά ακαθάριστα εμπορευματοκιβώτια ή δεξαμενές που έχουν χρησιμοποιηθεί για τη μεταφορά ραδιενεργού υλικού.
- (b) Εάν η συσκευασία περιέχει οποιαδήποτε ποσότητα ουράνιου ή θόριου στη δομή της, η διάταξη που ορίζεται στην παράγραφο 2 (c) παρακάτω, θα πρέπει να εφαρμόζεται.
- (c) Τα επίπεδα εσωτερικής μη-μόνιμης μόλυνσης (δραστικότητα του απομείναντος περιεχομένου) δεν-θα πρέπει να υπερβαίνει τα:
  - (i) για βήτα/γάμα/χαμηλής-τοξικότητας άλφα εκπομπούς,  $400 \text{ Bq/cm}^2$  ( $10^2 \text{ mCi/cm}^2$ ),
  - (ii) για όλους τους άλλους άλφα εκπομπούς,  $40 \text{ Bq/cm}^2$  ( $10^{-3} \text{ mCi/cm}^2$ ).

**2. Συσκευασία/Κόλο**

- (a) Η συσκευασία θα πρέπει να είναι σε συμφωνία με τις γενικές διατάξεις για όλα τα κόλα που δίνονται στο περιθωριακό 3732 της προσθήκης Α.7.
- (b) Η συσκευασία θα πρέπει να είναι σε καλά συντηρημένη κατάσταση και με ασφάλεια κλεισμένη.

- (c) Εάν η κενή συσκευασία περιλαμβάνει φυσικό ουράνιο ή εξαντλημένο ουράνιο ή φυσικό θόριο στη δομή της, η εξωτερική επιφάνεια του ουράνιου ή θόριου θα πρέπει να καλύπτεται με ένα ανενεργό περιβλήμα κατασκευασμένο από μέταλλο ή κάποιο άλλο ανθεκτικό υλικό.
- (d) Οποιοσδήποτε ετικέτες που παρουσιάζονται για να ικανοποιήσουν το περιθωριακό 2706, δεν θα πρέπει πιά να είναι ορατές.

### 3. Μέγιστο Επίπεδο Ακτινοβολίας

Βλέπε περιθωριακό 2702.

### 4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες

Βλέπε περιθωριακό 2702.

### 5. Απολόμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών

Βλέπε περιθωριακό 2702.

### 6. Μικτή Συσκευασία

Δεν υπάρχουν διατάξεις.

### 7. Μικτή Φόρτωση

Δεν υπάρχουν διατάξεις.

### 8. Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες

#### (a) Κόλα

- (i) Μαρκάρισμα: βλέπε περιθωριακό 2702  
Επισήμανση: Δεν υπάρχουν διατάξεις

- (ii) Σε κόλα μόνιμα μαρκαρισμένα σε συμφωνία με το περιθωριακό 2705 δεν χρειάζεται να αφαιρούνται αυτά τα μαρκαρίσματα.

#### (b) Εμπορευματοκιβώτια

Δεν υπάρχουν διατάξεις.

#### (c) Δεξαμενές

Βλέπε Προσθήκη B.1a/ B.1b, περιθωριακό 211 760/ 212 760 και Προσθήκη B.5.

#### (d) Υπερσυσκευασίες

Δεν υπάρχουν διατάξεις.

### 9. Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές

Δεν υπάρχουν διατάξεις.

1640

270  
Πρόγραμμα 4  
(συνέχ)

Κλάση 7

**10. Έγγραφο μεταφοράς**

Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει την περιγραφή "2910 Ραδιενεργό υλικό, εξαιρούμενο κόλο, κενή συσκευασία, 7, Πρόγραμμα 4, ADR (ή RID)".

**11. Αποθήκευση και Αποστολή**

Δεν υπάρχουν διατάξεις.

**12. Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών**

Δεν υπάρχουν διατάξεις.

**13. Άλλες Διατάξεις**

Βλέπε περιθωριακό 2702.

## Κλάση 7

2704 Πρόγραμμα 5  
(συνεχ.)**ΥΛΙΚΟ ΧΑΜΗΛΗΣ ΣΧΕΤΙΚΗΣ ΔΡΑΣΤΙΚΟΤΗΤΑΣ (LSA-I)**

**ΣΗΜΕΙΩΣΗ 1:** Η LSA-I είναι η πρώτη από τις τρεις ομάδες ραδιενεργού υλικού που από την φύση του έχει περιορισμένη σχετική δραστηριότητα ή για το οποίο εφαρμόζονται όρια της υπολογιζόμενης μέσης σχετικής δραστηριότητας.

**ΣΗΜΕΙΩΣΗ 2:** Σχάσιμο υλικό δεν επιτρέπεται να μεταφέρεται ως LSA-I υλικό.

**ΣΗΜΕΙΩΣΗ 3:** Για άλλες επικίνδυνες ιδιότητες, βλέπε επίσης τις διατάξεις στο περιθωριακό 3770.

**1. Υλικά**

2912 Ραδιενεργό υλικό, χαμηλή σχετική δραστηριότητα (LSA-I), ε.α.ο.

2976 Νιτρικό θόριο, στερεό.

2978 Εξαφθοριούχο ουράνιο, σχάσιμο εξαιρούμενο ή μη-σχάσιμο.

2980 Διάλυμα νιτρικού ουρανύλιου εξα-ένυδρο.

2981 Νιτρικό ουρανύλιο, στερεό.

Χαμηλής σχετικής δραστηριότητας υλικό (LSA-I): ραδιενεργό υλικό για το οποίο το επίπεδο ακτινοβολίας σε 3 m από το ακάλυπτο περιεχόμενο ενός μονού κόλου ή σε ένα μόνο φορτίο μη-συσκευασμένου υλικού δεν θα πρέπει να υπερβαίνει τα 10 mSv/h (1000 mrem/h) και που ικανοποιεί επίσης μία από τις παρακάτω περιγραφές:

- (a) μεταλλεύματα που περιέχουν φυσικά παραγόμενα ραδιονουκλεϊδια (π.χ. ουράνιο, θόριο), ή
- (b) συμπυκνώματα ουρανίου και θόριου μεταλλευμάτων που περιέχουν φυσικά παραγόμενα ραδιονουκλεϊδια, ή
- (c) στερεό μη-εκπέμπον φυσικό ουράνιο ή εξαντλημένο ουράνιο ή φυσικό θόριο, ή
- (d) στερεές ή υγρές ενώσεις ή μείγματα μη-εκπέμποντος φυσικού ουρανίου ή εξαντλημένου ουρανίου ή φυσικού θόριου, ή
- (e) μη-σχάσιμο ραδιενεργό υλικό για το οποίο η τιμή  $A_2$  είναι απεριόριστη.

**2. Συσκευασία/Κόλο**

- (a) LSA-I υλικό μπορεί να μεταφέρεται σε συσκευασίες, δεξαμενές και εμπορευματοκιβώτια, υπό την προϋπόθεση ότι:
  - (i) η συσκευασία, που μπορεί να είναι δεξαμενή ή εμπορευματοκιβώτιο, ικανοποιεί τις διατάξεις σχεδιασμού για βιομηχανικά κόλα IP-1 ή IP-2 (βλέπε περιθωριακό 3733 ή 3734 και επιπλέον, για δεξαμενές, περιθωριακό 3736 και Προσθήκες Β.1α και Β.1β) ως κατάλληλη για τη μορφή του LSA-I υλικού όπως ορίζεται στον Πίνακα 3, και
  - (ii) το υλικό είναι φορτωμένο στη συσκευασία έτσι ώστε, σε συνθήκη μεταφορά, να μην προκύψει διαφυγή του περιεχομένου και απώλεια προστατευτικού μέσου.

**Πίνακας 3: Διατάξεις βιομηχανικών κώλων για LSA-I υλικό**

Περιεχόμενο	Αποκλειστική Χρήση	Όχι υπό Αποκλειστική Χρήση
Στερεά	IP-1	IP-1
Υγρά	IP-1	IP-2

(b) LSA-I υλικό μπορεί να μεταφέρεται χύμα, εάν:

(i) για άλλα από φυσικά μεταλλεύματα, μεταφέρεται έτσι ώστε, σε συνήθη μεταφορά, να μην προκύπτει διαφυγή του περιεχομένου από το όχημα και απώλεια προστατευτικού μέσου και μεταφέρεται υπό αποκλειστική χρήση, ή

(ii) για φυσικά μεταλλεύματα, μεταφέρεται σε όχημα υπό αποκλειστική χρήση.

**3. Μέγιστο Επίπεδο Ακτινοβολίας**

Βλέπε περιθωριακό 2703.

**4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**

(a) Βλέπε περιθωριακό 2703.

(b) Υπερσυσκευασίες ή εμπορευματοκιβώτια αφιερωμένα στη μεταφορά LSA-I υλικού υπό αποκλειστική χρήση, θα πρέπει να εξαιρούνται από το (a) παραπάνω όσον αφορά στην εσωτερική μόλυνση μόνον εφ' όσον παραμένουν υπό εκείνη την αποκλειστική χρήση.

**5. Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών**

(a) Βλέπε περιθωριακό 2703.

(b) Ένα όχημα αφιερωμένο στη μεταφορά LSA-I υλικού υπό αποκλειστική χρήση θα πρέπει να εξαιρείται από το (a) παραπάνω όσον αφορά στην εσωτερική μόλυνση μόνον εφ' όσον παραμένει σε εκείνη την αποκλειστική χρήση.

**6. Μικτή Συσκευασία**

Βλέπε περιθωριακό 2703.

**7. Μικτή Φόρτωση**

Βλέπε περιθωριακό 2703.

**8. Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**

(a) Βλέπε περιθωριακό 2703.

(b) Για δεξαμενές, βλέπε Προσθήκη B.1a/ B.1b, περιθωριακό 211 760/ 212 760 και Προσθήκη B.5.



**9. Ετικέτες Κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές**

Βλέπε περιθωριακό 2703.

**10. Έγγραφο μεταφοράς**

(a) Για περιύληψη των διατάξεων έγκρισης και γνωστοποίησης, βλέπε περιθωριακό 2716.

(b) Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει:

(i) τον χαρακτηριστικό αριθμό και την ονομασία σύμφωνα με το κεφάλαιο 1, μαζί με τις λέξεις "Ραδιενεργό υλικό, χαμηλή σχετική δραστικότητα (LSA-I), 7, Πρόγραμμα 5, ADR (ή RID)", π.χ. "2976 Νιτρικό θόριο, στερεό, ραδιενεργό υλικό, χαμηλή σχετική δραστικότητα (LSA-I), 7, Πρόγραμμα 5, ADR (ή RID)", ή

(ii) στην περίπτωση υλικού όχι αλλιώς οριζόμενου, "2912 Ραδιενεργό υλικό, χαμηλή σχετική δραστικότητα (LSA-I), ε.α.ο., 7, Πρόγραμμα 5, ADR (ή RID)".

Περαιτέρω λεπτομέρειες που ορίζονται στα περιθωριακά 2709 και 2710 θα πρέπει να επίσης να συμπεριλαμβάνονται.

**11. Αποθήκευση και Αποστολή**

(a) Βλέπε περιθωριακό 2703.

(b) Περιορισμός συνολικού δείκτη μεταφοράς για αποθήκευση: κανένας.

**12. Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών**

(a) Βλέπε περιθωριακό 2703 12. (2), (a) έως (d).

(b) Συνολική δραστικότητα σε ένα μόνο όχημα: δεν υπάρχει όριο.

**13. Άλλες Διατάξεις**

Βλέπε περιθωριακό 2703.

**2704 Πρόγραμμα 6**  
(συνεχ.)

**ΧΑΜΗΛΗΣ ΣΧΕΤΙΚΗΣ ΔΡΑΣΤΙΚΟΤΗΤΑΣ ΥΛΙΚΟ (LSA-II)**

**ΣΗΜΕΙΩΣΗ 1:** Η LSA-II είναι η δεύτερη από τρεις ομάδες ραδιενεργού υλικού που, από τη φύση του, έχει περιορισμένη σχετική δραστηριότητα ή για το οποίο εφαρμόζονται όρια της υπολογιζόμενης μέσης σχετικής δραστηριότητας.

**ΣΗΜΕΙΩΣΗ 2:** Εάν σχάσιμο υλικό είναι παρόν, οι διατάξεις του Προγράμματος 12 θα πρέπει να ικανοποιούνται επιπλέον των διατάξεων αυτού του Προγράμματος.

**ΣΗΜΕΙΩΣΗ 3:** Για άλλες επικίνδυνες ιδιότητες, βλέπε επίσης τις διατάξεις στο περιθωριακό 3770.

**1. Υλικά**

2912 Ραδιενεργό υλικό, χαμηλή σχετική δραστηριότητα (LSA-II), ε.α.ο.

2976 Νιτρικό θόριο, στερεό.

2978 Εξαφθοριούχο ουράνιο, σχάσιμο εξααιρούμενο ή μη-σχάσιμο.

2980 Διάλυμα νιτρικού ουρανύλιου εξα-ένυδρου.

2981 Νιτρικό ουρανύλιο, στερεό.

Χαμηλής Σχετικής Δραστηριότητας Υλικό (LSA-II): ραδιενεργό υλικό για το οποίο το επίπεδο ακτινοβολίας σε 3 m από το ακάλυπτο περιεχόμενο ενός μονού κόλου δεν θα πρέπει να υπερβαίνει τα 10 mSv/h (1000 mrem/h) και που ικανοποιεί μία από τις παρακάτω περιγραφές:

- (a) νερό με συγκέντρωση σε τρίτιο έως 0.8 TBq/l (20 Ci/l), ή
- (b) στερεά και αέρια με δραστηριότητα κατανεμημένη απ' άκρου εις άκρον όχι μεγαλύτερη από  $10^{-4}$  A<sub>2</sub>/g, ή
- (c) υγρά με δραστηριότητα κατανεμημένη απ' άκρου εις άκρον όχι μεγαλύτερη από  $10^{-5}$  A<sub>2</sub>/g.

**2. Συσκευασία/Κόλο**

- (a) LSA-II υλικό πρέπει να μεταφέρεται σε συσκευασίες, που μπορούν να είναι δεξαμενές ή εμπορευματοκιβώτια.
- (b) Η συσκευασία, δεξαμενή ή το εμπορευματοκιβώτιο, θα πρέπει να ικανοποιεί τις διατάξεις σχεδιασμού για βιομηχανικά κόλα IP-2 ή IP-3 (βλέπε περιθωριακό 3734 ή 3735 και επιπλέον, για δεξαμενές, περιθωριακό 3736 και Προσθήκες B.1a και B.1b) ως κατάλληλη για την μορφή του LSA-II υλικού όπως ορίζεται στον Πίνακα 4.
- (c) Το υλικό θα πρέπει να φορτώνεται στη συσκευασία, δεξαμενή ή στο εμπορευματοκιβώτιο έτσι ώστε, σε συνθήκη μεταφορά, να μην προκύπτει διαφυγή περιεχομένου και απόλυτη προστατευτικού μέσου.

Πίνακας 4: Διατάξεις βιομηχανικών κόλων για LSA-II υλικό

Περιεχόμενο	Αποκλειστική Χρήση	Όχι υπό Αποκλειστική Χρήση
Στερεά	IP-2	IP-2
Υγρά και αέρια	IP-2	IP-3

**3. Μέγιστο Επίπεδο Ακτινοβολίας**

Βλέπε περιθωριακό 2703.

**4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**

(a) Βλέπε περιθωριακό 2703.

(b) Υπερσυσκευασίες ή εμπορευματοκιβώτια αφιερωμένα στη μεταφορά LSA-II υλικού υπό αποκλειστική χρήση μπορούν να εξαιρούνται από το (a) παραπάνω όσον αφορά στην εσωτερική μόλυνση μόνον εφ' όσον παραμένουν υπό εκείνη την αποκλειστική χρήση.

**5. Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών**

(a) Βλέπε περιθωριακό 2703.

(b) Ένα όχημα αφιερωμένο στη μεταφορά LSA-II υλικού υπό αποκλειστική χρήση θα πρέπει να εξαιρείται από το (a) παραπάνω όσον αφορά στην εσωτερική μόλυνση μόνον εφ' όσον παραμένει σε εκείνη την αποκλειστική χρήση.

**6. Μικτή Συσκευασία**

Βλέπε περιθωριακό 2703.

**7. Μικτή Φόρτωση**

Βλέπε περιθωριακό 2703.

**8. Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**

(a) Βλέπε περιθωριακό 2703.

(b) Για δεξαμενές, βλέπε Προσθήκη B.1a/ B.1b, περιθωριακό 211 760/ 212 760 και Προσθήκη B.5.

**9. Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές**

Βλέπε περιθωριακό 2703.

**10. Έγγραφα μεταφοράς**

(a) Για περίληψη των διατάξεων έγκρισης και γνωστοποίησης, βλέπε περιθωριακό 2716.

- (b) Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει:
- (i) τον χαρακτηριστικό αριθμό και την ονομασία σύμφωνα με το κεφάλαιο 1, μαζί με τις λέξεις "Ραδιενεργό υλικό, χαμηλή σχετική δραστηριότητα (LSA-II), 7, Πρόγραμμα 6, ADR (ή RID)" π.χ. "2976 Νιτρικό θόριο, στερεό, ραδιενεργό υλικό, χαμηλή σχετική δραστηριότητα (LSA-II), 7, Πρόγραμμα 6, ADR (ή RID)", ή
  - (ii) στην περίπτωση υλικού όχι αλλιώς οριζόμενου, "2912 Ραδιενεργό υλικό, χαμηλή σχετική δραστηριότητα (LSA-II), ε.α.ο., 7, Πρόγραμμα 6, ADR (ή RID)".

Περαιτέρω λεπτομέρειες που ορίζονται στα περιθωριακά 2709 και 2710 θα πρέπει επίσης να συμπεριλαμβάνονται.

#### 11. Αποθήκευση και Αποστολή

Βλέπε περιθωριακό 2703.

#### 12. Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσσκευασιών

- (a) Βλέπε περιθωριακό 2703 12. (2), (a) έως (d).
- (b) Η συνολική δραστηριότητα σε ένα μόνο όχημα δεν θα πρέπει να υπερβαίνει τις τιμές που ορίζονται στον Πίνακα 5.

**Πίνακας 5: Όρια δραστηριότητας οχήματος για LSA-II υλικό**

Φύση περιεχομένου	Όριο οχήματος
Μη-εύφλεκτα στερεά	Δεν υπάρχει όριο
Εύφλεκτα στερεά και όλα τα υγρά και αέρια	100 A <sub>2</sub>

#### 13. Άλλες Διατάξεις

Βλέπε περιθωριακό 2703.

## Κλάση 7

2704 Πρόγραμμα 7  
(συνεχ.)

## ΧΑΜΗΛΗΣ ΣΧΕΤΙΚΗΣ ΔΡΑΣΤΙΚΟΤΗΤΑΣ ΥΛΙΚΟ (LSA-III)

**ΣΗΜΕΙΩΣΗ 1:** Η LSA-III είναι η τρίτη από τρεις ομάδες ραδιενεργού υλικού που, από τη φύση του, έχει περιορισμένη σχετική δραστηριότητα ή για το οποίο εφαρμόζονται όρια της υπολογιζόμενης μέσης σχετικής δραστηριότητας.

**ΣΗΜΕΙΩΣΗ 2:** Εάν σχάσιμο υλικό είναι παρόν, οι διατάξεις του Προγράμματος 12 θα πρέπει να ικανοποιούνται επιπλέον των διατάξεων αυτού του Προγράμματος.

**ΣΗΜΕΙΩΣΗ 3:** Για άλλες επικίνδυνες ιδιότητες, βλέπε επίσης τις διατάξεις στο περιθωριακό 3770.

## 1. Υλικά

2912 Ραδιενεργό υλικό, χαμηλή σχετική δραστηριότητα (LSA-III), ε.α.ο.

Χαμηλής Σχετικής Δραστηριότητας Υλικό (LSA-III): στερεό ραδιενεργό υλικό για το οποίο το επίπεδο ακτινοβολίας σε 3 m από το ακάλυπτο περιεχόμενο ενός μονού κόλου δεν θα πρέπει να υπερβαίνει τα 10 mSv/h (1000 mrem/h) και που ικανοποιεί τις παρακάτω συνθήκες:

- το ραδιενεργό υλικό είναι κατανεμημένο απ' άκρου εις άκρον σε ένα στερεό ή σύνολο στερεών αντικειμένων ή είναι ουσιαστικά ομοιόμορφα κατανεμημένο σε ένα στερεό συμπαγές συνδεδετικό μέσο, (π.χ. τσιμέντο, βιτούμιο, κεραμικό) και
- το ραδιενεργό υλικό είναι σχετικά αδιάλυτο, ή ουσιαστικά περιέχεται σε ένα σχετικά αδιάλυτο πλέγμα, και
- η υπολογιζόμενη μέση σχετική δραστηριότητα, δεν υπερβαίνει τα  $2 \times 10^{-3} \text{ A}_2/\text{g}$ .

## 2. Συσκευασία/Κόλο

- LSA-III υλικό πρέπει να μεταφέρεται σε συσκευασίες που μπορούν να είναι εμπορευματοκιβώτια. Μεταφορά σε δεξαμενές δεν είναι εφαρμόσιμη.
- Η συσκευασία ή το εμπορευματοκιβώτιο θα πρέπει να ικανοποιεί τις διατάξεις σχεδιασμού για βιομηχανικά κόλα IP-2 (βλέπε περιθωριακό 3734) εάν μεταφέρονται σε αποκλειστική χρήση, ή IP-3 (βλέπε περιθωριακό 3735) εάν δεν μεταφέρονται σε αποκλειστική χρήση.
- Το υλικό θα πρέπει να φορτώνεται στη συσκευασία ή στο εμπορευματοκιβώτιο έτσι ώστε, σε συνήθη μεταφορά, να μην προκύπτει διαφυγή περιεχομένου και απώλεια προστατευτικού μέσου.

## 3. Μέγιστο Επίπεδο ακτινοβολίας

Βλέπε περιθωριακό 2703.

## 4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες

- Βλέπε περιθωριακό 2703.
- Υπερσυσκευασίες ή εμπορευματοκιβώτια αφιερωμένα στη μεταφορά LSA-III υλικού υπό αποκλειστική χρήση μπορούν να εξαιρούνται από το (a) παραπάνω όσον αφορά στην εσωτερική μόλυνση μόνον εφ' όσον παραμένουν υπό εκείνη την αποκλειστική χρήση.

5. **Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών**
- (a) Βλέπε περιθωριακό 2703.
- (b) Ένα όχημα αφιερωμένο στη μεταφορά LSA-III υλικού υπό αποκλειστική χρήση, θα πρέπει να εξαιρείται από το (a) παραπάνω όσον αφορά στην εσωτερική μόλυνση μόνον εφ' όσον παραμένει σε εκείνη την αποκλειστική χρήση.
6. **Μικτή Συσκευασία**  
Βλέπε περιθωριακό 2703.
7. **Μικτή Φόρτωση**  
Βλέπε περιθωριακό 2703.
8. **Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**  
Βλέπε περιθωριακό 2703.
9. **Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές**  
Βλέπε περιθωριακό 2703.
10. **Έγγραφο μεταφοράς**
- (a) Για περιλήψη των διατάξεων έγκρισης και γνωστοποίησης βλέπε περιθωριακό 2716.
- (b) Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει την περιγραφή: "2912, Ραδιενεργό Υλικό, Χαμηλή Σχετική Δραστηκότητα (LSA-III) ε.α.ο., 7, Πρόγραμμα 7, ADR (ή RID)". Περαιτέρω λεπτομέρειες που ορίζονται στα περιθωριακά 2709 και 2710 θα πρέπει επίσης να συμπεριλαμβάνονται.
11. **Αποθήκευση και Αποστολή**  
Βλέπε περιθωριακό 2703.
12. **Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών**
- (a) Βλέπε περιθωριακό 2703 12. (2), (a) έως (d).
- (b) Η συνολική δραστηκότητα σε ένα μόνον όχημα δεν θα πρέπει να υπερβαίνει τις τιμές που ορίζονται στον Πίνακα 6.

Πίνακας 6: Όρια δραστηκότητας οχήματος για LSA-III υλικό

Φύση περιεχομένου	Όριο οχήματος
Μη-εύφλεκτα στερεά	Δεν υπάρχει όριο
Εύφλεκτα στερεά	100 A <sub>2</sub>

13. **Άλλες Διατάξεις**  
Βλέπε περιθωριακό 2703.

## Κλάση 7

2704 Πρόγραμμα 8  
(συνεχ.)

## ΕΠΙΦΑΝΕΙΑΚΑ ΜΟΛΥΣΜΕΝΑ ΑΝΤΙΚΕΙΜΕΝΑ (SCO-I ΚΑΙ SCO-II)

**ΣΗΜΕΙΩΣΗ 1:** Ένα επιφανειακά μολυσμένο αντικείμενο (SCO) είναι στερεό αντικείμενο που είναι όχι αφ' εαυτού ραδιενεργό, αλλά που έχει ραδιενεργό υλικό καταμεμημένο στις επιφάνειές του. Επιφανειακά μολυσμένα αντικείμενα θα πρέπει να είναι σε μία από τις δύο ομάδες, είτε στην SCO-I είτε στην SCO-II, ανάλογα με το μέγιστο επιτρεπόμενο επίπεδο μόλυνσης (βλέπε Πίνακα 7).

**ΣΗΜΕΙΩΣΗ 2:** Εάν σχάσιμο υλικό είναι παρόν, οι διατάξεις του Προγράμματος 12 θα πρέπει να ικανοποιούνται επιπλέον των διατάξεων αυτού του Προγράμματος.

**ΣΗΜΕΙΩΣΗ 3:** Για άλλες επικίνδυνες ιδιότητες, βλέπε επίσης τις διατάξεις στο περιθωριακό 3770.

## 1. Υλικά

## 2913 Ραδιενεργό υλικό, επιφανειακά μολυσμένα αντικείμενα (SCO-I ή SCO-II)

- (a) Στερεά, μη-ραδιενεργά αντικείμενα μολυσμένα στην επιφάνεια σ' ένα επίπεδο όχι μεγαλύτερο από τα επίπεδα μόλυνσης που ορίζονται στον Πίνακα 7 όταν η μόλυνση υπολογίζεται κατά μέσον όρο πάνω σε ένα εμβαδόν 300 cm<sup>2</sup> (ή στο εμβαδό της επιφάνειας εάν είναι μικρότερο από 300 cm<sup>2</sup>).

Πίνακας 7: Επιτρεπόμενη επιφανειακή μόλυνση για SCO

Τύπος μόλυνσης	Μη-μόνιμη σε προσιτή επιφάνεια	Μόνιμη σε προσιτή επιφάνεια	Άθροισμα μόνιμης και μη-μόνιμης στην μη-προσιτή επιφάνεια
<b>SCO-I</b>			
Βήτα/γάμμα/ χαμηλής τοξικότητας άλφα εκπομποί	4 Bq/cm <sup>2</sup> (10 <sup>-4</sup> mCi/cm <sup>2</sup> )	4x10 <sup>4</sup> Bq/cm <sup>2</sup> (1 mCi/cm <sup>2</sup> )	4x10 <sup>4</sup> Bq/cm <sup>2</sup> (1 mCi/cm <sup>2</sup> )
Όλοι οι άλλοι άλφα εκπομποί	0.4 Bq/cm <sup>2</sup> (10 <sup>-5</sup> mCi/cm <sup>2</sup> )	4x10 <sup>3</sup> Bq/cm <sup>2</sup> (0.1 mCi/cm <sup>2</sup> )	4x10 <sup>3</sup> Bq/cm <sup>2</sup> (0.1 mCi/cm <sup>2</sup> )
<b>SCO-II</b>			
Βήτα/γάμμα χαμηλής τοξικότητας άλφα εκπομποί	400 Bq/cm <sup>2</sup> (10 <sup>-2</sup> mCi/cm <sup>2</sup> )	8x10 <sup>5</sup> Bq/cm <sup>2</sup> (20 mCi/cm <sup>2</sup> )	8x10 <sup>5</sup> Bq/cm <sup>2</sup> (20 mCi/cm <sup>2</sup> )
Όλοι οι άλλοι άλφα εκπομποί	40 Bq/cm <sup>2</sup> (10 <sup>-3</sup> mCi/cm <sup>2</sup> )	8x10 <sup>4</sup> Bq/cm <sup>2</sup> (2 mCi/cm <sup>2</sup> )	8x10 <sup>4</sup> Bq/cm <sup>2</sup> (2 mCi/cm <sup>2</sup> )

- (b) Το επίπεδο ακτινοβολίας σε 3 m από το ακάλυπτο περιεχόμενο ενός μονού κόλου ή από ένα μόνο αντικείμενο ή σύνολο αντικειμένων, εάν είναι μη-συσκευασμένα, δεν θα πρέπει να υπερβαίνει τα 10 mSv/h (1000 mrem/h).

**2. Συσκευασία/Κόλο**

- (a) SCO-I και SCO-II μπορούν να μεταφέρονται σε συσκευασίες υπό την προϋπόθεση ότι:
- (i) η συσκευασία, που μπορεί να είναι εμπορευματοκιβώτιο, ικανοποιεί τις διατάξεις σχεδιασμού για βιομηχανικά κόλα IP-1 (βλέπε περιθωριακό 3733) για SCO-I, ή IP-2 (βλέπε περιθωριακό 3734) για SCO-II, και
  - (ii) τα αντικείμενα είναι φορτωμένα στη συσκευασία έτσι ώστε, σε συνήθη μεταφορά, να μην προκύπτει διαφυγή περιεχομένου και απώλεια προστατευτικού μέσου.
- (b) SCO-I μπορεί να μεταφέρεται μη-συσκευασμένο, υπό την προϋπόθεση ότι:
- (i) μεταφέρεται σε όχημα ή εμπορευματοκιβώτιο έτσι ώστε, σε συνήθη μεταφορά, να μην προκύπτει διαφυγή περιεχομένου και απώλεια προστατευτικού μέσου, και
  - (ii) θα πρέπει να μεταφέρεται υπό αποκλειστική χρήση εάν η μόλυνση στην προσιτή και στην απρόσιτη επιφάνεια είναι μεγαλύτερη από  $4 \text{ Bq/cm}^2$  ( $10^{-4} \text{ mCi/cm}^2$ ) για βήτα και γάμα εκπομπούς και χαμηλής τοξικότητας άλφα εκπομπούς ή  $0.4 \text{ Bq/cm}^2$  ( $10^{-5} \text{ mCi/cm}^2$ ) για όλους τους άλλους άλφα εκπομπούς, και
  - (iii) μέτρα θα πρέπει να λαμβάνονται για να εξασφαλίζεται ότι το ραδιενεργό υλικό δεν απελευθερώνεται στο όχημα εάν αναμένεται ότι υπάρχει μη-μόνιμη μόλυνση σε απρόσιτες επιφάνειες μεγαλύτερη από  $4 \text{ Bq/cm}^2$  ( $10^{-4} \text{ mCi/cm}^2$ ) για βήτα και γάμα εκπομπούς και χαμηλής τοξικότητας άλφα εκπομπούς, ή  $0.4 \text{ Bq/cm}^2$  ( $10^{-5} \text{ mCi/cm}^2$ ) για όλους τους άλλους άλφα εκπομπούς.
- (c) SCO-II δεν θα πρέπει να μεταφέρεται μη-συσκευασμένο.

**3. Μέγιστο Επίπεδο ακτινοβολίας**

Βλέπε περιθωριακό 2703.

**4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**

- (a) Βλέπε περιθωριακό 2703.
- (b) Υπερσυσκευασίες ή εμπορευματοκιβώτια αφιερωμένα στη μεταφορά SCO υπό αποκλειστική χρήση μπορούν να εξαιρούνται από το (a) παραπάνω όσον αφορά στην εσωτερική μόλυνση μόνον εφ' όσον παραμένουν υπό εκείνη την αποκλειστική χρήση.

**5. Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών**

- (a) Βλέπε περιθωριακό 2703.
- (b) Ένα όχημα αφιερωμένο στη μεταφορά SCO υπό αποκλειστική χρήση θα πρέπει να εξαιρείται από το (a) παραπάνω όσον αφορά στην εσωτερική μόλυνση μόνον εφ' όσον παραμένει σε εκείνη τη σχετική αποκλειστική χρήση.



**6. Μικτή Συσκευασία**

Βλέπε περιθωριακό 2703.

**7. Μικτή Φόρτωση**

Βλέπε περιθωριακό 2703.

**8. Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**

Βλέπε περιθωριακό 2703.

**9. Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές**

Βλέπε περιθωριακό 2703.

**10. Έγγραφα μεταφοράς**

(a) Για περίληψη των διατάξεων έγκρισης και γνωστοποίησης βλέπε περιθωριακό 2716.

(b) Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει την περιγραφή: "2913 Ραδιενεργό υλικό, Επιφανειακά μολυσμένο Αντικείμενο (SCO-I) ή (SCO-II), 7, Πρόγραμμα 8, ADR (ή RID)". Περαιτέρω λεπτομέρειες που ορίζονται στα περιθωριακά 2709 και 2710 θα πρέπει επίσης να συμπεριλαμβάνονται.

**11. Αποθήκευση και Αποστολή**

Βλέπε περιθωριακό 2703.

**12. Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών**

(a) Βλέπε περιθωριακό 2703 12. (2), (a) έως (d).

(b) Η συνολική δραστηκότητα σε ένα μόνο όχημα δεν θα πρέπει να υπερβαίνει τα 100 A<sub>2</sub>.

**13. Άλλες Διατάξεις**

Βλέπε περιθωριακό 2703.

## Κλάση 7

2704 Πρόγραμμα 9  
(συνεχ.)

## ΡΑΔΙΕΝΕΡΓΑ ΥΛΙΚΑ ΣΕ ΚΟΛΑ ΤΥΠΟΥ Α

**ΣΗΜΕΙΩΣΗ 1:** Ραδιενεργό υλικό σε ποσότητες που προσφέρουν περιορισμένο ραδιολογικό κίνδυνο (βλέπε περιθωριακό 2700 (2) 1.) μπορεί να μεταφέρεται σε κόλα Τύπου Α, που θα πρέπει να σχεδιάζονται ώστε να αντέχουν τις συνθήκες μεταφοράς συμπεριλαμβανομένων δευτερευόντων ατυχημάτων.

**ΣΗΜΕΙΩΣΗ 2:** Εάν σχάσιμο υλικό είναι παρόν οι διατάξεις του Προγράμματος 12 θα πρέπει να ικανοποιούνται επιπλέον των διατάξεων αυτού του Προγράμματος.

**ΣΗΜΕΙΩΣΗ 3:** Για άλλες επικίνδυνες ιδιότητες, βλέπε επίσης τις διατάξεις στο περιθωριακό 3770.

## 1. Υλικά

2974 Ραδιενεργό υλικό, ειδική μορφή, ε.α.ο.

2975 Μεταλλικό θόριο, πυροφορικό.

2976 Νιτρικό θόριο, στερεό.

2979 Μεταλλικό ουράνιο, πυροφορικό.

2980 Διάλυμα νιτρικού ουρανύλιου εξα-ένυδρου.

2981 Νιτρικό ουρανύλιο, στερεό.

2982 Ραδιενεργό υλικό, ε.α.ο.

Το περιεχόμενο ενός κόλου Τύπου Α θα πρέπει να περιορίζεται σε ραδιενεργό υλικό:

- (a) με δραστηριότητα όχι μεγαλύτερη από  $A_1$  (βλέπε περιθωριακά 3700 και 3701) εάν είναι σε ειδική μορφή, ή
- (b) με δραστηριότητα όχι μεγαλύτερη από  $A_2$  (βλέπε περιθωριακά 3700 και 3701) εάν είναι σε άλλη από ειδική μορφή.

## 2. Συσκευασία/Κόλο

- (a) Η συσκευασία, που μπορεί επίσης να είναι δεξαμενή ή εμπορευματοκιβώτιο, θα πρέπει να ικανοποιεί τις διατάξεις για κόλα Τύπου Α που ορίζονται στο περιθωριακό 3737 και επιπλέον, για δεξαμενές, Προσθήκες Β.1a και Β.1b.
- (b) Ειδικά, το κόλο Τύπου Α θα πρέπει να σχεδιάζεται έτσι ώστε, υπό συνθήκες μεταφοράς συμπεριλαμβανομένων δευτερευόντων ατυχημάτων, να παρεμποδίζει την απώλεια ή τη διασπορά του ραδιενεργού περιεχομένου και απώλεια της ακεραιότητας του προστατευτικού μέσου που θα είχε ως αποτέλεσμα σε μεγαλύτερη από 20% αύξηση στο εξωτερικό επίπεδο ακτινοβολίας σε οποιοδήποτε σημείο.
- (c) Εάν το ραδιενεργό περιεχόμενο είναι ειδικής μορφής ραδιενεργό υλικό, απαιτείται έγκριση του σχεδιασμού από αρμόδια αρχή για το ειδικής μορφής ραδιενεργό υλικό.

- (d) Το εξωτερικό του κόλου Τύπου Α θα πρέπει να έχει ενσωματωμένο ένα χαρακτηριστικό τέτοιο όπως σφραγίδα, που θα είναι όχι άμεσα θραύσιμο και που, όταν είναι άθικτο, θα αποτελεί ένδειξη ότι δεν έχει ανοιχτεί.
3. **Μέγιστο Επίπεδο Ακτινοβολίας**  
Βλέπε περιθωριακό 2703.
4. **Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**  
Βλέπε περιθωριακό 2703.
5. **Απολόμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών**  
Βλέπε περιθωριακό 2703.
6. **Μικτή Συσκευασία**  
Βλέπε περιθωριακό 2703.
7. **Μικτή Φόρτωση**  
Βλέπε περιθωριακό 2703.
8. **Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**  
(a) Βλέπε περιθωριακό 2703.  
(b) Κάθε κόλο Τύπου Α θα πρέπει να είναι ευανάγνωστα και με τρόπο διαρκείας μαρκαρισμένη απ' έξω με τις λέξεις "Τύπου Α".
9. **Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές**  
Βλέπε περιθωριακό 2703.
10. **Έγγραφο μεταφοράς**  
(a) Για περίληψη των διατάξεων έγκρισης και γνωστοποίησης βλέπε περιθωριακό 2716.  
(b) Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει:  
(i) τον χαρακτηριστικό αριθμό και την ονομασία σύμφωνα με το κεφάλαιο 1, μαζί με τις λέξεις "Ραδιενεργό υλικό σε κόλο Τύπου Α, 7, Πρόγραμμα 9, ADR (ή RID)", π.χ. "2976 Νιτρικό θόριο, στερεό, ραδιενεργό υλικό σε κόλο Τύπου Α, 7, Πρόγραμμα 9, ADR (ή RID)", ή  
(ii) στην περίπτωση υλικού όχι αλλιώς οριζόμενου, "2974 Ραδιενεργό υλικό, ειδική μορφή, ε.α.ο., σε κόλο Τύπου Α, 7, Πρόγραμμα 9, ADR (ή RID)", ή "2982 Ραδιενεργό υλικό, ε.α.ο., σε κόλο Τύπου Α, 7, Πρόγραμμα 9, ADR (ή RID)", όπως μπορεί να είναι η περίπτωση.

Περαιτέρω λεπτομέρειες που ορίζονται στα περιθωριακά 2709 και 2710 θα πρέπει επίσης να συμπεριλαμβάνονται.

2704  
Πρόγραμμα 9  
(συνέχ.)

Κλάση 7

**11. Αποθήκευση και Αποστολή**

Βλέπε περιθωριακό 2703.

**12. Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών**

Βλέπε περιθωριακό 2703.

**13. Άλλες Διατάξεις**

Βλέπε περιθωριακό 2703.

## Κλάση 7

2704 Πρόγραμμα 10  
(συνεχ.)

**ΡΑΔΙΕΝΕΡΓΟ ΥΛΙΚΟ ΣΕ ΚΟΛΑ ΤΥΠΟΥ Β(U)**

**ΣΗΜΕΙΩΣΗ 1:** Ραδιενεργό υλικό που υπερβαίνει σε ποσότητα τα όρια κόλου Τύπου Α μπορεί να μεταφέρεται σε κόλο Τύπου Β(U) που θα πρέπει να σχεδιάζεται έτσι ώστε να είναι απίθανη η απελευθέρωση του ραδιενεργού περιεχομένου ή η απώλεια του προστατευτικού μέσου της σε συνθήκες ατυχήματος κατά τη μεταφορά.

**ΣΗΜΕΙΩΣΗ 2:** Εάν σχάσιμο υλικό είναι παρόν οι διατάξεις του Προγράμματος 12 θα πρέπει να ικανοποιούνται επιπλέον των διατάξεων αυτού του Προγράμματος.

**ΣΗΜΕΙΩΣΗ 3:** Για άλλες επικίνδυνες ιδιότητες, βλέπε επίσης τις διατάξεις στο περιθωριακό 3770.

**1. Υλικά**

2974 Ραδιενεργό υλικό, ειδική μορφή, ε.α.ο.

2975 Μεταλλικό θόριο, πυροφορικό.

2976 Νιτρικό θόριο, στερεό.

2979 Μεταλλικό ουράνιο, πυροφορικό.

2980 Διάλυμα νιτρικού ουρανίου εξα-ένυδρου.

2981 Νιτρικό ουρανύλιο, στερεό.

2982 Ραδιενεργό υλικό, ε.α.ο.

Το όριο στη συνολική δραστηριότητα σε κόλο Τύπου Β(U) θα πρέπει να είναι όπως καθορίζεται στο πιστοποιητικό έγκρισης σχεδιασμού για εκείνο το κόλο.

**2. Συσκευασία/Κόλο**

- (a) Η συσκευασία, που μπορεί επίσης να είναι δεξαμενή ή εμπορευματοκιβώτιο, θα πρέπει να ικανοποιεί τις διατάξεις για κόλα Τύπου Β που ορίζονται στο περιθωριακό 3738, τις διατάξεις για κόλα Τύπου Β(U) που ορίζονται στο περιθωριακό 3739 και επιπλέον, για δεξαμενές, Προσθήκες Β.1a και Β.1b.
- (b) Ειδικά, το κόλο Τύπου Β(U) θα πρέπει να σχεδιάζεται έτσι ώστε:
- (i) υπό συνθήκες μεταφοράς συμπεριλαμβανομένων δευτερευόντων ατυχημάτων, θα περιορίζει την απώλεια ή τη διασπορά του ραδιενεργού περιεχομένου σε όχι μεγαλύτερη από  $A_2 \times 10^{-6}$  ανά ώρα, και θα παρεμποδίζει την απώλεια της ακεραιότητας του προστατευτικού μέσου που θα είχε ως αποτέλεσμα μεγαλύτερη από 20% αύξηση στο εξωτερικό επίπεδο ακτινοβολίας σε οποιοδήποτε σημείο, και
  - (ii) θα είναι ικανή να αντέχει τις βλαπτικές επιδράσεις ενός ατυχήματος κατά τη μεταφορά όπως εκφράζεται με την διατήρηση του περιεχομένου και της ακεραιότητας του προστατευτικού μέσου στο βαθμό που απαιτείται από τα περιθωριακά 3738 και 3739.
- (c) Έγκριση του σχεδιασμού των κόλων Τύπου Β(U) σε συμφωνία με το περιθωριακό 3752 απαιτείται από την αρμόδια αρχή της χώρας προέλευσης του σχεδιασμού (μονομερής έγκριση).

- (d) Εάν το ραδιενεργό περιεχόμενο είναι ειδικής μορφής ραδιενεργό υλικό, απαιτείται έγκριση του σχεδιασμού από αρμόδια αρχή για το ειδικής μορφής ραδιενεργό υλικό.
- (e) Το εξωτερικό του κόλου Τύπου Β(U) θα πρέπει να έχει ενσωματωμένο ένα χαρακτηριστικό όπως μία σφραγίδα, που θα είναι όχι άμεσα θραύσιμο και που, όταν είναι άθικτο, θα αποτελεί ένδειξη ότι δεν έχει ανοιχτεί.
3. **Μέγιστο Επίπεδο ακτινοβολίας**  
Βλέπε περιθωριακό 2703.
4. **Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**  
Βλέπε περιθωριακό 2703.
5. **Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών**  
Βλέπε περιθωριακό 2703.
6. **Μικτή Συσκευασία**  
Βλέπε περιθωριακό 2703.
7. **Μικτή Φόρτωση**  
Βλέπε περιθωριακό 2703.
8. **Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**
- (a) Βλέπε περιθωριακό 2703.
- (b) Κάθε κόλο Τύπου Β(U) θα πρέπει να είναι μαρκαρισμένο ευανάγνωστα και με τρόπο διαρκείας απ' έξω με:
- (i) την χαρακτηριστική ένδειξη που δίνεται σ' εκείνον τον σχεδιασμό από την αρμόδια αρχή,
  - (ii) έναν σειριακό αριθμό για τον μοναδικό προσδιορισμό κάθε συσκευασίας που συμφωνεί με εκείνον τον σχεδιασμό,
  - (iii) την διατύπωση "ΤΥΠΟΥ Β(U)", και
  - (iv) το σύμβολο σε σχήμα τριφυλλιού που φαίνεται στο περιθωριακό 2705 (5) ανάγλυφο ή σφραγισμένο στο περισσότερο ανθεκτικό στη φωτιά και στο νερό δοχείο.
9. **Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές**  
Βλέπε περιθωριακό 2703.
10. **Έγγραφα μεταφοράς**
- (a) Για περίληψη των διατάξεων έγκρισης και γνωστοποίησης βλέπε περιθωριακό 2716.

- (b) Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει:
- (i) τον χαρακτηριστικό αριθμό και την ονομασία σύμφωνα με το κεφάλαιο 1, μαζί με τις λέξεις "Ραδιενεργό υλικό σε κόλο Τύπου Β(U), 7, Πρόγραμμα 10, ADR (ή RID)", π.χ. "2976 Νιτρικό θόριο, στερεό, ραδιενεργό υλικό σε κόλο Τύπου Β(U), 7, Πρόγραμμα 10, ADR (ή RID)", ή
  - (ii) στην περίπτωση υλικού όχι αλλιώς οριζόμενου, "2974 Ραδιενεργό υλικό, ειδική μορφή, ε.α.ο., σε κόλο Τύπου Β(U), 7, Πρόγραμμα 10, ADR (ή RID)", ή "2982 Ραδιενεργό υλικό, ε.α.ο., σε κόλο Τύπου Β(U), 7, Πρόγραμμα 10, ADR (ή RID)", όπως μπορεί να είναι η περίπτωση.

Περαιτέρω λεπτομέρειες που ορίζονται στα περιθωριακά 2709 και 2710 θα πρέπει επίσης να συμπεριλαμβάνονται.

- (c) Το πιστοποιητικό μονομερούς έγκρισης για το σχεδιασμό κόλου απαιτείται.
- (d) Πριν από κάθε φόρτωση οποιουδήποτε κόλου Τύπου Β(U), ο αποστολέας θα πρέπει να έχει στην κατοχή του όλα τα πιστοποιητικά έγκρισης της σχετικής αρμόδιας αρχής και θα πρέπει να εξασφαλίσει ότι αντίγραφα τους έχουν υποβληθεί, πριν την πρώτη φόρτωση, στην αρμόδια αρχή κάθε χώρας μέσω της οποίας ή στην οποία το κόλο πρόκειται να μεταφερθεί.
- (e) Πριν από κάθε φόρτωση όπου η δραστηρότητα είναι μεγαλύτερη από  $3 \times 10^3$  A<sub>2</sub> ή  $3 \times 10^3$  A<sub>1</sub>, όπως είναι κατάλληλο, ή 1 000 TBq (20 kCi), όπως είναι η χαμηλότερη τιμή, ο αποστολέας πρέπει να το γνωστοποιεί στις αρμόδιες αρχές όλων των χωρών που επηρεάζονται από τη μετακίνηση, κατά προτίμηση τουλάχιστον επτά ημέρες πριν.

#### 11. Αποθήκευση και Αποστολή

- (a) Βλέπε περιθωριακό 2703.
- (b) Ο αποστολέας θα πρέπει να έχει συμμορφωθεί με τις σχετικές διατάξεις για πριν τη χρήση και πριν την αποστολή του περιθωριακού 3710.
- (c) Οποιοσδήποτε διατάξεις στα πιστοποιητικά έγκρισης της αρμόδιας αρχής θα πρέπει να τηρούνται.

#### 12. Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών

- (a) Βλέπε περιθωριακό 2703 12. (2), (a) έως (d).
- (b) Εάν η μέση εκροή επιφανειακής θερμότητας από κόλο Τύπου Β(U) θα μπορούσε να υπερβεί τα 15 W/m<sup>2</sup>, οποιοσδήποτε ειδικές διατάξεις στοιβάγματος που ορίζονται στο πιστοποιητικό έγκρισης του κόλου που εκδίδεται από την αρμόδια αρχή πρέπει να τηρούνται.
- (c) Εάν η θερμοκρασία της προστιτής επιφάνειας του κόλου Τύπου Β(U) θα μπορούσε να υπερβεί τους 50 °C υπό σκιά, η μεταφορά επιτρέπεται μόνον υπό αποκλειστική χρήση, για την οποία η επιφανειακή θερμοκρασία περιορίζεται στους 85 °C. Μπορεί να λαμβάνονται υπόψη φραγμοί ή παραπετάσματα που προορίζονται να δίνουν προστασία στους εργάτες της μεταφοράς χωρίς οι φραγμοί ή τα παραπετάσματα να υπόκεινται σε οποιονδήποτε έλεγχο.

#### 13. Άλλες Διατάξεις

- Βλέπε περιθωριακό 2703.

## Κλάση 7

2704 Πρόγραμμα 11  
(συνεχ.)

**ΡΑΔΙΕΝΕΡΓΑ ΥΛΙΚΑ ΣΕ ΚΟΛΑ ΤΥΠΟΥ Β(Μ)**

**ΣΗΜΕΙΩΣΗ 1:** Ραδιενεργό υλικό που υπερβαίνει σε ποσότητα τα όρια του κόλου Τύπου Α μπορεί να μεταφέρεται σε κόλο τύπου Β(Μ) που θα πρέπει να σχεδιάζεται έτσι ώστε να είναι απίθανη η απελευθέρωση του ραδιενεργού περιεχομένου της ή η απώλεια της ακεραιότητας του προστατευτικού μέσου της σε συνθήκες ατυχήματος κατά τη μεταφορά.

**ΣΗΜΕΙΩΣΗ 2:** Εάν σχάσιμο υλικό είναι παρόν οι διατάξεις του Προγράμματος 12 θα πρέπει να ικανοποιούνται επιπλέον των διατάξεων αυτού του Προγράμματος.

**ΣΗΜΕΙΩΣΗ 3:** Για άλλες επικίνδυνες ιδιότητες, βλέπε επίσης τις διατάξεις στο περιθωριακό 3770.

**1. Υλικά**

2974 Ραδιενεργό υλικό, ειδική μορφή, ε.α.ο.

2975 Μεταλλικό θόριο, πυροφορικό.

2976 Νιτρικό θόριο, στερεό.

2979 Μεταλλικό ουράνιο, πυροφορικό.

2980 Διάλυμα νιτρικού ουρανύλιου εξα-ένυδρου.

2981 Νιτρικό ουρανύλιο, στερεό.

2982 Ραδιενεργό υλικό, ε.α.ο.

Το όριο στη συνολική δραστηριότητα σε κόλο τύπου Β(Μ) θα πρέπει να είναι όπως καθορίζεται στο πιστοποιητικό έγκρισης σχεδιασμού για εκείνο το κόλο.

**2. Συσκευασία/Κόλο**

- (a) Η συσκευασία, που μπορεί επίσης να είναι δεξαμενή ή εμπορευματοκιβώτιο, θα πρέπει να ικανοποιεί τις διατάξεις για κόλα Τύπου Β που ορίζονται στο περιθωριακό 3738, τις διατάξεις για κόλα τύπου Β(Μ) που ορίζονται στο περιθωριακό 3740 και επιπλέον, για δεξαμενές, Προσθήκες Β.1a και Β.1b.
- (b) Ειδικά, το κόλο τύπου Β(Μ) θα πρέπει να σχεδιάζεται έτσι ώστε:
- (i) υπό συνθήκες μεταφοράς συμπεριλαμβανομένων δευτερευόντων ατυχημάτων, θα περιορίζει την απώλεια ή διασπορά του ραδιενεργού περιεχομένου σε όχι μεγαλύτερη από  $A_2 \times 10^{-6}$  ανά ώρα, και θα παρεμποδίζει την απώλεια προστατευτικού μέσου που θα είχε ως αποτέλεσμα σε μεγαλύτερη από 20% αύξηση στο εξωτερικό επίπεδο ακτινοβολίας σε οποιοδήποτε σημείο, και
  - (ii) θα είναι ικανή να αντέχει τις βλαβερές επιδράσεις ενός ατυχήματος κατά τη μεταφορά όπως εκφράζεται με τη διατήρηση του περιεχομένου και της ακεραιότητας του προστατευτικού μέσου στο βαθμό που απαιτείται από τα περιθωριακά 3738 και 3739.
- (c) Περιοδικός εξερισμός κατά τη διάρκεια της μεταφοράς μπορεί να επιτρέπεται εάν αντισταθμιστικοί λειτουργικοί έλεγχοι είναι εγκεκριμένοι από όλες τις εμπλεκόμενες αρμόδιες αρχές.



- (d) Συμπληρωματικοί λειτουργικοί έλεγχοι αναγκαίοι για την εξασφάλιση της ασφάλειας του κόλου τύπου Β(Μ) κατά τη διάρκεια της μεταφοράς ή για την αντιστάθμιση των ανεπαρκειών από τις διατάξεις Τύπου Β(Υ) και οποιοδήποτε περιορισμοί στον τρόπο ή τις συνθήκες μεταφοράς θα πρέπει να εγκρίνονται από όλες τις εμπλεκόμενες αρμόδιες αρχές.
- (e) Έγκριση του σχεδιασμού των κόλου Τύπου Β(Μ) σε συμφωνία με το περιθωριακό 3753 απαιτείται τόσο από την αρμόδια αρχή της χώρας προέλευσης του σχεδιασμού όσο και από κάθε χώρα μέσω της οποίας ή στην οποία τα κόλα μεταφέρονται (πολυμερής έγκριση).
- (f) Εάν το ραδιενεργό περιεχόμενο είναι ειδικής μορφής ραδιενεργό υλικό, απαιτείται έγκριση του σχεδιασμού από αρμόδια αρχή για το ειδικής μορφής ραδιενεργό υλικό.
- (g) Το εξωτερικό του κόλου τύπου Β(Μ) θα πρέπει να ενσωματώνει ένα χαρακτηριστικό όπως μία σφραγίδα, που θα είναι όχι άμεσα θραύσιμο και που, όταν είναι άθικτο, θα αποτελεί ένδειξη ότι δεν έχει ανοιχτεί.

### 3. Μέγιστο Επίπεδο ακτινοβολίας

Βλέπε περιθωριακό 2703.

### 4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες

Βλέπε περιθωριακό 2703.

### 5. Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών

Βλέπε περιθωριακό 2703.

### 6. Μικτή Συσκευασία

Βλέπε περιθωριακό 2703.

### 7. Μικτή Φόρτωση

Βλέπε περιθωριακό 2703.

### 8. ~~Μαρκάρισμα και Ετικέτες~~ κινδύνου σε ~~Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες~~

(a) Βλέπε περιθωριακό 2703.

(b) Κάθε κόλο Τύπου Β(Μ) θα πρέπει να είναι ευανάγνωστα και με τρόπο διαρκείας μαρκαρισμένη στο εξωτερικό με:

- (i) την χαρακτηριστική ένδειξη που δίνεται σ' εκείνο τον σχεδιασμό από την αρμόδια αρχή,
- (ii) έναν σειριακό αριθμό για τον μοναδικό προσδιορισμό κάθε συσκευασίας που συμφωνεί με εκείνον τον σχεδιασμό,
- (iii) την διατύπωση "ΤΥΠΟΥ Β(Μ)", και

- (iv) το σύμβολο σε σχήμα τριφυλλίου που φαίνεται στο περιθωριακό 2705 (5) ανάγλυφο ή σφραγισμένο στο περισσότερο ανθεκτικό στη φωτιά και στο νερό δοχείο.

### 9. Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές

Βλέπε περιθωριακό 2703.

### 10. Έγγραφο μεταφοράς

- (a) Για περίληψη των διατάξεων έγκρισης και γνωστοποίησης βλέπε περιθωριακό 2716.
- (b) Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει:
- (i) τον χαρακτηριστικό αριθμό και την ονομασία σύμφωνα με το κεφάλαιο 1, μαζί με τις λέξεις "Ραδιενεργό υλικό σε κόλο τύπου B(M) , 7, Πρόγραμμα 11, ADR (ή RID)", π.χ. "2976 Νιτρικό θόριο, στερεό, ραδιενεργό υλικό σε κόλο τύπου B(M) , 7, Πρόγραμμα 11, ADR (ή RID)", ή
  - (ii) στην περίπτωση υλικού όχι αλλιώς που οριζόμενου, "2974 Ραδιενεργό υλικό, ειδική μορφή, ε.α.ο., σε κόλο τύπου B(M) , 7, Πρόγραμμα 11, ADR (ή RID)", ή "2982 Ραδιενεργό υλικό, ε.α.ο., σε κόλο τύπου B(M) , 7, Πρόγραμμα 11, ADR (ή RID)", όπως μπορεί να είναι η περίπτωση.

Περαιτέρω λεπτομέρειες που ορίζονται στα περιθωριακά 2709 και 2710 θα πρέπει επίσης να συμπεριλαμβάνονται.

- (c) Τα πιστοποιητικά πολυμερούς έγκρισης για τον σχεδιασμό κόλου απαιτούνται.
- (d) Εάν το κόλο είναι σχεδιασμένο να επιτρέπει για ελεγχόμενο περιοδικό εξαερισμό ή εάν το συνολικό περιεχόμενο υπερβαίνει τα  $3 \times 10^3 A_2$  ή  $3 \times 10^3 A_1$ , όπου είναι κατάλληλο, ή τα 1000 TBq (20 kCi), όποια είναι η χαμηλότερη τιμή, απαιτούνται πιστοποιητικά πολυμερούς έγκρισης της φόρτωσης εκτός εάν οι εμπλεκόμενες αρμόδιες αρχές επιτρέπουν τη μεταφορά με μία σχετική διάταξη στα πιστοποιητικά για την έγκριση του σχεδιασμού κόλου.
- (e) Πριν από κάθε φόρτωση οποιουδήποτε κόλου τύπου B(M), ο αποστολέας θα πρέπει να έχει στη διάθεσή του όλα τα σχετικά πιστοποιητικά έγκρισης.
- (f) Πριν από κάθε φόρτωση, ο αποστολέας θα πρέπει να ενημερώνει τις αρμόδιες αρχές όλων των χωρών που επηρεάζονται από την μετακίνηση, κατά προτίμηση τουλάχιστον επτά ημέρες νωρίτερα.

### 11. Αποθήκευση και Αποστολή

- (a) Βλέπε περιθωριακό 2703.
- (b) Ο αποστολέας θα πρέπει να συμμορφώνεται με τις σχετικές διατάξεις για πριν τη χρήση και πριν τη φόρτωση του περιθωριακού 3710.
- (c) Οποιοσδήποτε διατάξεις στα πιστοποιητικά έγκρισης του σχεδιασμού ή της φόρτωσης που υποβάλλονται από τις εμπλεκόμενες αρμόδιες αρχές πρέπει να τηρούνται.

**12. Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών**

- (a) Βλέπε περιθωριακό 2703 12. (2), (a) έως (d).
- (b) Εάν η μέση εκροή επιφανειακής θερμότητας από ένα κόλο τύπου Β(Μ) θα μπορούσε να υπερβεί τα  $15 \text{ W/m}^2$ , οποιεσδήποτε ειδικές διατάξεις στοιβάζματος που ορίζονται στο πιστοποιητικό έγκρισης σχεδιασμού του κόλου από την αρμόδια αρχή πρέπει να τηρούνται.
- (c) Εάν η θερμοκρασία της προστιτής επιφάνειας του κόλου τύπου Β(Μ) θα μπορούσε να υπερβεί τους  $50 \text{ }^\circ\text{C}$  υπό σκιά, η μεταφορά επιτρέπεται μόνον υπό αποκλειστική χρήση, για την οποία η επιφανειακή θερμοκρασία περιορίζεται στους  $85 \text{ }^\circ\text{C}$ . Μπορεί να λαμβάνονται υπόψη οι φραγμοί ή τα παραπετάσματα που προορίζονται να δίνουν προστασία στους εργάτες της μεταφοράς χωρίς οι φραγμοί ή τα παραπετάσματα να υπόκεινται σε οποιονδήποτε έλεγχο.

**13. Άλλες Διατάξεις**

Βλέπε περιθωριακό 2703.

## Κλάση 7

2704 Πρόγραμμα 12  
(συνεχ.)

## ΣΧΑΣΙΜΟ ΥΛΙΚΟ

**ΣΗΜΕΙΩΣΗ 1:** Ραδιενεργό υλικό που είναι επίσης σχάσιμο υλικό πρέπει να συσκευάζεται, μεταφέρεται και αποθηκεύεται έτσι ώστε να ικανοποιεί τις διατάξεις για ασφάλεια πυρηνικής κρισιμότητας, όπως αναφέρεται σε αυτό το Πρόγραμμα, και τις διατάξεις τις κατάλληλες για την ραδιοδραστικότητα του, όπως αναφέρεται στα Προγράμματα 6 έως 11, όπως απαιτείται.

**ΣΗΜΕΙΩΣΗ 2:** Για άλλες επικίνδυνες ιδιότητες, βλέπε επίσης τις διατάξεις στο περιθωριακό 3770.

## 1. Υλικά

2918 Ραδιενεργό υλικό, σχάσιμο, ε.α.ο.

2977 Εξαφθοριούχο ουράνιο, σχάσιμο που περιέχει περισσότερο από 1.0% ουράνιο-235.

Σχάσιμο υλικό είναι ουράνιο-233, ουράνιο-235, πλουτόνιο-238, πλουτόνιο-239, πλουτόνιο-241, ή οποιοσδήποτε συνδυασμός των προηγούμενων, εκτός από μη-εκπέμπον φυσικό ή εξαντλημένο ουράνιο και φυσικό ή εξαντλημένο ουράνιο που έχει τεθεί για εκπομπή σε θερμικούς αντιδραστήρες μόνο.

Αποστολές σχάσιμου υλικού θα πρέπει επίσης να είναι σε πλήρη συμμόρφωση με τις διατάξεις ενός από τα άλλα Προγράμματα, όπως απαιτείται για τη ραδιοδραστικότητα της αποστολής.

## 2. Συσκευασία/Κόλο

- (a) Τα παρακάτω υλικά εξαιρούνται από τις ειδικές διατάξεις συσκευασίας που αναφέρονται σε αυτό το Πρόγραμμα, αλλά πρέπει να ικανοποιούν τις διατάξεις ενός από τα άλλα Προγράμματα όπως απαιτείται για τη ραδιοδραστικότητα του υλικού:
- (i) Σχάσιμο υλικό σε ποσότητα όχι μεγαλύτερη από 15 g ανά κόλο υπό συνθήκες που περιγράφονται πλήρως στο περιθωριακό 3741 της προσθήκης Α.7.
  - (ii) Ομοιογενή υδρογονούχα διαλύματα σε συγκεντρώσεις και ποσότητες περιορισμένες σε συμφωνία με τον Πίνακα III του περιθωριακού 3703 της προσθήκης Α.7.
  - (iii) Εμπλουτισμένο ουράνιο κατανεμημένο ομοιογενώς με όχι περισσότερο από 1% ουράνιο-235 και με συνολική περιεκτικότητα σε πλουτόνιο και ουράνιο-233 όχι μεγαλύτερη από το 1% του βάρους του ουράνιου-235, υπό την προϋπόθεση ότι εάν το ουράνιο-235 είναι παρόν σε μορφή μεταλλική, οξειδίου ή καρβιδίου, δεν πρέπει να σχηματίζει διάταξη πλέγματος μέσα στο κόλο.
  - (iv) Υλικό που περιέχει όχι περισσότερο από 5 g σχάσιμου υλικού σε οποιοδήποτε όγκο 10 λίτρων.
  - (v) Κόλα που περιέχουν όχι περισσότερο από 1 kg πλουτονίου στο οποίο όχι περισσότερο από το 20% κατά βάρος συνίσταται από πλουτόνιο-239, πλουτόνιο-241 ή οποιοδήποτε συνδυασμό εκείνων των ραδιονουκλεϊδίων.
  - (vi) Διαλύματα νιτρικού ουρανίου εμπλουτισμένα σε ουράνιο-235 σε μία μέγιστη περιεκτικότητα 2% κατά βάρος με συνολική περιεκτικότητα σε πλουτόνιο και ουράνιο-233 όχι μεγαλύτερη από το 0.1% του βάρους του ουράνιου-235 και ελάχιστη ατομική αναλογία αζώτου προς ουράνιο 2.

## Κλάση 7

- (b) Αλλιώς κόλα για σχάσιμο υλικό θα πρέπει να ικανοποιούν τις διατάξεις σχεδιασμού για τον τύπο κόλου που είναι αναγκαίος για τη ραδιοδραστικότητα του σχάσιμου υλικού και, επιπλέον, θα πρέπει να ικανοποιούν τις πρόσθετες διατάξεις για κόλα που περιέχουν σχάσιμο υλικό που αναφέρονται στο περιθωριακό 3741 της προσθήκης Α.7.
- (c) Κάθε σχεδιασμός κόλου για σχάσιμο υλικό πρέπει να εγκρίνεται από την αρμόδια αρχή της χώρας προέλευσης του σχεδιασμού και από τις αρμόδιες αρχές κάθε χώρας μέσω της οποίας ή στην οποία το κόλο πρόκειται να μεταφερθεί, δηλ. απαιτείται πολυμερής έγκριση.
- (d) Το εξωτερικό των κόλων για σχάσιμο υλικό θα πρέπει να ενσωματώνουν ένα χαρακτηριστικό όπως μία σφραγίδα, που θα είναι όχι άμεσα θραύσιμο και που, όταν είναι άθικτο, θα αποτελεί ένδειξη ότι δεν έχει ανοιχτεί.

## 3. Μέγιστο Επίπεδο ακτινοβολίας

Βλέπε κατάλληλο Πρόγραμμα.

## 4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες

Βλέπε κατάλληλο Πρόγραμμα.

## 5. Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών

Βλέπε κατάλληλο Πρόγραμμα.

## 6. Μικτή Συσκευασία

Μόνον είδη ή έγγραφα που είναι αναγκαία για τη χρήση του ραδιενεργού υλικού επιτρέπονται στο κόλο, υπό την προϋπόθεση ότι δεν υπάρχει αντίδραση μεταξύ αυτών και της συσκευασίας ή του περιεχομένου της που θα μειώνει την ασφάλεια (συμπεριλαμβανομένης της ασφάλειας πυρηνικής κρισιμότητας) του κόλου.

## 7. Μικτή Φόρτωση

Βλέπε περιθωριακό 2703.

## 8. Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες

- (a) Βλέπε κατάλληλο Πρόγραμμα.
- (b) Τα κόλα θα πρέπει να είναι μαρκαρισμένα εξωτερικά ευανάγνωστα και με τρόπο διαρκείας με:
  - (i) "τύπου Α", "τύπου Β(U)", "τύπου Β(M)" όπως απαιτείται,
  - (ii) χαρακτηριστική ένδειξη της αρμόδιας αρχής.

## 9. Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές

Βλέπε περιθωριακό 2703.

**10. Έγγραφα μεταφοράς**

- (a) Για περιλήψη των διατάξεων έγκρισης και γνωστοποίησης βλέπε περιθωριακό 2716.
- (b) Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει την περιγραφή: "2918 Ραδιενεργό υλικό, σχάσιμο, ε.α.ο., σε κόλο Τύπου IF ή Τύπου AF ή Τύπου B(U)F ή Τύπου B(M)F, 7, Πρόγραμμα 12, ADR (ή RID)", ή "2977 Εξαφθοριούχο ουράνιο, σχάσιμο, που περιέχει περισσότερο από 1.0% ουράνιο-235, ραδιενεργό υλικό σε εγκεκριμένο κόλο, 7, Πρόγραμμα 12, ADR (ή RID)", όπως μπορεί να είναι η περίπτωση. Περαιτέρω λεπτομέρειες που ορίζονται στα περιθωριακά 2709 και 2710 θα πρέπει επίσης να συμπεριλαμβάνονται.
- (c) Τα πιστοποιητικά πολυμερούς έγκρισης για τον σχεδιασμό κόλου σχάσιμου υλικού απαιτούνται.
- (d) Πριν από κάθε φόρτωση οποιουδήποτε κόλου σχάσιμου υλικού, ο αποστολέας θα πρέπει να έχει στη διάθεσή του όλα τα σχετικά πιστοποιητικά έγκρισης.
- (e) Πιστοποιητικά πολυμερούς έγκρισης φόρτωσης απαιτούνται για κόλα που περιέχουν σχάσιμο υλικό εάν το άθροισμα των δεικτών μεταφοράς των κόλων στην αποστολή υπερβαίνει το 50.
- (f) Για πρόσθετες διατάξεις εγγράφων, βλέπε κατάλληλο Πρόγραμμα.

**11. Αποθήκευση και Αποστολή**

Βλέπε περιθωριακό 2703.

**12. Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών**

- (a) Βλέπε περιθωριακό 2703, 12 (2), (a) έως (d).
- (b) Για αποστολές υπό αποκλειστική χρήση, το όριο του συνολικού δείκτη μεταφοράς θα πρέπει να είναι 100.
- (c) Κόλα σχάσιμου υλικού για τις οποίες ο δείκτης μεταφοράς για έλεγχο της πυρηνικής κρισιμότητας υπερβαίνει το 0, δεν θα πρέπει να μεταφέρονται σε υπερσυσκευασία.

**-13. Άλλες Διατάξεις**

Βλέπε περιθωριακό 2703.

## Κλάση 7

2704 Πρόγραμμα 13

(συνεχ.)

**ΡΑΔΙΕΝΕΡΓΟ ΥΛΙΚΟ ΜΕΤΑΦΕΡΟΜΕΝΟ ΥΠΟ ΕΙΔΙΚΗ ΡΥΘΜΙΣΗ**

**ΣΗΜΕΙΩΣΗ 1:** Αποστολές ραδιενεργού υλικού που δεν ικανοποιεί όλες τις εφαρμόσιμες διατάξεις των Σχεδίων 5 - 12 μπορούν να μεταφέρονται υπό "ειδική ρύθμιση"<sup>β</sup> υποκείμενες στην εφαρμογή ειδικών διατάξεων εγκεκριμένων από τις αρμόδιες αρχές. Αυτές οι διατάξεις θα πρέπει να εξασφαλίζουν ότι το συνολικό επίπεδο ασφάλειας σε μεταφορά και σε διαμετακομιστική αποθήκευση είναι τουλάχιστον ισοδύναμο με εκείνο που θα παρέχονταν εάν είχαν ικανοποιηθεί όλες οι εφαρμόσιμες διατάξεις.

**1. Υλικά:**

Υλικά με χαρακτηριστικούς αριθμούς ύλης 2912, 2913, 2918, 2974, 2975, 2976, 2977, 2978, 2979, 2980, 2981 και 2982, βλέπε περιθωριακό 2701.

Ραδιενεργά υλικά που μπορούν να αποσταλούν υπό ειδική ρύθμιση περιλαμβάνουν οποιαδήποτε από εκείνα τα υλικά που καλύπτονται από τα Προγράμματα 5 - 11 και, εάν εφαρμόζεται, το Πρόγραμμα 12.

**2. Συσκευασία/Κόλα**

(a) Όπως επιτρέπεται από το πιστοποιητικό έγκρισης της αρμόδιας αρχής για την ειδική ρύθμιση.

(b) Πολυμερής έγκριση απαιτείται.

**3. Μέγιστο Επίπεδο ακτινοβολίας**

Όπως επιτρέπεται από το πιστοποιητικό έγκρισης της αρμόδιας αρχής για την ειδική ρύθμιση.

**4. Μόλυνση σε Κόλα, Οχήματα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**

Όπως επιτρέπεται από το πιστοποιητικό έγκρισης της αρμόδιας αρχής για την ειδική ρύθμιση.

**5. Απολύμανση και Χρήση Οχημάτων, Εξαρτημάτων ή Μερών αυτών**

Βλέπε περιθωριακό 2703.

**6. Μικτή Συσκευασία**

Όπως επιτρέπεται από το πιστοποιητικό έγκρισης της αρμόδιας αρχής για την ειδική ρύθμιση.

**7. Μικτή Φόρτωση**

Μικτή φόρτωση επιτρέπεται μόνον εάν επιτρέπεται ειδικά από τις αρμόδιες αρχές.

<sup>β</sup> Η "ειδική ρύθμιση" δεν θα πρέπει να συγχέεται με την "ειδική συμφωνία" όπως καλύπτονται από το Είδος 4, παράγραφο 3, της ADR και από τα περιθωριακά 2010 και 10 602.

2704

Πρόγραμμα 13  
(συνεχ.)

8. **Μαρκάρισμα και Ετικέτες κινδύνου σε Κόλα, Εμπορευματοκιβώτια, Δεξαμενές και Υπερσυσκευασίες**
- (a) Βλέπε περιθωριακό 2703. Όμως αποστολές υπό ειδική ρύθμιση θα πρέπει πάντα να φέρουν ΠΙ-ΚΙΤΡΙΝΕΣ ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 7C.
  - (b) Επιπλέον, άλλες διατάξεις επισήμανσης και μαρκαρίσματος εγκεκριμένες από τις αρμόδιες αρχές θα πρέπει να πληρούνται.
9. **Ετικέτες κινδύνου σε Οχήματα άλλα από Οχήματα-δεξαμενές**
- (a) Βλέπε περιθωριακό 2703.
  - (b) Επιπλέον, άλλες διατάξεις εγκεκριμένες από τις αρμόδιες αρχές θα πρέπει να πληρούνται.
10. **Έγγραφα μεταφοράς**
- (a) Για περίληψη των διατάξεων έγκρισης και γνωστοποίησης βλέπε περιθωριακό 2716.
  - (b) Το έγγραφο μεταφοράς θα πρέπει να περιλαμβάνει:
    - (i) τον χαρακτηριστικό αριθμό σύμφωνα με το κεφάλαιο 1 και την ονομασία σύμφωνα με το περιθωριακό 2701, μαζί με τις λέξεις "Ραδιενεργό υλικό, υπό ειδική ρύθμιση, 7, Πρόγραμμα 13, ADR (ή RID)", π.χ. "2976 Νιτρικό θόριο, στερεό, ραδιενεργό υλικό, υπό ειδική ρύθμιση, 7, Πρόγραμμα 13, ADR (ή RID)", ή
    - (ii) στην περίπτωση υλικού όχι αλλιώς οριζόμενου, τον χαρακτηριστικό αριθμό σύμφωνα με το κεφάλαιο 1 και την ονομασία σύμφωνα με το περιθωριακό 2701, μαζί με τις λέξεις "υπό ειδική ρύθμιση, 7, Πρόγραμμα 13, ADR (ή RID)", π.χ. "2918 Ραδιενεργό υλικό, σχάσιμο, ε.α.ο., υπό ειδική ρύθμιση, 7, Πρόγραμμα 13, ADR (ή RID)".
- Περαιτέρω λεπτομέρειες που ορίζονται στα περιθωριακά 2709 και 2710 θα πρέπει επίσης να συμπεριλαμβάνονται.
- (c) Κάθε αποστολή θα πρέπει να απαιτεί πολυμερή έγκριση.
  - (d) Πριν από κάθε φόρτωση, ο αποστολέας θα πρέπει να έχει στη διάθεσή του όλα τα σχετικά πιστοποιητικά έγκρισης.
  - (e) Πριν από κάθε φόρτωση, ο αποστολέας πρέπει να ενημερώνει τις αρμόδιες αρχές όλων των χωρών που επηρεάζονται από τη μετακίνηση, κατά προτίμηση τουλάχιστον επτά ημέρες πριν.



**2704**  
**Πρόγραμμα 13**  
**(συνεχ.)**

**11. Αποθήκευση και Αποστολή**

- (a) Βλέπε περιθωριακό 2703.
- (b) Σχετικές διατάξεις αποθήκευσης και αποστολής εγκεκριμένες από τις αρμόδιες αρχές θα πρέπει να πληρούνται.
- (c) Εκτός εάν εξαιρείται ειδικά από τα πιστοποιητικά έγκρισης της αρμόδιας αρχής, ο αποστολέας θα πρέπει να έχει συμμορφωθεί με τις σχετικές διατάξεις για πριν τη χρήση και πριν τη φόρτωση του περιθωριακού 3710.

**12. Μεταφορά Κόλων, Εμπορευματοκιβωτίων, Δεξαμενών και Υπερσυσκευασιών**

- (a) Βλέπε περιθωριακό 2703.
- (b) Σχετικές διατάξεις μεταφοράς εγκεκριμένες από τις αρμόδιες αρχές θα πρέπει να πληρούνται.

**13. Άλλες Διατάξεις**

Βλέπε περιθωριακό 2703.

**Μαρκάρισμα και Επισημάνση**

***ΣΗΜΕΙΩΣΗ:** Για ραδιενεργά υλικά που έχουν άλλες επικίνδυνες ιδιότητες, η επισημάνση θα πρέπει επίσης να είναι σε συμφωνία με τις διατάξεις για τις άλλες επικίνδυνες ιδιότητες [βλέπε περιθωριακό 3770 (3)].*

## Κλάση 7

**Μαρκάρισμα Κόλων, συμπεριλαμβανομένων Δεξαμενών και Εμπορευματοκιβωτίων**

- 2705** (1) Κάθε κόλο με μικτό βάρος μεγαλύτερο από 50 kg θα πρέπει να έχει το επιτρεπτό μικτό βάρος του ευανάγνωστα και με τρόπο διαρκείας μαρκαρισμένο στο εξωτερικό της συσκευασίας.
- (2) Κάθε κόλο, εκτός από δεξαμενές, εμπορευματοκιβώτια και υπερσυσκευασίες και εξαιρούμενα κόλα των σχεδίων 1 έως 4 θα πρέπει να είναι καθαρό και μαρκαρισμένο με τρόπο διαρκείας με τον χαρακτηριστικό αριθμό των εμπορευμάτων που εγγράφεται στο έγγραφο μεταφοράς μετά από τα γράμματα "UN".
- (3) Κάθε κόλο που συμφωνεί με τον σχεδιασμό ενός κόλου Τύπου Α θα πρέπει να είναι ευανάγνωστα και με τρόπο διαρκείας μαρκαρισμένη στο εξωτερικό της συσκευασίας με "ΤΥΠΟΥ Α".
- (4) Κάθε κόλο που συμφωνεί με έναν σχεδιασμό εγκεκριμένο υπό τα περιθωριακά 3752-3755 θα πρέπει να είναι ευανάγνωστα και με τρόπο διαρκείας μαρκαρισμένη στο εξωτερικό της συσκευασίας με:
- (a) την χαρακτηριστική ένδειξη που δίνεται σε εκείνον τον σχεδιασμό από την αρμόδια αρχή,
  - (b) έναν σειριακό αριθμό για τον μοναδικό προσδιορισμό κάθε συσκευασίας που συμφωνεί με εκείνον τον σχεδιασμό, και
  - (c) στην περίπτωση σχεδιασμού ενός κόλου Τύπου Β(Υ) Τύπου Β(Μ), με "ΤΥΠΟΥ Β(Υ)" ή "ΤΥΠΟΥ Β(Μ)".
- (5) Κάθε κόλο που συμφωνεί με τον σχεδιασμό ενός κόλου Τύπου Β(Υ) ή Τύπου Β(Μ) θα πρέπει να έχει το εξωτερικό του δοχείου που είναι πιο ανθεκτική στις επιδράσεις της φωτιάς και του νερού καθαρά μαρκαρισμένη ανάγλυφα, με σφραγίδα, ή άλλον τρόπο ανθεκτικό στις επιδράσεις της φωτιάς και του νερού με το σύμβολο σε σχήμα τριφυλλίου που φαίνεται στο υπόδειγμα παρακάτω.

Βασικό σύμβολο σε σχήμα τριφυλλίου με αναλογίες βασισμένες σ' έναν κεντρικό κύκλο ακτίνας X. Το ελάχιστο επιτρεπόμενο μέγεθος του X θα πρέπει να είναι 4 mm.

## Κλάση 7

**Επισήμανση Κόλων, συμπεριλαμβανομένων Δεξαμενών και Εμπορευματοκιβωτίων και Υπερσυσκευασιών**

2706

(1) Κάθε κόλο, υπερσυσκευασία, δεξαμενή και εμπορευματοκιβώτιο θα πρέπει να φέρει τις ετικέτες που είναι σύμφωνες με το υπόδειγμα Αριθμ. 7Α, 7Β ή 7C σύμφωνα με την κατάλληλη κατηγορία. Οποιοσδήποτε ετικέτες που δεν σχετίζονται με το περιεχόμενο θα πρέπει να αφαιρούνται ή να καλύπτονται. Για ραδιενεργά υλικά που έχουν άλλες επικίνδυνες ιδιότητες βλέπε περιθωριακό 3770.

(2) Οι ετικέτες θα πρέπει να είναι τοποθετημένες σε δύο αντίθετες πλευρές του εξωτερικού ενός κόλου ή υπερσυσκευασίας, στο εξωτερικό και των τεσσάρων πλευρών ενός εμπορευματοκιβωτίου ή ενός εμπορευματοκιβωτίου-δεξαμενής, ή στην περίπτωση οχήματος-δεξαμενής στα δύο πλευρικά τοιχώματα και στο πίσω τοίχωμα της μονάδας μεταφοράς.

(3) Κάθε ετικέτα θα πρέπει να συμπληρώνεται με τις παρακάτω πληροφορίες με καθαρό και ανεξίτηλο τρόπο:

(a) Περιεχόμενο:

(i) Εκτός εάν πρόκειται για LSA-I υλικό, την ονομασία του ραδιονουκλεϊδίου όπως λαμβάνεται από τον Πίνακα I της προσθήκης Α.7, με τη χρήση των εκεί οριζόμενων συμβόλων. Για μείγματα ραδιονουκλεϊδίων, τα πιο περιοριστικά νουκλεϊδια πρέπει να αναφέρονται στο βαθμό που επιτρέπεται από το διάστημα στη γραμμή. Η ομάδα των LSA ή SCO θα πρέπει να φαίνεται κάτω από την ονομασία του ραδιονουκλεϊδίου. Οι όροι "LSA-II", "LSA-III", "SCO-I" και "SCO-II" θα πρέπει να χρησιμοποιούνται για αυτό το σκοπό,

(ii) Για LSA-I υλικό, μόνον ο όρος "LSA-I" είναι αναγκαίος: η ονομασία του ραδιονουκλεϊδίου δεν είναι αναγκαία.

(b) Δραστηκότητα:

Η μέγιστη δραστηκότητα του ραδιενεργού περιεχομένου κατά τη διάρκεια της μεταφοράς εκφρασμένη σε μονάδες μπεκερέλ (Bq) [και, εάν είναι επιθυμητό κιουρί (Ci)] με το κατάλληλο SI πρόθεμα. [Βλέπε περιθωριακό 2001 (1)]. Για σχάσιμο υλικό, το συνολικό βάρος σε μονάδες γραμμαρίων (g) ή πολλαπλασίων τους, μπορεί να χρησιμοποιείται στη θέση της δραστηκότητας.

(c) Για υπερσυσκευασίες, δεξαμενές και εμπορευματοκιβώτια, οι καταχωρήσεις του 'περιεχομένου' και της 'δραστηκότητας' στην ετικέτα, θα πρέπει να φέρουν τις πληροφορίες που απαιτούνται στα (a) και (b) αυτής της παραγράφου αντίστοιχα, αθροισμένες μαζί για όλο το περιεχόμενο της υπερσυσκευασίας, της δεξαμενής, ή του ενός εμπορευματοκιβωτίου εκτός από εκείνες τις ετικέτες για υπερσυσκευασίες ή εμπορευματοκιβώτια που περιέχουν μικτά φορτία κόλων με διαφορετικά ραδιονουκλεϊδια, τέτοιες καταχωρήσεις μπορούν να γράφουν "βλέπε έγγραφο μεταφοράς".

(d) Δείκτης μεταφοράς:

Βλέπε περιθωριακό 3715 (3) (δεν απαιτείται καταχώρηση του δείκτη μεταφοράς για την κατηγορία I-AEYKH).

**Πρόσθετο Μαρκάρισμα Δεξαμενών και Οχημάτων**

2707

Βλέπε περιθωριακό 10 500 και Προσθήκη Β.5.

## Κλάση 7

**Πρόσθετη Επισήμανση Εμπορευματοκιβωτίων για μεταφορά χύμα, Εμπορευματοκιβωτίων, Δεξαμενών και Οχημάτων**

- 2708** (1) Δεξαμενές και μεγάλα εμπορευματοκιβώτια που μεταφέρουν κόλα άλλα από εξαιρούμενα κόλα θα πρέπει να φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 7D. Όμως, αντί για τη χρήση ετικέτας σύμφωνα με το υπόδειγμα Αριθμ. 7A, 7B ή 7C μαζί με ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 7D, επιτρέπεται εναλλακτικά η χρήση μεγεθυμένων ετικετών σύμφωνα με το υπόδειγμα Αριθμ. 7A, 7B ή 7C με τις διαστάσεις του υποδείγματος Αριθμ. 7D. Κάθε ετικέτα θα πρέπει να τοποθετείται σε κάθετο προσανατολισμό και στις τέσσερις πλευρές ενός εμπορευματοκιβωτίου ή ενός εμπορευματοκιβωτίου-δεξαμενής ή, στην περίπτωση οχήματος-δεξαμενής, στα δύο πλευρικά τοιχώματα και στο πίσω τοίχωμα της μονάδας μεταφοράς.
- (2) Οχήματα που μεταφέρουν κόλα, υπερσυσκευασίες, εμπορευματοκιβώτια-δεξαμενές ή εμπορευματοκιβώτια που φέρουν οποιαδήποτε από τις ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 7A, 7B ή 7C, θα πρέπει να έχουν την ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 7D και στις δύο πλευρές και από πίσω. Επιπλέον οχήματα που μεταφέρουν φορτία υπό αποκλειστική χρήση θα πρέπει να έχουν την ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 7D και στις δύο πλευρές και από πίσω.
- (3) Οποιοσδήποτε ετικέτες που δεν σχετίζονται με το περιεχόμενο; θα πρέπει να μην είναι πιά ορατές.

**Πρόσθετα Στοιχεία Αποστολής**

- 2709** Επιπλέον της περιγραφής των εμπορευμάτων που δίνεται στο σχετικό πρόγραμμα, ο αποστολέας θα πρέπει να περιλαμβάνει στο έγγραφο μεταφοράς για κάθε αποστολή ραδιενεργού υλικού τις παρακάτω πληροφορίες:
- (a) τις λέξεις "Η φύση των εμπορευμάτων και η συσκευασία είναι σε συμφωνία με τις διατάξεις της ADR",
- (b) την ονομασία ή το σύμβολο κάθε ραδιονουκλειδίου ή, για μείγμα ραδιονουκλειδίων, μία κατάλληλη γενική περιγραφή ή ένα κατάλογο των πιο περιοριστικών νουκλειδίων,
- (c) μία περιγραφή της φυσικής και χημικής μορφής του υλικού, ή μία αναφορά ότι το υλικό είναι ειδικής μορφής ραδιενεργό υλικό. Μία γενική περιγραφή επιτρέπεται για τη χημική μορφή,
- (d) τη μέγιστη δραστηριότητα του ραδιενεργού περιεχομένου κατά τη διάρκεια της μεταφοράς εκφρασμένη σε μονάδες μπεκερέλ (Bq) [και, εάν είναι επιθυμητό, κιουρί (Ci)] με το κατάλληλο SI πρόθεμα, βλέπε περιθωριακό 2001 (1). Για σχάσιμο υλικό, το συνολικό βάρος του σχάσιμου υλικού σε μονάδες γραμμαρίων (g), ή κατάλληλων πολλαπλασίων τους, μπορεί να χρησιμοποιείται στη θέση της δραστηριότητας,
- (e) την κατηγορία του κόλου, δηλ. I-ΛΕΥΚΗ, II-ΚΙΤΡΙΝΗ ή III-ΚΙΤΡΙΝΗ,
- (f) τον δείκτη μεταφοράς (για κατηγορίες II-ΚΙΤΡΙΝΗ και III-ΚΙΤΡΙΝΗ μόνον),
- (g) για αποστολή σχάσιμου υλικού, όπου όλα τα κόλα στην αποστολή είναι εξαιρούμενα υπό το περιθωριακό 3703, τις λέξεις "Σχάσιμο εξαιρούμενο",
- (h) την χαρακτηριστική ένδειξη για κάθε πιστοποιητικό έγκρισης της αρμόδιας αρχής (ειδικής μορφής ραδιενεργό υλικό, ειδική ρύθμιση, σχεδιασμός κόλου, ή φόρτωση) που μπορεί να εφαρμοστεί στο φορτίο,

## Κλάση 7

- 2709 (i) για αποστολές κόλων σε υπερσυσκευασία ή εμπορευματοκιβώτιο, λεπτομερή αναφορά του περιεχομένου κάθε κόλου στην υπερσυσκευασία ή το εμπορευματοκιβώτιο και, όπου είναι κατάλληλο, κάθε υπερσυσκευασίας ή εμπορευματοκιβωτίου στην αποστολή. Εάν κόλα πρόκειται να μετακινηθούν από την υπερσυσκευασία ή το εμπορευματοκιβώτιο σε ένα σημείο ενδιάμεσης εκφόρτωσης, θα πρέπει να διατίθενται κατάλληλα έγγραφα μεταφοράς,
- (j) όταν ένα φορτίο απαιτείται να αποσταλεί υπό αποκλειστική χρήση, την αναφορά "Αποκλειστικής χρήσης φόρτωση".

## Οδηγία στους Μεταφορείς

- 2710 (1) Ο αποστολέας θα πρέπει να προμηθεύει με το έγγραφο μεταφοράς, πληροφορίες σχετικά με δράσεις, εάν υπάρχουν, που απαιτείται να λαμβάνονται από τον μεταφορέα. Οι πληροφορίες θα πρέπει να περιλαμβάνουν τουλάχιστον τα παρακάτω σημεία:

- (a) συμπληρωματικές λειτουργικές διατάξεις για φόρτωση, στοιβάγμα, μεταφορά, χειρισμό και εκφόρτωση του κόλου, υπερσυσκευασίας, εμπορευματοκιβωτίου, ή δεξαμενής συμπεριλαμβανομένων οποιωνδήποτε ειδικών διατάξεων στοιβάγματος για την ασφαλή διάχυση θερμότητας [βλέπε περιθωριακό 2712 (2)] ή μίας αναφοράς ότι καμία τέτοια διάταξη δεν είναι αναγκαία,
- (b) οποιεσδήποτε αναγκαίες οδηγίες πορείας,
- (c) γραπτές οδηγίες κατάλληλες για την αποστολή. Βλέπε περιθωριακό 10 385 (1), (2) και (3) και περιθωριακό 71 385.

(2) Σε όλες τις περιπτώσεις όπου έγκριση της φόρτωσης ή προηγούμενη ενημέρωση στην αρμόδια αρχή απαιτείται, οι μεταφορείς πρέπει να πληροφορούνται, εάν είναι δυνατόν, τουλάχιστον 15 ημέρες πριν και σε οποιαδήποτε περίπτωση τουλάχιστον 5 ημέρες πριν, ώστε να μπορούν να λαμβάνουν έγκαιρα οποιαδήποτε μέτρα απαιτούνται για τη μεταφορά.

(3) Ο αποστολέας θα πρέπει να είναι σε θέση να προμηθεύει τα πιστοποιητικά των αρμόδιων αρχών στους μεταφορείς πριν την φόρτωση, εκφόρτωση και οποιαδήποτε μεταφόρτωση.

## Μεταφορά

Διαχωρισμός κατά τη διάρκεια της μεταφοράς

- 2711 (1) Κόλα, υπερσυσκευασίες, εμπορευματοκιβώτια και δεξαμενές θα πρέπει να διαχωρίζονται κατά τη διάρκεια της μεταφοράς:

- (a) για σκοπούς ελέγχου της ακτινοβολίας, από θέσεις κατελημμένες από άτομα σε συμφωνία με τον Πίνακα 8 και από μη-εμφανισμένα φωτογραφικά φιλμ και ταχυδρομικούς σάκους, σε συμφωνία με τον Πίνακα 9.

**ΣΗΜΕΙΩΣΗ:** Οι ταχυδρομικοί σάκοι θα πρέπει να θεωρείται ότι περιέχουν μη-εμφανισμένα φιλμ και πλάκες και συνεπώς να διαχωρίζονται από ραδιενεργό υλικό με τον ίδιο τρόπο.

και

- (b) από άλλα επικίνδυνα εμπορεύματα σε συμφωνία με το περιθωριακό 2703, κεφάλαιο 7.

## Κλάση 7

2711 Πίνακας 8: Ελάχιστες αποστάσεις μεταξύ κόλων της κατηγορίας Π-ΚΙΤΡΙΝΗ ή της κατηγορίας (συνεχ.) ΙΙΙ-ΚΙΤΡΙΝΗ και ατόμων

Άθροισμα δεικτών μεταφοράς όχι μεγαλύτερο από	Ελάχιστες αποστάσεις σε μέτρα, χωρίς την παρεμβολή προστατευτικού υλικού, από κατοικίες ή τακτικά κατελημμένο χώρο εργασίας στην περίπτωση χρόνου έκθεσης όχι μεγαλύτερου από 250 ώρες ανά έτος
2	1.0
4	1.5
8	2.5
12	3.0
20	4.0
30	5.0
40	5.5
50	6.5

**ΣΗΜΕΙΩΣΗ:** Ο παραπάνω πίνακας βασίζεται σε όριο δόσης 5 mSv (500 mrem) σε οποιαδήποτε 12μηνη περίοδο.

Πίνακας 9: Ελάχιστες αποστάσεις μεταξύ κόλων της κατηγορίας Π-ΚΙΤΡΙΝΗ ή της κατηγορίας ΙΙΙ-ΚΙΤΡΙΝΗ και κόλων που φέρουν τη λέξη "ΦΟΤΟ", ή ταχυδρομικών σάκων

**ΣΗΜΕΙΩΣΗ:** Οι ταχυδρομικοί σάκοι θα πρέπει να θεωρείται ότι περιέχουν μη-εμφανιζόμενα φιλμ και πλάκες και συνεπώς να διαχωρίζονται από ραδιενεργό υλικό με τον ίδιο τρόπο.

Συνολικός αριθμός κόλων όχι μεγαλύτερος από		Άθροισμα δεικτών μεταφοράς όχι μεγαλύτερο από	Διάρκεια ταξιδιού ή αποθήκευσης, σε ώρες							
ΚΑΤΗΓΟΡΙΑ ΚΙΤΡΙΝΗ			1	2	4	10	24	48	120	240
ΙΙΙ	ΙΙ	Ελάχιστες αποστάσεις σε μέτρα								
		0.2	0.5	0.5	0.5	0.5	1	1	2	3
		0.5	0.5	0.5	0.5	1	1	2	3	5
	1	1	0.5	0.5	1	1	2	3	5	7
	2	2	0.5	1	1	1.5	3	4	7	9
	4	4	1	1	1.5	3	4	6	9	13
	8	8	1	1.5	2	4	6	8	13	18
1	10	10	1	2	3	4	7	9	14	20
2	20	20	1.5	3	4	6	9	13	20	30
3	30	30	2	3	5	7	11	16	25	35
4	40	40	3	4	5	8	13	18	30	40
5	50	50	3	4	6	9	14	20	32	45

## Κλάση 7

## Στοιβάγμα για Μεταφορά

- 2712 (1) Τα κόλα θα πρέπει να φορτώνονται έτσι σε οχήματα ώστε να μην μπορούν να μετατοπίζονται επικίνδυνα, να αναποδογυρίζουν ή να πέφτουν.
- (2) Υπό την προϋπόθεση ότι η μέση επιφανειακή εκροή θερμότητάς του δεν υπερβαίνει τα 15 W/m<sup>2</sup> και ότι το αμέσως περιβάλλον φορτίο δεν είναι σε τσουβάλια ή σάκους, ένα κόλο ή υπερσυσκευασία μπορεί να μεταφέρεται ανάμεσα σε συσκευασμένο γενικό φορτίο χωρίς οποιαδήποτε ειδική διάταξη στοιβάγματος εκτός εάν σχετικά απαιτείται από την αρμόδια αρχή σε ένα προς εφαρμογή πιστοποιητικό έγκρισης.
- (3) Εκτός από την περίπτωση φόρτωσης υπό ειδική ρύθμιση, η ανάμειξη κόλων διαφορετικών ειδών ραδιενεργού υλικού, συμπεριλαμβανομένου σχάσιμου υλικού και η ανάμειξη διαφορετικών ειδών κόλων με διαφορετικούς δείκτες μεταφοράς επιτρέπεται χωρίς σχετική έγκριση από αρμόδια αρχή. Στην περίπτωση φορτώσεων υπό ειδική ρύθμιση, ανάμειξη δεν θα πρέπει να επιτρέπεται εκτός εάν σχετικά ορίζεται υπό την ειδική ρύθμιση.
- (4) Οι παρακάτω διατάξεις θα πρέπει να εφαρμόζονται στις φορτώσεις οχημάτων-δεξαμενών και στις φορτώσεις κόλων, υπερσυσκευασιών, εμπορευματοκιβωτίων-δεξαμενών και εμπορευματοκιβωτίων στα οχήματα:
- (a) Ο δείκτης μεταφοράς ενός οχήματος-δεξαμενής δεν θα πρέπει να υπερβαίνει τα όρια στον Πίνακα 10. Ο συνολικός αριθμός κόλων, υπερσυσκευασιών, δεξαμενών και εμπορευματοκιβωτίων πάνω σ' ένα μόνο όχημα θα πρέπει να είναι έτσι περιορισμένος ώστε το συνολικό άθροισμα των δεικτών μεταφοράς πάνω στο όχημα να μην υπερβαίνει τις τιμές που εμφανίζονται στον Πίνακα 10.
- Για αποστολές LSA-I υλικού δεν θα πρέπει να υπάρχει όριο στο άθροισμα των δεικτών μεταφοράς.
- (b) Το επίπεδο ακτινοβολίας υπό συνθήκες πιθανές να συμβούν σε συνήθη μεταφορά δεν θα πρέπει να υπερβαίνει τα 2 mSv/h (200 mrem/h) σε οποιοδήποτε σημείο πάνω στην και 0.1 mSv/h (10 mrem/h) σε 2 m από την, εξωτερική επιφάνεια του οχήματος.
- (5) Οποιοδήποτε κόλο ή υπερσυσκευασία με δείκτη μεταφοράς μεγαλύτερο από 10, θα πρέπει να μεταφέρεται μόνον υπό αποκλειστική χρήση.

Πίνακας 10: Όρια δείκτη μεταφοράς για εμπορευματοκιβώτια και οχήματα

Τύπος εμπορευματοκιβωτίου ή οχήματος	Όριο στο συνολικό άθροισμα δεικτών μεταφοράς σε ένα μόνο εμπορευματοκιβώτιο ή πάνω σε ένα όχημα			
	Όχι υπό αποκλειστική χρήση		Υπό αποκλειστική χρήση	
	Μη-σχάσιμο Υλικό	Σχάσιμο Υλικό	Μη-σχάσιμο Υλικό	Σχάσιμο Υλικό
Μικρό εμπορευματοκιβώτιο	50	50	δεν εφαρμόζεται	δεν εφαρμόζεται
Μεγάλο εμπορευματοκιβώτιο	50	50	δεν υπάρχει όριο	100
Όχημα	50	50	δεν υπάρχει όριο	100

## Κλάση 7

## Πρόσθετες Διατάξεις

- 2713 (1) Για αποστολές υπό αποκλειστική χρήση, το επίπεδο ακτινοβολίας δεν θα πρέπει να υπερβαίνει τα:
- (a) 10 mSv/h (1000 mrem/h) σε οποιοδήποτε σημείο στην εξωτερική επιφάνεια οποιουδήποτε κόλου ή υπερσυσκευασίας και μπορεί μόνον να υπερβαίνει τα 2 mSv/h (200 mrem/h) υπό την προϋπόθεση ότι:
    - (i) το όχημα είναι εφοδιασμένο με ένα φράγμα που παρεμποδίζει μη-εξουσιοδοτημένη προσέγγιση στο φορτίο κατά τη διάρκεια της μεταφοράς και
    - (ii) γίνονται διατάξεις για την ασφάλιση κόλου ή υπερσυσκευασίας έτσι ώστε η θέση της στο όχημα να παραμένει μόνιμη κατά τη διάρκεια συνήθους μεταφοράς και
    - (iii) δεν υπάρχουν λειτουργίες φόρτωσης ή εκφόρτωσης μεταξύ της έναρξης και του τέλους της φόρτωσης.
  - (b) 2 mSv/h (200 mrem/h) σε οποιοδήποτε σημείο στις εξωτερικές επιφάνειες του οχήματος συμπεριλαμβανομένων των υψηλότερων και χαμηλότερων επιφανειών, ή, στην περίπτωση ανοιχτού οχήματος σε οποιοδήποτε σημείο στα κάθετα επίπεδα που προεξέχουν από τις εξωτερικές άκρες του οχήματος, στην υψηλότερη επιφάνεια του φορτίου και στην χαμηλότερη εξωτερική επιφάνεια του οχήματος και
  - (c) 0.1 mSv/h (10 mrem/h) σε οποιοδήποτε σημείο 2 m από τα κάθετα επίπεδα που παρατηρούνται από τις εξωτερικές πλάγιες επιφάνειες του οχήματος, ή, εάν το φορτίο μεταφέρεται σε ανοιχτό όχημα, σε οποιοδήποτε σημείο 2 m από τα κάθετα επίπεδα που προεξέχουν από τις εξωτερικές άκρες του οχήματος.
- (2) Το επίπεδο ακτινοβολίας σε οποιαδήποτε κανονικά κατειλημμένη θέση του οχήματος δεν θα πρέπει να υπερβαίνει τα 0.02 mSv/h (2 mrem/h) εκτός εάν τα άτομα που καταλαμβάνουν τέτοιες θέσεις είναι εφοδιασμένα με προσωπικές συσκευές μέτρησης.

## Αποθήκευση σε διαμετακόμιση

- 2714 (1) Κόλα, υπερσυσκευασίες, εμπορευματοκιβώτια και δεξαμενές θα πρέπει να διαχωρίζονται κατά τη διάρκεια αποθήκευσης σε διαμετακόμιση:
- (a) για σκοπούς ελέγχου της έκθεσης στην ακτινοβολία, από θέσεις κατειλημμένες από άτομα, σε συμφωνία με τον Πίνακα 8 του περιθωριακού 2711 και από μη-εμφανισμένα φωτογραφικά φιλμ και ταχυδρομικούς σάκους, σε συμφωνία με τον Πίνακα 9 του περιθωριακού 2711,
 

***ΣΗΜΕΙΩΣΗ:** Οι ταχυδρομικοί σάκοι θα πρέπει να θεωρείται ότι περιέχουν μη-εμφανισμένα φιλμ και πλάκες και συνεπώς να διαχωρίζονται από ραδιενεργό υλικό με τον ίδιο τρόπο.*
  - (b) από άλλα επικίνδυνα εμπορεύματα σε συμφωνία με το περιθωριακό 2703, κεφάλαιο 7.
- (2) Ο αριθμός των κόλων, υπερσυσκευασιών, δεξαμενών και εμπορευματοκιβωτίων κατηγορίας II-KITPINH και κατηγορίας III-KITPINH, που αποθηκεύονται σε οποιοδήποτε μέρος θα πρέπει να είναι έτσι περιορισμένος ώστε το συνολικό άθροισμα των δεικτών μεταφοράς σε οποιαδήποτε μεμονωμένη ομάδα τέτοιων κόλων, υπερσυσκευασιών, δεξαμενών ή εμπορευματοκιβωτίων να μην υπερβαίνει το 50. Ομάδες τέτοιων κόλων, υπερσυσκευασιών, δεξαμενών και εμπορευματοκιβωτίων θα πρέπει να αποθηκεύονται έτσι ώστε να διατηρούν ένα διάστημα τουλάχιστον 6 m από άλλες ομάδες τέτοιων κόλων, υπερσυσκευασιών, δεξαμενών ή εμπορευματοκιβωτίων.



## Κλάση 7

- 2714** (3) Εάν ο δείκτης μεταφοράς ενός μονού κόλου, υπερσυσκευασίας, δεξαμενής ή (συνεχ.) εμπορευματοκιβωτίου υπερβαίνει το 50 ή ο συνολικός δείκτης μεταφοράς ενός οχήματος υπερβαίνει το 50, όπως επιτρέπεται στον Πίνακα 10, η αποθήκευση θα πρέπει να είναι έτσι ώστε να διατηρεί ένα διάστημα τουλάχιστον 6 m από άλλες ομάδες κόλων, υπερσυσκευασιών, δεξαμενών, εμπορευματοκιβωτίων ή οχημάτων που μεταφέρουν ραδιενεργό υλικό.
- (4) Αποστολές στις οποίες το μόνο ραδιενεργό περιεχόμενο είναι LSA-I υλικά θα πρέπει να εξαιρούνται από τις διατάξεις των παραγράφων (2) και (3) παραπάνω.
- (5) Εκτός από την περίπτωση φόρτωσης υπό ειδική ρύθμιση, μικτή φόρτωση κόλων διαφορετικών ειδών ραδιενεργού υλικού, συμπεριλαμβανομένου σχάσιμου υλικού και μικτή φόρτωση διαφορετικών ειδών κόλων με διαφορετικούς δείκτες μεταφοράς είναι επιτρεπόμενες χωρίς σχετική έγκριση από αρμόδια αρχή. Στην περίπτωση φόρτωσης υπό ειδική ρύθμιση, μικτή φόρτωση δεν θα πρέπει να επιτρέπεται εκτός εάν σχετικά ορίζεται υπό την ειδική ρύθμιση.

**Μη-παραλαμβανόμενες Αποστολές**

- 2715** Εάν ούτε ο αποστολέας ούτε ο παραλήπτης μπορούν να προσδιοριστούν, ή εάν η αποστολή δεν μπορεί να παραδοθεί στον παραλήπτη και ο μεταφορέας δεν έχει οδηγίες από τον αποστολέα η αποστολή θα πρέπει να τοποθετείται σε ασφαλή θέση και θα πρέπει να πληροφορείται η αρμόδια αρχή το συντομότερο δυνατόν και να ζητούνται οδηγίες για περαιτέρω ενέργειες.

**2716** **Περίληψη διατάξεων έγκρισης και προηγούμενης γνωστοποίησης**

**ΣΗΜΕΙΩΣΗ 1:** Πριν την πρώτη φόρτωση οποιονδήποτε κόλου που απαιτεί έγκριση του σχεδιασμού από αρμόδια αρχή, ο αποστολέας πρέπει να εξασφαλίζει ότι ένα αντίγραφο του πιστοποιητικού έγκρισης για εκείνον τον σχεδιασμό έχει υποβληθεί στην αρμόδια αρχή κάθε χώρας του δρομολογίου: βλέπε περιθωριακό 3719 (1).

**ΣΗΜΕΙΩΣΗ 2:** Γνωστοποίηση απαιτείται εάν το περιεχόμενο υπερβαίνει τα  $3 \times 10^3 A_1$ , ή  $3 \times 10^3 A_2$ , ή 1000 TBq (20 kCi), βλέπε περιθωριακό 3719 (2).

**ΣΗΜΕΙΩΣΗ 3:** Πολυμερής έγκριση της φόρτωσης απαιτείται εάν το περιεχόμενο υπερβαίνει τα  $3 \times 10^3 A_1$ , ή  $3 \times 10^3 A_2$ , ή 1000 TBq (20 kCi), ή εάν επιτρέπεται ελεγχόμενος περιοδικός εξαερισμός, βλέπε περιθωριακό 3757.

**ΣΗΜΕΙΩΣΗ 4:** Βλέπε διατάξεις έγκρισης και προηγούμενης γνωστοποίησης για το εφαρμοσμένο κόλο.

## Κλάση 7

2716

(συνεχ.)

Αντικείμενο	Αριθμός Προγράμματος	Απαιτείται έγκριση από Αρμόδια Αρχή		Ο αποστολές απαιτείται να ενημερώνει τις αρμόδιες αρχές της χώρας προέλευσης και των χωρών του δρομολογίου <sup>α</sup> πριν από κάθε φόρτωση	Περιθωριακά
		Χώρα προέλευσης	Χώρες στο δρομολόγιο <sup>α</sup>		
Υπολογισμός των μη-αναφερόμενων τιμών A <sub>1</sub> και A <sub>2</sub>	-	Ναι	Ναι	Όχι	3750 (f)
Εξαιρούμενα κόλα - σχεδιασμός κόλου - φόρτωση	- 1 έως 4	Όχι Όχι	Όχι Όχι	Όχι Όχι	3713
LSA υλικό <sup>β</sup> και SCO <sup>β</sup> /Βιομηχανικά κόλα τύπων 1, 2 ή 3 - σχεδιασμός κόλου - φόρτωση	- 5 έως 8	Όχι Όχι	Όχι Όχι	Όχι Όχι	2700 (2) 3714, 3733, 3734, 3735, 3736
Κόλα Τύπου A <sup>β</sup> - σχεδιασμός κόλου - φόρτωση	- 9	Όχι Όχι	Όχι Όχι	Όχι Όχι	2700 (2), 3737
Κόλα Τύπου B(U) <sup>β</sup> - σχεδιασμός κόλου - φόρτωση	- 10	Ναι Όχι	Όχι Όχι	Βλέπε Σημείωση 1 Βλέπε Σημείωση 2	2700 (2), 3719, 3739, 3752
Κόλα Τύπου B(M) <sup>β</sup> - σχεδιασμός συσκευασίας - φόρτωση	- 11	Ναι Βλέπε Σημείωση 3	Ναι Βλέπε Σημείωση 3	Όχι Ναι	2700 (2), 3719, 3740, 3753, 3757
Κόλα για σχάσιμο υλικό - σχεδιασμός κόλου - φόρτωση : άθροισμα δεικτών μεταφοράς όχι-μεγαλύτερο από 50 : άθροισμα δεικτών μεταφοράς μεγαλύτερο από 50	- 12	Ναι <sup>ε</sup>	Ναι <sup>ε</sup>	Όχι	3741, 3754,
		Όχι <sup>ε</sup>	Όχι <sup>ε</sup>	Βλέπε Σημείωση 2	3757
		Ναι	Ναι	Βλέπε Σημείωση 2	
Ειδικής μορφής ραδιενεργό υλικό - σχεδιασμός - φόρτωση	- Βλέπε Σημείωση 4	Ναι Βλέπε Σημείωση 4	Όχι Βλέπε Σημείωση 4	Όχι Βλέπε Σημείωση 4	3731, 3751, 3761
Ειδική Ρύθμιση - φόρτωση	13	Ναι	Ναι	Ναι	3719, 3758, 3762
Κόλα Τύπου B(U), Κόλα Τύπου B(M) και Κόλα που περιέχουν σχάσιμο υλικό, που ικανοποιεί τις διατάξεις της ADR που εφαρμόζεται στις 31.12.1989	-	Ναι	Ναι	Βλέπε Σημείωση 1	3755

<sup>α</sup> Χώρες από, μέσω των οποίων ή στις οποίες μεταφέρεται το φορτίο.

<sup>β</sup> Εάν το ραδιενεργό περιεχόμενο είναι σχάσιμο υλικό που δεν είναι εξαιρούμενο από τις διατάξεις για κόλα που περιέχουν σχάσιμο υλικό, τότε οι διατάξεις για κόλα σχάσιμου υλικού εφαρμόζονται, βλέπε περιθωριακό 3741.

<sup>ε</sup> Σχεδιασμοί κόλων για σχάσιμο υλικό μπορούν επίσης να απαιτούν έγκριση σε σχέση με ένα από τα άλλα είδη στον πίνακα.

<sup>ε</sup> Αποστολές μπορούν, όμως, να απαιτούν έγκριση σε σχέση με ένα από τα άλλα είδη στον πίνακα.

2717-

2799

## ΚΛΑΣΗ 8. ΔΙΑΒΡΩΤΙΚΕΣ ΥΛΕΣ

## 1. Κατάλογος υλών

- 2800 (1) Ανάμεσα στις ύλες και τα είδη που καλύπτονται από τον τίτλο της κλάσης 8, εκείνα που αναφέρονται στο περιθωριακό 2801 ή καλύπτονται από ένα συγκεντρωτικό κεφάλαιο σε εκείνο το περιθωριακό υπόκεινται στις συνθήκες που τίθενται στα περιθωριακά 2800 (2) έως 2822 και στις διατάξεις αυτού του παραρτήματος και του παραρτήματος Β. Θεωρούνται τότε ως ύλες και είδη αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ:** Για τις ποσότητες υλών που αναφέρονται στο περιθωριακό 2801 που δεν υπόκεινται στις "διατάξεις για αυτήν την Κλάση", είτε σε αυτό το Παράρτημα είτε στο Παράρτημα Β, βλέπε περιθωριακό 2801α.

(2) Ο τίτλος της κλάσης 8 καλύπτει ύλες που με χημική δράση προσβάλλουν τον επιθηλιακό ιστό - του δέρματος ή των βλεννογόνων υμένων - με τον οποίο είναι σε επαφή και ύλες που σε περίπτωση διαρροής είναι ικανές να βλάψουν ή καταστρέψουν άλλα εμπορεύματα, ή μέσα μεταφοράς και μπορούν επίσης να προκαλέσουν άλλους κινδύνους. Ο τίτλος αυτής της κλάσης επίσης καλύπτει άλλες ύλες που σχηματίζουν ένα διαβρωτικό υγρό μόνον με την παρουσία νερού, ή που παράγουν διαβρωτικό ατμό ή νέφος κατά την παρουσία φυσικής υγρασίας του αέρα.

- (3) (α) Οι ύλες και τα είδη της κλάσης 8, υποδιαιρούνται ως εξής:

- A. Ώξινες ύλες,
- B. Βασικές ύλες,
- C. Άλλες διαβρωτικές ύλες,
- D. Είδη που περιέχουν διαβρωτικές ύλες,
- E. Κενές συσκευασίες.

- (b) Ύλες και είδη της κλάσης 8 που ταξινομούνται υπό τα διάφορα είδη του περιθωριακού 2801 άλλα από ύλες των 6°, 14° και 15° θα πρέπει να καταχωρούνται σε μία από τις παρακάτω ομάδες που χαρακτηρίζονται με το γράμμα (a), (b) και (c) σύμφωνα με το βαθμό τοξικότητάς τους:

(a) εξαιρετικά διαβρωτικά,

(b) διαβρωτικά,

(c) ελαφρώς διαβρωτικά.

- (c) Η κατάταξη υλών στις ομάδες (a), (b) και (c) έχει γίνει με βάση την εμπειρία λαμβάνοντας υπόψη τέτοιες πρόσθετες παραμέτρους όπως κίνδυνο σε περίπτωση εισπνοής<sup>1/</sup> και δραστηριότητα με το νερό (συμπεριλαμβανομένου του σχηματισμού επικίνδυνων προϊόντων αποσύνθεσης). Ο βαθμός διαβρωτικότητας υλών χωρίς συγκεκριμένη ονομασία, συμπεριλαμβανομένων μειγμάτων, μπορεί να κριθεί από τη διάρκεια του χρόνου επαφής που είναι αναγκαία για την πρόκληση καταστροφής όλου του πάχους του ανθρώπινου δέρματος.

<sup>1/</sup> Μία ύλη ή παρασκευάσμα που ικανοποιούν τα κριτήρια της κλάσης 8 με τοξικότητα εισπνοής σκόνης και νέφους (LC<sub>50</sub>) στο πεδίο της ομάδας (a), αλλά τοξικότητα μέσω στοματικής κατάποσης ή δερματικής επαφής μόνον στο πεδίο της ομάδας (c) ή λιγότερο, θα πρέπει να τοποθετείται στην κλάση 8.

## Κλάση 8

2800  
(συνεχ.)

Ύλες που κρίνονται ως μη προκαλούσες καταστροφή όλου του πάχους του ανθρώπινου δέρματος θα πρέπει εν τούτοις να εξετάζονται για την δυνατότητά τους να προκαλούν διάβρωση σε ορισμένες μεταλλικές επιφάνειες. Για την πραγματοποίηση αυτής της ομαδοποίησης, θα πρέπει να λαμβάνεται υπόψη της ανθρώπινης εμπειρίας σε περίπτωση τυχαίας έκθεσης. Σε περίπτωση απουσίας ανθρώπινης εμπειρίας, η ομαδοποίηση θα πρέπει να βασίζεται σε δεδομένα που λαμβάνονται από πειράματα σε ζώα σε συμφωνία με την OECD Οδηγία 404.<sup>2/</sup>

- (d) Ύλες που προκαλούν καταστροφή όλου του πάχους ανέπαφου δερματικού ιστού μέσα σε μία περίοδο παρακολούθησης έως 60 λεπτών αρχής γενομένης μετά από χρόνο έκθεσης 3 λεπτών ή μικρότερο είναι ύλες της ομάδας (a).
- (e) Ύλες που προκαλούν καταστροφή όλου του πάχους ανέπαφου δερματικού ιστού μέσα σε μία περίοδο παρακολούθησης έως 14 ημέρες αρχής γενομένης μετά από χρόνο έκθεσης μεγαλύτερο από 3 λεπτά αλλά όχι μεγαλύτερο από 60 λεπτά είναι ύλες της ομάδας (b).
- (f) Οι παρακάτω είναι ύλες της ομάδας (c):
- ύλες που προκαλούν καταστροφή όλου του πάχους ανέπαφου δερματικού ιστού μέσα σε μία περίοδο παρακολούθησης έως 14 ημέρες αρχής γενομένης μετά από χρόνο έκθεσης μεγαλύτερο από 60 λεπτά αλλά όχι μεγαλύτερο από 4 ώρες,
  - ύλες που κρίνονται όχι ως προκαλούσες καταστροφή όλου του πάχους ανέπαφου δερματικού ιστού, αλλά που εμφανίζουν ένα ρυθμό διάβρωσης σε χαλύβδινες ή αλουμινένιες επιφάνειες μεγαλύτερο από 6.25 mm ανά έτος σε θερμοκρασία ελέγχου 55 °C. Για τους σκοπούς ελέγχου σε χάλυβα, ο τύπος P3 (ISO 2604 (IV), 1975) ή παρόμοιος τύπος, και για έλεγχο σε αλουμίνιο, μη-επενδεδυμένοι τύποι 7075-T6 ή AZ5GU-T6 θα πρέπει να χρησιμοποιούνται.

(4) Εάν ύλες της κλάσης 8, ως αποτέλεσμα προσμίξεων, μεταπηδούν σε διαφορετικές κατηγορίες κινδύνου από εκείνες στις οποίες οι ύλες με συγκεκριμένη ονομασία στο περιθωριακό 2801 ανήκουν, αυτά τα μείγματα ή διαλύματα θα πρέπει να καταχωρούνται στα είδη και τις ομάδες στις οποίες ανήκουν με βάση τον πραγματικό βαθμό κινδύνου τους.

**ΣΗΜΕΙΩΣΗ:** Για την ταξινόμηση διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα), βλέπε επίσης περιθωριακό 2002 (8).

(5) Με βάση τα κριτήρια που τίθενται στο (3), μπορεί επίσης να καθορίζεται εάν η φύση ενός διαλύματος ή μείγματος που έχει συγκεκριμένη ονομασία ή που περιέχει μία ύλη με συγκεκριμένη ονομασία είναι τέτοια ώστε το διάλυμα ή το μείγμα να μην υπόκειται στις διατάξεις για αυτήν την κλάση.

(6) Για τις απαιτήσεις συσκευασίας των περιθωριακών 2805 (2), 2806 (3) και 2807 (3), ύλες και μείγματα υλών με σημείο τήξης υψηλότερο από 45 °C θεωρούνται ότι είναι στερεά.

- (7) (a) Εύφλεκτα διαβρωτικά υγρά με σημείο ανάφλεξης χαμηλότερο από 23 °C, αλλά από ύλες των 54° (a) και 68° (a), είναι ύλες της κλάσης 3 (βλέπε περιθωριακό 2301, είδη 21° έως 26°).
- (b) Εύφλεκτα, ελαφρώς διαβρωτικά υγρά με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C, είναι ύλες της κλάσης 3 (βλέπε περιθωριακό 2301, 33°).

<sup>2/</sup>

OECD Οδηγίες για Έλεγχο των Χημικών, Αριθμ. 404 "Όξυς Δερματικός Ερεθισμός/Διάβρωση" (1992).

## Κλάση 8

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(συνεχ.)

- (c) Διαβρωτικές ύλες που είναι εξαιρετικά τοξικές με την εισπνοή, όπως ορίζεται στο περιθωριακό 2600 (3), είναι ύλες της κλάσης 6.1 (βλέπε περιθωριακό 2601).

(8) Οι χημικά ασταθείς ύλες της κλάσης 8 θα γίνονται δεκτές για μεταφορά μόνον εάν έχουν ληφθεί τα αναγκαία μέτρα για την αποφυγή της επικίνδυνης αποσύνθεσης ή του πολυμερισμού τους κατά τη διάρκεια της μεταφοράς. Για το σκοπό αυτό θα πρέπει ειδικά να βεβαιώνεται ότι εκείνα τα δοχεία δεν περιέχουν οποιαδήποτε ύλη υποκείμενη στην προαγωγή αυτών των αντιδράσεων.

(9) το 1910 οξειδίο του ασβεστίου και το 2812 αργιλικό νάτριο, με χαρακτηριστικούς αριθμούς που καθορίζονται στις Υποδείξεις για τη Μεταφορά Επικίνδυνων Εμπορευμάτων των Ηνωμένων Εθνών, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

(10) Το σημείο ανάφλεξης που αναφέρεται παρακάτω θα πρέπει να προσδιορίζεται με τον τρόπο που περιγράφεται στην προσθήκη A.3.

## A. Ώξινες ύλες

2801

## Ανόργανες ύλες

1° Θεικό οξύ και παρόμοιες ύλες:

- (a) 1829 τριοξειδίο του θείου, αδρανές (θειικός ανυδρίτης, αδρανής), 1831 θειικό οξύ, ατμίζον (oleum), 2240 χρωμοθειικό οξύ,
- (b) 1794 θειικός μολυβδος με περισσότερο από 3 % ελεύθερο οξύ, 1830 θειικό οξύ με περισσότερο από 51 % οξύ, 1832 θειικό οξύ, χρησιμοποιημένο, 1833 θειώδες οξύ, 1906 θειικό οξύ που αποβάλλεται μετά τον καθαρισμό του πετρελαίου, 2308 νιτροδολοθειικό οξύ, 2583 αλκυλοσουλφονικά οξέα, στερεά με περισσότερο από 5 % ελεύθερο θειικό οξύ ή 2583 αρυλοσουλφονικά οξέα, στερεά με περισσότερο από 5 % ελεύθερο θειικό οξύ, 2584 αλκυλοσουλφονικά οξέα, υγρά με περισσότερο από 5 % ελεύθερο θειικό οξύ ή 2584 αρυλοσουλφονικά οξέα, υγρά με περισσότερο από 5 % ελεύθερο θειικό οξύ, 2796 θειικό οξύ με όχι περισσότερο από 51 % οξύ ή 2796 υγρά μπαταρίας, όξινα, 2837 υδατικό διάλυμα διθειικών αλάτων (υδατικό διάλυμα όξινου θειικού άλατος).

**ΣΗΜΕΙΩΣΗ 1:** 2585 αλκυλοσουλφονικά ή αρυλοσουλφονικά οξέα, στερεά και 2586 αλκυλοσουλφονικά ή αρυλοσουλφονικά οξέα, υγρά με όχι περισσότερο από 5 % ελεύθερο θειικό οξύ είναι ύλες του είδους 34°.

**ΣΗΜΕΙΩΣΗ 2:** Θεικός μολυβδος με όχι περισσότερο από 3 % ελεύθερο οξύ δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 3:** Χημικά ασταθή μείγματα θειικού οξέος, χρησιμοποιημένου, δεν θα γίνονται δεκτά για μεταφορά.

- (c) 2837 υδατικά διαλύματα διθειικών αλάτων (υδατικό διάλυμα όξινου θειικού άλατος).

2° Νιτρικά οξέα:

- (a) 1. 2031 νιτρικό οξύ, άλλο από ερυθρό ατμίζον, με περισσότερο από 70 % οξύ.  
2. 2032 νιτρικό οξύ, ερυθρό ατμίζον.
- (b) 2031 νιτρικό οξύ, άλλο από ερυθρό ατμίζον, με όχι περισσότερο από 70 % οξύ.

## Κλάση 8

2801  
(συνεχ.)

3° Μείγματα οξέος □ νίτρωσης:

- (a) 1796 μείγμα οξέος νίτρωσης με περισσότερο από 50 % νιτρικό οξύ, 1826 μείγμα οξέος νίτρωσης, χρησιμοποιημένο με περισσότερο από 50 % νιτρικό οξύ,
- (b) 1796 μείγμα οξέος νίτρωσης με όχι περισσότερο από 50 % νιτρικό οξύ, 1826 μείγμα οξέος νίτρωσης, χρησιμοποιημένο με όχι περισσότερο από 50 % νιτρικό οξύ.

**ΣΗΜΕΙΩΣΗ 1:** 1798 νιτρούδροχλωρικό οξύ δεν θα γίνεται δεκτό για μεταφορά.

**ΣΗΜΕΙΩΣΗ 2:** Χημικώς ασταθή μείγματα οξέος νίτρωσης ή μείγματα υπολειπόμενων θειικών και νιτρικών οξέων, όχι απονιτρωμένα, δεν θα γίνονται δεκτά για μεταφορά.

4° Διάλυμα υπερχλωρικού οξέος:

- (b) 1802 υπερχλωρικό οξύ με όχι περισσότερο από 50 % οξύ, κατά βάρος σε υδατικό διάλυμα.

**ΣΗΜΕΙΩΣΗ 1:** 1873 υδατικό διάλυμα υπερχλωρικού οξέος με περισσότερο από 50 % αλλά όχι περισσότερο από 72 % καθαρό οξύ, κατά βάρος είναι όλες της κλάσης 5.1 [(βλέπε περιθωριακό 2501, είδος 3° (a)].

**ΣΗΜΕΙΩΣΗ 2:** Υδατικό διάλυμα υπερχλωρικού οξέος με περισσότερο από 72 % καθαρό οξύ, κατά βάρος, ή μείγματα υπερχλωρικού οξέος με οποιοδήποτε υγρό άλλο από νερό, δεν θα γίνονται δεκτά για μεταφορά.

5° Υδατικά διαλύματα υδραλογονιδίων, με εξαίρεση το υδροφθορικό οξύ:

- (b) 1787 υδροϊωδικό οξύ, 1788 υδροβρωμικό οξύ, 1789 υδροχλωρικό οξύ,

- (c) 1787 υδροϊωδικό οξύ, 1788 υδροβρωμικό οξύ, 1789 υδροχλωρικό οξύ, 1840 διάλυμα χλωριούχου ψευδάργυρου, 2580 διάλυμα βρωμιούχου αλουμινίου, 2581 διάλυμα χλωριούχου αλουμινίου, 2582 διάλυμα χλωριούχου σιδήρου (III) (διάλυμα τριχλωριούχου σιδήρου).

**ΣΗΜΕΙΩΣΗ:** Υδροβρώμιο, άνυδρο και υδροχλώριο, άνυδρο είναι όλες της κλάσης 2 [βλέπε περιθωριακό 2201, 3° (at) και 5° (at)].

6° Μείγματα υδροφθόριου και υδροφθορικού οξέος με περισσότερο από 85 % υδροφθόριο:

1052 υδροφθόριο, άνυδρο, 1790 υδροφθορικό οξύ με περισσότερο από 85 % υδροφθόριο.

**ΣΗΜΕΙΩΣΗ:** Ειδικές διατάξεις συσκευασίας εφαρμόζονται σ' αυτές τις ύλες (βλέπε περιθωριακό 2803).

7° Μείγματα υδροφθόριου με όχι περισσότερο από 85 % υδροφθόριο:

- (a) 1786 μείγμα υδροφθορικού οξέος και θειικού οξέος, 1790 υδροφθορικό οξύ με περισσότερο από 60 % αλλά όχι περισσότερο από 85 % υδροφθόριο,

- (b) 1790 υδροφθορικό οξύ με όχι περισσότερο από 60 % υδροφθόριο, 2817 διάλυμα όξινου διφθοριούχου αμμωνίου (διάλυμα διφθοριούχου αμμωνίου),

- (c) 2817 διάλυμα όξινου διφθοριούχου αμμωνίου (διάλυμα διφθοριούχου αμμωνίου).

## Κλάση 8

2801  
(συνεχ.)

8° Φθορο-όξινες ύλες:

- (a) 1777 φθοροσουλφονικό οξύ,
- (b) 1757 διάλυμα χρωμικού φθορίδιου, 1768 διφθοροφωσφορικό οξύ, άνυδρο, 1775 φθοροβορικό οξύ, 1776 φθοροφωσφορικό οξύ, άνυδρο, 1778 φθοροπυριτικό οξύ, 1782 εξαφθοροφωσφορικό οξύ,
- (c) 1757 διάλυμα χρωμικού φθορίδιου.

9° Στερεά φθορίδια και άλλες στερεές φθοριωμένες ύλες που, σε επαφή με υγρό αέρα ή νερό, εκλύουν υδροφθόριο:

- (b) 1727 όξινο διφθοριούχο αμμώνιο, στερεό, 1756 χρωμικό φθορίδιο, στερεό, 1811 όξινο διφθοριούχο κάλιο (διφθοριούχο κάλιο), 2439 όξινο διφθοριούχο νάτριο (διφθοριούχο νάτριο), 1740 όξινα διφθορίδια, ε.α.ο.,
- (c) 1740 όξινα διφθορίδια, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** 2505 φθοριούχο αμμώνιο, 1812 φθοριούχο κάλιο, 1690 φθοριούχο νάτριο, 2674 φθοροπυριτικό νάτριο και 2856 φθοροπυριτικά άλατα, ε.α.ο. είναι ύλες της κλάσης 6.1 [βλέπε περιθωριακό 2601, 63° (c), 64° (c) ή 87° (c)].

10° Υγρά φθορίδια και άλλες υγρές φθοριωμένες ύλες που, σε επαφή με υγρό αέρα ή νερό, εκλύουν υδροφθόριο:

- (b) 1732 πενταφθοριούχο αντιμόνιο, 2851 τριφθοριούχο βόριο διένυδρο

**ΣΗΜΕΙΩΣΗ:** 1745 πενταφθοριούχο βρώμιο, 1746 τριφθοριούχο βρώμιο και 2495 πενταφθοριούχο ιώδιο είναι ύλες της κλάσης 5.1 (βλέπε περιθωριακό 2501, 5°).

11° Στερεά αλογονίδια και άλλες στερεές αλογονωμένες ύλες, με εξαίρεση τις ενώσεις φθορίου, που, σε επαφή με υγρό αέρα ή νερό, εκλύουν όξινους ατμούς:

- (b) 1725 βρωμιούχο αλουμίνιο, άνυδρο, 1726 χλωριούχο αλουμίνιο, άνυδρο, 1733 τριχλωριούχο αντιμόνιο, 1806 πενταχλωριούχος φωσφόρος, 1939 οξυβρωμιούχος φωσφόρος, 2691 πενταβρωμιούχος φωσφόρος, 2869 μείγμα τριχλωριούχου τιτανίου

**ΣΗΜΕΙΩΣΗ:** Στερεές ένυδρες μορφές βρωμιούχου αλουμινίου και χλωριούχου αλουμινίου δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

- (c) 1773 χλωριούχος σίδηρος, άνυδρος (χλωριούχος σίδηρος (III), άνυδρος), 2331 χλωριούχος ψευδάργυρος, άνυδρος, 2440 χλωριούχος κασσίτερος (IV) πενταένυδρος, 2475 τριχλωριούχο βανάδιο, 2503 τετραχλωριούχο ζιρκόνιο, 2508 πενταχλωριούχο μολυβδένιο, 2802 χλωριούχος γαλκός, 2869 μείγμα τριχλωριούχου τιτανίου.

**ΣΗΜΕΙΩΣΗ:** Χλωριούχος σίδηρος (III) εξαένυδρος δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

12° Υγρά αλογονίδια και άλλες υγρές αλογονωμένες ύλες, με εξαίρεση τις ενώσεις φθορίου, που, σε επαφή με υγρό αέρα ή νερό, εκλύουν όξινους ατμούς:

## Κλάση 8

2801  
(συνεχ.)

- (a) 1754 γλωροσουλφονικό οξύ με ή χωρίς τριοξείδιο του θείου, 1758 οξυγλωριούχο χρώμιο (γλωριούχο χρωμύλιο), 1809 τριγλωριούχος φωσφόρος, 1828 θειογλωρίδια, 1834 σουλφουρυλογλωρίδιο, 1836 θειονυλογλωρίδιο, 2444 τετραγλωριούχο βανάδιο, 2692 τριβρωμιούχο βόριο (βρωμιούχο βόριο), 2879 οξυγλωριούχο σελήνιο,
- (b) 1730 πενταγλωριούχο αντιμόνιο, υγρό, 1731 διάλυμα πενταγλωριούχου αντιμόνιου, 1792 μονογλωριούχο ιώδιο, 1808 τριβρωμιούχος φωσφόρος, 1810 οξυγλωριούχος φωσφόρος (φωσφορυλογλωρίδιο), 1817 πυροσουλφουρυλογλωρίδιο, 1818 τετραγλωριούχο πυρίτιο, 1827 γλωριούχος κασσίτερος (IV), άνυδρος, 1837 θειοφωσφορυλογλωρίδιο, 1838 τετραγλωριούχο τιτάνιο, 2443 οξυτριγλωριούχο βανάδιο,
- (c) 1731 διάλυμα πενταγλωριούχου αντιμόνιου

13° Στερεά όξινα θειικά άλατα:

- (b) 2506 όξινο θειικό αμμώνιο (διθειικό αμμώνιο), 2509 όξινο θειικό κάλιο (διθειικό κάλιο).

14° Βρώμιο ή διαλύματα βρωμίου:

1744 βρώμιο ή 1744 διάλυμα βρωμίου.

*ΣΗΜΕΙΩΣΗ: Ειδικές διατάξεις συσκευασίας εφαρμόζονται σ' αυτές τις ύλες (βλέπε περιθωριακό 2804).*

15° Ανόργανη όξινη ύλη σε τετηγμένη μορφή:

2576 οξυβρωμιούχος φωσφόρος, τετηγμένος.

16° Στερεές ανόργανες όξινες ύλες και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 1905 σεληνικό οξύ, 3260 διαβρωτικά στερεά, όξινα, ανόργανα, ε.α.ο.,
- (b) 1807 πεντοξείδιο του φωσφόρου (φωσφορικό οξύ, άνυδρο), 3260 διαβρωτικά στερεά, όξινα, ανόργανα, ε.α.ο.,
- (c) 2507 γλωροπλατινικό οξύ, στερεό, 2578 τριοξείδιο του φωσφόρου, 2834 φωσφορώδες οξύ, 2865 θειική υδροξυλαμίνη, 2967 σουλφαμικό οξύ, 3260 διαβρωτικά στερεά, όξινα, ανόργανα, ε.α.ο.

17° Υγρές ανόργανες όξινες ύλες και διαλύματα και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3264 διαβρωτικά υγρά, όξινα, ανόργανα, ε.α.ο.,
- (b) 1755 διάλυμα χρωμικού οξέος, 3264 διαβρωτικά υγρά, όξινα, ανόργανα, ε.α.ο.,
- (c) 1755 διάλυμα χρωμικού οξέος, 1805 φωσφορικό οξύ, 2693 υδατικά διαλύματα διθειωδών αλάτων, ε.α.ο., 3264 διαβρωτικά υγρά, όξινα, ανόργανα, ε.α.ο.



## Κλάση 8

2801  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ:** 1463 τριοξείδιο του χρωμίου, άνυδρο (χρωμικό οξύ, στερεό) είναι ύλη της Κλάσης 5.1 [(βλέπε περιθωριακό 2501, 31° (b)).

## Οργανικές ύλες

31° Στερεά καρβοξυλικά οξέα και ανυδρίτες και στερεά αλογονωμένα καρβοξυλικά οξέα και ανυδρίτες:

- (b) 1839 τριγλωροξικό οξύ, 1938 βρωμοξικό οξύ,  
 (c) 2214 φθαλκός ανυδρίτης με περισσότερο από 0.05 % μηλεϊνικό ανυδρίτη,  
2215 μηλεϊνικός ανυδρίτης, 2698 τετραϋδροφθαλκοί ανυδρίτες με περισσότερο από  
0.05 % μηλεϊνικό ανυδρίτη, 2823 κροτονικό οξύ.

**ΣΗΜΕΙΩΣΗ 1:** Φθαλκός ανυδρίτης και τετραϋδροφθαλκοί ανυδρίτες με όχι περισσότερο από 0.05 % μηλεϊνικό ανυδρίτη δεν υπόκεινται στις διατάξεις αυτής της κλάσης.

**ΣΗΜΕΙΩΣΗ 2:** Φθαλκός ανυδρίτης με όχι περισσότερο από 0.05 % μηλεϊνικό ανυδρίτη μεταφερόμενος ή παραδιδόμενος για μεταφορά στην ττηγμένη κατάσταση σε θερμοκρασία μεγαλύτερη από το σημείο ανάφλεξης του είναι ύλη της κλάσης 3 (βλέπε περιθωριακό 2301, 61°).

32° Υγρά καρβοξυλικά οξέα και ανυδρίτες και υγρά αλογονωμένα καρβοξυλικά οξέα και ανυδρίτες:

- (a) 2699 τριφθοροξικό οξύ,  
 (b) 1. 1764 διγλωροξικό οξύ, 1779 μυρμηκικό οξύ, 1940 θειογλυκολικό οξύ,  
2564 διάλυμα τριγλωροξικού οξέος, 2790 διάλυμα οξικού οξέος με όχι λιγότερο  
από 50 % αλλά όχι περισσότερο από 80 % οξύ, κατά βάρος,  
 2. 1715 οξικός ανυδρίτης, 2218 ακρυλικό οξύ, αδρανές, 2789 οξικό οξύ,  
παγόμορφο ή 2789 διάλυμα οξικού οξέος, με περισσότερο από 80 % οξύ, κατά  
βάρος,  
 (c) 1848 προπιονικό οξύ, 2496 προπιονικός ανυδρίτης,  
2511 2-γλωροπροπιονικό οξύ, 2531 μεθακρυλικό οξύ, αδρανές, 2564 διάλυμα  
τριγλωροξικού οξέος, 2739 βουτυρικός ανυδρίτης, 2790 διάλυμα οξικού οξέος με  
περισσότερο από 25 % αλλά λιγότερο από 50 % οξύ, κατά βάρος, 2820 βουτυρικό οξύ,  
2829 καπρονικό οξύ.

**ΣΗΜΕΙΩΣΗ:** Διαλύματα οξικού οξέος με όχι περισσότερο από 25% καθαρό οξύ κατά βάρος, δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

33° Σύμπλοκες ενώσεις του τριφθοριούχου βορίου:

- (a) 2604 αιθερικός διαιθυλεστέρας του τριφθοριούχου βορίου (αιθερικό σύμπλοκο του  
τριφθοριούχου βορίου),  
 (b) 1742 σύμπλοκο του τριφθοριούχου βορίου με οξικό οξύ, 1743 σύμπλοκο του  
τριφθοριούχου βορίου με προπιονικό οξύ.

**ΣΗΜΕΙΩΣΗ:** 2965 αιθερικός διμεθυλεστέρας του τριφθοριούχου βορίου είναι ύλη της κλάσης 4.3 [βλέπε περιθωριακό 2471, 2° (b)].

## Κλάση 8

2801  
(συνεχ.)

34° Αλκυλοσουλφονικά και αρυλοσουλφονικά οξέα και αλκυλοθειικά οξέα:

- (b) 1803 φαινολοσουλφονικό οξύ, υγρό, 2305 νιτροβενζολοσουλφονικό οξύ, 2571 αλκυλοθειικά οξέα,
- (c) 2585 αλκυλοσουλφονικά οξέα, στερεά με όχι περισσότερο από 5 % ελεύθερο θειικό οξύ ή 2585 αρυλοσουλφονικά οξέα, στερεά με όχι περισσότερο από 5 % ελεύθερο θειικό οξύ, 2586 αλκυλοσουλφονικά οξέα, υγρά με όχι περισσότερο από 5 % ελεύθερο θειικό οξύ ή 2586 αρυλοσουλφονικά οξέα, υγρά με όχι περισσότερο από 5 % ελεύθερο θειικό οξύ.

**ΣΗΜΕΙΩΣΗ:** 2583 αλκυλοσουλφονικά ή αρυλοσουλφονικά οξέα, στερεά και 2584 αλκυλοσουλφονικά ή αρυλοσουλφονικά οξέα, υγρά με περισσότερο από 5 % ελεύθερο θειικό οξύ είναι όλες του 1° (b).

35° Οργανικά όξινα αλογονίδια:

- (b) 1. 1716 ακετυλοβρωμίδιο, 1729 ανισούλοχλωρίδιο, 1736 βενζούλοχλωρίδιο, 1765 διγλωρακετυλοχλωρίδιο, 1780 φουμαρυλοχλωρίδιο, 1898 ακετυλοϊωδιόδιο, 2262 διμεθυλοκαρβαμυλοχλωρίδιο, 2442 τριγλωρακετυλοχλωρίδιο, 2513 βρωμακετυλοβρωμίδιο, 2577 φαινυλακετυλοχλωρίδιο, 2751 διαιθυλοθειοφωσφορυλοχλωρίδιο, 2798 διγλωριούχος φαινυλοφωσφόρος, 2799 θειοδιγλωριούχος φαινυλοφωσφόρος.
2. 2502 βαλεριανυλοχλωρίδιο,
- (c) 2225 βενζολοσουλφονυλοχλωρίδιο.

36° Αλκυλο- και αρυλο-χλωροσιλάνια με σημείο ανάφλεξης μεγαλύτερο από 61 °C:

- (b) 1728 αμυλοτριγλωροσιλάνιο, 1753 γλωροφαινυλοτριγλωροσιλάνιο, 1762 κυκλοεξυλοτριγλωροσιλάνιο, 1763 κυκλοεξυλοτριγλωροσιλάνιο, 1766 διγλωροφαινυλοτριγλωροσιλάνιο, 1769 διφαινυλοδιγλωροσιλάνιο, 1771 δωδεκυλοτριγλωροσιλάνιο, 1781 δεκαεξυλοτριγλωροσιλάνιο, 1784 εξυλοτριγλωροσιλάνιο, 1799 εννεανυλοτριγλωροσιλάνιο, 1800 δεκαοκτυλοτριγλωροσιλάνιο, 1801 οκτυλοτριγλωροσιλάνιο, 1804 φαινυλοτριγλωροσιλάνιο, 2434 διβενζυλοδιγλωροσιλάνιο, 2435 αιθυλοφαινυλοδιγλωροσιλάνιο, 2437 μεθυλοφαινυλοδιγλωροσιλάνιο, 2987 γλωροσιλάνια, διαβρωτικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Χλωροσιλάνια που εκλύουν εύφλεκτα αέρια σε επαφή με νερό ή υγρό αέρα είναι όλες της κλάσης 4.3 (βλέπε περιθωριακό 2471, 1°).

37° Αλκυλοχλωροσιλάνια και αρυλοχλωροσιλάνια, με σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων:

- (b) 1724 αλκυλοτριγλωροσιλάνιο, σταθεροποιημένο, 1747 βουτυλοτριγλωροσιλάνιο, 1767 διαιθυλοδιγλωροσιλάνιο, 1816 προπυλοτριγλωροσιλάνιο, 2986 γλωροσιλάνια, διαβρωτικά, εύφλεκτα, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Χλωροσιλάνια που εκλύουν εύφλεκτα αέρια σε επαφή με νερό ή υγρό αέρα είναι όλες της κλάσης 4.3 (βλέπε περιθωριακό 2471, 1°).

## Κλάση 8

2801 38° Αλκυλοφωσφορικά οξέα:  
(συνεχ.)

- (c) 1718 βουτυλοφωσφορικό οξύ, 1793 ισοπροπυλοφωσφορικό οξύ, 1902 διίσοοκτυλοφωσφορικό οξύ, 2819 αμυλοφωσφορικό οξύ.

39° Στερεές οργανικές όξινες ύλες και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 2430 αλκυλοφαινόλες, στερεές, ε.α.ο. (συμπεριλαμβανομένων C<sub>2</sub>-C<sub>12</sub> ομολόγων), 3261 διαβρωτικά στερεά, όξινα, οργανικά, ε.α.ο.,

- (b) 2430 αλκυλοφαινόλες, στερεές, ε.α.ο. (συμπεριλαμβανομένων C<sub>2</sub>-C<sub>12</sub> ομολόγων), 2670 κυανουρικό γλωφίδιο, 3261 διαβρωτικά στερεά, όξινα, οργανικά, ε.α.ο.,

- (c) 2430 αλκυλοφαινόλες, στερεές, ε.α.ο. (συμπεριλαμβανομένων C<sub>2</sub>-C<sub>12</sub> ομολόγων), 3261 διαβρωτικά στερεά, όξινα, οργανικά, ε.α.ο.

40° Υγρές οργανικές όξινες ύλες και διαλύματα και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3145 αλκυλοφαινόλες, υγρές, ε.α.ο. (συμπεριλαμβανομένων C<sub>2</sub>-C<sub>12</sub> ομολόγων), 3265 διαβρωτικά υγρά, όξινα, οργανικά, ε.α.ο.,

- (b) 3145 αλκυλοφαινόλες, υγρές, ε.α.ο. (συμπεριλαμβανομένων C<sub>2</sub>-C<sub>12</sub> ομολόγων), 3265 διαβρωτικά υγρά, όξινα, οργανικά, ε.α.ο.,

- (c) 3145 αλκυλοφαινόλες, υγρές, ε.α.ο. (συμπεριλαμβανομένων C<sub>2</sub>-C<sub>12</sub> ομολόγων), 3265 διαβρωτικά υγρά, όξινα, οργανικά, ε.α.ο.

## B. Βασικές ύλες

### Ανόργανες ύλες

41° Βασικές στερεές ενώσεις αλκαλικών μετάλλων:

- (b) 1813 υδροξείδιο του καλίου, στερεό (καυστική ποτάσα), 1823 υδροξείδιο του νατρίου, στερεό (καυστική σόδα), 1825 μονοξείδιο του νατρίου (οξείδιο του νατρίου), 2033 μονοξείδιο του καλίου (οξείδιο του καλίου), 2678 υδροξείδιο του ρουβιδίου, 2680 υδροξείδιο του λιθίου μονοένυδρο, 2682 υδροξείδιο του καισίου,

- (c) 1907 νατράσβεστος με περισσότερο από 4 % υδροξείδιο του νατρίου, 3253 τριοξοπυρρικό δινάτριο πενταένυδρο (μεταπυρρικό νάτριο πενταένυδρο).

**ΣΗΜΕΙΩΣΗ:** Νατράσβεστος με όχι περισσότερο από 4 % υδροξείδιο του νατρίου δεν υπόκειται στις διατάξεις αυτής της Οδηγίας.

42° Διαλύματα αλκαλικών υλών:

- (b) 1814 διάλυμα υδροξειδίου του καλίου (καυστική ποτάσα), 1819 διάλυμα αργλικού νατρίου, 1824 διάλυμα υδροξειδίου του νατρίου (καυστική ποτάσα), 2677 διάλυμα υδροξειδίου του ρουβιδίου, 2679 διάλυμα υδροξειδίου του λιθίου, 2681 διάλυμα υδροξειδίου του καισίου, 2797 υγρά μπαταρίας, αλκαλικά,

## Κλάση 8

2801  
(συνεχ.)1719 καυστικά αλκάλια, υγρά, ε.α.ο.,

- (c) 1814 διάλυμα υδροξειδίου του καλίου (καυστική ποτάσα), 1819 διάλυμα αργιλικού νατρίου, 1824 διάλυμα υδροξειδίου του νατρίου (καυστική ποτάσα), 2677 διάλυμα υδροξειδίου του ρουβιδίου, 2679 διάλυμα υδροξειδίου του λιθίου, 2681 διάλυμα υδροξειδίου του καισίου, 1719 καυστικά αλκάλια υγρά, ε.α.ο.

## 43° Διαλύματα αμμωνίας:

- (c) 2672 διάλυμα αμμωνίας, σχετικής πυκνότητας μεταξύ 0.88 και 0.957 στους 15 °C σε νερό με περισσότερο από 10 % αλλά όχι περισσότερο από 35 % αμμωνία.

**ΣΗΜΕΙΩΣΗ 1:** Διαλύματα αμμωνίας με περισσότερο από 35 % αμμωνία είναι ύλες της κλάσης 2 [βλέπε περιθωριακό 2201, 9° (at)].

**ΣΗΜΕΙΩΣΗ 2:** Διαλύματα αμμωνίας με όχι περισσότερο από 10 % αμμωνία δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

## 44° Υδραζίνη και υδατικά διαλύματά της:

- (a) 2029 υδραζίνη, άνυδρη,
- (b) 2030 υδραζίνη ένυδρη ή 2030 υδατικό διάλυμα υδραζίνης με όχι λιγότερο από 37 % αλλά όχι περισσότερο από 64 % υδραζίνη, κατά βάρος,

**ΣΗΜΕΙΩΣΗ:** 3293 υδατικό διάλυμα υδραζίνης με όχι περισσότερο από 37 % υδραζίνη, κατά βάρος, είναι ύλη της κλάσης 6.1 [βλέπε περιθωριακό 2601, 65° (c)].

## 45° Σουλφίδια και υδροσουλφίδια και υδατικά διαλύματά τους:

- (b) 1. 1847 θειούχο κάλιο, ένυδρο με όχι λιγότερο από 30 % νερό από κρυστάλλωση, 1849 θειούχο νάτριο, ένυδρο με όχι λιγότερο από 30 % νερό, 2818 διάλυμα πολυθειούχου αμμωνίου, 2949 υδροθειούχο νάτριο, ένυδρο με όχι λιγότερο από 25 % νερό από κρυστάλλωση,
2. 2683 διάλυμα θειούχου αμμωνίου,

- (c) 2818 διάλυμα πολυθειούχου αμμωνίου.

**ΣΗΜΕΙΩΣΗ:** 1382 άνυδρο θειούχο κάλιο και 1385 άνυδρο θειούχο νάτριο και οι ένυδρες μορφές τους με λιγότερο από 30 % νερό από κρυστάλλωση, και 2318 υδροθειούχο νάτριο με λιγότερο από 25 % νερό από κρυστάλλωση είναι ύλες της κλάσης 4.2 [βλέπε περιθωριακό 2431, 13° (b)].

## 46° Στερεές ανόργανες βασικές ύλες και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3262 διαβρωτικά στερεά, βασικά, ανόργανα, ε.α.ο.,
- (b) 3262 διαβρωτικά στερεά, βασικά, ανόργανα, ε.α.ο.,
- (c) 3262 διαβρωτικά στερεά, βασικά, ανόργανα, ε.α.ο.

## Κλάση 8

**2801** 47° Υγρές ανόργανες βασικές ύλες και διαλύματα και μείγματα αυτών των υλών (όπως (συνεχ.) παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3266 διαβρωτικά υγρά, βασικά, ανόργανα, ε.α.ο.,
- (b) 3266 διαβρωτικά υγρά, βασικά, ανόργανα, ε.α.ο.,
- (c) 3266 διαβρωτικά υγρά, βασικά, ανόργανα, ε.α.ο.

*Οργανικές ύλες*

51° Υδροξείδια του τετρα-αλκυλαμμώνιου:

- (b) 1835 υδροξείδιο του τετραμεθυλαμμώνιου.

52° Στερεές αμίνες και πολυαμίνες:

- (a) 3259 αμίνες, στερεές, διαβρωτικές, ε.α.ο. ή 3259 πολυαμίνες, στερεές, διαβρωτικές, ε.α.ο.,
- (b) 3259 αμίνες, στερεές, διαβρωτικές, ε.α.ο. ή 3259 πολυαμίνες, στερεές, διαβρωτικές, ε.α.ο.,
- (c) 2280 εξαμεθυλενοδιαμίνη, στερεή, 2579 πιπεραζίνη (διαιθυλενοδιαμίνη), 3259 αμίνες, στερεές, διαβρωτικές, ε.α.ο. ή 3259 πολυαμίνες, στερεές, διαβρωτικές, ε.α.ο.

53° Υγρές αμίνες και πολυαμίνες ή αμινο-αλκοόλες, εξαιρετικά διαβρωτικές ή διαβρωτικές, με σημείο ανάφλεξης μεγαλύτερο από 61 °C:

- (a) 2735 αμίνες, υγρές, διαβρωτικές, ε.α.ο. ή 2735 πολυαμίνες, υγρές, διαβρωτικές, ε.α.ο.,
- (b) 1761 διάλυμα κυπριαιθυλενοδιαμίνης, 1783 διάλυμα εξαμεθυλενοδιαμίνης, 2079 διαιθυλενοτριάμίνη, 2259 τριαιθυλενοτετραμίνη, 2735 αμίνες, υγρές, διαβρωτικές, ε.α.ο. ή 2735 πολυαμίνες, υγρές, διαβρωτικές, ε.α.ο.,
- (c) 1761 διάλυμα κυπριαιθυλενοδιαμίνης, 1783 διάλυμα εξαμεθυλενοδιαμίνης, 2269 3,3'-μινωδιπροπυλαμίνη (διταμινοπροπυλαμίνη, διπροπυλενοτριάμίνη), 2289 ισοφορονοδιαμίνη, 2320 τετραιθυλενοπενταμίνη, 2326 τριμεθυλοκυκλοεξυλαμίνη, 2327 τριμεθυλοεξαμεθυλενοδιαμίνες, 2491 αιθανολαμίνη, 2491 διάλυμα αιθανολαμίνης, 2542 τριβουτυλαμίνη, 2565 δικυκλοεξυλαμίνη, 2815 N-αμινοαιθυλοπιπεραζίνη, 3055 2-(2-αμινοαιθοξυ)αιθανόλη, 2735 αμίνες, υγρές, διαβρωτικές, ε.α.ο. ή 2735 πολυαμίνες, υγρές, διαβρωτικές, ε.α.ο.

54° Υγρές αμίνες και πολυαμίνες, εξαιρετικά διαβρωτικές ή διαβρωτικές, εύφλεκτες με σημείο βρασμού μεγαλύτερο από 35 °C:

- (a) 2734 αμίνες, υγρές, διαβρωτικές, εύφλεκτες, ε.α.ο. ή 2734 πολυαμίνες, υγρές, διαβρωτικές, εύφλεκτες, ε.α.ο.,
- (b) 1604 αιθυλενοδιαμίνη, 2051 2-διμεθυλαμινοαιθανόλη, 2248 δι-n-βουτυλαμίνη, 2258 1,2-προπυλενοδιαμίνη, 2264 διμεθυλοκυκλοεξυλαμίνη,

## Κλάση 8

2801  
(συνεχ.)

2357 κυκλοεξυλαμίνη, 2619 βενζυλοδιμεθυλαμίνη,  
2685 N,N-διαιθυλαιθυλενοδιαμίνη,  
2734 αμίνες, υγρές, διαβρωτικές, εύφλεκτες, ε.α.ο. ή  
2734 πολυαμίνες, υγρές, διαβρωτικές, εύφλεκτες, ε.α.ο.

55° Στερεές οργανικές βασικές ύλες και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3263 διαβρωτικά στερεά, βασικά, οργανικά, ε.α.ο.,
- (b) 3263 διαβρωτικά στερεά, βασικά, οργανικά, ε.α.ο.,
- (c) 3263 διαβρωτικά στερεά, βασικά, οργανικά, ε.α.ο.

56° Υγρές οργανικές βασικές ύλες και διαλύματα και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3267 διαβρωτικά υγρά, βασικά, οργανικά, ε.α.ο.,
- (b) 3267 διαβρωτικά υγρά, βασικά, οργανικά, ε.α.ο.,
- (c) 3267 διαβρωτικά υγρά, βασικά, οργανικά, ε.α.ο.

## C. Άλλες διαβρωτικές ύλες

61° Διαλύματα χλωριωδών και υποχλωριωδών αλάτων:

- (b) 1791 διάλυμα υποχλωριώδους άλατος με όχι λιγότερο από 16 % διαθέσιμο χλώριο,  
1908 διάλυμα χλωριώδους άλατος, με όχι λιγότερο από 16 % διαθέσιμο χλώριο,
- (c) 1791 διάλυμα υποχλωριώδους άλατος με περισσότερο από 5 % αλλά λιγότερο από 16 % διαθέσιμο  
χλώριο, 1908 διάλυμα χλωριώδους άλατος, με περισσότερο από 5 % αλλά λιγότερο από 16 %  
διαθέσιμο χλώριο.

**ΣΗΜΕΙΩΣΗ 1:** Διαλύματα χλωριωδών και υποχλωριωδών αλάτων με όχι περισσότερο από 5 % διαθέσιμο χλώριο δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 2:** Στερεά χλωριώδη άλατα και υποχλωριώδη άλατα είναι ύλες της κλάσης 5.1 (βλέπε περιθωριακό 2501, 14°, 15° και 29°).

62° Χλωροφαινολικά και φαινολικά άλατα:

- (c) 2904 χλωροφαινολικά άλατα, υγρά ή 2904 φαινολικά άλατα, υγρά, 2905 χλωροφαινολικά άλατα,  
στερεά ή 2905 φαινολικά άλατα, στερεά.

63° Διαλύματα φορμαλδεΐδης:

- (c) 2209 διάλυμα φορμαλδεΐδης με όχι λιγότερο από 25 % φορμαλδεΐδη.

**ΣΗΜΕΙΩΣΗ 1:** 1198 διαλύματα φορμαλδεΐδης, εύφλεκτα είναι ύλες της κλάσης 3 [βλέπε περιθωριακό 2301, 33° (c)].

## Κλάση 8.

**2801 ΣΗΜΕΙΩΣΗ 2:** Διαλύματα φορμαλδεΐδης, μη-εύφλεκτα, με λιγότερο από 25 % (συνεχ.) φορμαλδεΐδη δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

64° Χλωροφορμικά και χλωροθειοφορμικά άλατα:

- (a) 1739 χλωροφορμικός βενζυλεστέρας,
- (b) 2826 χλωροθειοφορμικός αιθυλεστέρας.

**ΣΗΜΕΙΩΣΗ:** Χλωροφορμικά άλατα που έχουν κυρίαρχα τοξικές ιδιότητες είναι ύλες της κλάσης 6.1 (βλέπε περιθωριακό 2601, 10°, 17°, 27° και 28°).

65° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 1759 διαβρωτικά στερεά, ε.α.ο.,
- (b) 1770 διφαινυλομεθυλοβρωμίδιο,  
1759 διαβρωτικά στερεά, ε.α.ο.,  
3147 βαφές, στερεές, διαβρωτικές, ε.α.ο. ή 3147 ενδιάμεσα βαφών, στερεά, διαβρωτικά, ε.α.ο.,  
3244 στερεά που περιέχουν διαβρωτικά υγρά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Μείγματα στερεών όχι υποκείμενα στις διατάξεις αυτής της Οδηγίας και διαβρωτικά υγρά μπορούν να μεταφέρονται υπό τον αριθμό 3244, χωρίς να υπόκεινται στα κριτήρια ταξινόμησης του περιθωριακού 2800 (3), υπό την προϋπόθεση ότι δεν υπάρχει ελεύθερο υγρό ορατό την ώρα που η ύλη φορτώνεται ή την ώρα που η μονάδα μεταφοράς κλείνεται. Κάθε συσκευασία θα πρέπει να αντιστοιχεί σε έναν τύπο σχεδιασμού που έχει περάσει τον έλεγχο στεγανότητας για το επίπεδο της ομάδας (b).

- (c) 2803 γάλλιο,  
1759 διαβρωτικά στερεά, ε.α.ο.,  
3147 βαφές, στερεές, διαβρωτικές, ε.α.ο. ή 3147 ενδιάμεσα βαφών, στερεά, διαβρωτικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται στο 2803 γάλλιο [βλέπε περιθωριακό 2807 (4)].

66° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) ~~1760 διαβρωτικά υγρά, ε.α.ο.,~~  
~~1903 απολυμαντικά, υγρά, διαβρωτικά, ε.α.ο.,~~
- (b) 2226 βενζοτριγλωρίδιο (τριγλωρομεθυλοβενζόλιο),  
2705 1-πεντόλη (3-μεθυλο-2-πεντενο-4-iv-1-όλη), 3066 χρώμα (συμπεριλαμβανομένων χρώματος, λάκας, σμάλτου, βαφής, γομαλάκας, βερνικιού, λούστρου, υγρού πληρωτικού μέσου και υγρής βάσης λάκας) ή 3066 υλικά σχετιζόμενα με χρώμα συμπεριλαμβανομένων ενώσεων λέπτυνσης ή μείωσης του χρώματος,  
1760 διαβρωτικά υγρά, ε.α.ο.,  
1903 απολυμαντικά, υγρά, διαβρωτικά, ε.α.ο.,  
2801 βαφές, υγρές, διαβρωτικές, ε.α.ο. ή 2801 ενδιάμεσα βαφών, υγρά, διαβρωτικά, ε.α.ο.,

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(συνεχ.)

- (c) 2809 υδράργυρος, 3066 χρώμα (συμπεριλαμβανομένων χρώματος, λάκας, σμάλτου, βαφής, γομαλάκας, βερνικιού, λούστρου, υγρού πληρωτικού μέσου και υγρής βάσης λάκας) ή 3066 υλικά σχετιζόμενα με χρώμα συμπεριλαμβανομένων ενώσεων λέπτυνσης ή μείωσης του χρώματος, 1760 διαβρωτικά υγρά, ε.α.ο., 1903 απολυμαντικά, υγρά, διαβρωτικά, ε.α.ο., 2801 βαφές, υγρές, διαβρωτικές, ε.α.ο. ή 2801 ενδιάμεσα βαφών, υγρά, διαβρωτικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** *Ειδικές συνθήκες συσκευασίας εφαρμόζονται στον 2809 υδράργυρο [βλέπε περιθωριακό 2807 (4)].*

**ΣΗΜΕΙΩΣΗ 2:** *Οποιαδήποτε ύλη αυτής της Οδηγίας που αναφέρεται με συγκεκριμένη ονομασία υπό άλλα είδη δεν μπορεί να μεταφέρεται υπό τις καταχωρήσεις για 3066 χρώμα ή 3066 υλικά σχετιζόμενα με χρώμα.*

*Υλές μεταφερόμενες υπό αυτές τις καταχωρήσεις μπορούν να περιέχουν 20 % ή λιγότερο νιτροκυταρίνη υπό την προϋπόθεση η νιτροκυταρίνη να περιέχει όχι περισσότερο από 12,6 % άζωτο.*

- 67° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών, (όπως παρασκευάσματα και απόβλητα), εύφλεκτες, που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:
- (a) 2921 διαβρωτικά στερεά, εύφλεκτα, ε.α.ο.
- (b) 2921 διαβρωτικά στερεά, εύφλεκτα, ε.α.ο.
- 68° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών, (όπως παρασκευάσματα και απόβλητα), εύφλεκτες, με σημείο βρασμού μεγαλύτερο από 35 °C, που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:
- (a) 2920 διαβρωτικά υγρά, εύφλεκτα, ε.α.ο.
- (b) 2920 διαβρωτικά υγρά, εύφλεκτα, ε.α.ο.
- 69° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών, αυτοθερμαινόμενες, (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:
- (a) 3095 διαβρωτικά στερεά, αυτοθερμαινόμενα, ε.α.ο.
- (b) 3095 διαβρωτικά στερεά, αυτοθερμαινόμενα, ε.α.ο.
- 70° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών, αυτοθερμαινόμενες, (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:
- (a) 3301 διαβρωτικά υγρά, αυτοθερμαινόμενα, ε.α.ο.
- (b) 3301 διαβρωτικά υγρά, αυτοθερμαινόμενα, ε.α.ο.
- 71° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών, (όπως παρασκευάσματα και απόβλητα) που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια και που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:
- (a) 3096 διαβρωτικά στερεά, ενεργά με το νερό, ε.α.ο.



## Κλάση 8

2801  
(συνεχ.)

(b) 3096 διαβρωτικά στερεά, ενεργά με το νερό, ε.α.ο.

*ΣΗΜΕΙΩΣΗ: Ο όρος "Ενεργή με το νερό" δηλώνει μία ύλη που, σε επαφή με το νερό, εκλύει εύφλεκτα αέρια.*

72° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια και που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 3094 διαβρωτικά υγρά, ενεργά με το νερό, ε.α.ο.

(b) 3094 διαβρωτικά υγρά, ενεργά με το νερό, ε.α.ο.

*ΣΗΜΕΙΩΣΗ: Ο όρος "ενεργή με το νερό" δηλώνει μία ύλη που, σε επαφή με το νερό, εκλύει εύφλεκτα αέρια.*

73° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών, οξειδωτικές, (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 3084 διαβρωτικά στερεά, οξειδωτικά, ε.α.ο.

(b) 3084 διαβρωτικά στερεά, οξειδωτικά, ε.α.ο.

74° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών, οξειδωτικές, (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 3093 διαβρωτικά υγρά, οξειδωτικά, ε.α.ο.

(b) 3093 διαβρωτικά υγρά, οξειδωτικά, ε.α.ο.

75° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών, τοξικές (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 2923 διαβρωτικά στερεά, τοξικά, ε.α.ο.

(b) 2923 διαβρωτικά στερεά, τοξικά, ε.α.ο.

(c) 2923 διαβρωτικά στερεά, τοξικά, ε.α.ο.

76° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών, τοξικές, (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 2922 διαβρωτικά υγρά, τοξικά, ε.α.ο.

(b) 2922 διαβρωτικά υγρά, τοξικά, ε.α.ο.

(c) 2922 διαβρωτικά υγρά, τοξικά, ε.α.ο.

## Κλάση 8

2801 D. Είδη που περιέχουν διαβρωτικές ύλες  
(συνεχ.)

81° Μπαταρίες:

- (c) 2794 μπαταρίες, υγρές, γεμισμένες με οξύ, ηλεκτρικής συσσώρευσης,  
2795 μπαταρίες, υγρές, γεμισμένες με αλκαλι, ηλεκτρικής συσσώρευσης,  
2800 μπαταρίες, υγρές, χωρίς διαρροή, ηλεκτρικής συσσώρευσης,  
3028 μπαταρίες, ξηρές που περιέχουν υδροξείδιο του καλίου στερεό, ηλεκτρικής  
συσσώρευσης.

**ΣΗΜΕΙΩΣΗ 1:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτά τα είδη [βλέπε περιθωριακό 2807 (5)]

**ΣΗΜΕΙΩΣΗ 2:** Μπαταρίες (χαρακτηριστικός αριθμός 2800) μπορούν να θεωρούνται ότι είναι χωρίς διαρροή υπό την προϋπόθεση ότι είναι ικανές να αντέξουν τους διαφορικούς ελέγχους δόνησης και πίεσης που δίνονται παρακάτω, χωρίς διαρροή υγρών μπαταρίας.

Έλεγχος δόνησης: Η μπαταρία συνδέεται άκαμπτα στην πλατφόρμα μίας μηχανής δόνησης και εφαρμόζεται μία απλή αρμονική κίνηση με πλάτος 0.8 mm (1.6 mm μέγιστη συνολική διαδρομή). Η συχνότητα μεταβάλλεται με ρυθμό 1 Hz/min μεταξύ των ορίων 10 Hz έως 55 Hz. Όλο το εύρος συχνοτήτων και η επιστροφή διατρέχεται σε  $95 \pm 5$  λεπτά για κάθε θέση (διεύθυνση δόνησης) της μπαταρίας. Η μπαταρία ελέγχεται σε τρεις αμοιβαία κάθετες θέσεις (ώστε να συμπεριληφθεί έλεγχος με ανοίγματα πλήρωσης και εξαεριστήρες, εάν υπάρχουν, σε ανεστραμμένη θέση) για ίσες χρονικές περιόδους.

Διαφορικός έλεγχος πίεσης: Μετά από τον έλεγχο δόνησης, η μπαταρία αποθηκεύεται για έξι ώρες στους  $24 \text{ }^\circ\text{C} \pm 4 \text{ }^\circ\text{C}$  ενώ υπόκειται σε διαφορική πίεση τουλάχιστον 88 kPa. Η μπαταρία ελέγχεται σε τρεις αμοιβαία κάθετες θέσεις (ώστε να συμπεριληφθεί έλεγχος με ανοίγματα πλήρωσης και εξαεριστήρες, εάν υπάρχουν, σε ανεστραμμένη θέση) για τουλάχιστον έξι ώρες σε κάθε θέση.

82° Άλλα είδη που περιέχουν διαβρωτικές ύλες:

- (b) 1774 φορτία πυροσβεστήρων, διαβρωτικά υγρά, 2028 βόμβες, καπνογόνες, μη-εκρηκτικές με  
διαβρωτικό υγρό, χωρίς πυροκροτικό μηχανισμό.

E. Κενές συσκευασίες

91° Κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για  
μεταφορά χύμα (IBC), κενών οχημάτων-δεξαμενών, κενών αποσυναρμιολογούμενων δεξαμενών,  
κενών εμπορευματοκιβωτίων-δεξαμενών, ακαθάριστων, καθώς και κενά οχήματα για μεταφορά  
χύμα και κενά μικρά εμπορευματοκιβώτια για μεταφορά χύμα, ακαθάριστα, που περιείχαν ύλες της  
κλάσης 8.

2801a Ούτε οι διατάξεις αυτής της κλάσης που περιέχονται σε αυτό το Παράρτημα, ούτε εκείνες που περιέχονται στο παράρτημα Β εφαρμόζονται στα:

(1) Ύλες των 1° έως 5°, 7° έως 13°, 16°, 17°, 31° έως 47°, 51° έως 56° και 61° έως 76°, μεταφερόμενες σε συμφωνία με τις παρακάτω διατάξεις:

- (a) Ύλες ταξινομημένες στο (a) κάθε είδους:

Υγρά: όχι περισσότερο από 100 ml ανά εσωτερική συσκευασία και όχι περισσότερο από 400 ml ανά κόλο,

## Κλάση 8

2801a  
(συνεχ.)

Στερεά: όχι περισσότερο από 500 g ανά εσωτερική συσκευασία και όχι περισσότερο από 2 kg ανά κόλο.

(b) Ύλες ταξινομημένες στο (b) κάθε είδους:

Υγρά: όχι περισσότερο από 1 λίτρο ανά εσωτερική συσκευασία και όχι περισσότερο από 4 λίτρα ανά κόλο,

Στερεά: όχι περισσότερο από 3 kg ανά εσωτερική συσκευασία και όχι περισσότερο από 12 kg ανά κόλο.

(c) Ύλες ταξινομημένες στο (c) κάθε είδους:

Υγρά: όχι περισσότερο από 3 λίτρα ανά εσωτερική συσκευασία και όχι περισσότερο από 12 λίτρα ανά κόλο,

Στερεά: όχι περισσότερο από 6 kg ανά εσωτερική συσκευασία και όχι περισσότερο από 24 kg ανά κόλο.

Αυτές οι ποσότητες υλών θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες που ικανοποιούν τουλάχιστον τις συνθήκες του περιθωριακού 3538.

Οι "Γενικές συνθήκες συσκευασίας" του περιθωριακού 3500 (1), (2) και (5) έως (7) θα πρέπει να τηρούνται.

(2) Μπαταρίες χωρίς διαρροή με χαρακτηριστικό αριθμό 2800 της 81° εάν σε θερμοκρασία 55 °C, ο υλεκτρολύτης δεν θα ρέει από ένα ραγισμένο ή σπασμένο κιβώτιο και δεν υπάρχει ελεύθερο υγρό για να ρέει και εάν όταν είναι συσκευασμένες για μεταφορά, οι πόλοι είναι προστατευμένοι από βραχυκυκλώματα.

(3) Κατασκευασμένα είδη ή όργανα που περιέχουν όχι περισσότερο από 1 kg υδράργυρο της 66° (c).

## 2. Διατάξεις

## A. Κόλα

## 1. Γενικές συνθήκες συσκευασίας

2802 (1) Οι συσκευασίες θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.5, εκτός εάν ειδικές συνθήκες για τη συσκευασία ορισμένων υλών καθορίζονται στα περιθωριακά 2803 έως 2808.

(2) Τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC) θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.6.

(3) Σε συμφωνία με τις διατάξεις των περιθωριακών 2800 (3) (b) και 3511 (2) ή 3611 (2) αντίστοιχα, θα πρέπει να χρησιμοποιούνται τα παρακάτω:

- συσκευασίες της ομάδας συσκευασίας I, μαρκαρισμένες με το γράμμα "X", για τις εξαιρετικά διαβρωτικές ύλες που είναι ταξινομημένες υπό το γράμμα (a) κάθε είδους,
- συσκευασίες της ομάδας συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X", ή IBC της ομάδας συσκευασίας II, μαρκαρισμένα με το γράμμα "Y", για τις διαβρωτικές ύλες που είναι ταξινομημένες υπό το γράμμα (b) κάθε είδους,

## Κλάση 8

- 2802 (συνεχ.) - συσκευασίες της ομάδας συσκευασίας III, II ή I, μαρκαρισμένες με το γράμμα "Z", "Y" ή "X", ή IBC της ομάδας συσκευασίας III ή II, μαρκαρισμένα με το γράμμα "Z" ή "Y", για τις ελαφρώς διαβρωτικές ύλες που είναι ταξινομημένες υπό το γράμμα (c) κάθε είδους.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά υλών της κλάσης 8 σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές και για τη μεταφορά χύμα στερεών αυτής της κλάσης, βλέπε Παράρτημα Β.

## 2. Ειδικές συνθήκες για συσκευασία ορισμένων υλών

- 2803 Υδροφθόριο, άνυδρο και διάλυμα υδροφθορικού οξέος που περιέχει περισσότερο από 85 % υδροφθόριο της 6<sup>ο</sup> θα πρέπει να συσκευάζονται σε δοχεία πίεσης κατασκευασμένα από ανθρακούχο χάλυβα ή κατάλληλο κράμα χάλυβα. Θα πρέπει να επιτρέπονται τα παρακάτω δοχεία πίεσης:

- κύλινδροι με χωρητικότητα όχι μεγαλύτερη από 150 λίτρα,
- δοχεία με χωρητικότητα όχι μικρότερη από 100 λίτρα και όχι μεγαλύτερη από 1,000 λίτρα (για παράδειγμα, κυλινδρικά δοχεία εφοδιασμένα με κυλιόμενα τσέρκια ή δοχεία τοποθετημένα πάνω σε δοκούς).

Τα δοχεία πίεσης θα πρέπει να ικανοποιούν τις σχετικές απαιτήσεις της κλάσης 2 (βλέπε περιθωριακά 2211, 2213 (1) και (2), 2215, 2216 και 2218).

Το πάχος τοιχωμάτων των δοχείων πίεσης δεν θα πρέπει να είναι μικρότερο από 3 mm.

Πριν χρησιμοποιηθούν για πρώτη φορά, τα δοχεία πίεσης θα πρέπει να υπόκεινται σε έλεγχο υδραυλικής πίεσης σε πίεση όχι μικρότερη από 1 MPa (10 bar) πίεση πιεζομέτρου. Ο έλεγχος πίεσης θα πρέπει να επαναλαμβάνεται κάθε οκτώ χρόνια και θα πρέπει να συνοδεύεται από μία εσωτερική επιθεώρηση των δοχείων πίεσης και έναν έλεγχο των εξαρτημάτων τους. Επιπλέον, η αντίσταση των δοχείων πίεσης στη διάβρωση θα πρέπει να ελέγχεται με κατάλληλα όργανα (π.χ. με υπερήχους), και η κατάσταση των εξαρτημάτων να επιβεβαιώνεται, κάθε δύο χρόνια.

Οι έλεγχοι και επιθεωρήσεις θα πρέπει να διεξάγονται υπό την επίβλεψη ενός εμπειρογνώμονα εγκεκριμένου από την αρμόδια αρχή.

Το μέγιστο βάρος του περιεχομένου ανά λίτρο χωρητικότητας για υδροφθόριο, άνυδρο ή διάλυμα υδροφθορικού οξέος δεν θα πρέπει να υπερβαίνει τα 0.84 kg.

- 2804 (1) Βρώμιο και διάλυμα βρωμίου της 14<sup>ο</sup> θα πρέπει να συσκευάζονται σε γυάλινες εσωτερικές συσκευασίες, που περιέχουν όχι περισσότερο από 2.5 λίτρα κάθε μία, ή σε εσωτερικές συσκευασίες φθοριούχου πολυβινυλιδενίου (PVDF) που περιέχουν όχι περισσότερο από 15 λίτρα κάθε μία, που θα πρέπει να τοποθετούνται σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538. Οι συνδυασμένες συσκευασίες θα πρέπει να ελέγχονται και εγκρίνονται σε συμφωνία με την προσθήκη A.5 για την ομάδα συσκευασίας I.

(2) Βρώμιο που περιέχει λιγότερο από 0.005 % νερό, ή μεταξύ 0.005 % και 0.2 % νερό, υπό την προϋπόθεση ότι στην τελευταία περίπτωση λαμβάνονται μέτρα για την αποφυγή διάβρωσης της επένδυσης των δοχείων, μπορεί επίσης να μεταφέρεται σε δοχεία που ικανοποιούν τις παρακάτω συνθήκες:

- τα δοχεία θα πρέπει να είναι κατασκευασμένα από χάλυβα και εξοπλισμένα με στεγανή επένδυση κατασκευασμένη από μόλυβδο ή από κάποιο άλλο υλικό που παρέχει ισοδύναμη προστασία και με ερμητικό πώμα. Δοχεία κατασκευασμένα από μέταλλο μονέλ ή νικέλιο, ή με νικέλινη επένδυση, θα πρέπει επίσης να επιτρέπονται,
- η χωρητικότητα των δοχείων δεν θα πρέπει να υπερβαίνει τα 450 λίτρα,

## Κλάση 8

2804  
(συνεχ.)

- (c) τα δοχεία δεν θα πρέπει να γεμίζονται περισσότερο από το 92 % της χωρητικότητας τους ή περισσότερο από 2.86 kg ανά λίτρο χωρητικότητας,
- (d) τα δοχεία θα πρέπει να είναι οξυγονοκολλημένα και σχεδιασμένα για υπολογιζόμενη πίεση όχι μικρότερη από 2.1 MPa (21 bar) πίεση πιεζομέτρου. Τα υλικά και η εργασία θα πρέπει κατά τα άλλα να ικανοποιούν τις σχετικές απαιτήσεις της κλάσης 2 [βλέπε περιθωριακό 2211 (1)]. Ο αρχικός έλεγχος μη-επενδεδυμένων χαλύβδινων δοχείων θα πρέπει να υπόκειται στις διατάξεις της κλάσης 2 [βλέπε περιθωριακά 2215 (1) και 2216 (1)],
- (e) τα πώματα θα πρέπει να προεξέχουν όσο το λιγότερο δυνατόν από το δοχείο και να είναι εφοδιασμένα με προστατευτικά καλύμματα. Τα πώματα και τα καλύμματα θα πρέπει να είναι εφοδιασμένα με φλάντζες κατασκευασμένες από υλικό όχι ικανό να προσβληθεί από το βρώμιο. Τα πώματα θα πρέπει να είναι στο πιο πάνω μέρος των δοχείων με τέτοιο τρόπο ώστε να μην μπορούν σε καμία περίπτωση να είναι σε μόνιμη επαφή με την υγρή φάση,
- (f) τα δοχεία θα πρέπει να είναι εφοδιασμένα με εξαρτήματα που θα τους επιτρέπουν να στέκονται σταθερά όρθια και με εξαρτήματα ανύψωσης (δακτυλίους, στεφάνες κ.λπ.) στην κορυφή, που θα πρέπει να ελέγχονται σε φορτίο διπλάσιο από το φορτίο εργασίας.

(3) Πριν τεθούν σε υπηρεσία, δοχεία σε συμφωνία με το (2) παραπάνω θα πρέπει να υπόκεινται σε έλεγχο στεγανότητας σε πίεση τουλάχιστον 200 kPa (2 bar) πίεση πιεζομέτρου. Ο έλεγχος στεγανότητας θα πρέπει να επαναλαμβάνεται κάθε δύο χρόνια και θα πρέπει να συνοδεύεται από μία εσωτερική επιθεώρηση του δοχείου και έλεγχο του απόβαρου του. Ο έλεγχος και η επιθεώρηση θα πρέπει να διεξάγονται υπό την επίβλεψη ενός εμπειρογνώμονα εγκεκριμένου από την αρμόδια αρχή.

(4) Δοχεία σε συμφωνία με το (2) θα πρέπει να φέρουν, με καθαρά ευανάγνωστους και διαρκείας χαρακτήρες:

- την ονομασία του κατασκευαστή ή την μάρκα κατασκευής και τον αριθμό του δοχείου,
- τη λέξη "Βρώμιο",
- απόβαρο του δοχείου και το επιτρεπτό μέγιστο βάρος του γεμισμένου δοχείου,
- ημερομηνία (μήνα, χρόνο) του αρχικού ελέγχου και του τελευταίου περιοδικού ελέγχου,
- σφραγίδα του εμπειρογνώμονα που διεξήγαγε τους ελέγχους και τις επιθεωρήσεις.

—2805— (1) Υλεις ταξινομημένες στο (a) των διαφόρων ειδών θα πρέπει να συσκευάζονται σε:

- (a) χαλύβδινα βαρέλια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3520, ή
- (b) αλουμινένια βαρέλια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3521, ή
- (c) χαλύβδινα μιπόνια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3522, ή
- (d) πλαστικά βαρέλια μη-μετακινούμενης κεφαλής χωρητικότητας όχι μεγαλύτερης από 60 λίτρα ή πλαστικά μιπόνια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3526, ή
- (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή

## Κλάση 8

2805  
(συνεχ.)

- (f) συνδυασμένες συσκευασίες με εσωτερικές συσκευασίες από γυαλί, πλαστικό ή μέταλλο σύμφωνα με το περιθωριακό 3538, ή
- (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργυλος) σύμφωνα με το περιθωριακό 3539.

**ΣΗΜΕΙΩΣΗ 1** στο (d): Η επιτρεπτή περίοδος χρήσης για συσκευασίες που προορίζονται για τη μεταφορά νιτρικού οξέος της 2<sup>ο</sup> (a) και διάλυμα υδροφθορικού οξέος θα πρέπει να είναι δύο χρόνια από την ημερομηνία κατασκευής τους.

της 7<sup>ο</sup> (a)

**ΣΗΜΕΙΩΣΗ 2** στα (f) και (g): Οι εσωτερικές συσκευασίες ή τα δοχεία από γυαλί δεν να επιτρέπονται για φθορίδια της 7<sup>ο</sup> (a), 8<sup>ο</sup> (a) ή 33<sup>ο</sup> (a).

θα πρέπει

(2) Στερεές ύλες κατά την έννοια του περιθωριακού 2800 (5) μπορούν επίσης να συσκευάζονται σε:

- (a) βαρέλια μετακινούμενης κεφαλής σύμφωνα με τα περιθωριακά 3520 για 3521 για αλουμίνιο, 3523 για κόντρα-πλακέ, 3525 για φύλλο ή 3526 για πλαστικό υλικό, ή σε μπιτόνια μετακινούμενης σύμφωνα με τα περιθωριακά 3522 για χάλυβα ή 3526 για εάν είναι αναγκαίο με έναν ή περισσότερους εσωτερικούς σάκους, ή
- (b) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους.

χάλυβα,  
φάϊμπερ,  
κεφαλής  
πλαστικό υλικό,  
αδιαπέραστους

2806

(1) Ύλες ταξινομημένες στο (b) των διαφόρων ειδών θα πρέπει να συσκευάζονται σε:

- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
- (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
- (c) χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
- (d) πλαστικά βαρέλια ή πλαστικά μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
- (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
- (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργυλος) σύμφωνα με το περιθωριακό 3539.

**ΣΗΜΕΙΩΣΗ 1** στα (a), (b), (c) και (d): Απλοποιημένες συνθήκες εφαρμόζονται σε βαρέλια και μπιτόνια μετακινούμενης κεφαλής για ιξώδεις ύλες με ιξώδες μεγαλύτερο από 200 mm<sup>2</sup>/s στους 23 °C και για στερεές ύλες (βλέπε περιθωριακά 3512, 3553, 3554 και 3560).

**ΣΗΜΕΙΩΣΗ 2** στο (d): Η επιτρεπτή περίοδος χρήσης για συσκευασίες που προορίζονται για τη μεταφορά νιτρικού οξέος που περιέχει περισσότερο από 55 % καθαρό οξύ της 2<sup>ο</sup> (b) και διάλυμα υδροφθορικού οξέος της 7<sup>ο</sup> (b) θα πρέπει να είναι δύο χρόνια από την ημερομηνία κατασκευής τους.

**ΣΗΜΕΙΩΣΗ 3** στα (f) και (g): Εσωτερικές συσκευασίες ή δοχεία από γυαλί δεν θα πρέπει να επιτρέπονται για φθορίδια των 7<sup>ο</sup> (b), 8<sup>ο</sup> (b), 9<sup>ο</sup> (b), 10<sup>ο</sup> (b) ή 33<sup>ο</sup> (b).

## Κλάση 8

**2806** (2) Υγες ταξινομημένες στο (b) των διαφόρων ειδών που έχουν τάση ατμών στους 50 °C όχι (συνεχ.) μεγαλύτερη από 110 kPa (1.10 bar) μπορούν επίσης να συσκευάζονται σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624 ή σύνθετα IBC με άκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625.

(3) Στερεές ύλες κατά την έννοια του περιθωριακού 2800 (5) μπορεί επίσης να συσκευάζονται σε:

- (a) βαρέλια σύμφωνα με τα περιθωριακά 3523 για κόντρα-πλακέ ή 3525 για φύλλο φάιμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
- (b) αδιάβροχους σάκους σύμφωνα με τα περιθωριακά 3533 για υλικά υφαντουργίας, 3534 για πλεγμένο πλαστικό υλικό, 3535 για πλαστικό φιλμ ή 3536 για αδιάβροχο χαρτί, υπό την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται ως πλήρες φορτίο ή οι σάκοι είναι ασφαλισμένοι πάνω σε παλέτες, ή
- (c) σύνθετα IBC με πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625, IBC από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3626 ή ξύλινα IBC σύμφωνα με το περιθωριακό 3627, ή
- (d) εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623 με εξαίρεση τα IBC των τύπων 13H1, 13L1 και 13M1 και υπό την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται ως πλήρες φορτίο ή τα εύκαμπτα IBC είναι φορτωμένα πάνω σε παλέτες.

(4) Είδη της 82° θα πρέπει να συσκευάζονται ως εξής:

- (a) φορτία πυροσβεστήρων, διαβρωτικού υγρού, σε ξύλινα κιβώτια σύμφωνα με τα περιθωριακά 3527, 3528 ή 3529, ή κιβώτια από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3530, ή κιβώτια τεταμένου πλαστικού τύπου 4H1 σύμφωνα με το περιθωριακό 3531.
- (b) βόμβες, καπνογόνες, μη-εκρηκτικές με διαβρωτικό υγρό, χωρίς πυροκροτικό μηχανισμό, μονωμένες με προστατευτικό υλικό σε κιβώτια, σωλήνες ή χωρισμένα τμήματα είτε σε ξύλινα κιβώτια σύμφωνα με τα περιθωριακά 3527, 3528 ή 3529, είτε σε χαλύβδινα κιβώτια του τύπου 4A σύμφωνα με το περιθωριακό 3532.

**2807** (1) Υγες ταξινομημένες στο (c) εκτός από γάλλιο της 65° (c) και υδράργυρο της 66° (c), των διαφόρων ειδών θα πρέπει να συσκευάζονται σε:

- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
- (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
- (c) χαλύβδινα μπτόνια σύμφωνα με το περιθωριακό 3522, ή
- (d) πλαστικά βαρέλια ή πλαστικά μπτόνια σύμφωνα με το περιθωριακό 3526, ή
- (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
- (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργγλος) σύμφωνα με το περιθωριακό 3539, ή
- (h) ελαφρού περιτυπώματος μεταλλικές συσκευασίες σύμφωνα με το περιθωριακό 3540.

## Κλάση 8

**2807 ΣΗΜΕΙΩΣΗ** στα (a), (b), (c), (d) και (h): Απλοποιημένες συνθήκες εφαρμόζονται στα βαρέλια, μπιτόνια και ελαφρού περιτυπώματος μεταλλικές συσκευασίες μετακινούμενης κεφαλής για ιξώδεις ύλες με (συνεχ.) ιξώδες μεγαλύτερο από 200 mPa·s στους 23 °C και για στερεές ύλες (βλέπε περιθωριακά 3512, 3552 έως 3554 και 3560).

(2) Ύλες ταξινομημένες στο (c) εκτός από γάλλιο της 65° (c) και υδράργυρο της 66° (c), των διαφόρων ειδών που έχουν τάση ατμών στους 50 °C όχι μεγαλύτερη από 110 kPa (1.10 bar) μπορούν επίσης να συσκευάζονται σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, IBC άκαμπτου πλαστικού σύμφωνα με το περιθωριακό 3624 ή σύνθετα IBC με άκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625.

(3) Στερεές ύλες κατά την έννοια του περιθωριακού 2800 (5) μπορούν επίσης να συσκευάζονται:

- (a) σε βαρέλια σύμφωνα με τα περιθωριακά 3523 για κόντρα-πλακέ, ή 3525 για φύλλο φάϊμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
- (b) σε αδιάβροχους σάκους σύμφωνα με τα περιθωριακά 3533 για υλικό υφαντουργίας, 3534 για πλεγμένα πλαστικά υλικά ή 3535 για πλαστικά φιλμ ή 3536 για αδιάβροχο χαρτί, ή
- (c) σε εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623 με εξαίρεση τα IBC των τύπων 13H1, 13L1 και 13M1 ή σε σύνθετα IBC με εύκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625 ή σε IBC από φύλλο φάϊμπερ σύμφωνα με το περιθωριακό 3626 ή ξύλινα IBC σύμφωνα με το περιθωριακό 3627.
- (4) (a) Γάλλιο της 65° (c) και υδράργυρος της 66° (c) θα πρέπει να συσκευάζονται σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538. Αυτές οι συνδυασμένες συσκευασίες μπορούν να συνίστανται από γυαλί, πορσελάνη, ψαμμάργιλο ή πλαστικές εσωτερικές συσκευασίες, μέγιστης καθαρής ποσότητας 10 kg. Μπορούν να χρησιμοποιούνται οι παρακάτω εξωτερικές συσκευασίες:

κιβώτια από φυσικό ξύλο σύμφωνα με το περιθωριακό 3527, κιβώτια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3528, κιβώτια από ανασυσταμένο ξύλο σύμφωνα με το περιθωριακό 3529, κιβώτια από φύλλο φάϊμπερ σύμφωνα με το περιθωριακό 3530, πλαστικά κιβώτια σύμφωνα με το περιθωριακό 3531 χαλύβδινα βαρέλια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3520, χαλύβδινα μπιτόνια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3522, βαρέλια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3523, βαρέλια από φάϊμπερ σύμφωνα με το περιθωριακό 3525, ή σε πλαστικά βαρέλια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3526.

- (b) Υδράργυρος μπορεί επίσης να συσκευάζεται σε οξυγονοκολλημένες χαλύβδινες φιάλες με εσωτερικούς θολωτούς πάτους ως μεμονωμένες συσκευασίες. Το πάμα θα πρέπει να είναι ένας κοχλιάς με κωνικό σπείρωμα και το άνοιγμα δεν θα πρέπει να υπερβαίνει τα 20 mm.
- (5) (a) Είδη της 81°, εκτός από μπαταρίες, υγρές, χωρίς διαρροή, θα πρέπει να δένονται με αδρανές προστατευτικό υλικό ή με έναν ισοδύναμο τρόπο σε ξύλινα κιβώτια ή σε κιβώτια από άκαμπτο πλαστικό ή σε ξύλινο δικτυωτό κιβώτιο. Οι μπαταρίες θα πρέπει να μονώνονται έναντι βραχυκυκλώματος.
- (b) Μπαταρίες του τύπου χωρίς διαρροή (χαρακτηριστικός αριθμός 2800) θα πρέπει να προστατεύονται έναντι βραχυκυκλωμάτων και θα πρέπει να συσκευάζονται με ασφάλεια σε γερές εξωτερικές συσκευασίες.



## Κλάση 8

**2807** **ΣΗΜΕΙΩΣΗ:** Μπαταρίες χωρίς διαρροή που είναι μέρος αναπόσπαστο και αναγκαίο για τη λειτουργία μηχανικού ή ηλεκτρονικού εξαρτήματος, θα πρέπει να δένονται με ασφάλεια στη θήκη μπαταρίας (συνεχ.) στο εξάρτημα και να προστατεύονται με τέτοιο τρόπο για την αποφυγή φθοράς και βραχυκυκλώματος.

(e) Είδη της 81° μπορούν να μεταφέρονται σε παλέτες. Θα πρέπει να στοιβάζονται και να ασφαίζονται επαρκώς σε δέτες διαχωριζόμενους από ένα στρώμα μη-αγώγιμου υλικού. Οι πόλοι της μπαταρίας δεν θα πρέπει, σε οποιαδήποτε περίπτωση, να στηρίζουν το βάρος άλλων στοιχείων που έχουν τοποθετηθεί από πάνω. Οι μπαταρίες θα πρέπει να απομονώνονται με τέτοιο τρόπο ώστε να αποφεύγονται βραχυκυκλώματα. Κάθε μπαταρία δεν χρειάζεται να είναι μαρκαρισμένη και επισημασμένη εάν το φορτίο της παλέτας φέρει ένα μαρκάρισμα και μία ετικέτα κινδύνου.

**2808** Συσκευασίες, συμπεριλαμβανομένων IBC, που περιέχουν 1791 διάλυμα υποχλωριώδους άλατος της 61° θα πρέπει να είναι εφοδιασμένες με εξαεριστήρα σύμφωνα με τα περιθωριακά 3500 (8) ή 3601 (6) αντίστοιχα.

**2809** Τετηγμένους οξυβρωμιούχος φωσφόρος της 15° μπορεί να μεταφέρεται μόνον σε οχήματα-δεξαμενές (βλέπε Προσθήκη B.1a) ή σε εμπορευματοκιβώτια-δεξαμενές (βλέπε Προσθήκη B.1b).

**2810**

### 3. Μικτή συσκευασία

**2811** (1) Ύλες που καλύπτονται από τον ίδιο αριθμό ειδών μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538.

(2) Ύλες διαφορετικών ειδών αυτής της κλάσης σε ποσότητες όχι μεγαλύτερες, ανά εσωτερική συσκευασία, από 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί και/ή με εμπορεύματα όχι υποκειμένα στις διατάξεις αυτής της Οδηγίας [βλέπε περιθωριακό 2800 (8)], σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538 υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.

(3) Ύλες της 4° δεν θα πρέπει να συσκευάζονται μαζί με άλλα εμπορεύματα, εκτός από ύλες της 3° της κλάσης 5.1, περιθωριακό 2501. Ύλες των 6° και 14° δεν θα πρέπει να συσκευάζονται μαζί με άλλα εμπορεύματα.

(4) Ύλες ταξινομημένες στο (a) των διαφόρων ειδών δεν θα πρέπει να συσκευάζονται μαζί με ύλες και είδη των κλάσεων 1 και 5.2 και υλικά της κλάσης 7.

(5) Εκτός εάν αλλιώς ειδικά ορίζεται, υγρές ύλες ταξινομημένες στο (a) των διαφόρων ειδών, σε ποσότητες όχι μεγαλύτερες από 0.5 λίτρο ανά εσωτερική συσκευασία και 1 λίτρο ανά κόλο και ύλες ταξινομημένες στο (b) ή (c) των διαφόρων ειδών, σε ποσότητες όχι μεγαλύτερες, ανά εσωτερική συσκευασία, από 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538 με ύλες ή είδη άλλων Κλάσεων, υπό την προϋπόθεση ότι μικτή συσκευασία επιτρέπεται επίσης για τις ύλες και τα είδη αυτών των Κλάσεων και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας [βλέπε περιθωριακό 2800 (8)], υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.

(6) Οι παρακάτω θεωρούνται επικίνδυνες αντιδράσεις:

- (a) ανάφλεξη και/ή εκπομπή σημαντικής θερμότητας,
- (b) εκπομπή εύφλεκτων και/ή τοξικών αερίων,
- (c) σχηματισμός διαβρωτικών υγρών,
- (d) σχηματισμός ασταθών υλών.

## Κλάση 8

**2811** (7) Η μικτή συσκευασία όξινων υλών με βασικές ύλες σε ένα κόλο δεν θα πρέπει να (συνεχ.) επιτρέπεται εάν οι δύο ύλες είναι συσκευασμένες σε εύθραυστες συσκευασίες.

(8) Οι διατάξεις των περιθωριακών 2001 (7), 2002 (6) και (7) και 2802 θα πρέπει να ισχύουν.

(9) Εάν χρησιμοποιούνται ξύλινα κιβώτια ή κιβώτια από φύλλο φάιμπερ, ένα κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg.

**4. Μαρκάρισμα και ετικέτες κινδύνου στα κόλα**

**2812 Μαρκάρισμα**

(1) Κάθε κόλο θα πρέπει να είναι καθαρά μαρκαρισμένη με τον χαρακτηριστικό αριθμό των εμπορευμάτων που θα καταχωρείται στο έγγραφο μεταφοράς, μετά από τα γράμματα "UN".

**Ετικέτες κινδύνου**

(2) Κόλα που περιέχουν ύλες ή είδη της κλάσης 8 θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8.

(3) Κόλα που περιέχουν ύλες των 32° (b) 2., 33° (a), 35° (b) 2., 37°, 54°, 64° (b) και 68° θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 3.

(4) Κόλα που περιέχουν ύλες των 44° (a) και 45° (b) 2. θα πρέπει επιπλέον να φέρουν ετικέτες σύμφωνα με τα υποδείγματα Αριθμ. 3 και 6.1.

(5) Κόλα που περιέχουν ύλες της 67° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.1.

(6) Κόλα που περιέχουν ύλες των 69° και 70° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.2.

(7) Κόλα που περιέχουν ύλες των 71° και 72° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.3.

(8) Κόλα που περιέχουν ύλες των 3° (a), 4°, 73° και 74° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 05.

(9) Κόλα που περιέχουν ύλες της 2° (a) 2. θα πρέπει επιπλέον να φέρουν ετικέτες σύμφωνα με το υποδείγματα Αριθμ. 05 και 6.1.

(10) Κόλα που περιέχουν ύλες που αναφέρονται παρακάτω θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1:

Αριθμός είδους	Χαρακτηριστικός αριθμός ύλης	Υλη
1° (a)	1831	Θειικό οξύ, αμιζόν (oleum)
6°		Όλες οι ύλες
7°		Όλες ύλες
9° (b)	1811	Όξινο διφθοριούχο κάλιο (διφθοριούχο κάλιο)

Αριθμός είδους	Χαρακτηριστικός αριθμός ύλης	Ύλη
10° (b)	1732	Πενταφθοριούχο αντιμόνιο
12° (a)	1809	Τριγλωριούχος φωσφόρος
	2879	Οξυγλωριούχο σελήνιο
14°		Όλες οι ύλες
44° (b)		Όλες οι ύλες
45° (b) 1. και (c)	2818	Διάλυμα πολυθειούχου αμμωνίου
53° (b) και (c)	1761	Διάλυμα κυπριαιθυλενοδιαμίνης
75°		Όλες οι ύλες
76°		Όλες οι ύλες

(11) Κόλα που περιέχουν εύθραυστα δοχεία όχι ορατά από έξω θα πρέπει επιπλέον να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 12.

(12) Κόλα που περιέχουν υγρά σε δοχεία, τα πάματα των οποίων δεν είναι ορατά από έξω, καθώς και κόλα που περιέχουν εξαεριζόμενα δοχεία ή εξαεριζόμενα δοχεία χωρίς εξωτερική συσκευασία, θα πρέπει επιπλέον να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

## 2813

**B. Στοιχεία στο έγγραφο μεταφοράς**

2814 Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς ύλης και με μία από τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2801.

Εάν η ύλη δεν αναφέρεται με συγκεκριμένη ονομασία αλλά είναι καταγεγραμμένη σε μία ε.α.ο. καταχώρηση, η περιγραφή των εμπορευμάτων θα πρέπει να συνίσταται από τον χαρακτηριστικό αριθμό και τον χαρακτηρισμό ε.α.ο., ακολουθούμενο από τη χημική ή τεχνική ονομασία.<sup>3/</sup>

Η περιγραφή των εμπορευμάτων θα πρέπει να ακολουθείται από στοιχεία της κλάσης, τον αριθμό είδους, εάν εφαρμόζεται, το γράμμα, και τα αρχικά "ADR" (ή "RID"), π.χ. "8, 1°(a), ADR".

Για τη μεταφορά αποβλήτων [βλέπε περιθωριακό 2000 (5)] η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "Απόβλητα, που περιέχουν ..." και το(τα) συστατικό(ά) που έχει(έχουν) χρησιμοποιηθεί για την ταξινόμηση των αποβλήτων στο περιθωριακό 2002 (8) θα καταχωρείται(ονται) με τη(τις) χημική(ές) ονομασία(ες) του(ς), π.χ. "Απόβλητα που περιέχουν 1824 διάλυμα υδροξειδίου του νατρίου, 8, 42°(b) ADR".

<sup>3/</sup> Η τεχνική ονομασία θα πρέπει να είναι μία ονομασία που ήδη χρησιμοποιείται σε επιστημονικά και τεχνικά εγχειρίδια, περιοδικά και κείμενα. Εμπορικές ονομασίες δεν θα πρέπει να χρησιμοποιούνται για αυτόν το σκοπό.

## Κλάση 8

**2814** Για τη μεταφορά διαλυμάτων ή μειγμάτων (όπως παρασκευάσματα και απόβλητα) που περιέχουν (συνεχ.) διάφορα συστατικά υποκείμενα σ' αυτήν την Οδηγία, δεν θα είναι γενικά αναγκαίο να αναφέρονται περισσότερα από δύο συστατικά που κυρίως συμβάλλουν στον κίνδυνο ή τους κινδύνους του διαλύματος και του μείγματος. Για τη μεταφορά διαλυμάτων και μειγμάτων που περιέχουν μόνον ένα συστατικό υποκείμενο στις διατάξεις αυτής της Οδηγίας, οι λέξεις "διάλυμα" ή "μείγμα" θα πρέπει να προστίθενται ως μέρος της ονομασίας στο έγγραφο μεταφοράς [βλέπε περιθωριακό 2002 (8)].

Όταν μία στερεή ύλη παραδίδεται για μεταφορά στην τετηγμένη κατάσταση, η περιγραφή των εμπορευμάτων θα πρέπει να συμπληρώνεται από τη λέξη "τετηγμένο", εκτός εάν ήδη συμπεριλαμβάνεται στην ονομασία.

Εάν ένα διάλυμα ή μείγμα με συγκεκριμένη ονομασία ή που περιέχει μία ύλη με συγκεκριμένη ονομασία δεν υπόκειται στις συνθήκες αυτής της κλάσης, σε συμφωνία με το περιθωριακό 2800 (5), ο αποστολέας μπορεί να εγγράψει στο έγγραφο μεταφοράς: "Όχι Εμπορεύματα της κλάσης 8".

**2815-  
2821**

## C. Κενές συσκευασίες

- 2822** (1) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, της 91° θα πρέπει να είναι κλεισμένες με τον ίδιο τρόπο και με τον ίδιο βαθμό στεγανότητας σαν να ήταν γεμάτες.
- (2) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, της 91° θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνου σαν να ήταν γεμάτες.
- (3) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μία από τις ονομασίες που υπογραμμίζονται στο 91°, π.χ. "Κενές συσκευασίες, 8, 91°, ADR".

Στην περίπτωση κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών και κενών μικρών εμπορευματοκιβωτίων για μεταφορά χύμα, ακαθάριστων, αυτή η περιγραφή θα πρέπει να συμπληρώνεται από την προσθήκη των λέξεων "Τελευταίο φορτίο" μαζί με την ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ. "Τελευταίο φορτίο: 1830 θειικό οξύ, 1° (b)".

**2823-  
2824**

## D. Μεταβατικά μέτρα

- 2825** Όλες της κλάσης 8 μπορούν να μεταφέρονται μέχρι τις 30 Ιουνίου 1995 σε συμφωνία με τις απαιτήσεις για την Κλάση 8 που εφαρμόζεται μέχρι τις 31 Δεκεμβρίου 1994. Το έγγραφο μεταφοράς θα πρέπει, σε τέτοιες περιπτώσεις, να φέρει την επιγραφή "Μεταφορά σε συμφωνία με την ADR που ισχύει πριν την 1 Ιανουαρίου 1995".

**2826-  
2899**

**ΚΛΑΣΗ 9. ΔΙΑΦΟΡΕΣ ΕΠΙΚΙΝΔΥΝΕΣ ΥΛΕΣ ΚΑΙ ΕΙΔΗ****1. Κατάλογος υλών**

**2900** Το κεφάλαιο της κλάσης 9 καλύπτει ύλες και είδη που, κατά τη διάρκεια της μεταφοράς, παρουσιάζουν έναν κίνδυνο που δεν καλύπτεται από τα κεφάλαια άλλων κλάσεων. Εκείνες οι ύλες και τα είδη που αναφέρονται στο περιθωριακό 2901 υπόκεινται στις συνθήκες που τίθενται στα περιθωριακά 2901 έως 2920 και στις διατάξεις αυτού του παραρτήματος και του παραρτήματος Β. Θεωρούνται τότε ως ύλες και είδη αυτής της Οδηγίας<sup>1/</sup>.

Υλες της κλάσης 9 που αναφέρονται στα διάφορα είδη του περιθωριακού 2901 θα πρέπει να καταχωρούνται σε μία από τις παρακάτω ομάδες που χαρακτηρίζονται από το γράμμα (b) ή (c) σύμφωνα με το βαθμό κινδύνου τους:

γράμμα (b) - επικίνδυνες ύλες

γράμμα (c) - ύλες που παρουσιάζουν έναν μικρότερο κίνδυνο.

**ΣΗΜΕΙΩΣΗ:** Για την ταξινόμηση διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα), βλέπε επίσης περιθωριακό 2002 (8).

**2901** Α. Υλες που, σε περίπτωση εισπνοής ως λεπτή σκόνη, μπορούν να θέσουν σε κίνδυνο την υγεία

1° Αμίαντος και μείγματα που περιέχουν αμίαντο, όπως:

(b) 2212 Μπλε αμίαντος (κροκιδολίτης), 2212 καφέ αμίαντος (αμοσίτης ή μυσσορίτης),

(c) 2590 Λευκός αμίαντος (χρυσοσίτη, ακτινολίτης, ανθοφυλίτης ή τρεμολίτης)

**ΣΗΜΕΙΩΣΗ:** Τάλης που περιέχει τρεμολίτη και/ή ακτινολίτη είναι ύλη της 1° (c), Αριθμ. 2590.

**B. Υλες και συσκευές που σε περίπτωση φωτιάς μπορούν να σχηματίσουν διοξίνες**

2° Πολυχλωρωμένα και πολυαλογονωμένα διφαινύλια (PCBs) και τερφαινύλια (PCTs) και μείγματα που περιέχουν αυτές τις ύλες:

(b) 2315 πολυχλωρωμένα διφαινύλια, 3151 πολυαλογονωμένα διφαινύλια, υγρά ή 3151 πολυαλογονωμένα τερφαινύλια, υγρά, 3152 πολυαλογονωμένα διφαινύλια, στερεά ή 3152 πολυαλογονωμένα τερφαινύλια, στερεά.

**ΣΗΜΕΙΩΣΗ:** Μείγματα με περιεκτικότητα σε PCB ή PCT όχι μεγαλύτερη από 50 mg/kg δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

3° Συσκευές όπως μετασχηματιστές, πυκνωτές και συσκευές που περιέχουν ύλες της 2° (b) ή μείγματα αυτών.

<sup>1/</sup> Για τις ποσότητες υλών ή ειδών του περιθωριακού 2901 που δεν υπόκεινται στις διατάξεις για αυτήν την Κλάση που περιέχονται είτε σε αυτό το Παράρτημα είτε στο παράρτημα Β, βλέπε περιθωριακό 2901a.

## Κλάση 9

## 2901 C. Υλεις που παράγουν εύφλεκτο ατμό

(συνεχ.)

4° Διαστελλόμενα πολυμερή που περιέχουν εύφλεκτα υγρά με σημείο ανάφλεξης όχι μεγαλύτερο από 55 °C.

(c) 2211 πολυμερικές κλίνες, διαστελλόμενες, που παράγουν εύφλεκτο ατμό.

## D. Μπαταρίες λιθίου

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σε αυτά τα είδη (βλέπε περιθωριακό 2906).

5° 3090 μπαταρίες λιθίου, 3091 μπαταρίες λιθίου που περιέχονται σε εξαρτήματα

**ΣΗΜΕΙΩΣΗ 1:** Κάθε στοιχείο δεν θα πρέπει να περιέχει περισσότερο από 12 g λιθίου. Η ποσότητα λιθίου που περιέχεται σε κάθε μπαταρία δεν θα πρέπει να είναι μεγαλύτερη από 500 g.

Με την έγκριση της αρμόδιας αρχής της χώρας προέλευσης, η ποσότητα λιθίου σε κάθε στοιχείο μπορεί να αυξηθεί σε 60 g και ένα κόλο μπορεί να περιέχει έως 2500 g λιθίου. Η αρμόδια αρχή θα πρέπει να προσδιορίζει τις συνθήκες μεταφοράς καθώς και τον τύπο και τη διάρκεια του ελέγχου.

**ΣΗΜΕΙΩΣΗ 2:** Στοιχεία και μπαταρίες θα πρέπει να είναι εφοδιασμένα με ένα αποτελεσματικό μέσο πρόληψης των εξωτερικών βραχυκυκλωμάτων. Κάθε στοιχείο και μπαταρία θα πρέπει να έχει ενσωματωμένη μία συσκευή εξαερισμού ασφαλείας ή να είναι σχεδιασμένο με τέτοιο τρόπο ώστε να προλαμβάνεται η βίαιη θραύση υπό κανονικές συνθήκες μεταφοράς. Μπαταρίες που περιέχουν στοιχεία ή σειρά στοιχείων συνδεδεμένων παράλληλα θα πρέπει να είναι εφοδιασμένες με διόδους για την αποφυγή αντίστροφης ροής ρεύματος. Μπαταρίες που περιέχονται σε εξαρτήματα θα πρέπει να προστατεύονται έναντι βραχυκυκλωμάτων και να κρατούνται με ασφάλεια στη θέση τους.

**ΣΗΜΕΙΩΣΗ 3:** Τα στοιχεία και οι μπαταρίες θα πρέπει να είναι έτσι σχεδιασμένα και κατασκευασμένα ώστε να είναι ικανά να ικανοποιούν τους παρακάτω ελέγχους:

**Έλεγχος 1:** το στοιχείο ή η μπαταρία θα πρέπει να υπόκεινται σε έλεγχο θερμικής σταθερότητας στους 75 °C για 48 ώρες και να μην εμφανίζουν εμφανή παραμόρφωση, διαρροή ή εσωτερική θέρμανση.

Αυτός ο έλεγχος θα πρέπει να εκτελείται σε τουλάχιστον 10 στοιχεία και μία μπαταρία από κάθε τύπο λαμβανόμενο από την παραγωγή κάθε εβδομάδα.

**Έλεγχος 2:** ως αποτέλεσμα σκόπιμου βραχυκυκλώματος, το στοιχείο ή η μπαταρία θα πρέπει να καθίσταται αδρανές, κατά προτίμηση χωρίς εξαερισμό (μέσω της χρήσης εσωτερικών συσκευιών ασφαλείας). Εάν λαμβάνει χώρα εξαερισμός, μία ανοιχτή φλόγα θα πρέπει να εφαρμόζεται στις αναθυμιάσεις του εξαερισμού για να αποδειχθεί ότι δεν υπάρχει εκρηκτική κατάσταση.

Αυτός ο έλεγχος θα πρέπει να εκτελείται σε τουλάχιστον τρία στοιχεία και μία μπαταρία από κάθε τύπο λαμβανόμενο από την παραγωγή κάθε εβδομάδα.

**ΣΗΜΕΙΩΣΗ 4:** Στοιχεία που έχουν αποφορτιστεί στο βαθμό που η τάση ανοιχτού κυκλώματος να είναι μικρότερη από δύο volts ή ίση με τα δύο τρίτα της τάσης του μη-αποφορτισμένου στοιχείου, όποια τιμή από τις δύο είναι μικρότερη, ή μπαταρίες που περιέχουν ένα ή περισσότερα τέτοια στοιχεία δεν θα γίνονται δεκτά για μεταφορά.

## Κλάση 9

2901  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ 5:** Στοιχεία από μπαταρίες που περιέχονται σε εξαρτήματα δεν θα πρέπει να είναι ικανά να αποφορτίζονται κατά τη διάρκεια της μεταφοράς στο βαθμό που η τάση ανοιχτού κυκλώματος να πέφτει κάτω από 2 volts ή τα δύο τρίτα της τάσης του μη-αποφορτισμένου στοιχείου, όποια τιμή από τις δύο είναι μικρότερη.

**ΣΗΜΕΙΩΣΗ 6:** Είδη της 5<sup>ο</sup> που δεν ικανοποιούν αυτές τις συνθήκες δεν θα γίνονται δεκτά για μεταφορά.

## Ε. Σωστικά μέσα

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτά τα είδη (βλέπε περιθωριακό 2907).

6<sup>ο</sup> 2990 σωστικά μέσα, αυτοδιογκούμενα, όπως γλίστρες εκκένωσης αεροσκαφών και εξαρτήσεις επιβίωσης αεροσκαφών.

**ΣΗΜΕΙΩΣΗ:** Αυτά τα μέσα παρουσιάζουν έναν κίνδυνο εάν η αυτοδιογκούμενη συσκευή ενεργοποιηθεί κατά τη διάρκεια της μεταφοράς και μπορεί επίσης να περιλαμβάνει μία ή περισσότερες από τις παρακάτω ύλες ή είδη αυτής της Οδηγίας ως εξαρτήματα:

συσκευές σηματοδότησης της κλάσης 1, όπως καπνογόνες και φωτιστικές βολίδες σηματοδότησης:

μη-εύφλεκτα, μη-τοξικά αέρια της κλάσης 2,

εύφλεκτες ύλες των κλάσεων 3 ή 4.1,

οργανικά υπεροξειδία της κλάσης 5.2, ως συστατικά επισκευαστικών εξαρτήσεων,

μπαταρίες ηλεκτρικής συσσώρευσης της κλάσης 8.

7<sup>ο</sup> 3072 σωστικά μέσα, όχι αυτοδιογκούμενα, που περιλαμβάνουν μία ή περισσότερες από τις παρακάτω ύλες ή είδη της ADR ως εξαρτήματα:

συσκευές σηματοδότησης της κλάσης 1, όπως καπνογόνες ή φωτιστικές βολίδες σηματοδότησης,

μη-εύφλεκτα, μη-τοξικά αέρια της κλάσης 2,

εύφλεκτες ύλες των κλάσεων 3 ή 4.1,

οργανικά υπεροξειδία της κλάσης 5.2, ως συστατικά επισκευαστικών εξαρτημάτων,

μπαταρίες ηλεκτρικής συσσώρευσης ή διαβρωτικά στερεά της κλάσης 8.

8<sup>ο</sup> Μέρη μηχανοκίνητων οχημάτων

3268 συσκευές φουσκώματος αερόσακκων ή 3268 θάλαμοι αερόσακκων ή 3268 προ-εντατές ζωνών ασφαλείας ή 3268 θάλαμοι ζωνών ασφαλείας

**ΣΗΜΕΙΩΣΗ 1:** Αυτό το είδος εφαρμόζεται στα είδη που μπορούν να ταξινομηθούν στην Κλάση 1 σε συμφωνία με το περιθωριακό 2100 (2) (b), που χρησιμοποιούνται ως σωστικοί αερόσακκοι ή ζώνες ασφαλείας των οχημάτων, όταν μεταφέρονται ως συστατικά μέρη και όταν οι 'συσκευές φουσκώματος αερόσακκων', 'προ-εντατές ζωνών ασφαλείας', 'θάλαμοι αερόσακκων' ή 'θάλαμοι ζωνών ασφαλείας' συσκευασμένα όπως για μεταφορά έχουν ελεγχθεί σε συμφωνία με τη σειρά ελέγχου 6 (c) του τμήματος I των Ελέγχων και Κριτηρίων των

## Κλάση 9

2901  
(συνεχ.)

Υποδείξεων για τη Μεταφορά Επικίνδυνων Εμπορευμάτων,<sup>2/</sup> χωρίς έκρηξη της συσκευής, χωρίς θρυμματισμό των περιβλημάτων της συσκευής και χωρίς προβολή επικίνδυνης ή θερμικής επίδρασης, που θα δυσχέρανε σημαντικά τις προσπάθειες πυρόσβεσης ή αντίδρασης σε άλλες καταστάσεις κινδύνου στην άμεσα κοντινή περιοχή.

**ΣΗΜΕΙΩΣΗ 2:** Τέτοιοι αερόσακκοι ή ζώνες ασφαλείας που εγκαθίστανται σε οχήματα ή σε πλήρη μέρη οχημάτων όπως άξονες τιμονιού, φύλλα πόρτας κ.λπ. δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

## F. Περιβαλλοντικά επικίνδυνες ύλες

**ΣΗΜΕΙΩΣΗ:** Η καταχώρηση μίας ύλης στην 11<sup>ο</sup> ή 12<sup>ο</sup> θα πρέπει να είναι όπως υποδεικνύεται στην προσθήκη Α.3, μέρος G, περιθωριακά 3390 έως 3396.

- 11<sup>ο</sup> Υγρές ύλες ρυπογόνες για το θαλάσσιο περιβάλλον και διαλύματα και μείγματα τέτοιων υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν στις άλλες κλάσεις, ή στα είδη 1<sup>ο</sup> έως 8<sup>ο</sup>, 13<sup>ο</sup> και 14<sup>ο</sup> αυτής της κλάσης.

(c) 3082 Περιβαλλοντικά επικίνδυνη ύλη, υγρή, ε.α.ο., όπως:

πολυ (3-6) αιθοξυλική αλκοόλη C<sub>6</sub>-C<sub>17</sub> (δευτεροταγής)

πολυ (1-3) αιθοξυλική αλκοόλη C<sub>12</sub>-C<sub>15</sub>

πολυ (1-6) αιθοξυλική αλκοόλη C<sub>13</sub>-C<sub>15</sub>

alfa-cypermethrin

φθαλικό βουτυλοβενζύλιο

χλωριωμένες παραφίνες (C<sub>10</sub>-C<sub>13</sub>)

1-γλωροοκτάνιο

φωσφορικό κρεζυλοδιφαινύλιο

cyfluthrin

ακρυλικός δεκυλεστέρας

φθαλικό δι-η-βουτύλιο

1, 6-διγλωροεξάνιο

δύσοπροπιλοβενζόλια

ακρυλικός ισοδεκυλεστέρας

φωσφορικός ισοδεκυλοδιφαινύλιο

νιτρικό ισοκτύλιο

malathion

resmethrin

φωσφορικά τριαρύλια

φωσφορικά τρικρεζύλια

τριαιθυλοβενζόλιο

φωσφορικό τριξυλενύλιο

- 12<sup>ο</sup> Στερεές ύλες ρυπογόνες για το θαλάσσιο περιβάλλον και μείγματα τέτοιων υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν στις άλλες κλάσεις, ή στα είδη 1<sup>ο</sup> έως 8<sup>ο</sup>, 13<sup>ο</sup> και 14<sup>ο</sup> αυτής της κλάσης.

<sup>2/</sup> Υποδείξεις για τη Μεταφορά Επικίνδυνων Εμπορευμάτων, Έλεγχος και Κριτήρια (Δεύτερη έκδοση), δημοσιευμένες από τον Οργανισμό Ηνωμένων Εθνών υπό το σύμβολο ST/SG/AC.10/11/Rev.1.



## Κλάση 9

2901  
(συνεχ.)

- (c)
- 3077 Περιβαλλοντικά επικίνδυνη ύλη, στερεή, ε.α.ο., όπως:

χλωροεξιδίνη  
 χλωριωμένες παραφίνες (C<sub>10</sub>-C<sub>13</sub>)  
 p-διχλωροβενζόλιο  
 διφαινύλιο  
 διφαινυλαιθέρας  
 οξείδιο fenbutadin  
 χλωριούχος υδράργυρος (καλομέλας)  
 φωσφορικός τριβουτυλοκασσίτερος  
 βρωμιούχος ψευδάργυρος

## 13° Γενετικά τροποποιημένοι μικρο-οργανισμοί.

**ΣΗΜΕΙΩΣΗ 1:** Γενετικά τροποποιημένοι μικρο-οργανισμοί είναι μικρο-οργανισμοί στους οποίους το γενετικό υλικό έχει σκοπίμα μεταβληθεί με τεχνικά μέσα ή με τέτοια μέσα που δεν μπορούν να συμβούν φυσικά.

**ΣΗΜΕΙΩΣΗ 2:** Γενετικά τροποποιημένοι μικρο-οργανισμοί που είναι μολυσματικοί είναι ύλες της κλάσης 6.2 (βλέπε περιθωριακό 2651, είδη 1° έως 3°, χαρακτηριστικοί αριθμοί 2814 και 2900).

**ΣΗΜΕΙΩΣΗ 3:** Γενετικά τροποποιημένοι μικρο-οργανισμοί κατά την έννοια αυτού του είδους είναι εκείνοι που δεν είναι επικίνδυνοι για ανθρώπους και ζώα, αλλά που θα μπορούσαν να μεταβάλλουν ζώα, φυτά, μικροβιολογικές ύλες και οικοσυστήματα με τέτοιον τρόπο που δεν μπορεί να συμβεί φυσικά.

- (b)
- 3245 Γενετικά τροποποιημένοι μικρο-οργανισμοί

**ΣΗΜΕΙΩΣΗ 1:** Γενετικά τροποποιημένοι μικρο οργανισμοί που έχουν λάβει συγκατάθεση για σκόπιμη απελευθέρωση στο περιβάλλον, <sup>3/</sup> δεν υπόκεινται στις διατάξεις αυτής της κλάσης αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 2:** Για το σκοπό των απαιτήσεων συσκευασίας του περιθωριακού 2903, ύλες και μείγματα υλών θεωρούνται ότι είναι στερεά εάν δεν περιέχουν ελεύθερο υγρό σε θερμοκρασία χαμηλότερη από 45 °C.

**ΣΗΜΕΙΩΣΗ 3:** Ζωντανά σπονδυλωτά ή ασπόνδυλα ζώα δεν θα πρέπει να χρησιμοποιούνται για τη μεταφορά υλών ταξινομημένων υπό αυτό το είδος εκτός εάν η ύλη δεν μπορεί να μεταφερθεί με άλλον τρόπο.

## 14° Γενετικά τροποποιημένοι οργανισμοί

**ΣΗΜΕΙΩΣΗ:** Γενετικά τροποποιημένοι οργανισμοί, για τους οποίους είναι γνωστό ή υπάρχει η υποψία ότι είναι επικίνδυνοι για το περιβάλλον θα πρέπει να μεταφέρονται σε συμφωνία με τις συνθήκες που ορίζονται από την αρμόδια αρχή της χώρας προέλευσης.

## G. Κενές συσκευασίες

**ΣΗΜΕΙΩΣΗ 1:** Κενές συσκευασίες με υπολείμματα από το προηγούμενο περιεχόμενο τους κολλημένα στο εξωτερικό δεν θα γίνονται δεκτά για μεταφορά.

<sup>3/</sup> Βλέπε ειδικά το Μέρος C της Οδηγίας 90/220/EEC (Επίσημη Εφημερίδα της Ευρωπαϊκής Κοινότητας, Αριθμ. L 117, της 8 Μαΐου 1990, σελ. 18-20), που εκθέτει τις διαδικασίες εξουσιοδότησης για της Ευρωπαϊκή Κοινότητα.

## Κλάση 9

2901  
(συνεχ.)**ΣΗΜΕΙΩΣΗ 2:** Ακαθάριστα κενά δοχεία συγκράτησης για συσκευές της 3<sup>ο</sup> δεν θα γίνονται δεκτά για μεταφορά.

21<sup>ο</sup> Κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά χύμα (IBC), κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών και κενών εμπορευματοκιβωτίων-δεξαμενών, ακαθάριστες, που περιείχαν ύλες της 1<sup>ο</sup> ή 2<sup>ο</sup> της κλάσης 9.

2901a (1) Ύλες ταξινομημένες στο (b) ή (c) των 1<sup>ο</sup>, 2<sup>ο</sup>, 4<sup>ο</sup> και 11<sup>ο</sup> έως 13<sup>ο</sup> μεταφερόμενες σε συμφωνία με τις παρακάτω διατάξεις δεν υπόκεινται στις διατάξεις για αυτήν την κλάση που περιέχεται σε αυτό το Παράρτημα ή στο παράρτημα Β:

(a) Ύλες ταξινομημένες υπό το γράμμα (b) κάθε είδους:

υγρά, έως 500 ml ανά εσωτερική συσκευασία και έως 2 λίτρα ανά κόλο,

στερεά, έως 1 kg ανά εσωτερική συσκευασία και έως 4 kg ανά κόλο.

(b) Ύλες ταξινομημένες υπό το γράμμα (c) κάθε είδους:

υγρά, έως 3 λίτρα ανά εσωτερική συσκευασία και έως 12 λίτρα ανά κόλο:

στερεά, έως 6 kg ανά εσωτερική συσκευασία και έως 24 kg ανά κόλο.

Αυτές οι ποσότητες υλών θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες σύμφωνα τουλάχιστον με τις συνθήκες του περιθωριακού 3538.

Οι "Γενικές συνθήκες συσκευασίας" του περιθωριακού 3500 (1), (2) και (5) έως (7) θα πρέπει να ισχύουν.

(2) Οι παρακάτω ύλες και είδη της 1<sup>ο</sup> είναι επιπλέον υποκείμενες στις διατάξεις για αυτήν την Κλάση που περιέχονται σε αυτό το παράρτημα και στο παράρτημα Β:

(a) αμιάντος έτσι εμβαπτισμένος ή τοποθετημένος σε ένα φυσικό ή τεχνητό δεσμευτικό υλικό (όπως τσιμέντο, πλαστικό, άσφαλτος, ρητίνες ή ορυκτό μέταλλο) ώστε να μην μπορεί να σημειωθεί διαφυγή επικίνδυνων ποσοτήτων αναπνεύσιμων ινών αμιάντου κατά τη διάρκεια της μεταφοράς,

(b) τελικά προϊόντα που περιέχουν αμιάντο όταν είναι έτσι συσκευασμένα ώστε να μην μπορεί να σημειωθεί διαφυγή επικίνδυνων ποσοτήτων αναπνεύσιμων ινών αμιάντου κατά τη διάρκεια της μεταφοράς.

(3) Συσκευές της 3<sup>ο</sup> που περιέχουν υγρά της 2<sup>ο</sup> (b), έως 500 ml ανά συσκευή και έως 2 λίτρα ανά κόλο, δεν υπόκεινται στις διατάξεις για αυτήν την Κλάση που περιέχονται σε αυτό το Παράρτημα ή στο παράρτημα Β. Οι συσκευές θα πρέπει, όμως, να συσκευάζονται σε συμφωνία με το περιθωριακό 2905 (1) (a).

(4) Μπαταρίες λιθίου της 5<sup>ο</sup> σύμφωνα με τις παρακάτω διατάξεις και εξαρτήματα που περιέχουν μόνον τέτοιες μπαταρίες, δεν υπόκεινται στις διατάξεις για αυτήν την Κλάση που περιέχονται σε αυτό το Παράρτημα και στο παράρτημα Β:

(a) κάθε στοιχείο με υγρή κάθοδο περιέχει όχι περισσότερο από 0.5 g λιθίου ή κράμα λιθίου και κάθε στοιχείο με στερεή κάθοδο περιέχει όχι περισσότερο από 1 g λιθίου ή κράμα λιθίου,

## Κλάση 9

- 2901a (συνεχ.)
- (b) κάθε μπαταρία με στερεή κάθοδο περιέχει όχι περισσότερο από μία συνολική ποσότητα 2 g λίθιο ή κράμα λιθίου και κάθε μπαταρία με υγρή κάθοδο περιέχει όχι περισσότερο από μία συνολική ποσότητα 1 g λίθιο ή κράμα λιθίου,
  - (c) κάθε στοιχείο ή μπαταρία που περιέχει υγρή κάθοδο είναι ερμητικά σφραγισμένο,
  - (d) τα στοιχεία είναι διαχωρισμένα έτσι ώστε να αποφεύγονται βραχυκυκλώματα,
  - (e) οι μπαταρίες είναι διαχωρισμένες έτσι ώστε να αποφεύγονται βραχυκυκλώματα και είναι συσκευασμένες σε γερές συσκευασίες, εκτός από όταν είναι εγκαταστημένες σε ηλεκτρονικές συσκευές,
  - (f) εάν μία μπαταρία υγρής καθόδου περιέχει περισσότερο από 0.5 g λίθιο ή κράμα λιθίου, ή μία μπαταρία στερεής καθόδου περιέχει περισσότερο από 1 g λίθιο ή κράμα λιθίου, δεν περιέχει υγρό ή αέριο που θεωρείται επικίνδυνο εκτός εάν το υγρό ή το αέριο, εάν είναι ελεύθερο, θα ήταν πλήρως απορροφημένο ή εξουδετερωμένο από άλλα υλικά στη μπαταρία.

## 2. Διατάξεις

## A. Κόλα

## 1. Γενικές συνθήκες συσκευασίας

- 2902
- (1) Οι συσκευασίες θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.5, εκτός εάν ειδικές συνθήκες για τη συσκευασία ορισμένων υλών καθορίζονται στο τμήμα A.2.
  - (2) Τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC) θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.6.
  - (3) Σε συμφωνία με τις διατάξεις των περιθωριακών 2900 και 3511 (2) ή 3611 (2) θα πρέπει να χρησιμοποιούνται τα παρακάτω:

συσκευασίες των ομάδων συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X", ή IBC της ομάδας συσκευασίας II, μαρκαρισμένα με το γράμμα "Y", για τις επικίνδυνες ύλες που είναι ταξινομημένες υπό το γράμμα (b) κάθε είδους,

συσκευασίες των ομάδων συσκευασίας III, II ή I, μαρκαρισμένες με το γράμμα "Z", "Y" ή "X", ή IBC, μαρκαρισμένα με το γράμμα "Z" ή "Y", για τις λιγότερο επικίνδυνες ύλες που είναι ταξινομημένες υπό το γράμμα (c) κάθε είδους.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά υλών της κλάσης 9 σε οχήματα-δεξαμενές, αποσυναρμολογημένες δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές και για τη μεταφορά χύμα στερεών αυτής της κλάσης, βλέπε Παράρτημα B.

## 2. Ειδικές συνθήκες συσκευασίας

- 2903
- (1) Υλεις ταξινομημένες στο (b) των διαφόρων ειδών του περιθωριακού 2901 θα πρέπει να συσκευάζονται:
    - (a) σε χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
    - (b) σε αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
    - (c) σε χαλύβδινα μπτόνια σύμφωνα με το περιθωριακό 3522, ή
    - (d) σε πλαστικά βαρέλια ή πλαστικά μπτόνια σύμφωνα με το περιθωριακό 3526, ή

## Κλάση 9

2903  
(συνεχ.)

- (e) σε σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
- (g) σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624 ή σύνθετα IBC με ένα άκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625.

*ΣΗΜΕΙΩΣΗ στα (a), (b), (c) και (d): Απλοποιημένες συνθήκες εφαρμόζονται στα βαρέλια και μπιτόνια μετακινούμενης κεφαλής για ιξώδεις υλεις με ιξώδες μεγαλύτερο από 200 mm<sup>2</sup>/s στους 23 °C (βλέπε περιθωριακά 3512, 3553, 3554 και 3560) και για στερεά.*

(2) Στερεές υλεις με σημείο τήξης μεγαλύτερο από 45 °C μπορούν επίσης να συσκευάζονται:

- (a) σε βαρέλια σύμφωνα με το περιθωριακό 3523 για κόντρα-πλακέ ή 3525 για φύλλο φάιμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπεράστους εσωτερικούς σάκους, ή
- (b) σε αδιάβροχους σάκους σύμφωνα με τα περιθωριακά 3533 για υλικά υφαντουργίας, 3534 για πλεγμένα πλαστικά υλικά, 3535 για πλαστικά φιλμ ή 3536 για αδιάβροχο χαρτί, υπό την προϋπόθεση ότι τα εμπορεύματα αποστέλλονται ως πλήρες φορτίο ή οι σάκοι είναι ασφαλισμένοι πάνω σε παλέτες, ή
- (c) σε σύνθετα IBC με εύκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625, IBC από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3626 ή ξύλινα IBC σύμφωνα με το περιθωριακό 3627, ή
- (d) σε εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623 με εξαίρεση τα IBC των τύπων 13L1 και 13M1, υπό την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται ως πλήρες φορτίο ή τα εύκαμπτα IBC είναι φορτωμένα πάνω σε παλέτες.

2904

(1) Υλεις ταξινομημένες στο (c) των διαφόρων ειδών του περιθωριακού 2901 θα πρέπει να συσκευάζονται:

- (a) σε χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
- (b) σε αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
- (c) σε χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
- (d) σε πλαστικά βαρέλια ή πλαστικά μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
- (e) σε σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
- (g) σε σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργυλος) σύμφωνα με το περιθωριακό 3539, ή
- (h) σε ελαφρού περιτυπώματος μεταλλικές συσκευασίες σύμφωνα με το περιθωριακό 3540, ή
- (i) σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624 ή σύνθετα IBC σύμφωνα με το περιθωριακό 3625.

## Κλάση 9

2904  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ** στα (a), (b), (c), (d) και (h): Απλοποιημένες συνθήκες εφαρμόζονται σε βαρέλια, μπιτόνια και ελαφρού περιττώματος μεταλλικές συσκευασίες μετακινούμενης κεφαλής για ιξώδεις ύλες με ιξώδες μεγαλύτερο από 200 mm<sup>2</sup>/s στους 23 °C (βλέπε περιθωριακά 3512, 3552 έως 3554 και 3560) και για στερεά.

- (2) Στερεές ύλες με σημείο τήξης μεγαλύτερο από 45 °C μπορούν επίσης να συσκευάζονται:
- (a) σε βαρέλια σύμφωνα με το περιθωριακό 3523 για κόντρα-πλακέ ή 3525 για φύλλο φάιμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
  - (b) σε αδιάβροχους σάκους σύμφωνα με τα περιθωριακά 3533 για υλικά υφαντουργίας, 3534 για πλεγμένα πλαστικά υλικά, 3535 για πλαστικά φιλμ ή 3536 για αδιάβροχο χαρτί, ή
  - (c) σε εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623, IBC από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3626 ή ξύλινα IBC σύμφωνα με το περιθωριακό 3627.

**ΣΗΜΕΙΩΣΗ:** IBC σύμφωνα με το περιθωριακό 3626 που περιέχουν ύλες της 4° (c) και μεταφέρονται ως πλήρες φορτίο χρειάζεται μόνον να ικανοποιούν τις απαιτήσεις του περιθωριακού 3621 (1) έως (3), (5) και (6).

(3) Ύλες της 4° (c) μπορούν επίσης να συσκευάζονται σε σφιχτά κλεισμένες στεγανές συσκευασίες που χρειάζεται μόνον να ικανοποιούν τις συνθήκες του περιθωριακού 3500 (1), (2) και (5) έως (7).

(4) Είδη της 8° (c) θα πρέπει να συσκευάζονται σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538 και με έναν τύπο σχεδιασμού ελεγμένο και εγκεκριμένο για την ομάδα συσκευασίας III.

2905

(1) Συσκευές της 3° θα πρέπει να συσκευάζονται:

- (a) σε στεγανές συσκευασίες, ή
- (b) σε στεγανά εμπορευματοκιβώτια.

(2) Συσκευές της 3° μπορούν επίσης να μεταφέρονται σε στεγανά δοχεία (δοχεία συγκράτησης) που πρέπει να είναι ικανά να κρατήσουν, επιπλέον των συσκευών, τουλάχιστον 1.25 φορές τις ύλες της 2° (b) που βρίσκονται στις συσκευές. Πρέπει να υπάρχει επαρκές αδρανές υλικό στα δοχεία για να απορροφά τουλάχιστον 1.1 φορές τις ύλες της 2° (b) που περιέχονται στις συσκευές. Οι συσκευές και τα δοχεία θα πρέπει να είναι έτσι σχεδιασμένα ώστε να αποφεύγεται οποιαδήποτε διαρροή υγρού υπό κανονικές συνθήκες μεταφοράς.

2906

(1) Είδη της 5° θα πρέπει να συσκευάζονται σε:

- (a) κιβώτια σύμφωνα με το περιθωριακό 3527 για φυσικό ξύλο, 3528 για κόντρα-πλακέ ή 3530 για φύλλο φάιμπερ, ή
- (b) σε βαρέλια σύμφωνα με το περιθωριακό 3523 για κόντρα-πλακέ, 3525 για φάιμπερ ή 3526 για πλαστικό, μετακινούμενης κεφαλής, ή
- (c) σε συνδυασμένες συσκευασίες με εσωτερικές συσκευασίες από φύλλο φάιμπερ και εξωτερικές συσκευασίες από χάλυβα ή αλουμίνιο σύμφωνα με το περιθωριακό 3538. Οι εσωτερικές συσκευασίες θα πρέπει να είναι διαχωρισμένες η μία από την άλλη και από τις εσωτερικές επιφάνειες των εξωτερικών συσκευασιών με τη χρήση μη-εύφλεκτου προστατευτικού υλικού με τουλάχιστον 25 mm πάχος.

## Κλάση 9

**2906** (συνεχ.) Οι συνδυασμένες συσκευασίες θα πρέπει να συμφωνούν με έναν τύπο σχεδιασμού που είναι ελεγμένος και εγκεκριμένος, σε συμφωνία με την προσθήκη Α.5, για την ομάδα συσκευασίας Π. Καμία ξεχωριστή συσκευασία ή εσωτερική συσκευασία μίας συνδυασμένης συσκευασίας δεν θα πρέπει να περιέχει περισσότερο από 500 g λίθιο (βλέπε, όμως, περιθωριακό 2901, 5°, Σημείωση 1).

(2) Μπαταρίες λιθίου της 5° θα πρέπει να συσκευάζονται και να στοιβάζονται με ασφάλεια έτσι ώστε να αποφεύγεται η μετακίνηση που θα μπορούσε να οδηγήσει σε βραχυκυκλώματα.

(3) Εξαρτήματα που περιέχουν μπαταρίες λιθίου της 5° θα πρέπει να ασφαίζονται έναντι μετακίνησης μέσα στη συσκευασία και να είναι έτσι συσκευασμένα ώστε να αποφεύγεται η τυχαία λειτουργία κατά τη διάρκεια της μεταφοράς.

**2907** (1) Σωστικά μέσα της 6° θα πρέπει να συσκευάζονται, μεμονωμένα, σε γερές εξωτερικές συσκευασίες.

(2) Ύλες και είδη αυτής της Οδηγίας που περιέχονται σε σωστικά μέσα της 6° ή 7° ως εξαρτήματα θα πρέπει να συσκευάζονται σε εσωτερικές συσκευασίες. Αυτές οι εσωτερικές συσκευασίες θα πρέπει να στοιβάζονται έτσι ώστε να αποφεύγεται οποιαδήποτε μετακίνηση μέσα στα μέσα.

(3) Μη-εύφλεκτα, μη-τοξικά αέρια της κλάσης 2 θα πρέπει να περιέχονται σε κυλίνδρους σύμφωνα με το περιθωριακό 2202 που μπορούν να συνδεθούν με το σωστικό μέσο.

(4) Συσκευές σηματοδότησης της κλάσης 1 θα πρέπει να συσκευάζονται σε πλαστικές ή από φύλλο φάιμπερ εσωτερικές συσκευασίες.

(5) Σπίρτα που ανάβουν παντού της κλάσης 4.1 (περιθωριακό 2401, 2° (c), Αριθμ. 1331) θα πρέπει να συσκευάζονται σε εσωτερικές συσκευασίες για την αποφυγή οποιασδήποτε μετακίνησης.

**2908** (1) Εάν ύλες της 13° μεταφέρονται σε βαθιά κατεψυγμένο άζωτο, οι εσωτερικές συσκευασίες θα πρέπει να είναι σύμφωνες με τις διατάξεις αυτής της κλάσης και τα δοχεία για το άζωτο θα πρέπει να ικανοποιούν τις διατάξεις της κλάσης 2.

(2) Ζωντανά ζώα σε συμφωνία με την 13°, ΣΗΜΕΙΩΣΗ 3, θα πρέπει να συσκευάζονται, μαρκάρονται, περιγράφονται και μεταφέρονται σε συμφωνία με τους σχετικούς κανονισμούς για τη μεταφορά ζώων<sup>4/</sup>.

**2909-  
2910**

### 3. Μικτή συσκευασία

**2911** (1) Ύλες που καλύπτονται από τον ίδιο αριθμό είδους μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538.

(2) Ύλες διαφορετικών ειδών της κλάσης 9 εκτός από ύλες της 13°, σε ποσότητες όχι μεγαλύτερες, ανά εσωτερική συσκευασία, 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί και/ή με εμπορεύματα όχι υποκείμενα στις διατάξεις αυτής της Οδηγίας, σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538.

**2911** (συνεχ.) (3) Ύλες της κλάσης 9 εκτός από ύλες της 13°, σε ποσότητες όχι μεγαλύτερες, ανά εσωτερική συσκευασία, 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538 με ύλες ή είδη άλλων κλάσεων, υπό την

<sup>4/</sup> Τέτοιοι κανονισμοί περιέχονται π.χ., στην Οδηγία 91/628/ΕΕΚ (Επίσημη Εφημερίδα της Ευρωπαϊκής Κοινότητας Αριθμ. L340 της 11 Δεκεμβρίου 1992, σ.17) και στις Υπαδείξεις που Συμβουλίου της Ευρώπης (Υπουργική Επιτροπή) για τη μεταφορά αραιμένων ειδών ζώων.

## Κλάση 9

προϋπόθεση ότι μικτή συσκευασία επιτρέπεται επίσης για τις ύλες και τα είδη αυτών των κλάσεων και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας, υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.

(4) Οι παρακάτω θεωρούνται επικίνδυνες αντιδράσεις:

- (a) ανάφλεξη και/ή εκπομπή σημαντικής θερμότητας,
- (b) εκπομπή εύφλεκτων και/ή τοξικών αερίων,
- (c) σχηματισμός διαβρωτικών υγρών,
- (d) σχηματισμός ασταθών υλών.

(5) Ύλες της 13<sup>ο</sup> δεν θα πρέπει να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538 με άλλα εμπορεύματα. Αυτό δεν θα πρέπει να εφαρμόζεται σε ύλες προστιθέμενες ως ψυκτικά μέσα, π.χ. πάγος, ξηρός πάγος ή βαθιά κατεψυγμένο υγρό άζωτο.

(6) Οι διατάξεις των περιθωριακών 2001 (7), 2002 (6) και (7) και 2902 θα πρέπει να ισχύουν.

(7) Εάν χρησιμοποιούνται ξύλινα ή από φύλλο φάιμπερ κιβώτια, κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg.

#### 4. *Μαρκάρισμα και ετικέτες κινδύνου στα κόλα (βλέπε Προσθήκη A.9)*

##### *Μαρκάρισμα*

2912

(1) Κάθε κόλο θα πρέπει να είναι καθαρά και με τρόπο διαρκείας μαρκαρισμένη με τον χαρακτηριστικό αριθμό των εμπορευμάτων που εγγράφεται στο έγγραφο μεταφοράς, μετά από τα γράμματα 'UN'.

(2) Συσκευασίες που περιέχουν ύλες της 4<sup>ο</sup> (c) θα πρέπει να φέρουν το παρακάτω μαρκάρισμα: "Διατηρείται μακριά από οποιαδήποτε πηγή ανάφλεξης". Αυτό το μαρκάρισμα θα πρέπει να είναι σε μία επίσημη γλώσσα της χώρας αποστολής και επίσης, εάν εκείνη η γλώσσα δεν είναι αγγλικά, γαλλικά ή γερμανικά, στα αγγλικά, γαλλικά ή γερμανικά, εκτός εάν οποιεσδήποτε συμφωνίες μεταξύ των ενδιαφερόμενων για τη μεταφορά χωρών, ορίζουν διαφορετικά.

##### *Ετικέτες κινδύνου*

(3) Κόλα που περιέχουν ύλες ή είδη αυτής της κλάσης, με εξαίρεση τις ύλες της 4<sup>ο</sup> (c), θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 9.

(4) Κόλα που περιέχουν ύλες της 2<sup>ο</sup> (b) με σημείο ανάφλεξης έως και 61 °C θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 3.

(5) Κόλα που περιέχουν είδη της 6<sup>ο</sup> ή 7<sup>ο</sup> δεν θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 9 εκτός εάν το είδος είναι πλήρως κλεισμένο από συσκευασία, ξύλινο δικτυωτό κιβώτιο ή άλλο μέσο που παρεμποδίζει τον άμεσο προσδιορισμό του είδους.

(6) Νέα κόλα που περιέχουν ύλες της 13<sup>ο</sup> μεταφερόμενες σε βαθιά κατεψυγμένο άζωτο θα πρέπει επίσης να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 2.

## Κλάση 9

**2912** (7) Κόλα που περιέχουν εύθραυστα δοχεία όχι ορατά από έξω θα πρέπει να φέρουν σε δύο (συνεχ.) αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 12.

(8) Κόλα που περιέχουν υγρά σε δοχεία τα πάματα των οποίων δεν είναι ορατά από έξω θα πρέπει να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

**2913**

**B. Στοιχεία στο έγγραφο μεταφοράς**

**2914** (1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς - εκτός για ύλες της 14<sup>ο</sup> - και μία από τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2901. Εάν η ύλη δεν αναφέρεται με ονομασία, αλλά είναι καταγεγραμμένη σε μία ε.α.ο. καταχώρηση, η περιγραφή των εμπορευμάτων θα πρέπει να συνίσταται από τον χαρακτηριστικό αριθμό και τον χαρακτηρισμό ε.α.ο., ακολουθούμενο από την χημική ή τεχνική <sup>5/</sup> ονομασία της ύλης, ή για ύλες της 13<sup>ο</sup>, από τη βιολογική ονομασία 5/ της ύλης.

Η περιγραφή των εμπορευμάτων θα πρέπει να ακολουθείται από στοιχεία της κλάσης, τον αριθμό είδους, εάν εφαρμόζεται, το γράμμα, και τα αρχικά "ADR" (ή "RID"), π.χ. "9, 1<sup>ο</sup> (b), ADR".

Για τη μεταφορά αποβλήτων (βλέπε περιθωριακό 2000 (5)), η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "Απόβλητα, που περιέχουν ..." και το συστατικό(ά) που χρησιμοποιείται(ούνται) για την ταξινόμηση των αποβλήτων υπό το περιθωριακό 2002 (8) θα καταχωρείται(ζονται) με την(τις) χημική(ές) ονομασία(ες) του(ς), π.χ. "Απόβλητα που περιέχουν 2212 καφέ αμιάντο, 9,1<sup>ο</sup> (b), ADR".

Για τη μεταφορά διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα) που περιέχουν διάφορα συστατικά που υπόκεινται στις διατάξεις αυτής της Οδηγίας, δεν θα είναι γενικά αναγκαίο να αναφέρονται περισσότερα από δύο συστατικά που κατά κύριο λόγο συμβάλουν στον κίνδυνο ή τους κινδύνους των διαλυμάτων και των μειγμάτων.

Για τη μεταφορά διαλυμάτων και μειγμάτων που περιέχουν μόνον ένα συστατικό που υπόκειται στις διατάξεις αυτής της Οδηγίας, οι λέξεις 'διάλυμα' ή 'μείγμα' θα πρέπει να προστίθεται ως μέρος της ονομασίας στο έγγραφο μεταφοράς [βλέπε περιθωριακό 2002 (8)].

Όταν μία στερεή ύλη παραδίδεται για μεταφορά στην τετηγμένη κατάσταση, η περιγραφή των εμπορευμάτων θα πρέπει να συμπληρώνεται από τη λέξη 'τετηγμένο', εκτός εάν ήδη συμπεριλαμβάνεται στην ονομασία.

Για τη μεταφορά εύκολα αλλοιωσίμων υλών της 13<sup>ο</sup> κατάλληλες πληροφορίες θα πρέπει να δίνονται, π.χ.: 'Ψύξη στους +2/+4 °C' ή 'Μεταφέρεται σε κατενυγμένη κατάσταση' ή 'Να μην καταψύχεται'.

(2) Για τη μεταφορά ειδών της 5<sup>ο</sup> με την έγκριση της αρμόδιας αρχής (βλέπε Σημείωση 1 στο περιθωριακό 2901, 5<sup>ο</sup>), ένα αντίγραφο της έγκρισης με τις συνθήκες μεταφοράς θα πρέπει να επισυνάπτεται στο έγγραφο μεταφοράς. Αυτή η έγκριση θα πρέπει να συντάσσεται σε μία επίσημη γλώσσα της χώρας αποστολής και επίσης, εάν εκείνη η γλώσσα δεν είναι αγγλικά, γαλλικά ή γερμανικά, στα αγγλικά, γαλλικά ή γερμανικά, εκτός εάν οποιεσδήποτε συμφωνίες μεταξύ των ενδιαφερόμενων για τη μεταφορά χωρών ορίζουν διαφορετικά.

<sup>5/</sup> Η τεχνική ή βιολογική ονομασία θα πρέπει να είναι μία ονομασία που ήδη χρησιμοποιείται σε επιστημονικά και τεχνικά εγχειρίδια, περιοδικά και κείμενα. Εμπορικές ονομασίες δεν θα πρέπει να χρησιμοποιούνται για αυτόν τον σκοπό. Στην περίπτωση παρασιτοκτόνων, η ονομασία που θα εγγραφεί θα πρέπει να είναι εκείνη που δίνεται στο Πρότυπο ISO 1750: 1981 εάν αναφέρεται.



## Κλάση 9

2915-  
2920

## C. Κενές συσκευασίες

- 2921 (1) Εάν οι κενές συσκευασίες συμπεριλαμβανομένων IBC, ακαθάριστων, της 21° είναι σάκοι, αυτές θα πρέπει να τοποθετούνται σε κιβώτια ή αδιάβροχους σάκους για την αποφυγή οποιασδήποτε διαρροής της ύλης.
- (2) Άλλες κενές συσκευασίες συμπεριλαμβανομένων IBC, ακαθάριστων, της 21° θα πρέπει να είναι κλεισμένες με τον ίδιο τρόπο και να παρουσιάζουν τον ίδιο βαθμό στεγανότητας σαν να ήταν γεμάτες.
- (3) Κενές συσκευασίες, ακαθάριστες, της 21° θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνου σαν να ήταν γεμάτες.
- (4) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μία από τις ονομασίες που υπογραμμίζονται στην 21°, π.χ. "Κενή συσκευασία, 9, 21°, ADR". Στην περίπτωση κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών και κενών εμπορευματοκιβωτίων-δεξαμενών ακαθάριστων, αυτή η περιγραφή θα πρέπει να συμπληρώνεται από την προσθήκη των λέξεων "Τελευταίο φορτίο" μαζί με την ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ. "Τελευταίο φορτίο: 2212 καφέ αμιάντος, 1° (b)".

2922-  
2999

**Μέρος III. ΠΡΟΣΘΗΚΕΣ ΣΤΟ ΠΑΡΑΡΤΗΜΑ Α**

## ΠΡΟΣΘΗΚΗ Α.1

3000-  
3099

**Α. Όροι σταθερότητας και ασφάλειας σχετικοί με εκρηκτικές ύλες και είδη, εύφλεκτα στερεά και οργανικά υπεροξειδία**

**Γενικά**

**3100** Οι παρακάτω όροι είναι οι ελάχιστοι για ύλες και είδη δεκτά για μεταφορά.

**Όροι σχετικοί με εκρηκτικές ύλες και είδη**

**3101** (1) *Έλεγχος για καταχώρηση στην Κλάση 1*

Οποιαδήποτε ύλη ή είδος που έχει ή για το οποίο υπάρχει η υπόψια ότι έχει εκρηκτικές ιδιότητες θα πρέπει να εξετάζεται για καταχώρηση στην Κλάση 1 σε συμφωνία με τους ελέγχους, τις διαδικασίες και τα κριτήρια που ορίζονται στο Μέρος Ι ("Έλεγχοι και κριτήρια για την ταξινόμηση των εκρηκτικών υλών και ειδών") των "Υποδείξεων για τη Μεταφορά Επικίνδυνων Εμπορευμάτων: Έλεγχοι και Κριτήρια" όπως δημοσιεύτηκε από τον Οργανισμό Ηνωμένων Εθνών ως έγγραφο ST/SG/AC.10/11, πρώτη έκδοση (εδώ καλείται Εγχειρίδιο Ελέγχου).

Μία ύλη ή ένα είδος καταχωρημένο στην Κλάση 1 μπορεί να γίνεται δεκτό για μεταφορά μόνο όταν έχει καταχωρηθεί σε μία ονομασία ή ε.α.ο. καταχώρηση που αναφέρεται στο περιθωριακό 2101 και ικανοποιεί τα κριτήρια του Εγχειριδίου Ελέγχου.

(2) *Ταξινόμηση*

Οι ύλες και τα είδη της Κλάσης 1 θα πρέπει να καταχωρούνται στην κατάλληλη υποδιαίρεση και ομάδα συμβατότητας σε συμφωνία με τις διαδικασίες και τα κριτήρια που ορίζονται στο Εγχειρίδιο Ελέγχου.

(3) *Καταχώρηση σ' έναν αριθμό είδους, χαρακτηριστικό αριθμό και ονομασία*

Οι ύλες και είδη της Κλάσης 1 θα πρέπει να καταχωρούνται σ' έναν αριθμό είδους, έναν χαρακτηριστικό αριθμό και μία ονομασία ή ε.α.ο. καταχώρηση που αναφέρεται στον Πίνακα 1 του περιθωριακού 2101.

Ερμηνεία των ονομασιών υλών και ειδών στους χαρακτηριστικούς αριθμούς είδους του Πίνακα 1 του περιθωριακού 2101 θα πρέπει να βασίζεται στο λεξικό όρων του περιθωριακού 3170.

Εκρηκτικές ύλες και είδη θα πρέπει να καταχωρούνται μόνον σε μία ε.α.ο. καταχώρηση εάν δεν μπορούν να καταχωρηθούν σε μία ονομασία του Πίνακα 1 του περιθωριακού 2101. Καταχώρηση σε μία ε.α.ο. καταχώρηση θα πρέπει να γίνεται από την αρμόδια αρχή της χώρας προέλευσης.

(4) *Έλεγχος έκκρισης*

(a) Ύλες του είδους 4°, χαρακτηριστικός αριθμός 0081 (Εκρηκτικά για ανατινάξεις, τύπου Α) θα πρέπει, εάν περιέχουν περισσότερο από 40 % υγρό νιτρικό εστέρα, επιπλέον του ελέγχου που ορίζεται παραπάνω, να ικανοποιούν τον παρακάτω έλεγχο έκκρισης.

(b) Η συσκευή για τον έλεγχο ενός εκρηκτικού για ανατινάξεις για έκκριση (σχήματα. 1 έως 3) συνίσταται από έναν μπρούτζινο κύλινδρο. Αυτός ο κύλινδρος, που είναι κλειστός στο ένα άκρο με μία πλάκα του ίδιου μετάλλου, έχει εσωτερική διάμετρο 15.7 mm και βάθος 40 mm. Είναι διάτρητος με 20 σπές 0.5 mm σε διάμετρο (τέσσερεις πεντάδες από σπές) στην περιφέρεια. Ένα μπρούτζινο πιστόνι,

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κυλινδρικά διαμορφωμένο πάνω σ' ένα μήκος 48 mm και με συνολικό μήκος 52 mm, ολισθαίνει μέσα στον κάθετα τοποθετημένο κύλινδρο. Το πιστόνι, του οποίου η διάμετρος είναι 15.6 mm, φορτώνεται με ένα βάρος 2,220 g έτσι ώστε μία πίεση 120 kPa (1.20 bar) να ασκείται στη βάση του κυλίνδρου.

- (c) Ένα πώμα εκρηκτικού για ανατινάξεις βάρους 5 έως 8 g, 30 mm μακρύ και 15 mm σε διάμετρο, τυλίγεται σε πολύ λεπτή γάζα και τοποθετείται στον κύλινδρο. Το πιστόνι και το φερόμενο βάρος του τοποθετούνται πάνω του έτσι ώστε το εκρηκτικό για ανατινάξεις να υπόκειται σε μία πίεση 120 kPa (1.20 bar). Σημειώνεται ο χρόνος που απαιτείται για την εμφάνιση των πρώτων σημείων ελαιωδών σταγονιδίων (νιτρογλυκερίνη) στα εξωτερικά ανοίγματα των οπών του κυλίνδρου.
- (d) Το εκρηκτικό για ανατινάξεις θεωρείται ικανοποιητικό εάν ο χρόνος που μεσολαβεί πριν την εμφάνιση των υγρών εκκρίσεων είναι μεγαλύτερος από πέντε λεπτά, όταν ο έλεγχος έχει διεξαχθεί σε θερμοκρασία 15 °C έως 25 °C.

## Έλεγχος εκρηκτικού για ανατινάξεις για έκκριση

Σχήμα 1: Γόμωση σε μορφή καμπάνας, βάρους 2220 g., ικανή να αναρτάται από ένα μπρούτζινο πιστόνι

Σχήμα 2: Κοίλος μπρούτζινος κύλινδρος, κλειστός στο ένα άκρο. Σχήμα 3: Κυλινδρικό μπρούτζινο πιστόνι. Διαστάσεις σχεδίου και τομής σε mm

- (1) 4 σειρές των 5 οπών με 0.5 Z
- (2) χαλκός
- (3) σιδερένια πλάκα με κεντρικό κώνο στην κατώτερη επιφάνεια
- (4) 4 ανοίγματα, περίπου 46 x 56, τοποθετημένα σε κανονικές αποστάσεις στην περιφέρεια.

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## Όροι σχετικοί με μείγματα νιτρομένης κυτταρίνης της Κλάσης 4.1

3102

(1) Νιτροκυτταρίνη του περιθωριακού 2401, 24° (a) θερμαινόμενη για μισή ώρα στους 132 °C δεν πρέπει να εκπέμπει ορατούς κίτρινωπούς-καφέ νιτρώδεις ατμούς (νιτρώδη αέρια). Η θερμοκρασία ανάφλεξης πρέπει να είναι μεγαλύτερη από 180 °C. Βλέπε παραγράφους (3) έως (8), (9) (a) και (10) παρακάτω.

(2) 3 g πλαστικοποιημένης νιτροκυτταρίνης, θερμαινόμενα για μία ώρα στους 132 °C, δεν πρέπει να εκπέμπουν ορατούς κίτρινωπούς-καφέ νιτρώδεις ατμούς (νιτρώδη αέρια). Η θερμοκρασία ανάφλεξης πρέπει να είναι μεγαλύτερη από 170 °C. Βλέπε παραγράφους (3) έως (8), (9) (b) και (10) παρακάτω.

(3) Οι διαδικασίες ελέγχου που τίθενται παρακάτω θα ισχύουν όταν εμφανίζονται διαφορές γνώμης ως προς την δυνατότητα αποδοχής των υλών για μεταφορά οδικώς.

(4) Εάν άλλες μέθοδοι ή διαδικασίες ελέγχου χρησιμοποιούνται για την επιβεβαίωση των όρων σταθερότητας που ορίζονται παραπάνω σε αυτήν την προσθήκη, εκείνες οι μέθοδοι πρέπει να οδηγούν στα ίδια αποτελέσματα με τις μεθόδους που ορίζονται παρακάτω.

(5) Στη διεξαγωγή των ελέγχων σταθερότητας με θέρμανση που περιγράφονται παρακάτω, η θερμοκρασία του φούρνου που περιέχει το δείγμα υπό έλεγχο δεν πρέπει να αποκλίνει περισσότερο από 2 °C από την οριζόμενη θερμοκρασία. Η οριζόμενη διάρκεια ενός 30-λεπτου ή 60-λεπτου ελέγχου πρέπει να τηρείται με διαφορά δύο λεπτών. Ο φούρνος πρέπει να είναι τέτοιος ώστε η απαιτούμενη θερμοκρασία αποκαθίσταται όχι περισσότερο από πέντε λεπτά μετά την εισαγωγή του δείγματος.

(6) Πριν την διεξαγωγή των ελέγχων στις παραγράφους (9) και (10), τα δείγματα πρέπει να ξηραίνονται για όχι λιγότερο από 15 ώρες στη θερμοκρασία περιβάλλοντος σε έναν υπό κενό ξηραντήρα που περιέχει τετηγμένο και κοκκώδες γλωριούχο ασβέστιο, ενώ το δείγμα ύλης απλώνεται σ' ένα λεπτό στρώμα. Για αυτόν τον σκοπό, ύλες που δεν είναι ούτε σε μορφή σκόνης ούτε ινώδεις θα πρέπει να είναι τριμμένες, ή ξυσιμένες, ή κομμένες σε μικρά κομμάτια. Η πίεση στον ξηραντήρα πρέπει να φέρεται κάτω από τα 6.5 kPa (0.065 bar).

(7) Πριν ξηρανθούν όπως ορίζεται στην παράγραφο (6) παραπάνω, ύλες σύμφωνα με την παράγραφο (2) θα πρέπει να υπόκεινται σε αρχική ξήρανση σε έναν καλά εξαεριζόμενο φούρνο, με τη θερμοκρασία του στους 70 °C, μέχρι η απώλεια βάρους ανά τέταρτο της ώρας να είναι μικρότερη από το 0.3 % του αρχικού βάρους.

(8) Ελαφρά νιτρομένη νιτροκυτταρίνη σύμφωνα με την παράγραφο (1) θα πρέπει πρώτα να υπόκειται σε αρχική ξήρανση όπως ορίζεται στην παράγραφο (7) παραπάνω. Η ξήρανση θα πρέπει τότε να συμπληρώνεται με διατήρηση της νιτροκυτταρίνης για τουλάχιστον 15 ώρες πάνω από συμπυκνωμένο θειικό οξύ σε έναν ξηραντήρα.

## (9) Έλεγχος της χημικής σταθερότητας υπό θέρμανση

(a) Έλεγχος της ύλης που αναφέρεται στην παράγραφο (1) παραπάνω.

(i) Σε καθένα από δύο γυάλινους δοκιμαστικούς σωλήνες που έχουν τις παρακάτω διαστάσεις:

μήκος 350 mm  
εσωτερική διάμετρος .....16 mm  
πάχος τοιχώματος .....1.5 mm

τοποθετείται 1 g ύλης ξηραμένο πάνω από γλωριούχο ασβέστιο (εάν είναι απαραίτητο η ξήρανση πρέπει να διεξάγεται μετά από τεμαχισμό της ύλης σε κομμάτια βάρους όχι μεγαλύτερου από 0.05 g το καθένα). Και οι δύο δοκιμαστικοί σωλήνες, πλήρως καλυμμένοι με χαλαρά πόματα, τοποθετούνται

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έτσι σε έναν φούρνο ώστε τουλάχιστον τα τέσσερα πέμπτα του μήκους τους να είναι ορατά και διατηρούνται σε σταθερή θερμοκρασία 132 °C για 30 λεπτά. Παρατηρείται εάν εκπέμπονται νιτρόδη αέρια με τη μορφή κιτρινωπών-καφέ ατμών ορατών έναντι λευκού φόντου κατά τη διάρκεια αυτού του χρόνου.

(ii) Σε περίπτωση απουσίας τέτοιων ατμών η ύλη θεωρείται ότι είναι σταθερή.

(b) Έλεγχος πλαστικοποιημένης νιτροκυτταρίνης (παράγραφος (2) παραπάνω).

(i) 3 g πλαστικοποιημένης νιτροκυτταρίνης τοποθετούνται σε γυάλινους δοκιμαστικούς σωλήνες, όμοιους με εκείνους που αναφέρονται στο (a), που τοποθετούνται στη συνέχεια σε έναν φούρνο που διατηρείται σε σταθερή θερμοκρασία 132 °C.

(ii) Οι δοκιμαστικοί σωλήνες που περιέχουν την πλαστικοποιημένη νιτροκυτταρίνη διατηρούνται στον φούρνο για μία ώρα. Κατά τη διάρκεια αυτού του χρόνου δεν πρέπει να είναι ορατοί κιτρινωποί-καφέ νιτρόδεις αέριοι ατμοί (νιτρόδη αέρια). Παρατήρηση και εκτίμηση όπως στο (a).

(10) Θερμοκρασία ανάφλεξης (βλέπε παραγράφους (1) και (2) παραπάνω).

(i) Η θερμοκρασία ανάφλεξης προσδιορίζεται με θέρμανση 0.2 g ύλης κλεισμένης σε έναν γυάλινο δοκιμαστικό σωλήνα εμβαπτισμένου σε ένα λουτρό από κράμα Wood. Ο δοκιμαστικός σωλήνας τοποθετείται στο λουτρό όταν το τελευταίο έχει φτάσει τους 100 °C. Η θερμοκρασία του λουτρού αυξάνεται βαθμιαία κατά 5 °C ανά λεπτό.

(ii) Οι δοκιμαστικοί σωλήνες πρέπει να έχουν τις παρακάτω διαστάσεις:

μήκος 125 mm  
εσωτερική διάμετρος .....15 mm  
πάχος τοιχώματος .....0.5 mm

και πρέπει να εμβαπτίζεται σε βάθος 20 mm.

(iii) Ο έλεγχος πρέπει να επαναλαμβάνεται τρεις φορές και κάθε φορά σημειώνεται η θερμοκρασία στην οποία συμβαίνει ανάφλεξη της ύλης, δηλ., αργή ή γρήγορη καύση, ανάφλεξη ή έκρηξη.

(iv) Η χαμηλότερη θερμοκρασία που καταγράφεται στους τρεις ελέγχους είναι η θερμοκρασία ανάφλεξης.

Όροι σχετικοί με αυτενεργές ύλες της Κλάσης 4.1

*Έλεγχος για την καταχώρηση στο τμήμα E του περιθωριακού 2401*

3103

Αυτενεργές ύλες των ειδών 31° έως 50° μπορούν να γίνονται δεκτές για μεταφορά μόνο όταν ικανοποιούνται και τα σχετικά κριτήρια στα Μέρη II και III των Υποδείξεων για τη Μεταφορά των Επικίνδυνων Εμπορευμάτων: Έλεγχος και Κριτήρια' (δεύτερη έκδοση δημοσιευμένη από τον Οργανισμό Ηνωμένων Εθνών υπό την αναφορά (ST/SG/AC.10/11/Rev.1). Οι αρχές για την ταξινόμηση των αυτενεργών υλών δίνονται στο περιθωριακό 3104. Ο έλεγχος που επιλέγεται για τον προσδιορισμό της θερμοκρασίας αυτο-επιταχυνόμενης αποσύνθεσης (SADT) θα πρέπει να διεξάγεται με έναν τρόπο που να είναι αντιπροσωπευτικός, τόσο για το μέγεθος όσο και για το υλικό, του κόλου που πρόκειται να μεταφερθεί.

## Προσθήκη Α.1

*Αρχές για την ταξινόμηση των αυτενεργών υλών της Κλάσης 4.1*

- 3104 (1) Μία αυτενεργή ύλη ή σύνθεση αυτενεργής ύλης θα πρέπει να θεωρείται ως έχουσα εκρηκτικές ιδιότητες όταν σε εργαστηριακό έλεγχο υπόκειται σε έκρηξη, σε γρήγορη ανάφλεξη ή σε εμφάνιση βίαιου αποτελέσματος όταν θερμαίνεται υπό περιορισμό.
- (2) Οι παρακάτω αρχές θα πρέπει να ισχύουν για την ταξινόμηση μίας αυτενεργής ύλης και σύνθεσης αυτενεργής ύλης που δεν αναφέρεται στο περιθωριακό 2401:
- (a) Οποιαδήποτε αυτενεργή ύλη ή σύνθεση αυτενεργής ύλης που μπορεί να εκραγεί ή να αναφλεγεί γρήγορα, όπως είναι συσκευασμένη για μεταφορά, θα πρέπει να αποκλείεται από μεταφορά σε εκείνη τη συσκευασία υπό την Κλάση 4.1 (οριζόμενη ως αυτενεργή ύλη τύπου Α, πλαίσιο εξόδου Α του σχήματος 4).
- (b) Οποιαδήποτε αυτενεργή ύλη ή σύνθεση αυτενεργής ύλης που έχει εκρηκτικές ιδιότητες και που, όπως είναι συσκευασμένη για μεταφορά, ούτε εκρήγνυται ούτε αναφλέγεται γρήγορα, αλλά υπόκειται σε θερμική έκρηξη σε εκείνη τη συσκευασία, θα πρέπει επίσης να φέρει ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 01. Τέτοια αυτενεργή ύλη μπορεί να συσκευάζεται σε ποσότητες έως 25 kg εκτός εάν η μέγιστη ποσότητα πρέπει να περιοριστεί σε χαμηλότερο επίπεδο για την πρόληψη έκρηξης ή γρήγορης ανάφλεξης στο κόλο (οριζόμενη ως αυτενεργή ύλη τύπου Β, πλαίσιο εξόδου Β του σχήματος 4).
- (c) Οποιαδήποτε αυτενεργή ύλη ή σύνθεση αυτενεργής ύλης που έχει εκρηκτικές ιδιότητες μπορεί να μεταφέρεται χωρίς ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 01 όταν η ύλη όπως είναι συσκευασμένη (μέγιστη ποσότητα 50 kg) για μεταφορά δεν μπορεί να εκραγεί ή να αναφλεγεί γρήγορα ή να υποστεί θερμική έκρηξη (οριζόμενη ως αυτενεργή ύλη τύπου C, πλαίσιο εξόδου C του σχήματος 4).
- (d) Οποιαδήποτε αυτενεργή ύλη ή σύνθεση αυτενεργής ύλης που σε εργαστηριακό έλεγχο:
- εκρήγνυται μερικώς, δεν αναφλέγεται γρήγορα και δεν εμφανίζει βίαιο αποτέλεσμα όταν θερμαίνεται υπό περιορισμό, ή
  - δεν εκρήγνυται καθόλου, αναφλέγεται αργά και δεν εμφανίζει βίαιο αποτέλεσμα όταν θερμαίνεται υπό περιορισμό, ή
  - δεν εκρήγνυται ή αναφλέγεται καθόλου και εμφανίζει μέτριο αποτέλεσμα όταν θερμαίνεται υπό περιορισμό
- μπορεί να γίνεται δεκτή για μεταφορά σε κόλα που περιέχουν όχι περισσότερο από 50 kg (οριζόμενη ως αυτενεργή ύλη τύπου D, πλαίσιο εξόδου D του σχήματος 4).
- (e) οποιαδήποτε αυτενεργή ύλη ή σύνθεση αυτενεργής ύλης που, σε εργαστηριακό έλεγχο, ούτε εκρήγνυται ούτε αναφλέγεται καθόλου και εμφανίζει χαμηλό ή καθόλου αποτέλεσμα όταν θερμαίνεται υπό περιορισμό μπορεί να γίνεται δεκτή για μεταφορά σε κόλα που περιέχουν όχι περισσότερο από 400 kg/450 λίτρα (οριζόμενη ως αυτενεργή ύλη τύπου E, πλαίσιο εξόδου E του σχήματος 4).
- (f) Οποιαδήποτε αυτενεργή ύλη ή σύνθεση αυτενεργής ύλης που, σε εργαστηριακό έλεγχο, ούτε εκρήγνυται στην τυρβώδη κατάσταση ούτε αναφλέγεται καθόλου και εμφανίζει μόνον χαμηλό ή καθόλου αποτέλεσμα όταν θερμαίνεται υπό περιορισμό καθώς και χαμηλή ή καθόλου εκρηκτική ισχύ μπορεί να γίνεται δεκτή για μεταφορά σε IBC (οριζόμενη ως αυτενεργή ύλη τύπου F, πλαίσιο εξόδου F του σχήματος 4).

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(συνεχ.)

- (g) Οποιαδήποτε αυτενεργή ύλη ή σύνθεση αυτενεργής ύλης που, σε εργαστηριακό έλεγχο, ούτε εκρήγνυται στην τυρβώδη κατάσταση ούτε αναφλέγεται καθόλου και δεν εμφανίζει κανένα αποτέλεσμα όταν θερμαίνεται υπό περιορισμό, ούτε οποιαδήποτε εκρηκτική ισχύ δεν θα πρέπει να θεωρείται ως αυτενεργή ύλη της Κλάσης 4.1, υπό την προϋπόθεση ότι η σύνθεση είναι θερμικά σταθερή (η θερμοκρασία αυτο-επιταχυνόμενης αποσύνθεσης είναι 60 °C έως 75 °C για ένα κόλο των 50 kg) και οποιοσδήποτε συμβατός διαλύτης ικανοποιεί τις απαιτήσεις του περιθωριακού 2 400 (19) (οριζόμενη ως αυτενεργή ύλη τύπου G, πλαίσιο εξόδου G του σχήματος 4). Εάν η σύνθεση δεν είναι θερμικά σταθερή ή ένας διαλύτης που έχει σημείο βρασμού χαμηλότερο από 15 °C χρησιμοποιείται για απευαισθητοποίηση, η σύνθεση θα πρέπει να ορίζεται ως αυτενεργή τύπου F.

(3) Η παράγραφος (2) αναφέρεται μόνον σε εκείνες τις ιδιότητες της αυτενεργής ύλης που είναι αποφασιστικές για την ταξινόμηση. Ένα διάγραμμα ροής, που παρουσιάζει τις αρχές ταξινόμησης στη μορφή ενός γραφικά φτιαγμένου σχεδίου ερωτήσεων που αφορούν στις αποφασιστικές ιδιότητες μαζί με τις δυνατές απαντήσεις, δίνεται στο σχήμα 4). Αυτές οι ιδιότητες θα πρέπει να προσδιορίζονται πειραματικά σε συμφωνία με το περιθωριακό 3103.



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1723

Προσθήκη Α.1

**Σχήμα 4: Ταξινόμηση και σχέδιο διαγράμματος ροής για αυτενεργές ύλες.**

## Προσθήκη Α.1

**Όροι σχετικοί με οργανικά υπεροξειδία****Έλεγχοι για καταχώρηση στην Κλάση 5.2**

- 3105** Υγες και είδη της Κλάσης 5.2 μπορούν να γίνονται δεκτά για μεταφορά μόνο όταν ικανοποιούνται τα σχετικά κριτήρια στα Μέρη II και III των "Υποδείξεων για τη Μεταφορά Επικίνδυνων Εμπορευμάτων: Έλεγχοι και Κριτήρια" (δημοσιευμένες από τον Οργανισμό Ηνωμένων Εθνών υπό την αναφορά ST/SG/AC.10/11/Rev.1, δεύτερη έκδοση). Ο έλεγχος που επιλέγεται για τον προσδιορισμό της θερμοκρασίας αυτο-επιταχυνόμενης αποσύνθεσης (SADT) θα πρέπει να διεξάγεται με τρόπο που να είναι αντιπροσωπευτικός, τόσο για το μέγεθος όσο και για το υλικό, του κόλου που πρόκειται να μεταφερθεί.

**Αρχές για την ταξινόμηση**

- 3106** (1) Ένα οργανικό υπεροξειδίο ή μία σύνθεση οργανικού υπεροξειδίου θα πρέπει να θεωρείται ως έχουσα εκρηκτικές ιδιότητες όταν σε εργαστηριακό έλεγχο υπόκειται σε έκρηξη, σε γρήγορη ανάφλεξη ή σε εμφάνιση βίαιου αποτελέσματος όταν θερμαίνεται υπό περιορισμό.
- (2) Οι παρακάτω αρχές θα πρέπει να ισχύουν για την ταξινόμηση ενός οργανικού υπεροξειδίου ή μίας σύνθεσης οργανικού υπεροξειδίου που δεν αναφέρεται στο περιθωριακό 2551:
- (a) Οποιοδήποτε οργανικό υπεροξειδίο ή σύνθεση οργανικού υπεροξειδίου που μπορεί να εκρήγνυται ή να αναφλέγεται γρήγορα, όπως είναι συσκευασμένη για μεταφορά, θα πρέπει να αποκλείεται από μεταφορά σε εκείνη τη συσκευασία υπό την Κλάση 5.2 (οριζόμενο ως οργανικό υπεροξειδίο τύπου Α, πλαίσιο εξόδου Α του Σχήματος 5).
  - (b) Οποιοδήποτε οργανικό υπεροξειδίο ή σύνθεση οργανικού υπεροξειδίου που έχει εκρηκτικές ιδιότητες και που, όπως είναι συσκευασμένη για μεταφορά, ούτε εκρήγνυται ούτε αναφλέγεται γρήγορα, αλλά υπόκειται σε θερμική έκρηξη σε εκείνη τη συσκευασία, θα πρέπει επίσης να φέρει ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 01. Τέτοιο οργανικό υπεροξειδίο μπορεί να συσκευάζεται σε ποσότητες έως 25 kg εκτός εάν η μέγιστη ποσότητα πρέπει να περιοριστεί σε χαμηλότερο επίπεδο για την πρόληψη έκρηξης ή γρήγορης ανάφλεξης στο κόλο (οριζόμενο ως οργανικό υπεροξειδίο τύπου Β, πλαίσιο εξόδου Β του Σχήματος 5).
  - (c) Οποιοδήποτε οργανικό υπεροξειδίο ή σύνθεση οργανικού υπεροξειδίου που έχει εκρηκτικές ιδιότητες μπορεί να μεταφέρεται χωρίς ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 01 όταν η ύλη όπως είναι συσκευασμένη (μέγιστη ποσότητα 50 kg) για μεταφορά δεν μπορεί να εκρήγνυται ή να αναφλέγεται γρήγορα ή να υπόκειται σε θερμική έκρηξη (οριζόμενο ως οργανικό υπεροξειδίο τύπου C, πλαίσιο εξόδου C του Σχήματος 5).
  - (d) Οποιοδήποτε οργανικό υπεροξειδίο ή σύνθεση οργανικού υπεροξειδίου που σε εργαστηριακό έλεγχο:
    - εκρήγνυται μερικώς, δεν αναφλέγεται γρήγορα και δεν εμφανίζει αποτέλεσμα όταν θερμαίνεται υπό περιορισμό, ή
    - δεν εκρήγνυται καθόλου, αναφλέγεται αργά και δεν εμφανίζει βίαιο αποτέλεσμα όταν θερμαίνεται υπό περιορισμό, ή
    - δεν εκρήγνυται ή αναφλέγεται καθόλου και εμφανίζει μέτριο αποτέλεσμα όταν θερμαίνεται υπό περιορισμό

μπορεί να γίνεται δεκτό για μεταφορά σε κόλα που περιέχουν όχι περισσότερο από 50 kg (οριζόμενο ως οργανικό υπεροξειδίο τύπου D, πλαίσιο εξόδου D του Σχήματος 5).

## Προσθήκη Α.1

3106  
(συνεχ.)

- (e) Οποιοδήποτε οργανικό υπεροξειδίο ή σύνθεση οργανικού υπεροξειδίου που, σε εργαστηριακό έλεγχο, ούτε εκρήγνυται ούτε αναφλέγεται καθόλου και εμφανίζει χαμηλό ή καθόλου αποτέλεσμα όταν θερμαίνεται υπό περιορισμό μπορεί να γίνεται δεκτό για μεταφορά σε κόλα που περιέχουν όχι περισσότερο από 400 kg/450 λίτρα (οριζόμενο ως οργανικό υπεροξειδίο τύπου E, πλαίσιο εξόδου E του Σχήματος 5).
- (f) Οποιοδήποτε οργανικό υπεροξειδίο ή σύνθεση οργανικού υπεροξειδίου που, σε εργαστηριακό έλεγχο, ούτε εκρήγνυται στην τυρβώδη κατάσταση ούτε αναφλέγεται καθόλου και εμφανίζει μόνον χαμηλό ή καθόλου αποτέλεσμα όταν θερμαίνεται υπό περιορισμό καθώς και χαμηλή ή καθόλου εκρηκτική ισχύ μπορεί να γίνεται δεκτό για μεταφορά σε ενδιάμεσα δοχεία για μεταφορά χύμα (IBC) ή δεξαμενές (οριζόμενο ως οργανικό υπεροξειδίο τύπου F, πλαίσιο εξόδου F του Σχήματος 5).
- (g) Οποιοδήποτε οργανικό υπεροξειδίο ή σύνθεση οργανικού υπεροξειδίου που, σε εργαστηριακό έλεγχο, ούτε εκρήγνυται στην τυρβώδη κατάσταση ούτε αναφλέγεται καθόλου και δεν εμφανίζει αποτέλεσμα όταν θερμαίνεται υπό περιορισμό, ούτε οποιαδήποτε εκρηκτική ισχύ θα πρέπει να εξαιρείται από την Κλάση 5.2, υπό την προϋπόθεση ότι η σύνθεση είναι θερμικά σταθερή (η θερμοκρασία αυτο-επιταχυνόμενης αποσύνθεσης είναι 60 °C ή υψηλότερη για ένα κόλο των 50 kg) και για υγρές συνθέσεις, ένας διαλύτης τύπου A χρησιμοποιείται για απευαισθητοποίηση (οριζόμενο ως οργανικό υπεροξειδίο τύπου G, πλαίσιο εξόδου G του Σχήματος 5).
- (3) Η παράγραφος (2) αναφέρεται μόνον σε εκείνες τις ιδιότητες των οργανικών υπεροξειδίων που είναι αποφασιστικές για την ταξινόμηση. Ένα διάγραμμα ροής, που παρουσιάζει τις αρχές ταξινόμησης στη μορφή ενός γραφικά φτιαγμένου σχεδίου ερωτήσεων σχετικά με τις αποφασιστικές ιδιότητες μαζί με τις δυνατές απαντήσεις, δίνεται στο Σχήμα 5. Αυτές οι ιδιότητες θα πρέπει να προσδιορίζονται πειραματικά σε συμφωνία με το περιθωριακό 3105.

3107-  
3169

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Προσθήκη Α.1

**Σχήμα 5: Ταξινόμηση και σχέδιο διαγράμματος ροής για οργανικά υπεροξείδια.**

## Προσθήκη Α.1

## B. Λεξικό όρων στο περιθωριακό 2101 [βλέπε επίσης περιθωριακό 3101 (3)]

**3170 ΣΗΜΕΙΩΣΗ 1:** Οι περιγραφές στο λεξικό όρων δεν προορίζονται για αντικατάσταση των διαδικασιών ελέγχου, ούτε για προσδιορισμό της ταξινόμησης κινδύνου μίας ύλης ή ενός είδους της Κλάσης 1. Η καταχώρηση στις σωστές υποδιαρέσεις και μία απόφαση για το εάν η Ομάδα συμβατότητας S είναι κατάλληλη πρέπει να βασίζεται σε έλεγχο του προϊόντος σε συμφωνία με το Εγχειρίδιο Ελέγχου που αναφέρεται στο περιθωριακό 3101 (1) ή σε αναλογία με παρόμοια προϊόντα που έχουν ήδη ελεγχθεί και καταχωρηθεί σε συμφωνία με τις διαδικασίες του Εγχειριδίου Ελέγχου.

**ΣΗΜΕΙΩΣΗ 2:** Οι τιμές που δίνονται μετά από τις ονομασίες αναφέρονται στους σχετικούς αριθμούς είδους (στήλη 1) και χαρακτηριστικούς αριθμούς (στήλη 2) του Πίνακα 1 σε συμφωνία με το περιθωριακό 2101, διαχωρισμένους με μία κάθετο (π.χ. 21°/0171).

Για τον κωδικό ταξινόμησης, βλέπε περιθωριακό 2100 (4).

Πυρομαχικά, φωτιστικά, με ή χωρίς ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης 21°/0171, 30°/0254, 43°/0297.

Πυρομαχικά σχεδιασμένα να παράγουν μία μοναδική πηγή έντονου φωτός για τον φωτισμό μίας περιοχής. Ο όρος περιλαμβάνει φωτιστικά φυσίγγια, βομβίδες και βλήματα και φωτιστικές βόμβες και βόμβες αναγνώρισης στόχου.

**ΣΗΜΕΙΩΣΗ:** Τα παρακάτω είδη: φυσίγγια, σηματοδότησης, σηματοδοτικές συσκευές χειρός, σηματοδότες κινδύνου, φωτοβολίδες, αέρος, φωτοβολίδες, επιφάνειες δεν περιλαμβάνονται σε αυτόν τον ορισμό. Αυτά αναφέρονται ξεχωριστά.

Πυρομαχικά, εμπρηστικά, υγρά ή σε μορφή ζελατίνας, με ρήγμα, διαρροή γόμωσης ή προωθητική γόμωση 32°/0247.

Πυρομαχικά που περιέχουν υγρή ή ζελατινώδη εμπρηστική ύλη. Εκτός απ' όταν η εμπρηστική ύλη είναι ένα εκρηκτικό καθ' αυτή, επίσης περιέχει ένα ή περισσότερα από τα παρακάτω: μία προωθητική γόμωση με εγχυτή και πυροδοτική γόμωση, έναν πυροσωλήνα με διαρρήκτη ή διαρροή γόμωσης.

Πυρομαχικά, εμπρηστικά, λευκού φωσφόρου με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης 22°/0243, 31°/0244.

Πυρομαχικά που περιέχουν λευκό φωσφόρο ως εμπρηστική ύλη. Επίσης περιέχει ένα ή περισσότερα από τα παρακάτω: μία προωθητική γόμωση με εγχυτή και πυροδοτική γόμωση, έναν πυροσωλήνα με διαρρήκτη ή διαρροή γόμωσης.

Πυρομαχικά, εμπρηστικά με ή χωρίς ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης 21°/0009, 30°/0010, 43°/0300.

Πυρομαχικά που περιέχουν εμπρηστική σύνθεση. Εκτός απ' όταν η σύνθεση είναι ένα εκρηκτικό καθ' αυτή, επίσης περιέχει ένα ή περισσότερα από τα παρακάτω: μία προωθητική γόμωση με εγχυτή και πυροδοτική γόμωση, έναν πυροσωλήνα με διαρρήκτη ή διαρροή γόμωσης.

Πυρομαχικά, γυμνασίων 30°/0488, 43°/0362

Πυρομαχικά χωρίς κύρια εκρηκτική γόμωση, που περιέχει διαρρήκτη ή διαρροή γόμωσης. Κανονικά επίσης περιέχει έναν πυροσωλήνα και μία προωθητική γόμωση.

**ΣΗΜΕΙΩΣΗ:** Βομβίδες, γυμνασίων δεν περιλαμβάνονται σε αυτόν τον ορισμό. Αυτές αναφέρονται ξεχωριστά.

## Προσθήκη Α.1

3170 Πυρομαχικά, δοκιμών 43°/0363  
(συνεχ.)

Πυρομαχικά που περιέχουν πυροτεχνικές ύλες, που χρησιμοποιούνται για τον έλεγχο της απόδοσης ή της ισχύος νέων πυρομαχικών, εξαρτημάτων ή συνδεσμολογιών όπλων.

Πυρομαχικά, καπνού, λευκού φωσφόρου, με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης 22°/0245, 31°/0246

Πυρομαχικά που περιέχουν λευκό φωσφόρο ως καπνογόνο ύλη. Επίσης περιέχει ένα ή περισσότερα από τα παρακάτω: μία προωθητική γόμωση με εγχυτή και πυροδοτική γόμωση, έναν πυροσωλήνα με διαρρήκτη ή διαρροή γόμωσης. Ο όρος περιλαμβάνει βομβίδες, καπνού.

Πυρομαχικά, καπνού με ή χωρίς ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης 21°/0015, 30°/0016, 43°/0303

Πυρομαχικά που περιέχουν μία καπνογόνο ύλη τέτοια όπως μέγμα χλωροσουλφονικού οξέος ή τετραχλωριούχο τιτάνιο, ή μία καπνογόνο πυροτεχνική σύνθεση βασισμένη στο εξαχλωροαιθάνιο ή στον κόκκινο φωσφόρο. Εκτός απ' όταν η ύλη είναι ένα εκρηκτικό καθ' αυτή, τα πυρομαχικά επίσης περιέχουν ένα ή περισσότερα από τα παρακάτω: μία προωθητική γόμωση με εγχυτή και πυροδοτική γόμωση, έναν πυροσωλήνα με διαρρήκτη ή διαρροή γόμωσης. Ο όρος περιλαμβάνει βομβίδες, καπνού.

**ΣΗΜΕΙΩΣΗ:** Σηματοδότες, καπνού δεν περιλαμβάνονται σε αυτόν τον ορισμό. Αυτοί αναφέρονται ξεχωριστά.

Πυρομαχικά, δακρυγόνα, με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης 21°/0018, 30°/0019, 43°/0301

Πυρομαχικά που περιέχουν μία δακρυγόνο ύλη. Επίσης περιέχει ένα ή περισσότερα από τα παρακάτω: μία πυροτεχνική ύλη, μία προωθητική γόμωση με εγχυτή και πυροδοτική γόμωση, έναν πυροσωλήνα με διαρρήκτη ή διαρροή γόμωσης.

Είδη, εκρηκτικά, εξαιρετικά μη-ευαίσθητα (Είδη EEI) 50°/0486

Είδη που περιέχουν μόνον εξαιρετικά μη-ευαίσθητες εκρηκτικές ύλες (EIDS) που παρουσιάζουν αμελητέα πιθανότητα τυχαίας πυροδότησης ή εξάπλωσης υπό κανονικές συνθήκες μεταφοράς και που έχουν περάσει τη Σειρά Ελέγχου 7.

Είδη, πυροφορικά 25°/0380

Είδη που περιέχουν μία πυροφορική ύλη (ικανά για αυτόματη ανάφλεξη όταν εκτίθενται στον αέρα) και μία εκρηκτική ύλη ή συστατικό. Ο όρος δεν περιλαμβάνει είδη που περιέχουν λευκό φωσφόρο.

Είδη, πυροτεχνικά, για τεχνικούς σκοπούς 9°/0428, 21°/0429, 30°/0430, 43°/0431, 47°/0432

Είδη που περιέχουν πυροτεχνικές ύλες και χρησιμοποιούνται για τεχνικούς σκοπούς τέτοια όπως παραγωγή θερμότητας, παραγωγή αερίου, θεατρικά εφέ, κ.λπ.

**ΣΗΜΕΙΩΣΗ:** Τα παρακάτω είδη: όλα τα πυρομαχικά, φωσίγγια, σηματοδότησης, κοπτικά καλωδίων, εκρηκτικά, πυροτεχνήματα, φωτοβολίδες, αέρος, φωτοβολίδες, επιφάνειας, συσκευές απελευθέρωσης, εκρηκτικές, καθηλωτικά, εκρηκτικά, σηματοδοτικές συσκευές, χειρός, σηματοδότες, κινδύνου, σηματοδότες, σιδηροδρομικών γραμμών, εκρηκτικά, σηματοδότες, καπνού δεν περιλαμβάνονται σε αυτόν τον ορισμό. Αυτά αναφέρονται ξεχωριστά.

## Προσθήκη Α.1

**3170** Μαύρη πυρίτιδα (μπαρούτι), πεπεσμένη ή Μαύρη πυρίτιδα (μπαρούτι), σε σβόλους 4°/0028  
(συνεχ.)

Υλη που συνίσταται από σβολιασμένη μορφή μαύρης πυρίτιδας.

Μαύρη πυρίτιδα (μπαρούτι), κοκκώδης ή ως άλευρο 4°/0027

Υλη που συνίσταται από ένα ιδιαίτερο μείγμα ξυλάνθρακα ή άλλου άνθρακα και είτε νιτρικό κάλιο είτε νιτρικό νάτριο, με ή χωρίς θείο.

Βόμβες με άφλεκτο υγρό, με εκρηκτική γόμωση 10°/0399, 23°/0400

Είδη που πέφτουν από αεροσκάφος, συνιστάμενα από μία δεξαμενή γεμάτη με άφλεκτο υγρό και εκρηκτική γόμωση.

Βόμβες φωτιστικές 5°/0038

Εκρηκτικά είδη που πέφτουν από αεροσκάφος για την παραγωγή σύντομου, έντονου φωτισμού για φωτογράφιση. Περιέχουν μία γόμωση εκρηκτικού χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

Βόμβες φωτιστικές 7°/0037

Εκρηκτικά είδη που πέφτουν από αεροσκάφος για την παραγωγή σύντομου, έντονου φωτισμού για φωτογράφιση. Περιέχουν μία γόμωση εκρηκτικού με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

Βόμβες φωτιστικές 21°/0039, 30°/0299

Εκρηκτικά είδη που πέφτουν από αεροσκάφος για την παραγωγή σύντομου, εντόνου φωτισμού για φωτογράφιση. Περιέχουν μία φωτιστική σύνθεση.

Βόμβες, με εκρηκτική γόμωση 5°/0034, 17°/0035

Εκρηκτικά είδη που πέφτουν από αεροσκάφος, χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

Βόμβες με εκρηκτική γόμωση 7°/0033, 19°/0291

Εκρηκτικά είδη που πέφτουν από αεροσκάφος, με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

Ενισχυτές, με πυροκροτητή 1°/0225, 13°/0268

Είδη συνιστάμενα από μία γόμωση εκρηκτικού με μέσον πυροδότησης. Χρησιμοποιούνται για την αύξηση της πυροδοτικής ισχύος των πυροκροτητών ή εκρηκτικών καλωδίων.

Ενισχυτές, χωρίς πυροκροτητή 5°/0042, 17°/0283

Είδη συνιστάμενα από μία γόμωση εκρηκτικού χωρίς μέσον πυροδότησης. Χρησιμοποιούνται για αύξηση της πυροδοτικής ισχύος των πυροκροτητών ή εκρηκτικών καλωδίων.

## Προσθήκη Α.1

3170 Διαρρήκτες, εκρηκτικοί 5°/0043  
(συνεχ.)

Είδη συνιστάμενα από μία μικρή γόμωση εκρηκτικού που χρησιμοποιούνται για το άνοιγμα βλημάτων ή άλλων πυρομαχικών για τη διασπορά του περιεχομένου τους.

Φυσίγγια, ανάφλεξης 9°/0049, 30°/0050

Είδη συνιστάμενα από ένα περίβλημα, έναν εγχυτή και πυρίτιδα ανάφλεξης, όλα συνδεδεμένα σε ένα κομμάτι έτοιμο για πυροδότηση.

Φυσίγγια για όπλα, άσφαιρα 3°/0326, 15°/0413, 27°/0327, 37°/0338, 47°/0014

Πυρομαχικά συνιστάμενα από μία κλειστή θήκη φυσιγγίων με ένα κεντρικό ή περιφερειακό εγχυτή πυρός και μία γόμωση άκαπνης ή μαύρης πυρίτιδας αλλά όχι βλήμα. Παράγει ισχυρό θόρυβο και χρησιμοποιείται για εκπαίδευση, χαιρετισμό, ως προωθητική γόμωση, πιστόλι εκκίνησης κ.λπ. Ο όρος περιλαμβάνει πυρομαχικά, άσφαιρα.

Φυσίγγια για όπλα, αδρανούς βλήματος 15°/0328, 27°/0417, 37°/0339, 47°/0012

Πυρομαχικά συνιστάμενα από ένα βλήμα χωρίς εκρηκτική γόμωση αλλά με μία προωθητική γόμωση με ή χωρίς εγχυτή. Τα είδη μπορούν να περιλαμβάνουν έναν ανιχνευτή, υπό την προϋπόθεση ότι ο κυρίαρχος κίνδυνος είναι εκείνος της προωθητικής γόμωσης.

Φυσίγγια για όπλα, με εκρηκτική γόμωση 6°/0006, 18°/0321, 40°/0412

Πυρομαχικά συνιστάμενα από ένα βλήμα με μία εκρηκτική γόμωση χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά και μία προωθητική γόμωση με ή χωρίς εγχυτή. Ο όρος περιλαμβάνει μόνιμα (συνδεδεμένα) πυρομαχικά, ημι-μόνιμα (μερικώς συνδεδεμένα) πυρομαχικά και ξεχωριστά γομωτικά πυρομαχικά όταν τα συστατικά συσχευάζονται μαζί.

Φυσίγγια για όπλα, με εκρηκτική γόμωση 7°/0005, 19°/0007, 41°/0348

Πυρομαχικά συνιστάμενα από ένα βλήμα με μία εκρηκτική γόμωση με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά και μία προωθητική γόμωση με ή χωρίς εγχυτή. Ο όρος περιλαμβάνει μόνιμα (συνδεδεμένα) πυρομαχικά, ημι-μόνιμα (μερικώς συνδεδεμένα) πυρομαχικά και ξεχωριστά γομωτικά πυρομαχικά όταν τα συστατικά συσχευάζονται μαζί.

Φυσίγγια, πετρελαιοπηγών 27°/0277, 37°/0278

Είδη συνιστάμενα από ένα λεπτό περίβλημα από φύλλο φάιμπερ, μέταλλο ή άλλο υλικό που περιέχει μόνον προωθητική ισχύ που εκτοξεύει ένα σκληρό βλήμα για τη διάτρηση ενός περιβλήματος μίας πετρελαιοπηγής.

**ΣΗΜΕΙΩΣΗ:** Γομώσεις, μορφοποιημένες, εμπορικές δεν περιλαμβάνονται σε αυτόν τον ορισμό. Αυτές αναφέρονται ξεχωριστά.

Φυσίγγια, συσκευών ισχύος 15°/0381, 27°/0275, 37°/0276, 47°/0323

Είδη σχεδιασμένα για την εκτέλεση μηχανικών ενεργειών. Συνίστανται από ένα περίβλημα με μία γόμωση αναφλεκτικού εκρηκτικού και ενός μέσου ανάφλεξης. Τα αερίδια προϊόντα της ανάφλεξης παράγουν διάγκωση, ευθεία ή περιστροφική κίνηση ή ενεργοποιούν διαφράγματα, βαλβίδες ή διακόπτες ή εκτοξεύουν συσκευές δεσμίματος ή παράγοντες απόσβεσης.



## Προσθήκη Α.1

**3170** Φυσίγγια, σηματοδότησης 30°/0054, 43°/0312, 47°/0405  
(συνεχ.)

Είδη σχεδιασμένα να πυροδοτούν έγχρωμες φωτοβολίδες ή άλλους σηματοδοτές από πιστόλια σηματοδότησης κ.λπ.

Φυσίγγια μικρών όπλων 27°/0417, 37°/0339, 47°/0012

Πυρομαχικά συνιστάμενα από μία θήκη φυσιγγίων εξοπλισμένη με έναν κεντρικό ή περιφερειακό εγγυτή πυρός και που περιέχουν και προωθητική γόμωση και στερεό βλήμα. Είναι σχεδιασμένα να πυροδοτούνται σε όπλα διαμέτρηματος όχι μεγαλύτερου από 19.1 mm. Φυσίγγια κινηγητικών όπλων οποιουδήποτε διαμετρήματος περιλαμβάνονται σε αυτήν την περιγραφή.

**ΣΗΜΕΙΩΣΗ:** Φυσίγγια μικρών όπλων, άσφαιρα, δεν περιλαμβάνονται σε αυτόν τον ορισμό. Αυτά αναφέρονται ξεχωριστά. Μερικά φυσίγγια στρατιωτικών μικρών όπλων δεν περιλαμβάνονται σε αυτόν τον ορισμό. Αυτά αναφέρονται στα φυσίγγια για όπλα, αδρανούς βλήματος.

Φυσίγγια, για όπλα, άσφαιρα, 27°/0338, 47°/0014

Πυρομαχικά συνιστάμενα από μία κλειστή θήκη φυσιγγίων με έναν κεντρικό ή περιφερειακό εγγυτή πυρός και μία γόμωση από άκαπνη ή μαύρη πυρίτιδα. Οι θήκες φυσιγγίων δεν περιέχουν βλήματα. Τα φυσίγγια είναι σχεδιασμένα να πυροδοτούνται από όπλα με διάμετρο το πολύ 19.1 mm και χρησιμεύουν στην παραγωγή δυνατού θορύβου και χρησιμοποιούνται για εκπαίδευση, χαιρετισμό, ως προωθητική γόμωση, σε πιστόλια εκκίνησης κ.λπ.

Θήκες, φυσιγγίων, κενές, με εγγυτή 37°/0379, 47°/0055

Είδη συνιστάμενα από μία θήκη φυσιγγίων κατασκευασμένη από μέταλλο, πλαστικό ή άλλο μη-άφλεκτο υλικό, στα οποία το μόνο εκρηκτικό συστατικό είναι ο εγγυτής.

Θήκες, εύφλεκτες, κενές, χωρίς εγγυτή 27°/0447, 37°/0446

Είδη συνιστάμενα από μία θήκη φυσιγγίων κατασκευασμένη μερικώς ή ολικώς από νιτροκυτταρίνη.

Γομώσεις, εκρηκτικές, με πλαστικούς συνδέσμους 5°/0457, 17°/0458, 39°/0459, 47°/0460

Είδη συνιστάμενα από μία γόμωση εκρηκτικού, με πλαστικούς συνδέσμους, κατασκευασμένη σε ειδική μορφή χωρίς περιβλήμα και χωρίς μέσον πυροδότησης. Είναι σχεδιασμένα ως εξαρτήματα πυρομαχικών τέτοιων όπως οι κεφαλές.

Γομώσεις, κατεδαφίσεων 5°/0048

Είδη που περιέχουν μία γόμωση ενός εκρηκτικού σε περιβλήμα από φύλλο φάιμπερ, πλαστικό, μέταλλο ή άλλο υλικό. Τα είδη είναι χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

**ΣΗΜΕΙΩΣΗ:** Τα παρακάτω είδη: βόμβες, νάρκες, βλήματα δεν περιλαμβάνονται σε αυτόν τον ορισμό. Αυτά αναφέρονται ξεχωριστά.

Γομώσεις, βυθού 5°/0056

Είδη συνιστάμενα από μία γόμωση εκρηκτικού που περιέχεται σε βαρέλι ή βλήμα χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Είναι σχεδιασμένα να εκρήγνυνται κάτω από νερό.

## Προσθήκη Α.1

**3170** Γομώσεις, εκρηκτικές, εμπορικές, χωρίς πυροκροτητή 5°/0442, 17°/0443, 39°/0444, 47°/0445  
(συνεχ.)

Είδη συνιστάμενα από μία γόμωση εκρηκτικού χωρίς μέσον πυροδότησης, που χρησιμοποιούνται για εκρηκτική συγκόλληση, ένωση, φορμάρισμα και άλλες μεταλλουργικές κατεργασίες.

Γομώσεις, προωθητικές, για κανόνια 3°/0279, 15°/0414, 27°/0242

Γομώσεις προωθητικού σε οποιαδήποτε φυσική μορφή για ξεχωριστής γόμωσης πυρομαχικά για κανόνια.

Γομώσεις, προωθητικά 3°/0271, 15°/0415, 27°/0272, 37°/0491

Είδη συνιστάμενα από μία γόμωση ή μία προωθητική γόμωση σε οποιαδήποτε φυσική μορφή, με ή χωρίς περιβλήμα, ως εξάρτημα κινητήρων πυραύλου ή για μείωση της οπισθέλκουσας των βλημάτων.

Γομώσεις, μορφοποιημένες, εμπορικές, χωρίς πυροκροτητή 5°/0059, 17°/0439, 39°/0440, 47°/0441

Είδη συνιστάμενα από ένα περιβλήμα που περιέχει μία γόμωση εκρηκτικού με κούλωμα επενδεδυμένη με άκαμπτο υλικό, χωρίς μέσον πυροδότησης. Είναι σχεδιασμένα να παράγουν ένα ισχυρό, διεισδυτικό αποτέλεσμα αερίωθσης.

Γομώσεις, μορφοποιημένες, εύκαμπτες, ευθύγραμμες, 5°/0288, 39°/0237

Είδη συνιστάμενα από ένα έναν πυρήνα εκρηκτικού σε σχήμα V επενδεδυμένο με εύκαμπτη θήκη.

Γομώσεις, συμπληρωματικές, εκρηκτικές 5°/0060

Είδη συνιστάμενα από έναν μικρό μετακινούμενο ενισχυτή τοποθετημένο στην κοιλότητα ενός βλήματος μεταξύ του πυροσωλήνα και της εκρηκτικής γόμωσης.

Εξαρτήματα, γραμμών εκρηκτικών, ε.α.ο. 1°/0461, 13°/0382, 35°/0383, 47°/0384

Είδη που περιέχουν ένα εκρηκτικό σχεδιασμένο να μεταφέρει έκρηξη ή ανάφλεξη μέσα σε μία γραμμή εκρηκτικών.

Συσσκευές, ενεργοποιημένες με νερό με ρήγμα, διαρροή γόμωσης ή προωθητικής γόμωσης 25°/0248, 34°/0249

Είδη των οποίων η λειτουργία εξαρτάται από την φυσικο-χημική αντίδραση του περιεχομένου τους με το νερό.

Καλώδιο, εκρηκτικό, εύκαμπτο 5°/0065, 39°/0289

Είδος συνιστάμενο από έναν πυρήνα εκρηκτικού κλεισμένου σε ύφασμα και μία πλαστική ή άλλη επικάλυψη. Η επικάλυψη δεν είναι απαραίτητη εάν το ύφασμα είναι αδιαπέραστο.

Καλώδιο (πυροσωλήνα) εκρηκτικό, με μεταλλική επένδυση 5°/0290, 17°/0102

Είδος συνιστάμενο από έναν πυρήνα εκρηκτικού επενδεδυμένο με έναν μαλακό μεταλλικό σωλήνα με ή χωρίς προστατευτικό κάλυμμα.

## Προσθήκη Α.1

**3170** Καλώδιο (πυροσωλήνα) εκρηκτικό, ήπιου αποτελέσματος, με μεταλλική επένδυση 39°/0104  
(συνεχ.)

Είδος συνιστάμενο από έναν πυρήνα εκρηκτικού επικαλυμμένου με έναν μαλακό μεταλλικό σωλήνα με ή χωρίς προστατευτικό κάλυμμα. Η ποσότητα εκρηκτικής ύλης είναι τόσο μικρή ώστε μόνον ένα ήπιο αποτέλεσμα να εκδηλώνεται έξω από το καλώδιο.

Καλώδιο, αναφλεκτήρα 43°/0066

Είδος συνιστάμενο από υφασμάτινο νήμα που καλύπτεται με μαύρη πυρίτιδα ή άλλη γρήγορης καύσης πυροτεχνική σύνθεση και από ένα εύκαμπτο προστατευτικό κάλυμμα, ή συνίσταται από έναν πυρήνα μαύρης πυρίτιδας περιβαλλόμενο από ένα εύκαμπτο πλεγμένο ύφασμα. Καίγεται προοδευτικά κατά το μήκος του με εξωτερική φλόγα και χρησιμοποιείται για τη μετάδοση ανάφλεξης από μία συσκευή σε μία γόμωση ή έναν εγχυτή.

Κοπτικές συσκευές, καλωδίων, εκρηκτικές 47°/0070

Είδη συνιστάμενα από μία αιχμηρή συσκευή που κινείται από μία μικρή γόμωση εύφλεκτου εκρηκτικού σε ένα αμόνι.

Συνδεσμολογίες πυροκροτητών, μη-ηλεκτρικοί, για ανατινάξεις 1°/0360, 35°/0361

Μη-ηλεκτρικοί πυροκροτητές συνδεδεμένοι με και ενεργοποιημένοι με τέτοιο μέσον όπως πυροσωλήνα ασφάλειας, σωλήνα κρούσης, σωλήνα ανάφλεξης ή εκρηκτικό καλώδιο. Μπορεί να είναι ακαριαίου σχεδιασμού ή να έχουν ενσωματωμένα στοιχεία καθυστέρησης. Εκρηκτικά ρελαί που έχουν ενσωματωμένο εκρηκτικό καλώδιο περιλαμβάνονται.

Πυροκροτητές, ηλεκτρικοί, για ανατινάξεις 1°/0030, 35°/0255, 47°/0456

Είδη ειδικά σχεδιασμένα για την πυροδότηση εκρηκτικών για ανατινάξεις. Αυτοί οι πυροκροτητές μπορεί να κατασκευάζονται για να εκρήγνυται ακαριαία ή μπορεί να περιέχουν ένα στοιχείο καθυστέρησης. Ηλεκτρικοί πυροκροτητές ενεργοποιούνται με ηλεκτρικό ρεύμα.

Πυροκροτητές για πυρομαχικά 1°/0073, 13°/0364, 35°/0365, 47°/0366

Είδη συνιστάμενα από έναν μικρό μεταλλικό ή πλαστικό σωλήνα που περιέχουν εκρηκτικά τέτοια όπως αζίδιο του μολύβδου, PETN ή συνδυασμούς εκρηκτικών. Είναι σχεδιασμένα για να ξεκινάνε μία γραμμική εκρήξεις.

Πυροκροτητές, μη-ηλεκτρικοί, για ανατινάξεις 1°/0029, 35°/0267, 47°/0455

Είδη ειδικά σχεδιασμένα για την πυροδότηση εκρηκτικών ανατινάξεων. Αυτοί οι πυροκροτητές μπορεί να είναι κατασκευασμένοι για να εκρήγνυται ακαριαία ή μπορεί να περιέχει ένα στοιχείο καθυστέρησης. Οι μη-ηλεκτρικοί πυροκροτητές ενεργοποιούνται με τέτοια μέσα όπως σωλήνας κρούσης, σωλήνας ανάφλεξης, πυροσωλήνας ασφάλειας, άλλη αναφλεκτική συσκευή ή εύκαμπτο εκρηκτικό καλώδιο. Εκρηκτικά ρελαί χωρίς εκρηκτικό καλώδιο περιλαμβάνονται.

Εκρηκτικά, για ανατινάξεις, τύπου Α 4°/0081

Υλεις συνιστάμενες από υγρά οργανικά νιτρικά άλατα τέτοια όπως νιτρογλυκερίνη ή ένα μείγμα τέτοιων συστατικών με ένα ή περισσότερα από τα παρακάτω: νιτροκυτταρίνη, νιτρικό αμμώνιο ή άλλα ανόργανα νιτρικά άλατα, αρωματικά νιτρο-παράγωγα, ή καύσιμα υλικά, τέτοια όπως αλεσμένο ξύλο και αλουμίνιο σε σκόνη. Μπορεί να περιέχουν αδρανή συστατικά τέτοια όπως διατομίτη και πρόσθετα τέτοια όπως χρωματικούς παράγοντες και σταθεροποιητές. Τέτοια εκρηκτικά θα πρέπει να είναι σε κονιώδη, ζελατινώδη ή ελαστική μορφή. Ο όρος περιλαμβάνει δυναμίτη, ζελατίνη, δυναμίτες για ανατινάξεις και ζελατίνης.

## Προσθήκη Α.1

3170 Εκρηκτικά, για ανατινάξεις, τύπου Β 4°/0082, 48°/0331

(συνεχ.)

Υλεις συνιστάμενες από

- (a) ένα μείγμα νιτρικού αμμωνίου ή άλλων ανόργανων νιτρικών αλάτων με ένα εκρηκτικό τέτοιο όπως τρινιτροτολουόλιο, με ή χωρίς άλλες ύλες τέτοιες όπως αλεσμένο ξύλο και αλουμίνιο σε σκόνη, ή
- (b) ένα μείγμα νιτρικού αμμωνίου ή άλλων ανόργανων νιτρικών αλάτων με άλλες καύσιμες ύλες που δεν είναι εκρηκτικά συστατικά. Και στις δύο περιπτώσεις μπορούν να περιέχουν αδρανή συστατικά τέτοια όπως πυριτικό άλευρο και πρόσθετα τέτοια όπως χρωστικούς παράγοντες και σταθεροποιητές. Τέτοια εκρηκτικά δεν πρέπει να περιέχουν νιτρογλυκερίνη, παρόμοια υγρά οργανικά νιτρικά ή χλωρικά άλατα.

Εκρηκτικά, για ανατινάξεις, τύπου C 4°/0083

Υλεις συνιστάμενες από ένα μείγμα ή χλωρικού καλίου ή χλωρικού νατρίου ή υπερχλωρικού καλίου, νατρίου ή αμμωνίου με οργανικά νιτρο-παράγωγα ή καύσιμα υλικά τέτοια όπως αλεσμένο ξύλο ή αλουμίνιο σε σκόνη ή έναν υδρογονάνθρακα. Μπορούν να περιέχουν αδρανή συστατικά τέτοια όπως πυριτικό άλευρο και πρόσθετα τέτοια όπως χρωστικούς παράγοντες και σταθεροποιητές. Τέτοια εκρηκτικά δεν πρέπει να περιέχουν νιτρογλυκερίνη ή παρόμοια υγρά οργανικά νιτρικά άλατα.

Εκρηκτικά, για ανατινάξεις, τύπου D 4°/0084

Υλεις συνιστάμενες από ένα μείγμα οργανικών νιτρωμένων ενώσεων και καύσιμων υλικών τέτοιων όπως υδρογονάνθρακες και αλουμίνιο σε σκόνη. Μπορούν να περιέχουν αδρανή συστατικά τέτοια όπως πυριτικό άλευρο και πρόσθετα τέτοια όπως χρωστικοί παράγοντες και σταθεροποιητές. Τέτοια εκρηκτικά δεν πρέπει να περιέχουν νιτρογλυκερίνη, παρόμοια υγρά οργανικά νιτρικά άλατα, χλωρικά άλατα και νιτρικό αμμώνιο. Ο όρος γενικά περιλαμβάνει πλαστικά εκρηκτικά.

Εκρηκτικά, για ανατινάξεις, τύπου E 4°/0241, 48°/0332

Υλεις συνιστάμενες από νερό ως ουσιώδες συστατικό και υψηλές αναλογίες νιτρικού αμμωνίου ή άλλων οξειδωτικών, μερικά ή όλα από τα οποία είναι σε διάλυμα. Τα άλλα συστατικά μπορούν να περιλαμβάνουν νιτρο-παράγωγα τέτοια όπως τρινιτροτολουόλιο, υδρογονάνθρακες ή αλουμίνιο σε σκόνη. Μπορούν να περιέχουν αδρανή συστατικά τέτοια όπως πυριτικό άλευρο και πρόσθετα τέτοια όπως χρωστικοί παράγοντες και σταθεροποιητές. Ο όρος περιλαμβάνει εκρηκτικά, σε γαλάκτωμα, εκρηκτικά, χυλώδη και εκρηκτικά, υδατικές ζελατίνες.

Πυροτεχνήματα 9°/0333, 21°/0334, 30°/0335, 43°/0336, 47°/0337

Πυροτεχνικά είδη σχεδιασμένα για ψυχαγωγία.

Φωτοβολίδες, αέρος 9°/0420, 21°/0421, 30°/0093, 43°/0403, 47°/0404

Είδη που περιέχουν πυροτεχνικές ύλες που είναι σχεδιασμένες για να πέφτουν από ένα αεροσκάφος για φωτισμό, αναγνώριση, σηματοδότηση ή προειδοποίηση.

Φωτοβολίδες, επιφάνειας 9°/0418, 21°/0419, 30°/0092

Είδη που περιέχουν πυροτεχνικές ύλες που είναι σχεδιασμένες για χρήση στην επιφάνεια για φωτισμό, αναγνώριση, σηματοδότηση ή προειδοποίηση.

## Προσθήκη Α.1

3170 Πυρίτιδα ανάφλεξης 8°/0094, 29°/0305

(συνεχ.)

Πυροτεχνική ύλη που, όταν πυροδοτείται, παράγει ένα έντονο φως.

Θραυστικές συσκευές, εκρηκτικές, χωρίς πυροκροτητή, για πετρελαιοπηγές, 5°/0099

Είδη συνιστάμενα από μία γόμωση εκρηκτικού περιεχόμενη σε ένα περίβλημα χωρίς μέσον πυροδότησης. Χρησιμοποιούνται για θραύση πετρωμάτων γύρω από τον άξονα ενός τρυπανιού για διευκόλυνση της ροής του αργού πετρελαίου από το πέτρωμα.

Πυροσωλήνας, αναφλεκτήρα, σωληνοειδής, με μεταλλική επένδυση 43°/0103

Είδος συνιστάμενο από ένα μεταλλικό σωλήνα με έναν πυρήνα αναφλέξιμου εκρηκτικού.

Πυροσωλήνας, ακαριαίος, όγλ-εκρηκτικός (quickmatch) 30°/0101

Είδος συνιστάμενο από βαμβακερά νήματα διαποτισμένα με λεπτή μαύρη πυρίτιδα. Καίγεται με εξωτερική φλόγα και χρησιμοποιείται σε γραμμές ανάφλεξης για πυροτεχνήματα, κ.λπ.

Πυροσωλήνας, ασφάλειας 47°/0105

Είδος συνιστάμενο από έναν πυρήνα λεπτά αλεσμένης μαύρης πυρίτιδας περιβεβλημένος από ένα εύκαμπτο πλεγμένο ύφασμα με ένα ή περισσότερα προστατευτικά εξωτερικά καλύμματα. Όταν πυροδοτείται, καίγεται σε προκαθορισμένο βαθμό χωρίς οποιοδήποτε εξωτερικό εκρηκτικό αποτέλεσμα.

Πυροσωλήνες, εκρηκτικοί 1°/0106, 13°/0107, 35°/0257, 47°/0367

Είδη με εκρηκτικά συστατικά σχεδιασμένα να προκαλούν έκρηξη σε πυρομαχικά. Έχουν ενσωματωμένα μηχανικά, ηλεκτρικά, χημικά ή υδροστατικά εξαρτήματα για την αρχή της έκρηξης. Γενικά έχουν ενσωματωμένα προστατευτικά χαρακτηριστικά.

Πυροσωλήνες, εκρηκτικοί, με προστατευτικά χαρακτηριστικά 5°/0408, 17°/0409, 39°/0410

Είδη με εκρηκτικά συστατικά σχεδιασμένα να προκαλούν έκρηξη σε πυρομαχικά. Έχουν ενσωματωμένα μηχανικά, ηλεκτρικά, χημικά ή υδροστατικά εξαρτήματα για την αρχή της έκρηξης. Οι εκρηκτικοί πυροσωλήνες πρέπει να έχουν ενσωματωμένα δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

Πυροσωλήνες, πυροδότησης 30°/0316, 43°/0317, 47°/0368

Είδη με κύρια εκρηκτικά συστατικά σχεδιασμένα να προκαλούν ανάφλεξη σε πυρομαχικά. Έχουν ενσωματωμένα μηχανικά, ηλεκτρικά, χημικά ή υδροστατικά εξαρτήματα για την αρχή της ανάφλεξης. Γενικά έχουν ενσωματωμένα προστατευτικά χαρακτηριστικά.

Βομβίδες, χειρός ή όπλου, με εκρηκτική γόμωση 5°/0284, 17°/0285

Είδη που είναι σχεδιασμένα για να ρίχνονται με το χέρι ή να εκτοξεύονται από ένα όπλο. Είναι χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

Βομβίδες, χειρός ή όπλου, με εκρηκτική γόμωση 7°/0292, 19°/0293

Είδη που είναι σχεδιασμένα για να ρίχνονται με το χέρι ή να εκτοξεύονται από ένα όπλο. Είναι με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

## Προσθήκη Α.1

**3170** Βομβίδες, γυμνασίων, χειρός ή όπλου 21°/0372, 30°/0318, 43°/0452, 47°/0110  
(συνεχ.)

Είδη χωρίς κύρια εκρηκτική γόμωση που είναι σχεδιασμένα για να ρίχνονται με το χέρι ή να εκτοξεύονται από ένα όπλο. Περιέχουν την συσκευή γόμωσης και μπορούν να περιέχουν μία γόμωση εντοπισμού.

Εξοτονάλη 4°/0393

Υψηλή συνιστάμενη από ένα εσωτερικό μείγμα κυκλοτρεμεθυλενο-τρινιτραμίνης (RDX), τρινιτροτολουολίου (TNT) και αλουμινίου.

Εξολίτης (εξοτόλη), ξηρός ή νωπός με λιγότερο από 15 % νερό, κατά βάρος 4°/0118

Υψηλή συνιστάμενη από ένα εσωτερικό μείγμα κυκλοτρεμεθυλενο-τρινιτραμίνης (RDX) και τρινιτροτολουολίου (TNT). Ο όρος περιλαμβάνει "Σύνθεση Β".

Αναφλεκτήρες 9°/0121, 21°/0314, 30°/0315, 43°/0325, 47°/0454

Είδη που περιέχουν μία ή περισσότερες εκρηκτικές ύλες σχεδιασμένα να προκαλούν ανάφλεξη σε μία γραμμική εκρηκτικών. Μπορούν να ενεργοποιηθούν χημικά, ηλεκτρικά ή μηχανικά.

**ΣΗΜΕΙΩΣΗ:** Τα παρακάτω είδη: καλώδιο, αναφλεκτήρα πυροσωλήνας, αναφλεκτήρα πυροσωλήνας, ακαριαίος, όγι-εκρηκτικός, πυροσωλήνες, πυροδότησης, αναπτίρες πυροσωλήνων, εγχυτές, τύπου καυολλίου, εγχυτές, σωληνοειδείς δεν περιλαμβάνονται σε αυτόν τον ορισμό. Αυτά αναφέρονται ξεχωριστά.

Αεριοθούμενα διατρητικά όπλα, γομωμένα, πετρελαιοπηγών, χωρίς πυροκροτητή 5°/0124, 39°/0494

Είδη συνιστάμενα από ένα χαλύβδινο σωλήνα ή μία μεταλλική ταινία, μέσα στην οποία εισάγονται μορφοποιημένες γομώσεις συνδεδεμένες με εκρηκτικό καλώδιο, χωρίς μέσον πυροδότησης.

Αναπτίρες πυροσωλήνων 47°/0131

Είδη διαφόρων σχεδιασμών που ενεργοποιούνται με τριβή, κρούση ή ηλεκτρισμό και που χρησιμοποιούνται για την πυροδότηση καυσίμων ασφάλειας.

Νάρκες, με εκρηκτική γόμωση 5°/0137, 17°/0138

Είδη συνιστάμενα κανονικά από μεταλλικά ή σύνθετα δοχεία γεμισμένα με ένα εκρηκτικό, χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Είναι σχεδιασμένα για να τίθενται σε λειτουργία με το πέρασμα πλοίων, οχημάτων ή ανθρώπων. Ο όρος περιλαμβάνει "τορπίλες Bangalore".

Νάρκες, με εκρηκτική γόμωση 7°/0136, 19°/0294

Είδη συνιστάμενα κανονικά από μεταλλικά ή σύνθετα δοχεία γεμισμένα με ένα εκρηκτικό, με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Είναι σχεδιασμένα για να τίθενται σε λειτουργία με το πέρασμα πλοίων, οχημάτων ή ανθρώπων. Ο όρος περιλαμβάνει "τορπίλες Bangalore".

Οκτολίτης (Οκτόλη), ξηρός ή νωπός με λιγότερο από 15 % νερό, κατά βάρος 4°/0266

Υψηλή συνιστάμενη από ένα εσωτερικό μείγμα κυκλοτετραμεθυλενο-τετρανιτραμίνης (HMX) και τρινιτροτολουολίου (TNT).

## Προσθήκη Α.1

3170 Οκτιονάλη 4°/0496  
(συνεχ.)

Υγλη συνιστάμενη από ένα εσωτερικό μείγμα κυκλοτετραμεθυλενοτετρανιτραμίνης (ΗΜΧ), τρινιτροτολουολίου (ΤΝΤ) και αλουμινίου.

Πεντολίτης, ξηρός ή νωπός με λιγότερο από 15 % νερό, κατά βάρος 4°/0151

Υγλη συνιστάμενη από ένα εσωτερικό μείγμα τετρανιτρικού πενταερυθρίτη (ΡΕΤΝ) και τρινιτροτολουολίου (ΤΝΤ).

Συσσωματωμένη πυρίτιδα (πάστα πυρίτιδας), νωπή με όχι λιγότερο από 17 % αλκοόλη, κατά βάρος.  
Συσσωματωμένη πυρίτιδα (πάστα πυρίτιδας), νωπή με όχι λιγότερο από 25 % νερό, κατά βάρος 2°/0433, 26°/0159

Υγλη συνιστάμενη από νιτροκυτταρίνη διαποτισμένη με όχι περισσότερο από 60 % νιτρογλυκερίνη ή άλλα υγρά οργανικά νιτρικά άλατα ή μείγμα αυτών.

Πυρίτιδα άκαυνη 2°/0160, 26°/0161

Υγλη βασισμένη στην νιτροκυτταρίνη που χρησιμοποιείται ως προωθητικό. Ο όρος περιλαμβάνει προωθητικά με μία μόνη βάση (νιτροκυτταρίνη (NC) μόνη), με διπλή βάση (τέτοια όπως NC και νιτρογλυκερίνη/(NG)) και με τριπλή βάση (τέτοια όπως NC/NG/νιτρογουανιδίνη).

**ΣΗΜΕΙΩΣΗ:** *Άχρηστη, πεπεσμένη ή γομωμένη σε σάκους άκαυνη πυρίτιδα αναφέρεται στις γομώσεις προωθητικές.*

Εγχυτές τύπου καρυλλίου 1°/0377, 35°/0378, 47°/0044

Είδη συνιστάμενα από ένα μεταλλικό ή πλαστικό καρυλλίο που περιέχουν μία μικρή ποσότητα κύριου εκρηκτικού μείγματος που πυροδοτείται άμεσα με χτύπημα. Χρησιμοποιούνται ως πυροδοτικά στοιχεία σε μικρά φυσίγγια όπλων και σε εγχυτές κρούσης για προωθητικές γομώσεις.

Εγχυτές σωληνοειδείς 30°/0319, 43°/0320, 47°/0376

Είδη συνιστάμενα από έναν εγχυτή για ανάφλεξη και μία βοηθητική γόμωση αναφλέξιμου εκρηκτικού τέτοιου όπως μαύρης πυρίτιδας που χρησιμοποιείται για την πυροδότηση της προωθητικής γόμωσης σε μία θήκη φυσιγγίων για κανόνια κ.λπ.

Βλήματα, αδρανή με ανιχνευτή 30°/0424, 43°/0425, 47°/0345

Είδη τέτοια όπως ένας κάλυκας ή μία σφαίρα, που εκτοξεύονται από ένα κανόνι ή άλλο όπλο, τουφέκι ή άλλο μικρό όπλο.

Βλήματα με διαρρήκτη ή διαρροή γόμωσης 17°/0346, 39°/0347

Είδη τέτοια όπως ένας κάλυκας ή μία σφαίρα, που εκτοξεύονται από ένα κανόνι ή άλλο όπλο. Είναι χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Χρησιμοποιούνται για τη διάλυση χρωμάτων για ένδειξη ή άλλων αδρανών υλικών.

Βλήματα, με διαρρήκτη ή διαρροή γόμωσης 19°/0426, 41°/0427

Είδη τέτοια όπως ένας κάλυκας ή μία σφαίρα, που εκτοξεύονται από ένα κανόνι ή άλλο όπλο. Είναι με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Χρησιμοποιούνται για τη διάλυση χρωμάτων για ένδειξη ή άλλων αδρανών υλικών.

## Προσθήκη Α.1

**3170** Βλήματα, με διαρρήκτη ή διαρροή γόμωσης 21°/0434, 43°/0435

(συνεχ.)

Είδη τέτοια όπως ένας κάλυκας ή μία σφαίρα, που εκτοξεύονται από ένα κανόνι ή άλλο όπλο, τουφέκι ή άλλο μικρό όπλο. Χρησιμοποιούνται για τη διάλυση χρωμάτων για ένδειξη ή άλλων αδρανών υλικών.

Βλήματα, με εκρηκτική γόμωση 5°/0168, 17°/0169, 39°/0344

Είδη τέτοια όπως ένας κάλυκας ή μία σφαίρα, που εκτοξεύονται από ένα κανόνι ή άλλο όπλο. Είναι χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

Βλήματα, με εκρηκτική γόμωση 7°/0167, 19°/0324

Είδη τέτοια όπως ένας κάλυκας ή μία σφαίρα, που εκτοξεύονται από ένα κανόνι ή άλλο όπλο. Είναι με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

Προωθητικό, υγρό 2°/0497, 26°/0495

Υψηλ συνιστάμενη από ένα αναφλέξιμο υγρό εκρηκτικό, που χρησιμοποιείται για προώθηση.

Προωθητικό, στερεό 2°/0498, 26°/0499

Υψηλ συνιστάμενη από ένα αναφλέξιμο στερεό εκρηκτικό, που χρησιμοποιείται για προώθηση.

Συσκευές απελευθέρωσης, εκρηκτικές 47°/0173

Είδη συνιστάμενα από μία μικρή γόμωση εκρηκτικού με μέσον πυροδότησης και ράβδους ή κρίκους. Αποσπών τις ράβδους ή τους κρίκους για την απελευθέρωση της συσκευής γρήγορα.

Στελέχη, εκρηκτικά 47°/0174

Είδη συνιστάμενα από μία μικρή γόμωση εκρηκτικού μέσα σ' ένα μεταλλικό στέλεχος.

Κινητήρες πυραύλων 3°/0280, 15°/0281, 27°/0186

Είδη συνιστάμενα από μία γόμωση εκρηκτικού, γενικά ένα στερεό προωθητικό, που περιέχονται σ' έναν κύλινδρο εξοπλισμένο με ένα ή περισσότερα ακροφύσια. Είναι σχεδιασμένα να προωθούν έναν πύραυλο ή ένα κατευθυνόμενο βλήμα.

Κινητήρες πυραύλων, υγρών καυσίμων 23°/0395, 32°/0396

Είδη συνιστάμενα από ένα υγρό καύσιμο μέσα σε έναν κύλινδρο εξοπλισμένο με ένα ή περισσότερα ακροφύσια. Είναι σχεδιασμένα να προωθούν έναν πύραυλο ή ένα κατευθυνόμενο βλήμα.

Κινητήρες πυραύλων με υπεργολικά υγρά με ή χωρίς διαρροή γόμωσης 25°/0322, 34°/0250

Είδη συνιστάμενα από ένα υπεργολικό καύσιμο που περιέχεται σε έναν κύλινδρο εξοπλισμένο με ένα ή περισσότερα ακροφύσια. Είναι σχεδιασμένα να προωθούν έναν πύραυλο ή ένα κατευθυνόμενο βλήμα.

Πύραυλοι, σχηματισμού γραμμής 21°/0238, 30°/0240, 43°/0453

Είδη συνιστάμενα από έναν κινητήρα πυραύλων που είναι σχεδιασμένος να σχηματίζει μία γραμμή.



## Προσθήκη Α.1

**3170** Πύραυλοι, υγρών καυσίμων, με εκρηκτική γόμωση 10°/0397, 23°/0398

(συνεχ.)

Είδη συνιστάμενα από ένα υγρό καύσιμο μέσα σε έναν κύλινδρο εξοπλισμένο με ένα ή περισσότερα ακροφύσια και εξοπλισμένο με μία κεφαλή. Ο όρος περιλαμβάνει κατευθυνόμενα βλήματα.

Πύραυλοι με εκρηκτική γόμωση 6°/0181, 18°/0182

Είδη συνιστάμενα από έναν κινητήρα πυραύλων και μία κεφαλή χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Ο όρος περιλαμβάνει κατευθυνόμενα βλήματα.

Πύραυλοι, με εκρηκτική γόμωση 7°/0180, 19°/0295

Είδη συνιστάμενα από ένα κινητήρα πυραύλων και μία κεφαλή με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Ο όρος περιλαμβάνει κατευθυνόμενα βλήματα.

Πύραυλοι, με διαρροή γόμωσης 15°/0436, 27°/0437, 37°/0438

Είδη συνιστάμενα από έναν κινητήρα πυραύλων και μία γόμωση για την διαρροή του ωφέλιμου φορτίου από μία κεφαλή πυραύλου. Ο όρος περιλαμβάνει κατευθυνόμενα βλήματα.

Πύραυλοι, με αδρανή κεφαλή 27°/0183

Είδη συνιστάμενα από ένα κινητήρα πυραύλων και μία αδρανή κεφαλή. Ο όρος περιλαμβάνει κατευθυνόμενα βλήματα.

Συσκευές σηματοδότησης, χειρός 43°/0191, 47°/0373

Φορητά είδη που περιέχουν πυροτεχνικές ύλες που παράγουν οπτικά σήματα ή προειδοποιητικά σήματα. Ο όρος περιλαμβάνει μικρής επιφάνειας φωτοβολίδες τέτοιες όπως φωτοβολίδες λεωφόρων ή σιδηροδρομικών γραμμών και μικρές φωτοβολίδες κινδύνου.

Σηματοδότες, κινδύνου, πλοίων 9°/0194, 30°/0195

Είδη που περιέχουν πυροτεχνικές ύλες σχεδιασμένα να παράγουν σήματα με ήχο, φλόγα ή καπνό ή οποιονδήποτε συνδυασμό αυτών.

Σηματοδότες, σιδηροδρομικών γραμμών, εκρηκτικοί 9°/0192, 30°/0492, 43°/0493, 47°/0193

Είδη που περιέχουν μία πυροτεχνική ύλη που εκρήγνυται με δυνατό κρότο όταν το είδος συνθλίβεται. Είναι σχεδιασμένα να τοποθετούνται πάνω σε σιδηροτροχιά.

Σηματοδότες, καπνού, 9°/0196, 19°/0313, 30°/0487, 43°/0197

Είδη που περιέχουν πυροτεχνικές ύλες που εκπέμπουν καπνό. Επιπλέον μπορούν να περιέχουν συσκευές για εκπομπή ακουστικών σημάτων.

Συσκευές βολιδοσκόπησης, εκρηκτικές 5°/0374, 17°/0375

Είδη συνιστάμενα από μία γόμωση εκρηκτικού, χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Ρίχνονται από πλοία και λειτουργούν όταν φτάνουν ένα προκαθορισμένο βάθος ή τον πυθμένα της θάλασσας.

## Προσθήκη Α.1

3170 Συσκευές βολιδοσκοπίησης, εκρηκτικές 7°/0296, 19°/0204

(συνεχ.)

Είδη συνιστάμενα από μία γόμωση εκρηκτικού με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Ρίχνονται από πλοία και λειτουργούν όταν φτάνουν ένα προκαθορισμένο βάθος ή τον πυθμένα της θάλασσας.

Υλες, εκρηκτικές, πολύ μη-ευαίσθητες (ΥΛ, EVI 48°/0482)

Υλες που παρουσιάζουν έναν κίνδυνο έκρηξης μάζας αλλά που είναι τόσο μη-ευαίσθητες που υπάρχει πολύ μικρή πιθανότητα πυροδότησης ή μετάβασης από την καύση στην έκρηξη υπό κανονικές συνθήκες μεταφοράς και που έχουν περάσει τη Σειρά Ελέγχου 5.

Τορπίλες, υγρών καυσίμων, με αδρανή κεφαλή 32°/0450

Είδη συνιστάμενα από ένα υγρό εκρηκτικό σύστημα για την προώθηση της τορπίλης στο νερό, με μία αδρανή κεφαλή.

Τορπίλες, υγρών καυσίμων, με ή χωρίς εκρηκτική γόμωση 10°/0449

Είδη συνιστάμενα από είτε ένα υγρό εκρηκτικό σύστημα για την προώθηση της τορπίλης στο νερό, με ή χωρίς κεφαλή, είτε ένα υγρό μη-εκρηκτικό σύστημα για την προώθηση της τορπίλης στο νερό, με κεφαλή.

Τορπίλες, με εκρηκτική γόμωση 5°/0451

Είδη συνιστάμενα από ένα μη-εκρηκτικό σύστημα για την προώθηση της τορπίλης στο νερό, και μία κεφαλή χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

Τορπίλες, με εκρηκτική γόμωση 6°/0329

Είδη συνιστάμενα από ένα εκρηκτικό σύστημα για την προώθηση της τορπίλης στο νερό, και μία κεφαλή χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

Τορπίλες, με εκρηκτική γόμωση 7°/0330

Είδη συνιστάμενα από ένα εκρηκτικό ή μη-εκρηκτικό σύστημα για την προώθηση της τορπίλης μέσα στο νερό και μία κεφαλή με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά.

Ανιχνευτές για πυρομαχικά 30°/0212, 43°/0306

Σφραγισμένα είδη που περιέχουν πυροτεχνικές ύλες, σχεδιασμένα να αποκαλύπτουν την τροχιά ενός βλήματος.

Τριτονόλη 4°/0390

Ύλη συνιστάμενη από τρινιτρολουόλιο (TNT) αναμεμιγμένο με αλουμίνιο.

## Προσθήκη Α.1

**3170** Κεφαλές πυραύλων, με διαρρήκτη ή διαρροή γόμωσης 39°/0370  
(συνεχ.)

Είδη συνιστάμενα από ένα αδρανές ωφέλιμο φορτίο και μία μικρή γόμωση εκρηκτικού ή αναφλέξιμου εκρηκτικού, χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Είναι σχεδιασμένα για τον εξοπλισμό ενός κινητήρα πυραύλων για τη διάλυση αδρανών υλικών. Ο όρος περιλαμβάνει κεφαλές για κατευθυνόμενα βλήματα.

Κεφαλές πυραύλων, με διαρρήκτη ή διαρροή γόμωσης 41°/0371

Είδη συνιστάμενα από ένα αδρανές ωφέλιμο φορτίο και μία μικρή γόμωση εκρηκτικού ή αναφλέξιμου εκρηκτικού, με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Είναι σχεδιασμένα για τον εξοπλισμό ενός κινητήρα πυραύλων για τη διάλυση αδρανών υλικών. Ο όρος περιλαμβάνει κεφαλές για κατευθυνόμενα βλήματα.

Κεφαλές πυραύλων, με εκρηκτική γόμωση 5°/0286, 17°/0287

Είδη συνιστάμενα από ένα εκρηκτικό, χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Είναι σχεδιασμένα για τον εξοπλισμό ενός πυραύλου. Ο όρος περιλαμβάνει κεφαλές για κατευθυνόμενα βλήματα.

Κεφαλές πυραύλων, με εκρηκτική γόμωση 7°/0369

Είδη συνιστάμενα από ένα εκρηκτικό, με μέσον πυροδότησης που δεν περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Είναι σχεδιασμένα για τον εξοπλισμό ενός πυραύλου. Ο όρος περιλαμβάνει κεφαλές για κατευθυνόμενα βλήματα.

Κεφαλές τορπιλών, με εκρηκτική γόμωση 5°/0221

Είδη συνιστάμενα από ένα εκρηκτικό, χωρίς μέσον πυροδότησης ή με μέσον πυροδότησης που περιέχει δύο ή περισσότερα αποτελεσματικά προστατευτικά χαρακτηριστικά. Είναι σχεδιασμένα για τον εξοπλισμό μίας τορπίλης.

## ΠΡΟΣΘΗΚΗ Α.2

Α. Διατάξεις σχετικές με τη φύση δοχείων από κράμα αλουμινίου για ορισμένα αέρια της Κλάσης 2

## I. Ποιότητα του υλικού

3200 (1) Τα υλικά των δοχείων από κράμα αλουμινίου που θα γίνονται δεκτά για τα αέρια που αναφέρονται στο περιθωριακό 2203 (2) (b) θα πρέπει να ικανοποιούν τις παρακάτω απαιτήσεις:

	A	B	C	D
Δύναμη εφελκυσμού, Rm, σε MPa (=N/mm <sup>2</sup> )	49 έως 186	196 έως 372	196 έως 372	343 έως 490
Όριο εμφανούς ελαστικότητας, Re, σε MPa (=N/mm <sup>2</sup> ) μόνιμη παραμόρφωση l = 0.2 %	10 έως 167	59 έως 314	137 έως 334	206 έως 412
Μόνιμη επιμήκυνση στη ρήξη (l = 5d) επί τοις εκατό	12 έως 40	12 έως 30	12 έως 30	11 έως 16
Δοκιμή λυγίσματος (διάμετρος τόννου d = nXe, όπου e είναι το πάχος του τεμαχίου δοκιμής)	n=5(Rm≤98) n=6(Rm>98)	n=6(Rm≤325) n=7(Rm>325)	n=6(Rm≤325) n=6(Rm>325)	n=7(Rm≤392) n=8(Rm>392)
Αριθμός Σειράς του Συνδέσμου Αλουμινίου <sup>1/</sup>	1 000	5 000	6 000	2 000

Οι πραγματικές ιδιότητες θα εξαρτώνται από τη σύνθεση του συγκεκριμένου κράματος και από την τελική επεξεργασία του δοχείου, αλλά οποιοδήποτε κράμα κι αν χρησιμοποιείται το πάχος του δοχείου θα πρέπει να υπολογίζεται από τους παρακάτω τύπους:

$$e = \frac{P_{MPa} \times D}{\frac{2 \times Re}{1,30} + P_{MPa}}$$

ή

$$e = \frac{P_{bar} \times D}{\frac{20 \times Re}{1,30} + P_{bar}}$$

όπου e = ελάχιστο πάχος τοιχώματος του δοχείου, σε mm,

<sup>1/</sup> Βλέπε "Πρότυπα και δεδομένα για το Αλουμίνιο", Πέμπτη έκδοση, Ιανουάριος 1976, δημοσιευμένα από τον Σύνδεσμο Αλουμινίου, 750 Third Avenue, New York.

## Προσθήκη Α.2

3200  
(συνεχ.)

- $R_{MPa}$  = πίεση ελέγχου, σε MPa ( $P_{bar}$  = πίεση ελέγχου, σε bar),  
 $D$  = ονομαστική εξωτερική διάμετρος του δοχείου, σε mm και  
 $Re$  = εγγυημένη ελάχιστη 0.2 % αντοχή σε εφελκυσμό, σε MPa ( $=N/mm^2$ ).

Επιπλέον, η τιμή της ελάχιστης εγγυημένης αντοχής σε εφελκυσμό ( $Re$ ) στον τύπο δεν υπάρχει περίπτωση να είναι μεγαλύτερη από 0.85 φορές την εγγυημένη ελάχιστη δύναμη εφελκυσμού ( $Rm$ ), ανεξαρτήτως του τύπου του κράματος που χρησιμοποιείται.

**ΣΗΜΕΙΩΣΗ 1:** Τα παραπάνω χαρακτηριστικά βασίζονται σε προηγούμενη εμπειρία με τα παρακάτω υλικά που χρησιμοποιούνται για δοχεία:

- Στήλη Α: Αλουμίνιο, όχι σε κράμα, 99.5 % καθαρό,  
 Στήλη Β: Κράματα αλουμινίου και μαγνησίου,  
 Στήλη C: Κράματα αλουμινίου, πυριτίου και μαγνησίου, τέτοια όπως ISO/R209-A1-Si-Mg (Σύνδεσμος Αλουμινίου 6351),  
 Στήλη D: Κράματα αλουμινίου, χαλκού και μαγνησίου.

**ΣΗΜΕΙΩΣΗ 2:** Η μόνιμη επιμήκυνση στη ρήξη ( $l = 5d$ ) μετράται με δοκιμαστικά τεμάχια κυκλικής τομής στα οποία το μήκος περιτυπώματος  $l$  είναι ίσο με πέντε φορές τη διάμετρο  $d$ , εάν χρησιμοποιούνται δοκιμαστικά τεμάχια ορθογώνιας τομής το μήκος περιτυπώματος πρέπει να υπολογίζεται από τον τύπο:

$$l = 5.65 \sqrt{F_0}$$

όπου  $F_0$  είναι το αρχικό εμβαδό της εγκάρσιας τομής του δοκιμαστικού τεμαχίου.

- ΣΗΜΕΙΩΣΗ 3:** (a) Η δοκιμή λυγίσματος (βλέπε διάγραμμα) θα πρέπει να διεξάγεται σε δείγματα που λαμβάνονται με κοπή σε δύο ίσα μέρη πλάτους  $3e$ , αλλά σε καμία περίπτωση μικρότερου από 25 mm, ενός κυλίνδρου δακτυλιοειδούς τομής. Τα δείγματα θα πρέπει να επεξεργάζονται μηχανικά αλλού εκτός από τις ακμές.
- (b) Η δοκιμή λυγίσματος θα πρέπει να διεξάγεται μεταξύ μίας ατράκτου τόννου διαμέτρου ( $d$ ) και δύο κυκλικών υποστηριγμάτων που απέχουν απόσταση ( $d + 3e$ ). Κατά τη διάρκεια της δοκιμής οι εσωτερικές όψεις θα πρέπει να απέχουν απόσταση όχι μεγαλύτερη από τη διάμετρο της ατράκτου του τόννου.
- (c) Το δείγμα δεν θα πρέπει να εμφανίζει ρωγμές όταν έχει λυγιστεί προς τα μέσα γύρω από την άτρακτο του τόννου μέχρι οι εσωτερικές όψεις να απέχουν απόσταση όχι μεγαλύτερη από τη διάμετρο της ατράκτου.
- (d) Ο λόγος ( $n$ ) μεταξύ της διαμέτρου της ατράκτου και του πάχους του δείγματος θα πρέπει να συμφωνεί με τις τιμές που δίνονται στον πίνακα.

## Προσθήκη Α.2

3200  
(συνεχ.)

d + 3 e περίπου

## Διάγραμμα της δοκιμής λυγίσματος

(2) Μία χαμηλότερη τιμή της ελάχιστης επιμήκυνσης είναι αποδεκτή υπό τον όρο ότι μία πρόσθετη δοκιμή εγκεκριμένη από την αρμόδια αρχή της χώρας στην οποία τα δοχεία κατασκευάζονται αποδεικνύει ότι εξασφαλίζεται ασφάλεια μεταφοράς στον ίδιο βαθμό όπως στην περίπτωση των δοχείων που κατασκευάζονται να συμφωνούν με τα χαρακτηριστικά που δίνονται στον πίνακα της παραγράφου (1).

(3) Το πάχος τοιχωμάτων των δοχείων στο λεπτότερο σημείο θα πρέπει να είναι το παρακάτω:

όπου διάμετρος του δοχείου είναι μικρότερη από 50 mm: όχι μικρότερο από 1.5 mm,

όπου η διάμετρος του δοχείου είναι από 50 έως 150 mm: όχι μικρότερο από 2 mm και

όπου η διάμετρος του δοχείου είναι μεγαλύτερη από 150 mm: όχι μικρότερο από 3 mm.

(4) Τα άκρα των δοχείων θα πρέπει να έχουν ημικυκλική, ελλειπτική ή "ημισελήνοειδή" τομή. Θα πρέπει να παρέχουν τον ίδιο βαθμό ασφάλειας όπως το σώμα του δοχείου.

## II. Πρόσθετες επίσημες δοκιμές για κράματα αλουμινίου

3201 (1) Επιπλέον των δοκιμών που απαιτούνται από τα περιθωριακά 2215, 2216 και 2217, είναι απαραίτητη η δοκιμή για πιθανή μεσοκρυσταλλικής διάβρωσης του εσωτερικού τοιχώματος του δοχείου όπου γίνεται χρήση ενός κράματος αλουμινίου που περιέχει χαλκό, ή όπου γίνεται χρήση ενός κράματος αλουμινίου που περιέχει μαγνήσιο και μαγγάνιο και η περιεκτικότητά σε μαγνήσιο είναι μεγαλύτερη από 3.5 % ή η περιεκτικότητά σε μαγγάνιο χαμηλότερη από 0.5 %.

(2) Στην περίπτωση ενός κράματος αλουμινίου/χαλκού η δοκιμή θα πρέπει να διεξάγεται από τον κατασκευαστή κατά το χρόνο της έγκρισης ενός νέου κράματος από την αρμόδια αρχή. Θα πρέπει μετά να επαναλαμβάνεται, κατά την παραγωγή, για κάθε ποσότητα του κράματος.

## Προσθήκη Α.2

3201 (3) Στην περίπτωση ενός κράματος αλουμινίου/μαγνησίου η δοκιμή θα πρέπει να διεξάγεται από τον κατασκευαστή κατά τον χρόνο της έγκριση ενός νέου κράματος και της παραγωγικής διαδικασίας από την αρμόδια αρχή. Η δοκιμή θα πρέπει να επαναλαμβάνεται όποτε γίνεται αλλαγή στη σύνθεση του κράματος ή στην παραγωγική διαδικασία.

(4) (a) Προετοιμασία των κραμάτων αλουμινίου/χαλκού

Πριν το κράμα αλουμινίου/χαλκού υποβληθεί στη δοκιμή διάβρωσης, τα δείγματα θα πρέπει να καθαρίζονται από τα λάδια με έναν κατάλληλο διαλύτη, και να στεγνώνονται.

(b) Προετοιμασία των κραμάτων αλουμινίου/μαγνησίου

Πριν το κράμα αλουμινίου/μαγνησίου υποβληθεί στη δοκιμή διάβρωσης, τα δείγματα θα πρέπει να θερμαίνονται για επτά ημέρες στους 100 °C. Θα πρέπει μετά να καθαρίζονται από τα λάδια με έναν κατάλληλο διαλύτη, και να στεγνώνονται.

(c) Εκτέλεση της δοκιμής

Η εσωτερική πλευρά ενός δείγματος επιφάνειας 1 000 mm<sup>2</sup> (33.3 x 30 mm) από το υλικό που περιέχει χαλκό θα πρέπει να κατεργάζεται σε θερμοκρασία περιβάλλοντος, για 24 ώρες, με 1 000 ml ενός υδατικού διαλύματος που περιέχει 3 % NaCl και 0.5 % HCl.

(d) Εξέταση

Αφού πλυθεί και στεγνώσει, ένα τμήμα του δείγματος 20 mm μακρύ θα πρέπει να εξετάζεται μικρογραφικά σε μεγέθυνση 100 έως 500 X, κατά προτίμηση μετά από ηλεκτρολυτική στίλβωση.

Το βάθος της προσβολής δεν θα πρέπει να προχωράει πέρα από το δεύτερο στρώμα κόκκων από την επιφάνεια που υποβάλλεται στη δοκιμή διάβρωσης. Κατ' αρχήν, εάν προσβληθεί όλο το πρώτο στρώμα κόκκων, μόνον μέρος της δεύτερης σειράς θα πρέπει να προσβληθεί.

Στην περίπτωση τομών, θα πρέπει να γίνεται εξέταση σε ορθές γωνίες ως προς στην επιφάνεια.

Όπου μετά από ηλεκτρολυτική στίλβωση βρίσκεται απαραίτητη η παράσταση των ορίων των κόκκων ιδιαίτερα ορατά για περαιτέρω εξέταση, αυτό θα πρέπει να γίνεται με μία μέθοδο αποδεκτή από την αρμόδια αρχή.

### III. Προστασία της εσωτερικής επιφάνειας

3202 Η εσωτερική επιφάνεια των δοχείων από κράμα αλουμινίου θα πρέπει να παρέχεται με μία κατάλληλη αντιδιαβρωτική επικάλυψη εάν οι αρμόδιοι σταθμοί δοκιμής το θεωρούν απαραίτητο.

3203-  
3249

## Προσθήκη Α.2

**Β. Απαιτήσεις σχετικές με τα υλικά και την κατασκευή των δοχείων που προορίζονται για τη μεταφορά βαθιά κατενυγμένων υγροποιημένων αερίων της Κλάσης 2**

- 3250** (1) Τα δοχεία θα πρέπει να κατασκευάζονται από χάλυβα, αλουμίνιο, κράμα αλουμινίου, χαλκό, ή κράμα χαλκού, π.χ. ορείχαλκο. Πάντως, δοχεία, κατασκευασμένα από χαλκό ή κράμα χαλκού θα πρέπει να γίνονται δεκτά μόνον για αέρια που δεν περιέχουν ακετυλένιο.
- (2) Μόνον υλικά κατάλληλα στην χαμηλότερη θερμοκρασία εργασίας των δοχείων και των εξαρτημάτων τους και εξοπλισμών τους, μπορούν να χρησιμοποιούνται.
- 3251** Τα παρακάτω υλικά θα πρέπει να γίνονται δεκτά για την κατασκευή των δοχείων:
- (a) χάλυβες που δεν υπόκεινται σε εύκολη θραύση στην χαμηλότερη θερμοκρασία εργασίας (βλέπε περιθωριακό 3265).
1. Λεπτοτριμμένοι αμιγείς χάλυβες, έως θερμοκρασία - 60 °C,
  2. Νικελιούχοι χάλυβες (με περιεκτικότητα σε νικέλιο 0.5 έως 9 %) έως θερμοκρασία - 196 °C, ανάλογα με την περιεκτικότητα σε νικέλιο.
  3. ωστενιτικοί χρωμο-νικελιούχοι χάλυβες, έως θερμοκρασία - 270 °C.
- (b) αλουμίνιο όχι περισσότερο από 99.5 % καθαρό, ή κράματα αλουμινίου (βλέπε περιθωριακό 3266),
- (c) ανοιγμένος χαλκός όχι λιγότερο από 99.9 % καθαρός, ή κράματα χαλκού που έχουν περιεκτικότητα σε χαλκό μεγαλύτερη από 56 % (βλέπε περιθωριακό 3267).
- 3252** (1) Τα δοχεία θα πρέπει να είναι είτε χωρίς ραφές είτε οξυγονοκόλλημένα.
- (2) Τα δοχεία του περιθωριακού 2207 κατασκευασμένα από ωστενιτικό χάλυβα, από χαλκό ή από κράμα χαλκού μπορούν εναλλακτικά να είναι σκληρής συγκόλλησης.
- 3253** Τα εξαρτήματα και οι εξοπλισμοί μπορούν είτε να είναι βιδωμένοι στα δοχεία, είτε να είναι προσαρτημένοι σ' αυτά ως εξής:
- (a) δοχεία κατασκευασμένα από χάλυβα, αλουμίνιο ή κράμα αλουμινίου: με οξυγονοκόλληση,
- (b) δοχεία κατασκευασμένα από ωστενιτικό χάλυβα, από χαλκό ή από κράμα χαλκού: με οξυγονοκόλληση ή σκληρή συγκόλληση.
- 3254** Η κατασκευή των δοχείων και ο τρόπος προσάρτησής τους στο όχημα, στο πλαίσιο ή μέσα στο πλαίσιο του εμπορευματοκιβωτίου θα πρέπει να είναι τέτοια ώστε να αποκλείει με βεβαιότητα οποιαδήποτε μείωση στη θερμοκρασία των εξαρτημάτων στήριξης που πιθανώς να τα καθιστούσε εύθραυστα. Τα δεσμάτα των δοχείων θα πρέπει να είναι από μόνα τους έτσι σχεδιασμένα ώστε ακόμα κι όταν το δοχείο είναι στην χαμηλότερη θερμοκρασία εργασίας του να έχουν ακόμα τις απαραίτητες μηχανικές ιδιότητες.



## Προσθήκη Α.2

3255-  
3264

## 1. Υλικά, δοχεία

## (a) Χαλύβδινα δοχεία

3265 Τα υλικά που χρησιμοποιούνται για την κατασκευή των δοχείων και τα κορδόνια συγκόλλησης, θα πρέπει στις χαμηλότερες θερμοκρασίες εργασίας τους να ικανοποιούν τουλάχιστον τις παρακάτω απαιτήσεις ως προς τη δύναμη κρούσης.

Οι δοκιμές μπορούν να διεξάγονται με δοκιμαστικά τεμάχια που έχουν χαραγή είτε σε σχήμα U είτε σε σχήμα V.

Υλικό	Δύναμη κρούσης <sup>a/</sup> φύλλων μετάλλων και κορδονιών συγκόλλησης στις χαμηλότερες θερμοκρασίες εργασίας	
	J/cm <sup>2b/</sup>	J/cm <sup>2c/</sup>
Αμιγής καθησυχασμένος χάλυβας	34.3	27.4
Φεριτικό κράμα χάλυβα Ni < 5 %	34.3	21.6
Φεριτικό κράμα χάλυβα 5 % < Ni < 9 %	44.1	34.3
Ωστενιτικός Cr Ni χάλυβας	39.2	31.4

<sup>a/</sup> Δυνάμεις κρούσης προσδιορισμένες με διαφορετικά δοκιμαστικά τεμάχια δεν είναι αμοιβαία συγκρίσιμα. Βλέπε επίσης περιθωριακό 3275 έως 3277.

<sup>b/</sup> Οι τιμές σχετίζονται με δοκιμαστικά τεμάχια με χαραγή σε σχήμα U όπως φαίνεται παρακάτω.

<sup>c/</sup> Οι τιμές σχετίζονται με δοκιμαστικά τεμάχια με χαραγή σε σχήμα V σύμφωνα με την ISO R 148.

## Προσθήκη Α.2

3265  
(συνεχ.)

Στην περίπτωση ωστενιτικών χαλύβων, μόνον το κορδόνι συγκόλλησης είναι ανάγκη να υποβάλλεται σε δοκιμή της δύναμης κρούσης.

Για θερμοκρασίες εργασίας κάτω από - 196 °C, η δοκιμή δύναμης κρούσης δεν διεξάγεται στη χαμηλότερη θερμοκρασία εργασίας, αλλά στους - 196 °C.

(b) Δοχεία κατασκευασμένα από αλουμίνιο ή κράμα αλουμινίου

3266 Οι ραφές των δοχείων θα πρέπει σε θερμοκρασία περιβάλλοντος να ικανοποιούν τις παρακάτω απαιτήσεις ως προς τον συντελεστή λυγίσματος:

Πάχος φύλλου e σε mm	Συντελεστής λυγίσματος k <sup>#</sup> για τη ραφή	
	Βάση σε ζώνη συμπίεσης	Βάση σε ζώνη τάσης
≤ 12	≥ 15	≥ 12
> 12 έως 20	≥ 12	≥ 10
> 20	≥ 9	≥ 8

<sup>#</sup> Βλέπε περιθωριακό 3285.

(c) Δοχεία κατασκευασμένα από χαλκό ή κράμα χαλκού

3267 Δεν είναι απαραίτητη η διεξαγωγή δοκιμών για να προσδιοριστεί εάν η δύναμη κρούσης είναι αρκετή.

3268-  
3274

## Προσθήκη Α.2

## 2. Δοκιμές

## (α) Δοκιμές δύναμης κρούσης

3275 Η δύναμη κρούσης που εμφανίζεται στο περιθωριακό 3265 σχετίζεται με δοκιμαστικά τεμάχια επιφάνειας 10 x 10 mm και που έχουν χαραγή σε σχήμα U ή V.

**ΣΗΜΕΙΩΣΗ 1:** Όσον αφορά στο σχήμα των δοκιμαστικών τεμαχίων, βλέπε περιθωριακό 3265 (πίνακας, σημειώσεις *b/* και *c/*).

**ΣΗΜΕΙΩΣΗ 2:** Για φύλλα πάχους μικρότερου από 10 mm αλλά όχι μικρότερου από 5 mm, θα πρέπει να χρησιμοποιούνται δοκιμαστικά τεμάχια που έχουν τομή 10 x e mm, όπου "e" αναπαριστά το πάχος του φύλλου. Τέτοιες δοκιμές δύναμης κρούσης δίνουν γενικά υψηλότερες τιμές από αυτές που δίνουν τέτοιες δοκιμές σε κοινά δοκιμαστικά τεμάχια.

**ΣΗΜΕΙΩΣΗ 3:** Καμία δοκιμή δύναμης κρούσης δεν θα πρέπει να διεξάγεται σε φύλλα πάχους μικρότερου από 5 mm, ή πάνω στις ραφές τους.

3276 (1) Για δοκιμή φύλλων μετάλλου η δύναμη κρούσης θα πρέπει να προσδιορίζεται σε τρία δοκιμαστικά τεμάχια. Τα δοκιμαστικά τεμάχια θα πρέπει να μετακινούνται σε ορθές γωνίες ως προς την κατεύθυνση κύλισης στην περίπτωση δοκιμαστικών τεμαχίων με χαραγή σε σχήμα U και στην κατεύθυνση κύλισης στην περίπτωση δοκιμαστικών τεμαχίων με χαραγή σε σχήμα V.

(2) Για δοκιμή των ραφών τα δοκιμαστικά τεμάχια θα πρέπει να λαμβάνονται ως εξής:

$e \leq 10 \text{ mm}$

- τρία δοκιμαστικά τεμάχια από το κέντρο της συγκόλλησης,
- τρία δοκιμαστικά τεμάχια από τη ζώνη αλλοίωσης λόγω της συγκόλλησης (η χαραγή θα πρέπει να είναι πλήρως έξω από την τετηγμένη περιοχή αλλά όσο το δυνατόν πιο κοντά της).

Κέντρο της  
συγκόλλησης

Ζώνη της  
αλλοίωσης

δηλ. έξι δοκιμαστικά τεμάχια συνολικά.

## Προσθήκη Α.2

3276 Τα δοκιμαστικά τεμάχια θα πρέπει να είναι έτσι καταργασμένα ώστε να έχουν το μέγιστο δυνατό πάχος.  
(συνεχ.)

$$10 < e \leq 20$$

- τρία δοκιμαστικά τεμάχια από το κέντρο της συγκόλλησης,
- τρία δοκιμαστικά τεμάχια από τη ζώνη αλλοίωσης,

Κέντρο της συγκόλλησης

•

Ζώνη της αλλοίωσης

δηλ. έξι δοκιμαστικά τεμάχια συνολικά.

$$e > 20$$

δύο τριάδες δοκιμαστικών τεμαχίων (μία στην πάνω όψη, μία στην χαμηλότερη όψη) σε καθένα από τα σημεία που υποδεικνύονται παρακάτω,

Κέντρο της συγκόλλησης

## Προσθήκη Α.2

3276  
(συνεχ.)

## Ζώνη της αλλοίωσης

δηλ. δώδεκα δοκιμαστικά τεμάχια συνολικά.

- 3277 (1) Για φύλλο μετάλλου ο μέσος όρος των τριών δοκιμών θα πρέπει να ικανοποιεί τις ελάχιστες τιμές που δίνονται στο περιθωριακό 3265. Καμία από τις τιμές δεν μπορεί να είναι μεγαλύτερη από 30 % κάτω από το οριζόμενο ελάχιστο.
- (2) Για συγκολλήσεις οι μέσες τιμές που λαμβάνονται από τρία από τα δοκιμαστικά τεμάχια που λαμβάνονται στα διαφορετικά σημεία, κέντρο της συγκόλλησης και ζώνη της αλλοίωσης, θα πρέπει να αντιστοιχούν στις ελάχιστες τιμές που εμφανίζονται. Καμία από τις τιμές δεν μπορεί να είναι μεγαλύτερη από 30 % κάτω από το οριζόμενο ελάχιστο.

3278-  
3284

(b) Προσδιορισμός του συντελεστή λυγίσματος

- 3285 (1) Ο συντελεστής λυγίσματος  $k$  που αναφέρεται στο περιθωριακό 3266 ορίζεται ως εξής:

$$k = 50 \frac{e}{r}$$

όπου  $e$  = πάχος του φύλλου σε mm και  
 $r$  = μέση ακτίνα καμπυλότητας σε mm του δοκιμαστικού τεμαχίου όταν εμφανίζεται η πρώτη ραγμή στη ζώνη τάσης.

- (2) Ο συντελεστής λυγίσματος  $k$  θα πρέπει να προσδιορίζεται για τη ραφή. Το πλάτος του δοκιμαστικού τεμαχίου θα πρέπει να είναι ίσο με  $3e$ .

## Προσθήκη Α.2

3285 (3) Τέσσερις δοκιμές θα πρέπει να διεξάγονται στη ραφή, δύο με τη βάση στη ζώνη (synex.) συμπίεσης (σχ. 1) και δύο με τη βάση στη ζώνη τάσης (σχ. 2). Όλες οι τιμές που λαμβάνονται θα πρέπει να ικανοποιούν τις απαιτήσεις ελάχιστων τιμών του περιθωριακού 3266.

Σχήμα 1

Σχήμα 2

3286-  
3290

C: Διατάξεις σχετικές με δοκιμές σε διανεμητές αεροζόλ και μη-επαναγεμιζόμενα εμπορευματοκιβώτια για αέρια υπό πίεση της Κλάσης 2, 10° και 11°

1. Δοκιμές πίεσης και έκρηξης σε υπόδειγμα δοχείου

3291 Οι δοκιμές υδραυλικής πίεσης θα πρέπει να διεξάγονται σε τουλάχιστον πέντε κενά δοχεία από κάθε υπόδειγμα,

(a) μέχρι την οριζόμενη πίεση ελέγχου, κατά τον οποίο χρόνο καμία διαρροή ή ορατή μόνιμη αλλοίωση δεν θα πρέπει να έχει συμβεί και

(b) μέχρι να συμβεί διαρροή ή έκρηξη. Το κοίλο άκρο, εάν υπάρχει, θα πρέπει να υποχωρεί πρώτο και το δοχείο δεν θα πρέπει να παρουσιάζει διαρροή ή να ανατινάζεται μέχρι μία πίεση ίση ή μεγαλύτερη από 1.2 φορές την πίεση ελέγχου.

2. Δοκιμές σφίξιματος (στεγανότητας) σε όλα τα δοχεία

3292 (1) Για τη δοκιμή σε διανεμητές αεροζόλ (10°) και μη-επαναγεμιζόμενων εμπορευματοκιβωτίων για αέριο υπό πίεση (11°) σε λουτρό ζεστού νερού, η θερμοκρασία του λουτρού και η διάρκεια της δοκιμής θα πρέπει να είναι τέτοιες ώστε η εσωτερική πίεση κάθε δοχείου να φτάνει τουλάχιστον το 90 % της εσωτερικής πίεσης που θα μπορούσε να επιτευχθεί στους 55 °C.

Πάντως, εάν το περιεχόμενο είναι ευαίσθητο στη θερμότητα ή εάν τα δοχεία είναι κατασκευασμένα από πλαστικό υλικό που μαλακώνει σ' αυτή τη θερμοκρασία δοκιμής, η θερμοκρασία του λουτρού θα πρέπει να είναι από 20 °C έως 30 °C, επιπλέον, ένας διανεμητής κάθε 2 000 θα πρέπει να ελέγχεται στη θερμοκρασία που ορίζεται στην προηγούμενη παράγραφο.

(2) Καμία διαρροή ή μόνιμη αλλοίωση των δοχείων δεν θα πρέπει να συμβαίνει. Η διάταξη που αφορά στη μόνιμη αλλοίωση δεν ισχύει για δοχεία που, κατασκευασμένα από πλαστικό υλικό, μαλακώνουν.

3293-  
3299

## ΠΡΟΣΘΗΚΗ Α.3

## Α. Έλεγχοι σχετικοί με εύφλεκτα υγρά των Κλάσεων 3, 6.1 και 8

## Έλεγχος για τον προσδιορισμό του σημείου ανάφλεξης

- 3300 (1) Το σημείο ανάφλεξης θα πρέπει να προσδιορίζεται με έναν από τους παρακάτω τύπους συσκευών:
- (a) για χρήση σε θερμοκρασίες όχι μεγαλύτερες από 50 °C: Abel, Abel-Pensky, Luchaire-Finances, Tag,
  - (b) για χρήση σε θερμοκρασίες μεγαλύτερες από 50 °C: Pensky-Martens, Luchaire-Finances,
  - (c) ελλείψει αυτών, οποιαδήποτε άλλη συσκευή τύπου κλειστού καψυλλίου ικανή να δίνει αποτελέσματα που δεν διαφέρουν περισσότερο από 2 °C από εκείνα που θα έδινε μία συσκευή που αναφέρεται παραπάνω στο ίδιο μέρος.
- (2) Για τον προσδιορισμό του σημείου ανάφλεξης χρωμάτων, κόμμεων και παρόμοιων ιξωδών προϊόντων που περιέχουν διαλύτες, μόνον συσκευές και μέθοδοι ελέγχου κατάλληλοι για τον προσδιορισμό του σημείου ανάφλεξης ιξωδών υγρών θα πρέπει να χρησιμοποιούνται, τέτοιες όπως μέθοδος Α του προτύπου IP 170/94 ή περισσότερο πρόσφατα πρότυπα IP<sup>1/</sup> ή γερμανικό πρότυπο DIN 53 213.
- 3301 Η διαδικασία ελέγχου θα πρέπει να είναι:
- (a) για τη συσκευή Abel, εκείνη του προτύπου IP<sup>1/</sup> 170/94. Αυτό το πρότυπο μπορεί επίσης να χρησιμοποιείται με την συσκευή Abel-Pensky,
  - (b) για τη συσκευή Pensky-Martens, εκείνη του προτύπου IP<sup>1/</sup> 34/88, ή εκείνη του προτύπου ASTM<sup>2/</sup> D.93/80,
  - (c) για τη συσκευή Tag, εκείνη του προτύπου ASTM<sup>2/</sup> D.56/87,
  - (d) για τη συσκευή Luchaire, εκείνη του γαλλικού προτύπου NFT 60.103.

Εάν χρησιμοποιείται οποιαδήποτε άλλη συσκευή, οι παρακάτω προφυλάξεις θα πρέπει να λαμβάνονται:

1. Ο έλεγχος θα πρέπει να διεξάγεται σε ένα μέρος ελεύθερο από ρεύματα.
2. Ο ρυθμός αύξησης της θερμοκρασίας του υγρού υπό έλεγχο δεν θα πρέπει ποτέ να υπερβαίνει τους 5 °C ανά λεπτό.
3. Η φλόγα λυχνίας θα πρέπει να είναι 5 mm ( $\pm$  0.5 mm) μακριά.
4. Η φλόγα λυχνίας θα πρέπει να εφαρμόζεται στο άνοιγμα του δοχείου σε κάθε αύξηση κατά 1 °C της θερμοκρασίας του υγρού.

<sup>1/</sup> Το Ινστιτούτο Πετρελαίου, 61 New Cavendish Street, London, W1M 8AR.

<sup>2/</sup> Αμερικάνικος Σύλλογος για Δοκιμές και Υλικά, 1916 Race Street, Philadelphia 3, (Pa.).

## Προσθήκη Α.3

- 3302** Σε περίπτωση διαφωνίας ως προς την ταξινόμηση ενός εύφλεκτου υγρού, ο αριθμός είδους που προτείνεται από τον αποστολέα θα πρέπει να γίνεται δεκτός εάν ένας έλεγχος του σημείου ανάφλεξης, δίνει ένα αποτέλεσμα που δεν διαφέρει περισσότερο από 2 °C από τα όρια (23 °C, και 61 °C αντίστοιχα) που αναφέρονται στο περιθωριακό 2301. Εάν η διαφορά είναι μεγαλύτερη από 2 °C ένας δεύτερος έλεγχος θα πρέπει να διεξάγεται και η υψηλότερη λαμβανόμενη τιμή θα πρέπει να υιοθετείται.

*Έλεγχος για τον προσδιορισμό της περιεκτικότητας σε υπεροξείδιο*

- 3303** Για τον προσδιορισμό της περιεκτικότητας σε υπεροξείδιο ενός υγρού, η διαδικασία έχει ως εξής:

Μία ποσότητα  $p$  (περίπου 5 g, ζυγισμένη με ακρίβεια 0.01 g) του υγρού προς τιτλοδότηση τοποθετείται σε μία φιάλη Erlenmeyer. 20 cm<sup>3</sup> οξικού ανυδρίτη και περίπου 1 g σκόνης στερεού ιωδιούχου καλίου προστίθενται. Η φιάλη ανακινείται και, μετά από 10 λεπτά, θερμαίνεται για 3 λεπτά σε περίπου 60 °C θερμοκρασία. Όταν έχει αφεθεί για κρύωμα για 5 λεπτά, 25 cm<sup>3</sup> νερού προστίθενται. Μετά απ' αυτό, αφήνεται σε ηρεμία για μισή ώρα και μετά το απελευθερωμένο ιώδιο τιτλοδοτείται με ένα δεκατονικό διάλυμα θειοθειικού νατρίου χωρίς την προσθήκη δείκτη. Πλήρης απόχρωματισμός δείχνει το τέλος της αντίδρασης. Εάν  $n$  είναι ο αριθμός των cm<sup>3</sup> θειοθειικού διαλύματος που απαιτούνται, το ποσοστό του υπεροξειδίου (υπολογιζόμενο ως H<sub>2</sub>O<sub>2</sub>) που υπάρχει στο δείγμα λαμβάνεται από τον τύπο 77  $n / 100 p$ .

*Μέθοδος ελέγχου για ευφλεκτότητα*

- 3304** (1) Η μέθοδος περιγράφει μία διαδικασία για να προσδιοριστεί εάν η ύλη, όταν θερμαίνεται υπό τις συνθήκες ελέγχου και εκτίθεται σε μία εξωτερική πηγή φλόγας που εφαρμόζεται με έναν συγκεκριμένο τρόπο, αναφλέγεται.

(2) *Αρχή της μεθόδου:* ένα μεταλλικό κομμάτι με ένα κοίλωμα (κοίλωμα τμήματος ελέγχου) θερμαίνεται σε μία προκαθορισμένη θερμοκρασία. Ένας προκαθορισμένος όγκος της ύλης υπό έλεγχο μεταφέρεται στο κοίλωμα και σημειώνεται η ικανότητα του να αναφλέγεται μετά από εφαρμογή και στη συνέχεια απομάκρυνση μιας συγκεκριμένης φλόγας υπό προκαθορισμένες συνθήκες.

(3) *Συσκευή:* Χρησιμοποιείται ένας δοκιμαστήρας ευφλεκτότητας που συνίσταται από ένα κομμάτι κράματος αλουμινίου ή άλλου ανθεκτικού στη διάβρωση μετάλλου υψηλής θερμικής αγωγιμότητας. Το κομμάτι έχει ένα κοίλωμα και μία υποδοχή για θερμόμετρο. Μία μικρή συναρμολόγηση αεριοπρόωθησης αερίου πάνω σ' έναν στροφέα προσαρμόζεται στο κομμάτι. Η χειρολαβή και η είσοδος αερίου για τον αεριοπρόωθητή αερίου μπορούν να είναι σε οποιαδήποτε κατάλληλη γωνία ως προς τον αεριοπρόωθητή αερίου. Μία κατάλληλη συσκευή εμφανίζεται στο σχήμα 1 και οι κύριες διαστάσεις δίνονται στα σχήματα 1 και 2.

Απαιτούνται τα παρακάτω εξαρτήματα:

- (a) *Μετρητής,* για να ελέγχεται ότι το ύψος του κέντρου του αεριοπρόωθητή αερίου πάνω από την κορυφή του κοιλώματος του τμήματος ελέγχου είναι 2.2 mm (βλέπε σχήμα 1).
- (b) *Θερμόμετρο,* υδραργύρου από γυαλί, για οριζόντια λειτουργία, με ευαισθησία όχι μικρότερη από 1mm/°C, ή άλλη συσκευή μέτρησης αντίστοιχης ευαισθησίας που επιτρέπει ανάγνωση διαφορών 0.5 °C. Όταν βρίσκεται στη θέση του στο κομμάτι, ο βολβός του θερμομέτρου θα πρέπει να περιβάλλεται από θερμικώς αγωγήμη θερμοπλαστική ένωση.
- (c) *Εστία θέρμανσης,* εξοπλισμένη με συσκευή ελέγχου της θερμοκρασίας. (Άλλοι τύποι συσκευής με κατάλληλα εξαρτήματα για τον έλεγχο της θερμοκρασίας μπορούν να χρησιμοποιηθούν για τη θέρμανση του μεταλλικού κομματιού).
- (d) *Χρονόμετρο,* ή άλλη κατάλληλη συσκευή μέτρησης του χρόνου.



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- (e) Σύριγγα, ικανή για λήψη 2 ml με ακρίβεια  $\pm 0.1$  ml και
- (f) Πηγή καυσίμου, καύσιμο δοκιμών βουτανίου.

(4) *Δειγματοληψία:* Το δείγμα θα πρέπει να είναι αντιπροσωπευτικό της ύλης υπό έλεγχο και θα πρέπει να λαμβάνεται και διατηρείται σε ένα σφικτά κλειστό περιέκτη πριν τον έλεγχο. Λόγω της πιθανότητας απώλειας πτητικών συστατικών, το δείγμα θα πρέπει να υπόκειται μόνον στην ελάχιστη επεξεργασία για την εξασφάλιση της ομοιογένειάς του. Μετά από απομάκρυνση του κάθε τμήματος ελέγχου, ο περιέκτης δειγμάτων θα πρέπει αμέσως να κλείνεται σφικτά ώστε να εξασφαλίζεται ότι δεν διαφεύγουν πτητικά συστατικά από τον περιέκτη. Εάν αυτό το κλείσιμο είναι ατελές, ένα εντελώς νέο δείγμα θα πρέπει να λαμβάνεται.

(5) *Διαδικασία:* Διεξαγωγή του προσδιορισμού εις τριπλούν.

**ΠΡΟΕΙΔΟΠΟΙΗΣΗ** - Ο έλεγχος δεν πρέπει να διεξάγεται σε μικρό περιορισμένο χώρο (για παράδειγμα εφαρμοστό κιβώτιο), λόγω του κινδύνου εκρήξεων.

- (a) Είναι βασικό η συσκευή να στήνεται σε έναν πλήρως ελεύθερο από ρεύματα χώρο (βλέπε προειδοποίηση) και με απουσία δυνατού φωτισμού, για διευκόλυνση της παρατήρησης της λάμψης, της φλόγας κ.λπ.
- (b) Τοποθετούμε το μεταλλικό κομμάτι πάνω στην εστία θέρμανσης ή θερμαίνουμε το μεταλλικό κομμάτι με άλλον κατάλληλο τρόπο έτσι ώστε η θερμοκρασία του, όπως υποδεικνύεται από το θερμόμετρο που είναι τοποθετημένο στο μεταλλικό κομμάτι, να παραμένει στην προκαθορισμένη θερμοκρασία με ανοχή  $\pm 1$  °C. Η θερμοκρασία ελέγχου είναι 60.5/75 °C [βλέπε (h)]. Διορθώνουμε αυτή τη θερμοκρασία για τη διαφορά σε βαρομετρική πίεση από την κανονική ατμοσφαιρική πίεση (101.3 kPa) με αύξηση της θερμοκρασίας ελέγχου για μία υψηλή πίεση ή με μείωση της θερμοκρασίας ελέγχου για μία χαμηλότερη πίεση κατά 1.0 °C για κάθε 4 kPa διαφορά. Εξασφαλίζουμε ότι η κορυφή του μεταλλικού κομματιού είναι ακριβώς οριζόντια. Χρησιμοποιούμε τον μετρητή για να ελέγξουμε ότι ο αεριοπροωθητής είναι 2.2 mm πάνω από την κορυφή του κοιλώματος όταν βρίσκεται στη θέση ελέγχου.
- (c) Ανάβουμε το καύσιμο δοκιμών βουτανίου με τον αεριοπροωθητή μακριά από τη θέση ελέγχου (δηλ. στη θέση "εκτός", μακριά από το κοίλωμα). Ρυθμίζουμε το μέγεθος της φλόγας έτσι ώστε να είναι 8 mm έως 9 mm υψηλή και περίπου 5 mm πλατιά.
- (d) Με τη χρήση της σύριγγας, παίρνουμε από τον περιέκτη δείγματος τουλάχιστον 2 ml από το δείγμα και γρήγορα μεταφέρουμε ένα τμήμα ελέγχου 2 ml  $\pm 0.1$  ml στο κοίλωμα του δοκιμαστήρα ευφλεκτότητας και αμέσως ξεκινάμε τη χρονομετρική συσκευή.
- (e) Μετά από χρόνο θέρμανσης 60 s, κατά τον οποίο χρόνο το τμήμα ελέγχου κρίνεται ότι έχει φτάσει τη θερμοκρασία ισορροπίας του και εάν το ρευστό ελέγχου δεν έχει αναφλεγεί, περιστρέφουμε τη φλόγα ελέγχου μέσα στο τμήμα ελέγχου πάνω από την άκρη του κοιλώματος του υγρού. Τη διατηρούμε σ' αυτή τη θέση για 15 s και μετά την επιστρέφουμε στη θέση "εκτός" ενώ παρατηρούμε τη συμπεριφορά του τμήματος ελέγχου. Η φλόγα ελέγχου θα πρέπει να παραμένει αναμμένη καθ' όλη τη διάρκεια του ελέγχου.
- (f) Για κάθε έλεγχο παρατηρούμε και καταγράφουμε:
- (i) εάν υπάρχει ανάφλεξη και συντηρούμενη ανάφλεξη ή λάμψη, ή τίποτα απ' τα δύο, του τμήματος ελέγχου πριν η φλόγα ελέγχου μετακινηθεί μέσα στη θέση ελέγχου,

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(ii) εάν το τμήμα ελέγχου αναφλεγεί ενώ η φλόγα ελέγχου είναι στη θέση ελέγχου και, εάν συμβαίνει αυτό, για πόσο διατηρείται η ανάφλεξη μετά την επιστροφή της φλόγας ελέγχου στη θέση "εκτός".

(g) Εάν δεν παρατηρηθεί διατηρούμενη ανάφλεξη σε συμφωνία με την παράγραφο (6) , επαναλαμβάνουμε όλη τη διαδικασία με νέα τμήματα ελέγχου, αλλά με χρόνο θέρμανσης 30 s.

(h) Εάν δεν παρατηρηθεί διατηρούμενη ανάφλεξη σε συμφωνία με την παράγραφο (6) σε θερμοκρασία ελέγχου 60.5 °C, επαναλαμβάνουμε όλη τη διαδικασία με νέα τμήματα ελέγχου, αλλά σε θερμοκρασία ελέγχου 75 °C.

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Σχέδιο και διαστάσεις της συσκευής ελέγχου για τον προσδιορισμό της ευφλεκτότητας εύφλεκτων υγρών.

Διαστάσεις σε χιλιοστά

Σχήμα 1 - Δοκιμαστήρας ευφλεκτότητας

Σχήμα 2 - Αεριοπροωθητής αερίου ελέγχου και φλόγα

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**Β. Έλεγχος για τον προσδιορισμό ρευστότητας**

**3310** Για τον προσδιορισμό της ρευστότητας υγρών ή ιξωδών υλών και μειγμάτων της Κλάσης 3 και κολλωδών υλών της Κλάσης 4.1, η παρακάτω μέθοδος ελέγχου θα πρέπει να χρησιμοποιείται.

**(a) Συσκευή ελέγχου**

Εμπορικό πεντρόμετρο σύμφωνα με το Πρότυπο ISO 2137-1985, με ράβδο-οδηγό  $47.5 \text{ g} \pm 0.05 \text{ g}$ , κόσκινο από σκληραλουμίνιο με κωνικές σπές και βάρος  $102.5 \text{ g} \pm 0.05 \text{ g}$  (βλέπε Σχήμα 1), δοχείο διείσδυσης με εσωτερική διάμετρο 72 mm έως 80 mm για λήψη του δείγματος.

**(b) Διαδικασία ελέγχου**

Το δείγμα χύνεται μέσα στο δοχείο διείσδυσης όχι λιγότερο από μισή ώρα πριν τη μέτρηση. Το δοχείο κλείνεται μετά ερμητικά και αφήνεται σε ηρεμία μέχρι τη μέτρηση. Το δείγμα στο ερμητικά κλειστό δοχείο διείσδυσης θερμαίνεται στους  $35 \text{ }^\circ\text{C} \pm 0.5 \text{ }^\circ\text{C}$  και τοποθετείται πάνω στον πίνακα του πεντρόμετρου αμέσως πριν τη μέτρηση (όχι περισσότερο από δύο λεπτά). Το σημείο S του κόσκινου φέρεται μετά σ' επαφή με την επιφάνεια του υγρού και μετράται ο ρυθμός διείσδυσης.

**(c) Αξιολόγηση των αποτελεσμάτων του ελέγχου**

Μία ύλη δεν υπόκειται στις διατάξεις της Κλάσης 3 αλλά σε εκείνες της Κλάσης 4.1 αυτής της Οδηγίας εάν, αφού το κέντρο S έχει έλθει σ' επαφή με την επιφάνεια του δείγματος, η διείσδυση που λαμβάνεται από τον πίνακα του μετρητή:

- (i) μετά από χρόνο πίεσης  $5 \text{ s} \pm 0.1 \text{ s}$ , είναι μικρότερη από  $15.0 \text{ mm} \pm 0.3 \text{ mm}$ , ή
- (ii) μετά από χρόνο πίεσης  $5 \text{ s} \pm 0.1 \text{ s}$ , είναι μεγαλύτερη από  $15.0 \text{ mm} \pm 0.3 \text{ mm}$ , αλλά η πρόσθετη διείσδυση μετά από άλλα  $55 \text{ s} \pm 0.5 \text{ s}$  είναι μικρότερη από  $5.0 \text{ mm} \pm 0.5 \text{ mm}$ .

**ΣΗΜΕΙΩΣΗ:** Στην περίπτωση δειγμάτων που έχουν σημείο ροής, είναι συχνά αδύνατη η επίτευξη επιφάνειας σταθερού επιπέδου στο δοχείο διείσδυσης και, επομένως, ικανοποιητικών αρχικών συνθηκών μέτρησης για την επαφή του σημείου S. Επιπλέον, με μερικά δείγματα, η πρόσκρουση του κόσκινου μπορεί να προκαλέσει μία ελαστική αλλοίωση της επιφάνειας και, στα πρώτα λίγα δευτερόλεπτα, να δημιουργήσει μία βαθύτερη διείσδυση. Σε όλες αυτές τις περιπτώσεις, μπορεί να πρέπει να γίνει η αξιολόγηση του (b) παραπάνω.

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**Σχήμα 3 - Πενετρόμετρο**

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## C. Έλεγχοι σχετικοί με εύφλεκτα στερεά της Κλάσης 4.1

## Μέθοδοι ελέγχου για άμεσα καύσιμα στερεά

## 3320 (1) Προκαταρκτικός έλεγχος κοσκινίσματος

- (a) Η ύλη στην εμπορική του μορφή θα πρέπει να μορφοποιείται σε ακέραια λωρίδα ή λωρίδα σκόνης με περίπου 250 mm μήκος, 20 mm πλάτος και 10 mm ύψος σε μία ψυχρή, στεγανή, χαμηλής θερμικής αγωγιμότητας πλάκα-βάση.
- (b) Μία θερμή φλόγα (ελάχιστης θερμοκρασίας 1 000 °C) από έναν καυστήρα αερίου (ελάχιστης διαμέτρου 5 mm) εφαρμόζεται στο ένα άκρο της λωρίδας σκόνης μέχρι η σκόνη να αναφλεγεί ή για μέγιστο χρόνο 2 λεπτά (5 λεπτά για σκόνες μετάλλων ή κραμάτων μετάλλων). Θα πρέπει να σημειωθεί εάν η ανάφλεξη μεταδίδεται σε μήκος 200 mm της λωρίδας μέσα στην διλεπτη περίοδο ελέγχου (ή 20-λεπτη για σκόνες μετάλλων).
- (c) Εάν η ύλη δεν αναφλέγεται και μεταδίδει την ανάφλεξη είτε καιγόμενη με φλόγα είτε σιγοκαίγοντας σε μήκος 200 mm της λωρίδας σκόνης μέσα στην διλεπτη (ή 20-λεπτη) περίοδο ελέγχου, η ύλη δεν θα πρέπει να ταξινομείται ως εύφλεκτο στερεό και δεν απαιτείται περαιτέρω έλεγχος.
- (d) Εάν η ύλη μεταδίδει την καύση πάνω από 200 mm σε μήκος της λωρίδας σκόνης σε λιγότερο από δύο λεπτά, ή λιγότερο από 20 λεπτά για σκόνες μετάλλων, θα πρέπει να διεξάγεται το πλήρες πρόγραμμα ελέγχου παρακάτω.

## (2) Έλεγχος ρυθμού καύσης

Για τη διαφοροποίηση μεταξύ οποιασδήποτε ύλης που μπορεί να αναφλεγεί και εκείνων που καίγονται γρήγορα ή των οποίων η συμπεριφορά καύσης είναι ιδιαίτερα επικίνδυνη, μόνον ύλες των οποίων ο ρυθμός καύσης υπερβαίνει ένα ορισμένο όριο θα πρέπει να ταξινομούνται στην Κλάση 4.1. Ένας χρόνος καύσης μικρότερος από 45 s μετρημένος πάνω σ' ένα μήκος 100 mm σύμφωνα με τη διαδικασία στο περιθωριακό 3320 (3) λαμβάνεται ως κριτήριο. Γίνεται μία προσπάθεια να αναφλεγεί η ύλη υπό τις συνθήκες που ορίζονται παρακάτω και μετράται ο χρόνος καύσης. Ο σωρός βρέχεται πέρα από τη ζώνη πάνω από την οποία μετράται ο ρυθμός καύσης και σημειώνεται το αποτέλεσμα στην μετάδοση της φλόγας.

## (3) Διαδικασία ελέγχου

- (a) Η σε μορφή σκόνης ή κοκκώδης ύλη, στην εμπορική της μορφή, γεμίζεται χαλαρά σε μία φόρμα 250 mm μήκους με τριγωνική τομή εσωτερικού ύψους 10 mm και πλάτους 20 mm. Και στις δύο πλευρές της φόρμας, στη διαμήκη διάσταση, δύο μεταλλικά φύλλα τοποθετούνται ως πλευρικοί περιορισμοί που εκτείνονται 2 mm πέρα από την πάνω άκρη της τριγωνικής τομής (βλέπε Σχήμα 2). Φόρμα και εξαρτήματα για την προετοιμασία του σωρού). Η φόρμα μετά πέφτει τρεις φορές από ένα ύψος 2 cm πάνω σε μία στερεή επιφάνεια. Οι πλευρικοί περιορισμοί αφαιρούνται τότε και μία στεγανή, μη-καύσιμη, χαμηλής θερμικής αγωγιμότητας πλάκα τοποθετείται πάνω από την φόρμα, η συσκευή αναστρέφεται και η φόρμα απομακρύνεται. Κολλώδεις ύλες απλώνονται πάνω σε μία μη-καύσιμη επιφάνεια στη μορφή σχοινού 250 mm σε μήκος με τομή περίπου 1 cm<sup>2</sup>. Οποιαδήποτε κατάλληλη πηγή ανάφλεξης τέτοια όπως μία μικρή φλόγα ή ένα θερμό σύρμα ελάχιστης θερμοκρασίας 1000 °C χρησιμοποιείται για την ανάφλεξη του σωρού στο ένα άκρο. Στην περίπτωση μίας ευαίσθητης στην υγρασία ύλης, ο έλεγχος θα πρέπει να διεξάγεται όσο το δυνατόν γρηγορότερα, μετά την αφαίρεση της ύλης από τον περιέκτη.
- (b) Ο σωρός θα πρέπει να τοποθετείται εγκάρσια του ρεύματος σ' ένα ντουλάπι καπνίσματος. Η ταχύτητα του αέρα θα πρέπει να είναι αρκετή για την παρεμπόδιση

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των καπνών να διαφύγουν μέσα στο εργαστήριο και θα πρέπει να μην μεταβάλλεται κατά τη διάρκεια του ελέγχου. Ένα παραπέτασμα για το ρεύμα μπορεί να στήνεται γύρω από τη συσκευή.

- (c) 1 ml διαλύματος διάβρωσης θα πρέπει να προστίθεται στο σωρό 30-40 mm πέρα από την ζώνη χρονομέτρησης των 100 mm. Προσθέτουμε το διάλυμα διάβρωσης στο διάκενο σταγόνα-σταγόνα, προσέχοντας όλη τη τομή του σωρού να είναι νωπή χωρίς απώλεια υγρού από τα πλάγια <sup>3/</sup>. Το υγρό θα πρέπει να προστίθεται πάνω από το κοντότερο δυνατόν μήκος του σωρού προσέχοντας πάντα να μην υπάρχει απώλεια από τα πλάγια. Αυτό το μέρος του ελέγχου δεν εφαρμόζεται σε σκόνες μετάλλων.
- (d) Ένα άκρο του σωρού αναφέγεται. Όταν ο σωρός έχει καεί πάνω από ένα μήκος 80 mm, μετράμε το ρυθμό καύσης πάνω από τα επόμενα 100 mm. Σημειώνουμε εάν ή όχι η νωπή ζώνη σταματάει τη μετάδοση της φλόγας. Ο έλεγχος θα πρέπει να εκτελείται έξι φορές με τη χρήση καθαρής ψυχρής πλάκας κάθε φορά, εκτός εάν παρατηρηθεί θετικό αποτέλεσμα ναυρίτερα.

## Κριτήρια για ταξινόμηση

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(1) Ύλες σε σκόνη, κοκκώδεις ή κολλώδεις θα πρέπει να ταξινομούνται στην Κλάση 4.1 όταν ο χρόνος καύσης ενός ή περισσότερων ελέγχων, σε συμφωνία με τη μέθοδο ελέγχου που περιγράφεται στο περιθωριακό 3320 (2), είναι μικρότερος από 45 s ή ο ρυθμός καύσης είναι μεγαλύτερος από 2.2 mm s. Σκόνες μετάλλων ή κράματα μετάλλων θα πρέπει να ταξινομούνται σε αυτήν την κλάση όταν μπορούν να αναφλέγονται και η αντίδραση εξαπλώνεται πάνω απ' όλο το μήκος του δείγματος σε 10 λεπτά ή λιγότερο.

(2) Καταχώρηση σ' ένα γράμμα στα διάφορα είδη

(a) Οποιοδήποτε στερεό, κανονικά νωπό, που εάν ήταν σε ξηρή κατάσταση θα ταξινομηθεί ως ένα εκρηκτικό θα πρέπει να καταχωρείται στο γράμμα (a).

(b) Τα παρακάτω θα πρέπει να καταχωρούνται στο γράμμα (b):

οποιαδήποτε αυτενεργή ύλη, οποιοδήποτε καύσιμο στερεό (άλλο από σκόνες μετάλλων) που ελέγχεται σε συμφωνία με το περιθωριακό 3320 εάν ο χρόνος καύσης είναι μικρότερος από 45 s και η φλόγα περνάει τη νωπή ζώνη και σκόνες μετάλλων ή κράματα μετάλλων εάν η αντίδραση εξαπλώνεται πάνω απ' όλο το μήκος του δείγματος σε 5 λεπτά ή λιγότερο.

(c) Τα παρακάτω θα πρέπει να καταχωρούνται στο γράμμα (c):

οποιοδήποτε καύσιμο στερεό (άλλο από σκόνες μετάλλων) που ελέγχεται σε συμφωνία με το περιθωριακό 3320 εάν ο χρόνος καύσης είναι μικρότερος από 45 s και η νωπή ζώνη σταματάει τη διάδοση της φλόγας για τουλάχιστον 4 λεπτά και σκόνες μετάλλων εάν η αντίδραση εξαπλώνεται πάνω απ' όλο το μήκος του δείγματος σε περισσότερο από 5 λεπτά.

(d) Για στερεά που μπορούν να προκαλέσουν ή να συμβάλλουν σε μία φωτιά μέσω τριβής, ένα γράμμα στα διάφορα είδη θα πρέπει να καταχωρούνται σε αναλογία με υπάρχουσες ταξινομήσεις ή σε συμφωνία με οποιονδήποτε κατάλληλο ειδικό όρο.

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<sup>3/</sup> Εάν νερό κυλάει από τα πλάγια του σωρού, η προσθήκη παραγόντων διάβρωσης είναι απαραίτητη. Οι παράγοντες διάβρωσης που χρησιμοποιούνται θα πρέπει να είναι ελεύθεροι από καύσιμους διαλύτες και η συνολική ενεργή ύλη στο διάλυμα διάβρωσης δεν θα πρέπει να υπερβαίνει το 1%. Αυτό το υγρό μπορεί να προστίθεται σ' ένα κοίλωμα έως 3 mm βαθύ και 5 mm σε διάμετρο στην κορυφή του σωρού.

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Προσθήκη Α.3

**Σχήμα 4 - Φόρμα και εξαρτήματα για την προετοιμασία του σφαιρού  
(Όλες οι διαστάσεις σε χιλιοστά)**

Διατομή φόρμας 250 mm  
Υλικό: Αλουμίνιο



## Προσθήκη Α.3

## D. Έλεγχοι σχετικοί με ύλες υποκείμενες σε αυτόματη ανάφλεξη της Κλάσης 4.2

## 3330 (1) Μέθοδος ελέγχου και διαδικασία για στερεές πυροφορικές ύλες

1 έως 2 cm<sup>3</sup> της ύλης σε σκόνη υπό έλεγχο χύνεται από ένα ύψος περίπου 1 m πάνω σε μία μη-καύσιμη επιφάνεια και παρατηρείται εάν η ύλη αναφλέγεται κατά τη διάρκεια της πτώσης ή μέσα σε 5 λεπτά σταθεροποίησης. Αυτή η διαδικασία θα πρέπει να επαναλαμβάνεται έξι φορές εκτός εάν ληφθεί θετικό αποτέλεσμα νωρίτερα.

## (2) Μέθοδος ελέγχου για υγρές πυροφορικές ύλες

Ο έλεγχος για υγρές ύλες θα πρέπει να γίνεται σε δύο μέρη. Το πρώτο για να προσδιοριστεί εάν η ύλη αναφλέγεται όταν προστίθεται σ' έναν αδρανή φορέα και εκτίθεται στον αέρα, το δεύτερο εάν αρνητικό αποτέλεσμα λαμβάνεται στο πρώτο. Το δεύτερο μέρος προσδιορίζει εάν η ύλη απανθρακώνει ή αναφλέγει ένα χάρτινο φίλτρο.

## (3) Διαδικασία ελέγχου για υγρές πυροφορικές ύλες

(a) Μέρος 1 - Μία πορσελάνινη κάψουλα με περίπου 10 cm διάμετρο γεμίζεται με γη διατόμων ή σιλικάζελ σε θερμοκρασία δωματίου σ' ένα ύψος περίπου 5 mm. Περίπου 5 ml του υγρού υπό έλεγχο χύνονται μέσα στην προετοιμασμένη πορσελάνινη κάψουλα και παρατηρείται εάν η ύλη αναφλέγεται μέσα σε πέντε λεπτά. Αυτή η διαδικασία θα πρέπει να επαναλαμβάνεται έξι φορές εκτός εάν ληφθεί θετικό αποτέλεσμα νωρίτερα.

(b) Μέρος 2 - Ένα 0.5 ml δείγμα ελέγχου λαμβάνεται με μία σύριγγα σ' ένα προσδιορισμένο ξηρό χάρτινο φίλτρο Αριθμ. 3 Whatman. Ο έλεγχος διεξάγεται στους 25 °C ± 2 °C και σε σχετική υγρασία 50 % ± 5 %. Γίνονται παρατηρήσεις για να βλέπουμε εάν συμβαίνει ανάφλεξη ή απανθράκωση στο χάρτινο φίλτρο μέσα σε πέντε λεπτά μετά την τοποθέτηση του υγρού υπό έλεγχο. Αυτή η διαδικασία θα πρέπει να επαναλαμβάνεται τρεις φορές, με τη χρήση νέου χάρτινου φίλτρου κάθε φορά, εκτός εάν ληφθεί θετικό αποτέλεσμα νωρίτερα.

## Κριτήρια για ταξινόμηση

3331 (1) Μία στερεή ύλη θα πρέπει να ταξινομείται στην Κλάση 4.2 και να θεωρείται ως πυροφορική εάν το δείγμα αναφλέγεται σε έναν από τους ελέγχους. Ένα υγρό θα πρέπει να ταξινομείται στην Κλάση 4.2 και να θεωρείται ως πυροφορική ύλη εάν αναφλέγεται στο Μέρος 1 του ελέγχου, ή εάν το χάρτινο φίλτρο αναφλέγεται ή απανθρακώνεται στο Μέρος 2 του ελέγχου.

(2) Καταχώρηση σ' ένα γράμμα στα διάφορα είδη

Όλα τα πυροφορικά στερεά και υγρά θα πρέπει να καταχωρούνται στο γράμμα (a).

## 3332 (1) Μέθοδος ελέγχου για αυτοθερμαινόμενες ύλες

Δείγματα σε κύβους των 2.5 cm και 10 cm διατηρούνται σε σταθερή θερμοκρασία για 24 ώρες και γίνονται παρατηρήσεις εάν η θερμοκρασία του δείγματος υπερβαίνει τους 200 °C. (Η μέθοδος ελέγχου είναι μία τροποποιημένη έκδοση του ελέγχου κλωβού Bowes-Cameron που είναι μία μέθοδος ελέγχου αυτοθέρμανσης για τον άνθρακα.)

(2) Διαδικασία ελέγχου

(a) Ένας τύπος φούρνου κυκλοφορίας θερμού αέρα με εσωτερικό όγκο μεγαλύτερο από 9 λίτρα και κανός να ελέγχει την εσωτερική θερμοκρασία στους 140 °C ± 2 °C θα πρέπει να χρησιμοποιείται.

## Προσθήκη Α.3

- 3332**  
(συνεχ.)
- (b) Κυβικοί περιέκτες δειγμάτων πλευράς 2.5 cm και 10 cm, κατασκευασμένα από ανοξείδωτο χάλυβα καθαρό με μέγεθος πλέγματος 0.053 mm,<sup>4/</sup> με την επάνω επιφάνειά τους ανοιχτή, θα πρέπει να χρησιμοποιούνται. Κάθε περιέκτης είναι τοποθετημένος σε ένα κυβικό επικαλυπτικό περιέκτη κατασκευασμένο από ανοξείδωτο χάλυβα καθαρό με μέγεθος πλέγματος 0.595 mm<sup>4/</sup> και ελαφρά μεγαλύτερο από τον περιέκτη δειγμάτων, έτσι ώστε ο περιέκτης να ταιριάζει σε αυτό το κάλυμμα. Για την αποφυγή του αποτελέσματος της κυκλοφορίας του αέρα, αυτό το κάλυμμα εγκαθίσταται σ' ένα δεύτερο κλωβό από ανοξείδωτο χάλυβα, κατασκευασμένο από ένα δίχτυ με μέγεθος πλέγματος 0.595 mm<sup>4/</sup> και μέγεθος 15 cm x 15 cm x 25 cm.
- (c) Θερμοστοιχεία Chromel-Alumel με 0.3 mm διάμετρο θα πρέπει να χρησιμοποιούνται για τη μέτρηση της θερμοκρασίας. Ένα τοποθετείται στο κέντρο του δείγματος και ένα άλλο μεταξύ του περιέκτη δειγμάτων και του τοιχώματος του φούρνου. Οι θερμοκρασίες θα πρέπει να μετρούνται συνεχώς.
- (d) Το δείγμα, σε σκόνη ή κοκκώδες, προετοιμάζεται στην εμπροχική του μορφή και γεμίζεται μέχρι τα χείλη στον περιέκτη δειγμάτων και χτυπάμε τον περιέκτη μερικές φορές. Εάν το δείγμα καθίσει, προστίθεται περισσότερο. Εάν το δείγμα ξεχειλίσει, το επίπεδο του μειώνεται στα χείλη του δοχείου. Ο περιέκτης τοποθετείται στο κάλυμμα και κρεμάται στο κέντρο του φούρνου.
- (e) Η θερμοκρασία του φούρνου αυξάνεται στους 140 °C θερμοκρασία ελέγχου και διατηρείται για 24 ώρες. Η θερμοκρασία του δείγματος καταγράφεται. Ο πρώτος έλεγχος θα πρέπει να διεξάγεται με ένα δείγμα κύβου 10 cm. Παρατηρήσεις γίνονται για να προσδιοριστεί εάν συμβαίνει αυτόματη ανάφλεξη ή εάν η θερμοκρασία του δείγματος υπερβαίνει τους 200 °C. Εάν ληφθούν αρνητικά αποτελέσματα δεν είναι απαραίτητος περαιτέρω έλεγχος. Εάν ληφθούν θετικά αποτελέσματα, ένας δεύτερος έλεγχος θα πρέπει να διεξάγεται με ένα δείγμα κύβου 2.5 cm για τον προσδιορισμό της καταχώρησης της ομάδας συσκευασίας.

*Κριτήρια για ταξινόμηση*

- 3333**
- (1) Μία ύλη θα πρέπει να ταξινομείται στην Κλάση 4.2 εάν, στον πρώτο έλεγχο με τη χρήση ενός κυβικού δείγματος των 10 cm, συμβαίνει αυτόματη ανάφλεξη ή η θερμοκρασία του δείγματος υπερβαίνει τους 200 °C κατά τη διάρκεια της 24ωρης περιόδου ελέγχου. Αυτό το κριτήριο βασίζεται στη θερμοκρασία αναανάφλεξης του ξυλάνθρακα, που είναι 50 °C για έναν κυβικό όγκο 27 m<sup>3</sup> και 140 °C για ένα δείγμα ενός λίτρου. ύλες με θερμοκρασίες αναανάφλεξης υψηλότερες από 50 °C για 27 m<sup>3</sup> δεν θα πρέπει να ταξινομούνται στην Κλάση 4.2.
- (2) Καταχώρηση σ' ένα γράμμα στα διάφορα είδη
- (a) Οποιαδήποτε ύλη που δίνει θετικό αποτέλεσμα όταν ελέγχεται με το κυβικό δείγμα των 2.5 cm θα πρέπει να καταχωρείται στο γράμμα (b).
- (b) Οποιαδήποτε ύλη που δίνει θετικό αποτέλεσμα όταν ελέγχεται με το κυβικό δείγμα των 10 cm αλλά που δίνει αρνητικό αποτέλεσμα με ένα κυβικό δείγμα των 2.5 cm θα πρέπει να καταχωρείται στο γράμμα (c).

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<sup>4/</sup> Αυτό το μέγεθος πλέγματος βασίζεται στα κόσκινα Tyler, όπου το μέγεθος πλέγματος ποικίλει σε αναλογία προς το τετράγωνο της γραμμικής απόστασης μεταξύ των συρμάτων.

## Προσθήκη Α.3

**Ε. Έλεγχος σχετικός με ύλες της Κλάσης 4.3 που, σε επαφή με το νερό, αναδίδουν εύφλεκτα αέρια**

**3340 (1) Μέθοδος ελέγχου**

Αυτή η μέθοδος ελέγχου χρησιμοποιείται για να προσδιοριστεί εάν η αντίδραση μίας ύλης με το νερό οδηγεί στην ανάπτυξη μίας επικίνδυνης ποσότητας εύφλεκτων αερίων. Η μέθοδος ελέγχου μπορεί να εφαρμόζεται σε στερεές και υγρές ύλες. Δεν εφαρμόζεται σε πυροφορικές ύλες. Η ύλη θα πρέπει να ελέγχεται στην εμπορική του μορφή σε θερμοκρασία περιβάλλοντος (20 °C) ερχόμενη σε επαφή με το νερό. Εάν συμβεί αυτόματη ανάφλεξη του αερίου σε οποιοδήποτε στάδιο, κανένας περαιτέρω έλεγχος δεν είναι απαραίτητος.

**(2) Διαδικασία ελέγχου**

- (a) Μία μικρή ποσότητα (περίπου 2 mm διάμετρος) της ύλης ελέγχου τοποθετείται σε μία λεκάνη απεσταγμένου νερού στους 20 °C. Σημειώνεται (i) εάν οποιοδήποτε αέριο εκλύεται και (ii) εάν συμβαίνει αυτόματη ανάφλεξη του αερίου.
- (b) Μία μικρή ποσότητα της ύλης ελέγχου (περίπου 2 mm διάμετρος) τοποθετείται στο κέντρο ενός χάρτινου φίλτρου που επιπλέει οριζόντια πάνω στην επιφάνεια του απεσταγμένου νερού στους 20 °C σε ένα κατάλληλο δοχείο, π.χ. ένα πιάτο εξάμιση με 100 mm διάμετρο. Το χάρτινο φίλτρο είναι για να διατηρεί την ύλη σε μία θέση, υπό συνθήκες που κάνουν μέγιστη την πιθανότητα για αυτόματη ανάφλεξη οποιουδήποτε αερίου. Σημειώνεται (i) εάν οποιοδήποτε αέριο εκλύεται και (ii) εάν συμβαίνει αυτόματη ανάφλεξη του αερίου.
- (c) Η ύλη ελέγχου φτιάχνεται σε σφρό ύψους περίπου 2 cm και διαμέτρου 3 cm με ένα κοίλωμα στην κορυφή. Λίγες σταγόνες νερού προστίθενται στο κοίλωμα. Σημειώνεται (i) εάν οποιοδήποτε αέριο εκλύεται και (ii) εάν συμβαίνει αυτόματη ανάφλεξη.
- (d) Για στερεές ύλες, το κόλλο θα πρέπει να επιθεωρείται για οποιαδήποτε σκόνη < 500 μm. Εάν εκείνη η σκόνη συνιστά περισσότερο από το 1 % (κατά βάρος) του συνόλου, ή εάν η ύλη είναι εύθρυπτη, τότε όλο το δείγμα θα πρέπει να τρίβεται σε σκόνη πριν τον έλεγχο για να λαμβάνεται υπόψη η μείωση του μεγέθους των σωματιδίων κατά τη διάρκεια της διακίνησης και της μεταφοράς. Αλλιώς, όπως για υγρά, η ύλη θα πρέπει να ελέγχεται στην εμπορική του κατάσταση. Ο έλεγχος θα πρέπει να πραγματοποιείται σε θερμοκρασία περιβάλλοντος (20 °C) και ατμοσφαιρική πίεση και να επαναλαμβάνεται τρεις φορές.
- (e) Νερό τοποθετείται μέσα στη χοάνη σταξίματος και αρκετή ποσότητα της ύλης (μέχρι ένα μέγιστο βάρος 25 g) για την παραγωγή μεταξύ 100 cm<sup>3</sup> και 250 cm<sup>3</sup> αερίου ζυγίζονται και τοποθετούνται σε μία κωνική φιάλη. Η στρόφιγγα της χοάνης σταξίματος ανοίγεται για τη ροή του νερού μέσα στην κωνική φιάλη και ένα χρονόμετρο ξεκινάει. Ο όγκος αερίου που εκλύεται μετράται με οποιοδήποτε κατάλληλο τρόπο. Σημειώνεται ο χρόνος που απαιτείται για την έκλυση όλου του αερίου και, όπου είναι δυνατόν, λαμβάνονται ενδιάμεσες τιμές. Ο ρυθμός έκλυσης αερίου υπολογίζεται σε επτά ώρες με διαλείμματα μίας ώρας. Εάν ο ρυθμός έκλυσης είναι ασταθής ή αυξάνεται μετά από επτά ώρες, η μέτρηση του χρόνου θα πρέπει να παρατείνεται σε ένα μέγιστο πέντε ημερών. Ο πενήντημος έλεγχος μπορεί να σταματήσει εάν ο ρυθμός έκλυσης γίνει σταθερός ή συνεχώς μειώνεται και έχουν ληφθεί αρκετά δεδομένα για τη καταχώρηση της ύλης σε μία ομάδα ή για να αποφασιστεί ότι η ύλη δεν μπορεί να ταξινομηθεί στην Κλάση 4.3. Εάν η χημική ταυτότητα του αερίου είναι άγνωστη, το αέριο θα πρέπει να ελέγχεται για ευφλεκτότητα.

## Προσθήκη Α.3

**Κριτήρια για ταξινόμηση**

- 3341 (1) Μία ύλη θα πρέπει να ταξινομείται στην Κλάση 4.3 εάν συμβαίνει αυτόματη ανάφλεξη σε οποιοδήποτε στάδιο της διαδικασίας ελέγχου, ή εάν εκλύεται εύφλεκτο αέριο μ' έναν ρυθμό μεγαλύτερο από 1 λίτρο ανά κιλό της ύλης ανά ώρα.
- (2) Καταχώρηση σ' ένα γράμμα στα διάφορα είδη
- (a) Τα παρακάτω θα πρέπει να καταχωρούνται στο γράμμα (a):
- οποιαδήποτε ύλη που αντιδρά ζωηρά με το νερό σε θερμοκρασία περιβάλλοντος και εκλύει αέριο υποκείμενο σε αυτόματη ανάφλεξη, ή που αντιδρά άμεσα με το νερό σε θερμοκρασία περιβάλλοντος τέτοια ώστε ο ρυθμός έκλυσης εύφλεκτου αερίου σε ένα λεπτό είναι ίσος με ή μεγαλύτερος από 10 λίτρα ανά κιλό ύλης.
- (b) Τα παρακάτω θα πρέπει να καταχωρούνται στο γράμμα (b):
- οποιαδήποτε ύλη που αντιδρά άμεσα με το νερό σε θερμοκρασία περιβάλλοντος τέτοια ώστε ο μέγιστος ρυθμός έκλυσης εύφλεκτου αερίου είναι ίσος με ή μεγαλύτερος από 20 λίτρα ανά κιλό ύλης ανά ώρα και που δεν ικανοποιεί τα κριτήρια για το γράμμα (a).
- (c) Τα παρακάτω θα πρέπει να καταχωρούνται στο γράμμα (c):
- οποιαδήποτε ύλη που αντιδρά αργά με το νερό σε θερμοκρασία περιβάλλοντος τέτοια ώστε ο μέγιστος ρυθμός έκλυσης εύφλεκτου αερίου είναι ίσος με ή μεγαλύτερος από 1 λίτρο ανά κιλό ύλης ανά ώρα και που δεν ικανοποιεί τα κριτήρια για τα γράμματα (a) και (b).

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## Προσθήκη Α.3

## F. Έλεγχος σχετικός με στερεές οξειδωτικές ύλες της Κλάσης 5.1

## 3350 (1) Μέθοδος ελέγχου

Αυτή η μέθοδος ελέγχου είναι σχεδιασμένη για τη μέτρηση της δυνατότητας μίας στερεής ύλης να αυξάνει το ρυθμό καύσης ή την ένταση καύσης μίας καύσιμης ύλης όταν οι δύο αυτές ύλες αναμειγνύονται πλήρως. Δύο έλεγχοι θα πρέπει να διεξάγονται για κάθε ύλη προς αξιολόγηση, ένας με έναν 1 προς 1 λόγο (βάρους), δείγματος προς πριονίδι και ένας με έναν 4 προς 1 λόγο (βάρους), δείγματος προς πριονίδι. Τα χαρακτηριστικά καύσης κάθε μείγματος συγκρίνονται με τον πρότυπο 1 προς 1 λόγο (βάρους), υπερθεϊκού αμμωνίου.

## (2) Διαδικασία ελέγχου

- (a) Το υπερθεϊκό αμμώνιο, το υπερχλωρικό κάλιο και το βρωμικό κάλιο είναι οι ύλες αναφοράς. Αυτές οι ύλες θα πρέπει να περνάνε μέσα από ένα μέγεθος πλέγματος 0.3 mm και θα πρέπει να μην τριβονται. Οι ύλες αναφοράς ξηραίνονται στους 65 °C για 12 ώρες και διατηρούνται σ' έναν ξηραντήρα όσο απαιτείται.
- (b) Το πριονίδι από μαλακό ξύλο είναι το καύσιμο υλικό σε αυτόν τον έλεγχο. Θα πρέπει να περνάει μέσα από ένα μέγεθος πλέγματος μικρότερο από 1.6 mm και να περιέχει λιγότερο από 5 % νερό (κατά βάρος). Εάν είναι απαραίτητο, φτιάχνεται σε στρώμα λιγότερο από 25 mm παχύ, ξηραίνεται στους 105 °C για 4 ώρες και διατηρείται σε ξηραντήρα όσο απαιτείται.
- (c) Ένα μείγμα 30.0 g ± 0.1 g της ύλης αναφοράς με πριονίδι ξύλου παρασκευάζεται σε μία 1 προς 1 αναλογία (βάρους). Δύο μείγματα 30.0 g ± 0.1 g της ύλης προς έλεγχο, στο μέγεθος σωματιδίου στο οποίο θα μεταφέρεται με το πριονίδι ξύλου παρασκευάζεται σε αναλογίες 1 προς 1 (βάρους), και 4 προς 1 (βάρους). Κάθε μείγμα θα πρέπει να αναμιγνύεται μηχανικά χωρίς υπερβολική ένταση όσο το δυνατόν πιο καλά.
- (d) Ο έλεγχος θα πρέπει να διεξάγεται σε ρεύμα ή σε έναν χώρο εξοπλισμένο με εξαεριστήρα.
- (e) Οι συνθήκες σε κανονική ατμοσφαιρική πίεση είναι: θερμοκρασία 20 °C ± 5 °C, υγρασία 50 % ± 110 %.
- (f) Καθένα από τα μείγματα θα πρέπει να μορφοποιείται σε κωνικό σωρό με διαστάσεις περίπου 70 mm διάμετρο βάσης και 60 mm ύψος σε μία ψηρή, στεγανή, χαμηλής θερμικής αγωγιμότητας επιφάνεια. Η ανάφλεξη θα πρέπει να δίνεται με ένα σύρμα αδρανούς μετάλλου στη μορφή ενός κυκλικού βρόγχου με 40 mm διάμετρο τοποθετημένου μέσα στο σωρό 1 mm πάνω από την επιφάνεια ελέγχου. Το σύρμα θα πρέπει να θερμαίνεται ηλεκτρικά στους 1000 °C μέχρι να παρατηρηθούν τα πρώτα σημάδια ανάφλεξης ή μέχρι να γίνει ξεκάθαρο ότι ο σωρός δεν μπορεί να αναφλεγεί. Η ηλεκτρική ισχύς κλείνει μόλις υπάρξει ανάφλεξη.
- (g) Ο χρόνος θα πρέπει να καταγράφεται από τα πρώτα παρατηρήσιμα σημάδια ανάφλεξης μέχρι το τέλος όλης της αντίδρασης: καπνός, φλόγα, πυράκτωση.
- (h) Ο έλεγχος θα πρέπει να επαναλαμβάνεται τρεις φορές για καθεμία από τις αναλογίες ανάμειξης.

## Κριτήρια για ταξινόμηση

- 3351 (1) Μία στερεή ύλη θα πρέπει να ταξινομείται στην Κλάση 5.1, εάν σε οποιαδήποτε συγκέντρωση που ελέγχθηκε, ο μέσος χρόνος καύσης του πριονιδίου, που λαμβάνεται από τρεις ελέγχους, είναι ίσος με ή μικρότερος από τον μέσο όρο των τριών ελέγχων με μείγμα υπερθεϊκού αμμωνίου.

## Προσθήκη Α.3

3351 (2) Καταχώρηση σε ένα γράμμα στα διάφορα είδη  
(συνεχ.)

- (a) Οποιαδήποτε ύλη που, σε οποιαδήποτε συγκέντρωση που ελέγχθηκε, παρουσιάζει χρόνο καύσης μικρότερο από εκείνον με βρωμικό κάλιο θα πρέπει να καταχωρείται στο γράμμα (a).
- (b) Οποιαδήποτε ύλη που, σε οποιαδήποτε συγκέντρωση που ελέγχθηκε, παρουσιάζει χρόνο καύσης ίσο με ή μικρότερο από εκείνον με υπερχλωρικό κάλιο και δεν ικανοποιεί τα κριτήρια για την ομάδα (a) θα πρέπει να καταχωρείται στο γράμμα (b).
- (c) Οποιαδήποτε ύλη που, σε οποιαδήποτε συγκέντρωση που ελέγχθηκε, παρουσιάζει χρόνο καύσης ίσο με ή μικρότερο από εκείνον με υπερθεϊκό αμμώνιο και δεν ικανοποιεί τα κριτήρια για τα γράμματα (a) και (b) θα πρέπει να καταχωρείται στο γράμμα (c).

3352-  
3389

## Προσθήκη Α.3

**Γ. Έλεγχος για τον προσδιορισμό της οικοτοξικότητας, παραμονής και βιοσυσσώρευσης υλών στο θαλάσσιο περιβάλλον για καταχώρηση στην Κλάση 9**

**ΣΗΜΕΙΩΣΗ:** Οι μέθοδοι ελέγχου που χρησιμοποιούνται θα πρέπει να είναι οι υιοθετημένες από τον Οργανισμό για Οικονομική Συνεργασία και Ανάπτυξη (OECD) και την Ευρωπαϊκή Οικονομική Αντιπροσωπεία (EEC). Εάν άλλες μέθοδοι χρησιμοποιούνται, θα πρέπει να είναι διεθνώς αναγνωρισμένες, να είναι ισοδύναμες με τους ελέγχους OECD/EEC και να αναφέρονται σε εκθέσεις ελέγχου.

**3390 Ισχυρή τοξικότητα για τα ψάρια**

Το αντικείμενο είναι ο προσδιορισμός της συγκέντρωσης που προκαλεί 50 % θνησιμότητα στα είδη ελέγχου. Αυτή είναι η τιμή (LC<sub>50</sub>), δηλαδή, η συγκέντρωση της ύλης στο νερό που θα προκαλέσει το θάνατο του 50 % μίας ομάδας ελέγχου ψαριών κατά τη διάρκεια μίας συνεχούς περιόδου ελέγχου τουλάχιστον 96 ωρών. Στους κατάλληλους τύπους ψαριών περιλαμβάνονται: ριγωτός ρόμβος (*Brachydanio rerio*), χοντροκέφαλος φοξίνος (*Pimephales promelas*) και πολύχρωμη πέστροφα (*Oncorhynchus mykiss*).

Τα ψάρια εκτίθενται στην ύλη ελέγχου που προστίθεται στο νερό σε μεταβαλλόμενες συγκεντρώσεις (+1 μάρτυρας). Παρατηρήσεις καταγράφονται τουλάχιστον κάθε 24 ώρες. Στο τέλος της 96-ωρης δραστηριότητας και, εάν είναι δυνατόν, σε κάθε παρατήρηση, η συγκέντρωση που προκαλεί το θάνατο του 50 % των ψαριών υπολογίζεται. Η συγκέντρωση μη-παρατηρούμενου αποτελέσματος (NOEC) στις 96 ώρες επίσης προσδιορίζεται.

**3391 Ισχυρή τοξικότητα για τα δάφνια**

Το αντικείμενο είναι ο προσδιορισμός της αποτελεσματικής συγκέντρωσης της ύλης στο νερό που καθιστά το 50 % των δάφνιων ανίκανα να κολυμπούν (EC<sub>50</sub>). Οι κατάλληλοι οργανισμοί ελέγχου είναι τα *daphnia magna* και τα *daphnia pulex*. Τα δάφνια εκτίθενται για 48 ώρες στην ύλη ελέγχου που προστίθεται στο νερό σε μεταβαλλόμενες συγκεντρώσεις. Η συγκέντρωση μη-παρατηρούμενου αποτελέσματος (NOEC) σε 48 ώρες επίσης προσδιορίζεται.

**3392 Παρεμπόδιση της ανάπτυξης φυκιών**

Το αντικείμενο είναι ο προσδιορισμός του αποτελέσματος ενός χημικού πάνω στην ανάπτυξη ενός φυκιού υπό πρότυπες συνθήκες. Η αλλαγή στη βιομάζα και ο ρυθμός της ανάπτυξης με φύκια υπό τις ίδιες συνθήκες, αλλά χωρίς την παρουσία του χημικού ελέγχου, συγκρίνεται για 72 ώρες. Τα αποτελέσματα εκφράζονται ως η αποτελεσματική συγκέντρωση που μειώνει τον ρυθμό της ανάπτυξης των φυκιών κατά 50 %, IC<sub>50f</sub>, και επίσης τον σχηματισμό της βιομάζας, IC<sub>50b</sub>.

**3393 Έλεγχος για γρήγορη βιοαποικοδομησιμότητας**

Το αντικείμενο είναι ο προσδιορισμός του βαθμού βιοαποικοδόμησης υπό πρότυπες αερόβιες συνθήκες. Η ύλη ελέγχου προστίθεται σε χαμηλές συγκεντρώσεις σ' ένα θρεπτικό διάλυμα που περιέχει αερόβια βακτήρια. Η πρόοδος της αποικοδόμησης παρακολουθείται για 28 ημέρες με τον προσδιορισμό της παραμέτρου που προκαθορίζεται στη μέθοδο ελέγχου που χρησιμοποιείται. Διάφορες ισοδύναμες μέθοδοι ελέγχου είναι διαθέσιμες. Οι παράμετροι περιλαμβάνουν μείωση του διαλυμένου οργανικού άνθρακα (DOC), διοξειδίου του άνθρακα (CO<sub>2</sub>) δημιουργία μείωσης του οξυγόνου (O<sub>2</sub>).

Μία ύλη θεωρείται ότι είναι άμεσα βιοαποικοδομήσιμη εάν μέσα σε όχι περισσότερο από 28 ημέρες τα παρακάτω κριτήρια ικανοποιούνται - μέσα σε 10 ημέρες από όταν η αποικοδόμηση πρώτα φτάνει το 10 %:

Μείωση του DOC: 70 %  
 Δημιουργία του CO<sub>2</sub> 60 % της θεωρητικής παραγωγής CO<sub>2</sub>  
 Μείωση του O<sub>2</sub> 60 % του θεωρητικά απαιτούμενου O<sub>2</sub>.

## Προσθήκη Α.3

**3393** (συνεχ.) Ο έλεγχος μπορεί να συνεχίζεται πέρα από τις 28 ημέρες εάν τα παραπάνω κριτήρια δεν ικανοποιούνται, αλλά το αποτέλεσμα θα αντιπροσωπεύει την ενυπάρχουσα βιοαποικοδομησιμότητα της ύλης ελέγχου. Για λόγους καταχώρησης, απαιτείται κανονικά το "άμεσο" αποτέλεσμα.

Όπου μόνον δεδομένα για το COD και BOD5 είναι διαθέσιμα, μία ύλη θεωρείται ότι είναι άμεσα βιοαποικοδομήσιμα εάν:

$$\frac{\text{BOD5}}{\text{COD}} \geq 0.5$$

BOD (Βιοχημικά Απαιτούμενο Οξυγόνο) ορίζεται ως το βάρος του διαλυμένου οξυγόνου που απαιτείται από έναν συγκεκριμένο όγκο διαλύματος της ύλης για την πραγματοποίηση βιοχημικής οξειδωσης υπό καθορισμένες συνθήκες. Το αποτέλεσμα εκφράζεται ως γραμμάρια BOD ανά γραμμάριο ύλης ελέγχου. Η κανονική περίοδος ελέγχου είναι πέντε ημέρες με τη χρήση μίας εθνικής πρότυπης διαδικασίας ελέγχου.

COD (Χημικός Απαιτούμενο Οξυγόνο) είναι ένα μέτρο της οξειδωσιμότητας μίας ύλης, εκφρασμένη ως η ισοδύναμη ποσότητα σε οξυγόνο ενός οξειδωτικού αντιδραστηρίου που καταναλώνεται από την ύλη υπό καθορισμένες εργαστηριακές συνθήκες. Τα αποτελέσματα εκφράζονται σε γραμμάρια COD ανά γραμμάριο ύλης. Μία εθνική πρότυπη διαδικασία μπορεί να χρησιμοποιηθεί.

**3394** *Έλεγχοι για δυνατότητα βιοσυσσώρευσης*

(1) Το αντικείμενο είναι ο προσδιορισμός της δυνατότητας για βιοσυσσώρευση είτε από τον λόγο σε ισορροπία της συγκέντρωσης (c) μίας ύλης σε έναν διαλύτη προς εκείνη σε νερό είτε από το συντελεστή βιοσυγκέντρωσης (BCF).

(2) Ο λόγος σε ισορροπία της συγκέντρωσης (c) μίας ύλης σε έναν διαλύτη προς εκείνη σε νερό εκφράζεται κανονικά ως ένας  $\log_{10}$ . Ο διαλύτης και το νερό θα πρέπει να έχουν αμελητέα αναμειξιμότητα και η ύλη δεν θα πρέπει να ιονίζεται στο νερό. Ο διαλύτης που κανονικά χρησιμοποιείται είναι η-οκτανόλη.

Στην περίπτωση η-οκτανόλης και νερού, το αποτέλεσμα είναι:

$$\log P_{ow} = \log_{10} [c_o/c_w]$$

όπου  $P_{ow}$  είναι ο συντελεστής κατανομής που λαμβάνεται με τη διαίρεση της συγκέντρωσης της ύλης σε η-οκτανόλη ( $c_o$ ) με τη συγκέντρωση της ύλης σε νερό ( $c_w$ ). Εάν  $\log P_{ow} \geq 3.0$  τότε η ύλη έχει πιθανότητα συσσωμάτωσης.

(3) Ο συντελεστής βιοσυγκέντρωσης (BCF) ορίζεται ως ο λόγος της συγκέντρωσης της ύλης ελέγχου στα ψάρια ελέγχου ( $c_f$ ) προς τη συγκέντρωση στο νερό ελέγχου ( $c_w$ ) σε σταθερή κατάσταση:

$$\text{BCF} = (c_f) / (c_w).$$

Η αρχή του ελέγχου περιλαμβάνει έκθεση των ψαριών σ' ένα διάλυμα ή διασπορά σε γνωστές συγκεντρώσεις της ύλης ελέγχου σε νερό. Συνεχής ροή, στατικές ή ημι-στατικές διαδικασίες μπορούν να χρησιμοποιούνται σύμφωνα με τις διαδικασίες ελέγχου που επιλέγονται, βάσει των ιδιοτήτων της ύλης ελέγχου. Τα ψάρια εκτίθενται στην ύλη ελέγχου για μία δεδομένη περίοδο χρόνου, ακολουθούμενη από μία περίοδο μη περαιτέρω έκθεσης. Κατά τη διάρκεια της δεύτερης περιόδου, γίνονται μετρήσεις του ρυθμού αύξησης στο νερό της ύλης ελέγχου (δηλ. του ρυθμού των εκκρινμάτων καθαρισμού).



## Προσθήκη Α.3

**3394** (Πλήρεις λεπτομέρειες των διάφορων διαδικασιών ελέγχου και της μεθόδου υπολογισμού (συνεχ.) για τον BCF δίνονται στις Οδηγίες για τον Έλεγχο των Χημικών του OECD, μέθοδοι 305A έως 305E, 12 Μαΐου 1981).

(4) Μία ύλη μπορεί να έχει έναν  $\log P_{ow}$  μεγαλύτερο από 3 και έναν BCF μικρότερο από 100 που θα έδειχνε μικρή ή καθόλου πιθανότητα για βιοσυσσώρευση. Σε περιπτώσεις αμφιβολίας, η τιμή του BCF λαμβάνει προτεραιότητα έναντι του  $\log P_{ow}$ , όπως υποδεικνύεται στο διάγραμμα ροής που εμφανίζεται στο περιθωριακό 3396.

**3395** *Κριτήρια*

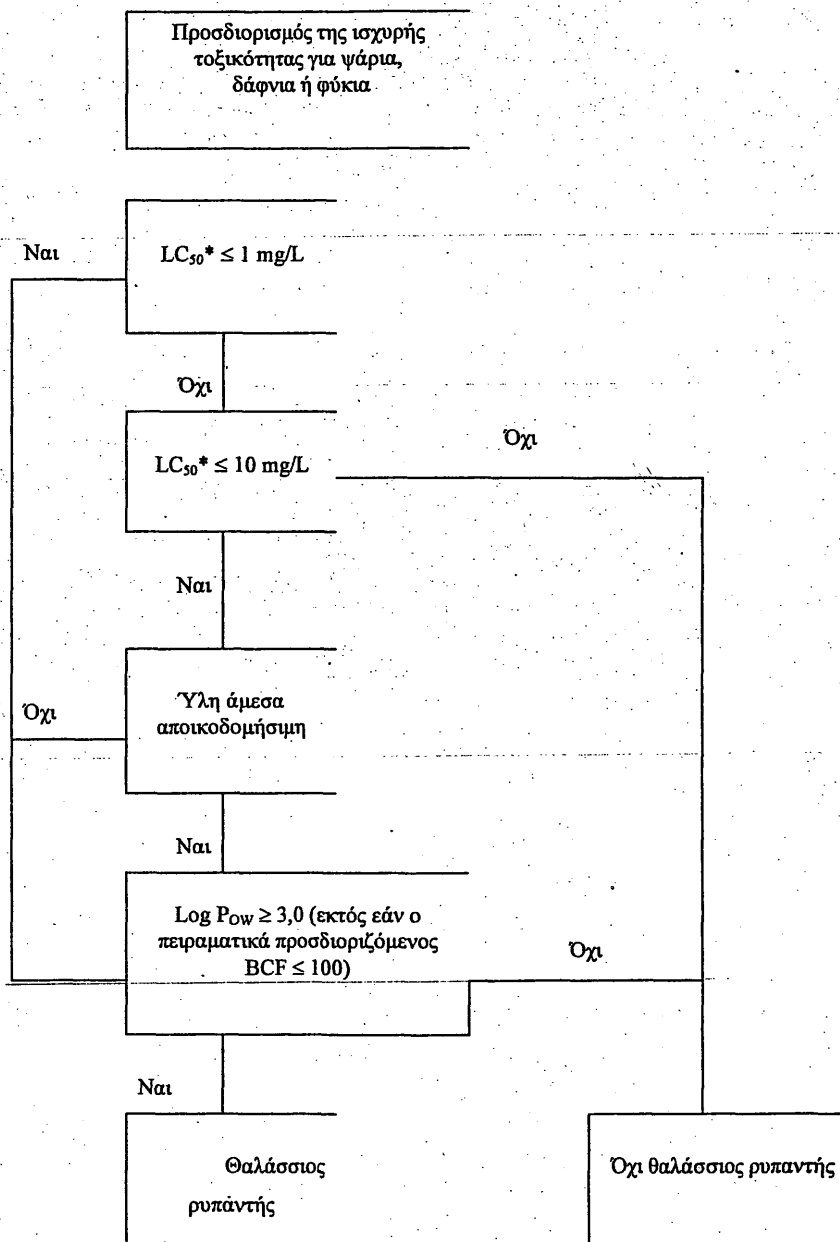
Μία ύλη μπορεί να θεωρείται ως ρυπαντική για το θαλάσσιο περιβάλλον εάν ικανοποιεί ένα από τα παρακάτω κριτήρια:

Η χαμηλότερη μεταξύ των τιμών της 96-ωρης  $LC_{50}$  για τα ψάρια, της 48-ωρης  $EC_{50}$  για τα δάφνια ή της 72-ωρης  $IC_{50}$  για τα φύκια

- είναι μικρότερη από ή ίση με 1 mg/L,
- είναι μεγαλύτερη από 1 mg/L αλλά μικρότερη από ή ίση με 10 mg/L, και η ύλη δεν είναι βιοαποικοδομήσιμη,
- είναι μεγαλύτερη από 1 mg/L αλλά μικρότερη από ή ίση με 10 mg/L, και ο  $\log P_{ow}$  είναι μεγαλύτερος από ή ίσος με 3.0 (εκτός εάν ο πειραματικά προσδιοριζόμενος BCF είναι μικρότερος από ή ίσος με 100).

## Προσθήκη Α.3

3396 Διαδικασία που πρέπει να ακολουθείται



\* Η χαμηλότερη μεταξύ των τιμών της 96-ωρης  $LC_{50}$ , της 48-ωρης  $EC_{50}$  ή της 72-ωρης  $IC_{50}$ .

BCF = συντελεστής βιοσυγκέντρωσης.

1773

**ΠΡΟΣΘΗΚΗ Α.4**

**3400-**

**3499** Επιφυλασσόμενο

## ΠΡΟΣΘΗΚΗ Α.5

**ΓΕΝΙΚΟΙ ΟΡΟΙ ΣΥΣΚΕΥΑΣΙΑΣ, ΤΥΠΟΙ ΣΥΣΚΕΥΑΣΙΑΣ,  
ΑΠΑΙΤΗΣΕΙΣ ΠΟΥ ΙΣΧΥΟΥΝ ΓΙΑ ΣΥΣΚΕΥΑΣΙΕΣ  
ΚΑΙ ΑΠΑΙΤΗΣΕΙΣ ΕΛΕΓΧΟΥ ΓΙΑ ΣΥΣΚΕΥΑΣΙΕΣ**

**ΣΗΜΕΙΩΣΗ:** Αυτές οι απαιτήσεις ισχύουν για συσκευασίες που περιέχουν ύλες και είδη των Κλάσεων 1, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 8 και 9.

**Μέρος I: Γενικοί όροι συσκευασίας**

- 3500** (1) Οι συσκευασίες θα πρέπει να είναι έτσι κατασκευασμένες και κλεισμένες ώστε να αποφεύγεται οποιαδήποτε διαρροή του περιεχομένου από ένα κόλλο προετοιμασμένο για αποστολή που θα μπορούσε να προκληθεί σε κανονικές συνθήκες μεταφοράς ιδιαίτερα από δόνηση ή αλλαγές στη θερμοκρασία, την υγρασία ή την πίεση. Καμία επικίνδυνη ύλη δεν θα πρέπει να προσκολλάται στο εξωτερικό των κόλλων. Αυτές οι διατάξεις ισχύουν τόσο για νέες όσο και για επαναχρησιμοποιούμενες συσκευασίες.
- (2) Τα μέρη των συσκευασιών που είναι σε άμεση επαφή με επικίνδυνες ύλες δεν θα πρέπει να προσβάλλονται από χημική ή άλλη δράση εκείνων των υλών. Όπου είναι απαραίτητο, θα πρέπει να έχουν κατάλληλη εσωτερική επικάλυψη ή επεξεργασία. Τέτοια μέρη των συσκευασιών δεν θα πρέπει να έχουν ενσωματωμένα εξαρτήματα υποκείμενα σε επικίνδυνη αντίδραση με το περιεχόμενο, σε σχηματισμό επικίνδυνων προϊόντων, ή σημαντική εξασθένησή του.
- (3) Κάθε συσκευασία εκτός εσωτερικών συσκευασιών συνδυασμένων συσκευασιών θα πρέπει να συμφωνεί σε έναν τύπο σχεδιασμού ελεγμένο και εγκεκριμένο σε συμφωνία με τις απαιτήσεις που τίθενται στο μέρος IV. Μαζικά παραγόμενες συσκευασίες θα πρέπει να συμφωνούν με τον εγκεκριμένο τύπο σχεδιασμού.
- (4) Όπου οι συσκευασίες είναι γεμισμένες με υγρές ύλες, αρκετό κενό θα πρέπει να αφήνεται ώστε να εξασφαλίζεται η μη ύπαρξη διαρροής της υγρής ύλης και μόνιμης παραμόρφωσης της συσκευασίας ως αποτέλεσμα της διαστολής της υγρής ύλης, λόγω των θερμοκρασιών που μπορούν να σημειωθούν κατά τη διάρκεια της μεταφοράς. Για θερμοκρασία πλήρωσης 15 °C, ο βαθμός πλήρωσης θα πρέπει να προσδιορίζεται ως ακολούθως, εκτός εάν αλλιώς ορίζεται σε συγκεκριμένη κλάση, είτε:

(a)

Σημείο βρασμού (αρχικό σημείο βρασμού) της ύλης σε °C	< 60	≥ 60	≥ 100	≥ 200	
		< 100	< 200	< 300	≥ 300
Βαθμός πλήρωσης ως ποσοστό της χωρητικότητας της συσκευασίας	90	92	94	96	98

είτε

(b) Βαθμός πλήρωσης =  $\frac{98}{1 + \alpha(50 - t_F)}$  % της χωρητικότητας της συσκευασίας.

## Προσθήκη Α.5

3500  
(συνεχ.)

Σε αυτόν τον τύπο το  $\alpha$  αντιπροσωπεύει τον μέσο συντελεστή κυβικής διαστολής της γρηής ύλης μεταξύ 15 °C και 50 °C, δηλαδή, για μία μέγιστη αύξηση στη θερμοκρασία 35 °C, το  $\alpha$  υπολογίζεται σύμφωνα με τον τύπο:

$$\alpha = \frac{d_{15} - d_{50}}{35 \cdot d_{50}}$$

όπου  $d_{15}$  και  $d_{50}$  είναι οι σχετικές πυκνότητες<sup>1/</sup> του υγρού στους 15 °C και 50 °C και  $t_f$  η μέση θερμοκρασία του υγρού στο χρόνο πλήρωσης.

(5) Οι εσωτερικές συσκευασίες θα πρέπει να είναι συσκευασμένες σε μία εξωτερική συσκευασία με τέτοιο τρόπο ώστε, υπό κανονικές συνθήκες μεταφοράς, να μην μπορούν να σπάσουν, να τρυπηθούν ή να παρουσιάσουν διαρροή του περιεχομένου τους μέσα στην εξωτερική συσκευασία. Οι εσωτερικές συσκευασίες που είναι υποκείμενες σε θραύση ή εύκολο τρύπημα, τέτοιες όπως εκείνες που είναι κατασκευασμένες από γυαλί, πορσελάνη ή ψαμμάργιλο ή από ορισμένα πλαστικά υλικά κ.λπ., θα πρέπει να ασφαλιζονται σε εξωτερικές συσκευασίες με κατάλληλο προστατευτικό υλικό. Οποιαδήποτε διαρροή του περιεχομένου δεν θα πρέπει να μειώνει ουσιαστικά τις προστατευτικές ιδιότητες του προστατευτικού υλικού ή της εξωτερικής συσκευασίας.

(6) Οι εσωτερικές συσκευασίες που περιέχουν διαφορετικές ύλες που μπορούν να αντιδράσουν επικίνδυνα με μία άλλη και να προκαλέσουν:

- (a) ανάφλεξη και/ή ανάπτυξη σημαντικής θερμότητας,
- (b) έκλυση εύφλεκτων και/ή τοξικών αερίων,
- (c) σχηματισμό διαβρωτικών υλών, ή
- (d) σχηματισμό ασταθών υλών,

δεν θα πρέπει να τοποθετούνται στην ίδια εξωτερική συσκευασία (βλέπε επίσης τις διατάξεις μκτής συσκευασίας στις διάφορες κλάσεις).

(7) Το κλείσιμο των συσκευασιών που περιέχουν ναπές ή διαλυμένες ύλες θα πρέπει να είναι τέτοιο ώστε το ποσοστό του υγρού (νερό, διαλύτης ή αδρανποιητής) να μην πέφτει κάτω από τα οριζόμενα όρια κατά τη διάρκεια της μεταφοράς.

(8) Όπου μπορεί να αναπτυχθεί υπερπίεση σε ένα κύκλο μέσω της έκλυσης αερίου από το περιεχόμενο (ως αποτέλεσμα αύξησης της θερμοκρασίας ή άλλων αιτιών), η συσκευασία μπορεί να είναι εξοπλισμένη με εξαεριστήρα υπό την προϋπόθεση ότι το αέριο που εκλύεται δεν θα προκαλέσει οποιοδήποτε κίνδυνο εξαιτίας της τοξικότητάς του, της ευφλεκτότητάς του, της απελευθερούμενης ποσότητας κ.λπ. Ο εξαεριστήρας θα πρέπει να είναι έτσι σχεδιασμένος ώστε, όταν η συσκευασία είναι στην κατάσταση στην οποία είναι προοριζόμενη να μεταφερθεί, διαρροές του υγρού και διεύδυση ξένης ύλης να αποφεύγονται υπό κανονικές συνθήκες μεταφοράς. Πάντως, μία ύλη μπορεί να μεταφέρεται σε τέτοια συσκευασία μόνον όπου ένας εξαεριστήρας ρητά ορίζεται για εκείνη την ύλη στους όρους μεταφοράς της σχετικής κλάσης.

(9) Νέες, επανακατασκευασμένες, επαναχρησιμοποιούμενες ή επιδιορθωμένες συσκευασίες θα πρέπει να είναι ικανές να περάσουν τους ελέγχους που ορίζονται στο μέρος IV. Πριν γεμιστεί και παραδοθεί για μεταφορά, κάθε συσκευασία θα πρέπει να επιθεωρείται και να επιβεβαιώνεται η απουσία διάβρωσης, μόλυνσης ή άλλης ζημιάς. Οποιαδήποτε συσκευασία που εμφανίζει σημάδια μειωμένης αντοχής σε σύγκριση με τον εγκεκριμένο τύπο σχεδιασμού δεν θα πρέπει να

<sup>1/</sup> Η σχετική πυκνότητα ( $d$ ) θεωρείται ότι είναι συνώνυμη με το ειδικό βάρος (SG) και θα χρησιμοποιείται σ' όλη αυτή την προσθήκη.

## Προσθήκη Α.5

**3500** χρησιμοποιούνται περαιτέρω ή θα πρέπει να επιδιορθώνονται έτσι ώστε να είναι ικανές να (συνεχ.) αντέχουν τους ελέγχους του τύπου σχεδιασμού.

(10) Συσκευασίες που χρησιμοποιούνται για υγρά θα πρέπει να υποβάλλονται σε έλεγχο στεγανότητας εάν έτσι απαιτείται από και στους όρους που ορίζονται στο περιθωριακό 3560.

(11) Τα υγρά θα πρέπει να γεμίζονται μόνον σε συσκευασίες που έχουν μία κατάλληλη αντοχή στην εσωτερική πίεση που μπορεί να αναπτυχθεί υπό κανονικές συνθήκες μεταφοράς. Συσκευασίες μαρκαρισμένες με την υδραυλική πίεση ελέγχου όπως ορίζεται στο περιθωριακό 3512 (1) (d) θα πρέπει να γεμίζονται μόνον με υγρό που έχει πίεση ατμών:

- (a) τέτοια ώστε η συνολική πίεση πιεζομέτρου στη συσκευασία (δηλ. η πίεση ατμών της πληρωτικής ύλης συν η μερική πίεση του αέρα ή άλλων αδρανών αερίων, μείον 100 kPa) στους 55 °C προσδιορισμένη πάνω στη βάση ενός μέγιστου βαθμού πλήρωσης σε συμφωνία με το (4) παραπάνω και μία θερμοκρασία πλήρωσης 15 °C, δεν θα υπερβαίνει τα δύο τρίτα της μαρκαρισμένης πίεσης ελέγχου, ή
- (b) στους 50 °C μικρότερη από τα τέσσερα εβδομα του αθροίσματος της μαρκαρισμένης πίεσης ελέγχου συν 100 kPa, ή
- (c) στους 55 °C μικρότερη από τα δύο τρίτα του αθροίσματος της μαρκαρισμένης πίεσης ελέγχου συν 100 kPa.

(12) Συσκευασίες που χρησιμοποιούνται για στερεά που μπορούν να γίνουν υγρά σε θερμοκρασίες που είναι πιθανόν να σημειωθούν κατά τη διάρκεια της μεταφοράς θα πρέπει να είναι επίσης ικανές να περιέχουν την ύλη στην υγρή κατάσταση.

(13) Οι συσκευασίες θα πρέπει να είναι κατασκευασμένες και ελεγμένες κάτω από ένα πρόγραμμα εξασφάλισης της ποιότητας που ικανοποιεί την αρμόδια αρχή για να εξασφαλίζεται ότι κάθε κατασκευασμένη συσκευασία ικανοποιεί τις απαιτήσεις αυτής της προσθήκης.

(14) Οι απαιτήσεις για συσκευασίες στο μέρος III βασίζονται σε συσκευασίες που ήδη χρησιμοποιούνται. Για να λαμβάνεται υπόψη η πρόοδος στην επιστήμη και την τεχνολογία, οι συσκευασίες που έχουν προδιαγραφές διαφορετικές από εκείνες στο μέρος III μπορούν να χρησιμοποιούνται υπό την προϋπόθεση ότι είναι εξίσου αποτελεσματικές, είναι αποδεκτές στην αρμόδια αρχή και είναι ικανές να αντέχουν επιτυχώς τους ελέγχους που περιγράφονται στην παράγραφο (10) και το μέρος IV.

Παραδείγματα απαιτούμενων μαρκαρισμένων πιέσεων ελέγχου υπολογιζόμενων όπως στο 3500 (11) (ε)

Αριθμ. Ο.Η.Ε.	Υγρό		Ομάδα συσκευασίας	$V_{ps}$ (kPa)	$V_{ps} \times 1.5$ (kPa)	$(V_{ps} \times 1.5)$ μείον 100 (kPa)	Απαιτούμενη ελάχιστη πίεση πιεζομέτρου ελέγχου, υπό το περιθωριακό 3554 (4) (ε) (kPa)	Ελάχιστη πίεση πιεζομέτρου ελέγχου που πρέπει να είναι μαρκαρισμένη πάνω στη συσκευασία (kPa)
	Ονομασία	Κλάση						
2056	Τετραυδροφουράνιο	3	II	70	105	5	100	100
2247	n-Δεκάνιο	3	III	1.4	2.1	- 97.9	100	100
1593	Διχλωρομεθάνιο	6.1	III	164	246	146	146	150
1155	Διαθλατιθέρας	3	I	199	299	199	199	250

**ΣΗΜΕΙΩΣΗ 1:** Για καθαρά υγρά η πίεση ατμών στους 55 °C ( $V_{ps}$ ) μπορεί συχνά να λαμβάνεται από επιστημονικούς πίνακες.

**ΣΗΜΕΙΩΣΗ 2:** Οι μέγιστες πιέσεις ατμών στις παραγράφους (b) και (c) αναφέρονται στη βάση του τύπου.

**ΣΗΜΕΙΩΣΗ 3:** Ο πίνακας αναφέρεται στη χρήση της παραγράφου (c) μόνον, το οποίο σημαίνει ότι η μαρκαρισμένη πίεση ελέγχου θα πρέπει να υπερβάνει 1.5 φορές την πίεση ατμών στους 55 °C μείον 100 kPa. Όταν, για παράδειγμα, η πίεση ελέγχου για το n-Δεκάνιο είναι προοδριωμένη σύμφωνα με το περιθωριακό 3554 (4) (α) η ελάχιστη μαρκαρισμένη πίεση ελέγχου μπορεί να είναι μικρότερη.

**ΣΗΜΕΙΩΣΗ 4:** Για τον διαιθυλαθέρα (1155) (Ομάδα συσκευασίας I), η απαιτούμενη ελάχιστη πίεση ελέγχου υπό το περιθωριακό 3554 (4) είναι 250 kPa.

## Προσθήκη Α.5

## Μέρος ΙΙ: Τύποι συσκευασίας

## Ορισμοί

- 3510 (1) Υποκείμενες στις ειδικές διατάξεις για κάθε κλάση, οι συσκευασίες που αναφέρονται παρακάτω μπορούν να χρησιμοποιούνται:

Βαρέλια:

επίπεδων άκρων ή κυρτών άκρων κυλινδρικές συσκευασίες κατασκευασμένες από μέταλλο, φάιμπερ, πλαστικό, κόντρα πλακέ ή άλλα κατάλληλα υλικά. Αυτός ο ορισμός επίσης περιλαμβάνει συσκευασίες άλλων σχημάτων, π.χ. κυλινδρικές συσκευασίες με κωνικό λαμμό, ή συσκευασίες σε μορφή κάδου. Ξύλινα βαρέλια και μπιτόνια δεν καλύπτονται από αυτόν τον ορισμό.

Ξύλινα βαρέλια:

συσκευασίες κατασκευασμένες από φυσικό ξύλο, κυκλικής τομής, που έχουν κυρτά τοιχώματα, συνιστάμενες από σανίδες και κεφαλές και εξοπλισμένες με τσέρκια.

Μπιτόνια:

μεταλλικές ή πλαστικές συσκευασίες ορθογώνιας ή πολυγωνικής τομής με ένα ή περισσότερα στόμια.

Κιβώτια:

συσκευασίες με πλήρεις ορθογώνιες ή πολυγωνικές όψεις, κατασκευασμένες από μέταλλο, ξύλο, κόντρα πλακέ, ανασυσταμένο ξύλο, φύλλο φάιμπερ, πλαστικό ή άλλο κατάλληλο υλικό. Μικρές οπές για σκοπούς τέτοιους όπως εύκολο χειρισμό ή άνοιγμα, ή για την ικανοποίηση απαιτήσεων ταξινόμησης, επιτρέπονται εφ' όσον δεν θέτουν σε κίνδυνο την ακεραιότητα της συσκευασίας κατά τη διάρκεια της μεταφοράς,

Σάκοι:

εύκαμπτες συσκευασίες κατασκευασμένες από χαρτί, πλαστικό φιλμ, υφάσματα, πλεγμένο υλικό ή άλλα κατάλληλα υλικά.

Σύνθετες συσκευασίες (πλαστικού υλικού):

συσκευασίες συνιστάμενες από ένα εσωτερικό πλαστικό δοχείο και μία εξωτερική συσκευασία (κατασκευασμένη από μέταλλο, φύλλο φάιμπερ, κόντρα πλακέ, κ.λπ.). Αφού συναρμολογηθεί, τέτοια συσκευασία παραμένει μετέπειτα μία αδιαχώριστη μονάδα. Γεμίζεται, αποθηκεύεται, αποστέλλεται και αδειάζεται ως τέτοια.

Σύνθετες συσκευασίες (από γυαλί, πορσελάνη ή ψαμμάργιο):

συσκευασίες συνιστάμενες από ένα εσωτερικό δοχείο από γυαλί, πορσελάνη ή ψαμμάργιο και μία εξωτερική συσκευασία (κατασκευασμένη από μέταλλο, ξύλο, φύλλο φάιμπερ, πλαστικό υλικό, τεταμένο πλαστικό υλικό κ.λπ.). Αφού συναρμολογηθεί, τέτοια συσκευασία παραμένει μετέπειτα μία αδιαχώριστη μονάδα. Γεμίζεται, αποθηκεύεται, αποστέλλεται και αδειάζεται ως τέτοια. Θα πρέπει να ελέγχεται σε συμφωνία με τα περιθωριακά 3552 (1) (a) ή (b), 3553 και 3554.



## Προσθήκη Α.5

3510  
(συνεχ.)Συνδυασμένες συσκευασίες:

ένας συνδυασμός συσκευασιών για λόγους μεταφοράς, συνιστάμενος από μία ή περισσότερες εσωτερικές συσκευασίες ασφαλισμένες σε μία εξωτερική συσκευασία σε συμφωνία με το περιθωριακό 3500 (5).

(2) Επιδιορθωμένες συσκευασίες περιλαμβάνουν μεταλλικά βαρέλια που είναι:

- (i) καθαρισμένα στα αρχικά υλικά κατασκευής, με απομάκρυνση όλων των προηγούμενων περιεχομένων, εσωτερικών και εξωτερικών διαβρώσεων και εξωτερικών επικαλύψεων και ετικετών,
- (ii) αποκαταστημένα στο αρχικό σχήμα και περίγραμμα, με χτυπήματα (εάν χρειαστεί) ισωμένα και σφραγισμένα και με αντικατεστημένες όλες τις μη-ακέραιες φλάντζες και
- (iii) επιθεωρημένα μετά τον καθαρισμό αλλά πριν τη βαφή, με απόρριψη των συσκευασιών με ορατό σκάσιμο, σημαντική μείωση στο πάχος του υλικού, κόπωση του μετάλλου, κατεστραμμένα σπειρώματα ή πόματα, ή άλλα σημαντικά ελαττώματα.

Ανακατασκευασμένη συσκευασία περιλαμβάνει μεταλλικά βαρέλια που:

- (i) παράγονται ως ένας τύπος Ο.Η.Ε. από έναν τύπο όχι Ο.Η.Ε.,
- (ii) μετατρέπονται από έναν τύπο Ο.Η.Ε. σ' έναν άλλο τύπο Ο.Η.Ε., ή
- (iii) υποβάλλονται στην αντικατάσταση ακέραιων δομικών εξαρτημάτων (τέτοιων όπως οι μη-μετακινούμενες κεφαλές).

Η ανακατασκευασμένη συσκευασία υπόκειται στις ίδιες απαιτήσεις αυτής της Προσθήκης που ισχύουν για μία νέα συσκευασία του ίδιου τύπου.

Επαναγρησιμοποιούμενες συσκευασίες:

συσκευασίες που έχουν εξεταστεί και βρεθεί ελεύθερες από ελαττώματα που επηρεάζουν την ικανότητα να αντέχουν τον έλεγχο απόδοσης. Ο όρος περιλαμβάνει εκείνες που ξαναγεμίζονται με το ίδιο ή παρόμοιο συμβατό περιεχόμενο και μεταφέρονται σε αλυσίδες διανομής που ελέγχονται από τον αποστολέα του προϊόντος.

(3) Υποκείμενες στις ειδικές διατάξεις για κάθε κλάση, οι παρακάτω συσκευασίες μπορούν επίσης να χρησιμοποιούνται:Σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργιλος):

εάν ελέγχονται σε συμφωνία με το περιθωριακό 3552 (1) (ε).

Ελαφρού περιτυπώματος μεταλλικές συσκευασίες:

συσκευασίες κυκλικής, ελλειπτικής, ορθογώνιας ή πολυγωνικής τομής, (επίσης κωνικής) και με κωνικό λαιμό και συσκευασίες σε μορφή κάδου κατασκευασμένες από λευκοσίδηρο ή ελαφρύ μέταλλο, που έχει πάχος τοιχωμάτων μικρότερο από 0.5 mm, με επίπεδο ή κυρτό πυθμένα και με ένα ή περισσότερα στόμια, που δεν καλύπτονται στο περιθωριακό 3510 (1) ως βαρέλια ή μπτόνια.

## (4) Οι παρακάτω ορισμοί ισχύουν για συσκευασίες στο (1) και (2) παραπάνω:

## Προσθήκη Α.5

3510  
(συνεχ.)Πώματα:

συσκευές που κλείνουν ένα άνοιγμα σ' ένα δοχείο,

Εσωτερικές συσκευασίες:

συσκευασίες για τις οποίες μία εξωτερική συσκευασία απαιτείται για μεταφορά.

Εσωτερικά δοχεία:

δοχεία που απαιτούν μία εξωτερική συσκευασία για να αποδώσουν τη λειτουργία συγκράτησής τους.

Μέγιστη χωρητικότητα (όπως χρησιμοποιείται στο Μέρος III):

ο μέγιστος εσωτερικός όγκος των δοχείων ή των συσκευασιών εκφρασμένος σε λίτρα.

Μέγιστο καθαρό βάρος:

το μέγιστο καθαρό βάρος περιεχομένου σε μία μόνη συσκευασία ή το μέγιστο συνδυασμένο βάρος εσωτερικών συσκευασιών και του περιεχομένου αυτών εκφρασμένο σε κιλά.

Εξωτερική συσκευασία:

η εξωτερική προστασία μίας σύνθετης ή συνδυασμένης συσκευασίας μαζί με οποιαδήποτε απορροφητικά υλικά, προστατευτικά και οποιαδήποτε άλλα εξαρτήματα απαραίτητα για να περιέχουν και να προστατεύουν εσωτερικά δοχεία ή εσωτερικές συσκευασίες.

Κόλα:

το πλήρες προϊόν της πράξης της συσκευασίας, συνιστάμενο από τη συσκευασία και το περιεχόμενο του προετοιμασμένο για αποστολή.

Συσκευασίες:

δοχεία και οποιαδήποτε άλλα εξαρτήματα ή υλικά απαραίτητα για το δοχείο για να επιτελέσει τη λειτουργία συγκράτησής του.

Δοχεία:

δοχεία συγκράτησης για την υποδοχή και το κράτημα υλών ή ειδών, συμπεριλαμβανομένων οποιωνδήποτε μέσων κλεισίματος.

Αδιαπέραστες συσκευασίες

συσκευασίες στεγανές σε ξηρό περιεχόμενο συμπεριλαμβανομένων λεπτών στερεών υλικών που παράγονται κατά τη διάρκεια της μεταφοράς.

**ΣΗΜΕΙΩΣΗ:** Τα "εσωτερικά" των "συνδυασμένων συσκευασιών" πάντα ορίζονται "εσωτερικές συσκευασίες" όχι "εσωτερικά δοχεία". Μία γυάλινη φιάλη είναι ένα παράδειγμα μίας τέτοιας "εσωτερικής συσκευασίας". Τα "εσωτερικά" των "σύνθετων συσκευασιών" κανονικά ορίζονται "εσωτερικά δοχεία". Για παράδειγμα, το "εσωτερικό" μίας σύνθετης συσκευασίας 6HA1 (πλαστικού υλικού) είναι ένα τέτοιο "εσωτερικό δοχείο" εφ' όσον είναι κανονικά όχι σχεδιασμένο να εκτελεί μία λειτουργία συγκράτησης χωρίς την "εξωτερική συσκευασία" του και δεν είναι συνεπώς μία "εσωτερική συσκευασία".

## Προσθήκη Α.5

**Κωδικοποίηση των τύπων σχεδιασμού για συσκευασίες σύμφωνα με το περιθωριακό 3510 (1) και (2)**

3511 (1) Ο κωδικός αριθμός συνίσταται από:

έναν αραβικό αριθμό που δείχνει το είδος της συσκευασίας, π.χ. βαρέλι, μπιτόνι, κ.λπ.,

ένα κεφαλαίο γράμμα ή γράμματα (λατινικοί χαρακτήρες) που δείχνουν την φύση του υλικού, π.χ. χάλυβας, ξύλο κ.λπ.,

όπου είναι απαραίτητο, ένας αραβικός αριθμός που δείχνει την κατηγορία συσκευασίας μέσα στον τύπο στον οποίο η συσκευασία ανήκει.

Στην περίπτωση σύνθετων συσκευασιών, δύο κεφαλαία γράμματα (λατινικοί χαρακτήρες) θα πρέπει να χρησιμοποιούνται. Το πρώτο θα δείχνει το υλικό του εσωτερικού δοχείου και το δεύτερο εκείνο της εξωτερικής συσκευασίας.

Στην περίπτωση συνδυασμένων συσκευασιών, μόνον ο κωδικός αριθμός για την εξωτερική συσκευασία θα πρέπει να χρησιμοποιείται.

Οι παρακάτω αριθμοί θα πρέπει να χρησιμοποιούνται για το είδος της συσκευασίας:

1. Βαρέλι
2. Ξύλινο βαρέλι
3. Μπιτόνι
4. Κιβώτιο
5. Σάκος
6. Σύνθετη συσκευασία
0. Ελαφρού περιτυπώματος μεταλλικές συσκευασίες

Τα παρακάτω κεφαλαία γράμματα θα πρέπει να χρησιμοποιούνται για τους τύπους του υλικού:

- A. Χάλυβας (όλοι οι τύποι και επεξεργασίες της επιφάνειας)
- B. Αλουμίνιο
- C. Φυσικό ξύλο
- D. Κόντρα πλακέ
- F. Ανάσυσταμένο ξύλο
- G. Φύλλο φάιμπερ
- H. Πλαστικό υλικό, συμπεριλαμβανομένου τεταμένου πλαστικού υλικού
- L. Ύφασμα
- M. Χαρτί, πολλαπλών τοιχωμάτων
- N. Μέταλλο (άλλο από χάλυβα ή αλουμίνιο)
- P. Γυαλί, πορσελάνη ή ψαμμάργιλος

(2) Τρεις ομάδες συσκευασίας προσφέρονται για τις ειδικές απαιτήσεις για κάθε κλάση, σύμφωνα με τον βαθμό κινδύνου που παρουσιάζεται από τις προς μεταφορά ύλες:

- |                   |      |   |
|-------------------|------|---|
| Ομάδα συσκευασίας | I :  | για ύλες της ομάδας (a),                              |
| Ομάδα συσκευασίας | II : | για ύλες της ομάδας (b),                              |
| Ομάδα συσκευασίας | III: | για ύλες της ομάδας (c) των ειδών στον κατάλογο υλών. |

Ο κωδικός αριθμός της συσκευασίας θα πρέπει να ακολουθείται στο μαρκάρισμα από ένα γράμμα που δείχνει τις ομάδες υλών για τις οποίες ο τύπος σχεδιασμού είναι εγκεκριμένος ως ακολούθως:

- |   |   |
|---|---|
| X | για συσκευασίες για ύλες στις ομάδες συσκευασίας I έως III,     |
| Y | για συσκευασίες για ύλες στις ομάδες συσκευασίας II και III και |
| Z | για συσκευασίες για ύλες στην ομάδα συσκευασίας III.            |


## Προσθήκη Α.5

## Μαρκάρισμα


3512


**ΣΗΜΕΙΩΣΗ:** Το μαρκάρισμα δείχνει ότι η συσκευασία που το φέρει αντιστοιχεί σ' έναν επιτυχώς ελεγμένο τύπο σχεδιασμού και ότι συμφωνεί με τις διατάξεις αυτής της Προσθήκης που σχετίζονται με την κατασκευή, αλλά όχι με τη χρήση, της συσκευασίας. Από μόνο του, συνεπώς, το σήμα δεν επιβεβαιώνει απαραίτητα ότι η συσκευασία μπορεί να χρησιμοποιείται για οποιαδήποτε ύλη: γενικά ο τύπος συσκευασίας (π.χ. χαλύβδινο βαρέλι), η μέγιστη χωρητικότητα του και/ή βάρος, και οποιεσδήποτε ειδικές απαιτήσεις είναι προκαθορισμένες για κάθε ύλη στα κατάλληλα περιθωριακά συσκευασίας στις κλάσεις.

(1) Κάθε συσκευασία θα πρέπει να φέρει μαρκάρια που να είναι διαρκή, ευανάγνωστα και τοποθετημένα σε μία τοποθεσία και τέτοιου μεγέθους σχετικού με τη συσκευασία ώστε να είναι άμεσα ορατά. Για κόλα με μικτό βάρος μεγαλύτερο από 30 kg, τα μαρκάρια ή ένα αντίτυπο αυτών θα πρέπει να εμφανίζονται πάνω στην κορυφή ή σε μία πλευρά της συσκευασίας. Γράμματα, αριθμοί και σύμβολα θα πρέπει να έχουν ύψος τουλάχιστον 12 mm, εκτός από τις συσκευασίες των 30 λίτρων ή 30 kg χωρητικότητας ή λιγότερο, όπου θα πρέπει να είναι τουλάχιστον 6 mm σε ύψος και τις συσκευασίες των 5 λίτρων ή 5 kg ή λιγότερο όπου θα πρέπει να είναι κατάλληλου μεγέθους. Το μαρκάρισμα για νέες συσκευασίες κατασκευασμένες σε συμφωνία με τον εγκεκριμένο τύπο σχεδιασμού συνίσταται από:

- (a) (i) το σύμβολο  για συσκευασίες σύμφωνα με το περιθωριακό 3510 (1).

Για μεταλλικές συσκευασίες πάνω στις οποίες το μαρκάρισμα είναι σφραγισμένο, τα γράμματα O.H.E. μπορούν να ισχύουν αντί του συμβόλου.

- (ii) το  σύμβολο "ADR" (ή "RID/ADR" για συσκευασίες εγκεκριμένες για σιδηροδρομική μεταφορά καθώς και για οδική μεταφορά) αντί του συμβόλου

για συσκευασίες  σύμφωνα με το περιθωριακό 3510 (2),

- (b) τον κωδικό αριθμό της συσκευασίας σε συμφωνία με το περιθωριακό 3511 (1),

- (c) έναν κωδικό σε δύο μέρη:

- (i) ένα γράμμα (X, Y ή Z) που να δείχνει την(τις) ομάδα(ες) συσκευασίας για την(τις) οποία(ες) ο τύπος σχεδιασμού έχει εγκριθεί,

- (ii) για συσκευασίες χωρίς εσωτερικές συσκευασίες, προοριζόμενες να περιέχουν υγρά που έχουν ιξώδες στους 23 °C 200 mm<sup>2</sup>/s ή μικρότερο, η σχετική πυκνότητα (στρογγυλοποιημένη στο πρώτο δεκαδικό), στην οποία ο τύπος σχεδιασμού έχει ελεγχθεί εάν είναι μεγαλύτερη από 1.2.

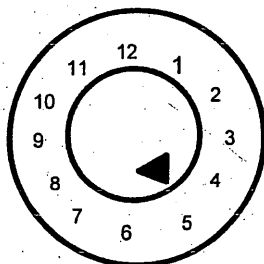
Για συσκευασίες προοριζόμενες να περιέχουν υγρά που έχουν ιξώδες στους 23 °C μεγαλύτερο από 200 mm<sup>2</sup>/s, στερεά ή εσωτερικές συσκευασίες και για ελαφρού περιτυπώματος μεταλλικές συσκευασίες, μετακινούμενης κεφαλής, προοριζόμενες για ύλες της Κλάσης 3, 5<sup>ο</sup>(c), το μέγιστο μικτό βάρος σε κιλά,

- (iii) για συσκευασίες προοριζόμενες να περιέχουν ύλες της Κλάσης 6.2, 1<sup>ο</sup> και 2<sup>ο</sup>, 'Κλάση 6.2' θα πρέπει να χρησιμοποιείται αντί των πληροφοριών που απαιτούνται στο (i) ή (ii),

## Προσθήκη Α.5

3512  
(συνεχ.)

- (d) είτε ένα γράμμα "S" που δείχνει ότι η συσκευασία είναι προοριζόμενη να περιέχει υγρά που έχουν ιξώδες στους 23 °C μεγαλύτερο από 200 mm<sup>2</sup>/s, στερεά ή εσωτερικές συσκευασίες και για ελαφρού περιτυπώματος μεταλλικές συσκευασίες, μετακινούμενης κεφαλής, προοριζόμενες για ύλες της Κλάσης 3, 5<sup>(c)</sup>, είτε, όπου ένας έλεγχος υδραυλικής πίεσης έχει επιτυχώς περαστεί, η πίεση ελέγχου σε kPa στρογγυλοποιημένη στα πλησιέστερα 10 kPa.,
- (e) τον χρόνο κατασκευής (τα τελευταία δύο ψηφία). Επιπλέον για συσκευασίες των τύπων IH και 3H, τον μήνα κατασκευής. Αυτό το μέρος του μαρκαρίσματος μπορεί να τοποθετηθεί σε μία διαφορετική θέση από τα άλλα στοιχεία. Μία κατάλληλη μέθοδος είναι:



- (f) το σήμα <sup>2/</sup> του κράτους στο οποίο είχε εκδοθεί η έγκριση,
- (g) είτε έναν αριθμό εγγραφής και την ονομασία ή σήμα του κατασκευαστή είτε κάποιο άλλο χαρακτηριστικό σήμα της συσκευασίας που προκαθορίζεται από τις αρμόδιες αρχές.

(2) Κάθε επαναχρησιμοποιήσιμη συσκευασία υποκείμενη στην υποβολή σε διαδικασία επιδιόρθωσης που θα μπορούσε να σβήσει τα μαρκαρίσματα της συσκευασίας θα πρέπει να φέρει τα σήματα που υποδεικνύονται στο (1) (a) έως (e) σε μόνιμη μορφή. Τα σήματα είναι μόνιμα εάν είναι ικανά να αντέχουν στην διαδικασία επιδιόρθωσης (π.χ. ανάγλυφα). Για συσκευασίες άλλες από μεταλλικά βαρέλια χωρητικότητας μεγαλύτερης από 100 λίτρα, αυτά τα μόνιμα σήματα μπορούν να αντικαταστήσουν τα αντίστοιχα διαρκή μαρκαρίσματα που ορίζονται στο (1). Επιπλέον των διαρκών μαρκαρισμάτων που ορίζονται στο (1), κάθε νέο μεταλλικό βαρέλι χωρητικότητας μεγαλύτερης από 100 λίτρα θα πρέπει να φέρει τα σήματα που περιγράφονται στο (1) (a) έως (e) πάνω στη βάση, με μία ένδειξη του ονομαστικού πάχους τουλάχιστον του μετάλλου που χρησιμοποιείται στο σώμα (σε mm, έως 0.1 mm), σε μόνιμη μορφή (π.χ. ανάγλυφα). Όταν το ονομαστικό πάχος οποιασδήποτε κεφαλής ενός μεταλλικού βαρελιού είναι λεπτότερο από εκείνο ενός σώματος, τα ονομαστικά πάχη της κορυφιαίας κεφαλής, του σώματος, και της κεφαλής του πυθμένα θα πρέπει να είναι μαρκαρισμένα πάνω στον πυθμένα σε μόνιμη μορφή (π.χ. ανάγλυφα), για παράδειγμα 1.0 - 1.2 - 1.0' ή 0.9 - 1.0 - 1.0'. Τα ονομαστικά πάχη του μετάλλου θα πρέπει να προσδιορίζονται σύμφωνα με το κατάλληλο πρότυπο ISO, π.χ. ISO 3574 : 1986 χαλύβδινα βαρέλια. Τα σήματα που υποδεικνύονται στο (1) (f) και (g) δεν θα πρέπει να εφαρμόζονται σε μόνιμη μορφή (π.χ. ανάγλυφα) εκτός όπως ορίζεται για παρακάτω.

Για κατασκευασμένα μεταλλικά βαρέλια, εάν δεν υπάρχει αλλαγή στον τύπο συσκευασίας και αντικατάσταση ή απομάκρυνση ακεραίων δομικών εξαρτημάτων, τα απαιτούμενα μαρκαρίσματα δεν χρειάζεται να είναι μόνιμα (π.χ. ανάγλυφα). Κάθε άλλο επανακατασκευασμένο μεταλλικό βαρέλι θα πρέπει να φέρει τα μαρκαρίσματα στο (1) (a) έως (e) σε μόνιμη μορφή (π.χ. ανάγλυφα) πάνω στην κορυφιαία κεφαλή ή πλευρά.

<sup>2/</sup> Διακριτικό σήμα για μηχανοκίνητα οχήματα σε διεθνή διακίνηση που ορίστηκε στο Συνέδριο της Βιέννης για την Οδική Διακίνηση (1968).

## Προσθήκη Α.5

**3512** Μεταλλικά βαρέλια κατασκευασμένα από υλικά (π.χ. ανοξείδωτο χάλυβα) σχεδιασμένα για να (συνεχ.) επαναχρησιμοποιούνται επανειλημμένα μπορούν να φέρουν τα μαρκαρίσματα που υποδεικνύονται στο 1 (f) και (g) σε μόνιμη μορφή (π.χ. ανάγλυφα).

(3) Ο αριθμός καταχώρησης ισχύει για μόνον έναν τύπο σχεδιασμού ή σειρά τύπων σχεδιασμού. Διαφορετικές επιφανειακές επεξεργασίες μπορούν να πέσουν μέσα στον ίδιο τύπο σχεδιασμού.

Μία "σειρά τύπων σχεδιασμού" σημαίνει συσκευασίες του ίδιου δομικού σχεδιασμού, πάχους τοιχωμάτων, υλικού και τομής, που διαφέρουν μόνον στα μικρότερα ύψη σχεδιασμού τους από τον εγκεκριμένο τύπο σχεδιασμού.

Τα πάματα των δοχείων θα πρέπει να μπορούν να καθορίζονται ως εκείνα που αναφέρονται στην αναφορά ελέγχου.

(4) Μετά την επιδιόρθωση μίας συσκευασίας ο επιδιορθωτής θα πρέπει να τοποθετεί πάνω σ' αυτήν, κοντά στα διαρκή σήματα που απαιτούνται από τα (a) έως (e) την παρακάτω ακολουθία σημάτων:

- (h) το σήμα <sup>2/</sup> του κράτους στην επικράτεια του οποίου διεξήχθη η επιδιόρθωση,
- (i) την ονομασία ή επίσημο σύμβολο του επιδιορθωτή,
- (j) το έτος της επιδιόρθωσης, το γράμμα "R" και για κάθε συσκευασία που έχει επιτυχώς υποβληθεί στον έλεγχο στεγανότητας σε συμφωνία με το περιθωριακό 3500 (10), το πρόσθετο γράμμα "L".

Όταν, μετά την επιδιόρθωση, τα μαρκαρίσματα που απαιτούνται από το (1) (a) έως (d) δεν φαίνονται πιά πάνω στην κορυφαία κεφαλή ή την πλευρά ενός μεταλλικού βαρελιού, ο επιδιορθωτής θα πρέπει να τα εφαρμόζει σε μία διαρκή μορφή ακολουθούμενα από τα μαρκαρίσματα που απαιτούνται στα (h), (i) και (j). Αυτά τα μαρκαρίσματα δεν θα πρέπει να προσδιορίζουν μία μεγαλύτερη ικανότητα λειτουργίας από εκείνη για την οποία ο αρχικός τύπος σχεδιασμού έχει ελεγχθεί και μαρκαριστεί.

(5) Τα γράμματα "V" ή "W" μπορούν να ακολουθούν τον κώδικα συσκευασίας. Το γράμμα "V" υποδηλώνει μία ειδική συσκευασία [βλέπε 3550 (8)]. Το γράμμα "W" υποδηλώνει ότι η συσκευασία, παρ' ότι του ίδιου τύπου που υποδεικνύεται από τον κώδικα, είναι κατασκευασμένη με προδιαγραφές διαφορετικές από εκείνες στο μέρος III και θεωρείται ισοδύναμη υπό τις διατάξεις του περιθωριακού 3500 (14).

(6) Συσκευασίες μαρκαρισμένες σε συμφωνία με αυτό το περιθωριακό αλλά οι οποίες είχαν εγκριθεί σ' ένα Κράτος που δεν είναι Κράτος Μέλος μπορούν παρ' όλα αυτά να χρησιμοποιούνται για μεταφορά σύμφωνα μ' αυτήν την Οδηγία.

(7) Παραδείγματα των μαρκαρισμάτων

Για νέο χάλυβινο βαρέλι:

1A1/Y1.4/150/83 (a) (i), (b), (c), (d) και (e)  
 (u) NL/VL123 (f) και (g)

<sup>2/</sup> Διακριτικό σήμα για μηχανοκίνητα οχήματα σε διεθνή διακίνηση που ορίστηκε στο Συνέδριο της Βιέννης για την Οδική Διακίνηση (1968).

## Προσθήκη Α.5

**3512** Για επιδιορθωμένο χαλύβδινο βαρέλι:  
(συνεχ.)

1A1/Y1.4/150/83 (a) (i), (b), (c), (d) και (e)

NL/RB/84/RL (h), (i) και (j)

Για χαλύβδινο κιβώτιο ισοδύναμης προδιαγραφής

4AW/Y136/S/90 (a), (b), (c), (d), (e),

GB/MC123 (f) και (g)

Για νέες ελαφρού περιτυπώματος μεταλλικές συσκευασίες:

RID/ADR/0A2/Y20/S/83 (a) (ii), (b), (c), (d) και (e) Μη-μετακινούμενης κεφαλής

NL/VL 123 (f) και (g)

RID/ADR/0A2/Y/83 (a) (ii), (b), (c) και (e)

Μετακινούμενης κεφαλής,  
προοριζόμενες για υγρά με  
ιξώδες στους 23 °C  
που υπερβαίνει τα 200 mm<sup>2</sup>/s  
και για ύλες της Κλάσης 3,  
5°(c).

NL/VL 124 (f) και (g)

Για επανακατασκευασμένο χαλύβδινο βαρέλι προοριζόμενο για μεταφορά υγρών:

1A2/Y/100/91 (a) (b), (c), (d) και (e)

USA/MM5 (f) και (g)

Για κιβώτιο από φύλλο φάιμπερ προοριζόμενο να περιέχει ύλες των 1° και 2° της Κλάσης 6.2:

4G/Κλάση 6.2/S/92 (a) (i), (b), (c) (iii),



SP-9969-ERIKSSON (d), (e), (f), (g)

Για κιβώτιο από φύλλο φάιμπερ προοριζόμενο να περιέχει εσωτερικές συσκευασίες ή στερεά:

4G/Y145/S/83 (a), (b), (c), (d), (e)



NL/VL823 (f) και (g)

### Πιστοποίηση

**3513** Ο κατασκευαστής πιστοποιεί, με τοποθέτηση μαρκαρίσματος σε συμφωνία με το περιθωριακό 3512 (1) ότι οι μαζικά παραγόμενες συσκευασίες αντιστοιχούν στον εγκεκριμένο τύπο σχεδιασμού και ότι οι απαιτήσεις που αναφέρονται στην έγκριση έχουν ικανοποιηθεί.

## Προσθήκη Α.5

## Πίνακας συσκευασιών

3514 Οι παρακάτω τύποι και κωδικοί συσκευασίας καταχωρούνται:

Είδος	Υλικό	Κατηγορία	Κωδικός	Περιθωριακό
<b>Α. Σύμφωνα με το περιθωριακό 3510 (1) και μαρκαρισμένα με "Ο.Η.Ε."</b>				
1. Βαρέλια	Α. Χάλυβας	μη-μετακινούμενης κεφαλής	1A1	3520
		μετακινούμενης κεφαλής	1A2	3520 <sup>3/</sup>
	Β. Αλουμίνιο	μη-μετακινούμενης κεφαλής	1B1	3521
		μετακινούμενης κεφαλής	1B2	3521 <sup>3/</sup>
	D. Κόντρα πλακέ	-	1D	3523 <sup>3/</sup>
	G. Φάϊμπερ	-	1G	3535 <sup>3/</sup>
	Η. Πλαστικό	μη-μετακινούμενης κεφαλής	1H1	3526
		μετακινούμενης κεφαλής	1H2	3526 <sup>3/</sup>
2. Βαρέλια	C. Ξύλο	τύπου φελλού	2C1	3524
		μετακινούμενος τύπος	2C2	
3. Μπιτόνια	Α. Χάλυβας	μη-μετακινούμενης κεφαλής	3A1	3522
		μετακινούμενης κεφαλής	3A2	3522 <sup>3/</sup>
	Η. Πλαστικό	μη-μετακινούμενης κεφαλής	3H1	3526
		μετακινούμενης κεφαλής	3H2	3526 <sup>3/</sup>
4. Κιβώτια	Α. Χάλυβας	-	4A	3532 <sup>3/</sup>
		με επένδυση	4A	
	Β. Αλουμίνιο	-	4B	3532 <sup>3/</sup>
		με επένδυση	4B	
	C. Φυσικό ξύλο	κοινό	4C1	3527 <sup>3/</sup>
		με αδιαπέραστα τοιχώματα	4C2	
	D. Κόντρα πλακέ	-	4D	3528 <sup>3/</sup>
	F. Ανασυσταμένο ξύλο	-	4F	3529 <sup>3/</sup>
G. Φύλλο φάϊμπερ	-	4G	3530 <sup>3/</sup>	

<sup>3/</sup> Σύμφωνα με το περιθωριακό 3538 αυτές οι συσκευασίες μπορούν να χρησιμοποιούνται ως εξωτερικές συσκευασίες για συνδυασμένες συσκευασίες.



## Προσθήκη Α.5

3514  
(συνεχ.)

Είδος	Υλικό	Κατηγορία	Κωδικός	Περιθωριακό
	Η. Πλαστικό	τεταμένο	4H1	3531 <sup>3/</sup>
		στερεό	4H2	
5. Σάκοι	Η. Πλεγμένο πλαστικό	χωρίς εσωτερική επένδυση ή επικάλυψη	5H1	3534
		αδιαπέραστο	5H2	
		ανθεκτικό στο νερό	5H3	
	Η. Πλαστικό φιλμ		5H4	3535
	Λ. Ύφασμα	χωρίς εσωτερική επένδυση ή επικάλυψη	5L1	3533
		αδιαπέραστο	5L2	
		ανθεκτικό στο νερό	5L3	
	Μ. Χαρτί	πολλαπλών τοιχωμάτων	5M1	3536
πολλαπλών τοιχωμάτων, ανθεκτικό στο νερό		5M2		
6. Σύνθετες συσκευασίες	Η. Πλαστικά δοχεία	σε χαλύβδινο βαρέλι	6HA1	3537
		σε χαλύβδινο κλωβό <sup>4/</sup> ή κιβώτιο	6HA2	
		σε αλουμινένιο βαρέλι	6HB1	
		σε αλουμινένιο κλωβό ή κιβώτιο	6HB2	
		σε ξύλινο κιβώτιο	6HC	
		σε βαρέλι από κόντρα πλακέ	6HD1	
		σε κιβώτιο από κόντρα πλακέ	6HD2	
		σε βαρέλι από φάιμπερ	6HG1	
		σε κιβώτιο από φύλλο φάιμπερ	6HG2	
		σε πλαστικό βαρέλι	6HH1	
		σε στερεό πλαστικό κιβώτιο	6HH2	

<sup>3/</sup> Σύμφωνα με το περιθωριακό 3538 αυτές οι συσκευασίες μπορούν να χρησιμοποιούνται ως εξωτερικές συσκευασίες για συνδυασμένες συσκευασίες.

<sup>4/</sup> Οι κλωβοί είναι εξωτερικές συσκευασίες με μη-πλήρεις επιφάνειες.

## Προσθήκη Α.5

3514  
(συνεχ.)

Είδος	Υλικό	Κατηγορία	Κωδικός	Περιθωριακό
<b>Β. Συσκευασίες που μπορούν να συμφωνούν με το περιθωριακό 3510 (1) ή (2)</b>				
6. Σύνθετες συσκευασίες	Ρ. Δοχεία από γυαλί, πορσελάνη ή ψαμμάργλο	σε χαλύβδινο βαρέλι	6PA1	3539
		σε χαλύβδινο κλωβό ή κιβώτιο	6PA2	
		σε αλουμινένιο βαρέλι	6PB1	
		σε αλουμινένιο κλωβό ή κιβώτιο	6PB2	
		σε ξύλινο κιβώτιο	6PC	
		σε βαρέλι από κόντρα πλακέ	6PD1	
		σε ψάθινο σκεπαστό κοφίνι	6PD2	
		σε βαρέλι από φάιμπερ	6PG1	
		σε κιβώτιο από φύλλο φάιμπερ	6PG2	
		σε συσκευασία από τεταμένο πλαστικό	6PH1	
		σε συσκευασία από στερεό πλαστικό	6PH2	
<b>Γ. Σύμφωνα μόνον με το περιθωριακό 3510 (2) και μαρκαρισμένες με "ADR" [ή ("RID/ADR")]</b>				
0. Ελαφρού περιτυπώματος μεταλλικές συσκευασίες	Α. Χάλυβας	μη-μετακινούμενης κεφαλής	0A1	3540
		μετακινούμενης κεφαλής	0A2	

## Προσθήκη Α.5

3515-  
3519

## Μέρος III: Απαιτήσεις για συσκευασίες

## Α. Συσκευασίες σύμφωνα με το περιθωριακό 3510 (1)

## 3520 Χαλύβδινα βαρέλια

1A1 μη-μετακινούμενης κεφαλής

1A2 μετακινούμενης κεφαλής

- (a) Το φύλλο μετάλλου για το σώμα και τα άκρα θα πρέπει να είναι από κατάλληλο χάλυβα και περιτυπώματος κατάλληλου για τη χωρητικότητα του βαρελιού και την προοριζόμενη χρήση.
- (b) Οι ραφές του σώματος θα πρέπει να είναι συγκολλημένες στα βαρέλια που είναι προοριζόμενα να περιέχουν περισσότερο από 40 λίτρα υγρού. Οι ραφές του σώματος θα πρέπει να είναι μηχανικά ραμμένες ή συγκολλημένες στα βαρέλια που είναι προοριζόμενα να περιέχουν στερεά ή υγρά 40 λίτρων ή λιγότερο.
- (c) Οι ραφές της κεφαλής και του στομίου θα πρέπει να είναι μηχανικά ραμμένες ή συγκολλημένες.
- (d) Εάν υπάρχουν κυλιόμενα τσέρκια με βάσεις θα πρέπει να είναι προσαρμοσμένα σφιχτά πάνω στο σώμα και έτσι ασφαλισμένα ώστε να μην μπορούν να μετακινούνται. Τα κυλιόμενα τσέρκια δεν θα πρέπει να είναι στιγματικά συγκολλημένα.
- (e) Εσωτερικές επικαλύψεις μολύβδου, ψευδαργύρου, κασσιτέρου, λάκας και τα όμοια θα πρέπει να είναι σκληρές και ανθεκτικές και θα πρέπει να προσκολλούνται στο χάλυβα σε κάθε σημείο, συμπεριλαμβανομένων των πωμάτων.
- (f) Ανοίγματα για γέμισμα, άδειασμα και εξαερισμό στα σώματα ή τις κεφαλές των μη-μετακινούμενης κεφαλής (1A1) βαρελιών δεν θα πρέπει να υπερβαίνουν τα 7 cm σε διάμετρο. Βαρέλια με μεγαλύτερα ανοίγματα θεωρούνται ότι είναι του τύπου μετακινούμενης κεφαλής (1A2).
- (g) Τα πώματα θα πρέπει να έχουν ενσωματωμένη μία στεγανή φλάντζα εκτός όπου ένα κωνικό σπείρωμα εξασφαλίζει συγκρίσιμη στεγανότητα.
- (h) Πώματα των μη-μετακινούμενης κεφαλής βαρελιών θα πρέπει είτε να είναι τύπου βιδωτού σπειρώματος είτε να είναι ικανά να ασφαλίζονται από μία συσκευή βιδωτού σπειρώματος ή μία συσκευή τουλάχιστον εξίσου αποτελεσματική.
- (i) Οι συσκευές σπειρώματος για μετακινούμενης κεφαλής βαρέλια θα πρέπει να είναι έτσι σχεδιασμένες και εφαρμοσμένες ώστε να παραμένουν ασφαλείς και τα βαρέλια να παραμένουν στεγανά υπό κανονικές συνθήκες μεταφοράς. Οι φλάντζες ή άλλα στοιχεία σφραγίσματος θα πρέπει να χρησιμοποιούνται με όλες τις μετακινούμενες κεφαλές.
- (j) Μέγιστη χωρητικότητα βαρελιού: 450 λίτρα.
- (k) Μέγιστο καθαρό βάρος: 400 kg.

## 3521 Αλουμινένια βαρέλια

1B1 μη-μετακινούμενης κεφαλής

1B2 μετακινούμενης κεφαλής

## Προσθήκη Α.5

- 3521 (συνεχ.)**
- (a) Το σώμα και οι κεφαλές θα πρέπει να είναι από αλουμίνιο τουλάχιστον 99 % καθαρό, ή από ένα κράμα με βάση το αλουμίνιο που έχει αντίσταση στη διάβρωση και μηχανικές ιδιότητες κατάλληλες για τη χωρητικότητα του βαρελιού και της προοριζόμενης χρήσης του.
- (b) Ανοίγματα για γέμισμα, άδειασμα και εξαερισμό στα σώματα ή τις κεφαλές των μη-μετακινούμενης κεφαλής (1B1) βαρελιών δεν θα πρέπει να υπερβαίνουν τα 7 cm σε διάμετρο. Βαρέλια με μεγαλύτερα ανοίγματα θεωρούνται ότι είναι του τύπου μετακινούμενης κεφαλής (1B2).
- (c) Αλουμινένια βαρέλια 1B1.
- Οι ραφές στα άκρα, εάν υπάρχουν, θα πρέπει να είναι επαρκώς ενισχυμένες για την προστασία τους. Εάν υπάρχουν οποιοσδήποτε ραφές στο σώμα και τα άκρα θα πρέπει να είναι συγκολλημένες. Το πόμα θα πρέπει είτε να είναι τύπου βιδωτού σπειρώματος είτε να είναι ικανό να ασφαρίζεται με μία συσκευή βιδωτού σπειρώματος ή μία συσκευή τουλάχιστον εξίσου αποτελεσματική. Τα πόματα θα πρέπει να έχουν ενσωματωμένη μία στεγανή φλάντζα εκτός όπου ένα κωνικό σπείρωμα εξασφαλίζει συγκρίσιμη στεγανότητα.
- (d) Αλουμινένια βαρέλια 1B2.
- Το σώμα του βαρελιού θα πρέπει είτε να είναι χωρίς ραφές είτε να έχει μία συγκολλημένη ραφή. Τα πόματα θα πρέπει να είναι έτσι σχεδιασμένα και προσαρμοσμένα ώστε να παραμένουν ασφαλή και τα βαρέλια να παραμένουν στεγανά υπό κανονικές συνθήκες μεταφοράς. Φλάντζες ή άλλα σφραγιστικά στοιχεία θα πρέπει να χρησιμοποιούνται με όλες τις μετακινούμενες κεφαλές.
- (e) Μέγιστη χωρητικότητα βαρελιού : 450 λίτρα.
- (f) Μέγιστο καθαρό βάρος: 400 kg.
- 3522 Χαλύβδινα μπιτόνια**
- 3A1 μη-μετακινούμενης κεφαλής  
3A2 μετακινούμενης κεφαλής
- (a) Το σώμα και οι κεφαλές θα πρέπει να είναι κατασκευασμένες από φύλλο χάλυβα κατάλληλου τύπου και επαρκούς πάχους σε σχέση με τη χωρητικότητα του μπιτονιού και της προοριζόμενης χρήσης του.
- (b) Τα στόμια όλων των μπιτονιών θα πρέπει να είναι μηχανικά ραμμένα ή συγκολλημένα. Ραφές στο σώμα μπιτονιών προοριζόμενων να περιέχουν περισσότερο από 40 λίτρα υγρού θα πρέπει να είναι συγκολλημένες. Ραφές στο σώμα μπιτονιών προοριζόμενων να μεταφέρουν 40 λίτρα ή λιγότερο θα πρέπει να είναι μηχανικά ραμμένες ή συγκολλημένες.
- (c) Ανοίγματα σε μπιτόνια (3A1) δεν θα πρέπει να υπερβαίνουν τα 7 cm σε διάμετρο. Μπιτόνια με μεγαλύτερα ανοίγματα θεωρούνται ότι είναι του τύπου μετακινούμενης κεφαλής (3A2).
- (d) Πόματα μη-μετακινούμενης κεφαλής μπιτονιών (3A1) θα πρέπει είτε να είναι του τύπου βιδωτού σπειρώματος είτε να είναι ικανά να ασφαρίζονται με μία συσκευή βιδωτού σπειρώματος ή μία συσκευή τουλάχιστον εξίσου αποτελεσματική. Η συσκευή κλεισίματος μετακινούμενης κεφαλής μπιτονιών (3A2) θα πρέπει να είναι έτσι σχεδιασμένη και προσαρμοσμένη ώστε να παραμένει ασφαλής και τα μπιτόνια να παραμένουν στεγανά υπό κανονικές συνθήκες μεταφοράς.
- (e) Μέγιστη χωρητικότητα μπιτονιού: 60 λίτρα.
- (f) Μέγιστο καθαρό βάρος: 120 kg.

## Προσθήκη Α.5

## 3523 Βαρέλια από κόντρα πλακέ

1D

- (a) Το ξύλο που χρησιμοποιείται θα πρέπει να είναι καλά ωριμασμένο, εμπορικά ξηρό και ελεύθερο από οποιοδήποτε ελάττωμα που είναι πιθανόν να μειώσει την αποτελεσματικότητα του βαρελιού για τον προοριζόμενο σκοπό. Εάν ένα υλικό άλλο από κόντρα πλακέ χρησιμοποιείται για την κατασκευή των άκρων, θα πρέπει να είναι ποιότητας ισοδύναμης με το κόντρα πλακέ.
- (b) Κόντρα πλακέ δύο φύλλων θα πρέπει να χρησιμοποιείται για το σώμα και κόντρα πλακέ τουλάχιστον τριών φύλλων για τα άκρα. Τα φύλλα θα πρέπει να είναι σφιχτά κολλημένα μαζί, με τις ίνες τους εγκάρσιες, με μία αδιάβροχη κόλλα.
- (c) Το σώμα και τα άκρα θα πρέπει να είναι σχεδιασμού κατάλληλου για τη χωρητικότητα του βαρελιού και την προοριζόμενη χρήση του.
- (d) Για αποφυγή της μετακίνησης του περιεχομένου, τα καπάκια θα πρέπει να είναι επένδεδυμένα με χαρτί kraft ή κάποιο άλλο ισοδύναμο υλικό που θα πρέπει να είναι με ασφάλεια δεμένο στο καπάκι και να επεκτείνεται στο εξωτερικό κατά μήκος όλης της περιφέρειάς του.
- (e) Μέγιστη χωρητικότητα βαρελιού: 250 λίτρα.
- (f) Μέγιστο καθαρό βάρος: 400 kg.

## 3524 Εύλινα βαρέλια

2C1 τύπου φελλού

2C2 μετακινούμενης κεφαλής

- (a) Το ξύλο που χρησιμοποιείται θα πρέπει να είναι καλής ποιότητας, με ίσιες ίνες, καλά ωριμασμένο και ελεύθερο από ρόζους, φλοιό, σάπιο ξύλο, σομφό ξύλο ή άλλα ελαττώματα που είναι πιθανόν να μειώσουν την αποτελεσματικότητα του βαρελιού για τον προοριζόμενο σκοπό.
- (b) Το σώμα και τα άκρα θα πρέπει να είναι σχεδιασμού κατάλληλου για τη χωρητικότητα του βαρελιού και της προοριζόμενης χρήσης του.
- (c) Οι σανίδες και τα άκρα θα πρέπει να είναι κομμένα ή σχισμένα με τις ίνες έτσι ώστε να μην προεξέχει δακτύλιος περισσότερο από το μισό του πάχους μίας σανίδας ή κεφαλής.
- (d) Τα τσέρκια των βαρελιών θα πρέπει να είναι από χάλυβα ή σίδηρο και καλής ποιότητας. Τα τσέρκια των 2C2 βαρελιών με μετακινούμενες κεφαλές μπορούν να είναι από κατάλληλο σκληρό ξύλο.
- (e) Εύλινα βαρέλια 2C1:
- Η διάμετρος της οπής του φελλού δεν θα πρέπει να υπερβαίνει το μισό του πλάτους της σανίδας στην οποία βρίσκεται.
- (f) Εύλινα βαρέλια 2C2:

Οι κεφαλές θα πρέπει να προσαρμόζονται σφιχτά μέσα στα πλαίσια.

## Προσθήκη Α.5

- 3524 (g) Μέγιστη χωρητικότητα βαρελιού: 250 λίτρα.  
(συνεχ.) (h) Μέγιστο καθαρό βάρος: 400 kg.

## 3525 Βαρέλια από φάιμπερ

1G

- (a) Το σώμα του βαρελιού θα πρέπει να συνίσταται από πολλαπλά φύλλα από βαρύ χαρτί ή φύλλο φάιμπερ (χωρίς αυλακώσεις) σφιχτά κολλημένα ή φυλλαρισμένα μαζί και μπορεί να περιλαμβάνει ένα ή περισσότερα προστατευτικά στρώματα από βιτούμιο, κερωμένο χαρτί kraft, φύλλο μετάλλου, πλαστικό υλικό κ.λπ.
- (b) Οι κεφαλές θα πρέπει να είναι από φυσικό ξύλο, φύλλο φάιμπερ, μέταλλο, κόντρα πλακέ, πλαστικό ή άλλο κατάλληλο υλικό και μπορούν να περιλαμβάνουν ένα ή περισσότερα προστατευτικά στρώματα από βιτούμιο, κερωμένο χαρτί kraft, φύλλο μετάλλου, πλαστικό υλικό κ.λπ.
- (c) Το σώμα και οι κεφαλές του βαρελιού και οι συνδέσεις τους θα πρέπει να είναι σχεδιασμού κατάλληλου για τη χωρητικότητα του βαρελιού και την προοριζόμενη χρήση του.
- (d) Η συναρμολογημένη συσκευασία θα πρέπει να είναι επαρκώς αδιάβροχη έτσι ώστε να μην αποφυλώνεται υπό κανονικές συνθήκες μεταφοράς.
- (e) Μέγιστη χωρητικότητα βαρελιού: 450 λίτρα.
- (f) Μέγιστο καθαρό βάρος: 400 kg.

## 3526 Πλαστικά βαρέλια και μπιτόνια

- 1H1 βαρέλια, μη-μετακινούμενης κεφαλής  
1H2 βαρέλια, μετακινούμενης κεφαλής  
3H1 μπιτόνια, μη-μετακινούμενης κεφαλής  
3H2 μπιτόνια, μετακινούμενης κεφαλής

- (a) Οι συσκευασίες θα πρέπει να είναι ικανές να αντέχουν τις φυσικές (συγκεκριμένα μηχανικές και θερμικές) και χημικές καταπονήσεις που είναι αναμενόμενες στη μεταφορά και να παραμένουν στεγανές. Θα πρέπει να είναι ικανές να αντέχουν επικίνδυνες ύλες και τους ατμούς τους. Θα πρέπει επίσης να έχουν τον απαραίτητο βαθμό αντίστασης στη γήρανση και την υπεριώδη ακτινοβολία. Οι συσκευασίες θα πρέπει να είναι ασφαλείς στον χειρισμό.
- (b) Εκτός εάν αλλιώς έχει εγκριθεί από την αρμόδια αρχή, η επιτρεπόμενη περίοδος χρήσης για τη μεταφορά επικίνδυνων υλών δεν θα πρέπει να υπερβαίνει τα πέντε χρόνια, από την ημερομηνία κατασκευής της συσκευασίας, εκτός όπου μία βραχύτερη περίοδος χρήσης ορίζεται λόγω της φύσης της προς μεταφορά ύλης.
- (c) Εάν απαιτείται προστασία έναντι υπεριώδους ακτινοβολίας, θα πρέπει να δίνεται με την προσθήκη αιθάλης ή άλλων κατάλληλων χρωστικών ή αναστολέων. Αυτά τα πρόσθετα θα πρέπει να είναι συμβατά με το περιεχόμενο και να παραμένουν αποτελεσματικά καθ' όλη τη ζωή της συσκευασίας. Όπου χρησιμοποιείται αιθάλη, χρωστικές ή αναστολείς άλλοι από εκείνους που χρησιμοποιούνται στην κατασκευή του ελεγμένου τύπου σχεδιασμού, ο επανέλεγχος μπορεί να παραλείπεται εάν η περιεκτικότητα σε αιθάλη δεν υπερβαίνει το 2 % κατά βάρος ή εάν η περιεκτικότητα σε χρωστική δεν υπερβαίνει το 3 % κατά βάρος. Δεν υπάρχει όριο για την περιεκτικότητα σε αναστολείς της υπεριώδους ακτινοβολίας.

## Προσθήκη Α.5

- 3526 (d)** Πρόσθετα που εξηηρετούν σκοπούς άλλους από την προστασία έναντι υπερϊδους ακτινοβολίας μπορούν να συμπεριλαμβάνονται στη σύνθεση του πλαστικού υλικού υπό την προϋπόθεση ότι δεν επηρεάζουν δυσμενώς τις χημικές και φυσικές ιδιότητες του υλικού της συσκευασίας. Σε τέτοιες περιπτώσεις, ο επανέλεγχος μπορεί να παραλείπεται.
- (e)** Κατάλληλα μέτρα θα πρέπει να λαμβάνονται ώστε να εξασφαλίζεται ότι το πλαστικό υλικό που πρόκειται να χρησιμοποιηθεί στην κατασκευή της συσκευασίας είναι χημικώς συμβατό με τα εμπορεύματα που η συσκευασία είναι προοριζόμενη να περιέχει, [βλέπε περιθωριακό 3551 (5)].
- (f)** Οι συσκευασίες θα πρέπει να είναι κατασκευασμένες από κατάλληλο πλαστικό υλικό γνωστής προέλευσης και προδιαγραφών. Η κατασκευή τους θα πρέπει να είναι πλήρως κατάλληλη για πλαστικά υλικά και σε συμφωνία με τις τεχνολογικές εξελίξεις. Για νέες συσκευασίες, κανένα μεταχειρισμένο υλικό πέραν από υπόλοιπα παραγωγής ή τορναρίσματα από την ίδια παραγωγική διαδικασία δεν μπορούν να χρησιμοποιούνται.
- (g)** Το πάχος τοιχωμάτων σε κάθε σημείο της συσκευασίας θα πρέπει να είναι κατάλληλο για την χωρητικότητα της και την προοριζόμενη χρήση της, λαμβανομένων πάντως υπόψη των καταπονήσεων στις οποίες κάθε σημείο υπόκειται.
- (h)** Τα ανοίγματα για γέμισμα, άδειασμα και εξαερισμό στα σώματα ή τις κεφαλές των μη-μετακινούμενης κεφαλής βαρελιών (1H1) και μπιτονιών (3H1) δεν θα πρέπει να υπερβαίνουν τα 7 cm σε διάμετρο. Βαρέλια και μπιτόνια με μεγαλύτερα ανοίγματα θεωρούνται ότι είναι του τύπου μετακινούμενης κεφαλής (1H2, 3H2).
- (i)** Μετακινούμενης κεφαλής βαρέλια (1H2) και μπιτόνια (3H2) που χρησιμοποιούνται για στερεές ύλες θα πρέπει να παραμένουν στεγανά σε κάθε σημείο αναφορικά με την πληρωτική ύλη.

Τα πάματα των μη-μετακινούμενης κεφαλής βαρελιών και μπιτονιών (1H1, 3H1) θα πρέπει είτε να είναι του τύπου βιδωτού σπειρώματος είτε να είναι ικανά να ασφαλιζονται με μία συσκευή βιδωτού σπειρώματος ή μία συσκευή τουλάχιστον εξίσου αποτελεσματική. Η συσκευή κλεισίματος των μετακινούμενης κεφαλής βαρελιών και μπιτονιών (1H2, 3H2) θα πρέπει να είναι έτσι σχεδιασμένη και προσαρμοσμένη ώστε να παραμένει ασφαλής και τα βαρέλια ή μπιτόνια να παραμένουν στεγανά υπό κανονικές συνθήκες μεταφοράς.

Οι φλάντζες θα πρέπει να χρησιμοποιούνται με όλες τις μετακινούμενες κεφαλές εκτός εάν ο σχεδιασμός του βαρελιού ή μπιτονιού είναι τέτοιος ώστε, όπου η μετακινούμενη κεφαλή είναι σωστά ασφαλισμένη, το βαρέλι ή μπιτόνι να είναι από μόνο του στεγανό.

- (j)** Η μέγιστη επιτρεπτή διείσδυση για άφλεκτα υγρά θα πρέπει να είναι 0.008g/l.h στους 23 °C (βλέπε περιθωριακό 3556).
- (k)** Μέγιστη χωρητικότητα βαρελιών και μπιτονιών:
- |           |           |
|-----------|-----------|
| 1H1, 1H2: | 450 λίτρα |
| 3H1, 3H2: | 60 λίτρα  |
- (l)** Μέγιστο καθαρό βάρος:
- |           |         |
|-----------|---------|
| 1H1, 1H2: | 400 kg  |
| 3H1, 3H2: | 120 kg. |

**3527 Κιβώτια από φυσικό ξύλο**

- 4C1 κοινά  
4C2 με αδιαπέραστα τοιχώματα

## Προσθήκη Α.5

**3527 ΣΗΜΕΙΩΣΗ:** Για κιβώτια από κόντρα πλακέ, βλέπε περιθωριακό 3528: για κιβώτια από (συνεχ.) ανασυσταμένο ξύλο, βλέπε περιθωριακό 3529.

- (a) Το ξύλο που χρησιμοποιείται θα πρέπει να είναι καλά ωριμασμένο, εμπορικά ξηρό και ελεύθερο από ελαττώματα που θα μπορούσαν σημαντικά να μειώσουν την ισχύ οποιουδήποτε μέρους του κιβωτίου. Η ισχύς του υλικού που χρησιμοποιείται και η μέθοδος κατασκευής θα πρέπει να είναι κατάλληλες για τη χωρητικότητα του κιβωτίου και της προοριζόμενης χρήσης του. Οι κορυφές και οι πυθμένες μπορούν να είναι κατασκευασμένοι από αδιάβροχο ανασυσταμένο ξύλο τέτοιου όπως σκληρό ξύλο, νοβοπάν ή άλλος κατάλληλος τύπος.

Τα στερεώματα θα πρέπει να είναι ανθεκτικά στη δόννηση που συμβαίνει υπό κανονικές συνθήκες μεταφοράς. Κάρφωμα των ινών των άκρων θα πρέπει να αποφεύγεται όποτε είναι πρακτικώς δυνατόν. Οι συνδέσεις που είναι πιθανόν να καταπονηθούν σημαντικά θα πρέπει να είναι κατασκευασμένες με τη χρήση πριτσινωμένων ή δακτυλιοειδών καρφιών ή ισοδύναμων στερεωμάτων.

- (b) Κιβώτια με αδιαπέραστα τοιχώματα 4C2:

Κάθε μέρος του κιβωτίου θα πρέπει να είναι μονοκόμματο ή κάτι ισοδύναμο. Ένα μέρος θα πρέπει να θεωρείται ισοδύναμο με ένα μονοκόμματο μέρος εάν είναι κολλημένο με μία από τις παρακάτω μεθόδους: Άρθρωση Lindermann (χελιδονουρά), άρθρωση τύπου γλώσσα-και-εγκοπή, άρθρωση ship-lap ή άρθρωση αρμού, ή σύνδεση λαβής με τουλάχιστον δύο αυλακωτά μεταλλικά στερεώματα σε κάθε άρθρωση.

- (c) Μέγιστο καθαρό βάρος: 400 kg.

**3528 Κιβώτια από κόντρα πλακέ.**

4D

- (a) Το κόντρα πλακέ που χρησιμοποιείται θα πρέπει να έχει τουλάχιστον τρία φύλλα. Θα πρέπει να είναι κατασκευασμένο από καλά ωριμασμένο περιστροφικά κομμένο, σε φέτες ή πριονισμένο φύλλο αντικολλητού εμπορικά ξηρό και ελεύθερο από ελαττώματα που είναι πιθανόν να μειώσουν την ισχύ του κιβωτίου. Όλα τα φύλλα θα πρέπει να είναι κολλημένα με αδιάβροχη κόλλα. Άλλα κατάλληλα υλικά μπορούν να χρησιμοποιούνται μαζί με κόντρα πλακέ στην κατασκευή των κιβωτίων. Τα κιβώτια θα πρέπει να είναι σφικτά καρφωμένα ή ασφαλισμένα στις γωνίες ή τα άκρα ή να είναι μονταρισμένα με άλλη εξίσου κατάλληλη συσκευή.

- (b) Μέγιστο καθαρό βάρος: 400 kg.

**3529 Κιβώτια από ανασυσταμένο ξύλο**

4F

- (a) Τα τοιχώματα των κιβωτίων θα πρέπει να είναι κατασκευασμένα από αδιάβροχο ανασυσταμένο ξύλο τέτοιου όπως σκληρό ξύλο, νοβοπάν ή άλλον κατάλληλο τύπο. Η ισχύς του υλικού που χρησιμοποιείται και η μέθοδος κατασκευής θα πρέπει να είναι κατάλληλες για τη χωρητικότητα του κιβωτίου και της προοριζόμενης χρήσης του.

- (b) Άλλα μέρη των κιβωτίων μπορούν να είναι κατασκευασμένα από άλλο κατάλληλο υλικό.

- (c) Τα κιβώτια θα πρέπει να είναι με ασφάλεια μονταρισμένα με κατάλληλη συσκευή.

- (d) Μέγιστο καθαρό βάρος: 400 kg.



## Προσθήκη Α.5

3530 *Κιβώτια από φύλλο φάιμπερ*

4G

- (a) Καλής ποιότητας στερεό ή διπλής όψης (μονών ή πολλαπλών τοιχωμάτων) αυλακωτό φύλλο φάιμπερ κατάλληλο για τη χωρητικότητα και την προοριζόμενη χρήση των κιβωτίων θα πρέπει να χρησιμοποιείται. Η αντίσταση στο νερό της εξωτερικής επιφάνειας θα πρέπει να είναι τέτοια ώστε η αύξηση σε βάρος, όπως μετράται σε έναν έλεγχο που διεξάγεται σε μία περίοδο 30 λεπτών με τη μέθοδο προσδιορισμού της απορρόφησης νερού Cobb, να μην είναι μεγαλύτερη από  $155 \text{ g/m}^2$  (σε συμφωνία με το Διεθνές Πρότυπο ISO 535:1991). Το φύλλο φάιμπερ θα πρέπει να είναι ικανό να λυγίζει επαρκώς χωρίς να σπάει. Θα πρέπει να είναι κομμένο, ζαρωμένο χωρίς ραγμές και αυλακωμένο έτσι ώστε να επιτρέπει το μοντάρισμα χωρίς τσάκισμα και χωρίς αδικαιολόγητο σχίσμο ή φουσκώμα των επιφανειών του. Η ράβδωση του αυλακωτού φύλλου φάιμπερ θα πρέπει να είναι σφιχτά κολλημένη στις όψεις.
- (b) Τα άκρα των κιβωτίων μπορούν να έχουν ένα ξύλινο πλαίσιο ή να είναι εξ ολοκλήρου από ξύλο ή άλλο κατάλληλο υλικό. Ενισχύσεις των ξύλινων ράβδων στερέωσης ή άλλο κατάλληλο υλικό μπορεί να χρησιμοποιείται.
- (c) Οι συνδέσεις των κιβωτίων θα πρέπει να είναι τυλιγμένες με κολλητική ταινία, να είναι περιτυλιγμένες και κολλημένες, ή να είναι περιτυλιγμένες και μεταλλικά συνδεδεμένες. Οι περιτυλιγμένες συνδέσεις θα πρέπει να έχουν κατάλληλη επικάλυψη. Όπου επενεργείται κλείσιμο με κόλλημα ή εφαρμογή κολλητικής ταινίας, η κόλλα θα πρέπει να είναι αδιάβροχη.
- (d) Οι διαστάσεις του κιβωτίου θα πρέπει να είναι κατάλληλες για το περιεχόμενο.
- (e) Μέγιστο καθαρό βάρος: 400 kg.

3531 *Πλαστικά κιβώτια*

4H1 κιβώτια από τεταμένο πλαστικό

4H2 κιβώτιο από στερεό πλαστικό

- (a) Το κιβώτιο θα πρέπει να είναι κατασκευασμένο από κατάλληλο πλαστικό υλικό και να είναι επαρκούς αντοχής σε σχέση με τη χωρητικότητα και την προοριζόμενη χρήση του. Το κιβώτιο θα πρέπει να είναι επαρκώς ανθεκτικό στη γήρανση και στην υποβάθμιση που δημιουργείται είτε από την περιεχόμενη ύλη είτε από υπεριώδη ακτινοβολία.
- (b) Ένα κιβώτιο από τεταμένο πλαστικό θα πρέπει να περιλαμβάνει δύο μέρη κατασκευασμένα από ένα χιτό τεταμένο πλαστικό υλικό, ένα κατώτερο μέρος που περιέχει κοιλώματα για τις εσωτερικές συσκευασίες και ένα κορυφαίο μέρος που καλύπτει και συνδέεται με το κατώτερο μέρος. Οι κορυφαίοι και κατώτεροι τομείς θα πρέπει να είναι σχεδιασμένοι έτσι ώστε οι εσωτερικές συσκευασίες να προσαρμόζονται άνετα. Το κάλυμμα του κλεισίματος για οποιαδήποτε εσωτερική συσκευασία δεν θα πρέπει να είναι σε επαφή με το εσωτερικό του κορυφαίου μέρους αυτού του κιβωτίου.
- (c) Για αποστολή, ένα κιβώτιο από τεταμένο πλαστικό θα πρέπει να είναι κλεισμένο με αυτοκόλλητη ταινία που έχει αρκετή ελαστική αντοχή για την παρεμπόδιση του ανοίγματος του κιβωτίου. Η κολλητική ταινία θα πρέπει να είναι ανθεκτική στις καιρικές συνθήκες και η κόλλα της να είναι συμβατή με το τεταμένο πλαστικό υλικό του κιβωτίου. Άλλες συσκευές κλεισίματος τουλάχιστον εξίσου αποτελεσματικές μπορούν να χρησιμοποιούνται.
- (d) Για κιβώτια από στερεό πλαστικό, η προστασία έναντι υπεριώδους ακτινοβολίας, εάν απαιτείται, θα πρέπει να δίνεται με την προσθήκη αιθάλης ή άλλων κατάλληλων χρωστικών ή αναστολέων. Αυτά τα πρόσθετα θα πρέπει να είναι συμβατά με το

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(συνεχ.)

περιεχόμενο και να παραμένουν αποτελεσματικά καθ' όλη τη ζωή του κιβωτίου. Όπου χρησιμοποιείται αιθάλη, χρωστικές ή αναστολείς πέραν εκείνων που χρησιμοποιούνται στην κατασκευή του ελεγμένου τύπου σχεδιασμού, ο επανέλεγχος μπορεί να παραλείπεται εάν η περιεκτικότητα σε αιθάλη δεν υπερβαίνει το 2 % κατά βάρος ή εάν η περιεκτικότητα σε χρωστική δεν υπερβαίνει το 3 % κατά βάρος. Δεν υπάρχει περιορισμός για την περιεκτικότητα σε αναστολείς της υπεριώδους ακτινοβολίας.

- (e) Τα κιβώτια από στερεό πλαστικό θα πρέπει να έχουν συσκευές κλεισίματος κατασκευασμένες από κατάλληλο υλικό επαρκούς αντοχής και έτσι σχεδιασμένες ώστε να παρεμποδίζεται τυχόν ακούσιο άνοιγμα του κιβωτίου.
- (f) Πρόσθετα που εξυπηρετούν σκοπούς πέραν από την προστασία έναντι υπεριώδους ακτινοβολίας μπορούν να συμπεριλαμβάνονται στη σύνθεση του πλαστικού υλικού των κιβωτίων 4H1 και 4H2 υπό την προϋπόθεση ότι δεν επηρεάζουν δυσμενώς τις χημικές και φυσικές ιδιότητες του υλικού. Σε τέτοιες περιπτώσεις, ο επανέλεγχος μπορεί να παραλείπεται.
- (g) Μέγιστο καθαρό βάρος:

4H1:	60 kg.
4H2:	400 kg.

3532 *Κιβώτια από χάλυβα ή αλουμίνιο*4A χάλυβας  
4B αλουμίνιο

- (a) Η αντοχή του μετάλλου και η κατασκευή του κιβωτίου θα πρέπει να είναι κατάλληλες για τη χωρητικότητα του κιβωτίου και την προοριζόμενη χρήση του.
- (b) Τα κιβώτια θα πρέπει να είναι επενδεδυμένα με φύλλο φάιμπερ ή τσόχινα κομμάτια συσκευασίας όπως απαιτείται ή θα πρέπει να έχουν εσωτερική επένδυση ή επικάλυψη κατάλληλου υλικού. Εάν διπλής ραφής μεταλλική επένδυση χρησιμοποιείται, μέτρα θα πρέπει να λαμβάνονται για την παρεμπόδιση της εισόδου των υλών μέσα στις εσοχές των ραφών.
- (c) Τα πάματα μπορούν να είναι οποιουδήποτε κατάλληλου τύπου. Θα πρέπει να παραμένουν ασφαλισμένα υπό κανονικές συνθήκες μεταφοράς.
- (d) Μέγιστο καθαρό βάρος: 400 kg.

3533 *Υφασμάτινοι σάκοι*5L1 χωρίς εσωτερική επένδυση ή επικάλυψη  
5L2 αδιαπέραστοι  
5L3 αδιάβροχοι

- (a) Τα υφάσματα που χρησιμοποιούνται θα πρέπει να είναι καλής ποιότητας. Η αντοχή του υφάσματος και η κατασκευή του σάκου θα πρέπει να είναι κατάλληλες για τη χωρητικότητα του σάκου και της προοριζόμενης χρήσης του.
- (b) Σάκοι, αδιαπέραστοι, 5L2.

Ο σάκος θα πρέπει να είναι φτιαγμένος αδιαπέραστος, για παράδειγμα με τη χρήση:

χαρτιού προσκολλημένου στην εσωτερική επιφάνεια του σάκου με αδιάβροχη κόλλα τέτοια όπως το βιτούμιο, ή

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(συνεχ.)

πλαστικού φιλμ προσκολλημένου στην εσωτερική επιφάνεια του σάκου, ή

μίας ή περισσότερων εσωτερικών επενδύσεων κατασκευασμένων από χαρτί ή πλαστικό υλικό.

## (c) Σάκοι, αδιάβροχοι, 5L3

Για την παρεμπόδιση οποιασδήποτε εισόδου υγρασίας ο σάκος θα πρέπει να είναι φτιαγμένος αδιάβροχος, για παράδειγμα με τη χρήση:

ξεχωριστών εσωτερικών επενδύσεων αδιάβροχου χαρτιού (π.χ. κερωμένο χαρτί kraft, πισσωμένο χαρτί ή χαρτί kraft επικαλυμμένο με πλαστικό), ή

πλαστικού φιλμ προσκολλημένου στην εσωτερική επιφάνεια του σάκου, ή

μίας ή περισσότερων εσωτερικών επενδύσεων κατασκευασμένων από πλαστικό υλικό.

## (d) Μέγιστο καθαρό βάρος:

50 kg.

## 3534 Σάκοι από πλεγμένο πλαστικό

5H1 χωρίς εσωτερική επένδυση ή επικάλυψη

5H2 αδιαπέραστοι

5H3 αδιάβροχοι

(a) Οι σάκοι θα πρέπει να είναι κατασκευασμένοι από τεντωμένες ταινίες ή τεντωμένα μονά νήματα κατάλληλου πλαστικού υλικού. Η αντοχή του υλικού που χρησιμοποιείται και η κατασκευή του σάκου θα πρέπει να είναι κατάλληλες για τη χωρητικότητα του σάκου και την προοριζόμενη χρήση του.

(b) Οι σάκοι μπορούν να είναι εξοπλισμένοι με εσωτερική επένδυση από πλαστικό φιλμ ή να έχουν μία λεπτή εσωτερική επικάλυψη πλαστικού υλικού.

(c) Εάν η ύφανση είναι επίπεδη, οι σάκοι θα πρέπει να σχηματίζονται με ράψιμο ή κάποια άλλη μέθοδο που να εξασφαλίζει το κλείσιμο του πυθμένα και μίας πλευράς. Εάν η ύφανση είναι σωληνοειδής, ο πυθμένας του σάκου θα πρέπει να είναι κλεισμένος με ραφή, πλέξιμο ή κάποια άλλη εξίσου ανθεκτική μέθοδο κλεισίματος.

## (d) Σάκοι, αδιαπέραστοι, 5H2:

Οι σάκοι θα πρέπει να είναι φτιαγμένοι αδιαπέραστοι, για παράδειγμα με:

χαρτί ή ένα πλαστικό φιλμ προσκολλημένο στην εσωτερική επιφάνεια του σάκου, ή

μία ή περισσότερες ξεχωριστές εσωτερικές επενδύσεις κατασκευασμένες από χαρτί ή πλαστικό υλικό.

## (e) Σάκοι, αδιάβροχοι, 5H3

Για την παρεμπόδιση οποιασδήποτε εισόδου υγρασίας, ο σάκος θα πρέπει να είναι φτιαγμένος αδιάβροχος, π.χ. με:

ξεχωριστές εσωτερικές επενδύσεις από αδιάβροχο χαρτί (π.χ. κερωμένο χαρτί kraft, διπλά πισσωμένο χαρτί kraft ή χαρτί kraft με πλαστική επικάλυψη),

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**3534** πλαστικό φιλμ προσκολλημένο στην εσωτερική ή εξωτερική επιφάνεια του σάκου, ή  
(συνεχ.) μία ή περισσότερες εσωτερικές πλαστικές επενδύσεις.

(f) Μέγιστο καθαρό βάρος: 50 kg.

**3535** Σάκοι από πλαστικό φιλμ

5H4

(a) Οι σάκοι θα πρέπει να είναι κατασκευασμένοι από κατάλληλο πλαστικό υλικό. Η αντοχή του υλικού που χρησιμοποιείται και η κατασκευή του σάκου θα πρέπει να είναι κατάλληλες για τη χωρητικότητα του σάκου και την προοριζόμενη χρήση του. Οι ραφές θα πρέπει να αντέχουν πιέσεις και χτυπήματα που σημειώνονται σε κανονικές συνθήκες μεταφοράς.

(b) Μέγιστο καθαρό βάρος: 50 kg.

**3536** Σάκοι από χαρτί

5M1, πολλαπλών τοιχωμάτων

5M2, πολλαπλών τοιχωμάτων, αδιάβροχοι

(a) Οι σάκοι θα πρέπει να είναι κατασκευασμένοι από κατάλληλο χαρτί kraft ή από ένα ισοδύναμο χαρτί με τουλάχιστον τρία φύλλα. Η αντοχή του χαρτιού και η κατασκευή των σάκων θα πρέπει να είναι κατάλληλες για τη χωρητικότητα του σάκου και την προοριζόμενη χρήση του. Οι συνδέσεις και τα πόματα θα πρέπει να είναι αδιαπέραστα.

(b) Σάκοι από χαρτί 5M2:

Για την παρεμπόδιση της εισόδου υγρασίας, ένας σάκος τεσσάρων φύλλων ή περισσότερων θα πρέπει να είναι φτιαγμένος αδιάβροχος με τη χρήση είτε ενός ανθεκτικού στο νερό φύλλου ως ένα από τα δύο ακριανά φύλλα είτε ενός φραγμού του νερού κατασκευασμένου από κατάλληλο προστατευτικό υλικό μεταξύ των δύο ακριανών φύλλων. Ένας σάκος τριών φύλλων θα πρέπει να είναι φτιαγμένος αδιάβροχος με τη χρήση ανθεκτικού στο νερό φύλλου ως ακριανό φύλλο. Όπου υπάρχει κίνδυνος η περιεχόμενη ύλη να αντιδράσει με τη υγρασία ή όπου είναι συσκευασμένος ατμός, ένα αδιάβροχο φύλλο ή φραγμός, τέτοιος όπως διπλά πισσωμένο χαρτί kraft, χαρτί kraft με πλαστική επικάλυψη, πλαστικό φιλμ προσκολλημένο στην εσωτερική επιφάνεια του σάκου, ή μία ή περισσότερες εσωτερικές πλαστικές επενδύσεις, θα πρέπει επίσης να τοποθετούνται διπλά στην ύλη. Οι συνδέσεις και τα πόματα θα πρέπει να είναι αδιάβροχα.

(c) Μέγιστο καθαρό βάρος: 50 kg.

**3537** Σύνθετες συσκευασίες (πλαστικού υλικού)

6HA1 πλαστικό δοχείο με εξωτερικό χαλύβδινο βαρέλι

6HA2 πλαστικό δοχείο με εξωτερικό χαλύβδινο κλωβό<sup>5/</sup> ή κιβώτιο

6HB1 πλαστικό δοχείο με εξωτερικό αλουμινένιο βαρέλι

6HB2 πλαστικό δοχείο με εξωτερικό αλουμινένιο κλωβό<sup>5/</sup> ή κιβώτιο

6HC πλαστικό δοχείο με εξωτερικό ξύλινο κιβώτιο

6HD1 πλαστικό δοχείο με εξωτερικό βαρέλι από κόντρα πλακέ

6HD2 πλαστικό δοχείο με εξωτερικό κιβώτιο από κόντρα πλακέ

6HG1 πλαστικό δοχείο με εξωτερικό βαρέλι από φάιμπερ

6HG2 πλαστικό δοχείο με εξωτερικό κιβώτιο από φύλλο φάιμπερ

<sup>5/</sup>

Οι κλωβοί είναι εξωτερικές συσκευασίες με μη-πλήρεις επιφάνειες.

## Προσθήκη Α.5

3537 6HH1 πλαστικό δοχείο με εξωτερικό πλαστικό βαρέλι  
(συνεχ.) 6HH2 πλαστικό δοχείο με εξωτερικό κιβώτιο από στερεό πλαστικό κιβώτιο

(a) *Εσωτερικό δοχείο*

- (1) Οι διατάξεις του περιθωριακού 3526 (a) και (c) έως (h) θα πρέπει να ισχύουν για πλαστικά εσωτερικά δοχεία.
- (2) Το πλαστικό εσωτερικό δοχείο θα πρέπει να προσαρμόζεται άνετα μέσα στην εξωτερική συσκευασία, που θα πρέπει να είναι ελεύθερη από οποιαδήποτε προεξοχή που θα μπορούσε να γδάρει το πλαστικό υλικό.
- (3) Μέγιστη χωρητικότητα του εσωτερικού δοχείου:
 

6HA1, 6HB1, 6HD1, 6HG1, 6HH1:	250 λίτρα
6HA2, 6HB2, 6HC, 6HD2, 6HG2, 6HH2:	60 λίτρα.
- (4) Μέγιστο καθαρό βάρος:
 

6HA1, 6HB1, 6HD1, 6HG1, 6HH1:	400 κλά
6HA2, 6HB2, 6HC, 6HD2, 6HG2, 6HH2:	75 κλά.

(b) *Εξωτερική συσκευασία*

- (1) Πλαστικό δοχείο με εξωτερικό χαλύβδινο ή αλουμινένιο βαρέλι 6HA1 ή 6HB1. Οι διατάξεις του περιθωριακού 3520 (a) έως (i) ή 3521 (a) έως (d), όποιο είναι κατάλληλο, θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.
- (2) Πλαστικό δοχείο με εξωτερικό χαλύβδινο ή αλουμινένιο κλωβό ή κιβώτιο 6HA2 ή 6HB2. Οι διατάξεις του περιθωριακού 3532 θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.
- (3) Πλαστικό δοχείο με εξωτερικό ξύλινο κιβώτιο 6HC. Οι διατάξεις του περιθωριακού 3527 θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.
- (4) Πλαστικό δοχείο με εξωτερικό βαρέλι από κόντρα πλακέ 6HD1. Οι διατάξεις του περιθωριακού 3523 θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.
- (5) Πλαστικό δοχείο με εξωτερικό κιβώτιο από κόντρα πλακέ 6HD2. Οι διατάξεις του περιθωριακού 3528 θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.
- (6) Πλαστικό δοχείο με εξωτερικό βαρέλι από φάιμπερ 6HG1. Οι διατάξεις του περιθωριακού 3525 (a) έως (d) θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.
- (7) Πλαστικό δοχείο με εξωτερικό κιβώτιο από φύλλο φάιμπερ 6HG2. Οι διατάξεις του περιθωριακού 3530 (a) έως (c) θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.
- (8) Πλαστικό δοχείο με εξωτερικό πλαστικό βαρέλι 6HH1. Οι διατάξεις του περιθωριακού 3526 (a) και (c) έως (h) θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.

## Προσθήκη Α.5

3537 (9) Πλαστικό δοχείο με εξωτερικό κιβώτιο από στερεό πλαστικό 6ΗΗ2. Οι σχετικές (συνεχ.) διατάξεις του περιθωριακού 3531 (a), (d), (e) και (f) θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.

3538 *Συνδυασμένες συσκευασίες*(a) *Εσωτερικές συσκευασίες*

Τα παρακάτω μπορούν να χρησιμοποιούνται:

συσκευασίες από γυαλί, πορσελάνη ή ψαμμάργλιο με μέγιστη επιτρεπτή χωρητικότητα 5 λίτρα για υγρά ή 5 kg για στερεά,

πλαστικές συσκευασίες με μέγιστη επιτρεπτή χωρητικότητα 30 λίτρα για υγρά ή 30 kg για στερεά,

μεταλλικές συσκευασίες με μέγιστη επιτρεπτή χωρητικότητα 40 λίτρα για υγρά ή 40 kg για στερεά,

σακούλια και σάκοι από χαρτί, ύφασμα, πλεγμένο πλαστικό ή πλαστικό φιλμ με μέγιστη επιτρεπτή χωρητικότητα 5 kg για στερεά σε σακούλια και 50 kg σε σάκους,

τενεκέδες, πτυσσόμενα χαρτοκιβώτια και κιβώτια κατασκευασμένα από φύλλο φάϊμπερ ή πλαστικό με μέγιστη επιτρεπτή χωρητικότητα 10 kg για στερεά,

άλλοι τύποι μικρών συσκευασιών τέτοιοι όπως σωλήνες με μέγιστη επιτρεπτή χωρητικότητα 1 λίτρο για υγρά ή 1 kg για στερεά.

(b) *Εξωτερική συσκευασία*

Τα παρακάτω μπορούν να χρησιμοποιούνται:

χαλύβδινα βαρέλια, μετακινούμενης κεφαλής (περιθωριακό 3520),

αλουμινένια βαρέλια, μετακινούμενης κεφαλής (περιθωριακό 3521),

χαλύβδινα μπιτόνια, μετακινούμενης κεφαλής (περιθωριακό 3522),

βαρέλια από κόντρα πλακέ (περιθωριακό 3523),

βαρέλια από φάϊμπερ (περιθωριακό 3525),

πλαστικά βαρέλια, μετακινούμενης κεφαλής (περιθωριακό 3526),

πλαστικά μπιτόνια, μετακινούμενης κεφαλής (περιθωριακό 3526),

κιβώτια από φυσικό ξύλο (περιθωριακό 3527),

κιβώτια από κόντρα πλακέ (περιθωριακό 3528),

κιβώτια από ανασυσταμένο ξύλο (περιθωριακό 3529),

κιβώτια από φύλλο φάϊμπερ (περιθωριακό 3530),

πλαστικά κιβώτια (περιθωριακό 3531),

χαλύβδινα ή αλουμινένια κιβώτια (περιθωριακό 3532).

## Προσθήκη Α.5

## B. Συσκευασίες που μπορούν να συμφωνούν με το περιθωριακό 3510 (1) ή (2)

3539

*Σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργιλος)*

- 6PA1 δοχείο με εξωτερικό χαλύβδινο βαρέλι
- 6PA2 δοχείο με εξωτερικό χαλύβδινο κλωβό<sup>8/</sup> ή κιβώτιο
- 6PB1 δοχείο με εξωτερικό αλουμινένιο βαρέλι
- 6PB2 δοχείο με εξωτερικό αλουμινένιο κλωβό<sup>8/</sup> ή κιβώτιο
- 6PC δοχείο με εξωτερικό ξύλινο κιβώτιο
- 6PD1 δοχείο με εξωτερικό βαρέλι από κόντρα πλακέ
- 6PD2 δοχείο με εξωτερικό ψάθινο σκεπαστό κοφίνι
- 6PG1 δοχείο με εξωτερικό βαρέλι από φάιμπερ
- 6PG2 δοχείο με εξωτερικό κιβώτιο από φύλλο φάιμπερ
- 6PH1 δοχείο με εξωτερική συσκευασία από τεταμένο πλαστικό
- 6PH2 δοχείο με εξωτερική συσκευασία από στερεό πλαστικό

(a) *Εσωτερικό δοχείο*

- (1) Το δοχείο θα πρέπει να είναι κατάλληλα μορφοποιημένο (με μορφή κυλίνδρου ή αχλαδιού) και να είναι κατασκευασμένο από καλής ποιότητας υλικό ελεύθερο από οποιοδήποτε ελάττωμα που θα μπορούσε να μειώσει την αντοχή του. Τα τοιχώματα θα πρέπει να είναι επαρκώς παχιά σε κάθε σημείο και ελεύθερα από εσωτερικές καταπονήσεις.
- (2) Πλαστικά πώματα βιδωτού σπειρώματος, πώματα από τριμμένο γυαλί ή πώματα τουλάχιστον εξίσου αποτελεσματικά θα πρέπει να χρησιμοποιούνται ως πώματα για τα δοχεία. Οποιοδήποτε μέρος του πώματος που είναι πιθανόν να έλθει σε επαφή με το περιεχόμενο του δοχείου θα πρέπει να είναι ανθεκτικό σ' εκείνο το περιεχόμενο.

Μέρμινια θα πρέπει να λαμβάνεται ώστε να εξασφαλίζεται ότι τα πώματα να είναι έτσι προσαρμοσμένα ώστε να είναι στεγανά και να είναι κατάλληλα ασφαλισμένα και να αποφεύγεται οποιαδήποτε χαλαρότητα κατά τη διάρκεια της μεταφοράς.

Εάν εξαιρεζόμενα πώματα είναι απαραίτητα, αυτά θα πρέπει να είναι στεγανά.

- (3) Το δοχείο θα πρέπει να είναι σταθερά ασφαλισμένο στην εξωτερική συσκευασία με προστατευτικά και/ή απορροφητικά υλικά.
- (4) Μέγιστη χωρητικότητα δοχείου: 60 λίτρα
- (5) Μέγιστο καθαρό βάρος: 75 kg.

(b) *Εξωτερική συσκευασία*

- (1) Δοχείο με εξωτερικό χαλύβδινο βαρέλι 6PA1

Οι διατάξεις του περιθωριακού 3520 (a) έως (i) θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας. Το μετακινούμενο καπάκι που απαιτείται για αυτόν τον τύπο συσκευασίας μπορεί πάντως να είναι της μορφής ενός καφυλλίου.

<sup>8/</sup>

*Οι κλωβοί είναι εξωτερικές συσκευασίες με μη-πλήρεις επιφάνειες.*

## Προσθήκη Α.5

3539  
(συνεχ.)

## (2) Δοχείο με εξωτερικό χαλύβδινο κλωβό κιβώτιο 6PA2

Οι διατάξεις του περιθωριακού 3532 (a) έως (c) θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας. Για κυλινδρικά δοχεία η εξωτερική συσκευασία θα πρέπει, όταν είναι όρθια, να στηκώνεται πάνω από το δοχείο και το πόμα του. Εάν ο προστατευτικός κλωβός περιβάλλει ένα αχλαδόμορφο δοχείο και είναι ταιριαστού σχήματος, η εξωτερική συσκευασία θα πρέπει να είναι εξοπλισμένη με ένα προστατευτικό κάλυμμα (καψύλλιο).

## (3) Δοχείο με εξωτερικό αλουμινένιο βαρέλι 6PB1

Οι διατάξεις του περιθωριακού 3521 (a) έως (d) θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.

## (4) Δοχείο με εξωτερικό αλουμινένιο κλωβό ή κιβώτιο 6PB2

Οι διατάξεις του περιθωριακού 3532 θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.

## (5) Δοχείο με εξωτερικό ξύλινο κιβώτιο 6PC

Οι διατάξεις του περιθωριακού 3527 θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.

## (6) Δοχείο με εξωτερικό βαρέλι από κόντρα πλακέ 6PD1

Οι διατάξεις του περιθωριακού 3523 θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.

## (7) Δοχείο με εξωτερικό ψάθινο κοφίνι 6PD2

Το ψάθινο κοφίνι θα πρέπει να είναι σώστα φτιαγμένο με υλικό καλής ποιότητας. Θα πρέπει να είναι εξοπλισμένο με προστατευτικό κάλυμμα (καψύλλιο) έτσι ώστε να προλαμβάνεται φθορά στο δοχείο.

## (8) Δοχείο με εξωτερικό βαρέλι από φάιμπερ 6PG1

Οι διατάξεις του περιθωριακού 3525 (a) έως (d) θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.

## (9) Δοχείο με εξωτερικό κιβώτιο από φύλλο φάιμπερ 6PG2

Οι διατάξεις του περιθωριακού 3530 (a) έως (c) θα πρέπει να ισχύουν για την κατασκευή της εξωτερικής συσκευασίας.

## (10) Δοχείο με εξωτερική συσκευασία από τεταμένο πλαστικό ή στερεό πλαστικό 6PH1 ή 6PH2.

Τα υλικά και των δύο εξωτερικών συσκευασιών θα πρέπει να ικανοποιούν τις διατάξεις του περιθωριακού 3531 (a) έως (f). Συσκευασία από στερεό πλαστικό θα πρέπει να είναι κατασκευασμένη από υψηλής πυκνότητας πολυαιθυλένιο ή άλλο συγκρίσιμο πλαστικό υλικό. Το μετακινούμενο καπάκι για αυτόν τον τύπο συσκευασίας μπορεί πάντως να είναι της μορφής καψυλλίου.



## Προσθήκη Α.5

## C. Συσκευασίες σύμφωνες μόνον με το περιθωριακό 3510 (2)

## 3540 Ελαφρού περιτυπώματος μεταλλικές συσκευασίες

OA1 μη-μετακινούμενης κεφαλής

OA2 μετακινούμενης κεφαλής

- (a) Το φύλλο μετάλλου για το σώμα και τα άκρα θα πρέπει να είναι από κατάλληλο χάλυβα και ενός περιτυπώματος κατάλληλου για τη χωρητικότητα και την προοριζόμενη χρήση της συσκευασίας.
- (b) Οι συνδέσεις θα πρέπει να είναι συγκολλημένες, τουλάχιστον με διπλή ραφή με τοποθέτηση λωρίδας ή παραγόμενες με μία μέθοδο που εξασφαλίζει έναν παρόμοιο βαθμό αντοχής και στεγανότητας.
- (c) Εσωτερικές επικαλύψεις από ψευδάργυρο, κασίτερο, λάκα κ.λπ. θα πρέπει να είναι σκληρές και θα πρέπει να επκολλούνται στον χάλυβα σε κάθε σημείο, συμπεριλαμβανομένων των πωμάτων.
- (d) Ανοίγματα για γέμισμα, άδειασμα και εξαερισμό στα σώματα ή τις κεφαλές των μη-μετακινούμενης κεφαλής (OA1) συσκευασιών δεν θα πρέπει να υπερβαίνουν τα 7 cm σε διάμετρο. Συσκευασίες με μεγαλύτερα ανοίγματα θα πρέπει να θεωρούνται ότι είναι του τύπου μετακινούμενης κεφαλής (OA2).
- (e) Τα πώματα των μη-μετακινούμενης κεφαλής συσκευασιών (OA1) θα πρέπει είτε να είναι του τύπου βιδωτού σπειρώματος είτε να είναι ικανά να ασφαρίζονται με μία βιδωτή συσκευή ή μία συσκευή τουλάχιστον εξίσου αποτελεσματική. Τα πώματα των μετακινούμενης κεφαλής συσκευασιών (OA2) θα πρέπει να είναι έτσι σχεδιασμένα και προσαρμοσμένα ώστε να μένουν σταθερά κλεισμένα και οι συσκευασίες να παραμένουν στεγανές σε κανονικές συνθήκες μεταφοράς.
- (f) Μέγιστη χωρητικότητα συσκευασιών: 40 λίτρα
- (g) Μέγιστο καθαρό βάρος: 50 kg.

3541-  
3549

## Προσθήκη Α.5

## Μέρος IV: Απαιτήσεις ελέγχου για συσκευασίες

## Α. Έλεγχοι τύπου σχεδιασμού

*Εκτέλεση και συχνότητα των ελέγχων*

- 3550 (1) Ο τύπος σχεδιασμού κάθε συσκευασίας θα πρέπει να ελέγχεται και εγκρίνεται από την αρμόδια αρχή ή από ένα σώμα που καθορίζεται από εκείνη την αρχή.
- (2) Έλεγχοι σε συμφωνία με το (1) θα πρέπει να διεξάγονται πάλι μετά από οποιαδήποτε τροποποίηση του τύπου σχεδιασμού εκτός εάν το αρμόδιο σώμα ελέγχου έχει συμφωνήσει στην τροποποίηση του τύπου σχεδιασμού. Στην τελευταία περίπτωση μία νέα έγκριση του τύπου σχεδιασμού δεν απαιτείται. Ένας τύπος σχεδιασμού συσκευασίας ορίζεται από το σχέδιο, το μέγεθος, το υλικό και το πάχος, τον τρόπο κατασκευής και συσκευασίας, αλλά μπορεί να περιλαμβάνει διάφορες επιφανειακές επεξεργασίες. Επίσης περιλαμβάνει συσκευασίες που διαφέρουν από τον τύπο σχεδιασμού μόνον στο μικρότερο ύψος σχεδιασμού.
- (3) Η αρμόδια αρχή μπορεί σε οποιοδήποτε χρόνο να απαιτήσει απόδειξη, μέσω ελέγχων σε συμφωνία με αυτό το μέρος, ότι οι μαζικά παραγόμενες συσκευασίες ικανοποιούν τις απαιτήσεις των ελέγχων του τύπου ελέγχου. Για τέτοιους ελέγχους σε συσκευασίες από χαρτί ή φύλλο φάμπερ, η προετοιμασία σε συνθήκες περιβάλλοντος θα πρέπει να θεωρείται ισοδύναμη με τις απαιτήσεις του περιθωριακού 3551 (3).
- (4) Για λόγους επιβεβαίωσης το αρμόδιο σώμα ελέγχου θα πρέπει να κρατάει έναν φάκελο των υλικών που χρησιμοποιούνται, μέσω ελέγχου των υλικών ή με διατήρηση δειγμάτων ή κομματιών των υλικών.
- (5) Εάν μία εσωτερική επικάλυψη απαιτείται για λόγους ασφάλειας, θα πρέπει να διατηρεί τις προστατευτικές της ιδιότητες ακόμα και μετά τους ελέγχους.
- (6) Η αρμόδια αρχή μπορεί να επιτρέπει τον δειγματοληπτικό έλεγχο των συσκευασιών που διαφέρουν μόνον σε δευτερεύοντα σημεία από τον ελεγχόμενο τύπο, π.χ. μικρότερα μεγέθη εσωτερικών συσκευασιών ή εσωτερικές συσκευασίες μικρότερου καθαρού βάρους και συσκευασίες τέτοιες όπως βαρέλι, σάκοι και κιβώτια που παράγονται με μικρές μειώσεις στην(στις) εξωτερική(ές) διάσταση(διαστάσεις).
- (7) Υπό την προϋπόθεση ότι η ισχύς των αποτελεσμάτων του ελέγχου δεν επηρεάζονται και με την έγκριση της αρμόδιας αρχής, διάφοροι έλεγχοι μπορούν να γίνουν σε ένα δείγμα.

*Προετοιμασία των κόλων για έλεγχο*

- 3551 (1) Οι έλεγχοι θα πρέπει να διεξάγονται σε συσκευασίες προετοιμασίες όπως για μεταφορά συμπεριλαμβανομένων, όσον αφορά σε συνδυασμένες συσκευασίες, των εσωτερικών συσκευασιών που χρησιμοποιούνται. Εσωτερικά ή μόνα δοχεία ή συσκευασίες θα πρέπει να γεμίζονται έως όχι λιγότερο από το 98 % της μέγιστης χωρητικότητας του για υγρά ή το 95 % για στερεά. Για συνδυασμένες συσκευασίες όπου η εσωτερική συσκευασία είναι σχεδιασμένη να μεταφέρει υγρά και στερεά, ξεχωριστός έλεγχος απαιτείται τόσο για υγρό, όσο και για στερεό περιεχόμενο. Οι ύλες ή τα είδη προς μεταφορά στις συσκευασίες μπορούν να αντικαθίστανται από άλλες ύλες ή είδη εκτός όπου αυτά θα καθιστούσαν τα αποτελέσματα των ελέγχων μη ισχύοντα. Για στερεά, όταν μία άλλη ύλη χρησιμοποιείται, αυτή θα πρέπει να έχει τα ίδια φυσικά χαρακτηριστικά (βάρος, κόκκο, μέγεθος κ.λπ.) όπως η ύλη προς μεταφορά. Επιτρέπεται η χρήση προσθέτων, τέτοιων όπως σάκοι από μολυβένια σκάγια, για την απόκτηση του απαραίτητου συνολικού βάρους κόλου, για όσο είναι τοποθετημένα έτσι ώστε τα αποτελέσματα του ελέγχου να μην επηρεάζονται. Κατάλληλα μείγματα στερεών σε σκόνη, τέτοιων όπως πολυαιθυλένιο ή PVC σε σκόνη με πριονίδι, λεπτή άμμο κ.λπ., μπορούν να χρησιμοποιούνται ως υποκατάστατη πληρωτική ύλη για ύλες που έχουν ιξώδες μεγαλύτερο από 2680 mm<sup>2</sup>/s στους 23 °C.

## Προσθήκη Α.5.

3551 (2) Στους ελέγχους πτώσης για υγρά, όταν μία άλλη ύλη χρησιμοποιείται η σχετική πυκνότητα και το ιξώδες θα πρέπει να είναι παρόμοια με εκείνα της ύλης προς μεταφορά. Νερό μπορεί επίσης να χρησιμοποιείται για τον έλεγχο πτώσης υγρού υπό τους όρους στο περιθωριακό 3552 (4).

(3) Συσκευασίες από χαρτί ή φύλλο φάιμπερ θα πρέπει να τοποθετούνται για τουλάχιστον 24 ώρες σε μία ατμόσφαιρα που έχει ελεγχόμενη θερμοκρασία και σχετική υγρασία (r.h.). Υπάρχουν τρεις δυνατότητες, μία από τις οποίες θα πρέπει να επιλέγεται. Η προτιμώμενη ατμόσφαιρα είναι  $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  και  $50\% \pm 2\% \text{ r.h.}$  Οι δύο άλλες δυνατότητες είναι  $20\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  και  $65\% \pm 2\% \text{ r.h.}$  ή  $27\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  και  $65\% \pm 2\% \text{ r.h.}$

**ΣΗΜΕΙΩΣΗ:** Οι μέσες τιμές θα πρέπει να πέφτουν μέσα σ' αυτά τα όρια. Βραχυπρόθεσμες διακυμάνσεις και περιορισμοί στη μέτρηση μπορούν να προκαλούν διαφοροποίηση των μεμονωμένων μετρήσεων κατά έως  $\pm 5\%$  σχετική υγρασία χωρίς σημαντική επίδραση στην επαναληψιμότητα του ελέγχου.

(4) Βαρέλια τύπου φελλού κατασκευασμένα από φυσικό ξύλο θα πρέπει να αφήνονται γεμισμένα με νερό για τουλάχιστον 24 ώρες πριν τους ελέγχους.

(5) Για να ελεγχθεί ότι η χημική συμβατότητά τους με τα υγρά είναι αρκετή, πλαστικά βαρέλια και μπιτόνια σε συμφωνία με το περιθωριακό 3526 και εάν είναι απαραίτητο σύνθετες συσκευασίες (πλαστικού υλικού) σε συμφωνία με το περιθωριακό 3537 θα πρέπει να υπόκεινται σε αποθήκευση σε θερμοκρασία περιβάλλοντος για έξι μήνες, κατά τη διάρκεια του οποίου χρόνου τα δείγματα ελέγχου θα πρέπει να διατηρούνται γεμισμένα με τα εμπορεύματα που είναι προοριζόμενα να μεταφέρουν.

Για τις πρώτες και τις τελευταίες 24 ώρες αποθήκευσης, τα δείγματα ελέγχου θα πρέπει να τοποθετούνται με το πόμα προς τα κάτω. Πάντως, συσκευασίες εξοπλισμένες με εξαεριστήρα θα πρέπει να είναι έτσι τοποθετημένες σε κάθε περίπτωση για πέντε λεπτά μόνον. Μετά από αυτήν την αποθήκευση τα δείγματα ελέγχου θα πρέπει να υποβάλλονται στους ελέγχους που ορίζονται στα περιθωριακά 3552 έως 3556.

Όταν είναι γνωστό ότι οι ιδιότητες αντοχής του πλαστικού υλικού των εσωτερικών δοχείων των σύνθετων συσκευασιών (πλαστικού υλικού) δεν μεταβάλλονται σημαντικά από τη δράση της πληρωτικής ύλης, δεν θα είναι απαραίτητο να ελέγχεται ότι η χημική συμβατότητα είναι αρκετή.

Μία σημαντική μεταβολή στις ιδιότητες αντοχής σημαίνει:

- (a) Σαφής αύξηση της ευθραυστότητας, ή
- (b) σημαντική μείωση στην ελαστικότητα, εκτός εάν σχετίζεται με μία όχι μικρότερη από ανάλογη αύξηση στην επιμήκυνση υπό φορτίο.

Όπου η συμπεριφορά του πλαστικού υλικού έχει αποδειχθεί με άλλα μέσα, ο παραπάνω έλεγχος της συμβατότητας μπορεί να παραλείπεται. Τέτοιες διαδικασίες θα πρέπει να είναι τουλάχιστον ισοδύναμες με τον παραπάνω έλεγχο συμβατότητας και να είναι αναγνωρισμένες από την αρμόδια αρχή.

**ΣΗΜΕΙΩΣΗ:** Για πλαστικά βαρέλια και μπιτόνια και σύνθετες συσκευασίες (πλαστικού υλικού) κατασκευασμένες από υψηλού μοριακού βάρους πολυαιθυλένιο, βλέπε επίσης (6) παρακάτω.

(6) Για βαρέλια και μπιτόνια από υψηλού μοριακού βάρους πολυαιθυλένιο σε συμφωνία με το περιθωριακό 3526 και εάν είναι απαραίτητο σύνθετες συσκευασίες από υψηλού μοριακού βάρους πολυαιθυλένιο σε συμφωνία με το περιθωριακό 3537, σύμφωνα με τις παρακάτω προδιαγραφές:

## Προσθήκη Α.5

- 3551 (συνεχ.) - σχετική πυκνότητα στους 23 °C μετά από θερμική εξισορρόπηση για μία ώρα στους 100 °C  $\geq 0.940$ , σε συμφωνία με το Πρότυπο ISO 1183,
- ρυθμός ροής τετηγμένου στους 190 °C/21.6 kg φορτίο  $\leq 12$  g/10 min. σε συμφωνία με το Πρότυπο ISO 1133,

η χημική συμβατότητα με τα υγρά που αναφέρονται στο μέρος II του παραρτήματος σ' αυτήν την προσθήκη μπορεί να επιβεβαιώνεται ως ακολούθως με πρότυπα υγρά (βλέπε μέρος I του παραρτήματος σ' αυτήν την προσθήκη).

Η αρκετή χημική συμβατότητα αυτών των συσκευασιών μπορεί να επιβεβαιώνεται με αποθήκευση για τρεις εβδομάδες στους 40 °C με το κατάλληλο πρότυπο υγρό. Όπου αυτό το πρότυπο υγρό είναι νερό, απόδειξη της χημικής συμβατότητας δεν απαιτείται.

Για τις πρώτες και τις τελευταίες 24 ώρες αποθήκευσης, τα δείγματα ελέγχου θα πρέπει να τοποθετούνται με το πόμα προς τα κάτω. Πάντως, συσκευασίες εξοπλισμένες με εξαεριστήρα θα πρέπει να είναι έτσι τοποθετημένες σε κάθε περίπτωση για πέντε λεπτά μόνον. Μετά από αυτήν την αποθήκευση, τα δείγματα ελέγχου θα πρέπει να υποβάλλονται στους ελέγχους που ορίζονται στα περιθωριακά 3552 έως 3556.

Όταν ένας τύπος σχεδιασμού συσκευασίας έχει ικανοποιήσει τους ελέγχους έγκρισης με ένα πρότυπο υγρό, οι συγκρίσιμες πληρωτικές ύλες που αναφέρονται στο μέρος II του παραρτήματος σ' αυτήν την προσθήκη μπορούν να γίνουν δεκτές για μεταφορά χωρίς περαιτέρω έλεγχο, υποκειμένες στους παρακάτω όρους:

οι σχετικές πυκνότητες των πληρωτικών υλών δεν θα πρέπει να υπερβαίνουν εκείνη που χρησιμοποιείται για τον προσδιορισμό του ύψους για τον έλεγχο πτώσης και του βάρους για τον έλεγχο στοιβάγματος

οι τάσεις ατμών των πληρωτικών υλών στους 50 °C ή 55 °C δεν θα πρέπει να υπερβαίνουν εκείνη που χρησιμοποιείται για τον προσδιορισμό της πίεσης για τον έλεγχο εσωτερικής πίεσης.

(7) Για βαρέλια και μπιτόνια σύμφωνα με το περιθωριακό 3526, και όπου είναι απαραίτητο σύνθετες συσκευασίες σύμφωνα με το περιθωριακό 3537, κατασκευασμένες από υψηλού μοριακού βάρους πολυαιθυλένιο, που έχει περάσει τον έλεγχο στην παράγραφο (6) αυτού του περιθωριακού, πληρωτικές ύλες πέραν εκείνων που αναφέρονται στο μέρος II του παραρτήματος μπορούν επίσης να εγκρίνονται. Τέτοια έγκριση θα πρέπει να βασίζεται σε εργαστηριακούς ελέγχους που αποδεικνύουν ότι το αποτέλεσμα τέτοιων πληρωτικών υλών πάνω στα δείγματα ελέγχου είναι μικρότερο από εκείνο των πρότυπων υγρών. Οι διαδικασίες φθοράς που πρέπει να λαμβάνονται υπόψη θα πρέπει να είναι οι παρακάτω: μαλάκωμα μέσω φουσκώματος, σπάσιμο υπό καταπόνηση και μοριακή αποικοδόμηση. Οι ίδιοι όροι όπως εκείνοι που τίθενται στο (6) παραπάνω, θα πρέπει να ισχύουν όσον αφορά στη σχετική πυκνότητα και την πίεση ατμών.

*Έλεγχος πτώσης<sup>2/</sup>*

- 3552 (1) Αριθμός δειγμάτων ελέγχου (ανά τύπο σχεδιασμού και κατασκευαστή) και κλίση πτώσης.

Για άλλες πέραν από επίπεδες πτώσεις το κέντρο βάρους θα πρέπει να είναι κάθετα πάνω από το σημείο κρούσης.

<sup>2/</sup> Βλέπε Πρότυπο ISO 2248.

Συσκευασία	Αριθμ. δειγμάτων ελέγχου	Κλίση πτώσης
(a) Χαλύβδινα βαρέλια Αλουμινένια βαρέλια Χαλύβδινα μπιτόνια Βαρέλια από κόντρα πλακέ Ξύλινα βαρέλια Βαρέλια από φάιμπερ Πλαστικά βαρέλια και μπιτόνια Σύνθετες συσκευασίες (πλαστικού υλικού) που είναι στο σχήμα βαρελιού Σύνθετες συσκευασίες (από γυαλί, ψαμμάργιλο, ή πορσελάνη) σύμφωνα με το περιθωριακό 3510 (1) και που είναι στο σχήμα βαρελιού Ελαφρού περιτυπώματος μεταλλικές συσκευασίες	Έξι  (τρία για κάθε πτώση)	Πρώτη πτώση (με τη χρήση τριών δειγμάτων): η συσκευασία θα πρέπει χτυπάει το στόχο διαγώνια με την κεφαλή ή, εάν η συσκευασία δεν έχει κεφαλή, με μία περιφερειακή ραφή ή μία ακμή. Δεύτερη πτώση (με τη χρήση των άλλων τριών δειγμάτων): η συσκευασία θα πρέπει να χτυπάει το στόχο με το ασθενέστερο μέρος που δεν έχει ελεγχθεί με την πρώτη πτώση, για παράδειγμα ένα πόμα ή, για μερικά κυλινδρικά βαρέλια, η συγκολλημένη διαμήκης ραφή του σώματος του βαρελιού.
(b) Κιβώτια από φυσικό ξύλο Κιβώτια από κόντρα πλακέ Κιβώτια από ανασυσταμένο ξύλο Κιβώτια από φύλλο φάιμπερ Πλαστικά κιβώτια Χαλύβδινα ή αλουμινένια κιβώτια Σύνθετες συσκευασίες (πλαστικού υλικού) που είναι στο σχήμα κιβωτίου Σύνθετες συσκευασίες (από γυαλί, ψαμμάργιλο, πορσελάνη) σύμφωνα με το περιθωριακό 3510 (1) και που είναι στο σχήμα κιβωτίου	Πέντε  (ένα για κάθε πτώση)	Πρώτη πτώση: με τον πυθμένα Δεύτερη πτώση: με την κορυφή Τρίτη πτώση: με την μακριά πλευρά Τέταρτη πτώση: με την κοντή πλευρά Πέμπτη πτώση: με μία γωνία
(c) Υφασμάτινοι σάκοι Χάρτινοι σάκοι	Τρία (δύο πτώσεις ανά σάκο)	Πρώτη πτώση: με μία όψη του σάκου Δεύτερη πτώση: με το άκρο του σάκου
(d) Σάκοι από πλεγμένο πλαστικό Σάκοι από πλαστικό φιλμ	Τρία  (τρία ανά σάκο)	Πρώτη πτώση: με μία πλατιά όψη Δεύτερη πτώση: με μία στενή όψη Τρίτη πτώση: με το άκρο του σάκου
(e) Σύνθετες συσκευασίες (γυαλί, ψαμμάργιλος ή πορσελάνη) σύμφωνα με το περιθωριακό 3510 (2) και που είναι στο σχήμα βαρελιού ή κιβωτίου	Τρία  (ένα για κάθε πτώση)	Διαγώνια με το κάτω στόμιο, ή, εάν δεν υπάρχει στόμιο, με μία περιφερειακή ραφή ή την ακμή του πυθμένα.

## Προσθήκη Α.5

3552 Όπου περισσότερες από μία κλίσεις είναι δυνατές για έναν δεδομένο έλεγχο πτώσης, η κλίση (συνεχ.) που είναι πιο πιθανόν να υπάρξει σε περίπτωση πτώσης της συσκευασίας θα πρέπει να χρησιμοποιείται.

(2) *Ειδική προετοιμασία των δειγμάτων ελέγχου για τον έλεγχο πτώσης:*

Η θερμοκρασία του δείγματος ελέγχου και του περιεχομένου του θα πρέπει να μειώνεται στους  $-18^{\circ}\text{C}$  ή χαμηλότερα για τις παρακάτω συσκευασίες:

- (a) πλαστικά βαρέλια (βλέπε 3526)
- (b) πλαστικά μπιτόνια (βλέπε 3526)
- (c) πλαστικά κιβώτια άλλα εκτός από κιβώτια από τεταμένο πολυστυρένιο (βλέπε 3531)
- (d) σύνθετες συσκευασίες (πλαστικού υλικού) (βλέπε 3537)
- (e) συνδυασμένες συσκευασίες με πλαστικές εσωτερικές συσκευασίες (βλέπε 3538)
- (f) σάκοι από ύφασμα με εσωτερική πλαστική επένδυση (βλέπε 3533)
- (g) σάκοι από πλεγμένο πλαστικό (βλέπε 3534) και
- (h) σάκοι από πλαστικό φιλμ (βλέπε 3535).

Όπου τα δείγματα ελέγχου προετοιμάζονται με αυτόν τον τρόπο, η εξισορρόπηση στο περιθωριακό 3551 (3) μπορεί να παραλείπεται. Τα υγρά ελέγχου θα πρέπει να διατηρούνται στην υγρή κατάσταση με την προσθήκη αντιψυκτικών εάν είναι απαραίτητο.

(3) *Στόχος*

Ο στόχος θα πρέπει να είναι μία άκαμπτη, μη-ελαστική, επίπεδη και οριζόντια επιφάνεια.

(4) *Υψος πτώσης*

Για στερεά:

Ομάδα συσκευασίας I	Ομάδα συσκευασίας II	Ομάδα συσκευασίας III
1.8 m	1.2 m	0.8 m

Για υγρά:

Εάν ο έλεγχος εκτελείται με νερό:

- (a) όπου οι ύλες προς μεταφορά έχουν σχετική πυκνότητα όχι μεγαλύτερη από 1.2

Ομάδα συσκευασίας I	Ομάδα συσκευασίας II	Ομάδα συσκευασίας III
1.8 m	1.2 m	0.8 m

## Προσθήκη Α.5

3552  
(συνεχ.)

- (b) όπου οι ύλες προς μεταφορά έχουν σχετική πυκνότητα που υπερβαίνει το 1.2, το ύψος πτώσης θα πρέπει να υπολογίζεται στη βάση της σχετικής πυκνότητας της ύλης προς μεταφορά, στρογγυλοποιημένης στο πρώτο δεκαδικό, ως ακολούθως:

Ομάδα συσκευασίας I	Ομάδα συσκευασίας II	Ομάδα συσκευασίας III
σχετική πυκνότητα x 1.5 (m)	σχετική πυκνότητα x 1.0 (m)	σχετική πυκνότητα x 0.67 (m)

- (c) για ελαφρού περιτυπώματος μεταλλικές συσκευασίες προοριζόμενες για τη μεταφορά υλών που έχουν ιξώδες στους 23 °C μεγαλύτερο από 200 mm<sup>2</sup>/s (που αντιστοιχεί σ' ένα χρόνο ροής 30 δευτέρα με ένα ISO καψύλλιο ροής που έχει στόμιο αεριοπρώθησης με 6 mm διάμετρο σε συμφωνία με το Πρότυπο ISO 2431-1980) και για ύλες της Κλάσης 3, 5°(c).

- (i) εάν η σχετική πυκνότητα δεν υπερβαίνει το 1.2:

Ομάδα συσκευασίας II	Ομάδα συσκευασίας III
0.6 m	0.4 m

- (ii) όπου οι ύλες προς μεταφορά έχουν σχετική πυκνότητα που υπερβαίνει το 1.2 το ύψος πτώσης θα πρέπει να υπολογίζεται πάνω στη βάση της σχετικής πυκνότητας της ύλης προς μεταφορά, στρογγυλοποιημένης στο πρώτο δεκαδικό, ως ακολούθως:

Ομάδα συσκευασίας II	Ομάδα συσκευασίας III
σχετική πυκνότητα 0.5 m	σχετική πυκνότητα 0.33 m

Εάν ο έλεγχος εκτελείται με την ύλη προς μεταφορά ή με ένα υγρό τουλάχιστον ίσης σχετικής πυκνότητας:

Ομάδα συσκευασίας I	Ομάδα συσκευασίας II	Ομάδα συσκευασίας III
1.8 m	1.2 m	0.8 m

## (5) Κριτήρια για πέρασμα του ελέγχου:

- (a) Κάθε συσκευασία που περιέχει υγρό θα πρέπει να είναι στεγανή όταν έχει υπάρξει ισορροπία μεταξύ των εσωτερικών και εξωτερικών πιέσεων, εκτός από εσωτερικές συσκευασίες συνδυασμένων συσκευασιών ή σύνθετων συσκευασιών (από γυαλί, πορσελάνη ή ψαμμάργιλο) όταν δεν είναι απαραίτητο οι πιέσεις να είναι εξισωμένες.
- (b) Όπου μετακινούμενης κεφαλής βαρέλια για στερεά υποβάλλονται σε έλεγχο πτώσης και οι επάνω όψεις τους χτυπάνε το στόχο, το δείγμα ελέγχου περνάει τον έλεγχο εάν όλο το περιεχόμενο συγκρατείται από μία εσωτερική συσκευασία (π.χ. έναν πλαστικό σάκο) ακόμα κι εάν το πάμα πάνω στην κορυφαία όψη του βαρελιού δεν είναι πιά αδιαπέραστο.
- (c) Το ακριανό φύλλο ενός σάκου δεν θα πρέπει να παρουσιάζει οποιαδήποτε φθορά ικανή να επηρεάσει την ασφάλεια στη μεταφορά.

## Προσθήκη Α.5

- 3552 (συνεχ.)
- (d) Η εξωτερική συσκευασία μίας σύνθετης ή συνδυασμένης συσκευασίας δεν θα πρέπει να παρουσιάζει οποιαδήποτε φθορά ικανή να επηρεάσει την ασφάλεια στη μεταφορά. Δεν θα πρέπει να υπάρχει διαρροή της πληρωτικής ύλης από την εσωτερική συσκευασία.
  - (e) Μία μικρή έκκριση από το(τα) πόμα(τα) κατά την κρούση δεν θα πρέπει να θεωρείται ότι είναι αστοχία της συσκευασίας υπό την προϋπόθεση ότι δεν υπάρχει περαιτέρω διαρροή.
  - (f) Δεν επιτρέπεται ρήγμα σε συσκευασίες για εμπορεύματα της Κλάσης 1 που θα προκαλούσε το χύσιμο ελεύθερων εκρηκτικών υλών ή ειδών από την εξωτερική συσκευασία.

*Έλεγχος στεγανότητας*

- 3553 (1) Ο έλεγχος στεγανότητας θα πρέπει να πραγματοποιείται σε όλους τους τύπους συσκευασιών προοριζόμενων να περιέχουν υγρά, πάντως, αυτός ο έλεγχος δεν απαιτείται για:

- εσωτερικές συσκευασίες συνδυασμένων συσκευασιών,
- εσωτερικά δοχεία σύνθετων συσκευασιών (από γυαλί, πορσελάνη ή ψαμμάργλιο) σύμφωνα με το περιθωριακό 3510 (2),
- μετακινούμενης κεφαλής συσκευασίες προοριζόμενες για ύλη με ιξώδες στους 23 °C που υπερβαίνει τα 200 mm<sup>2</sup>/s.
- ελαφρού περιτυπώματος μεταλλικές συσκευασίες, μετακινούμενης κεφαλής, προοριζόμενες για ύλες της Κλάσης 3, 5<sup>ο</sup>(c).

- (2) *Αριθμός δειγμάτων ελέγχου:*

Τρία δείγματα ελέγχου ανά τύπο σχεδιασμού και κατασκευαστή.

- (3) *Ειδική προετοιμασία δειγμάτων ελέγχου για τον έλεγχο:*

Τα δείγματα ελέγχου θα πρέπει να τρυπώνται για την είσοδο του πεπιεσμένου αέρα σ' ένα ουδέτερο σημείο, έτσι ώστε επίσης να ελέγχεται το σφίξιμο του πόματος. Τα εξαεριζόμενα πόματα συσκευασιών θα πρέπει να αντικαθίστανται από μη-εξαεριζόμενα πόματα.

- (4) *Μέθοδος ελέγχου:*

Τα δείγματα ελέγχου συμπεριλαμβανομένων των πωμάτων θα πρέπει να βυθίζονται κάτω από το νερό για 5 λεπτά ενώ μία εσωτερική πίεση αέρα εφαρμόζεται, η μέθοδος της βύθισης δεν θα πρέπει να επηρεάζει τα αποτελέσματα του ελέγχου. Άλλες μέθοδοι τουλάχιστον εξίσου αποτελεσματικές μπορούν να χρησιμοποιούνται.

- (5) *Πίεση αέρα που πρέπει να εφαρμόζεται:*

Ομάδα συσκευασίας I	Ομάδα συσκευασίας II	Ομάδα συσκευασίας III
Όχι μικρότερη από 30 kPa	Όχι μικρότερη από 20 kPa	Όχι μικρότερη από 20 kPa

- (6) *Κριτήριο για πέραςμα του ελέγχου:*

Δεν θα πρέπει να υπάρχει διαρροή.



## Προσθήκη Α.5

*Έλεγχος εσωτερικής πίεσης (υδραυλικής)*

**3554** (1) Ο έλεγχος υδραυλικής πίεσης θα πρέπει να διεξάγεται σε όλους τους τύπους συσκευασιών από χάλυβα, αλουμίνιο και πλαστικό και σε όλες τις σύνθετες συσκευασίες τις προοριζόμενες να περιέχουν υγρά. Πάντως, αυτός ο έλεγχος δεν απαιτείται για:

- εσωτερικές συσκευασίες συνδυασμένων συσκευασιών,
- εσωτερικά δοχεία σύνθετων συσκευασιών (από γυαλί, πορσελάνη ή ψαμμάργιλο) σύμφωνα με το περιθωριακό 3510 (2),
- μετακινούμενης κεφαλής συσκευασίες προοριζόμενες για ύλες με ιξώδες στους 23 °C που υπερβαίνει τα 200 mm<sup>2</sup>/s.
- ελαφρού περιτυπώματος μεταλλικές συσκευασίες, μετακινούμενης κεφαλής, προοριζόμενες για ύλες της Κλάσης 3, 5°(c).

(2) *Αριθμός δειγμάτων ελέγχου:*

Τρία δείγματα ελέγχου ανά τύπο σχεδιασμού και κατασκευαστή.

(3) *Ειδική προετοιμασία συσκευασιών για τον έλεγχο:*

Τα δείγματα ελέγχου θα πρέπει να τρυπώνται για την είσοδο της πίεσης σε ένα ουδέτερο σημείο, έτσι ώστε επίσης να ελέγχεται το σφίξιμο του πώματος. Τα εξαεριζόμενα πώματα συσκευασιών θα πρέπει να αντικαθίστανται από μη-εξαεριζόμενα πώματα.

(4) *Μέθοδος ελέγχου και πίεση που πρέπει να εφαρμόζεται:*

Οι συσκευασίες θα πρέπει να υπόκεινται για πέντε λεπτά (30 λεπτά στην περίπτωση πλαστικών συσκευασιών) σε μία υδραυλική πίεση πιεζομέτρου όχι μικρότερη από:

- (a) την συνολική πίεση πιεζομέτρου που μετρείται στη συσκευασία (δηλ. την τάση ατμών της πληρωτικής ύλης και τη μερική πίεση του αέρα ή άλλων αδρανών αερίων, μείον 100 kPa) στους 55 °C, πολλαπλασιασμένη με έναν συντελεστή ασφάλειας 1.5. Αυτή η συνολική πίεση πιεζομέτρου θα πρέπει να προσδιορίζεται στη βάση ενός μέγιστου βαθμού πλήρωσης σε συμφωνία με το περιθωριακό 3500 (4) και μία θερμοκρασία πλήρωσης 15 °C,

ή

- (b) 1.75 φορές την τάση ατμών της πληρωτικής ύλης στους 50 °C, μείον 100 kPa, αλλά σε πίεση πιεζομέτρου όχι μικρότερη από 100 kPa,

ή

- (c) 1.5 φορές την τάση ατμών της πληρωτικής ύλης στους 55 °C, μείον 100 kPa, αλλά σε πίεση πιεζομέτρου όχι μικρότερη από 100 kPa.

Ο τρόπος με τον οποίο οι συσκευασίες διατηρούνται στη θέση τους δεν θα πρέπει να παραποιεί τα αποτελέσματα του ελέγχου. Η πίεση θα πρέπει να εφαρμόζεται συνεχώς και ομοιόμορφα. Η πίεση ελέγχου θα πρέπει να διατηρείται σταθερή καθ' όλη την περίοδο ελέγχου.

Η ελάχιστη πίεση ελέγχου για συσκευασίες για την Ομάδα Συσκευασίας I θα πρέπει να είναι 250 kPa.

(5) *Κριτήριο για το πέρασμα του ελέγχου:*

## Προσθήκη Α.5

3554 Καμία συσκευασία δεν θα πρέπει να έχει διαρροή.

(συνεχ.)

*Έλεγχος στοιβάγματος*

3555 (1) Όλες οι συσκευασίες πέραν των σάκων και των μη-στοιβάξιμων σύνθετων συσκευασιών (από γυαλί, πορσελάνη ή ψαμμάργιλο) σύμφωνα με το περιθωριακό 3510 (2), θα πρέπει να υπόκεινται σ' έναν έλεγχο στοιβάγματος.

(2) *Αριθμός δειγμάτων ελέγχου:*

Τρία δείγματα ελέγχου ανά τύπο σχεδιασμού και κατασκευαστή.

(3) *Μέθοδος ελέγχου:*

Το δείγμα ελέγχου θα πρέπει να υπόκειται σε μία δύναμη εφαρμοζόμενη στην κορυφαία επιφάνεια του δείγματος ελέγχου ισοδύναμη με το συνολικό βάρος ίδιων κόλων που θα μπορούσαν να είναι στοιβαγμένες πάνω σ' αυτό κατά τη διάρκεια της μεταφοράς.

Η διάρκεια του ελέγχου θα πρέπει να είναι 24 ώρες, εκτός του ότι πλαστικά βαρέλια και μπιτόνια σε συμφωνία με το περιθωριακό 3526 και σύνθετες συσκευασίες 6HH1 και 6HH2, προοριζόμενες για υγρά, θα πρέπει να υπόκεινται στον έλεγχο στοιβάγματος για μία περίοδο 28 ημερών σε μία θερμοκρασία όχι μικρότερη από 40 °C.

Το ελάχιστο ύψος της στοιβάδας συμπεριλαμβανομένου του δείγματος ελέγχου θα πρέπει να είναι 3 μέτρα.

Για τον έλεγχο σε συμφωνία με το περιθωριακό 3551 (5), η αρχική πληρωτική ύλη θα πρέπει να χρησιμοποιείται. Για τον έλεγχο σε συμφωνία με το περιθωριακό 3551 (6), ένας έλεγχος στοιβάγματος θα πρέπει να διεξάγεται με ένα πρότυπο υγρό.

Όπου το περιεχόμενο των δειγμάτων ελέγχου είναι μη-επικίνδυνα υγρά με σχετική πικνότητα διαφορετική από εκείνη του υγρού προς μεταφορά, η δύναμη θα πρέπει να υπολογίζεται σε σχέση με την τελευταία.

(4) *Κριτήρια για πέρασμα του ελέγχου:*

Κανένα δείγμα ελέγχου δεν θα πρέπει να έχει διαρροή. Σε σύνθετες συσκευασίες ή συνδυασμένες συσκευασίες, δεν θα πρέπει να υπάρχει διαρροή της πληρωτικής ύλης από το εσωτερικό δοχείο ή την εσωτερική συσκευασία.

Κανένα δείγμα ελέγχου δεν θα πρέπει να εμφανίζει οποιαδήποτε φθορά που θα μπορούσε δυσμενώς να επηρεάσει την ασφάλεια της μεταφοράς ή οποιαδήποτε παραμόρφωση που θα μπορούσε να μειώσει την αντοχή του ή να προκαλέσει αστάθεια στις στοιβες των κόλων.

Η σταθερότητα στοιβάγματος θα πρέπει να θεωρείται αρκετή όταν, μετά από τον έλεγχο στοιβάγματος και στην περίπτωση πλαστικών συσκευασιών, μετά από ψύξη στη θερμοκρασία περιβάλλοντος, δύο γεμισμένες συσκευασίες του ίδιου τύπου τοποθετημένες πάνω στο δείγμα ελέγχου διατηρούν τη θέση τους για μία ώρα.

*Συμπληρωματικός έλεγχος διαπερατότητας για πλαστικά βαρέλια και μπιτόνια σε συμφωνία με το περιθωριακό 3526 και για σύνθετες συσκευασίες (πλαστικού υλικού) σε συμφωνία με το περιθωριακό 3537 προοριζόμενες για τη μεταφορά υγρών που έχει σημείο ανάφλεξης  $\leq 61$  °C, πέραν από συσκευασίες 6HA1*

3556 (1) Συσκευασίες από πολυαιθυλένιο χρειάζεται να υπόκεινται σ' αυτό τον έλεγχο μόνον εάν είναι να εγκριθούν για τη μεταφορά βενζολίου, τολουολίου, ξυλένιου ή μειγμάτων και παρασκευασμάτων που περιέχουν εκείνες τις ύλες.

## Προσθήκη Α.5

3556 (2) Αριθμός δειγμάτων ελέγχου:

(συνεχ.)

Τρεις συσκευασίες ανά τύπο σχεδιασμού και κατασκευαστή.

(3) Ειδική προετοιμασία του δείγματος ελέγχου για τον έλεγχο:

Τα δείγματα ελέγχου θα προ-αποθηκεύονται με την αρχική πληρωτική ύλη σε συμφωνία με το περιθωριακό 3551 (5), ή, για συσκευασίες από υψηλού μοριακού βάρους πολυαιθυλένιο, με το πρότυπο υγρό μείγμα υδρογονανθράκων (λευκό οινόπνευμα) σε συμφωνία με το περιθωριακό 3551 (6).

(4) Μέθοδος ελέγχου:

Τα δείγματα ελέγχου γεμισμένα με την ύλη για την οποία η συσκευασία είναι να εγκριθεί θα πρέπει να ζυγίζεται πριν και μετά από την αποθήκευση για 28 ημέρες στους 23 °C και 50 % σχετική ατμοσφαιρική υγρασία. Για συσκευασίες από υψηλού μοριακού βάρους πολυαιθυλένιο, ο έλεγχος μπορεί να διεξάγεται με το πρότυπο υγρό μείγμα υδρογονανθράκων (λευκό οινόπνευμα) στη θέση του βενζολίου, του τολουολίου ή του ξυλένιου.

(5) Κριτήριο για πέρασμα του ελέγχου:

Η διαπερατότητα δεν θα πρέπει να υπερβαίνει τα 0.008 g/l.h

**Συμπληρωματικός έλεγχος για βαρέλια τύπου φελλού από φυσικό ξύλο**

3557 (1) Αριθμός δειγμάτων ελέγχου:

Ένα βαρέλι ανά τύπο σχεδιασμού και κατασκευαστή.

(2) Μέθοδος ελέγχου:

Αφαιρούμε όλα τα τσέρκια πάνω από την κοιλιά ενός κενού βαρελιού που έχει προηγουμένως στηθεί μονταρισμένο για τουλάχιστον δύο ημέρες.

(3) Κριτήριο για πέρασμα του ελέγχου:

Η διάμετρος του επάνω μέρους του βαρελιού δεν θα πρέπει να αυξάνεται περισσότερο από 10 %.

**Έγκριση συνδυασμένων συσκευασιών**

**ΣΗΜΕΙΩΣΗ:** Οι συνδυασμένες συσκευασίες θα πρέπει να ελέγχονται σε συμφωνία με τις διατάξεις που ισχύουν για τις εξωτερικές συσκευασίες.

3558 (1) Κατά τη διάρκεια ελέγχων του τύπου σχεδιασμού συνδυασμένων συσκευασιών, έγκριση μπορεί στον ίδιο χρόνο να δίνεται για συσκευασίες:

(a) που περιέχουν εσωτερικές συσκευασίες μικρότερου όγκου,

(b) που έχουν μικρότερο καθαρό βάρος από εκείνο του τύπου σχεδιασμού που ελέγχεται.

(2) Όπου διάφοροι τύποι συνδυασμένης συσκευασίας που έχει διαφορετικούς τύπους εσωτερικής συσκευασίας έχει εγκριθεί, οι διάφορες εσωτερικές συσκευασίες μπορούν επίσης να μοντάρονται σε μία μόνη εξωτερική συσκευασία εάν ο αποστολέας πιστοποιεί ότι αυτό το κόλο ικανοποιεί τις απαιτήσεις ελέγχου.

## Προσθήκη Α.5

3558 (3) Υπό την προϋπόθεση ότι οι ιδιότητες αντοχής των πλαστικών εσωτερικών συσκευασιών (συνεχ.) μίας συνδυασμένης συσκευασίας δεν μεταβάλλεται σημαντικά από τη δράση της πληρωτικής ύλης, απόδειξη της χημικής συμβατότητας δεν είναι απαραίτητη. Μία σημαντική μεταβολή στις ιδιότητες αντοχής σημαίνει:

- (a) Σαφής αύξηση της ευθραυστότητας,
- (b) σημαντική μείωση στην ελαστικότητα, εκτός εάν σχετίζεται με μία όχι λιγότερο από ανάλογη αύξηση σε ελαστική επιμήκυνση.

(4) Όπου μία εξωτερική συσκευασία μίας συνδυασμένης συσκευασίας έχει επιτυχώς ελεγχθεί με διαφορετικούς τύπους εσωτερικών συσκευασιών, μία ποικιλία τέτοιων διαφορετικών εσωτερικών συσκευασιών θα πρέπει επίσης να μοντάρονται σε αυτή την εξωτερική συσκευασία. Επιπλέον, υπό την προϋπόθεση ότι ένα ισοδύναμο επίπεδο λειτουργίας διατηρείται, οι παρακάτω παρεκκλίσεις στις εσωτερικές συσκευασίες επιτρέπονται χωρίς περαιτέρω έλεγχο του κόλου:

- (a) Εσωτερικές συσκευασίες ισοδύναμου μικρότερου μεγέθους θα πρέπει να χρησιμοποιούνται υπό την προϋπόθεση ότι:
  - (i) Οι εσωτερικές συσκευασίες είναι παρόμοιου σχεδιασμού με τις ελεγχόμενες εσωτερικές συσκευασίες (π.χ. σχήμα - κυκλικό, ορθογώνιο, κ.λπ.),
  - (ii) Το υλικό κατασκευής των εσωτερικών συσκευασιών (γυαλί, πλαστικό, μέταλλο κ.λπ.) προσφέρει αντίσταση σε δυνάμεις κρούσης και στοιβάγματος ίσες με ή μεγαλύτερες από εκείνη της αρχικά ελεγμένης συσκευασίας,
  - (iii) Οι εσωτερικές συσκευασίες έχουν τα ίδια ή μικρότερα ανοίγματα και το πάμα είναι παρόμοιου σχεδιασμού (π.χ. βιδωτό κάλυμμα, καπάκι τριβής κ.λπ.),
  - (iv) Αρκετό πρόσθετο προστατευτικό υλικό χρησιμοποιείται για την κατάληψη των κενών χώρων και για την αποφυγή σημαντικής κίνησης των εσωτερικών συσκευασιών και
  - (v) Οι εσωτερικές συσκευασίες είναι προσανατολισμένες μέσα στην εξωτερική συσκευασία με τον ίδιο τρόπο όπως στο ελεγχθέν κόλο.
- (b) Ένας μικρότερος αριθμός των ελεγμένων εσωτερικών συσκευασιών, ή των εναλλακτικών τύπων εσωτερικών συσκευασιών που προσδιορίζονται στο (a) παραπάνω, θα πρέπει να χρησιμοποιούνται υπό την προϋπόθεση ότι αρκετό προστατευτικό προστίθεται για το γέμισμα του(ών) κενού(ών) χώρου(ων) και για την αποφυγή σημαντικής κίνησης των εσωτερικών συσκευασιών.

(5) Είδη ή εσωτερικές συσκευασίες οποιουδήποτε τύπου για στερεά ή υγρά θα πρέπει να μοντάρονται και παρουσιάζονται για μεταφορά χωρίς έλεγχο σε μία εξωτερική συσκευασία υπό τους παρακάτω όρους:

- (a) Η εξωτερική συσκευασία θα πρέπει να έχει επιτυχώς ελεγχθεί σε συμφωνία με το περιθωριακό 3552 με εύθραυστες (π.χ. γυάλινες) εσωτερικές συσκευασίες που περιέχουν υγρά με τη χρήση του ύψους πτώσης για την ομάδα συσκευασίας I.
- (b) Το συνολικό συνδυασμένο μικτό βάρος των εσωτερικών συσκευασιών δεν θα πρέπει να υπερβαίνει το μισό του μικτού βάρους των εσωτερικών συσκευασιών που χρησιμοποιούνται για τον έλεγχο πτώσης στο (a) παραπάνω.
- (c) Το πάχος του προστατευτικού υλικού μεταξύ των εσωτερικών συσκευασιών και του εξωτερικού της συσκευασίας δεν θα πρέπει να μειώνεται κάτω από το αντίστοιχο πάχος στην αρχικά ελεγχόμενη συσκευασία. Και εάν μία μόνη εσωτερική συσκευασία είχε χρησιμοποιηθεί στον αρχικό έλεγχο, το πάχος του προστατευτικού

## Προσθήκη Α.5

3558  
(συνεχ.)

μεταξύ των εσωτερικών συσκευασιών δεν θα πρέπει να είναι μικρότερο από το πάχος του προστατευτικού μεταξύ του εξωτερικού της συσκευασίας και της εσωτερικής συσκευασίας στον αρχικό έλεγχο. Εάν είτε λιγότερες είτε μικρότερες εσωτερικές συσκευασίες χρησιμοποιούνται (συγκρινόμενες με τις εσωτερικές συσκευασίες που χρησιμοποιούνται στον έλεγχο πτώσης) αρκετό πρόσθετο προστατευτικό υλικό θα πρέπει να χρησιμοποιείται για την κατάληψη των κενών χώρων.

- (d) Η εξωτερική συσκευασία θα πρέπει να έχει περάσει επιτυχώς τον έλεγχο στοιβάγματος στο περιθωριακό 3555 όταν είναι κενή. Το συνολικό βάρος ιδίων κόλων θα πρέπει να βασίζεται στο συνδυασμένο βάρος των εσωτερικών συσκευασιών που χρησιμοποιούνται για τον έλεγχο πτώσης στο (a) παραπάνω.
- (e) Εσωτερικές συσκευασίες που περιέχουν υγρά θα πρέπει να είναι πλήρως περιβλημένες με αρκετή ποσότητα απορροφητικού υλικού για την απορρόφηση όλου του υγρού περιεχομένου των εσωτερικών συσκευασιών.
- (f) Εάν η εξωτερική συσκευασία είναι προοριζόμενη να περιέχει εσωτερικές συσκευασίες για υγρά και δεν είναι στεγανή, ή είναι προοριζόμενη να περιέχει εσωτερικές συσκευασίες για στερεά και δεν είναι αδιαπέραστη, ένα μέσον συγκράτησης οποιουδήποτε υγρού ή στερεού περιεχομένου στην περίπτωση διαρροής θα πρέπει να υπάρχει στη μορφή στεγανής επένδυσης, πλαστικού σάκου ή άλλου εξίσου αποτελεσματικού μέσου συγκράτησης. Για συσκευασίες που περιέχουν υγρά, το απορροφητικό υλικό που απαιτείται στο (e) θα πρέπει να τοποθετείται μέσα στο μέσον συγκράτησης του υγρού περιεχομένου.
- (g) Οι συσκευασίες θα πρέπει να είναι μαρκαρισμένες σε συμφωνία με το περιθωριακό 3512 ως ελεγμένες για λειτουργία συνδυασμένων συσκευασιών της Ομάδας Συσκευασίας Ι. Το μαρκαρισμένο μικτό βάρος σε κιλά θα πρέπει να είναι το άθροισμα του βάρους των εξωτερικών συσκευασιών συν το μισό του βάρους της(των) εσωτερικής(ών) συσκευασίας(ών) όπως χρησιμοποιούνται για τον έλεγχο πτώσης που αναφέρεται στο (a) παραπάνω. Το σήμα θα πρέπει να περιέχει ένα γράμμα "V" σε συμφωνία με το περιθωριακό 3512 (5) ως ειδική συσκευασία.

#### Αναφορά ελέγχου

3559 Μία αναφορά ελέγχου που περιέχει τουλάχιστον τα παρακάτω στοιχεία θα πρέπει να συντάσσεται και θα πρέπει να είναι διαθέσιμη στους χρήστες της συσκευασίας:

1. Σώμα ελέγχου,
2. Αιτών,
3. Κατασκευαστής της συσκευασίας,
4. Περιγραφή της συσκευασίας (π.χ. χαρακτηριστικά γνωρίσματα τέτοια όπως υλικό, εσωτερική επένδυση, διαστάσεις, πάχος τοιχωμάτων, βάρος, πόματα, χρωματισμός των πλαστικών υλικών),
5. Σχέδια της συσκευασίας και των πωμάτων (εάν είναι απαραίτητο, φωτογραφίες),
6. Μέθοδος κατασκευής,
7. Μέγιστη χωρητικότητα,
8. Χαρακτηριστικά του περιεχομένου ελέγχου, π.χ. ιξώδες και σχετική πυκνότητα για υγρά και μέγεθος σωματιδίων για στερεά,
9. Ύψος πτώσης,

## Προσθήκη Α.5

- 3559 10. Πίεση ελέγχου στον έλεγχο στεγανότητας σε συμφωνία με το περιθωριακό 3553, (συνεχ.)
11. Πίεση ελέγχου στον έλεγχο εσωτερικής πίεσης σε συμφωνία με το περιθωριακό 3554,
12. Ύψος στοιβάγματος,
13. Αποτελέσματα ελέγχου,
14. Ένας μοναδικός προσδιορισμός της αναφοράς ελέγχου,
15. Ημερομηνία της αναφοράς ελέγχου,
16. Η αναφορά ελέγχου θα πρέπει να υπογράφεται με το όνομα και τη θέση του υπογράφοντος.

Η αναφορά ελέγχου θα πρέπει να περιέχει δηλώσεις ότι η συσκευασία προετοιμασμένη όπως για μεταφορά ελέγχθηκε σε συμφωνία με τις κατάλληλες διατάξεις της Προσθήκης Α.5 και ότι η χρήση άλλων μεθόδων συσκευασίας μπορούν να την καταστήσουν μη-ισχύουσα. Ένα αντίγραφο της αναφοράς ελέγχου θα πρέπει να είναι διαθέσιμη στην αρμόδια αρχή.

**Β. Έλεγχος στεγανότητας για όλες τις νέες, επανακατασκευασμένες ή επιδιορθωμένες συσκευασίες που προορίζονται να περιέχουν υγρά.**

3560 (1) *Ισχύς του ελέγχου*

Κάθε συσκευασία προοριζόμενη να περιέχει υγρά θα πρέπει να υποβάλλεται στον έλεγχο στεγανότητας:

- πριν χρησιμοποιηθεί πρώτη φορά για μεταφορά,
- μετά από την επανακατασκευή ή την επιδιόρθωση, πριν επαναχρησιμοποιηθεί για μεταφορά.

Για αυτόν τον έλεγχο, οι συσκευασίες δεν χρειάζεται να έχουν προσαρμοσμένα τα δικά τους πώματα.

Το εσωτερικό δοχείο των σύνθετων συσκευασιών μπορεί να ελέγχεται χωρίς την εξωτερική συσκευασία υπό την προϋπόθεση ότι τα αποτελέσματα ελέγχου δεν επηρεάζονται.

Αυτός ο έλεγχος δεν απαιτείται για:

- εσωτερικές συσκευασίες συνδυασμένων συσκευασιών,
- εσωτερικά δοχεία σύνθετων συσκευασιών (από γυαλί, πορσελάνη ή ψαμμάργιλο) σύμφωνα με το περιθωριακό 3510 (2),
- μετακινούμενης κεφαλής συσκευασίες προοριζόμενες για ύλες με ιξώδες στους 23 °C που υπερβαίνει τα 200 mm<sup>2</sup>/s,

ελαφρού περιτυπώματος μεταλλικές συσκευασίες σύμφωνα με το περιθωριακό 3510 (2).

## Προσθήκη Α.5

3560 (2) Μέθοδος ελέγχου:  
(συνεχ.)

Πέπιεσμένος αέρας εισάγεται μέσω του στομίου πλήρωσης κάθε συσκευασίας. Η συσκευασία εμβαπτίζεται στο νερό. Διατηρείται κάτω από το νερό με τέτοιο τρόπο ώστε να μην αλλοιώνεται το αποτέλεσμα του ελέγχου. Η συσκευασία μπορεί επίσης να καλύπτεται με διάλυμα σαπουνιού, βαρύ λάδι ή άλλο κατάλληλο υγρό στις ραφές της ή σε οποιαδήποτε άλλη θέση όπου μπορεί να σημειωθεί διαρροή. Άλλες μέθοδοι τουλάχιστον εξίσου αποτελεσματικές μπορούν επίσης να χρησιμοποιούνται.

Οι συσκευασίες δεν χρειάζεται να είναι εξοπλισμένες με τα δικά τους πόματα.

(3) Πίεση αέρα που πρέπει να εφαρμόζεται:

Ομάδα συσκευασίας I	Ομάδα συσκευασίας II	Ομάδα συσκευασίας III
Όχι μικρότερη από 30 kPa	Όχι μικρότερη από 20 kPa	Όχι μικρότερη από 20 kPa

(4) Κριτήριο για πέρασμα του ελέγχου:

Δεν θα πρέπει να υπάρχει διαρροή.

3561-  
3599

## ΠΑΡΑΡΤΗΜΑ ΣΤΗΝ ΠΡΟΣΘΗΚΗ Α.5

## Μέρος Ι

Πρότυπα υγρά για την επαλήθευση της χημικής συμβατότητας συσκευασιών από υψηλού μοριακού βάρους πολυαιθυλένιο σε συμφωνία με το περιθωριακό 3551 (6).

Τα παρακάτω πρότυπα υγρά θα πρέπει να χρησιμοποιούνται για αυτό το πλαστικό υλικό.

- (a) *Διάλυμα διάβρωσης* για ύλες που προκαλούν σοβαρή θραύση στο πολυαιθυλένιο υπό καταπόνηση, ειδικά για όλα τα διαλύματα και παρασκευάσματα που περιέχουν παράγοντες διάβρωσης.

Ένα υδατικό διάλυμα 1 έως 10 % ενός παράγοντα διάβρωσης θα πρέπει να χρησιμοποιείται. Η επιφανειακή τάση αυτού του διαλύματος θα πρέπει να είναι 31 έως 35 mN/m στους 23 °C.

Ο έλεγχος στοιβάγματος θα πρέπει να διεξάγεται στη βάση μίας σχετικής πυκνότητας όχι μικρότερης από 1.20.

Ένας έλεγχος συμβατότητας με οξικό οξύ δεν απαιτείται εάν επαρκή χημική συμβατότητα αποδεικνύεται με ένα διάλυμα διάβρωσης.

- (b) *Οξικό οξύ* για ύλες και παρασκευάσματα που προκαλούν θραύση στο πολυαιθυλένιο υπό καταπόνηση, ειδικά για μονοκαρβοξυλικά οξέα και μονοσθενείς αλκοόλες.

Οξικό οξύ σε συγκέντρωση 98 έως 100 % θα πρέπει να χρησιμοποιείται.

Σχετική πυκνότητα = 1.05

Ο έλεγχος στοιβάγματος θα πρέπει να διεξάγεται στη βάση μίας σχετικής πυκνότητας όχι μικρότερης από 1.1.

Στην περίπτωση πληρωτικών υλών που προκαλούν φούσκωμα στο πολυαιθυλένιο περισσότερο από το οξικό οξύ και σε τέτοιο βαθμό ώστε το βάρος του πολυαιθυλενίου αυξάνεται κατά έως 4 %, επαρκής χημική συμβατότητα μπορεί να αποδεικνύεται μετά από προκαταρκτική αποθήκευση για τρεις εβδομάδες στους 40 °C, σε συμφωνία με το περιθωριακό 3551 (6) αλλά με την αρχική πληρωτική ύλη.

- (c) *Διάλυμα διάβρωσης κανονικού οξικού βουτυλεστέρα/κανονικού οξικού βουτυλεστέρα-κορεσμένου* για ύλες και παρασκευάσματα που προκαλούν φούσκωμα στο πολυαιθυλένιο σε τέτοιο βαθμό ώστε το βάρος του πολυαιθυλενίου να αυξάνεται κατά περίπου 4 % και στον ίδιο χρόνο προκαλούν θραύση υπό καταπόνηση, ειδικά για φυτικά-υγιεινά προϊόντα, υγρά χρώματα και εστέρες. Κανονικός οξικός βουτυλεστέρας σε συγκέντρωση 98 έως 100 % θα πρέπει να χρησιμοποιείται για προκαταρκτική αποθήκευση σε συμφωνία με το περιθωριακό 3551 (6).

Για τον έλεγχο στοιβάγματος σε συμφωνία με το περιθωριακό 3555, ένα υγρό ελέγχου συνιστάμενο από ένα 1 έως 10 % υδατικό διάλυμα διάβρωσης αναμεμιγμένο με 2 % κανονικό οξικό βουτυλεστέρα σύμφωνα με το (a) παραπάνω θα πρέπει να χρησιμοποιείται.

Ο έλεγχος στοιβάγματος θα πρέπει να διεξάγεται στη βάση μίας σχετικής πυκνότητας όχι μικρότερης από 1.0.



## Παράρτημα στην Προσθήκη Α.5

Παράρτημα  
(συνεχ.)

Στην περίπτωση πληρωτικών υλών που προκαλούν φούσκωμα στο πολυαιθυλένιο περισσότερο από τον κανονικό οξικό βουτυλεστέρα και σε τέτοιο βαθμό ώστε το βάρος του πολυαιθυλενίου να αυξάνεται κατά έως 7.5 %, επαρκής χημική συμβατότητα μπορεί να αποδεικνύεται μετά από προκαταρκτική αποθήκευση για τρεις εβδομάδες στους 40 °C, σε συμφωνία με το περιθωριακό 3551 (6) αλλά με την αρχική πληρωτική ύλη.

- (d) *Μείγμα υδρογονανθράκων (λευκό οινόπνευμα)* για ύλες και παρασκευάσματα που προκαλούν φούσκωμα σε πολυαιθυλένιο, ειδικά για υδρογονάνθρακες, εστέρες και κετόνες.

Ένα μείγμα υδρογονανθράκων που έχει σημείο βρασμού από 160 °C έως 220 °C, σχετική πυκνότητα 0.78-0.80, σημείο ανάφλεξης >50 °C και περιεκτικότητα σε αρωματικά 16 % έως 21 % θα πρέπει να χρησιμοποιείται.

Ο έλεγχος στοιβάγματος θα πρέπει να διεξάγεται στη βάση μίας σχετικής πυκνότητας όχι μικρότερης από 1.0.

Στην περίπτωση πληρωτικών υλών που προκαλούν φούσκωμα στο πολυαιθυλένιο σε τέτοιο βαθμό ώστε το βάρος του πολυαιθυλενίου να αυξάνεται κατά περισσότερο από 7.5 %, επαρκής χημική συμβατότητα μπορεί να αποδεικνύεται μετά από προκαταρκτική αποθήκευση για τρεις εβδομάδες στους 40 °C, σε συμφωνία με το περιθωριακό 3551 (6) αλλά με την αρχική πληρωτική ύλη.

- (e) *Νιτρικό οξύ* για όλες τις ύλες και παρασκευάσματα που έχουν οξειδωτική επίδραση στο πολυαιθυλένιο και που προκαλούν μοριακή αποικοδόμηση ίδια με ή μικρότερη από 55 % νιτρικό οξύ.

Νιτρικό οξύ σε συγκέντρωση όχι μικρότερη από 55 % θα πρέπει να χρησιμοποιείται.

Ο έλεγχος στοιβάγματος πρέπει να διεξάγεται στη βάση μίας σχετικής πυκνότητας όχι μικρότερης από 1.4.

Στην περίπτωση πληρωτικών υλών περισσότερο ισχυρά οξειδωτικών από 55 % νιτρικό οξύ ή που προκαλούν αποικοδόμηση του μοριακού βάρους συνεχίζουμε σε συμφωνία με το περιθωριακό 3551 (5).

- (f) *Νερό* για ύλες που δεν προσβάλλουν το πολυαιθυλένιο σε οποιαδήποτε από τις περιπτώσεις που αναφέρονται στα (a) έως (e), ειδικά για ανόργανα οξέα και αλισίβες, υδατικά αλατούχα διαλύματα, πολυσθενείς αλκοόλες και οργανικές ύλες σε υδατικό διάλυμα.

Ο έλεγχος στοιβάγματος θα πρέπει να διεξάγεται στη βάση μίας σχετικής πυκνότητας όχι μεγαλύτερης από 1.2.

## Παράρτημα στην Προσθήκη Α.5

Παράρτημα Μέρος II  
(συνεχ.)

Κατάλογος υλών με τις οποίες τα πρότυπα υγρά μπορούν να θεωρούνται ως ισοδύναμα σε συμφωνία με το περιθωριακό 3551 (6).

## Κλάση 3

Είδος	Υλη	Πρότυπο Υγρό
A.	Υλη που έχει σημείο ανάφλεξης κάτω από 23 °C, όχι τοξική, όχι διαβρωτική	
3° (b)	Υλες που έχουν τάση ατμών στους 50 °C όχι μεγαλύτερη από 110 kPa (1.1 bar)	
	- Αργό πετρέλαιο και άλλα ακατέργαστα έλαια	Μείγμα υδρογονανθράκων
	- Υδρογονάνθρακες	"
	- Αλογονωμένες ύλες	"
	- Αλκοόλες	Οξικό οξύ
	- Αιθέρες	Μείγμα υδρογονανθράκων
	- Αλδεΐδες	"
	- Κετόνες	Κανονικός οξικός βουτυλεστέρας όπου το αποτέλεσμα φουσκώματος είναι έως 4 % (κατά βάρος): άλλες περιπτώσεις, μείγμα υδρογονανθράκων
4° (b)	Μείγματα υλών της 3° (b) που έχουν σημείο βρασμού ή αρχικό σημείο βρασμού που υπερβαίνει τους 35 °C, που περιέχουν όχι περισσότερο από 55 % νιτροκυτταρίνη με περιεκτικότητα σε άζωτο που δεν υπερβαίνει το 12.6 %.	Διάλυμα διάβρωσης κανονικού οξικού βουτυλεστέρα/κανονικού οξικού βουτυλεστέρα-κορεσμένου και μείγμα υδρογονανθράκων.
5°	Ιξώδεις ύλες	Μείγμα υδρογονανθράκων
B.	Υλες που έχουν σημείο ανάφλεξης κάτω από 23 °C και τοξικές	
17° (b)	Μεθανόλη	Οξικό οξύ
E.	Υλες που έχουν σημείο ανάφλεξης μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων που θα μπορούσαν να είναι ελαφρά τοξικές ή ελαφρά διαβρωτικές	
31° (c)	Υλες που έχουν σημείο ανάφλεξης μεταξύ 21 °C και 61 °C συμπεριλαμβανομένων:	
	- Πετρέλαιο, διαλύτης νάφθα	Μείγμα υδρογονανθράκων
	- Λευκό οινόπνευμα (υποκατάστατο τερεβινθίνης)	"
	- Υδρογονάνθρακες	"
	- Αλογονωμένες ύλες	"
	- Αλκοόλες	Οξικό οξύ
	- Αιθέρες	Μείγμα υδρογονανθράκων
	- Αλδεΐδες	"
	- Κετόνες	"
31°	- Εστέρες	Κανονικός οξικός βουτυλεστέρας όπου

Παράρτημα  
(συνεχ.)

Παράρτημα στην Προσθήκη Α.5

Είδος (συνεχ.)	Υλη	Πρότυπο Υγρό
	- Αζωτούχες ύλες	Μείγμα υδρογονανθράκων
34° (c)	Μείγματα υλών της 31° (c) που περιέχουν όχι περισσότερο από 55 % νιτροκυτταρίνη με περιεκτικότητα σε άζωτο που δεν υπερβαίνει το 12,6 %.	Διάλυμα διάβρεξης κανονικού οξικού βουτυλεστέρα/κανονικού οξικού βουτυλεστέρα-κορεσμένου και μείγμα υδρογονανθράκων.

**Κλάση 5.1**

**A. Υγρές οξειδωτικές ύλες και υδατικά διαλύματα τους**

1°	Υπεροξειδίου του υδρογόνου και διαλύματα του. <sup>β/</sup>	
(b)	Υδατικά διαλύματα με όχι λιγότερο από 20 % αλλά όχι περισσότερο από 60 % υπεροξειδίου του υδρογόνου	Νερό
(c)	Υδατικά διαλύματα με όχι λιγότερο από 8 % αλλά λιγότερο από 20 % υπεροξειδίου του υδρογόνου	Νερό
3° (a)	Υπερχλωρικό οξύ με περισσότερο από 50 % αλλά όχι περισσότερο από 72 % οξύ (κατά βάρος)	Νιτρικό οξύ

**B. Υδατικά διαλύματα στερεών οξειδωτικών υλών**

11° (b)	Διάλυμα χλωρικού ασβεστίου Διάλυμα χλωρικού καλίου Διάλυμα χλωρικού νατρίου	Νερό Νερό Νερό
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**Κλάση 6.1**

**B. Οργανικές ύλες που έχουν σημείο ανάφλεξης 23 °C ή μεγαλύτερο ή μη-εύφλεκτες οργανικές ύλες**

12°	Αζωτούχες ύλες που έχουν σημείο ανάφλεξης μεγαλύτερο από 61 °C:	
(b)	ανιλίνη	Οξικό οξύ
14°	Οξυγονωμένες ύλες που έχουν σημείο ανάφλεξης μεγαλύτερο από 61 °C:	
(c)	μονοβουτυλαιθέρας της αιθυλενογλυκόλης φουρφορυλακόλη διάλυμα φαινόλης	Οξικό οξύ Οξικό οξύ Οξικό οξύ
27°	Διαβρωτικές τοξικές οργανικές ύλες, είδη που περιέχουν διαβρωτικές τοξικές οργανικές ύλες (τέτοια όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα	

<sup>β/</sup>

Έλεγχος που πρέπει να εκτελείται μόνο με εξαεριστήρα.

Παρά  
(συνεχ.)

Παράρτημα στην Προσθήκη Α.5

Είδος	Υλη	Πρότυπο Υγρό
27° (συνεχ.)	συγκεντρωτικά κεφάλαια	
(b)	κρεζόλες ή κρεζυλικό οξύ	Οξικό οξύ
<b>Κλάση 6.2</b>		
3° και 4°	Όλες οι μολυσματικές ύλες που θεωρούνται ότι είναι υγρά σε συμφωνία με το περιθωριακό 2650 (5)	Νερό
<b>Κλάση 8</b>		
<b>A. Ώξινες ύλες</b>		
<i>Ανόργανα οξέα</i>		
1° (b)	Θειικό οξύ Θειικό οξύ, χρησιμοποιημένο	Νερό Νερό
2° (b)	Νιτρικό οξύ με όχι περισσότερο από 55 % οξύ	Νιτρικό οξύ
4° (b)	Υπερχλωρικό οξύ με όχι περισσότερο από 50 % οξύ, κατά βάρος σε υδατικό διάλυμα	Νιτρικό οξύ
5° (b) και (c)	Υδροχλωρικό οξύ με όχι περισσότερο από 36 % καθαρό οξύ Υδροβρωμικό οξύ Υδροϊωδικό οξύ	Νερό
7° (b)	Υδροφθορικό οξύ με όχι περισσότερο από 60 % υδροφθόριο <sup>9/</sup>	Νερό
8° (b)	Φθοροβορικό οξύ με όχι περισσότερο από 50 % καθαρό οξύ Φθοροπυριτικό οξύ (υδροφθοροπυριτικό οξύ)	Νερό Νερό
17° (b) και (c)	Διάλυμα χρωμικού οξέος με όχι περισσότερο από 30 % καθαρό οξύ	Νιτρικό οξύ
17° (c)	Φωσφορικό οξύ	Νερό
<i>Οργανικές ύλες</i>		
32° (b)	Ακρυλικό οξύ, μυρμηκικό οξύ, οξικό οξύ,θειογλυκολικό οξύ	Οξικό οξύ
32° (c)	Μεθακρυλικό οξύ, προπιονικό οξύ	Οξικό οξύ
40° (c)	Αλκυλοφαινόλες, υγρές	Οξικό οξύ
<b>B. Βασικές ύλες</b>		
<i>Ανόργανες ύλες</i>		
42° (b)	Διάλυμα υδροξειδίου του νατρίου,	Νερό

<sup>9/</sup> Κατά μέγιστο 60 λίτρα. Επιτρεπτή περίοδος χρήσης δύο χρόνια.

Παρά α Παράρτημα στην Προσθήκη Α.5  
(συνεχ.)

<u>Είδος</u>	<u>Υλη</u>	<u>Πρότυπο Υγρό</u>
και (c)	διάλυμα υδροξειδίου του καλίου	
43° (c)	Διάλυμα αμμωνίας	Νερό
44° (b)	Υδατικά διαλύματα υδραζίνης με όχι περισσότερο από 64 % υδραζίνη, κατά βάρος	Νερό
<b>C.</b>	<b>Άλλες διαβρωτικές ύλες</b>	
61° (c)	Διαλύματα χλωριωδών και υποχλωριωδών αλάτων <sup>19/</sup>	Νιτρικό οξύ
63° (c)	Διαλύματα φορμαλδεΰδης	Νερό

<sup>19/</sup> Έλεγχος που πρέπει να διεξάγεται μόνον με εξαεριστήρα. Εάν ο έλεγχος διεξάγεται με νιτρικό οξύ ως πρότυπο υγρό, ένας ανθεκτικός στα οξέα εξαεριστήρας θα πρέπει να χρησιμοποιείται. Για υποχλωριώδη διαλύματα, εξαεριστήρες του ίδιου τύπου σχεδιασμού, ανθεκτικοί σε υποχλωριώδη άλατα (π.χ. από πυριτιούχο καουτσούκ) αλλά όχι ανθεκτικοί στο νιτρικό οξύ, επιτρέπονται επίσης.

## ΠΡΟΣΘΗΚΗ Α.6

**ΓΕΝΙΚΟΙ ΟΡΟΙ ΓΙΑ ΤΗ ΧΡΗΣΗ ΕΝΔΙΑΜΕΣΩΝ ΕΜΠΟΡΕΥΜΑΤΟΚΙΒΩΤΙΩΝ ΓΙΑ ΜΕΤΑΦΟΡΑ ΧΥΜΑ (IBC), ΤΥΠΟΙ IBC, ΑΠΑΙΤΗΣΕΙΣ ΣΧΕΤΙΚΕΣ ΜΕ ΤΗΝ ΚΑΤΑΣΚΕΥΗ IBC ΚΑΙ ΠΡΟΔΙΑΓΡΑΦΕΣ ΕΛΕΓΧΟΥ ΓΙΑ IBC**

3600 "Ενδιάμεσο Εμπορευματοκιβώτιο για μεταφορά χύμα" (IBC) σημαίνει μία άκαμπτη, ημι-άκαμπτη ή εύκαμπτη φορητή συσκευασία, πέραν από εκείνες που προκαθορίζονται στην Προσθήκη Α.5, που:

- (a) έχει χωρητικότητα
- (i) όχι μεγαλύτερη από 3.0 m<sup>3</sup> (3,000 λίτρα) για στερεά και υγρά των Ομάδων Συσκευασίας II και III,
  - (ii) όχι μεγαλύτερη από 1.5 m<sup>3</sup> για στερεά της Ομάδας Συσκευασίας I όταν είναι συσκευασμένα σε εύκαμπτα, άκαμπτου πλαστικού, σύνθετα, φύλλου φάιμπερ και ξύλινα IBC,
  - (iii) όχι μεγαλύτερη από 3.0 m<sup>3</sup> για στερεά της Ομάδας Συσκευασίας I όταν είναι συσκευασμένα σε μεταλλικά IBC,
- (b) είναι σχεδιασμένη για μηχανικό χειρισμό,
- (c) είναι ανθεκτική στις καταπονήσεις που παράγονται κατά το χειρισμό και τη μεταφορά όπως προσδιορίζεται από τους ελέγχους που προκαθορίζονται σε αυτήν την Προσθήκη.

**ΣΗΜΕΙΩΣΗ 1:** Οι διατάξεις αυτής της Προσθήκης ισχύουν για ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC) η χρήση των οποίων ρητά επιτρέπεται στις σχετικές κλάσεις για τη μεταφορά ορισμένων επικίνδυνων υλών.

**ΣΗΜΕΙΩΣΗ 2:** Εμπορευματοκιβώτια-δεξαμενές που ικανοποιούν τις διατάξεις της Προσθήκης Β.1b δεν θεωρούνται ότι είναι ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC).

**ΣΗΜΕΙΩΣΗ 3:** Ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC) που ικανοποιούν τους όρους αυτής της Προσθήκης δεν θεωρούνται ότι είναι εμπορευματοκιβώτια για τους σκοπούς αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 4:** Τα γράμματα IBC μόνον θα χρησιμοποιούνται στο υπόλοιπο κείμενο για αναφορά σε ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα.

**Μέρος 1: Γενικοί όροι που ισχύουν για τα IBC**

3601 (1) Τα IBC θα πρέπει να είναι σχεδιασμένα, κατασκευασμένα και ελεγμένα κάτω από ένα πρόγραμμα εξασφάλισης ποιότητας που ικανοποιεί την αρμόδια αρχή, για να εξασφαλίζεται ότι κάθε IBC ικανοποιεί τις διατάξεις αυτής της Προσθήκης.

(2) Κάθε IBC θα πρέπει να αντιστοιχεί απ' όλες τις απόψεις στον τύπο σχεδιασμού του.

Η αρμόδια αρχή μπορεί σε οποιονδήποτε χρόνο να απαιτήσει απόδειξη, με διεξαγωγή ελέγχων σε συμφωνία με τις διατάξεις αυτής της Προσθήκης, ότι τα IBC ικανοποιούν τις απαιτήσεις για τους ελέγχους του τύπου σχεδιασμού.

(3) Πριν γεμιστεί και παραδοθεί για μεταφορά, κάθε IBC θα πρέπει να επιθεωρείται ώστε να εξασφαλίζεται ότι είναι ελεύθερο από διάβρωση, μόλυνση ή άλλη φθορά και σχετικά με την σωστή λειτουργία των εξαρτημάτων εξυπηρέτησης. Οποιοδήποτε IBC που εμφανίζει σημάδια μειωμένης αντοχής σε σύγκριση με τον ελεγμένο τύπο σχεδιασμού δεν θα πρέπει να

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5.5.1 χρησιμοποιείται περαιτέρω ή θα πρέπει να επισκευάζεται έτσι ώστε να είναι καινό να αντέχει (συνεχ.) τους ελέγχους του τύπου σχεδιασμού.

(4) Όπου δύο ή περισσότερα συστήματα κλεισίματος είναι προσαρμοσμένα σε σειρά, εκείνο που είναι πιο κοντά στην ύλη που μεταφέρεται θα πρέπει να κλείνεται πρώτο.

(5) Κατά τη διάρκεια της μεταφοράς, κανένα επικίνδυνο υπόλειμμα δεν θα πρέπει να επκολλάται στο εξωτερικό του IBC.

(6) Όπου υπερπίεση μπορεί να αναπτυχθεί σε ένα IBC μέσω της έκλυσης αερίου από το περιεχόμενο (ως αποτέλεσμα αύξησης της θερμοκρασίας ή άλλων αιτιών), το IBC μπορεί να είναι εξοπλισμένο με έναν εξαεριστήρα υπό την προϋπόθεση ότι το αέριο που εκλύεται δεν θα προκαλέσει οποιονδήποτε κίνδυνο εξαιτίας της τοξικότητάς του, της ευφλεκτότητάς του, της απελευθερούμενης ποσότητας κ.λπ. Ο εξαεριστήρας θα πρέπει να είναι έτσι σχεδιασμένος ώστε, όταν το IBC είναι στη θέση στην οποία προορίζεται να μεταφερθεί, διαρροές υγρού και η διείσδυση ξένης ύλης παρεμποδίζεται υπό κανονικές συνθήκες μεταφοράς. Πάντως, μία ύλη μπορεί να μεταφέρεται σε τέτοια IBC μόνον όπου ένας εξαεριστήρας ορίζεται για εκείνη την ύλη στους όρους μεταφοράς της σχετικής κλάσης.

(7) Όταν τα IBC είναι γεμισμένα με υγρά, αρκετό κενό θα πρέπει να αφήνεται ώστε να εξασφαλίζεται ότι καμία διαρροή υγρού και μόνιμη παραμόρφωση του IBC δεν συμβαίνει ως αποτέλεσμα της διαστολής του υγρού, λόγω των θερμοκρασιών που μπορούν να αναπτυχθούν κατά τη διάρκεια της μεταφοράς.

Για θερμοκρασία πλήρωσης 15 °C, ο μέγιστος βαθμός πλήρωσης θα πρέπει να προσδιορίζεται ως ακολούθως, εκτός εάν αλλιώς ορίζεται σε μία συγκεκριμένη κλάση:

Είτε (a)

Σημείο βρασμού (αρχικό σημείο βρασμού) της ύλης σε °C	> 35 < 60	≥ 60 < 100	≥ 100 < 200	≥ 200 < 300	≥ 300
Βαθμός πλήρωσης ως ποσοστό της χωρητικότητας του IBC	90	92	94	96	98

Είτε (b)

$$\text{Βαθμός πλήρωσης} = \frac{98}{1 + \alpha(50 - t_f)} \text{ της χωρητικότητας του IBC.}$$

Σε αυτόν τον τύπο, το  $\alpha$  αντιπροσωπεύει τον μέσο συντελεστή κυβικής διαστολής του υγρού μεταξύ 15 °C και 50 °C, δηλαδή, για μία μέγιστη αύξηση στη θερμοκρασία 35 °C,

$$\text{το } \alpha \text{ υπολογίζεται σύμφωνα με τον τύπο: } \alpha = \frac{d_{15} - d_{50}}{35 \cdot d_{50}}$$

όπου  $d_{15}$  και  $d_{50}$  είναι οι σχετικές πυκνότητες του υγρού στους 15 °C και 50 °C και  $t_f$  η μέση θερμοκρασία του υγρού στο χρόνο πλήρωσης.

(8) Όταν τα IBC χρησιμοποιούνται για τη μεταφορά υγρών με σημείο ανάφλεξης 55 °C (κλειστό καψύλλιο) ή χαμηλότερο, ή σκόνης υποκείμενες σε έκρηξη σκόνης, θα πρέπει να λαμβάνονται μέτρα ώστε να παρεμποδίζεται μία επικίνδυνη ηλεκτροστατική απόφορτιση κατά τη διάρκεια του γεμίσματος και του αδειάσματος.

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3901 (9) Το πόμα των IBC που περιέχουν ναπές ή διαλυμένες ύλες θα πρέπει να είναι τέτοιο ώστε (συνεχ.) το ποσοστό του υγρού (νερό, διαλύτης ή αδρανοποιητής) να μην πέφτει κάτω από τα οριζόμενα όρια κατά τη διάρκεια της μεταφοράς.

(10) Υγρά θα πρέπει να φορτώνονται μόνον μέσα σε άκαμπτα πλαστικά IBC ή σύνθετα IBC που έχουν επαρκή αντίσταση στην εσωτερική πίεση που μπορεί να αναπτυχθεί υπό κανονικές συνθήκες μεταφοράς. Τα IBC που είναι μαρκαρισμένα με την υδραυλική πίεση ελέγχου όπως ορίζεται στο περιθωριακό 3612 (2) θα πρέπει να είναι γεμισμένα μόνον με ένα υγρό που έχει πίεση ατμών:

- (a) τέτοια ώστε η συνολική πίεση πιεζομέτρου στη συσκευασία (δηλ. η πίεση ατμών της πληρωτικής ύλης συν η μερική πίεση του αέρα ή άλλων αδρανών αερίων, μείον 100 kPa) στους 55 °C που προσδιορίζεται στη βάση ενός μέγιστου βαθμού πλήρωσης σε συμφωνία με την παράγραφο (7) και μία θερμοκρασία πλήρωσης 15 °C, δεν θα υπερβαίνει τα δύο τρίτα της μαρκαρισμένης πίεσης ελέγχου, ή
- (b) στους 50 °C μικρότερη από τα τέσσερα έβδομα του αθροίσματος της μαρκαρισμένης πίεσης ελέγχου συν 100 kPa, ή
- (c) στους 55 °C μικρότερη από τα δύο τρίτα του αθροίσματος της μαρκαρισμένης πίεσης ελέγχου συν 100 kPa.

(11) Κατά τη διάρκεια της μεταφοράς, τα IBC θα πρέπει να είναι με ασφάλεια στερεωμένα ή συγκρατημένα μέσα στη μονάδα μεταφοράς έτσι ώστε να αποφεύγεται πλάγια ή διαμήκης κίνηση ή κρούση και έτσι ώστε να προσφέρεται επαρκής εξωτερική υποστήριξη.

3602-  
3609

## Μέρος 2: Τύποι IBC

## Ορισμοί

3610 (1) Υποκείμενα στις συγκεκριμένες διατάξεις κάθε κλάσης, τα IBC που αναφέρονται παρακάτω μπορούν να χρησιμοποιούνται:

Μεταλλικά IBC

Τα μεταλλικά IBC συνίστανται από ένα μεταλλικό σώμα μαζί με κατάλληλο εξοπλισμό εξυπηρέτησης και δόμησης.

Εύκαμπτα IBC

Τα εύκαμπτα IBC συνίστανται από ένα σώμα που συνίσταται από φιλμ, από πλεγμένο ύφασμα ή οποιοδήποτε άλλο εύκαμπτο υλικό ή συνδυασμό αυτών και εάν είναι απαραίτητο, μία εσωτερική επικάλυψη ή επένδυση, μαζί με οποιοδήποτε κατάλληλο εξοπλισμό εξυπηρέτησης και συσκευή διακίνησης.

IBC από άκαμπτο πλαστικό

Τα IBC από άκαμπτο πλαστικό συνίστανται από ένα σώμα από άκαμπτο πλαστικό, που μπορεί να έχει δομικό εξοπλισμό μαζί με κατάλληλο εξοπλισμό εξυπηρέτησης.

Σύνθετα IBC με πλαστικό εσωτερικό δοχείο

Τα σύνθετα IBC συνίστανται από δομικό εξοπλισμό στη μορφή ενός άκαμπτου εξωτερικού περιβλήματος που περιυκλείει ένα πλαστικό εσωτερικό δοχείο μαζί με οποιοδήποτε εξοπλισμό εξυπηρέτησης ή άλλου δομικού είδους. Είναι έτσι δομημένο ώστε το



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(συνεχ.)

εσωτερικό δοχείο και το εξωτερικό περίβλημα αφού μονταριστούν σχηματίζουν και χρησιμοποιούνται ως μία ακέραια μονοκόμματη μονάδα και πρέπει να γεμίζεται, αποθηκεύεται, μεταφέρεται ή αδειάζεται ως τέτοια.

IBC από φύλλο φάιμπερ

Τα IBC από φύλλο φάιμπερ συνίστανται από ένα σώμα από φύλλο φάιμπερ με ή χωρίς ξεχωριστά καπάκια κορυφής και πυθμένα, εάν είναι απαραίτητο μία εσωτερική επένδυση (αλλά χωρίς εσωτερική συσκευασία) και κατάλληλο εξοπλισμό εξυπηρέτησης και δόμησης.

Ξύλινα IBC

Τα ξύλινα IBC συνίστανται από ένα άκαμπτο ή πτυσσόμενο ξύλινο σώμα, μαζί με μία εσωτερική επένδυση (αλλά χωρίς εσωτερική συσκευασία) και κατάλληλο εξοπλισμό εξυπηρέτησης και δόμησης.

- (2) Οι παρακάτω ορισμοί ισχύουν για τα IBC που αναφέρονται στο (1):

Σώμα (για όλες τις κατηγορίες IBC πέραν από σύνθετα IBC) σημαίνει το δοχείο σκέτο, συμπεριλαμβανομένων των ανοιγμάτων και των πωμάτων, αλλά χωρίς να περιλαμβάνει τον εξοπλισμό εξυπηρέτησης (βλέπε παρακάτω).

Εξοπλισμός εξυπηρέτησης (για όλες τις κατηγορίες IBC) σημαίνει τις συσκευές γεμίσματος και αδειάσματος και, σύμφωνα με την κατηγορία του IBC, συσκευές εκτόνωσης της πίεσης ή εξαερισμού, ασφάλειας, θέρμανσης και θερμικής μόνωσης και όργανα μέτρησης.

Δομικός εξοπλισμός (για όλες τις κατηγορίες IBC εκτός από εύκαμπτα IBC) σημαίνει τα ενισχυτικά, στερεωτικά, χειριστικά, προστατευτικά ή σταθεροποιητικά μέλη του σώμα (συμπεριλαμβανομένης της παλέτας βάσης για σύνθετα IBC με πλαστικό εσωτερικό δοχείο).

Μέγιστο επιτρεπτό μικτό βάρος (για όλες τις κατηγορίες IBC πέραν από εύκαμπτα IBC) σημαίνει το βάρος του σώματος, του εξοπλισμού εξυπηρέτησης και του δομικού εξοπλισμού και το μέγιστο επιτρεπτό φορτίο.

Μέγιστο επιτρεπτό φορτίο (για εύκαμπτα IBC) σημαίνει το μέγιστο καθαρό βάρος για το οποίο το IBC είναι προορισμένο να χρησιμοποιείται και που είναι επιτρεπτό να μεταφέρει.

Προστατευμένο (για μεταλλικά IBC) σημαίνει εφοδιασμένο με πρόσθετη προστασία έναντι κρούσης, όπου η προστασία λαμβάνει τη μορφή, για παράδειγμα, μίας κατασκευής πολλαπλού στρώματος (σάντουιτς) ή διπλού τοιχώματος, ή ενός πλαισίου με ένα μεταλλικό δικτυωτό περίβλημα.

Πλεγμένο πλαστικό (για εύκαμπτα IBC) σημαίνει ένα υλικό φτιαγμένο από τεντωμένες ταινίες ή μονονήματα από κατάλληλο πλαστικό υλικό.

Πλαστικό (για σύνθετα IBC με πλαστικό εσωτερικό δοχείο), όταν χρησιμοποιείται σε σχέση με εσωτερικά δοχεία για σύνθετα IBC, λαμβάνεται ότι περιλαμβάνει άλλα πολυμερή υλικά τέτοια όπως καουτσούκ κ.λπ.

Συσκευή διακίνησης (για εύκαμπτα IBC) σημαίνει οποιαδήποτε χειρολαβή, θηλιά, μικρό άνοιγμα ή πλαίσιο προσαρτημένα στο σώμα του IBC ή σχηματοποιημένα από επέκταση του υλικού του σώματος του IBC.

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**3610** *Επένδυση* (για εύκαμπτο φύλλο φάιμπερ και ξύλινα IBC) σημαίνει έναν ξεχωριστό σωλήνα ή σάκο που είναι ένθετος στο σώμα αλλά χωρίς να σχηματίζει ένα ακέραιο μέρος αυτού, συμπεριλαμβανομένων των πομάτων των ανοιγμάτων του.

(συνεχ.)

**Κωδικοποίηση των τύπων σχεδιασμού ενός IBC**

**3611** (1) Κωδικό σύστημα για IBC

Ο κωδικός συνίσταται από:

- δύο αραβικούς αριθμούς που δείχνουν τον τύπο του IBC όπως προκαθορίζεται στο (α) παρακάτω,
- ένα κεφαλαίο γράμμα ή γράμματα (λατινικοί χαρακτήρες) όπως προκαθορίζεται στο (β) παρακάτω, που δείχνει τη φύση του υλικού (π.χ. μέταλλο, πλαστικό, κ.λπ.),
- όπου είναι απαραίτητο, έναν αραβικό αριθμό που δείχνει την κατηγορία του IBC μέσα στον τύπο στον οποίο το IBC ανήκει.

Για σύνθετα IBC, θα πρέπει να χρησιμοποιούνται δύο κεφαλαία γράμματα (λατινικοί χαρακτήρες). Το πρώτο θα πρέπει να δείχνει το υλικό του εσωτερικού δοχείου του IBC και το δεύτερο εκείνο της εξωτερικής συσκευασίας του IBC.

(a)

Τύπος	Για στερεά, που φορτώνονται και/ή ξεφορτώνονται		για υγρά
	με τη βαρύτετητα	υπό πίεση μεγαλύτερη από 10 kPa (0.1 bar)	
Άκαμπτο	11	21	31
Ημι-άκαμπτο	12	22	32
Εύκαμπτο	13	-	-

- (b) A. Χάλυβας (όλοι οι τύποι και οι επιφανειακές επεξεργασίες)  
 B. Αλουμίνιο  
 C. Φυσικό ξύλο  
 D. Κόντρα πλακέ  
 F. Ανασυσταμένο ξύλο  
 G. Φύλλο φάιμπερ  
 H. Πλαστικό υλικό  
 L. Υφάσμα  
 M. Χαρτί, πολλαπλών τοιχωμάτων  
 N. Μέταλλο (πέραν από χάλυβα ή αλουμίνιο).

(2) Ο κωδικός του IBC θα πρέπει να ακολουθείται στο μαρκάρισμα από ένα γράμμα που δείχνει τις ομάδες υλών για τις οποίες ο τύπος σχεδιασμού είναι εγκεκριμένος, δηλ.:

- X για όλες των ομάδων συσκευασίας I, II και III (IBC για στερεά μόνον)
- Y για όλες των ομάδων συσκευασίας II και III,
- Z για όλες της ομάδας συσκευασίας III.


**ΣΗΜΕΙΩΣΗ:** Για ομάδες συσκευασίας, βλέπε περιθωριακό 3511 (2).

## Προσθήκη Α.6

## Μαρκάρισμα


## 3612 (1) Κύριο μαρκάρισμα


Όλα τα IBC που κατασκευάζονται και προορίζονται για χρήση σε συμφωνία με αυτές τις διατάξεις θα πρέπει να φέρουν ένα διαρκές και ευανάγνωστο μαρκάρισμα που δίνει τα παρακάτω στοιχεία:

- (a) το σύμβολο συσκευασίας των Ηνωμένων Εθνών  (για μεταλλικά IBC πάνω στα οποία το μαρκάρισμα είναι σφραγισμένο ή ανάγλυφο, τα γράμματα Ο.Η.Ε. μπορούν να εφαρμόζονται αντί του συμβόλου),
- (b) τον κωδικό που υποδεικνύει τον τύπο του IBC σύμφωνα με το περιθωριακό 3611 (1),
- (c) ένα γράμμα (X, Y ή Z) που υποδεικνύει την(τις) ομάδα(ες) συσκευασίας(ς) για τη(τις) οποία(ες) ο τύπος σχεδιασμού έχει εγκριθεί,
- (d) τον μήνα και χρόνο (τα τελευταία δύο ψηφία) κατασκευής,
- (e) το σήμα <sup>1/</sup> του κράτους στο οποίο η έγκριση είχε δοθεί,
- (f) την ονομασία ή το σύμβολο του κατασκευαστή ή οποιοδήποτε άλλο χαρακτηριστικό στοιχείο του IBC όπως προκαθορίζεται από την αρμόδια αρχή,
- (g) το φορτίο ελέγχου στοιβάγματος σε kg,
- (h) το μέγιστο επιτρεπτό μκτό βάρος ή, για εύκαμπτα IBC, το μέγιστο επιτρεπτό φορτίο, σε kg.

Το κύριο μαρκάρισμα που απαιτείται παραπάνω θα πρέπει να ισχύει για τη σειρά των υποπαραγράφων παραπάνω. Το μαρκάρισμα που απαιτείται από την παράγραφο (2) και οποιοδήποτε περαιτέρω μαρκάρισμα που επιτρέπεται από μία αρμόδια αρχή θα πρέπει να τακτοποιείται έτσι ώστε να καθιστά τα διάφορα μέρη του μαρκαρίσματος σωστά προσδιορισμένα.

## Παραδείγματα κύριου μαρκαρίσματος


11C/X/01 93 Για ένα ξύλινο IBC για στερεά με εσωτερική  
S/Auriga  876 επένδυση και επιτρεπόμενη για στερεά της 3000/910  
ομάδας συσκευασίας I.

 11A/Y/0289 007/5500/1500 Μεταλλικό IBC κατασκευασμένο από χάλυβα NL/Mulder για στερεά που ξεφορτώνονται, για παράδειγμα, με τη βαρύτητα για τις Ομάδες Συσκευασίας II και III κατασκευασμένο τον Φεβρουάριο του 1989 εγκεκριμένο από την Ολλανδία κατασκευασμένο από την Mulder σε συμφωνία με έναν τύπο σχεδιασμού στον οποίο η αρμόδια αρχή έχει διαθέσει τον σειριακό αριθμό 007 φορτίο που χρησιμοποιείται για τον έλεγχο στοιβάγματος σε kg μέγιστο επιτρεπτό μκτό βάρος σε kg.


<sup>1/</sup> Διακριτικό σήμα για μηχανοκίνητα οχήματα σε διεθνή διακίνηση που ορίστηκε στο Συνέδριο της Βιέννης για την Οδική Διακίνηση (1968).

## Προσθήκη Α.6


3612  
(συνεχ.)

13H3/Z/0389  
 F/Meunier 1713/1000/500

Εύκαμπτο IBC για στερεά που ξεφορτώνεται, για παράδειγμα, με τη βαρύτητα και κατασκευασμένο από πλεγμένο πλαστικό με επένδυση.

31H1/Y/0489  
 GB/9099/10800/1200

Άκαμπτο πλαστικό IBC για υγρά, κατασκευασμένο από πλαστικό με δομικό εξοπλισμό που να αντέχει στο φορτίο στοιβάγματος.

31HA1/Y/0589  
 D/Muller 183/10800/1200

Σύνθετο IBC για υγρά με άκαμπτο πλαστικό εσωτερικό δοχείο και χαλύβδινο εξωτερικό περίβλημα.

(2) Πρόσθετο μαρκάρισμα<sup>2/</sup>

Για όλες τις κατηγορίες των IBC εκτός από εύκαμπτα IBC:

(i) απόβαρο σε kg<sup>3/</sup>

Για μεταλλικά IBC, άκαμπτα πλαστικά IBC και σύνθετα IBC με πλαστικά εσωτερικά δοχεία:

(j) χωρητικότητα σε λίτρα<sup>3/</sup> στους 20 °C,

(k) ημερομηνία του τελευταίου ελέγχου στεγανότητας (μήνα και χρόνο), εάν υπάρχει,

(l) ημερομηνία της τελευταίας επιθεώρησης (μήνα και χρόνο),

(m) μέγιστη πίεση αδειάσματος του περιεχομένου σε kPa (ή σε bar)<sup>3/</sup>, εάν υπάρχει,

Για μεταλλικά IBC:

(n) υλικό του σώματος και το ελάχιστο πάχος του σε mm,

(o) σειριακός αριθμός του κατασκευαστή,

Για άκαμπτα πλαστικά IBC και σύνθετα IBC με πλαστικό εσωτερικό δοχείο:

(p) Πίεση ελέγχου (πεζομέτρου) σε kPa (ή bar)<sup>3/</sup>, εάν υπάρχει.

(3) IBC μαρκιαρισμένα σε συμφωνία με αυτήν την Προσθήκη αλλά εγκεκριμένα σε ένα κράτος που δεν είναι Κράτος Μέλος μπορούν επίσης να χρησιμοποιούνται για μεταφορά υπό αυτήν την Οδηγία.

**Πιστοποίηση**

3613 Ο κατασκευαστής θα πρέπει να πιστοποιεί, με προσάρτηση μαρκιαρίσματος σε συμφωνία με αυτήν την Προσθήκη, ότι τα μαζικά παραγόμενα IBC αντιστοιχούν στον εγκεκριμένο τύπο σχεδιασμού και ότι οι όροι που αναφέρονται στο πιστοποιητικό έγκρισης έχουν ικανοποιηθεί.

<sup>2/</sup> Κάθε εύκαμπτο IBC μπορεί επίσης να φέρει ένα πικτόγραμμα που να δείχνει τις προτεινόμενες μεθόδους ανύψωσης.

<sup>3/</sup> Η μονάδα που χρησιμοποιείται θα πρέπει να υποδεικνύεται.

## Προσθήκη Α.6

## Πίνακας των IBC

3614 Οι κωδικοί που αντιστοιχούν στους διάφορους τύπους των IBC είναι ως ακολούθως:

1. IBC για στερεά που φορτώνονται και ξεφορτώνονται με τη βαρύτητα :

Τύπος	Υλικό	Κατηγορία	Κωδικός	Περιθωριακά	
11 άκαμπτο	χάλυβας	μεταλλικό	11A	3622	
	αλουμίνιο		11B		
	φυσικό ξύλο	ξύλινο	11C	3627	
	κόντρα πλακέ		11D		
	ανασυσταμένο ξύλο		11F		
	φύλλο φάιμπερ	από φύλλο φάιμπερ	11G	3626	
	πλαστικό		από άκαμπτο πλαστικό (εξοπλισμένο με δομικό εξοπλισμό)	11H1	3624
			από άκαμπτο πλαστικό (που στέκεται ελεύθερο)	11H2	
			σύνθετο με πλαστικό εσωτερικό δοχείο (άκαμπτο)	11HZ1 <sup>4/</sup>	3625
			σύνθετο με πλαστικό εσωτερικό δοχείο (εύκαμπτο)	11HZ2 <sup>4/</sup>	
άλλο μέταλλο	μεταλλικό	11N	3622		
12 ημι-άκαμπτο		επιφυλασσόμενο			
13 εύκαμπτο	πλεγμένο πλαστικό χωρίς επικάλυψη ή επένδυση	εύκαμπτο	13H1	3623	
	πλεγμένο πλαστικό, επικαλυμμένο		13H2		
	πλεγμένο πλαστικό, με επένδυση		13H3		
	πλεγμένο πλαστικό, επικαλυμμένο και με επένδυση		13H4		
	πλαστικό φιλμ		13H5		
	ύφασμα χωρίς επικάλυψη ή επένδυση		13L1		
	ύφασμα, επικαλυμμένο		13L2		
	ύφασμα με επένδυση		13L3		
	ύφασμα, επικαλυμμένο και με επένδυση		13L4		
	χαρτί, πολλαπλών τοιχωμάτων		13M1		
	χαρτί, πολλαπλών τοιχωμάτων ανθεκτικό στο νερό		13M2		

<sup>4/</sup> Αναφορικά με το γράμμα Z, βλέπε περιθωριακό 3625 (1) (b).

## Προσθήκη Α.6

3614 2. IBC για στερεά που φορτώνονται ή ξεφορτώνονται υπό πίεση μεγαλύτερη από 10 kPa (0.1 bar) (συνεχ.)

Τύπος	Υλικό	Κατηγορία	Κωδικός	Περιθωριακά	
21 άκαμπτο	χάλυβας	μεταλλικό	21A	3622	
	αλουμίνιο		21B		
	πλαστικό	από άκαμπτο πλαστικό (εξοπλισμένο με δομικό εξοπλισμένο)	21H1	3624	
			από άκαμπτο πλαστικό (που στέκεται ελεύθερο)		21H2
			σύνθετο με πλαστικό εσωτερικό δοχείο (άκαμπτο)	21HZ1 <sup>4/</sup>	3625
			σύνθετο με πλαστικό εσωτερικό δοχείο (εύκαμπτο)	21HZ2 <sup>4/</sup>	
άλλο μέταλλο	μεταλλικό	21N	3622		
22 ημι- άκαμπτο	επιφυλασσόμενο				

3. IBC για υγρά

Τύπος	Υλικό	Κατηγορία	Κωδικός	Περιθωριακά	
31 άκαμπτο	χάλυβας	μεταλλικό	31A	3622	
	αλουμίνιο		31B		
	πλαστικό	από άκαμπτο πλαστικό (εξοπλισμένο με δομικό εξοπλισμένο)	31H1	3624	
			από άκαμπτο πλαστικό (που στέκεται ελεύθερο)		31H2
			σύνθετο με πλαστικό εσωτερικό δοχείο (άκαμπτο)	31HZ1 <sup>4/</sup>	3625
			σύνθετο με πλαστικό εσωτερικό δοχείο (εύκαμπτο)	31HZ2 <sup>4/</sup>	
άλλο μέταλλο	μεταλλικό	31N	3622		
32 ημι- άκαμπτο	επιφυλασσόμενο				

3615-  
3620<sup>4/</sup> Αναφορικά με το γράμμα "Z", βλέπε περιθωριακό 3625 (1) (b).

**Μέρος 3: Απαιτήσεις κατασκευής για IBC****Γενικές διατάξεις**

- 3621 (1) Τα IBC θα πρέπει να είναι ανθεκτικά ή επαρκώς προστατευμένα έναντι καταστροφής λόγω του περιβάλλοντος.
- (2) Τα IBC θα πρέπει να είναι έτσι δομημένα και κλεισμένα ώστε κανένα από τα περιεχόμενα να μην μπορεί να διαφύγει υπό κανονικές συνθήκες μεταφοράς.
- (3) Τα IBC και τα πάμιατά τους θα πρέπει να είναι κατασκευασμένα από υλικά συμβατά με το περιεχόμενο τους, ή να είναι προστατευμένα εσωτερικά, έτσι ώστε να μην υπόκεινται:
- (a) σε προσβολή από το περιεχόμενο έτσι ώστε να γίνεται η χρήση τους επικίνδυνη,
  - (b) σε πρόκληση του περιεχομένου να αντιδράσει ή να αποσυντεθεί, ή να σχηματίσει βλαβερές ή επικίνδυνες ενώσεις με τα IBC.
- (4) Οι φλάντζες, όπου χρησιμοποιούνται, θα πρέπει να είναι κατασκευασμένες από υλικά που δεν υπόκεινται σε προσβολή από το περιεχόμενο των IBC.
- (5) Όλος ο εξοπλισμός εξυπηρέτησης θα πρέπει να είναι έτσι τοποθετημένος ή προστατευμένος ώστε να ελαχιστοποιείται ο κίνδυνος διαφυγής του περιεχομένου εξαιτίας φθοράς κατά τη διάρκεια της διακίνησης και της μεταφοράς.
- (6) Τα IBC, τα εξαρτήματά τους και ο εξοπλισμός εξυπηρέτησης και δόμησής τους θα πρέπει να είναι σχεδιασμένα να αντέχουν, χωρίς απώλεια περιεχομένου, την εσωτερική πίεση του περιεχομένου και τις καταπονήσεις της κανονικής διακίνησης και μεταφοράς. Τα IBC που προορίζονται για στοίβαγμα θα πρέπει να είναι σχεδιασμένα για στοίβαγμα. Οποιαδήποτε χαρακτηριστικά ανύψωσης ή ασφάλισης των IBC θα πρέπει να είναι αρκετής αντοχής ώστε να αντέχουν τις κανονικές συνθήκες διακίνησης και μεταφοράς χωρίς ολική παραμόρφωση ή βλάβη και θα πρέπει να είναι έτσι τοποθετημένα ώστε να μην προκαλείται αδικαιολόγητη καταπόνηση σε οποιοδήποτε μέρος του IBC.
- (7) Όπου ένα IBC συνίσταται από ένα σώμα μέσα σ' ένα πλαίσιο, θα πρέπει να είναι έτσι δομημένο ώστε:
- το σώμα να μην τρίβεται ή γδέρνεται στο πλαίσιο έτσι ώστε να προκαλείται υλική φθορά στο σώμα,
  - το σώμα να διατηρείται μέσα στο πλαίσιο συνεχώς,
  - τα μέρη του εξοπλισμού είναι προσαρμοσμένα με τέτοιον τρόπο ώστε να μην μπορούν να φθαρούν εάν οι συνδέσεις μεταξύ του σώματος και του πλαισίου επιτρέπουν σχετική διαστολή ή κίνηση.
- (8) Όπου μία βαλβίδα αδειάσματος στον πυθμένα είναι εξοπλισμένη, θα πρέπει να είναι ικανή να καθίσταται ασφαλής στην κλειστή θέση και όλο το σύστημα αδειάσματος θα πρέπει να είναι κατάλληλα προστατευμένο από φθορά. Βαλβίδες που έχουν πάμιατα με μοχλό θα πρέπει να είναι ικανές να ασφαλιζονται έναντι τυχαίου ανοίγματος και η ανοιχτή ή κλειστή θέση θα πρέπει να είναι άμεσα εμφανής. Για IBC που περιέχουν υγρά, ένα δευτερεύον μέσο σφραγίσματος του ανοίγματος αδειάσματος θα πρέπει επίσης να υπάρχει, π.χ. με μία καθαρή φλάντζα ή ισοδύναμη συσκευή.
- (9) Νέα, επαναχρησιμοποιούμενα ή επισκευασμένα IBC θα πρέπει να είναι ικανά να περνάνε τους οριζόμενους ελέγχους.

## Προσθήκη Α.6

*Ειδικές διατάξεις για μεταλλικά IBC*

**3622** (1) Αυτές οι διατάξεις ισχύουν για μεταλλικά IBC προοριζόμενα για τη μεταφορά στερεών ή υγρών. Αυτά τα IBC είναι των παρακάτω τύπων:

11A, 11B, 11N.

Για στερεά που φορτώνονται ή ξεφορτώνονται με τη βαρύτητα.

21A, 21B, 21N.

Για στερεά που φορτώνονται ή ξεφορτώνονται υπό πίεση πιεζομέτρου μεγαλύτερη από 10 kPa (0.1 bar).

31A, 31B, 31N.

Για υγρά. Μεταλλικά IBC προοριζόμενα για τη μεταφορά υγρών και που συμμορφώνονται με τις διατάξεις αυτής της Προσθήκης δεν θα πρέπει να χρησιμοποιούνται για τη μεταφορά υγρών που έχουν τάση ατμών μεγαλύτερη από 110 kPa (1.1 bar) στους 50 °C ή μεγαλύτερη από 130 kPa (1.3 bar) στους 55 °C.

(2) Τα σώματα θα πρέπει να είναι κατασκευασμένα από κατάλληλο ελατό μέταλλο του οποίου η δυνατότητα συγκόλλησης έχει πλήρως αποδειχθεί. Οι συγκολλήσεις θα πρέπει να είναι δεξιοτεχνικά πραγματοποιημένες και να παρέχουν πλήρη ασφάλεια.

(3) Εάν επαφή μεταξύ της ύλης που μεταφέρεται και του υλικού που χρησιμοποιείται για την κατασκευή του σώματος συνεπάγεται προοδευτική μείωση στο πάχος των τοιχωμάτων, αυτό το πάχος θα πρέπει να αυξάνεται κατά την κατασκευή με κατάλληλη ποσότητα. Αυτό το επιπλέον πάχος για να λαμβάνει υπόψη τη διάβρωση θα πρέπει να προστίθεται στο πάχος των τοιχωμάτων όπως προσδιορίζεται σύμφωνα με την παράγραφο (7) [βλέπε επίσης περιθωριακό 3621 (3)].

(4) Μέρμινα θα πρέπει να λαμβάνεται για αποφυγή φθοράς από γαλβανική δράση λόγω αντιπαράθεσης ανόμοιων μετάλλων.

(5) Αλουμινένια IBC προοριζόμενα για τη μεταφορά εύφλεκτων υγρών με σημείο ανάφλεξης όχι μεγαλύτερο από 55 °C θα πρέπει να μην έχουν κινητά μέρη, τέτοια όπως καλύμματα, πόματα κ.λπ., κατασκευασμένα από απροστάτευτο χάλυβα υποκειμένο σε σκουριά, που θα μπορούσε να προκαλέσει επικίνδυνη αντίδραση με το να έλθει σε επαφή τριβής ή κρούσης με το αλουμίνιο.

(6) Τα μεταλλικά IBC θα πρέπει να είναι κατασκευασμένα από μέταλλα που ικανοποιούν τις παρακάτω απαιτήσεις:

(a) για χάλυβα η επιμήκυνση σε θραύση, σε επί τοις εκατό, δεν θα πρέπει να είναι μικρότερη από  $\frac{10\ 000}{Rm}$  με απόλυτη ελάχιστη τιμή 20 %.

όπου  $Rm$  = εγγυώμενη ελάχιστη αντοχή εφελκυσμού του χάλυβα που χρησιμοποιείται σε  $N/mm^2$ ,

(b) για αλουμίνιο και κράματά του η επιμήκυνση σε θραύση, σε επί τοις εκατό, δεν θα πρέπει να είναι μικρότερη από  $\frac{10\ 000}{6 Rm}$  με απόλυτη ελάχιστη τιμή 8 %.

Δείγματα που χρησιμοποιούνται για τον προσδιορισμό της επιμήκυνσης σε θραύση θα πρέπει να λαμβάνονται εγκάρσια στην κατεύθυνση κύλισης και να είναι έτσι ασφαλισμένα ώστε:



## Προσθήκη Α.6

3622  
(συνεχ.)

$$L_o = 5d$$

ή

$$L_o = 5.65\sqrt{A}$$

όπου:  $L_o$  = μήκος περιτυλώματος του δείγματος πριν τον έλεγχο $d$  = διάμετρος $A$  = εμβαδό διατομής του δείγματος ελέγχου.

## (7) Ελάχιστο πάχος τοιχωμάτων:

- (a) Για έναν χάλυβα αναφοράς που έχει γινόμενο  $R_m \times A_o = 10000$ , το πάχος τοιχωμάτων δεν θα πρέπει να είναι μικρότερο από:

Χωρητικότητα σε $m^3$	Πάχος τοιχωμάτων σε mm			
	Τύποι: 11A, 11B, 11N		Τύποι: 21A, 21B, 21N, 31A, 31B, 31N	
	Μη προστα- τευμένο	Προστα- τευμένο	Μη προστα- τευμένο	Προστα- τευμένο
$> 0.25 \leq 1.0$	2.0	1.5	2.5	2.0
$> 1.0 \leq 2.0$	2.5	2.0	3.0	2.5
$> 2.0 \leq 3.0$	3.0	2.5	4.0	3.0

όπου:  $A_o$  = ελάχιστη επιμήκυνση (ως ποσοστό) του χάλυβα αναφοράς που χρησιμοποιείται σε θραύση υπό καταπόνηση εφελκυσμού [βλέπε παράγραφο (6)].

- (b) Για μέταλλα πέραν από το χάλυβα αναφοράς που περιγράφεται στο (a), το ελάχιστο πάχος τοιχωμάτων υπολογίζεται με τον παρακάτω τύπο ισότητας:

$$e_1 = \frac{21.4 \times e_o}{\sqrt[3]{R_{m1} \times A_1}}$$

όπου:

 $e_1$  = απαιτούμενο ισοδύναμο πάχος τοιχωμάτων του μετάλλου προς χρήση (σε mm), $e_o$  = απαιτούμενο ελάχιστο πάχος τοιχωμάτων για τον χάλυβα αναφοράς (σε mm), $R_{m1}$  = εγγυώμενη ελάχιστη αντοχή εφελκυσμού του μετάλλου προς χρήση (σε  $N/mm^2$ ), $A_1$  = ελάχιστη επιμήκυνση (ως ποσοστό) του μετάλλου προς χρήση σε θραύση υπό καταπόνηση εφελκυσμού [βλέπε παράγραφο (6)].

Πάντως, σε καμία περίπτωση δεν θα πρέπει το πάχος τοιχωμάτων να είναι μικρότερο από 1.5 mm.

## Προσθήκη Α.6

**3622** (8) *Απαιτήσεις για εκτόνωσης της πίεσης*  
(συνεχ.)

Τα IBC για υγρά θα πρέπει να είναι ικανά να απελευθερώνουν αρκετή ποσότητα ατμού ώστε να εξασφαλίζεται ότι, στην περίπτωση φωτιάς, δεν θα σημειώνεται ρήγμα του σώματος. Αυτό μπορεί να επιτυγχάνεται με συμβατική συσκευή εκτόνωσης της πίεσης ή με άλλα δομικά μέσα.

Η πίεση έναρξης αδειάσματος δεν θα πρέπει να είναι μεγαλύτερη από 65 kPa (0.65 bar) και όχι μικρότερη από την συνολική πίεση πιεζομέτρου που υφίσταται στο IBC [δηλ. την πίεση ατμών της πληρωτικής ύλης συν τη μερική πίεση του αέρα ή άλλων αδρανών αερίων, μείον 100 kPa (1 bar)] στους 55 °C, προσδιοριζόμενη στη βάση ενός μέγιστου βαθμού πλήρωσης όπως ορίζονται στο περιθωριακό 3601 (7). Η απαιτούμενη συσκευή εκτόνωσης θα πρέπει να είναι τοποθετημένη στο χώρο ατμού.

*Ειδικές διατάξεις για εύκαμπτα IBC***3623** (1) Αυτές οι διατάξεις ισχύουν για εύκαμπτα IBC προοριζόμενα για τη μεταφορά στερεών. Αυτά τα IBC είναι των παρακάτω τύπων:

- 13H1 πλεγμένο πλαστικό χωρίς επικάλυψη ή επένδυση
- 13H2 πλεγμένο πλαστικό, επικαλυμμένο
- 13H3 πλεγμένο πλαστικό με επένδυση
- 13H4 πλεγμένο πλαστικό, επικαλυμμένο και με επένδυση
- 13H5 πλαστικό φιλμ
- 13L1 ύφασμα χωρίς επικάλυψη ή επένδυση
- 13L2 ύφασμα, επικαλυμμένο
- 13L3 ύφασμα με επένδυση
- 13L4 ύφασμα, επικαλυμμένο και με επένδυση
- 13M1 χαρτί, πολλαπλών τοιχωμάτων
- 13M2 χαρτί, πολλαπλών τοιχωμάτων, ανθεκτικό στο νερό.

(2) Τα σώματα θα πρέπει να είναι κατασκευασμένα από κατάλληλα υλικά. Η αντοχή του υλικού και η κατασκευή του εύκαμπτου IBC θα πρέπει να είναι κατάλληλη για την χωρητικότητα του την προοριζόμενη χρήση του.

(3) Όλα τα υλικά που χρησιμοποιούνται στην κατασκευή των εύκαμπτων IBC των τύπων 13M1 και 13M2 θα πρέπει, μετά από πλήρη εμβάπτιση σε νερό για όχι λιγότερο από 24 ώρες, να διατηρεί τουλάχιστον το 85 % της αντοχής εφελκυσμού όπως μετράται αρχικά πάνω στο υλικό που εξισορροπείται σε 67 % σχετική υγρασία ή λιγότερο.

(4) Οι ραφές θα πρέπει να σχηματίζονται με ράμματα, θερμικό σφράγισμα, κόλλημα ή οποιαδήποτε ισοδύναμη μέθοδο. Όλα τα άκρα των ραφών θα πρέπει να ασφαίζονται.

(5) Τα εύκαμπτα IBC θα πρέπει να παρέχουν επαρκή αντίσταση στη γήρανση και αποικοδόμηση προκαλούμενη από την υπεριώδη ακτινοβολία, τις κλιματικές συνθήκες ή την περιεχόμενη ύλη και με αυτόν τον τρόπο να παραμένουν κατάλληλα για την προοριζόμενη χρήση.

(6) Για πλαστικά εύκαμπτα IBC, όπου προστασία έναντι υπεριώδους ακτινοβολίας απαιτείται, αυτή θα πρέπει να παρέχεται με την προσθήκη αιθάλης ή άλλων κατάλληλων χρωστικών ή αναστολέων. Αυτά τα πρόσθετα θα πρέπει να είναι συμβατά με το περιεχόμενο και να παραμένουν αποτελεσματικά καθ' όλη τη ζωή του σώματος. Όπου χρησιμοποιούνται αιθάλη, χρωστικές ή αναστολείς πέραν εκείνων που χρησιμοποιούνται στην κατασκευή του ελεγμένου τύπου σχεδιασμού, ο επανέλεγχος μπορεί να παραλείπεται εάν αλλαγές στην περιεκτικότητα σε αιθάλη, σε χρωστική ή σε αναστολέα δεν επηρεάζουν δυσμενώς τις φυσικές ιδιότητες του υλικού κατασκευής.

## Προσθήκη Α.6

**3623** (7) Τα πρόσθετα μπορούν να ενσωματώνονται μέσα στο υλικό του σώματος για τη βελτίωση της αντίστασης στη γήρανση ή για την εξυπηρέτηση άλλων σκοπών, υπό την προϋπόθεση ότι αυτά δεν επηρεάζουν δυσμενώς τις φυσικές ή χημικές ιδιότητες του υλικού.  
(συνεχ.)

(8) Υλικό που ανακτάται από χρησιμοποιημένα δοχεία δεν θα πρέπει να χρησιμοποιείται στην κατασκευή των σωμάτων του IBC. Υπολείμματα παραγωγής ή απορρίμματα από την ίδια διαδικασία κατασκευής μπορούν, πάντως, να χρησιμοποιούνται. Συστατικά μέρη τέτοια όπως εξαρτήματα και βάσεις παλετών μπορούν επίσης να χρησιμοποιούνται, υπό την προϋπόθεση ότι τέτοια συστατικά δεν έχουν φθαρεί με οποιονδήποτε τρόπο σε προηγούμενη χρήση.

(9) Όταν γεμιστούν, ο λόγος ύψους προς πλάτος θα πρέπει να μην είναι μεγαλύτερος από 2:1.

(10) Η επένδυση θα πρέπει να είναι κατασκευασμένη από κατάλληλο υλικό. Η αντοχή του υλικού που χρησιμοποιείται και η κατασκευή της επένδυσης θα πρέπει να είναι κατάλληλες για τη χωρητικότητα του IBC και την προοριζόμενη χρήση. Οι συνδέσεις και τα πάματα θα πρέπει να είναι αδιαπέραστα και ικανά να αντέχουν πιέσεις και κρούσεις υποκείμενες να συμβούν υπό κανονικές συνθήκες διακίνησης και μεταφοράς.

*Ειδικές διατάξεις για άκαμπτα πλαστικά IBC*

**3624** (1) Αυτές οι διατάξεις ισχύουν για άκαμπτα πλαστικά IBC προοριζόμενα για τη μεταφορά στερεών ή υγρών. Αυτά τα IBC είναι των παρακάτω τύπων:

11H1 για στερεά που φορτώνονται και ξεφορτώνονται με τη βαρύτητα, εξοπλισμένα με δομικό εξοπλισμό σχεδιασμένο να αντέχει όλο το φορτίο όταν τα IBC είναι στοιβαγμένα,

11H2 για στερεά που φορτώνονται και ξεφορτώνονται με τη βαρύτητα, που στέκονται ελεύθερα,

21H1 για στερεά που φορτώνονται ή ξεφορτώνονται υπό πίεση μεγαλύτερη από 10 kPa (0.1 bar), εξοπλισμένα με δομικό εξοπλισμό σχεδιασμένο να αντέχουν όλο το φορτίο όταν τα IBC είναι στοιβαγμένα,

21H2 για στερεά που φορτώνονται ή ξεφορτώνονται υπό πιέσεις μεγαλύτερες από 10 kPa (0.1 bar), που στέκονται ελεύθερα,

31H1 για υγρά, εξοπλισμένα με δομικό εξοπλισμό σχεδιασμένο να αντέχει όλο το φορτίο όταν τα IBC είναι στοιβαγμένα,

31H2 για υγρά, που στέκονται ελεύθερα.

(2) Το σώμα θα πρέπει να είναι κατασκευασμένο από κατάλληλο πλαστικό υλικό γνωστών προδιαγραφών και να είναι επαρκούς αντοχής σε σχέση με τη χωρητικότητα του και την προοριζόμενη χρήση. Το υλικό θα πρέπει να είναι επαρκώς ανθεκτικό στη γήρανση και στην αποικοδόμηση που προκαλείται από την περιεχόμενη ύλη ή, όπου είναι σχετικό, από την υπεριώδη ακτινοβολία. Οποιαδήποτε διείσδυση της περιεχόμενης ύλης δεν θα πρέπει να συνιστά κίνδυνο υπό κανονικές συνθήκες μεταφοράς.

(3) Όπου προστασία έναντι υπεριώδους ακτινοβολίας απαιτείται, αυτή θα πρέπει να παρέχεται με την προσθήκη αιθάλης ή άλλων κατάλληλων χρωστικών ή αναστολέων. Αυτά τα πρόσθετα θα πρέπει να είναι συμβατά με το περιεχόμενο και να παραμένουν αποτελεσματικά καθ' όλη τη ζωή του σώματος. Όπου χρησιμοποιούνται αιθάλη, χρωστικές ή αναστολείς, πέραν εκείνων που χρησιμοποιούνται στην κατασκευή του ελεγχμένου τύπου σχεδιασμού, ο επανέλεγχος μπορεί να παραλείπεται εάν αλλαγές στην περιεκτικότητα σε αιθάλη, χρωστική ή αναστολέα δεν επηρεάζουν δυσμενώς τις φυσικές ιδιότητες του υλικού κατασκευής.

## Προσθήκη Α.6

3624 (4) Τα πρόσθετα μπορούν να ενσωματώνονται στο υλικό του σώματος για βελτίωση της (συνεχ.) αντιστασης στη γήρανση ή την εξυπηρέτηση άλλων σκοπών, υπό την προϋπόθεση ότι αυτά δεν επηρεάζουν δυσμενώς τις φυσικές ή χημικές ιδιότητες του υλικού.

(5) Χρησιμοποιημένο υλικό πέραν από υπολείμματα της παραγωγής ή απορρίμματα από την ίδια διαδικασία κατασκευής δεν μπορεί να χρησιμοποιείται στην κατασκευή των άκαμπτων πλαστικών IBC.

(6) Τα άκαμπτα πλαστικά IBC για υγρά θα πρέπει να είναι ικανά να απελευθερώνουν αρκετή ποσότητα ατμού ώστε να εξασφαλίζεται ότι δεν θα σημειωθεί ρήγμα του σώματος. Αυτό μπορεί να επιτυγχάνεται με συμβατική συσκευή εκτόνωσης της πίεσης ή με άλλα κατασκευαστικά μέσα. Η πίεση αρχής του αδειάσματος δεν θα πρέπει να είναι μεγαλύτερη από την πίεση που χρησιμοποιείται στον έλεγχο υδραυλικής πίεσης.

(7) Εκτός εάν αλλιώς εγκρίνεται από την αρμόδια αρχή, η επιτρεπόμενη περίοδος χρήσης για τη μεταφορά επικίνδυνων υγρών δεν θα πρέπει να υπερβαίνει τα πέντε χρόνια από την ημερομηνία κατασκευής του δοχείου του IBC εκτός όπου μία βραχύτερη περίοδος χρήσης ορίζεται λόγω της φύσης του υγρού προς μεταφορά.

*Ειδικές διατάξεις για σύνθετα IBC με πλαστικό εσωτερικό δοχείο*

3625 (1) Αυτές οι διατάξεις ισχύουν για σύνθετα IBC προοριζόμενα για τη μεταφορά στερεών ή υγρών. Αυτά τα IBC είναι των παρακάτω τύπων:

- |     |       |  |
|-----|-------|--|
| (a) | 11HZ1 | για στερεά που φορτώνονται και ξεφορτώνονται με τη βαρύτητα, εξοπλισμένα με άκαμπτο πλαστικό εσωτερικό δοχείο,                           |
|     | 11HZ2 | για στερεά που φορτώνονται και ξεφορτώνονται με τη βαρύτητα, εξοπλισμένα με εύκαμπτο πλαστικό εσωτερικό δοχείο,                          |
|     | 21HZ1 | για στερεά που φορτώνονται ή ξεφορτώνονται υπό πίεση μεγαλύτερη από 10 kPa (0.1 bar), εξοπλισμένα με άκαμπτο πλαστικό εσωτερικό δοχείο,  |
|     | 21HZ2 | για στερεά που φορτώνονται ή ξεφορτώνονται υπό πίεση μεγαλύτερη από 10 kPa (0.1 bar), εξοπλισμένα με εύκαμπτο πλαστικό εσωτερικό δοχείο, |
|     | 31HZ1 | για υγρά, εξοπλισμένα με άκαμπτο πλαστικό εσωτερικό δοχείο,  |
|     | 31HZ2 | για υγρά, εξοπλισμένα με εύκαμπτο πλαστικό εσωτερικό δοχείο.   |
- (b) Αυτός ο κωδικός θα πρέπει να συμπληρώνεται με αντικατάσταση του γράμματος Z με ένα κεφαλαίο γράμμα σε συμφωνία με το περιθωριακό 3611 (1) (b) για να δείχνει τη φύση του υλικού που χρησιμοποιείται για το εξωτερικό περίβλημα.

## (2) Γενικά

- (a) Το εσωτερικό δοχείο δεν προορίζεται να εκτελεί λειτουργία συγκράτησης χωρίς το εξωτερικό περίβλημά του.
- (b) Το εξωτερικό περίβλημα κανονικά συνίσταται από άκαμπτο υλικό μορφοποιημένο έτσι ώστε να προστατεύει το εσωτερικό δοχείο από φυσική φθορά κατά τη διάρκεια της διακίνησης και της μεταφοράς αλλά δεν προορίζεται να εκτελεί τη λειτουργία συγκράτησης. Περιλαμβάνει την παλέτα βάσης όπου είναι κατάλληλη.

## Προσθήκη Α.6

3625  
(συνεχ.)

- (c) Ένα σύνθετο IBC με πλήρως περιβάλλον εξωτερικό περιβλήμα θα πρέπει να είναι έτσι σχεδιασμένο ώστε η ακεραιότητα του εσωτερικού εμπορευματοκιβωτίου να μπορεί άμεσα να εκτιμάται από τους ελέγχους στεγανότητας και τους υδραυλικούς ελέγχους.

(3) *Εσωτερικό δοχείο*

Οι ίδιες απαιτήσεις όπως καλύπτονται στο περιθωριακό 3624 (2) έως (6) για άκαμπτα πλαστικά IBC ισχύουν για το εσωτερικό δοχείο, υπό την προϋπόθεση ότι, σε αυτήν την περίπτωση, οι απαιτήσεις που ισχύουν για το σώμα των άκαμπτων πλαστικών IBC ισχύουν για το εσωτερικό δοχείο των σύνθετων IBC.

(4) *Εξωτερικό περίβλημα*

- (a) Η αντοχή του υλικού και η κατασκευή του εξωτερικού περιβλήματος θα πρέπει να είναι κατάλληλη για τη χωρητικότητα του σύνθετου IBC και της προοριζόμενης χρήσης του.
- (b) Το εξωτερικό περίβλημα θα πρέπει να είναι ελεύθερο από οποιαδήποτε προεξοχή που θα μπορούσε να βλάψει το εσωτερικό δοχείο.
- (c) Μεταλλικά εξωτερικά περιβλήματα με πλήρη τοιχώματα ή μορφής κόσκινου θα πρέπει να είναι κατασκευασμένα από ένα κατάλληλο υλικό επαρκούς πάχους.
- (d) Εξωτερικά περιβλήματα από φυσικό ξύλο θα πρέπει να είναι από καλά ωριμασμένο ξύλο, εμπορικά ξηρό και ελεύθερο από ελαττώματα που θα μειώναν ουσιαστικά την αντοχή οποιουδήποτε μέρους του περιβλήματος. Οι κορυφές και οι πυθμένες μπορούν να είναι κατασκευασμένοι από αδιάβροχο ανασυσταμένο ξύλο τέτοιου όπως σκληρό ξύλο, νοβοπάν ή άλλο κατάλληλο τύπο.
- (e) Εξωτερικά περιβλήματα από κόντρα πλακέ θα πρέπει να είναι κατασκευασμένα από καλά ωριμασμένο περιστροφικά κομμένο, τεμαχισμένο ή πριονισμένο καπλαμά, εμπορικά ξηρό και ελεύθερο από ελαττώματα που θα μειώναν ουσιαστικά την αντοχή του περιβλήματος. Όλα τα διπλάνα φύλλα θα πρέπει να είναι κολλημένα με αδιάβροχη κόλλα. Άλλα κατάλληλα υλικά μπορούν να χρησιμοποιούνται με κόντρα πλακέ για την κατασκευή περιβλημάτων. Τα περιβλήματα θα πρέπει να είναι σταθερά καρφωμένα ή ασφαλισμένα στις γωνίες ή τα άκρα ή να είναι μονταρισμένα με εξίσου κατάλληλη συσκευή.
- (f) Τα τοιχώματα των εξωτερικών περιβλημάτων από ανασυσταμένο ξύλο θα πρέπει να είναι κατασκευασμένα από αδιάβροχο ανασυσταμένο ξύλο τέτοιου όπως σκληρό ξύλο, νοβοπάν ή άλλον κατάλληλο τύπο. Άλλα μέρη των περιβλημάτων μπορούν να είναι κατασκευασμένα από άλλο κατάλληλο υλικό.
- (g) Για εξωτερικά περιβλήματα από φύλλο φάιμπερ, γερό και καλής ποιότητας στερεό ή διπλής όψης ζαρωμένο φύλλο φάιμπερ (μονών ή πολλαπλών τοιχωμάτων) θα πρέπει να χρησιμοποιείται κατάλληλο για τη χωρητικότητα του περιβλήματος και της προοριζόμενης χρήσης του. Η αντίσταση στο νερό της εξωτερικής επιφάνειας θα πρέπει να είναι τέτοια ώστε η αύξηση στο βάρος, όπως προσδιορίζεται σε έναν έλεγχο που διεξάγεται για 30 λεπτά με τη μέθοδο Cobb για τον προσδιορισμό της απορρόφησης του νερού, να μην είναι μεγαλύτερη από  $155 \text{ g/m}^2$  - βλέπε Διεθνές Πρότυπο ISO 535-1976 (E). Θα πρέπει να έχει κατάλληλη ποιότητα λυγίσματος. Το φύλλο φάιμπερ θα πρέπει να είναι κομμένο, ζαρωμένο χωρίς χαραγές και σχισμένο έτσι ώστε να επιτρέπει το μοντάρισμα χωρίς ρωγμή, επιφανειακά σπασίματα ή αδικαιολόγητο λυγισμό. Η ράβδωση του ζαρωμένου φύλλου φάιμπερ θα πρέπει να είναι σταθερά κολλημένη στις επιφάνειες.

## Προσθήκη Α.6

3625  
(συνεχ.)

- (h) Τα άκρα των περιβλημάτων από φύλλο φάιμπερ μπορούν να έχουν ξύλινο πλαίσιο ή να είναι πλήρως από ξύλο. Ενισχύσεις από ξύλινες σανίδες μπορούν να χρησιμοποιούνται.
- (i) Οι κατασκευαστικές συνδέσεις στα περιβλήματα από φύλλο φάιμπερ θα πρέπει να είναι στερεωμένες με ταινία, περιτυλιγμένες και κολλημένες, ή περιτυλιγμένες και ραμμένες με μεταλλικούς συνδετήρες. Οι περιτυλιγμένες συνδέσεις θα πρέπει να έχουν ένα κατάλληλο κάλυμμα. Όπου το κλείσιμο επιτυγχάνεται με κόλλημα ή περιτύλιγμα με ταινία, μία αδιάβροχη κόλλα θα πρέπει να χρησιμοποιείται.
- (j) Όπου το εξωτερικό περίβλημα είναι από πλαστικό υλικό, οι σχετικές διατάξεις του περιθωριακού 3624 (2) έως (5) για άκαμπτα πλαστικά IBC ισχύουν, υπό την προϋπόθεση ότι, σ' αυτή την περίπτωση, οι απαιτήσεις που ισχύουν για το σώμα των άκαμπτων πλαστικών IBC ισχύουν για το εξωτερικό περίβλημα των σύνθετων IBC.
- (5) Άλλος δομικός εξοπλισμός
- (a) Οποιαδήποτε ακέραια βάση παλέτας που σχηματίζει μέρος ενός IBC ή οποιαδήποτε αποσπώμενη παλέτα θα πρέπει να είναι κατάλληλη για μηχανικό χειρισμό του IBC γεμισμένου στο μέγιστο επιτρεπτό μκτό βάρος του.
- (b) Η παλέτα ή ακέραια βάση θα πρέπει να είναι σχεδιασμένη έτσι ώστε να αποφεύγεται οποιαδήποτε προεξοχή της βάσης του IBC που θα μπορούσε να είναι υποκείμενη στην πρόκληση φθοράς στη διακίνηση.
- (c) Το εξωτερικό περίβλημα θα πρέπει να ασφαρίζεται σε οποιαδήποτε αποσπώμενη παλέτα ώστε να εξασφαλίζεται σταθερότητα στη διακίνηση και τη μεταφορά. Όπου μία αποσπώμενη παλέτα χρησιμοποιείται, η κορυφαία επιφάνειά της θα πρέπει να είναι ελεύθερη από κοφτερές προεξοχές που θα μπορούσαν να φθείρουν το IBC.
- (d) Ενισχυτικές συσκευές τέτοιες όπως ξύλινα υποστηρίγματα για αύξηση της λειτουργίας του στοιβάγματος μπορούν να χρησιμοποιούνται, αλλά θα πρέπει να είναι εξωτερικές του εσωτερικού δοχείου.
- (e) Όπου τα IBC προορίζονται για στοιβάγμα, η φέρουσα επιφάνεια θα πρέπει να είναι τέτοια ώστε να κατανέμει το φορτίο με ασφαλή τρόπο. Τέτοια IBC θα πρέπει να είναι σχεδιασμένα έτσι ώστε το φορτίο να μην στηρίζεται από το εσωτερικό δοχείο.
- (6) Εκτός εάν αλλιώς εγκρίνεται από την αρμόδια αρχή, η επιτρεπόμενη περίοδος χρήσης για τη μεταφορά επικίνδυνων υγρών δεν θα πρέπει να υπερβαίνει τα πέντε χρόνια από την ημερομηνία κατασκευής του δοχείου του IBC εκτός όπου μία βραχύτερη περίοδος χρήσης ορίζεται λόγω της φύσης του υγρού προς μεταφορά.

*Ειδικές διατάξεις για IBC από φύλλο φάιμπερ*

3626

- (1) Αυτές οι διατάξεις ισχύουν για IBC από φύλλο φάιμπερ για τη μεταφορά στερεών που φορτώνονται και ξεφορτώνονται με τη βαρύτητα. IBC από φύλλο φάιμπερ είναι των παρακάτω τύπων: 11G.
- (2) IBC από φύλλο φάιμπερ δεν θα πρέπει να έχουν ενσωματωμένη κορυφαία συσκευή ανύψωσης.
- (3) Σώμα
- (a) Γερό και καλής ποιότητας στερεό ή διπλής όψης ζαρωμένο φύλλο φάιμπερ (μονών ή πολλαπλών τοιχομάτων) θα πρέπει να χρησιμοποιείται, κατάλληλο για τη χωρητικότητα του IBC και της προοριζόμενης χρήσης του. Η αντίσταση στο νερό της εξωτερικής επιφάνειας θα πρέπει να είναι τέτοια ώστε η αύξηση σε βάρος, όπως προσδιορίζεται σ' έναν έλεγχο που διεξάγεται σε μία περίοδο 30 λεπτών με τη

3626

## Προσθήκη Α.6

(συνεχ.)

μέθοδο Cobb για τον προσδιορισμό της απορρόφησης του νερού, να μην είναι μεγαλύτερη από  $155 \text{ g/m}^2$  - βλέπε το Διεθνές Πρότυπο ISO 535:1991. Το φύλλο φάϊμπερ θα πρέπει να έχει κατάλληλη ποιότητα λυγίσματος. Θα πρέπει να είναι κομμένο, ζαρωμένο χωρίς χαραγές και σχισμένο έτσι ώστε να επιτρέπει το μοντάρισμα χωρίς ραγμές, επιφανειακά σπασίματα ή αδικαιολόγητο λύγισμα. Η ράβδωση του ζαρωμένου φύλλου φάϊμπερ θα πρέπει να είναι σταθερά κολλημένη στις επιφάνειες.

- (b) Τα τοιχώματα, συμπεριλαμβανομένης της κορυφής και του πυθμένα, θα πρέπει να έχουν ελάχιστη αντίσταση στη διάτρηση  $15 \text{ J}$  μετρημένη σύμφωνα με το Διεθνές Πρότυπο ISO 3036 : 1975.
- (c) Οι κατασκευαστικές συνδέσεις στο σώμα των IBC θα πρέπει να είναι φτιαγμένες με μία κατάλληλη επικάλυψη και θα πρέπει να είναι τυλιγμένες με ταινία, κολλημένες, ραμμένες με μεταλλικούς συνδετήρες, ή στερεωμένες με άλλο μέσον τουλάχιστον εξίσου αποτελεσματικό. Όπου οι συνδέσεις γίνονται με κόλληση ή τύλιγμα με ταινία, μία αδιάβροχη κόλλα θα πρέπει να χρησιμοποιείται. Οι μεταλλικοί συνδετήρες θα πρέπει να περνάνε πλήρως μέσω όλων των κομματιών προς στερέωση και να μορφοποιούνται ή προστατεύονται έτσι ώστε οποιαδήποτε εσωτερική επένδυση να μην μπορεί να γδέρνεται ή να τρυπώνεται από αυτούς.

(4) *Επένδυση*

Η επένδυση θα πρέπει να είναι κατασκευασμένη από ένα κατάλληλο υλικό. Η αντοχή του υλικού που χρησιμοποιείται και η κατασκευή της επένδυσης θα πρέπει να είναι κατάλληλες για τη χωρητικότητα και την προοριζόμενη χρήση του IBC. Οι συνδέσεις και τα πάματα θα πρέπει να είναι αδιαπέραστες και ικανές να αντέχουν πιέσεις και κρούσεις υποκείμενες να σημειωθούν υπό κανονικές συνθήκες διακίνησης και μεταφοράς.

(5) *Δομικός εξοπλισμός*

- (a) Οποιαδήποτε ακέραια βάση παλέτας που σχηματίζει μέρος ενός IBC ή οποιαδήποτε αποσπώμενη παλέτα θα πρέπει να είναι κατάλληλη για μηχανική διακίνηση του IBC γεμισμένου στο μέγιστο επιτρεπτό βάρος του.
- (b) Η παλέτα ή ακέραια βάση θα πρέπει να είναι σχεδιασμένη έτσι ώστε να αποφεύγεται οποιαδήποτε προεξοχή της βάσης του IBC που θα μπορούσε να είναι υποκείμενη σε φθορά στη διακίνηση.
- (c) Το σώμα θα πρέπει να ασφαρίζεται σε οποιαδήποτε αποσπώμενη παλέτα ώστε να εξασφαλίζεται σταθερότητα στη διακίνηση και τη μεταφορά. Όπου μία αποσπώμενη παλέτα χρησιμοποιείται, η κορυφαία επιφάνειά της θα πρέπει να είναι ελεύθερη από κοφτερές προεξοχές που θα μπορούσαν να βλάψουν το IBC.
- (d) Ενισχυτικές συσκευές τέτοιες όπως ξύλινα υποστηρίγματα για αύξηση της επιτέλεσης του στοιβάγματος μπορούν να χρησιμοποιούνται αλλά θα πρέπει να είναι εξωτερικές της επένδυσης.
- (e) Όπου τα IBC προορίζονται για στοιβάγμα, η φέρουσα επιφάνεια θα πρέπει να είναι τέτοια ώστε να κατανέμει το φορτίο με ασφαλή τρόπο.

*Ειδικές διατάξεις για ξύλινα IBC*

3627

(1) Αυτές οι διατάξεις ισχύουν για ξύλινα IBC για τη μεταφορά στερεών που φορτώνονται και ξεφορτώνονται με τη βαρύτητα. Τα ξύλινα IBC είναι των παρακάτω τύπων:

## Προσθήκη Α.6

3627  
(συνεχ.)

- 11C Φυσικό ξύλο με εσωτερική επένδυση  
 11D Κόντρα πλακέ με εσωτερική επένδυση  
 11F Ανασυσταμένο ξύλο με εσωτερική επένδυση.

(2) Ξύλινα IBC δεν θα πρέπει να έχουν ενσωματωμένες κορυφαίες συσκευές ανύψωσης.

(3) Σώμα

- (a) Η αντοχή των υλικών που χρησιμοποιούνται και η μέθοδος κατασκευής θα πρέπει να είναι κατάλληλες για τη χωρητικότητα και την προοριζόμενη χρήση του IBC.
- (b) Εάν τα σώματα είναι από φυσικό ξύλο, αυτό θα πρέπει να είναι καλά ωριμασμένο, εμπορικά ξηρό και ελεύθερο από ελαττώματα που θα μειώναν ουσιαστικά την αντοχή οποιουδήποτε μέρους του IBC. Κάθε μέρος του IBC θα πρέπει να συνίσταται από ένα κομμάτι ή να είναι ισοδύναμο με αυτό. Μέρη θεωρούνται ισοδύναμα με ένα κομμάτι όταν μία κατάλληλη μέθοδος κολλημένου μονταρίσματος (όπως για παράδειγμα σύνδεση Lindermann, σύνδεση γλώσσας και αυλακιού, σύνδεση ship-lap ή rabbet), σύνδεση λαβής με τουλάχιστον δύο ζαρωμένα μεταλλικά στερεώματα σε κάθε σύνδεση, ή άλλες μέθοδοι τουλάχιστον εξίσου αποτελεσματικές, χρησιμοποιούνται.
- (c) Εάν τα σώματα είναι από κόντρα πλακέ, αυτό θα πρέπει να είναι τουλάχιστον 3-φύλλο. Θα πρέπει να είναι κατασκευασμένο από καλά ωριμασμένο περιστροφικά κομμένο, τεμαχισμένο ή πριονισμένο καπλαμά, εμπορικά ξηρό και ελεύθερο από ελαττώματα που θα μειώναν ουσιαστικά την αντοχή του σώματος. Όλα τα δυπλανά φύλλα θα πρέπει να είναι κολλημένα με αδιάβροχη κόλλα. Άλλα κατάλληλα υλικά μπορούν να χρησιμοποιούνται με κόντρα πλακέ για την κατασκευή του σώματος.
- (d) Σώματα από ανασυσταμένο ξύλο θα πρέπει να είναι κατασκευασμένα από αδιάβροχο ανασυσταμένο ξύλο τέτοιου όπως σκληρό ξύλο, νοβοπάν ή άλλο κατάλληλο τύπο.
- (e) Τα IBC θα πρέπει να είναι σταθερά καρφωμένα ή ασφαλισμένα στις γωνίες ή τα άκρα ή να είναι μονταρισμένα με εξίσου κατάλληλες συσκευές.

(4) Επένδυση

Η επένδυση θα πρέπει να είναι κατασκευασμένη από ένα κατάλληλο υλικό. Η αντοχή του υλικού που χρησιμοποιείται και η κατασκευή της επένδυσης θα πρέπει να είναι κατάλληλες για τη χωρητικότητα και την προοριζόμενη χρήση του IBC. Οι συνδέσεις και τα πόματα θα πρέπει να είναι αδιαπέραστες και ικανές να αντέχουν πιέσεις και κρούσεις υποκειμένες να συμβούν υπό κανονικές συνθήκες διακίνησης και μεταφοράς.

(5) Δομικός εξοπλισμός

- (a) Οποιαδήποτε ακέραια βάση παλέτας που σχηματίζει μέρος ενός IBC ή οποιαδήποτε αποσπώμενη παλέτα θα πρέπει να είναι κατάλληλη για μηχανική διακίνηση του IBC γεμισμένου στο μέγιστο επιτρεπτό μικτό βάρος του.
- (b) Η παλέτα ή ακέραια βάση θα πρέπει να είναι σχεδιασμένη έτσι ώστε να αποφεύγεται οποιαδήποτε προεξοχή της βάσης του IBC που θα μπορούσε να είναι υποκείμενη σε φθορά στη διακίνηση.
- (c) Το σώμα θα πρέπει να ασφαρίζεται σε οποιαδήποτε αποσπώμενη παλέτα ώστε να εξασφαλίζεται η σταθερότητα στη διακίνηση και τη μεταφορά. Η κορυφαία επιφάνεια της αποσπώμενης παλέτας θα πρέπει να είναι ελεύθερη από κοφτερές προεξοχές που θα μπορούσαν να βλάψουν το IBC.



## Προσθήκη Α.6

- 3627 (d) Ενισχυτικές συσκευές τέτοιες όπως ξύλινα υποστηρίγματα για αύξηση της (συνεχ.) λειτουργίας του στοιβάγματος μπορούν να χρησιμοποιούνται αλλά θα πρέπει να είναι εξωτερικές της επένδυσης.
- (e) Όπου τα IBC προορίζονται για στοιβάγμα, η φέρουσα επιφάνεια θα πρέπει να είναι τέτοια ώστε να κατανέμει το φορτίο με ασφαλή τρόπο.

3628-  
3649

## Μέρος 4: Απαιτήσεις ελέγχου για IBC

## Α. Έλεγχοι τύπου σχεδιασμού

## Γενικές απαιτήσεις

- 3650 (1) Ο τύπος σχεδιασμού κάθε IBC θα πρέπει να ελέγχεται και εγκρίνεται από την αρμόδια αρχή ή από ένα σώμα που καθορίζεται από εκείνη την αρχή.

(2) Για κάθε τύπο σχεδιασμού, ένα μόνο IBC θα πρέπει να υπόκειται επιτυχώς στους ελέγχους που αναφέρονται στο (5) παρακάτω με τη σειρά που αναφέρεται στον πίνακα και σύμφωνα με τις διατάξεις που προκαθορίζονται στα περιθωριακά 3652 έως 3660, (και, για εύκαμπτα IBC, σε συμφωνία με τις διαδικασίες που επιβάλλονται από την αρμόδια αρχή) πριν χρησιμοποιηθεί ένα τέτοιο IBC. Ένας τύπος σχεδιασμού IBC ορίζεται από τον σχεδιασμό, το μέγεθος, το υλικό και το πάχος, τον τρόπο κατασκευής και το μέσο πλήρωσης και ξεφορτώματος αλλά μπορεί να περιλαμβάνει διάφορες επιφανειακές επεξεργασίες. Επίσης περιλαμβάνει IBC που διαφέρουν από τον τύπο σχεδιασμού μόνον στις μικρότερες εξωτερικές διαστάσεις τους.

Η αρμόδια αρχή μπορεί παρ' όλα αυτά να επιτρέπει τον επιλεκτικό έλεγχο των IBC που διαφέρουν από έναν τύπο ήδη ελεγμένο μόνον σε δευτερεύοντα σημεία, για παράδειγμα, μικρές μειώσεις στις εξωτερικές διαστάσεις.

(3) Έλεγχοι θα πρέπει να διεξάγονται σε IBC προετοιμασμένα όπως για αποστολή. Τα IBC θα πρέπει να είναι γεμισμένα όπως υποδεικνύεται για τους διάφορους ελέγχους. Οι ύλες προς μεταφορά στα IBC μπορούν να αντικαθίστανται από άλλες ύλες, εκτός όπου αυτό θα καθιστούσε τα αποτελέσματα των ελέγχων μη ισχύοντα. Για στερεά, εάν μία άλλη ύλη χρησιμοποιείται, θα πρέπει να έχει τα ίδια φυσικά χαρακτηριστικά (βάρος, μέγεθος κόκκου κ.λπ.) όπως η ύλη προς μεταφορά. Επιτρέπεται η χρήση πρόσθετων, τέτοιων όπως σακοί από μολυβένια σκάγια, για να επιτυγχάνεται το απαραίτητο συνολικό βάρος κόλου, υπό την προϋπόθεση ότι τοποθετούνται έτσι ώστε τα αποτελέσματα του ελέγχου δεν επηρεάζονται.

(4) Στον έλεγχο πτώσης για υγρά, εάν μία άλλη ύλη χρησιμοποιείται, η σχετική πυκνότητα και το ιξώδες θα πρέπει να είναι παρόμοια με εκείνα της ύλης προς μεταφορά. Νερό μπορεί επίσης να χρησιμοποιείται για τον έλεγχο πτώσης υγρού υπό τους παρακάτω όρους:

- (a) εάν οι ύλες προς μεταφορά έχουν σχετική πυκνότητα που δεν υπερβαίνει το 1.2, τα ύψη πτώσης θα πρέπει να είναι εκείνα που εμφανίζονται υπό τα σχετικά μέρη για τους διάφορους τύπους IBC,
- (b) όπου οι ύλες προς μεταφορά έχουν σχετική πυκνότητα που υπερβαίνει το 1.2, τα ύψη πτώσης θα πρέπει να υπολογίζονται στη βάση της σχετικής πυκνότητας (d) της ύλης προς μεταφορά στρογγυλοποιημένης στο πρώτο δεκαδικό ως ακολούθως:

Ομάδα συσκευασίας I	Ομάδα συσκευασίας II	Ομάδα συσκευασίας III
d x 1.5 m	d x 1.0 m	d x 0.67 m

## Προσθήκη Α.6

3650 (5) Έλεγχοι που απαιτούνται για κάθε τύπο σχεδιασμού IBC.  
(συνεχ.)

Κάθε X δείχνει ότι η κατηγορία IBC που εμφανίζεται στην κορυφή της στήλης πρέπει να υπόκειται στον έλεγχο που υποδεικνύεται πάνω στη συγκεκριμένη σειρά, με τη σειρά που αναφέρεται.

	Μεταλλικά IBC	Εύκαμπτα IBC	Άκαμπτα πλαστικά IBC	Σύνθετα IBC με πλαστικό εσωτερικό δοχείο	IBC από φύλλο φάιμπερ	Εύλινα IBC
Ανόψωση πυθμένα	X <sup>α'</sup>		X	X	X	X
Ανόψωση κορυφής	X <sup>α'</sup>	X <sup>α'</sup>	X <sup>α'</sup>	X <sup>α'</sup>		
Σχίσμο		X				
Στοιβαγμα	X	X	X	X	X	X
Στεγανότητα	X <sup>ε'</sup>		X <sup>ε'</sup>	X <sup>ε'</sup>		
Εσωτερική υδραυλική πίεση	X <sup>β'</sup>		X <sup>β'</sup>	X <sup>β'</sup>		
Πτώση	X <sup>ε'</sup>	X	X	X <sup>ε'</sup>	X	X
Ανατροπή		X				
Ανόρθωση		X <sup>α'</sup>				

<sup>α'</sup> Για IBC σχεδιασμένα να διακινούνται με αυτόν τον τρόπο.

<sup>β'</sup> Ο έλεγχος εσωτερικής υδραυλικής πίεσης δεν απαιτείται για IBC του τύπου 11A, 11B, 11N, 11H1, 11H2, 11HZ1 ή 11HZ2.

<sup>ε'</sup> Ένα άλλο IBC του ίδιου σχεδιασμού μπορεί να χρησιμοποιείται για τον έλεγχο πτώσης.

<sup>α'</sup> Όταν τα IBC είναι σχεδιασμένα να ανοψώνονται από την κορυφή ή από τα πλάγια.

<sup>ε'</sup> Ο έλεγχος στεγανότητας δεν απαιτείται για IBC του τύπου 11A, 11B, 11N, 11H1, 11H2, 11HZ1 ή 11HZ2.

#### Προετοιμασία των IBC για τον έλεγχο

3651 (1) Εύκαμπτα IBC, IBC από φύλλο φάιμπερ και σύνθετα IBC με εξωτερικό περίβλημα από φύλλο φάιμπερ

Χάρτινα IBC, IBC από φύλλο φάιμπερ και σύνθετα IBC με εξωτερικά περιβλήματα από φύλλο φάιμπερ θα πρέπει να εξισορροπούνται για τουλάχιστον 24 ώρες σε μία ατμόσφαιρα που έχει ελεγχόμενη θερμοκρασία και σχετική υγρασία (r.h.). Υπάρχουν τρεις δυνατότητες, μία από τις οποίες θα πρέπει να επιλέγεται. Η προτιμώμενη ατμόσφαιρα είναι 23 °C ± 2 °C και 50 % ± 2 % r.h. Οι άλλες δύο δυνατότητες είναι 20 °C ± 2 °C και 65 % ± 2 % r.h. ή 27 °C ± 2 °C και 65 % ± 2 % r.h.

**ΣΗΜΕΙΩΣΗ:** Αυτές οι τιμές αντιστοιχούν σε μέσες τιμές. Βραχυπρόθεσμα οι τιμές της σχετικής υγρασίας μπορούν να διαφέρουν κατά ± 5 % χωρίς αυτό να έχει επίδραση πάνω στον έλεγχο.

(2) Άκαμπτα πλαστικά IBC και σύνθετα IBC με πλαστικό εσωτερικό δοχείο

## Προσθήκη Α.6

**3651** Μέτρα θα πρέπει να λαμβάνονται ώστε να εξακριβώνεται ότι το πλαστικό υλικό που (συνεχ.) χρησιμοποιείται στην κατασκευή άκαμπτων πλαστικών IBC και σύνθετων IBC είναι σύμφωνο με τις διατάξεις του περιθωριακού 3624.

Για να αποδειχθεί ότι υπάρχει αρκετή χημική συμβατότητα με τα περιεχόμενα εμπορεύματα, το δείγμα IBC θα πρέπει να υπόκειται σε μία προκαταρκτική αποθήκευση για έξι μήνες, κατά τη διάρκεια των οποίων τα δείγματα παραμένουν γεμισμένα με τις ύλες που προορίζονται να περιέχουν ή με ύλες που είναι γνωστό ότι έχουν τουλάχιστον ίδια σοβαρότητα επίδραση σπασίματος λόγω καταπόνησης, εξασθένησης ή μοριακής αποικοδόμησης πάνω στα συγκεκριμένα πλαστικά υλικά και μετά από τις οποίες τα δείγματα θα πρέπει να υπόκεινται στους ισχύοντες ελέγχους που αναφέρονται στο περιθωριακό 3650 (5).

Όπου η συμπεριφορά του πλαστικού υλικού έχει αποδειχθεί με άλλα μέσα, ο παραπάνω έλεγχος συμβατότητας μπορεί να παραλείπεται. Τέτοιες διαδικασίες θα πρέπει να είναι τουλάχιστον ισοδύναμες με τον παραπάνω έλεγχο συμβατότητας και να είναι αναγνωρισμένες από την αρμόδια αρχή.

*Διαδικασίες ελέγχου*

**3652** Έλεγχος ανύψωσης πυθμένα

(1) Δυνατότητα ισχύος

Για όλους τους τύπους IBC που είναι εξοπλισμένοι με μέσα για ανύψωση από τη βάση.

(2) Προετοιμασία των IBC για έλεγχο

Το IBC γεμίζεται έως 1.25 φορές το μέγιστο επιτρεπτό μκτό βάρος του, ενώ το φορτίο κατανέμεται ομοιόμορφα.

(3) Μέθοδος ελέγχου

Το IBC ανυψώνεται και κατεβαίνει δύο φορές με ανυψωτικό όχημα με τα πηρούνια κεντρικά τοποθετημένα και με απόσταση ίση με τα τρία τέταρτα της διάστασης της πλευράς εισόδου (εκτός εάν τα σημεία εισόδου είναι κανονισμένα). Τα πηρούνια θα πρέπει να διεισδύουν στα τρία τέταρτα της διάστασης εισόδου. Ο έλεγχος θα πρέπει να επαναλαμβάνεται από κάθε δυνατή διάσταση εισόδου.

(4) Κριτήρια για πέρασμα του ελέγχου

Καμία μόνιμη παραμόρφωση που καθιστά το IBC (συμπεριλαμβανομένης της βάσης παλέτας για σύνθετα IBC με πλαστικό εσωτερικό δοχείο, IBC από φύλλο φάιμπερ και ξύλινα IBC) ανασφαλές για μεταφορά και καμία απώλεια περιεχομένου.

**3653** Έλεγχος ανύψωσης κορυφής

(1) Δυνατότητα ισχύος

Για όλους του τύπους IBC που είναι εξοπλισμένοι με μέσα ανύψωσης από την κορυφή ή, όπου είναι κατάλληλο, από τα πλάγια για εύκαμπτα IBC.

(2) Προετοιμασία των IBC για έλεγχο

Μεταλλικά IBC, άκαμπτα πλαστικά IBC και σύνθετα IBC με πλαστικό εσωτερικό δοχείο:

Το IBC γεμίζεται έως δύο φορές το μέγιστο επιτρεπτό μκτό βάρος του.

## Προσθήκη Α.6

**3653** Εύκαμπτα IBC:  
(συνεχ.)

Το IBC γεμίζεται έως έξι φορές το μέγιστο επιτρεπτό φορτίο του και το φορτίο κατανέμεται ομοιόμορφα.

**(3) Μέθοδος ελέγχου**

Μεταλλικά και εύκαμπτα IBC:

Το IBC ανυψώνεται με τον τρόπο για τον οποίο είναι σχεδιασμένο μέχρι να ανασηκωθεί τελείως από το δάπεδο και παραμένει σ' εκείνη τη θέση για μία περίοδο πέντε λεπτών.

Για εύκαμπτα IBC άλλες μέθοδοι ελέγχου ανύψωσης κορυφής και προετοιμασία τουλάχιστον εξίσου αποτελεσματική μπορούν να χρησιμοποιούνται.

Άκαμπτα πλαστικά IBC και σύνθετα IBC με πλαστικό εσωτερικό δοχείο:

Το IBC ανυψώνεται από κάθε ζευγάρι διαγωνίως αντίθετων συσκευών ανύψωσης, έτσι ώστε οι δυνάμεις ανύψωσης να εφαρμόζονται κάθετα, για μία περίοδο πέντε λεπτών και

Το IBC ανυψώνεται από κάθε ζευγάρι διαγωνίως αντίθετων συσκευών ανύψωσης, έτσι ώστε οι δυνάμεις ανύψωσης να εφαρμόζονται προς το κέντρο σε 45° γωνία με την κάθετο, για μία περίοδο πέντε λεπτών.

**(4) Κριτήρια για πέραςμα του ελέγχου**

Μεταλλικά IBC, άκαμπτα πλαστικά IBC, σύνθετα IBC με πλαστικό εσωτερικό δοχείο:

Καμία μόνιμη παραμόρφωση που να καθιστά το IBC (συμπεριλαμβανομένης της βάσης παλέτας για σύνθετα IBC) ανασφαλές για μεταφορά και καμία απώλεια περιεχομένου.

Εύκαμπτα IBC:

Καμία φθορά στο IBC ή την συσκευή ανύψωσής του που να καθιστά το IBC ανασφαλές για μεταφορά ή διακίνηση.

**3654 Έλεγχος σχισίματος****(1) Δυνατότητα ισχύος**

Για όλους τους τύπους εύκαμπτων IBC:

**(2) Προετοιμασία των IBC για έλεγχο**

Το IBC γεμίζεται έως όχι λιγότερο από το 95 % της χωρητικότητας του και έως το μέγιστο επιτρεπτό φορτίο του, ενώ το φορτίο κατανέμεται ομοιόμορφα.

**(3) Μέθοδος ελέγχου**

Αφού το IBC τοποθετείται πάνω στο δάπεδο, γίνεται μία χαραγή 100 mm με μαχαίρι, που διεισδύει πλήρως στο τοίχωμα μίας πλατιάς πλευράς, σε 45° γωνία στον κύριο άξονα του IBC, στα μισά μεταξύ της επιφάνειας του πυθμένα και του κορυφαίου επιπέδου του περιεχομένου. Το IBC στη συνέχεια υπόκειται σε ομοιόμορφα κατανεμημένο από επάνω φορτίο ισοδύναμο με δύο φορές το μέγιστο επιτρεπτό φορτίο. Το φορτίο θα πρέπει να εφαρμόζεται για τουλάχιστον πέντε λεπτά.

## Προσθήκη Α.6

**3654** Τα IBC που είναι σχεδιασμένα να ανυψώνονται από την κορυφή ή τα πλάγια, στη συνέχεια, (συνεχ.) μετά την απομάκρυνση του από επάνω φορτίου, ανυψώνονται τελείως από το δάπεδο και παραμένουν σ' εκείνη τη θέση για μία περίοδο πέντε λεπτών. Άλλες ισοδύναμες μέθοδοι μπορούν να χρησιμοποιούνται.

(4) *Κριτήριο για πέρασμα του ελέγχου*

Η τομή δεν θα πρέπει να πολλαπλασιάζεται περισσότερο από το 25 % του αρχικού μήκους της.

**3655** *Έλεγχος στοιβάγματος*

(1) *Δυνατότητα ισχύος*

Για όλους τους τύπους IBC.

(2) *Προετοιμασία των IBC για έλεγχο*

Όλες οι κατηγορίες IBC πέραν από εύκαμπτα IBC:

Το IBC γεμίζεται έως το μέγιστο επιτρεπτό μκτό βάρος του.

Εύκαμπτο IBC:

Το IBC γεμίζεται έως όχι λιγότερο από το 95 % της χωρητικότητάς του και έως το μέγιστο επιτρεπτό φορτίο του, ενώ το φορτίο κατανέμεται ομοιόμορφα.

(3) *Μέθοδος ελέγχου*

Το IBC τοποθετείται στη βάση του σε επίπεδο σκληρό έδαφος και υπόκειται σε ομοιόμορφα κατανεμημένο από επάνω φορτίο ελέγχου (βλέπε (4) παρακάτω).

Κατηγορίες και Τύποι IBC	Χρόνος ελέγχου
Μεταλλικά IBC	5 λεπτά
Εύκαμπτα IBC, άκαμπτα πλαστικά IBC των τύπων 11H1, 21H1 και 31H1 Σύνθετα IBC με πλαστικό εσωτερικό δοχείο των τύπων 11HZ1, 21HZ1 και 31HZ1 IBC από φύλλο φάιμπερ, ξύλινα IBC	24 ώρες
Άκαμπτα πλαστικά IBC των τύπων 11H2, 21H2 και 31H2 Σύνθετα IBC με πλαστικό εσωτερικό δοχείο των τύπων 11HZ2, 21HZ2 και 31HZ2	28 ημέρες στους 40 °C

Για όλες τις κατηγορίες IBC πέραν από μεταλλικά IBC, το από επάνω φορτίο ελέγχου θα πρέπει να εφαρμόζεται με μία από τις παρακάτω μεθόδους:

- Ένα ή περισσότερα IBC του ίδιου τύπου που φορτώνονται έως το μέγιστο επιτρεπτό μκτό βάρος τους (μέγιστο επιτρεπτό φορτίο στην περίπτωση εύκαμπτων IBC) στοιβάζονται πάνω στο ελεγχόμενο IBC,

## Προσθήκη Α.6

3655 (συνεχ.) - κατάλληλα βάρη φορτώνονται πάνω σε μία επίπεδη πλάκα ή ένα αντίγραφο της βάσης του IBC, που τοποθετείται πάνω στο ελεγχόμενο IBC.

## (4) Υπολογισμός του από επάνω εφαρμοζόμενου φορτίου ελέγχου

Το φορτίο προς τοποθέτηση πάνω στο IBC θα πρέπει να είναι τουλάχιστον 1,8 φορές το συνδυασμένο μέγιστο επιτρεπτό μικτό βάρος του αριθμού παρόμοιων IBC που μπορούν να στοιβάζονται στην κορυφή του IBC κατά τη διάρκεια της μεταφοράς.

## (5) Κριτήρια για πέρασμα του ελέγχου

- IBC πέραν από εύκαμπτα IBC:

Καμία μόνιμη παραμόρφωση που καθιστά το IBC (συμπερίλαμβανομένης της βάσης παλέτας για σύνθετα IBC, IBC από φύλλο φάιμπερ ή ξύλινα IBC) ανασφαλές για μεταφορά και καμία απώλεια περιεχομένου.

- Εύκαμπτα IBC:

Καμία φθορά του σώματος που καθιστά το IBC ανασφαλές για μεταφορά και καμία απώλεια περιεχομένου.

## 3656 Έλεγχος στεγανότητας

## (1) Δυνατότητα ισχύος

Για όλους τους τύπους μεταλλικού IBC και για τύπους πλαστικού IBC και σύνθετα IBC με πλαστικό εσωτερικό δοχείο για τη μεταφορά στερεών που φορτώνονται ή ξεφορτώνονται υπό πίεση ή για τη μεταφορά υγρών.

## (2) Προετοιμασία των IBC για έλεγχο

Τα εξαεριζόμενα πάματα είτε αντικαθίστανται από παρόμοια μη-εξαεριζόμενα πάματα είτε ο εξαεριστήρας σφραγίζεται. Επιπλέον, για μεταλλικά IBC, ο έλεγχος του τύπου σχεδιασμού θα πρέπει να διεξάγεται πριν την τοποθέτηση οποιασδήποτε συσκευής θερμικής μόνωσης.

Για αυτόν τον έλεγχο το IBC δεν χρειάζεται να έχει τα πάματα του τοποθετημένα. Το εσωτερικό δοχείο των σύνθετων IBC μπορεί να ελέγχεται χωρίς την εξωτερική συσκευασία υπό την προϋπόθεση ότι τα αποτελέσματα του ελέγχου δεν επηρεάζονται.

## (3) Μέθοδος ελέγχου και πίεση που πρέπει να εφαρμόζεται

Ο έλεγχος διεξάγεται για μία περίοδο τουλάχιστον 10 λεπτών με τη χρήση αέρα σε μία συνεχή πίεση πεζομέτρου όχι μικρότερη από 20 kPa (0,2 bar). Η αεροστεγανότητα του IBC προσδιορίζεται με μία κατάλληλη μέθοδο τέτοια όπως ο έλεγχος του διαφορικού της πίεσης αέρα ή με εμβάπτιση του IBC σε νερό. Στην τελευταία περίπτωση ένας συντελεστής διόρθωσης θα πρέπει να εφαρμόζεται για την υδροστατική πίεση. Άλλες μέθοδοι τουλάχιστον ίδιας αποτελεσματικότητας μπορούν να χρησιμοποιούνται για άκαμπτα πλαστικά IBC και για σύνθετα IBC.

## (4) Κριτήριο για πέρασμα του ελέγχου

Καμία διαρροή αέρα.

## Προσθήκη Α.6

## 3657 Έλεγχος εσωτερικής (υδραυλικής) πίεσης

## (1) Δυνατότητα ισχύος

Για IBC των τύπων:

- 21A, 21B, 21N, 31A, 31B, 31N
- 21H1, 21H2, 31H1, 31H2
- 21HZ1, 21HZ2, 31HZ1, 31HZ2.

## (2) Προετοιμασία των IBC για έλεγχο

Οι συσκευές εκτόνωσης της πίεσης απομακρύνονται και τα ανοίγματά τους βουλώνονται, ή καθίστανται ανενεργές. Επιπλέον, για μεταλλικά IBC, ο έλεγχος διεξάγεται πριν την τοποθέτηση οποιασδήποτε συσκευής θερμικής μόνωσης.

## (3) Μέθοδος ελέγχου

Ο έλεγχος διεξάγεται για μία περίοδο τουλάχιστον 10 λεπτών εφαρμόζοντας υδραυλική πίεση όχι μικρότερη από εκείνη που υποδεικνύεται στο (4). Τα IBC δεν θα πρέπει να συγκρατούνται μηχανικά κατά τη διάρκεια του ελέγχου.

## (4) Πιέσεις που πρέπει να εφαρμόζονται

## (a) Μεταλλικά IBC:

1. Για IBC των τύπων 21A, 21B και 21N, για στερεά της Ομάδας Συσκευασίας I, πίεση πιεζομέτρου 250 kPa (2.5 bar),
2. Για IBC των τύπων 21A, 21B, 21N, 31A, 31B και 31N, για ύλης της Ομάδας Συσκευασίας II ή III, πίεση πιεζομέτρου 200 kPa (2 bar),
3. Επιπλέον, για IBC των τύπων 31A, 31B και 31N, πίεση πιεζομέτρου 65 kPa (0.65 bar). Αυτός ο έλεγχος θα πρέπει να πραγματοποιείται πριν τον έλεγχο των 2 bar.

## (b) Άκαμπτα πλαστικά IBC και σύνθετα IBC με εσωτερικό πλαστικό δοχείο:

1. Για IBC των τύπων 21H1, 21H2, 21HZ1 και 21HZ2: πίεση πιεζομέτρου 75 kPa (0.75 bar)
2. Για IBC των τύπων 31H1, 31H2, 31HZ1 και 31HZ2: η μεγαλύτερη από τις τιμές στο (i) ή (ii):
  - (i) Η συνολική πίεση πιεζομέτρου που μετράται στο IBC (δηλ. η τάση ατμών της πληρωτικής ύλης και η μερική πίεση του αέρα ή άλλων αδρανών αερίων, μείον 100 kPa) στους 55 °C πολλαπλασιασμένη με έναν συντελεστή ασφάλειας 1.5. Αυτή η συνολική πίεση πιεζομέτρου θα πρέπει να προσδιορίζεται στη βάση ενός μέγιστου βαθμού πλήρωσης σε συμφωνία με το 3601 (7) και μία θερμοκρασία πλήρωσης 15 °C, ή
    - 1.75 φορές την τάση ατμών στους 50 °C της ύλης προς μεταφορά μείον 100 kPa, αλλά με ελάχιστη πίεση ελέγχου 100 kPa, ή
    - 1.5 φορές την τάση ατμών στους 55 °C της ύλης προς μεταφορά μείον 100 kPa, αλλά με ελάχιστη τάση ελέγχου 100 kPa,

## Προσθήκη Α.6

3657  
(συνεχ.)

(ii) δύο φορές την στατική πίεση της ύλης προς μεταφορά, με ελάχιστη τιμή δύο φορές την στατική πίεση του νερού.

(5) *Κριτήρια για πέραςμα του(των) ελέγχου(ων)*

- Μεταλλικά IBC:

Για IBC των τύπων 21A, 21B, 21N, 31A, 31B και 31N, όταν υπόκεινται στην πίεση ελέγχου που προκαθορίζεται στο (4) (a) 1. ή 2.: καμία διαρροή.

Για IBC των τύπων 31A, 31B και 31N, όταν υπόκεινται στην πίεση ελέγχου που προκαθορίζεται στο (4) (a) 3.: ούτε μόνιμη παραμόρφωση που θα καθιστούσε το IBC ανασφαλές για μεταφορά, ούτε διαρροή.

- Άκαμπτα πλαστικά IBC και σύνθετα IBC:

Ούτε μόνιμη παραμόρφωση που θα καθιστούσε το IBC ανασφαλές για μεταφορά, ούτε απώλεια περιεχομένου.

3658 *Έλεγχος πτώσης*(1) *Δυνατότητα ισχύος*

Για όλους τους τύπους IBC.

(2) *Προετοιμασία των IBC για έλεγχο*

Τα IBC γεμίζονται:

Για στερεά,

έως όχι λιγότερο από το 95 % της χωρητικότητας του,

Για υγρά,

έως όχι λιγότερο από το 98 % της χωρητικότητάς του στην περίπτωση μεταλλικών IBC ή άκαμπτων πλαστικών IBC και έως όχι λιγότερο από το 90 % της χωρητικότητάς του στην περίπτωση σύνθετων IBC με πλαστικό εσωτερικό δοχείο.

Το IBC περαιτέρω γεμίζονται έως το μέγιστο επιτρεπτό φορτίο του σε συμφωνία με τον τύπο σχεδιασμού.

Για μεταλλικά IBC, άκαμπτα πλαστικά IBC και σύνθετα IBC με πλαστικό εσωτερικό δοχείο, οι συσκευές εκτόνωσης της πίεσης θα πρέπει να απομακρύνονται και τα ανοίγματά τους να βουλώνονται, ή θα πρέπει να καθίστανται ανενεργές.

Για άκαμπτα πλαστικά IBC και σύνθετα IBC με πλαστικό εσωτερικό δοχείο, ο έλεγχος θα πρέπει να διεξάγεται όταν η θερμοκρασία του δείγματος ελέγχου και του περιεχομένου του έχει μειωθεί στους -18 °C ή χαμηλότερα. Όπου δείγματα ελέγχου προετοιμάζονται με αυτόν τον τρόπο, η εξισορρόπηση που προκαθορίζεται στο 3651 (2) μπορεί να παραλείπεται.



## Προσθήκη Α.6

**3658** Τα δοκιμαστικά υγρά θα πρέπει να διατηρούνται στην υγρή κατάσταση, εάν είναι  
(συνεχ.) απαραίτητο με την προσθήκη αντιψυκτικού.

Αυτή η εξισορρόπηση μπορεί να παραβλέπεται εάν η αντοχή ελατότητας και εφελκυσμού των συγκεκριμένων υλικών δεν μειώνεται σημαντικά στους  $-18\text{ }^{\circ}\text{C}$  ή χαμηλότερα.

## (3) Μέθοδος ελέγχου

Το IBC πέφτει πάνω σε μία άκαμπτη, μη-ελαστική, λεία, επίπεδη και οριζόντια επιφάνεια, με τη βάση του (για εύκαμπτα IBC) ή με τέτοιο τρόπο ώστε να εξασφαλίζεται ότι το σημείο κρούσης είναι σ' εκείνο το μέρος της βάσης του IBC που θεωρείται ότι είναι το πιο ευαίσθητο (για όλους τους άλλους τύπους IBC).

IBC χωρητικότητας  $0.45\text{ m}^3$  ή μικρότερης θα πρέπει επίσης να υπόκεινται σ' έναν έλεγχο πτώσης πάνω στο πιο ευαίσθητο μέρος πέραν από το μέρος της βάσης του IBC που ελέγχεται στην πρώτη πτώσης (για μεταλλικά IBC), πάνω στην πιο ευαίσθητη πλευρά (για εύκαμπτα IBC), επίπεδα με μία πλευρά, επίπεδα με την κορυφή και με μία γωνία (για όλους τους άλλους τύπους IBC). Τα ίδια ή διαφορετικά IBC μπορούν να χρησιμοποιούνται για κάθε πτώση.

## (4) Ύψος πτώσης

Ομάδα συσκευασίας I	Ομάδα συσκευασίας II	Ομάδα συσκευασίας III
1.8 m	1.2 m	0.8 m

## (5) Κριτήρια για πέρασμα του ελέγχου

- Όλα τα IBC:

Καμία απώλεια περιεχομένου.

- IBC πέραν από μεταλλικά IBC:

Μία μικρή διαρροή από τα πώματα (ή τις τρύπες των ραφών στην περίπτωση εύκαμπτων IBC) κατά την κρούση δεν θα πρέπει να θεωρείται ότι είναι αστοχία του IBC, υπό την προϋπόθεση ότι δεν σημαίνει περαιτέρω διαρροή.

**3659** Έλεγχος ανατροπής

## (1) Δυνατότητα ισχύος

Για όλους τους τύπους εύκαμπτων IBC.

## (2) Προετοιμασία των IBC για έλεγχο

Το IBC γεμίζεται έως όχι λιγότερο από το 95 % της χωρητικότητάς του και έως το μέγιστο επιτρεπτό φορτίο του και το φορτίο κατανέμεται ομοιόμορφα.

## (3) Μέθοδος ελέγχου

Προκαλείται στο IBC ανατροπή με οποιοδήποτε μέρος της κορυφής του πάνω σε μία άκαμπτη, μη-ελαστική, λεία, επίπεδη και οριζόντια επιφάνεια.

## Προσθήκη Α.6

3659 (4) Υψος ανατροπής  
(συνεχ.)

Ομάδα συσκευασίας I	Ομάδα συσκευασίας II	Ομάδα συσκευασίας III
1.8 m	1.2 m	0.8 m

(5) Κριτήρια για πέρασμα του ελέγχου

Καμία απώλεια περιεχομένου. Μία πολύ μικρή διαρροή, π.χ. από τα πόματα ή τις οπές των ραφών, κατά την κρόση δεν θα πρέπει να θεωρείται ότι είναι αστοχία του IBC, υπό την προϋπόθεση ότι δεν συμβαίνει περαιτέρω διαρροή.

3660 Έλεγχος ανόρθωσης

(1) Δυνατότητα ισχύος

Για όλα τα IBC που είναι σχεδιασμένα να ανυψώνονται από την κορυφή ή τα πλάγια.

(2) Προετοιμασία των IBC για έλεγχο

Το IBC γεμίζεται έως όχι λιγότερο από το 95 % της χωρητικότητας του και έως το μέγιστο επιτρεπτό φορτίο του και το φορτίο κατανέμεται ομοιόμορφα.

(3) Μέθοδος ελέγχου

Το IBC, που στέκεται σε μία πλευρά του, ανυψώνεται με μία ταχύτητα τουλάχιστον 0.1 m/s στην όρθια θέση, πλήρως από το δάπεδο, με μία συσκευή ανύψωσης, ή με δύο συσκευές ανύψωσης όταν διαθέτει τέσσερεις.

(4) Κριτήριο για πέρασμα του ελέγχου

Καμία φθορά στο IBC ή τη συσκευή ανύψωσής του που να καθιστά το IBC ανασφαλές για μεταφορά ή διακίνηση.

*Αναφορά ελέγχου*

3661 (1) Μία αναφορά ελέγχου που περιέχει τουλάχιστον τα παρακάτω στοιχεία θα πρέπει να συντάσσεται και θα πρέπει να είναι διαθέσιμη στους χρήστες του IBC:

1. Ονομασία και διεύθυνση των εγκαταστάσεων για τον έλεγχο,
2. Ονομασία και διεύθυνση του αιτούντος (όπου είναι κατάλληλο),
3. Ένα μοναδικό χαρακτηριστικό στοιχείο της αναφοράς ελέγχου,
4. Ημερομηνία της αναφοράς ελέγχου,
5. Κατασκευαστής του IBC,
6. Περιγραφή του τύπου σχεδιασμού του IBC (π.χ. διαστάσεις, υλικά, πόματα, πάχος, κ.λπ.) συμπεριλαμβανομένης της μεθόδου κατασκευής (π.χ. καλούπωμα με φύσημα) και που μπορεί να περιλαμβάνει σχέδιο(α) και/ή φωτογραφία(ες),
7. Μέγιστη χωρητικότητα,

## Προσθήκη Α.6

- 3661** (συνεχ.) 8. Χαρακτηριστικά του δοκιμαστικού περιχομένου, π.χ. ιξώδες και σχετική πυκνότητα για υγρά και μέγεθος σωματιδίων για στερεά,
9. Περιγραφές και αποτελέσματα του ελέγχου,
10. Η αναφορά ελέγχου θα πρέπει να υπογράφεται με το όνομα και τη θέση του υπογράφοντος.

(2) Η αναφορά ελέγχου θα πρέπει να περιέχει δηλώσεις ότι το IBC προετοιμασμένο όπως για μεταφορά ελέγχθηκε σε συμφωνία με τις κατάλληλες διατάξεις της Προσθήκη Α.6 και ότι η χρήση άλλων μεθόδων συσκευασίας ή συστατικών μπορεί να την καταστήσει μη ισχύουσα. Ένα αντίγραφο της αναφοράς ελέγχου θα πρέπει να είναι διαθέσιμο στην αρμόδια αρχή.

**B. Έλεγχοι και επιθεώρηση για κάθε μεταλλικό IBC, άκαμπτο πλαστικό IBC και σύνθετο IBC με πλαστικό εσωτερικό δοχείο**

*Αρχικοί και περιοδικοί έλεγχοι*

**3662** (1) Όλα τα μεταλλικά IBC του τύπου 21A, 21B, 21N, 31A, 31B και 31N, όλα τα άκαμπτα πλαστικά IBC του τύπου 21H1, 21H2, 31H1 και 31H2 και όλα τα σύνθετα IBC με πλαστικό εσωτερικό δοχείο του τύπου 21HZ1, 21HZ2, 31HZ1 και 31HZ2 θα πρέπει να υποβάλλονται επιτυχώς στον έλεγχο στεγανότητας και να είναι ικανά να ικανοποιούν τα κατάλληλα επίπεδα σύμφωνα με το περιθωριακό 3656 (3) πριν χρησιμοποιηθούν για μεταφορά για την πρώτη φορά.

(2) Ο έλεγχος στεγανότητας που αναφέρεται στο (1) θα πρέπει να επαναλαμβάνεται

- τουλάχιστον μία φορά κάθε δύομισι χρόνια
- μετά από οποιαδήποτε επισκευή, πριν επαναχρησιμοποιηθεί για μεταφορά.

(3) Τα αποτελέσματα των ελέγχων θα πρέπει να καταγράφονται στις αναφορές ελέγχου που πρέπει να διατηρούνται από τον ιδιοκτήτη του IBC.

*Επιθεώρηση*

**3663** (1) Όλα τα μεταλλικά IBC, όλα τα άκαμπτα πλαστικά IBC και όλα τα σύνθετα IBC με πλαστικό εσωτερικό δοχείο θα πρέπει να επιθεωρούνται προς ικανοποίηση της αρμόδιας αρχής πριν τεθούν σε υπηρεσία, και μετά απ' αυτό σε διαστήματα που δεν υπερβαίνουν τα πέντε χρόνια, όσον αφορά στα παρακάτω:

- συμφωνία με τον τύπο σχεδιασμού συμπεριλαμβανομένου του μαρκαρίσματος,
- εσωτερική και εξωτερική κατάσταση,
- σωστή λειτουργία του εξοπλισμού εξυπηρέτησης.

Για μεταλλικά IBC, η θερμική μόνωση χρειάζεται να αφαιρείται μόνον στο βαθμό που είναι απαραίτητο για μία σωστή εξέταση του σώματος του IBC.

(2) Όλα τα IBC που αναφέρονται στο (1) θα πρέπει να επιθεωρούνται οπτικά προς ικανοποίηση της αρμόδιας αρχής μετά από όχι περισσότερο από δύομισι χρόνια, αναφορικά με την εξωτερική κατάσταση του IBC και τη σωστή λειτουργία του εξοπλισμού εξυπηρέτησης.

## Προσθήκη Α.6

3663 Για μεταλλικά IBC, η μόνωση χρειάζεται να αφαιρεθεί μόνον εάν αυτό είναι ουσιαστικό για μία (συνεχ.) σωστή εξέταση του σώματος του IBC.

(3) Κάθε επιθεώρηση θα πρέπει να είναι το αντικείμενο μίας αναφοράς που θα πρέπει να διατηρείται από τον ιδιοκτήτη τουλάχιστον μέχρι την επόμενη ημερομηνία επιθεώρησης.

(4) Εάν τα δομικά χαρακτηριστικά ενός IBC έχουν εξασθενήσει από μία βίαιη κρούση (για παράδειγμα, ένα ατύχημα) ή άλλη αιτία, το IBC θα πρέπει να επισκευάζεται και να υπόκειται στον έλεγχο στεγανότητας σύμφωνα με το περιθωριακό 3656, εάν απαιτείται για τον τύπο σχεδιασμού και στην επιθεώρηση που ορίζεται στην παράγραφο (1) παραπάνω.

3664-  
3699

1855

**ΠΡΟΣΘΗΚΗ Α.7**

**ΠΡΟΒΛΕΨΕΙΣ ΣΧΕΤΙΚΕΣ ΜΕ ΡΑΔΙΕΝΕΡΓΑ ΥΛΙΚΑ ΤΗΣ ΚΛΑΣΗΣ 7**

Αυτή η Προσθήκη περιλαμβάνει:

**ΜΕΡΗ:**

- I ΟΡΙΑ ΔΡΑΣΤΙΚΟΤΗΤΑΣ ΚΑΙ ΣΧΑΣΙΜΟΥ ΥΛΙΚΟΥ
- II ΠΡΟΒΛΕΨΕΙΣ ΓΙΑ ΤΗΝ ΠΡΟΕΤΟΙΜΑΣΙΑ ΚΑΙ ΕΛΕΓΧΟΙ ΓΙΑ ΤΗ ΦΟΡΤΩΣΗ ΚΑΙ ΓΙΑ ΤΗΝ ΑΠΟΘΗΚΕΥΣΗ ΥΠΟ ΜΕΤΑΦΟΡΑ
- III ΠΡΟΒΛΕΨΕΙΣ ΓΙΑ ΡΑΔΙΕΝΕΡΓΑ ΥΛΙΚΑ, ΓΙΑ ΣΥΣΚΕΥΑΣΙΕΣ ΚΑΙ ΚΟΛΑ ΚΑΙ ΔΙΑΔΙΚΑΣΙΕΣ ΕΛΕΓΧΟΥ
- IV ΕΓΚΡΙΣΗ ΚΑΙ ΔΙΟΙΚΗΤΙΚΕΣ ΠΡΟΒΛΕΨΕΙΣ
- V ΡΑΔΙΕΝΕΡΓΑ ΥΛΙΚΑ ΠΟΥ ΕΧΟΥΝ ΑΛΛΕΣ ΕΠΙΚΙΝΔΥΝΕΣ ΙΔΙΟΤΗΤΕΣ

## ΜΕΡΟΣ Ι

## ΟΡΙΑ ΔΡΑΣΤΙΚΟΤΗΤΑΣ ΚΑΙ ΣΧΑΣΙΜΟΥ ΥΛΙΚΟΥ

Βασικές τιμές  $A_1$  και  $A_2$ 3700 Οι τιμές  $A_1/A_2$  για τα ραδιονουκλεΐδια δίνονται στον πίνακα Ι.Πίνακας Ι: τιμές  $A_1$  και  $A_2$  για ραδιονουκλεΐδια

Σύμβολο ραδιονου- κλεΐδιου	Στοιχείο και ατομικός αριθμός	$A_1$		$A_2$	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>225</sup> Ac <sup>2/</sup>	Ακτίνιο (89)	0.6	10	$1 \times 10^{-2}$	$2 \times 10^{-1}$
<sup>227</sup> Ac		40	1 000	$2 \times 10^{-5}$	$5 \times 10^{-4}$
<sup>228</sup> Ac		0.6	10	0.4	10
<sup>105</sup> Ag	Αργυρος (47)	2	50	2	50
<sup>108</sup> Ag <sup>m</sup>		0.6	10	0.6	10
<sup>110</sup> Ag <sup>m</sup>		0.4	10	0.4	10
<sup>111</sup> Ag		0.6	10	0.5	10
<sup>26</sup> Al	Αλουμίνιο (13)	0.4	10	0.4	10
<sup>241</sup> Am	Αμερίκιο (95)	2	50	$2 \times 10^{-4}$	$5 \times 10^{-3}$
<sup>242</sup> Am <sup>m</sup>		2	50	$2 \times 10^{-4}$	$5 \times 10^{-3}$
<sup>243</sup> Am		2	50	$2 \times 10^{-4}$	$5 \times 10^{-3}$
<sup>37</sup> Ar	Αργό (18)	40	1 000	40	1 000
<sup>39</sup> Ar		20	500	20	500
<sup>41</sup> Ar		0.6	10	0.6	10
<sup>42</sup> Ar <sup>2/</sup>		0.2	5	0.2	5
<sup>72</sup> As	Αρσενικό (33)	0.2	5	0.2	5
<sup>73</sup> As		40	1 000	40	1 000
<sup>74</sup> As		1	20	0.5	10
<sup>76</sup> As		0.2	5	0.2	5
<sup>77</sup> As		20	500	0.5	10
<sup>211</sup> At	Αστάτιο (85)	30	800	2	50

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των  $A_1$ , ή  $A_2$  σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή  $A_1$  και η  $A_2$  περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

## Προσθήκη Α.7

31ο ε  
Πίνακας Ι  
(συνεχ.)

Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	Α <sub>1</sub>		Α <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>193</sup> Au	Χρυσός (79)	6	100	6	100
<sup>194</sup> Au		1	20	1	20
<sup>195</sup> Au		10	200	10	200
<sup>196</sup> Au		2	50	2	50
<sup>198</sup> Au		3	80	0.5	10
<sup>199</sup> Au		10	200	0.9	20
<sup>131</sup> Ba	Βάριο (56)	2	50	2	50
<sup>133</sup> Ba <sup>m</sup>		10	200	0.9	20
<sup>133</sup> Ba		3	80	3	80
<sup>140</sup> Ba <sup>2/</sup>		0.4	10	0.4	10
<sup>7</sup> Be	Βηρύλλιο (4)	20	500	20	500
<sup>10</sup> Be		20	500	0.5	10
<sup>205</sup> Bi	Βισμούθιο (83)	0.6	10	0.6	10
<sup>206</sup> Bi		0.3	8	0.3	8
<sup>207</sup> Bi		0.7	10	0.7	10
<sup>210</sup> Bi <sup>m 2/</sup>		0.3	8	3 x 10 <sup>-2</sup>	8 x 10 <sup>-1</sup>
<sup>210</sup> Bi		0.6	10	0.5	10
<sup>212</sup> Bi <sup>2/</sup>		0.3	8	0.3	8
<sup>247</sup> Bk	Βερκέλιο (97)	2	50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>249</sup> Bk		40	1 000	8 x 10 <sup>-2</sup>	2
<sup>76</sup> Br	Βρώμιο (35)	0.3	8	0.3	8
<sup>77</sup> Br		3	80	3	80
<sup>82</sup> Br		0.4	10	0.4	10
<sup>11</sup> C	Άνθρακας (6)	1	20	0.5	10
<sup>14</sup> C		40	1 000	2	50
<sup>41</sup> Ca	Ασβέστιο (20)	40	1 000	40	1 000
<sup>45</sup> Ca		40	1 000	0.9	20
<sup>47</sup> Ca		0.9	20	0.5	10

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των Α<sub>1</sub> ή Α<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή Α<sub>1</sub> και η Α<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

## Προσθήκη Α.7

31  
Πίνακας Ι  
(συνεχ.)

Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	Α <sub>1</sub>		Α <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>109</sup> Cd	Κάδμιο (48)	40	1 000	1	20
<sup>113</sup> Cd <sup>m</sup>		20	500	9 x 10 <sup>-2</sup>	2
<sup>115</sup> Cd <sup>m</sup>		0.3	8	0.3	8
<sup>115</sup> Cd		4	100	0.5	10
<sup>139</sup> Ce	Δημήτριο (58)	6	100	6	100
<sup>141</sup> Ce		10	200	0.5	10
<sup>143</sup> Ce		0.6	10	0.5	10
<sup>144</sup> Ce <sup>2/</sup>		0.2	5	0.2	5
<sup>248</sup> Cf	Καλιφόρνιο (98)	30	800	3 x 10 <sup>-3</sup>	8 x 10 <sup>-2</sup>
<sup>249</sup> Cf		2	50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>250</sup> Cf		5	100	5 x 10 <sup>-4</sup>	1 x 10 <sup>-2</sup>
<sup>251</sup> Cf		2	50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>252</sup> Cf		0.1	2	1 x 10 <sup>-3</sup>	2 x 10 <sup>-2</sup>
<sup>253</sup> Cf		40	1 000	6 x 10 <sup>-2</sup>	1
<sup>254</sup> Cf		3 x 10 <sup>-3</sup>	8 x 10 <sup>-2</sup>	6 x 10 <sup>-4</sup>	1 x 10 <sup>-2</sup>
<sup>36</sup> Cl		Χλώριο (17)	20	500	0.5
<sup>38</sup> Cl	0.2		5	0.2	5
<sup>240</sup> Cm	Κιούριο (96)	40	1 000	2 x 10 <sup>-2</sup>	5 x 10 <sup>-1</sup>
<sup>241</sup> Cm		2	50	0.9	20
<sup>242</sup> Cm		40	1 000	1 x 10 <sup>-2</sup>	2 x 10 <sup>-1</sup>
<sup>243</sup> Cm		3	80	3 x 10 <sup>-4</sup>	8 x 10 <sup>-3</sup>
<sup>244</sup> Cm		4	100	4 x 10 <sup>-4</sup>	1 x 10 <sup>-2</sup>
<sup>245</sup> Cm		2	50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>246</sup> Cm		2	50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>247</sup> Cm		2	50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>248</sup> Cm		4 x 10 <sup>-2</sup>	1	5 x 10 <sup>-5</sup>	1 x 10 <sup>-3</sup>
<sup>55</sup> Co		Κοβάλτιο (27)	0.5	10	0.5
<sup>56</sup> Co	0.3		8	0.3	8
<sup>57</sup> Co	8		200	8	200

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των Α<sub>1</sub> ή Α<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή Α<sub>1</sub> και η Α<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.



Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	Α <sub>1</sub>		Α <sub>2</sub>	
		ΤΒq	(Ci) (περίπου <sup>1/</sup> )	ΤΒq	(Ci) (περίπου <sup>1/</sup> )
<sup>58</sup> Co <sup>m</sup>		40	1 000	40	1 000
<sup>58</sup> Co		1	20	1	20
<sup>60</sup> Co		0.4	10	0.4	10
<sup>51</sup> Cr	Χρόμιο (24)	30	800	30	800
<sup>129</sup> Cs	Καίσιο (55)	4	100	4	100
<sup>131</sup> Cs		40	1 000	40	1 000
<sup>132</sup> Cs		1	20	1	20
<sup>134</sup> Cs <sup>m</sup>		40	1 000	9	200
<sup>134</sup> Cs		0.6	10	0.5	10
<sup>135</sup> Cs		40	1 000	0.9	20
<sup>136</sup> Cs		0.5	10	0.5	10
<sup>137</sup> Cs <sup>2/</sup>		2	50	0.5	10
<sup>64</sup> Cu	Χαλκός (29)	5	100	0.9	20
<sup>67</sup> Cu		9	200	0.9	20
<sup>159</sup> Dy	Δυσπρόσιο (66)	20	500	20	500
<sup>165</sup> Dy		0.6	10	0.5	10
<sup>166</sup> Dy <sup>2/</sup>		0.3	8	0.3	8
<sup>169</sup> Er	Έρβιο (68)	40	1 000	0.9	20
<sup>171</sup> Er		0.6	10	0.5	10
<sup>147</sup> Eu	Ευρώπιο (63)	2	50	2	50
<sup>148</sup> Eu		0.5	10	0.5	10
<sup>149</sup> Eu		20	500	20	500
<sup>150</sup> Eu		0.7	10	0.7	10
<sup>152</sup> Eu <sup>m</sup>		0.6	10	0.5	10
<sup>152</sup> Eu		0.9	20	0.9	20
<sup>154</sup> Eu		0.8	20	0.5	10
<sup>155</sup> Eu		20	500	2	50
<sup>156</sup> Eu		0.6	10	0.5	10

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή ΤΒq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η οπουδαιότητα των Α<sub>1</sub> ή Α<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε ΤΒq.

<sup>2/</sup> Η τιμή Α<sub>1</sub> και η Α<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

37  
Πίνακας Ι  
(συνεχ.)

Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	A <sub>1</sub>		A <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>18</sup> F	Φθόριο (9)	1	20	0.5	10
<sup>52</sup> Fe <sup>2/</sup>	Σίδηρος (26)	0.2	5	0.2	5
<sup>55</sup> Fe		40	1 000	40	1 000
<sup>59</sup> Fe		0.8	20	0.8	20
<sup>60</sup> Fe		40	1 000	0.2	5
<sup>67</sup> Ga	Γάλλιο (31)	6	100	6	100
<sup>68</sup> Ga		0.3	8	0.3	8
<sup>72</sup> Ga		0.4	10	0.4	10
<sup>146</sup> Gd <sup>2/</sup>	Γαδολίνιο (64)	0.4	10	0.4	10
<sup>148</sup> Gd		3	80	3 x 10 <sup>-4</sup>	8 x 10 <sup>-3</sup>
<sup>153</sup> Gd		10	200	5	100
<sup>159</sup> Gd		4	100	0.5	10
<sup>68</sup> Ge <sup>2/</sup>	Γερμάνιο (32)	0.3	8	0.3	8
<sup>71</sup> Ge		40	1 000	40	1 000
<sup>77</sup> Ge		0.3	8	0.3	8
<sup>172</sup> Hf <sup>2/</sup>	Άφνιο (72)	0.5	10	0.3	8
<sup>175</sup> Hf		3	80	3	80
<sup>181</sup> Hf		2	50	0.9	20
<sup>182</sup> Hf		4	100	3 x 10 <sup>-2</sup>	8 x 10 <sup>-1</sup>
<sup>194</sup> Hg <sup>2/</sup>	Υδράργυρος (80)	1	20	1	20
<sup>195</sup> Hg <sup>m</sup>		5	100	5	100
<sup>197</sup> Hg <sup>m</sup>		10	200	0.9	20
<sup>197</sup> Hg		10	200	10	200
<sup>203</sup> Hg		4	100	0.9	20
<sup>163</sup> Ho	Όλμιο (67)	40	1 000	40	1 000
<sup>166</sup> Ho <sup>m</sup>		0.6	10	0.3	8
<sup>166</sup> Ho		0.3	8	0.3	8
<sup>123</sup> I	Ιώδιο (53)	6	100	6	100

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των A<sub>1</sub> ή A<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή A<sub>1</sub> και/ή A<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

## Προσθήκη Α.7

37ο  
Πίνακας Ι  
(συνεχ.)

Σύμβολο ραδιοου- κλειδίου	Στοιχείο και ατομικός αριθμός	Α <sub>1</sub>		Α <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>124</sup> I		0.9	20	0.9	20
<sup>125</sup> I		20	500	2	50
<sup>126</sup> I		2	50	0.9	20
<sup>129</sup> I		Χωρίς όριο		Χωρίς όριο	
<sup>131</sup> I		3	80	0.5	10
<sup>132</sup> I		0.4	10	0.4	10
<sup>133</sup> I		0.6	10	0.5	10
<sup>134</sup> I		0.3	8	0.3	8
<sup>135</sup> I		0.6	10	0.5	10
<sup>111</sup> In	Ινδίο (49)	2	50	2	50
<sup>113</sup> In <sup>m</sup>		4	100	4	100
<sup>114</sup> In <sup>m 2/</sup>		0.3	8	0.3	8
<sup>115</sup> In <sup>m</sup>		6	100	0.9	20
<sup>189</sup> Ir	Ιρίδιο (77)	10	200	10	200
<sup>190</sup> Ir		0.7	10	0.7	10
<sup>192</sup> Ir		1	20	0.5	10
<sup>193</sup> Ir <sup>m</sup>		10	200	10	200
<sup>194</sup> Ir		0.2	5	0.2	5
<sup>40</sup> K	Κάλιο (19)	0.6	10	0.6	10
<sup>42</sup> K		0.2	5	0.2	5
<sup>43</sup> K		1	20	0.5	10
<sup>81</sup> Kr	Κρυπτό (36)	40	1 000	40	1 000
<sup>83</sup> Kr <sup>m</sup>		6	100	6	100
<sup>85</sup> Kr		20	500	10	200
<sup>87</sup> Kr		0.2	5	0.2	5
<sup>137</sup> La	Λανθάνιο (57)	40	1 000	2	50
<sup>140</sup> La		0.4	10	0.4	10
LSA	Υλικά χαμηλής ειδικής δραστηριότητας [βλέπε περιθωριακό 2700 (2)]				

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η όπουδαιότητα των Α<sub>1</sub> ή Α<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή Α<sub>1</sub> και/ή Α<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

## Προσθήκη Α.7

37.10  
Πίνακας Ι  
(συνεχ.)

Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	A <sub>1</sub>		A <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>172</sup> Lu	Λουτήσιο (7)	0.5	10	0.5	10
<sup>173</sup> Lu		8	200	8	200
<sup>174</sup> Lu		20	500	8	200
<sup>174</sup> Lu		8	200	4	100
<sup>177</sup> Lu		30	800	0.9	20
MFP	Για προϊόντα μικτής σχέσης, χρησιμοποιήστε τον τύπο για μείγματα ή τον πίνακα II (περιθωριακό 3701)				
<sup>28</sup> Mg <sup>2/</sup>	Μαγνήσιο (12)	0.2	5	0.2	5
<sup>52</sup> Mn	Μαγγάνιο (25)	0.3	8	0.3	8
<sup>53</sup> Mn		Χωρίς όριο		Χωρίς όριο	
<sup>54</sup> Mn		1	20	1	20
<sup>56</sup> Mn		0.2	5	0.2	5
<sup>93</sup> Mo	Μολυβδένιο (42)	40	1 000	7	100
<sup>99</sup> Mo		0.6	10	0.5	10
<sup>13</sup> N	Άζωτο (7)	0.6	10	0.5	10
<sup>23</sup> Na	Νάτριο (11)	0.5	10	0.5	10
<sup>24</sup> Na		0.2	5	0.2	5
<sup>92</sup> Nb <sup>m</sup>	Νιόβιο (41)	0.7	10	0.7	10
<sup>93</sup> Nb <sup>m</sup>		40	1 000	6	100
<sup>94</sup> Nb		0.6	10	0.6	10
<sup>95</sup> Nb		1	20	1	20
<sup>97</sup> Nb		0.6	10	0.5	10
<sup>147</sup> Nd	Νεοδύμιο (60)	4	100	0.5	10
<sup>149</sup> Nd		0.6	10	0.5	10
<sup>59</sup> Ni	Νικέλιο (28)	40	1 000	40	1 000
<sup>63</sup> Ni		40	1 000	30	800
<sup>65</sup> Ni		0.3	8	0.3	8
<sup>235</sup> Np	Ποσειδώνιο (93)	40	1 000	40	1 000
<sup>236</sup> Np		7	100	1 x 10 <sup>-3</sup>	2 x 10 <sup>-2</sup>

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των A<sub>1</sub> ή A<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή A<sub>1</sub> και/ή A<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

## Προσθήκη Α.7

37b J  
Πίνακας Ι  
(συνεχ.)

Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	A <sub>1</sub>		A <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>237</sup> Np		2	50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>239</sup> Np		6	100	0.5	10
<sup>185</sup> Os	Όσμιο (76)	1	20	1	20
<sup>191</sup> Os <sup>m</sup>		40	1 000	40	1 000
<sup>191</sup> Os		10	200	0.9	20
<sup>193</sup> Os		0.6	10	0.5	10
<sup>194</sup> Os <sup>2/</sup>		0.2	5	0.2	5
<sup>32</sup> P	Φωσφόρος (15)	0.3	8	0.3	8
<sup>33</sup> P		40	1 000	0.9	20
<sup>230</sup> Pa	Πρωτακτίσιο (91)	2	50	0.1	2
<sup>231</sup> Pa		0.6	10	6 x 10 <sup>-5</sup>	1 x 10 <sup>-3</sup>
<sup>233</sup> Pa		5	100	0.9	20
<sup>201</sup> Pb	Μόλυβδος (82)	1	20	1	20
<sup>202</sup> Pb		40	1 000	2	50
<sup>203</sup> Pb		3	80	3	80
<sup>205</sup> Pb		Χωρίς όριο		Χωρίς όριο	
<sup>210</sup> Pb <sup>2/</sup>		0.6	10	9 x 10 <sup>-3</sup>	2 x 10 <sup>-1</sup>
<sup>212</sup> Pb <sup>2/</sup>		0.3	8	0.3	8
<sup>103</sup> Pd	Παλλάδιο (46)	40	1 000	40	1 000
<sup>107</sup> Pd		Χωρίς όριο		Χωρίς όριο	
<sup>109</sup> Pd		0.6	10	0.5	10
<sup>143</sup> Pm	Προμήθειο (61)	3	80	3	80
<sup>144</sup> Pm		0.6	10	0.6	10
<sup>145</sup> Pm		30	800	7	100
<sup>147</sup> Pm		40	1 000	0.9	20
<sup>148</sup> Pm <sup>m</sup>		0.5	10	0.5	10
<sup>149</sup> Pm		0.6	10	0.5	10
<sup>151</sup> Pm		3	80	0.5	10

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των A<sub>1</sub> ή A<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή A<sub>1</sub> και η A<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

## Προσθήκη Α.7

3140  
Πίνακας Ι  
(συνεχ.)

Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	A <sub>1</sub>		A <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>208</sup> Po	Πολώνιο (84)	40	1 000	2 x 10 <sup>-2</sup>	5 x 10 <sup>-1</sup>
<sup>209</sup> Po		40	1 000	2 x 10 <sup>-2</sup>	5 x 10 <sup>-1</sup>
<sup>210</sup> Po		40	1 000	2 x 10 <sup>-2</sup>	5 x 10 <sup>-1</sup>
<sup>142</sup> Pr	Πρασεοδύμιο (59)	0.2	5	0.2	5
<sup>143</sup> Pr		4	100	0.5	10
<sup>188</sup> Pt <sup>2/</sup>	Λευκόχρυσος (78)	0.6	10	0.6	10
<sup>191</sup> Pt		3	80	3	80
<sup>193</sup> Pt <sup>m</sup>		40	1 000	9	200
<sup>193</sup> Pt		40	1 000	40	1 000
<sup>195</sup> Pt <sup>m</sup>		10	200	2	50
<sup>197</sup> Pt <sup>m</sup>		10	200	0.9	20
<sup>197</sup> Pt		20	500	0.5	10
<sup>236</sup> Pu	Πλουτόνιο (94) <sup>ε</sup>	7	100	7 x 10 <sup>-4</sup>	1 x 10 <sup>-2</sup>
<sup>237</sup> Pu		20	500	20	500
<sup>238</sup> Pu		2	50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>239</sup> Pu		2	50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>240</sup> Pu		2	50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>241</sup> Pu		40	1 000	1 x 10 <sup>-2</sup>	2 x 10 <sup>-1</sup>
<sup>242</sup> Pu		2	50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>244</sup> Pu <sup>2/</sup>		0.3	8	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>
<sup>223</sup> Ra <sup>2/</sup>	Ράδιο (88)	0.6	10	3 x 10 <sup>-2</sup>	8 x 10 <sup>-1</sup>
<sup>224</sup> Ra <sup>2/</sup>		0.3	8	6 x 10 <sup>-2</sup>	1
<sup>225</sup> Ra <sup>2/</sup>		0.6	10	2 x 10 <sup>-2</sup>	5 x 10 <sup>-1</sup>
<sup>226</sup> Ra <sup>2/</sup>		0.3	8	2 x 10 <sup>-2</sup>	5 x 10 <sup>-1</sup>
<sup>228</sup> Ra <sup>2/</sup>		0.6	10	4 x 10 <sup>-2</sup>	1
<sup>81</sup> Rb	Ρουβίδιο (37)	2	50	0.9	20
<sup>83</sup> Rb		2	50	0.9	20
<sup>83</sup> Rb		2	50	2	50
<sup>84</sup> Rb		1	20	0.9	20

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των A<sub>1</sub> ή A<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή A<sub>1</sub> και η A<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

## Προσθήκη Α.7

374 θ  
Πίνακας Ι  
(συνεχ.)

Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	Α <sub>1</sub>		Α <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>86</sup> Rb		0.3	8	0.3	8
<sup>87</sup> Rb		Χωρίς όριο		Χωρίς όριο	
Rb (φυσικό)		Χωρίς όριο		Χωρίς όριο	
<sup>183</sup> Re	Ρήνιο (75)	5	100	5	100
<sup>184</sup> Re <sup>m</sup>		3	80	3	80
<sup>184</sup> Re		1	20	1	20
<sup>186</sup> Re		4	100	0.5	10
<sup>187</sup> Re		Χωρίς όριο		Χωρίς όριο	
<sup>188</sup> Re		0.2	5	0.2	5
<sup>189</sup> Re		4	100	0.5	10
Re (natural)		Χωρίς όριο		Χωρίς όριο	
<sup>99</sup> Rh	Ρόδιο (45)	2	50	2	50
<sup>101</sup> Rh		4	100	4	100
<sup>102</sup> Rh <sup>m</sup>		2	50	0.9	20
<sup>102</sup> Rh		0.5	10	0.5	10
<sup>103</sup> Rh <sup>m</sup>		40	1 000	40	1 000
<sup>105</sup> Rh		10	200	0.9	20
<sup>222</sup> Rn <sup>2/</sup>	Ραδόνιο (86)	0.2	5	4 x 10 <sup>-3</sup>	1 x 10 <sup>-1</sup>
<sup>97</sup> Ru	Ρουθίνιο (44)	4	100	4	100
<sup>103</sup> Ru		2	50	0.9	20
<sup>105</sup> Ru		0.6	10	0.5	10
<sup>106</sup> Ru <sup>2/</sup>		0.2	5	0.2	5
<sup>35</sup> S	Θείο (16)	40	1 000	2	50
<sup>122</sup> Sb	Αντιμόνιο (51)	0.3	8	0.3	8
<sup>124</sup> Sb		0.6	10	0.5	10
<sup>125</sup> Sb		2	50	0.9	20
<sup>126</sup> Sb		0.4	10	0.4	10
<sup>44</sup> Sc	Σκάνδιο (2)	0.5	10	0.5	10

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των Α<sub>1</sub> ή Α<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή Α<sub>1</sub> και/ή Α<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

## Προσθήκη Α.7

378 J  
Πίνακας I  
(συνεχ.)

Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	A <sub>1</sub>		A <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>46</sup> Sc		0.5	10	0.5	10
<sup>47</sup> Sc		9	200	0.9	20
<sup>48</sup> Sc		0.3	8	0.3	8
SCO	Επιφανειακά μολυσμένα αντικείμενα [βλέπε περιθωριακό 2700 (2)]				
<sup>75</sup> Se	Σελήνιο (34)	3	80	3	80
<sup>79</sup> Se		40	1 000	2	50
<sup>31</sup> Si	Πυρίτιο (14)	0.6	10	0.5	10
<sup>32</sup> Si		40	1 000	0.2	5
<sup>145</sup> Sm	Σαμάριο (62)	20	500	20	500
<sup>147</sup> Sm		Χωρίς όριο		Χωρίς όριο	
<sup>151</sup> Sm		40	1 000	4	100
<sup>153</sup> Sm		4	100	0.5	10
<sup>113</sup> Sn <sup>2/</sup>	Κασσίτερος (50)	4	100	4	100
<sup>117</sup> Sn <sup>m</sup>		6	100	2	50
<sup>119</sup> Sn <sup>m</sup>		40	1 000	40	1 000
<sup>121</sup> Sn <sup>m</sup>		40	1 000	0.9	20
<sup>123</sup> Sn		0.6	10	0.5	10
<sup>125</sup> Sn		0.2	5	0.2	5
<sup>126</sup> Sn <sup>2/</sup>		0.3	8	0.3	8
<sup>82</sup> Sr <sup>2/</sup>	Στρόντιο (38)	0.2	5	0.2	5
<sup>85</sup> Sr <sup>m</sup>		5	100	5	100
<sup>85</sup> Sr		2	50	2	50
<sup>87</sup> Sr <sup>m</sup>		3	80	3	80
<sup>89</sup> Sr		0.6	10	0.5	10
<sup>90</sup> Sr <sup>2/</sup>		0.2	5	0.1	2
<sup>91</sup> Sr		0.3	8	0.3	8
<sup>92</sup> Sr <sup>2/</sup>		0.2	5	0.2	5
T (όλες οι μορφές)	Τρίτιο (1)	40	1 000	40	1 000

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των A<sub>1</sub> ή A<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή A<sub>1</sub> και η A<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.



Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	A <sub>1</sub>		A <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>178</sup> Ta	Ταντάλιο (73)	1	20	1	20
<sup>179</sup> Ta		30	800	30	800
<sup>182</sup> Ta		0.8	20	0.5	10
<sup>157</sup> Tb	Τέρβιο (65)	40	1 000	10	200
<sup>158</sup> Tb		1	20	0.7	10
<sup>160</sup> Tb		0.9	20	0.5	10
<sup>95</sup> Tc <sup>m</sup>	Τεχνήτιο (43)	2	50	2	50
<sup>96</sup> Tc <sup>m 2/</sup>		0.4	10	0.4	10
<sup>96</sup> Tc		0.4	10	0.4	10
<sup>97</sup> Tc <sup>m</sup>		40	1 000	40	1 000
<sup>97</sup> Tc		Χωρίς όριο		Χωρίς όριο	
<sup>98</sup> Tc		0.7	10	0.7	10
<sup>99</sup> Tc <sup>m</sup>		8	200	8	200
<sup>99</sup> Tc		40	1 000	0.9	20
<sup>118</sup> Te <sup>2/</sup>	Τελλούριο (52)	0.2	5	0.2	5
<sup>121</sup> Te <sup>m</sup>		5	100	5	100
<sup>121</sup> Te		2	50	2	50
<sup>123</sup> Te <sup>m</sup>		7	100	7	100
<sup>125</sup> Te <sup>m</sup>		30	800	9	200
<sup>127</sup> Te <sup>m 2/</sup>		20	500	0.5	10
<sup>127</sup> Te		20	500	0.5	10
<sup>129</sup> Te <sup>m 2/</sup>		0.6	10	0.5	10
<sup>129</sup> Te		0.6	10	0.5	10
<sup>131</sup> Te <sup>m</sup>		0.7	10	0.5	10
<sup>132</sup> Te <sup>2/</sup>		0.4	10	0.4	10
<sup>227</sup> Th		Θόριο (90)	9	200	1 x 10 <sup>-2</sup>
<sup>228</sup> Th <sup>2/</sup>	0.3		8	4 x 10 <sup>-4</sup>	1 x 10 <sup>-2</sup>
<sup>229</sup> Th	0.3		8	3 x 10 <sup>-5</sup>	8 x 10 <sup>-4</sup>
<sup>230</sup> Th	2		50	2 x 10 <sup>-4</sup>	5 x 10 <sup>-3</sup>

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των A<sub>1</sub> ή A<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή A<sub>1</sub> και η A<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

37.0  
Πίνακας Ι  
(συνεχ.)

Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	A <sub>1</sub>		A <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>231</sup> Th		40	1 000	0.9	20
<sup>232</sup> Th		Χωρίς όριο		Χωρίς όριο	
<sup>234</sup> Th <sup>2/</sup>		0.2	5	0.2	5
Th (φυσικό)		Χωρίς όριο		Χωρίς όριο	
<sup>44</sup> Ti <sup>2/</sup>	Τιτάνιο (22)	0.5	10	0.2	5
<sup>200</sup> Tl	Θάλλιο (81)	0.8	20	0.8	20
<sup>201</sup> Tl		10	200	10	200

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των A<sub>1</sub> ή A<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή A<sub>1</sub> και/ή A<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	A <sub>1</sub>		A <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>202</sup> Tl		2	50	2	50
<sup>204</sup> Tl		4	100	0.5	10
<sup>167</sup> Tm	Θούλιο (69)	7	100	7	100
<sup>168</sup> Tm		0.8	20	0.8	20
<sup>170</sup> Tm		4	100	0.5	10
<sup>171</sup> Tm		40	1 000	10	200
<sup>230</sup> U	Ουράνιο (92)	40	1 000	1 x 10 <sup>-2</sup>	2 x 10 <sup>-1</sup>
<sup>232</sup> U		3	80	3 x 10 <sup>-4</sup>	8 x 10 <sup>-3</sup>
<sup>233</sup> U		10	200	1 x 10 <sup>-3</sup>	2 x 10 <sup>-2</sup>
<sup>234</sup> U		10	200	1 x 10 <sup>-3</sup>	2 x 10 <sup>-2</sup>
<sup>235</sup> U		Χωρίς όριο <sup>3/</sup>		Χωρίς όριο <sup>3/</sup>	
<sup>236</sup> U		10	200	1 x 10 <sup>-3</sup>	2 x 10 <sup>-2</sup>
<sup>238</sup> U		Χωρίς όριο		Χωρίς όριο	
U (φυσικό)		Χωρίς όριο		Χωρίς όριο <sup>4/</sup>	
U (εμπλουτι- σμένο 5% ή λιγότερο)		Χωρίς όριο <sup>3/</sup>		Χωρίς όριο <sup>3/4/</sup>	
U (εμπλουτι- σμένο περισσότερο από 5%)		10	200	1 x 10 <sup>-3 4/</sup>	2 x 10 <sup>-2</sup>
U (εξαντλημέ- νο)		Χωρίς όριο		Χωρίς όριο <sup>3/4/</sup>	
<sup>48</sup> V	Βανάδιο (23)	0.3	8	0.3	8

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των A<sub>1</sub> ή A<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή A<sub>1</sub> και/ή A<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

<sup>3/</sup> Τα A<sub>1</sub> και/ή A<sub>2</sub> δεν περιορίζονται μόνο για λόγους ελέγχου ακτινοβολίας. Για ασφάλεια πυρηνικής κρισιμότητας, το υλικό αυτό υπόκειται στον έλεγχο που εφαρμόζεται σε σχάσμα υλικά.

<sup>4/</sup> Αυτές οι τιμές δεν εφαρμόζονται σε επανεπεξεργασμένο ουράνιο.

## Προσθήκη Α.7

Σύμβολο ραδιονου- κλειδίου	Στοιχείο και ατομικός αριθμός	Α <sub>1</sub>		Α <sub>2</sub>	
		TBq	(Ci) (περίπου <sup>1/</sup> )	TBq	(Ci) (περίπου <sup>1/</sup> )
<sup>49</sup> V		40	1 000	40	1 000
<sup>178</sup> W <sup>2/</sup>	Βολφράμιο (74)	1	20	1	20
<sup>181</sup> W		30	800	30	800
<sup>185</sup> W		40	1 000	0.9	20
<sup>187</sup> W		2	50	0.5	10
<sup>188</sup> W <sup>2/</sup>		0.2	5	0.2	5
<sup>122</sup> Xe <sup>2/</sup>	Ξένο (54)	0.2	5	0.2	5
<sup>123</sup> Xe		0.2	5	0.2	5
<sup>127</sup> Xe <sup>2/</sup>		4	100	4	100
<sup>131</sup> Xe <sup>m</sup>		40	1 000	40	1 000
<sup>133</sup> Xe		20	500	20	500
<sup>135</sup> Xe		4	100	4	100
<sup>87</sup> Y	Υττριο (39)	2	50	2	50
<sup>88</sup> Y		0.4	10	0.4	10
<sup>90</sup> Y		0.2	5	0.2	5
<sup>91</sup> Y <sup>m</sup>		2	50	2	50
<sup>91</sup> Y		0.3	8	0.3	8
<sup>92</sup> Y		0.2	5	0.2	5
<sup>93</sup> Y		0.2	5	0.2	5
<sup>169</sup> Yb	Υττέrbιο (70)	3	80	3	80
<sup>175</sup> Yb		30	800	0.9	20
<sup>65</sup> Zn	Ψευδάργυρος (30)	2	50	2	50
<sup>69</sup> Zn <sup>m 2/</sup>		2	50	0.5	10
<sup>69</sup> Zn		4	100	0.5	10
<sup>88</sup> Zr	Ζιρκόνιο (40)	3	80	3	80
<sup>93</sup> Zr		40	1 000	0.2	5
<sup>95</sup> Zr		1	20	0.9	20
<sup>97</sup> Zr		0.3	8	0.3	8

<sup>1/</sup> Οι τιμές Ci που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci. Αυτό διασφαλίζει ότι η σπουδαιότητα των Α<sub>1</sub> ή Α<sub>2</sub> σε Ci είναι πάντα μικρότερη από εκείνη σε TBq.

<sup>2/</sup> Η τιμή Α<sub>1</sub> και/ή Α<sub>2</sub> περιορίζεται από την αλυσίδα διάσπασης των θυγατρικών προϊόντων.

## Προσθήκη Α.7

Προσδιορισμός των  $A_1$  και  $A_2$ 

- 3701 (1) Για μεμονωμένα ραδιονουκλεΐδια των οποίων οι ταυτότητες είναι γνωστές, αλλά που δεν αναφέρονται στον Πίνακα I, ο προσδιορισμός των τιμών των  $A_1$  και  $A_2$  θα πρέπει να απαιτεί πολυμερή έγκριση. Εναλλακτικά, οι τιμές των  $A_1$  και  $A_2$  στον Πίνακα II μπορούν να χρησιμοποιούνται χωρίς τη λήψη έγκρισης της αρμόδιας αρχής.

Πίνακας II: Γενικές τιμές για  $A_1$  και  $A_2$ 

Περιεχόμενο	A1		A2	
	TBq	(Ci) <sup>5/</sup>	TBq	(Ci) <sup>5/</sup>
Μόνον βήτα ή γάμα εκπέμποντα νουκλεΐδια είναι γνωστό ότι είναι παρόντα.	0.2	5	0.02	0.5
Άλφα εκπέμποντα νουκλεΐδια είναι γνωστό ότι είναι παρόντα ή δεν υπάρχουν σχετικά δεδομένα διαθέσιμα	0.1	2	$2 \times 10^{-5}$	$5 \times 10^{-4}$

- (2) Στους υπολογισμούς των  $A_1$  και  $A_2$  για ένα ραδιονουκλεΐδιο που δεν είναι στον Πίνακα I, μία μόνη ραδιενεργή αλυσίδα διάσπασης στην οποία τα ραδιονουκλεΐδια είναι παρόντα στις φυσικά απαντώμενες αναλογίες και στην οποία κανένα θυγατρικό νουκλεΐδιο δεν έχει χρόνο ημιζωής είτε μεγαλύτερο από 10 ημέρες είτε μεγαλύτερο από εκείνον του μητρικού νουκλεΐδιου θα πρέπει να θεωρείται ως ένα μόνο ραδιονουκλεΐδιο και η δραστηκότητα που θα λαμβάνεται υπόψη και οι τιμές  $A_1$  ή  $A_2$  που θα ισχύουν θα πρέπει να είναι εκείνες που αντιστοιχούν στο μητρικό νουκλεΐδιο εκείνης της αλυσίδας. Στην περίπτωση ραδιενεργών αλυσίδων διάσπασης στις οποίες οποιοδήποτε θυγατρικό νουκλεΐδιο έχει χρόνο ημιζωής είτε μεγαλύτερο από 10 ημέρες είτε μεγαλύτερο από εκείνον του μητρικού νουκλεΐδιου, τα μητρικά και τέτοια θυγατρικά νουκλεΐδια θα πρέπει να θεωρούνται ως μείγματα διαφορετικών νουκλεϊδίων.

- (3) Για μείγματα ραδιονουκλεϊδίων των οποίων οι ταυτότητες και οι αντίστοιχες δραστηκότητες είναι γνωστές, οι παρακάτω όροι θα πρέπει να ισχύουν:

- (a) Για ειδικής μορφής ραδιενεργό υλικό:

$$\sum_i \frac{B(i)}{A_1(i)} \leq 1$$

- (b) Για άλλες μορφές ραδιενεργού υλικού:

$$\sum_i \frac{B(i)}{A_2(i)} \leq 1$$

όπου  $B(i)$  είναι η δραστηκότητα του ραδιονουκλεΐδιου  $i$  και  $A_1(i)$  και  $A_2(i)$  είναι οι τιμές  $A_1$  και  $A_2$  για το ραδιονουκλεΐδιο  $i$ , αντίστοιχα.

Εναλλακτικά, μία τιμή  $A_2$  για μείγματα μπορεί να προσδιορίζεται ως ακολούθως:

$$\text{Για ένα μείγμα, } A_2 = \frac{1}{\sum_i \frac{f(i)}{A_2(i)}}$$

<sup>5/</sup> Οι τιμές curie που παρατίθενται λαμβάνονται με στρογγυλοποίηση προς τα κάτω, από την τιμή TBq μετά από μετατροπή σε Ci.

## Προσθήκη Α.7

**3701** όπου  $f(i)$  είναι το τμήμα της δραστηριότητας του νουκλειδίου  $i$  στο μείγμα και  $A_2(i)$  είναι η (συνεχ.) κατάλληλη τιμή  $A_2$  για το νουκλείδιο  $i$ .

(4) Όταν η ταυτότητα κάθε ραδιονουκλειδίου είναι γνωστή αλλά οι μεμονωμένες δραστηριότητες μερικών από τα ραδιονουκλείδια δεν είναι γνωστές, τα ραδιονουκλείδια μπορούν να ομαδοποιούνται και η χαμηλότερη τιμή  $A_1$  ή  $A_2$ , ως κατάλληλη, για τα ραδιονουκλείδια σε κάθε ομάδα μπορεί να χρησιμοποιείται στην εφαρμογή των τύπων στην παράγραφο (3) παραπάνω. Οι ομάδες μπορούν να βασίζονται πάνω στη συνολική άλφα δραστηριότητα και τη συνολική βήτα/γάμμα δραστηριότητα όταν αυτές είναι γνωστές, με τη χρήση της χαμηλότερης τιμής  $A_1$  ή  $A_2$  για τους άλφα εκπομπούς ή βήτα/γάμμα εκπομπούς, αντίστοιχα.

(5) Για μεμονωμένα ραδιονουκλείδια ή για μείγματα ραδιονουκλειδίων για τα οποία επαρκή δεδομένα δεν είναι διαθέσιμα, οι τιμές που εμφανίζονται στον Πίνακα II θα πρέπει να χρησιμοποιούνται.

**Όρια περιεχομένου για κόλα**

**3702** Η ποσότητα ραδιενεργού υλικού σε ένα κόλο δεν θα πρέπει να υπερβαίνει τα σχετικά όρια που προκαθορίζονται σε αυτό το περιθωριακό.

**(1) Εξαιρούμενα κόλα**

(a) Για ραδιενεργό υλικό πέραν από είδη κατασκευασμένα από φυσικό ουράνιο, εξατλημένο ουράνιο ή φυσικό θόριο, ένα εξαιρούμενο κόλο δεν θα πρέπει να περιέχει δραστηριότητες μεγαλύτερες από τις παρακάτω:

(i) Όπου το ραδιενεργό υλικό περικλείεται σε ή αποτελεί ένα συστατικό μέρος ενός οργάνου ή άλλου κατασκευασμένου είδους, τέτοιου όπως ένα ρολόι ή μία ηλεκτρονική συσκευή, τα όρια που προκαθορίζονται στο περιθωριακό 3713 (4) για κάθε μεμονωμένο είδος και κάθε κόλο, αντίστοιχα, και

(ii) Όπου το ραδιενεργό υλικό δεν είναι έτσι εγκλεισμένο ή κατασκευασμένο, τα όρια που προκαθορίζονται στο περιθωριακό 3713 (5).

(b) Για είδη κατασκευασμένα από φυσικό ουράνιο, εξατλημένο ουράνιο ή φυσικό θόριο, ένα εξαιρούμενο κόλο μπορεί να περιέχει οποιαδήποτε ποσότητα τέτοιου υλικού υπό την προϋπόθεση ότι η εξωτερική επιφάνεια του ουρανίου ή θορίου περικλείονται σε ένα ανενεργό περίβλημα κατασκευασμένο από μέταλλο ή κάποιο άλλο στέρεο υλικό.

**(2) Βιομηχανικά κόλα**

Η συνολική δραστηριότητα σε ένα μόνο κόλο LSA υλικού ή σε ένα μόνο κόλο SCO θα πρέπει να είναι έτσι περιορισμένη ώστε το επίπεδο ακτινοβολίας που προκαθορίζεται στο περιθωριακό 3714 (1) να μην υπερβαίνεται και η δραστηριότητα σε ένα μόνο κόλο θα πρέπει επίσης να είναι έτσι περιορισμένη ώστε τα όρια δραστηριότητας για ένα όχημα που προκαθορίζονται στο περιθωριακό 3714 (6) να μην υπερβαίνονται.

**(3) Κόλα τύπου Α**

Τα κόλα τύπου Α δεν θα πρέπει να περιέχουν δραστηριότητες μεγαλύτερες από τις παρακάτω:

(a) Για ειδικής μορφής ραδιενεργό υλικό -  $A_1$ , ή

(b) Για όλα τα άλλα ραδιενεργά υλικά -  $A_2$ .

## Προσθήκη Α.7

**3702** Οι τιμές για τα Α<sub>1</sub> και Α<sub>2</sub> αναφέρονται στους Πίνακες Ι και ΙΙ των περιθωριακών 3700 και 3701 (συνεχ.) αντίστοιχα.

(4) *Κόλα τύπου Β*

Τα κόλα τύπου Β δεν θα πρέπει να περιέχουν:

- (a) δραστικότητες μεγαλύτερες από εκείνες που επιτρέπονται για τον σχεδιασμό του κόλου,
- (b) ραδιονουκλεΐδια διαφορετικά από εκείνα που επιτρέπονται για τον σχεδιασμό του κόλου, ή
- (c) περιεχόμενο σε μορφή, ή φυσική ή χημική κατάσταση διαφορετική από εκείνες που επιτρέπονται για τον σχεδιασμό κόλου, όπως προκαθορίζονται στα πιστοποιητικά έγκρισής τους.

(5) *Συσκευασίες που περιέχουν σχάσιμο υλικό*

Όλες οι συσκευασίες που περιέχουν σχάσιμο υλικό θα πρέπει να συμμορφώνονται με τα ισχύοντα όρια δραστικότητας για τα κόλα που προκαθορίζονται στις παραγράφους (1) έως (4) παραπάνω.

Συσκευασίες που περιέχουν σχάσιμο υλικό, πέραν από εκείνες που περιέχουν υλικά που συμμορφώνονται με τις διατάξεις του περιθωριακού 3703 δεν θα πρέπει να περιέχουν:

- (a) βάρος σχάσιμου υλικού μεγαλύτερο από εκείνο που επιτρέπεται για τον σχεδιασμό του κόλου,
- (b) οποιοδήποτε ραδιονουκλεΐδιο ή σχάσιμο υλικό διαφορετικό από εκείνο που επιτρέπεται για τον σχεδιασμό του κόλου, ή
- (c) περιεχόμενο σε μορφή ή φυσική ή χημική κατάσταση, ή σε χωρική τακτοποίηση, διαφορετική από εκείνες που επιτρέπονται για τον σχεδιασμό του κόλου, όπως προκαθορίζονται στα πιστοποιητικά έγκρισής τους.

**3703** Κόλα που ικανοποιούν έναν από τους όρους αυτού του περιθωριακού θα πρέπει να εξαιρούνται από τις διατάξεις που προκαθορίζονται στο περιθωριακό 3741 και από τις άλλες διατάξεις αυτής της Προσθήκης που ισχύουν ειδικά για το σχάσιμο υλικό. Τέτοια κόλα, πάντως, θα πρέπει να ρυθμίζονται ως κόλα μη-σχάσιμου ραδιενεργού υλικού, όπως ισχύουν και θα πρέπει ακόμα να υπόκεινται σ' εκείνες τις διατάξεις αυτής της Προσθήκης που αφορούν στη ραδιενεργή φύση και τις ιδιότητες τους:

- (a) Κόλα που περιέχουν μεμονωμένα όχι περισσότερο από 15 g σχάσιμου υλικού, υπό την προϋπόθεση ότι η μικρότερη εξωτερική διάσταση κάθε κόλου δεν είναι μικρότερη από 10 cm. Για μη-συσκευασμένο υλικό, ο περιορισμός της ποσότητας θα πρέπει να ισχύει για το φορτίο που μεταφέρεται μέσα ή πάνω στο όχημα.
- (b) Κόλα που περιέχουν ομογενή υδρογονούχα διαλύματα ή μείγματα που ικανοποιούν τους όρους που αναφέρονται στον Πίνακα ΙΙΙ. Για μη-συσκευασμένο υλικό, οι περιορισμοί της ποσότητας στον Πίνακα ΙΙΙ θα πρέπει να ισχύουν για το φορτίο που μεταφέρεται μέσα ή πάνω στο όχημα.

## Προσθήκη Α.7

3703  
(συνεχ.)

- (c) Κόλα που περιέχουν ουράνιο εμπλουτισμένο σε ουράνιο-235 έως ένα μέγιστο 1 % κατά βάρος, και με συνολική περιεκτικότητα σε πλουτώνιο και ουράνιο-233 που δεν υπερβαίνει το 1 % του βάρους του ουρανίου-235, υπό την προϋπόθεση ότι το σχάσιμο υλικό είναι κατανεμημένο βασικά ομογενώς σ' όλο το υλικό. Επιπλέον, εάν ουράνιο-235 είναι παρόν σε μορφές μεταλλικές, οξειδίου, ή καρβιδίου δεν θα πρέπει να σχηματίζει πλέγμα μέσα στο κόλο.
- (d) Κόλα που περιέχουν όχι περισσότερο από 5 g σχάσιμου υλικού σε οποιοδήποτε όγκο 10 λίτρων, υπό την προϋπόθεση ότι το ραδιενεργό υλικό περιέχεται σε κόλα που θα διατηρήσουν τους περιορισμούς στην κατανομή του σχάσιμου υλικού υπό συνθήκες που είναι πιθανόν να συμβούν κατά τη διάρκεια συνήθους μεταφοράς.
- (e) Κόλα που περιέχουν μεμονωμένα όχι περισσότερο από 1 kg συνολικού πλουτωνίου, από το οποίο όχι περισσότερο από 20 % κατά βάρος μπορεί να συνίσταται από πλουτώνιο-239, πλουτώνιο-241, ή οποιοδήποτε συνδυασμό εκείνων των ραδιονουκλειδίων.
- (f) Κόλα που περιέχουν υγρά διαλύματα νιτρικού ουρανωλίου εμπλουτισμένα σε ουράνιο-235 έως ένα μέγιστο 2 % κατά βάρος, με συνολική περιεκτικότητα σε πλουτώνιο και ουράνιο-233 που δεν υπερβαίνει το 0.1 % του βάρους του ουρανίου-235 και με ελάχιστη ατομική αναλογία αζώτου προς ουράνιο (N/U) 2.

## Πίνακας III. Περιορισμοί σε ομογενή υδρογονούχα διαλύματα ή μείγματα σχάσιμου υλικού

Παράμετροι	Ουράνιο-235 μόνον	Οποιοδήποτε άλλο σχάσιμο υλικό (συμπεριλαμβανομένων μειγμάτων)
Ελάχιστο H/X <sup>β'</sup>	5200	5200
Μέγιστη συγκέντρωση σχάσιμου υλικού (g/l)	5	5
Μέγιστο βάρος σχάσιμου υλικού σε ένα κόλο ή όχημα (g)	800 <sup>γ'</sup>	500

3704-  
3709

<sup>β'</sup> Όπου H/X είναι ο λόγος του αριθμού των ατόμων υδρογόνου προς τον αριθμό των ατόμων του σχάσιμου νουκλειδίου.

<sup>γ'</sup> Με συνολική περιεκτικότητα πλουτωνίου και ουρανίου-233 όχι μεγαλύτερη από το 1 % του βάρους του ουρανίου-235.



## Προσθήκη Α.7

## ΜΕΡΟΣ ΙΙ

**ΠΡΟΒΛΕΨΕΙΣ ΓΙΑ ΤΗΝ ΠΡΟΕΤΟΙΜΑΣΙΑ ΚΑΙ ΕΛΕΓΧΟΙ ΓΙΑ ΦΟΡΤΩΣΗ  
ΚΑΙ ΓΙΑ ΑΠΟΘΗΚΕΥΣΗ ΥΠΟ ΜΕΤΑΦΟΡΑ**

**Διατάξεις για την επιθεώρηση του κόλου**

- 3710** (1) Πριν από την πρώτη φόρτωση οποιουδήποτε κόλου, οι παρακάτω διατάξεις θα πρέπει να πληρούνται:
- (a) Εάν η πίεση σχεδιασμού του συστήματος συγκράτησης υπερβαίνει τα 35 kPa (0.35 bar πίεση πιεζομέτρου), θα πρέπει να εξασφαλίζεται ότι το σύστημα συγκράτησης κάθε κόλου συμφωνεί με τις εγκεκριμένες διατάξεις σχεδιασμού που είναι σχετικές με την ικανότητα εκείνου του συστήματος να διατηρεί την ακεραιότητά του υπό πίεση.
  - (b) Για κάθε κόλο Τύπου Β και για κάθε συσκευασία που περιέχει σχάσιμο υλικό, θα πρέπει να εξασφαλίζεται ότι η αποτελεσματικότητα της θωράκισης και συγκράτησής της και, όπου είναι απαραίτητο, τα χαρακτηριστικά μεταφοράς της θερμότητας, είναι μέσα στα όρια που ισχύουν ή προκαθορίζονται για τον εγκεκριμένο σχεδιασμό.
  - (c) Για κάθε συσκευασία που περιέχει σχάσιμο υλικό, όπου, για να συμμορφώνεται με τις διατάξεις του περιθωριακού 3741, δηλητήρια νετρονίων περιλαμβάνονται ειδικά ως συστατικά του κόλου, έλεγχοι θα πρέπει να πραγματοποιούνται ώστε να επιβεβαιώνεται η παρουσία και η κατανομή εκείνων των δηλητηρίων νετρονίων.
- (2) Πριν από κάθε φόρτωση οποιουδήποτε κόλου, οι παρακάτω διατάξεις θα πρέπει να πληρούνται:
- (a) Θα πρέπει να εξασφαλίζεται ότι τα εξαρτήματα ανύψωσης που δεν ικανοποιούν τις διατάξεις του περιθωριακού 3732 έχουν αφαιρεθεί ή αλλιώς καταστεί ανίκανα για χρήση για την ανύψωση του κόλου.
  - (b) Για κάθε κόλο Τύπου Β και για κάθε συσκευασία που περιέχει σχάσιμο υλικό, θα πρέπει να εξασφαλίζεται ότι όλες οι απαιτήσεις που προκαθορίζονται στα πιστοποιητικά έγκρισης και τις σχετικές διατάξεις αυτής της Προσθήκης έχουν ικανοποιηθεί.
  - (c) Κάθε κόλο Τύπου Β θα πρέπει να κρατείται μέχρι την προσέγγιση των συνθηκών ισορροπίας αρκετά κοντά ώστε να εμφανίζει συμφωνία με τις διατάξεις φόρτωσης για θερμοκρασία και πίεση εκτός εάν εξαίρεση από αυτές τις διατάξεις έχει λάβει μονομερή έγκριση.
  - (d) Για κάθε κόλο Τύπου Β, θα πρέπει να εξασφαλίζεται με εξέταση και/ή κατάλληλους ελέγχους ότι όλα τα πάματα, οι βαλβίδες και άλλα ανοίγματα του συστήματος συγκράτησης μέσω των οποίων το ραδιενεργό περιεχόμενο θα μπορούσε να διαφύγει είναι σωστά κλεισμένα και, όπου είναι κατάλληλο, σφραγισμένα με τον τρόπο για τον οποίο οι επιδείξεις συμφωνίας με τις διατάξεις του περιθωριακού 3738 είχαν γίνει.

**Μεταφορά άλλων εμπορευμάτων**

- 3711** (1) Ένα κόλο δεν θα πρέπει να περιέχει οποιαδήποτε άλλα είδη εκτός από τέτοια είδη και έγγραφα που είναι απαραίτητα για τη χρήση του ραδιενεργού υλικού. Αυτή η διάταξη δεν θα πρέπει να αποκλείει τη μεταφορά υλικού χαμηλής ειδικής δραστηριότητας ή επιφανειακά μολυσμένων αντικειμένων με άλλα είδη. Η μεταφορά τέτοιων ειδών και εγγράφων σε ένα κόλο, ή υλικού χαμηλής ειδικής δραστηριότητας ή επιφανειακά μολυσμένων αντικειμένων με άλλα είδη μπορεί να επιτρέπεται υπό την προϋπόθεση ότι δεν υπάρχει αντίδραση μεταξύ αυτών και της συσκευασίας ή του περιεχομένου της που θα μείωνε την ασφάλεια του κόλου.

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3711 (2) Δεξαμενές που χρησιμοποιούνται για τη μεταφορά ραδιενεργού υλικού δεν θα πρέπει να (συνεχ.) χρησιμοποιούνται για την αποθήκευση ή τη μεταφορά άλλων εμπορευμάτων.

(3) Η μεταφορά άλλων εμπορευμάτων με φορτώσεις που μεταφέρονται υπό αποκλειστική χρήση θα πρέπει να επιτρέπεται υπό την προϋπόθεση ότι διευθετήσεις ελέγχονται μόνον από τον αποστολέα και δεν απαγορεύεται από άλλες διατάξεις.

(4) Τα φορτία θα πρέπει να είναι απομονωμένα από άλλα επικίνδυνα εμπορεύματα κατά τη διάρκεια μεταφοράς και αποθήκευσης σε συμφωνία με τις διατάξεις του περιθωριακού 2703 υπό το τμήμα 7. και 71 403.

(5) Το ραδιενεργό υλικό θα πρέπει να είναι επαρκώς απομονωμένο από μη εμφανισμένα φωτογραφικά φιλμ. Η βάση για τον προσδιορισμό των αποστάσεων απομόνωσης για αυτό το σκοπό θα πρέπει να είναι ότι η έκθεση στην ακτινοβολία ενός μη εμφανισμένου φωτογραφικού φιλμ λόγω της μεταφοράς ραδιενεργού υλικού πρέπει να περιορίζεται σε 0.1 mSv (10 mrem) ανά φορτίο τέτοιων φιλμ σε συμφωνία με το περιθωριακό 2711.

## Απαιτήσεις και έλεγχοι για μόλυνση και για κόλα με διαρροή

3712 (1) Η μη-σταθερή μόλυνση πάνω στις εξωτερικές επιφάνειες ενός κόλου θα πρέπει να διατηρείται όσο χαμηλότερη είναι πρακτικά δυνατόν και, υπό συνθήκες που είναι πιθανόν να συμβούν σε συνήθη μεταφορά, δεν θα πρέπει να υπερβαίνει τα επίπεδα που προκαθορίζονται στον Πίνακα IV.

(2) Στην περίπτωση υπερσυσκευασιών και εμπορευματοκιβωτίων, το επίπεδο της μη-σταθερής μόλυνσης πάνω στις εξωτερικές και τις εσωτερικές επιφάνειες δεν θα πρέπει να υπερβαίνει τα όρια που προκαθορίζονται στον Πίνακα IV.

## Πίνακας IV. Όρια της μη-σταθερής μόλυνσης σε επιφάνειες

Τύπος κόλου, υπερσυσκευασίας, εμπορευματοκιβωτίου, δεξαμενής ή οχήματος και εξοπλισμός τους	Μολυντής			
	Όριο <sup>Bq</sup> των βήτα και γάμα εκπομπών και των χαμηλής τοξικότητας άλφα εκπομπών		Όριο <sup>Bq</sup> όλων των άλλων άλφα εκπομπών	
	Bq/cm <sup>2</sup>	(mCi/cm <sup>2</sup> )	Bq/cm <sup>2</sup>	(mCi/cm <sup>2</sup> )
Εξωτερικές επιφάνειες των: εξαιρουμένων κόλων άλλων από εξαιρούμενα κόλα	0.4 4	(10 <sup>-5</sup> ) (10 <sup>-4</sup> )	0.04 0.4	(10 <sup>-6</sup> ) (10 <sup>-5</sup> )
Εξωτερικές και εσωτερικές επιφάνειες υπερσυσκευασιών, εμπορευματοκιβωτίων, οχημάτων και των εξαρτημάτων τους όταν μεταφέρουν ή προετοιμάζονται για να μεταφέρουν:				
Φορτία συμπεριλαμβανομένων εξαιρουμένων κόλων και/ή μη- ραδιενεργών εμπορευμάτων	0.4	(10 <sup>-5</sup> )	0.04	(10 <sup>-6</sup> )

<sup>Bq</sup> Τα όρια ισχύουν όταν τίθενται ως μέσος όρος σε οποιοδήποτε εμβαδό 300 cm<sup>2</sup> οποιοδήποτε μέρους της επιφάνειας.

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Τύπος κόλου, υπερσυσκευασίας, εμπορευματοκιβωτίου, δεξαμενής ή οχήματος και εξοπλισμός τους	Μολυντής			
	Όριο <sup>B</sup> των βήτα και γάμα εκπομπών και των χαμηλής τοξικότητας άλφα εκπομπών		Όριο <sup>B</sup> όλων των άλλων άλφα εκπομπών	
	Bq/cm <sup>2</sup>	(mCi/cm <sup>2</sup> )	Bq/cm <sup>2</sup>	(mCi/cm <sup>2</sup> )
Φορτία συνιστάμενα μόνον από ραδιενεργό υλικό σε κόλα πέραν των εξαιρουμένων κόλων	4	(10 <sup>-4</sup> )	0.4	(10 <sup>-5</sup> )
Εξωτερικές επιφάνειες εμπορευ- ματοκιβωτίων, δεξαμενών και οχημάτων και των εξαρτημάτων τους που χρησιμοποιούνται στη μεταφορά μη-συσκευασμένου ραδιενεργού υλικού	4	(10 <sup>-4</sup> )	0.4	(10 <sup>-5</sup> )

(3) Εάν είναι εμφανές ότι ένα κόλο είναι φθαρμένο ή παρουσιάζει διαρροή, ή εάν υπάρχει ή υποψία ότι το κόλο μπορεί να έχει παρουσιάσει διαρροή ή να έχει φθαρεί, η πρόσβαση στο κόλο θα πρέπει να απαγορεύεται και ένα αρμόδιο άτομο θα πρέπει, όσο το δυνατόν συντομότερα, να εκτιμά τον βαθμό της μόλυνσης και το προκύπτον επίπεδο ακτινοβολίας του κόλου.

Η έκταση της έρευνας θα πρέπει να περιλαμβάνει το κόλο, το όχημα, τις γειτονικές περιοχές φόρτωσης και εκφόρτωσης και, εάν είναι απαραίτητο, όλα τα άλλα υλικά που έχουν μεταφερθεί στο όχημα. Όταν είναι απαραίτητο, πρόσθετα μέτρα για την προστασία της ανθρώπινης υγείας, σε συμφωνία με τις διατάξεις που επιβάλλονται από την αρμόδια αρχή, θα πρέπει να λαμβάνονται για το ξεπέρασμα και την ελαχιστοποίηση των επιπτώσεων τέτοιας διαρροής ή φθοράς.

(4) Κόλα που παρουσιάζουν διαρροή ραδιενεργού περιεχομένου πέραν των επιτρεπόμενων ορίων για κανονικές συνθήκες μεταφοράς μπορούν να απομακρύνονται υπό επίβλεψη αλλά δεν θα πρέπει να προωθούνται προς αποστολή μέχρι να επισκευαστούν ή επιδιορθωθούν και απολυμανθούν.

(5) Ένα όχημα και ο εξοπλισμός που χρησιμοποιείται συνήθως για τη μεταφορά ραδιενεργού υλικού θα πρέπει να ελέγχονται περιοδικά ώστε να προσδιορίζεται το επίπεδο μόλυνσης. Η συχνότητα τέτοιων ελέγχων θα πρέπει να σχετίζεται με την πιθανότητα μόλυνσης και την έκταση στην οποία ραδιενεργό υλικό μεταφέρεται.

(6) Εκτός από τις περιπτώσεις εκείνες που δίνονται στην παράγραφο (7) παρακάτω, οποιοδήποτε όχημα, εξοπλισμός, ή μέρος αυτών που έχει μολυνθεί παραπάνω από τα όρια που προκαθορίζονται στον Πίνακα IV ή που εμφανίζει επίπεδο ακτινοβολίας μεγαλύτερο από 5 mSv/h (0.5 mrem/h) κατά την εξέλιξη της μεταφοράς ραδιενεργού υλικού θα πρέπει να απολυμαίνεται όσο το δυνατόν συντομότερα από αρμόδιο άτομο και δεν θα πρέπει να επαναχρησιμοποιείται εκτός εάν η μη-σταθερή ραδιενεργή μόλυνση δεν υπερβαίνει τα επίπεδα που προκαθορίζονται στον Πίνακα IV, και το επίπεδο ακτινοβολίας που απορρέει από τη σταθερή μόλυνση σε επιφάνειες μετά την απολύμανση είναι μικρότερο από 5 mSv/h (0.5 mrem/h).

<sup>B</sup>  
επιφάνειας.

Τα όρια ισχύουν όταν τίθενται ως μέσος όρος σε οποιοδήποτε εμβαδό 300 cm<sup>2</sup> οποιοδήποτε μέρους της

## Προσθήκη Α.7

- 3712** (7) Μία υπερσυσκευασία, εμπορευματοκιβώτιο ή όχημα αφιερωμένο στη μεταφορά χαμηλής ειδικής δραστηριότητας υλικού ή επιφανειακά μολυσμένων αντικειμένων υπό αποκλειστική χρήση θα πρέπει να εξαιρείται από τις παραγράφους (2) και (6) παραπάνω αποκλειστικά όσον αφορά στην εσωτερική επιφάνεια του και μόνον για όσο παραμένει υπό εκείνη την συγκεκριμένη αποκλειστική χρήση.

## Απαιτήσεις και έλεγχοι για τη μεταφορά εξαιρούμενων κόλων

- 3713** (1) Τα εξαιρούμενα κόλα θα πρέπει να υπόκεινται μόνον στις παρακάτω διατάξεις:
- (a) Στα τμήματα II, III και V, μόνον στις διατάξεις που προκαθορίζονται:
- (i) στις παραγράφους (2) έως (6) αυτού του περιθωριακού, όπως ισχύουν και στο περιθωριακό 3770 και
- (ii) στις γενικές διατάξεις για όλες τις συσκευασίες και τα κόλα που προκαθορίζονται στο περιθωριακό 3732,
- (b) Εάν το εξαιρούμενο κόλο περιέχει σχάσιμο υλικό, στις διατάξεις του περιθωριακού 3703.
- (c) Στην διάταξη του περιθωριακού 2705 (1).
- (2) Το επίπεδο ακτινοβολίας σε οποιοδήποτε σημείο πάνω στην εξωτερική επιφάνεια ενός εξαιρούμενου κόλου δεν θα πρέπει να υπερβαίνει τα 5 mSv/h (0.5 mrem/h).
- (3) Η μη-σταθερή ραδιενεργή μόλυνση σε οποιαδήποτε εξωτερική επιφάνεια ενός εξαιρούμενου κόλου δεν θα πρέπει να υπερβαίνει τα όρια που προκαθορίζονται στον Πίνακα IV.
- (4) Ραδιενεργό υλικό που περικλείεται σε ή αποτελεί συστατικό μέρος ενός οργάνου ή άλλου κατασκευασμένου είδους, με δραστηριότητα όχι μεγαλύτερη από τα όρια του είδους και του κόλου που προκαθορίζονται στις στήλες 2 και 3 αντίστοιχα στον Πίνακα V, μπορεί να μεταφέρεται σε ένα εξαιρούμενο κόλο υπό την προϋπόθεση ότι:
- (a) το επίπεδο ακτινοβολίας σε 10 cm από οποιοδήποτε σημείο πάνω στην εξωτερική επιφάνεια οποιουδήποτε μη-συσκευασμένου οργάνου ή είδους δεν είναι μεγαλύτερο από 0.1 mSv/h (10 mrem/h) και
- (b) κάθε όργανο ή είδος (εκτός από ραδιοεκπέμποντα ρολόγια ή συσκευές) φέρει το μαρκάρισμα "Ραδιενεργό".

Πίνακας V. Όρια δραστηριότητας για εξαιρούμενα κόλα

Φυσική κατάσταση του περιεχομένου	Όργανα και είδη		Υλικό
	Όρια είδους	Όρια κόλου	Όρια κόλου
Στερεά: ειδικής μορφής άλλων μορφών	$10^{-2} A_1$ $10^{-2} A_1$	$A_1$ $A_2$	$10^{-3} A_1$ $10^{-3} A_2$
Υγρά:	$10^{-3} A_2$	$10^{-1} A_2$	$10^{-4} A_2$
Αέρια: τρίτιο ειδικών μορφών άλλων μορφών	$2 \times 10^{-2} A_2$ $10^{-3} A_1$ $10^{-3} A_2$	$2 \times 10^{-1} A_2$ $10^{-2} A_1$ $10^{-2} A_2$	$2 \times 10^{-2} A_2$ $10^{-3} A_1$ $10^{-3} A_1$

## Προσθήκη Α.7

**3713 ΣΗΜΕΙΩΣΗ:** Για μείγματα ραδιονουκλειδίων, βλέπε περιθωριακό 3701 (3) έως (5).  
(συνεχ.)

(5) Ραδιενεργό υλικό σε μορφές άλλες από αυτές που προκαθορίζονται στην παράγραφο (4) παραπάνω, με δραστηριότητα που δεν υπερβαίνει το όριο που προκαθορίζεται στη στήλη 4 του Πίνακα V, μπορεί να μεταφέρεται σε ένα εξαιρούμενο κόλο υπό την προϋπόθεση ότι:

- (a) το κόλο διατηρεί το περιεχόμενο της υπό συνθήκες που είναι πιθανόν να συμβαίνουν σε συνήθη μεταφορά και
- (b) το κόλο φέρει το μαρκάρισμα "Ραδιενεργό" σε μία εσωτερική επιφάνεια με τέτοιο τρόπο ώστε μία προειδοποίηση για την παρουσίαση ραδιενεργού υλικού να είναι ορατή με το άνοιγμα του κόλου.

(6) Ένα κατασκευασμένο είδος στο οποίο το μόνο ραδιενεργό υλικό είναι μη-αναγεννημένο φυσικό ουράνιο, μη-αναγεννημένο εξαντλημένο ουράνιο ή μη-αναγεννημένο φυσικό θόριο μπορεί να μεταφέρεται ως ένα εξαιρούμενο κόλο υπό την προϋπόθεση ότι η εξωτερική επιφάνεια του ουρανίου ή θορίου είναι εγκλεισμένη σε ένα ανενεργό περίβλημα κατασκευασμένο από μέταλλο ή κάποιο άλλο στέρεο υλικό.

**Απαιτήσεις και έλεγχοι για τη μεταφορά LSA υλικού και SCO σε βιομηχανικά κόλα ή μη-συσκευασμένο**

**3714** (1) Η ποσότητα του LSA υλικού ή SCO σε ένα μόνο βιομηχανικό κόλο (IP-1, IP-2 ή IP-3) ή αντικείμενο ή σύνολο αντικειμένων, οτιδήποτε είναι κατάλληλο, θα πρέπει να είναι έτσι περιορισμένη ώστε το επίπεδο εξωτερικής ακτινοβολίας σε 3 m από το μη-προστατευμένο υλικό ή αντικείμενο ή σύνολο αντικειμένων να μην υπερβαίνει τα 10 mSv/h (1 000  $\mu$ rem/h).

(2) Το LSA υλικό και SCO που είναι ή περιέχει σχάσιμο υλικό θα πρέπει να ικανοποιεί τις ισχύουσες διατάξεις των περιθωριακών 2714 (2) και (3) και 3741.

(3) Κόλα, συμπεριλαμβανομένων δεξαμενών ή εμπορευματοκιβωτίων, που περιέχουν LSA υλικό ή SCO θα πρέπει να υπόκεινται στις διατάξεις του περιθωριακού 3712 (1) και (2).

(4) LSA υλικό και SCO στις ομάδες LSA-I και SCO-I μπορεί να μεταφέρεται μη-συσκευασμένο υπό τους παρακάτω όρους:

- (a) Όλα τα μη-συσκευασμένα υλικά εκτός από μεταλλεύματα που περιέχουν μόνον φυσικά απαντώμενα ραδιονουκλεΐδια θα πρέπει να μεταφέρονται με τέτοιο τρόπο ώστε υπό συνθήκες που είναι πιθανόν να συμβούν σε συνήθη μεταφορά δεν θα υπάρχει διαφυγή του περιεχομένου από το όχημα ούτε θα υπάρχει οποιαδήποτε απώλεια του περιβλήματος.
- (b) Κάθε όχημα θα πρέπει να είναι υπό αποκλειστική χρήση, εκτός μόνον όταν μεταφορά SCO-I στην οποία η μόλυνση πάνω στις προσβάσιμες και τις προσβάσιμες επιφάνειες δεν είναι μεγαλύτερη από δέκα φορές το ισχύον επίπεδο που προκαθορίζεται στο περιθωριακό 2700 (2).
- (c) Για SCO-I όπου υπάρχει υποψία ότι μη-σταθερή μόλυνση υπάρχει σε μη-προσβάσιμες επιφάνειες σε μεγαλύτερες τιμές από αυτές που προκαθορίζονται στο περιθωριακό 2700 (2), μετρήσεις θα πρέπει να λαμβάνονται ώστε να εξασφαλίζεται ότι το ραδιενεργό υλικό δεν απελευθερώνεται μέσα στο όχημα.

## Προσθήκη Α.7

- 3714 (5) LSA υλικό και SCO, εκτός από τις περιπτώσεις για τις οποίες αλλιώς προκαθορίζεται στην παράγραφο (4) παραπάνω, θα πρέπει να είναι συσκευασμένο σε συμφωνία με τα επίπεδα ακεραιότητας του κόλου που προκαθορίζονται στον πίνακα VI με τέτοιον τρόπο ώστε, υπό συνθήκες που είναι πιθανόν να συμβούν σε συνήθη μεταφορά, δεν θα υπάρχει διαφυγή περιεχομένου από τα κόλα, ούτε θα υπάρχει οποιαδήποτε απώλεια περιβλήματος που προσφέρεται από τη συσκευασία. LSA-Πυλικά, LSA-III υλικό και SCO-II δεν θα πρέπει να μεταφέρονται μη-συσκευασμένα.

Πίνακας VI. Διατάξεις για βιομηχανικά κόλα των LSA υλικών και SCO

Περιεχόμενο	Τύπος βιομηχανικού κόλου <sup>9/</sup>	
	Αποκλειστική χρήση	Όχι υπό αποκλειστική χρήση
LSA-I <sup>10/</sup> Στερεό Υγρό	IP-1 IP-2	IP-1 IP-2
LSA-II Στερεό Υγρό και αέριο	IP-2 IP-2	IP-2 IP-3
LSA-III	IP-2	IP-3
SCO-I <sup>10/</sup> SCO-II	IP-1 IP-2	IP-1 IP-2

- (6) Η συνολική δραστηριότητα των LSA υλικών και SCO σε οποιοδήποτε μόνο όχημα δεν θα πρέπει να υπερβαίνει τα όρια που εμφανίζονται στον πίνακα VII.

Πίνακας VII. Όρια για τη δραστηριότητα οχημάτων για LSA υλικά και SCO σε βιομηχανικά κόλα ή μη-συσκευασμένα

Φύση του υλικού	Όριο δραστηριότητας για το όχημα
LSA-I	Χωρίς όριο
LSA-II και LSA-III μη-καύσιμα στερεά	Χωρίς όριο
LSA-II και LSA-III καύσιμα στερεά, και όλα τα υγρά και αέρια	100 A <sub>2</sub>
SCO	100 A <sub>2</sub>

## Προσδιορισμός του δείκτη μεταφοράς (TI)

- 3715 (1) Ο δείκτης μεταφοράς (TI) που βασίζεται στον έλεγχο της έκθεσης σε ακτινοβολία για ένα κόλο, υπερσυσκευασία, δεξαμενή, εμπορευματοκιβώτιο, ή για μη-συσκευασμένα LSA-I ή SCO-I, θα πρέπει να είναι ο αριθμός που απορρέει σε συμφωνία με την παρακάτω διαδικασία:

<sup>9/</sup> Βλέπε περιθωριακό 2700 (2).

<sup>10/</sup> Υπό τους όρους που προκαθορίζονται στην παράγραφο (4) παραπάνω, LSA-I υλικά και SCO-I μπορούν να μεταφέρονται ασυσκευασμένα.

## Προσθήκη Α.7

3715  
(συνεχ.)

- (a) Προσδιορίζεται το μέγιστο επίπεδο ακτινοβολίας σε μία απόσταση 1 m από τις εξωτερικές επιφάνειες του κόλου, της υπερσυσκευασίας, της δεξαμενής, του εμπορευματοκιβωτίου, ή των μη-συσκευασμένων LSA-I και SCO-I. Όπου το επίπεδο ακτινοβολίας προσδιορίζεται σε μονάδες millisievert ανά ώρα (mSv/h), οι τιμή που προσδιορίζεται θα πρέπει να πολλαπλασιάζεται με 100. Όπου το επίπεδο ακτινοβολίας προσδιορίζεται σε μονάδες millirem ανά ώρα (mrem/h), η προσδιοριζόμενη τιμή δεν αλλάζει.

Για μεταλλεύματα και συμπυκνώματα ουρανίου και θορίου, ο μέγιστος ρυθμός δόσης ακτινοβολίας σε οποιοδήποτε σημείο 1 m από την εξωτερική επιφάνεια του φορτίου μπορεί να λαμβάνεται ως:

0.4 mSv/h (40 mrem/h)	για τα μεταλλεύματα και τα φυσικά συμπυκνώματα ουρανίου και θορίου,
0.3 mSv/h (30 mrem/h)	για χημικά συμπυκνώματα θορίου,
0.02 mSv/h (2 mrem/h)	για χημικά συμπυκνώματα ουρανίου, εκτός από εξαφθοριούχο ουράνιο.

- (b) Για δεξαμενές, εμπορευματοκιβώτια και μη-συσκευασμένα LSA-I και SCO-I, η τιμή που προσδιορίζεται στο στάδιο (a) παραπάνω θα πρέπει να πολλαπλασιάζεται με τον κατάλληλο συντελεστή από τον Πίνακα VIII.
- (c) Η τιμή που λαμβάνεται στα στάδια (a) και (b) παραπάνω θα πρέπει να στρογγυλοποιείται στην πρώτη δεκαδική θέση (π.χ. το 1.13 γίνεται 1.2), εκτός του ότι μία τιμή 0.05 ή μικρότερη μπορεί να θεωρείται ως μηδέν.

## Πίνακας VIII. Συντελεστές πολλαπλασιασμού για φορτία μεγάλης διάστασης

Μέγεθος φορτίου (Μέτρηση του εμβαδού της μέγιστης διατομής του φορτίου)	Συντελεστής πολλαπλασιασμού
Μέγεθος φορτίου < 1 m <sup>2</sup>	1
1 m <sup>2</sup> < μέγεθος φορτίου ≤ 5 m <sup>2</sup>	2
5 m <sup>2</sup> < μέγεθος φορτίου ≤ 20 m <sup>2</sup>	3
20 m <sup>2</sup> < μέγεθος φορτίου	10

(2) Ο δείκτης μεταφοράς (Π) που βασίζεται σε έλεγχο της πυρηνικής κρισιμότητας θα πρέπει να λαμβάνεται με διαίρεση του αριθμού 50 με την τιμή του N που απορρέει με τη χρήση των διαδικασιών που προκαθορίζονται στο περιθωριακό 3741 (δηλ. Δείκτης μεταφοράς = 50/N). Η τιμή του δείκτη μεταφοράς για τον έλεγχο της πυρηνικής κρισιμότητας μπορεί να είναι μηδέν, υπό την προϋπόθεση ότι ένας απερίριστος αριθμός κλών είναι υποκρίσιμος (δηλ. N είναι ουσιαστικά ίσο με το άπειρο).

(3) Ο δείκτης μεταφοράς για κάθε φορτίο θα πρέπει να προσδιορίζεται σε συμφωνία με τον Πίνακα IX.

## Προσθήκη Α.7

3715 Πίνακας ΙΧ. Προσδιορισμός του δείκτη μεταφοράς  
(συνεχ.)

Είδος	Περιεχόμενο	Μέθοδος προσδιορισμού του Δείκτη Μεταφοράς (ΤΙ)
Κόλα	Μη-σχάσιμο υλικό	ΤΙ για έλεγχο της έκθεσης σε ακτινοβολία
	Σχάσιμο υλικό	Ο μεγαλύτερος μεταξύ του ΤΙ για έλεγχο της έκθεσης σε ακτινοβολία και του ΤΙ για έλεγχο της πυρηνικής κρισιμότητας
Μη-άκαμπτες Υπερσυσκευασίες	Κόλα	Άθροισμα των ΤΙ όλων των κόλων που περιέχονται
Άκαμπτες Υπερσυσκευασίες	Κόλα	Το άθροισμα των ΤΙ όλων των κόλων που περιέχονται, ή, για τον αρχικό αποστολέα είτε ο ΤΙ για τον έλεγχο της έκθεσης σε ακτινοβολία είτε το άθροισμα των ΤΙ όλων των κόλων
Εμπορευματο-κιβώτια	Κόλα ή Υπερσυσκευασίες	Άθροισμα των ΤΙ όλων των κόλων και των υπερσυσκευασιών που περιέχονται
	LSA υλικό ή SCO	Είτε το άθροισμα των ΤΙ είτε ο μεγαλύτερος μεταξύ του ΤΙ για έλεγχο της έκθεσης σε ακτινοβολία και του ΤΙ για έλεγχο της πυρηνικής κρισιμότητας
Εμπορευματο-κιβώτια υπό αποκλειστική χρήση	Κόλα ή Υπερσυσκευασίες	Είτε το άθροισμα των ΤΙ είτε ο μεγαλύτερος μεταξύ του ΤΙ για έλεγχο της έκθεσης σε ακτινοβολία και του ΤΙ για έλεγχο της πυρηνικής κρισιμότητας
Δεξαμενές	Μη-σχάσιμο υλικό	ΤΙ για έλεγχο της έκθεσης σε ακτινοβολία
	Σχάσιμο υλικό	Ο μεγαλύτερος μεταξύ του ΤΙ για έλεγχο της έκθεσης σε ακτινοβολία και του ΤΙ για έλεγχο της πυρηνικής κρισιμότητας
Μη-συσκευασμένο	LSA-I και SCO-I	Ο ΤΙ για έλεγχο της έκθεσης σε ακτινοβολία

## Πρόσθετες διατάξεις για υπερσυσκευασίες

3716 Οι παρακάτω πρόσθετες διατάξεις θα πρέπει να ισχύουν για τις υπερσυσκευασίες:

- Τα κόλα σχάσιμου υλικού για τις οποίες ο δείκτης μεταφοράς για έλεγχο της πυρηνικής κρισιμότητας είναι Ο και τα κόλα μη-σχάσιμου ραδιενεργού υλικού μπορούν να συνδυάζονται μαζί σε μία υπερσυσκευασία για μεταφορά, υπό την προϋπόθεση ότι κάθε κόλο που περιέχεται σ' αυτήν ικανοποιεί την ισχύουσα διάταξη αυτής της Προσθήκης.
- Τα κόλα σχάσιμου υλικού για τις οποίες ο δείκτης μεταφοράς για έλεγχο της πυρηνικής κρισιμότητας υπερβαίνει το 0 δεν θα πρέπει να μεταφέρονται σε μία υπερσυσκευασία.
- Μόνον ο αρχικός αποστολέας των κόλων που περιέχονται μέσα στις υπερσυσκευασίες θα πρέπει να επιτρέπεται να χρησιμοποιεί τη μέθοδο άμεσης μέτρησης του επιπέδου ακτινοβολίας για τον προσδιορισμό του δείκτη μεταφοράς μίας άκαμπτης υπερσυσκευασίας.



## Προσθήκη Α.7

**Όρια στον δείκτη μεταφοράς και το επίπεδο ακτινοβολίας για κόλα και υπερσυσκευασίες**

- 3717** (1) Εκτός από την περίπτωση φορτίων υπό αποκλειστική χρήση, ο δείκτης μεταφοράς οποιουδήποτε μεμονωμένου κόλου ή υπερσυσκευασίας δεν θα πρέπει να υπερβαίνει το 10.
- (2) Εκτός από την περίπτωση κόλων ή υπερσυσκευασιών που μεταφέρονται υπό αποκλειστική χρήση υπό τους όρους που προκαθορίζονται στο περιθωριακό 2713 (1) (α), το μέγιστο επίπεδο ακτινοβολίας σε οποιοδήποτε σημείο σε οποιαδήποτε εξωτερική επιφάνεια ενός κόλου ή υπερσυσκευασίας δεν θα πρέπει να υπερβαίνει τα 2 mSv/h (200 mrem/h).
- (3) Το μέγιστο επίπεδο ακτινοβολίας σε οποιοδήποτε σημείο σε οποιαδήποτε εξωτερική επιφάνεια ενός κόλου που μεταφέρεται υπό αποκλειστική χρήση δεν θα πρέπει να υπερβαίνει τα 10 mSv/h (1 000 mrem/h).

**Κατηγορίες**

- 3718** Τα κόλα και υπερσυσκευασίες θα πρέπει να καταχωρούνται σε μία από τις κατηγορίες I-ΛΕΥΚΗ, II-ΚΙΤΡΙΝΗ ή III-ΚΙΤΡΙΝΗ σε συμφωνία με τους όρους που προκαθορίζονται στους πίνακες X και XI, όπως ισχύουν και με τις παρακάτω διατάξεις:

- (a) Για ένα κόλο, τόσο ο δείκτης μεταφοράς όσο και οι όροι για το επίπεδο επιφανειακής ακτινοβολίας θα πρέπει να λαμβάνονται υπόψη στον προσδιορισμό της κατάλληλης κατηγορίας. Όπου ο δείκτης μεταφοράς ικανοποιεί τους όρους για μία κατηγορία αλλά το επίπεδο επιφανειακής ακτινοβολίας ικανοποιεί τους όρους για μία διαφορετική κατηγορία, το κόλο θα πρέπει να καταχωρείται στην υψηλότερη κατηγορία από τις δύο. Για αυτό το σκοπό, η κατηγορία I-ΛΕΥΚΗ θα πρέπει να θεωρείται ως η χαμηλότερη κατηγορία.
- (b) Ο δείκτης μεταφοράς θα πρέπει να προσδιορίζεται ακολουθώντας τις διαδικασίες που προκαθορίζονται στο περιθωριακό 3715 και υπόκεινται στον περιορισμό του περιθωριακού 3716 (c).
- (c) Εάν ο δείκτης μεταφοράς είναι μεγαλύτερος από 10, το κόλο ή υπερσυσκευασία θα πρέπει να μεταφέρεται υπό αποκλειστική χρήση.
- (d) Εάν το επίπεδο επιφανειακής ακτινοβολίας είναι μεγαλύτερο από 2 mSv/h (200 mrem/h), το κόλο ή υπερσυσκευασία θα πρέπει να μεταφέρεται υπό αποκλειστική χρήση και υπό τις διατάξεις του περιθωριακού 2713 (1) (α).
- (e) Ένα κόλο που μεταφέρεται υπό μία ειδική ρύθμιση θα πρέπει να καταχωρείται στην κατηγορία III-ΚΙΤΡΙΝΗ.
- (f) Μία υπερσυσκευασία που περιέχει κόλα που μεταφέρονται υπό ειδική ρύθμιση θα πρέπει να καταχωρείται στην κατηγορία III-ΚΙΤΡΙΝΗ.

## Προσθήκη Α.7

3718 Πίνακας Χ. Κατηγορίες κόλων  
(συνεχ.)

Όροι		
Δείκτης μεταφοράς	Μέγιστο επίπεδο ακτινοβολίας οποιουδήποτε σημείου στην εξωτερική επιφάνεια	Κατηγορία
0 <sup>11/</sup>	Όχι μεγαλύτερο από 0.005 mSv/h (0.5 mrem/h)	I-ΛΕΥΚΗ
Μεγαλύτερος από 0 αλλά όχι μεγαλύτερος από 1 <sup>11/</sup>	Μεγαλύτερο από 0.5 mSv/h (0.5 mrem/h) αλλά όχι μεγαλύτερο από 0.5 mSv/h (50 mrem/h)	II-ΚΙΤΡΙΝΗ
Μεγαλύτερος από 1 αλλά όχι μεγαλύτερος από 10	Μεγαλύτερο από 0.5 mSv/h (50 mrem/h) αλλά όχι μεγαλύτερο από 2 mSv/h (200 mrem/h)	III-ΚΙΤΡΙΝΗ
Μεγαλύτερος από 10	Μεγαλύτερο από 2 mSv/h (200 mrem/h) αλλά όχι μεγαλύτερο από 10 mSv/h (1000 mrem/h)	III-ΚΙΤΡΙΝΗ και επίσης υπό αποκλειστική χρήση

Πίνακας XI. Κατηγορίες υπερσυσκευασιών συμπεριλαμβανομένων εμπορευματοκιβωτίων όταν χρησιμοποιούνται ως υπερσυσκευασίες

Δείκτης μεταφοράς	Κατηγορία
0	I-ΛΕΥΚΗ
Μεγαλύτερος από 0 αλλά μικρότερος από ή ίσος με 1	II-ΚΙΤΡΙΝΗ
Μεγαλύτερος από 1	III-ΚΙΤΡΙΝΗ

## Ενημέρωση των αρμοδίων αρχών

- 3719 (1) Πριν από την πρώτη φόρτωση οποιουδήποτε κόλου που απαιτεί έγκριση από αρμόδια αρχή, ο αποστολέας θα πρέπει να εξασφαλίζει ότι αντίγραφα κάθε ισχύοντος πιστοποιητικού της αρμόδιας αρχής που ισχύει για εκείνον τον σχεδιασμό κόλου έχουν υποβληθεί στην αρμόδια αρχή κάθε χώρας μέσω της οποίας ή στην οποία το φορτίο πρόκειται να μεταφερθεί. Ο αποστολέας δεν απαιτείται να περιμένει γνωστοποίηση από την αρμόδια αρχή, ούτε η αρμόδια αρχή απαιτείται να κάνει τέτοια γνωστοποίηση παραλαβής του πιστοποιητικού.
- (2) Για κάθε φόρτωση που αναφέρεται στα (a), (b) ή (c) παρακάτω, ο αποστολέας θα πρέπει να ειδοποιεί την αρμόδια αρχή κάθε χώρας μέσω της οποίας ή στην οποία το φορτίο πρόκειται να μεταφερθεί. Αυτή η ειδοποίηση θα πρέπει να είναι στα χέρια κάθε αρμόδιας αρχής πριν το ξεκίνημα της φόρτωσης και κατά προτίμηση τουλάχιστον 7 ημέρες πριν.
- (a) Κόλα τύπου B(U) που περιέχουν ραδιενεργό υλικό με δραστηριότητα μεγαλύτερη από  $3 \times 10^3$  A<sub>1</sub> ή  $3 \times 10^3$  A<sub>2</sub>, όποια τιμή είναι κατάλληλη, ή 1000 TBq (20 kCi), όποια τιμή είναι η χαμηλότερη.

<sup>11/</sup> Εάν ο μετρημένος Π δεν είναι μεγαλύτερος από 0.05, η τιμή που παρατίθεται μπορεί να είναι μηδέν σε συμφωνία με το περιθωριακό 3715 (1) (c).

## Προσθήκη Α.7

3719  
(συνεχ.)

- (b) Κόλα τύπου Β(Μ).
  - (c) Μεταφορά υπό ειδική ρύθμιση.
- (3) Η ειδοποίηση για το φορτίο θα πρέπει να περιλαμβάνει:
- (a) Αρκετές πληροφορίες ώστε να καθίσταται δυνατός ο προσδιορισμός του κόλου συμπεριλαμβανομένων όλων των ισχυρόνων αριθμών πιστοποιητικού και χαρακτηριστικών μαρκαρισμάτων.
  - (b) Πληροφορίες για την ημερομηνία φόρτωσης, την αναμενόμενη ημερομηνία άφιξης και το προτεινόμενο δρομολόγιο.
  - (c) Την ονομασία του ραδιενεργού υλικού ή νουκλεϊδίου.
  - (d) Μία περιγραφή της φυσικής και χημικής μορφής του ραδιενεργού υλικού, ή εάν είναι ειδικής μορφής ραδιενεργό υλικό και
  - (e) Τη μέγιστη δραστηριότητα του ραδιενεργού περιεχομένου κατά τη διάρκεια της μεταφοράς εκφρασμένη σε μονάδες becquerel (Bq) [και, εάν επιθυμείται, curie (Ci)] με ένα κατάλληλο SI πρόθεμα [βλέπε περιθωριακό 2001 (1)]. Για σχάσιμο υλικό, το συνολικό βάρος του σχάσιμου υλικού σε μονάδες γραμμαρίων (g), ή πολλαπλασίων αυτών, μπορεί να χρησιμοποιείται στη θέση της δραστηριότητας.
- (4) Ο αποστολέας δεν απαιτείται να στείλει ξεχωριστή ειδοποίηση εάν οι απαιτούμενες πληροφορίες έχουν συμπεριληφθεί στην αίτηση για έγκριση της φόρτωσης. [Βλέπε περιθωριακό 3757 (3)].

**Κατοχή πιστοποιητικών και οδηγίες λειτουργίας**

Ο αποστολέας θα πρέπει να έχει στην κατοχή του ένα αντίγραφο κάθε πιστοποιητικού που απαιτείται στο Μέρος III αυτής της Προσθήκης και ένα αντίγραφο των οδηγιών αναφορικά με το σωστό κλείσιμο του κόλου και άλλες προετοιμασίες για τη φόρτωση πριν κάνει οποιαδήποτε φόρτωση υπό τους όρους των πιστοποιητικών.

3720-  
3729

## Προσθήκη Α.7

## ΜΕΡΟΣ ΙΙΙ

**ΠΡΟΒΛΕΨΕΙΣ ΓΙΑ ΡΑΔΙΟΕΝΕΡΓΑ ΥΛΙΚΑ, ΓΙΑ ΣΥΣΚΕΥΑΣΙΕΣ ΚΑΙ ΚΟΛΑ  
ΚΑΙ ΔΙΑΔΙΚΑΣΙΕΣ ΕΛΕΓΧΟΥ**

**ΣΗΜΕΙΩΣΗ:** Οι διατάξεις στο ΜΕΡΟΣ ΙΙΙ είναι οι ίδιες όπως εκείνες που ορίζονται στην Έκδοση του 1985 των Ρυθμίσεων της ΙΑΕΑ για την ασφαλή μεταφορά ραδιενεργού υλικού και το Συμπλήρωμα του 1988. Οι αριθμοί παραγράφων που αναφέρονται στα περιθωριακά 3730 έως 3742 είναι οι αριθμοί των ισχύοντων παραγράφων της Έκδοσης του 1985.

- 3730 Διατάξεις για LSA-III υλικό  
παράγραφος 501
- 3731 Διατάξεις για ειδικής μορφής ραδιενεργό υλικό  
παράγραφοι 502 - 504
- 3732 Γενικές διατάξεις για όλες τις συσκευασίες και τα κόλα  
παράγραφοι 505 - 514
- 3733 Διατάξεις για βιομηχανικά κόλα τύπου 1 (IP-1)  
παράγραφος 518
- 3734 Πρόσθετες διατάξεις για βιομηχανικά κόλα τύπου 2 (IP-2)  
παράγραφος 519
- 3735 Πρόσθετες διατάξεις για βιομηχανικά κόλα τύπου 3 (IP-3)  
παράγραφος 520
- 3736 Εναλλακτικές διατάξεις για δεξαμενές και εμπορευματοκιβώτια για χαρακτηρισμό ως IP-2 και IP-3  
παράγραφοι 521 - 523
- 3737 Διατάξεις για κόλα Τύπου Α  
παράγραφοι 524 - 540
- 3738 Διατάξεις για κόλα Τύπου Β  
παράγραφοι 541 - 548
- 3739 Διατάξεις για κόλα Τύπου Β(U)  
παράγραφοι 549 - 556
- 3740 Διατάξεις για κόλα Τύπου Β(M)  
παράγραφοι 557 - 558
- 3741 Διατάξεις για κόλα που περιέχουν σχάσιμο υλικό  
παράγραφοι 559 - 568
- 3742 Διαδικασίες ελέγχου  
παράγραφοι 601 - 633
- 3743-  
3749

## Προσθήκη Α.7

## ΜΕΡΟΣ IV

## ΕΓΚΡΙΣΗ ΚΑΙ ΔΙΟΙΚΗΤΙΚΕΣ ΠΡΟΒΛΕΨΕΙΣ

**ΣΗΜΕΙΩΣΗ:** Όπου οι διατάξεις στο ΜΕΡΟΣ IV είναι οι ίδιες όπως εκείνες που ορίζονται στην Έκδοση του 1985 των Ρυθμίσεων της ΙΑΕΑ για την Ασφαλή Μεταφορά Ραδιενεργού Υλικού (όπως διορθώθηκε το 1990) οι αριθμοί που αναφέρονται υπό τα περιθωριακά 3761 έως 3764 είναι οι αριθμοί των ισχύοντων παραγράφων της Έκδοσης του 1985.

## Γενικά

3750 Έγκριση της αρμόδιας αρχής θα πρέπει να απαιτείται για τα παρακάτω:

- (a) Ειδικής μορφής ραδιενεργό υλικό (βλέπε περιθωριακό 3751).
- (b) Όλα τα κόλλα που περιέχουν σχάσιμο υλικό (βλέπε περιθωριακά 3754 και 3755).
- (c) Κόλλα Τύπου Β - Τύπου Β(U) και Τύπου Β(M) (βλέπε περιθωριακά 3752, 3753 και 3755).
- (d) Ειδικές ρυθμίσεις (βλέπε περιθωριακό 3758).
- (e) Ορισμένες φορτώσεις (βλέπε περιθωριακό 3757).
- (f) Υπολογισμός των μη αναφερομένων τιμών  $A_1$  και  $A_2$  [βλέπε περιθωριακό 3701 (1)].

## Έγκριση ειδικής μορφής ραδιενεργού υλικού

3751 (1) Ο σχεδιασμός για ειδικής μορφής ραδιενεργό υλικό θα πρέπει να απαιτεί μονομερή έγκριση. Μία αίτηση για έγκριση θα πρέπει να περιλαμβάνει:

- (a) Μία λεπτομερή περιγραφή του ραδιενεργού υλικού ή, εάν είναι μία κάψουλα, του περιεχομένου. Συγκεκριμένη αναφορά θα πρέπει να γίνεται τόσο στις φυσικές όσο και στις χημικές καταστάσεις.
- (b) Μία λεπτομερή έκθεση του σχεδιασμού οποιασδήποτε κάψουλας προς χρήση.
- (c) Μία έκθεση των ελέγχων που έχουν γίνει και των αποτελεσμάτων τους, ή στοιχεία βασισμένα σε υπολογιστικές μεθόδους που να δείχνουν ότι το ραδιενεργό υλικό είναι ικανό να ικανοποιεί τα πρότυπα απόδοσης, ή άλλα στοιχεία ότι το ειδικής μορφής ραδιενεργό υλικό ικανοποιεί τις ισχύουσες διατάξεις αυτής της Προσθήκης.
- (d) Στοιχεία ενός προγράμματος εξασφάλισης της ποιότητας.

(2) Η αρμόδια αρχή θα πρέπει να εκδίδει ένα πιστοποιητικό έγκρισης που να αναφέρει ότι ο εγκεκριμένος σχεδιασμός ικανοποιεί τις διατάξεις για ειδικής μορφής ραδιενεργό υλικό και θα πρέπει να δίνει σ' αυτόν τον σχεδιασμό ένα χαρακτηριστικό σήμα. Το πιστοποιητικό θα πρέπει να καθορίζει τις λεπτομέρειες του ειδικής μορφής ραδιενεργού υλικού.

## Προσθήκη Α.7

## Έγκριση σχεδιασμών κόλου

## Έγκριση σχεδιασμών κόλου Τύπου Β(U)

3752

(1) Οποιοσδήποτε σχεδιασμός κόλου Τύπου Β(U) που προέρχεται από ένα Κράτος Μέλος θα πρέπει να είναι εγκεκριμένος από την αρμόδια αρχή αυτού του Κράτους. Εάν το Κράτος όπου το κόλο έχει σχεδιαστεί δεν είναι Κράτος Μέλος η μεταφορά είναι δυνατή υπό τον όρο ότι:

- (a) ένα πιστοποιητικό έχει δοθεί από αυτό το Κράτος, αποδεικνύοντας ότι το κόλο ικανοποιεί τις τεχνικές διατάξεις αυτής της Οδηγίας και ότι αυτό το πιστοποιητικό προσυπογράφεται από την αρμόδια αρχή του πρώτου Κράτους Μέλους που προσεγγίζεται από την αποστολή,
- (b) εάν κανένα πιστοποιητικό δεν έχει δοθεί, ο σχεδιασμός του κόλου εγκρίνεται από την αρμόδια αρχή του πρώτου Κράτους Μέλους που προσεγγίζεται από την αποστολή.

Οποιοσδήποτε σχεδιασμός κόλου Τύπου Β(U) για σχάσιμο υλικό, που υπόκειται επίσης στο περιθωριακό 3741 θα πρέπει να απαιτεί πολυμερή έγκριση.

(2) Μία αίτηση για έγκριση θα πρέπει να περιλαμβάνει:

- (a) Μία λεπτομερή περιγραφή του προτεινόμενου ραδιενεργού περιεχομένου με συγκεκριμένη αναφορά στις φυσικές και χημικές καταστάσεις του και στη φύση της εκπεμπόμενης ακτινοβολίας.
- (b) Μία λεπτομερή έκθεση του σχεδιασμού, συμπεριλαμβανομένων πλήρων μηχανολογικών σχεδίων και καταστάσεων των υλικών και μεθόδων κατασκευής προς χρήση.
- (c) Μία έκθεση των ελέγχων που έχουν γίνει και των αποτελεσμάτων τους, ή στοιχεία βασισμένα σε υπολογιστικές μεθόδους ή άλλα στοιχεία ότι ο σχεδιασμός είναι επαρκής για την ικανοποίηση των ισχυουσών διατάξεων.
- (d) Τις προτεινόμενες οδηγίες λειτουργίας και συντήρησης για τη χρήση της συσκευασίας.
- (e) Εάν το κόλο είναι σχεδιασμένο να έχει μέγιστη κανονική πίεση λειτουργίας μεγαλύτερη από 100 kPa (1.0 bar) πίεση πιεζομέτρου, η αίτηση για έγκριση θα πρέπει, συγκεκριμένα, να αναφέρει, σε σχέση με τα υλικά κατασκευής του συστήματος συγκράτησης, τις προδιαγραφές, τα δείγματα προς λήψη και τους ελέγχους προς διεξαγωγή.
- (f) Όπου το προτεινόμενο ραδιενεργό περιεχόμενο είναι εκπέμπον καύσιμο, ο αιτών θα πρέπει να αναφέρει και να δικαιολογεί οποιαδήποτε παραδοχή στην ανάλυση ασφάλειας σχετική με τα χαρακτηριστικά του καυσίμου.
- (g) Οποιοσδήποτε ειδικές διατάξεις στοιβάγματος απαραίτητες για την εξασφάλιση της ασφαλούς διάχυσης της θερμότητας από το κόλο, προσοχή θα πρέπει να δίνεται στους διάφορους τρόπους μεταφοράς προς χρήση και τον τύπο του σχήματος ή του εμπορευματοκιβωτίου.
- (h) Ένα αναπαραγόμενο σχήμα όχι μεγαλύτερο από 21 cm x 30 cm που να εμφανίζει τη διαρρύθμιση του κόλου και
- (i) Στοιχεία ενός προγράμματος εξασφάλισης της ποιότητας.

## Προσθήκη Α.7

- 3752 (3) Η αρμόδια αρχή θα πρέπει να εκδίδει ένα πιστοποιητικό έγκρισης που να αναφέρει ότι ο (συνεχ.) σχεδιασμός ικανοποιεί τις διατάξεις για κόλα Τύπου Β(U).

*Έγκριση σχεδιασμών κόλου Τύπου Β (Μ)*

- 3753 (1) Κάθε σχεδιασμός κόλου Τύπου Β(Μ), συμπεριλαμβανομένων εκείνων για σχάσιμο υλικό που υπόκεινται επίσης στο περιθωριακό 3754 θα πρέπει να απαιτούν πολυμερή έγκριση.
- (2) Μία αίτηση για έγκριση ενός σχεδιασμού κόλου Τύπου Β(Μ) θα πρέπει να περιλαμβάνει, επιπλέον των πληροφοριών που απαιτούνται στο περιθωριακό 3752 (2) για κόλα Τύπου Β(U):

- (a) Έναν κατάλογο των συγκεκριμένων διατάξεων για κόλα Τύπου Β(U) που προκαθορίζονται στα περιθωριακά 3738 και 3739 με τις οποίες το κόλο δεν συμφωνεί.
- (b) Οποιοσδήποτε προτεινόμενος συμπληρωματικός λειτουργικούς ελέγχους προς εφαρμογή κατά τη διάρκεια μεταφοράς που δεν δίνονται συνήθως σε αυτήν την Προσθήκη, αλλά που είναι απαραίτητοι για την εξασφάλιση της ασφάλειας του κόλου ή την αντιστάθμιση για τις ελλείψεις που αναφέρονται στο παραπάνω, τέτοιοι όπως ανθρώπινη παρέμβαση για μετρήσεις της θερμοκρασίας ή της πίεσης ή για περιοδικό εξερισμό, λαμβάνοντας υπόψη την πιθανότητα μη-αναμενόμενης καθυστέρησης.
- (c) Περιγραφή των οποιωνδήποτε περιορισμών πάνω στον τρόπο μεταφοράς και των οποιωνδήποτε ειδικών διαδικασιών φόρτωσης, μεταφοράς, εκφόρτωσης ή διακίνησης και
- (d) Τις μέγιστες και ελάχιστες συνθήκες περιβάλλοντος (θερμοκρασία, ηλιακή ακτινοβολία) που αναμένεται να προκύψουν κατά τη διάρκεια της μεταφοράς και που έχουν ληφθεί υπόψη στο σχεδιασμό.

- (3) Η αρμόδια αρχή θα πρέπει να εκδίδει ένα πιστοποιητικό έγκρισης που να αναφέρει ότι ο σχεδιασμός ικανοποιεί τις ισχύουσες διατάξεις για κόλα Τύπου Β(Μ).

*Έγκριση σχεδιασμών κόλου για σχάσιμο υλικό*

- 3754 (1) Κάθε σχεδιασμός κόλου για σχάσιμο υλικό θα πρέπει να απαιτεί πολυμερή έγκριση.
- (2) Μία αίτηση για έγκριση θα πρέπει να περιλαμβάνει όλες τις πληροφορίες που είναι απαραίτητες για την ικανοποίηση της αρμόδιας αρχής ότι ο σχεδιασμός ικανοποιεί τις διατάξεις του περιθωριακού 3741 και στοιχεία ενός προγράμματος εξασφάλισης της ποιότητας.
- (3) Η αρμόδια αρχή θα πρέπει να εκδίδει ένα πιστοποιητικό έγκρισης που να αναφέρει ότι ο σχεδιασμός ικανοποιεί τις ισχύουσες διατάξεις του περιθωριακού 3741.

*Μεταβατικές ρυθμίσεις*

- 3755 Κόλα Τύπου Β(U) και Τύπου Β(Μ) και συσκευασίες που περιέχουν σχάσιμο υλικό που δεν συμφωνούν πλήρως με τις διατάξεις αυτής της Προσθήκης αλλά που παρ' όλα αυτά θα μπορούσαν να χρησιμοποιούνται σε συμφωνία με τις διατάξεις της ADR που ισχύουν στις 31 Δεκεμβρίου 1989 για το αντίστοιχο υλικό της Κλάσης 7 μπορούν ακόμα να χρησιμοποιούνται υπό τους παρακάτω όρους για τη μεταφορά αυτού του υλικού:

- (a) Πολυμερές έγκριση θα πρέπει να απαιτείται πάνω στη λήξη της μονομερούς έγκρισης και
- (b) ένας σειριακός αριθμός σύμφωνα με τις διατάξεις του περιθωριακού 2705 (3) θα πρέπει να καταχωρείται και να μαρκάρισμα πάνω στο εξωτερικό κάθε συσκευασίας.

## Προσθήκη Α.7

**3755** Αλλαγές στο σχεδιασμό της συσκευασίας ή στη φύση ή την ποσότητα του επιτρεπόμενου (συνεχ.) ραδιενεργού περιεχομένου που, όπως προσδιορίζεται από την αρμόδια αρχή, θα επηρέαζε σημαντικά την ασφάλεια θα πρέπει να ικανοποιούν τις διατάξεις αυτής της Προσθήκης.

**Ειδοποίηση και καταχώρηση των σειριακών αριθμών**

**3756** Η αρμόδια αρχή της χώρας προέλευσης της έγκρισης του σχεδιασμού θα πρέπει να ενημερώνεται για τον σειριακό αριθμό κάθε συσκευασίας κατασκευασμένης με έναν σχεδιασμό εγκεκριμένο υπό τα περιθωριακά 3752, 3753 (1), 3754 (1) και 3755: Η αρμόδια αρχή θα πρέπει να διατηρεί ένα μητρώο τέτοιων σειριακών αριθμών.

**Έγκριση φορτώσεων**

**3757** (1) Εκτός από τις περιπτώσεις όπου επιτρέπεται στην παράγραφο (2) παρακάτω, πολυμερής έγκριση θα πρέπει να απαιτείται για:

- (a) Τη φόρτωση κόλων Τύπου Β(Μ) ειδικά σχεδιασμένων να επιτρέπουν ελεγχόμενο περιοδικό εξαερισμό.
- (b) Τη φόρτωση κόλων Τύπου Β(Μ) που περιέχουν ραδιενεργό υλικό με δραστηριότητα μεγαλύτερη από  $3 \times 10^3 A_1$  ή  $3 \times 10^3 A_2$ , όποια τιμή είναι κατάλληλη, ή 1000 TBq (20 kCi), όποια τιμή είναι η χαμηλότερη.
- (c) Τη φόρτωση κόλων που περιέχουν σχάσιμο υλικό εάν το άθροισμα των δεικτών μεταφοράς των μεμονωμένων κόλων υπερβαίνει το 50 όπως δίνεται στο περιθωριακό 2712 (4).

(2) Μία αρμόδια αρχή μπορεί να επιτρέπει μεταφορά μέσα στην ή μέσω της χώρας της χωρίς έγκριση φόρτωσης, με μία συγκεκριμένη διάταξη στην έγκριση σχεδιασμού της (βλέπε περιθωριακό 3759).

(3) Μία αίτηση για έγκριση φόρτωσης θα πρέπει να περιλαμβάνει:

- (a) Την περίοδο χρόνου, που σχετίζεται με τη φόρτωση για την οποία ζητείται η έγκριση.
- (b) Το πραγματικό ραδιενεργό περιεχόμενο, οι αναμενόμενοι τρόποι μεταφοράς, ο τύπος οχήματος και το πιθανό ή προτεινόμενο δρομολόγιο και
- (c) Τις λεπτομέρειες του πώς οι ειδικές προφυλάξεις και οι ειδικοί διοικητικοί ή λειτουργικοί έλεγχοι, που αναφέρονται στα πιστοποιητικά έγκρισης του σχεδιασμού του κόλου που εκδίδονται υπό τα περιθωριακά 3752.(3), 3753.(3) και 3754.(3) θα τίθενται σε εφαρμογή.

(4) Μετά την έγκριση της φόρτωσης, η αρμόδια αρχή θα πρέπει να εκδίδει ένα πιστοποιητικό έγκρισης.

**Έγκριση της φόρτωσης υπό ειδικές ρυθμίσεις**

**3758** (1) Κάθε φορτίο που αποστέλλεται υπό ειδική ρύθμιση θα πρέπει να απαιτεί πολυμερή έγκριση.

(2) Μία αίτηση για έγκριση μίας φόρτωσης υπό ειδική ρύθμιση θα πρέπει να περιλαμβάνει όλες τις πληροφορίες που είναι απαραίτητες για την ικανοποίηση της αρμόδιας αρχής ότι το όλο επίπεδο ασφάλειας σε μεταφορά είναι τουλάχιστον ισοδύναμο μ' εκείνο που θα ήταν εάν όλες οι ισχύουσες διατάξεις αυτής της Προσθήκης είχαν ικανοποιηθεί. Η αίτηση θα πρέπει να περιλαμβάνει:



## Προσθήκη Α.7

- 3758 (συνεχ.)
- (a) Μία έκθεση των παραγόντων σχετικά με τους οποίους, και των λόγων για τους οποίους, η φόρτωση δεν μπορεί να γίνει σε πλήρη συμφωνία με τις ισχύουσες διατάξεις αυτής της Προσθήκης και
  - (b) Μία έκθεση οποιωνδήποτε ειδικών προφυλάξεων ή ειδικών διοικητικών ή λειτουργικών ελέγχων που θα υιοθετούνται κατά τη διάρκεια της μεταφοράς για την αντιστάθμιση της αδυναμίας ικανοποίησης των ισχυουσών διατάξεων αυτής της Προσθήκης.
- (3) Μετά την έγκριση μίας φόρτωσης υπό ειδική ρύθμιση, η αρμόδια αρχή θα πρέπει να εκδίδει ένα πιστοποιητικό έγκρισης.

## Πιστοποιητικά έγκρισης της αρμόδιας αρχής

- 3759 Τέσσερις τύποι πιστοποιητικών έγκρισης μπορούν να εκδίδονται: ειδικής μορφής ραδιενεργού υλικού, ειδικής ρύθμισης, σχεδιασμού φόρτωσης και κόλου. Ο σχεδιασμός και τα πιστοποιητικά έγκρισης της φόρτωσης του κόλου μπορούν να συνδυάζονται σ' ένα μόνο πιστοποιητικό.

## Χαρακτηριστικά σήματα της αρμόδιας αρχής

- 3760 (1) Σε κάθε πιστοποιητικό έγκρισης που εκδίδεται από μία αρμόδια αρχή θα πρέπει να καταχωρείται ένα χαρακτηριστικό σήμα. Το σήμα θα πρέπει να είναι του παρακάτω γενικευμένου τύπου:

Σύμβολο εθνικότητας της χώρας/αριθμός/κωδικός τύπου:

- (a) Το σύμβολο εθνικότητας αντιπροσωπεύει το διακριτικό σήμα για μηχανοκίνητα οχήματα σε διεθνή διακίνηση στο Συνέδριο της Βιέννης για την Οδική Διάκριση (1968).
- (b) Ο αριθμός θα πρέπει να καταχωρείται από την αρμόδια αρχή και θα πρέπει να είναι μοναδικός και συγκεκριμένος αναφορικά με το συγκεκριμένο σχεδιασμό ή φόρτωση. Το χαρακτηριστικό σήμα της έγκρισης φόρτωσης θα πρέπει να σχετίζεται καθαρά με το χαρακτηριστικό σήμα της έγκρισης σχεδιασμού.
- (c) Οι παρακάτω κωδικοί τύπου θα πρέπει να χρησιμοποιούνται κατά σειρά που αναφέρονται για την ένδειξη των τύπων των πιστοποιητικών έγκρισης που εκδίδονται:

AF Σχεδιασμός κόλου Τύπου Α για σχάσιμο υλικό

B(U) Σχεδιασμός κόλου Τύπου Β(U). Β(U)F εάν είναι για σχάσιμο υλικό

B(M) Σχεδιασμός κόλου Τύπου Β(M). Β(M)F εάν είναι για σχάσιμο υλικό

IF Σχεδιασμός βιομηχανικού κόλου για σχάσιμο υλικό

S Ειδικής μορφής ραδιενεργό υλικό

T Φόρτωση

X Ειδική ρύθμιση.

## Προσθήκη Α.7

3760  
(συνεχ.)

- (d) Για πιστοποιητικά έγκρισης σχεδιασμού κόλου, εκτός από εκείνα που εκδίδονται υπό τις διατάξεις του περιθωριακού 3755, το σύμβολο "-85"<sup>12/</sup> θα πρέπει να προστίθεται στον κωδικό τύπου του σχεδιασμού κόλου.

(2) Αυτοί οι κωδικοί τύπου θα πρέπει να εφαρμόζονται ως εξής:

- (a) Κάθε πιστοποιητικό και κάθε κόλο θα πρέπει να φέρει το κατάλληλο χαρακτηριστικό σήμα, που να περιλαμβάνει τα σύμβολα που ορίζονται στην παράγραφο (1) παραπάνω, εκτός του ότι, για κόλα, μόνον οι ισχύοντες κωδικοί τύπου σχεδιασμού συμπεριλαμβανομένου, εάν ισχύει, του συμβόλου "-85"<sup>12/</sup> θα πρέπει να εμφανίζονται μετά τη δεύτερη κύβητο, πράγμα που σημαίνει ότι, τα 'Γ' ή 'Χ' δεν θα πρέπει να εμφανίζονται στο χαρακτηριστικό μαρκάρισμα πάνω στο κόλο. Όπου η έγκριση σχεδιασμού και η έγκριση φόρτωσης συνδυάζονται, οι ισχύοντες κωδικοί τύπου δεν χρειάζεται να επαναλαμβάνονται. Για παράδειγμα:

A/132/B(M)F-85: Ένας σχεδιασμός κόλου Τύπου Β(Μ) εγκεκριμένης για σχάσιμο υλικό, που απαιτεί πολυμερή έγκριση, για την οποία η αρμόδια αρχή της Αυστρίας έχει καταχωρήσει τον αριθμό σχεδιασμού 132 ( που πρέπει να μαρκάρεται πάνω τόσο στο κόλο όσο και στο πιστοποιητικό έγκρισης του σχεδιασμού του κόλου).

A/132/B(M)F-85T: Η έγκριση φόρτωσης που εκδίδεται για ένα κόλο που φέρει το χαρακτηριστικό σήμα που αναλύεται παραπάνω (που πρέπει να μαρκάρεται πάνω στο πιστοποιητικό μόνο).

A/137/X-85: Μία ειδική έγκριση ρύθμισης που εκδίδεται από την αρμόδια αρχή της Αυστρίας, για την οποία ο αριθμός 137 έχει καταχωρηθεί (που πρέπει να μαρκάρεται πάνω στο πιστοποιητικό μόνο),

A/139/IF-85: Ο σχεδιασμός ενός βιομηχανικού κόλου για σχάσιμο υλικό εγκεκριμένος από την αρμόδια αρχή της Αυστρίας, για τον οποίο ο αριθμός σχεδιασμού κόλου 139 έχει καταχωρηθεί (που πρέπει να μαρκάρεται πάνω τόσο στο κόλο όσο και στο πιστοποιητικό έγκρισης σχεδιασμού του κόλου).

- (b) Όπου πολυμερής έγκριση πραγματοποιείται με επικύρωση, μόνον το χαρακτηριστικό σήμα που εκδίδεται από τη χώρα προέλευσης του σχεδιασμού ή της φόρτωσης θα πρέπει να χρησιμοποιείται. Όπου πολυμερής έγκριση πραγματοποιείται με έκδοση πιστοποιητικών από διαδοχικές χώρες, κάθε πιστοποιητικό θα πρέπει να φέρει το κατάλληλο σήμα και το κόλο του οποίου ο σχεδιασμός είχε έτσι εγκριθεί θα πρέπει να φέρει όλα τα κατάλληλα χαρακτηριστικά σήματα. Για παράδειγμα:

A/132/B(M)F-85  
CH/28/B(M)F-85

θα ήταν το χαρακτηριστικό σήμα ενός κόλου που είχε αρχικά εγκριθεί από την Αυστρία και είχε επακολούθως εγκριθεί, με ξεχωριστό πιστοποιητικό, από την Ελβετία. Πρόσθετα χαρακτηριστικά σήματα θα εμφανίζονταν μ' έναν παρόμοιο τρόπο πάνω στο κόλο.

<sup>12/</sup> Αυτό το σύμβολο δείχνει ότι ο σχεδιασμός κόλου ικανοποιεί τις διατάξεις των Ρυθμίσεων για την Ασφαλή Μεταφορά Ραδιενεργών Υλικών, Σειρά Ασφάλειας Αριθμ. 6, Έκδοση 1985.

<sup>13/</sup> ANSI N 14.1 - 1982 δημοσιευμένη το 1982 και διαθέσιμη από το Αμερικανικό Εθνικό Ινστιτούτο Προτύπων, 10430 Broadway, New York, NY 10018.

## Προσθήκη Α.7

- 3760** (συνεχ.) (c) Η αναθεώρηση ενός πιστοποιητικού θα πρέπει να υποδεικνύεται με μία παρενθετική έκφραση μετά από το χαρακτηριστικό σήμα πάνω στο πιστοποιητικό. Για παράδειγμα, A/132/B(M)F-85 (Αναθ.2) θα δήλωνε την αναθεώρηση 2 του αυστριακού πιστοποιητικού έγκρισης του σχεδιασμού του κόλου, ή A/132/B(M)F-85 (Αναθ.0) θα δήλωνε την αρχική έκδοση του αυστριακού πιστοποιητικού έγκρισης του σχεδιασμού του κόλου. Για αρχικές εκδόσεις, η παρενθετική καταχώρηση είναι προαιρετική και άλλες λέξεις τέτοιες όπως 'Αρχική έκδοση' μπορούν επίσης να χρησιμοποιούνται στη θέση των 'Αναθ.0'. Αριθμοί αναθεώρησης Πιστοποιητικού μπορούν μόνον να εκδίδονται από τη χώρα που εκδίδει το αρχικό πιστοποιητικό έγκρισης.
- (d) Πρόσθετα σύμβολα (όπως μπορεί να επιβάλλονται από εθνικές απαιτήσεις) μπορούν να προστίθενται σε παρένθεση στο τέλος του χαρακτηριστικού σήματος, για παράδειγμα, A/132/B(M)F-85 (SP503).
- (e) Δεν είναι απαραίτητο να τροποποιείται το χαρακτηριστικό σήμα πάνω στη συσκευασία κάθε φορά που γίνεται μία αναθεώρηση στο πιστοποιητικό σχεδιασμού. Τέτοιο επαναμαρκάρισμα θα πρέπει να γίνεται μόνο σε εκείνες τις περιπτώσεις όπου η αναθεώρηση στο πιστοποιητικό σχεδιασμού του κόλου συνεπάγεται αλλαγή στους γραμματικούς κωδικούς τύπου για τον σχεδιασμό του κόλου μετά την δεύτερη κάθετο.

**Περιεχόμενο των πιστοποιητικών έγκρισης**  
(βλέπε εισαγωγική σημείωση σ' αυτό το μέρος)

**3761** Πιστοποιητικά έγκρισης ειδικής μορφής ραδιενεργού υλικού

παράγραφος 726

**3762** Πιστοποιητικά έγκρισης ειδικών ρυθμίσεων

παράγραφος 727

**3763** Πιστοποιητικά έγκρισης φόρτωσης

παράγραφος 728

**3764** Πιστοποιητικά έγκρισης σχεδιασμού του κόλου

παράγραφος 729

**Ισχύς των πιστοποιητικών**

**3765** Πολυμερής έγκριση μπορεί να γίνει με ισχύ του αρχικού πιστοποιητικού που εκδίδεται από την αρμόδια αρχή της χώρας προέλευσης του σχεδιασμού ή της φόρτωσης.

Τέτοια ισχύς μπορεί να λάβει τη μορφή μίας επικύρωσης πάνω στο αρχικό πιστοποιητικό ή της έκδοσης μίας ξεχωριστής επικύρωσης, παραρτήματος, συμπληρώματος κ.λπ., από την αρμόδια αρχή της χώρας μέσω της οποίας ή στην οποία γίνεται η φόρτωση.

## Προσθήκη Α.7

## Γενική διάταξη για το πρόγραμμα εξασφάλισης της ποιότητας

**3766** Προγράμματα εξασφάλισης της ποιότητας θα πρέπει να καθιερώνονται για το σχεδιασμό, την κατασκευή, τον έλεγχο, την τεκμηρίωση, τη χρήση, τη συντήρηση και την επιθεώρηση όλων των κόλων και για τις λειτουργίες μεταφοράς και υπό μεταφορά αποθήκευσης για την εξασφάλιση συμφωνίας με τις σχετικές διατάξεις αυτής της Προσθήκης. Όπου έγκριση της αρμόδιας αρχής για το σχεδιασμό ή τη φόρτωση απαιτείται, τέτοια έγκριση θα πρέπει να λαμβάνει υπόψη και να εξαρτάται από την επάρκεια του προγράμματος εξασφάλισης της ποιότητας. Πιστοποίηση ότι οι προδιαγραφές σχεδιασμού έχουν πλήρως εφαρμοστεί θα πρέπει να είναι διαθέσιμη στην αρμόδια αρχή. Ο κατασκευαστής, ο αποστολέας, ή ο χρήστης οποιουδήποτε σχεδιασμού κόλου θα πρέπει να είναι προετοιμασμένος να προσφέρει διευκολύνσεις για την επιθεώρηση της συσκευασίας από την αρμόδια αρχή κατά τη διάρκεια της κατασκευής και της χρήσης και να επιδεικνύει σε οποιαδήποτε σχετική αρμόδια αρχή ότι:

- (a) Οι μέθοδοι τα υλικά κατασκευής που χρησιμοποιούνται για την κατασκευή της συσκευασίας είναι σε συμφωνία με τις εγκεκριμένες προδιαγραφές σχεδιασμού και
- (b) Όλες οι συσκευασίες που είναι κατασκευασμένες σύμφωνα μ' έναν εγκεκριμένο σχεδιασμό επιθεωρούνται περιοδικά και, όπως απαιτείται, επισκευάζονται και συντηρούνται σε καλή κατάσταση έτσι ώστε να συνεχίζουν να είναι σύμφωνες με όλες τις σχετικές διατάξεις και προδιαγραφές, ακόμα και μετά από επανειλημμένη χρήση.

3767-  
3769

## Προσθήκη Α.7

## ΜΕΡΟΣ V

## ΡΑΔΙΕΝΕΡΓΑ ΥΛΙΚΑ ΠΟΥ ΕΧΟΥΝ ΑΛΛΕΣ ΕΠΙΚΙΝΔΥΝΕΣ ΙΔΙΟΤΗΤΕΣ

- 3770 (1) Τα ραδιενεργά υλικά που έχουν άλλες επικίνδυνες ιδιότητες θα πρέπει να είναι συσκευασμένα:
- (a) σε συμφωνία με τις διατάξεις για την Κλάση 7 και
  - (b) εκτός εάν μεταφέρονται ως ένα κόλο Τύπου Α ή Τύπου Β, επίσης σε συμφωνία με τις διατάξεις της κατάλληλης κλάσης.
- (2) Τα πυροφορικά ραδιενεργά υλικά θα πρέπει να είναι συσκευασμένα σε κόλα Τύπου Α ή Τύπου Β και θα πρέπει επίσης να είναι κατάλληλα αδρανοποιημένα.
- (3) Για ραδιενεργά υλικά σε εξαιρούμενα κόλα που έχουν άλλες επικίνδυνες ιδιότητες, βλέπε περιθωριακό 2002 (12) και (13).
- (4) Οι συσκευασίες για εξαφθοριούχο ουράνιο θα πρέπει να σχεδιάζονται, κατασκευάζονται και χρησιμοποιούνται σε συμφωνία με τις διατάξεις του περιθωριακού 3771.

## Διατάξεις για τη συσκευασία και τη μεταφορά του εξαφθοριούχου ουρανίου

- 3771 (1) Οι συσκευασίες για εξαφθοριούχο ουράνιο θα πρέπει να είναι σχεδιασμένα ως δοχεία πίεσης και κατασκευασμένα από κατάλληλο κοινό χάλυβα ή άλλο κατάλληλο κράμα χάλυβα.
- (2) (a) Οι συσκευασίες και ο εξοπλισμός εξυπηρέτησής τους θα πρέπει να είναι σχεδιασμένες για θερμοκρασίες εργασίας τουλάχιστον - 40 °C έως 121 °C και για πίεση εργασίας 1.4 MPa (14 bar).
- (b) Οι συσκευασίες και ο εξοπλισμός εξυπηρέτησης και δόμησής τους θα πρέπει να είναι έτσι σχεδιασμένες ώστε να αποφεύγεται οποιαδήποτε διαρροή ή μόνιμη παραμόρφωση όταν υπόκεινται για πέντε λεπτά σε υδραυλική πίεση ελέγχου 2.8 MPa (28 bar).
- (c) Οι συσκευασίες και ο δομικός εξοπλισμός τους (εάν αυτός είναι μόνιμα προσαρμοσμένος στη συσκευασία) θα πρέπει να είναι έτσι σχεδιασμένες ώστε να αντέχουν μία εξωτερική πίεση πιεζομέτρου 150 kPa (1.5 bar) χωρίς μόνιμη παραμόρφωση.
- (d) Οι συσκευασίες και ο εξοπλισμός εξυπηρέτησής τους θα πρέπει να είναι έτσι σχεδιασμένες ώστε να παραμένουν στεγανές έτσι ώστε να τηρείται το όριο που προκαθορίζεται στην παράγραφο (4) (f).
- (e) Βαλβίδες εκτόνωσης της πίεσης δεν επιτρέπονται και ο αριθμός ανοιγμάτων θα πρέπει να είναι όσο το δυνατόν λιγότερες.
- (f) Συσκευασίες με χωρητικότητα μεγαλύτερη από 450 λίτρα και ο εξοπλισμός εξυπηρέτησης και δόμησής τους (εάν αυτός είναι μόνιμα προσαρμοσμένος στη συσκευασία) θα πρέπει να είναι έτσι σχεδιασμένες ώστε να παραμένουν στεγανές όταν υπόκεινται στον έλεγχο πτώσης που προκαθορίζεται στο περιθωριακό 3742.
- (3) Μετά την κατασκευή, το εσωτερικό των μερών που φέρουν την πίεση θα πρέπει να είναι διεξοδικά καθαρισμένο από γράσο, λάδι, επικαθίσεις, σκουριά και άλλες ξένες ύλες με μία κατάλληλη διαδικασία.

## Προσθήκη Α.7

- 3771 (4) (α) Κάθε κατασκευασμένη συσκευασία και ο εξοπλισμός εξυπηρέτησης και δόμησής της θα πρέπει, είτε από κοινού είτε ξεχωριστά, να υποβάλλεται σε μία επιθεώρηση αρχικά πριν τεθεί σε υπηρεσία και περιοδικά μετέπειτα. Αυτές οι επιθεωρήσεις θα πρέπει να πραγματοποιούνται και να πιστοποιούνται σε συμφωνία με την αρμόδια αρχή.
- (β) Η αρχική επιθεώρηση θα πρέπει να συνίσταται από έναν έλεγχο των χαρακτηριστικών του σχεδιασμού, τον έλεγχο αντοχής, τον έλεγχο στεγανότητας, το έλεγχο χωρητικότητας νερού και έναν έλεγχο κανονποιητικής λειτουργίας του εξοπλισμού εξυπηρέτησης.
- (γ) Οι περιοδικές επιθεωρήσεις θα πρέπει να συνίστανται από μία οπτική επιθεώρηση, τον έλεγχο αντοχής, τον έλεγχο στεγανότητας και έναν έλεγχο κανονποιητικής λειτουργίας του εξοπλισμού εξυπηρέτησης. Το διάστημα για τις περιοδικές επιθεωρήσεις θα πρέπει να είναι όχι μεγαλύτερο από πέντε χρόνια. Συσκευασίες που δεν έχουν επιθεωρηθεί μέσα σε αυτή την περίοδο των πέντε χρόνων θα πρέπει να εξετάζονται πριν τη μεταφορά σε συμφωνία με ένα πρόγραμμα εγκεκριμένο από την αρμόδια αρχή. Δεν θα πρέπει να ξαναγεμίζονται πριν την συμπλήρωση του πλήρους προγράμματος για τις περιοδικές επιθεωρήσεις.
- (δ) Ο έλεγχος των χαρακτηριστικών του σχεδιασμού θα πρέπει να παρουσιάζει συμφωνία με τις προδιαγραφές των τύπων σχεδιασμού και το πρόγραμμα κατασκευής.
- (ε) Ο έλεγχος αντοχής πριν τεθεί σε λειτουργία για πρώτη φορά θα πρέπει να διεξάγεται με υδραυλικό έλεγχο με εσωτερική πίεση 2.8 MPa (28 bar). Για τις περιοδικές επιθεωρήσεις, οποιαδήποτε άλλη ισοδύναμη μη-επιβλαβής διαδικασία εξέτασης αναγνωρισμένη από την αρμόδια αρχή μπορεί να εφαρμόζεται.
- (ς) Ο έλεγχος στεγανότητας θα πρέπει να πραγματοποιείται σε συμφωνία με μία διαδικασία που είναι ικανή να δείχνει τις διαρροές στο σύστημα συγκράτησης με ευαισθησία 0.1 Pa.l/s ( $10^{-6}$  bar.l/s).
- (ζ) Η χωρητικότητα νερού των συσκευασιών θα πρέπει να καθορίζεται με ακρίβεια  $\pm 0.25$  % σε μία θερμοκρασία αναφοράς 15 °C. Ο όγκος θα πρέπει να αναφέρεται πάνω στον πίνακα που περιγράφεται στην παράγραφο (6).

(5) Με την εξαίρεση των συσκευασιών για λιγότερο από 10 kg εξαφθορισόχο ουράνιο, η αρμόδια αρχή της χώρας προέλευσης θα πρέπει, για κάθε τύπο σχεδιασμού κόλου εξαφθορισόχου ουρανίου, να επιβεβαιώνει ότι συμφωνεί με τις διατάξεις αυτού του περιθωριακού και να εκδίδει μία έγκριση. Αυτή η έγκριση μπορεί να είναι μέρος της έγκρισης για ένα κόλο Τύπου Β και/ή για ένα κόλο με σχάσιμο περιεχόμενο σε συμφωνία με το Μέρος IV αυτής της Προσθήκης.

(6) Μία πλάκα κατασκευασμένη από μη-διαβρωτικό μέταλλο θα πρέπει να είναι με διάρκεια προσαρμοσμένη σε κάθε συσκευασία σε μία άμεσα προσπελάσιμη θέση. Η μέθοδος προσαρμογής της πλάκας δεν πρέπει να μειώνει την αντοχή της συσκευασίας. Τα παρακάτω στοιχεία, τουλάχιστον, θα πρέπει να είναι μαρκαρασιμένα πάνω στον πίνακα με σφραγίδα ή με οποιαδήποτε άλλη ισοδύναμη μέθοδο:

- αριθμός έγκρισης,
- σειριακός αριθμός του κατασκευαστή,
- μέγιστη πίεση εργασίας (πίεση πιεζομέτρου) 1.4 MPa (14 bar),
- πίεση ελέγχου (πίεση πιεζομέτρου) 2.8 MPa (28 bar),

## Προσθήκη Α.7

3771  
(συνεχ.)

- περιεχόμενο: εξαφθοριούχο ουράνιο,
- χωρητικότητα σε λίτρα,
- μέγιστο επιτρεπτό βάρος πλήρωσης εξαφθοριούχου ουρανίου,
- απόβαρο,
- ημερομηνία (μήνας, χρόνος) του αρχικού ελέγχου και του πιο πρόσφατου περιοδικού ελέγχου,
- σφραγίδα του εμπειρογνώμονα που διεξήγαγε τον έλεγχο.

- (7) (a) Το εξαφθοριούχο ουράνιο πρέπει να είναι σε στερεή μορφή όταν μεταφέρεται.
- (b) Ο βαθμός πλήρωσης θα πρέπει να είναι μόνον τέτοια ώστε η χωρητικότητα να μην είναι περισσότερο από 95 % γεμισμένη στους 121 °C.
- (c) Ο καθαρισμός των συσκευασιών θα πρέπει να πραγματοποιείται μόνον με μία κατάλληλη διαδικασία.
- (d) Η εκτέλεση των επισκευών επιτρέπεται μόνον σε συμφωνία με τα προγράμματα σχεδιασμού και κατασκευής που τίθενται γραπτά. Τα προγράμματα επισκευής απαιτούν την προηγούμενη έγκριση της αρμόδιας αρχής.
- (e) Οι ακαθάριστες κενές συσκευασίες θα πρέπει να είναι το ίδιο σφικτά κλεισμένες, κατά τη διάρκεια της μεταφοράς και της ενδιάμεσης αποθήκευσης, όπως όταν είναι γεμάτες.
- (f) Για τη συντήρηση, ένα πρόγραμμα εγκεκριμένο από την αρμόδια αρχή θα πρέπει να ενεργείται.

(8) Συσκευασίες κατασκευασμένες σε συμφωνία με το Πρότυπο ANSI N/14.1 - 1982<sup>19</sup> των Ηνωμένων Πολιτειών, ή ισοδύναμες, μπορούν να χρησιμοποιούνται, με τη συγκατάθεση της συγκεκριμένης αρμόδιας αρχής, εάν οι έλεγχοι που προκαθορίζονται σε αυτά τα πρότυπα έχουν διεξαχθεί από τον εμπειρογνώμονα που ονομάζεται σ' αυτά και συνεχίζουν να πραγματοποιούνται και να πιστοποιούνται σε συμφωνία με την αρμόδια αρχή σύμφωνα με την παράγραφο (4) (c).

3772-  
3799

<sup>19</sup> ANSI N 14.1 - 1982 δημοσιευμένη το 1982 και διαθέσιμη από το Αμερικανικό Εθνικό Ινστιτούτο Προτύπων, 10430 Broadway, New York, NY 10018.

1898

**ΠΡΟΣΘΗΚΗ Α.8**

3800-  
3899

Επιφύλασσομένο



## ΠΡΟΣΘΗΚΗ Α.9

## 1. Διατάξεις σχετικές με ετικέτες κινδύνου.

**ΣΗΜΕΙΩΣΗ:** Για συσκευασίες, βλέπε επίσης περιθωριακό 2007.

- 3900 (1) Οι ετικέτες αριθμ. 1, 1.4, 1.5, 1.6, 01, 2, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 05, 6.1, 6.2, 7A, 7B, 7C, 8 και 9 θα πρέπει να είναι σε σχήμα ρόμβου και να έχουν διαστάσεις 100 x 100 mm. Έχουν μία μαύρη γραμμή 5 mm μέσα από την άκρη που διατρέχει παράλληλα μ' αυτήν. Εάν το μέγεθος της συσκευασίας έτσι απαιτεί, οι διαστάσεις των ετικετών μπορούν να μειώνονται, υπό την προϋπόθεση ότι παραμένουν καθαρά ορατές [βλέπε επίσης περιθωριακό 2224 (6)]. Οι ετικέτες αριθμ. 7D και άλλες ετικέτες που πρέπει να τοποθετούνται σε οχήματα, σε δεξαμενές χωρητικότητας μεγαλύτερης από 3 m<sup>3</sup> ή σε μεγάλα εμπορευματοκιβώτια θα πρέπει να έχουν διαστάσεις όχι μικρότερες από 250 x 250 mm.
- (2) Οι ετικέτες αριθμ. 10, 11 και 12 θα πρέπει να είναι ορθογώνιες, πρότυπου σχήματος A5 (148 x 210 mm). Εάν το μέγεθος της συσκευασίας έτσι απαιτεί, οι διαστάσεις των ετικετών μπορούν να μειώνονται, υπό την προϋπόθεση ότι παραμένουν καθαρά ορατές.
- (3) Μία περιγραφή, με αριθμούς ή γράμματα, που αφορούν στη φύση του κινδύνου μπορεί να τοποθετείται πάνω στο χαμηλότερο μέρος των ετικετών.
- (4) Η διατύπωση στις ετικέτες κινδύνου θα πρέπει να είναι καθαρά ευανάγνωστη και ανεξίτηλη.
- 3901 (1) Οι ετικέτες κινδύνου πρέπει να τοποθετούνται στις συσκευασίες και στις σταθερές δεξαμενές μ' έναν κατάλληλο τρόπο και να είναι καθαρά ορατές. Μόνον όπου η κατάσταση του εξωτερικού μίας συσκευασίας δεν το επιτρέπει αυτό οι ετικέτες θα πρέπει να κολλούνται πάνω σε κάρτες ή πινακίδες που είναι με ασφάλεια προσαρμοσμένες στη συσκευασία. Ανεξίτηλα μαρκαρίσματα κινδύνου που αντιστοιχούν ακριβώς στα οριζόμενα υποδείγματα μπορούν να χρησιμοποιούνται αντί για ετικέτες.
- (2) Είναι καθήκον του αποστολέα να τοποθετήσει τις ετικέτες.
- (3) Επιπλέον των ετικετών κινδύνου που ορίζονται σ' αυτήν την Οδηγία, ετικέτες κινδύνου σύμφωνα με τις απαιτήσεις άλλων τρόπων μεταφοράς μπορούν να τοποθετούνται στις συσκευασίες, τα εμπορευματοκιβώτια, τα εμπορευματοκιβώτια-δεξαμενές και τις συστοιχίες των δοχείων που περιέχουν επικίνδυνα εμπορεύματα που μεταφέρονται για μέρος μίας διαδρομής οδικώς και που πρέπει να είναι εσημασμένα σε συμφωνία με τις διατάξεις εκείνων των απαιτήσεων.

## 2. Επεξήγηση των συμβόλων

- 3902 Οι ετικέτες κινδύνου που ορίζονται για υελες και ειση των Κλάσεων 1 έως 9 (βλέπε αντίτυπα στο τέλος) έχουν τις παρακάτω σημασίες:

Αριθμ. 1	(μαύρη σε πορτοκαλί φόντο: έκρηξη βόμβας στο επάνω μισό, κατάλληλος αριθμός υποδιαίρεσης και γράμμα ομάδας συμβατότητας στο κάτω μισό, μικρός αριθμός 1 στην κάτω γωνία):	υπόκειται σε έκρηξη, υποδιαίρεσεις 1.1, 1.2 και 1.3,
Αριθμ. 1.4	(μαύρο σε πορτοκαλί φόντο: αριθμός υποδιαίρεσης '1.4' που γεμίζει το μεγαλύτερο μέρος του επάνω μισού, κατάλληλο γράμμα ομάδας συμβατότητας στο κάτω μισό, μικρός αριθμός 1 στην κάτω γωνία):	υπόκειται σε έκρηξη, υποδιαίρεση 1.4,
Αριθμ. 1.5	(μαύρο σε πορτοκαλί φόντο: αριθμός	υπόκειται σε έκρηξη, υποδιαίρεση 1.5,

## Προσθήκη Α.9

3902  
(συνεχ.)

	υποδιαίρεσης '1.5' που γεμίζει το μεγαλύτερο τμήμα του επάνω μισού, γράμμα ομάδας συμβατότητας 'D' στο κάτω μισό, μικρός αριθμός 1 στην κάτω γωνία):	
Αριθμ. 1.6	(μαύρο σε πορτοκαλί φόντο: αριθμός υποδιαίρεσης '1.6' που γεμίζει το μεγαλύτερο τμήμα του επάνω μισού, γράμμα ομάδας συμβατότητας 'N' στο κάτω μισό, μικρός αριθμός '1' στην κάτω γωνία),	υπόκειται σε έκρηξη, υποδιαίρεση 1.6,
Αριθμ. 01	(μαύρο σε πορτοκαλί φόντο, έκρηξη βόμβας στο επάνω μισό):	υπόκειται σε έκρηξη,
Αριθμ. 2	(κύλινδρος αερίου, μαύρος ή λευκός, σε πράσινο φόντο, μικρός αριθμός "2" στην κάτω γωνία):	μη-εύφλεκτο μη-τοξικό αέριο,
Αριθμ. 3	(μαύρη ή λευκή φλόγα σε κόκκινο φόντο):	κίνδυνος φωτιάς (εύφλεκτο υγρό),
Αριθμ. 4.1	(μαύρη φλόγα σε φόντο από ισαπέχουσες εναλλασσόμενες κόκκινες και λευκές κάθετες ραβδώσεις):	κίνδυνος φωτιάς (εύφλεκτο στερεό),
Αριθμ. 4.2	(μαύρη φλόγα σε λευκό φόντο, το κάτω τρίγωνο της ετικέτας κόκκινο):	ύλη που υπόκειται σε αυτόματη ανάφλεξη,
Αριθμ. 4.3	(μαύρη ή λευκή φλόγα σε μπλε φόντο):	κίνδυνος έκλυσης εύφλεκτων αερίων σε περίπτωση επαφής με το νερό,
Αριθμ. 5.1	(φλόγα πάνω από έναν κύκλο, μαύρη σε κίτρινο φόντο, μικρός αριθμός "5.1" στην κάτω γωνία):	οξειδωτική ύλη
Αριθμ. 5.2	(φλόγα πάνω από έναν κύκλο, μαύρη σε κίτρινο φόντο, μικρός αριθμός "5.2" στην κάτω γωνία):	οργανικό υπεροξειδίο, κίνδυνος φωτιάς,
Αριθμ. 05	(φλόγα πάνω από έναν κύκλο, μαύρη σε κίτρινο φόντο):	κίνδυνος ενίσχυσης της φωτιάς,
Αριθμ. 6.1	(νεκροκεφαλή σε διασταυρούμενα οστά, μαύρη σε λευκό φόντο):	τοξική ύλη: να διατηρείται ξεχωριστά από τρόφιμα και άλλα είδη για κατανάλωση σε οχήματα και σημεία φόρτωσης, εκφόρτωσης ή μεταφόρτωσης,
Αριθμ. 6.2	(σύμβολο με τρεις ημισέληνους τοποθετημένες σ' έναν κύκλο):	μολυσματικό: να διατηρείται ξεχωριστά σε οχήματα και σε σημεία φόρτωσης, εκφόρτωσης ή μεταφόρτωσης, από τρόφιμα, άλλα είδη κατανάλωσης και ζωοτροφές,

## Προσθήκη Α.9

3902  
(συνεχ.)

- Αριθμ. 7Α (τυποποιημένο τριφύλλι, επιγραφή ΡΑΔΙΕΝΕΡΓΟ ακολουθούμενη από μία κάθετη ράβδωση στο κάτω μισό, με το παρακάτω κείμενο:
- Περιεχόμενο .....  
Δραστηκότητα .....  
μικρός αριθμός 7 στην κάτω γωνία, μαύρο σύμβολο και επιγραφές σε λευκό φόντο, κόκκινη κάθετη ράβδωση):
- Αριθμ. 7Β (όπως παραπάνω, αλλά με δύο κόκκινες κάθετες ραβδώσεις στο κάτω μισό και το παρακάτω κείμενο:
- Περιεχόμενο .....  
Δραστηκότητα .....  
Δείκτης μεταφοράς.....
- (στο ορθογώνιο μαύρο πλαίσιο). Μικρός αριθμός 7 στην κάτω γωνία, μαύρο σύμβολο και επιγραφές. Φόντο στο επάνω μισό: κίτρινο. Φόντο στο κάτω μισό: λευκό. Κόκκινες κάθετες ραβδώσεις):
- Αριθμ. 7C (όπως παραπάνω, αλλά με τρεις κόκκινες κάθετες ραβδώσεις στο κάτω μισό):
- Αριθμ. 7D (τυποποιημένο τριφύλλι, επιγραφή ΡΑΔΙΕΝΕΡΓΟ και αριθμός 7. Μαύρο σύμβολο και επιγραφές. Φόντο στο επάνω μισό: κίτρινο, φόντο στο κάτω μισό: λευκό.  
Η χρήση της λέξης "ΡΑΔΙΕΝΕΡΓΟ" στο κάτω μισό είναι προαιρετική ώστε να επιτρέπει την εναλλακτική χρήση αυτής της ετικέτας για την ένδειξη του κατάλληλου χαρακτηριστικού αριθμού της ύλης για το φορτίο):
- Αριθμ. 8 (υγρό που στάζει από έναν δοκιμαστικό σωλήνα σε μία πλάκα και από έναν άλλο δοκιμαστικό σωλήνα σε ένα χέρι. Μαύρο σε λευκό φόντο. Το κάτω τρίγωνο της ετικέτας μαύρο με λευκό περιθώριο):
- ραδιενεργό υλικό σε συσκευασίες της Κατηγορίας I - ΛΕΥΚΗ. Στην περίπτωση φθοράς στις συσκευασίες, κίνδυνος για την υγεία από κατάποση ή εισπνοή, ή επαφή με το χυμένο περιεχόμενο,
- ραδιενεργό υλικό σε συσκευασίες της Κατηγορίας II - ΚΙΤΡΙΝΗ. Οι συσκευασίες να διατηρούνται μακριά από συσκευασίες που φέρουν την επιγραφή "FOTO" (βλέπε περιθωριακό 2711). Στην περίπτωση φθοράς στις συσκευασίες, κίνδυνος για την υγεία από κατάποση ή εισπνοή, ή επαφή με το χυμένο περιεχόμενο και κίνδυνος εξωτερικής ακτινοβολίας σε μία απόσταση,
- ραδιενεργό υλικό σε συσκευασίες της Κατηγορίας III - ΚΙΤΡΙΝΗ. Οι συσκευασίες να διατηρούνται μακριά από συσκευασίες που φέρουν την επιγραφή "FOTO" (βλέπε περιθωριακό 2711). Στην περίπτωση φθοράς στις συσκευασίες, κίνδυνος για την υγεία από κατάποση ή εισπνοή, ή επαφή με το χυμένο περιεχόμενο και κίνδυνος εξωτερικής ακτινοβολίας σε μία απόσταση,
- ραδιενεργό υλικό που παρουσιάζει τους κινδύνους που περιγράφονται στα 7Α, 7Β ή 7C,
- διαβρωτική ύλη,

## Προσθήκη Α.9

3902  
(συνεχ.)

Αριθμ. 9	(λευκό φόντο με 7 μαύρες κάθετες ραβδώσεις στο επάνω μισό και μικρός αριθμός 9, υπογραμμισμένος, στην κάτω γωνία):	διάφορες ύλες και είδη που, κατά τη διάρκεια της μεταφοράς, παρουσιάζουν κινδύνους άλλους από εκείνους που καλύπτονται από τις άλλες κλάσεις,
Αριθμ. 10	(μαύρη ανοιχτή ομπρέλα και έξι μαύρες σταγόνες νερού, σε λευκό ή κατάλληλο για τη δημιουργία αντίθεσης φόντο):	να διατηρείται ξηρό,
Αριθμ. 11	(δύο μαύρα βέλη σε λευκό ή κατάλληλο για τη δημιουργία αντίθεσης φόντο):	αυτή η πλευρά προς τα επάνω: η ετικέτα πρέπει να τοποθετείται, με τα βέλη να δείχνουν προς τα επάνω,
Αριθμ. 12	(μαύρο ποτήρι του κρασιού σε λευκό ή κατάλληλο για τη δημιουργία αντίθεσης φόντο):	εύθραστο, ή να διακινείται με προσοχή.

## 3. Μεταβατικές διατάξεις

3903 Οι ετικέτες κινδύνου που μέχρι τις 31 Δεκεμβρίου 1987 συμφωνούσαν με τα υποδείγματα Αριθμ. 7Α, 7Β, 7C, 10, 11 και 12 μπορούν να χρησιμοποιούνται μέχρι την εξάντληση των αποθεμάτων.

3904-  
3999

1903

**ΕΤΙΚΕΤΕΣ ΚΙΝΔΥΝΟΥ**

1904

Προσθήκη Α.9

3902  
(συνεχ.)

Ετικέτες κινδύνου  
Για επεξηγήσεις, βλέπε Προσθήκη Α.9 (περιθωριακό 3902)

- 1) Ένδειξη του κατάλληλου αριθμού υποδιαίρεσης και γράμματος της ομάδας συμβατότητας
- 2) Ένδειξη του κατάλληλου γράμματος της ομάδας συμβατότητας
- 3) Για τις διαστάσεις, βλέπε ετικέτα Αριθμ. 1

1905

Προσθήκη Α.9

3902  
(συνεχ.)

Ετικέτες κινδύνου

- 3) Για τις διαστάσεις, βλέπε ετικέτα Αριθμ. 1
- 4) Για τις διαστάσεις, βλέπε ετικέτα 7Α
- 5) Οι διαστάσεις των ετικετών που θα επικολλώνται στα κόλα θα έχουν συμκρυνθεί στο σχήμα Α7 (74x 105 mm)

1906

Προσθήκη Α.9

3902  
(συνεχ.)

## **ΠΑΡΑΡΤΗΜΑ Β**

**ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΕΞΟΠΛΙΣΜΟ ΜΕΤΑΦΟΡΑΣ  
ΚΑΙ ΕΡΓΑΣΙΕΣ ΜΕΤΑΦΟΡΑΣ**



## ΠΙΝΑΚΑΣ ΠΕΡΙΕΧΟΜΕΝΩΝ ΠΑΡΑΡΤΗΜΑΤΟΣ Β

## (ΤΕΥΧΟΣ ΙΙ)

## ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΕΞΟΠΛΙΣΜΟ ΜΕΤΑΦΟΡΑΣ ΚΑΙ ΕΡΓΑΣΙΕΣ ΜΕΤΑΦΟΡΑΣ

	Περιθωριακά
Σχέδιο του Παραρτήματος .....	10 000
Εφαρμοσιμότητα άλλων διατάξεων, εθνικών ή διεθνών .....	10 001
Εφαρμοσιμότητα των διατάξεων του Μέρους Ι .....	10 002
<b>Μέρος Ι. ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΕΦΑΡΜΟΣΙΜΕΣ ΣΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΟΥΣΙΩΝ ΟΛΩΝ ΤΩΝ ΚΛΑΣΕΩΝ</b>	
<u>Γενικά</u> .....	10 010 και επόμενα
Πλαίσιο του παρόντος Παραρτήματος (περιλαμβανομένων περιορισμένων ποσοτήτων) .....	10 010 και επόμενα
Ορισμοί .....	10 014 και επόμενα
<u>Τμήμα 1</u> <u>Τρόπος μεταφοράς</u> .....	10 100 και επόμενα
Μέθοδος αποστολής, περιορισμοί στη μεταφορά .....	10 105 και επόμενα
Πλήρες φορτίο .....	10 108 και επόμενα
Μεταφορά χύμα .....	10 111 και επόμενα
Μεταφορά σε εμπορευματοκιβώτια .....	10 118 και επόμενα
Μεταφορά σε δεξαμενές .....	10 121 και επόμενα
<u>Τμήμα 2</u> <u>Ειδικές προϋποθέσεις προς εκπλήρωση από τα μεταφορικά μέσα και τον εξοπλισμό τους</u> .....	10 200 και επόμενα
Τύποι οχημάτων .....	10 204 και επόμενα
Οχήματα με σταθερές ή αφαιρούμενες δεξαμενές ή συστοιχίες δοχείων .....	10 220 και επόμενα
Πυροσβεστικές συσκευές .....	10 240 και επόμενα
Ηλεκτρολογικός εξοπλισμός .....	10 251 και επόμενα
Διάφορος εξοπλισμός .....	10 260 και επόμενα
Έγκριση οχημάτων .....	10 282 και 10 283

## Προσθήκη Α.9

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(συνεχ.)

Πίνακας Περιεχομένων

(συνέχεια)

	<b>Περιθωριακά</b>
Τμήμα 3	
<u>Γενικές απαιτήσεις εξυπηρέτησως</u>	10 300 και επόμενα
Πληρώματα οχημάτων .....	10 311 και επόμενα
Ειδική εκπαίδευση οδηγών .....	10 315 και επόμενα
Επίβλεψη οχημάτων .....	10 321 και επόμενα
Μεταφορά επιβατών .....	10 325 και επόμενα
Χρήση πυροσβεστικών συσκευών .....	10 340 και επόμενα
Φορητές φωτιστικές συσκευές .....	10 353 και επόμενα
Άδειες δεξαμενές .....	10 378 και επόμενα
Έγγραφα που πρέπει να υπάρχουν στη μονάδα μεταφοράς .....	10 381 και επόμενα
Γραπτές οδηγίες .....	10 385 και επόμενα
Τμήμα 4	
<u>Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό</u>	10 400 και επόμενα
Περιορισμός των μεταφερόμενων ποσοτήτων .....	10 401 και επόμενα
Απαγόρευση μικτής φορτώσεως σε ένα όχημα .....	10 403 και επόμενα
Απαγόρευση μικτής φορτώσεως σε ένα εμπορευματοκιβώτιο ..	10 404 και επόμενα
Απαγόρευση μικτής φορτώσεως με εμπορεύματα περιεχόμενα σε εμπορευματοκιβώτιο .....	10 405 και επόμενα
Καθαρισμός προ τη φορτώσεως .....	10 413
Χειρισμός και στοιβασία .....	10 414
Καθαρισμός μετά την εκφόρτωση .....	10 415
Απαγόρευση καπνίσματος .....	10 416
Προφυλάξεις για ηλεκτροστατικές φορτίσεις .....	10 417 και επόμενα
Φόρτωση και εκφόρτωση επικίνδυνων ουσιών σε εμπορευματοκιβώτια .....	10 419 και επόμενα
Θέση σε κίνηση της μηχανής κατά τη διάρκεια της φορτώσεως ή της εκφόρτώσεως .....	10 431 και επόμενα

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(συνεχ.)  
Πίνακας Περιεχομένων  
(συνέχεια)

		<b>Περιθωριακά</b>
Τμήμα 5	<u>Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων</u>	10 500 και επόμενα
	Επίσημανση των οχημάτων .....	10 500 και επόμενα
	Στάθμευση γενικά .....	10 503 και επόμενα
	Στάθμευση τη νύκτα ή σε κακή ορατότητα .....	10 505 και επόμενα
	Στάθμευση οχήματος που αποτελεί ειδικό κίνδυνο .....	10 507 και επόμενα
	Άλλες διατάξεις .....	10 599 και επόμενα
Τμήμα 6	<u>Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ιδιόρρυθμες για ορισμένες χώρες</u>	10 600 και επόμενα
	Ταχεία διαδικασία για να επιτραπούν παρεκκλίσεις προς το σκοπό δοκιμών .....	10 602 και επόμενα

**Μέρος ΙΙ. ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΕΧΟΥΝ ΕΦΑΡΜΟΓΗ ΣΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΟΥΣΙΩΝ ΤΩΝ ΚΛΑΣΕΩΝ 1 ΜΕΧΡΙ 9**

Κλάση 1	Εκρηκτικές ύλες και είδη .....	11 000 και επόμενα
Κλάση 2	Αέρια: πεπιεσμένα, υγροποιημένα ή διαλυμένα υπό πίεση .....	21 000 και επόμενα
Κλάση 3	Εύφλεκτα υγρά .....	31 000 και επόμενα
Κλάση 4.1	Εύφλεκτα στερεά .....	41 000 και επόμενα
Κλάση 4.2	Ύλες υποκειμένες σε αυτόματο ή αυτογενή ανάφλεξη .....	42 000 και επόμενα
Κλάση 4.3	Ύλες που βγάζουν εύφλεκτα αέρια σε επαφή με το νερό .....	43 000 και επόμενα
Κλάση 5.1	Οξειδωτικές ύλες .....	51 000 και επόμενα
Κλάση 5.2	Οργανικά υπεροξειδία .....	52 000 και επόμενα
Κλάση 6.1	Τοξικές ύλες .....	61 000 και επόμενα
Κλάση 6.2	Μολυσματικές ύλες .....	62 000 και επόμενα
Κλάση 7	Ραδιενεργείς ύλες .....	71 000 και επόμενα
Κλάση 8	Διαβρωτικές ύλες .....	81 000 και επόμενα
Κλάση 9	Διάφορες επικίνδυνες ύλες και είδη .....	91 000 και επόμενα

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(συνεχ.)

Πίνακας Περιεχομένων

(συνέχεια)

## Μέρος ΙΙΙ. ΠΡΟΣΘΗΚΕΣ ΠΑΡΑΡΤΗΜΑΤΟΣ Β

		Περιθωριακά
Προσθήκη Β.1	Διατάξεις κοινές στις Προσθήκες Β.1 .....	200 000 και επόμενα
Προσθήκη Β.1α	Διατάξεις που αφορούν σταθερές δεξαμενές (οχήματα-δεξαμενές) αποσυναρμολογούμενες δεξαμενές και συστοιχία δοχείων .....	211 000 και επόμενα
Προσθήκη Β.1β	Διατάξεις που αφορούν εμπορευματοκιβώτια δεξαμενές .....	212 000 και επόμενα
Προσθήκη Β.1c	Διατάξεις που αφορούν σταθερές δεξαμενές και αποσυναρμολογούμενες δεξαμενές από ενισχυμένο πλαστικό .....	213 000 και επόμενα
Προσθήκη Β.1d	Προϋποθέσεις που αφορούν τα υλικά και την κατασκευή συγκολλημένων σταθερών δεξαμενών, συγκολλημένων αποσυναρμολογούμενων δεξαμενών και περιβλημάτων συγκολλημένων εμπορευματοκιβωτίων-δεξαμενών που προορίζονται για τη μεταφορά υγροποιημένων αερίων βαθιάς καταψύξεως της Κλάσης 2 .....	214 000 και επόμενα
Προσθήκη Β.2	Ενιαίες διατάξεις που αφορούν την κατασκευή οχημάτων προοριζόμενα για την μεταφορά επικινδύνων εμπορευμάτων συμπεριλαμβανομένων των διατάξεων για τους εγκεκριμένους τύπους τους, όπου αυτό χρειάζεται .....	220.000 και επόμενα
Προσθήκη Β.3	Πιστοποιητικό έγκρισης για οχήματα που μεταφέρουν ορισμένα επικίνδυνα εμπορεύματα .....	230 000 και επόμενα
Προσθήκη Β.4	Υπό επιφύλαξη .....	240 000 και επόμενα
Προσθήκη Β.5	Κατάλογος ουσιών και αριθμοί αναγνώρισης .....	250 000 και επόμενα
Προσθήκη Β.6	Πιστοποιητικό εκπαίδευσης οδηγού σύμφωνα με το περιθωριακό 10.315 (1) .....	260 000 και επόμενα

## Προσθήκη Α.9

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## ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΕΞΟΠΛΙΣΜΟ ΜΕΤΑΦΟΡΑΣ ΚΑΙ ΕΡΓΑΣΙΕΣ ΜΕΤΑΦΟΡΑΣ

## Σχέδιο του Παραρτήματος

10 000 (1) Το παρόν Παράρτημα περιλαμβάνει:

- (a) Γενικές διατάξεις που έχουν εφαρμογή στη μεταφορά επικινδύνων ουσιών όλων των Κλάσεων (Μέρος I).
- (b) Ειδικές διατάξεις που έχουν εφαρμογή στην μεταφορά επικινδύνων ουσιών των Κλάσεων 1 μέχρι 9 (Μέρος II).
- (c) Προσθήκες όπως τα παρακάτω:
  - Προσθήκη Β.1a που αφορά σταθερές δεξαμενές (οχήματα, δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων,
  - Προσθήκη Β.1b που αφορά εμπορευματοκιβώτια-δεξαμενές,
  - Προσθήκη Β.1c που αφορά σταθερές δεξαμενές και αποσυναρμολογούμενες δεξαμενές κατασκευασμένες από ενισχυμένο πλαστικό,
  - Προσθήκη Β.1d που αφορά τις προϋποθέσεις για τα υλικά και την κατασκευή συγκολλημένων σταθερών δεξαμενών, συγκολλημένων αποσυναρμολογούμενων δεξαμενών και περιβλημάτων συγκολλημένων εμπορευματοκιβωτίων-δεξαμενών που προορίζονται για τη μεταφορά υγροποιημένων αερίων βαθιάς καταψύξεως της Κλάσης 2 ή για τα οποία απαιτείται η πίεση δοκιμής να μην είναι μικρότερη από 1 Μρα (10 bar),
  - Προσθήκη Β.2 που αφορά τις ενιαίες διατάξεις για την κατασκευή οχημάτων προοριζόμενα για την μεταφορά επικινδύνων εμπορευμάτων συμπεριλαμβανομένων των διατάξεων για τους εγκεκριμένους τύπους τους, όπου αυτό χρειάζεται,
  - Προσθήκη Β.3 που περιέχει τύπο πιστοποιητικού για έγκριση οχημάτων,
  - Προσθήκη Β.5 που περιέχει τον κατάλογο ουσιών που καλύπτονται από το περιθωριακό 10500 (2),
  - Προσθήκη Β.6 που περιέχει υπόδειγμα πιστοποιητικού εκπαίδευσεως οδηγού.

(2) Οι γενικές διατάξεις του Μέρους I και οι ειδικές διατάξεις του Μέρους II χωρίζονται σε Τμήματα με τις ακόλουθες επικεφαλίδες:

- Γενικά: Το παρόν τμήμα περιγράφει το πλαίσιο του παρόντος Παραρτήματος και περιλαμβάνει τις διατάξεις που αφορούν επιτρεπόμενες εξαιρέσεις και ορισμούς.
- Τμήμα 1: Τρόπος μεταφοράς εμπορευμάτων (αυτό το τμήμα περιέχει τις διατάξεις που αφορούν μέθοδο αποστολής, περιορισμούς αποστολής, πλήρη φορτία και τη δυνατότητα μεταφοράς εμπορευμάτων χύμα, μέσα σε εμπορευματοκιβώτια ή σε δεξαμενές).
- Τμήμα 2: Ειδικές προϋποθέσεις προς εκπλήρωση με τα μέσα μεταφοράς και εξοπλισμός αυτών
- Τμήμα 3: Γενικές διατάξεις εξυπηρέτησεως

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Τμήμα 4: Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό (αυτό το τμήμα περιέχει επίσης τις απαγορεύσεις επί μικτής φορτώσεως)

Τμήμα 5: Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων

Τμήμα 6: Μεταβατικές διατάξεις, μειώσεις και διατάξεις αποκλειστικές για ορισμένες χώρες.

**Εφαρμοσιμότητα άλλων διατάξεων, εθνικών ή διεθνών.**

**10 001 (1)** Αν το όχημα που εκτελεί εργασία μεταφοράς με την επιφύλαξη των διατάξεων αυτής της Οδηγίας αποστέλλεται πάνω σε τμήμα του ταξιδιού κατά τρόπο διαφορετικό από την οδική έλξη, οποιοσδήποτε εθνικές ή διεθνείς διατάξεις που διέπουν την μεταφορά επικίνδυνων εμπορευμάτων σ' εκείνο το τμήμα με τον τρόπο μεταφοράς που χρησιμοποιείται για την αποστολή του οδικού οχήματος, θα έχουν εφαρμογή σ' εκείνο το τμήμα του ταξιδιού.

(2) Στις περιπτώσεις όπου κάποια μεταφορά που υπόκειται στις διατάξεις αυτής της Οδηγίας υπόκειται επίσης στο σύνολο ή σε μέρος του ταξιδιού στις διατάξεις μίας διεθνούς σύμβασης, η οποία καθορίζει την μεταφορά επικίνδυνων εμπορευμάτων με κάποιο τρόπο μεταφοράς εκτός της οδικής μεταφοράς δυνάμει διατάξεων που εκτείνουν την εφαρμοσιμότητα της σύμβασης αυτής σε ορισμένες υπηρεσίες μηχανοκίνητων οχημάτων, τότε οι διατάξεις αυτής της διεθνούς σύμβασης θα εφαρμόζονται στο εν λόγω ταξίδι συγχρόνως με εκείνες αυτής της Οδηγίας οι οποίες δεν είναι ασύμβατες με εκείνες, οι υπόλοιπες διατάξεις αυτής της Οδηγίας δεν θα εφαρμόζονται κατά την διάρκεια του εν λόγω ταξιδιού.

**Εφαρμοσιμότητα των διατάξεων του Μέρους I του Παραρτήματος.**

**10 002** Όταν διατάξεις του Μέρους II ή των Προσθηκών του παρόντος Παραρτήματος συγκρούονται με διατάξεις του Μέρους I, εκείνες οι διατάξεις του Μέρους I δεν θα έχουν εφαρμογή.

Παρά ταύτα,

(a) οι διατάξεις των περιθωριακών 10 010 και 10 013 θα έχουν προτεραιότητα πάνω σ' εκείνες του Μέρους II,

(b) οι διατάξεις του περιθωριακού 10 403 θα λαμβάνουν προτεραιότητα επί των απαγορεύσεων για μικτή φόρτωση που προβλέπεται στο Τμήμα 4 του Μέρους II.

10 003-  
10 009

**ΜΕΡΟΣ Ι****ΓΕΝΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΕΧΟΥΝ ΕΦΑΡΜΟΓΗ  
ΣΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΥΛΩΝ ΟΛΩΝ ΤΩΝ ΚΛΑΣΕΩΝ**

(Βλέπε, όμως, το περιθωριακό 10 002)

**Γενικά****Πλαίσιο του παρόντος Παραρτήματος**

- 10 010** Το Παράρτημα Α εξαιρεί από τις διατάξεις του παρόντος Παραρτήματος, τη μεταφορά που γίνεται σύμφωνα με τους όρους (συσκευασίας, όγκου κ.λπ.) που αναφέρονται στα περιθωριακά 2201a, 2301a, 2401a, 2471a, 2501a, 2551a, 2601a, 2801a και 2901a.
- 10 011** Πίνακας που καθορίζει τις περιορισμένες ποσότητες επικίνδυνων υλών σε κόλα που μπορεί να μεταφερθούν σε μία μεταφορική μονάδα χωρίς εφαρμογή των διατάξεων του παρόντος Παραρτήματος που έχουν σχέση με:
- ειδικές απαιτήσεις που πρέπει να ικανοποιούνται από τα μέσα μεταφοράς και τον εξοπλισμό τους (όλα τα Τμήματα 2 των Μερών Ι και ΙΙ), υποκείμενες, εντούτοις, στις διατάξεις των περιθωριακών 10 240 (1) (a) και 21 212,
  - τα πληρώματα οχήματος (περιθωριακά XX 311 των Μερών Ι και ΙΙ),
  - την ειδική εκπαίδευση για οδηγούς (περιθωριακό 10315),
  - την μεταφορά επιβατών (περιθωριακό 10325),
  - γραπτές οδηγίες (περιθωριακά XX 385 των Μερών Ι και ΙΙ),
  - τους χώρους φόρτωσης και εκφόρτωσης (περιθωριακά XX 407 του Μέρους ΙΙ) και
  - ειδικές διατάξεις σχετικά με τη λειτουργία των οχημάτων (όλα τα Τμήματα 5 των Μερών Ι και ΙΙ).

10 Ψ11  
(συνεχ.)

## Γενικές Διατάξεις

Κλάσεις	ΥΛΕΣ  Πολλαπλασιαστές για τον υπολογισμό των συνολικών ποσοτήτων που εξαιρούνται για φορτία που περιλαμβάνει πολλές ύλες που η κάθε μία περιορίζεται από διαφορετικά όρια όγκου (βλέπε παρακάτω σημείωση 1)	Ανώτατη συνολική ποσότητα ανά μεταφορική μονάδα (μικτό βάρος)						
		A	B	Γ	Δ	E	ΣΤ	Z
		200 5 kg	50 20 kg	20 50 kg	10 100 kg	3 333 kg	2 500 kg	1 1000 kg
1, 2 [μόνο αέρια ταξινομημένα υπό (a) και (b)], 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 8 και 9	Άδειες συσκευασίες (συμπεριλαμβανομένων των δοχείων, εξαιρουμένων των δεξαμενών)							X
1	1 <sup>ο</sup> , 3 <sup>ο</sup> , 5 <sup>ο</sup> - 7 <sup>ο</sup> , 9 <sup>ο</sup> , 10 <sup>ο</sup> , 12 <sup>ο</sup> , 13 <sup>ο</sup> , 15 <sup>ο</sup> , 17 <sup>ο</sup> - 19 <sup>ο</sup> , 21 <sup>ο</sup> , 23 <sup>ο</sup> , 25 <sup>ο</sup> , 27 <sup>ο</sup> , 30 <sup>ο</sup> - 32 <sup>ο</sup> , 34 <sup>ο</sup> , 48 <sup>ο</sup> (Αριθμ. ΟΗΕ 0331 και 0332)			X				
	2 <sup>ο</sup> , 4 <sup>ο</sup> , 8 <sup>ο</sup> , 11 <sup>ο</sup> 24 <sup>ο</sup>	X						
	26 <sup>ο</sup> , 29 <sup>ο</sup> , 33 <sup>ο</sup>		X					
	35 <sup>ο</sup> έως 43 <sup>ο</sup>					X		
	46 <sup>ο</sup> , 47 <sup>ο</sup>							X
	48 <sup>ο</sup> (Αριθμ. ΟΗΕ 0482)	X						
2	Χλωρο-κυανίδιο του 3 <sup>ο</sup> (ct)	X						
	Φωσγένιο του 3 <sup>ο</sup> (at), φθόριο του 1 <sup>ο</sup> (at)			X				
	1 <sup>ο</sup> (a) και (b), 2 <sup>ο</sup> (a) και (b)						X	
	Άλλες ύλες και άδειες συσκευασίες που περιέχουν αέριο ταξινομημένο υπό (at), (bt), (c) ή (ct)					X		
3	6 <sup>ο</sup> , 12 <sup>ο</sup> , 13 <sup>ο</sup> και ύλες της "α)" ή 11 <sup>ο</sup> , 14 <sup>ο</sup> έως 28 <sup>ο</sup> και 41 <sup>ο</sup> έως 47 <sup>ο</sup> , 57 <sup>ο</sup>	X						
	Υλες της (b) του 11 <sup>ο</sup> και 14 <sup>ο</sup> έως 28 <sup>ο</sup> και 41 <sup>ο</sup> έως 57 <sup>ο</sup>				X			
	1 <sup>ο</sup> (a), 2 <sup>ο</sup> (a) και 3 <sup>ο</sup> (b), 4 <sup>ο</sup> (a) και (b), 5 <sup>ο</sup> (a), και 7 <sup>ο</sup> (b)					X		
	31 <sup>ο</sup> (c) και 34 <sup>ο</sup> (c)						X	
	Άλλες ύλες					X		
4.1	1 <sup>ο</sup> (b) και 2 <sup>ο</sup> (c)							X
	6 <sup>ο</sup> (c) και 11 <sup>ο</sup> (c)					X		
	21 <sup>ο</sup> έως 26 <sup>ο</sup>	X <sup>1/</sup>						
	35 <sup>ο</sup> , 36 <sup>ο</sup> , 45 <sup>ο</sup> , 46 <sup>ο</sup>		X <sup>1/</sup>					
	37 <sup>ο</sup> έως 40 <sup>ο</sup> και 47 <sup>ο</sup> έως 50 <sup>ο</sup>			X <sup>1/</sup>				
	Άλλες ύλες			X				
4.2	1 <sup>ο</sup> c)							X
	Υλες ταξινομημένες υπό (b)					X		
	Υλες ταξινομημένες υπό (c)						X	

<sup>1/</sup> Εξαιρείται το βάρος της συσκευής κατάψυξης εάν υπάρχει τέτοια.



16.11  
(συνεχ.)

## Γενικές Διατάξεις

Κλάσεις	ΥΛΕΣ  Πολλαπλασιαστές για τον υπολογισμό των συνολικών ποσοτήτων που εξαιρούνται για φορτία που περιλαμβάνει πολλές ύλες που η κάθε μία περιορίζεται από διαφορετικά όρια όγκου (βλέπε παρακάτω σημείωση 1)	Ανώτατη συνολική ποσότητα ανά μεταφορική μονάδα (μικτό βάρος)							
		A 200 5 kg	B 50 20 kg	Γ. 20 50 kg	Δ 10 100 kg	Ε 3 333 kg	ΣΤ 2 500 kg	Z 1 1000 kg	απεριό- ριστα
4.3	11° (a), 13° (a), 14° (a), και 16° (a) έως 18° (a)	X							
	11° (b) έως 17° (b)					X			
	11° (c) έως 15° (c)							X	
5.1	Υλες ταξινομημένες υπό (a)			X					
	Υλες ταξινομημένες υπό (b)				X				
	Υλες ταξινομημένες υπό (c)						X		
5.2	5°, 6°, 15°, 16°		X <sup>1/</sup>						
	7° έως 10°, 17° έως 20°			X <sup>1/</sup>					
6.1	Υλες ταξινομημένες υπό (c)				X				
	Υλες ταξινομημένες υπό (b)			X					
	Άλλες ύλες (εκτός 1° και 2°)	X							
6.2	2°		X						
	Υλες της (b)				X				
7	Υλικά των περιθωριακών 2704, προγράμματα 1° έως 4°								X
8	6°, 14° και ύλες ταξινομημένες υπό (a)		X						
	Υλες ταξινομημένες υπό (b)				X				
	Υλες ταξινομημένες υπό (c)						X		
9	Υλες ή είδη ταξινομημένα υπό 1° (b), 4° (c) ή 5°			X					
	Υλες ή είδη ταξινομημένα υπό 1° (c), 6°, 7° ή 13° (b)				X				
	11° (c) και 12° (c)							X	

**ΣΗΜΕΙΩΣΗ 1:** Οι ανώτατες ποσότητες που εμφανίζονται στον παραπάνω πίνακα αντιπροσωπεύουν βαθμό κινδύνου ο οποίος μπορεί, από μια πολύ απλοποιημένη άποψη, να θεωρηθεί σαν ισότιμος για κάθε μία από τις αναγραφόμενες ύλες. Ο κίνδυνος αυτός δεν θα ξεπερνιέται ακόμη και όταν ένα φορτίο που δεν θίγεται από οποιαδήποτε απαγόρευση επί μικτής φορτώσεως περιλαμβάνει περισσότερες από μία επικίνδυνες ύλες.

Όπου το ίδιο όριο εξαίρεσεως ισχύει για τις ύλες για τις οποίες πρόκειται, τα αντίστοιχα βάρη τους προσθέτονται και το σύνολο δεν πρέπει να υπερβεί εκείνο το όριο. Όπου εντούτοις, ισχύουν για τις ύλες διαφορετικά όρια εξαίρεσεως, οι ανώτατες ποσότητες που επιτρέπονται για κάθε μία θα υπολογίζονται όπως παρακάτω:

<sup>1/</sup> Εξαιρείται το βάρος της συσκευής κατάψυξης εάν υπάρχει τέτοια.

## Γενικές Διατάξεις

- 10 011** (συνεχ.) (a) Το ολικό πραγματικό βάρος κάθε ύλης που αναφέρεται σε οποιαδήποτε στήλη του πίνακα θα πολλαπλασιάζεται με το συντελεστή που αναφέρεται στην κεφαλή της στήλης.
- (b) Τα προϊόντα που επιτυγχάνονται κατ' αυτό τον τρόπο θα προστίθενται μαζί και το σύνολο τους δεν θα υπερβαίνει το 1,000.

Μέχρι αυτό τον αριθμό, η διαφορά διαιρούμενη με το συντελεστή που αντιστοιχεί προς κάποια άλλη ύλη δίνει το όριο εξαέρσεως που δεν έχει ακόμη καλυφθεί.

## Παράδειγμα αυτών των υπολογισμών

Κλ.	Υλη	Ανώτατη ποσότητα						
		5 kg	20 kg	50 kg	100 kg	333 kg	500 kg	1000 kg
2	2° (a)							100
3	33° (c)						50	
4.1	4° (c)			2				
6.1	16° (b)			3				
6.1	16° (c)				25			
Σύνολο μεταφερομένων ποσοτήτων				5	25		50	100
Πολλαπλασιαστής		200	50	20	10	3	2	1
Προϊόν (πολ/στής x ποσότητα)				100	250		100	100
Σύνολο προϊόντων		$100 + 250 + 100 + 100 = 550$						

Αφού το σύνολο των προϊόντων είναι λιγότερο από 1,000, η παραπάνω περίπτωση αφήνει διαθέσιμα μέσα στο όριο εξαέρσεως  $1,000 - 550 = 450$  που μπορεί να χρησιμοποιηθεί για να συμπληρωθεί το φορτίο, παραδείγματος χάρη, κολώνδρους αερίου της Κλάσης 2, 11° (a) (όριο 333 kg) έως την αξία  $450 : 3 = 150$  kg.

**ΣΗΜΕΙΩΣΗ 2:** Για την εφαρμογή αυτού του περιθωριακού και του πίνακά του, τα βάρη των υγρών ή αερίων που περιέχονται στις συνηθισμένες σταθερές δεξαμενές ή μέσα μεταφοράς για την προώθησή τους ή για την λειτουργία του εξειδικευμένου εξοπλισμού (ψυκτικές συσκευές για παράδειγμα) ή για την εξασφάλιση της ασφάλειάς τους, δεν θα λαμβάνονται υπόψη.

## Γενικές Διατάξεις

10 011 Αυτοί οι πολλαπλασιασμοί ή διαιρέσεις μπορεί να αποφευχθούν με τη χρησιμοποίηση των πινάκων βάρους που υπάρχουν παρακάτω.

Ανάτομο βάρος κάθε μιας από δύο διαφορετικές ύλες που αναφέρονται στις στήλες Α μέχρι Γ του παραπάνω πίνακα που μπορεί να φορτωθούν μαζί σε μεταφορική μονάδα χωρίς να υπερβούν τα όρια εξαρέσεως (σε kg):

## - Στήλες Α και επόμενες

A	A
1	4
2	3
3	2
4	1
5	0

A και B	
1	16
2	12
3	8
4	4
5	0

A και C	
1	40
2	30
3	20
4	10
5	0

A και D	
1	80
2	60
3	40
4	20
5	0

A και E	
1	266
2	200
3	133
4	66
5	0

A και F	
1	400
2	300
3	200
4	100
5	0

A και G	
1	800
2	600
3	400
4	200
5	0

## - Στήλες Β και επόμενες

B	B
2	18
4	16
6	14
8	12
10	10
12	8
14	6
16	4
18	2
20	0

B και C	
2	45
4	40
6	35
8	30
10	25
12	20
14	15
16	10
18	5
20	0

B και D	
2	90
4	80
6	70
8	60
10	50
12	40
14	30
16	20
18	10
20	0

B και E	
2	300
4	266
6	233
8	200
10	166
12	133
14	100
16	66
18	33
20	0

B και F	
2	450
4	400
6	350
8	300
10	250
12	200
14	150
16	100
18	50
20	0

B και G	
2	900
4	800
6	700
8	600
10	500
12	400
14	300
16	200
18	100
20	0

## - Στήλες C και επόμενες

C	C
5	45
10	40
15	35
20	30
25	25
30	20
35	15
40	10
45	5
50	0

C και D	
5	90
10	80
15	70
20	60
25	50
30	40
35	30
40	20
45	10
50	0

C και E	
5	300
10	266
15	233
20	200
25	166
30	133
35	100
40	66
45	33
50	0

C και F	
5	450
10	400
15	350
20	300
25	250
30	200
35	150
40	100
45	50
50	0

C και G	
5	900
10	800
15	700
20	600
25	500
30	400
35	300
40	200
45	100
50	0

## - Στήλες D και επόμενες

D	D
10	90
20	80
30	70
40	60
50	50
60	40
70	30
80	20
90	10
100	0

D και E	
10	300
20	266
30	233
40	200
50	166
60	133
70	100
80	66
90	33
100	0

D και F	
10	450
20	400
30	350
40	300
50	250
60	200
70	150
80	100
90	50
100	0

D και G	
10	900
20	800
30	700
40	600
50	500
60	400
70	300
80	200
90	100
100	0

## Γενικές Διατάξεις

## - Στήλες E και επόμε.

E	E
25	308
50	283
75	258
100	233
125	208
150	183
175	158
200	133
225	108
250	83
275	58
300	33
325	8
333	0

E και F	E και F
25	462
50	425
75	387
100	350
125	312
150	271
175	237
200	200
225	162
250	125
275	87
300	50
325	12
333	0

E και G	E και G
25	925
50	850
75	775
100	700
125	625
150	550
175	475
200	400
225	325
250	250
275	175
300	100
325	25
333	0

## - Στήλες F και G

F	F
50	450
100	400
150	350
200	300
250	250
300	200
350	150
400	100
450	50
500	0

F και G	F και G
50	900
100	800
150	700
200	600
250	500
300	400
350	300
400	200
450	100
500	0

Αν, λαμβάνοντας υπόψη τον όγκο της πρώτης προς φόρτωση ύλης (όπως φαίνεται σε μία από τις στήλες πίνακα ταχείας αναφοράς), δεν επιτευχθεί η ανώτατη ποσότητα για τη δεύτερη ύλη (στην άλλη στήλη του ίδιου πίνακα) ο όγκος που απομένει διαθέσιμος μπορεί να χρησιμοποιηθεί για τρίτη ύλη. Για να εξακριβωθεί ο επιτρεπόμενος όγκος εκείνης της ύλης, πρέπει να γίνει αναφορά στον πίνακα ταχείας αναφοράς που έχει επικεφαλίδα από τα γράμματα στήλης που αντιστοιχούν στη δεύτερη και τρίτη ύλη. Αν και η ανώτατη ποσότητα για την τρίτη ύλη δεν εξαντληθεί, μπορεί να ακολουθηθεί η ίδια διαδικασία σχετικά με τη φόρτωση μιας ή περισσότερων άλλων υλών.

Στην αριστερή στήλη κάθε πίνακα, μια ενδιάμεση υψηλότερη αξία για την πραγματικά φορτωθείσα ποσότητα (π.χ. στον πίνακα Β και D, 9 μεταξύ 8 και 10) μπορεί να στρογγυλευτεί στη χαμηλότερη εμφανιζόμενη αξία (σ' αυτή την περίπτωση 8). Στη δεξιά στήλη, από το άλλο μέρος, μια ενδιάμεση αξία για μια πραγματικά φορτωθείσα ποσότητα (π.χ. στον ίδιο πίνακα, 55 αντί για 60) μπορεί να στρογγυλευτεί στην υψηλότερη εμφανιζόμενη αξία (σ' αυτή την περίπτωση 60).

## Γενικές Διατάξεις

**10 012** (1) Στην περίπτωση εξαιρέσεων που προβλέπονται στο περιθωριακό 10 011, το έγγραφο μεταφοράς που προβλέπεται από το περιθωριακό 2002 (3) θα φέρει την παρακάτω εγγραφή μετά από τα στοιχεία που καθορίζονται στο κεφάλαιο Β των ειδικών προϋποθέσεων για κάθε Κλάση του Παραρτήματος Α:

" Φορτίο μη υπερβαίνουν τα όρια εξαιρέσεως που προβλέπονται στο περιθωριακό 10 011"

(2) Όταν αποστολές από περισσότερους του ενός αποστολείς μεταφέρονται στην ίδια μονάδα μεταφοράς, τα έγγραφα μεταφοράς που συνοδεύουν αυτές τις αποστολές δεν υποχρεούνται να φέρουν την εγγραφή που ορίζεται στην παράγραφο (1).

**10 013** Παρεκκλίσεις από τις διατάξεις του παρόντος Παραρτήματος μπορεί να γίνουν σε περίπτωση επείγουσας μεταφοράς για τη σωτηρία ανθρώπινων ζωών.

## Ορισμοί

**10 014** (1) Για την εφαρμογή του παρόντος Παραρτήματος:

- Ο όρος "αμόδια αρχή" σημαίνει την αρχή που έχει υποδειχθεί σαν τέτοια σε κάθε χώρα και σε κάθε συγκεκριμένη περίπτωση από την Κυβέρνηση.
- Ο όρος "εύθραστο κόλο" σημαίνει κόλο που περιέχει εύθραστο δοχείο (δηλ. δοχείο από γυαλί, πορσελάνη, πήλινο ή από παρόμοια υλικά) που δεν περιέχεται σε συσκευασία με πλήρεις πλευρές που το προστατεύουν αποτελεσματικά κατά της κρούσεως [(βλέπε επίσης και Παράρτημα Α, περιθωριακό 2001(7))].
- Ο όρος "αέριο" σημαίνει αέριο ή ατμός.
- Ο όρος "επικίνδυνες ύλες", όταν χρησιμοποιείται μόνος σημαίνει τις ύλες και τα είδη που ορίζονται ότι είναι ύλες και είδη αυτής της Οδηγίας.
- Ο όρος "RID" σημαίνει διατάξεις που αφορούν διεθνή μεταφορά επικίνδυνων εμπορευμάτων με σιδηρόδρομο που αποτελούν το Παράρτημα Ι της COTIF - Συνθήκη που αφορά τις σιδηροδρομικές μεταφορές με σιδηρόδρομο, Παράρτημα Β - Ενιαίοι κανόνες που αφορούν το σύμβολο για διεθνή μεταφορά εμπορευμάτων με τον σιδηρόδρομο (CIM).
- Ο όρος "μεταφορά χύμα" σημαίνει τη μεταφορά στερεάς ύλης χωρίς συσκευασία.
- Ο όρος "εμπορευματοκιβώτιο" (container) σημαίνει αντικείμενο εξοπλισμού μεταφοράς (ανυσούμενο όχημα, αποσυναρμολογούμενη δεξαμενή ή άλλες παρόμοιες κατασκευές):
  - μόνιμου χαρακτήρα και κατά συνέπεια αρκετά στερεό για να είναι κατάλληλος για επανειλημμένη χρήση,
  - ειδικά σχεδιασμένος για να διευκολύνει τη μεταφορά εμπορευμάτων, με ένα ή περισσότερα μέσα μεταφοράς, χωρίς θραύση του φορτίου,
  - εξοπλισμένου με συσκευές που επιτρέπουν τον έγκαιρο χειρισμό του, ειδικότερα όταν μεταφορτώνεται από ένα μέσον μεταφοράς σε άλλο,
  - σχεδιασμένος κατά τέτοιο τρόπο ώστε να είναι εύκολο το γέμισμα και το άδειασμα, και να έχει εσωτερικό όγκο όχι λιγότερο από 1 m<sup>3</sup>.

## Γενικές Διατάξεις

10 014  
(συνεχ.)

- Ο όρος "εμπορευματοκιβώτιο" δεν καλύπτει συμβατικές συσκευασίες, ή IBC, ή οχήματα, ή εμπορευματοκιβώτια-δεξαμενές. Μόνο για την Κλάση 7, ο όρος "εμπορευματοκιβώτιο" ορίζεται στο περιθωριακό 2700 (2).
- Ο όρος "μεγάλο εμπορευματοκιβώτιο" σημαίνει εμπορευματοκιβώτιο που έχει εσωτερικό όγκο πάνω από 3 m<sup>3</sup>.
  - Ο όρος "μικρό εμπορευματοκιβώτιο" σημαίνει εμπορευματοκιβώτιο που έχει εσωτερικό όγκο όχι λιγότερο από 1 m<sup>3</sup> και όχι περισσότερο από 3 m<sup>3</sup>.
  - Ο όρος "εμπορευματοκιβώτιο-δεξαμενή" σημαίνει είδος εξοπλισμού μεταφοράς που ταιριάζει με τον ορισμό του όρου "εμπορευματοκιβώτιο" που δίνεται παραπάνω και κατασκευασμένο για να περιέχει υγρές, αερίωδεις, σε σκόνη ή σε κόκκους ύλες, αλλά που έχει χωρητικότητα πάνω από 0.45 m<sup>3</sup>.
  - Ο όρος "συστοιχία δοχείων" ή "συστοιχία δεξαμενών" σημαίνει συγκρότημα που περιλαμβάνει αριθμό δοχείων όπως αυτά ορίζονται στο περιθωριακό 2212 (1)(b), ή δεξαμενών όπως αυτές ορίζονται στο περιθωριακό 2212 (1)(c), τα οποία αλληλοσυνδέονται με πολλαπλό αγωγό και είναι μόνιμα τοποθετημένα πάνω σε πλαίσιο.
  - Ο όρος "αποσυναρμολογούμενη δεξαμενή" σημαίνει δεξαμενή άλλη, εκτός από σταθερή δεξαμενή, εμπορευματοκιβώτιο-δεξαμενή ή συστοιχία δοχείων, που έχει χωρητικότητα πάνω από 1000 λίτρα, δεν είναι σχεδιασμένη για τη μεταφορά εμπορευμάτων χωρίς θραύση φορτίου, και συνήθως χειρισμός της μπορεί να γίνει μόνο όταν είναι άδεια.
  - Ο όρος "σταθερή δεξαμενή" σημαίνει δεξαμενή που είναι δομικά προσαρτημένη σε όχημα (που τότε γίνεται όχημα δεξαμενή) ή αποτελεί αναπόσπαστο μέρος του πλαισίου αυτού του οχήματος.
  - Ο όρος "δεξαμενή" όταν χρησιμοποιείται χωριστά, σημαίνει εμπορευματοκιβώτιο-δεξαμενή ή δεξαμενή χωρητικότητας που ξεπερνά το 1 m<sup>3</sup> που μπορεί να είναι σταθερή δεξαμενή, αποσυναρμολογούμενη δεξαμενή ή συστοιχία δοχείων. (Βλέπε, εντούτοις, περιορισμό στην έννοια της λέξεως "δεξαμενή" στις διατάξεις των Προσθηκών Β.1, περιθωριακό 200 000 (2)).
  - Ο όρος "μονάδα μεταφοράς" σημαίνει αυτοκίνητο όχημα χωρίς προσαρτημένο συρόμενο όχημα, ή συρμό αποτελούμενο από αυτοκίνητο όχημα και προσαρτημένο συρόμενο όχημα.
  - Ο όρος "κλειστό όχημα" σημαίνει όχημα που έχει αμάξωμα που μπορεί να κλείνει.
  - Ο όρος "ανοικτό όχημα" σημαίνει όχημα του οποίου η πλατφόρμα δεν έχει υπερκατασκευή ή έχει απλώς πλευρικά και οπίσθια σανδύματα.
  - Ο όρος "όχημα με κάλυμμα" σημαίνει ανοικτό όχημα εφοδιασμένο με κάλυμμα για την προστασία του φορτίου.
  - Ο όρος "όχημα δεξαμενή" σημαίνει όχημα κατασκευασμένο για τη μεταφορά υγρών, αερίων ή υλών σε σκόνη ή σε κόκκους που περιλαμβάνουν μία ή περισσότερες σταθερές δεξαμενές.
  - Ο όρος "όχημα συστοιχία" σημαίνει όχημα με συστοιχία δοχείων ή με συστοιχία δεξαμενών το οποίο καλύπτεται από τον όρο "όχημα δεξαμενή"
  - Ο όρος "όχημα βάσης" σημαίνει κάθε ημιτελές αυτοκίνητο όχημα ή το συρόμενο όχημά του που αντιστοιχεί σε εγκεκριμένο τύπο σύμφωνα με την Προσθήκη Β.2.

## Γενικές Διατάξεις

**10 014 (2)** Για την εφαρμογή του παρόντος Παραρτήματος, οι δεξαμενές [βλέπε ορισμό στο (συνεχ.) παραπάνω (1)] δεν είναι τοποθετημένες πάνω στην ίδια βάση όπως τα δοχεία, του όρου "δοχεία" χρησιμοποιούμενου με περιορισμένη έννοια. Οι διατάξεις που αφορούν δοχεία έχουν εφαρμογή σε σταθερές δεξαμενές, συστοιχίες δοχείων, αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές μόνο αν αυτό καθορίζεται ρητά.

(3) Ο όρος "πλήρες φορτίο" σημαίνει οποιοδήποτε φορτίο που προέρχεται από ένα αποστολέα, για τον οποίο η χρήση ενός οχήματος ή μεγάλου εμπορευματοκιβωτίου κρατείται αποκλειστικά και όλες οι εργασίες φορτώσεως και εκφορτώσεως γίνονται σύμφωνα με τις οδηγίες του αποστολέα ή του παραλήπτη (βλέπε περιθωριακό 10 108).

(4) Τα "Απόβλητα" είναι ύλες, διαλύματα, μείγματα ή είδη για τα οποία δεν προβλέπεται απ' ευθείας χρήση αλλά μεταφέρονται για επανεπεξεργασία, απόθεση, καταστροφή δι' αποτεφρώσεως ή άλλες μεθόδους διάθεσης.

**10 015 (1)** Εκτός αν ρητώς αναφέρεται διαφορετικά, το σημείο "%" στο παρόν Παράρτημα αντιπροσωπεύει:

(a) Στην περίπτωση αναμείξεως στερεών ή υγρών, επίσης δε και στην περίπτωση διαλυμάτων και στερεών υγραμένων από υγρό: ποσοστό κατά βάρος βασιζόμενο στο συνολικό βάρος του μείγματος, το διάλυμα ή το βρεγμένο υγρό.

(b) Στην περίπτωση αναμείξεως συμπυκνωμένων αερίων: ποσοστό κατ' όγκο βασιζόμενο στο συνολικό όγκο του μείγματος αερίων. Στη περίπτωση αναμείξεως υγροποιημένων αερίων και αερίων διαλυμένων υπό πίεση: ποσοστό κατά βάρος βασιζόμενο στο συνολικό βάρος του μείγματος.

(2) Όταν στο παρόν Παράρτημα αναφέρεται το βάρος κόλου, εννοείται το μικτό βάρος εκτός αν αναφέρεται διαφορετικά. Το βάρος των εμπορευματοκιβωτίων ή δεξαμενών που χρησιμοποιούνται για τη μεταφορά εμπορευμάτων δεν περιλαμβάνεται στο μικτό βάρος.

(3) Οι πιέσεις όλων των ειδών που σχετίζονται με τις δεξαμενές (όπως η πίεση δοκιμής, πίεση εργασίας, πίεση ανοίγματος βαλβίδας ασφαλείας) δείχνονται πάντα σε πίεση μετρητή (πίεση πέρα από την ατμοσφαιρική πίεση) όμως η πίεση εξαερώσεως των υλών εκφράζεται πάνω σε απόλυτη πίεση.

(4) Όπου το παρόν Παράρτημα ορίζει βαθμό πληρώσεως για δεξαμενές, ο βαθμός πληρώσεως δίνεται πάντα για θερμοκρασία των υλών στους 15° C εκτός αν ορίζεται κάποια άλλη θερμοκρασία.

10 016-  
10 099

### ΤΜΗΜΑ 1. Τρόπος μεταφοράς εμπορευμάτων

10 100-  
10 104

#### Μέθοδος αποστολής, περιορισμοί μεταφοράς

**10 105** Η μεταφορά ορισμένων επικινδύνων εμπορευμάτων υπόκειται στις εντεταλμένες χρήσεις ενός συγκεκριμένου τύπου μεταφοράς ή εξοπλισμού. Αυτοί οι ειδικοί όροι καθορίζονται στο παρόν Παράρτημα, Μέρος II, περιθωριακά XX 105.

10 106-  
10 107

## Γενικές Διατάξεις

## Πλήρες φορτίο

10 108 Όπου έχουν εφαρμογή οι διατάξεις περί μεταφοράς σαν "πλήρες φορτίο", οι αρμόδιες αρχές μπορεί να ζητήσουν, όπως το όχημα ή μεγάλο εμπορευματοκιβώτιο που χρησιμοποιείται γι' αυτή τη μεταφορά να φορτωθεί μόνο σε ένα σημείο και να εκφορτωθεί μόνο σε ένα σημείο.

10 109-  
10 110

## Μεταφορά χύμα

10 111 (1) Οι στερεές επικίνδυνες ύλες δεν μπορεί να μεταφέρονται χύμα εκτός αν αυτός ο τρόπος μεταφοράς επιτρέπεται ρητά γι' αυτές τις ύλες από τις διατάξεις του Μέρους II του παρόντος Παραρτήματος, και τότε μόνο κάτω από τις συνθήκες που καθορίζονται από εκείνες τις διατάξεις. Παρ' όλα αυτά, η κενή συσκευασία, χωρίς να έχει καθαριστεί, μπορεί να μεταφέρεται χύμα αν αυτός ο τρόπος μεταφοράς δεν απαγορεύεται ρητά από τις απαιτήσεις του Παραρτήματος Α. Μέρος II.

(2) Για μεταφορά χύμα σε εμπορευματοκιβώτια, βλέπε περιθωριακό 10 118 (2).

**ΣΗΜΕΙΩΣΗ:** Βλέπε περιθωριακό 10 500 για το μαρκάρισμα και την επισήμανση οχημάτων μεταφοράς χύμα

10 112-  
10 117

## Μεταφορά σε εμπορευματοκιβώτια

**ΣΗΜΕΙΩΣΗ:** Οι διατάξεις που αφορούν μεταφορά σε εμπορευματοκιβώτια-δεξαμενές καθορίζονται στα περιθωριακά που τιτλοφορούνται "Μεταφορά σε δεξαμενές".

10 118 (1) Η μεταφορά κόλων σε εμπορευματοκιβώτια επιτρέπεται.

(2) Ύλες δεν μπορεί να μεταφέρονται χύμα σε εμπορευματοκιβώτια εκτός αν η μεταφορά τους χύμα επιτρέπεται ρητά (βλέπε περιθωριακό 10 111), τα μικρά εμπορευματοκιβώτια θα είναι του κλειστού τύπου και θα έχουν πλήρη τοιχώματα.

(3) Τα μεγάλα εμπορευματοκιβώτια θα ανταποκρίνονται στις απαιτήσεις που αφορούν το αμάξωμα του οχήματος που καθορίζεται στο παρόν Παράρτημα για το φορτίο για το οποίο πρόκειται, το αμάξωμα του οχήματος τότε δεν χρειάζεται να ανταποκρίνεται σ' αυτές τις διατάξεις.

(4) Με την επιφύλαξη των διατάξεων της τελευταίας φράσεως στο παραπάνω (3), το γεγονός ότι επικίνδυνες ύλες περιέχονται σε ένα ή περισσότερα εμπορευματοκιβώτια δεν θα θίγει τους όρους που πρέπει, καλύπτει το όχημα εξ αιτίας της φύσεως και των ποσοτήτων των μεταφερόμενων επικίνδυνων υλών.

**ΣΗΜΕΙΩΣΗ:** Βλέπε περιθωριακό 10 500 για το μαρκάρισμα και την επισήμανση εμπορευματοκιβωτίων.

10 119-  
10 120



## Γενικές Διατάξεις

## Μεταφορά σε δεξαμενές

10 121 (1) Οι επικίνδυνες ύλες μπορεί να μεταφέρονται σε δεξαμενές μόνο αν αυτός ο τρόπος μεταφοράς επιτρέπεται ρητά γι' αυτές τις ύλες από τις διατάξεις περί χρησιμοποίησης σταθερών δεξαμενών, αποσυναρμολογούμενων δεξαμενών και συστοιχιών δοχείων που ορίζονται σε κάθε Τμήμα 1 της Προσθήκης Β.1α, Μέρος ΙΙ και εκείνες πάνω στη χρήση των εμπορευματοκιβωτίων-δεξαμενών που ορίζονται σε κάθε Τμήμα 1 της Προσθήκης Β.1β, Μέρος ΙΙ.

(2) Δεξαμενές ενισχυμένου πλαστικού μπορεί να χρησιμοποιούνται μόνο αν η χρήση τους επιτρέπεται ρητά στην Προσθήκη Β.1c, περιθωριακό 213 010 (Χρήση). Η θερμοκρασία της μεταφερόμενης ύλης δεν θα υπερβαίνει τους 50° C κατά το χρόνο της πλήρωσας.

**ΣΗΜΕΙΩΣΗ:** Βλέπε περιθωριακό 10 500 για το μαρκάρισμα και την επισήμανση των οχημάτων με σταθερές ή αποσυναρμολογούμενες δεξαμενές.

10 122-  
10 199

## ΤΜΗΜΑ 2. Ειδικές προϋποθέσεις προς εκπλήρωση από το μέσο μεταφοράς και τον εξοπλισμό του

10 200-  
10 203

## Τύποι οχήματος

10 204 (1) Μεταφορική μονάδα φορτωμένη με επικίνδυνες ύλες σε καμιά περίπτωση δεν μπορεί να περιλαμβάνει περισσότερα από ένα συρόμενο ή επικαθήμενο όχημα.

(2) Ειδικές διατάξεις που αφορούν τους τύπους οχήματος που θα χρησιμοποιηθεί για τη μεταφορά ορισμένων επικινδύνων υλών θα βρεθούν, όπου χρειάζεται, στο Μέρος ΙΙ του παρόντος Παραρτήματος (βλέπε επίσης τα περιθωριακά που αναφέρονται σε μεταφορά σε εμπορευματοκιβώτια, μεταφορά στερεών υλών χύμα, μεταφορά σε δεξαμενές, και δεξαμενές).

(3) Κόλα που περιλαμβάνουν συσκευασίες από υλικά που είναι ευαίσθητα στην υγρασία θα φορτώνονται σε οχήματα με κάλυμμα.

10 205-  
10 219

Οχήματα χρησιμοποιούμενα για την μεταφορά επικινδύνων εμπορευμάτων σε σταθερές ή αποσυναρμολογούμενες δεξαμενές, συστοιχίες δοχείων ή εμπορευματοκιβώτια-δεξαμενές με χωρητικότητα μεγαλύτερη από 3000 λίτρα

**ΣΗΜΕΙΩΣΕΙΣ:** (α) Οι διατάξεις που αφορούν το σχέδιο, επιθεώρηση, πλήρωση και χρήση των σταθερών δεξαμενών, αποσυναρμολογούμενων δεξαμενών και συστοιχιών δοχείων, και οι διάφορες διατάξεις που αφορούν οχήματα - δεξαμενές και τη χρήση αυτών, θα βρίσκονται στη Προσθήκη Β.1α και όσον αφορά το σχέδιο των σταθερών δεξαμενών, αποσυναρμολογούμενων δεξαμενών και συστοιχιών δοχείων που προορίζονται για τη μεταφορά υγροποιημένων αερίων βαθιάς καταπόξεως της Κλάσης 2 ή που απαιτούν δοκιμή πίεσης όχι μικρότερης του 1 ΜΡα(10 bar) στην Προσθήκη Β.1d (για την έγκριση οχημάτων-δεξαμενών βλέπε περιθωριακό 10 282).

## Γενικές Διατάξεις

10 219

(συνεχ.)

(b) Οι διατάξεις που αφορούν την κατασκευή, τα είδη του εξοπλισμού, έγκριση τύπου, δοκιμές, μαρκάρισμα, κ.λπ. των εμπορευματοκιβωτίων-δεξαμενών υπάρχουν στην Προσθήκη Β.1b και όσον αφορά την κατασκευή των εμπορευματοκιβωτίων-δεξαμενών που προορίζονται για τη μεταφορά υγροποιημένων αερίων βαθιάς καταψύξεως της Κλάσης 2 ή που απαιτούν δοκιμή πίεσης όχι μικρότερης του 1 ΜΡα(10 bar), στην Προσθήκη Β.1d.

(c) Οι διατάξεις που αφορούν την κατασκευή σταθερών δεξαμενών και αποσυναρμολογούμενων δεξαμενών από ενισχυμένο πλαστικό υπάρχουν στην Προσθήκη Β.1c.

(d) Οι κοινές διατάξεις των Προσθηκών Β.1 υπάρχουν στο περιθωριακό 200 000.

(e) Για τα δοχεία, βλέπε Παράρτημα Α.

10 220

(1) Οπίσθια προστασία των οχημάτων: Προφυλακτήρας αρκετά ανθεκτικός στην πρόσκρουση από πίσω θα τοποθετείται στο πλήρες πλάτος της δεξαμενής στο πίσω μέρος του οχήματος. Θα υπάρχει διάκενο 100 mm τουλάχιστο μεταξύ του πίσω τοιχώματος της δεξαμενής και του πίσω μέρους του προφυλακτήρα (διάκενο που μετράται από το πιο πάνω σημείο της δεξαμενής ή από προεξέχοντα εξαρτήματα που βρίσκονται σε επαφή με τη μεταφερόμενη ύλη). Οχήματα με δεξαμενή με τέντα για την μεταφορά υλών σε σκόνη ή σε κόκκους με πίσω εκφόρτωση δεν χρειάζονται προφυλακτήρα εάν τα πίσω εξαρτήματα της δεξαμενής είναι εφοδιασμένα με μέσα προστασίας που προφυλάσσουν την δεξαμενή με τον ίδιο τρόπο όπως ένας προφυλακτήρας.

**ΣΗΜΕΙΩΣΗ 1:** Αυτή η διάταξη δεν εφαρμόζεται σε οχήματα που χρησιμοποιούνται για την μεταφορά επικίνδυνων εμπορευμάτων σε εμπορευματοκιβώτια-δεξαμενές.

**ΣΗΜΕΙΩΣΗ 2:** Για την προστασία των δεξαμενών από ζημία προερχόμενη από πλευρική πρόσκρουση ή ανατροπή, βλέπε το περιθωριακό 211 127 (4) και (5).

(2) Οχήματα που μεταφέρουν υγρά που έχουν σημείο αναφλέξεως 61° C ή παρακάτω ή οι εύφλεκτες ύλες της Κλάσης 2 όπως ορίζονται στο περιθωριακό 2200 (3) θα ανταποκρίνονται επί πλέον στις απαιτήσεις των περιθωριακών 220 532, 220 533 και 220 534 της Προσθήκης Β.2.

## Πέδηση

10 221

(1) Αυτοκίνητα οχήματα (ελκυστήρες και ενιαία οχήματα) με μέγιστο βάρος που υπερβαίνει τους 16 τόνους, και συρόμενα οχήματα (δηλ. πλήρη συρόμενα οχήματα, επικαθήμενα και συρόμενα κεντρικού άξονα) με μέγιστο βάρος που υπερβαίνει τους 10 τόνους<sup>2/</sup>, που αποτελούν τους παρακάτω τύπους μεταφορικών μονάδων:

- δεξαμενές οχήματα,
- οχήματα που μεταφέρουν αποσυναρμολογούμενες δεξαμενές ή συστοιχίες δοχείων,
- οχήματα που μεταφέρουν εμπορευματοκιβώτια-δεξαμενές με χωρητικότητα μεγαλύτερη από 3 000 λίτρα, και
- μεταφορικές μονάδες τύπου III [βλέπε περιθωριακό 11 204 (3)],

<sup>2/</sup> Για τα επικαθήμενα και συρόμενα οχήματα κεντρικού άξονα, το μέγιστο βάρος αναφέρεται στο βάρος που διαβιβάζεται στο έδαφος από τον άξονα ή τους άξονες του επικαθήμενου ή του συρόμενου οχήματος κεντρικού άξονα, όταν αυτό το συρόμενο είναι ενωμένο με το έλκον όχημα και μεταφέρει το μέγιστο του φορτίο.

## Γενικές Διατάξεις

**10 221** που γράφτηκαν για πρώτη φορά μετά την 30 Ιουνίου 1993, θα προσαρμόζονται με ένα σύστημα (συνεχ.) πέδησης με προστασία από κλειδώμα (anti-lock), η απόδοση του οποίου θα ικανοποιεί τις διατάξεις των περιθωριακών 220 520 και 220 521 της Προσθήκης Β.2.

(2) Κάθε μεταφορική μονάδα ενός τύπου που ορίζεται στην παραπάνω παράγραφο (1), η οποία περιλαμβάνει αυτοκίνητο όχημα και/ή συρόμενο ενός τύπου που ορίζεται παραπάνω στο (1) θα προσαρμόζεται με ένα σύστημα πέδησης αντοχής που θα ικανοποιεί τις απαιτήσεις των περιθωριακών 220 522 και 220 535 της Προσθήκης Β.2.

Όταν η μεταφορική μονάδα περιλαμβάνει ένα αυτοκίνητο όχημα και ένα συρόμενο όχημα, η απαίτηση εφαρμόζεται όταν το αυτοκίνητο όχημα έχει εγγραφεί μετά τις 30 Ιουνίου 1993.

(3) Κάθε μεταφορική μονάδα ενός τύπου που ορίζεται στην παραπάνω παράγραφο (1) που βρίσκεται σε λειτουργία μετά την 31 Δεκεμβρίου 1999 θα πρέπει να είναι εφοδιασμένη με τα εξαρτήματα που αναφέρονται στις παραγράφους (1) και (2).

**10 222-  
10 239**

## Συσκευές καταπολέμησης πυρκαϊάς

**10 240** (1) Κάθε μεταφορική μονάδα που μεταφέρει επικίνδυνα εμπορεύματα θα είναι εξοπλισμένη με:

(a) Τουλάχιστο ένα φορητό πυροσβεστήρα με ελάχιστη χωρητικότητα 2 kg στεγνής σκόνης (ή αντίστοιχη τάξη για κατάλληλα πυροσβεστικά), κατάλληλο για την καταπολέμηση πυρκαϊάς στον κινητήρα ή σε οποιοδήποτε άλλο τμήμα της μεταφορικής μονάδας, τέτοιο ώστε, αν χρησιμοποιηθεί για την καταπολέμηση πυρκαϊάς στο φορτίο, δεν επιδεινώνει τη φωτιά και αν είναι δυνατόν, την ελέγχει. Εντούτοις, αν το όχημα είναι εφοδιασμένο με μόνιμο πυροσβεστήρα, αυτόματο ή εύκολα τιθέμενο σε λειτουργία για την καταπολέμηση πυρκαϊάς στον κινητήρα, ο φορητός πυροσβεστήρας δεν χρειάζεται να είναι κατάλληλος για την καταπολέμηση φωτιάς στον κινητήρα.

(b) Πέραν από τον εξοπλισμό που περιγράφεται στο παραπάνω (a), τουλάχιστον ένας φορητός πυροσβεστήρας με ελάχιστη χωρητικότητα 6 kg στεγνής σκόνης (ή αντίστοιχη τάξη για κατάλληλα πυροσβεστικά), κατάλληλος για την καταπολέμηση φωτιάς στα ελαστικά/φρένα ή στο φορτίο, και τέτοιος ώστε, αν χρησιμοποιηθεί για καταπολέμηση φωτιάς στον κινητήρα ή σε οποιοδήποτε άλλο τμήμα της μεταφορικής μονάδας, να μην επιδεινώνει τη φωτιά. Αυτοκίνητα οχήματα με μέγιστο επιτρεπόμενο βάρος φορτωμένα μικρότερο από 3.5 τόνους θα είναι εφοδιασμένα με ένα φορητό πυροσβεστήρα ελάχιστης χωρητικότητας 2 kg σκόνη.

(2) Ο κατασβεστικός παράγων που περιέχεται στους πυροσβεστήρες με τους οποίους είναι εφοδιασμένη μια μεταφορική μονάδα θα είναι τέτοιοι ώστε να μην εξαπολύουν τοξικά αέρια στο κουβούκλιο του οδηγού ή υπό την επίδραση της θερμότητας της φωτιάς.

(3) Οι φορητοί πυροσβεστήρες που υπόκεινται στις διατάξεις της παραπάνω παραγράφου (1) θα είναι κλεισμένοι με σφραγίδα που θα επιβεβαιώνει ότι δεν έχουν χρησιμοποιηθεί. Επί πλέον, θα φέρουν ένα σήμα συμμόρφωσης με τις προδιαγραφές που αναγνωρίζονται από την αρμόδια υπηρεσία καθώς και μία εγγραφή που θα υποδεικνύει την προσεχή ημερομηνία ελέγχου..

## Γενικές Διατάξεις

**10 240** (4) Όπου μια μεταφορική μονάδα περιλαμβάνει συρόμενο όχημα και το φορτωμένο συρόμενο (συνεχ.) όχημα είναι ασύνδετο και έχει αφεθεί στη δημόσια εθνική οδό, σε κάποια απόσταση από το έλκον όχημα, το συρόμενο όχημα θα είναι εξοπλισμένο με τουλάχιστον ένα πυροσβεστήρα σύμφωνα με τις διατάξεις του εδαφίου (1) (b) του παρόντος περιθωριακού.

**10 241-  
10 250**

## Ηλεκτρικός εξοπλισμός

**10 251** Οι προϋποθέσεις που αφορούν τον ηλεκτρικό εξοπλισμό που ορίζεται στο περιθωριακό 220 511 της Προσθήκης Β.2 θα έχουν εφαρμογή σε κάθε μεταφορική μονάδα που μεταφέρει επικίνδυνες ύλες για τις οποίες απαιτείται μία έγκριση σύμφωνα με τα περιθωριακά 10 282 και 10 283. Οι προϋποθέσεις στα περιθωριακά 220 512 έως 220 516 της Προσθήκης Β.2 θα εφαρμόζονται μόνο στα παρακάτω οχήματα:

- (a) Οχήματα που φέρουν δεξαμενές (σταθερές ή αποσυναρμολογούμενες) ή συστοιχίες δοχείων που μεταφέρουν είτε υγρά που έχουν σημείο αναφλέξεως 61° C ή παρακάτω, ή τα εύφλεκτα αέρια της Κλάσης 2 που αναγράφονται στο περιθωριακό 2200 (3). Οχήματα που φέρουν δεξαμενές (σταθερές ή αποσυναρμολογούμενες) που μεταφέρουν καύσιμο ντίζελ, γκαζόιλ ή ελαφρύ πετρέλαιο θέρμανσης, με τον αριθμό αναγνώρισης 1202, εγγεγραμμένο πριν τον Ιούλιο του 1995 και τα οποία δεν συμφωνούν με αυτό το περιθωριακό, μπορούν εντούτοις να χρησιμοποιούνται.
- (b) Οχήματα προοριζόμενα για τη μεταφορά εκρηκτικών και που πρέπει να ανταποκρίνονται στις προϋποθέσεις του περιθωριακού 11 204 (3) για μεταφορικές μονάδες του τύπου III.

**10 252-  
10 259**

## Διάφορος εξοπλισμός

**10 260** Κάθε μεταφορική μονάδα που μεταφέρει επικίνδυνα εμπορεύματα θα είναι εφοδιασμένη με:

- (a) κιβώτιο εργαλείων για επείγουσες επισκευές του οχήματος,
- (b) για κάθε όχημα, τουλάχιστο ένα τάκο κατάλληλου μεγέθους προς το βάρος του οχήματος και τη διάμετρο των τροχών,
- (c) δύο κίτρινα φάτα. Αυτά τα φάτα θα είναι ανεξάρτητα από τον ηλεκτρικό εξοπλισμό του οχήματος και θα είναι έτσι σχεδιασμένα ώστε η χρήση τους να μη μπορεί να προκαλέσει ανάφλεξη των μεταφερόμενων εμπορευμάτων. Αυτά τα φάτα θα είναι σταθερά ή αναβροσβήνοντα.
- (d) ο απαραίτητος εξοπλισμός για την λήψη των άμεσων μέτρων ασφαλείας που αναφέρονται στις οδηγίες ασφαλείας που ορίζονται στο περιθωριακό 10 385.

**10 261** (1) Αυτοκίνητα οχήματα (ελκυστήρες και ενιαία οχήματα) με μέγιστο βάρος που ξεπερνά τους 12 τόνους, εγγεγραμμένα για πρώτη φορά μετά την 1 Ιουλίου 1995, θα είναι εφοδιασμένα με έναν μηχανισμό περιορισμού της ταχύτητας σύμφωνα με το περιθωριακό 220 540 της Προσθήκης Β.2.

## Γενικές Διατάξεις

**10 261** (2) Οι προϋποθέσεις της παραπάνω παραγράφου (1) εφαρμόζονται επίσης σε οχήματα με τα ίδια χαρακτηριστικά που έχουν εγγραφεί ανάμεσα στην 1 Ιανουαρίου 1988 και την 1 Ιουλίου 1995, όπως από την 1 Ιουλίου 1996.

**10 262-  
10 280**

## Έγκριση οχημάτων

**10 281** Μετά από αίτηση του κατασκευαστή ή του κανονικά εξουσιοδοτημένου αντιπροσώπου, οχήματα βάσης νέων αυτοκινήτων οχημάτων και τα συρόμενα οχήματά τους τα οποία υπόκεινται σε έγκριση σύμφωνα με τα περιθωριακά 10 282 και 10 283, μπορούν να εγκριθούν από μία αρμόδια υπηρεσία σύμφωνα με την Προσθήκη Β.2. Αυτή η έγκριση του τύπου θα γίνει αποδεκτή ως διασφαλίζουσα τη συμφωνία του οχήματος βάσης όταν αποκτηθεί η έγκριση ολόκληρου του οχήματος, αρκεί καμία τροποποίηση του οχήματος βάσης να μην μεταβάλλει την ισχύ της έγκρισης.

**10 282** (1) Οχήματα - δεξαμενές, οχήματα που φέρουν αποσυναρμολογούμενες δεξαμενές ή συστοιχίες δοχείων και, όπου χρειάζεται σύμφωνα με τις διατάξεις του Μέρους II του παρόντος Παραρτήματος, άλλα οχήματα θα υπόκεινται σε τεχνική επιθεώρηση στη χώρα εγγραφής τους για να εξασφαλιστεί ότι είναι σύμφωνα με τις διατάξεις του παρόντος Παραρτήματος, περιλαμβανόμενων εκείνων των προσηκόντων του και τις γενικές διατάξεις ασφαλείας (που αφορούν τα φρένα, τον φωτισμό κ.λπ.) που ισχύουν στη χώρα εγγραφής τους. Αν αυτά τα οχήματα είναι συρόμενα ή επικαθήμενα συνδεμένα πίσω από ελκυστήρα, ο ελκυστήρας θα υπόκειται σε τεχνική επιθεώρηση για τους ίδιους σκοπούς.

(2) Πιστοποιητικό εγκρίσεως θα εκδίδεται από την αρμόδια αρχή της χώρας εγγραφής για κάθε όχημα του οποίου η επιθεώρηση δίνει ικανοποιητικά αποτελέσματα. Θα είναι συντεταγμένο στη γλώσσα ή σε μία από τις γλώσσες της χώρας που το εκδίδει, επίσης δε αν αυτή η γλώσσα δεν είναι η Αγγλική, Γαλλική ή Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός αν συμφωνίες που έχουν συναφθεί μεταξύ των ενδιαφερομένων χωρών στο χώρο της μεταφοράς προβλέπουν διαφορετικά. Θα είναι όπως το υπόδειγμα που δίνεται στην Προσθήκη Β.3.

(3) Ειδικό πιστοποιητικό εγκρίσεως που εκδίδεται από τις αρμόδιες αρχές ενός Κράτους Μέλους για όχημα εγγεγραμμένο στην περιοχή εκείνου του Κράτους Μέλους θα γίνεται δεκτό, εφόσον η ισχύς του συνεχίζεται, από τις αρμόδιες αρχές των άλλων Κρατών Μελών.

(4) Η ισχύς του ειδικού πιστοποιητικού εγκρίσεως θα λήγει όχι αργότερα από ένα έτος μετά την ημερομηνία του τεχνικού ελέγχου του οχήματος που προηγείται της εκδόσεως του πιστοποιητικού. Εντούτοις, στην περίπτωση δεξαμενών που υπόκεινται σε υποχρεωτική περιοδική επιθεώρηση αυτή η διάταξη δεν θα σημαίνει ότι οι δοκιμές στεγανότητας, οι δοκιμές υδραυλικής πίεσεως ή οι εσωτερικές επιθεωρήσεις των δεξαμενών πρέπει να γίνονται σε χρονικά διαστήματα βραχύτερα εκείνων που ορίζονται στις Προσθήκες Β.1α και Β.1c.

**10 283** Οι μεταφορικές μονάδες που προορίζονται για τη μεταφορά εμπορευματοκιβωτίων-δεξαμενών που υπερβαίνουν τη χωρητικότητα των 3 000 λίτρων θα υπόκεινται σε ετήσιο τεχνικό έλεγχο στη χώρα εγγραφής τους για να εξασφαλιστεί ότι ανταποκρίνονται στις γενικές διατάξεις ασφαλείας που αφορούν φρένα, φωτισμό κ.λπ. που ισχύουν στη χώρα τους. Πιστοποιητικό εγκρίσεως θα εκδίδεται από την αρμόδια αρχή της χώρας εγγραφής για κάθε στοιχείο της μεταφορικής μονάδας της οποίας η επιθεώρηση δίνει ικανοποιητικά αποτελέσματα. Η ημερομηνία της τελευταίας επιθεωρήσεως πρέπει να καθορίζεται. Το υπόδειγμα που υπάρχει στην Προσθήκη Β.3 μπορεί να χρησιμοποιείται γι' αυτό το πιστοποιητικό.

**10 284-  
10 299**

## Γενικές Διατάξεις

## ΤΜΗΜΑ 3. Γενικές απαιτήσεις εξυπηρέτησως

10 300-  
10 310

## Πληρώματα οχήματος

10 311 Όπου οι σχετικές διατάξεις του Μέρους II του παρόντος Παραρτήματος απαιτούν την παρουσία στο όχημα βοηθού, ο βοηθός πρέπει να είναι σε θέση να αναλάβει το όχημα από τον οδηγό.

10 312-  
10 314

## Ειδική εκπαίδευση οδηγών

10 315 (1) Οι οδηγοί οχημάτων - δεξαμενών ή μεταφορικών μονάδων που φέρουν δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές με ολική χωρητικότητα μεγαλύτερη των 3 000 λίτρων και/ή επιτρεπόμενο μέγιστο βάρος που υπερβαίνει 3.5 τόνους και, όπου αυτό απαιτείται από τις διατάξεις του Μέρους II του παρόντος Παραρτήματος, οι οδηγοί άλλων οχημάτων θα κρατούν πιστοποιητικό εκδιδόμενο από την αρμόδια αρχή ή από οργανισμό αναγνωρισμένο από εκείνη την αρχή που θα αναφέρει ότι έχουν συμμετάσχει σε εκπαιδευτικό κύκλο και έχουν περάσει τις εξετάσεις πάνω στις συγκεκριμένες απαιτήσεις που πρέπει να ανταποκρίνονται κατά τη διάρκεια μεταφοράς επικίνδυνων εμπορευμάτων.

(2) Από την 1 Ιανουαρίου 1995, οι οδηγοί οχημάτων άλλων από εκείνα που σημειώνονται υπό την παράγραφο (1) με επιτρεπόμενο μέγιστο βάρος που υπερβαίνει τους 3.5 τόνους, των κατηγοριών C και E που αναφέρονται στο Παράρτημα 6 της Συνθήκης για την Οδική Κυκλοφορία (1968), πρέπει να φέρουν πιστοποιητικό όπως περιγράφεται στην παράγραφο (1).

(3) Με κατάλληλες ανανεώσεις πάνω σ' αυτό το πιστοποιητικό του που θα γίνονται κάθε πέντε χρόνια από την αρμόδια αρχή ή από τον οργανισμό που είναι αναγνωρισμένος από εκείνη την αρχή ο οδηγός του οχήματος πρέπει να είναι σε θέση να δείξει ότι μέσα στο έτος πριν την ημερομηνία λήξης του πιστοποιητικού του έχει συμπληρώσει έναν κύκλο ανανέωσης της εκπαίδευσης και έχει περάσει με επιτυχία την εγκεκριμένη από αυτή την αρχή δοκιμασία.

(4) Η εκπαίδευση θα γίνεται σε κύκλους εκπαίδευσως εγκεκριμένους από την αρμόδια αρχή. Οι κύριοι στόχοι της είναι να ενημερώσει τους οδηγούς για τους κινδύνους που παρουσιάζονται στη μεταφορά επικίνδυνων εμπορευμάτων και να τους δώσει βασικές πληροφορίες απαραίτητες για την ελαχιστοποίηση του ενδεχόμενου ατυχήματος και, αν γίνει, να μπορέσουν να λάβουν μέτρα που μπορεί να αποδειχθούν αναγκαία για την δική τους ασφάλεια και εκείνη του περιβάλλοντος και για τον περιορισμό των συνεπειών του συμβάντος. Η εκπαίδευση αυτή, η οποία πρέπει να περιλαμβάνει ατομικές πρακτικές ασκήσεις, θα πρέπει να καλύπτει ως βασική εκπαίδευση για όλες τις κατηγορίες οδηγών:

- (a) Τις γενικές προϋποθέσεις που καλύπτουν τη μεταφορά επικίνδυνων εμπορευμάτων.
- (b) Τους κύριους τύπους κινδύνων.
- (c) Πληροφορίες σχετικά με την περιβαλλοντική προστασία στον έλεγχο της μεταφοράς αποβλήτων.

## Γενικές Διατάξεις

10 315  
(συνεχ.)

- (d) Προληπτικά και μέτρα ασφαλείας κατάλληλα για τους διάφορους τύπους κινδύνου.
- (e) Τι να κάνουν μετά από ατύχημα (πρώτες βοήθειες, οδική ασφάλεια, βασικές γνώσεις για τη χρήση προστατευτικού εξοπλισμού, κ.λπ.).
- (f) Επισήμανση και μαρκάρισμα για να δείχνεται κίνδυνος.
- (g) Τι πρέπει να κάνει και τι πρέπει να μην κάνει ο οδηγός κατά τη διάρκεια μεταφοράς επικινδύνων εμπορευμάτων.
- (h) Το σκοπό και τη μέθοδο λειτουργίας του τεχνικού εξοπλισμού πάνω σε οχήματα.
- (i) Απαγορεύσεις σχετικές με μικτά φορτία στο ίδιο όχημα ή εμπορευματοκιβώτιο.
- (j) Προφυλάξεις που πρέπει να λαμβάνονται κατά την φόρτωση και εκφόρτωση επικινδύνων φορτίων.
- (k) Γενικές πληροφορίες που αφορούν την αστική ευθύνη.
- (l) Πληροφορίες σχετικά με τις συνδυασμένες μεταφορές.

Για τους οδηγούς οχημάτων που μεταφέρουν εμπορεύματα σε κόλα, οι γνώσεις που απαιτούνται για την απόκτηση πιστοποιητικού εκπαίδευσης θα πρέπει επίσης να καλύπτουν:

- (m) Τον χειρισμό και την στοibaσία των κόλων.

Για τους οδηγούς οχημάτων που μεταφέρουν εμπορεύματα σε δεξαμενές, οι γνώσεις που απαιτούνται για την απόκτηση πιστοποιητικού εκπαίδευσης θα πρέπει επίσης να καλύπτουν:

- (n) Τη συμπεριφορά οχημάτων που φέρουν δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές πάνω στο δρόμο, περιλαμβανομένων των κινήσεων του φορτίου.

(5) Όλα τα πιστοποιητικά εκπαίδευσης που είναι σύμφωνα με τις απαιτήσεις του παρόντος περιθωριακού και εκδίδονται σύμφωνα με το υπόδειγμα που υπάρχει στην Προσθήκη Β.6 από τις αρμόδιες αρχές του Κράτους Μέλους ή από οργανισμό αναγνωρισμένο από αυτές τις αρχές, θα γίνονται δεκτά κατά τη διάρκεια της περιόδου ισχύος τους από τις αρμόδιες αρχές άλλων Κρατών Μελών.

(6) Το πιστοποιητικό θα συντάσσεται στην γλώσσα ή σε μία από τις γλώσσες του κράτους της αρμόδιας αρχής η οποία εξέδωσε το πιστοποιητικό ή αναγνώρισε τον οργανισμό έκδοσης και, αν αυτή η γλώσσα δεν είναι η Αγγλική, Γαλλική ή Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός αν προβλέπεται διαφορετικά από συμφωνίες που έχουν συναφθεί μεταξύ των ενδιαφερομένων χωρών στο χώρο της μεταφοράς

(7) Πιστοποιητικά που εκδόθηκαν σύμφωνα με το υπόδειγμα που καθορίστηκε στις ισχύουσες διατάξεις αυτής της Οδηγίας έως την 31 Δεκεμβρίου 1989 μπορούν να χρησιμοποιούνται έως την ημερομηνία λήξης τους. Εντούτοις, για την μεταφορά εμπορευμάτων της Κλάσης 1 θα χρησιμοποιούνται μόνο εάν ισχύουν για τις Κλάσεις 1a, 1b και 1c, και για την μεταφορά εμπορευμάτων της Κλάσης 9 θα χρησιμοποιούνται μόνο εάν ισχύουν για τις Κλάσεις 3, 6.1 και 8.

## Γενικές Διατάξεις

**10 315** (8) Πιστοποιητικά που εκδόθηκαν σύμφωνα με το μοντέλο που καθορίστηκε στις ισχύουσες (συνεχ.) διατάξεις αυτής της Οδηγίας έως την 28 Ιανουαρίου 1992 μπορούν να χρησιμοποιούνται για την μεταφορά επικίνδυνων εμπορευμάτων σε δεξαμενές ή για εμπορεύματα της Κλάσης 1 αντίστοιχα έως την ημερομηνία λήξης τους.

**10 316-  
10 320**

## Επίβλεψη οχημάτων

**10 321** Τα οχήματα που μεταφέρουν επικίνδυνα εμπορεύματα σε ποσότητες που αναγράφονται στα σχετικά περιθωριακά του Μέρους II θα τελούν υπό επίβλεψη ή εναλλακτικά μπορεί να σταθμεύουν, χωρίς επίβλεψη, σε απομονωμένη θέση στα ανοικτά σε ασφαλή αποθήκη ή σε ασφαλή κτίρια εργοστασίου. Αν δεν υπάρχουν τέτοιες διευκολύνσεις, το όχημα, αφού διασφαλιστεί κατάλληλα, μπορεί να σταθμεύσει σε μεμονωμένη θέση που ανταποκρίνεται στις απαιτήσεις των παραγράφων (i), (ii) ή (iii) παρακάτω. Οι διευκολύνσεις σταθμεύσεως που επιτρέπονται στην παράγραφο (ii) θα χρησιμοποιούνται μόνο αν αυτές που περιγράφονται στην παράγραφο (i) δεν υπάρχουν και αυτές που περιγράφονται στην παράγραφο (iii) μπορούν να χρησιμοποιούνται μόνο αν δεν υπάρχουν οι διευκολύνσεις που περιγράφονται στις παραγράφους (i) και (ii).

- (i) Χώρος σταθμεύσεως οχημάτων εποπτευόμενος από φύλακα, ο οποίος έχει ειδοποιηθεί για τη φύση του φορτίου και για το μέρος που βρίσκεται ο οδηγός.
- (ii) Δημόσιος ή ιδιωτικός χώρος σταθμεύσεως όπου η μεταφορική μονάδα δεν είναι πιθανό να υποστεί βλάβη από άλλα οχήματα ή
- (iii) Κατάλληλος ανοικτός χώρος χωρισμένος από τη δημόσια εθνική οδό και από κατοικίες, όπου το κοινό συνήθως δεν διέρχεται ή συγκεντρώνεται.

**10 322-  
10 324**

## Μεταφορά επιβατών

**10 325** Εκτός από τα μέλη του πληρώματος οχήματος, δεν θα μεταφέρονται επιβάτες σε μεταφορικές μονάδες που μεταφέρουν επικίνδυνες ύλες.

**10 326-  
10 339**

## Χρήση πυροσβεστικών συσκευών

**10 340** Το πλήρωμα του οχήματος πρέπει να γνωρίζει πως θα χρησιμοποιήσει τις πυροσβεστικές συσκευές.

**10 341-  
10 352**

## Φορητές φωτιστικές συσκευές

**10 353** (1) Στο όχημα δεν μπορεί να εισέρχονται πρόσωπα τα οποία φέρουν φωτιστικές συσκευές που περιλαμβάνουν φλόγα. Επί πλέον, η φωτιστική συσκευή που χρησιμοποιείται δεν θα εμφανίζει μεταλλική επιφάνεια που ενδεχομένως μπορεί να δημιουργήσει σπινθήρα.



## Γενικές Διατάξεις

- 10 353 (2) Στα κλειστά οχήματα που μεταφέρουν υγρά με σημείο ανάφλεξης 61° C ή κάτω, ή (συνεχ.) εύφλεκτες ύλες ή είδη της Κλάσης 2, όπως αναγράφονται στο περιθωριακό 2200 (3), δεν θα μπορούν να εισέρχονται πρόσωπα τα οποία φέρουν φωτιστικές συσκευές εκτός από τις φορητές λάμπες που είναι έτσι σχεδιασμένες και κατασκευασμένες που δεν μπορούν να αναφλέξουν εύφλεκτους ατμούς ή αέρια τα οποία μπορεί να εισχωρήσουν στο εσωτερικό του οχήματος.

10 354-  
10 377

## Κενές δεξαμενές

- 10 378 (1) Για μόνιμες δεξαμενές (οχήματα δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων, βλέπε το περιθωριακό 211 177.
- (2) Για εμπορευματοκιβώτια-δεξαμενές, βλέπε το περιθωριακό 212 177.

10 379-  
10 380

## Έγγραφα που πρέπει να υπάρχουν στη μεταφορική μονάδα

- 10 381 (1) Εκτός από τα έγγραφα που απαιτούνται σύμφωνα με άλλες διατάξεις, πρέπει να υπάρχουν στη μεταφορική μονάδα τα παρακάτω έγγραφα:
- (a) Τα έγγραφα μεταφοράς που προβλέπονται στο Παράρτημα Α, περιθωριακό 2002 (3), (4) και (9), καλύπτουν όλες τις μεταφερόμενες επικίνδυνες ύλες και
  - (b) ένα αντίγραφο του κύριου κειμένου της ειδικής συμφωνίας (-ιών) που συνάφθηκε σύμφωνα με τα περιθωριακά 2010 και 10 602 εάν η μεταφορά εκτελείται με βάση τέτοια συμφωνία (-ίες)
- (2) Όπου οι διατάξεις του παρόντος Παραρτήματος απαιτούν τα παρακάτω έγγραφα, αυτά τα έγγραφα θα πρέπει να βρίσκονται στη μεταφορική μονάδα:
- (a) Το ειδικό πιστοποιητικό εγκρίσεως που αναφέρεται στο περιθωριακό 10 282 ή 10 283 για κάθε μεταφορική μονάδα ή στοιχείο αυτής.
  - (b) Το πιστοποιητικό εκπαίδευσής του οδηγού που προβλέπεται στο περιθωριακό 10 315 και απεικονίζεται στην Προσθήκη Β.6.
  - (c) Τις οδηγίες που προβλέπονται στο περιθωριακό 10 385, που αναφέρεται σε όλες τις μεταφερόμενες επικίνδυνες ύλες.
  - (d) Την άδεια που επιτρέπει την μεταφορά.

10 382-  
10 384

## Γραπτές οδηγίες

- 10 385 (1) Σαν προληπτικό μέτρο κατά οποιοδήποτε ατυχήματος ή περιπτώσεις ανάγκης που μπορεί να συμβεί ή να προκύψει στη διάρκεια της μεταφοράς, στον οδηγό θα δίδονται γραπτές οδηγίες που θα καθορίζουν συνοπτικά:
- (a) Τη φύση του κινδύνου που ενυπάρχει στις μεταφερόμενες επικίνδυνες ύλες και τα μέτρα ασφαλείας που πρέπει να παρθούν για την αποφυγή του.

## Γενικές Διατάξεις

- 10 385**  
(συνεχ.)
- (b) Την ενέργεια που πρέπει να γίνει και τη θεραπεία που πρέπει να εφαρμοστεί σε περίπτωση που πρόσωπα έλθουν σε επαφή με τα μεταφερόμενα εμπορεύματα ή με οποιεσδήποτε ύλες που μπορεί να διαφύγουν από αυτά.
- (c) Τα μέτρα που πρέπει να παρθούν σε περίπτωση πυρκαϊάς και, ειδικά, οι πυροσβεστικές συσκευές ή εξοπλισμός που δεν πρέπει να χρησιμοποιηθούν.
- (d) Τα μέτρα που πρέπει να ληφθούν σε περίπτωση σπασίματος ή φθοράς των συσκευασιών ή των μεταφερόμενων επικίνδυνων υλών, ειδικά όπου αυτές οι επικίνδυνες ύλες έχουν χυθεί πάνω στο οδόστρωμα.
- (e) Στην περίπτωση οχημάτων - δεξαμενών ή μεταφορικών μονάδων με δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές χωρητικότητας πάνω από 3 000 λίτρα, και/ή ένα επιτρεπόμενο μέγιστο βάρος που υπερβαίνει τους 3.5 τόνους που μεταφέρουν ύλες που αναφέρονται στην Προσθήκη Β.5, το όνομα της ύλης/υλών, η Κλάση, ο αριθμός και το γράμμα του είδους/ειδών και οι αριθμοί αναγνώρισεως της ύλης και του κινδύνου σύμφωνα με την Προσθήκη Β.5.
- (f) Τα μέτρα που πρέπει να ληφθούν για την πρόληψη ή ελαχιστοποίηση των ζημιών στην περίπτωση που χυθούν ύλες που θεωρούνται ότι μολύνουν το υδρόβιο περιβάλλον επί πλέον των κινδύνων που αναφέρονται από τις ετικέτες κινδύνου.
- (2) Οι οδηγίες αυτές θα ετοιμάζονται για κάθε επικίνδυνη ύλη ή Κλάση επικίνδυνων υλών από τον βιομήχανο ή τον αποστολέα σε γλώσσα της χώρας προελεύσεως. Όπου αυτή η γλώσσα δεν είναι ίδια με εκείνες των χωρών διελεύσεως ή προορισμού, οι οδηγίες θα συντάσσονται επίσης στη γλώσσα εκείνων των χωρών. Μια σειρά από αυτές τις οδηγίες θα φυλάσσεται στο κουβούκλιο του οδηγού.
- (3) Οι οδηγίες αυτές θα δίδονται στον μεταφορέα το αργότερο όταν δίδεται η εντολή μεταφοράς, για να μπορέσει να λάβει όλα τα αναγκαία μέτρα για να εξασφαλίσει ότι οι ενδιαφερόμενοι υπάλληλοι γνωρίζουν αυτές τις οδηγίες και μπορούν να τις διεκπεραιώσουν σωστά.

**10 386-**  
**10 399**

**ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό**

**10 400**

**Περιορισμός των μεταφερόμενων ποσοτήτων**

- 10 401** Το γεγονός ότι επικίνδυνες ύλες περιέχονται σε ένα ή περισσότερα εμπορευματοκιβώτια δεν θα επηρεάζει τους περιορισμούς βάρους που καθορίζονται στο παρόν Παράρτημα σχετικά με τη μεταφορά σε ένα όχημα ή σε μία μεταφορική μονάδα.

**10 402**

**Απαγόρευση μκτικής φορτώσεως σε ένα όχημα**

- 10 403** Εκτός αν το αντίθετο προβλέπεται ρητά από τις διατάξεις των Τμημάτων 4 του Μέρους II του παρόντος Παραρτήματος, οι απαγορεύσεις μκτικής φορτώσεως σε ένα όχημα δεν θα έχουν εφαρμογή σε φορτία εμπορευμάτων συσκευασμένων μαζί με τον τρόπο που επιτρέπεται από τις διατάξεις μκτικής συσκευασίας που περιέχονται στο Παράρτημα Α. Η συμμόρφωση προς τις απαγορεύσεις περί μκτικής φορτώσεως θα βασίζεται πάνω στις ετικέτες κινδύνου της Προσθήκης Α.9 που θα τοποθετούνται πάνω στα κόλα σύμφωνα με τις απαιτήσεις που αναφέρονται για τις διάφορες Κλάσεις στο Παράρτημα Α.

## Γενικές Διατάξεις

**10 403** ΣΗΜΕΙΩΣΗ: Όπως προβλέπεται στο περιθωριακό 2002 (4), θα συντάσσονται χωριστά έγγραφα (συνεχ.) μεταφοράς για φορτία που δεν μπορούν να φορτωθούν μαζί στο ίδιο όχημα.

**Απαγόρευση μικτής φορτώσεως σε ένα εμπορευματοκιβώτιο**

**10 404** Οι απαγορεύσεις μικτής φορτώσεως σε ένα όχημα θα τηρούνται επίσης σε κάθε εμπορευματοκιβώτιο.

**Απαγόρευση μικτής φορτώσεως με εμπορεύματα περιεχόμενα σε εμπορευματοκιβώτιο**

**10 405** Προς το σκοπό εφαρμογής των απαγορεύσεων μικτής φορτώσεως σε ένα όχημα, δεν θα λαμβάνονται υπόψη ύλες που περιέχονται σε κλειστά εμπορευματοκιβώτια με πλήρεις πλευρές.

**10 406-**

**10 412**

**Καθαρισμός πριν από τη φόρτωση**

**10 413** Όλες οι διατάξεις στο παρόν Παράρτημα που σχετίζονται με τον καθαρισμό οχημάτων πριν από τη φόρτωση θα έχουν επίσης εφαρμογή και για τον καθαρισμό των εμπορευματοκιβωτίων.

**Χειρισμός και στοιβασία**

**10 414** (1) Τα διάφορα στοιχεία φορτίου που περιλαμβάνει επικίνδυνες ύλες θα στοιβάζονται κατάλληλα στο όχημα και θα στερεώνονται με κατάλληλα μέσα για να αποφευχθεί η μετακίνησή τους κατά οποιονδήποτε τρόπο σε σχέση προς άλλα και προς τα τοιχώματα του οχήματος. Το φορτίο μπορεί να προστατεύεται, για παράδειγμα, με την χρήση υμάντων πρόσδεσης στα πλευρικά τοιχώματα, σφήνες και ρυθμιζόμενους βραχίονες στήριξης, αερόσακκους και μηχανισμούς κλειδώματος έναντι στην ολίσθηση. Το φορτίο είναι επίσης ικανοποιητικά προφυλασσόμενο με την έννοια της πρώτης πρότασης εάν κάθε στρώση του συνολικού χώρου φόρτωσης είναι πλήρως συμπληρωμένη με κόλα.

(2) Όλες οι διατάξεις του παρόντος Παραρτήματος που έχουν σχέση με τη φόρτωση και εκφόρτωση οχημάτων και με τη στοιβασία και χειρισμό υλών θα έχουν επίσης εφαρμογή για τη φόρτωση, στοιβασία και εκφόρτωση των εμπορευματοκιβωτίων επί και από τα οχήματα.

(3) Τα κόλα που φέρουν ετικέτες σύμφωνα με το μοντέλο Αριθμ. 12 θα προστατεύονται έναντι ζημιάς που μπορεί να προκληθεί από άλλα κόλα.

(4) Ο οδηγός ή ο βοηθός οδηγός δεν μπορούν να ανοίξουν κόλο που περιέχει επικίνδυνες ύλες.

**Καθαρισμός μετά την εκφόρτωση**

**10 415** (1) Αν, όταν ένα όχημα που είναι φορτωμένο με συσκευασμένα επικίνδυνα εμπορεύματα ξεφορτώνεται, μερικά από τα περιεχόμενα διαπιστωθεί ότι έχουν διαφύγει, το όχημα θα καθαρίζεται το ταχύτερο δυνατό και πάντως πριν από την επόμενη φόρτωση.

(2) Οχήματα τα οποία έχουν φορτωθεί με επικίνδυνες ύλες χύμα θα πλένονται καλά πριν από τη νέα φόρτωση εκτός αν το νέο φορτίο αποτελείται από την ίδια επικίνδυνη ύλη με το προηγούμενο φορτίο.

(3) Όλες οι διατάξεις του παρόντος Παραρτήματος που έχουν σχέση με τον καθαρισμό ή την απολύμανση οχημάτων θα έχουν επίσης εφαρμογή στον καθαρισμό και την απολύμανση των εμπορευματοκιβωτίων.

## Γενικές Διατάξεις

## Απαγόρευση καπνίσματος

- 10 416 Το κάπνισμα θα απαγορεύεται στη διάρκεια εργασιών χειρισμού, κοντά στα οχήματα και μέσα στα οχήματα

## Προληπτικά μέτρα κατά ηλεκτροστατικών φορτίσεων

- 10 417 Σε περίπτωση υλών με σημείο ανάφλεξης  $61^{\circ}$  C ή κάτω, θα δημιουργηθεί καλή ηλεκτρική επαφή (ένωση) μεταξύ του αμαξώματος του οχήματος και του εδάφους πριν οι δεξαμενές γεμίσουν ή αδειάσουν. Επί πλέον, ο ρυθμός πλήρωσεως θα είναι περιορισμένος.

10 418

## Φόρτωση και εκφόρτωση επικίνδυνων υλών σε εμπορευματοκιβώτια

- 10 419 Οι διατάξεις του παρόντος Παραρτήματος που έχουν σχέση με τη φόρτωση και εκφόρτωση οχημάτων και τη στοιβασία και χειρισμό επικίνδυνων υλών θα έχουν επίσης εφαρμογή στη φόρτωση και εκφόρτωση επικίνδυνων υλών σε εμπορευματοκιβώτια.

10 420-

10 430

## Λειτουργία του κινητήρα στη διάρκεια φορτώσεως ή εκφορτώσεως.

- 10 431 Εκτός όπου ο κινητήρας πρέπει να χρησιμοποιηθεί για την κίνηση των αντλιών ή άλλων συσκευών για φόρτωση ή για εκφόρτωση του οχήματος, η δε νομοθεσία της χώρας στην οποία λειτουργεί το όχημα επιτρέπει αυτή τη χρήση, ο κινητήρας θα είναι κλειστός στη διάρκεια των εργασιών φορτώσεως και εκφορτώσεως.

10 432-

10 499

## ΤΜΗΜΑ 5.Ειδικές διατάξεις που αφορούν τη λειτουργία των οχημάτων (-δεξαμενών), συστοιχιών δοχείων και εμπορευματοκιβωτίων (-δεξαμενών).

## Μαρκάρισμα

- 10 500 (1) Οι μεταφορικές μονάδες που μεταφέρουν επικίνδυνες ύλες θα προβάλλουν δύο ορθογώνιες αντανακλαστικές πινακίδες χρώματος πορτοκαλί με βάση 40 cm και ύψος όχι μικρότερο από 30 cm σε κάθετο επίπεδο. Οι πινακίδες θα έχουν μαύρο περίγραμμα πλάτους όχι μεγαλύτερου των 15 mm πλάτος. Θα τοποθετούνται μία μπροστά και μία πίσω της μεταφορικής μονάδας, και οι δύο κατακόρυφες προς τον διαμήκη άξονα της μεταφορικής μονάδας. Θα είναι καθαρά ορατές. Εάν το μέγεθος και η κατασκευή του οχήματος είναι τέτοιες ώστε η διαθέσιμη επιφάνεια να μην είναι ικανοποιητική για την τοποθέτηση αυτών των πορτοκαλί πινακίδων, οι διαστάσεις τους μπορούν να μειωθούν σε 300 mm για τη βάση, 120 mm και 10 mm για το ύψος για το μαύρο περίγραμμα.

**ΣΗΜΕΙΩΣΗ:** Το χρώμα των πορτοκαλί πινακίδων σε συνθήκες κανονικής χρήσεως πρέπει να έχουν συντεταγμένες χρωματικότητας που να βρίσκονται μέσα στο χώρο του διαγράμματος χρωματικότητας που σχηματίζεται με την ένωση των παρακάτω συντεταγμένων:

Συντεταγμένες χρωματικότητας σημείων στις γωνίες του χώρου πάνω στο διάγραμμα χρωματικότητας				
X	0.52	0.52	0.578	0.618
Y	0.38	0.40	0.422	0.38

## Γενικές Διατάξεις

**10 500** Συντελεστής φωτεινότητας αντανάκλαστικού χρώματος:  $\beta > 0.12$ .

(συνεχ.)

Κέντρο αναφοράς E, καθιερωμένο φωτιστικό C, κανονική πρόσπτωση  $45^\circ$ , θεώμενο σε  $0^\circ$ .

Συντελεστής φωτεινής εντάσεως αντανάκλασης σε γωνία φωτισμού  $5^\circ$ , θεώμενη στους  $0.2^\circ$ : όχι λιγότερο από 20 κηρία κατά λουξ ανά  $m^2$ .

(2) Οχήματα - δεξαμενές ή μεταφορικές μονάδες με μία ή περισσότερες δεξαμενές που μεταφέρουν επικίνδυνα εμπορεύματα που αναφέρονται στην Προσθήκη B.5 θα προβάλλουν, επί πλέον, στα πλευρά κάθε δεξαμενής ή διαμερίσματος δεξαμενής, καθαρά ορατές και παράλληλες προς το διαμήκη άξονα του οχήματος, πορτοκαλί πινακίδες ίδιες με αυτές που περιγράφονται στην παράγραφο (1). Αυτές οι πορτοκαλί πινακίδες θα φέρουν τους αριθμούς αναγνώρισεως που προβλέπονται στην Προσθήκη B.5 για κάθε μία από τις μεταφερόμενες στη δεξαμενή ύλες ή σε διαμέρισμα της δεξαμενής.

(3) Μεταφορικές μονάδες και εμπορευματοκιβώτια που μεταφέρουν επικίνδυνες στερεές ύλες χύμα που καλύπτονται από την Προσθήκη B.5 θα προβάλλουν, επί πλέον, στα πλευρά κάθε μεταφορικής μονάδας ή εμπορευματοκιβωτίου, καθαρά ορατές και παράλληλες προς το διαμήκη άξονα του οχήματος, πορτοκαλί πινακίδες ίδιες με αυτές που περιγράφονται στην παράγραφο (1). Αυτές οι πορτοκαλί πινακίδες θα φέρουν τους αριθμούς αναγνώρισεως που προβλέπονται για κάθε ύλη που μεταφέρεται χύμα στην μεταφορική μονάδα ή στο εμπορευματοκιβώτιο.

(4) Για εμπορευματοκιβώτια που μεταφέρουν επικίνδυνες στερεές ύλες χύμα και για εμπορευματοκιβώτια-δεξαμενές, οι πινακίδες που προβλέπονται στις παραγράφους (2) και (3) μπορεί να αντικατασταθούν από αυτοκόλλητο φύλλο, από μογιά ή από οποιοδήποτε ισότιμο τρόπο, με τον όρο ότι το υλικό που χρησιμοποιείται γι' αυτό το σκοπό είναι ανθεκτικό στις καιρικές συνθήκες και εξασφαλίζει ανθεκτική επισήμανση. Στην περίπτωση αυτή, δεν θα έχουν εφαρμογή οι διατάξεις της τελευταίας φράσεως της παραγράφου (6), που αφορούν αντίσταση στη φωτιά.

(5) Για μεταφορικές μονάδες που μεταφέρουν μόνο μία από τις ύλες που αναφέρονται στην Προσθήκη B.5, οι πορτοκαλί πινακίδες που προβλέπονται στις παραγράφους (2) και (3) δε θα είναι αναγκαίες με τον όρο ότι αυτές που προβάλλονται μπροστά και πίσω σύμφωνα με την παράγραφο (1) φέρουν τους αριθμούς αναγνώρισεως που προβλέπονται στην Προσθήκη B.5..

(6) Οι αριθμοί αναγνώρισεως θα αποτελούνται από μαύρους αριθμούς (ψηφία) ύψους 100 mm και πάχους γραφής 15 mm. Ο αριθμός αναγνώρισεως κινδύνου θα είναι γραμμένος στο επάνω μέρος της πινακίδας και ο αριθμός αναγνώρισεως της ύλης στο κάτω μέρος. Θα χωρίζονται με οριζόντια μαύρη γραμμή, με πάχος γραφής 15 mm εκτεινόμενη από πλευρά σε πλευρά της πινακίδας σε μέσο ύψος (βλέπε Προσθήκη B.5). Οι αριθμοί αναγνώρισεως θα είναι ανεξίτηλοι και θα παραμένουν ευανάγνωστοι μετά από 15 λεπτά περιτύλιξη από τη φωτιά.

(7) Οι παραπάνω προϋποθέσεις έχουν επίσης εφαρμογή για κενές δεξαμενές, σταθερές ή αποσυναρμολογούμενες, εμπορευματοκιβώτια-δεξαμενές και συστοιχίες δοχείων, μη καθαρισμένων και μη απαερωμένων και κενά οχήματα μεταφοράς χύμα και κενά εμπορευματοκιβώτια μεταφοράς χύμα, μη καθαρισμένων.

(8) Οι πορτοκαλί πινακίδες που δεν αναφέρονται στα μεταφερόμενα επικίνδυνα εμπορεύματα, ή στα επ'αυτών υπολείμματα, θα αφαιρούνται ή θα καλύπτονται. Εάν οι πινακίδες είναι καλυμμένες, το κάλυμμα θα είναι συνολικό και θα παραμείνει αποτελεσματικό μετά από 15 λεπτά περιτύλιξη από τη φωτιά.

## Γενικές Διατάξεις

10 500  
(συνεχ.) **Επισήμανση**

(9) Αν οι επικίνδυνες ύλες που μεταφέρονται μέσα σε εμπορευματοκιβώτια είναι τέτοιες ώστε, σύμφωνα με το Παράρτημα Α, πρέπει να τοποθετηθούν μία ή περισσότερες ετικέτες κινδύνου στο κόλο που τις περιέχει, ίδια ετικέτα ή ετικέτες θα τοποθετούνται στο έξω μέρος του εμπορευματοκιβωτίου που περιέχει αυτές τις ύλες σε κόλα ή χύμα. Εντούτοις, οι ετικέτες Αριθμ. 10, 11 και 12 δεν χρειάζεται να τοποθετηθούν.

(10) Εμπορευματοκιβώτια μεταφοράς χύμα, εμπορευματοκιβώτια-δεξαμενές και συστοιχίες δοχείων θα φέρουν και στις δύο πλευρές τις πινακίδες που προβλέπονται στα περιθωριακά ΧΧ 500 κάθε Κλάσης. Αν αυτές οι πινακίδες δεν είναι ορατές από το εξωτερικό του οχήματος, οι ίδιες πινακίδες θα τοποθετούνται και στις δύο πλευρές του οχήματος και στα πίσω τοιχώματα.

(11) Οχήματα μεταφοράς χύμα και οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές θα φέρουν και στις δύο πλευρές και στα πίσω τοιχώματα τις ετικέτες που προβλέπονται στο περιθωριακό ΧΧ 500 κάθε Κλάσης.

(12) Οι απαιτήσεις του περιθωριακού 10 500 (10) και (11) εφαρμόζονται επίσης σε κενές δεξαμενές, σταθερές ή αποσυναρμολογούμενες, εμπορευματοκιβώτια-δεξαμενές και συστοιχίες δοχείων, μη καθαρισμένων και μη απαερωμένων και κενά οχήματα μεταφοράς χύμα και κενά εμπορευματοκιβώτια μεταφοράς χύμα, μη καθαρισμένων.

(13) Οι ετικέτες που δεν αναφέρονται στα μεταφερόμενα επικίνδυνα εμπορεύματα, ή στα επ'αυτών υπολείμματα, θα αφαιρούνται ή θα καλύπτονται.

10 501-  
10 502**Στάθμευση γενικά**

10 503 Καμία μεταφορική μονάδα που μεταφέρει επικίνδυνες ύλες δεν μπορεί να σταθμεύσει χωρίς να χρησιμοποιηθούν τα φρένα σταθμεύσεως.

## 10 504

**Στάθμευση τη νύχτα ή με κακή ορατότητα**

10 505 (1) Αν ένα όχημα είναι σταθμευμένο τη νύχτα ή με κακή ορατότητα και τα φώτα του δεν είναι αναμμένα, θα τοποθετηθούν στο δρόμο τα κίτρινα φώτα που αναφέρονται στο περιθωριακό 10 260 (c).

- το ένα περίπου 10 m μπροστά από το όχημα και

- το άλλο περίπου 10 m πίσω από το όχημα.

(2) Οι διατάξεις του παρόντος περιθωριακού δεν θα έχουν εφαρμογή στην επικράτεια του Ηνωμένου Βασιλείου.

## 10 506

**Στάθμευση οχήματος που αποτελεί ειδικό κίνδυνο**

10 507 Χωρίς βλάβη των μέτρων που προβλέπονται στο παραπάνω περιθωριακό 10 505, αν η φύση των επικίνδυνων υλών που μεταφέρει το σταθμευμένο όχημα αποτελεί πηγή ειδικού κινδύνου προς τους χρήστες της οδού (π.χ. στην περίπτωση υλών επικίνδυνων για τους πεζούς, τα ζώα ή τα οχήματα εκχυνόμενες πάνω στο δρόμο) το δε πλήρωμα του οχήματος δεν είναι σε θέση να εξουδετερώσει τον κίνδυνο γρήγορα, ο οδηγός θα ειδοποιεί τις

## Γενικές Διατάξεις

**10 507** πλησιέστερες αρμόδιες αρχές ή θα ενεργεί για να ειδοποιηθούν αμέσως. Επίσης, όπου  
(συνεχ.) χρειάζεται, θα λαμβάνει τα μέτρα που προβλέπονται στις οδηγίες που δίδονται στο περιθωριακό 10 385.

**10 508-  
10 598**

## Άλλες διατάξεις

**10 599** Όσον αφορά τις διατάξεις που δεν περιλαμβάνονται σ' αυτό το Μέρος ή στο Μέρος II του παρόντος Παραρτήματος που αφορούν τη λειτουργία οχημάτων που μεταφέρουν επικίνδυνα εμπορεύματα, τα σχετικά μέτρα που έχουν υιοθετηθεί στον τομέα αυτό από κάθε Κράτος Μέλος βάσει της εσωτερικής νομοθεσίας του και αφορά εσωτερικές μεταφορές, θα έχουν εφαρμογή στη διεθνή μεταφορά που χρησιμοποιεί την επικράτεια αυτού.

## ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, παρεκκλίσεις και διατάξεις ιδιόμορφες για ορισμένες χώρες

**10 600-  
10 601**

## Ταχεία διαδικασία για να επιτραπούν παρεκκλίσεις προς το σκοπό δοκιμών

**10 602** Προς το σκοπό διεξαγωγής των αναγκαίων δοκιμών για να τροποποιηθούν οι διατάξεις του παρόντος Παραρτήματος για να προσαρμοστούν με τις τεχνολογικές και βιομηχανικές εξελίξεις, οι αρμόδιες αρχές των Κρατών Μελών μπορούν να συμφωνήσουν απ' ευθείας μεταξύ τους να επιτρέψουν μερικές μεταφορικές εργασίες στις επικράτειές τους με προσωρινή παρέκκλιση από τις διατάξεις του παρόντος Παραρτήματος. Η περίοδος ισχύος της προσωρινής παρέκκλισης δεν μπορεί να υπερβαίνει τα πέντε έτη από την ημερομηνία της θέσεως της σε ισχύ. Η προσωρινή παρέκκλιση θα λήγει αυτόματα την ημερομηνία θέσεως σε ισχύ της αντίστοιχης τροποποίησης στο παρόν παράρτημα.

**10 603-  
10 999**

## ΜΕΡΟΣ ΙΙ

**ΕΙΔΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΜΕ ΕΦΑΡΜΟΓΗ ΣΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ  
ΥΛΩΝ ΤΩΝ ΚΛΑΣΕΩΝ 1 ΕΩΣ 9 ΟΙ ΟΠΟΙΕΣ ΣΥΜΠΛΗΡΩΝΟΥΝ Ή  
ΤΡΟΠΟΠΟΙΟΥΝ ΤΙΣ ΑΠΑΙΤΗΣΕΙΣ ΤΟΥ ΜΕΡΟΥΣ Ι**

**ΚΛΑΣΗ 1. ΕΚΡΗΚΤΙΚΕΣ ΥΛΕΣ ΚΑΙ ΑΝΤΙΚΕΙΜΕΝΑ**

**Γενικά**

(Εχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους Ι)

11 000-  
11 099

**ΤΜΗΜΑ 1. Τρόπος μεταφοράς**

11 100-  
11 107

**Πλήρη φορτία**

11 108 (1) Υλεις και αντικείμενα της Συμβατικής Ομάδας L μπορούν να μεταφέρονται μόνο ως πλήρες φορτίο.

(2) Όταν ύλες και αντικείμενα των υποδιαιρέσεων 1.1, 1.2 ή 1.5 μεταφέρονται σε μεγάλα εμπορευματοκιβώτια, τέτοια εμπορεύματα μπορούν να μεταφέρονται μόνο ως πλήρες φορτίο.

11 109-  
11 117

**Μεταφορά σε εμπορευματοκιβώτια**

11 118 Εφόσον μικρά εμπορευματοκιβώτια καλύπτουν τις απαιτήσεις που προβλέπονται σχετικά με το αμάξωμα του οχήματος για την εκάστοτε εργασία μεταφοράς, τότε δεν θα είναι αναγκαίο να καλύπτει αυτές τις απαιτήσεις το αμάξωμα του οχήματος.

11 119-  
11 199



## Κλάση 1

**ΤΜΗΜΑ 2: Ειδικές απαιτήσεις προς εκπλήρωση από τα μέσα μεταφοράς και τα οχήματα και τον εξοπλισμό τους**11 200-  
11 203**Τύποι οχημάτων**

**11 204** Για την εφαρμογή του παρόντος Παραρτήματος, οι μεταφορικές μονάδες που έχουν άδεια μεταφοράς υλών και αντικειμένων της Κλάσης I κατατάσσονται όπως παρακάτω:

(1) **Μεταφορικές μονάδες "Τύπου I":**

Αυτά τα οχήματα μπορούν να είναι είτε κλειστά είτε επενδεδυμένα. Τα φύλλα των επενδεδυμένων οχημάτων πρέπει να είναι από αδιάβροχο υλικό που να μην αναφλέγεται εύκολα. Πρέπει να είναι τεντωμένα ούτως ώστε να καλύπτουν το όχημα από όλες τις πλευρές, με επικάλυψη όχι μικρότερη από 20 εκ. προς τα κάτω επί των τοιχωμάτων του οχήματος και να διατηρούνται στη θέση τους με μηχανισμό που κλειδώνεται.

(2) **Μεταφορικές μονάδες "Τύπου II":** Μονάδες των οποίων οι κινητήρες χρησιμοποιούν υγρό καύσιμο με σημείο αναφλέξεως 55 °C ή μεγαλύτερο.

(a) Γενικά

Αυτά τα οχήματα μπορούν να είναι είτε κλειστά είτε επενδεδυμένα. Το αμάξωμα πρέπει να είναι στερεά κατασκευασμένο με τέτοιο τρόπο ώστε να προστατεύει επαρκώς τα μεταφερόμενα εμπορεύματα. Η επιφάνεια φορτώσεως, συμπεριλαμβανομένου του εμπροσθίου τοιχώματος, θα είναι συνεχής. Εάν το όχημα είναι επενδεδυμένο, θα τηρούνται οι διατάξεις οι σχετικές με την επένδυση στις μεταφορικές μονάδες "Τύπου I".

Εάν η μεταφορική μονάδα περιλαμβάνει συρόμενο όχημα, το συρόμενο όχημα πρέπει να έχει συσκευή σύνδεσης που αποσπάται γρήγορα και είναι στερεή· η μεταφορική μονάδα πρέπει επίσης να είναι εξοπλισμένη με αποτελεσματικό μηχανισμό πέδησης που επενεργεί σε όλους τους τροχούς, ενεργοποιείται από το σύστημα ελέγχου πέδησης του έλκοντος οχήματος και αυτομάτως σταματά το συρόμενο όχημα σε περίπτωση θραύσεως της συνδέσεως.

(b) Κινητήρας και σύστημα εξαγωγής καυσαερίων

Ο κινητήρας και το σύστημα εξαγωγής καυσαερίων πρέπει να ικανοποιούν τις απαιτήσεις των περιθωριακών 220 533 και 220 534 του Παραρτήματος Β.2.

(c) Δεξαμενή καυσίμων

Η δεξαμενή καυσίμων πρέπει να ικανοποιεί τις απαιτήσεις του περιθωριακού 220 532 του Παραρτήματος Β.2.

(d) Κουβούκλιο οδηγού

Το υλικό που χρησιμοποιείται στην κατασκευή του κουβουκλίου του οδηγού πρέπει να ικανοποιεί τις απαιτήσεις του περιθωριακού 220 531(1) του Παραρτήματος Β.2.

Οι βοηθητικές θερμαντικές εγκαταστάσεις πρέπει να ικανοποιούν τις απαιτήσεις του περιθωριακού 220 536 του Παραρτήματος Β.2.

## Κλάση 1

11 204 (3) Μεταφορικές μονάδες "Τύπου III":  
(συνεχ.)

που έχουν όλα τα χαρακτηριστικά των κλειστών οχημάτων "Τύπου II" με αμαξώματα τα οποία πληρούν τις ακόλουθες διατάξεις:

- (a) Το αμάξωμα είναι κλειστό και έχει συνεχή επιφάνεια. Είναι στερεά κατασκευασμένο από υλικά που δεν είναι εύκολα αναφλέξιμα, κατά τρόπο ώστε να προστατεύει επαρκώς τα μεταφερόμενα εμπορεύματα. Τα χρησιμοποιούμενα υλικά για επίστρωση δεν θα μπορούν να προκαλέσουν σπινθήρες. Οι μονωτικές και αντιθερμαντικές ιδιότητες του αμαξώματος είναι σε όλα τα σημεία κατ'ελάχιστον ισοδύναμες με εκείνες ενός χωρίσματος αποτελούμενου από εξωτερικό μεταλλικό τοίχωμα επενδεδυμένο με στρώμα άφλεκτου ξύλου πάχους 10 χιλ.
- (b) Όλες οι πόρτες μπορούν να κλειδώνονται. Θα τοποθετούνται και κατασκευάζονται κατά τέτοιο τρόπο ώστε να αλληλοεπικαλύπτονται οι αρμοί.

## Ειδικές απαιτήσεις για τη χρήση οχημάτων ορισμένων τύπων

11 205 (1) Συρόμενα οχήματα, εξαιρουμένων των επικαθμένων οχημάτων, φορτωμένα με ύλες και αντικείμενα της Κλάσης 1, τα οποία τηρούν τις προδιαγραφές που απαιτούνται για μεταφορικές μονάδες των Τύπων II και III, μπορούν να έλκονται από μηχανοκίνητα οχήματα που δεν τηρούν αυτές τις προδιαγραφές.

(2) Για μεταφορά σε εμπορευματοκιβώτια έχουν εφαρμογή οι διατάξεις των περιθωριακών 10 118(3) και 11 118. Για ύλες σε ελεύθερα υπάμενη σκόνη των 2°, 4°, 8°, 26° και 29°, και για πυροτεχνήματα των 9°, 21° και 30°, το δάπεδο του εμπορευματοκιβωτίου πρέπει να έχει μη μεταλλική επιφάνεια ή επικάλυψη.

11 206-  
11 209

## Υλικά που θα χρησιμοποιηθούν για την κατασκευή των αμαξωμάτων οχημάτων

- 11 210 Για την κατασκευή του αμαξώματος, δεν θα χρησιμοποιούνται υλικά που είναι ενδεχόμενο να σχηματίσουν επικίνδυνα μείγματα με τα μεταφερόμενα εκρηκτικά [βλέπε και περιθωριακό 11 204 (3)].
- 11 211 Για μεταφορά σε εμπορευματοκιβώτια έχουν εφαρμογή οι διατάξεις των περιθωριακών 10 118(3) και 11 118. Για ελεύθερα υπάμενες ύλες σε σκόνη των 2°, 4°, 8°, 26° και 29°, και για πυροτεχνήματα των 9°, 21° και 30°, το δάπεδο του εμπορευματοκιβωτίου πρέπει να έχει μη μεταλλική επιφάνεια ή επικάλυψη.

11 212-  
11 250

## Ηλεκτρολογικός εξοπλισμός

- 11 251 (1) Η καθορισμένη τάση του ηλεκτρικού συστήματος φωτισμού δεν θα υπερβαίνει τα 24V.
- (2) Οι μεταφορικές μονάδες των Τύπων II και III πρέπει να ικανοποιούν τις παρακάτω απαιτήσεις:
- (a) Οι συσσωρευτές πρέπει να φυλάσσονται επαρκώς και να προστατεύονται από ζημιά λόγω σύγκρουσης και οι ακροδέκτες τους πρέπει να προστατεύονται με ηλεκτρομονωτικό κάλυμμα.
  - (b) Η εγκατάσταση εσωτερικού φωτισμού στο διαμέρισμα μεταφοράς φορτίου πρέπει να προστατεύεται από τη σκόνη (κατ'ελάχιστον IP54 ή ισοδύναμη) ή, στην περίπτωση της Συμβατικής Ομάδας J, να είναι άφλεκτη Ex d (κατ'ελάχιστον IP65 ή ισοδύναμη). Ο διακόπτης θα τοποθετείται εξωτερικά.

## Κλάση 1

11 252-  
11 281**Έγκριση οχημάτων**

11 282 Οι απαιτήσεις του περιθωριακού 10 282 έχουν εφαρμογή σε μεταφορικές μονάδες Τύπου III.

11 283-  
11 299**ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησως**11 300-  
11 310**Πληρώματα οχημάτων**

11 311 (1) Σε κάθε μεταφορική μονάδα θα υπάρχει βοηθός οδηγού. Αν οι εθνικές διατάξεις το προβλέπουν, η αρμόδια αρχή Κράτους Μέλους μπορεί να ζητήσει να υπάρχει στο όχημα εξουσιοδοτημένος κρατικός υπάλληλος με έξοδα του μεταφορέα.

(2) Η πρώτη πρόταση του (1) δεν εφαρμόζεται σε φάλαγγες περισσότερων των δύο οχημάτων εάν οι οδηγοί του πρώτου και του τελευταίου οχήματος της φάλαγγας συνοδεύονται από οδηγό.

(3) Η παρουσία βοηθού οδηγού δεν απαιτείται στην περίπτωση αντικειμένων του 43°, με χαρακτηριστικό αριθμό 0336, μεταφερόμενα σε μεταφορική μονάδα Τύπου I.

11 312-  
11 314**Ειδική εκπαίδευση οδηγών**

11 315 Οι διατάξεις (1), (3), (4)(a) έως (m) και (5) του περιθωριακού 10 315 εφαρμόζονται σε οδηγούς οχημάτων που μεταφέρουν ύλες ή αντικείμενα της Κλάσης I σε ποσότητες που υπερβαίνουν τα όρια που ορίζονται στο περιθωριακό 10 011.

11 316-  
11 320**Επιθεώρηση οχημάτων**

11 321 Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή μόνο σε οχήματα που μεταφέρουν ύλες και αντικείμενα της Κλάσης I με συνολικό βάρος εκρηκτικής ύλης άνω των 50 κιλών. Επί πλέον, αυτά τα εμπορεύματα θα επιβλέπονται πάντοτε ώστε να αποφευχθεί οποιαδήποτε κακόβουλη ενέργεια και να κινητοποιηθεί ο οδηγός και οι αρμόδιες αρχές σε περίπτωση απωλείας ή πυρκαϊάς. Εξαιρούνται κενές συσκευασίες του 51°.

11 322-  
11 353**Απαγόρευση φωτιάς και γυμνής φλόγας**

11 354 Απαγορεύεται η χρήση φωτιάς ή γυμνής φλόγας επί οχημάτων που μεταφέρουν ύλες και αντικείμενα της Κλάσης I, στην πλησίον τους περιοχή και κατά την φόρτωση και εκφόρτωση αυτών των υλών και αντικειμένων.

## Κλάση 1

11 355-  
11 399**ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό**

11 400

**Περιορισμός των μεταφερομένων ποσοτήτων**

- 11 401 Το συνολικό καθαρό βάρος σε κιλά εκρηκτικής ύλης (ή, στην περίπτωση εκρηκτικών αντικειμένων, το συνολικό καθαρό βάρος εκρηκτικής ύλης που περιέχεται στο σύνολο των αντικειμένων) το οποίο μπορεί να μεταφέρεται σε μία μεταφορική μονάδα περιορίζεται κατά τα αναφερόμενα στον παρακάτω πίνακα (βλέπε και περιθωριακό 11 403 όσον αφορά την απαγόρευση μικτής φορτώσεως):

**Μέγιστο επιτρεπόμενο καθαρό βάρος εμπορευμάτων Κλάσης 1 σε κιλά ανά μεταφορική μονάδα**

Υποδιαίρεση	1.1	1.2	1.3	1.4		1.5 και 1.6	
Είδος	1°-12°	13°-25°	26°-34°	35°-45°	46°, 47°	48°, 49°, 50°	51°
Μεταφορική Μονάδα							
Τύπος I	50	50	50	300*	Απεριόριστο	50	Απεριόριστο
Τύπος II	1 000	3 000	5 000	15 000	Απεριόριστο	5 000	Απεριόριστο
Τύπος III	15 000	15 000	15 000	15 000	Απεριόριστο	15 000	Απεριόριστο

\*/ Χαρακτηριστικός αριθμός 0336: 3 000 κιλά (4 000 κιλά για μεταφορική μονάδα με συρόμενο όχημα).

- 11 402 Εάν ύλες και αντικείμενα διαφορετικών υποδιαίρεσεων της Κλάσης 1 μεταφέρονται σε μία μεταφορική μονάδα σύμφωνα με τις απαγορεύσεις μικτής φορτώσεως που περιλαμβάνονται στο 11 403, το φορτίο στο σύνολό του θα θεωρείται ως εάν ανήκε στην πλέον επικίνδυνη υποδιαίρεση (με τη σειρά 1.1, 1.5, 1.2, 1.3, 1.6, 1.4).

Εάν ύλες 48° μεταφέρονται σε μία μεταφορική μονάδα μαζί με ύλες και αντικείμενα της υποδιαίρεσης 1.2, το σύνολο του φορτίου θα θεωρείται ως εάν ανήκε στην υποδιαίρεση 1.1.

**Απαγορεύσεις μικτής φορτώσεως**

- 11 403 (1) Κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5 ή 1.6 τα οποία όμως έχουν ορισθεί σε διαφορετικές συμβατικές ομάδες δεν θα φορτώνονται μαζί σε ένα όχημα, εκτός εάν η μικτή φόρτωση των αντιστοίχων συμβατικών ομάδων επιτρέπεται βάσει του παρακάτω πίνακα:

## Κλάση 1

11 403  
(συνεχ.)

Συμβατική ομάδα	B	C	D	E	F	G	H	J	L	N	S
B	X										X
C		X	X	X		X				2/, 3/	X
D		X	X	X		X				2/, 3/	X
E		X	X	X		X				2/, 3/	X
F					X						X
G		X	X	X		X					X
H							X				X
J								X			X
L									1/		
N		2/, 3/	2/, 3/	2/, 3/						2/	X
S	X	X	X	X	X	X	X	X		X	X

X = επιτρέπεται η μικτή φόρτωση

(2) Κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4 ή 1.5 δεν θα φορτώνονται σε ένα όχημα μαζί με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 2, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.1A, 7A, 7B, 7C, 8 ή 9.

11 404

## Απαγόρευση μικτής φόρτωσης με εμπορεύματα σε εμπορευματοκιβώτια

11 405 (1) Οι απαγορεύσεις μικτής φόρτωσης εμπορευμάτων που αναφέρονται στο περιθωριακό 11 403 έχουν εφαρμογή μέσα σε κάθε εμπορευματοκιβώτιο.

(2) Οι διατάξεις του περιθωριακού 11 403 έχουν εφαρμογή μεταξύ των επικίνδυνων εμπορευμάτων που περιέχονται σε εμπορευματοκιβώτια και των άλλων επικίνδυνων εμπορευμάτων που είναι φορτωμένα στο ίδιο όχημα, είτε τα τελευταία περιέχονται ή όχι σε ένα ή περισσότερα άλλα εμπορευματοκιβώτια.

<sup>1/</sup> Κόλα που περιέχουν ύλες και αντικείμενα της Συμβατικής Ομάδας 1 επιτρέπεται να φορτωθούν μαζί σε ένα όχημα με κόλα που περιέχουν τον ίδιο τύπο υλών και αντικειμένων αυτής της συμβατικής ομάδας.

<sup>2/</sup> Διαφορετικοί τύποι αντικειμένων 1.6N μπορούν να μεταφέρονται μαζί ως αντικείμενα 1.6N μόνο εάν έχει αποδειχθεί διά δοκιμής ή αναλογίας ότι δεν υπάρχει πρόσθετος κίνδυνος συμπαθητικής έκρηξης μεταξύ των αντικειμένων. Διαφορετικά πρέπει να θεωρηθούν ως ανήκοντα στην κατηγορία κινδύνου 1.1.

<sup>3/</sup> Εάν αντικείμενα της συμβατικής ομάδας N μεταφέρονται μαζί με ύλες ή αντικείμενα των συμβατικών ομάδων C, D ή E, τα αντικείμενα της συμβατικής ομάδας N πρέπει να θεωρούνται ως έχοντα τα χαρακτηριστικά της συμβατικής ομάδας D.

## Κλάση 1

11 406

**Τόποι φορτώσεως και εκφόρτώσεως**

11 407 (1) Οι παρακάτω εργασίες απαγορεύονται:

- (a) Φόρτωση ή εκφόρτωση υλών και αντικειμένων της Κλάσης 1, σε δημόσιο χώρο εντός κατοικημένης περιοχής χωρίς ειδική έγκριση από τις αρμόδιες αρχές.
- (b) Φόρτωση ή εκφόρτωση υλών ή αντικειμένων αυτών των Κλάσεων σε δημόσιο χώρο εκτός από κατοικημένη περιοχή χωρίς προηγούμενη ειδοποίηση των αρμόδιων αρχών, εκτός αν αυτές οι εργασίες είναι επείγοντως αναγκαίες για λόγους ασφαλείας.

(2) Αν για οποιονδήποτε λόγο, οι εργασίες χειρισμού πρέπει να γίνουν σε δημόσιο χώρο, τότε ύλες και αντικείμενα διαφόρων ειδών θα χωρίζονται σύμφωνα με τις ετικέτες.

11 408-

11 409

**Προφυλάξεις σε σχέση με αντικείμενα καταναλώσεως**

- 11 410 (1) Κόλα που φέρουν ετικέτες σύμφωνες με το υπόδειγμα Αριθμ. 6.1 θα διαχωρίζονται από τρόφιμα, άλλα αντικείμενα καταναλώσεως και ζωοτροφές εντός των οχημάτων και στους χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.
- (2) Κενές συσκευασίες, ακαθάριστες, που φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.1 θα διαχωρίζονται από τρόφιμα, άλλα αντικείμενα καταναλώσεως και ζωοτροφές εντός των οχημάτων και στους χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.

11 411-

11 412

**Καθαρισμός πριν από τη φόρτωση**

11 413 Πριν να φορτωθούν ύλες και αντικείμενα της Κλάσης 1, η επιφάνεια φόρτωσης του οχήματος πρέπει να καθαρίζεται επιμελώς.

11 414-

11 499

**ΤΜΗΜΑ 5. Ειδικές διατάξεις λειτουργίας οχημάτων και εμπορευματοκιβωτίων****Μαρκάρισμα και επισήμανση****Μαρκάρισμα**

11 500 (1) Επί πλέον των διατάξεων του περιθωριακού 10 500, μεταφορικές μονάδες που μεταφέρουν κόλα ή αντικείμενα που φέρουν ετικέτες σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5 ή 1.6 θα φέρουν παρόμοια ετικέτα σε αμφοτέρες τις πλευρές και στο πίσω μέρος. Οι συμβατικές ομάδες δεν θα αναφέρονται στις ετικέτες αν η μεταφορική μονάδα μεταφέρει ύλες και αντικείμενα που ανήκουν σε διαφορετικές συμβατικές ομάδες.

## Κλάση 1

**11 500** (2) Μεταφορική μονάδα που μεταφέρει ύλες ή αντικείμενα διαφορετικών υποδιαίρεσεων (συνεχ.) θα φέρει μόνο ετικέτες σύμφωνα με το υπόδειγμα της πλέον επικίνδυνης υποδιαίρεσης, με τη σειρά:

1.1 (πλέον επικίνδυνη), 1.5, 1.2, 1.3, 1.6, 1.4 (λιγότερο επικίνδυνη). Εάν ύλες 48° μεταφέρονται με ύλες ή αντικείμενα της υποδιαίρεσης 1.2, η μεταφορική μονάδα θα έχει ετικέτα της υποδιαίρεσης 1.1.

(3) Μεταφορικές μονάδες που φέρουν ύλες ή αντικείμενα των παρακάτω ειδών και χαρακτηριστικών αριθμών θα φέρουν επιπλέον ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.1:

4° αριθμοί 0076 και 0143  
21° αριθμός 0018  
26° αριθμός 0077  
30° αριθμός 0019  
43° αριθμός 0301

(4) Μεταφορικές μονάδες που φέρουν αντικείμενα των παρακάτω ειδών και χαρακτηριστικών αριθμών θα φέρουν επιπλέον ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 8:

21° αριθμοί 0015 και 0018  
30° αριθμοί 0016 και 0019  
43° αριθμοί 0301 και 0303

(5) Οι διατάξεις (1) έως (4) δεν θα έχουν εφαρμογή σε μεταφορικές μονάδες που μεταφέρουν εμπορευματοκιβώτια, εφόσον τα εμπορευματοκιβώτια έχουν ετικέτες σύμφωνα με τις απαιτήσεις του περιθωριακού 10 500 (9).

**11 501-  
11 508**

**Στάσεις για την εκτέλεση απαιτούμενων εργασιών**

**11 509.** Όταν οχήματα που μεταφέρουν ύλες ή αντικείμενα της Κλάσης 1 υποχρεούνται να σταματήσουν για εργασίες φόρτωσης ή εκφόρτωσης σε δημόσιο χώρο, θα διατηρείται απόσταση τουλάχιστον 50 μ. μεταξύ των σταθμευμένων οχημάτων.

**11 510-  
11 519**

**Φάλαγγες**

**11 520** (1) Όταν οχήματα που μεταφέρουν ύλες ή αντικείμενα της Κλάσης 1 ταξιδεύουν σε φάλαγγα, θα διατηρείται μεταξύ κάθε μεταφορικής μονάδας και της επόμενης απόσταση όχι μικρότερη από 50 μ.

(2) Η αρμόδια αρχή μπορεί να καταρτίσει κανόνες για τη σειρά ή τη σύνθεση των φαλάγγων.

**11 521-  
11 599**

**ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

**11 600-  
20 999**

**ΚΛΑΣΗ 2. ΑΕΡΙΑ: ΠΙΕΣΜΕΝΑ, ΥΓΡΟΠΟΙΗΜΕΝΑ Ή ΔΙΑΛΥΜΕΝΑ ΥΠΟ ΠΙΕΣΗ****Γενικά**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

21 000-  
21 099**ΤΜΗΜΑ 1. Τρόπος μεταφοράς**21 100-  
21 117**Μεταφορά σε εμπορευματοκιβώτια**

21 118 Η μεταφορά σε μικρά εμπορευματοκιβώτια κώλων που περιέχουν αέρια του 7° (a) και 8° (a) απαγορεύεται.

21 119-  
21 199**ΤΜΗΜΑ 2. Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους**21 200-  
21 211**Αερισμός**

21 212 Εάν κώλα που περιέχουν αέρια του 1° μέχρι 6° και 9° (e) μεταφέρονται σε κλειστό όχημα, το όχημα θα είναι εφοδιασμένο με επαρκή εξαερισμό.

21 213-  
21 259**Ειδικός εξοπλισμός**

21 260 Όταν μεταφέρονται πιεσμένα αέρια ή υγροποιημένα αέρια βλαβερά για τα αναπνευστικά όργανα ή που εγκυμονούν κίνδυνο δηλητηρίασεως και χαρακτηρίζονται με το γράμμα "t" στον πίνακα των υλών, το πλήρωμα του οχήματος πρέπει να εφοδιάζεται με ασφυξιογόνες προσωπίδες (αναπνευστήρες) τύπου κατάλληλου για τα μεταφερόμενα αέρια.

21 261-  
21 299**ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησεως**21 300-  
21 320



## Κλάση 2

## Επίβλεψη των οχημάτων

21 321 Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή για τα επικίνδυνα εμπορεύματα που αναφέρονται παρακάτω σε ποσότητες που υπερβαίνουν αυτές που καθορίζονται:

Τριφθοριούχο βόριο και φθόριο του 1° (at)· οι ύλες του 3° (at), του 3° (bt) πλην αιθυλοχλωριδίου και του 3° (ct)· υδροχλωρίου του 5° (at)· και τα υγροποιημένα αέρια βαθιάς καταψύξεως του 7° (a) και 8° (a): 1 000 κιλά·

Οι ύλες του 3° (b)· αιθυλοχλωρίδιο του 3° (bt)· βινυλοχλωρίδιο του 3° (c)· οι ύλες του 4° (b)· και τα υγροποιημένα αέρια βαθιάς καταψύξεως του 7° (b) και 8° (b): 10 000 κιλά.

21 322-  
21 399

**ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό**

21 400-  
21 402

**Απαγόρευση μικτής φορτώσεως σε ένα όχημα**

21 403 Κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 2, 3 ή 6.1 δεν θα φορτώνονται στο ίδιο όχημα μαζί με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.

21 404-  
21 406

**Τόποι φορτώσεως και εκφορτώσεως**

21 407 (1) Οι παρακάτω εργασίες απαγορεύονται:

- (a) Φόρτωση ή εκφόρτωση των παρακάτω υλών σε δημόσιο χώρο εντός κατοικημένης περιοχής χωρίς ειδική άδεια από τις αρμόδιες αρχές: υδροβρώμιο, χλώριο, διοξείδιο του αζώτου, διοξείδιο του θείου ή φωσγένιο [3° (at)]· υδρόθειο [3° (bt)]· και υδροχλωρίου [5° (at)]·
- (b) Φόρτωση ή εκφόρτωση των παραπάνω υπό (a) αναφερομένων υλών σε δημόσιο χώρο πλην κατοικημένης περιοχής χωρίς προηγούμενη ειδοποίηση των αρμοδίων αρχών, εκτός αν οι προαναφερόμενες εργασίες δικαιολογούνται για σοβαρούς λόγους ασφαλείας.

Η άδεια και η ειδοποίηση που προβλέπονται παραπάνω στα (a) και (b) αντιστοίχως δεν θα απαιτούνται αν οι ύλες περιέχονται σε κυλίνδρους, δοχεία, 'συνδεσμολογίες κυλίνδρων' ή δοχεία σύμφωνα με το περιθωριακό 2207 με χωρητικότητα που δεν υπερβαίνει τα 1 000 λίτρα κατά τα περιγραφόμενα στο περιθωριακό 2212 (1) (a), (b), (d) ή (e).

(2) Αν για οποιοδήποτε λόγο οι εργασίες χειρισμού πρέπει να γίνουν σε δημόσιο χώρο, τότε:

Υλεις και αντικείμενα διαφορετικών ειδών θα διαχωρίζονται σύμφωνα με τις ετικέτες και

Κόλα εφοδιασμένα με μέσα χειρισμού θα διατηρούνται επίπεδα κατά τον χειρισμό.

## Κλάση 2

21 408-  
21 413

## Χειρισμός και στοιβασία

- 21 414 (1) Τα κόλα δεν πρέπει να ρίπτονται ή να υποβάλλονται σε πρόσκρουση.
- (2) Τα δοχεία θα στοιβάζονται εντός του οχήματος κατά τέτοιο τρόπο ώστε αφ'ενός να μη μπορούν να ανατραπούν ή να πέσουν και αφ'ετέρου να καλύπτονται οι παρακάτω προϋποθέσεις:

(a) Οι κύλινδροι που αναφέρονται στο περιθωριακό 2212 (1)(a) θα τοποθετούνται παράλληλα ή σε ορθή γωνία προς τον κατά μήκος άξονα του οχήματος· εντούτοις, αυτοί που βρίσκονται πλησίον του εμπρόσθιου εγκάρσιου τοιχώματος θα τοποθετούνται σε ορθή γωνία προς τον προαναφερόμενο άξονα.

Οι κοντοί κύλινδροι μεγάλης διαμέτρου (περίπου 30 εκ. και πάνω) μπορεί να στοιβάζονται κατά μήκος με τη συσκευή προστασίας της βαλβίδας στραμμένη προς το μέσον του οχήματος.

Κύλινδροι που είναι αρκετά σταθεροί ή μεταφέρονται σε κατάλληλες συσκευές που εμποδίζουν αποτελεσματικά την ανατροπή μπορεί να τοποθετούνται όρθιοι.

Κύλινδροι που τοποθετούνται οριζόντια θα σφηνώνονται, θα προσδένονται ή θα ασφαλιζονται κατάλληλα και σταθερά ώστε να μη μπορούν να μετατοπισθούν.

(b) Δοχεία που περιέχουν αέρια του 7° (a) ή 8° (a) θα τοποθετούνται πάντοτε στη θέση για την οποία έχουν σχεδιαστεί και θα προστατεύονται έναντι οποιουδήποτε ενδεχόμενου να υποστούν βλάβες από άλλα κόλα.

21 415-  
21 499

**ΤΜΗΜΑ 5. Ειδικές διατάξεις που αφορούν τη λειτουργία οχημάτων-δεξαμενών  
συστοιχίων δοχείων και εμπορευματοκιβωτίων-δεξαμενών**

## Μαρκάρισμα και επισήμανση οχημάτων

Μαρκάρισμα

- 21 500 (1) Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές, εμπορευματοκιβώτια-δεξαμενές και συστοιχίες δοχείων που περιέχουν ή περιείχαν στο παρελθόν (κενά, ακαθάριστα) ύλες της Κλάσης 2 πλην των αναγραφόμενων στον Πίνακα 2 του παρόντος περιθωριακού πρέπει να φέρουν την ετικέτα ή τις ετικέτες που αναφέρονται στον Πίνακα 1 παρακάτω:

Πίνακας 1

Υλες και αντικείμενα	Υπόδειγμα ετικέτας Αριθμ.
Καταχωρημένες υπό (a)	2
Καταχωρημένες υπό (at)	6.1
Καταχωρημένες υπό (b)	3
Καταχωρημένες υπό (bt)	6.1 + 3
Καταχωρημένες υπό (c)	3
Καταχωρημένες υπό (ct)	6.1 + 3

## Κλάση 2

**21 500** (2) Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές, εμπορευματοκιβώτια-δεξαμενές, ή συστοιχίες δοχείων, που περιέχουν ή περιείχαν στο παρελθόν (κενά, ακαθάριστα) ύλες που αναγράφονται στον Πίνακα 2 παρακάτω θα φέρουν την ετικέτα ή τις ετικέτες που αναφέρονται.

Πίνακας 2

Αριθμός είδους	Υλες	Αριθμός υποδείγματος ετικέτας
1° (a)	Οξυγόνο	2 + 05
2° (a)	Μείγματα με άνω του 25% οξυγόνο κατ'όγκο	2 + 05
3° (at)	Χλώριο, υδροβρώμιο, φωσγένιο	6.1 + 8
3° (at)	Διοξείδιο του αζώτου	6.1 + 05
5° (a)	Πρωτοξείδιο του αζώτου	2 + 05
5° (at)	Υδροχλώριο	6.1 + 8
7° (a)	Οξείδιο του υδρογόνου, οξυγόνο	2 + 05
8° (a)	Μείγματα με άνω του 32 % νιτρώδες οξύ κατά βάρος, αέρας, μείγματα με άνω του 20 % οξυγόνο κατά βάρος	2 + 05

21 501-  
21 508

## Στάσεις περιορισμένης διάρκειας για ανάγκες σέρβις

**21 509** Κατά τη μεταφορά επικίνδυνων υλών της Κλάσης 2 πλην εκείνων του 1° (a) και (at), 2° (a), 7° (a), 8° (a), και 10°, οι στάσεις για ανάγκες σέρβις δεν θα γίνονται, όσο είναι δυνατό, πλησίον κατοικημένων περιοχών ή θερέτρων. Η στάση κοντά σε ένα τέτοιο τόπο δεν θα μπορεί να παρατείνεται παρά μόνο με τη σύμφωνη γνώμη των αρμόδιων αρχών.

21 510-  
21 599

**ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

21 600-  
30 999

**ΚΛΑΣΗ 3. ΕΥΦΛΕΚΤΑ ΥΓΡΑ****Γενικά**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

31 000-  
31 099

**ΤΜΗΜΑ 1. Τρόπος μεταφοράς**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I).

31 100-  
31 199

**ΤΜΗΜΑ 2. Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

31 200-  
31 299

**ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησως**

31 300-  
31 320

**Επίβλεψη των οχημάτων**

31 321 Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή για τα επικίνδυνα εμπορεύματα που αναγράφονται παρακάτω, για ποσότητες που υπερβαίνουν τις αναφερόμενες:

Υγες του 1° μέχρι 5° (a) και (b), 7° (b), 21° μέχρι 26° και ελαφρώς τοξικές ύλες του 41° μέχρι 57°: 10 000 κιλά.

Υγες του 6° και 11° μέχρι 19°, 27°, 28°, και τοξικές ή πολύ τοξικές ύλες του 41° μέχρι 57°: 5 000 κιλά.

31 322-  
31 399

**ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό**

31 400-  
31 402

**Απαγόρευση μικτής φορτώσεως σε ένα όχημα**

31 403 Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 3 δεν θα φορτώνονται στο ίδιο όχημα μαζί με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.

31 404-  
31 409

## Κλάση 3

**Προφυλάξεις σε σχέση με αντικείμενα καταναλώσεως**

- 31 410** (1) Κόλα που φέρουν ετικέτες σύμφωνες με το υπόδειγμα Αριθμ. 6.1 θα κρατούνται χωριστά από τρόφιμα, άλλα αντικείμενα καταναλώσεως και ζωοτροφές εντός των οχημάτων και στους χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.
- (2) Κενές συσκευασίες, ακαθάρσιτες, που φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.1 θα κρατούνται χωριστά από τρόφιμα, άλλα αντικείμενα καταναλώσεως και ζωοτροφές εντός των οχημάτων και στους χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.

**31 411-  
31 414**

**Καθαρισμός μετά την εκφόρτωση**

- 31 415** Εάν οποιοσδήποτε ύλες του 6° και 11° έως 19°, 27°, 28°, 32° και οι τοξικές ή πολύ τοξικές ύλες του 41° έως 57° έχουν διαρρεύσει και διασκορπιστεί μέσα σε ένα όχημα, αυτό δεν μπορεί να επαναχρησιμοποιηθεί μέχρι να καθαρισθεί επιμελώς και, εάν είναι αναγκαίο, να απολυμανθεί. Οποιαδήποτε άλλα εμπορεύματα και αντικείμενα που μεταφέρονται στο ίδιο όχημα θα εξετάζονται για ενδεχόμενη μόλυνση.

**31 416-  
31 499**

**ΤΜΗΜΑ 5. Ειδικές διατάξεις που αφορούν τη λειτουργία οχημάτων-δεξαμενών και εμπορευματοκιβωτίων-δεξαμενών****Μαρκάρισμα και επισήμανση****Μαρκάρισμα**

- 31 500** Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές που περιέχουν ή περιείχαν στο παρελθόν (κενά, ακαθάρσιστα) ύλες αυτής της Κλάσης θα φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 3.

Όσες περιέχουν ή περιείχαν στο παρελθόν τις ύλες αυτής της Κλάσης που αναγράφονται στο περιθωριακό 2312 (3) έως (5) θα φέρουν επίσης ετικέτες σύμφωνα με το εν λόγω περιθωριακό.

**31 501-  
31 599**

**ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

**31 600-  
40 999**

## ΚΛΑΣΗ 4.1. ΕΥΦΛΕΚΤΑ ΣΤΕΡΕΑ

## Γενικά

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

41 000-  
41 099

## ΤΜΗΜΑ 1. Τρόπος μεταφοράς

41 100-  
41 104

## Μέθοδος αποστολής και περιορισμοί διαμεταφοράς

- 41 105 (1) Ύλες του 5° και 15° μπορεί να μεταφέρονται μόνο σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές.
- (2) Ύλες του 26° πρέπει να προστατεύεται από άμεσο ηλιακό φως και θερμότητα κατά τη μεταφορά.
- (3) Ύλες του 41° μέχρι 50° θα φορτώνονται έτσι ώστε να μην υπερβαίνονται οι θερμοκρασίες ελέγχου που αναφέρονται στο περιθωριακό 2400 (20), που ισχύουν για ύλες που αναγράφονται στο περιθωριακό 2401 και για μη αναγραφόμενες ύλες στους εγκεκριμένους όρους μεταφοράς [βλέπε περιθωριακό 2400 (16)].
- (4) Η διατήρηση της προβλεπόμενης θερμοκρασίας είναι απαραίτητη για την ασφαλή μεταφορά πολλών αυτοαναφλεγόμενων υλών. Γενικά, πρέπει να υπάρχουν:
- επιμελής επιθεώρηση της μεταφορικής μονάδας πριν από τη φόρτωση·
  - οδηγίες στον μεταφορέα για την λειτουργία του συστήματος ψύξεως, συμπεριλαμβανομένου ενός καταλόγου των προμηθευτών ψυκτικού που βρίσκονται κατά μήκος της διαδρομής·
  - διαδικασίες που θα ακολουθούνται σε περίπτωση απώλειας του ελέγχου·
  - τακτική παρακολούθηση των θερμοκρασιών λειτουργίας· και
  - πρόβλεψη εφεδρικού συστήματος ψύξεως ή ανταλλακτικών.
- (5) Οποιοσδήποτε συσκευές ελέγχου και μέτρησης θερμοκρασίας στο σύστημα ψύξεως θα είναι εύκολα προσπελάσιμες και όλες οι ηλεκτρικές συνδέσεις θα προφυλάσσονται από τις καιρικές συνθήκες. Η θερμοκρασία του αέρα στον χώρο εντός της μεταφορικής μονάδας θα μετράται από δύο ανεξάρτητα θερμομέτρα και το αποτέλεσμα της μέτρησης θα καταγράφεται έτσι ώστε οι αλλαγές θερμοκρασίας να εντοπίζονται αμέσως. Η θερμοκρασία θα ελέγχεται κάθε τέσσερις έως έξι ώρες και θα καταγράφεται. Όταν μεταφέρονται ύλες με θερμοκρασία ελέγχου κάτω των +25° C, η μεταφορική μονάδα θα είναι εξοπλισμένη με ορατούς και ηχητικούς συναγερμούς, ηλεκτροδοτούμενους ανεξάρτητα από το σύστημα ψύξεως, ρυθμισμένους να λειτουργούν στην θερμοκρασία ελέγχου ή κάτω απ'αυτήν.
- (6) Εάν η θερμοκρασία ελέγχου υπερβαίνεται κατά τη μεταφορά, θα ενεργοποιείται διαδικασία επιφυλακής που θα περιλαμβάνει τις απαραίτητες επισκευές του εξοπλισμού ψύξεως ή αύξηση της ικανότητας ψύξεως (π.χ. με προσθήκη υγρού ή στερεού ψυκτικού υλικού). Θα γίνονται επίσης συχνοί έλεγχοι της θερμοκρασίας και προετοιμασίες για την εφαρμογή των διαδικασιών έκτακτης ανάγκης. Εάν η θερμοκρασία φθάσει το όριο συναγερμού (βλέπε επίσης περιθωριακά 2400 (20) και 2401), θα τεθούν σε λειτουργία οι διαδικασίες έκτακτης ανάγκης.

## Κλάση 4.1

**41 105 (7)** Η καταλληλότητα ενός συγκεκριμένου μέσου ελέγχου της θερμοκρασίας εξαρτάται (συνεχ.) από αρκετούς παράγοντες. Μεταξύ αυτών που πρέπει να ληφθούν υπόψη συγκαταλέγονται:

- η (οι) θερμοκρασία (-ίες) ελέγχου της ύλης (των υλών) που πρόκειται να μεταφερθεί (-ούν).
- η διαφορά μεταξύ της θερμοκρασίας ελέγχου και των αναμενόμενων συνθηκών θερμοκρασίας περιβάλλοντος.
- η αποτελεσματικότητα της θερμομόνωσης.
- η διάρκεια μεταφοράς και
- το επιτρεπτό περιθώριο ασφαλείας για καθυστερήσεις.

**(8)** Κατάλληλες μέθοδοι για να ελεγχθεί η θερμοκρασία ελέγχου είναι, κατ'αύξουσα σειρά ως προς την ικανότητά τους:

- (a) θερμομόνωση· εφόσον η αρχική θερμοκρασία της (των) αυτοαναφλεγόμενης (-ων) ύλης (υλών) είναι αρκούντως κατώτερη της θερμοκρασίας ελέγχου.
- (b) θερμομόνωση και ψυκτικό σύστημα· εφόσον:
  - μεταφέρεται επαρκής ποσότητα μη εύφλεκτου ψυκτικού υλικού (π.χ. υγρό άζωτο ή στερεό διοξείδιο του άνθρακα), επιτρέποντας ένα λογικό περιθώριο καθυστερήσεων, ή εξασφαλίζεται η δυνατότητα αναπλήρωσης.
  - δεν χρησιμοποιείται υγρό οξυγόνο ή αέρας ως ψυκτικό υλικό.
  - η επίδραση της ψύξεως είναι ομοιόμορφη ακόμη και όταν έχει καταναλωθεί το μεγαλύτερο μέρος του ψυκτικού υλικού και
  - η ανάγκη αερισμού της μεταφορικής μονάδας πριν την είσοδο επισημαίνεται με σαφή προειδοποίηση πάνω στην θύρα ή τις θύρες.
- (c) θερμομόνωση και απλή μηχανική ψύξη· εφόσον ηλεκτρικά εξαρτήματα με αντοχή στη φλόγα χρησιμοποιούνται εντός του διαμερίσματος του ψυκτικού υλικού για την πρόληψη ανάφλεξης των εύφλεκτων ατμών από τις αυτοαναφλεγόμενες ύλες.
- (d) θερμομόνωση και συνδυασμός μηχανικής ψύξης και συστήματος με χρήση ψυκτικού υλικού· εφόσον:
  - τα δύο συστήματα είναι ανεξάρτητα μεταξύ τους και
  - ικανοποιούνται οι απαιτήσεις (b) και (c).
- (e) θερμομόνωση και διπλό σύστημα μηχανικής ψύξης, εφόσον:
  - πέραν της ενσωματωμένης μονάδας ηλεκτροδότησης, τα δύο συστήματα είναι ανεξάρτητα μεταξύ τους.
  - κάθε σύστημα είναι από μόνο του ικανό για τη διατήρηση επαρκούς ελέγχου της θερμοκρασίας και

## Κλάση 4.1

41 105  
(συνεχ.)

ηλεκτρικά εξαρτήματα που αντέχουν στη φλόγα χρησιμοποιούνται εντός του διαμερισματος του ψυκτικού υλικού για την πρόληψη ανάφλεξης των εύφλεκτων ατμών από τις αυτοαναφλεγόμενες ύλες.

(9) Για ύλες του 41° και 42°, θα χρησιμοποιείται μία από τις ακόλουθες μεθόδους ελέγχου θερμοκρασίας που περιγράφονται στο (8):

- η μέθοδος (c) όταν η μέγιστη αναμενόμενη θερμοκρασία περιβάλλοντος κατά τη μεταφορά δεν υπερβαίνει τη θερμοκρασία ελέγχου κατά περισσότερο από 10 °C· ή
- η μέθοδος (d) ή (e).

Για ύλες του 43° έως 50°, θα χρησιμοποιείται μία από τις ακόλουθες μεθόδους:

- η μέθοδος (a) όταν η μέγιστη αναμενόμενη θερμοκρασία περιβάλλοντος κατά τη μεταφορά είναι τουλάχιστον 10 °C χαμηλότερη της θερμοκρασίας ελέγχου·
- η μέθοδος (b) όταν η μέγιστη αναμενόμενη θερμοκρασία περιβάλλοντος κατά τη μεταφορά δεν υπερβαίνει τη θερμοκρασία ελέγχου κατά περισσότερο από 30 °C· ή
- η μέθοδος (c), (d) ή (e).

41 106-  
41 110**Μεταφορά χύμα**

41 111 (1) Ύλες αναγραφόμενες ονομαστικά υπό το 6° (c) με την εξαίρεση της ναφθαλίνης, των 11° (c), 12° (c), 13° (c) και 14° (c) και των στερεών αποβλήτων που αναγράφονται υπό το (c) των προαναφερομένων ειδών μπορεί να μεταφέρονται χύμα σε κλειστά ή επενδεδυμένα οχήματα.

Η ναφθαλίνη του 6° (c) μπορεί να μεταφέρεται χύμα σε κλειστά οχήματα με μεταλλικό αμάξωμα ή σε οχήματα καλυμμένα με μη αναφλέξιμη επένδυση τα οποία έχουν μεταλλικό αμάξωμα ή δάπεδο και τοιχώματα που προστατεύονται από το φορτίο.

(2) Απόβλητα του 4° (c) μπορεί να μεταφέρονται χύμα σε ανοικτά επενδεδυμένα οχήματα με επαρκή αερισμό. Πρέπει να λαμβάνονται τα κατάλληλα μέτρα ώστε να μην είναι δυνατή η διαφυγή οποιουδήποτε από τα περιεχόμενα, ιδιαίτερα των συστατικών σε υγρή μορφή.

41 112-  
41 117**Μεταφορά σε εμπορευματοκιβώτια**

41 118 Μικρά εμπορευματοκιβώτια που χρησιμοποιούνται για τη μεταφορά χύμα των υλών που αναφέρονται στο περιθωριακό 41 111 πρέπει να ικανοποιούν τις απαιτήσεις των οχημάτων αυτού του περιθωριακού.

41 119-  
41 199

**ΤΜΗΜΑ 2.** Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους.

41 200-  
41 203



## Κλάση 4.1

## Τύποι οχημάτων

- 41 204 Υλεις του 31° μέχρι 40° θα μεταφέρονται σε κλειστά ή επενδεδυμένα οχήματα. Σε περιπτώσεις όπου, κατά τις διατάξεις του 41 105, οι ύλες απαιτείται να μεταφέρονται σε μονωμένα, ψυχόμενα ή μηχανικώς ψυχόμενα οχήματα, τα οχήματα αυτά θα ικανοποιούν τις διατάξεις του 41 248. Υλεις του 41° μέχρι 50° που περιέχονται σε προστατευτικές συσκευασίες πλήρεις ψυκτικού υλικού θα μεταφέρονται σε κλειστά ή επενδεδυμένα οχήματα. Εάν τα χρησιμοποιούμενα οχήματα είναι κλειστά πρέπει να αερίζονται επαρκώς. Τα επενδεδυμένα οχήματα πρέπει να είναι εξοπλισμένα με χωρίσματα στα πλάγια και στο πίσω μέρος. Η επένδυση αυτών των οχημάτων θα αποτελείται από αδιάβροχο και μη αναφλέξιμο υλικό.

41 205-  
41 247

## Μονωμένα, ψυχόμενα και μηχανικώς ψυχόμενα οχήματα

- 41 248 Τα μονωμένα, ψυχόμενα και μηχανικώς ψυχόμενα οχήματα που χρησιμοποιούνται σύμφωνα με τις διατάξεις του 41 105 πρέπει να ικανοποιούν τους ακόλουθους όρους:

- (a) το όχημα πρέπει να είναι τέτοιου είδους και με τέτοιο τρόπο εξοπλισμένο όσον αφορά τη μόνωση και τις μεθόδους ψύξεως (βλέπε περιθωριακό 41 105) ώστε να μην υπερβαίνεται η μέγιστη θερμοκρασία που προβλέπεται στο 41 105. Ο συνολικός συντελεστής θερμικής αγωγιμότητας δεν θα είναι μεγαλύτερος από  $0.4 \text{ W/m}^2 \text{ K}$ .
- (b) το όχημα πρέπει να είναι εξοπλισμένο κατά τέτοιο τρόπο ώστε οι ατμοί των μεταφερομένων υλών ή του ψυκτικού υλικού να μην μπορούν να διεισδύσουν στο κουβούκλιο του οδηγού.
- (c) θα υπάρχει κατάλληλη συσκευή που θα επιτρέπει ανά πάσα στιγμή την ανάγνωση από το κουβούκλιο της θερμοκρασίας που επικρατεί στο χώρο φορτώσεως.
- (d) ο χώρος φορτώσεως θα έχει εξαεριστήρες ή βαλβίδες αερισμού εάν υπάρχει οποιοσδήποτε κίνδυνος να αναπτυχθεί υπερβολική πίεση στο εσωτερικό του. Θα λαμβάνεται μέριμνα, όπου αυτό είναι απαραίτητο, ώστε η ψύξη να μην δυσχεραίνεται από τους εξαεριστήρες ή τις βαλβίδες αερισμού.
- (e) το ψυκτικό μέσο δεν πρέπει να είναι εύφλεκτο και
- (f) η ψυκτική συσκευή του μηχανικώς ψυχόμενου οχήματος θα είναι ικανή να λειτουργεί ανεξάρτητα από τον κινητήρα του οχήματος.

41 249-  
41 299

## ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησεως

41 300-  
41 320

## Κλάση 4.1

## Επίβλεψη των οχημάτων

**41 321** Οι διατάξεις του 10 321 θα έχουν εφαρμογή στα επικίνδυνα εμπορεύματα που αναγράφονται παρακάτω σε ποσότητες που υπερβαίνουν τις καθοριζόμενες:

- ύλες του 21° έως 25°:	1 000 κιλά
- ύλες του 26°:	100 κιλά
- ύλες του 31°, 32°, 43° και 44°:	1 000 κιλά
- ύλες του 33°, 34°, 45° και 46°:	2 000 κιλά
- ύλες του 35°, 36°, 47° και 48°:	5 000 κιλά
- ύλες του 41° και 42°:	500 κιλά

Επιπλέον, οχήματα που μεταφέρουν περισσότερα από 500 κιλά υλών του 41° και 42° θα υπόκεινται ανά πάσα στιγμή σε επίβλεψη για την πρόληψη κάθε κακόβουλης ενέργειας και για την κινητοποίηση του οδηγού και των αρμόδιων αρχών στην περίπτωση απώλειας ή πυρκαγιάς.

**41 322-  
41 399**

**ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό**

**41 400**

**Περιορισμός της μεταφερόμενης ποσότητας**

**41 401 (1)** Μια μεταφορική μονάδα δεν θα μεταφέρει περισσότερα από:

- 5 000 κιλά υλών του 31° και 32° εάν ο χώρος φόρτωσης αερίζεται από το άνω μέρος και η μεταφορική μονάδα είναι μονωμένη με αντιθερμαντικό υλικό [βλέπε περιθωριακό 11 204 (3) (a)] ή 1 000 κιλά υλών του 31° και 32° εάν η μεταφορική μονάδα δεν ικανοποιεί αυτές τις απαιτήσεις·
- 10 000 κιλά υλών του 33° και 34°·
- 20 000 κιλά υλών του 35°, 36°, 37°, 38°, 39° και 40°·
- 1 000 κιλά υλών του 41° και 42° ή 5 000 κιλά εάν είναι μονωμένη με αντιθερμαντικό υλικό·
- 5 000 κιλά υλών του 43° και 44° ή 10 000 κιλά εάν είναι μονωμένη με αντιθερμαντικό υλικό· και
- 20 000 κιλά υλών του 45°, 46°, 47°, 48°, 49° και 50°·

(2) Όποτε μεταφέρονται μαζί ύλες αυτής της Κλάσης σε μία μεταφορική μονάδα, τα όρια που αναφέρονται στο (1) δεν θα υπερβαίνονται και τα συνολικά περιεχόμενα δεν θα υπερβαίνουν τα 20 000 κιλά.

## Κλάση 4.1

- 41 402** Οι διατάξεις των περιθωριακών 10 500 και 41 204 δεν θα έχουν εφαρμογή στη μεταφορά υλών που αναφέρονται ή εξυπακούονται στα 31° έως 34° και 41° έως 44°, εφόσον η ύλη είναι συσκευασμένη σύμφωνα με τη μέθοδο συσκευασίας OP1A, OP1B, OP2A ή OP2B, όπως απαιτείται, και η ποσότητα ανά μεταφορική μονάδα περιορίζεται σε 10 κιλά.

**Απαγόρευση μικτής φορτώσεως σε ένα όχημα**

- 41 403** (1) Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.1 δεν θα φορτώνονται μαζί σε ένα όχημα με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.
- (2) Κόλα που φέρουν ετικέτες σύμφωνα με τα υποδείγματα Αριθμ. 4.1 και 01 δεν θα φορτώνονται μαζί σε ένα όχημα με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6, 2, 3, 4.2, 4.3, 5.1, 5.2, 6.1, 7A, 7B, 7C, 8 ή 9.

**41 404-  
41 409**

**Προφυλάξεις σχετικές με τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές**

- 41 410** (1) Κόλα που φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.1 θα κρατούνται χωριστά από τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές σε οχήματα και σε χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.
- (2) Κενές ακαθάριστες συσκευασίες που φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.1 θα κρατούνται χωριστά από τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές σε οχήματα και σε χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.

**41 411-  
41 413**

**Χειρισμός και στοιβασία**

- 41 414** (1) Κόλα που περιέχουν ύλες του 26° θα αποθηκεύονται μόνο σε δροσερούς, καλά αερισμένους χώρους μακριά από πηγές θερμότητας.
- (2) Κόλα που περιέχουν ύλες του 41° έως 50° δεν θα τοποθετούνται στο επάνω μέρος άλλων εμπορευμάτων· επιπλέον, θα στοιβάζονται έτσι ώστε να είναι εύκολα προσπελάσιμες.
- (3) Για κόλα που περιέχουν ύλες του 41° έως 50°, η καθορισμένη θερμοκρασία ελέγχου θα διατηρείται σε όλη τη διάρκεια της μεταφορικής εργασίας, συμπεριλαμβανομένης της φόρτωσης και εκφόρτωσης, καθώς και τυχόν ενδιάμεσες στάσεις [βλέπε περιθωριακό 41 105(2)].
- (4) Τα κόλα θα φορτώνονται με τέτοιο τρόπο ώστε να κυκλοφορεί ελεύθερα ο αέρας μέσα στο χώρο φόρτωσης εξασφαλίζοντας ομοιόμορφη θερμοκρασία στο φορτίο. Εάν τα περιεχόμενα ενός οχήματος ή μεγάλου εμπορευματοκιβωτίου υπερβαίνουν τα 5 000 κιλά εύφλεκτων στερεών, το φορτίο θα διαίρεται σε στοιβές όχι βαρύτερες των 5 000 κιλών χωριζόμενες από κενό διάστημα τουλάχιστον 0.05 μ.

**41 415-  
41 499**

1958

Κλάση 4.1

**ΤΜΗΜΑ 5. Ειδικές διατάξεις που αφορούν τη λειτουργία οχημάτων-δεξαμενών και εμπορευματοκιβωτίων-δεξαμενών**

**Μαρκάρισμα και επισήμανση**

**Μαρκάρισμα**

**41 500** Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές, καθώς και οχήματα και εμπορευματοκιβώτια για τη μεταφορά χύμα επικίνδυνων στερεών υλών, τα οποία περιέχουν ή περιείχαν στο παρελθόν (κενά, ακαθάριστα) ύλες αυτής της Κλάσης θα φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 4.1.

Όσα περιέχουν ή περιείχαν στο παρελθόν τις ύλες αυτής της Κλάσης που αναγράφονται στο περιθωριακό 2412 (3) θα φέρουν επίσης ετικέτες σύμφωνα με το εν λόγω περιθωριακό.

**41 501-  
41 508**

**Στάσεις περιορισμένης διάρκειας για ανάγκες σέρβις**

**41 509** Κατά τη μεταφορά υλών του 31°, 32°, 41° και 42°, οι στάσεις για ανάγκες σέρβις δεν θα γίνονται, όσο είναι δυνατό, πλησίον κατοικημένων ή πολυσύχναστων περιοχών. Η παρατεταμένη στάση κοντά σε τέτοιους τόπους μπορεί να επιτραπεί μόνο με τη σύμφωνη γνώμη των αρμόδιων αρχών. Ο ίδιος κανόνας θα έχει εφαρμογή εάν η μεταφορική μονάδα είναι φορτωμένη με περισσότερα από 2 000 κιλιά υλών του 33°, 34°, 43° και 44°.

**41 510-  
41 599**

**ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

**41 600-  
41 999**

**ΚΛΑΣΗ 4.2. ΥΛΕΣ ΠΟΥ ΥΠΟΚΕΙΝΤΑΙ ΣΕ ΑΥΤΟΓΕΝΗ ΑΝΑΦΑΞΗ****Γενικά**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

42 000-  
42 099

**ΤΜΗΜΑ 1. Τρόπος μεταφοράς**

42 100-  
42 104

**Μέθοδος αποστολής και περιορισμοί διαμεταφοράς**

42 105 Φωσφόρος του 22° μπορεί να μεταφέρεται μόνο σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές.

42 106-  
42 110

**Μεταφορά χύμα**

42 111 Ύλες του 1° (c), 2° (c), 3°, ρινίσματα, ξύσματα, και θραύσματα σιδηρούχων μετάλλων του 12° (c), αναλωμένο οξειδίο του σιδήρου και αναλωμένος σπόγγος σιδήρου του 16° (c) και στερεά απόβλητα που συμπεριλαμβάνονται στο (c) των προαναφερομένων ειδών, μπορεί να μεταφέρονται χύμα.

Εντούτοις, αυτές οι ύλες πρέπει να μεταφέρονται σε κλειστά ή επενδεδυμένα οχήματα με μεταλλικό αμάξωμα.

42 112-  
42 117

**Μεταφορά σε εμπορευματοκιβώτια**

42 118 Μικρά εμπορευματοκιβώτια που χρησιμοποιούνται για τη μεταφορά χύμα των υλών που αναφέρονται στο περιθωριακό 42 111 θα ικανοποιούν τις απαιτήσεις για τα οχήματα στο εν λόγω περιθωριακό.

42 119-  
42 199

**ΤΜΗΜΑ 2. Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους**

42 200-  
42 203

**Τύποι οχημάτων**

42 204 Κόλα που περιέχουν ύλες της Κλάσης 4.2 θα μεταφέρονται σε κλειστά ή επενδεδυμένα οχήματα.

42 205-  
42 299

## Κλάση 4.2

## ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησως

42 300-  
42 320

## Επίβλεψη των οχημάτων

42 321 Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή για τα επικίνδυνα εμπορεύματα που αναγράφονται παρακάτω όταν η ποσότητά τους υπερβαίνει την καθοριζόμενη:

Υλεις που συμπεριλαμβάνονται στο (α) των διαφόρων ειδών και ύλης του 22°: 10 000 κιλά.

42 322-  
42 377

## Κενές δεξαμενές

42 378 Για δεξαμενές που περιείχαν στο παρελθόν φωσφόρο του 11° (α) και 22°, βλέπε και τα περιθωριακά 211 470 (2) και 212 470 (2).

42 379-  
42 399

## ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό

42 400-  
42 402

## Απαγόρευση μικτής φορτώσεως σε ένα όχημα

42 403 Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.2 δεν θα φορτώνονται μαζί στο ίδιο όχημα με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.

42 404-  
42 409

## Προφυλάξεις σχετικές με τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές

42 410 (1) —Κόλα που φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.1 θα κρατούνται χωριστά από τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές σε οχήματα και σε χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.

(2) Κενές ακαθάριστες συσκευασίες που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1 θα κρατούνται χωριστά από τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές σε οχήματα και σε χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.

42 411-  
42 499

Κλάση 4.2

**ΤΜΗΜΑ 5. Ειδικές διατάξεις που αφορούν τη λειτουργία οχημάτων-δεξαμενών και εμπορευματοκιβωτίων-δεξαμενών**

**Μαρκάρισμα και επισήμανση**

*Επισήμανση*

**42 500** Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές, καθώς και οχήματα και εμπορευματοκιβώτια για τη μεταφορά χύμα επικίνδυνων στερεών υλών, τα οποία περιέχουν ή περιείχαν στο παρελθόν (κενά, ακαθάριστα) ύλες αυτής της Κλάσης θα φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 4.2.

Όσα περιέχουν ή περιείχαν στο παρελθόν τις ύλες αυτής της Κλάσης που αναγράφονται στο περιθωριακό 2442 (3) έως (5) θα φέρουν επίσης ετικέτες σύμφωνα με το εν λόγω περιθωριακό.

**42 501-  
42 599**

**ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

**42 600-  
42 999**

**ΚΛΑΣΗ 43. ΥΛΕΣ ΠΟΥ ΑΝΑΔΙΑΟΥΝ ΕΥΦΛΕΚΤΑ ΑΕΡΙΑ ΣΕ ΕΠΑΦΗ ΜΕ ΤΟ ΝΕΡΟ****Γενικά**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

43 000-  
43 099

**ΤΜΗΜΑ 1. Τρόπος μεταφοράς**

43 100-  
43 110

**Μεταφορά χύμα**

43 111 (1) Ύλες του 11° (c), 12° (c), 13° (c), 14° (c), 17° (b) και 20° (c) μπορεί να μεταφέρονται χύμα σε ειδικώς εξοπλισμένα οχήματα. Τα ανοίγματα που χρησιμοποιούνται για τη φόρτωση και εκφόρτωση πρέπει να μπορούν να κλειστούν ερμητικά.

(2) Προσμειξεις αλουμινίου του 13° (b) μπορεί να μεταφέρεται χύμα σε καλά αερισμένα επενδεδυμένα οχήματα.

(3) Προσμειξεις αλουμινίου του 13° (c), σιδηροπυρίτης του 15° (c), πυριτικό ασβέστιο σε τεμάχια του 12° (b) και ύλες του 12° (c) σε τεμάχια μπορεί επίσης να μεταφέρονται χύμα σε επενδεδυμένα ή κλειστά οχήματα.

43 112-  
43 117

**Μεταφορά σε εμπορευματοκιβώτια**

43 118 Μικρά εμπορευματοκιβώτια που χρησιμοποιούνται για τη μεταφορά χύμα των υλών που αναφέρονται στο περιθωριακό 43 111 θα ικανοποιούν τις απαιτήσεις για οχήματα στο εν λόγω περιθωριακό.

43 119-  
43 199

**ΤΜΗΜΑ 2. Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους**

43 200-  
43 203

**Τύποι οχημάτων**

43 204 Κόλα που περιέχουν ύλες της Κλάσης 4.3 θα φορτώνονται σε κλειστά ή επενδεδυμένα οχήματα.

43 205-  
43 299



## Κλάση 4.3

**ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησεως**43 300-  
43 320**Επίβλεψη των οχημάτων**

43 321 Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή στα επικίνδυνα εμπορεύματα που αναγράφονται παρακάτω όταν η ποσότητά τους υπερβαίνει την καθοριζόμενη:

Υλεις που συμπεριλαμβάνονται στο (α) των διαφορών ειδών: 10 000 κιλά.

43 322-  
43 399**ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό**43 400-  
43 402**Απαγόρευση μικτής φορτώσεως σε ένα όχημα**

43 403 Κόλα που φέρουν ετικέτα κατά το υπόδειγμα Αριθμ. 4.3 δεν θα φορτώνονται στο ίδιο όχημα μαζί με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.

43 404-  
43 409**Προφυλάξεις σχετικά με τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές**

43 410 (1) Κόλα που φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.1 θα κρατούνται χωριστά από τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές σε οχήματα και σε χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.

(2) Κενές ακαθάριστες συσκευασίες που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1 θα κρατούνται χωριστά από τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές σε οχήματα και σε χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.

43 411-  
43 413**Χειρισμός και στοιβασία**

43 414 Κατά τον χειρισμό των κόλων, θα λαμβάνονται ειδικά μέτρα για να αποφευχθεί η επαφή τους με το νερό.

43 415-  
43 499

1964

Κλάση 4.3

**ΤΜΗΜΑ 5.** Ειδικές διατάξεις σχετικές με τη λειτουργία οχημάτων (-δεξαμενών) και εμπορευματοκιβωτίων (-δεξαμενών)

**Μαρκάρισμα και επισήμανση**

*Επισήμανση*

**43 500** Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές, καθώς και οχήματα και εμπορευματοκιβώτια για τη μεταφορά χύμα επικίνδυνων στερεών υλών, τα οποία περιέχουν ή περιείχαν στο παρελθόν (κενά, ακαθάριστα) ύλες αυτής της Κλάσης θα φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 4.3.

Όσα περιέχουν ή περιείχαν στο παρελθόν ύλες αυτής της Κλάσης που αναγράφονται στο περιθωριακό 2482 (3) έως (7) θα φέρουν επίσης ετικέτες σύμφωνα με το εν λόγω περιθωριακό.

43 501-

43 599

**ΤΜΗΜΑ 6.** Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

43 600-

50 999

## ΚΛΑΣΗ 5.1. ΟΞΕΙΔΩΤΙΚΕΣ ΥΛΕΣ

## Γενικά

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του μέρους I)

51 000-  
51 099

## ΤΜΗΜΑ 1. Τρόπος μεταφοράς

51 100-  
51 104

## Μέθοδος αποστολής και περιορισμοί φορτώσεως

51 105 Νιτρικό αμμώνιο του 20° μπορεί να μεταφέρεται μόνο σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές.

51 106-  
51 110

## Μεταφορά χύμα

51 111 (1) Υλεις του 11° έως 13°, 16°, 18°, 19°, 21°, 22° (c) και στερεά απόβλητα, που συμπεριλαμβάνονται στα προαναφερόμενα είδη, μπορεί να μεταφέρονται χύμα ως πλήρες φορτίο.

(2) Υλεις του 11° έως 13°, 16°, 18°, 19°, 21°, 22° (c) και στερεά απόβλητα που συμπεριλαμβάνονται στα προαναφερόμενα είδη πρέπει να μεταφέρονται σε κλειστά οχήματα ή επενδεδυμένα οχήματα καλυμμένα με αδιάβροχη μη αναφλέξιμη επένδυση. Τα οχήματα θα είναι κατασκευασμένα με τέτοιο τρόπο ώστε, είτε η ύλη να μην μπορεί να έλθει σε επαφή με ξύλο ή άλλο αναφλέξιμο υλικό, ή ολόκληρη η επιφάνεια του δαπέδου και των τοιχωμάτων - εάν είναι εύφλεκτη - να έχει αδιάβροχη και άφλεκτη επικάλυψη ή να έχει υποστεί επεξεργασία με ύλες που καθιστούν το ξύλο δύσκολα αναφλέξιμο.

51 112-  
51 117

## Μεταφορά σε εμπορευματοκιβώτια

51 118 (1) Εξαιρουμένων των εύθραυστων κόλων που εννοούνται στο περιθωριακό 10'014(1) και των κόλων που περιέχουν υπεροξειδίο του υδρογόνου ή διαλύματα του υπεροξειδίου του υδρογόνου του 1° ή τετρανιτρομεθάνιο του 2°, κόλα που περιέχουν ύλες που αναφέρονται σε αυτήν την Κλάση μπορεί να μεταφέρονται σε μικρά εμπορευματοκιβώτια.

(2) Εμπορευματοκιβώτια που προορίζονται για τη μεταφορά χύμα υλών του 11° έως 13°, 16°, 18° και 19° πρέπει να είναι κατασκευασμένα από μέταλλο, να είναι στεγανά, να είναι καλυμμένα με καπάκι ή με αδιάβροχη επένδυση που αντιστέκεται στην ανάφλεξη, και να είναι έτσι κατασκευασμένο ώστε οι ύλες στα εμπορευματοκιβώτια να μη μπορούν να έλθουν σε επαφή με ξύλο ή οποιοδήποτε άλλο αναφλέξιμο υλικό.

## Κλάση 5.1

- 51 118 (3) Εμπορευματοκιβώτια που προορίζονται για τη μεταφορά χύμα υλών του 21° και 22°  
(συνεχ.) (c) πρέπει να είναι καλυμμένα με καπάκι ή αδιάβροχη επένδυση που αντιστέκεται στην ανάφλεξη και να είναι κατασκευασμένα κατά τρόπο ώστε, είτε η ύλη μέσα στα εμπορευματοκιβώτια να μη μπορεί να έλθει σε επαφή με ξύλο ή άλλο αναφλέξιμο υλικό, ή ολόκληρη η επιφάνεια του δαπέδου και των τοιχωμάτων - αν είναι κατασκευασμένα από ξύλο - να έχει επικαλυφθεί με αδιάβροχη επιφάνεια που αντιστέκεται στην ανάφλεξη ή να έχει επιχριστεί με πυριτικό νάτριο ή παρόμοια ύλη.

51 119-  
51 199

**ΤΜΗΜΑ 2. Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους**

51 200-  
51 203

**Τύποι οχημάτων**

- 51 204 Εύφλεκτα IBC που περιέχουν ύλες του 11° έως 13° και 16° (b) θα μεταφέρονται σε κλειστά ή επενδεδυμένα οχήματα. Η επένδυση θα είναι κατασκευασμένη από αδιάβροχο και μη αναφλέξιμο υλικό. Θα λαμβάνονται μέτρα για να εξασφαλισθεί ότι, εάν συμβεί διαρροή, οι ύλες που περιέχονται στο όχημα δεν μπορούν να έλθουν σε επαφή με το ξύλο ή οποιοδήποτε άλλο υλικό.

51 205-  
51 219

**Οχήματα που χρησιμοποιούνται για τη μεταφορά επικίνδυνων εμπορευμάτων σε σταθερές ή αποσυναρμολογούμενες δεξαμενές, ή εμπορευματοκιβώτια-δεξαμενές με χωρητικότητα μεγαλύτερη από 3.0 λίτρα**

- 51 220 Για τη μεταφορά υγρών του 1° (a):

(1) Θα έχουν εφαρμογή οι διατάξεις των περιθωριακών 220 531(2), 220 532 και 220 533 του Παραρτήματος Β.2.

(2) Δεν θα χρησιμοποιείται ξύλο - εκτός αν καλύπτεται με μέταλλο ή κατάλληλο συνθετικό υλικό - για την κατασκευή οποιουδήποτε τμήματος του οχήματος που βρίσκεται στο οπίσθιο τοίχωμα προστασίας που πρόβλεπεται στο περιθωριακό 220 531 (2).

(3) Τα οχήματα θα μεταφέρουν δεξαμενή τοποθετημένη κατά το δυνατόν με ασφαλή τρόπο, και με χωρητικότητα περί τα 30 λίτρα ύδατος. Στο νερό θα προστίθεται αντιψυκτικό παρασκεύασμα που δεν προσβάλλει το δέρμα ή τις μεμβράνες του βλεννογόνου και δεν έρχεται σε χημική αντίδραση με το φορτίο.

51 221-  
51 299

**ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησως**

51 300-  
51 320

## Κλάση 5.1

## Επίβλεψη των οχημάτων

- 51 321 Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή στα επικίνδυνα εμπορεύματα που αναγράφονται παρακάτω όταν η ποσότητά τους υπερβαίνει την αναφερόμενη:

Υλεις του 5° και ύλεις που συμπεριλαμβάνονται στο (α) όλων των άλλων ειδών: 10 000 κιλά.

51 322-  
51 399

## ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό

51 400-  
51 402

## Απαγόρευση μικτής φορτώσεως σε ένα όχημα

- 51 403 Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 5.1 δεν θα φορτώνονται στο ίδιο όχημα μαζί με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.

51 404-  
51 409

## Προφυλάξεις σχετικές με τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές

- 51 410 (1) Κόλα που φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.1 θα κρατούνται χωριστά από τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές σε οχήματα και σε χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.

(2) Κενές ακαθάριστες συσκευασίες που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1 θα κρατούνται χωριστά από τρόφιμα, αντικείμενα κατανάλωσης και ζωοτροφές σε οχήματα και σε χώρους φόρτωσης, εκφόρτωσης και μεταφόρτωσης.

51 411-  
51 413

## Χειρισμός και στοιβασία

- 51 414 Απαγορεύεται η χρήση εύφλεκτων υλικών για τη στοιβασία των κόλων στα οχήματα.

51 415-  
51 499

## ΤΜΗΜΑ 5. Ειδικές διατάξεις που αφορούν τη λειτουργία οχημάτων (-δεξαμενών) και εμπορευματοκιβωτίων (-δεξαμενών)

## Μαρκάρισμα και επισήμανση

## Επισήμανση

- 51 500 Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές, καθώς και οχήματα και εμπορευματοκιβώτια για τη μεταφορά χύμα επικίνδυνων στερεών υλών, τα οποία περιέχουν ή περιείχαν στο παρελθόν (κενά, ακάθαρτα) ύλεις αυτής της Κλάσης θα φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 5.1.

1968

**Κλάση 5.1**

**51 500** Όσα περιέχουν ή περιείχαν στο παρελθόν τις ύλες αυτής της Κλάσης που αναγράφονται  
(συνεχ.) στο περιθωριακό 2512(3) θα φέρουν επίσης πινακίδες σύμφωνα με το εν λόγω περιθωριακό.

**51 501-  
51 599**

**ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, ανακλήσεις, και διατάξεις ειδικές για ορισμένες χώρες**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

**51 600-  
51 999**

## ΚΛΑΣΗ 5.2. ΟΡΓΑΝΙΚΑ ΥΠΕΡΟΞΕΙΔΙΑ

## Γενικά

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

52 000-  
52 099

## ΤΜΗΜΑ 1. Τρόπος μεταφοράς

52 100-  
52 104

## Μέθοδος αποστολής και περιορισμοί φορτώσεως

52 105 (1) Ύλες του 11° έως 20° θα φορτώνονται κατά τρόπο ώστε οι θερμοκρασίες ελέγχου που αναφέρονται στο περιθωριακό 2550 (16) έως (19), οι οποίες ισχύουν για ύλες που αναγράφονται στο περιθωριακό 2551 και για μη αναγραφόμενες ύλες στους εγκεκριμένους όρους μεταφοράς [βλέπε περιθωριακό 2550 (8)], να μην υπερβαίνουν ποτέ.

(2) Η διατήρηση της προβλεπόμενης θερμοκρασίας είναι απαραίτητη για την ασφαλή μεταφορά πολλών οργανικών υπεροξειδίων. Γενικά, θα πρέπει να υπάρχει:

- επιμελής επιθεώρηση της μεταφορικής μονάδας πριν από τη φόρτωση·
- οδηγίες στον μεταφορέα για την λειτουργία του συστήματος ψύξεως, συμπεριλαμβανομένου ενός καταλόγου των προμηθευτών ψυκτικού που βρίσκονται κατά μήκος της διαδρομής·
- διαδικασίες που θα ακολουθούνται σε περίπτωση απώλειας του ελέγχου·
- τακτική παρακολούθηση των θερμοκρασιών λειτουργίας και
- πρόβλεψη εφεδρικού συστήματος ψύξεως ή ανταλλακτικών.

(3) Οποιοσδήποτε συσκευές ελέγχου και μέτρησης θερμοκρασίας στο σύστημα ψύξεως θα είναι εύκολα προσπελάσιμες και όλες οι ηλεκτρικές συνδέσεις θα προφυλάσσονται από τις καιρικές συνθήκες. Η θερμοκρασία του αέρα στον χώρο εντός της μεταφορικής μονάδας θα μετράται από δύο ανεξάρτητους sensors και το αποτέλεσμα της μέτρησης θα καταγράφεται έτσι ώστε οι αλλαγές θερμοκρασίας να εντοπίζονται αμέσως. Η θερμοκρασία θα ελέγχεται κάθε τέσσερις έως έξι ώρες και θα καταγράφεται. Όταν μεταφέρονται ύλες με θερμοκρασία ελέγχου κάτω των +25° C, η μεταφορική μονάδα θα είναι εξοπλισμένη με ορατούς και ηχητικούς συναγερμούς, ηλεκτροδοτούμενους ανεξάρτητα από το σύστημα ψύξεως και ρυθμισμένους να λειτουργούν στην θερμοκρασία ελέγχου ή κάτω απ'αυτήν.

(4) Εάν η θερμοκρασία ελέγχου υπερβαίνεται κατά τη μεταφορά, θα ενεργοποιείται διαδικασία επιφανειακής που θα περιλαμβάνει τις απαραίτητες επισκευές του εξοπλισμού ψύξεως ή αύξηση της ικανότητας ψύξεως (π.χ. με προσθήκη υγρού ή στερεού ψυκτικού υλικού). Θα γίνονται επίσης συχνοί έλεγχοι της θερμοκρασίας και προετοιμασίες για την εφαρμογή των διαδικασιών έκτακτης ανάγκης. Εάν η θερμοκρασία φθάσει το όριο συναγερμού [βλέπε επίσης περιθωριακά 2550 (17) και 2551], θα τεθούν σε λειτουργία οι διαδικασίες έκτακτης ανάγκης.

(5) Η καταλληλότητα ενός συγκεκριμένου μέσου ελέγχου της θερμοκρασίας εξαρτάται από αρκετούς παράγοντες. Μεταξύ αυτών που πρέπει να ληφθούν υπόψη συγκαταλέγονται:

- η (οι) θερμοκρασία (-ίες) ελέγχου της ύλης (των υλών) που πρόκειται να μεταφερθεί (-ούν)·

## Κλάση 5.2

- 52 105**  
(συνεχ.)
- η διαφορά μεταξύ της θερμοκρασίας ελέγχου και της αναμενόμενης θερμοκρασίας περιβάλλοντος·
  - η αποτελεσματικότητα της θερμομόνωσης·
  - η διάρκεια μεταφοράς και
  - το επιτρεπτό περιθώριο ασφαλείας για καθ'οδόν καθυστερήσεις.

(6) Κατάλληλες μέθοδοι για να αποφευχθεί η υπέρβαση της θερμοκρασίας ελέγχου καταγράφονται παρακάτω, κατ'αύξουσα σειρά ως προς την ικανότητά τους:

- (a) θερμομόνωση· εφόσον η αρχική θερμοκρασία της (των) οργανικής (-ών) ύλης (υλών) είναι αρκούντως κατώτερη της θερμοκρασίας ελέγχου·
- (b) θερμομόνωση και ψυκτικό σύστημα· εφόσον:
  - μεταφέρεται επαρκής ποσότητα μη εύφλεκτου ψυκτικού υλικού (π.χ. υγρό άζωτο ή στερεό διοξείδιο του άνθρακα), επιτρέποντας ένα λογικό περιθώριο καθυστερήσεων, ή εξασφαλίζεται η δυνατότητα αναπλήρωσης·
  - δεν χρησιμοποιείται υγρό οξυγόνο ή αέρας ως ψυκτικό υλικό·
  - η επίδραση της ψύξεως είναι ομοιόμορφη ακόμη και όταν έχει καταναλωθεί το μεγαλύτερο μέρος του ψυκτικού υλικού· και
  - η ανάγκη αερισμού της μεταφορικής μονάδας πριν την είσοδο επισημαίνεται με σαφή προειδοποίηση πάνω στην θύρα ή τις θύρες·
- (c) θερμομόνωση και απλή μηχανική ψύξη· εφόσον ηλεκτρικά fittings με αντοχή στη φλόγα χρησιμοποιούνται εντός του διαμερίσματος του ψυκτικού υλικού για την πρόληψη ανάφλεξης των εύφλεκτων ατμών από τα οργανικά υπεροξειδία.
- (d) θερμομόνωση και συνδυασμός μηχανικής ψύξης και συστήματος με χρήση ψυκτικού υλικού· εφόσον:
  - τα δύο συστήματα είναι ανεξάρτητα μεταξύ τους· και
  - ικανοποιούνται οι απαιτήσεις (b) και (c)·
- (e) θερμομόνωση και διπλό σύστημα μηχανικής ψύξης, εφόσον:
  - πέραν της ενσωματωμένης μονάδας ηλεκτροδότησης, τα δύο συστήματα είναι ανεξάρτητα μεταξύ τους·
  - κάθε σύστημα είναι από μόνο του ικανό για τη διατήρηση επαρκούς ελέγχου της θερμοκρασίας και
  - ηλεκτρικά fittings που αντέχουν στη φλόγα χρησιμοποιούνται εντός του διαμερίσματος του ψυκτικού υλικού για την πρόληψη ανάφλεξης των εύφλεκτων ατμών από τα οργανικά υπεροξειδία.



## Κλάση 5.2.

**52 105** (7) Για ύλες του 11° και 12°, θα χρησιμοποιείται μία από τις ακόλουθες μεθόδους ελέγχου (συνεχ.) θερμοκρασίας που περιγράφονται στο (6):

- η μέθοδος (c) όταν η μέγιστη αναμενόμενη θερμοκρασία περιβάλλοντος κατά τη μεταφορά δεν υπερβαίνει τη θερμοκρασία ελέγχου κατά περισσότερο από 10 °C· αλλιώς
- η μέθοδος (d) ή (e).

Για ύλες του 13° έως 20°, θα χρησιμοποιείται μία από τις ακόλουθες μεθόδους:

- η μέθοδος (a) όταν η μέγιστη αναμενόμενη θερμοκρασία περιβάλλοντος κατά τη μεταφορά είναι τουλάχιστον 10 °C κάτω από τη θερμοκρασία ελέγχου·
- η μέθοδος (b) όταν η μέγιστη αναμενόμενη θερμοκρασία περιβάλλοντος που αναμένεται κατά τη μεταφορά δεν υπερβαίνει τη θερμοκρασία ελέγχου κατά περισσότερο από 30 °C· αλλιώς
- η μέθοδος (c), (d) ή (e).

**52 106-  
52 117**

#### Μεταφορά σε εμπορευματοκιβώτια

**52 118** Εύθραυστα κόλα κατά την έννοια του περιθωριακού 10 014 (1), καθώς και κόλα που περιέχουν ύλες του 1° ή 2°, δεν θα μεταφέρονται σε μικρά εμπορευματοκιβώτια.

**52 119-  
52 199**

#### ΤΜΗΜΑ 2. Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους

**52 200-  
52 203**

#### Τύποι οχημάτων

**52 204** Ύλες του 1° έως 10° θα μεταφέρονται σε κλειστά ή επενδεδυμένα οχήματα. Όπου, σύμφωνα με τις διατάξεις του περιθωριακού 52 105, οι ύλες χρειάζεται να μεταφέρονται σε μονωμένα, ψυχόμενα ή μηχανικώς ψυχόμενα οχήματα, εκείνα τα οχήματα θα ανταποκρίνονται στις απαιτήσεις του 52 248. Ύλες του 11° έως 20° που περιέχονται σε προστατευτικές συσκευασίες γεμάτες με ψυκτικό υλικό θα μεταφέρονται σε κλειστά ή επενδεδυμένα οχήματα. Εάν τα οχήματα που χρησιμοποιούνται είναι κλειστά θα αερίζονται επαρκώς. Τα επενδυμένα οχήματα θα είναι εξοπλισμένα με πλευρικά φύλλα και οπίσθιο φύλλο. Τα φύλλα αυτών των οχημάτων θα είναι από αδιάβροχο μη αναφλέξιμο υλικό.

**52 205-  
52 247**

#### Μονωμένα, ψυχόμενα και μηχανικώς ψυχόμενα οχήματα

**52 248** Τα μονωμένα, ψυχόμενα και μηχανικώς ψυχόμενα οχήματα που χρησιμοποιούνται σύμφωνα με τις διατάξεις του 52 105 θα ικανοποιούν τις παρακάτω προϋποθέσεις:

1972

Κλάση 5.2

52 248  
(συνεχ.)

- (a) το όχημα πρέπει να είναι τέτοιου είδους και με τέτοιο τρόπο εξοπλισμένο όσον αφορά τη μόνωση και τα μέσα ψύξεως (βλέπε περιθωριακό 52 105) ώστε να μην υπερβαίνεται η μέγιστη θερμοκρασία που προβλέπεται στο 52 105. Ο συνολικός συντελεστής θερμικής αγωγιμότητας δεν θα υπερβαίνει τα  $0.4 \text{ W/m}^2 \text{ K}$ .
- (b) το όχημα θα είναι έτσι εξοπλισμένο ώστε οι ατμοί από τις μεταφερόμενες ύλες ή το ψυκτικό υλικό να μην μπορούν να διεισδύσουν στο κουβούκλιο του οδηγού.
- (c) θα υπάρχει κατάλληλη συσκευή που θα καθιστά δυνατό τον καθορισμό της θερμοκρασίας που υπάρχει στο χώρο φορτώσεως ανά πάσα στιγμή από το κουβούκλιο.
- (d) Ο χώρος φορτώσεως θα είναι εφοδιασμένος με εξαεριστήρες ή βαλβίδες εξαερισμού αν υπάρχει οποιοσδήποτε κίνδυνος επικίνδυνης αυξημένης πίεσεως εντός αυτού. Θα λαμβάνεται μέριμνα, όπου χρειάζεται, για να εξασφαλιστεί ότι δεν εμποδίζεται η ψύξη εξ αιτίας των εξαεριστήρων ή των βαλβίδων εξαερισμού.
- (e) Το ψυκτικό υλικό δεν θα είναι εύφλεκτο
- (f) Η συσκευή ψύξεως μηχανικά ψυχόμενου οχήματος θα είναι σε θέση να λειτουργήσει ανεξάρτητα από τον κινητήρα που χρησιμοποιείται για την κίνηση του οχήματος.

52 249-  
52 299

**ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησεως**

52 300-  
52 320

**Επίβλεψη των οχημάτων**

52 321 Οι διατάξεις του 10.321 θα έχουν εφαρμογή για τα επικίνδυνα εμπορεύματα που αναγράφονται παρακάτω σε ποσότητες που υπερβαίνουν τις αναφερόμενες:

- ύλες του 1°, 2°, 13° και 14°: 1 000 κιλά
- ύλες του 3°, 4°, 15° και 16°: 2 000 κιλά
- ύλες του 5°, 6°, 17° και 18°: 5 000 κιλά
- ύλες του 11° και 12°: 500 κιλά

Επί πλέον, οχήματα που μεταφέρουν περισσότερα από 500 κιλά υλών του 11° και 12° θα υπόκεινται πάντοτε σε επίβλεψη για να προληφθεί οποιαδήποτε κακόβουλη ενέργεια και για να ειδοποιηθεί ο οδηγός και οι αρμόδιες αρχές σε περίπτωση απώλειας ή φωτιάς.

52 322-  
52 399

## Κλάση 5.2

**ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό**

52 400

**Περιορισμός των μεταφερόμενων ποσοτήτων**

52 401 (1) Μια μεταφορική μονάδα δεν θα μεταφέρει περισσότερα από:

- 5 000 κιλά υλών του 1° και 2° εάν ο χώρος φόρτωσής της εξαερίζεται στο άνω μέρος και η μεταφορική μονάδα είναι μονωμένη με υλικό ανθεκτικό στη θερμότητα [βλέπε περιθωριακό 11 204 (3)(a)], ή 1 000 κιλά υλών του 1° και 2° εάν η μεταφορική μονάδα δεν ικανοποιεί αυτές τις απαιτήσεις;
- 10 000 κιλά υλών του 3° και 4°;
- 20 000 κιλά υλών του 5°, 6°, 7°, 8°, 9° και 10°;
- 1 000 κιλά υλών του 11° και 12°, ή 5 000 κιλά εάν είναι μονωμένη με υλικό ανθεκτικό στη θερμότητα;
- 5 000 κιλά υλών του 13° και 14°, ή 10 000 κιλά εάν είναι μονωμένη με υλικό ανθεκτικό στη θερμότητα; και
- 20 000 κιλά υλών του 15°, 16°, 17°, 18°, 19° και 20°.

(2) Όταν ύλες αυτής της Κλάσης φορτώνονται μαζί στην ίδια μεταφορική μονάδα, τα όρια που αναφέρονται στην παράγραφο (1) δεν θα υπερβαίνονται, και το συνολικό βάρος των περιεχομένων δεν θα υπερβαίνει τα 20 000 κιλά.

52 402 Οι διατάξεις των περιθωριακών 10 500 και 52 204 δεν θα έχουν εφαρμογή για τη μεταφορά υλών που αναφέρονται ή εξυπακούονται στα 1° έως 4° και 11° έως 14° εφόσον η ύλη είναι συσκευασμένη σύμφωνα με τη μέθοδο συσκευασίας OP1A, OP1B, OP2A ή OP2B, όπως απαιτείται, και η ποσότητα ανά μεταφορική μονάδα περιορίζεται στα 10 κιλά.

**Απαγόρευση μικτής φορτώσεως σε ένα όχημα**

52 403 (1) Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 5.2 δεν θα φορτώνονται μαζί στο ίδιο όχημα με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.

(2) Κόλα που φέρουν ετικέτες σύμφωνα με τα υποδείγματα Αριθμ. 5.2 και 01 δεν θα φορτώνονται μαζί στο ίδιο όχημα με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6, 2, 3, 4.1, 4.2, 4.3, 5.1, 6.1, 7A, 7B, 7C, 8 ή 9.

52 404-  
52 412**Καθαρισμός πριν τη φόρτωση**

52 413 Οχήματα προοριζόμενα για τη μεταφορά κόλων που περιέχουν ύλες της Κλάσης 5.2 θα καθαρίζονται προσεκτικά.

## Κλάση 5.2

**Χειρισμός και στοιβασία**

- 52 414 (1) Η χρήση εύκολα αναφλέξιμων υλικών για τη στοιβασία κόλων στο όχημα απαγορεύεται.
- (2) Κόλα που περιέχουν ύλες του 11° έως 20° θα στοιβάζονται έτσι ώστε να είναι εύκολα προσπελάσιμες.
- (3) Σε κόλα που περιέχουν ύλες του 11° έως 20°, η θερμοκρασία ελέγχου θα διατηρείται καθ'όλη τη μεταφορική εργασία, συμπεριλαμβανομένης της φόρτωσης και της εκφόρτωσης, καθώς και οποιαδήποτε ενδιάμεσων στάσεων [βλέπε περιθωριακό 52 105 (1)].
- (4) Τα κόλα θα φορτώνονται έτσι ώστε η ελεύθερη κυκλοφορία του αέρα εντός του χώρου φόρτωσης να εξασφαλίζει την ομοιόμορφη θερμοκρασία του φορτίου. Εάν τα περιεχόμενα ενός οχήματος ή μεγάλου εμπορευματοκιβωτίου υπερβαίνουν τα 5 000 κιλά οργανικού υπεροξειδίου, το φορτίο θα μοιράζεται σε στοιβές βάρους όχι άνω των 5 000 κιλών που θα διαχωρίζονται από κενά διαστήματα τουλάχιστον 0.05 μ.

52 415-  
52 499

**ΤΜΗΜΑ 5. Ειδικές διατάξεις που αφορούν τη λειτουργία οχημάτων (-δεξαμενών) και εμπορευματοκιβωτίων (-δεξαμενών)**

**Μαρκάρισμα και επισήμανση****Επισήμανση**

- 52 500 Οχήματά με σταθερές ή αποσυναρμολογούμενες δεξαμενές που περιέχουν ή περιείχαν στο παρελθόν (κενές, ακαθάριστες) ύλες αυτής της Κλάσης θα φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 5.2.

Όσα περιέχουν ή περιείχαν στο παρελθόν τις ύλες αυτής της Κλάσης που αναγράφονται στο περιθωριακό 2559 (3) έως (4) θα φέρουν επίσης ετικέτες σύμφωνα με το εν λόγω περιθωριακό.

52 501-  
52 508

**Στάσεις περιορισμένης διάρκειας για ανάγκες σέρβις**

- 52 509 Κατά τη μεταφορά υλών του 1°, 2°, 11° και 12° οι στάσεις για ανάγκες σέρβις δεν θα γίνονται, όσο αυτό είναι δυνατό, κοντά σε κατοικημένες ή αστικές περιοχές. Η στάση πλησίον τέτοιας περιοχής δεν μπορεί να παραταθεί παρά μόνο με την σύμφωνη γνώμη των αρμόδιων αρχών. Ο ίδιος κανόνας θα έχει εφαρμογή εάν μία μεταφορική μονάδα είναι φορτωμένη με περισσότερα από 2,000 κιλά υλών του 3°, 4°, 13° και 14°.

52 510-  
52 599

**ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, ανακλήσεις, και διατάξεις ειδικές για ορισμένες χώρες**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

52 600-  
60 999

**ΚΛΑΣΗ 6.1. ΤΟΞΙΚΕΣ ΥΛΕΣ****Γενικά**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

61 000-  
61 099

**ΤΜΗΜΑ 1. Τρόπος μεταφοράς**

61 100-  
61 110

**Μεταφορά χύμα**

- 61 111 (1) Υλεις του 60° (c) και στερεά του 3243 που περιέχουν τοξικό υγρό του 65° (b) μπορούν να μεταφέρονται χύμα ως πλήρες φορτίο.
- (2) Υλεις του 60° (c) και στερεά του 3243 που περιέχουν τοξικό υγρό του 65° (b) θα μεταφέρονται σε επενδεδυμένα, ανοικτά όχημα. Οχήματα που περιέχουν στερεά του 3243 περιέχοντα τοξικό υγρό του 65° (b) χύμα θα είναι στεγανά ή στεγανοποιημένα, για παράδειγμα με κατάλληλη και επαρκούς πάχους εσωτερική επίστρωση.
- (3) Στερεά απόβλητα που περιέχουν ύλες του 60° (c) μπορούν να μεταφέρονται υπό τους ίδιους όρους με τις ύλες αυτές. Άλλα στερεά απόβλητα που συμπεριλαμβάνονται στο (c) των διαφόρων ειδών μπορούν να μεταφέρονται χύμα μόνο υπό τους όρους του περιωριακού 61 118.

61 112-  
61 117

**Μεταφορά σε εμπορευματοκιβώτια**

- 61 118 Εμπορευματοκιβώτια που προορίζονται για τη μεταφορά χύμα των στερεών αποβλήτων που συμπεριλαμβάνονται στο (c) των διαφόρων ειδών και των στερεών του 3243 που περιέχουν τοξικό υγρό του 65° (b) θα έχουν πλήρη τοιχώματα και θα είναι επενδεδυμένα ή καλυμμένα.

Εμπορευματοκιβώτια που περιέχουν στερεά του 3243 περιέχοντα τοξικό υγρό του 65° (b) χύμα θα είναι στεγανά ή στεγανοποιημένα, για παράδειγμα με κατάλληλη και επαρκούς πάχους εσωτερική επίστρωση.

61 119-  
61 199

**ΤΜΗΜΑ 2. Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους**

61 200-  
61 259

**Ειδικός εξοπλισμός**

- 61 260 Οποτεδήποτε μεταφέρονται αντικροτικά μείγματα καυσίμου του 31° (a) ή δοχεία που τα περιείχαν, στον οδηγό θα δίδεται, ταυτόχρονα με την επίδοση του εγγράφου μεταφοράς, φορητό κιβώτιο εξοπλισμού με χειρολαβή το οποίο θα περιέχει:

## Κλάση 6.1

- 61 260 - τρία αντίγραφα των γραπτών οδηγιών καθορίζοντα τις ενέργειες που πρέπει να  
(συνεχ.) γίνουν στην περίπτωση ατυχήματος ή συμβάντος στη διάρκεια της μεταφοράς (βλέπε περιθωριακό 61 385).
- δύο ζεύγη γάντια και δύο ζεύγη μπότες κατασκευασμένα από ελαστικό ή κάποιο κατάλληλο πλαστικό υλικό.
  - δύο αναπνευστήρες με φυσίγιο ενεργού άνθρακα ικανότητας 500 κυβ.εκ.
  - μία φιάλη (κατασκευασμένη, για παράδειγμα, από βακελίτη) περιέχουσα 2 κιλά υπερμαγγανικού καλίου και φέρουσα την ένδειξη "διαλύσατε σε νερό πριν από τη χρήση".
  - έξι πινακίδες ινόπλακας με την ένδειξη "ΚΙΝΔΥΝΟΣ - χυμένο πτητικό δηλητήριο. Μη πλησιάζετε χωρίς αναπνευστήρα", στη γλώσσα ή γλώσσες κάθε χώρας στο έδαφος των οποίων λαμβάνει χώρα η μεταφορά.
  - αυτό το κιβώτιο εξοπλισμού θα φυλάσσεται στο κουβούκλιο του οδηγού σε μέρος όπου μπορεί να βρεθεί εύκολα από την ομάδα απολύμανσης.

61 261-  
61 299

**ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησως**

61 300-  
61 301

**Ενέργειες που πρέπει να γίνου σε περίπτωση ατυχήματος**

61 302 (Βλέπε περιθωριακό 61 385)

**Προφυλάξεις σε σχέση με αντικείμενα κατανάλωσης**

61 303 (Βλέπε περιθωριακό 61 410)

61 304-  
61 320

**Επίβλεψη των οχημάτων**

61 321 Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή για τα επικίνδυνα εμπορεύματα που αναγράφονται παρακάτω σε ποσότητες που υπερβαίνουν τις καθοριζόμενες:

- ύλες του 1° έως 5° και ύλες που συμπεριλαμβάνονται στο (α) όλων των ειδών: 1 000 κιλά
- ύλες που συμπεριλαμβάνονται στο (β) όλων των ειδών: 5 000 κιλά.

61 322-  
61 384

**Γραπτές οδηγίες**

61 385 Όποτε μεταφέρονται αντικροτικά μείγματα καυσίμου του 31° (α) ή δοχεία που περιείχαν αυτά, το κείμενο των γραπτών οδηγιών θα καθορίζει, μεταξύ άλλων, τα ακόλουθα:

## Κλάση 6.1

61 385 (A) Προφυλάξεις προς τήρηση  
(συνεχ.)

Η μεταφερόμενη ύλη είναι εξαιρετικά τοξική. Σε περίπτωση διαρροής από ένα από τα δοχεία πρέπει να παρθούν οι παρακάτω προφυλάξεις:

## 1. Αποφεύγετε:

- (a) την επαφή με το δέρμα.
- (b) την εισπνοή ατμών.
- (c) την εισαγωγή του υγρού στο στόμα.

## 2. Όταν γίνεται χειρισμός βαρελιών που έχουν ανοίξει ή υποστεί βλάβη ή διαβραχεί με υγρό, είναι υποχρεωτικό να χρησιμοποιούνται τα ακόλουθα:

- (a) αναπνευστήρες.
- (b) γάντια από ελαστικό ή κάποιο κατάλληλο πλαστικό.
- (c) μπότες από ελαστικό ή κάποιο κατάλληλο πλαστικό.

Σε περίπτωση σοβαρού ατυχήματος που έχει ως συνέπεια τον αποκλεισμό δημόσιας οδού, είναι απαραίτητο να ειδοποιηθούν για τον κίνδυνο που υπάρχει τα πρόσωπα που έρχονται για να ελευθερώσουν το χώρο.

## (B) Ενέργειες που πρέπει να γίνουν

Θα γίνουν όλες οι πρακτικώς δυνατές ενέργειες, περιλαμβανομένης της χρήσεως των επιγραφών που αναφέρονται στο περιθωριακό 61 260, για να κρατηθούν τα πρόσωπα σε απόσταση όχι μικρότερη των 15 μέτρων από την τοποθεσία του ατυχήματος: οι επιγραφές που περιέχονται στο κιβώτιο εξοπλισμού θα τοποθετηθούν περίξ της περιφράξεως και οι περιέργοι θα κρατούνται μακριά.

Οι αναπνευστήρες, τα γάντια και οι μπότες θα επιτρέπουν σε ένα πρόσωπο να πλησιάσει το φορτίο και να εξακριβώσει την κατάστασή του.

Εάν κάποιο από τα βαρέλια ανοίξει, πρέπει να γίνουν τα παρακάτω:

- (a) πρέπει να γίνει άμεση προμήθεια πρόσθετων αναπνευστήρων, γαντιών και μοτιών για τον εξοπλισμό των εργατών.
- (b) τα άθικτα βαρέλια πρέπει να παραμεριστούν.
- (c) το χυμένο υγρό πάνω στο όχημα ή στο έδαφος πρέπει να εξουδετερωθεί ξεπλένοντας με άφθονο υδατικό διάλυμα υπερμαγγανικού καλίου (εξουδετερωτικός παράγον, μια φιάλη από τον οποίο φυλάσσεται στο κιβώτιο εξοπλισμού): το διάλυμα ετοιμάζεται εύκολα ανακατεύοντας 0.5 κιλό υπερμαγγανικό κάλιο με 15 λίτρα νερό σε κουβά: το ξέπλυμα πρέπει να γίνει πολλές φορές διότι χρειάζονται 2 κιλά από το υπερμαγγανικό κάλιο για να εξουδετερωθεί πλήρως 1 κιλό από τη μεταφερόμενη ύλη.

Όπου είναι πρακτικά δυνατό, ο καλύτερος τρόπος για να απολυμανθεί η περιοχή είναι να περιλουστεί το χυμένο υγρό με βενζίνη και να αναφλεγεί.

## Κλάση 6.1

61 385 (C) Σημαντική προειδοποίηση  
(συνεχ.)

Σε περίπτωση ατυχήματος, μια από τις πρώτες ενέργειες που πρέπει να γίνουν είναι να ειδοποιηθεί τηλεγραφικώς ή τηλεφωνικώς ..... (γράψτε εδώ τις διευθύνσεις και τους αριθμούς τηλεφώνου των ιδρυμάτων που πρέπει να ειδοποιηθούν σε κάθε μία από τις χώρες στην επικράτεια των οποίων θα λάβει χώρα η μεταφορά).

Όχημα το οποίο έχει μολυνθεί με την ύλη που μεταφέρει δεν θα τίθεται πάλι σε υπηρεσία μέχρις ότου απολυμανθεί με την επίβλεψη αρμόδιου προσώπου. Οποιαδήποτε ξύλινα μέρη του οχήματος τα οποία έχουν προσβληθεί από την ύλη που μεταφέρεται θα αφαιρούνται και θα καίγονται.

61 386-  
61 399

## ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό

61 400-  
61 402

## Απαγόρευση μικτής φορτώσεως σε ένα όχημα

61 403 Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1 δεν θα μεταφέρονται μαζί σε ένα όχημα με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.

61 404-  
61 406

## Τόποι φορτώσεως και εκφορτώσεως

61 407 (1) Οι παρακάτω εργασίες απαγορεύονται:

- (a) φόρτωση ή εκφόρτωση υλών του 1° έως 5° και οποιαδήποτε ύλη ταξινομημένη υπό το (a) άλλων ειδών σε δημόσιο χώρο εντός κατοικημένης περιοχής χωρίς ειδική άδεια από τις αρμόδιες αρχές
- (b) φόρτωση ή εκφόρτωση των προαναφερομένων υλών σε δημόσιο χώρο εκτός κατοικημένης περιοχής χωρίς προηγούμενη ειδοποίηση των αρμοδίων αρχών, εκτός εάν οι προαναφερόμενες εργασίες δικαιολογούνται για σοβαρούς λόγους ασφάλειας.

(2) Εάν, για οποιοδήποτε λόγο, οι εργασίες χειρισμού πρέπει να γίνουν σε δημόσιο χώρο, οι ύλες και τα αντικείμενα διαφόρων ειδών θα διαχωρίζονται σύμφωνα με τις ετικέτες.

61 408-  
61 409

## Προφυλάξεις σε σχέση με αντικείμενα κατανάλωσης

61 410 Ύλες της Κλάσης 6.1 θα κρατούνται χωριστά από τρόφιμα, άλλα αντικείμενα κατανάλωσης και ζωοτροφές στα οχήματα και σε χώρους φόρτωσης, εκφόρτωσης ή μεταφόρτωσης.

61 411-  
61 414



## Κλάση 6.1

## Καθορισμός μετά την εκφόρτωση

61 415 (1) Όχημα που έχει μολυνθεί με ύλες του 31°(a) ή με μείγμα αυτών δεν θα τίθεται πάλι σε υπηρεσία μέχρις ότου απολυμανθεί υπό την επίβλεψη αρμόδιου προσώπου. Οποιαδήποτε ξύλινα μέρη του οχήματος που έχουν προσβληθεί από ύλες του 31°(a) θα αφαιρούνται και θα καίγονται.

(2) Εάν ύλες αυτής της Κλάσης έχουν διαρρεύσει και χυθεί μέσα σε όχημα, αυτό δεν μπορεί να επαναχρησιμοποιηθεί έως ότου καθαρισθεί επιμελώς και, αν χρειασθεί, απολυμανθεί. Όλα τα άλλα εμπορεύματα και αντικείμενα που μεταφέρονται μέσα στο ίδιο όχημα θα εξετάζονται για ενδεχόμενη μόλυνση.

61 416-  
61 499

**ΤΜΗΜΑ 5. Ειδικές διατάξεις που αφορούν τη λειτουργία οχημάτων (οχημάτων-δεξαμενών) και εμπορευματοκιβωτίων (εμπορευματοκιβωτίων-δεξαμενών)**

**Μαρκάρισμα και επισήμανση**

*Επισήμανση*

61 500 (1) Όποτε μεταφέρονται ύλες του 31° (a), το όχημα θα έχει σε κάθε πλευρά επιγραφή που θα προειδοποιεί ότι, αν διαφύγει οποιοδήποτε υγρό, πρέπει να λαμβάνονται οι μέγιστες προφυλάξεις και ότι το όχημα δεν πρέπει να προσεγγίζεται χωρίς αναπνευστήρα, γάντια και μπότες από ελαστικό ή κάποιο κατάλληλο πλαστικό υλικό.

*Μαρκάρισμα*

(2) Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές, καθώς και οχήματα και εμπορευματοκιβώτια για τη μεταφορά χύμα επικινδύνων στερεών υλών, που περιέχουν ή περιείχαν στο παρελθόν (κενά, ακαθάριστα) ύλες αυτής της Κλάσης θα φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.1.

Όσα περιέχουν ή περιείχαν (κενά, ακαθάριστα) τις ύλες αυτής της Κλάσης που αναγράφονται στο περιθωριακό 2612 (3) έως (10) θα φέρουν επίσης πινακίδες σύμφωνα με το εν λόγω περιθωριακό.

61 501-  
61 508

**Στάσεις περιορισμένης διάρκειας για ανάγκες σέρβις**

61 509 Στάσεις για ανάγκες σέρβις δεν θα γίνονται όσο είναι δυνατό σε κατοικημένες ή αστικές περιοχές. Στάση κοντά σε τέτοια τοποθεσία δεν μπορεί να παραταθεί παρά μόνο με τη σύμφωνη γνώμη των αρμόδιων αρχών

61 510-  
61 514

**Αντιηλιακή προστασία**

61 515 Κατά την περίοδο από τον Απρίλιο έως και τον Οκτώβριο, όταν όχημα που μεταφέρει υδροκυανικό οξύ του 1° είναι ακίνητο, τα κόλα πρέπει, αν το απαιτεί η νομοθεσία της χώρας στην οποία έχει σταματήσει το όχημα, να προστατεύονται αποτελεσματικά από τη δράση του ηλίου π.χ. με φύλλα τοποθετούμενα σε ύψος όχι λιγότερο των 20 εκ. πάνω από το φορτίο.

1980

Κλάση 6.1

61 516-  
61 599

**ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, ανακλήσεις, και διατάξεις ειδικές για ορισμένες χώρες**  
(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

61 600-  
61 999

**ΚΛΑΣΗ 6.2. ΜΟΛΥΣΜΑΤΙΚΕΣ ΥΛΕΣ****Γενικά**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

62 000-  
62 099

**ΤΜΗΜΑ 1. Τρόπος μεταφοράς**

62 100-  
62 104

62 105 Κόλα που περιέχουν ύλες αυτής της Κλάσης θα μεταφέρονται σε κλειστά ή καλυμμένα οχήματα.

62 106-  
62 117

**Μεταφορά σε εμπορευματοκιβώτια**

62 118 (1) Κόλα που περιέχουν ύλες αυτής της Κλάσης μπορούν να μεταφέρονται σε μικρά εμπορευματοκιβώτια.

(2) Οι απαγορεύσεις μικτής φορτώσεως του περιθωριακού 62 403 θα έχουν επίσης εφαρμογή και για τα περιεχόμενα μικρών εμπορευματοκιβωτίων.

62 119-  
62 199

**ΤΜΗΜΑ 2. Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους**

62 200-  
62 239

**Πυροσβεστικές συσκευές**

62 240 Οι διατάξεις του περιθωριακού 10 240 (1) (b), (3) και (4), δεν θα έχουν εφαρμογή.

62 241-  
62 299

**ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησεως**

62 300-  
62 301

**Απαιτούμενες ενέργειες σε περίπτωση ατυχήματος**

62 302 (Βλέπε περιθωριακό 62 385)

**Προφυλάξεις σχετικές με αντικείμενα κατανάλωσης**

62 303 (Βλέπε περιθωριακό 62 410)

## Κλάση 6.2

62 304-  
62 320**Επίβλεψη των οχημάτων**

62 321 Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή σε όλες τις ύλες του 1<sup>ο</sup>, οποιαδήποτε βάρους. Θα έχουν επίσης εφαρμογή σε ύλες του 2<sup>ο</sup> των οποίων η ποσότητα υπερβαίνει το βάρος των 100 κιλών. Παρόλα αυτά, οι διατάξεις του περιθωριακού 10 321 δεν είναι αναγκαίο να εφαρμόζονται όπου το φορτωμένο διαμέρισμα είναι κλειδωμένο και τα μεταφερόμενα κόλα προστατεύονται διαφορετικά έναντι οποιασδήποτε παράνομης εκφόρτωσης.

62 322-  
62 352

62 353 Οι διατάξεις του περιθωριακού 10 353 δεν θα έχουν εφαρμογή.

62 354-  
62 384**Γραπτές οδηγίες**

62 385 (1) Οι γραπτές οδηγίες θα περιλαμβάνουν επίσης:

- (a) την διάταξη ότι, στις περιπτώσεις που προβλέπονται στο περιθωριακό 10 385 (1) (d), θα ενημερώνονται οι τοπικές υγειονομικές ή κτηνιατρικές αρχές·
- (b) πληροφορίες σχετικά με το πώς οι ύλες θα απορροφούνται και θα περιορίζονται, και πώς οι κίνδυνοι των υλών της Κλάσης 6.2 θα εκμηδενίζονται επί τόπου, π.χ. κατάλληλα απολυμαντικά·
- (c) πληροφορίες για κατάλληλο προστατευτικό εξοπλισμό του οδηγού.

62 386-  
62 399**ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό**62 400-  
62 402**Απαγόρευση μικτής φορτώσεως σε ένα όχημα**

- 62 403 (1) Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.2 δεν θα φορτώνονται μαζί στο ίδιο όχημα με τρόφιμα, άλλα αντικείμενα κατανάλωσης και ζωοτροφές.
- (2) Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.2 δεν θα φορτώνονται μαζί στο ίδιο όχημα με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.

62 404-  
62 409

## Κλάση 6.2

**Προφύλαξη σχετική με αντικείμενα κατανάλωσης**

**62 410** Ύλες της Κλάσης 6.2 δεν θα φορτώνονται μαζί στο ίδιο όχημα με τρόφιμα, άλλα αντικείμενα κατανάλωσης και ζωοτροφές [βλέπε 62 403(1)]. Θα κρατούνται χωριστά από τρόφιμα, άλλα αντικείμενα κατανάλωσης και ζωοτροφές σε χώρους φόρτωσης, εκφόρτωσης ή μεταφόρτωσης.

**62 411**

**62 412** Ύλες του είδους 4° θα μεταφέρονται σε δεξαμενές ή σε ειδικά εξοπλισμένα οχήματα κατά τρόπο ώστε να αποφεύγονται οι κίνδυνοι για ανθρώπους, ζώα και το περιβάλλον, π.χ. με φόρτωση σε σακκούλες ή με αεροστεγείς συνδέσεις.

**62 413**

**Χειρισμός και αποθήκευση**

**62 414** (1) Κόλα που περιέχουν ύλες αυτής της Κλάσης θα στοιβάζονται έτσι ώστε να είναι εύκολα προσπελάσιμες.

(2) Όποτε κόλα αυτής της Κλάσης πρέπει να μεταφερθούν σε θερμοκρασία περιβάλλοντος όχι μεγαλύτερη των 15 °C ή να καταψυχθούν, η θερμοκρασία θα διατηρείται σταθερή κατά την εκφόρτωση ή την αποθήκευση.

(3) Κόλα αυτής της Κλάσης θα αποθηκεύονται μόνο σε δροσερό μέρος μακριά από πηγές θερμότητας.

**Καθαρισμός μετά την εκφόρτωση**

**62 415** Εάν ύλες αυτής της Κλάσης έχουν διαρρεύσει και χυθεί μέσα σε όχημα, αυτό δεν μπορεί να επαναχρησιμοποιηθεί έως ότου έχει επιμελώς καθαρισθεί και, εάν είναι ανάγκη, απολυμανθεί. Όλα τα εμπορεύματα και τα αντικείμενα που μεταφέρονται μέσα σε τέτοιο όχημα θα ελέγχονται για ενδεχόμενη μόλυνση. Τα ξύλινα μέρη του οχήματος που έχουν έρθει σε επαφή με τις ύλες των ειδών 1° και 2° θα απομακρύνονται και θα καίγονται.

**62 416-**

**62 499**

**ΤΜΗΜΑ 5. Ειδικές διατάξεις που αφορούν τη λειτουργία οχημάτων (οχημάτων-δεξαμενών) και εμπορευματοκιβωτίων (εμπορευματοκιβωτίων-δεξαμενών)**

**Μαρκάρισμα και επισήμανση****Μαρκάρισμα**

**62 500** Οχήματα με σταθερές δεξαμενές ή αποσυναρμολογούμενες δεξαμενές, ειδικά εξοπλισμένα οχήματα και εμπορευματοκιβώτια-δεξαμενές που περιέχουν ή περιείχαν στο παρελθόν (κενά, ακαθάριστα) ύλες του 4°, θα φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.2.

**62 501-**

**62 508**

**Στάσεις περιορισμένης διάρκειας για ανάγκες σέρβις**

**62 509** Οι στάσεις οχημάτων που μεταφέρουν ύλες του 1° και 2° για ανάγκες σέρβις δεν θα γίνονται, κατά το δυνατόν, σε κατοικημένες ή αστικές περιοχές. Η στάση κοντά σε τέτοιο μέρος δεν θα μπορεί να παραταθεί παρά μόνο με τη σύμφωνη γνώμη των αρμοδίων αρχών.

**62 510-**

**62 599**

**ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

1984

Κλάση 6.2

62 600-  
70 999

**ΚΛΑΣΗ 7. ΡΑΔΙΟΕΝΕΡΓΑ ΥΛΙΚΑ****Γενικά****Μεταφορά**

**71 000** Για λεπτομέρειες βλέπε το σχετικό πρόγραμμα στο περιθωριακό 2704.

**71 001-  
71 099**

**ΤΜΗΜΑ 1. Τρόπος μεταφοράς****Διατάξεις**

**71 100** Για λεπτομέρειες βλέπε το σχετικό πρόγραμμα στο περιθωριακό 2704.

**71 101-  
71 199**

**ΤΜΗΜΑ 2. Ειδικές διατάξεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους****Διατάξεις**

**71 200** Για λεπτομέρειες βλέπε το σχετικό πρόγραμμα στο περιθωριακό 2704.

**71 201-  
71 299**

**ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησης****Διατάξεις**

**71 300** Για λεπτομέρειες βλέπε το σχετικό πρόγραμμα στο περιθωριακό 2704.

**71 301-  
71 320**

**Επίβλεψη των οχημάτων**

**71 321** Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή σε όλα τα υλικά, για οποιαδήποτε ποσότητα. Επιπλέον, αυτά τα εμπορεύματα θα υπόκεινται πάντοτε σε επίβλεψη προς αποφυγή κακόβουλης ενέργειας και για να κινητοποιηθεί ο οδηγός και οι αρμόδιες αρχές σε περίπτωση απώλειας ή πυρκαγιάς. Εντούτοις, οι διατάξεις του περιθωριακού 10 321 δεν χρειάζεται να εφαρμοσθούν όπου:

- (a) Το φορτωμένο διαμέρισμα είναι κλειδωμένο και τα μεταφερόμενα κόλλα προστατεύονται αλλιώς έναντι παράνομης εκφόρτωσης και
- (b) Ο βαθμός της δόσεως δεν υπερβαίνει τα 5 mSv/h (0.5 mrem/h) σε κάθε προσπελάσιμο σημείο επί της εξωτερικής επιφάνειας του οχήματος.

## Κλάση 7

71 321 Επί πλέον, τα εμπορεύματα αυτά θα υπόκεινται πάντοτε σε επίβλεψη για να προληφθεί (συνεχ.) οποιαδήποτε κακόβουλη ενέργεια και για να κινητοποιηθεί ο οδηγός και οι αρμόδιες αρχές σε περίπτωση απόλειας ή πυρκαγιάς.

71 322-  
71 324

## Μεταφορά επιβατών

71 325 Οι διατάξεις του περιθωριακού 10 325 δεν θα έχουν εφαρμογή σε μεταφορικές μονάδες που μεταφέρουν μόνο ραδιενεργά υλικά των προγραμμάτων 1 έως 4.

71 326-  
71 352

## Φορητή συσκευή φωτισμού

71 353 Οι διατάξεις του περιθωριακού 10 353 δεν θα έχουν εφαρμογή εφόσον δεν υπάρχει δευτερογενής κίνδυνος.

71 354-  
71 384

## Γραπτές οδηγίες

71 385 Οι διατάξεις του περιθωριακού 10 385 δεν θα έχουν εφαρμογή σε μεταφορικές μονάδες που μεταφέρουν μόνο ραδιενεργά υλικά των προγραμμάτων 1 έως 4.

71 386-  
71 399

## ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, μεταφόρτωση και χειρισμό

## Διατάξεις

71 400 Για λεπτομέρειες βλέπε το σχετικό πρόγραμμα στο περιθωριακό 2704.

71 401-  
71 402

## Απαγόρευση μικτής φορτώσεως σε ένα όχημα

71 403 Κόλα που φέρουν ετικέτα σύμφωνα με τα μοντέλα Αριθμ. 7Α, 7Β ή 7C δεν θα φορτώνονται μαζί στο ίδιο όχημα με κόλα που φέρουν ετικέτα σύμφωνα με τα μοντέλα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.

71 404-  
71 414

## Καθαρισμός μετά την εκφόρτωση

71 415 Για τις απαιτήσεις απολύμανσης, βλέπε περιθωριακό 3712

71 416-  
71 499



## Κλάση 7

**ΤΜΗΜΑ 5. Ειδικές διατάξεις που αφορούν τη λειτουργία οχημάτων (-δεξαμενών) και εμπορευματοκιβωτίων (-δεξαμενών)****Μαρκάρισμα και επισήμανση****Μαρκάρισμα**

**71 500** (1) Επιπλέον των προϋποθέσεων του περιθωριακού 10 500, κάθε όχημα που μεταφέρει ραδιενεργά υλικά θα φέρει στο εξωτερικό μέρος κάθε πλευρικού τοιχώματος και του οπισθίου τοιχώματος ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 7D.

Εντούτοις, αυτές οι προϋποθέσεις δεν θα έχουν εφαρμογή σε οχήματα που μεταφέρουν μόνο τα ραδιενεργά υλικά που αναφέρονται στα προγράμματα 1 έως 4 του περιθωριακού 2704.

Επιπλέον των διατάξεων του περιθωριακού 10 500 (1) που αφορούν την ελάττωση του μεγέθους της πινακίδας πορτοκαλί χρώματος, η ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 7D μπορεί επίσης να μειωθεί σε 100 χιλ. σε κάθε πλευρά.

(2) Οι ετικέτες που προβλέπονται στο περιθωριακό 10 500 (9) θα επικολλούνται και στις τέσσερις πλευρές του εμπορευματοκιβωτίου.

(3) Οι ετικέτες και οι πινακίδες πορτοκαλί χρώματος κατά τα προβλεπόμενα στην Κλάση 7 θα επικολλούνται και στις τέσσερις πλευρές του εμπορευματοκιβωτίου-δεξαμενής. Εάν αυτές οι ετικέτες ή πινακίδες δεν είναι ορατές από το εξωτερικό του οχήματος, οι ίδιες ετικέτες και πινακίδες θα επικολλούνται στα πλάγια και το πίσω μέρος του οχήματος.

**71 501-  
71 506**

**Στάθμευση οχήματος που αποτελεί ειδικό κίνδυνο**

**71 507** Επιπλέον του περιθωριακού 10 507, βλέπε Προσθήκη Α.7 περιθωριακό 3712. Αυτές οι προϋποθέσεις, εντούτοις, δεν θα έχουν εφαρμογή σε οχήματα που μεταφέρουν μόνο ραδιενεργό υλικό των προγραμμάτων 1 έως 4 του περιθωριακού 2704.

**71 508-  
71 599**

**ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

**71 600-  
80 999**

**ΚΛΑΣΗ 8. ΔΙΑΒΡΩΤΙΚΕΣ ΥΛΕΣ****Γενικά**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

81 000-  
81 099

**ΤΜΗΜΑ 1. Τρόπος μεταφοράς**

81 100-  
81 110

**Μεταφορά χύμα**

**81 111** Θεικός φωσφόρος του 1° (b), ύλες του 13° (b) και στερεά 3244 με διαβρωτικό υγρό του 65° (b) μπορούν να μεταφέρονται χύμα ως πλήρες φορτίο. Το σώμα του οχήματος θα είναι εξοπλισμένο με κατάλληλη και επαρκούς πάχους εσωτερική επίστρωση. Εάν το όχημα είναι επενδεδυμένο, η επένδυση θα τοποθετείται κατά τέτοιον τρόπο ώστε να μην μπορεί να ακουμπήσει το φορτίο. Οχήματα που περιέχουν ύλες του 65° (b) (χαρακτηριστικός αριθμός 3244) θα είναι στεγανά ή στεγανοποιημένα, για παράδειγμα με κατάλληλη και επαρκούς πάχους εσωτερική επίστρωση.

(2) Στερεά απόβλητα που περιέχουν ύλες του 13° μπορεί να μεταφέρονται υπό τους ίδιους όρους με αυτές καθ'εαυτές τις ύλες. Άλλα στερεά απόβλητα ταξινομημένα στο (c) των διαφόρων ειδών μπορούν να μεταφέρονται χύμα υπό τους όρους του περιθωριακού 81 118.

81 112-  
81 117

**Μεταφορά σε εμπορευματοκιβώτια**

**81 118** Εμπορευματοκιβώτια που προορίζονται για τη μεταφορά χύμα θεικού φωσφόρου του 1° (b), ύλες του 13° (b), στερεά του 3244 που περιέχουν διαβρωτικό υγρό του 65° (b) ή στερεά απόβλητα ταξινομημένα στο (c) των διαφόρων ειδών θα έχουν πλήρη τοιχώματα και κατάλληλη επίστρωση και θα είναι επενδεδυμένα ή καλυμμένα.

Εμπορευματοκιβώτια που περιέχουν στερεά του 3244 που περιέχουν διαβρωτικό υγρό του 65° (b) χύμα θα είναι στεγανά ή στεγανοποιημένα, για παράδειγμα με κατάλληλη και επαρκούς πάχους εσωτερική επίστρωση.

81 119-  
81 199

**ΤΜΗΜΑ 2. Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I).

81 200-  
81 299

**ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησως**

81 300-  
81 320

## Κλάση 8

## Επίβλεψη των οχημάτων

81 321 Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή στις ύλες που αναγράφονται παρακάτω σε ποσότητες που υπερβαίνουν τις καθορισμένες:

Ύλες ταξινομημένες στο (α) όλων των ειδών: 10 000 κιλά

Βρώμιο του 14°: 1 000 κιλά

81 322-  
81 399

## ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό

81 400-  
81 402

## Απαγόρευση μικτής φορτώσεως σε ένα όχημα

81 403 Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8 δεν θα φορτώνονται στο ίδιο όχημα μαζί με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.

81 404-  
81 409

## Προφυλάξεις σχετικά με αντικείμενα κατανάλωσης

81 410 Κόλα που φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.1 θα κρατούνται χωριστά από τρόφιμα, άλλα αντικείμενα κατανάλωσης και ζωοτροφές σε οχήματα και σε χώρους φόρτωσης, εκφόρτωσης ή μεταφόρτωσης.

81 411-  
81 412

## Καθαρισμός πριν από τη φόρτωση

81 413 Οχήματα προοριζόμενα να μεταφέρουν κόλα που περιέχουν ύλες του 2° (α) 2., 3° (α), 4°, 73° ή 74° θα καθαρίζονται προσεκτικά και ιδίως θα είναι απαλλαγμένα από κάθε αναφλέξιμο απόβλητο (άχυρο, χόρτο, χαρτί, κ.λπ.).

81 414

## Καθαρισμός μετά από την εκφόρτωση

81 415 Εάν ύλες από κόλα που φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 6.1 έχουν διαρρεύσει και χυθεί μέσα σε όχημα, αυτό δεν μπορεί να επαναχρησιμοποιηθεί έως ότου έχει επιμελώς καθαρισθεί και, αν είναι ανάγκη, απολυμανθεί. Όλα τα άλλα εμπορεύματα και αντικείμενα που μεταφέρονται στο ίδιο όχημα θα εξετάζονται για ενδεχόμενη μόλυνση.

81 416-  
81 499

1990

Κλάση 8

**ΤΜΗΜΑ 5.** Ειδικές διατάξεις που αφορούν τη λειτουργία οχημάτων (οχημάτων-δεξαμενών) και εμπορευματοκιβωτίων (εμπορευματοκιβωτίων-δεξαμενών)

**Μαρκάρισμα και επισήμανση**

*Μαρκάρισμα*

**81 500** Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές, καθώς και οχήματα και εμπορευματοκιβώτια για τη μεταφορά χύμα επικινδύνων στερεών υλών, που περιέχουν ή περιείχαν στο παρελθόν (κενά, ακαθάριστα) ύλες αυτής της Κλάσης θα φέρουν ετικέτες σύμφωνα με το υπόδειγμα Αριθμ. 8.

Όσα περιέχουν ή περιείχαν στο παρελθόν (κενά, ακαθάριστα) τις ύλες αυτής της Κλάσης που αναγράφονται στο περιθωριακό 2812 (3) έως (10) θα φέρουν επίσης πινακίδες σύμφωνα με το εν λόγω περιθωριακό.

**81 501-  
81 599**

**ΤΜΗΜΑ 6.** Μεταβατικές διατάξεις, ανακλήσεις και διατάξεις ειδικές για ορισμένες χώρες

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

**81 600-  
90 999**

**ΚΛΑΣΗ 9. ΔΙΑΦΟΡΕΣ ΕΠΙΚΙΝΔΥΝΕΣ ΥΛΕΣ ΚΑΙ ΑΝΤΙΚΕΙΜΕΝΑ****Γενικά**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

91 000-  
91 099**ΤΜΗΜΑ 1. Τρόπος μεταφοράς**91 100-  
91 104**Μέθοδος αποστολής και περιορισμοί στη μεταφορά**

91 105 Κόλα που περιέχουν ύλες αυτής της Κλάσης θα μεταφέρονται σε κλειστά ή καλυμμένα οχήματα.

91 106-  
91 110**Μεταφορά χύμα**

91 111 Ύλες του 4° (c) και 12° (c) μπορούν να μεταφέρονται χύμα σε ανοικτά και επενδεδυμένα οχήματα με επαρκή εξαερισμό.

91 112-  
91 117**Μεταφορά σε εμπορευματοκιβώτια**

91 118 Ύλες του 4° (c) και 12° (c) μπορούν επίσης να συσκευάζονται χωρίς εσωτερική συσκευασία σε μικρά εμπορευματοκιβώτια του κλειστού τύπου με πλήρη τοιχώματα.

91 119-  
91 199**ΤΜΗΜΑ 2. Ειδικές προϋποθέσεις προς εκπλήρωση από τα μέσα μεταφοράς και τον εξοπλισμό τους**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I).

91 200-  
91 299**ΤΜΗΜΑ 3. Γενικές διατάξεις εξυπηρέτησως**91 300-  
91 320

## Κλάση 9

## Επίβλεψη των οχημάτων

91 321 Οι διατάξεις του περιθωριακού 10 321 θα έχουν εφαρμογή στα επικίνδυνα εμπορεύματα που αναγράφονται παρακάτω για ποσότητες που υπερβαίνουν τις καθοριζόμενες:

- ύλες ταξινομημένες στο (b) όλων των ειδών: 5 000 κιλά
- ύλες ταξινομημένες στο 13°(b): 1 000 κιλά

91 322-  
91 384

91 385 (1) Για τη μεταφορά υλών του 2° (b) ή εξοπλισμού του 3°, το κείμενο των γραπτών οδηγιών πρέπει να επισημαίνει ότι μπορεί να σχηματισθούν εξαιρετικά τοξικές διοξίνες σε περίπτωση πυρκαγιάς.

(2) Για ύλες του 11° και 12°, οι γραπτές οδηγίες πρέπει επίσης να περιλαμβάνουν τα μέτρα προς λήψη για την αποφυγή ή ελαχιστοποίηση της βλάβης στην περίπτωση διαρροής των υλών που θεωρούνται ρυπαντές του υδάτινου περιβάλλοντος.

(3) Για ύλες του 13°, οι γραπτές οδηγίες θα περιλαμβάνουν επίσης:

- (a) τη διάταξη ότι, σε περίπτωση βλάβης σε ή διαρροής από κύλο που περιέχει ύλες του 13°, θα ενημερώνονται οι τοπικές υγειονομικές ή κτηνιατρικές αρχές;
- (b) πληροφορίες για τον τρόπο απορρόφησης και περιορισμού των υλών και για το πώς οι κίνδυνοι από τις ύλες του 13° θα εξαλειφθούν επί τόπου, π.χ. κατάλληλα απολυμαντικά;
- (c) πληροφορίες για τον κατάλληλο προστατευτικό εξοπλισμό του οδηγού.

91 386-  
91 399

#### ΤΜΗΜΑ 4. Ειδικές διατάξεις που αφορούν τη φόρτωση, εκφόρτωση και χειρισμό

91 400-  
91 402

#### Απαγόρευση μικτής φορτώσεως σε ένα όχημα

91 403 Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 9 δεν θα φορτώνονται μαζί στο ίδιο όχημα με κόλα που φέρουν ετικέτα σύμφωνα με τα υποδείγματα Αριθμ. 1, 1.4, 1.5, 1.6 ή 01.

91 404-  
91 406

#### Τόποι φορτώσεως και εκφορτώσεως

91 407 (1) Απαγορεύονται οι ακόλουθες εργασίες:

- (a) η φόρτωση ή εκφόρτωση υλών ταξινομημένων στο (b) των διαφόρων ειδών σε δημόσιο χώρο εντός κατοικημένης περιοχής χωρίς ειδική άδεια από τις αρμόδιες αρχές;

## Κλάση 9

91 407 (b) η φόρτωση ή εκφόρτωση υλών ταξινομημένων στο (b) των διαφόρων ειδών (συνεχ.) σε δημόσιο χώρο πλην κατοικημένης περιοχής χωρίς προηγούμενη ειδοποίηση των αρμοδίων αρχών, εκτός εάν αυτές οι εργασίες είναι επείγοντως αναγκαίες για λόγους ασφαλείας.

(2) Εάν για οποιοδήποτε λόγο πρέπει να διεξαχθούν εργασίες χειρισμού σε δημόσιο χώρο, τότε ύλες και αντικείμενα διαφορετικών ειδών θα διαχωρίζονται ανάλογα με τις ετικέτες.

91 408-

91 409

## Προφυλάξεις σχετικές με αντικείμενα κατανάλωσης

91 410 Κόλα που φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 9 θα κρατούνται χωριστά από τρόφιμα, άλλα αντικείμενα κατανάλωσης και ζωοτροφές σε οχήματα και σε χώρους φόρτωσης, εκφόρτωσης ή μεταφόρτωσης.

91 411-

91 413

## Χειρισμός και στοιβασία

91 414 (1) Κόλα που περιέχουν ύλες του 13° θα στοιβάζονται έτσι ώστε να είναι εύκολα προσπελάσιμα.

(2) Όταν κόλα που περιέχουν ύλες του 13° πρέπει να μεταφερθούν ψυχόμενα, θα εξασφαλίζεται η λειτουργία της αλυσίδας ψύξεως κατά την εκφόρτωση ή κατά την αποθήκευση.

(3) Κόλα που περιέχουν ύλες του 13° θα αποθηκεύονται μόνο σε δροσερά μέρη μακριά από πηγές θερμότητας.

## Καθαρισμός μετά από την εκφόρτωση

91 415 (1) Εάν ύλες και αντικείμενα της Κλάσης 9, 1° έως 12° έχουν χυθεί ή διαρρεύσει μέσα σε όχημα, αυτό δεν μπορεί να επαναχρησιμοποιηθεί έως ότου έχει επιμελώς καθαρισθεί και, αν είναι ανάγκη, απολυμανθεί. Όλα τα άλλα εμπορεύματα που μεταφέρονται στο ίδιο όχημα θα εξετάζονται για ενδεχόμενη μόλυνση.

(2) Εάν ύλη του 13° έχει διαφύγει και μολύνει όχημα, το όχημα μπορεί να επαναχρησιμοποιηθεί μόνο αφού έχει επιμελώς καθαρισθεί και, αν είναι ανάγκη, απολυμανθεί. Όλα τα εμπορεύματα και αντικείμενα που μεταφέρονται σε τέτοιο όχημα θα ελέγχονται για ενδεχόμενη μόλυνση. Τα ξύλινα μέρη του οχήματος που έχουν έλθει σε επαφή με τις ύλες του 13° θα απομακρύνονται και θα καίγονται.

91 416-

91 499

## Κλάση 9

**ΤΜΗΜΑ 5. Ειδικές διατάξεις που αφορούν τη λειτουργία οχημάτων (-δεξαμενών) και εμπορευματοκιβωτίων (-δεξαμενών)**

**Μαρκάρισμα και επισήμανση****Επισήμανση**

- 91 500** (1) Μικρά εμπορευματοκιβώτια που περιέχουν διασταλτά πολυμερή του 4° (c) θα φέρουν την εξής επισήμανση: "Διατηρήστε μακριά από κάθε πηγή ανάφλεξης". Η επισήμανση αυτή θα αναγράφεται στην επίσημη γλώσσα της χώρας αναχώρησης, και επίσης, εάν η γλώσσα αυτή δεν είναι η Αγγλική, Γαλλική ή Γερμανική, στην Αγγλική, Γαλλική ή Γερμανική, εκτός εάν προβλέπεται διαφορετικά από τυχόν συμφωνίες που έχουν συναφθεί από τις χώρες που αφορά η μεταφορική εργασία.

**Μαρκάρισμα**

- (2) Οχήματα με σταθερές ή αποσυναρμολογούμενες δεξαμενές και εμπορευματοκιβώτια-δεξαμενές, καθώς και οχήματα και εμπορευματοκιβώτια για τη μεταφορά χύμα επικίνδυνων στερεών υλών που περιέχουν ή περιείχαν στο παρελθόν (δεξαμενές, εμπορευματοκιβώτια για μεταφορά χύμα και οχήματα για μεταφορά χύμα, κενά, ακαθάριστα) ύλες αυτής της Κλάσης, εξαιρουμένων των υλών του 4° (c), θα φέρουν πινακίδες σύμφωνα με το υπόδειγμα Αριθμ. 9.

Όσα περιέχουν ή περιείχαν στο παρελθόν ύλες αυτής της Κλάσης που αναγράφονται στο περιθωριακό 2912 (4) έως (6) θα φέρουν επίσης ετικέτες σύμφωνα με το εν λόγω περιθωριακό.

**91 501-  
91 599**

**ΤΜΗΜΑ 6. Μεταβατικές διατάξεις, ανακλήσεις, και διατάξεις ειδικές για ορισμένες χώρες**

(Έχουν εφαρμογή μόνο οι γενικές διατάξεις του Μέρους I)

**91 600-  
199 999**



1995

**ΜΕΡΟΣ ΙΙΙ**

**ΠΡΟΣΘΗΚΕΣ ΣΤΟ ΠΑΡΑΡΤΗΜΑ Β**

**ΠΡΟΣΘΗΚΕΣ Β.1: Διατάξεις που αφορούν τις δεξαμενές**

**ΚΟΙΝΕΣ ΔΙΑΤΑΞΕΙΣ ΤΩΝ ΠΡΟΣΘΗΚΩΝ Β.1**

**200 000 (1)** Η περιοχή εφαρμογής των διαφόρων Προσθηκών Β.1 έχει ως ακολούθως:

- (a) Η Προσθήκη Β.1a έχει εφαρμογή σε δεξαμενές εκτός από εμπορευματοκιβώτια-δεξαμενές
- (b) Η Προσθήκη Β.1b έχει εφαρμογή σε εμπορευματοκιβώτια-δεξαμενές
- (c) Η Προσθήκη Β.1c έχει εφαρμογή σε δεξαμενές, εκτός από συστοιχίες δοχείων και εμπορευματοκιβώτια-δεξαμενές, κατασκευασμένες από ενισχυμένο πλαστικό
- (d) Η Προσθήκη Β.1d αφορά τα υλικά και την κατασκευή σταθερών συγκολλημένων δεξαμενών, αποσυναρμολογούμενων συγκολλημένων δεξαμενών, και συγκολλημένων περιβλημάτων των εμπορευματοκιβωτίων-δεξαμενών, που προορίζονται για τη μεταφορά υγροποιημένων αερίων βαθιάς καταψύξεως της Κλάσης 2, ή για τα οποία απαιτείται πίεση δοκιμής όχι μικρότερη του 1 MPa (10 bar).

**ΣΗΜΕΙΩΣΗ:** Για δοχεία, βλέπε τις σχετικές απαιτήσεις του Παραρτήματος Α (Κόλα).

(2) Κατά παρέκκλιση του ορισμού που δίνεται στο περιθωριακό 10 014, ο όρος "δεξαμενή" όταν χρησιμοποιείται μόνος στην Προσθήκη Β.1a και την Προσθήκη Β.1c δεν καλύπτει τα εμπορευματοκιβώτια-δεξαμενές. Εντούτοις, ορισμένες από τις απαιτήσεις της Προσθήκης Β.1a μπορεί να καταστούν εφαρμόσιμες στα εμπορευματοκιβώτια-δεξαμενές από τις διατάξεις του Παραρτήματος Β και της Προσθήκης Β.1b.

(3) Υπενθυμίζεται ότι το περιθωριακό 10 121 (1) απαγορεύει τη μεταφορά επικινδύνων υλών σε δεξαμενές εκτός των περιπτώσεων όπου αυτή η μεταφορά επιτρέπεται ρητώς σύμφωνα με κάθε Τμήμα 1 του Μέρους ΙΙ στις Προσθήκες Β.1a ή Β.1b και Τμήμα 1 της Προσθήκης Β.1c.

200 001-  
210 999

**ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΣΤΑΘΕΡΕΣ ΔΕΞΑΜΕΝΕΣ (ΟΧΗΜΑΤΑ-ΔΕΞΑΜΕΝΕΣ)  
ΑΠΟΣΥΝΑΡΜΟΛΟΓΟΥΜΕΝΕΣ ΔΕΞΑΜΕΝΕΣ ΚΑΙ ΣΥΣΤΟΙΧΙΕΣ ΔΟΧΕΙΩΝ**

**ΣΗΜΕΙΩΣΗ:** Το Μέρος I καθορίζει τις απαιτήσεις που έχουν εφαρμογή σε σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων που προορίζονται για τη μεταφορά υλών οποιασδήποτε κλάσης. Το Μέρος II περιλαμβάνει ειδικές απαιτήσεις που συμπληρώνουν ή τροποποιούν τις απαιτήσεις του Μέρους I.

**ΜΕΡΟΣ I. ΑΠΑΙΤΗΣΕΙΣ ΜΕ ΕΦΑΡΜΟΓΗ ΣΕ ΟΛΕΣ ΤΙΣ ΚΛΑΣΕΙΣ**

211 000-  
211 099

**ΤΜΗΜΑ 1. Γενικά πλαίσιο (χρήση δεξαμενών) ορισμοί**

**ΣΗΜΕΙΩΣΗ:** Σύμφωνα με τις διατάξεις του περιθωριακού 10 121 (1), η μεταφορά επικινδύνων υλών σε σταθερές ή αποσυναρμολογούμενες δεξαμενές ή συστοιχίες δοχείων επιτρέπεται μόνο όπου επιτρέπεται ρητά αυτός ο τρόπος μεταφοράς για αυτές τις ύλες σε κάθε Τμήμα I του Μέρους II της παρούσης Προσθήκης.

**211 100** Αυτές οι απαιτήσεις θα έχουν εφαρμογή σε σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων που χρησιμοποιούνται για τη μεταφορά υγρών, αερίων, κοινωδών ή κοκκωδών υλών.

**211 101** (1) Επί πλέον του κυρίως οχήματος, ή των κινητών μονάδων που χρησιμοποιούνται αντ'αυτού, το όχημα-δεξαμενή περιλαμβάνει ένα ή περισσότερα περιβλήματα, τα είδη εξοπλισμού τους και τα εξαρτήματα για την πρόσδεσή τους στο όχημα ή τις κινητές μονάδες.

(2) Όταν είναι προσδεμένη στο φέρον όχημα, η αποσυναρμολογούμενη δεξαμενή ή η συστοιχία δοχείων θα ανταποκρίνεται στις απαιτήσεις που προβλέπονται για τα οχήματα-δεξαμενές.

**211 102** Στις ακόλουθες απαιτήσεις:

(1) (a) "περιβλήμα" σημαίνει την κυρίως δεξαμενή (συμπεριλαμβανομένων των στομιών και των πωμάτων τους)

(b) "εξοπλισμός λειτουργίας του περιβλήματος" σημαίνει τις συσκευές πλήρωσεως, εκκενώσεως, εξαερισμού, ασφαλείας, θερμάνσεως και θερμομονώσεως και τα όργανα μετρήσεως

(c) "κατασκευαστικός εξοπλισμός" σημαίνει τα εσωτερικά ή εξωτερικά ενισχυτικά, συνδετικά, προστατευτικά ή σταθεροποιητικά μέλη στο εξωτερικό του περιβλήματος.

(2) (a) "πίεση υπολογισμού" σημαίνει μια θεωρητική τιμή της πίεσης κατ'ελάχιστον ίση με την πίεση δοκιμής η οποία, αναλόγως του βαθμού επικινδυνότητας που χαρακτηρίζει την μεταφερόμενη ύλη, μπορεί να υπερβαίνει την πίεση εργασίας σε μεγαλύτερο ή μικρότερο βαθμό. Χρησιμοποιείται αποκλειστικά για τον καθορισμό του πάχους των τοιχωμάτων του περιβλήματος, ανεξάρτητα από οποιαδήποτε εξωτερική ή εσωτερική συσκευή ενίσχυσης

(b) "πίεση δοκιμής" σημαίνει την μέγιστη πίεση που αναπτύσσεται στο περίβλημα κατά τη δοκιμή πίεσης

(c) "πίεση πλήρωσεως" σημαίνει τη μέγιστη πραγματική πίεση που δημιουργείται στο περίβλημα όταν αυτό πληρούται υπό πίεση.

## Προσθήκη Β.1α

- 211 102** (d) "πίεση εκκένωσης" σημαίνει τη μέγιστη πραγματική πίεση που δημιουργείται στο (συνεχ.) περίβλημα όταν αυτό εκκενώνεται υπό πίεση
- (e) "μέγιστη πίεση εργασίας (πίεση μετρητή)" σημαίνει την υψηλότερη από τις ακόλουθες τρεις τιμές της πίεσης:
- (i) την υψηλότερη πραγματική πίεση που επιτρέπεται στο περίβλημα κατά την πλήρωση ("μέγιστη επιτρεπόμενη πίεση πλήρωσεως")
  - (ii) την υψηλότερη πραγματική πίεση που επιτρέπεται στο περίβλημα κατά την εκκένωση ("μέγιστη επιτρεπόμενη πίεση εκκενώσεως") και
  - (iii) την πραγματική πίεση μετρητή στην οποία υποβάλλεται το περίβλημα από τα περιεχόμενά του (συμπεριλαμβανομένων τυχόν εξωγενών αερίων που μπορεί να περιέχει) στην μέγιστη θερμοκρασία εργασίας.

Εκτός εάν οι ειδικές απαιτήσεις για κάθε κλάση προβλέπουν διαφορετικά, η αριθμητική τιμή αυτής της πίεσεως εργασίας (πίεσεως μετρητή) δεν θα είναι χαμηλότερη της πίεσεως των ατμών (απολύτου πίεσεως) της πληρωτικής ύλης στους 50 °C.

Για περιβλήματα εξοπλισμένα με βαλβίδες ασφαλείας (με ή χωρίς εκρηγνύσιμο δίσκο), η μέγιστη πίεση εργασίας (πίεση μετρητή) θα είναι εντούτοις ίση με την προβλεπόμενη πίεση ανοίγματος τέτοιων βαλβίδων ασφαλείας.

- (3) "Δοκιμή στεγανότητας" σημαίνει τη δοκιμή που συνίσταται στην υποβολή του περιβλήματος σε πραγματική εσωτερική πίεση ίση με τη μέγιστη πίεση εργασίας, αλλά όχι μικρότερη από 20 kPa (0.2 bar) (πίεση μετρητή), μέσω διαδικασίας εγκεκριμένης από την αρμόδια αρχή.

Για περιβλήματα εξοπλισμένα με συστήματα εξαερισμού και συσκευή ασφαλείας για να εμποδισθεί η διαρροή των περιεχομένων εάν το περίβλημα ανατραπεί, η πίεση για τη δοκιμή στεγανότητας θα είναι ίση με τη στατική πίεση της πληρωτικής ύλης.

**211 103-**  
**211 119**

## ΤΜΗΜΑ 2. Κατασκευή

**211 120** Τα περιβλήματα θα σχεδιάζονται και θα κατασκευάζονται σύμφωνα με τις διατάξεις τεχνικού κώδικα που αναγνωρίζεται από την αρμόδια αρχή, θα ικανοποιούνται όμως οι ακόλουθες ελάχιστες απαιτήσεις:

- (1) Τα κελύφη θα κατασκευάζονται από κατάλληλα μεταλλικά υλικά τα οποία, εκτός εάν προβλέπονται άλλα εύρη θερμοκρασιών στις διάφορες κλάσεις, θα αντέχουν στην ψαθυρή θραύση και στην ρηγμάτωση λόγω διαβρωτικής καταπόνησης μεταξύ -20 °C και +50 °C.
- (2) Για συγκολλημένα περιβλήματα, θα χρησιμοποιούνται μόνο υλικά τέλειας συγκολλησιμότητας και με εγγυημένη επαρκή κρουστική αντοχή σε θερμοκρασία περιβάλλοντος -20 °, ειδικά στις ραφές συγκόλλησης και τις γειτονικές τους ζώνες.
- (3) Οι συγκολλήσεις θα είναι επιδέξια κατασκευασμένες και θα προσφέρουν πλήρη ασφάλεια. Για την εκτέλεση και τον έλεγχο των σημείων συγκόλλησης, βλέπε επίσης το περιθωριακό 211 127 (8). Περιβλήματα των οποίων τα ελάχιστα πάχη τοιχωμάτων έχουν καθορισθεί σύμφωνα με το 211 127 (2) έως (6) θα ελέγχονται με τις μεθόδους που περιγράφονται στον ορισμό του συντελεστή συγκόλλησης 0.8.

## Προσθήκη Β.1α

- 211 120** (4) Τα υλικά των περιβλημάτων ή οι προστατευτικές επενδύσεις τους που έρχονται (συνεχ.) σε επαφή με το περιεχόμενο δεν θα περιέχουν ύλες που μπορεί να αντιδράσουν επικίνδυνα με το περιεχόμενο, να σχηματίζουν επικίνδυνες ενώσεις, ή να αδυνατίζουν ουσιαστικά το υλικό.
- (5) Η προστατευτική επένδυση θα είναι σχεδιασμένη κατά τέτοιο τρόπο ώστε η στεγανότητά της να παραμένει αμετάβλητη σε όποια παραμόρφωση μπορεί να συμβεί σε κανονικές συνθήκες μεταφοράς [211 127 (1)].
- (6) Αν η επαφή μεταξύ της μεταφερόμενης ύλης και του υλικού που χρησιμοποιήθηκε για την κατασκευή του περιβλήματος συνεπάγεται προοδευτική μείωση του πάχους των τοιχωμάτων, το πάχος θα αυξάνεται κατά την κατασκευή καταλλήλως. Το πρόσθετο αυτό πάχος ως ανοχή για τη διάβρωση δεν θα λαμβάνεται υπόψη κατά τον υπολογισμό του πάχους των τοιχωμάτων του.
- 211 121** (1) Τα περιβλήματα, τα προσαρτήματα αυτών και ο λειτουργικός και κατασκευαστικός εξοπλισμός τους θα σχεδιάζονται ώστε να αντέχουν χωρίς απώλεια περιεχομένου (εκτός από ποσότητες του αερίου που διαφεύγουν από τυχόν ειδικούς εξαεριστήρες):
- τις στατικές και δυναμικές εντάσεις σε κανονικές συνθήκες μεταφοράς
  - τις προβλεπόμενες ελάχιστες εντάσεις όπως ορίζονται στα περιθωριακά 211 125 και 211 127.
- (2) Στην περίπτωση οχημάτων στα οποία το περίβλημα αποτελεί αυτοστηριζόμενο μέλος σε εντατική καταπόνηση, το περίβλημα θα σχεδιάζεται ώστε να αντέχει τις εντάσεις που επιβάλλονται από αυτό το λόγο επί πλέον των εντάσεων που προέρχονται από άλλες πηγές.
- 211 122** Η πίεση στην οποία βασίζεται το πάχος τοιχωμάτων του περιβλήματος δεν θα είναι μικρότερη από την πίεση υπολογισμού, αλλά οι εντάσεις που αναφέρονται στο περιθωριακό 211 121 θα λαμβάνονται επίσης.
- 211 123** Εκτός αν υπάρχει διαφορετική ειδική πρόβλεψη στις διάφορες κλάσεις, οι παρακάτω λεπτομέρειες θα λαμβάνονται υπόψη στο σχεδιασμό των περιβλημάτων:
- (1) Περιβλήματα βαρυτικής εκκενώσεως προοριζόμενα για τη μεταφορά υλών που έχουν πίεση ατμών μη υπερβαίνουσα τα 100 kPa (1.1 bar) (απόλυτη πίεση) στους 50 °C θα είναι σχεδιασμένα για πίεση υπολογισμού διπλάσια από τη στατική πίεση της ύλης που πρόκειται να μεταφερθεί αλλά όχι μικρότερη από τη στατική πίεση του νερού.
- (2) Περιβλήματα πληρούμενα υπό πίεση ή εκκενούμενα υπό πίεση, προοριζόμενα για τη μεταφορά υλών που έχουν πίεση ατμών μη υπερβαίνουσα τα 110 kPa (1.1 bar) (απόλυτη πίεση) στους 50 °C θα σχεδιάζονται για πίεση υπολογισμού ίση με 1.3 φορές την πίεση πλήρωσης ή εκκένωσης.
- (3) Περιβλήματα προοριζόμενα για τη μεταφορά υλών που έχουν πίεση ατμών μεγαλύτερη των 110 kPa (1.1 bar) αλλά όχι μεγαλύτερη από 175 kPa (1.75 bar) (απόλυτη πίεση) στους 50 °C θα σχεδιάζονται, οποιοδήποτε και αν είναι το σύστημα πλήρωσεως ή εκφορτώσεώς τους, για πίεση υπολογισμού όχι μικρότερη από 150 kPa (1.5 bar) πίεση μετρητή ή 1.3 φορές την πίεση πλήρωσης ή εκκένωσης, όποια είναι μεγαλύτερη.
- (4) Περιβλήματα προοριζόμενα για τη μεταφορά υλών που έχουν πίεση ατμών μεγαλύτερη από 175 kPa (1.75 bar) (απόλυτη πίεση) στους 50 °C θα σχεδιάζονται, οποιοδήποτε και αν είναι το σύστημα πλήρωσεως ή εκκενώσεως τους, για πίεση υπολογισμού ίση με 1.3 φορές την πίεση πλήρωσεως ή εκκενώσεως αλλά όχι μικρότερη από 400 kPa (4 bar) πίεση μετρητή.
- 211 124** Δεξαμενές προοριζόμενες να περιέχουν ορισμένες επικίνδυνες ύλες θα έχουν ειδική προστασία. Αυτή μπορεί να πάρει τη μορφή πρόσθετου πάχους του περιβλήματος (αυτό το πρόσθετο πάχος θα καθορίζεται βάσει των κινδύνων που ενυπάρχουν στην εν λόγω ύλη: βλέπε τις σχετικές κλάσεις) ή προστατευτικής συσκευής.

## Προσθήκη Β.1α

**211 125** Στην πίεση δοκιμής, η ένταση  $\sigma$  (σίγμα) στο πιο έντονα καταπονούμενο σημείο του περιβλήματος δεν θα υπερβαίνει τα όρια, εξαρτώμενα από τα υλικά, που περιγράφονται παρακάτω. Θα υπολογίζεται ανοχή για οποιαδήποτε εξασθένηση οφειλόμενη στις συγκολλήσεις. Επί πλέον, στην επιλογή του υλικού και τον προσδιορισμό του πάχους του τοιχώματος, πρέπει να λαμβάνονται υπόψη η ανώτατη και κατώτατη θερμοκρασία πληρώσεως και εργασίας.

(1) Για όλα τα μέταλλα και κράματα, η ένταση  $\sigma$  στην πίεση δοκιμής θα είναι χαμηλότερη από την μικρότερη από τις τιμές των παρακάτω τύπων:

$$\sigma \leq 0.75 Re \text{ ή } \sigma \leq 0.5 Rm$$

όπου

Re = φαινόμενη τάση διαρροής, ή 0.2%  
ή, στην περίπτωση ωστενιτικών χάλυβων, 1%  
Rm = ελάχιστη τάση εφελκυσμού.

Ο λόγος του Re/Rm δεν επιτρέπεται να υπερβαίνει το 0.85 για χάλυβες που χρησιμοποιούνται στην κατασκευή συγκολλούμενων δεξαμενών.

Οι τιμές των Re και Rm που θα χρησιμοποιηθούν θα είναι καθορισμένες ελάχιστες τιμές σύμφωνα με τις προδιαγραφές των υλικών. Εάν δεν υπάρχει προδιαγραφή υλικού για κάποιο μέταλλο ή κράμα, οι χρησιμοποιούμενες τιμές των Re και Rm θα εγκρίνονται από την αρμόδια αρχή ή από φορέα που θα υποδείξει η αρχή αυτή.

Όταν χρησιμοποιούνται ωστενιτικοί χάλυβες, οι καθορισμένες ελάχιστες τιμές σύμφωνα με τις προδιαγραφές υλικών μπορεί να υπερβαίνουν έως και 15% εάν οι ανώτερες αυτές τιμές κατακυρώνονται στο πιστοποιητικό επιθεώρησης.

Οι τιμές που καθορίζονται στο πιστοποιητικό θα λαμβάνονται ως βάση για τον καθορισμό του εκάστοτε λόγου Re/Rm.

(2) Όταν η μέγιστη θερμοκρασία εργασίας δεν υπερβαίνει τους 50 °C, μπορεί να χρησιμοποιούνται οι τιμές των Re και Rm στους 20 °C. Όταν η θερμοκρασία εργασίας υπερβαίνει τους 50 °C, θα χρησιμοποιούνται οι τιμές σε αυτή τη μέγιστη θερμοκρασία (θερμοκρασία υπολογισμού).

(3) Για τον χάλυβα, η επιμήκυνση κατά τη θραύση σε ποσοστό % δεν θα είναι μικρότερη από

—10 000—

καθορισμένη εφελκυστική αντοχή σε  $N/mm^2$

αλλά σε κάθε περίπτωση θα είναι όχι μικρότερη από 16% για λεπτόκοκκους χάλυβες και όχι μικρότερη από 20% για τους λουτούς χάλυβες. Για κράματα αλουμινίου η επιμήκυνση κατά τη θραύση δεν θα είναι μικρότερη από 12% <sup>1/</sup>.

<sup>1/</sup> Στην περίπτωση μετάλλων σε φύλλο ο άξονας του ολκίμου δοκιμαστικού τεμαχίου θα είναι σε ορθή γωνία με την κατεύθυνση κυλίσεως. Η μόνιμη επιμήκυνση θραύσεως ( $l = 5d$ ) θα μετράται σε δοκιμαστικό τεμάχιο με κυκλική διατομή όπου το μέτρο μήκους  $l$  ισούται με πέντε επί την διάμετρο  $d$  εάν χρησιμοποιούνται δοκιμαστικά τεμάχια ορθογωνικής διατομής, το μέτρο μήκους θα υπολογίζεται από τον τύπο

$$l = 5,65 \sqrt{F_o}$$

Error! Main Document Only. όπου  $F_o$  είναι το εμβαδόν της αρχικής διατομής του δοκιμαστικού τεμαχίου.

## Προσθήκη Β.1α

**211 126** Περιβλήματα προοριζόμενα για τη μεταφορά υγρών που έχουν σημείο αναφλέξεως 61 °C ή χαμηλότερο ή για τη μεταφορά εύφλεκτων αερίων, θα συνδέονται με το σασί μέσω τουλάχιστον μιας καλής ηλεκτρικής σύνδεσης. Θα αποφεύγεται οποιαδήποτε μεταλλική επαφή ικανή να προκαλέσει ηλεκτροχημική διάβρωση. Τα περιβλήματα θα έχουν τουλάχιστον ένα εξάρτημα γειώσεως που θα επισημαίνεται σαφώς με το σύμβολο  $\ominus$ , ικανό να συνδεθεί ηλεκτρικά.

**211 127** Τα περιβλήματα και τα μέσα πρόσδεσης αυτών θα αντέχουν τις εντάσεις που καθορίζονται στο (1) παρακάτω, και τα πάχη των τοιχωμάτων των περιβλημάτων θα είναι τουλάχιστον όσο ορίζεται σύμφωνα με τα (2) έως (6).

(1) Τα περιβλήματα και τα μέσα πρόσδεσής τους θα είναι ικανά να απορροφούν, υπό το μέγιστο επιτρεπόμενο φορτίο, τις δυνάμεις που ασκούνται από:

- προς την κατεύθυνση πορείας: το διπλάσιο του συνολικού βάρους
- σε ορθή γωνία με την κατεύθυνση πορείας: το συνολικό βάρος
- κατακόρυφα προς τα άνω: το ολικό βάρος
- κατακόρυφα προς τα κάτω: το διπλάσιο του ολικού βάρους.

Υπό τις εντάσεις που ορίζονται παραπάνω, η ένταση στο εντονότερα καταπονούμενο σημείο του περιβλήματος και των μέσων πρόσδεσής του δεν θα υπερβαίνει την τιμή  $\sigma$  που ορίζεται στο περιθωριακό 211 125.

(2) Το πάχος του κυλινδρικού τοιχώματος του περιβλήματος και των άκρων και των πλακών καλύμματος θα είναι τουλάχιστον ίσο προς εκείνο που λαμβάνεται με τους ακόλουθους τύπους:

$$e = \frac{P_{MPa} \times D}{2 \times \sigma \times \lambda} \text{ mm} \qquad e = \frac{P_{bar} \times D}{2 \times \sigma \times \lambda} \text{ mm}$$

όπου  $P_{MPa}$  = πίεση υπολογισμού σε MPa

$P_{bar}$  = πίεση υπολογισμού σε bar

$D$  = εσωτερική διάμετρος του περιβλήματος σε mm

$\sigma$  = επιτρεπόμενη τάση, όπως ορίζεται στο περιθωριακό 211 125 (1), (a) και (b), και (2), σε  $N/mm^2$  και

$\lambda$  = συντελεστής, που δεν υπερβαίνει το 1, που λαμβάνει υπόψη τυχόν εξασθένηση λόγω των συγκολλήσεων.

Το πάχος δεν θα είναι σε καμία περίπτωση μικρότερο από το οριζόμενο στα (3) έως (5) παρακάτω.

## Προσθήκη Β.1α

**211 127 (3)** Τα τοιχώματα, τα άκρα και οι πλάκες καλυμμάτων των περιβλημάτων κυκλικής διατομής με (συνεχ.) διάμετρο όχι μεγαλύτερη των 1.80 m<sup>2/</sup>, εκτός από τα αναφερόμενα στο (5), δεν θα είναι κάτω από 5 mm σε πάχος εάν είναι από μαλακό χάλυβα<sup>3/</sup>, ή από ισοδύναμο πάχος εάν είναι από άλλο μέταλλο. Όπου η διάμετρος είναι μεγαλύτερη από 1.80 m<sup>2/</sup>, το πάχος αυτό θα αυξάνεται σε 6 mm πλην των περιπτώσεων περιβλημάτων προοριζόμενων για τη μεταφορά κονιωδών ή κοκκωδών υλών, εάν το περίβλημα είναι από μαλακό χάλυβα<sup>3/</sup>, ή σε ισοδύναμο πάχος εάν το περίβλημα είναι από άλλο μέταλλο. "Ισοδύναμο πάχος" σημαίνει το πάχος που λαμβάνεται από τον ακόλουθο τύπο:

$$e_1 = \frac{21.4 \times e_0}{\sqrt[3]{R m_1 \times A_1}} \quad 4/$$

(4) Όπου προβλέπεται η προστασία του περιβλήματος έναντι βλάβης από πλευρική πρόσκρουση ή ανατροπή, η αρμόδια αρχή μπορεί να επιτρέψει να μειωθούν τα προαναφερόμενα ελάχιστα πάχη αναλόγως της προβλεπόμενης προστασίας· εντούτοις, τα εν λόγω πάχη δεν θα είναι μικρότερα από 3 mm στην περίπτωση μαλακού χάλυβα<sup>3/</sup>, ή από ισοδύναμο πάχος στην περίπτωση άλλων υλικών, για περιβλήματα όχι μεγαλύτερα από 1.80 m σε διάμετρο<sup>2/</sup>. Για περιβλήματα με διάμετρο που υπερβαίνει τα 1.80 m<sup>2/</sup> το προαναφερόμενο ελάχιστο πάχος θα αυξάνεται σε 4 mm στην περίπτωση μαλακού χάλυβα<sup>3/</sup> και σε ισοδύναμο πάχος στην περίπτωση άλλου μετάλλου. "Ισοδύναμο πάχος" σημαίνει το πάχος που λαμβάνεται από τον ακόλουθο τύπο:

$$e_1 = \frac{21.4 \times e_0}{\sqrt[3]{R m_1 \times A_1}} \quad 4/$$

(5) Για δεξαμενές κατασκευασμένες μετά την 1η Ιανουαρίου 1990, υπάρχει προστασία έναντι βλάβης κατά τα αναφερόμενα στο (4) όταν λαμβάνονται τα ακόλουθα μέτρα ή ισοδύναμα μέτρα:

- (a) Για περιβλήματα προοριζόμενα για τη μεταφορά κονιωδών ή κοκκωδών υλών, η προστασία έναντι βλάβης θα ικανοποιεί την αρμόδια αρχή.

<sup>2/</sup> Για περιβλήματα μη κυκλικής διατομής, παραδείγματος χάριν κβωτοειδή ή ελλειψοειδή περιβλήματα, οι σχετικές διαμέτροι θα ανταποκρίνονται στις υπολογιζόμενες βάσει κυκλικών διατομών του ιδίου εμβαδού. - Για τέτοια σχήματα διατομών η ακτίνα κυρτότητας του τοιχώματος του περιβλήματος δεν θα υπερβαίνει τα 2 000 mm στα πλάγια ή τα 3 000 mm στο άνω και κάτω μέρος.

<sup>3/</sup> "Μαλακός χάλυβας" σημαίνει τον χάλυβα με ελάχιστη αντοχή θραύσεως μεταξύ 360 και 410 N/mm<sup>2</sup>.

<sup>4/</sup> Ο τύπος αυτός εξάγεται από τον γενικό τύπο:

$$e_1 = e_0 \sqrt[3]{\frac{R m_0 \times A_0}{R m_1 \times A_1}}$$

Error! Main Document Only. όπου

$$R m_0 = 360$$

$$A_0 = 27 \text{ για τον μαλακό χάλυβα αναφοράς.}$$

$$R m_1 = \text{ελάχιστη εφελκυστική αντοχή του επιλεγμένου μετάλλου, σε N/mm}^2 \text{ και}$$

$$A_1 = \text{ελάχιστη επιμήκυνση του επιλεγμένου μετάλλου κατά την εφελκυστική θραύση, σε ποσοστό \%}$$

## Προσθήκη Β.1α

211 127  
(συνεχ.)

(b) Για περιβλήματα προοριζόμενα για τη μεταφορά άλλων υλών, υπάρχει προστασία έναντι βλάβης όταν:

- για περιβλήματα με κυκλική ή ελλειψοειδή διατομή που έχουν μέγιστη ακτίνα καμπυλότητας 2 m, το περίβλημα είναι εξοπλισμένο με ενισχυτικά μέλη που συμπεριλαμβάνουν χωρίσματα, πλάκες διογκώσεως ή εξωτερικούς ή εσωτερικούς δακτυλίους, τοποθετημένους έτσι ώστε να ικανοποιείται τουλάχιστον ένας από τους ακόλουθους όρους:

Απόσταση μεταξύ δύο συνεχόμενων ενισχυτικών στοιχείων  $\leq 1.75$  m.

Όγκος περιεχόμενος μεταξύ δύο χωρισμάτων ή πλακών διογκώσεως  $\leq 7500$  l.

Η κατακόρυφη διατομή του δακτυλίου, μαζί με το αντίστοιχο μέσο σύνδεσης, θα έχει ροπή αντιστάσεως τουλάχιστον  $10 \text{ cm}^3$ .

Οι εξωτερικοί δακτύλιοι δεν θα έχουν προεξέχοντα άκρα με ακτίνα μικρότερη των 2.5 mm.

Τα χωρίσματα και οι πλάκες διογκώσεως θα είναι σύμφωνα με τις απαιτήσεις του (7).

Το πάχος των χωρισμάτων και πλακών διογκώσεως δεν θα είναι σε καμία περίπτωση μικρότερο από εκείνο του περιβλήματος.

- Για περιβλήματα κατασκευασμένα με διπλά τοιχώματα, με το ενδιάμεσο διάστημα εκκενωμένο από τον αέρα, το ολικό πάχος του εξωτερικού μεταλλικού τοιχώματος και του τοιχώματος του περιβλήματος αντιστοιχεί στο πάχος τοιχώματος που προβλέπεται στο (3), και το πάχος τοιχώματος του περιβλήματος αυτού καθ'εαυτού δεν είναι μικρότερο από το ελάχιστο πάχος που προβλέπεται στο (4).
- Για περιβλήματα κατασκευασμένα με διπλά τοιχώματα που έχουν ενδιάμεση στρώση από στερεά υλικά πάχους τουλάχιστον 50 mm, το εξωτερικό τοίχωμα έχει πάχος τουλάχιστον 0.5 mm μαλακού χάλυβα <sup>5/</sup> ή τουλάχιστον 2 mm πλαστικού υλικού ενισχυμένου με ίνες υάλου. Στερεός αφρός (με ικανότητα απορρόφησης προσκρούσεων παρόμοια, παραδείγματος χάριν, με αυτή του αφρού πολουρεθάνης) μπορεί να χρησιμοποιηθεί ως ενδιάμεση στρώση στερεού υλικού.
- Περιβλήματα με σχήματα εκτός από αυτά του 1., ιδίως κητοειδείς δεξαμενές, είναι εξοπλισμένα, γύρω από το καθ' ύψος μέσον τους και για ποσοστό τουλάχιστον 30% του ύψους τους με πρόσθετη προστασία σχεδιασμένη με τέτοιο τρόπο ώστε να προσφέρει ειδική επανατακτικότητα τουλάχιστον ίση με εκείνη περιβλήματος κατασκευασμένου με μαλακό χάλυβα πάχους 5 mm (για διάμετρο περιβλήματος που δεν υπερβαίνει τα 1.80 m) ή 6 mm (για διάμετρο περιβλήματος που υπερβαίνει τα 1.80 m). Η πρόσθετη προστασία θα ασκείται διαρκώς στο εξωτερικό του περιβλήματος. Αυτή η απαίτηση θα θεωρείται ότι έχει ικανοποιηθεί χωρίς περαιτέρω απόδειξη της ειδικής επανατακτικότητας όταν η πρόσθετη προστασία περιλαμβάνει τη συγκόλληση πλάκας του ίδιου υλικού με το περίβλημα στην προς ενίσχυση περιοχή, ούτως ώστε το ελάχιστο πάχος τοιχώματος να είναι σύμφωνο με το (3).

Η προστασία αυτή εξαρτάται από τις πιθανές εντάσεις που ασκούνται σε περιβλήματα μαλακού χάλυβα στην περίπτωση ατυχήματος, όπου τα άκρα και τα τοιχώματα έχουν πάχος τουλάχιστον 5 mm για διάμετρο που δεν υπερβαίνει τα 1.80 m ή τουλάχιστον 6 mm για διάμετρο που υπερβαίνει τα 1.80 m. Εάν χρησιμοποιείται άλλο μέταλλο, το ισοδύναμο πάχος θα λαμβάνεται σύμφωνα με τον τύπο του (3).



## Προσθήκη Β.1α

**211 127** Για αποσυναρμολογούμενες δεξαμενές δεν απαιτείται αυτή η προστασία όταν προστατεύονται (συνεχ.) σε όλες τις πλευρές από τα ανατρεπόμενα πλευρικά τοιχώματα των φερόντων οχημάτων.

(6) Το πάχος των περιβλημάτων δεξαμενών που έχουν σχεδιασθεί σύμφωνα με το περιθωριακό 211 123 (1) τα οποία είναι είτε χωρητικότητας όχι μεγαλύτερης από 5 000 λίτρα είτε χωρίζονται σε στεγανά διαμερίσματα μοναδιαίας χωρητικότητας όχι μεγαλύτερης από 5 000 λίτρα μπορεί να προσαρμόζεται σε επίπεδο το οποίο, εκτός εάν προβλέπεται διαφορετικά στις διάφορες κλάσεις, εντούτοις δεν θα είναι μικρότερο από την κατάλληλη τιμή από αυτές που εμφανίζονται στον ακόλουθο πίνακα:

Μέγιστη ακτίνα καμπυλότητας του περιβλήματος (m)	Χωρητικότητα του περιβλήματος ή του διαμερίσματος αυτού (m <sup>3</sup> )	Ελάχιστο πάχος (mm)
		Μαλακός χάλυβας
≤ 2	≤ 5.0	3
2 - 3	≤ 3.5	3
	> 3.5 αλλά ≤ 5.0	4

Όπου χρησιμοποιείται μέταλλο εκτός από μαλακό χάλυβα, το πάχος θα καθορίζεται από τον τύπο ισοδυναμίας που δίνεται στο (3). Το πάχος των χωρισμάτων και των πλακών διόγκωσης δεν θα είναι σε καμιά περίπτωση μικρότερο από εκείνο του περιβλήματος.

(7) Οι πλάκες διόγκωσης και τα χωρίσματα θα είναι κοίλα, με βάθος κοιλώματος όχι μικρότερο από 10 cm, ή θα είναι πτυχωμένα, ανάγλυφα ή με άλλο τρόπο ενισχυμένα ώστε να δίνουν ισοδύναμη αντοχή. Η επιφάνεια της πλάκας διόγκωσης θα είναι τουλάχιστον 70% του εμβαδού της διατομής της δεξαμενής στην οποία είναι προσαρτημένη η πλάκα διόγκωσης.

(8) Η ικανότητα του κατασκευαστή για τη διενέργεια εργασιών συγκολλήσεως θα είναι αναγνωρισμένη από την αρμόδια αρχή. Η συγκόλληση θα γίνεται από ειδικευμένους συγκολλητές που χρησιμοποιούν διαδικασία συγκολλήσεως της οποίας η αποτελεσματικότητα (περιλαμβανομένων τυχόν απαιτούμενων θερμαντικών διεργασιών) έχει επιδειχθεί με δοκιμή. Θα διεξάγονται μη καταστρεπτικές δοκιμές με ραδιογραφία ή με υπερήχους, οι οποίες πρέπει να επιβεβαιώσουν ότι η ποιότητα της συγκολλήσεως είναι η ενδεικνυόμενη για τις καταπονήσεις.

Για τον καθορισμό του πάχους του περιβλήματος σύμφωνα με το (2), πρέπει να υιοθετηθούν για τις συγκολλήσεις οι παρακάτω τιμές του συντελεστή λάμδα (λ):

- 0.8: όπου οι λωρίδες συγκολλήσεως επιβλέπονται όσο είναι δυνατόν οπτικά και από τις δύο πλευρές και υποβάλλονται σε μη καταστρεπτικό σημειακό έλεγχο με ειδική προσοχή στις ενώσεις
- 0.9: όπου όλες οι κατά μήκος λωρίδες σε όλο το μήκος τους, όλες οι ενώσεις, 25% των κυκλικών λωρίδων, και οι συγκολλήσεις για τη συναρμολόγηση ειδών εξοπλισμού μεγάλης διαμέτρου υποβάλλονται σε μη καταστρεπτικούς ελέγχους. Οι λωρίδες θα ελέγχονται οπτικά και από τις δύο πλευρές όσο αυτό είναι δυνατό
- 1.0: όπου όλες οι λωρίδες θα υποβάλλονται σε μη καταστρεπτικούς ελέγχους και ελέγχονται όσο αυτό είναι δυνατόν οπτικά και από τις δύο πλευρές. Θα αφαιρείται ένα τεμάχιο δοκιμής συγκολλήσεως.

Όπου η αρμόδια αρχή έχει αμφιβολίες σχετικά με την ποιότητα των λωρίδων συγκολλήσεως, μπορεί να απαιτήσει πρόσθετους ελέγχους.

(9) Θα λαμβάνονται μέτρα για την προστασία των περιβλημάτων κατά του κινδύνου παραμορφώσεως ως αποτέλεσμα αρνητικής εσωτερικής πίεσεως.

## Προσθήκη Β.1α

**211 127** Εκτός εάν προβλέπεται διαφορετικά στις ειδικές διατάξεις για τις επιμέρους κλάσεις, αυτά τα (συνεχ.) περιβλήματα μπορεί να έχουν βαλβίδες για την αποφυγή μη αποδεκτής αρνητικής εσωτερικής πίεσης, χωρίς τη μεσολάβηση εκρηγνυόμενου δίσκου.

(10) Η θερμική μόνωση θα είναι σχεδιασμένη κατά τέτοιο τρόπο ώστε να μη εμποδίζει την πρόσβαση ή τη λειτουργία πλήρωσης και κενώσεως των αντίστοιχων συσκευών και βαλβίδων ασφαλείας.

**Ευστάθεια**

**211 128** Το συνολικό πλάτος της φέρουσας επιφάνειας στο ύψος του εδάφους (η απόσταση μεταξύ των εξωτερικών σημείων επαφής με το έδαφος του δεξιού τροχού και του αριστερού τροχού του ίδιου άξονα) θα είναι τουλάχιστο ίσο με το 90% του ύψους του κέντρου βάρους του φορτωμένου οχήματος-δεξαμενής. Σε αρθρωτό όχημα, το βάρος πάνω στους άξονες της μεταφέρουσας το φορτίο μονάδας του φορτωμένου επικαθήμενου οχήματος δεν θα υπερβαίνει το 60% του ονομαστικού συνολικού φορτωμένου βάρους ολόκληρου του αρθρωτού οχήματος.

**Προστασία των εξαρτημάτων του άνω μέρους**

**211 129** Τα εξαρτήματα και προσαρτήματα που τοποθετούνται στο άνω μέρος του περιβλήματος θα προστατεύονται έναντι βλάβης προκαλούμενης από ανατροπή. Η προστασία αυτή μπορεί να πάρει τη μορφή ενισχυτικών δακτυλίων, προστατευτικών κουβουκλίων ή εγκαρσίων ή επιμηκών μελών σχήματος τέτοιου ώστε να παρέχεται αποτελεσματική προστασία.

**ΤΜΗΜΑ 3. Είδη εξοπλισμού**

**211 130** Τα είδη εξοπλισμού θα είναι τακτοποιημένα κατά τρόπο ώστε να προστατεύονται κατά του κινδύνου ξεβιδώματος ή της βλάβης στη διάρκεια της μεταφοράς ή του χειρισμού. Θα έχουν κατάλληλο βαθμό ασφαλείας συγκρίσιμο με εκείνο των ίδιων των περιβλημάτων και ειδικότερα:

- θα είναι συμβατά με τις μεταφερόμενες ύλες και
- θα ικανοποιούν τις απαιτήσεις του περιθωριακού 211 121.

Όσο το δυνατό περισσότερα λειτουργούντα μέρη θα εξυπηρετούνται από το μικρότερο δυνατό αριθμό ανοιγμάτων στο τοίχωμα του περιβλήματος.

Η στεγανότητα των ειδών του εξοπλισμού θα εξασφαλίζεται ακόμη και στην περίπτωση ανατροπής των οχημάτων-δεξαμενών, των αποσυναρμολογούμενων δεξαμενών και των συστοιχιών δοχείων. Τα παρεμβύσματα (φλάντζες) θα είναι κατασκευασμένα από υλικό συμβατό με την μεταφερόμενη ύλη και θα αντικαθίστανται μόλις μειωθεί η αποτελεσματικότητά τους, παραδείγματος χάριν λόγω γηράσκων. Τα παρεμβύσματα (φλάντζες) που εξασφαλίζουν τη στεγανότητα των εξαρτημάτων τα οποία χρειάζονται χειρισμό κατά την κανονική χρήση των οχημάτων-δεξαμενών, αποσυναρμολογούμενων δεξαμενών και συστοιχιών δοχείων, θα σχεδιάζονται και θα τοποθετούνται κατά τέτοιο τρόπο ώστε να μην τους προκαλεί βλάβη ο χειρισμός των εξαρτημάτων στα οποία είναι ενσωματωμένα.

**211 131** Κάθε περίβλημα που εκκενώνεται από τον πυθμένα και, στην περίπτωση περιβλημάτων με διαμερίσματα που εκκενώνονται από τον πυθμένα, κάθε διαμέρισμα, θα είναι εξοπλισμένο με δύο ανεξάρτητες μεταξύ τους δικλείδες, η πρώτη ως εσωτερική βαλβίδα κλεισίματος <sup>6/</sup> στερεωμένη απευθείας στο περίβλημα και η δεύτερη ως βαλβίδα υπερχείλισης ή άλλη ισοδύναμη συσκευή,

<sup>6/</sup> Εντούτοις, στην περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά ορισμένων κρυσταλλοποιήσιμων ή εξαιρετικά ιξώδων υλών, βαθιά κατεψυγμένων υγροποιημένων αερίων και περιβλημάτων με επίχρισμα από εβονίτη ή θερμοπλαστικό, η εσωτερική βαλβίδα κλεισίματος μπορεί να αντικαθίσταται με εξωτερική δικλείδα με πρόσθετη προστασία.

## Προσθήκη Β.1α

**211 131** τοποθετημένες σε σειρά, από μία σε κάθε άκρο του στομίου του σωλήνα εκκένωσης. Η (συνεχ.) εκκένωση από τον πυθμένα σε περιβλήματα προοριζόμενα για τη μεταφορά κονιαδών ή κοκκωδών υλών μπορεί να πραγματοποιείται με εξωτερική σωλήνωση με βαλβίδα κλεισίματος εάν αυτή είναι κατασκευασμένη από σφυρήλατο μεταλλικό υλικό. Επιπλέον, τα ανοίγματα των περιβλημάτων θα μπορούν να κλείνονται με βιδωτά βύσματα, κενά παρεμβύσματα (φλάντζες) ή άλλα μέσα ίσης αποτελεσματικότητας. Η εσωτερική βαλβίδα κλεισίματος θα μπορεί να ενεργοποιείται από πάνω ή από κάτω. Εάν είναι δυνατό, η ρύθμιση - ανοικτή ή κλειστή - της εσωτερικής βαλβίδας κλεισίματος θα μπορεί να επαληθευθεί από το έδαφος και στις δύο περιπτώσεις. Ο χειρισμός της εσωτερικής βαλβίδας κλεισίματος θα είναι έτσι σχεδιασμένος ώστε να εμποδίζει οποιοδήποτε ακούσιο άνοιγμα λόγω πρόσκρουσης ή αναπάντεχης ενέργειας. Η εσωτερική δικλείδα πρέπει να εξακολουθεί να λειτουργεί στην περίπτωση βλάβης του εξωτερικού συστήματος χειρισμού.

Η θέση και/ή η κατεύθυνση κλεισίματος των βαλβίδων υπερχείλισης πρέπει να είναι εμφανής.

Για την αποφυγή οποιασδήποτε απώλειας των περιεχομένων σε περίπτωση βλάβης στα εξωτερικά εξαρτήματα πλήρωσης και εκκένωσης (σωλήνες, πλευρικές συσκευές κλεισίματος), η εσωτερική βαλβίδα κλεισίματος και η έδρασή της θα προστατεύονται έναντι του κινδύνου να ξεβιδωθούν λόγω εξωτερικών καταπονήσεων ή θα σχεδιάζονται έτσι ώστε να τις αντέχουν. Οι συσκευές πλήρωσης και εκκένωσης (περιλαμβανομένων των παρεμβυσμάτων ή βιδωτών βυσμάτων) και προστατευτικών παμάτων (εάν υπάρχουν) θα μπορούν να ασφαλιζονται έναντι αιφνιδίου ανοίγματος.

Το περιβλήμα ή κάθε ένα από τα διαμερίσματά του θα έχουν άνοιγμα αρκετά μεγάλο ώστε να μπορεί να γίνει επιθεώρηση.

**211 132** Περιβλήματα προοριζόμενα για τη μεταφορά υλών για τις οποίες όλα τα ανοίγματα πρέπει να βρίσκονται πάνω από την στάθμη του υγρού μπορεί να είναι εξοπλισμένα, στο κάτω μέρος του αμαξώματος, με άνοιγμα καθαρισμού (fist-hole). Το άνοιγμα αυτό πρέπει να μπορεί να σφραγίζεται με παρέμβυσμα (φλάντζα) κλεισμένο έτσι ώστε να είναι στεγανό και ο σχεδιασμός του πρέπει να είναι εγκεκριμένος από την αρμόδια αρχή ή από φορέα που θα έχει ορίσει η αρχή αυτή.

**211 133** Περιβλήματα προοριζόμενα για τη μεταφορά υγρών με πίεση ατμών μεγαλύτερη από 110 kPa (1.1 bar) (απόλυτη) στους 50 °C θα έχουν σύστημα εξαερισμού και συσκευή ασφαλείας για να αποφεύγεται η εκροή των περιεχομένων σε περίπτωση που το περιβλήμα ανατραπεί διαφορετικά πρέπει να συμφωνούν με τις απαιτήσεις του περιθωριακού 211 134 ή 211 135.

**211 134** Περιβλήματα προοριζόμενα για τη μεταφορά υγρών με πίεση ατμών μεγαλύτερη από 110 kPa (1.1 bar) αλλά που δεν υπερβαίνει τα 175 kPa (1.75 bar) (απόλυτη) στους 50 °C θα έχουν βαλβίδα ασφαλείας ρυθμισμένη σε πίεση όχι μικρότερη από 150 kPa (1.5 bar) (πίεση μετρητή) και η οποία πρέπει να είναι εντελώς ανοικτή σε πίεση που δεν υπερβαίνει την πίεση δοκιμής διαφορετικά πρέπει να συμφωνούν με τις απαιτήσεις του περιθωριακού 211 135.

**211 135** Περιβλήματα προοριζόμενα για τη μεταφορά υγρών με πίεση ατμών μεγαλύτερη από 175 kPa (1.75 bar) αλλά που δεν υπερβαίνει τα 300 kPa (3 bar) (απόλυτη) στους 50 °C θα έχουν βαλβίδα ασφαλείας ρυθμισμένη σε πίεση όχι μικρότερη από 300 kPa (3 bar) πίεση μετρητή και η οποία πρέπει να είναι εντελώς ανοικτή σε πίεση που δεν υπερβαίνει την πίεση δοκιμής διαφορετικά πρέπει να είναι ερμητικά κλειστά<sup>2/</sup>.

**211 136** Κινητά μέρη όπως καλύμματα, κλείστρα κ.λπ., τα οποία μπορεί να έλθουν σε επαφή τριβής ή κρούσης με περιβλήματα αλουμινίου προοριζόμενα για τη μεταφορά εύφλεκτων υγρών με σημείο ανάφλεξης

<sup>2/</sup> "Ερμητικά κλειστά περιβλήματα" σημαίνει αυτά των οποίων τα ανοίγματα είναι ερμητικά κλειστά και τα οποία δεν είναι εξοπλισμένα με βαλβίδες ασφαλείας, θραυστούς δίσκους ή άλλες παρόμοιες συσκευές ασφαλείας. Περιβλήματα με βαλβίδες ασφαλείας μπροστά από τις οποίες υπάρχει ασφαλιστικός δίσκος θα θεωρούνται ερμητικά κλειστά.

## Προσθήκη Β.1α

μικρότερο ή ίσο των 61 °C ή για την μεταφορά εύφλεκτων αερίων δεν επιτρέπεται να είναι κατασκευασμένα από απροστάτευτο οξειδούμενο χάλυβα.

211 137-  
211 139

## ΤΜΗΜΑ 4. Έγκριση τύπου

**211 140** Η αρμόδια αρχή ή φορέας ορισμένος από την αρχή αυτή θα εκδίδει για κάθε νέο τύπο δεξαμενής πιστοποιητικό που θα βεβαιώνει ότι η πρότυπη δεξαμενή, περιλαμβανομένων των μέσων πρόσδεσης του περιβλήματος τα οποία έχει επιθεωρήσει, είναι κατάλληλη για τον σκοπό για τον οποίο προορίζεται και ικανοποιεί τις κατασκευαστικές απαιτήσεις του Τμήματος 2, τις απαιτήσεις εξοπλισμού του Τμήματος 3 και τους ειδικούς όρους για κάθε κλάση μεταφερομένων υλών.

Τα αποτελέσματα των δοκιμών, οι ύλες και/ή οι ομάδες υλών για τη μεταφορά των οποίων η δεξαμενή έχει εγκριθεί και ο αριθμός έγκρισης τύπου θα καταχωρούνται σε έκθεση δοκιμής. Οι ύλες μιας ομάδας υλών θα είναι παρομοίου είδους και εξίσου συμβατές με τα χαρακτηριστικά του περιβλήματος. Οι ύλες ή ομάδες υλών που επιτρέπονται θα καθορίζονται στην έκθεση δοκιμής, με τα χημικά τους ονόματα ή την αντίστοιχη συνεκδοχική επικεφαλίδα στον κατάλογο υλών, και την κλάση τους και τον αριθμό είδους.

Η έγκριση αυτή θα έχει ισχύ για δεξαμενές κατασκευασμένες σύμφωνα με το πρότυπο αυτό χωρίς τροποποίηση.

211 141-  
211 149

## ΤΜΗΜΑ 5. Δοκιμές

**211 150** Τα περιβλήματα και ο εξοπλισμός τους θα υποβάλλονται είτε από κοινού ή χωριστά σε αρχική επιθεώρηση πριν τεθούν σε λειτουργία. Η επιθεώρηση αυτή θα περιλαμβάνει έλεγχο συμφωνίας προς το εγκεκριμένο πρότυπο, έλεγχο των χαρακτηριστικών σχεδιασμού <sup>8/</sup>, εξωτερική και εσωτερική εξέταση, δοκιμή υδραυλικής πίεσης <sup>9/</sup> και έλεγχο ικανοποιητικής λειτουργίας του εξοπλισμού.

Η δοκιμή υδραυλικής πίεσης θα διεξάγεται στο περίβλημα στο σύνολό του στην πίεση που αναφέρεται στο Μέρος II αυτής της Προσθήκης, και χωριστά σε κάθε διαμέρισμα σε περιβλήματα με διαμερίσματα σε πίεση όχι μικρότερη από 1.3 φορές τη μέγιστη πίεση εργασίας. Η δοκιμή στεγανότητας θα διεξάγεται χωριστά σε κάθε διαμέρισμα σε περιβλήματα με διαμερίσματα.

Η δοκιμή υδραυλικής πίεσης θα διεξάγεται πριν την εγκατάσταση του θερμομονωτικού εξοπλισμού που είναι εκάστοτε αναγκαίος. Εάν τα περιβλήματα και ο εξοπλισμός τους δοκιμάζονται χωριστά, θα υποβάλλονται από κοινού σε δοκιμή στεγανότητας μετά τη συναρμολόγηση.

<sup>8/</sup> Ο έλεγχος των χαρακτηριστικών σχεδιασμού θα περιλαμβάνει επίσης, για περιβλήματα που απαιτούν πίεση δοκιμής 1 MPa (10 bar) ή μεγαλύτερη, τη λήψη δοκιμών συγκόλλησης (δειγμάτων εργασίας) σύμφωνα με τις δοκιμές που προβλέπονται στην Προσθήκη Β.1d.

<sup>9/</sup> Σε ειδικές περιπτώσεις και με τη σύμφωνη γνώμη του εγκεκριμένου από την αρμόδια αρχή ειδικού, η δοκιμή υδραυλικής πίεσης μπορεί να αντικαθίσταται από δοκιμή πίεσης χρησιμοποιώντας άλλο υγρό ή αέριο, όπου μια τέτοια λειτουργία δεν συνεπάγεται κίνδυνο.

## Προσθήκη Β.1α

**211 151** Τα περιβλήματα και ο εξοπλισμός τους θα υποβάλλονται σε περιοδικές επιθεωρήσεις σε τακτά διαστήματα. Οι περιοδικές επιθεωρήσεις θα περιλαμβάνουν: εξωτερική και εσωτερική εξέταση και, ως γενικό κανόνα, δοκιμή υδραυλικής πίεσης <sup>9/</sup>. Η επένδυση για θερμική ή άλλη μόνωση θα αφαιρείται μόνο στην έκταση που απαιτείται για αξιόπιστη εκτίμηση των χαρακτηριστικών του περιβλήματος.

Η δοκιμή υδραυλικής πίεσης θα διεξάγεται στο περίβλημα στο σύνολό του στην πίεση που αναφέρεται στο Μέρος II αυτής της Προσθήκης, και χωριστά σε κάθε διαμέρισμα σε περιβλήματα με διαμερίσματα, σε πίεση όχι μικρότερη από 1.3 φορές την μέγιστη πίεση εργασίας.

Στην περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά κοκκωδών ή κονιοδών υλών, και με την σύμφωνη γνώμη του εγκεκριμένου από την αρμόδια αρχή ειδικού, οι περιοδικές δοκιμές υδραυλικής πίεσης μπορεί να παραλείπονται και να αντικαθίστανται από δοκιμές στεγανότητας σύμφωνα με το περιθωριακό 211 102 (3).

Τα μέγιστα διαστήματα μεταξύ επιθεωρήσεων θα είναι έξι έτη.

Οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων κενές, ακαθάριστες, μπορεί να μεταφέρονται μετά την εκπονή της περιόδου διεξαγωγής της δοκιμής.

**211 152** Επιπλέον, θα διεξάγεται δοκιμή στεγανότητας του περιβλήματος με τον εξοπλισμό του και έλεγχος της ικανοποιητικής λειτουργίας όλων των μερών του εξοπλισμού τουλάχιστον κάθε τρία έτη. Η δοκιμή στεγανότητας θα διεξάγεται χωριστά σε κάθε διαμέρισμα σε περιβλήματα με διαμερίσματα.

**211 153** Όταν η ασφάλεια του περιβλήματος ή του εξοπλισμού του μπορεί να έχει μειωθεί λόγω επισκευών, μετατροπών ή ατυχήματος, θα διεξάγεται έλεγχος κατ'εξάιρεση.

**211 154** Οι δοκιμές, οι επιθεωρήσεις και οι έλεγχοι σύμφωνα με το περιθωριακό 211 150 έως 211 153 θα διενεργούνται από τον εγκεκριμένο από την αρμόδια αρχή ειδικό. Θα εκδίδονται πιστοποιητικά που θα δείχνουν τα αποτελέσματα των εργασιών αυτών. Τα πιστοποιητικά αυτά θα αναφέρονται στον κατάλογο των υλών των οποίων επιτρέπεται η μεταφορά σε αυτό το περίβλημα σύμφωνα με το 211 140.

211 155-  
211 159

#### ΤΜΗΜΑ 6. Επισήμανση

**211 160** Κάθε περίβλημα θα είναι εξοπλισμένο με αντιοξειδωτική μεταλλική πλάκα μόνιμα προσδεδεμένη στο περίβλημα σε μέρος εύκολα προσπελάσιμο για επιθεώρηση. Τουλάχιστον τα ακόλουθα στοιχεία θα επισημαίνονται στην πλάκα αυτή με σφραγίδα ή με οποιαδήποτε άλλη παρόμοια μέθοδο. Τα στοιχεία αυτά μπορεί να χαραχθούν απευθείας πάνω στα τοιχώματα του ίδιου του περιβλήματος, εάν τα τοιχώματα είναι ενισχυμένα έτσι ώστε να μη μειώνεται η αντοχή του περιβλήματος:

- αριθμός έγκρισης
- επωνυμία ή σήμα του κατασκευαστή
- αύξων αριθμός του κατασκευαστή
- έτος κατασκευής

## Προσθήκη Β.1α

- 211 160** (συνεχ.)
- πίεση δοκιμής <sup>10/</sup> (πίεση μετρητή)
  - χωρητικότητα <sup>10/</sup> - στην περίπτωση περιβλημάτων με πολλαπλά στοιχεία, η χωρητικότητα του καθενός
  - θερμοκρασία σχεδιασμού <sup>10/</sup> (μόνο εάν είναι άνω των +50 °C ή κάτω των -20 °C)
  - ημερομηνία (μήνας και έτος) της αρχικής δοκιμής της πιο πρόσφατης περιοδικής δοκιμής σύμφωνα με τα περιθωριακά 211 150 και 211 151
  - σφραγίδα του ειδικού που διενήργησε τις δοκιμές
  - πίεση δοκιμής στο περιβλήμα συνολικά και πίεση δοκιμής κατά διαμέρισμα σε ΜΡα ή βαρ (πίεση μετρητή) όπου η πίεση κατά διαμέρισμα είναι μικρότερη από την πίεση στο περιβλήμα και
  - υλικό του περιβλήματος και, όπου χρειάζεται, η προστατευτική επιστροφή.

Επιπλέον, η μέγιστη επιτρεπόμενη πίεση εργασίας θα αναγράφεται σε περιβλήματα πληρούμενα ή εκκενούμενα υπό πίεση.

**211 161** Τα ακόλουθα στοιχεία θα αναγράφονται στο ίδιο το όχημα-δεξαμενή ή σε πινακίδα. Τα στοιχεία αυτά δεν θα απαιτούνται στην περίπτωση οχήματος που μεταφέρει αποσυναρμολογούμενες δεξαμενές:

- όνομα του ιδιοκτήτη ή χειριστή
- απόβαρο και
- μέγιστο επιτρεπόμενο βάρος.

**211 162-  
211 169**

#### ΤΜΗΜΑ 7. Λειτουργία

- 211 170** Το πάχος των τοιχωμάτων του περιβλήματος, σε όλη τη διάρκεια της χρήσης του, δεν θα γίνεται μικρότερο από την ελάχιστη τιμή που προβλέπεται στο περιθωριακό 211 127 (2).
- 211 171** Τα περιβλήματα δεν θα φορτώνονται με επικίνδυνες ύλες εκτός από εκείνες για τη μεταφορά των οποίων έχουν εγκριθεί και οι οποίες, ερχόμενες σε επαφή με τα υλικά του περιβλήματος, τα παρεμβύσματα (φλάντζες), τον εξοπλισμό και τις προστατευτικές επιστρώσεις, δεν υπάρχει περίπτωση να αντιδράσουν επικίνδυνα μαζί τους, να σχηματίσουν επικίνδυνα προϊόντα ή να εξασθενήσουν αισθητά το υλικό. Δεν θα μεταφέρονται τρόφιμα σε αυτά τα περιβλήματα εκτός εάν έχουν ληφθεί τα αναγκαία μέτρα για να αποτραπεί οποιοσδήποτε κίνδυνος για τη δημόσια υγεία.
- 211 172** (1) Οι ακόλουθοι βαθμοί πλήρωσης δεν θα υπερβαίνονται σε περιβλήματα προοριζόμενα για τη μεταφορά υγρών σε θερμοκρασίες περιβάλλοντος:

<sup>10/</sup>

Οι μονάδες μετρήσεως πρέπει να εμφανίζονται μετά τις αριθμητικές τιμές.

## Προσθήκη Β.1α

211 172  
(συνεχ.)

- (a) για εύφλεκτες ύλες χωρίς πρόσθετους κινδύνους (π.χ. τοξικότητα ή οξείδωση), σε περιβλήματα με σύστημα εξαερισμού ή με βαλβίδες ασφαλείας (ακόμη και όπου έχει τοποθετηθεί μπροστά εκρηγνυόμενος δίσκος):

$$\text{βαθμός πλήρωσης} = \frac{100}{1 + \alpha (50 - t_F)} \% \text{χωρητικότητας}$$

- (b) για τοξικές ή οξειδωτικές ύλες (είτε εύφλεκτες είτε όχι) σε περιβλήματα με σύστημα εξαερισμού ή με βαλβίδες ασφαλείας (ακόμη και όπου έχει τοποθετηθεί μπροστά εκρηγνυόμενος δίσκος):

$$\text{βαθμός πλήρωσης} = \frac{98}{1 + \alpha (50 - t_F)} \% \text{χωρητικότητας}$$

- (c) για εύφλεκτες ύλες και για ελαφρά τοξικές ή ελαφρά διαβρωτικές ύλες, (είτε εύφλεκτες είτε όχι) σε ερμητικά κλειστά<sup>11/</sup> περιβλήματα χωρίς συσκευή ασφαλείας:

$$\text{βαθμός πλήρωσης} = \frac{97}{1 + \alpha (50 - t_F)} \% \text{χωρητικότητας}$$

- (d) για εξαιρετικά τοξικές, τοξικές, εξαιρετικά οξειδωτικές ή οξειδωτικές ύλες (είτε εύφλεκτες είτε όχι) σε ερμητικά κλειστά<sup>11/</sup> περιβλήματα χωρίς συσκευή ασφαλείας:

$$\text{βαθμός πλήρωσης} = \frac{95}{1 + \alpha (50 - t_F)} \% \text{χωρητικότητας}$$

- (2) Σε αυτούς τους τύπους, αντιπροσωπεύει τον μέσο συντελεστή κυβικής διαστολής του υγρού μεταξύ 15 °C και 50 °C, δηλ. για μέγιστη διακύμανση θερμοκρασίας 35 °C.

$$\text{Το } \alpha \text{ υπολογίζεται από τον τύπο: } \alpha = \frac{d_{15} - d_{50}}{35 \times d_{50}}$$

όπου  $d_{15}$  και  $d_{50}$  είναι οι σχετικές πυκνότητες του υγρού στους 15 °C και 50 °C αντίστοιχα και  $t_F$  είναι η μέση θερμοκρασία του υγρού κατά την πλήρωση.

- (3) Οι παραπάνω διατάξεις του (1) δεν θα έχουν εφαρμογή σε περιβλήματα των οποίων τα περιεχόμενα διατηρούνται, με θερμαντική συσκευή, σε θερμοκρασία άνω των 50 °C κατά τη μεταφορά. Σε αυτήν την περίπτωση, ο βαθμός πλήρωσης στην αρχή θα είναι τέτοιος, και η θερμοκρασία θα είναι έτσι ρυθμισμένη, ώστε το περιβλήμα να μην είναι πλήρες κατά ποσοστό μεγαλύτερο από 95% της χωρητικότητάς του σε οποιαδήποτε στιγμή κατά τη μεταφορά, και να μην υπερβαίνεται η θερμοκρασία πλήρωσης.

- (4) Όπου φορτώνονται ύλες υψηλής θερμοκρασίας, η θερμοκρασία της εξωτερικής επιφάνειας του περιβλήματος ή της θερμομόνωσης δεν θα υπερβαίνει τους 70 °C κατά την μεταφορά.

<sup>11/</sup> Βλέπε υποσημείωση<sup>2/</sup>

## Προσθήκη Β.1α

**211 173** Όπου περιβλήματα προοριζόμενα για τη μεταφορά υγρών<sup>12/</sup> δεν χωρίζονται με χωρίσματα ή πλάκες διόγκωσης σε τμήματα χωρητικότητας κάτω των 7 500 λίτρων, θα πληρούνται σε ποσοστό όχι μικρότερο του 80% της χωρητικότητάς τους εκτός εάν έχουν χαρακτηριστεί ως κενά.

**211 174** Κατά τη φόρτωση και την εκφόρτωση των δεξαμενών, θα λαμβάνονται κατάλληλα μέτρα για να αποτρέπεται η έκλυση επικινδύνων ποσοτήτων αερίων και ατμών.

Τα περιβλήματα θα κλείνονται κατά τρόπο ώστε τα περιεχόμενα να μην μπορούν να διαφύγουν ανεξέλεγκτα. Τα ανοίγματα περιβλημάτων με εκκένωση από των πυθμένα θα κλείνονται με βιδωτά βύσματα, κενά παρεμβύσματα (φλάντζες) ή άλλες εξίσου αποτελεσματικές συσκευές. Η στεγανότητα των κλειστών του περιβλήματος, ιδίως στο άνω μέρος του σίφωνα, θα επαληθεύεται από τον αποστολέα μετά την πλήρωση του περιβλήματος.

**211 175** Όπου υπάρχουν τοποθετημένα σε σειρά αρκετά συστήματα κλεισίματος, θα κλείνεται πρώτο το πλησιέστερο στη μεταφερόμενη ύλη.

**211 176** Δεν θα παραμένουν κολλημένα επικίνδυνα κατάλοιπα της μεταφερόμενης ύλης στο εξωτερικό των περιβλημάτων κατά τη μεταφορά, είτε αυτά είναι φορτωμένα είτε κενά.

**211 177** Για να γίνουν δεκτά για μεταφορά, τα κενά και ακαθάριστα περιβλήματα, πρέπει να κλείνονται με τον ίδιο τρόπο και να είναι στεγανά στον ίδιο βαθμό ως εάν ήταν γεμάτα.

**211 178** Οι σωληνώσεις συνδέσεως μεταξύ ανεξάρτητων πλην διασυνδεδεμένων περιβλημάτων μιας μεταφορικής μονάδας θα είναι κενές κατά τη μεταφορά.

Εύκαμπτες σωληνώσεις πλήρωσης και εκκένωσης που δεν είναι μόνιμα συνδεδεμένες με το περιβλήμα θα είναι κενές κατά τη μεταφορά.

**211 179**

### ΤΜΗΜΑ 8. Μεταβατικά μέτρα

**211 180** Σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων κατασκευασμένες πριν την 1η Οκτωβρίου 1978 και μη ανταποκρινόμενες στις απαιτήσεις αυτής της Προσθήκης μπορούν, εάν έχουν κατασκευαστεί σύμφωνα με τις απαιτήσεις αυτής της Οδηγίας, να χρησιμοποιούνται μέχρι την 30ή Σεπτεμβρίου 1984. Σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων προοριζόμενες για τη μεταφορά αερίων της Κλάσης 2 μπορούν εντούτοις να χρησιμοποιούνται μέχρι την 30ή Σεπτεμβρίου 1990 εάν τηρείται η απαίτηση περιοδικού ελέγχου.

**211 181** Στην εκπονή αυτής της περιόδου οι προαναφερόμενες μονάδες μπορούν να διατηρηθούν σε λειτουργία εάν ο εξοπλισμός του περιβλήματος ικανοποιεί τις παρούσες απαιτήσεις. Το πάχος του τοιχώματος του περιβλήματος, εκτός από την περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά αερίων της Κλάσης 2, 7° και 8°, θα είναι το ενδεικνυόμενο για πίεση υπολογισμού όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή) στην περίπτωση μαλακού χάλυβα και όχι μικρότερη από 200 kPa (2 bar) (πίεση μετρητή) στην περίπτωση αλουμινίου και κραμάτων αλουμινίου. Για διατομές δεξαμενών πλην των κυκλικών, η διάμετρος υπολογισμού θα είναι εκείνη κύκλου με εμβαδόν ίσο με αυτό της πραγματικής διατομής της δεξαμενής.

<sup>12/</sup> Σύμφωνα με την παρούσα διάταξη, ύλες των οποίων το κινηματικό ιξώδες στους 20 °C είναι κάτω των 2 680 mm<sup>2</sup>/s θα θεωρούνται υγρά.



## Προσθήκη Β.1α

- 211 182** Οι περιοδικές δοκιμές για σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων που διατηρούνται σε λειτουργία βάσει αυτών των μεταβατικών διατάξεων θα διενεργούνται σύμφωνα με τις διατάξεις του Τμήματος 5 και με τις σχετικές ειδικές διατάξεις για τις διάφορες Κλάσεις. Εκτός εάν οι προηγούμενες διατάξεις προέβλεπαν υψηλότερη πίεση δοκιμής, η τιμή πίεσης δοκιμής των 200 kPa (2 bar) (πίεση μετρητή) θα επαρκεί για περιβλήματα από αλουμίνιο και περιβλήματα από κράματα αλουμινίου.
- 211 183** Σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων που ικανοποιούν αυτές τις μεταβατικές διατάξεις μπορούν να χρησιμοποιούνται μέχρι την 30ή Σεπτεμβρίου 1993 για τη μεταφορά επικίνδυνων εμπορευμάτων για τα οποία έχουν εγκριθεί. Η μεταβατική αυτή περίοδος δεν θα έχει εφαρμογή σε σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων προοριζόμενων για τη μεταφορά υλών της Κλάσης 2, ή σε σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων των οποίων τα πάχη τοιχωμάτων και είδη εξοπλισμού ικανοποιούν τις απαιτήσεις αυτής της Προσθήκης.
- 211 184** Σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων κατασκευασμένες πριν την 1η Μαΐου 1985 σύμφωνα με τις απαιτήσεις αυτής της Οδηγίας σε ισχύ μεταξύ 1ης Οκτωβρίου 1978 και 30ής Απριλίου 1985 αλλά μη ανταποκρινόμενες στις διατάξεις εφαρμόσιμες από 1η Μαΐου 1985 μπορούν να συνεχίσουν να χρησιμοποιούνται μετά από αυτή την ημερομηνία.
- 211 185** Σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων, κατασκευασμένες μεταξύ της 1ης Μαΐου 1985 και της έναρξης ισχύος των διατάξεων εφαρμόσιμων από 1ης Ιανουαρίου 1988 που δεν ανταποκρίνονται σε εκείνες τις διατάξεις αλλά κατασκευάστηκαν βάσει των απαιτήσεων αυτής της Οδηγίας που ήταν σε ισχύ μέχρι εκείνη την ημερομηνία, μπορούν να εξακολουθούν να χρησιμοποιούνται.
- 211 186** Σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων, κατασκευασμένες πριν την έναρξη ισχύος των διατάξεων εφαρμόσιμων από 1ης Ιανουαρίου 1993 που δεν ανταποκρίνονται σε εκείνες τις διατάξεις αλλά κατασκευάστηκαν σύμφωνα με τις απαιτήσεις αυτής της Οδηγίας που ήταν σε ισχύ μέχρι εκείνη την ημερομηνία μπορούν να εξακολουθούν να χρησιμοποιούνται.
- 211 187** Σταθερές δεξαμενές (οχήματα-δεξαμενές), αποσυναρμολογούμενες δεξαμενές και συστοιχίες δοχείων κατασκευασμένες πριν την 1η Ιανουαρίου 1990 θα ανταποκρίνονται, εάν χρησιμοποιηθούν μετά την 31η Δεκεμβρίου 2004, στις διατάξεις του περιθωριακού 211 127 (5), εφαρμόσιμες από την 1η Ιανουαρίου 1990, που αφορούν πάχη τοιχωμάτων και προστασία έναντι βλάβης.

~~211-188-~~

211 199

## Προσθήκη Β.1α

**ΜΕΡΟΣ ΙΙ. ΕΙΔΙΚΕΣ ΑΠΑΙΤΗΣΕΙΣ ΠΟΥ ΣΥΜΠΛΗΡΩΝΟΥΝ Ή ΤΡΟΠΟΠΟΙΟΥΝ ΤΙΣ ΑΠΑΙΤΗΣΕΙΣ ΤΟΥ ΜΕΡΟΥΣ Ι**

**ΚΛΑΣΗ 2. ΑΕΡΙΑ: ΣΥΜΠΙΕΣΜΕΝΑ, ΥΓΡΟΠΟΙΗΜΕΝΑ, Ή ΔΙΑΛΥΜΕΝΑ ΥΠΟ ΠΙΕΣΗ**

211 200-  
211 209

**ΤΜΗΜΑ 1. Γενικά πλαίσιο (χρήση δεξαμενών) ορισμοί**

**Χρήση**

**211 210** Αέρια του περιθωριακού 2201 εκτός από εκείνα που αναγράφονται παρακάτω μπορεί να μεταφέρονται σε σταθερές δεξαμενές, σε αποσυναρμολογούμενες δεξαμενές, ή σε συστοιχίες δοχείων:

Φθόριο, τριφθοριούχο άζωτο και τετραφθοριούχο πυρίτιο του 1° (at) οξείδιο του αζώτου του 1° (ct) μείγματα υδρογόνου με όχι περισσότερο του 10% υδροσελήνιο ή φωσφίνη ή γερμάνιο κατ'όγκο ή με όχι περισσότερο από 15% αρσίνη κατ'όγκο μείγματα αζώτου ή ευγενών αερίων (περιέχοντα όχι περισσότερο από 10% ξένο κατ'όγκο) με όχι περισσότερο από 10% υδροσελήνιο ή φωσφίνη ή γερμάνιο κατ'όγκο ή όχι περισσότερο από 15% αρσίνη κατ'όγκο του 2° (bt) μείγματα υδρογόνου με όχι περισσότερο από 10% διβοράνιο κατ'όγκο μείγματα αζώτου ή ευγενή αέρια (περιέχοντα όχι περισσότερο από 10% ξένο κατ'όγκο) με όχι περισσότερο από 10% διβοράνιο κατ'όγκο του 2° (ct), οκταφθοροβουτ-2-ένιο (R1318) και οκταφθοροπροπάνιο του 3° (a) τριχλωριούχο βόριο, τριφθοριούχο χλώριο, εξαφθοροακετόνη, νιτρωδυλοχλωρίδιο, σουλφουρυλοφθορίδιο και εξαφθοριούχο βολφράμιο του 3° (at) 2,2-διμεθυλοπροπάνιο και μεθυλοσιλάνιο του 3° (b) αρσίνη, καρβονυλοσουλφίδιο, διχλωροσιλάνιο, διμεθυλοσιλάνιο, υδροσελήνιο και τριμεθυλοσιλάνιο του 3° (bt) προπαδιένιο, αδρανές, του 3° (c), κυανογόνο, χλωριούχο κυανογόνο, αιθυλενοξείδιο και υδροϊώδιο, ανυδρίτη του 3° (ct) μείγματα μεθυλοσιανιάν του 4° (bt) προπαδιένιο με 1% έως 4% μεθυλακετυλένιο, σταθεροποιημένο, του 4° (c) αιθυλενοξείδιο περιέχον όχι περισσότερο από 50% κατά βάρος μυρμηκικό μεθυλεστερά του 4° (ct) σιλάνιο του 5° (b) ύλες του 5° (bt) και (ct) διαλυμένο ακετυλένιο του 9° (c) αέρια του 12° και 13°.

211 211-  
211 219

**ΤΜΗΜΑ 2. Κατασκευή**

**211 220** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 1° έως 6° και 9° θα κατασκευάζονται από χάλυβα. Στην περίπτωση μη συγκολλημένων περιβλημάτων κατά παρέκκλιση από το περιθωριακό 211 125 (3), μπορεί να γίνει δεκτή ελάχιστη επιμήκυνση θραύσεως 14% καθώς και τάση σ (σίγμα) μικρότερη ή ίση των παρακάτω ορίων αναλόγως του υλικού.

- (a) Όταν ο λόγος  $Re/Rm$  των ελάχιστων εγγυημένων χαρακτηριστικών μετά από θερμική κατεργασία είναι μεγαλύτερος του 0.66 χωρίς να υπερβαίνει το 0.85:

$$\sigma \leq 0.75 Re.$$

- (b) Όταν ο λόγος  $Re/Rm$  των ελάχιστων εγγυημένων χαρακτηριστικών μετά από θερμική κατεργασία είναι μεγαλύτερος του 0.85:

$$\sigma \leq 0.5 Rm.$$

## Προσθήκη Β.1α

- 211 221** Οι απαιτήσεις της Προσθήκης Β.1d θα έχουν εφαρμογή στα υλικά και την κατασκευή συγκολλημένων περιβλημάτων.
- 211 222** Περιβλήματα προοριζόμενα για τη μεταφορά χλωρίου ή φωσγενίου του 3° (at) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] τουλάχιστον 2.2 MPa (22 bar) (πίεση μετρητή).
- 211 223-  
211 229**

**ΤΜΗΜΑ 3. Είδη εξοπλισμού**

- 211 230** Οι σωληνώσεις εκκένωσης των περιβλημάτων θα μπορούν να κλείνονται με κενά παρεμβύσματα (φλάντζες) ή άλλη εξίσου αξιόπιστη συσκευή.
- 211 231** Περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων μπορεί να έχουν, επιπλέον των ανοιγμάτων που προβλέπονται στο περιθωριακό 211 131, ανοίγματα για την τοποθέτηση μετρητών, περιλαμβανομένων μετρητών πίεσης, και θερμομέτρων και με ανοίγματα αποστραγγίσεως, όπως απαιτείται για τη λειτουργία και την ασφάλειά τους.
- 211 232** Οι συσκευές ασφαλείας θα πληρούν τις ακόλουθες απαιτήσεις:

(1) Τα ανοίγματα πλήρωσης και εκκένωσης περιβλημάτων προοριζόμενων για τη μεταφορά υγροποιημένων εύφλεκτων και/ή τοξικών αερίων θα είναι εξοπλισμένα με εσωτερική συσκευή ασφαλείας στιγμιαίου κλεισίματος η οποία κλείνει αυτομάτως σε περίπτωση ακούσιας κίνησης του περιβλήματος ή φωτιάς. Θα είναι επίσης δυνατή η λειτουργία της συσκευής κλεισίματος με τηλεχειρισμό.

(2) Όλα τα ανοίγματα, εκτός από εκείνα που υποδέχονται βαλβίδες ασφαλείας και από ανοίγματα αποστράγγισης, περιβλημάτων προοριζόμενων για τη μεταφορά υγροποιημένων εύφλεκτων και/ή τοξικών αερίων θα είναι εξοπλισμένα, εάν η ονομαστική διάμετρος τους είναι μεγαλύτερη από 1.5 mm, με εσωτερική συσκευή κλεισίματος.

(3) Κατά παρέκκλιση από τις διατάξεις του (1) και (2), περιβλήματα προοριζόμενα για τη μεταφορά εύφλεκτων και/ή τοξικών υγροποιημένων αερίων βαθιάς καταψύξεως μπορεί να είναι εξοπλισμένα με εξωτερικές συσκευές αντί για εσωτερικές συσκευές εάν οι εξωτερικές συσκευές παρέχουν προστασία έναντι εξωτερικής βλάβης τουλάχιστον ισοδύναμη με αυτή που παρέχεται από το τοίχωμα του περιβλήματος.

(4) Εάν τα περιβλήματα είναι εξοπλισμένα με μετρητές, αυτοί δεν θα είναι κατασκευασμένοι από διαφανές υλικό σε απευθείας επαφή με τη μεταφερόμενη ύλη. Εάν υπάρχουν θερμομέτρα, δεν θα εξέχουν άμεσα στο αέριο ή το υγρό μέσα από το τοίχωμα του περιβλήματος.

(5) Περιβλήματα προοριζόμενα για τη μεταφορά χλωρίου ή διοξειδίου του θείου ή φωσγενίου του 3° (at) ή μεθυλομερκαπτάνη ή υδρόθειο του 3° (bt) δεν θα έχουν ανοίγματα κάτω από τη στάθμη της επιφάνειας του υγρού. Επιπλέον, δεν θα επιτρέπονται ανοίγματα καθαρισμού κατά τα αναφερόμενα στο περιθωριακό 211 132.

(6) Ανοίγματα πλήρωσης και εκκένωσης τοποθετημένα στο άνω μέρος των περιβλημάτων θα είναι εξοπλισμένα, επιπλέον των προβλεπόμενων στο (1), με δεύτερη, εξωτερική, συσκευή κλεισίματος. Αυτή η συσκευή θα είναι ικανή να κλειστεί με κενό παρέμβυσμα (φλάντζα) ή άλλη εξίσου αξιόπιστη συσκευή.

- 211 233** Οι βαλβίδες ασφαλείας θα ικανοποιούν τις ακόλουθες απαιτήσεις:

(1) Περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 1° έως 6° και 9° μπορεί να είναι εφοδιασμένα με όχι περισσότερες από δύο βαλβίδες ασφαλείας των οποίων η συνολική καθαρή επιφάνεια διατομής της διόδου από το σημείο ή τα σημεία έδρασης δεν θα είναι μικρότερη από 20 cm<sup>2</sup> ανά 30 m<sup>3</sup> (ή μέρος αυτού) χωρητικότητας του δοχείου.

## Προσθήκη Β.1α

**211 233** Αυτές οι βαλβίδες θα μπορούν να ανοίγουν αυτομάτως σε πίεση μεταξύ 0.9 και 1.0 φορές την (συνεχ.) πίεση δοκιμής του περιβλήματος στο οποίο είναι τοποθετημένες. Θα είναι τέτοιου τύπου ώστε να ανθίστανται σε δυναμικές καταπονήσεις, περιλαμβανομένης της διόγκωσης υγρού. Η χρήση βαλβίδων με νεκρό βάρος ή αντίβαρο απαγορεύεται.

Περιβλήματα προοριζόμενα για την μεταφορά αερίων του 1° έως 9° βλαβερών για τα αναπνευστικά όργανα ή συνεπαγόμενα κίνδυνο δηλητηρίασεως <sup>13/</sup> δεν θα φέρουν βαλβίδες ασφαλείας εκτός εάν υπάρχει εκρηγνύομενος δίσκος μπροστά από τις βαλβίδες ασφαλείας. Στην τελευταία αυτή περίπτωση η διευθέτηση του εκρηγνύομενου δίσκου και της βαλβίδας ασφαλείας θα πρέπει να είναι ικανοποιητική για την αρμόδια αρχή.

Όπου οχήματα-δεξαμενές προορίζονται για μεταφορά διά θαλάσσης, οι διατάξεις του παρόντος δεν θα απαγορεύουν την τοποθέτηση βαλβίδων ασφαλείας σύμφωνα με τους κανονισμούς που διέκουν αυτό το μέσο μεταφοράς <sup>14/</sup>.

(2) Περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 7° και 8° θα είναι εξοπλισμένα με δύο ανεξάρτητες βαλβίδες ασφαλείας, κάθε μία σχεδιασμένη έτσι ώστε να επιτρέπει τη διαφυγή από το περίβλημα των αερίων που σχηματίζονται με εξάτμιση κατά την κανονική λειτουργία κατά τρόπο ώστε η πίεση να μην υπερβαίνει σε καμία στιγμή την πίεση εργασίας που αναφέρεται στο περίβλημα κατά περισσότερο από 10%. Μία από τις δύο βαλβίδες ασφαλείας μπορεί να αντικαθίσταται από εκρηγνύομενο δίσκο που θα είναι τέτοιος ώστε να σπάει στην πίεση δοκιμής. Σε περίπτωση απώλειας του κενού σε περίβλημα διπλού τοιχώματος, ή καταστροφής του 20% της μονώσεως σε περίβλημα μονού τοιχώματος, η βαλβίδα ασφαλείας και ο εκρηγνύομενος δίσκος θα επιτρέπει εκροή τόσο ώστε η πίεση στο περίβλημα να μην μπορεί να υπερβεί την πίεση δοκιμής.

(3) Οι βαλβίδες ασφαλείας περιβλημάτων προοριζόμενων για τη μεταφορά αερίων του 7° και 8° θα μπορούν να ανοίγουν στην πίεση εργασίας που αναγράφεται στο περίβλημα. Θα είναι έτσι σχεδιασμένες ώστε να λειτουργούν αλάνθαστα ακόμη και στην ελάχιστη θερμοκρασία εργασίας τους. Η αξιοπιστία της λειτουργίας τους στη θερμοκρασία αυτή θα εξακριβώνεται και θα ελέγχεται είτε ελέγχοντας κάθε βαλβίδα είτε ελέγχοντας δειγματοληπτικά μία βαλβίδα για κάθε τύπο σχεδιασμού.

## Θερμομόνωση

**211 234** (1) Εάν περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων του 3° και 4° είναι εξοπλισμένα με θερμική μόνωση, αυτή η μόνωση θα αποτελείται:

- είτε από αλεξήλιο που να καλύπτει όχι λιγότερο από το άνω εν τρίτο αλλά όχι περισσότερο από το άνω ήμισυ της επιφάνειας του περιβλήματος και να χωρίζεται από το περίβλημα με κενό αέρα τουλάχιστον 4 cm<sup>3</sup> ή
- από πλήρη επένδυση, επαρκούς πάχους, από μονωτικά υλικά.

(2) Περιβλήματα προοριζόμενα για την μεταφορά αερίων του 7° και 8° θα είναι θερμομονωμένα. Η θερμομόνωση θα εξασφαλίζεται με συνεχή επένδυση. Εάν ο χώρος μεταξύ του περιβλήματος και της επένδυσης είναι κενός από αέρα (μόνωση κενού) η προστατευτική επένδυση θα είναι έτσι σχεδιασμένη ώστε να αντέχει χωρίς παραμόρφωση σε εξωτερική πίεση τουλάχιστον 100 kPa (1 bar) (πίεση μετρητή). Κατά παρέκκλιση από το περιθωριακό 211 102 (2),

<sup>13/</sup> Αέρια χαρακτηριζόμενα με το γράμμα "α" στον κατάλογο υλών θεωρούνται αέρια επιβλαβή για τα αναπνευστικά όργανα ή ενέχοντα κίνδυνο δηλητηρίασης.

<sup>14/</sup> Οι απαιτήσεις αυτές περιέχονται στην Παράγραφο 13 της Γενικής Εισαγωγής στον Κώδικα της Διεθνούς Ναυτιλιακής Οργάνωσης για τα Επικίνδυνα Εμπορεύματα (IMDG) που εκδίδεται από την Διεθνή Ναυτιλιακή Οργάνωση στο Λονδίνο.

## Προσθήκη Β.1α

**211 234** εξωτερικές και εσωτερικές ενισχυτικές συσκευές μπορεί να λαμβάνονται υπόψη στους υπολογισμούς. Εάν η επένδυση είναι κλεισμένη έτσι ώστε να είναι αεροστεγής, θα υπάρχει συσκευή για να αποτρέπει την ανάπτυξη επικίνδυνης πίεσης στο μονωτικό στρώμα σε περίπτωση ανεπαρκούς αεροστεγανότητας του περιβλήματος ή των ειδών εξοπλισμού του. Η συσκευή θα αποτρέπει την διείσδυση υγρασίας μέσα στην θερμομονωτική επένδυση.

(3) Περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων με σημείο βρασμού κάτω των  $-182\text{ }^{\circ}\text{C}$  σε ατμοσφαιρική πίεση δεν θα περιλαμβάνουν αναφλέξιμα υλικά είτε στη θερμομόνωση ή στο μέσο πρόσδεσης στο πλαίσιο.

Το μέσο πρόσδεσης περιβλημάτων προοριζόμενων για τη μεταφορά αργού, αζώτου, ηλίου ή νέον του  $7^{\circ}$  (a) ή υδρογόνου του  $7^{\circ}$  (b) μπορεί, με τη συναίνεση της αρμόδιας αρχής, να περιέχει πλαστικές ύλες ανάμεσα στο περίβλημα και την επένδυση.

**211 235** (1) Τα ακόλουθα θεωρούνται στοιχεία οχήματος συστοιχίας:

- Δοχεία κατά τα οριζόμενα στο περιθωριακό 2212 (1)(b) ή
- Δεξαμενές κατά τα οριζόμενα στο περιθωριακό 2212 (1)(c).

Οι διατάξεις αυτής της Προσθήκης δεν έχουν εφαρμογή σε πλαίσια κυλίνδρων σύμφωνα με το περιθωριακό 2212 (1)(d).

(2) Οι ακόλουθοι όροι θα πληρούνται για τα οχήματα συστοιχίας:

- (a) Εάν ένα από τα στοιχεία οχήματος συστοιχίας είναι εξοπλισμένο με βαλβίδα ασφαλείας και υπάρχουν συσκευές κλεισίματος μεταξύ των στοιχείων, κάθε στοιχείο θα είναι έτσι εξοπλισμένο.
- (b) Οι συσκευές πλήρωσης και εκκένωσης μπορεί να είναι τοποθετημένες σε πολλαπλή.
- (c) Κάθε στοιχείο οχήματος συστοιχίας προοριζόμενου για την μεταφορά συμπιεσμένων αερίων του  $1^{\circ}$  και  $2^{\circ}$  τα οποία είναι επιβλαβή για τα αναπνευστικά όργανα ή συνεπάγονται κίνδυνο δηλητηρίασεως<sup>15/</sup> θα είναι σε θέση να απομονώνεται με βαλβίδα.
- (d) Τα στοιχεία οχήματος συστοιχίας προοριζόμενου για την μεταφορά υγροποιημένων αερίων του  $3^{\circ}$  έως  $6^{\circ}$  θα είναι σχεδιασμένα έτσι ώστε να μπορούν να πληρωθούν χωριστά και να μπορούν να διατηρηθούν απομονωμένα με βαλβίδα που θα επιδέχεται σφράγιση.

(3) Οι ακόλουθες απαιτήσεις θα έχουν εφαρμογή σε αποσυναρμολογούμενες δεξαμενές:

- (a) δεν θα είναι διασυνδεδεμένες με πολλαπλή και
- (b) εάν οι αποσυναρμολογούμενες δεξαμενές μπορούν να κυλίνουν, οι βαλβίδες θα είναι εξοπλισμένες με προστατευτικά κώματα.

**211 236** Κατά παρέκκλιση από τις διατάξεις του περιθωριακού 211 131, περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων βαθιάς κατάψυξης δεν χρειάζεται να έχουν άνοιγμα για επιθεώρηση.

**211 237-  
211 239**

<sup>15/</sup> Αέρια χαρακτηριζόμενα με το γράμμα "t" στον κατάλογο υλών θεωρούνται αέρια επιβλαβή για τα αναπνευστικά όργανα ή ενέχοντα κίνδυνο δηλητηρίασης.

## Προσθήκη Β.1α

**ΤΜΗΜΑ 4. Έγκριση τύπου**

211 240-

211 249 (Δεν υπάρχουν ειδικές απαιτήσεις)

**ΤΜΗΜΑ 5. Δοκιμές**

**211 250** Τα υλικά κάθε συγκολλημένου περιβλήματος θα δοκιμάζονται με την μέθοδο που περιγράφεται στην Προσθήκη Β.1d.

**211 251** Τα επίπεδα της πίεσης δοκιμής θα είναι ως ακολούθως:

- (1) Για περιβλήματα προοριζόμενα για την μεταφορά αερίων του 1<sup>ο</sup> και 2<sup>ο</sup>: τα επίπεδα που αναφέρονται στο περιθωριακό 2219 (1) και (3).
- (2) Για περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 3<sup>ο</sup> και 4<sup>ο</sup>:
  - (a) εάν τα περιβλήματα δεν είναι μεγαλύτερα από 1.5 m σε διάμετρο, τα επίπεδα που αναφέρονται στο περιθωριακό 2220 (2)
  - (b) εάν τα περιβλήματα είναι μεγαλύτερα από 1.5 m σε διάμετρο, τα επίπεδα <sup>16/</sup> που αναφέρονται παρακάτω:

<sup>16/</sup>

1. Οι προβλεπόμενες τιμές της πίεσης δοκιμής είναι:

- a) εάν το περιβλημα είναι εξοπλισμένο με θερμομόνωση, τουλάχιστον ίση με την πίεση ατμών, μειωμένη κατά 0.1 MPa (1 bar), του υγρού στους 60 °C, και όχι μικρότερη από 1 MPa (10 bar)
- b) εάν το περιβλημα δεν είναι εξοπλισμένο με θερμομόνωση, τουλάχιστον ίση με την πίεση ατμών, ελαττωμένη κατά 0.1 MPa (1 bar), του υγρού στους 65 °C, και όχι μικρότερη από 1 MPa (10 bar).

2. Δεδομένης της υψηλής τοξικότητας του φωσγενίου του 3C (a), η ελάχιστη πίεση δοκιμής για αυτό το αέριο είναι σταθερή στα 1.5 MPa (15 bar) εάν το περιβλημα είναι εξοπλισμένο με θερμομόνωση και στα 1.7 MPa (17 bar) εάν δεν είναι εξοπλισμένο.

3. Οι μέγιστες τιμές σε kg/l που προβλέπονται για το βαθμό πλήρωσης υπολογίζονται ως εξής: μέγιστη μάζα περιεχομένων ανά λίτρο χωρητικότητας = 0.95 x πυκνότητα της υγρής φάσης στους 50 °C.

## Προσθήκη Β.1α

211 251  
(συνεχ.)

Περιγραφή ύλης	Αριθ. είδους	Ελάχιστη πίεση δοκιμής για περιβλήματα		Μέγιστο βάρος περιεχομένων ανά λίτρο χωρητικότητας  kg
		με θερμική MPa	χωρίς μόνωση MPa	
βρωμοχλωροδιφθορομεθάνιο (R 12 B1)	3° (a)	1.0	1.0	1.61
χλωροδιφθορομεθάνιο (R 22)	3° (a)	2.4	2.6	1.03
χλωροπενταφθορομεθάνιο (R 115)	3° (a)	2.0	2.3	1.08
1-χλωρο-1,2,2,2- τετραφθοροαιθάνιο (R 124)	3° (a)	1	1.1	1.2
1-χλωρο-2,2,2-τριφθοροαιθάνιο (R 133a)	3° (a)	1.0	1.0	1.18
διχλωροδιφθορομεθάνιο (R 12)	3° (a)	1.5	1.6	1.15
διχλωροφθορομεθάνιο (R 21)	3° (a)	1.0	1.0	1.23
1,2-διχλωρο-1,1,2,2- τετραφθοροαιθάνιο (R 114)	3° (a)	1.0	1.0	1.30
οκταφθοροκυκλοβουτάνιο (RC 318)	3° (a)	1.0	1.0	1.34
1,1,1,2-τετραφθοροαιθάνιο (R 134a)	3° (a)	1.6	1.8	1.04
αμμωνία	3° (at)	2.6	2.9	0.53
χλώριο	3° (at)	1.7	1.9	1.25
εξαφθοροπροπυλένιο (R 1216)	3° (at)	1.7	1.9	1.11
υδροβρώμιο	3° (at)	5.0	5.5	1.54
μεθυλοβρωμίδιο	3° (at)	1.0	1.0	1.51
διοξείδιο του αζώτου NO <sub>2</sub>	3° (at)	1.0	1.0	1.30
φωσγένιο	3° (at)	1.5	1.7	1.23
διοξείδιο του θείου	3° (at)	1.0	1.2	1.23
βουτάνιο	3° (b)	1.0	1.0	0.51
1-βουτυλένιο	3° (b)	1.0	1.0	0.53
1-χλωρο-1,1-διφθοροαιθάνιο (R 142b)	3° (b)	1.0	1.0	0.99
cis-2-βουτυλένιο	3° (b)	1.0	1.0	0.55
κυκλοπροπάνιο	3° (b)	1.6	1.8	0.53

## Προσθήκη Β.1α

211 251  
(συνεχ.)

Περιγραφή ύλης	Αριθ. είδους	Ελάχιστη πίεση δοκιμής για περιβλήματα		Μέγιστο βάρος περιχομένων ανά λίτρο χωρητικότητας  kg
		με θερμική	χωρίς μόνωση	
		MPa	MPa	
1,1-διφθοροαιθάνιο (R 152a)	3° (b)	1.4	1.6	0.79
διμεθυλαιθέρας	3° (b)	1.4	1.6	0.58
ισοβουτάνιο	3° (b)	1.0	1.0	0.49
ισοβουτυλένιο	3° (b)	1.0	1.0	0.52
προπάνιο	3° (b)	2.1	2.3	0.42
προπυλένιο	3° (b)	2.5	2.7	0.43
trans-2-βουτυλένιο	3° (b)	1.0	1.0	0.54
1,1,1-τριφθοροαιθάνιο	3° (b)	2.8	3.2	0.79
διμεθυλαμίνη	3° (bt)	1.0	1.0	0.59
αιθυλαμίνη	3° (bt)	1.0	1.0	0.61
αιθυλοχλωρίδιο	3° (bt)	1.0	1.0	0.80
υδρόθειο	3° (bt)	4.5	5.0	0.67
μεθυλαμίνη	3° (bt)	1.0	1.1	0.58
μεθυλοχλωρίδιο	3° (bt)	1.3	1.5	0.81
μεθυλομερκαπτάνη	3° (bt)	1.0	1.0	0.78
τριμεθυλαμίνη	3° (bt)	1.0	1.0	0.56
1,2-βουταδιένιο	3° (c)	1.0	1.0	0.59
1,3-βουταδιένιο	3° (c)	1.0	1.0	0.55
βινυλοχλωρίδιο	3° (c)	1.0	1.1	0.81
μεθυλοβινυλαιθέρας	3° (ct)	1.0	1.0	0.67
τριφθοροχλωροαιθυλένιο (R 1113)	3° (ct)	1.5	1.7	1.13
βινυλοβρωμίδιο	3° (ct)	1.0	1.0	1.37
μείγμα F 1	4° (a)	1.0	1.1	1.23
μείγμα F 2	4° (a)	1.5	1.6	1.15
μείγμα F 3	4° (a)	2.4	2.7	1.03
μείγμα αερίων R 500	4° (a)	1.8	2.0	1.01
μείγμα αερίων R 502	4° (a)	2.5	2.8	1.05



## Προσθήκη Β.1α

211 251  
(συνεχ.)

Περιγραφή ύλης	Αριθ. είδους	Ελάχιστη πίεση δοκιμής για περιβλήματα		Μέγιστο βάρος περιεχομένων ανά λίτρο χωρητικότητας kg
		με θερμική MPa	χωρίς μόνωση MPa	
μείγματα 19 έως 21% κατά βάρος διγλωροδιφθορομεθάνιο (R 12) και 79 έως 81% κατά βάρος βρωμοχλωροδιφθορομεθάνιο (R 12 B1)	4° (a)	1.0	1.1	1.50
μείγματα μεθυλοβρωμιδίου και χλωροπικρίνης	4° (at)	1.0	1.0	1.51
μείγμα Α (εμπορική ονομασία: βουτάνιο)	4° (b)	1.0	1.0	0.50
μείγμα Α 0 (εμπορική ονομασία: βουτάνιο)	4° (b)	1.2	1.4	0.47
μείγμα Α 1	4° (b)	1.6	1.8	0.46
μείγμα Β	4° (b)	2.0	2.3	0.43
μείγμα C (εμπορική ονομασία: προπάνιο)	4° (b)	2.5	2.7	0.42
μείγματα υδρογονανθράκων περιέχοντα μεθάνιο	4° (b)	-	22.5 30.0	0.187 0.244
μείγματα μεθυλοχλωριδίου και μεθυλενοχλωριδίου	4° (bt)	1.3	1.5	0.81
μείγματα μεθυλοχλωριδίου και χλωροπικρίνης	4° (bt)	1.3	1.5	0.81
μείγματα μεθυλοβρωμιδίου και αιθυλενοβρωμιδίου	4° (bt)	1.0	1.0	1.51
μείγματα μεθολακετυλενίου /προπαδιενίου και υδρογονανθράκων				
μείγμα P <sub>1</sub>	4° (c)	2.5	2.8	0.49
μείγμα P <sub>2</sub>	4° (c)	2.2	2.3	0.47
μείγματα του 1,3-βουταδιενίου και υδρογονανθράκων του 3° (b)	4° (c)	1.0	1.0	0.50
αιθυλενοξείδιο περιέχον όχι περισσότερο από 10% διοξείδιο του άνθρακα κατά βάρος	4° (ct)	2.4	2.6	0.73
αιθυλενοξείδιο με άζωτο μέχρι ολικής πίεσεως 1 MPa (10 bar) στους 50 °C	4° (ct)	1.5	1.5	0.78

2020

Προσθήκη Β.1α

- (3) Για περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 5<sup>ο</sup> και 6<sup>ο</sup>:
- (a) εάν τα περιβλήματα δεν είναι επενδεδυμένα με θερμομόνωση: τα επίπεδα που αναφέρονται στο περιθωριακό 2220 (3) και (4)
  - (b) εάν τα περιβλήματα είναι επενδεδυμένα με θερμομόνωση κατά τα οριζόμενα στο περιθωριακό 211 234 (1): τα επίπεδα που αναφέρονται παρακάτω:

## Προσθήκη Β.1α

211 251  
(συνεχ.)

Περιγραφή ύλης	Αριθ. είδους	Ελάχιστη πίεση δοκιμής για περιβλήματα MPa	Μέγιστο βάρος περιεχομένων ανά λίτρο χωρητικότητας kg
βρωμοτριφθορομεθάνιο (R 13 B 1)	5° (a)	12.0	1.50
διοξείδιο του άνθρακα	5° (a)	19.0 22.5	0.73 0.78
χλωροτριφθορομεθάνιο (R 13)	5° (a)	12.0 22.5	0.96 1.12
εξαφθοροαιθάνιο (R 116)	5° (a)	16.0 20.0	1.28 1.34
πρωτοξειδίο του αζώτου (N <sub>2</sub> O)	5° (a)	22.5	0.78
πενταφθοροαιθάνιο (R 125)	5° (a)	3.4	0.95
εξαθειοφθορίδιο	5° (a)	12.0	1.34
τριφθορομεθάνιο (R 23)	5° (a)	19.0 25.0	0.92 0.99
ξένον	5° (a)	12.0	1.30
υδροχλώριο	5° (at)	12.0	0.69
αιθάνιο	5° (b)	12.0	0.32
αιθυλένιο	5° (b)	12.0 22.5	0.25 0.36
1,1-διφθοροαιθυλένιο	5° (c)	12.0 22.5	0.66 0.78
βινυλοφθορίδιο	5° (c)	12.0 22.5	0.58 0.65
μείγμα αερίων (R 503)	6° (a)	3.1 4.2 10.0	0.11 0.21 0.76
διοξείδιο του άνθρακα περιέχον όχι περισσότερο από 35% αιθυλενοξείδιο κατά βάρος	6° (c)	19.0 22.5	0.73 0.78
αιθυλενοξείδιο περιέχον περισσότερο από 10% αλλά όχι περισσότερο από 50% διοξείδιο του άνθρακα κατά βάρος	6° (ct)	19.0 25.0	0.66 0.75

Όπου χρησιμοποιούνται περιβλήματα επενδεδυμένα με θερμομόνωση τα οποία έχουν υποβληθεί σε πίεση δοκιμής χαμηλότερη της αναγραφόμενης στον πίνακα, το μέγιστο βάρος των περιεχομένων ανά λίτρο χωρητικότητας θα είναι τέτοιο ώστε η πίεση που αναπτύσσεται στο περιβλήμα από την εν λόγω ύλη στους 55 °C δεν υπερβαίνει την πίεση δοκιμής που αναγράφεται με σφραγίδα στο περιβλήμα. Σε αυτήν την περίπτωση το μέγιστο επιτρεπόμενο φορτίο θα καθορίζεται από τον ειδικό που θα έχει εγκρίνει η αρμόδια αρχή.

## Προσθήκη Β.1α

- 211 251** (συνεχ.) (4) Για περιβλήματα προοριζόμενα για τη μεταφορά αμμωνίας διαλυμένης υπό πίεση του 9° (at):

Περιγραφή ύλης	Αριθ. είδους	Ελάχιστη πίεση δοκιμής MPa	Μέγιστο βάρος περιεχομένων ανά λίτρο χωρητικότητας kg
αμμωνία διαλυμένη υπό πίεση στο νερό			
- με άνω του 35% αλλά όχι περισσότερο από 40% αμμωνία κατά βάρος	9° (at)	1.0	0.80
- με άνω του 40% αλλά όχι περισσότερο από 50% αμμωνία κατά βάρος	9° (at)	1.0	0.77

(5) Για περιβλήματα προοριζόμενα για την μεταφορά αερίων του 7° και 8°: όχι λιγότερο από 1.3 φορές τη μέγιστη επιτρεπόμενη πίεση εργασίας, κατά τα αναγραφόμενα στο περιβλήμα, αλλά όχι λιγότερο από 300 kPa (3 bar) (πίεση μετρητή) για περιβλήματα με μόνωση κενού η πίεση δοκιμής δεν θα είναι μικρότερη από 1.3 φορές την μέγιστη επιτρεπόμενη πίεση εργασίας προσωαυξημένη κατά 100 kPa (1 bar).

- 211 252** Η πρώτη δοκιμή υδραυλικής πίεσης θα διενεργείται πριν την τοποθέτηση της θερμομόνωσης.
- 211 253** Η χωρητικότητα κάθε περιβλήματος προοριζόμενου για τη μεταφορά αερίων του 3° έως 6° και 9° θα καθορίζεται, υπό την επίβλεψη ειδικού, εγκεκριμένου από την αρμόδια αρχή, με ζύγιση ή ογκομετρική μέτρηση της ποσότητας ύδατος που πληρώνει το περιβλήμα το τυχόν σφάλμα στη μέτρηση της χωρητικότητας του περιβλήματος θα είναι μικρότερο από 1%. Δεν επιτρέπεται ο καθορισμός με υπολογισμό βασισμένο στις διαστάσεις του περιβλήματος. Το μέγιστο επιτρεπόμενο βάρος πλήρωσης σύμφωνα με τα περιθωριακά 2220 (4) και 211 251 (3) θα καθορίζεται από εγκεκριμένο ειδικό.
- 211 254** Ο έλεγχος των συγκολλήσεων θα διενεργείται σύμφωνα με τις σχετικές με τον συντελεστή λάμδα 1.0 απαιτήσεις του περιθωριακού 211 127 (8).
- 211 255** Κατά παρέκκλιση από τις απαιτήσεις του περιθωριακού 211 151, οι περιοδικές δοκιμές θα γίνονται:
- (1) κάθε τρία έτη στην περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά τριφθοριούχου βορίου του 1° (at), αερίου πόλης του 2° (bt), υδροβρώμιου, χλώριου, διοξειδίου του αζώτου, διοξειδίου του θείου ή φωσγένιου του 3° (at), υδρόθειου του 3° (bt), ή υδροχλωρίου του 5° (at)
- (2) μετά από λειτουργία έξι ετών και εφεξής κάθε δώδεκα έτη στην περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά αερίων του 7° ή 8°. Έλεγχος στεγανότητας θα διενεργείται από εγκεκριμένο ειδικό έξι έτη μετά από κάθε περιοδική δοκιμή.
- 211 256** Στην περίπτωση περιβλημάτων με μόνωση κενού, η δοκιμή υδραυλικής πίεσης και ο έλεγχος της εσωτερικής κατάστασης μπορεί να αντικατασταθεί, με τη συναίνεση του εγκεκριμένου ειδικού, από έλεγχο στεγανότητας και μέτρηση του κενού.

## Προσθήκη Β.1α

- 211 257** Εάν έχουν γίνει ανοίγματα, κατά τις περιοδικές επιθεωρήσεις, σε περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 7° ή 8°, η μέθοδος με την οποία κλείνονται ερμητικά πριν τα περιβλήματα επανατεθούν σε λειτουργία θα εγκρίνεται από τον εγκεκριμένο ειδικό και θα εξασφαλίζουν την ακεραιότητα του περιβλήματος.
- 211 258** Δοκιμές στεγανότητας περιβλημάτων προοριζόμενων για τη μεταφορά αερίων του 1° έως 6° και 9° θα διενεργούνται σε πίεση όχι μικρότερη από 400 kPa (4 bar) και όχι μεγαλύτερη από 800 kPa (8 bar) (πίεση μετρητή).

211 259

## ΤΜΗΜΑ 6. Επισήμανση

**211 260** Τα ακόλουθα πρόσθετα στοιχεία θα επισημαίνονται με σφραγίδα ή με άλλη παρόμοια μέθοδο στην πινακίδα που προβλέπεται στο περιθωριακό 211 160, ή απευθείας στα τοιχώματα του ίδιου του περιβλήματος εάν τα τοιχώματα είναι ενισχυμένα κατά τρόπο ώστε να μην μειώνεται η αντοχή του περιβλήματος:

(1) Σε περιβλήματα προοριζόμενα για τη μεταφορά μόνο μίας ύλης:

- η πλήρης ονομασία του αερίου <sup>17/</sup>.

Η ένδειξη αυτή θα συμπληρώνεται στην περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά συμπιεσμένων αερίων του 1° και 2° με ένδειξη της μέγιστης επιτρεπόμενης για το περίβλημα πίεσης πλήρωσης στους 15 °C, και στην περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά υγροποιημένων αερίων του 3° έως 8° ή αμμωνίας διαλυμένης υπό πίεση του 9° (at) με ένδειξη του μέγιστου επιτρεπόμενου βάρους φορτώσεως σε kg και της θερμοκρασίας πλήρωσης εάν αυτή είναι κάτω των -20 °C

(2) Σε περιβλήματα πολλαπλών χρήσεων :

- οι πλήρεις ονομασίες <sup>17/</sup> των αερίων για τη μεταφορά των οποίων είναι εγκεκριμένο το περίβλημα.

Τα στοιχεία αυτά θα συμπληρώνονται με ένδειξη του μέγιστου επιτρεπόμενου βάρους φορτώσεως σε kg για κάθε αέριο

(3) Σε περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 7° ή 8°:

- η πίεση εργασίας και

(4) Σε περιβλήματα εξοπλισμένα με θερμομόνωση:

- η ένδειξη "θερμομονωμένα" ή "θερμομονωμένα με κενό".

**211 261** Το πλαίσιο οχήματος συστοιχίας θα φέρει πλησίον του σημείου πλήρωσης πινακίδα που θα αναγράφει:

- την πίεση δοκιμής των στοιχείων <sup>18/</sup>.

<sup>17/</sup> Οι περιγραφές που είναι υπογραμμισμένες στο περιθωριακό 2201 θα χρησιμοποιούνται ως η πλήρης ονομασία του αερίου για τα μείγματα A, A0 και C του 4□ (b) του περιθωριακού 2201. Τα εθμικά ονόματα του εμπορίου που αναφέρονται στην Σημείωση στο 4□ (b) του περιθωριακού 2201 μπορεί να χρησιμοποιούνται μόνον ως συμπλήρωμα.

<sup>18/</sup> Οι μονάδες μέτρησης πρέπει να εμφανίζονται μετά τις αριθμητικές τιμές.

## Προσθήκη Β.1α

- τη μέγιστη επιτρεπόμενη πίεση πλήρωσης <sup>18/</sup> στους 15 °C για στοιχεία προοριζόμενα για συμπιεσμένα αέρια
- τον αριθμό στοιχείων
- την ολική χωρητικότητα <sup>18/</sup> των στοιχείων
- την πλήρη ονομασία του αερίου <sup>19/</sup>.

και, στην περίπτωση υγροποιημένων αερίων:

- το μέγιστο επιτρεπόμενο φορτίο <sup>18/</sup> ανά στοιχείο.

**211 262** Επιπλέον των στοιχείων που προβλέπονται στο περιθωριακό 211 161, τα ακόλουθα θα αναγράφονται είτε στο ίδιο το περίβλημα είτε σε πινακίδα:

- (a) - είτε: "ελάχιστη επιτρεπόμενη θερμοκρασία πλήρωσης: -20 °C",  
- ή: "ελάχιστη επιτρεπόμενη θερμοκρασία πλήρωσης: ....."
- (b) όπου το περίβλημα προορίζεται για τη μεταφορά μόνο μίας ύλης:
  - η πλήρης ονομασία του αερίου <sup>19/</sup>.
  - για υγροποιημένα αέρια του 3° έως 8° και για αμμωνία διαλυμένη υπό πίεση σε νερό του 9° (at), το μέγιστο επιτρεπόμενο βάρος φόρτωσης σε kg
- (c) όπου το περίβλημα είναι περίβλημα πολλαπλών χρήσεων:
  - οι πλήρεις ονομασίες <sup>19/</sup> όλων των αερίων για τη μεταφορά των οποίων προορίζεται το περίβλημα, με ένδειξη του μέγιστου επιτρεπόμενου βάρους φόρτωσης σε kg για κάθε ένα από αυτά
- (d) όπου το περίβλημα είναι εξοπλισμένο με θερμομόνωση:

η ένδειξη "θερμομονωμένο" ή "θερμομονωμένο με κενό", σε μία επίσημη γλώσσα της χώρας προέλευσης και επίσης, εάν η γλώσσα αυτή δεν είναι η αγγλική, γαλλική ή γερμανική, σε μία από αυτές τις γλώσσες, εκτός εάν προβλέπεται διαφορετικά από συμφωνίες που έχουν συναφθεί μεταξύ των χωρών που αφορά τη μεταφορά.

**211 263** Τα στοιχεία αυτά δεν θα απαιτούνται στην περίπτωση οχήματος που μεταφέρει αποσυναρμολογούμενες δεξαμενές.

**211 264-**

**211 269**

<sup>19/</sup> Βλέπε υποσημείωση <sup>12/</sup>.

## Προσθήκη Β.1α

## ΤΜΗΜΑ 7. Λειτουργία

**211 270** Περιβλήμα που διατίθεται σε διαφορετικούς χρόνους για τη μεταφορά διαφορετικών υγροποιημένων αερίων του 3° έως 8° (περιβλήμα πολλαπλών χρήσεων) δεν μπορεί να μεταφέρει ύλες εκτός από εκείνες που αναγράφονται σε μία, και μόνο μία, από τις ακόλουθες ομάδες:

Ομάδα 1: αλογονωμένοι υδρογονάνθρακες του 3° (a) και 4° (a)

Ομάδα 2: υδρογονάνθρακες του 3° (b) και 4° (b)· βουταδιένια του 3° (c) και μείγματα του 1,3-βουταδιενίου και υδρογονάνθρακες, του 4° (c)

Ομάδα 3: αμμωνία του 3° (at)· διμεθυλαιθέρας του 3° (b)· διμεθυλαμίνη, αιθυλαμίνη, αιθυλαμίνη, μεθυλαμίνη και τριμεθυλαμίνη του 3° (bt) και βινυλοχλωρίδιο του 3° (c)

Ομάδα 4: μεθυλοβρωμίδιο του 3° (at)· αιθυλοχλωρίδιο και μεθυλοχλωρίδιο του 3° (bt)

Ομάδα 5: μείγματα αιθυλενοξειδίου με διοξείδιο του άνθρακα και αιθυλενοξειδίου με άζωτο του 4°(ct)

Ομάδα 6: άζωτο, διοξείδιο του άνθρακα, ευγενή αέρια, πρωτοξειδιο του αζώτου  $N_2O$ , και οξυγόνο του 7° (a)· αέρας, μείγματα αζώτου με ευγενή αέρια, και μείγματα οξυγόνου με άζωτο, επίσης όταν περιέχουν ευγενή αέρια, του 8° (a)

Ομάδα 7: αιθάνιο, αιθυλένιο, και μεθάνιο του 7° (b) και μείγματα μεθανίου με αιθάνιο, επίσης όταν περιέχουν προπάνιο ή βουτάνιο, του 8° (b).

**211 271** Περιβλήματα που έχουν πληρωθεί με ύλη της ομάδας 1 ή ομάδας 2 θα κενώνονται από υγροποιημένο αέριο πριν φορτωθούν με άλλη ύλη της ίδιας ομάδας. Περιβλήματα που έχουν πληρωθεί με ύλη των ομάδων 3 έως 7 θα κενώνονται εντελώς από υγροποιημένο αέριο και κατόπιν θα διοχετεύεται αέρας πριν τη φόρτωση με άλλη ύλη της ίδιας ομάδας.

**211 272** Η πολλαπλή χρήση περιβλημάτων για τη μεταφορά υγροποιημένων αερίων της ίδιας ομάδας θα επιτρέπεται εάν τηρούνται όλες οι προβλεπόμενες απαιτήσεις για τα αέρια προς μεταφορά σε ένα και το αυτό περιβλήμα. Αυτή η πολλαπλή χρήση θα υπόκειται σε έγκριση από εγκεκριμένο ειδικό.

**211 273** Η πολλαπλή χρήση περιβλημάτων για την μεταφορά αερίων διαφορετικών ομάδων θα επιτρέπεται εάν δοθεί άδεια από τον εγκεκριμένο ειδικό.

Όταν περιβλήματα αναδιατίθενται σε αέρια διαφορετικής ομάδας, τα περιβλήματα θα κενώνονται εντελώς από υγροποιημένα αέρια, κατόπιν θα διοχετεύεται αέρας και, τέλος, θα απαερώνονται. Η απαέρωση των περιβλημάτων θα ελέγχεται και θα πιστοποιείται από τον εγκεκριμένο ειδικό.

**211 274** Όταν φορτωμένες δεξαμενές ή κενές πλην ακαθάριστες δεξαμενές παραδίδονται για μεταφορά, μόνο τα στοιχεία που αναφέρονται στο περιθωριακό 211 262 εφαρμόσιμα στο φορτωνόμενο ή μόλις εκφορτωθέν αέριο θα είναι ορατά· όλα τα στοιχεία που αφορούν άλλα αέρια θα είναι καλυμμένα.

**211 275** Όλα τα στοιχεία οχήματος συστοιχίας θα περιέχουν μόνο ένα και το αυτό αέριο. Στην περίπτωση οχήματος συστοιχίας προοριζόμενου για τη μεταφορά υγροποιημένων αερίων του 3° έως 6°, τα στοιχεία θα πληρούνται χωριστά και θα κρατούνται απομονωμένα με σφραγισμένη βαλβίδα.

## Προσθήκη Β.1α

**211 276** Η μέγιστη πίεση πλήρωσης για συμπιεσμένα αέρια του 1° και 2° εκτός από τριφθοριούχο βόριο δεν θα υπερβαίνουν τις τιμές που προβλέπονται στο περιθωριακό 2219 (2).

Για τριφθοριούχο βόριο του 1° (at) το μέγιστο βάρος πλήρωσης ανά λίτρο χωρητικότητας δεν θα υπερβαίνει τα 0.86 kg.

Το μέγιστο βάρος πλήρωσης ανά λίτρο χωρητικότητας σύμφωνα με τα περιθωριακά 2220, (2), (3) και (4), και 211 251, (2), (3) και (4), θα τηρείται απόλυτα.

**211 277** Ο βαθμός πλήρωσης περιβλημάτων προοριζόμενων για τη μεταφορά αερίων του 7° (b) και 8° (b) θα παραμένει κάτω από το επίπεδο στο οποίο, εάν τα περιεχόμενα έχουν θερμανθεί στη θερμοκρασία στην οποία η πίεση ατμών ισούται με την πίεση ανοίγματος της βαλβίδας ασφαλείας, ο όγκος του υγρού θα έφθανε το 95% της χωρητικότητας του περιβλήματος σε αυτή τη θερμοκρασία. Περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 7° (a) και 8° (a) μπορεί να πληρούνται στο 98% της θερμοκρασίας φόρτωσης και της πίεσης φόρτωσης.

**211 278** Σε περιβλήματα προοριζόμενα για τη μεταφορά πρωτοξειδίου του αζώτου και οξυγόνου του 7° (a), αέρα ή μειγμάτων περιεχόντων οξυγόνο του 8° (a), δεν θα χρησιμοποιούνται ύλες περιέχουσες γράσο ή λάδι για να εξασφαλίζεται η στεγανότητα των αρμών ή για τη συντήρηση των κλεισμάτων.

**211 279** Η απαίτηση στο περιθωριακό 211 175 δεν θα έχει εφαρμογή σε αέρια του 7° και 8°.

**211 280-**

**211 299**



## Προσθήκη Β.1α

## ΚΛΑΣΗ 3. ΕΥΦΛΕΚΤΑ ΥΓΡΑ

211 300-  
211 309

## ΤΜΗΜΑ 1. Γενικά πλαίσιο (χρήση δεξαμενών) ορισμοί

## Χρήση

211 310 Οι ακόλουθες ύλες του περιθωριακού 2301 μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές:

- (a) προπυλενιμίνη, αδρανής του 2<sup>ο</sup>
- (b) ύλες ταξινομημένες υπό το (a) του 11°, 14° έως 22°, 26° και 27°, 41° έως 57°
- (c) ύλες ταξινομημένες υπό το (b) του 11°, 14° έως 27°, 41° έως 57°, και ύλες του 32° και 33°
- (d) ύλες του 1° έως 5°, 31°, 34° και 61° (c), εξαιρουμένου του νιτρικού ισοπροπυλεστέρα, n-νιτρικού προπυλεστέρα και νιτρομεθανίου του 3<sup>ο</sup> (b).

211 311-  
211 319

## ΤΜΗΜΑ 2. Κατασκευή

211 320 Περιβλήματα προοριζόμενα για τη μεταφορά αδρανούς προπυλενιμίνης του 12° θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 1.5 MPa (15 bar) (πίεση μετρητή).

211 321 Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (b) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 1.0 MPa (10 bar) (πίεση μετρητή).

211 322 Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (c) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή).

211 323 Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (d) θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους I της παρούσης Προσθήκης.

211 324-  
211 329

## Προσθήκη Β.1α

**ΤΜΗΜΑ 3. Είδη εξοπλισμού**

- 211 330** Όλα τα ανοίγματα των περιβλημάτων που προορίζονται για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (α) και (β) θα είναι επάνω από τη στάθμη της επιφανείας του υγρού. Δεν θα διέρχονται σωλήνες ή συνδέσεις σωληνώσεων μέσα από τα τοιχώματα του περιβλήματος κάτω από την στάθμη της επιφανείας του υγρού. Τα περιβλήματα θα μπορούν να κλειστούν ερμητικά <sup>20/</sup> και τα κλεισίματα θα μπορούν να προστατεύονται με πάματα που κλειδώνουν.
- 211 331** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (ε) και (δ) μπορεί να είναι επίσης του τύπου εκκενώσεως από τον πυθμένα. Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (ε), εκτός από εκείνες του 33°, θα μπορούν να κλειστούν ερμητικά <sup>20/</sup>.
- 211 332** Εάν περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (α) και (β) ή (ε), εκτός από εκείνες του 33°, είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται εκρηγνύομενος δίσκος μπροστά από τη βαλβίδα. Η διεύθεση του εκρηγνύομενου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοιος ώστε να ικανοποιεί την αρμόδια αρχή. Εάν περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (δ) είναι εξοπλισμένα με βαλβίδες ασφαλείας ή σύστημα εξαερισμού, εκείνα θα πληρούν τις απαιτήσεις των περιθωριακών 211 133 έως 211 135.

Εάν περιβλήματα προοριζόμενα για τη μεταφορά των υλών του 33° είναι εξοπλισμένα με βαλβίδες ασφαλείας, αυτές θα πληρούν τις απαιτήσεις των περιθωριακών 211 134 και 211 135.

Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (δ) οι οποίες έχουν σημείο ανάφλεξης που δεν υπερβαίνει τους 61 °C και εξοπλισμένα με σύστημα εξαερισμού που δεν μπορεί να κλειστεί θα έχουν φλογοπαγίδα στο σύστημα εξαερισμού.

211 333-

211 339

**ΤΜΗΜΑ 4. Έγκριση τύπου**

211 340-

211 349 (Δεν υπάρχουν ειδικές απαιτήσεις)

**ΤΜΗΜΑ 5. Δοκιμές**

- 211 350** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (α), (β) ή (ε) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή όχι μικρότερη από 400 kPa (4 bar).
- 211 351** Περιβλήματα προοριζόμενα για την μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (δ) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού τους κατά τα οριζόμενα στο περιθωριακό 211 123.

211 352-

211 359

<sup>20/</sup> Βλέπε υποσημείωση <sup>2/</sup>.

## Προσθήκη Β.1α

**ΤΜΗΜΑ 6. Επισήμανση**

- 211 360-  
211 369 (Δεν υπάρχουν ειδικές απαιτήσεις)

**ΤΜΗΜΑ 7. Λειτουργία**

- 211 370 Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 310 (a), (b) και (c) πλην εκείνων του 33° θα είναι ερμητικά κλειστά<sup>21/</sup> κατά τη μεταφορά. Τα κλεισίματα των περιβλημάτων που προορίζονται για τη μεταφορά των υλών που αναφέρονται στο 211 310 (a) και (b) θα προστατεύονται με πόμα που κλειδώνει.
- 211 371 Οχήματα-δεξαμενές και αποσυναρμολογούμενες δεξαμενές εγκεκριμένες για τη μεταφορά υλών του 11°, 12°, 14° έως 20°, 27°, 32° και 41° έως 57° δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, αντικειμένων κατανάλωσης ή ζωοτροφών.
- 211 372 Δεν θα χρησιμοποιείται περίβλημα από κράμα αλουμινίου για τη μεταφορά ακεταλδεΐδης του 1° (a) εκτός εάν το περίβλημα χρησιμοποιείται αποκλειστικά για τέτοιου είδους μεταφορά και η ακεταλδεΐδη είναι απαλλαγμένη από οξύ.
- 211 373 Η βενζίνη που αναφέρεται στη Σημείωση στο 3° (b) του περιθωριακού 2301 μπορεί να μεταφέρεται επίσης σε δεξαμενές που σχεδιάζονται σύμφωνα με το περιθωριακό 211 123 (1) και έχουν εξοπλισμό σύμφωνα με το περιθωριακό 211 133.

- 211 374-  
211 379

**ΤΜΗΜΑ 8. Μεταβατικά μέτρα**

- 211 380 Σταθερές δεξαμενές (οχήματα-δεξαμενές) και αποσυναρμολογούμενες δεξαμενές προοριζόμενες για τη μεταφορά υλών του 32° και 33° του περιθωριακού 2301, κατασκευασμένες σύμφωνα με τις απαιτήσεις αυτής της Προσθήκης που είχαν εφαρμογή πριν την 1η Ιανουαρίου 1995, αλλά που, εντούτοις, δεν συμφωνούν με τις απαιτήσεις που έχουν εφαρμογή από 1ης Ιανουαρίου 1995, μπορεί να εξακολουθούν να χρησιμοποιούνται έως την 31η Δεκεμβρίου 2000.

- 211 381-  
211 399

<sup>21/</sup> Βλέπε υποσημείωση 7/.

**ΚΛΑΣΗ 4.1. ΕΥΦΛΕΚΤΑ ΣΤΕΡΕΑ**

**ΚΛΑΣΗ 4.2. ΥΛΕΣ ΥΠΟΚΕΙΜΕΝΕΣ ΣΕ ΑΥΤΟΓΕΝΗ ΑΝΑΦΛΕΞΗ**

**ΚΛΑΣΗ 4.3. ΥΛΕΣ ΟΙ ΟΠΟΙΕΣ, ΕΡΧΟΜΕΝΕΣ ΣΕ ΕΠΑΦΗ ΜΕ ΤΟ ΝΕΡΟ, ΕΚΠΕΜΠΟΥΝ ΕΥΦΛΕΚΤΑ ΑΕΡΙΑ**

211 400-  
211 409

**ΤΜΗΜΑ 1. Γενικά πλαίσιο (χρήση δεξαμενών) ορισμοί**

**Χρήση**

**211 410** Οι ακόλουθες ύλες των περιθωριακών 2401, 2431 και 2471 μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές:

- (a) οι ύλες που έχουν καταχωρηθεί υπό το γράμμα (a) των 6°, 17°, 19° και 31° έως 33° του περιθωριακού 2431
- (b) οι ύλες των 11° (a) και 22° του περιθωριακού 2431
- (c) οι ύλες που έχουν καταχωρηθεί υπό το γράμμα (a) των 1°, 2°, 3°, 21°, 23° και 25° του περιθωριακού 2471
- (d) οι ύλες του 11° (a) του περιθωριακού 2471
- (e) οι ύλες που έχουν καταχωρηθεί υπό το γράμμα (b) ή (c) των 6°, 8°, 10°, 17°, 19° και 21° του περιθωριακού 2431 και των 3°, 21°, 23° και 25° του περιθωριακού 2471
- (f) οι ύλες των 5° και 15° του περιθωριακού 2401
- (g) κωνώδεις και κοκκώδεις ύλες καταχωρημένες υπό το γράμμα (b) ή (c) των:
  - 1°, 6°, 7°, 8°, 11°, 12°, 13°, 14°, 16° και 17° του περιθωριακού 2401,
  - 1°, 5°, 7°, 9°, 12°, 13°, 14°, 15°, 16°, 18° και 20° του περιθωριακού 2431,
  - 11°, 12°, 13°, 14°, 15°, 16°, 17°, 19°, 20°, 22° και 24° του περιθωριακού 2471.

**ΣΗΜΕΙΩΣΗ:** Για την μεταφορά χύμα υλών των:

4° (c), 6° (c), 11° (c), 12° (c), 13° (c) και 14° (c) και στερεών αποβλήτων ταξινομημένων υπό το (c) αυτών των ειδών του περιθωριακού 2401,

1° (c), 2° (c), 3° (c), 12° (c) και 16° (c) και στερεών αποβλήτων ταξινομημένων υπό το (c) αυτών των ειδών του περιθωριακού 2431,

11° (c), 12° (c), 13° (b) και (c), 14° (c), 15° (c), 17° (b) και 20° (c) του περιθωριακού 2471,

βλέπε περιθωριακά 41 111, 42 111 και 43 111.

## Προσθήκη Β.1α

211 411-  
211 419

**ΤΜΗΜΑ 2. Κατασκευή**

**211 420** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (a) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 2.1 MPa (21 bar) (πίεση μετρητή).

Οι απαιτήσεις της Προσθήκης Β.1d έχουν εφαρμογή στα υλικά και την κατασκευή αυτών των περιβλημάτων.

**211 421** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (b), (c) και (d) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 1 MPa (10 bar) (πίεση μετρητή).

**211 422** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (e) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή).

**211 423** Περιβλήματα προοριζόμενα για τη μεταφορά των στερεών που αναφέρονται στο περιθωριακό 211 410 (f) και (g) θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους Ι της παρούσης Προσθήκης.

**211 424** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του περιθωριακού 2431, 1° (b) θα συνδέονται με όλα τα μέρη του οχήματος με ισοδυναμικές συνδέσεις και θα είναι σε θέση να γειωθούν ηλεκτρικά.

211 425-  
211 429

**ΤΜΗΜΑ 3. Είδη εξοπλισμού**

**211 430** Όλα τα ανοίγματα των περιβλημάτων που προορίζονται για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (a), (b), (c) και (e) θα είναι επάνω από τη στάθμη της επιφάνειας του υγρού. Σωληνώσεις ή συνδέσεις σωληνώσεων δεν θα διαπερνούν τα τοιχώματα του περιβλήματος κάτω από τη στάθμη της επιφάνειας του υγρού. Τα περιβλήματα θα μπορούν να κλείνονται ερμητικά <sup>22/</sup> και το κλείσιμο θα μπορεί να προστατεύεται με πάματα που κλειδώνουν. Δεν θα επιτρέπονται ανοίγματα καθαρισμού κατά τα αναφερόμενα στο περιθωριακό 211 132.

**211 431** Με την εξαίρεση περιβλημάτων προοριζόμενων για τη μεταφορά καυσίου και ρουβιδίου του περιθωριακού 2471, 11° (a), περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 410 (d), (f) και (g) μπορεί επίσης να είναι του τύπου εκκένωσης από τον πυθμένα. Τα ανοίγματα περιβλημάτων προοριζόμενων για τη μεταφορά καυσίου και ρουβιδίου του περιθωριακού 2471, 11° (a) θα είναι εξοπλισμένα με πάματα που κλείνουν ερμητικά <sup>22/</sup> και κλειδώνουν.

**211 432** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (b) θα ικανοποιούν επιπλέον τις ακόλουθες απαιτήσεις:

<sup>22/</sup> Βλέπε υποσημείωση <sup>2/</sup>

## Προσθήκη Β.1α

- 211 432** (συνεχ.) (1) Η συσκευή θέρμανσης δεν θα διεισδύει στο σώμα του περιβλήματος, αλλά θα είναι εξωτερική ως προς αυτό. Εντούτοις, σωλήνωση που χρησιμοποιείται για την εξαγωγή του φωσφόρου μπορεί να είναι εξοπλισμένη με θερμαντικό χιτώνιο. Η συσκευή που θερμαίνει το χιτώνιο θα είναι ρυθμισμένη έτσι ώστε να μην επιτρέπει στη θερμοκρασία του φωσφόρου να υπερβεί την θερμοκρασία πλήρωσης του περιβλήματος. Οι λουπές σωληνώσεις θα εισέρχονται στο περίβλημα στο άνω μέρος αυτού· τα ανοίγματα θα είναι τοποθετημένα επάνω από την ανώτερη επιτρεπόμενη στάθμη του φωσφόρου και θα μπορούν να περικλείονται εντελώς με πώματα που κλειδώνουν. Επιπλέον, τα ανοίγματα καθαρισμού που αναφέρονται στο περιθωριακό 211 132 δεν θα επιτρέπονται.
- (2) Το περίβλημα θα είναι εξοπλισμένο με σύστημα μετρητών για να εξακριβώνεται η στάθμη του φωσφόρου και, εάν χρησιμοποιείται νερό ως μέσο προστασίας, με σταθερό σημείο μετρήσεως που θα δείχνει την ανώτατη επιτρεπόμενη στάθμη νερού.
- 211 433** Εάν περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (a), (c) και (e) είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται εκρηγνύομενος δίσκος μπροστά από τη βαλβίδα. Η διευθέτηση του εκρηγνύομενου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή.
- 211 434** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (f) θα είναι εξοπλισμένα με θερμομόνωση κατασκευασμένη από υλικά που δεν αναφλέγονται εύκολα.
- 211 435** Εάν περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 410 (d) είναι εξοπλισμένα με θερμομόνωση, η μόνωση αυτή θα είναι κατασκευασμένη από υλικά που δεν αναφλέγονται εύκολα.
- 211 436** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (f) μπορεί να είναι εξοπλισμένα με βαλβίδες που ανοίγουν αυτομάτως προς τα μέσα ή προς τα έξω συνεπεία διαφοράς των πιέσεων από 20 kPa έως 30 kPa (0.2 bar και 0.3 bar).

**211 437-  
211 439**

**ΤΜΗΜΑ 4. Έγκριση τύπου**

**211 440-  
211 449** (Δεν υπάρχουν ειδικές απαιτήσεις.)

**ΤΜΗΜΑ 5. Δοκιμές**

- 211 450** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (a) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή τουλάχιστον 1 MPa (10 bar). Τα υλικά καθενός από αυτά τα περιβλήματα θα δοκιμάζονται με τη μέθοδο που περιγράφεται στην Προσθήκη Β.1d.
- 211 451** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (b) έως (e) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή τουλάχιστον 400 kPa (4 bar).

Κατά παρέκκλιση από τις απαιτήσεις του περιθωριακού 211 151, περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 410 (d) θα υποβάλλονται σε περιοδικές επιθεωρήσεις τουλάχιστον κάθε οκτώ έτη, οι οποίες θα περιλαμβάνουν έλεγχο πάχους χρησιμοποιώντας τα κατάλληλα όργανα. Για τέτοια περιβλήματα, η δοκιμή και ο έλεγχος στεγανότητας, για τα οποία γίνεται πρόβλεψη στο περιθωριακό 211 152, θα διενεργούνται τουλάχιστον κάθε τέσσερα έτη.

## Προσθήκη Β.1α

**211 452** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (f) και (g) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση υπολογισμού κατά τα οριζόμενα στο περιθωριακό 211 123.

**211 453-  
211 459**

**ΤΜΗΜΑ 6. Επισήμανση**

**211 460** Περιβλήματα προοριζόμενα για την μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 410 (a) θα φέρουν, επιπλέον των στοιχείων που προβλέπονται στο περιθωριακό 211 161, τις εξής λέξεις: "Μην ανοίγετε κατά τη μεταφορά. Υπόκειται σε αυτογενή ανάφλεξη."

Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο 211 410 (c) έως (e) θα φέρουν επιπλέον των στοιχείων που προβλέπονται στο περιθωριακό 211 161, τις εξής λέξεις:

"Μην ανοίγετε κατά την μεταφορά. Αναδίδει εύφλεκτα αέρια κατά την επαφή με το νερό."

Τα στοιχεία αυτά θα αναγράφονται σε επίσημη γλώσσα της χώρας εγκρίσεως, και επίσης, εάν η γλώσσα αυτή δεν είναι η αγγλική, γαλλική ή γερμανική, σε μία από αυτές τις γλώσσες, εκτός εάν προβλέπεται διαφορετικά σε τυχόν συμφωνίες που έχουν συναφθεί μεταξύ των χωρών που αφορά η μεταφορά.

**211 461** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του περιθωριακού 2471, 1° (a) θα φέρουν επίσης, στην πινακίδα που προβλέπεται στο περιθωριακό 211 160, τα ονόματα των εγκεκριμένων υλών και το μέγιστο επιτρεπόμενο φορτίο του περιβλήματος σε kg.

**211 462-  
211 469**

**ΤΜΗΜΑ 7. Λειτουργία**

**211 470** (1) Υλεις των 11° και 22° του περιθωριακού 2431 θα καλύπτονται, εάν χρησιμοποιείται νερό ως μέσο προστασίας, με νερό ύψους όχι μικρότερο από 12 cm κατά την πλήρωση<sup>1</sup> ο βαθμός πλήρωσης σε θερμοκρασία 60 °C δεν θα υπερβαίνει το 98%. Εάν χρησιμοποιείται άζωτο ως προστατευτικό μέσο, ο βαθμός πλήρωσης σε θερμοκρασία 60 °C δεν θα υπερβαίνει το 96%. Το υπολειπόμενο κενό θα πληροῦται με άζωτο κατά τρόπο ώστε, ακόμη και μετά την ψύξη, η πίεση να μην πέφτει ποτέ κάτω από την ατμοσφαιρική πίεση. Το περιβλημα θα είναι ερμητικά κλειστό<sup>23/</sup> ώστε να μην συμβαίνει διαρροή αερίου.

(2) Ακαθάριστα κενά περιβλήματα που περιείχαν ύλεις των 11° και 22° του περιθωριακού 2431, όταν παραδίδονται για μεταφορά, θα πρέπει:

- είτε να είναι γεμάτα με άζωτο ή
- να είναι γεμάτα με νερό σε ποσοστό όχι μικρότερο από 96% και όχι μεγαλύτερο από 98% της χωρητικότητάς τους μεταξύ 1ης Οκτωβρίου και 31ης Μαρτίου, το νερό αυτό θα περιέχει επαρκή ποσότητα αντιψυκτικού μέσου ώστε να καταστεί αδύνατο να παγώσει το νερό κατά τη μεταφορά το αντιψυκτικό μέσο θα είναι απαλλαγμένο από διαβρωτική δράση και δεν θα υπόκειται σε χημική αντίδραση με το φωσφόρο.

<sup>23/</sup>

Βλέπε υποσημείωση Z'

## Προσθήκη Β.1α

**211 471** Περιβλήματα που περιέχουν ύλες των 31° έως 33° του περιθωριακού 2431 και ύλες των 2° (a), 3° (a) και 3° (b) του περιθωριακού 2471 θα πληρούνται σε ποσοστό όχι μεγαλύτερο από 90% της χωρητικότητάς τους· χώρος σε ποσοστό 5% θα παραμένει κενός για λόγους ασφάλειας όταν το υγρό έχει μέση θερμοκρασία 50 °C. Κατά τη μεταφορά, οι ύλες θα είναι κάτω από στρώμα αδρανούς αερίου, του οποίου η πίεση μετρητή δεν θα είναι μικρότερη από 50 kPa (0.5 bar). Τα περιβλήματα θα είναι ερμητικά κλειστά <sup>23/</sup> και τα προστατευτικά πάματα σύμφωνα με το περιθωριακό 211 430 θα είναι κλειδωμένα. Ακαθάριστα κενά περιβλήματα, όταν παραδίδονται για μεταφορά, θα είναι γεμάτα με αδρανές αέριο σε πίεση μετρητή τουλάχιστον 50 kPa (0.5 bar).

**211 472** Για αιθυλοδιχλωροσιλάνιο, μεθυλοδιχλωροσιλάνιο και τριχλωροσιλάνιο του περιθωριακού 2471, 1°, ο βαθμός πλήρωσης δεν θα υπερβαίνει τα 0.93 ή 0.95 ή 1.14 kg ανά λίτρο χωρητικότητας αντίστοιχα, εάν η πλήρωση υπολογίζεται κατά βάρος. Εάν η πλήρωση υπολογίζεται κατ'όγκο, και για χλωροσιλάνια που δεν αναφέρονται ονομαστικά (ε.α.ο.) του περιθωριακού 2471, 1°, ο βαθμός πλήρωσης δεν θα υπερβαίνει το 85%. Τα περιβλήματα θα είναι ερμητικά κλειστά <sup>24/</sup> και τα προστατευτικά πάματα σύμφωνα με το περιθωριακό 211 430 θα είναι κλειδωμένα.

**211 473** Περιβλήματα που περιέχουν ύλες του περιθωριακού 2401, 5° και 15°, δεν θα πληρούνται σε ποσοστό μεγαλύτερο από 98% της χωρητικότητάς τους.

**211 474** Για τη μεταφορά καυσίου και ρουβιδίου του περιθωριακού 2471, 11° (a), η ύλη θα καλύπτεται με αδρανές αέριο και τα πάματα σύμφωνα με το περιθωριακό 211 431 θα είναι κλειδωμένα. Περιβλήματα που περιέχουν άλλες ύλες του περιθωριακού 2471, 11° (a), δεν θα είναι παραδίδονται για μεταφορά μέχρις ότου η ύλη έχει εντελώς στερεοποιηθεί και καλυφθεί με αδρανές αέριο.

Ακαθάριστα κενά περιβλήματα τα οποία περιείχαν ύλες του περιθωριακού 2471, 11° (a) θα πληρούνται με αδρανές αέριο. Τα περιβλήματα θα είναι ερμητικά κλειστά.

**211 475** Όποτε φορτώνονται ύλες του περιθωριακού 2431, 1° (b), η θερμοκρασία των εμπορευμάτων που φορτώνονται δεν θα υπερβαίνει τους 60 °C.

**211 476-**

**211 499**



**ΚΛΑΣΗ 5.1. ΟΞΕΙΔΩΤΙΚΕΣ ΥΛΕΣ****ΚΛΑΣΗ 5.2. ΟΡΓΑΝΙΚΑ ΥΠΕΡΟΞΕΙΔΙΑ**211 500-  
211 509**ΤΜΗΜΑ 1. Γενικά πλαίσιο (χρήση δεξαμενών) ορισμοί****Χρήση**

**211 510** Οι ακόλουθες ύλες του περιθωριακού 2501 μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές:

- (a) ύλες του 5°
- (b) ύλες καταχωρημένες υπό το γράμμα (a) ή (b) των 1° έως 4°, 11°, 13°, 16°, 17°, 22° και 23°, μεταφερόμενες σε υγρή κατάσταση
- (c) υγρό νιτρικό αμμώνιο του 20°
- (d) ύλες καταχωρημένες υπό το γράμμα (c) των 1°, 16°, 18°, 22° και 23°, μεταφερόμενες σε υγρή κατάσταση
- (e) ύλες σε κωνιάδη ή κοκκώδη μορφή καταχωρημένες υπό το γράμμα (b) ή (c) των 11°, 13° έως 19°, 21° έως 27°, 29° έως 31°.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά χύμα υλών των 11° έως 13°, 16°, 18°, 19°, 21° και 22° (c), και στερεών αποβλήτων ταξινομημένων στα προαναφερόμενα είδη του περιθωριακού 2501, βλέπε περιθωριακό 51 111.

**211 511** Υλες των 9° (b), 10° (b), 19° (b) ή 20° (b) του περιθωριακού 2551 μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές το αργότερο από 1ης Ιανουαρίου 1995 υπό τους όρους που θέτει η αρμόδια αρχή της χώρας προέλευσης εάν, βάσει δοκιμών (βλέπε περιθωριακό 211 541), η αρμόδια αρχή πεισθεί ότι μια τέτοια μεταφορική εργασία μπορεί να διεξαχθεί με ασφάλεια.

211 512-  
211 519**ΤΜΗΜΑ 2. Κατασκευή**

**211 520** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 510 (a) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] τουλάχιστον 1 MPa (10 bar) (πίεση μετρητή).

**211 521** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 510 (b) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] τουλάχιστον 400 kPa (4 bar) (πίεση μετρητή). Περιβλήματα, και τα είδη εξοπλισμού αυτών, προοριζόμενα για τη μεταφορά υλών του 1° θα είναι κατασκευασμένα από αλουμίνιο καθαρότητας όχι μικρότερης από 99.5% ή από κατάλληλο χάλυβα ο οποίος δεν θα είναι σε θέση να προκαλέσει την αποσύνθεση του υπεροξειδίου του υδρογόνου. Όπου τα περιβλήματα είναι κατασκευασμένα από αλουμίνιο καθαρότητας όχι μικρότερης από 99.5%, το πάχος του τοιχώματος δεν χρειάζεται να είναι μεγαλύτερο από 15 mm, ακόμη και όπου ο υπολογισμός σύμφωνα με το περιθωριακό 211 127 (2) δίνει υψηλότερη τιμή.

**211 522** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 510 (c) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] τουλάχιστον 400 kPa (4 bar) (πίεση μετρητή). Τα περιβλήματα θα είναι κατασκευασμένα από ωστενιτικό χάλυβα.

## Προσθήκη Β.1α

**211 523** Περιβλήματα προοριζόμενα για τη μεταφορά των υγρών που αναφέρονται στο περιθωριακό 211 510 (d) και τις κονιώδεις ή κοκκώδεις ύλες που αναφέρονται στο περιθωριακό 211 510 (e) θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους Ι της παρούσης Προσθήκης.

**211 524** Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511 θα σχεδιάζονται για πίεση υπολογισμού τουλάχιστον 400 kPa (4 bar) (πίεση μετρητή).

**211 525-**

**211 529**

### ΤΜΗΜΑ 3. Είδη εξοπλισμού

**211 530** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 1° (a), 3° (a) και 5° του περιθωριακού 2501 θα έχουν τα ανοίγματά τους επάνω από την στάθμη της επιφάνειας του υγρού. Επιπλέον, τα ανοίγματα καθαρισμού (fist holes) που αναφέρονται στο περιθωριακό 211 132 δεν θα επιτρέπονται.

Για διαλύματα περιέχοντα περισσότερο από 60% αλλά όχι περισσότερο από 70% υπεροξειδίου του υδρογόνου, θα επιτρέπονται ανοίγματα κάτω από την στάθμη της επιφάνειας του υγρού. Στην περίπτωση αυτή το σύστημα εκκένωσης του περιβλήματος θα είναι εξοπλισμένο με δύο ανεξάρτητες μεταξύ τους συσκευές κλεισίματος συναρμολογημένες σε σειρά, η πρώτη με τη μορφή εσωτερικής βαλβίδας κλεισίματος ταχείας λειτουργίας, εγκεκριμένου τύπου, και η δεύτερη με τη μορφή βαλβίδας εκροής, μία σε κάθε άκρο του σωλήνα εκκένωσης. Ένα κενό παρέμβυσμα (φλάντζα), ή άλλη συσκευή που παρέχει τον ίδιο βαθμό ασφαλείας, θα είναι επίσης τοποθετημένο στην έξοδο κάθε εξωτερικής βαλβίδας εκροής. Η εσωτερική βαλβίδα κλεισίματος θα είναι τέτοια ώστε, εάν η σωλήνωση ξεβιδωθεί, η βαλβίδα κλεισίματος να παραμένει ακέραια μαζί με το περίβλημα και σε κλειστή θέση. Οι συνδέσεις με τα εξωτερικά στόμια των σωλήνων των περιβλημάτων θα κατασκευάζονται από υλικά που δεν είναι σε θέση να προκαλέσουν αποσύνθεση του υπεροξειδίου του υδρογόνου.

**211 531**

**211 532** Περιβλήματα προοριζόμενα για τη μεταφορά υπεροξειδίου του υδρογόνου ή υδατικών διαλυμάτων του υπεροξειδίου του υδρογόνου του 1°, ή τη μεταφορά υγρού νιτρικού αμμωνίου του 20° του περιθωριακού 2501 θα είναι εξοπλισμένα στο άνω μέρος τους με συσκευή κλεισίματος που θα εμποδίζει την ανάπτυξη υπερβολικής πίεσης στο εσωτερικό του περιβλήματος, την οποιαδήποτε διαρροή υγρού, και την οποιαδήποτε εισδοχή ξένης ουσίας μέσα στο περίβλημα. Οι συσκευές κλεισίματος σε περιβλήματα προοριζόμενα για το υγρό νιτρικό αμμώνιο του περιθωριακού 2501, 20°, θα είναι σχεδιασμένες έτσι ώστε να αποκλείουν απόφραξη των συσκευών από στερεοποιημένο νιτρικό αμμώνιο κατά τη μεταφορά.

**211 533** Όπου περιβλήματα προοριζόμενα για τη μεταφορά υγρού νιτρικού αμμωνίου του περιθωριακού 2501, 20°, επενδύονται με θερμομονωτικό υλικό, το υλικό θα είναι ανόργανης φύσεως και εντελώς απαλλαγμένο από εύφλεκτες ουσίες.

**211 534** Περιβλήματα προοριζόμενα για την μεταφορά υλών αναφερόμενων στο περιθωριακό 211 511 θα είναι εξοπλισμένα με θερμομόνωση σύμφωνα με τις απαιτήσεις του περιθωριακού 211 234 (1). Εάν η θερμοκρασία [SADT] του οργανικού υπεροξειδίου στο περίβλημα είναι 55 °C ή μικρότερη, ή το περίβλημα είναι κατασκευασμένο από αλουμίνιο, το περίβλημα θα είναι πλήρως μονωμένο. Το αλεξήλιο και οποιοδήποτε μέρος του περιβλήματος δεν καλύπτεται από αυτό, ή η εξωτερική επένδυση πλήρους μονωτικής κάλυψης, θα είναι χρωματισμένα λευκά ή φινιρισμένα με στιλπνό μέταλλο. Το χρώμα θα καθαρίζεται πριν από κάθε διαδρομή και θα ανανεώνεται στην περίπτωση κτηρινίσματος ή φθοράς. Η θερμομόνωση θα είναι απαλλαγμένη από εύφλεκτες ουσίες.

**211 535** Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511 θα είναι εξοπλισμένα με αισθητήρες θερμοκρασίας.

## Προσθήκη Β.1α

**211 536** (1) Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511 θα είναι εξοπλισμένα με βαλβίδες ασφαλείας και συσκευές εκτόνωσης υπό πίεση. Συσκευές εκτόνωσης στο κενό μπορεί επίσης να χρησιμοποιούνται. Συσκευές εκτόνωσης υπό πίεση θα λειτουργούν σε πιέσεις καθοριζόμενες σύμφωνα τόσο με τις ιδιότητες του οργανικού υπεροξειδίου όσο και με τα κατασκευαστικά χαρακτηριστικά της δεξαμενής. Δεν θα επιτρέπεται να υπάρχουν εύηχτα στοιχεία στο σώμα του περιβλήματος.

(2) Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511 θα είναι εξοπλισμένα με βαλβίδες ασφαλείας με ελατήριο για την αποτροπή ανάπτυξης σημαντικής πίεσης μέσα στο περιβλήμα στα προϊόντα αποσύνθεσης και τους ατμούς που εκλύονται σε θερμοκρασία 50 °C. Η χωρητικότητα και η πίεση στην αρχή της εκκένωσης της βαλβίδας ή των βαλβίδων ασφαλείας θα βασίζεται στα αποτελέσματα των δοκιμών που αναφέρονται στο περιθωριακό 211 541. Η πίεση στην αρχή της εκκένωσης εντούτοις δεν θα είναι σε καμία περίπτωση τόσο ώστε να μπορούσε να διαφύγει υγρό από τη βαλβίδα ή τις βαλβίδες εάν το περιβλήμα αναποδογύριζε.

(3) Οι συσκευές εκτόνωσης υπό πίεση σε περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511 μπορεί να είναι τύπου ελατηρίου ή τύπου εκρηγνυόμενου δίσκου, σχεδιασμένες έτσι ώστε να εξαερώνουν όλα τα προϊόντα αποσύνθεσης και τους ατμούς που αναπτύσσονται σε χρονική περίοδο όχι μικρότερη από μία ώρα περικύκλωσης από φωτιά (φορτίο θερμότητας 110 kW/m<sup>2</sup>) ή αυτο-επιταχυνόμενη αποσύνθεση. Η πίεση στην αρχή της εκκένωσης της συσκευής (των συσκευών) εκτόνωσης υπό πίεση θα είναι υψηλότερη από την αναφερόμενη στο (2) και θα βασίζεται στα αποτελέσματα των δοκιμών που αναφέρονται στο περιθωριακό 211 541. Οι διαστάσεις των συσκευών εκτόνωσης πίεσης θα είναι τέτοιες ώστε η μέγιστη πίεση στο περιβλήμα να μην υπερβαίνει ποτέ την πίεση δοκιμής του περιβλήματος.

(4) Για περιβλήματα με μόνωση που αποτελείται από πλήρη επένδυση προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511, η χωρητικότητα και η ρύθμιση της συσκευής (των συσκευών) εκτόνωσης υπό πίεση θα καθορίζεται υποθέτοντας απώλεια μόνωσης από ποσοστό 1% του εμβαδού της επιφανείας.

(5) Συσκευές εκτόνωσης σε κενό και βαλβίδες ασφαλείας με ελατήριο σε περιβλήματα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511 θα είναι εφοδιασμένες με ανασχετήρες φλόγας εκτός εάν οι προς μεταφορά ύλες και τα προϊόντα αποσύνθεσής τους είναι μη αναφλέξιμα. Θα δίνεται η δέουσα προσοχή στην ελάττωση της ικανότητας εκτόνωσης που προκαλείται από τον ανασχετήρα φλόγας.

**211 537-  
211 539**

#### ΤΜΗΜΑ 4. Έγκριση τύπου

**211 540-**

**211 541** Για την έγκριση του τύπου περιβλημάτων προοριζόμενων για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511, θα διενεργούνται δοκιμές:

- για να αποδείξουν τη συμβατότητα όλων των υλικών που σε κανονικές περιστάσεις έρχονται σε επαφή με την ύλη κατά τη μεταφορά
- για να παράσχουν δεδομένα για να διευκολύνουν τον σχεδιασμό των συσκευών εκτόνωσης υπό πίεση και τις βαλβίδες ασφαλείας λαμβάνοντας υπόψη τα χαρακτηριστικά σχεδιασμού της δεξαμενής και
- για να εξακριβώσουν τυχόν ειδικές απαιτήσεις απαραίτητες για την ασφαλή μεταφορά της ύλης.

Τα αποτελέσματα των δοκιμών θα περιλαμβάνονται στην έκθεση για την έγκριση τύπου της δεξαμενής.

## Προσθήκη Β.1α

211 542-  
211 549

**ΤΜΗΜΑ 5. Δοκιμές**

**211 550** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 510 (a), (b) και (c) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή). Περιβλήματα από καθαρό αλουμίνιο προ-οριζόμενα για τη μεταφορά υλών του περιθωριακού 2501, 1°, μπορεί να υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μόνον 250 kPa (2.5 bar) (πίεση μετρητή).

Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 510 (d) και (e) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού αυτών κατά τα οριζόμενα στο περιθωριακό 211 123.

**211 551** Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511 θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού αυτών κατά τα οριζόμενα στο περιθωριακό 211 524.

211 552-  
211 559

**ΤΜΗΜΑ 6. Επισήμανση**

**211 560** Για περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511, τα ακόλουθα πρόσθετα στοιχεία θα επισημαίνονται με σφραγίδα ή με οποιαδήποτε άλλη παρόμοια μέθοδο στην πινακίδα που προβλέπεται στο περιθωριακό 211 161 ή απευθείας στα τοιχώματα του ίδιου του περιβλήματος, εάν τα τοιχώματα είναι ενισχυμένα έτσι ώστε να μη μειώνεται η αντοχή του περιβλήματος:

- η χημική ονομασία με την εγκεκριμένη συγκέντρωση της εν λόγω ύλης.

211 561-  
211 569

**ΤΜΗΜΑ 7. Λειτουργία**

**211 570** Το εσωτερικό του περιβλήματος και όλων των μερών που είναι δυνατόν να έλθουν σε επαφή με τις ύλες που αναφέρονται στα περιθωριακά 211 510 και 211 511 θα διατηρούνται καθαρά. Για αντλίες, βαλβίδες ή άλλες συσκευές, δεν θα χρησιμοποιείται λιπαντικό ικανό να συνδυαστεί επικίνδυνα με τη μεταφερόμενη ύλη.

**211 571** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1° (a), 2° (a) και 3° (a) του περιθωριακού 2501 θα είναι πληρωμένα σε ποσοστό όχι μεγαλύτερο από 95% της χωρητικότητάς τους σε θερμοκρασία αναφοράς 15 °C. Περιβλήματα προοριζόμενα για τη μεταφορά υλών του περιθωριακού 2501, 20°, θα είναι γεμάτα σε ποσοστό όχι μεγαλύτερο από 97% της χωρητικότητάς τους, και η μέγιστη θερμοκρασία μετά την πλήρωση δεν θα υπερβαίνει τους 140 °C. Περιβλήματα εγκεκριμένα για τη μεταφορά υγρού νιτρικού αμμωνίου δεν θα χρησιμοποιούνται για τη μεταφορά άλλων υλών χωρίς προηγουμένως να καθαρισθούν προσεκτικά από τυχόν υπολείμματα.

**211 572** Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511 θα πληρούνται όπως ορίζεται στην έκθεση της δοκιμής για την έγκριση τύπου της δεξαμενής αλλά δεν θα πληρούνται σε ποσοστό μεγαλύτερο από 90% της χωρητικότητάς τους. Τα περιβλήματα θα είναι απαλλαγμένα από προσμείξεις κατά την πλήρωση.

**211 573** Ο λειτουργικός εξοπλισμός όπως οι βαλβίδες και οι εξωτερικές σωληνώσεις περιβλημάτων προοριζόμενων για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 511 θα κενώνεται μετά την πλήρωση ή εκκένωση της δεξαμενής.

211 574-  
211 599

## Προσθήκη Β.1α

**ΚΛΑΣΗ 6.1: ΤΟΞΙΚΕΣ ΥΛΕΣ****ΚΛΑΣΗ 6.2: ΜΟΛΥΣΜΑΤΙΚΕΣ ΥΛΕΣ**211 600-  
211 609**ΤΜΗΜΑ 1. Γενικά πλαίσιο (χρήση δεξαμενών) ορισμοί****Χρήση**

**211 610** (1) Οι ακόλουθες ύλες του περιθωριακού 2601 μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές:

- (a) οι ονομαστικά καταχωρημένες ύλες στα 2° έως 4°
- (b) ύλες ταξινομημένες υπό το (a) των 6° έως 13° - με την εξαίρεση του χλωρομυρμηκικού ισοπροπυλεστέρα των 10° - , 15° έως 17°, 20°, 22°, 23°, 25° έως 28°, 31° έως 36°, 41°, 44°, 51°, 52°, 55°, 61°, 65° έως 68°, 71° έως 87° και 90°, μεταφερόμενες στην υγρή κατάσταση
- (c) ύλες ταξινομημένες υπό το (b) ή (c) των 11°, 12°, 14° έως 28°, 32° έως 36°, 41°, 44°, 51° έως 55°, 57° έως 62°, 64° έως 68°, 71° έως 87° και 90°, μεταφερόμενες σε υγρή κατάσταση
- (d) ύλες σε κονιώδη ή κοκκώδη μορφή ταξινομημένες υπό το (b) ή (c) των 12°, 14°, 17°, 19°, 21°, 23°, 25° έως 27°, 32° έως 35°, 41°, 44°, 51° έως 55°, 57° έως 68°, 71° έως 87° και 90°.

**ΣΗΜΕΙΩΣΗ:** Για την μεταφορά χύμα υλών του 60° (c), στερεών περιεχόντων τοξικά υγρά του 65° (b) (χαρακτηριστικός αριθμός 3243) και στερεών αποβλήτων ταξινομημένων υπό το (c) των διαφόρων ειδών, βλέπε περιθωριακό 61 111.

(2) Υλες του περιθωριακού 2651, 3° και 4°, μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές.

211 611-  
211 619**ΤΜΗΜΑ 2. Κατασκευή**

**211 620** Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 610 (1) (a) ονομαστικά καταχωρημένα υπό τα 2° έως 4° του περιθωριακού 2601 θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 1.5 MPa (15 bar) (πίεση μετρητή).

**211 621** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 610 (1) (b) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 1.0 MPa (10 bar) (πίεση μετρητή).

**211 622** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 610(1)(c) και 211 610(2) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή).

## Προσθήκη Β.1α

- 211 622** Περιβλήματα προοριζόμενα για τη μεταφορά γλωρο-οξικού οξέος του 24° (b) του περιθωριακού (συνεχ.) 2601 θα είναι εφοδιασμένα με προστατευτική επίστρωση ισοδύναμη με σμάλτο εάν το υλικό του περιβλήματος προσβληθεί από γλωρο-οξικό οξύ.
- 211 623** Περιβλήματα προοριζόμενα για τη μεταφορά των κονιωδών ή κοκκωδών υλών που αναφέρονται στο περιθωριακό 211 610(1)(d) θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους I της παρούσης Προσθήκης.
- 211 624-**  
**211 629**

## ΤΜΗΜΑ 3. Είδη εξοπλισμού

- 211 630** Όλα τα ανοίγματα περιβλημάτων προοριζόμενων για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 610(1)(a) και (b) θα είναι επάνω από τη στάθμη της επιφάνειας του υγρού. Σωληνώσεις ή συνδέσεις σωληνώσεων δεν θα διέρχονται από τα τοιχώματα του περιβλήματος κάτω από τη στάθμη της επιφάνειας του υγρού. Τα περιβλήματα θα μπορούν να κλειστούν ερμητικά <sup>24/</sup> και τα κλεισίματα θα μπορούν να προστατεύονται με πάματα που κλειδώνουν. Τα ανοίγματα καθαρισμού που προβλέπονται στο περιθωριακό 211 132 δεν θα επιτρέπονται εντούτοις σε περιβλήματα προοριζόμενα για τη μεταφορά διαλυμάτων υδροκυανικού οξέος του 2°.
- 211 631** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 610(1)(c) και (d) και (2) μπορεί επίσης να είναι του τύπου εκκένωσης από τον πυθμένα. Τα περιβλήματα θα μπορούν να κλείνονται ερμητικά <sup>24/</sup>.
- 211 632** Εάν τα περιβλήματα είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται εκρηγνύομενος δίσκος μπροστά από τη βαλβίδα. Η διεύθυνση του εκρηγνύομενου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή.

## Προστασία του εξοπλισμού

- 211 633** (1) Εξαρτήματα και προσαρτήματα συναρμολογημένα στο άνω μέρος του περιβλήματος

Τέτοια εξαρτήματα και προσαρτήματα:

- είτε θα εισάγονται σε ειδικό μετατοπισμένο κλειστό χώρο, είτε
- θα εξοπλίζονται με εσωτερική βαλβίδα ασφαλείας, είτε
- θα καλύπτονται με πάμα, ή με εγκάρσια και/ή διαμήκη μέλη, ή με άλλες εξίσου αποτελεσματικές συσκευές, με ανάγλυφο τέτοιο ώστε σε περίπτωση ανατροπής τα εξαρτήματα και προσαρτήματα να μην καταστρέφονται.

- (2) Εξαρτήματα και προσαρτήματα συναρμολογημένα στο κάτω μέρος του περιβλήματος

Στόμια σωληνώσεων, εγκάρσιες συσκευές κλεισίματος, και όλες οι συσκευές εκκένωσης θα είναι μετατοπισμένα κατά τουλάχιστον 200 mm από την ακραία εξωτερική ακμή του περιβλήματος ή θα προστατεύονται με μπάρα έχουσα συντελεστή αδρανείας όχι μικρότερο από 20 cm<sup>3</sup> εγκάρσια στη διεύθυνση κίνησης το ύψος τους από το έδαφος δεν θα είναι μικρότερο από 300 mm όταν το περίβλημα είναι πλήρες.

<sup>24/</sup> Βλέπε υποσημείωση Z/.

## Προσθήκη Β.1α

**211 633** (3) Εξαρτήματα και προσαρτήματα συναρμολογημένα στην οπίσθια όψη του περιβλήματος (συνεχ.)

Όλα τα εξαρτήματα και προσαρτήματα που είναι συναρμολογημένα στην οπίσθια όψη θα προστατεύονται από τον προφυλακτήρα που προβλέπεται στο περιθωριακό 10 220. Το ύψος τους πάνω από το έδαφος θα είναι τέτοιο ώστε να τα προστατεύει επαρκώς ο προφυλακτήρας.

**211 634-**  
**211 639**

**ΤΜΗΜΑ 4. Έγκριση τύπου**

**211 640-**  
**211 649** (Δεν υπάρχουν ειδικές απαιτήσεις)

**ΤΜΗΜΑ 5. Δοκιμές**

**211 650** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 610(1)(a), (b) και (c) και (2) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή όχι μικρότερη από 400 kPa (4 bar).

Για περιβλήματα προοριζόμενα για τη μεταφορά υλών του 31° (a) του περιθωριακού 2601, οι περιοδικές δοκιμές θα διενεργούνται σε διαλείμματα όχι μεγαλύτερα από τα τρία έτη και θα περιλαμβάνουν τη δοκιμή υδραυλικής πίεσης.

**211 651** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 610(1)(d) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού τους κατά τα οριζόμενα στο περιθωριακό 211 123.

**211 652-**  
**211 659**

**ΤΜΗΜΑ 6. Επισήμανση**

**211 660-**  
**211 669** (Δεν υπάρχουν ειδικές απαιτήσεις)

**ΤΜΗΜΑ 7. Λειτουργία**

**211 670** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 3° του περιθωριακού 2601 δεν θα είναι πληρωμένα κατά περισσότερο από 1 kg ανά λίτρο χωρητικότητας.

**211 671** Τα περιβλήματα θα είναι ερμητικά κλειστά <sup>25/</sup> κατά τη μεταφορά. Τα κλεισίματα των περιβλημάτων που προορίζονται για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 211 610(1)(a) και (b) θα προστατεύονται με κλειδωμένα πώματα.

**211 672** Οχήματα-δεξαμενές και αποσυναρμολογούμενες δεξαμενές εγκεκριμένες για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 610 δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, ειδών κατανάλωσης ή ζωοτροφών.

**211 673-**  
**211 699**

<sup>25/</sup> Βλέπε υποσημείωση 2/.

## ΚΛΑΣΗ 7. ΡΑΔΙΕΝΕΡΓΕΣ ΥΛΕΣ

211 700-  
211 709**ΤΜΗΜΑ 1. Γενικά πλαίσιο (χρήση δεξαμενών) ορισμοί****Χρήση**

**211 710** Υλικά των περιθωριακών 2704, Πίνακες 1, 5, 6, 9, 10 και 11, πλην εξαφθοριούχου ουρανίου, μπορούν να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές. Έχουν εφαρμογή οι διατάξεις του αντίστοιχου πίνακα στο περιθωριακό 2704.

**ΣΗΜΕΙΩΣΗ:** Μπορεί να υπάρχουν πρόσθετες απαιτήσεις για δεξαμενές σχεδιασμένες ως συσκευασίες Τύπου Α ή Τύπου Β.

211 711-  
211 719**ΤΜΗΜΑ 2. Κατασκευή**

**211 720** Βλέπε περιθωριακό 3736.

211 721-  
211 729**ΤΜΗΜΑ 3. Είδη Εξοπλισμού**

**211 730** Τα ανοίγματα των περιβλημάτων για τη μεταφορά υγρών ραδιενεργών υλικών<sup>26/</sup> θα είναι πάνω από τη στάθμη του υγρού. Τα τοιχώματα του περιβλήματος δεν θα έχουν σωληνώσεις ή συνδέσεις σωληνώσεων κάτω από τη στάθμη του υγρού.

211 731-  
211 739**ΤΜΗΜΑ 4. Έγκριση τύπου**

**211 740** Δεξαμενές που έχουν εγκριθεί για τη μεταφορά ραδιενεργού υλικού δεν θα εγκρίνονται για τη μεταφορά άλλων υλών.

211 741-  
211 749**ΤΜΗΜΑ 5. Δοκιμές**

**211 750** Τα περιβλήματα θα υποβάλλονται αρχικά και περιοδικά σε δοκιμή υδραυλικής πίεσης σε πίεση τουλάχιστον 265 kPa (2.65 bar). Παρά τις διατάξεις του περιθωριακού 211 151, η περιοδική εσωτερική επιθεώρηση μπορεί να αντικατασταθεί με πρόγραμμα εγκεκριμένο από την αρμόδια αρχή.

<sup>26/</sup>Βλέπε υποσημείωση<sup>27/</sup>.



## Προσθήκη Β.1α

211 751-  
211 759

**ΤΜΗΜΑ 6. Επισήμανση**

- 211 760 Επιπλέον, το σύμβολο του τριφυλλιού, όπως περιγράφεται στο περιθωριακό 2705(5), θα επιστημαίνεται με σφραγίδα ή με οποιαδήποτε άλλη ισοδύναμη μέθοδο στην πινακίδα που περιγράφεται στο περιθωριακό 211 160. Η επισήμανση με το τριφύλλι μπορεί να εφαρμόζεται απευθείας στα τοιχώματα του ίδιου του περιβλήματος, εάν τα τοιχώματα είναι ενισχυμένα ούτως ώστε να μη μειώνεται η αντοχή του περιβλήματος.

211 761-  
211 769

**ΤΜΗΜΑ 7. Λειτουργία**

- 211 770 Ο βαθμός πλήρωσης, σύμφωνα με το περιθωριακό 211 172, στη θερμοκρασία αναφοράς των 15 °C δεν θα υπερβαίνει το 93% της χωρητικότητας του περιβλήματος.
- 211 771 Δεξαμενές στις οποίες έχει μεταφερθεί ραδιενεργό υλικό δεν θα χρησιμοποιούνται για τη μεταφορά άλλων υλών.

211 772-  
211 799

## Προσθήκη Β.1α

## ΚΛΑΣΗ 8. ΔΙΑΒΡΩΤΙΚΕΣ ΥΛΕΣ

211 800-  
211 809

## ΤΜΗΜΑ 1. Γενικά πλαίσιο (χρήση δεξαμεμών) ορισμοί

## Χρήση

211 810 Οι ακόλουθες ύλες του περιθωριακού 2801 μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμεμές:

- (a) ύλες ονομαστικά καταχωρημένες στα 6° και 14°
- (b) ύλες ταξινομημένες υπό το (a) των 1°, 2°, 3°, 7°, 8°, 12°, 17°, 32°, 33°, 39°, 40°, 46°, 47°, 52° έως 56°, 64° έως 68° και 70°, 72° έως 76°, μεταφερόμενες στην υγρή κατάσταση
- (c) οξυβρωμίδιο του φωσφόρου του 15° και ύλες ταξινομημένες υπό το (b) ή (c) των 1° έως 5°, 7°, 8°, 10°, 12°, 17°, 31° έως 40°, 42° έως 47°, 51° έως 56°, 61° έως 76°, μεταφερόμενες στην υγρή κατάσταση
- (d) κονιώδεις ή κοκκώδεις ύλες ταξινομημένες υπό το (b) ή (c) των 9°, 11°, 13°, 16°, 31°, 34°, 35°, 39°, 41°, 45°, 46°, 52°, 55°, 62°, 65°, 67°, 69°, 71°, 73° και 75°.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά χύμα θεικού μολύβδου του 1° (b), υλών του 13° (b), στερεών που περιέχουν διαβρωτικό υγρό του 65° (b) με χαρακτηριστικό αριθμό 3244, και στερεών αποβλήτων ταξινομημένων υπό το (c) των διαφόρων ειδών, βλέπε περιθωριακό 81 111.

211 811-  
211 819

## ΤΜΗΜΑ 2. Κατασκευή

211 820 Περιβλήματα προοριζόμενα για τη μεταφορά υλών ονομαστικά καταχωρημένων στα 6° και 14° θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 2.1 MPa (21 bar) (πίεση μετρητή). Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 14° θα είναι εφοδιασμένα με επιστροφή μολύβδου με πάχος όχι μικρότερο από 5 mm ή ισοδύναμη επιστροφή. Η απαίτηση της Προσθήκης Β.1d θα έχει εφαρμογή στα υλικά και την κατασκευή συγκολλημένων περιβλημάτων προοριζόμενων για τη μεταφορά υλών του 6°.

211 821 Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 810 (b) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 1.0 MPa (10 bar) (πίεση μετρητή).

Όπου είναι αναγκαία η χρήση αλουμινίου για περιβλήματα προοριζόμενα για τη μεταφορά του νιτρικού οξέος του 2° (a), αυτά τα περιβλήματα θα είναι κατασκευασμένα από αλουμίνιο καθαρότητας όχι μικρότερης από 99.5%, οπότε, κατά παρέκκλιση από τις ανωτέρω διατάξεις, το πάχος του τοιχώματος δεν χρειάζεται να υπερβαίνει τα 15 mm.

## Προσθήκη Β.1α

**211 822** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 810 (c) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή).

Παρά τις ανωτέρω διατάξεις, το πάχος του τοιχώματος δεν χρειάζεται να είναι μεγαλύτερο από 15 mm όταν τα περιβλήματα είναι κατασκευασμένα από καθαρό αλουμίνιο.

**211 823** Περιβλήματα προοριζόμενα για τη μεταφορά κονιωδών ή κοκκωδών υλών που αναφέρονται στο περιθωριακό 211 810 (d) θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους I της παρούσης Προσθήκης.

211 824-  
211 829

### ΤΜΗΜΑ 3. Είδη εξοπλισμού

**211 830** Όλα τα ανοίγματα περιβλημάτων προοριζόμενων για τη μεταφορά υλών των 6°, 7° και 14° θα είναι πάνω από τη στάθμη της επιφάνειας του υγρού. Δεν θα διέρχονται σωληνώσεις ή συνδέσεις σωληνώσεων από τα τοιχώματα του περιβλήματος κάτω από τη στάθμη της επιφάνειας του υγρού. Τα περιβλήματα θα μπορούν να κλείνουν ερμητικά<sup>27</sup> και τα κλεισίματα θα μπορούν να προστατεύονται με πώματα που κλειδώνουν. Επιπλέον, τα ανοίγματα καθαρισμού που αναφέρονται στο περιθωριακό 211 132 δεν θα επιτρέπονται.

**211 831** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 810 (b), (c) και (d) μπορεί επίσης να είναι του τύπου εκκένωσης από τον πυθμένα.

**211 832** Εάν περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 810 (b) είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται εκρηγνύομος δίσκος μπροστά από τη βαλβίδα. Η διευθέτηση του εκρηγνύομου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή.

**211 833** Περιβλήματα προοριζόμενα για την μεταφορά τριοξειδίου του θείου του 1° (a) θα είναι θερμομονωμένα και εξοπλισμένα με συσκευή θερμάνσεως στο εξωτερικό τους.

**211 834** Περιβλήματα και ο λειτουργικός εξοπλισμός τους προοριζόμενα για μεταφορά διαλυμάτων υποχλωριωδών αλάτων του 61° θα σχεδιάζονται έτσι ώστε να εμποδίζεται η εισδοχή ξένων ουσιών, η διαρροή υγρού ή τυχόν ανάπτυξη επικίνδυνης υπερβολικής πίεσης μέσα στο περίβλημα.

211 835-  
211 839

### ΤΜΗΜΑ 4. Έγκριση τύπου

211 840-

211 849 (Δεν υπάρχουν ειδικές απαιτήσεις)

### ΤΜΗΜΑ 5. Δοκιμές

**211 850** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 6° θα υποβάλλονται στην αρχική και τις περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή τουλάχιστον 1.0 MPa (10 bar) και εκείνα που προορίζονται για τη μεταφορά υλών του 7° θα υποβάλλονται σε αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή όχι μικρότερη από 400 kPa (4 bar).

<sup>27</sup>

Βλέπε υποσημείωση 27.

## Προσθήκη Β.1α

**211 850** Τα υλικά κάθε συγκολλημένου περιβλήματος προοριζόμενου για τη μεταφορά υλών του 6° θα (συνεχ.) δοκιμάζεται με τη μέθοδο που περιγράφεται στην Προσθήκη Β.1δ.

**211 851** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 14° ή των υλών που αναφέρονται στο περιθωριακό 211 810 (b) και (c) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή όχι μικρότερη από 400 kPa (4 bar). Η δοκιμή υδραυλικής πίεσης για περιβλήματα προοριζόμενα για τη μεταφορά τριοξειδίου του θείου του 1° (a) θα επαναλαμβάνονται κάθε τρία έτη.

Περιβλήματα κατασκευασμένα από καθαρό αλουμίνιο και προοριζόμενα για τη μεταφορά νιτρικού οξέος του 2° (a) χρειάζεται να υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή μόνον 250 kPa (2.5 bar).

Η κατάσταση της επίστρωσης σε περιβλήματα προοριζόμενα για τη μεταφορά υλών του 14° θα επιθεωρείται κάθε έτος από ειδικό εγκεκριμένο από την αρμόδια αρχή, ο οποίος θα επιθεωρεί το εσωτερικό του περιβλήματος.

**211 852** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 211 810 (d) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού τους κατά τα οριζόμενα στο περιθωριακό 211 123.

**211 853-  
211 859**

**ΤΜΗΜΑ 6. Επισήμανση**

**211 860** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 6° και 14° θα φέρουν, επιπλέον των στοιχείων που αναφέρονται στο περιθωριακό 211 160, την ημερομηνία (μήνας, έτος) της πιο πρόσφατης επιθεώρησης της εσωτερικής κατάστασης του περιβλήματος.

**211 861** Περιβλήματα προοριζόμενα για τη μεταφορά αδρανούς τριοξειδίου του θείου του 1° (a) και υλών των 6° και 14° θα φέρουν επιπλέον, στην πινακίδα που αναφέρεται στο περιθωριακό 211 160, το μέγιστο επιτρεπόμενο βάρος φορτώσεως σε kg του περιβλήματος.

**211 862-  
211 869**

**ΤΜΗΜΑ 7. Λειτουργία**

**211 870** Περιβλήματα προοριζόμενα για τη μεταφορά αδρανούς τριοξειδίου του θείου του 1° (a) δεν θα πληρούνται σε ποσοστό μεγαλύτερο από 88% της χωρητικότητάς τους εκείνα που προορίζονται για τη μεταφορά υλών του 14° θα πληρούνται σε ποσοστό όχι μικρότερο από 88% και όχι μεγαλύτερο από 92% της χωρητικότητάς τους ή 2.86 kg ανά λίτρο χωρητικότητας.

Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 6° δεν θα πληρούνται σε ποσότητα μεγαλύτερη από 0.84 kg ανά λίτρο χωρητικότητας.

**211 871** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 6°, 7° και 14° θα είναι ερμητικά κλειστά <sup>28/</sup> [βλέπε περιθωριακό 211 127(2)] κατά τη μεταφορά και τα κλεισίματα θα προστατεύονται με πάματα που κλειδώνουν.

**211 872-  
211 899**

## Προσθήκη Β.1α

**ΚΛΑΣΗ 9. ΔΙΑΦΟΡΕΣ ΕΠΙΚΙΝΔΥΝΕΣ ΥΛΕΣ ΚΑΙ ΑΝΤΙΚΕΙΜΕΝΑ**211 900-  
211 909**ΤΜΗΜΑ 1. Γενικά πλαίσιο (χρήση δεξαμενών) ορισμοί****Χρήση**

**211 910** Υλεις των 1°, 2° και 4°, 11° και 12° του περιθωριακού 2901 μπορεί να μεταφέρονται σε σταθερές ή αποσυναρμολογούμενες δεξαμενές.

**ΣΗΜΕΙΩΣΗ:** Για την μεταφορά χύμα υλών των 4° και 12° του περιθωριακού 2901, βλέπε περιθωριακό 91 111.

211 911-  
211 919**ΤΜΗΜΑ 2. Κατασκευή**

**211 920** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1°, 4°, 11° και 12° θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους I της παρούσης Προσθήκης.

**211 921** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 2° θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 211 127 (2)] όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή).

211 922-  
211 929**ΤΜΗΜΑ 3. Είδη εξοπλισμού**

**211 930** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1° και 2° θα μπορούν να κλείνουν ερμητικά <sup>29/</sup>. Περιβλήματα προοριζόμενα για την μεταφορά υλών του 4° (c) θα είναι εξοπλισμένα με βαλβίδα ασφαλείας.

**211 931** Εάν περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1° και 2° είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται εκρηγνύομενος δίσκος μπροστά από τις βαλβίδες. Η διεύθυνση του εκρηγνύομενου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή.

211 932-  
211 939**ΤΜΗΜΑ 4. Έγκριση τύπου**

**211 940-  
211 949** (Δεν υπάρχουν ειδικές απαιτήσεις)

<sup>29/</sup> Βλέπε υποσημείωση 2/.

## Προσθήκη Β.1α

**ΤΜΗΜΑ 5. Δοκιμές**

- 211 950** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 2<sup>ο</sup> θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση 400 kPa (4 bar) (πίεση μετρητή).
- 211 951** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1<sup>ο</sup>, 4<sup>ο</sup>, 11<sup>ο</sup> και 12<sup>ο</sup> θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού που χρησιμοποιείται στο σχεδιασμό τους κατά τα οριζόμενα στο περιθωριακό 211 123.
- 211 952-  
211 959**

**ΤΜΗΜΑ 6. Επισήμανση**

- 211 960-  
211 969** (Δεν υπάρχουν ειδικές απαιτήσεις)

**ΤΜΗΜΑ 7. Λειτουργία**

- 211 970** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1<sup>ο</sup> και 2<sup>ο</sup> θα είναι ερμητικά κλειστά <sup>30/</sup> κατά τη μεταφορά.
- 211 971** Οχήματα-δεξαμενές και αποσυναρμολογούμενες δεξαμενές εγκεκριμένες για τη μεταφορά υλών των 1<sup>ο</sup> και 2<sup>ο</sup> δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, αντικειμένων κατανάλωσης ή ζωοτροφών.
- 211 972-  
211 999**

## Προσθήκη Β.1b

**ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΕΜΠΟΡΕΥΜΑΤΟΚΙΒΩΤΙΑ-ΔΕΞΑΜΕΝΕΣ**

**ΣΗΜΕΙΩΣΗ:** Το Μέρος I παρουσιάζει τις απαιτήσεις με εφαρμογή σε εμπορευματοκιβώτια-δεξαμενές προοριζόμενα για τη μεταφορά υλών όλων των κλάσεων. Το Μέρος II περιέχει ειδικές απαιτήσεις που συμπληρώνουν ή τροποποιούν τις απαιτήσεις του Μέρους I.

**ΜΕΡΟΣ I: Απαιτήσεις με εφαρμογή σε όλες τις κλάσεις**

212 000-  
212 099

**ΤΜΗΜΑ 1. Γενικά πλαίσιο (χρήση εμπορευματοκιβωτίων-δεξαμενών) ορισμοί**

**ΣΗΜΕΙΩΣΗ 1:** Σύμφωνα με τις διατάξεις του περιθωριακού 10 121 (1), η μεταφορά επικίνδυνων υλών σε εμπορευματοκιβώτια-δεξαμενές επιτρέπεται μόνο όπου υπάρχει ρητή έγκριση για τέτοιες ύλες σε κάθε ένα από τα Τμήματα 1 του Μέρους II της παρούσης Προσθήκης.

**ΣΗΜΕΙΩΣΗ 2:** Για τους σκοπούς αυτής της Οδηγίας, δεξαμενές σε ειδικά αμαξώματα (swap bodies) θεωρούνται ως εμπορευματοκιβώτια-δεξαμενές.

- 212 100** Οι παρούσες απαιτήσεις θα έχουν εφαρμογή σε εμπορευματοκιβώτια-δεξαμενές χωρητικότητας όχι μεγαλύτερης από  $0.45 \text{ m}^3$  τα οποία χρησιμοποιούνται για τη μεταφορά υγρών, αερίων, κονιοδών ή κοκκωδών υλών, και στα εξαρτήματα και προσαρτήματα αυτών.
- 212 101** Το εμπορευματοκιβώτιο-δεξαμενή συμπεριλαμβάνει περίβλημα και είδη εξοπλισμού, περιλαμβανομένου του εξοπλισμού για τη διευκόλυνση της κίνησης του εμπορευματοκιβωτίου-δεξαμενής χωρίς σημαντική μεταβολή του προσανατολισμού.
- 212 102** Στις ακόλουθες απαιτήσεις:
- (1) (a) "περίβλημα" σημαίνει την κυρίως δεξαμενή (περιλαμβανομένων των ανοιγμάτων και των αντίστοιχων κλεισιμάτων)
  - (b) "λειτουργικός εξοπλισμός" του περιβλήματος σημαίνει την πλήρωση και κένωση, τον εξαερισμό, τις συσκευές ασφαλείας, θέρμανσης και θερμομόνωσης και τα όργανα μέτρησης και
  - (c) "κατασκευαστικός εξοπλισμός" σημαίνει τα μέλη εσωτερικής ή εξωτερικής ενίσχυσης, πρόσδεσης, προστατευτικά ή σταθεροποιητικά του περιβλήματος.
  - (2) (a) "πίεση υπολογισμού" σημαίνει θεωρητική πίεση τουλάχιστον ίση προς την πίεση δοκιμής η οποία, αναλόγως του βαθμού επικινδυνότητας που επιδεικνύει η μεταφερόμενη ύλη, μπορεί να υπερβαίνει σε μεγαλύτερο ή μικρότερο βαθμό την πίεση εργασίας. Χρησιμοποιείται αποκλειστικά για τον προσδιορισμό του πάχους των τοιχωμάτων του περιβλήματος, ανεξάρτητα από τυχόν εξωτερική ή εσωτερική ενισχυτική συσκευή
  - (b) "πίεση δοκιμής" σημαίνει την μέγιστη πραγματική πίεση που αναπτύσσεται στο περίβλημα κατά την δοκιμή πίεσης
  - (c) "πίεση πλήρωσης" σημαίνει την μέγιστη πίεση που πραγματικά αναπτύσσεται στο περίβλημα όταν αυτό πληρούται υπό πίεση
  - (d) "πίεση εκκένωσης" σημαίνει την μέγιστη πίεση που πραγματικά αναπτύσσεται στο περίβλημα όταν αυτό εκκενώνεται υπό πίεση

## Προσθήκη Β.1b

212 102  
(συνεχ.)

(e) "μέγιστη πίεση εργασίας (πίεση μετρητή)" σημαίνει την υψηλότερη από τις ακόλουθες τρεις τιμές πίεσης:

- (i) την υψηλότερη πραγματική πίεση που επιτρέπεται να αναπτυχθεί στο περίβλημα κατά την πλήρωση ("μέγιστη επιτρεπόμενη πίεση πλήρωσης")
- (ii) την υψηλότερη πραγματική πίεση που επιτρέπεται να αναπτυχθεί στο περίβλημα κατά την εκκένωση ("μέγιστη επιτρεπόμενη πίεση εκκένωσης") και
- (iii) την πραγματική πίεση μετρητή στην οποία υποβάλλεται το περίβλημα από τα περιεχόμενά του (περιλαμβανομένων τυχόν εξωγενών αερίων που μπορεί να περιέχει) στη μέγιστη θερμοκρασία εργασίας.

Εκτός εάν οι ειδικές απαιτήσεις για κάθε κλάση προβλέπουν διαφορετικά, η αριθμητική τιμή αυτής της πίεσης εργασίας (πίεση μετρητή) δεν θα είναι μικρότερη από την πίεση ατμών (απόλυτη πίεση) της ύλης πλήρωσης στους 50 °C.

Για περιβλήματα εξοπλισμένα με βαλβίδες ασφαλείας (με ή χωρίς εκρηγνύσιμο δίσκο), η μέγιστη πίεση εργασίας (πίεση μετρητή) θα είναι εντούτοις ίση προς την προβλεπόμενη πίεση εργασίας τέτοιων βαλβίδων ασφαλείας.

(3) "Δοκιμή στεγανότητας" σημαίνει τη δοκιμή η οποία αποτελείται από την υποβολή του περιβλήματος σε πραγματική εσωτερική πίεση ίση προς τη μέγιστη πίεση εργασίας, αλλά όχι μικρότερη από 20 kPa (0.2 bar) (πίεση μετρητή), χρησιμοποιώντας μέθοδο εγκεκριμένη από την αρμόδια αρχή.

Για περιβλήματα εξοπλισμένα με συστήματα εξαερισμού και συσκευή ασφαλείας για την αποτροπή της διαρροής των περιεχομένων εάν το περίβλημα αναποδογυριστεί, η πίεση για τη δοκιμή στεγανότητας θα είναι ίση προς τη στατική πίεση της ύλης πλήρωσης.

212 103-  
212 119

## ΤΜΗΜΑ 2. Κατασκευή

212 120 Τα περιβλήματα θα σχεδιάζονται και θα κατασκευάζονται σύμφωνα με τις διατάξεις τεχνικού κώδικα αναγνωρισμένου από την αρμόδια αρχή, θα ικανοποιούνται όμως οι ακόλουθες ελάχιστες απαιτήσεις:

(1) Τα περιβλήματα θα κατασκευάζονται από κατάλληλα μεταλλικά υλικά τα οποία, εκτός εάν προβλέπονται διαφορετικά εύρη θερμοκρασίας στις διάφορες κλάσεις, θα είναι ανθεκτικά στην ψαθιρή θραύση και στην ρηγιμάτωση διάβρωσης λόγω καταπόνησης μεταξύ των -20 °C και +50 °C.

(2) Για συγκολλημένα περιβλήματα θα χρησιμοποιούνται μόνο υλικά άψογης συγκολλησιμότητας των οποίων η επαρκής κρουστική αντοχή σε θερμοκρασία περιβάλλοντος -20 °C μπορεί να είναι εγγυημένη, ιδίως στις ραφές συγκόλλησης και τις γειτονικές τους ζώνες.

(3) Οι συγκολλήσεις θα γίνονται επιδέξια και θα προσφέρουν την πληρέστερη δυνατή ασφάλεια. Για την εκτέλεση και τον έλεγχο των σημείων συγκόλλησης, βλέπε επίσης το περιθωριακό 212 127 (6). Περιβλήματα των οποίων τα ελάχιστα πάχη τοιχωμάτων έχουν καθορισθεί σύμφωνα με το περιθωριακό 212 127 (3) και (4) θα ελέγχονται με τις μεθόδους που περιγράφονται στον ορισμό του συντελεστή συγκόλλησης 0.8.



## Προσθήκη Β.1b

**212 120** (4) Τα υλικά περιβλημάτων ή των προστατευτικών επιστρώσεών τους τα οποία έρχονται σε επαφή με τα περιεχόμενα δεν θα περιέχουν ύλες που είναι δυνατόν να αντιδράσουν επικίνδυνα με τα περιεχόμενα, να σχηματίσουν επικίνδυνες ενώσεις, ή να εξασθενήσουν σημαντικά το υλικό.

(5) Η προστατευτική επίστρωση θα σχεδιάζεται έτσι ώστε η στεγανότητα αυτής να παραμένει ακέραια, οποιαδήποτε και αν είναι η πιθανή παραμόρφωση σε κανονικές συνθήκες μεταφοράς[περιθωριακό 212 127 (1)].

(6) Εάν η επαφή μεταξύ της μεταφερόμενης ύλης και του υλικού που χρησιμοποιείται για την κατασκευή του περιβλήματος συνεπάγεται προοδευτική μείωση του πάχους των τοιχωμάτων, το πάχος αυτό θα αυξάνεται κατά την κατασκευή σε κατάλληλο βαθμό. Αυτό το πρόσθετο πάχος για την αναπλήρωση της διάβρωσης δεν θα λαμβάνεται υπόψη στον υπολογισμό του πάχους των τοιχωμάτων του περιβλήματος.

**212 121** Τα περιβλήματα, τα προσαρτήματά τους και ο λειτουργικός και κατασκευαστικός εξοπλισμός τους θα σχεδιάζονται έτσι ώστε να αντέχουν χωρίς απώλεια περιεχομένου (εκτός από την διαφυγή ποσοτήτων αερίου διαμέσου τυχόν εξαεριστήρων):

- στατικές και δυναμικές καταπονήσεις σε κανονικές συνθήκες μεταφοράς

- τις προβλεπόμενες ελάχιστες καταπονήσεις κατά τα οριζόμενα στα περιθωριακά 212 125 και 212 127.

**212 122** Η πίεση επί της οποίας βασίζεται το πάχος τοιχώματος του περιβλήματος δεν θα είναι μικρότερη από την πίεση υπολογισμού, αλλά θα λαμβάνονται επίσης υπόψη οι καταπονήσεις που αναφέρονται στο περιθωριακό 212 121.

**212 123** Εκτός εάν υπάρχει ειδική διαφορετική πρόβλεψη στις διάφορες κλάσεις, θα λαμβάνονται υπόψη τα ακόλουθα στοιχεία στο σχεδιασμό των περιβλημάτων:

(1) Περιβλήματα εκκένωσης διά της βαρύτητας προοριζόμενα για τη μεταφορά υλών με πίεση ατμών που δεν υπερβαίνει τα 110 kPa (1.1 bar) (απόλυτη πίεση) στους 50 °C θα σχεδιάζονται για πίεση υπολογισμού διπλάσια της στατικής πίεσης της προς μεταφορά ύλης αλλά όχι μικρότερη από το διπλάσιο της στατικής πίεσης του νερού.

(2) Περιβλήματα πλήρωσης με πίεση ή εκκένωσης με πίεση προοριζόμενα για τη μεταφορά υλών με πίεση ατμών που δεν υπερβαίνει τα 110 kPa (1.1 bar) (απόλυτη πίεση) στους 50 °C θα σχεδιάζονται για πίεση υπολογισμού ίση προς 1.3 φορές την πίεση πλήρωσης ή εκκένωσης.

(3) Περιβλήματα προοριζόμενα για τη μεταφορά υλών με πίεση ατμών μεγαλύτερη από 110 kPa (1.1 bar) αλλά όχι μεγαλύτερη από 175 kPa (1.75 bar) (απόλυτη πίεση) στους 50 °C, οποιοδήποτε και αν είναι το σύστημα πλήρωσης ή εκκένωσης αυτών, θα σχεδιάζονται για πίεση υπολογισμού όχι μικρότερη από 150 kPa (1.5 bar) (πίεση μετρητή) ή 1.3 φορές την πίεση πλήρωσης ή εκκένωσης, τη μεγαλύτερη από τις δύο.

(4) Περιβλήματα προοριζόμενα για τη μεταφορά υλών με πίεση ατμών μεγαλύτερη από 175 kPa (1.75 bar) (απόλυτη πίεση) στους 50 °C, οποιοδήποτε και αν είναι το σύστημα πλήρωσης ή εκκένωσης αυτών, θα σχεδιάζονται για πίεση υπολογισμού ίση προς 1.3 φορές την πίεση πλήρωσης ή εκκένωσης αλλά όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή).

**212 124** Εμπορευματοκιβώτια-δεξαμενές προοριζόμενα για να περιέχουν ορισμένες επικίνδυνες ύλες θα είναι εφοδιασμένα με πρόσθετη προστασία, που μπορεί να παίρνει τη μορφή πρόσθετου πάχους του περιβλήματος (αυτό το πρόσθετο πάχος θα καθορίζεται αναλόγως των κινδύνων που ενυπάρχουν στις αντίστοιχες ύλες: βλέπε τις σχετικές κλάσεις) ή προστατευτικής συσκευής.

## Προσθήκη B.1b

**212 125** Στην πίεση δοκιμής, η τάση  $\sigma$  (σίγμα) στο δυσμενέστερα καταπονούμενο σημείο του περιβλήματος δεν θα υπερβαίνει τα κατά υλικό οριζόμενα όρια που προβλέπονται παρακάτω. Θα αφήνεται περιθώριο για τυχόν εξασθένηση λόγω των συγκολλήσεων. Επιπλέον, στην επιλογή του υλικού και τον καθορισμό του πάχους τοιχώματος, οι μέγιστες και ελάχιστες θερμοκρασίες πλήρωσης και εργασίας πρέπει να λαμβάνονται υπόψη.

(1) Για όλα τα μέταλλα και κράματα, η τάση  $\sigma$  στην πίεση δοκιμής θα είναι χαμηλότερη από την μικρότερη από τις τιμές που δίνουν οι ακόλουθοι τύποι:

$$\sigma \leq 0.75 Re \text{ ή } \sigma \leq 0.5 Rm$$

όπου

$$\begin{aligned} Re &= \text{φαινόμενη τάση διαρροής, ή 0.2\%} \\ &\text{ή, στην περίπτωση ωστενιτικών χαλύβων, 1\%} \\ Rm &= \text{ελάχιστη εφελκυστική αντοχή.} \end{aligned}$$

Λόγοι του  $Re/Rm$  που υπερβαίνουν το 0.85 δεν επιτρέπονται για χάλυβες που χρησιμοποιούνται στην κατασκευή συγκολλημένων δεξαμεμών.

Για τις τιμές των  $Re$  και  $Rm$  προς χρήση θα καθορίζονται ελάχιστες τιμές αναλόγως των προδιαγραφών των υλικών. Εάν δεν υπάρχει προδιαγραφή υλικού για το εν λόγω μέταλλο ή κράμα, οι τιμές των  $Re$  και  $Rm$  που χρησιμοποιούνται θα εγκρίνονται από την αρμόδια αρχή ή από φορέα ορισμένο από εκείνη την αρχή.

Όταν χρησιμοποιούνται ωστενιτικοί χάλυβες, οι καθορισμένες ελάχιστες τιμές σύμφωνα με τις προδιαγραφές του υλικού μπορεί να υπερβαίνονται κατά 15% το πολύ, εάν αυτές οι ανώτερες τιμές βεβαιώνονται στο πιστοποιητικό επιθεώρησης.

Οι τιμές που καθορίζονται στο πιστοποιητικό θα λαμβάνονται ως βάση για τον καθορισμό του λόγου  $Re/Rm$  σε κάθε περίπτωση.

(2) Όποτε η μέγιστη θερμοκρασία εργασίας του περιβλήματος δεν υπερβαίνει τους 50 °C, μπορεί να χρησιμοποιούνται οι τιμές των  $Re$  και  $Rm$  στους 20°C όταν η θερμοκρασία εργασίας υπερβαίνει τους 50 °C, θα χρησιμοποιούνται οι τιμές της μέγιστης θερμοκρασίας εργασίας (θερμοκρασίας υπολογισμού).

(3) Για τον χάλυβα, η επιμήκυνση κατά τη θραύση, σε ποσοστό επί τοις εκατό, δεν θα είναι μικρότερη από

$$10\,000 \cdot$$

$$\frac{\text{καθορισμένη εφελκυστική αντοχή σε N/mm}^2}{\text{}}^2$$

αλλά σε κάθε περίπτωση για λεπτόκοκκους χάλυβες δεν θα είναι μικρότερη από 16% και για άλλους χάλυβες δεν θα είναι μικρότερη από 20%. Για κράματα αλουμινίου η επιμήκυνση κατά τη θραύση δεν θα είναι μικρότερη από 12% <sup>1/</sup>.

<sup>1/</sup> Στην περίπτωση μετάλλου σε φύλλο, ο άξονάς του εφελκυστικού δοκιμίου θα είναι σε ορθή γωνία προς την κατεύθυνση κυλίσεως. Η μόνιμη επιμήκυνση κατά τη θραύση θα μετράται σε δοκίμια κυκλικής διατομής στα οποία το μήκος δοκιμίου  $l$  ισούται προς πέντε φορές τη διάμετρο  $d$  ( $l = 5d$ ) εάν χρησιμοποιούνται δοκίμια ορθογωνικής διατομής, το μήκος θα υπολογίζεται από τον τύπο

$$l = 5,65 \sqrt{F_0 \text{ Error! Main Document Only.}}$$

## Προσθήκη Β.1b

**212 126** Όλα τα μέρη ενός εμπορευματοκιβωτίου-δεξαμενής που προορίζεται για τη μεταφορά υγρών με σημείο ανάφλεξης όχι μεγαλύτερο από 61 °C, ή για τη μεταφορά εύφλεκτων αερίων, θα είναι ικανά να γειωθούν ηλεκτρικά. Θα αποφεύγεται η επαφή με οποιοδήποτε μέταλλο που θα μπορούσε να υποβοηθήσει ηλεκτροχημική οξειδωση.

**212 127** Τα εμπορευματοκιβώτια-δεξαμενές θα μπορούν να αντέχουν τις καταπονήσεις που ορίζονται στο (1) και το πάχος τοιχώματος των περιβλημάτων θα είναι τουλάχιστον αυτό που προβλέπεται στα (2) έως (5) παρακάτω.

(1) Τα εμπορευματοκιβώτια-δεξαμενές και οι προσδέσεις τους θα μπορούν, υπό τη μέγιστη επιτρεπόμενη φόρτιση να απορροφούν τάσεις ίσες προς εκείνες που ασκούνται από:

- κατά τη διεύθυνση κίνησης: το διπλάσιο του συνολικού βάρους
- οριζοντίως σε ορθή γωνία προς την διεύθυνση κίνησης: το συνολικό βάρος (όπου η διεύθυνση κίνησης δεν καθορίζεται σαφώς, το διπλάσιο του συνολικού βάρους σε κάθε κατεύθυνση)
- κατακόρυφα προς τα άνω: το συνολικό βάρος και
- κατακόρυφα προς τα κάτω: το διπλάσιο του συνολικού βάρους.

Για κάθε μία δύναμη οι συντελεστές ασφαλείας προς τήρηση θα είναι οι παρακάτω:

- για μέταλλα με σαφώς ορισμένο σημείο διαρροής: συντελεστής ασφαλείας 1.5 σε σχέση με την εγγυημένη φαινόμενη τάση διαρροής ή,
- για μέταλλα χωρίς σαφώς ορισμένο σημείο διαρροής: συντελεστής ασφαλείας 1.5 σε σχέση με την εγγυημένη τάση δοκιμής 0.2%, και στην περίπτωση ωστενιτικών χαλύβων η μέγιστη επιμήκυνση 1%.

(2) Το πάχος του κυλινδρικού τοιχώματος του περιβλήματος και των άκρων και πλακών κάλυψης δεν θα είναι μικρότερο από την τιμή που καθορίζεται από τους ακόλουθους τύπους:

$$e = \frac{P_{MPa} \times D}{2 \times \sigma \times \lambda} \quad (\text{σε mm})$$

$$e = \frac{P_{bar} \times D}{2 \times \sigma \times \lambda} \quad (\text{σε mm})$$

όπου:

$P_{MPa}$  = πίεση υπολογισμού σε MPa

$P_{bar}$  = πίεση υπολογισμού σε bar

$D$  = εσωτερική διάμετρος περιβλήματος σε mm

$\sigma$  = επιτρεπόμενη τάση, κατά τα οριζόμενα στο περιθωριακό 212 125(1) και (2), σε  $N/mm^2$

$\lambda$  = συντελεστής που δεν υπερβαίνει το 1, με ανοχή για τυχόν εξασθένηση λόγω συγκολλήσεων.

Το πάχος σε καμία περίπτωση δεν θα είναι μικρότερο από την τιμή που προβλέπεται στα (3) και (4) παρακάτω.

## Προσθήκη Β.1b

212 127 (3) Τα τοιχώματα, τα άκρα και οι πλάκες κάλυψης περιβλημάτων με διάμετρο όχι μεγαλύτερη (συνεχ.) από  $1.80 \text{ m}^{2/}$  δεν θα είναι μικρότερα από 5 mm σε πάχος εάν είναι από μαλακό χάλυβα <sup>3/</sup> (σύμφωνα με τις διατάξεις του περιθωριακού 212 125) ή ισοδύναμου πάχους εάν είναι από άλλο μέταλλο. Όπου η διάμετρος είναι μεγαλύτερη από  $1.80 \text{ m}^{2/}$ , το πάχος αυτό θα αυξάνεται σε 6 mm εκτός από την περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά κονιαδών ή κοκκωδών υλών, εάν το περίβλημα είναι από μαλακό χάλυβα <sup>3/</sup> (σύμφωνα με τις διατάξεις του περιθωριακού 212 125) ή σε ισοδύναμο πάχος εάν η δεξαμενή είναι από άλλο μέταλλο.

Όποιο μέταλλο και αν χρησιμοποιείται, το πάχος του τοιχώματος του περιβλήματος δεν θα είναι σε καμία περίπτωση μικρότερο από 3 mm.

"Ισοδύναμο πάχος" σημαίνει το πάχος που υπολογίζεται με τον ακόλουθο τύπο:

$$e_1 = \frac{21.4 x e_0}{\sqrt[3]{R m_1 x A_1}}^{4/}$$

(4) Όπου παρέχεται προστασία του περιβλήματος έναντι βλάβης, η αρμόδια αρχή μπορεί να επιτρέψει την μείωση των προαναφερομένων ελάχιστων παχών αναλογικά προς την προσφερόμενη προστασία: εντούτοις, τα πάχη αυτά δεν θα είναι μικρότερα από 3 mm στην περίπτωση του μαλακού χάλυβα, <sup>3/</sup> ή από ισοδύναμο πάχος στην περίπτωση άλλων υλικών, για περιβλήματα όχι μεγαλύτερα από 1.80 m σε διάμετρο <sup>2/</sup>. Για περιβλήματα διαμέτρου που υπερβαίνει τα 1.80 m <sup>2/</sup> αυτό το ελάχιστο πάχος θα αυξάνεται σε 4 mm στην περίπτωση μαλακού χάλυβα <sup>3/</sup> και σε ισοδύναμο πάχος στην περίπτωση άλλων μετάλλων.

"Ισοδύναμο πάχος" σημαίνει το πάχος που λαμβάνεται από τον ακόλουθο τύπο:

$$e_1 = \frac{21.4 x e_0}{\sqrt[3]{R m_1 x A_1}}^{4/}$$

(5) Η προστασία που αναφέρεται στο (4) μπορεί να περιλαμβάνει συνολική εξωτερική κατασκευαστική προστασία όπως στην κατασκευή "σάντουιτς", όπου η επένδυση στερεώνεται στο περίβλημα, ή κατασκευή στην οποία το περίβλημα υποστηρίζεται από πλήρη σκελετό που περιλαμβάνει διαμήκη και εγκάρσια δομικά μέλη, ή κατασκευή διπλού τοιχώματος.

<sup>2/</sup> Για περιβλήματα μη κυκλικής διατομής, παραδείγματος χάριν κηρωσιδής ή ελλειψοειδής περιβλήματα, οι αναγραφόμενες διαμέτροι θα αντιστοιχούν σε εκείνες που υπολογίζονται με βάση κυκλική διατομή του ίδιου εμβαδού. Για τέτοια σχήματα διατομής η ακτίνα κυρτότητας του τοιχώματος του περιβλήματος δεν θα υπερβαίνει τα 2 000 mm στα πλάγια ή 3 000 mm στο άνω και κάτω μέρος.

<sup>3/</sup> "Μαλακός χάλυβας" σημαίνει χάλυβα με ελάχιστη αντοχή θραύσεως μεταξύ  $360 \text{ N/mm}^2$  και  $440 \text{ N/mm}^2$ .

<sup>4/</sup> Ο τύπος αυτός προκύπτει από τον γενικό τύπο:

$$e_1 = e_0 \sqrt[3]{\frac{R m_0 x A_0}{R m_1 x A_1}}$$

στον οποίο:

$R m_0$  = 360,

$A_0$  = 27 για τον μαλακό χάλυβα αναφοράς

$R m_1$  = ελάχιστη εφελκυστική αντοχή του επιλεγμένου μετάλλου, σε  $\text{N/mm}^2$  και

$A_1$  = ελάχιστη επιμήκυνση του επιλεγμένου μετάλλου κατά τη θραύση λόγω εφελκυστικής καταπόνησης, σε ποσοστό τοις εκατό.

## Προσθήκη Β.1b

**212 127 (συνεχ.)** Όπου τα περιβλήματα είναι κατασκευασμένα με διπλά τοιχώματα, με τον ενδιάμεσο χώρο κενωμένο από αέρα, το συνολικό πάχος του εξωτερικού μεταλλικού τοιχώματος και του τοιχώματος του περιβλήματος θα αντιστοιχούν στο ελάχιστο πάχος τοιχώματος που προβλέπεται στο (3), και το πάχος τοιχώματος του ίδιου του περιβλήματος δεν θα είναι μικρότερο από το ελάχιστο πάχος που προβλέπεται στο (4).

Όπου τα περιβλήματα είναι κατασκευασμένα με διπλά τοιχώματα με ενδιάμεση στρώση στερεών υλικών πάχους τουλάχιστον 50 mm, το εξωτερικό τοίχωμα θα έχει πάχος όχι μικρότερο από 0.5 mm εάν είναι κατασκευασμένο από μαλακό χάλυβα <sup>5/</sup> ή τουλάχιστον 2 mm εάν είναι κατασκευασμένο από πλαστικό υλικό ενισχυμένο με ίνες γυαλιού. Στερεός αφρός με ικανότητα απορρόφησης κρούσης παρόμοια, παραδείγματος χάριν, με αυτή του αφρού πολουρεθάνης, μπορεί να χρησιμοποιείται ως η ενδιάμεση στρώση στερεού υλικού.

(6) Η έγκριση του κατασκευαστή για τη διενέργεια εργασιών συγκόλλησης θα αναγνωρίζεται από την αρμόδια αρχή. Η συγκόλληση θα γίνεται από ειδικευμένους συγκολλητές με διαδικασία της οποίας η αποτελεσματικότητα (περιλαμβομένων τυχόν απαιτούμενων θερμικών διεργασιών) θα έχει αποδειχθεί με δοκιμή. Μη καταστρεπτικές δοκιμές θα διενεργούνται με ραδιογράφημα ή με υπερήχους και θα πρέπει να επιβεβαιώνουν ότι η ποιότητα της συγκόλλησης είναι κατάλληλη έναντι των καταπονήσεων.

Στον καθορισμό του πάχους των τοιχωμάτων του περιβλήματος σύμφωνα με το (2), πρέπει να υιοθετούνται οι ακόλουθες τιμές του συντελεστή λ (λάμδα) για τις συγκολλήσεις:

- 0.8: όπου τα κορδόνια συγκόλλησης επιθεωρούνται όσο αυτό είναι δυνατό και στις δύο όψεις και υποβάλλονται σε μη καταστρεπτικό σημειακό έλεγχο με ειδική φροντίδα στις συνδέσεις
- 0.9: όπου όλα τα επιμήκη κορδόνια συγκόλλησης σε όλο το μήκος τους, όλες οι συνδέσεις, 25% των κυκλικών σημείων, και οι συγκολλήσεις για τη συναρμολόγηση ειδών εξοπλισμού μεγάλης διαμέτρου υποβάλλονται σε μη καταστρεπτικούς ελέγχους. Τα κορδόνια συγκόλλησης θα ελέγχονται οπτικά και στις δύο όψεις στο βαθμό που αυτό είναι δυνατό
- 1.0: όπου όλα τα κορδόνια υποβάλλονται σε μη καταστρεπτικούς ελέγχους και επιθεωρούνται οπτικά κατά το δυνατόν και στις δύο πλευρές. Θα λαμβάνεται δοκίμιο συγκόλλησης.

Όπου η αρμόδια αρχή έχει αμφιβολίες σχετικά με την ποιότητα των κορδονιών συγκόλλησης, μπορεί να απαιτήσει πρόσθετους ελέγχους.

(7) Θα λαμβάνονται μέτρα για την προστασία των περιβλημάτων έναντι του κινδύνου παραμόρφωσης ως αποτέλεσμα αρνητικής εσωτερικής πίεσης.

Εκτός εάν προβλέπεται διαφορετικά στις ειδικές διατάξεις για τις επιμέρους κλάσεις, αυτά τα περιβλήματα μπορεί να έχουν βαλβίδες για την αποφυγή της μη αποδεκτής αρνητικής εσωτερικής πίεσης, χωρίς τη μεσολάβηση εκρηγνυόμενων δίσκων.

(8) Η θερμομόνωση θα σχεδιάζεται έτσι ώστε να μην παρεμποδίζει την πρόσβαση στις συσκευές πλήρωσης και εκκένωσης και τις βαλβίδες ασφαλείας, ούτε τη λειτουργία τους.

212 128-  
212 129

<sup>5/</sup> Βλέπε υποσημείωση <sup>3/</sup>.

## Προσθήκη Β.1b

## ΤΜΗΜΑ 3. Είδη εξοπλισμού

**212 130** Τα είδη εξοπλισμού θα είναι διαρρυθμισμένα έτσι ώστε να είναι προστατευμένα έναντι του κινδύνου να ξεβιδωθούν ή να πάθουν βλάβη κατά τη μεταφορά ή τον χειρισμό. Θα επιδεικνύουν κατάλληλο βαθμό ασφαλείας συγκρίσιμο με αυτόν των ίδιων των περιβλημάτων και ιδίως:

- θα είναι συμβατές με τις μεταφερόμενες ύλες
- θα ικανοποιούν τις απαιτήσεις του περιθωριακού 212 121.

Η στεγανότητα του λειτουργικού εξοπλισμού θα εξασφαλίζεται ακόμη και σε περίπτωση αναποδογύρισματος του εμπορευματοκιβωτίου-δεξαμενής. Τα παρεμβύσματα (φλάντζες) θα κατασκευάζονται από υλικό συμβατό με την μεταφερόμενη ύλη και θα αντικαθίστανται μόλις μειωθεί η αποτελεσματικότητά τους, παραδείγματος χάριν λόγω γήρανσης. Τα παρεμβύσματα (φλάντζες) που εξασφαλίζουν τη στεγανότητα των εξαρτημάτων τα οποία χρειάζονται χειρισμό κατά την κανονική χρήση των εμπορευματοκιβωτίων-δεξαμενών, θα σχεδιάζονται και θα τοποθετούνται κατά τέτοιο τρόπο ώστε να μην τους προκαλεί βλάβη ο χειρισμός των εξαρτημάτων στα οποία είναι ενσωματωμένα.

**212 131** Κάθε εμπορευματοκιβώτιο-δεξαμενή που εκκενώνεται από τον πυθμένα και στην περίπτωση εμπορευματοκιβωτίου-δεξαμενής με διαμερίσματα που εκκενώνονται από τον πυθμένα, κάθε διαμέρισμα, θα είναι εξοπλισμένο με δύο ανεξάρτητες μεταξύ τους δικλείδες, η πρώτη ως εσωτερική βαλβίδα κλεισίματος<sup>6/</sup> στερεωμένη απευθείας στο περίβλημα και η δεύτερη ως βαλβίδα υπερχειλίστης ή άλλη ισοδύναμη συσκευή<sup>7/</sup>, τοποθετημένες σε σειρά, από μία σε κάθε άκρο του στομίου του σωλήνα εκκένωσης. Η εκκένωση από τον πυθμένα σε περιβλήματα προοριζόμενα για τη μεταφορά κοινωδών ή κοκκωδών υλών μπορεί να πραγματοποιείται με εξωτερική σωλήνωση με βαλβίδα κλεισίματος εάν είναι κατασκευασμένη από σφυρήλατο μεταλλικό υλικό. Επιπλέον, τα ανοίγματα θα είναι σε θέση να κλειστούν με βιδωτά πώματα, κενά παρεμβύσματα (φλάντζες) ή άλλες εξίσου αποτελεσματικές συσκευές.

Η εσωτερική βαλβίδα κλεισίματος θα μπορεί να ρυθμίζεται από τα άνω ή από τα κάτω. Η ρύθμισή της - ανοικτή ή κλειστή - θα μπορεί κατά το δυνατόν σε κάθε περίπτωση να επαληθεύεται από το έδαφος. Εσωτερικές συσκευές ελέγχου με δικλείδα θα σχεδιάζονται έτσι ώστε να αποτρέπεται μη ηθελημένο άνοιγμα λόγω κρούσης ή ακούσιας ενέργειας.

Η εσωτερική συσκευή κλεισίματος θα συνεχίσει να λειτουργεί σε περίπτωση βλάβης της εξωτερικής συσκευής ελέγχου.

Για την αποφυγή οποιασδήποτε απώλειας των περιεχομένων σε περίπτωση βλάβης των εξωτερικών εξαρτημάτων εκκένωσης (σωλήνες, εγκάρσιες συσκευές κλεισίματος), η εσωτερική δικλείδα και η έδρασή της θα προστατεύονται έναντι του κινδύνου να ξεβιδωθούν λόγω εξωτερικών καταπονήσεων ή θα σχεδιάζονται έτσι ώστε να τις αντέχουν. Οι συσκευές πλήρωσης και εκκένωσης (περιλαμβανομένων των παρεμβυσμάτων ή βιδωτών πωμάτων) και τα προστατευτικά πώματα (εάν υπάρχουν) θα μπορούν να ασφαλισθούν έναντι οποιουδήποτε μη ηθελημένου ανοίγματος.

Η θέση και/ή η φορά κλεισίματος των βαλβίδων θα είναι προφανείς.

Το περίβλημα ή καθένα από τα διαμερίσματά του θα είναι εφοδιασμένο με άνοιγμα επαρκούς μεγέθους ώστε να επιτρέπουν την επιθεώρηση.

<sup>6/</sup> Εντούτοις, στην περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά ορισμένων υλών κρυσταλλοποιούμενων ή με υψηλό ιξώδες, υγροποιημένων αερίων βαθιάς καταψύξεως και περιβλημάτων εξοπλισμένων με επίχρισμα από εβονίτη ή θερμοπλαστικό, η εσωτερική δικλείδα μπορεί να αντικαθίσταται από εξωτερική δικλείδα με πρόσθετη προστασία.

<sup>7/</sup> Στην περίπτωση εμπορευματοκιβωτίων-δεξαμενών με χωρητικότητα μικρότερη από 1 m<sup>3</sup>, η βαλβίδα υπερχειλίστης ή άλλη ισοδύναμη συσκευή θα αντικαθίσταται από ένα κενό παρέμβυσμα (φλάντζα)

## Προσθήκη Β.1b

- 212 132** Εμπορευματοκιβώτια-δεξαμενές προοριζόμενα για τη μεταφορά υλών για τα οποία όλα τα ανοίγματα είναι πάνω από τη στάθμη της επιφάνειας του υγρού μπορεί να είναι εξοπλισμένα, στο κάτω μέρος του αμαξώματος, με άνοιγμα καθαρισμού (fist-hole). Το άνοιγμα αυτό θα μπορεί να σφραγισθεί με παρέμβυσμα (φλάντζα) κλεισμένο έτσι ώστε να είναι στεγανή, ο σχεδιασμός της οποίας θα εγκρίνεται από την αρμόδια αρχή ή από φορέα ορισμένο από την αρχή αυτή.
- 212 133** Εμπορευματοκιβώτια-δεξαμενές προοριζόμενα για τη μεταφορά υγρών με πίεση ατμών όχι μεγαλύτερη από 110 kPa (1.1 bar) (απόλυτη πίεση) στους 50 °C θα έχουν σύστημα εξαερισμού και συσκευή ασφαλείας για να αποτρέπεται η διαφυγή των περιεχομένων από το περίβλημα εάν το εμπορευματοκιβώτιο-δεξαμενή ανατραπεί ή θα συμφωνούν με τις απαιτήσεις του περιθωριακού 212 134 ή 212 135 παρακάτω.
- 212 134** Εμπορευματοκιβώτια-δεξαμενές προοριζόμενα για τη μεταφορά υγρών με πίεση ατμών μεγαλύτερη από 110 kPa (1.1 bar) και όχι μεγαλύτερη από 175 kPa (1.75 bar) (απόλυτη πίεση) στους 50 °C θα έχουν βαλβίδα ασφαλείας ρυθμισμένη σε πίεση όχι μικρότερη από 150 kPa (1.5 bar) (πίεση μετρητή) και τέτοια ώστε να είναι εντελώς ανοικτή σε πίεση που δεν υπερβαίνει την πίεση δοκιμής ή θα συμφωνούν με τις απαιτήσεις του περιθωριακού 212 135.
- 212 135** Εμπορευματοκιβώτια-δεξαμενές προοριζόμενα για τη μεταφορά υγρών με πίεση ατμών μεγαλύτερη από 175 kPa (1.75 bar) και όχι μεγαλύτερη από 300 kPa (3 bar) (απόλυτη πίεση) στους 50 °C θα είναι εξοπλισμένα με βαλβίδα ασφαλείας ρυθμισμένη σε πίεση όχι μικρότερη από 300 kPa (3 bar) (πίεση μετρητή) και τέτοια ώστε να είναι εντελώς ανοικτή σε πίεση που δεν υπερβαίνει την πίεση δοκιμής ή θα είναι ερμητικά κλειστά <sup>8/</sup>.
- 212 136** Κινητά μέρη όπως καλύμματα, κλεισίματα, κ.λπ., τα οποία είναι δυνατό να έλθουν σε τριβική ή κρουστική επαφή με περιβλήματα αλουμινίου προοριζόμενα για τη μεταφορά εύφλεκτων υγρών με σημείο ανάφλεξης όχι μεγαλύτερο από 61 °C ή για τη μεταφορά εύφλεκτων αερίων δεν μπορεί να κατασκευάζονται από απροστάτευτο οξειδούμενο χάλυβα.

**212 137-  
212 139**

**ΤΜΗΜΑ 4. Έγκριση τύπου**

- 212 140** Η αρμόδια αρχή ή φορέας ορισμένος από την αρχή αυτή θα εκδίδει σχετικά με κάθε νέο τύπο εμπορευματοκιβωτίου-δεξαμενής πιστοποιητικό που να βεβαιώνει ότι το πρότυπο εμπορευματοκιβώτιο-δεξαμενή, περιλαμβομένων των προσδέσεων, το οποίο έχει επιθεωρήσει είναι κατάλληλο για τον σκοπό για τον οποίο προορίζεται και ικανοποιεί τις κατασκευαστικές απαιτήσεις του Τμήματος 2, τις απαιτήσεις εξοπλισμού του Τμήματος 3 και τους ειδικούς όρους για τις κλάσεις των μεταφερομένων υλών. Εάν τα εμπορευματοκιβώτια-δεξαμενές κατασκευάζονται σε σειρά χωρίς τροποποίηση, η έγκριση αυτή θα έχει ισχύ για ολόκληρη τη σειρά. Τα αποτελέσματα των δοκιμών, οι ύλες και/ή οι ομάδες υλών για τη μεταφορά των οποίων εγκρίνεται το εμπορευματοκιβώτιο-δεξαμενή και ο αριθμός έγκρισης τύπου του προτύπου θα αναφέρονται σε έκθεση δοκιμής. Οι ύλες μιας ομάδας υλών θα είναι παρόμοιου είδους και εξίσου συμβατές με τα χαρακτηριστικά του περιβλήματος. Οι επιτρεπόμενες ύλες ή ομάδες υλών θα αναφέρονται στην έκθεση δοκιμής, με τα χημικά τους ονόματα ή την αντίστοιχη συνολική επικεφαλίδα στον κατάλογο υλών, και με την Κλάση και τον αριθμό είδους. Ο αριθμός έγκρισης θα αποτελείται από το διακριτικό σήμα <sup>9/</sup> του Κράτους στην επικράτεια του οποίου δόθηκε η έγκριση, και τον αριθμό εγγραφής.

<sup>8/</sup> "Ερμητικά κλεισμένα περιβλήματα" σημαίνει τα περιβλήματα τα ανοίγματα των οποίων κλείνονται ερμητικά και τα οποία δεν είναι εξοπλισμένα με βαλβίδες ασφαλείας, ασφαλιστικούς δίσκους ή άλλες παρόμοιες συσκευές ασφαλείας. Περιβλήματα που έχουν βαλβίδες ασφαλείας των οποίων προηγείται ασφαλιστικός δίσκος θα θεωρούνται ότι είναι ερμητικά κλεισμένα.

<sup>9/</sup> Διακριτικό σήμα προς χρήση στη διεθνή οδική κυκλοφορία προβλεπόμενο από την Σύμβαση για την Οδική Κυκλοφορία (Βιέννη, 1968).

## Προσθήκη Β.1b

212 141-  
212 149

## ΤΜΗΜΑ 5. Δοκιμές

**212 150** Τα περιβλήματα και ο εξοπλισμός τους υποβάλλονται είτε από κοινού ή χωριστά σε αρχική επιθεώρηση πριν να τεθούν σε λειτουργία. Η επιθεώρηση αυτή θα περιλαμβάνει:

- έλεγχο της συμφωνίας προς το εγκεκριμένο πρότυπο<sup>10/</sup>
- έλεγχο των χαρακτηριστικών σχεδιασμού<sup>10/</sup>
- εξέταση των εσωτερικών και εξωτερικών συνθηκών
- δοκιμή υδραυλικής πίεσης<sup>11/</sup> στην πίεση δοκιμής που αναγράφεται στην πινακίδα στοιχείων και
- έλεγχο της ικανοποιητικής λειτουργίας του εξοπλισμού.

Η δοκιμή υδραυλικής πίεσης θα διενεργείται πριν την εγκατάσταση της θερμομόνωσης που τυχόν είναι αναγκαία. Εάν τα περιβλήματα και ο εξοπλισμός τους δοκιμάζονται χωριστά, θα υποβάλλονται από κοινού σε δοκιμή στεγανότητας σύμφωνα με το περιθωριακό 212 102 (3).

**212 151** Τα περιβλήματα και ο εξοπλισμός τους θα υποβάλλονται σε περιοδικές επιθεωρήσεις σε σταθερά διαστήματα. Οι περιοδικές επιθεωρήσεις θα περιλαμβάνουν εξωτερική και εσωτερική εξέταση και, ως γενικό κανόνα, δοκιμή υδραυλικής πίεσης<sup>11/</sup>. Η επένδυση για θερμική ή άλλη μόνωση θα απομακρύνεται μόνο στο βαθμό που απαιτείται για την αξιόπιστη αποτίμηση των χαρακτηριστικών του περιβλήματος.

Στην περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά κονιωδών ή κοκκωδών υλών, και με τη σύμφωνη γνώμη του εγκεκριμένου από την αρμόδια αρχή ειδικού, οι περιοδικές δοκιμές υδραυλικής πίεσης μπορεί να παραλείπονται και να αντικαθίστανται από δοκιμές στεγανότητας σύμφωνα με το περιθωριακό 212 102 (3).

Τα μέγιστα διαστήματα μεταξύ επιθεωρήσεων θα είναι πέντε έτη.

Εμπορευματοκιβώτια-δεξαμενές, κενά, ακαθάριστα, μπορούν επίσης να μεταφέρονται μετά την λήξη αυτής της περιόδου για τη διενέργεια της δοκιμής.

**212 152** Επιπλέον, θα διενεργούνται δοκιμή στεγανότητας του περιβλήματος με τον εξοπλισμό του σύμφωνα με το περιθωριακό 212 102 (3) και έλεγχος της ικανοποιητικής λειτουργίας ολοκλήρου του εξοπλισμού τουλάχιστον κάθε δύομισι χρόνια.

**212 153** Όποτε η ασφάλεια του περιβλήματος ή του εξοπλισμού του μπορεί να έχει μειωθεί συνεπεία επισκευών, μετατροπών ή ατυχήματος, θα διενεργείται έκτακτος έλεγχος.

<sup>10/</sup> Ο έλεγχος των χαρακτηριστικών σχεδιασμού θα περιλαμβάνει επίσης, για περιβλήματα που απαιτούν πίεση δοκιμής 1 MPa (10 bar) ή μεγαλύτερη, τη λήψη δοκιμών συγκόλλησης (δειγμάτων εργασίας) σύμφωνα με τις δοκιμές στην Προσθήκη Β.1d.

<sup>11/</sup> Σε ειδικές περιπτώσεις και με τη σύμφωνη γνώμη του εγκεκριμένου από την αρμόδια αρχή ειδικού, η δοκιμή υδραυλικής πίεσης μπορεί να αντικατασταθεί από δοκιμή πίεσης χρησιμοποιώντας άλλο υγρό ή αέριο, όπου τέτοια εργασία δεν συνεπάγεται τυχόν κίνδυνο.



## Προσθήκη Β.1b

**212 154** Οι δοκιμές, επιθεωρήσεις και έλεγχοι σύμφωνα με τα περιθωριακά 212 150 έως 212 153 θα διενεργούνται από τον εγκεκριμένο από την αρμόδια αρχή ειδικό. Θα εκδίδονται πιστοποιητικά που θα εμφανίζουν τα αποτελέσματα των εργασιών αυτών. Αυτά τα πιστοποιητικά θα αναφέρονται στον κατάλογο υλών των οποίων επιτρέπεται η μεταφορά σε αυτό το περιβλήμα σύμφωνα με το 212 140.

**212 155-  
212 159**

**ΤΜΗΜΑ 6. Επισήμανση**

**212 160** Κάθε εμπορευματοκιβώτιο-δεξαμενή θα είναι εξοπλισμένο με πινακίδα από μέταλλο ανθεκτικό στην οξείδωση μόνιμα προσδεδεμένο στο περιβλήμα σε μέρος εύκολα προσπελάσιμο για επιθεώρηση. Τα ακόλουθα στοιχεία, τουλάχιστον, θα σημειώνονται στην πινακίδα με σφράγιση ή άλλη παρόμοια μέθοδο. Τα στοιχεία αυτά μπορεί να χαρασσονται απευθείας στα τοιχώματα του ίδιου του περιβλήματος εάν τα τοιχώματα είναι ενισχυμένα έτσι ώστε να μη μειώνεται η αντοχή του περιβλήματος:

- αριθμός έγκρισης
- επωνυμία ή σήμα του κατασκευαστή
- αύξων αριθμός του κατασκευαστή
- έτος κατασκευής
- πίεση δοκιμής <sup>12/</sup> (πίεση μετρητή)
- χωρητικότητα <sup>12/</sup> - στην περίπτωση εμπορευματοκιβωτίου-δεξαμενής πολλαπλών στοιχείων: χωρητικότητα του κάθε στοιχείου
- θερμοκρασία σχεδιασμού <sup>12/</sup> (μόνο εάν είναι άνω των 50 °C ή κάτω των -20 °C)
- ημερομηνία (μήνας και έτος) της αρχικής δοκιμής και της πιο πρόσφατης περιοδικής δοκιμής σύμφωνα με τα περιθωριακά 212 150 και 212 151 και
- σφραγίδα του ειδικού που διενεργεί τις δοκιμές.
- υλικό του περιβλήματος και, όπου υπάρχει, της προστατευτικής επίστρωσης.

Επιπλέον θα αναγράφεται η μέγιστη πίεση εργασίας σε περιβλήματα που πληρούνται ή εκκενώνονται με πίεση.

**212 161** Τα ακόλουθα στοιχεία θα αναγράφονται είτε στο ίδιο το εμπορευματοκιβώτιο-δεξαμενή είτε σε πινακίδα:

- επωνυμίες του ιδιοκτήτη και του χειριστή
- χωρητικότητα του περιβλήματος <sup>12/</sup>
- απόβαρο <sup>12/</sup>
- το μέγιστο επιτρεπόμενο μικτό βάρος <sup>12/</sup> και
- η ονομασία της μεταφερόμενης ύλης <sup>13/</sup>.

<sup>12/</sup> Οι μονάδες μέτρησης πρέπει να αναφέρονται μετά τις αριθμητικές τιμές.

<sup>13/</sup> Συνεκδοχική περιγραφή που καλύπτει ομάδα υλών παρόμοιας φύσης και εξίσου συμβατών με τα χαρακτηριστικά του περιβλήματος μπορεί να δίνεται αντί της ονομασίας.

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**Προσθήκη Β.1b**

Επιπλέον, τα εμπορευματοκιβώτια-δεξαμενές θα φέρουν τις προβλεπόμενες ετικέτες αναγγελίας κινδύνου.

## Προσθήκη Β.1b

212 162-  
212 169

## ΤΜΗΜΑ 7. Λειτουργία

- 212 170** Κατά τη μεταφορά, τα εμπορευματοκιβώτια-δεξαμενές θα στερεώνονται στο φέρον όχημα κατά τρόπο ώστε να προστατεύονται επαρκώς από τα εξαρτήματα του φέροντος οχήματος ή του ίδιου του εμπορευματοκιβωτίου-δεξαμενής έναντι πλευρικής και κατά μήκος κρούσης και έναντι ανατροπής <sup>14/</sup>. Εάν τα περιβλήματα, περιλαμβανομένου του λειτουργικού εξοπλισμού, κατασκευάζονται έτσι ώστε να αντέχουν την κρούση ή την ανατροπή δεν χρειάζεται να προστατεύονται με αυτόν τον τρόπο. Το πάχος των τοιχωμάτων του περιβλήματος, σε όλη την περίοδο χρήσης του, δεν θα υπολείπεται της ελάχιστης τιμής που απαιτείται από το περιθωριακό 212 127 (2).
- 212 171** Τα περιβλήματα δεν θα φορτώνονται με επικίνδυνες ύλες εκτός από εκείνες για τη μεταφορά των οποίων έχουν εγκριθεί και οι οποίες, ερχόμενες σε επαφή με τα υλικά του περιβλήματος, τα παρεμβύσματα (φλάντζες), τον εξοπλισμό και τις προστατευτικές επιστρώσεις, δεν είναι δυνατόν να αντιδράσουν επικίνδυνα με αυτά, να σχηματίσουν επικίνδυνα προϊόντα ή να εξασθενήσουν αισθητά το υλικό. Δεν θα μεταφέρονται τρόφιμα σε αυτά τα περιβλήματα εκτός εάν έχουν ληφθεί τα αναγκαία μέτρα για να αποτραπεί οποιαδήποτε βλάβη στη δημόσια υγεία.
- 212 172** (1) Οι ακόλουθοι βαθμοί πλήρωσης δεν θα υπερβαίνουν σε εμπορευματοκιβώτια-δεξαμενές προοριζόμενα για τη μεταφορά υγρών σε θερμοκρασίες περιβάλλοντος:

- (a) για εύφλεκτες ύλες χωρίς πρόσθετους κινδύνους (π.χ. τοξικότητα ή οξείδωση), σε εμπορευματοκιβώτια-δεξαμενές με σύστημα εξαερισμού ή με βαλβίδες ασφαλείας (ακόμη και όπου προηγείται εκρηγνύομενος δίσκος):

$$\text{βαθμός πλήρωσης} = \frac{100}{1 + \alpha (50 - t_F)} \% \text{ χωρητικότητας}$$

- (b) για τοξικές ή διαβρωτικές ύλες (εύφλεκτες ή μη) σε εμπορευματοκιβώτια-δεξαμενές με σύστημα εξαερισμού ή με βαλβίδες ασφαλείας (ακόμη και όπου προηγείται εκρηγνύομενος δίσκος):

$$\text{βαθμός πλήρωσης} = \frac{98}{1 + \alpha (50 - t_F)} \% \text{ χωρητικότητας}$$

<sup>14/</sup>

## Παραδείγματα προστασίας περιβλημάτων:

1. προστασία έναντι πλευρικής πρόσκρουσης μπορεί, παραδείγματος χάριν, να αποτελείται από επιμήκεις ράβδους (μπάρες) που προστατεύουν το περίβλημα και στις δύο πλευρές στο επίπεδο της μέσης γραμμής.
2. Προστασία έναντι ανατροπής μπορεί, παραδείγματος χάριν, να αποτελείται από ενισχυτικούς δακτυλίους ή ράβδους (μπάρες) στερεωμένες εγκάρσια σε σχέση με το πλαίσιο.
3. Προστασία έναντι πρόσκρουσης από όπισθεν μπορεί παραδείγματος χάριν να αποτελείται από προφυλακτήρα ή πλαίσιο.

## Προσθήκη Β.1b

- 212 172 (c) για εύφλεκτες ύλες και για ελαφρά τοξικές ή ελαφρά διαβρωτικές ύλες (εύφλεκτες ή (συνεχ.) μη) σε ερμητικά κλειστά περιβλήματα <sup>15/</sup> χωρίς συσκευή ασφαλείας:

$$\text{βαθμός πλήρωσης} = \frac{97}{1 + a(50 - t_F)} \% \text{ χωρητικότητας}$$

- (d) για εξαιρετικά τοξικές, τοξικές, εξαιρετικά διαβρωτικές ή διαβρωτικές ύλες εύφλεκτες ή μη) σε ερμητικά κλειστά περιβλήματα <sup>15/</sup> χωρίς συσκευή ασφαλείας:

$$\text{βαθμός πλήρωσης} = \frac{95}{1 + a(50 - t_F)} \% \text{ χωρητικότητας}$$

- (2) Στους τύπους αυτούς, είναι ο μέσος συντελεστής κυβικής διαστολής του υγρού μεταξύ 15 °C και 50 °C, δηλ. για μέγιστη διακύμανση θερμοκρασίας 35 °C.

$$\text{Το } a \text{ υπολογίζεται από τον τύπο: } a = \frac{d_{15} - d_{50}}{35 \times d_{50}}$$

όπου  $d_{15}$  και  $d_{50}$  είναι οι σχετικές πυκνότητες του υγρού στους 15 °C και 50 °C αντίστοιχα.  $t_F$  είναι η μέση θερμοκρασία του υγρού κατά την πλήρωση.

(3) Οι διατάξεις του (1) δεν θα έχουν εφαρμογή σε περιβλήματα τα περιεχόμενα των οποίων, διαμέσου θερμαντικής συσκευής, διατηρούνται σε θερμοκρασία άνω των 50 °C κατά τη μεταφορά. Στην περίπτωση αυτή ο βαθμός πλήρωσης στην αρχή θα είναι τέτοιος, και η θερμοκρασία έτσι ρυθμισμένη, ώστε το περιβλημα να μην είναι γεμάτο σε ποσοστό μεγαλύτερο από 95% της χωρητικότητάς του και η θερμοκρασία πλήρωσης να μην υπερβαίνεται, σε καμία στιγμή κατά τη μεταφορά.

(4) Όπου φορτώνονται θερμές ύλες, η θερμοκρασία της εξωτερικής επιφάνειας του περιβλήματος ή της θερμομόνωσης δεν θα υπερβαίνει τους 70 °C κατά τη μεταφορά.

- 212 173 Εάν τα περιβλήματα εμπορευματοκιβωτίων-δεξαμενών προοριζόμενων για τη μεταφορά υγρών <sup>16/</sup> δεν διαιρούνται με χωρίσματα ή πλάκες διογκώσεως σε τμήματα χωρητικότητας όχι μεγαλύτερης από 7 500 λίτρα, θα πληρούνται σε ποσοστό όχι μικρότερο από 80% της χωρητικότητάς τους εκτός εάν είναι χαρακτηρισμένα ως κενά.

- 212 174 Κατά την φόρτωση και εκφόρτωση δεξαμενών, θα λαμβάνονται κατάλληλα μέτρα για να αποτρέπουν την έκλυση επικίνδυνων ποσοτήτων αερίων και ατμών.

Τα εμπορευματοκιβώτια-δεξαμενές θα είναι κλειστά έτσι ώστε τα περιεχόμενα να μην μπορούν να διασκορπιστούν ανεξέλεγκτα. Τα ανοίγματα σε περιβλήματα εκκένωσης από τον πυθμένα θα κλείνονται με βιδωτά βύσματα, κενά παρεμβύσματα (φλάντζες) ή άλλες εξίσου αποτελεσματικές συσκευές. Η στεγανότητα των κλεισμάτων στα περιβλήματα, ιδίως στο άνω μέρος του σίφωνα, θα ελέγχεται από τον αποστολέα μετά την πλήρωση του περιβλήματος.

<sup>15/</sup> Βλέπε υποσημείωση <sup>8/</sup>

<sup>16/</sup> Υλεις των οποίων το κινηματικό ιξώδες στους 20 °C είναι μικρότερο από 2 680 mPa·s θα θεωρούνται ως υγρά για τους σκοπούς αυτής της διάταξης.

## Προσθήκη Β.1b

- 212 175 Όπου πολλαπλά συστήματα κλεισίματος είναι τοποθετημένα σε σειρά, το πλησιέστερο στην μεταφερόμενη ύλη θα κλείνεται πρώτο.
- 212 176 Δεν θα επικάθονται επικίνδυνα κατάλοιπα της ύλης πλήρωσης στο εξωτερικό ενός εμπορευματοκιβωτίου-δεξαμενής κατά τη μεταφορά, είτε αυτό είναι φορτωμένο είτε κενό.
- 212 177 Για να γίνουν δεκτά για μεταφορά, τα κενά εμπορευματοκιβώτια-δεξαμενές, ακαθάριστα, θα κλείνονται με τον ίδιο τρόπο και θα είναι στεγανά στον ίδιο βαθμό σαν να ήταν γεμάτα.
- 212 178-  
212 179

**ΤΜΗΜΑ 8. Μεταβατικά μέτρα**

- 212 180 Εμπορευματοκιβώτια-δεξαμενές κατασκευασμένα πριν την έναρξη ισχύος των διατάξεων με δυνατότητα εφαρμογής από 1ης Ιανουαρίου 1988 τα οποία δεν είναι σύμφωνα με εκείνες τις διατάξεις αλλά κατασκευάστηκαν σύμφωνα με τις απαιτήσεις αυτής της Οδηγίας σε ισχύ πριν από εκείνη την ημερομηνία μπορούν να χρησιμοποιούνται ακόμη.
- 212 181 Εμπορευματοκιβώτια-δεξαμενές κατασκευασμένα πριν την έναρξη ισχύος των διατάξεων με δυνατότητα εφαρμογής από 1ης Ιανουαρίου 1993 τα οποία δεν είναι σύμφωνα με εκείνες τις διατάξεις αλλά κατασκευάστηκαν σύμφωνα με τις απαιτήσεις αυτής της Οδηγίας σε ισχύ μέχρι εκείνη την ημερομηνία μπορούν να χρησιμοποιούνται ακόμη.
- 212 182-  
212 189

**ΤΜΗΜΑ 9. Χρήση εμπορευματοκιβωτίων-δεξαμενών εγκεκριμένων για θαλάσσια μεταφορά**

- 212 190 Εμπορευματοκιβώτια-δεξαμενές τα οποία δεν ικανοποιούν πλήρως τις απαιτήσεις της παρούσης προσθήκης αλλά τα οποία έχουν εγκριθεί σύμφωνα με τις απαιτήσεις που αφορούν θαλάσσια μεταφορά θα γίνονται δεκτά για μεταφορά <sup>17/</sup>.

Επιπλέον των ήδη προβλεπόμενων στοιχείων, το έγγραφο μεταφοράς θα φέρει τις εξής λέξεις: "Μεταφορά σύμφωνα με περιθωριακό 212 190".

Μόνο ύλες εγκεκριμένες από το περιθωριακό 10 121 (1) μπορεί να μεταφέρονται σε εμπορευματοκιβώτια-δεξαμενές.

- 212 191-  
212 199

<sup>17/</sup> Αυτές οι απαιτήσεις περιέχονται στην Παράγραφο 13 της Γενικής Εισαγωγής του Κώδικα της Διεθνούς Ναυτιλιακής Οργάνωσης για τα Επικίνδυνα Εμπορεύματα (IMDG) που δημοσιεύεται από την Διεθνή Ναυτιλιακή Οργάνωση, Λονδίνο.

## Προσθήκη Β.1b

**ΜΕΡΟΣ ΙΙ: Ειδικές απαιτήσεις που συμπληρώνουν ή τροποποιούν τις απαιτήσεις του Μέρους Ι**

**ΚΛΑΣΗ 2. ΑΕΡΙΑ ΣΥΜΠΙΕΣΜΕΝΑ, ΥΓΡΟΠΟΙΗΜΕΝΑ Ή ΔΙΑΛΥΜΕΝΑ ΥΠΟ ΠΙΕΣΗ**

212 200-

212 209

**ΤΜΗΜΑ 1. Γενικά, πλαίσιο (χρήση εμπορευματοκιβωτίων-δεξαμενών), ορισμοί**

**Χρήση**

**212 210** Αέρια του περιθωριακού 2201, εκτός των αναγραφόμενων παρακάτω μπορεί να μεταφέρονται σε εμπορευματοκιβώτια-δεξαμενές:

Φθόριο, τριφθοριούχο αζώτο και τετραφθοριούχο πυρίτιο του 1° (at) οξείδιο του αζώτου του 1° (ct) μείγματα υδρογόνου με όχι περισσότερο του 10% υδροσελήνιο ή φωσφίνη ή γερμάνιο κατ'όγκο ή με όχι περισσότερο από 15% αρσίνη κατ'όγκο μείγματα αζώτου ή ευγενών αερίων (περιέχοντα όχι περισσότερο από 10% ξένο κατ'όγκο) με όχι περισσότερο από 10% υδροσελήνιο ή φωσφίνη ή γερμάνιο κατ'όγκο ή όχι περισσότερο από 15% αρσίνη κατ'όγκο του 2° (bt) μείγματα υδρογόνου με όχι περισσότερο από 10% διβοράνιο κατ'όγκο μείγματα αζώτου ή ευγενή αέρια (περιέχοντα όχι περισσότερο από 10% διβοράνιο κατ'όγκο) με όχι περισσότερο από 10% διβοράνιο κατ'όγκο του 2° (ct), οκταφθοροβουτ-2-ένιο (R1318) και οκταφθοροπροπάνιο του 3° (a) τριχλωριούχο βόριο, τριφθοριούχο χλώριο, εξαφθοροακετόνη, νιτρωδυλοχλωρίδιο, σουλφουρυλοφθορίδιο και εξαφθοριούχο βολφράμιο του 3° (at) 2,2-διμεθυλοπροπάνιο και μεθυλοσιλάνιο του 3° (b) αρσίνη, καρβονυλοσουλφίδιο, διχλωροσιλάνιο, διμεθυλοσιλάνιο, υδροσελήνιο και τριμεθυλοσιλάνιο του 3° (bt) προπαδιένιο, αδρανές, του 3° (c), κυανογόνο, χλωριούχο κυανογόνο, αιθυλενοξείδιο και υδροϊώδιο, ανυδρίτη του 3° (ct) μείγματα μεθυλοσιανίων του 4° (bt) προπαδιένιο με 1% έως 4% μεθυλακετυλένιο, σταθεροποιημένο, του 4° (c) αιθυλενοξείδιο περιέχον όχι περισσότερο από 50% κατά βάρος μυρμηκικό μεθυλεστέρα του 4° (ct) σιλάνιο του 5° (b) ύλης του 5° (bt) και (ct) διαλυμένο ακετυλένιο του 9° (c) αέρια του 12° και 13°.

212 211-

212 219

**ΤΜΗΜΑ 2. Κατασκευή**

**212 220** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 1° έως 6° και 9° θα κατασκευάζονται από χάλυβα.

Στην περίπτωση μη συγκολλημένων περιβλημάτων κατά παρέκκλιση από το περιθωριακό 212 125 (3), μπορεί να γίνει δεκτή ελάχιστη επιμήκυνση θραύσεως 14% καθώς και τάση  $\sigma$  (σίγμα) μικρότερη ή ίση των παρακάτω ορίων αναλόγως του υλικού.

(a) Όταν ο λόγος  $Re/Rm$  των ελάχιστων εγγυημένων χαρακτηριστικών μετά από θερμική κατεργασία είναι μεγαλύτερος του 0.66 χωρίς να υπερβαίνει το 0.85:

$$\sigma \leq 0.75 Re$$

(b) Όταν ο λόγος  $Re/Rm$  των ελάχιστων εγγυημένων χαρακτηριστικών μετά από θερμική κατεργασία είναι μεγαλύτερος του 0.85:  $\sigma \leq 0.5 Rm$ .

**212 221** Οι απαιτήσεις της Προσθήκης Β.1d θα έχουν εφαρμογή στα υλικά και την κατασκευή συγκολλημένων περιβλημάτων.

**212 222** Περιβλήματα προοριζόμενα για τη μεταφορά χλωρίου ή φωσγενίου του 3° (at) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] τουλάχιστον 2.2 MPa (22 bar) (πίεση μετρητή).

## Προσθήκη Β.1b

212 223-  
212 229

## ΤΜΗΜΑ 3. Είδη εξοπλισμού

**212 230** Οι σωληνώσεις εκκένωσης των περιβλημάτων θα μπορούν να κλείνονται με κενά παρεμβύσματα (φλάντζες) ή άλλη εξίσου αξιόπιστη συσκευή.

**212 231** Περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων μπορεί να έχουν, επιπλέον των ανοιγμάτων που προβλέπονται στα περιθωριακά 212 131 και 212 132, ανοίγματα για την τοποθέτηση μετρητών, θερμομέτρων, μανομέτρων και με ανοίγματα αποστραγγίσεως, όπως απαιτείται για την ασφαλή λειτουργία τους.

**212 232** Οι συσκευές ασφαλείας θα πληρούν τις ακόλουθες απαιτήσεις:

(1) Τα ανοίγματα πλήρωσης και εκκένωσης περιβλημάτων με χωρητικότητα που υπερβαίνει το  $1 \text{ m}^3$  προοριζόμενων για τη μεταφορά υγροποιημένων εύφλεκτων και/ή τοξικών αερίων θα είναι εξοπλισμένα με εσωτερική συσκευή ασφαλείας στιγμιαίου κλεισίματος, η οποία κλείνει αυτομάτως σε περίπτωση ακούσιας κίνησης του περιβλήματος ή φωτιάς. Θα είναι επίσης δυνατή η λειτουργία της συσκευής κλεισίματος με τηλεχειρισμό.

(2) Όλα τα ανοίγματα, εκτός από εκείνα που υποδέχονται βαλβίδες ασφαλείας και από ανοίγματα αποστράγγισης, περιβλημάτων προοριζόμενων για τη μεταφορά υγροποιημένων εύφλεκτων και/ή τοξικών αερίων θα είναι εξοπλισμένα, εάν η ονομαστική διάμετρος τους είναι μεγαλύτερη από 1.5 mm, με εσωτερική συσκευή κλεισίματος.

(3) Κατά παρέκκλιση από τις διατάξεις του (1) και (2), περιβλήματα προοριζόμενα για τη μεταφορά εύφλεκτων και/ή τοξικών υγροποιημένων αερίων βαθιάς καταψύξεως μπορεί να είναι εξοπλισμένα με εξωτερικές συσκευές αντί για εσωτερικές συσκευές εάν οι εξωτερικές συσκευές παρέχουν προστασία έναντι εξωτερικής βλάβης τουλάχιστον ισοδύναμη με αυτή που παρέχεται από το τοίχωμα του περιβλήματος.

(4) Εάν τα περιβλήματα είναι εξοπλισμένα με μετρητές, αυτοί δεν θα είναι κατασκευασμένοι από διαφανές υλικό σε απευθείας επαφή με τη μεταφερόμενη ύλη. Εάν υπάρχουν θερμομέτρα, δεν θα εξέχουν άμεσα στο αέριο ή το υγρό μέσα από το τοίχωμα του περιβλήματος.

(5) Περιβλήματα προοριζόμενα για τη μεταφορά χλωρίου, διοξειδίου του θείου και φωσγενίου του  $3^\circ$  (at), μεθυλομερκαπτάνη και υδρόθειο του  $3^\circ$  (bt) δεν θα έχουν ανοίγματα κάτω από τη στάθμη της επιφάνειας του υγρού. Επιπλέον, δεν θα επιτρέπονται ανοίγματα καθαρισμού κατά τα αναφερόμενα στο περιθωριακό 212 132.

(6) Ανοίγματα πλήρωσης και εκκένωσης τοποθετημένα στο άνω μέρος των περιβλημάτων θα είναι εξοπλισμένα, επιπλέον των προβλεπόμενων στο (1), με δεύτερη, εξωτερική, συσκευή κλεισίματος. Αυτή η συσκευή θα είναι ικανή να κλειστεί με κενό παρέμβυσμα (φλάντζα) ή άλλη εξίσου αξιόπιστη συσκευή.

**212 233** Οι βαλβίδες ασφαλείας θα ικανοποιούν τους όρους που προβλέπονται στα (1), (2) και (3) παρακάτω:

(1) Περιβλήματα προοριζόμενα για τη μεταφορά αερίων του  $1^\circ$  έως  $6^\circ$  και  $9^\circ$  μπορεί να είναι εφοδιασμένα με όχι περισσότερες από δύο βαλβίδες ασφαλείας των οποίων η συνολική καθαρή επιφάνεια διατομής της διόδου από το σημείο ή τα σημεία έδρασης δεν θα είναι μικρότερη από  $20 \text{ cm}^2$  ανά  $30 \text{ m}^3$  (ή μέρος αυτού) χωρητικότητας του δοχείου. Αυτές οι βαλβίδες θα μπορούν να ανοίγουν αυτομάτως με πίεση 0.9 έως 1.0 φορές την πίεση δοκιμής του περιβλήματος στο οποίο είναι τοποθετημένες. Θα είναι τέτοιου τύπου ώστε να ανθίστανται σε δυναμικές καταπονήσεις, περιλαμβανομένης της διάγκωσης υγρού. Η χρήση βαλβίδων με νεκρό βάρος ή αντίβαρο απαγορεύεται.

## Προσθήκη Β.1b

**212 233** Περιβλήματα προοριζόμενα για τη μεταφορά αερίων των 1° έως 9° επιβλαβών για τα (συνεχ.) αναπνευστικά όργανα ή ενέχοντα κίνδυνο δηλητηρίασης <sup>18/</sup> δεν θα έχουν βαλβίδες ασφαλείας εκτός εάν υπάρχει εκρηγνυόμενος δίσκος μπροστά από τις βαλβίδες ασφαλείας. Στην τελευταία αυτή περίπτωση η διευθέτηση του εκρηγνυόμενου δίσκου και της βαλβίδας ασφαλείας θα πρέπει να είναι ικανοποιητική για την αρμόδια αρχή.

Όπου εμπορευματοκιβώτια-δεξαμενές προορίζονται για μεταφορά διά θαλάσσης, οι διατάξεις του παρόντος δεν θα απαγορεύουν την τοποθέτηση βαλβίδων ασφαλείας σύμφωνα με τους κανονισμούς που διέπουν αυτό το μέσο μεταφοράς <sup>19/</sup>.

(2) Περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 7° και 8° θα είναι εξοπλισμένα με δύο ανεξάρτητες βαλβίδες ασφαλείας: κάθε βαλβίδα θα είναι σχεδιασμένη έτσι ώστε να επιτρέπει την διαφυγή από το περίβλημα των αερίων που σχηματίζονται με εξάτμιση κατά την κανονική λειτουργία κατά τρόπο ώστε η πίεση να μην υπερβαίνει σε καμία στιγμή την πίεση εργασίας που αναφέρεται στο περίβλημα κατά περισσότερο από 10%. Μία από τις δύο βαλβίδες ασφαλείας μπορεί να αντικαθίσταται από εκρηγνυόμενο δίσκο που θα είναι τέτοιος ώστε να σπάει στην πίεση δοκιμής.

Σε περίπτωση απώλειας του κενού σε περίβλημα διπλού τοιχώματος, ή καταστροφής του 20% της μονώσεως σε περίβλημα μονού τοιχώματος, η βαλβίδα ασφαλείας και ο εκρηγνυόμενος δίσκος θα επιτρέπει εκροή τόσο ώστε η πίεση στο περίβλημα να μην μπορεί να υπερβεί την πίεση δοκιμής.

(3) Οι βαλβίδες ασφαλείας περιβλημάτων προοριζόμενων για τη μεταφορά αερίων του 7° και 8° θα μπορούν να ανοίγουν στην πίεση εργασίας που αναγράφεται στο περίβλημα. Θα είναι έτσι σχεδιασμένες ώστε να λειτουργούν αλάνθαστα ακόμη και στην ελάχιστη θερμοκρασία εργασίας. Η αξιοπιστία της λειτουργίας τους στη θερμοκρασία αυτή θα εξακριβώνεται και θα ελέγχεται είτε ελέγχοντας κάθε βαλβίδα είτε ελέγχοντας δειγματοληπτικά μία βαλβίδα για κάθε τύπο σχεδιασμού.

**Θερμομόνωση**

**212 234** (1) Εάν περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων του 3° και 4° είναι εξοπλισμένα με θερμική μόνωση, αυτή η μόνωση θα αποτελείται:

- είτε από αλεξήλιο που να καλύπτει όχι λιγότερο από το άνω εν τρίτο αλλά όχι περισσότερο από το άνω ήμισυ της επιφάνειας του περιβλήματος και να χωρίζεται από το περίβλημα με κενό αέρα τουλάχιστον 4 cm<sup>3</sup> ή
- από πλήρη επένδυση, επαρκούς πάχους, από μονωτικά υλικά.

(2) Περιβλήματα προοριζόμενα για την μεταφορά αερίων του 7° και 8° θα είναι θερμομονωμένα. Η θερμομόνωση θα εξασφαλίζεται με συνεχή επένδυση. Εάν ο χώρος μεταξύ του περιβλήματος και της επένδυσης είναι κενός από αέρα (μόνωση κενού) η προστατευτική επένδυση θα είναι έτσι σχεδιασμένη ώστε να αντέχει χωρίς παραμόρφωση εξωτερική πίεση τουλάχιστον 100 kPa (1 bar) (πίεση μετρητή). Παρά το περιθωριακό 212 102 (2)(a), εξωτερικές και εσωτερικές ενισχυτικές συσκευές μπορεί να λαμβάνονται υπόψη στους υπολογισμούς. Εάν η επένδυση είναι κλεισμένη έτσι ώστε να είναι αεροστεγής, θα υπάρχει συσκευή για να αποτρέπει την ανάπτυξη επικίνδυνης πίεσης στο μονωτικό στρώμα σε περίπτωση ανεπαρκούς αεροστεγανότητας του περιβλήματος ή των ειδών εξοπλισμού του. Η συσκευή θα αποτρέπει την διείσδυση υγρασίας μέσα στην θερμομονωτική επένδυση.

<sup>18/</sup> Αέρια που χαρακτηρίζονται από το γράμμα "F" στον κατάλογο υλών κρίνονται ως αέρια επιβλαβή για τα αναπνευστικά όργανα ή ενέχοντα κίνδυνο δηλητηρίασεως.

<sup>19/</sup> Βλέπε υποσημείωση 17/.



## Προσθήκη Β.1b

**212 234** (3) Περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων με σημείο βρασμού (συνεχ.) κάτω των  $-182\text{ }^{\circ}\text{C}$  σε ατμοσφαιρική πίεση δεν θα περιλαμβάνουν αναφλέξιμο υλικό είτε στη θερμομόνωση ή στις προσδέσεις.

Το μέσο πρόσδεσης περιβλημάτων προοριζόμενων για τη μεταφορά αργού, αζώτου, ηλίου και νέον του  $7^{\circ}$  (a) και υδρογόνου του  $7^{\circ}$  (b) μπορεί, με τη συναίνεση της αρμόδιας αρχής, να περιέχει πλαστικές ύλες ανάμεσα στο περίβλημα και την επένδυση.

**212 235** (1) Τα ακόλουθα θεωρούνται ότι είναι στοιχεία εμπορευματοκιβωτίων-δεξαμενών πολλαπλών στοιχείων:

- δοχεία κατά τα οριζόμενα στο περιθωριακό 2212 (1)(b) ή
- δεξαμενές κατά τα οριζόμενα στο περιθωριακό 2212 (1)(c).

Οι διατάξεις της παρούσης Προσθήκης δεν έχουν εφαρμογή σε πλαίσια κυλίνδρων σύμφωνα με το περιθωριακό 2212 (1)(d).

(2) Για εμπορευματοκιβώτια-δεξαμενές πολλαπλών στοιχείων, θα τηρούνται οι ακόλουθοι όροι:

- (a) Εάν ένα από τα στοιχεία εμπορευματοκιβωτίων-δεξαμενών πολλαπλών στοιχείων είναι εξοπλισμένο με βαλβίδα ασφαλείας και υπάρχουν συσκευές κλεισίματος μεταξύ των στοιχείων, κάθε στοιχείο θα είναι έτσι εξοπλισμένο.
- (b) Οι συσκευές πλήρωσης και εκκένωσης μπορεί να είναι τοποθετημένες σε πολλαπλή.
- (c) Κάθε στοιχείο εμπορευματοκιβωτίου-δεξαμενής πολλαπλών στοιχείων προοριζόμενου για τη μεταφορά συμπιεσμένων αερίων των  $1^{\circ}$  και  $2^{\circ}$  επιβλαβών για τα αναπνευστικά όργανα ή ενεχόντων κίνδυνο δηλητηρίασεως<sup>20/</sup> θα μπορεί να απομονωθεί με βαλβίδα.
- (d) Τα στοιχεία εμπορευματοκιβωτίων-δεξαμενών πολλαπλών στοιχείων προοριζόμενου για τη μεταφορά υγροποιημένων αερίων των  $3^{\circ}$  έως  $6^{\circ}$  θα σχεδιάζονται έτσι ώστε να μπορούν να πληρωθούν χωριστά και να διατηρούνται απομονωμένα με βαλβίδα που μπορεί να σφραγισθεί.

**212 236** Κατά παρέκκλιση από τις διατάξεις του περιθωριακού 212 131 περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων βαθιάς κατάψυξης δεν χρειάζεται να έχουν άνοιγμα επιθεώρησης.

**212 237-  
212 239**

#### ΤΜΗΜΑ 4. Έγκριση τύπου

**212 240-  
212 249** (Δεν υπάρχουν ειδικές απαιτήσεις)

#### ΤΜΗΜΑ 5. Δοκιμές

**212 250** Τα υλικά κάθε συγκολλημένου περιβλήματος θα δοκιμάζονται σύμφωνα με τη μέθοδο που περιγράφεται στην Προσθήκη Β.1d.

## Προσθήκη Β.1b

212 251 Οι τιμές της πίεσης δοκιμής θα είναι οι ακόλουθες:

- (1) Για περιβλήματα προοριζόμενα για τη μεταφορά αερίων των 1° και 2°: οι τιμές που αναγράφονται στο περιθωριακό 2219 (1) και (3).
- (2) Για περιβλήματα προοριζόμενα για τη μεταφορά αερίων των 3° και 4°:
- (a) εάν τα περιβλήματα δεν είναι μεγαλύτερα από 1.5 m σε διάμετρο, οι τιμές που αναγράφονται στο περιθωριακό 2220 (2)
- (b) εάν τα περιβλήματα είναι μεγαλύτερα από 1.5 m σε διάμετρο οι τιμές <sup>21</sup> που αναγράφονται παρακάτω:

Περιγραφή ύλης	Αριθμός είδους	Ελάχιστη πίεση δοκιμής για περιβλήματα		Μέγιστο βάρος των περιεχομένων ανά λίτρο χωρητικότητας kg
		με θερμομόνωση MPa	χωρίς θερμομόνωση MPa	
βρωμοχλωροδιφθορομεθάνιο (R 12 B1)	3°(a)	1.0	1.0	1.61
χλωροδιφθορομεθάνιο (R 22)	3°(a)	2.4	2.6	1.03
χλωροπενταφθορομεθάνιο (R 115)	3°(a)	2.0	2.3	1.08
1-χλωρο-1,2,2,2-τετραφθοροαιθάνιο (R 124)	3°(a)	1.0	1.1	1.2
1-χλωρο-2,2,2-τριφθοροαιθάνιο (R 133a)	3°(a)	1.0	1.0	1.18
διχλωροδιφθορομεθάνιο (R 12)	3°(a)	1.5	1.6	1.15
διχλωροφθορομεθάνιο (R 21)	3°(a)	1.0	1.0	1.23
1,2-διχλωρο-1,1,2,2-τετραφθοροαιθάνιο (R 114)	3°(a)	1.0	1.0	1.30
οκταφθοροκυκλοβουτάνιο (RC 318)	3°(a)	1.0	1.0	1.34
1,1,1,2-τετραφθοροαιθάνιο (R 134a)	3°(a)	1.6	1.8	1.04
αμμωνία	3°(at)	2.6	2.9	0.53

<sup>21</sup> (i) Οι προβλεπόμενες πιέσεις δοκιμής είναι:

(a) εάν το περίβλημα είναι εξοπλισμένο με θερμομόνωση, τουλάχιστον ίση με την πίεση ατμών, ελαττωμένη κατά 100 kPa (1 bar), του υγρού στους 60 °C, και όχι μικρότερη από 1 MPa (10 bar)

(b) εάν το περίβλημα δεν είναι εξοπλισμένο με θερμομόνωση, τουλάχιστον ίση με την πίεση ατμών, ελαττωμένη κατά 100 kPa (1 bar), του υγρού στους 65 °C, και όχι μικρότερη από 1 MPa (10 bar)

(ii) λόγω της υψηλής τοξικότητας του φωσγενίου του 3° (at), η ελάχιστη πίεση δοκιμής για αυτό το αέριο θα είναι 1.5 MPa (15 bar) εάν το περίβλημα είναι εξοπλισμένο με θερμομόνωση και 1.7 MPa (17 bar) εάν δεν είναι εξοπλισμένο

(iii) οι μέγιστες τιμές σε kg/litre που προβλέπονται για το βαθμό πλήρωσης υπολογίζονται ως εξής: μέγιστη μάζα περιεχομένων ανά λίτρο χωρητικότητας = 0.95 x πυκνότητα της υγρής φάσης στους 50 °C.

212 Σ.1  
(συνέχ.)

## Προσθήκη Β.1b

Περιγραφή ύλης	Αριθμός είδους	Ελάχιστη πίεση δοκιμής για περιβλήματα		Μέγιστο βάρος των περιχομένων ανά λίτρο χωρητικότητας kg
		με θερμομόνωση	χωρίς θερμομόνωση	
		MPa	MPa	
χλώριο	3°(at)	1.7	1.9	1.25
εξαφθοροπροπυλένιο (R 1216)	3°(at)	1.7	1.9	1.11
υδροβρώμιο	3°(at)	5.0	5.5	1.54
μεθυλοβρωμίδιο	3°(at)	1.0	1.0	1.51
διοξειδίο του αζώτου NO <sub>2</sub>	3°(at)	1.0	1.0	1.30
φωσγένιο	3°(at)	1.5	1.7	1.23
διοξειδίο του θείου	3°(at)	1.0	1.2	1.23
βουτάνιο	3°(b)	1.0	1.0	0.51
1-βουτένιο	3°(b)	1.0	1.0	0.53
1-χλωρο-1,1-διφθοροαιθάνιο (R 142b)	3°(b)	1.0	1.0	0.99
Cis-2-βουτένιο	3°(b)	1.0	1.0	0.55
κυκλοπροπάνιο	3°(b)	1.6	1.8	0.53
1,1-διφθοροαιθάνιο (R 152a)	3°(b)	1.4	1.6	0.79
διμεθυλικός αιθέρας	3°(b)	1.4	1.6	0.58
ισοβουτάνιο	3°(b)	1.0	1.0	0.49
ισοβουτένιο	3°(b)	1.0	1.0	0.52
προπάνιο	3°(b)	2.1	2.3	0.42
προπυλένιο	3°(b)	2.5	2.7	0.43
trans-2-βουτένιο	3°(b)	1.0	1.0	0.54
1,1,1-τριφθοροαιθάνιο	3°(b)	2.8	3.2	0.79
διμεθυλαμίνη	3°(bt)	1.0	1.0	0.59
αιθυλαμίνη	3°(bt)	1.0	1.0	0.61
αιθυλοχλωρίδιο	3°(bt)	1.0	1.0	0.80
υδρόθειο	3°(bt)	4.5	5.0	0.67
μεθυλαμίνη	3°(bt)	1.0	1.1	0.58
μεθυλοχλωρίδιο	3°(bt)	1.3	1.5	0.81
μεθυλομερκαπτάνη	3°(bt)	1.0	1.0	0.78
τριμεθυλαμίνη	3°(bt)	1.0	1.0	0.56
1,2-βουταδιένιο	3°(c)	1.0	1.0	0.59
1,3-βουταδιένιο	3°(c)	1.0	1.0	0.55
βινυλοχλωρίδιο	3°(c)	1.0	1.1	0.81
μεθυλοβινυλαιθέρας	3°(ct)	1.0	1.0	0.67
τριφθοροχλωροαιθυλένιο (R 1113)	3°(ct)	1.5	1.7	1.13
βινυλοβρωμίδιο	3°(ct)	1.0	1.0	1.37

212 Σ.7  
(συνέχ.)

## Προσθήκη Β.1b

Περιγραφή ύλης	Αριθμός είδους	Ελάχιστη πίεση δοκιμής για περιβλήματα		Μέγιστο βάρος των περιεχομένων ανά λίτρο χωρητικότητας kg
		με θερμομόνωση MPa	χωρίς θερμομόνωση MPa	
μείγμα F 1	4°(a)	1.0	1.1	1.23
μείγμα F 2	4°(a)	1.5	1.6	1.15
μείγμα F 3	4°(a)	2.4	2.7	1.03
μείγμα αερίων R 500	4°(a)	1.8	2.0	1.01
μείγμα αερίων R 502	4°(a)	2.5	2.8	1.05
μείγμα 19 έως 21% κατά βάρος διχλωροδιφθορομεθάνιο (R 12) και 79 έως 81% κατά βάρος βρωμοχλωροδιφθορομεθάνιο (R 12 B1)	4°(a)	1.0	1.1	1.50
μείγματα διχλωροδιφθορομεθανίου και αιθυλενοξειδίου με όχι περισσότερο από 12% αιθυλενοξειδίου κατά βάρος	4°(at)	1.5	1.6	1.09
μείγματα μεθυλοβρωμιδίου και χλωροπικρίνης	4°(at)	1.0	1.0	1.51
μείγμα A (εμπορικό όνομα: βουτάνιο)	4°(b)	1.0	1.9	0.50
μείγμα A O (εμπορικό όνομα: βουτάνιο)	4°(b)	1.2	1.4	0.47
μείγμα A 1	4°(b)	1.6	1.8	0.46
μείγμα B	4°(b)	2.0	2.3	0.43
μείγμα C (εμπορικό όνομα: προπάνιο)	4°(b)	2.5	2.7	0.42
μείγματα υδρογονανθράκων περιέχοντα μεθάνιο	4°(b)	-	22.5 30.0	0.187 0.244
μείγματα μεθυλοχλωριδίου και μεθυλενοχλωριδίου	4°(bt)	1.3	1.5	0.81
μείγματα μεθυλοχλωριδίου και χλωροπικρίνης	4°(bt)	1.3	1.5	0.81
μείγματα μεθυλοβρωμιδίου και αιθυλενοβρωμιδίου	4°(bt)	1.0	1.0	1.51
μεθυλακετυλένιο/προπαδιένιο και μείγματα υδρογονανθράκων				
μείγμα P1	4°(c)	2.5	2.8	0.49
μείγμα P2	4°(c)	2.2	2.3	0.47
μείγματα 1,3-βουταδιένιου και υδρογονανθράκων του 3°(b)	4°(c)	1.0	1.0	0.50
αιθυλενοξειδίου περιέχον όχι περισσότερο από 10% διοξειδίου του άνθρακα κατά βάρος	4°(ct)	2.4	2.6	0.73
αιθυλενοξειδίου με άζωτο μέχρι ολικής πίεσης 1 MPa (10 bar) στους 50 °C	4°(ct)	1.5	1.5	0.78

(3) Για περιβλήματα προοριζόμενα για τη μεταφορά αερίων των 5° και 6°:

(a) εάν τα περιβλήματα δεν είναι επενδεδυμένα με θερμομόνωση: οι τιμές που αναγράφονται στο περιθωριακό 2220 (3) και (4)

2071

212 2α,  
(συνέχ.)

Προσθήκη Β.1b

(b) εάν τα περιβλήματα είναι επενδεδυμένα με θερμομόνωση: οι τιμές που αναγράφονται παρακάτω:

Περιγραφή ύλης	Αριθμός είδους	Ελάχ. πίεση δοκιμής MPa	Μέγιστο βάρος περιεχομένων ανά λίτρο χωρητικότητας kg
βρωμοτριφθορομεθάνιο (R 13 B1)	5°(a)	12.0	1.50
διοξείδιο του άνθρακα	5°(a)	19.0 22.5	0.73 0.78
χλωροτριφθορομεθάνιο (R 13)	5°(a)	12.0 22.5	0.96 1.12
εξαφθοροαιθάνιο (R 116)	5°(a)	16.0 20.0	1.28 1.34
πρωτοξείδιο του αζώτου (N <sub>2</sub> O)	5°(a)	22.5	0.78
πενταφθοροαιθάνιο (R125)	5°(a)	3.4	0.95
εξαθειοφθορίδιο	5°(a)	12.0	1.34
τριφθορομεθάνιο (R 23)	5°(a)	19.0 25.0	0.92 0.99
Ξέnon	5°(a)	12.0	1.30
υδροχλώριο	5°(at)	12.0	0.69
αιθάνιο	5°(b)	12.0	0.32
αιθυλένιο	5°(b)	12.0 22.5	0.25 0.36
1,1-διφθοροαιθυλένιο	5°(c)	12.0 22.5	0.66 0.78
βιτυλοφθορίδιο	5°(c)	12.0 22.5	0.58 0.65
μείγμα αερίων R 503	6°(a)	3.1 4.2 10.0	0.11 0.21 0.76
διοξείδιο του άνθρακα περιέχον όχι περισσότερο από 35% αιθυλενοξείδιο κατά βάρος	6°(c)	19.0 22.5	0.73 0.78
αιθυλενοξείδιο περιέχον περισσότερο από 10% αλλά όχι περισσότερο από 50% διοξείδιο του άνθρακα κατά βάρος	6°(ct)	19.0 25.0	0.66 0.75

Όπου χρησιμοποιούνται περιβλήματα επενδεδυμένα με θερμομόνωση τα οποία έχουν υποβληθεί σε πίεση δοκιμής χαμηλότερη από την αναγραφόμενη στους πίνακες, το μέγιστο βάρος των περιεχομένων ανά λίτρο χωρητικότητας θα είναι τόση ώστε η πίεση που αναπτύσσεται στο περιβλημα από την εν λόγω ύλη στους 55 °C να μην υπερβαίνει την πίεση δοκιμής που αναγράφεται με σφραγίδα στο περιβλημα. Σε μια τέτοια περίπτωση το μέγιστο επιτρεπόμενο φορτίο θα ορίζεται από τον εγκεκριμένο από την αρμόδια αρχή ειδικό.

## Προσθήκη Β.1b

**212 251 (4)** Για περιβλήματα προοριζόμενα για τη μεταφορά αμμωνίας που διαλύεται υπό πίεση του (συνεχ.) 9° (at), οι τιμές που αναφέρονται παρακάτω:

Περιγραφή ύλης	Αριθ. είδους	Ελάχιστη πίεση δοκιμής MPa	Μέγιστο βάρος περιεχομένων ανά λίτρο χωρητικότητας kg
αμμωνία που διαλύεται υπό πίεση στο νερό			
- με περισσότερο από 35% αλλά όχι περισσότερο από 40% αμμωνία κατά βάρος	9°(at)	1.0	0.80
- με περισσότερο από 40% αλλά όχι περισσότερο από 50% αμμωνία κατά βάρος	9°(at)	1.0	0.77

(5) Για περιβλήματα προοριζόμενα για τη μεταφορά αερίων των 7° και 8°: όχι λιγότερο από 1.3 φορές την μέγιστη επιτρεπόμενη πίεση εργασίας που αναγράφεται στο περίβλημα, αλλά όχι λιγότερο από 300 kPa (3 bar) (πίεση μετρητή) για περιβλήματα με μόνωση κενού η πίεση δοκιμής δεν θα είναι μικρότερη από 1.3 φορές την μέγιστη επιτρεπόμενη πίεση εργασίας προσαυξημένη κατά 100 kPa (1 bar).

- 212 252** Η πρώτη δοκιμή υδραυλικής πίεσης θα διενεργείται πριν την τοποθέτηση της θερμομόνωσης.
- 212 253** Η χωρητικότητα κάθε περιβλήματος προοριζόμενου για τη μεταφορά αερίων των 3° έως 6° και 9° θα προσδιορίζεται, υπό την επίβλεψη ειδικού εγκεκριμένου από την αρμόδια αρχή, με ζύγιση ή ογκομετρική μέτρηση της ποσότητας νερού που πληρώνει το περίβλημα τυχόν σφάλμα στη μέτρηση της χωρητικότητας του περιβλήματος θα είναι μικρότερο από 1%. Δεν επιτρέπεται ο προσδιορισμός με υπολογισμό βάσει των διαστάσεων του περιβλήματος. Τα μέγιστα επιτρεπόμενα βάρη πλήρωσης σύμφωνα με τα περιθωριακά 2220 (4) και 212 251 (3) θα ορίζονται από εγκεκριμένο ειδικό.
- 212 254** Ο έλεγχος των συγκολλήσεων θα διενεργείται σύμφωνα με τις απαιτήσεις του περιθωριακού 212 127 (6) σχετικά με τον συντελεστή λάμδα 1.0.
- 212 255** Παρά τις απαιτήσεις του Τμήματος 5 του Μέρους I της παρούσης Προσθήκης, οι περιοδικές δοκιμές θα γίνονται:
- (1) Κάθε δύομισι χρόνια στην περίπτωση εμπορευματοκιβωτίων-δεξαμενών προοριζόμενων για τη μεταφορά τριφθοριούχου βορίου του 1° (at), αερίου πόλης του 2° (bt), χλωρίου, υδροβρωμίου, διοξειδίου του αζώτου, φωσγενίου ή διοξειδίου του θείου του 3° (at), υδρόθειου του 3° (bt), ή υδροχλωρίου του 5° (at)
  - (2) Μετά από λειτουργία οκτώ ετών και εφεξής κάθε 12 έτη στην περίπτωση εμπορευματοκιβωτίων-δεξαμενών προοριζόμενων για τη μεταφορά αερίων των 7° και 8°. Έλεγχος στεγανότητας μπορεί να διενεργείται, μετά από αίτημα της αρμόδιας αρχής, μεταξύ δύο οποιονδήποτε διαδοχικών δοκιμών.
- 212 256** Στην περίπτωση περιβλημάτων με μόνωση κενού η δοκιμή υδραυλικής πίεσης και ο έλεγχος της εσωτερικής κατάστασης μπορεί, με τη σύμφωνη γνώμη του εγκεκριμένου ειδικού, να αντικατασταθεί με δοκιμή στεγανότητας και μέτρηση του κενού.

## Προσθήκη Β.1b

**212 257** Εάν έχουν γίνει ανοίγματα, με την ευκαιρία περιοδικών επιθεωρήσεων, σε περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 7° ή 8°, η μέθοδος με την οποία κλείνονται ερμητικά πριν την επαναχρησιμοποίηση των περιβλημάτων θα εγκρίνεται από τον εγκεκριμένο ειδικό και θα εξασφαλίζει την ακεραιότητα του περιβλήματος.

**212 258** Η δοκιμή στεγανότητας περιβλημάτων προοριζόμενων για τη μεταφορά αερίων των 1° έως 6° και 9° θα διενεργείται σε πίεση όχι μικρότερη από 400 kPa (4 bar) και όχι μεγαλύτερη από 800 kPa (8 bar) (πίεση μετρητή).

**212 259**

**ΤΜΗΜΑ 6. Επισήμανση**

**212 260** Τα ακόλουθα πρόσθετα στοιχεία θα επισημαίνονται με σφράγιση ή με άλλη παρόμοια μέθοδο στην πινακίδα που περιγράφεται στο περιθωριακό 212 160, ή απευθείας στα τοιχώματα του ίδιου του περιβλήματος εάν τα τοιχώματα είναι ενισχυμένα έτσι ώστε να μη μειώνεται η αντοχή του περιβλήματος:

(1) Σε περιβλήματα προοριζόμενα για τη μεταφορά μόνο μίας ύλης:

- η πλήρης ονομασία του αερίου <sup>22/</sup>.

Η ένδειξη αυτή θα συμπληρώνεται, στην περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά συμπιεσμένων αερίων των 1° και 2° με ένδειξη της μέγιστης πίεσης πλήρωσης στους 15°C που επιτρέπεται για το περίβλημα και, στην περίπτωση περιβλημάτων προοριζόμενων για τη μεταφορά υγροποιημένων αερίων των 3° έως 8° ή αμμωνίας που διαλύεται υπό πίεση του 9° (at), με ένδειξη του μέγιστου επιτρεπόμενου βάρους φόρτωσης σε kg και της θερμοκρασίας πλήρωσης εάν είναι κάτω των -20°C

(2) Σε εμπορευματοκιβώτια-δεξαμενές πολλαπλών χρήσεων:

- οι πλήρεις ονομασίες <sup>22/</sup> των αερίων για τη μεταφορά των οποίων εγκρίνεται το περίβλημα.

Τα στοιχεία αυτά θα συμπληρώνονται με ένδειξη του μέγιστου επιτρεπόμενου βάρους φόρτωσης σε kg για κάθε αέριο:

(3) Σε περιβλήματα προοριζόμενα για τη μεταφορά αερίων των 7° και 8°:

- η πίεση εργασίας και

(4) Σε περιβλήματα εξοπλισμένα με θερμομόνωση:

- η ένδειξη "Θερμικά μονωμένα" ή "Θερμικά μονωμένα με κενό".

**212 261** Το πλαίσιο εμπορευματοκιβωτίων-δεξαμενών πολλαπλών στοιχείων θα φέρει πλησίον του σημείου πλήρωσης πινακίδα που θα αναγράφει:

- την πίεση δοκιμής των στοιχείων <sup>23/</sup>.

<sup>22/</sup> Οι περιγραφές που υπογραμμίζονται στο περιθωριακό 2201 θα χρησιμοποιούνται ως πλήρεις ονομασίες του αερίου για μείγματα A, A0 και C του 4□ (b) του περιθωριακού 2201. Οι εθιμικές ονομασίες του εμπορίου που αναφέρονται στη Σημείωση για το 4□ (b) του περιθωριακού 2201 μπορεί να χρησιμοποιούνται μόνο ως συμπλήρωμα.

<sup>23/</sup> Οι μονάδες μέτρησης πρέπει να αναφέρονται μετά από τις αριθμητικές τιμές.



## Προσθήκη Β.1b

- 212 261** (συνεχ.) - τη μέγιστη επιτρεπόμενη πίεση πλήρωσης<sup>23/</sup> στους 15 °C που επιτρέπεται για στοιχεία προοριζόμενα για συμπιεσμένα αέρια
- τον αριθμό των στοιχείων
  - την ολική χωρητικότητα<sup>23/</sup> των στοιχείων
  - την πλήρη ονομασία του αερίου<sup>22/</sup>.

και, επιπλέον, στην περίπτωση υγροποιημένων αερίων:

- το μέγιστο επιτρεπόμενο βάρος φόρτωσης<sup>23/</sup> ανά στοιχείο.

**212 262** Επιπλέον των στοιχείων που αναγράφονται στο περιθωριακό 212 161, τα ακόλουθα θα αναγράφονται είτε στο ίδιο το εμπορευματοκιβώτιο-δεξαμενή είτε σε πινακίδα:

- (a) - είτε: "ελάχιστη επιτρεπόμενη θερμοκρασία πλήρωσης: - 20 °C", είτε
- "ελάχιστη επιτρεπόμενη θερμοκρασία πλήρωσης: ....."
- (b) όπου το περίβλημα προορίζεται για τη μεταφορά μίας ύλης μόνον:
- η πλήρης ονομασία του αερίου<sup>22/</sup>.
  - για υγροποιημένα αέρια των 3° έως 8° και για αμμωνία που διαλύεται υπό πίεση στο νερό του 9° (at), το μέγιστο επιτρεπόμενο βάρος φόρτωσης σε kg
- (c) όπου το περίβλημα είναι περίβλημα πολλαπλών χρήσεων:
- οι πλήρεις ονομασίες<sup>22/</sup> όλων των αερίων για τη μεταφορά των οποίων διατίθεται το περίβλημα, με ένδειξη του μέγιστου επιτρεπόμενου βάρους φόρτωσης σε kg για κάθε ένα από αυτά
- (d) όπου το περίβλημα είναι εξοπλισμένο με θερμομόνωση:
- η επιγραφή "θερμικά μονωμένο" ή "θερμικά μονωμένο με κενό", σε επίσημη γλώσσα της χώρας εγγραφής, και επίσης, εάν αυτή η γλώσσα δεν είναι η αγγλική, γαλλική ή γερμανική, σε μία από αυτές τις γλώσσες, εκτός εάν προβλέπεται διαφορετικά σε τυχόν συμφωνίες που έχουν συναφθεί μεταξύ των χωρών που αφορά η μεταφορά.

**212 263-**  
**212 269**

<sup>22/</sup> Οι περιγραφές που υπογραμμίζονται στο περιθωριακό 2201 θα χρησιμοποιούνται ως πλήρης ονομασία του αερίου για μείγματα A, A0 και C of 4□ (b) του περιθωριακού 2201. Τα εθνικά ονόματα του εμπορίου που αναφέρονται στη Σημείωση για το 4□ (b) του περιθωριακού 2201 μπορεί να χρησιμοποιούνται μόνον ως συμπλήρωμα.

<sup>23/</sup> Οι μονάδες μέτρησης πρέπει να αναφέρονται μετά τις αριθμητικές τιμές.

## Προσθήκη Β.1b

## ΤΜΗΜΑ 7. Λειτουργία

**212 270** Περιβλήμα που διατίθεται σε διαφορετικούς χρόνους στη μεταφορά διαφορετικών υγροποιημένων αερίων των 3° έως 8° (περιβλήματα πολλαπλών χρήσεων) δεν επιτρέπεται να μεταφέρει ύλες εκτός από τις καταχωρημένες σε μία, και μόνο μία, από τις ακόλουθες ομάδες:

**Ομάδα 1:** αλογονωμένοι υδρογονάνθρακες του 3° (a) και 4° (a)

**Ομάδα 2:** υδρογονάνθρακες του 3° (b) και 4° (b), βουταδιένια του 3° (c) και μείγματα 1,3-βουταδιενίου και υδρογονανθράκων του 4° (c)

**Ομάδα 3:** αμμωνία του 3° (at) διμεθυλαιθέρας του 3° (b) διμεθυλαμίνη, αιθυλαμίνη, μεθυλαμίνη και τριμεθυλαμίνη του 3° (bt) και βινυλοχλωρίδιο του 3° (c)

**Ομάδα 4:** μεθυλοβρωμίδιο του 3° (at) αιθυλοχλωρίδιο και μεθυλοχλωρίδιο του 3° (bt)

**Ομάδα 5:** μείγματα οξειδίου του αιθυλενίου με διοξείδιο του άνθρακα και οξειδίου του αιθυλενίου με άζωτο του 4° (ct)

**Ομάδα 6:** άζωτο, διοξείδιο του άνθρακα, ευγενή αέρια, πρωτοξείδιο του αζώτου N<sub>2</sub>O, και οξυγόνο του 7° (a) αέρας, μείγματα αζώτου με ευγενή αέρια και μείγματα οξυγόνου με άζωτο, επίσης όταν περιέχουν ευγενή αέρια του 8° (a)

**Ομάδα 7:** αιθάνιο, αιθυλένιο, και μεθάνιο του 7° (b) και μείγματα μεθανίου με αιθάνιο, επίσης όταν περιέχουν προπάνιο ή βουτάνιο του 8° (b).

**212 271** Περιβλήματα που έχουν πληρωθεί με ύλη της ομάδας 1 ή της ομάδας 2 θα κενώνονται από υγροποιημένο αέριο πριν φορτωθούν με άλλη ύλη που ανήκει στην ίδια ομάδα. Περιβλήματα που έχουν πληρωθεί με ύλη των ομάδων 3 έως 7 θα κενώνονται εντελώς από υγροποιημένο αέριο και θα διοχετεύεται αέρας πριν να φορτωθούν με άλλη ύλη της ίδιας ομάδας.

**212 272** Η πολλαπλή χρήση περιβλημάτων για τη μεταφορά υγροποιημένων αερίων της ίδιας ομάδας θα επιτρέπεται εάν τηρούνται όλες οι απαιτήσεις που προβλέπονται για τα αέρια που πρόκειται να μεταφερθούν σε ένα και το αυτό περιβλήμα. Αυτή η πολλαπλή χρήση θα υπόκειται σε έγκριση από εγκεκριμένο ειδικό.

**212 273** Η πολλαπλή χρήση περιβλημάτων για τη μεταφορά αερίων διαφορετικών ομάδων θα επιτρέπεται εάν δοθεί άδεια από τους εγκεκριμένους ειδικούς.

Όποτε περιβλήματα επαναδιατίθενται σε αέρια διαφορετικής ομάδας, τα περιβλήματα θα κενώνονται εντελώς από υγροποιημένα αέρια, κατόπιν θα διοχετεύεται αέρας και, τέλος, θα απαερώνονται. Η απαέρωση των περιβλημάτων θα επαληθεύεται και θα πιστοποιείται από τον εγκεκριμένο ειδικό.

**212 274** Όποτε φορτωμένες δεξαμενές ή κενές αλλά ακαθάρτιστες δεξαμενές παραδίδονται για μεταφορά, θα είναι ορατά μόνο τα στοιχεία που αναφέρονται στο περιθωριακό 212 262 με εφαρμογή στο αέριο που φορτώθηκε ή μόλις εικενώθηκε όλα τα στοιχεία που αφορούν άλλα αέρια θα είναι καλυμμένα.

## Προσθήκη Β.1b

**212 275** Όλα τα στοιχεία εμπορευματοκιβωτίων-δεξαμενών πολλαπλών στοιχείων θα περιέχουν μόνο ένα και το αυτό αέριο. Στην περίπτωση εμπορευματοκιβωτίων-δεξαμενών πολλαπλών στοιχείων προοριζόμενου για τη μεταφορά υγροποιημένων αερίων των 3° έως 6°, τα στοιχεία θα πληρούνται χωριστά και θα κρατούνται απομονωμένα με σφραγισμένη βαλβίδα.

**212 276** Η μέγιστη πίεση πλήρωσης για συμπιεσμένα αέρια των 1° και 2° εκτός από τριφθοριούχο βόριο του 1° (af) δεν θα υπερβαίνει τις τιμές που προβλέπονται στο περιθωριακό 2219 (2).

Για τριφθοριούχο βόριο του 1° (af) το μέγιστο βάρος πλήρωσης ανά λίτρο χωρητικότητας δεν θα υπερβαίνει τα 0,86 kg. Το μέγιστο βάρος πλήρωσης ανά λίτρο χωρητικότητας θα είναι σύμφωνα με τα περιθωριακά 2220 (2), (3) και (4) και 212 251 (2), (3) και (4).

**212 277** Ο βαθμός πλήρωσης των περιβλημάτων που προορίζονται για τη μεταφορά αερίων των 7° (b) και 8° (b) θα παραμένει κάτω από το επίπεδο για το οποίο, εάν η θερμοκρασία των περιεχομένων ανέβαινε στο επίπεδο στο οποίο η πίεση ατμών θα ισούτο με την πίεση ανοίγματος της βαλβίδας ασφαλείας, ο όγκος του υγρού θα έφθανε στο 95% της χωρητικότητας του περιβλήματος σε αυτήν τη θερμοκρασία. Περιβλήματα προοριζόμενα για τη μεταφορά αερίων του 7° (a) και 8° (a) μπορεί να πληρούνται κατά 98% στη θερμοκρασία φορτώσεως και την πίεση φορτώσεως.

**212 278** Σε περιβλήματα για τη μεταφορά πρωτοξειδίου του αζώτου και οξυγόνου του 7°-(a), αέρα ή μειγμάτων που περιέχουν οξυγόνο του 8° (a), ύλες που περιέχουν γράσο ή λάδι δεν θα χρησιμοποιούνται για να εξασφαλιστεί η στεγανότητα των αρμών ή για τη συντήρηση των κλεισιμάτων.

**212 279** Οι απαιτήσεις στο περιθωριακό 212 175 δεν θα έχουν εφαρμογή σε αέρια των 7° και 8°.

**212 280-**  
**212 299**

## Προσθήκη Β.1b

## ΚΛΑΣΗ 3. ΕΥΦΛΕΚΤΑ ΥΓΡΑ

212 300-  
212 309

## ΤΜΗΜΑ 1. Γενικά πλαίσιο (χρήση των εμπορευματοκιβωτίων-δεξαμενών) ορισμοί

## Χρήση

212 310 Οι ακόλουθες ύλες του περιθωριακού 2301 μπορεί να μεταφέρονται σε εμπορευματοκιβώτια-δεξαμενές:

- (a) προπυλενιμίνη, αδρανής, του 12°
- (b) ύλες ταξινομημένες υπό το (a) των 11°, 14° έως 22°, 26° και 27°, 41° έως 57°
- (c) ύλες ταξινομημένες υπό το (b) των 11°, 14° έως 27°, 41° έως 57°, και ύλες των 32° και 33°
- (d) ύλες των 1° έως 5°, 31°, 34° και 61° (c), με την εξαίρεση νιτρικού ισοπροπυλεστερά, n-νιτρικού προπυλεστερά και νιτρομεθανίου του 3° (b).

212 311-  
212 319

## ΤΜΗΜΑ 2. Κατασκευή

212 320 Περιβλήματα προοριζόμενα για τη μεταφορά αδρανούς προπυλενιμίνης του 12° θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 1.5 MPa (15 bar) (πίεση μετρητή).

212 321 Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (b) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 100 kPa (10 bar) (πίεση μετρητή).

212 322 Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (c) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή).

212 323 Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (d) θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους Ι της παρούσης Προσθήκης.

212 324-  
212 329

## ΤΜΗΜΑ 3. Είδη εξοπλισμού

212 330 Όλα τα ανοίγματα περιβλημάτων προοριζόμενων για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (a) και (b) θα είναι πάνω από τη στάθμη της επιφάνειας του υγρού. Σωληνώσεις ή συνδέσεις σωληνώσεων δεν θα διέρχονται διαμέσου των τοιχωμάτων του περιβλήματος κάτω από τη στάθμη της επιφάνειας του υγρού. Τα περιβλήματα θα μπορούν να κλείνουν ερμητικά<sup>24/</sup> και τα κλεισίματα θα είναι ικανά να προστατευθούν με πάματα που κλειδώνουν.<sup>24/</sup> Βλέπε υποσημείωση<sup>8/</sup>.

## Προσθήκη Β.1b

**212 331** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (c) και (d) μπορεί επίσης να είναι του τύπου εκκένωσης από τον πυθμένα. Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (c), εκτός από εκείνες του 33°, θα μπορούν να κλείνονται ερμητικά<sup>24/</sup>.

**212 332** Εάν περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (a), (b) ή (c), εκτός από εκείνες του 33°, είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται εκρηγνυόμενος δίσκος μπροστά από τη βαλβίδα. Η διευθέτηση του εκρηγνυόμενου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή. Εάν περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (d) είναι εξοπλισμένα με βαλβίδες ασφαλείας ή σύστημα εξαερισμού, αυτά θα ικανοποιούν τις απαιτήσεις των περιθωριακών 212 133 έως 212 135.

Εάν περιβλήματα προοριζόμενα για τη μεταφορά υλών του 33° είναι εξοπλισμένα με βαλβίδες ασφαλείας, αυτές θα ικανοποιούν τις απαιτήσεις των περιθωριακών 212 134 και 212 135.

Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (d) με σημείο ανάφλεξης που δεν υπερβαίνει τους 61 °C και εξοπλισμένα με σύστημα εξαερισμού που δεν μπορεί να κλείσει θα έχουν φλογοπαγίδα στο σύστημα εξαερισμού.

212 333-  
212 339

#### ΤΜΗΜΑ 4. Έγκριση τύπου

212 340-

212 349 (Δεν υπάρχουν ειδικές απαιτήσεις)

#### ΤΜΗΜΑ 5. Δοκιμές

**212 350** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (a), (b) ή (c) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή όχι μικρότερη από 400 kPa (4 bar).

**212 351** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (d) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού τους κατά τα οριζόμενα στο περιθωριακό 212 123.

212 352-

212 359

#### ΤΜΗΜΑ 6. Επισήμανση

212 360-

212 369 (Δεν υπάρχουν ειδικές απαιτήσεις)

#### ΤΜΗΜΑ 7. Λειτουργία

**212 370** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (a), (b) ή (c), εκτός από εκείνες του 33°, θα είναι ερμητικά κλειστά<sup>24/</sup> κατά τη μεταφορά. Τα κλεισίματα περιβλημάτων προοριζόμενων για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 310 (a) και (b) θα προστατεύονται με κλειδωμένο πόμα.

<sup>24/</sup> Βλέπε υποσημείωση<sup>B/</sup>.

## Προσθήκη Β.1b

- 212 371** Εμπορευματοκιβώτια-δεξαμενές εγκεκριμένα για τη μεταφορά υλών των 11°, 12°, 14° έως 20°, 27°, 32° και 41° έως 57° δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, αντικειμένων κατανάλωσης ή ζωοτροφών.
- 212 372** Δεν θα χρησιμοποιείται περίβλημα από κράμα αλουμινίου για τη μεταφορά ακεταλδεϋδης του 1° (a) εκτός εάν το περίβλημα προορίζεται αποκλειστικά για αυτή τη μεταφορά και η ακεταλδεϋδη είναι απαλλαγμένη από οξύ.
- 212 373** Η βενζίνη που αναφέρεται στη Σημείωση στο 3° (b) του περιθωριακού 2301 μπορεί επίσης να μεταφέρεται σε δεξαμενές σχεδιασμένες σύμφωνα με το περιθωριακό 212 123 (1) και εξοπλισμένες σύμφωνα με το περιθωριακό 212 133.
- 212 374-**  
**212 379**
- 212 380** Εμπορευματοκιβώτια-δεξαμενές προοριζόμενα για τη μεταφορά υλών των 32° και 33° του περιθωριακού 2301, κατασκευασμένα σύμφωνα με τις απαιτήσεις της παρούσης Προσθήκης με δυνατότητα εφαρμογής προ της 1ης Ιανουαρίου 1995, τα οποία, εντούτοις, δεν είναι σύμφωνα με τις απαιτήσεις με δυνατότητα εφαρμογής από 1ης Ιανουαρίου 1995, μπορεί να εξακολουθούν να χρησιμοποιούνται έως την 31η Δεκεμβρίου 1999.
- 212 381-**  
**212 399**

## Προσθήκη Β.1b

- ΚΛΑΣΗ 4.1. ΕΥΦΛΕΚΤΑ ΣΤΕΡΕΑ**
- ΚΛΑΣΗ 4.2. ΥΛΕΣ ΠΟΥ ΥΠΟΚΕΙΝΤΑΙ ΣΕ ΑΥΤΟΓΕΝΗ ΑΝΑΦΛΕΞΗ**
- ΚΛΑΣΗ 4.3. ΥΛΕΣ ΟΙ ΟΠΟΙΕΣ, ΕΡΧΟΜΕΝΕΣ ΣΕ ΕΠΑΦΗ ΜΕ ΤΟ ΝΕΡΟ, ΕΚΠΕΜΠΟΥΝ ΕΥΦΛΕΚΤΑ ΑΕΡΙΑ**

212 400-  
212 409

**ΤΜΗΜΑ 1. Γενικά, πλαίσιο (χρήση εμπορευματοκιβωτίων-δεξαμενών) ορισμοί**

**Χρήση**

**212 410** Οι ακόλουθες ύλες των περιθωριακών 2401, 2431 και 2471 μπορεί να μεταφέρονται σε εμπορευματοκιβώτια-δεξαμενές:

- (a) οι ύλες που έχουν καταχωρηθεί στο γράμμα (a) των 6°, 17°, 19° και 31° έως 33° του περιθωριακού 2431
- (b) οι ύλες των 11° (a) και 22° του περιθωριακού 2431
- (c) οι ύλες που έχουν καταχωρηθεί στο γράμμα (a) των 1°, 2°, 3°, 21°, 23° και 25° του περιθωριακού 2471
- (d) οι ύλες του 11° (a) του περιθωριακού 2471
- (e) οι ύλες που έχουν καταχωρηθεί στο γράμμα (b) ή (c) των:  
6°, 8°, 10°, 17°, 19° και 21° του περιθωριακού 2431, και  
3°, 21°, 23° και 25° του περιθωριακού 2471
- (f) οι ύλες των 5° και 15° του περιθωριακού 2401
- (g) κονιώδεις και κοκκώδεις ύλες που έχουν καταχωρηθεί στο γράμμα (b) ή (c) των:  
1°, 6°, 7°, 8°, 11°, 12°, 13°, 14°, 16° και 17° του περιθωριακού 2401,  
1°, 5°, 7°, 9°, 12°, 13°, 14°, 15°, 16°, 18° και 20° του περιθωριακού 2431,  
11°, 12°, 13°, 14°, 15°, 16°, 17°, 19°, 20°, 22° και 24° του περιθωριακού 2471.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά χύμα υλών των

4° (c), 6° (c), 11° (c), 12° (c), 13° (c) και 14° (c) και στερεών αποβλήτων ταξινομημένων στο (c) αυτών των ειδών του περιθωριακού 2401,

1° (c), 2° (c), 3° (c), 12° (c) και 16° (c), και στερεών αποβλήτων ταξινομημένων στο (c) αυτών των ειδών του περιθωριακού 2431,

11° (c), 12° (c), 13° (b) και (c), 14° (c), 15° (c), 17° (b) και 20° (c) του περιθωριακού 2471,

βλέπε τα περιθωριακά 41 111, 42 111 και 43 111.

## Προσθήκη Β.1b

212 411 -  
212 419

**ΤΜΗΜΑ 2. Κατασκευή**

**212 420** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (a) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 2.1 MPa (21 bar) (πίεση μετρητή).

Οι απαιτήσεις της Προσθήκης Β.1d έχουν εφαρμογή στα υλικά και την κατασκευή αυτών των περιβλημάτων.

**212 421** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (b), (c) και (d) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 1 MPa (10 bar) (πίεση μετρητή).

**212 422** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (e) θα σχεδιάζονται για πίεση υπολογισμού (βλέπε περιθωριακό 212 127 (2)) όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή).

**212 423** Περιβλήματα προοριζόμενα για τη μεταφορά των στερεών που αναφέρονται στο περιθωριακό 212 410 (f) και (g) θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους I της παρούσης Προσθήκης.

**212 424** Όλα τα μέρη των εμπορευματοκιβωτίων-δεξαμενών που προορίζονται για τη μεταφορά υλών του περιθωριακού 2431, 1<sup>ο</sup>(b) θα είναι δυνατόν να γεωθούν ηλεκτρικά.

212 425-  
212 429

**ΤΜΗΜΑ 3. Είδη εξοπλισμού**

**212 430** Όλα τα ανοίγματα περιβλημάτων προοριζόμενων για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (a), (b), (c) και (e) θα είναι πάνω από τη στάθμη της επιφάνειας του υγρού. Σωληνώσεις ή συνδέσεις σωληνώσεων δεν θα διαπερνούν τα τοιχώματα του περιβλήματος κάτω από την στάθμη της επιφάνειας του υγρού. Τα περιβλήματα θα είναι δυνατό να κλείνονται ερμητικά <sup>2d/</sup> και τα κλεισίματα θα μπορούν να προστατεύονται με πάματα που κλειδώνουν. Τα ανοίγματα καθαρισμού που αναφέρονται στο περιθωριακό 212 132 δεν θα επιτρέπονται.

**212 431** Εξαιρουμένων περιβλημάτων προοριζόμενων για τη μεταφορά καυσίου και ρουβιδίου του περιθωριακού 2471, 11<sup>ο</sup> (a), περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 410 (d), (f) και (g) μπορεί επίσης να είναι του τύπου εκκένωσης από τον πυθμένα. Τα ανοίγματα περιβλημάτων προοριζόμενων για τη μεταφορά καυσίου και ρουβιδίου του περιθωριακού 2471, 11<sup>ο</sup> (a) θα είναι εξοπλισμένα με πάματα που κλείνουν ερμητικά <sup>2d/</sup> και κλειδώνουν.

**212 432** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (b) θα ικανοποιούν επιπλέον τις ακόλουθες απαιτήσεις:

(1) Η συσκευή θερμάνσεως δεν θα εισχωρεί στο σώμα του περιβλήματος, αλλά θα είναι εξωτερική ως προς αυτό. Εντούτοις, ο σωλήνας που χρησιμοποιείται για την εξαγωγή του φωσφόρου μπορεί να είναι εξοπλισμένος με θερμαντικό χιτώνιο. Η συσκευή θερμάνσεως του χιτωνίου θα είναι ρυθμισμένη έτσι ώστε να εμποδίζει την θερμοκρασία του φωσφόρου να υπερβεί την θερμοκρασία πλήρωσης του περιβλήματος. Άλλες σωληνώσεις θα εισέρχονται στο περίβλημα από το άνω μέρος

<sup>2d/</sup> Βλέπε υποσημείωση <sup>8/</sup>



## Προσθήκη Β.1b

**212 432** τα ανοίγματα θα είναι τοποθετημένα πάνω από την ανώτατη επιτρεπόμενη στάθμη του (συνεχ.) φωσφόρου και θα μπορούν να περικλείονται εξ ολοκλήρου με πώματα που κλειδώνουν. Επιπλέον, τα ανοίγματα καθαρισμού που αναφέρονται στο περιθωριακό 212 132 δεν θα επιτρέπονται.

(2) Το περιβλήμα θα είναι εξοπλισμένο με σύστημα μέτρησης για την εξακρίβωση της στάθμης του φωσφόρου και, εάν χρησιμοποιείται νερό ως προστατευτικό μέσο, με σταθερό σημείο μέτρησης που θα δείχνει την ανώτατη επιτρεπόμενη στάθμη του νερού.

**212 433** Εάν περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (a), (c) και (e) είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται εκρηγνύομενος δίσκος μπροστά από τη βαλβίδα. Η διευθέτηση του εκρηγνύομενου δίσκου και των βαλβίδων ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή.

**212 434** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (f) θα είναι εξοπλισμένα με θερμομόνωση κατασκευασμένη από υλικά που δεν είναι εύκολα αναφλέξιμα.

**212 435** Εάν περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 410 (d) είναι εξοπλισμένα με θερμομόνωση, αυτή η μόνωση θα κατασκευάζεται από υλικά που δεν είναι εύκολα αναφλέξιμα.

**212 436** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (f) μπορεί να είναι εξοπλισμένα με βαλβίδες που ανοίγουν αυτομάτως προς τα μέσα ή προς τα έξω υπό την επίδραση διαφοράς πίεσης μεταξύ 20 kPa και 30 kPa (0.2 bar και 0.3 bar).

**212 437-**

**212 439**

#### ΤΜΗΜΑ 4. Έγκριση τύπου

**212 440-**

**212 449** (Δεν υπάρχουν ειδικές απαιτήσεις)

#### ΤΜΗΜΑ 5. Δοκιμές

**212 450** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (a) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή τουλάχιστον 1 MPa (10 bar). Τα υλικά κάθε ενός από αυτά τα περιβλήματα θα δοκιμάζονται διά της μεθόδου που περιγράφεται στην Προσθήκη Β.1d.

**212 451** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (b) έως (e) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή τουλάχιστον 400 kPa (4 bar).

Κατά παρέκκλιση από τις απαιτήσεις του περιθωριακού 212 151, περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 410 (d) θα υποβάλλονται σε περιοδικές επιθεωρήσεις τουλάχιστον κάθε οκτώ έτη οι οποίες θα περιλαμβάνουν έλεγχο πάχους χρησιμοποιώντας τα κατάλληλα όργανα. Για τέτοια περιβλήματα, η δοκιμή και ο έλεγχος στεγανότητας, για τα οποία γίνεται πρόβλεψη στο περιθωριακό 212 152, θα διενεργείται τουλάχιστον κάθε τέσσερα έτη.

**212 452** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (f) και (g) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού τους κατά τα οριζόμενα στο περιθωριακό 212 123.

## Προσθήκη Β.1b

212 453-

212 459

**ΤΜΗΜΑ 6. Επισήμανση**

**212 460** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (a) θα φέρουν επιπλέον των στοιχείων που προβλέπονται στο περιθωριακό 212 161, τις εξής λέξεις: "Μην ανοίγετε κατά τη μεταφορά. Υπόκειται σε αυτογενή ανάφλεξη".

Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 410 (c) έως (e) θα φέρουν επιπλέον των στοιχείων που προβλέπονται στο περιθωριακό 212 161, τις εξής λέξεις: "Μην ανοίγετε κατά τη μεταφορά. Αναδίδει εύφλεκτα αέρια σε επαφή με το νερό".

Αυτά τα στοιχεία θα είναι σε επίσημη γλώσσα της χώρας εγκρίσεως, και επίσης, εάν η γλώσσα αυτή δεν είναι η αγγλική, γαλλική ή γερμανική, σε μία από αυτές τις γλώσσες, εκτός εάν προβλέπεται διαφορετικά σε τυχόν συμφωνίες που έχουν συναφθεί μεταξύ των χωρών που αφορά τη μεταφορά.

**212 461** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του περιθωριακού 2471, 1° (a) θα φέρουν επίσης, στην πινακίδα που προβλέπεται στο περιθωριακό 212 160, τις ονομασίες των εγκεκριμένων υλών και το μέγιστο επιτρεπόμενο φορτίο του περιβλήματος σε kg.

212 462-

212 469

**ΤΜΗΜΑ 7. Λειτουργία**

**212 470** (1) Υλεις των 11° και 22° του περιθωριακού 2431 θα είναι καλυμμένες, εάν χρησιμοποιείται νερό ως προστατευτικό μέσο, με νερό σε ύψος όχι μικρότερο από 12 cm κατά την πλήρωση· ο βαθμός πλήρωσης σε θερμοκρασία 60 °C δεν θα υπερβαίνει το 98%. Εάν χρησιμοποιείται άζωτο ως προστατευτικό μέσο, ο βαθμός πλήρωσης σε θερμοκρασία 60 °C δεν θα υπερβαίνει το 96%. Ο εναπομένον χώρος θα πληρούται με άζωτο κατά τρόπο ώστε, ακόμα και μετά την ψύξη, η πίεση να μην πέφτει ποτέ κάτω από την ατμοσφαιρική πίεση. Το περιβλήμα θα είναι ερμητικά κλειστό<sup>24/</sup> έτσι ώστε να μη συμβεί διαρροή αερίου.

(2) Ακαθάριστα κενά περιβλήματα τα οποία περιείχαν ύλες των 11° και 22° του περιθωριακού 2431, όταν παραδίδονται για μεταφορά:

- είτε θα είναι γεμάτα με άζωτο· είτε
- θα είναι γεμάτα με νερό σε ποσοστό όχι μικρότερο από 96% και όχι μεγαλύτερο από 98% της χωρητικότητάς τους μεταξύ 1ης Οκτωβρίου και 31ης Μαρτίου, το νερό αυτό θα περιέχει επαρκή ποσότητα αντιψυκτικού μέσου ώστε να καταστήσει αδύνατη την πήξη του νερού κατά τη μεταφορά· το αντιψυκτικό μέσο θα είναι απαλλαγμένο από διαβρωτική δράση και δεν θα υπόκειται σε αντίδραση με τον φωσφόρο.

## Προσθήκη Β.1b

- 212 471** Περιβλήματα περιέχοντα ύλες των 31° έως 33° του περιθωριακού 2431 και ύλες των 2° (a), 3° (a) και 3° (b) του περιθωριακού 2471 θα πληρούνται σε ποσοστό όχι μεγαλύτερο από 90% της χωρητικότητάς τους· κενό διάστημα του 5% θα παραμένει κενό για ασφάλεια όποτε το υγρό είναι σε μέση θερμοκρασία 50 °C. Κατά τη μεταφορά, οι ύλες θα είναι κάτω από στρώμα αδρανούς αερίου, η πίεση μετρητή του οποίου δεν θα είναι μικρότερη από 50 kPa (0.5 bar). Τα περιβλήματα θα είναι ερμητικά κλειστά <sup>24/</sup> και τα προστατευτικά πώματα σύμφωνα με το 212 430 θα είναι κλειδωμένα. Ακαθάριστα κενά περιβλήματα όταν παραδίδονται για μεταφορά θα είναι γεμάτα με αδρανές αέριο σε πίεση μετρητή τουλάχιστον 50 kPa (0.5 bar).
- 212 472** Για αιθυλοδιχλωροσιλάνιο, μεθυλοδιχλωροσιλάνιο και τριχλωροσιλάνιο του περιθωριακού 2471, 1°, ο βαθμός πλήρωσης δεν θα υπερβαίνει το 0.93 ή 0.95 ή 1.14 kg ανά λίτρο χωρητικότητας αντίστοιχα, εάν η πλήρωση υπολογίζεται κατά βάρος. Εάν η πλήρωση υπολογίζεται κατ'όγκο, και για χλωροσιλάνια που δεν αναφέρονται ονομαστικά (ε.α.ο.) του περιθωριακού 2471, 1°, ο βαθμός πλήρωσης δεν θα υπερβαίνει το 85%. Τα περιβλήματα θα είναι ερμητικά κλειστά <sup>24/</sup> και τα προστατευτικά πώματα σύμφωνα με το περιθωριακό 212 430 θα είναι κλειδωμένα.
- 212 473** Περιβλήματα που περιέχουν ύλες του περιθωριακού 2401, 5° και 15°, δεν θα πληρούνται σε ποσοστό μεγαλύτερο από 98% της χωρητικότητάς τους.
- 212 474** Για τη μεταφορά καισίου και ρουβιδίου του περιθωριακού 2471 11° (a) , οι ύλες θα καλύπτονται με αδρανές αέριο και τα πώματα σύμφωνα με το περιθωριακό 212 431 θα είναι κλειδωμένα. Περιβλήματα που περιέχουν άλλες ύλες του περιθωριακού 2471, 11° (a) δεν θα παραδίδονται για μεταφορά μέχρις ότου η ύλη στερεοποιηθεί εντελώς και καλυφθεί με αδρανές αέριο.
- Ακαθάριστα κενά περιβλήματα τα οποία περιείχαν ύλες του περιθωριακού 2471, 11°(a) θα πληρούνται με αδρανές αέριο. Τα περιβλήματα θα είναι ερμητικά κλειστά <sup>24/</sup>.
- 212 475** Όποτε φορτώνονται ύλες του περιθωριακού 2431, 1° (b), η θερμοκρασία των μεταφερομένων εμπορευμάτων δεν θα υπερβαίνει τους 60 °C.

212 476-  
212 499

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<sup>24/</sup> Βλέπε footnote 8/.

## Προσθήκη Β.1b

**ΚΛΑΣΗ 5.1. ΟΞΕΙΑΩΤΙΚΕΣ ΥΛΕΣ**

**ΚΛΑΣΗ 5.2. ΟΡΓΑΝΙΚΑ ΥΠΕΡΟΞΕΙΔΙΑ**

212 500-  
212 509

**ΤΜΗΜΑ 1. Γενικά, πλαίσιο (χρήση εμπορευματοκιβωτίων-δεξαμενών) ορισμοί**

**Χρήση**

**212 510** Οι ακόλουθες ύλες του περιθωριακού 2501 μπορεί να μεταφέρονται σε εμπορευματοκιβώτια-δεξαμενές:

- (a) ύλες του 5°
- (b) ύλες που έχουν καταχωρηθεί στο γράμμα (a) ή (b) των 1° έως 4°, 11°, 13°, 16°, 17°, 22° και 23°, μεταφερόμενες στην υγρή κατάσταση
- (c) υγρό νιτρικό αμμώνιο του 20°
- (d) ύλες που έχουν καταχωρηθεί στο γράμμα (c) των 1°, 16°, 18°, 22° και 23°, μεταφερόμενες στην υγρή κατάσταση
- (e) ύλες σε κονιώδη ή κοκκώδη μορφή που έχουν καταχωρηθεί στο γράμμα (b) ή (c) των 11°, 13° έως 19°, 21° έως 27°, 29° έως 31°.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά χύμα υλών των 11° έως 13°, 16°, 18°, 19°, 21° και 22° (c), και στερεών αποβλήτων ταξινομημένων στα προαναφερόμενα είδη του περιθωριακού 2501, βλέπε περιθωριακό 51 111.

**212 511** Υλές των 9° (b), 10° (b), 19° (b) ή 20° (b) του περιθωριακού 2551 μπορεί να μεταφέρονται σε εμπορευματοκιβώτια-δεξαμενές το αργότερο από 1ης Ιανουαρίου 1995 υπό τους όρους που θέτει η αρμόδια αρχή της χώρας προέλευσης εάν, βάσει δοκιμών (βλέπε περιθωριακό 212 541), η αρμόδια αρχή ικανοποιείται ότι αυτή η μεταφορά μπορεί να διενεργηθεί με ασφάλεια.

212 512-  
212 519

**ΤΜΗΜΑ 2. Κατασκευή**

**212 520** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 510 (a) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] τουλάχιστον 1 MPa (10 bar) (πίεση μετρητή).

**212 521** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 510 (b) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127(2)] τουλάχιστον 400 kPa (4 bar) (πίεση μετρητή). Περιβλήματα, και τα είδη εξοπλισμού τους, προοριζόμενα για τη μεταφορά υλών του 1° θα κατασκευάζονται από αλουμίνιο καθαρότητας όχι μικρότερης από 99.5% ή από κατάλληλο χάλυβα που δεν είναι δυνατό να προκαλέσει την αποσύνθεση του υπεροξειδίου του υδρογόνου. Όπου τα περιβλήματα είναι κατασκευασμένα από αλουμίνιο καθαρότητας όχι μικρότερης από 99.5%, το πάχος των τοιχωμάτων δεν χρειάζεται να είναι μεγαλύτερο από 15 mm, ακόμη και όπου ο υπολογισμός σύμφωνα με το περιθωριακό 212 127 (2) δίνει υψηλότερη τιμή.

**212 522** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 510 (c) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] τουλάχιστον 400 kPa (4 bar) (πίεση μετρητή). Τα περιβλήματα θα κατασκευάζονται από ωστενιτικούς χάλυβες.

## Προσθήκη Β.1b

- 212 523** Περιβλήματα προοριζόμενα για τη μεταφορά των υγρών που αναφέρονται στο περιθωριακό 212 510 (d) και των κοινοδών ή κοκκωδών υλών που αναφέρονται στο περιθωριακό 212 510 (e) θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους Ι της παρούσης Προσθήκης.
- 212 524** Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511 θα σχεδιάζονται για πίεση υπολογισμού τουλάχιστον 400 kPa (4 bar) (πίεση μετρητή).
- 212 525-  
212 529**

**ΤΜΗΜΑ 3. Είδη εξοπλισμού**

- 212 530** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1° (a), 3° (a) και 5° του περιθωριακού 2501 θα έχουν τα ανοίγματά τους επάνω από τη στάθμη επιφάνειας του υγρού. Επιπλέον, τα ανοίγματα καθαρισμού (fist holes) που αναφέρονται στο περιθωριακό 212 132 δεν θα επιτρέπονται.

Για διαλύματα περιέχοντα ποσοστό μεγαλύτερο από 60% αλλά όχι μεγαλύτερο από 70% υπεροξειδίου του υδρογόνου, θα επιτρέπονται ανοίγματα κάτω από τη στάθμη της επιφάνειας του υγρού. Σε αυτήν την περίπτωση το σύστημα εκκένωσης του περιβλήματος θα είναι εξοπλισμένο με δύο ανεξάρτητες μεταξύ τους συσκευές κλεισίματος συναρμολογημένες σε σειρά, η πρώτη με τη μορφή εσωτερικής δικλείδας ταχείας λειτουργίας, συγκεκριμένου τύπου, και η δεύτερη με τη μορφή βαλβίδας εκροής, μία σε κάθε άκρο του σωλήνα εκκένωσης. Κενό παρέμβυσμα (φλάντζα), ή άλλη συσκευή που παρέχει το ίδιο μέτρο ασφαλείας, θα τοποθετείται επίσης στο στόμιο κάθε εξωτερικής βαλβίδας εκροής. Η εσωτερική δικλείδα θα είναι τέτοια ώστε, εάν η σωλήνωση ξεβιδωθεί, η δικλείδα θα παραμείνει ενωμένη με το περίβλημα και στην κλειστή θέση. Οι συνδέσεις με τα εξωτερικά στόμια σωληνώσεων των περιβλημάτων θα κατασκευάζονται από υλικά που δεν μπορούν να προκαλέσουν αποσύνθεση του υπεροξειδίου του υδρογόνου.

**212 531**

- 212 532** Περιβλήματα προοριζόμενα για τη μεταφορά υπεροξειδίου του υδρογόνου ή υδατικών διαλυμάτων υπεροξειδίου του υδρογόνου του 1°, ή υγρού νιτρικού αμμωνίου του 20° του περιθωριακού 2501 θα είναι εξοπλισμένα στο άνω μέρος τους με συσκευή κλεισίματος που θα αποτρέπει την ανάπτυξη υπερβολικής πίεσης στο εσωτερικό του περιβλήματος, τυχόν διαρροή υγρού, και τυχόν εισδοχή ξένης ουσίας στο περίβλημα. Οι συσκευές κλεισίματος περιβλημάτων προοριζόμενων για τη μεταφορά υγρού νιτρικού αμμωνίου του περιθωριακού 2501, 20°, θα είναι σχεδιασμένες έτσι ώστε να αποκλείουν απόφραξη των συσκευών από στερεοποιημένο νιτρικό αμμώνιο κατά τη μεταφορά.

- 212 533** Όπου περιβλήματα προοριζόμενα για τη μεταφορά υγρού νιτρικού αμμωνίου του περιθωριακού 2501, 20°, είναι επενδεδυμένα με θερμομονωτικό υλικό, το υλικό θα είναι ανόργανο και εντελώς απαλλαγμένο από αναφλέξιμες ουσίες.

- 212534** Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511 θα είναι εξοπλισμένα με θερμομόνωση τηρώντας τις απαιτήσεις του περιθωριακού 212 234 (1). Εάν η SADT του οργανικού υπεροξειδίου στο περίβλημα είναι 55 °C ή μικρότερη, ή το περίβλημα είναι κατασκευασμένο με αλουμίνιο, το περίβλημα θα είναι πλήρως μονωμένο. Το αλεξήλιο και οποιοδήποτε μέρος του περιβλήματος που δεν καλύπτεται από αυτό, ή η εξωτερική επένδυση πλήρους μονωτικής κάλυψης, θα είναι βαμμένα λευκά ή φινιρισμένα με στυλνόν μέταλλο. Το χρώμα θα καθαρίζεται πριν από κάθε διαδρομή και θα ανανεώνεται σε περίπτωση κτηρινίσματος ή φθοράς. Η θερμομόνωση θα είναι απαλλαγμένη από αναφλέξιμες ουσίες.

- 212 535** Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511 θα είναι εξοπλισμένα με αισθητήρες θερμοκρασίας.

- 212 536** (1) Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511 θα είναι εξοπλισμένα με βαλβίδες ασφαλείας και συσκευές εκτόνωσης με πίεση.

## Προσθήκη Β.1b

**212 536** Συσκευές εκτόνωσης σε κενό μπορούν επίσης να χρησιμοποιούνται. Συσκευές εκτόνωσης με (συνεχ.) πίεση θα λειτουργούν σε πιέσεις καθοριζόμενες σύμφωνα τόσο με τις ιδιότητες του οργανικού υπεροξειδίου όσο και τα κατασκευαστικά χαρακτηριστικά της δεξαμενής. Δεν θα επιτρέπονται εύηχτα στοιχεία στο σώμα του περιβλήματος.

(2) Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511 θα είναι εξοπλισμένα με βαλβίδες ασφαλείας με ελατήριο για να αποτραπεί η ανάπτυξη σημαντικής πίεσης μέσα στο περίβλημα από τα προϊόντα αποσύνθεσης και τους ατμούς που εκλύονται σε θερμοκρασία 50 °C. Η χωρητικότητα και η πίεση στην αρχή της εκκένωσης της βαλβίδας (των βαλβίδων) ασφαλείας θα βασίζεται στα αποτελέσματα των δοκιμών που καθορίζονται στο περιθωριακό 212 541. Η πίεση στην αρχή της εκκένωσης δεν θα είναι εντούτοις σε καμία περίπτωση τέτοια ώστε να ήταν δυνατή η διαφυγή υγρού από τη βαλβίδα (τις βαλβίδες) εάν το περίβλημα ανατρεπόταν.

(3) Οι συσκευές εκτόνωσης με πίεση περιβλημάτων προοριζόμενων για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511 μπορεί να είναι του τύπου ελατηρίου ή του τύπου εκρηγνύομενου δίσκου, σχεδιασμένες να εξαερώνουν όλα τα προϊόντα αποσύνθεσης και τους ατμούς που αναπτύσσονται σε περίοδο περικύκλωσης από φωτιά όχι μικρότερη από μία ώρα (φορτίο θερμότητας 110 kW/m<sup>2</sup>) ή αυτο-επιταχυνόμενης αποσύνθεσης. Η πίεση στην αρχή της εκκένωσης της συσκευής (των συσκευών) εκτόνωσης με πίεση θα είναι υψηλότερη από την αναφερόμενη στο (2) και θα βασίζεται στα αποτελέσματα των δοκιμών που αναφέρονται στο περιθωριακό 212 541. Οι διαστάσεις των συσκευών εκτόνωσης με πίεση θα είναι τέτοιες ώστε η μέγιστη πίεση στο περίβλημα να μην υπερβαίνει ποτέ την πίεση δοκιμής του περιβλήματος.

(4) Για περιβλήματα με μόνωση αποτελούμενη από πλήρη επένδυση προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511, η χωρητικότητα και η ρύθμιση των συσκευών εκτόνωσης με πίεση θα καθορίζεται υποθέτοντας απώλεια μόνωσης από ποσοστό 1% του εμβαδού της επιφάνειας.

(5) Συσκευές εκτόνωσης στο κενό και βαλβίδες ασφαλείας με ελατήριο περιβλημάτων για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511 θα είναι εφοδιασμένες με ανασχετήρες φλόγας εκτός εάν οι προς μεταφορά ύλες και τα προϊόντα αποσύνθεσής τους είναι μη αναφλέξιμα. Θα δίνεται η δέουσα προσοχή στην ελάττωση της ικανότητας εκτόνωσης που προκαλεί ο ανασχετήρας φλόγας.

**212 537-  
212 539**

#### ΤΜΗΜΑ 4. Έγκριση τύπου

**212 540** Εμπορευματοκιβώτια-δεξαμενές εγκεκριμένα για τη μεταφορά υγρού νιτρικού αμμωνίου του περιθωριακού 2501, 20°, δεν θα εγκρίνονται για τη μεταφορά άλλων υλών.

**212 541** Για την έγκριση τύπου περιβλημάτων προοριζόμενων για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511, θα διενεργούνται δοκιμές:

- για να αποδειχθεί η συμβατότητα όλων των υλικών που κανονικά έρχονται σε επαφή με την ύλη κατά τη μεταφορά
- για να παρασχεθούν στοιχεία για τη διευκόλυνση του σχεδιασμού των συσκευών εκτόνωσης με πίεση και των βαλβίδων ασφαλείας λαμβάνοντας υπόψη τα χαρακτηριστικά σχεδιασμού των εμπορευματοκιβωτίων-δεξαμενών και
- για να εξακριβωθούν τυχόν ειδικές απαιτήσεις αναγκαίες για την ασφαλή μεταφορά της ύλης.

Τα αποτελέσματα των δοκιμών θα περιλαμβάνονται στην έκθεση για την έγκριση τύπου του περιβλήματος.

## Προσθήκη Β.1b

212 542-  
212 549

**ΤΜΗΜΑ 5. Δοκιμές**

**212 550** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 510 (a), (b) και (c) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή). Περιβλήματα από καθαρό αλουμίνιο προοριζόμενα για τη μεταφορά υλών του περιθωριακού 2501, 1<sup>ο</sup>, μπορεί να υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μόνον 250 kPa (2.5 bar) (πίεση μετρητή).

Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 510 (d) και (e) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού τους κατά τα οριζόμενα στο περιθωριακό 212 123.

**212 551** Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511 θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού τους σύμφωνα με το περιθωριακό 212 524.

212 552-  
212 559

**ΤΜΗΜΑ 6. Επισήμανση**

**212 560** Τα ακόλουθα πρόσθετα στοιχεία θα επισημαίνονται με σφράγιση ή με άλλη παρόμοια μέθοδο στην πινακίδα που προβλέπεται στο περιθωριακό 212 161 ή απευθείας στα τοιχώματα του ίδιου του περιβλήματος, εάν τα τοιχώματα είναι έτσι ενισχυμένα ώστε να μη μειώνεται η αντοχή του περιβλήματος:

- η χημική ονομασία με την εγκεκριμένη συγκέντρωση της σχετικής ύλης.

212 561-  
212 569

**ΤΜΗΜΑ 7. Λειτουργία**

**212 570** Το εσωτερικό του περιβλήματος και όλα τα μέρη που είναι δυνατό να έλθουν σε επαφή με τις ύλες που αναφέρονται στα περιθωριακά 212 510 και 212 511 θα διατηρούνται καθαρά. Λιπαντικό που μπορεί να συνδυαστεί επικίνδυνα με τη μεταφερόμενη ύλη δεν θα χρησιμοποιείται για αντλίες, βαλβίδες ή άλλες συσκευές.

**212 571** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1<sup>ο</sup> (a), 2<sup>ο</sup> (a) και 3<sup>ο</sup> (a) περιθωριακού 2501 θα πληρούνται σε ποσοστό όχι μεγαλύτερο από 95% της χωρητικότητάς τους σε θερμοκρασία αναφοράς 15 °C. Περιβλήματα προοριζόμενα για τη μεταφορά υλών του περιθωριακού 2501, 20<sup>ο</sup>, θα πληρούνται σε ποσοστό όχι μεγαλύτερο από 97% της χωρητικότητάς τους, και η μέγιστη θερμοκρασία μετά την πλήρωση δεν θα υπερβαίνει τους 140 °C. Περιβλήματα εγκεκριμένα για τη μεταφορά υγρού νιτρικού αμμωνίου δεν θα χρησιμοποιούνται για τη μεταφορά άλλων υλών.

**212 572** Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511 θα πληρούνται όπως καθορίζεται στην έκθεση δοκιμής για την έγκριση τύπου της δεξαμενής αλλά θα είναι γεμάτα σε ποσοστό όχι μεγαλύτερο από 90% της χωρητικότητάς τους. Τα περιβλήματα θα είναι απαλλαγμένα από προσμειξείς κατά την πλήρωση.

**212 573** Ο λειτουργικός εξοπλισμός όπως οι βαλβίδες και εξωτερικές σωληνώσεις περιβλημάτων προοριζόμενων για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 511 θα κενώνεται μετά την πλήρωση ή εκκένωση της δεξαμενής.

212 574-  
212 599

**ΚΛΑΣΗ 6.1. ΤΟΞΙΚΕΣ ΥΛΕΣ****ΚΛΑΣΗ 6.2. ΜΟΛΥΣΜΑΤΙΚΕΣ ΥΛΕΣ**212 600-  
212 609**ΤΜΗΜΑ 1. Γενικά, πλαίσιο (χρήση των εμπορευματοκιβωτίων-δεξαμενών) ορισμοί****Χρήση**

**212 610** Οι ακόλουθες ύλες του περιθωριακού 2601 μπορεί να μεταφέρονται σε εμπορευματοκιβώτια-δεξαμενές:

- (a) οι ονομαστικά καταχωρημένες ύλες στα 2° έως 4°
- (b) ύλες ταξινομημένες στο (a) των 6° έως 13° με την εξαίρεση του χλωρομυρμηκικού ισοπροπυλεστέρα των 10°, 15° έως 17°, 20°, 22°, 23°, 25° έως 28°, 31° έως 36°, 41°, 44°, 51°, 52°, 55°, 61°, 65° έως 68°, 71° έως 87° και 90°, μεταφερόμενες στην υγρή κατάσταση
- (c) ύλες ταξινομημένες στο (b) ή (c) των 11°, 12°, 14° έως 28°, 31° έως 36°, 41°, 44°, 51° έως 55°, 57° έως 62°, 64° έως 68°, 71° έως 87° και 90°, μεταφερόμενες στην υγρή κατάσταση
- (d) ύλες σε κοκκώδη ή κονιώδη μορφή ταξινομημένες στο (b) ή (c) των 12°, 14°, 17°, 19°, 21°, 23°, 25° έως 27°, 32° έως 35°, 41°, 44°, 51° έως 55°, 57° έως 68°, 71° έως 87° και 90°.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά χύμα υλών του 60° (c), στερεών που περιέχουν τοξικά υγρά του 65° (b) (χαρακτηριστικός αριθμός 3243) και στερεών αποβλήτων ταξινομημένων στο (c) των διαφόρων ειδών, βλέπε το περιθωριακό 61 111.

(2) Υλες του περιθωριακού 2651, 3° και 4° μπορεί να μεταφέρονται σε εμπορευματοκιβώτια-δεξαμενές.

212 611-  
212 619**ΤΜΗΜΑ 2. Κατασκευή**

**212 620** Περιβλήματα προοριζόμενα για τη μεταφορά υλών που αναφέρονται στο περιθωριακό 212 610 (1) (a) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 1.5 MPa (15 bar) (πίεση μετρητή).

**212 621** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 610 (1) (b) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 1.0 MPa (10 bar) (πίεση μετρητή).

**212 622** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στα περιθωριακά 212 610 (1) (c) και 212 610 (2) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή). Περιβλήματα προοριζόμενα για τη μεταφορά χλωροοξικού οξέος του 24°(b) του περιθωριακού 2601 θα είναι εφοδιασμένα με σμάλτο ή ισοδύναμη προστατευτική επιστρώση εάν το υλικό του περιβλήματος προσβάλλεται από το χλωροοξικό οξύ.



## Προσθήκη Β.1b

**212 623** Περιβλήματα προοριζόμενα για τη μεταφορά των κονιωδών ή κοκκωδών υλών που αναφέρονται στο περιθωριακό 212 610 (1) (d) θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους Ι της παρούσης Προσθήκης.

**212 624-**  
**212 629**

**ΤΜΗΜΑ 3. Είδη εξοπλισμού**

**212 630** Όλα τα ανοίγματα περιβλημάτων προοριζόμενων για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 610 (1) (a) και (b) θα είναι πάνω από τη στάθμη της επιφάνειας του υγρού. Σωληνώσεις ή συνδέσεις σωληνώσεων δεν θα διαπερνούν τα τοιχώματα του περιβλήματος κάτω από τη στάθμη της επιφάνειας του υγρού. Τα περιβλήματα θα μπορούν να κλείνονται ερμητικά<sup>24/</sup> και τα κλεισίματα θα μπορούν να προστατεύονται με πόματα που κλειδώνουν. Τα ανοίγματα καθαρισμού (fist holes) που προβλέπονται στο περιθωριακό 212 132 δεν θα επιτρέπονται εντούτοις για περιβλήματα προοριζόμενα για την μεταφορά διαλυμάτων υδροκυανικού οξέος του 2°.

**212 631** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 610 (1) (c) και (d) και (2) μπορεί επίσης να είναι του τύπου εκκένωσης από τον πυθμένα. Τα περιβλήματα θα μπορούν να κλείνονται ερμητικά<sup>24/</sup>.

**212 632** Εάν περιβλήματα είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται εκρηγνύομενος δίσκος μπροστά από τη βαλβίδα. Η διευθέτηση του εκρηγνύομενου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή.

**212 633-**  
**212 639**

**ΤΜΗΜΑ 4. Έγκριση τύπου**

**212 640-**

**212 649** (Δεν υπάρχουν ειδικές απαιτήσεις)

**ΤΜΗΜΑ 5. Δοκιμές**

**212 650** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 610 (1) (a), (b) και (c) και (2) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή όχι μικρότερη από 400 kPa (4 bar).

**212 651** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 610 (1) (d) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού τους κατά τα οριζόμενα στο περιθωριακό 212 123.

**212 652-**  
**212 659**

**ΤΜΗΜΑ 6. Επισήμανση**

**212 660-**

**212 669** (Δεν υπάρχουν ειδικές απαιτήσεις)

<sup>24/</sup>

Βλέπε υποσημείωση<sup>8/</sup>.

## Προσθήκη Β.1b

## ΤΜΗΜΑ 7. Λειτουργία

- 212 670 Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 3<sup>ο</sup> του περιθωριακού 2601 δεν θα πληρούνται σε βαθμό μεγαλύτερο από 1 kg ανά λίτρο χωρητικότητας.
- 212 671 Τα περιβλήματα θα είναι ερμητικά κλειστά <sup>24/</sup> κατά τη μεταφορά. Τα κλεισίματα περιβλημάτων προοριζόμενων για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 610 (1) (a) και (b) θα προστατεύονται με κλειδωμένα πώματα.
- 212 672 Εμπορευματοκιβώτια-δεξαμενές εγκεκριμένα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 610 δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, αντικειμένων κατανάλωσης ή ζωότροφών.
- 212 673-  
212 699

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<sup>24/</sup> Βλέπε footnote 8/.

## Προσθήκη Β.1b

**ΚΛΑΣΗ 7. ΡΑΔΙΟΕΝΕΡΓΑ ΥΛΙΚΑ**212 700-  
212 709**ΤΜΗΜΑ 1. Γενικά, πλαίσιο (χρήση των εμπορευματοκιβωτίων-δεξαμενών) ορισμοί****Χρήση**

**212 710** Υλικά του περιθωριακού 2704, Πίνακες 1, 5, 6, 9, 10 και 11, εκτός από εξαφθοριούχο ουράνιο, μπορούν να μεταφέρονται σε εμπορευματοκιβώτια-δεξαμενές. Έχουν εφαρμογή οι διατάξεις του κατάλληλου πίνακα στο περιθωριακό 2704.

*ΣΗΜΕΙΩΣΗ: Μπορεί να υπάρχουν πρόσθετες απαιτήσεις για εμπορευματοκιβώτια-δεξαμενές σχεδιασμένα ως συσκευασίες Τύπου Α ή Τύπου Β.*

212 711-  
212 719**ΤΜΗΜΑ 2. Κατασκευή**

**212 720** Βλέπε περιθωριακό 3736.

212 721-  
212 729**ΤΜΗΜΑ 3. Είδη Εξοπλισμού**

**212 730** Τα ανοίγματα εμπορευματοκιβωτίων-δεξαμενών για τη μεταφορά υγρών ραδιενεργών υλικών <sup>25/</sup> θα είναι επάνω από τη στάθμη του υγρού. Τα τοιχώματα του περιβλήματος δεν θα έχουν σωληνώσεις ή συνδέσεις σωληνώσεων κάτω από τη στάθμη του υγρού.

212 731-  
212 739**ΤΜΗΜΑ 4. Έγκριση τύπου**

**212 740** Εμπορευματοκιβώτια-δεξαμενές εγκεκριμένα για τη μεταφορά ραδιενεργού υλικού δεν θα εγκρίνονται για την μεταφορά οποιασδήποτε άλλης ύλης.

212 741-  
212 749**ΤΜΗΜΑ 5. Δοκιμές**

**212 750** Τα περιβλήματα θα υποβάλλονται αρχικά και περιοδικά σε δοκιμή υδραυλικής πίεσης σε πίεση τουλάχιστον 265 kPa (2.65 bar), (πίεση μετρητή).

Παρά τις διατάξεις του περιθωριακού 212 151 η περιοδική εσωτερική επιθεώρηση μπορεί να αντικαθίσταται από πρόγραμμα εγκεκριμένο από την αρμόδια αρχή.

<sup>25/</sup> Βλέπε υποσημείωση <sup>16/</sup>.

Προσθήκη Β.1b

212 751-

212 759

**ΤΜΗΜΑ 6. Επισήμανση**

**212 760** Επιπλέον, το σύμβολο του τριφυλλίου που περιγράφεται στο περιθωριακό 2705 (5), θα επισημαίνεται με σφράγιση ή με οποιαδήποτε άλλη ισοδύναμη μέθοδο στο μέρος που περιγράφεται στο περιθωριακό 212 160. Η επισήμανση τριφυλλίου μπορεί να εφαρμόζεται απευθείας στα τοιχώματα του ίδιου του περιβλήματος, εάν τα τοιχώματα είναι έτσι ενισχυμένα ώστε να μη μειώνεται η αντοχή του περιβλήματος.

212 761-

212 769

**ΤΜΗΜΑ 7. Λειτουργία**

**212 770** Ο βαθμός πλήρωσης σύμφωνα με το περιθωριακό 212 172, στη θερμοκρασία αναφοράς των 15 °C δεν θα υπερβαίνει το 93% της χωρητικότητας του περιβλήματος.

**212 771** Εμπορευματοκιβώτια-δεξαμενές στα οποία έχει μεταφερθεί ραδιενεργό υλικό δεν θα χρησιμοποιούνται για τη μεταφορά άλλων υλών.

212 772-

212 799

## Προσθήκη Β.1b

## ΚΛΑΣΗ 8. ΔΙΑΒΡΩΤΙΚΕΣ ΥΛΕΣ

212 800-  
212 809

## ΤΜΗΜΑ 1. Γενικά, πλαίσιο (χρήση των εμπορευματοκιβωτίων-δεξαμενών) ορισμοί

## Χρήση

212 810 Οι ακόλουθες ύλες του περιθωριακού 2801 μπορεί να μεταφέρονται σε εμπορευματοκιβώτια-δεξαμενές:

- (a) ύλες ονομαστικά καταχωρημένες στα 6° και 14°
- (b) ύλες ταξινομημένες στο (a) των 1°, 2°, 3°, 7°, 8°, 12°, 17°, 32°, 33°, 39°, 40°, 46°, 47°, 52° έως 56°, 64° έως 68°, 70°, 72° έως 76°, μεταφερόμενες στην υγρή κατάσταση
- (c) ύλες του 15° ή ταξινομημένες στο (b) ή (c) των 1° έως 5°, 7°, 8° 10°, 12°, 17°, 31° έως 40°, 42° έως 47°, 51° έως 56°, 61° έως 76°, μεταφερόμενες στην υγρή κατάσταση
- (d) ύλες σε κονιώδη ή κοκκώδη μορφή ταξινομημένες στο (b) ή (c) των 9°, 11°, 13°, 16°, 31°, 34°, 35°, 39°, 41°, 45°, 46°, 52°, 55°, 62°, 65°, 68°, 69°, 71°, 73° και 75°.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά χύμα θειικού μολύβδου του 1° (b), υλών του 13° (b), και στερεών αποβλήτων και στερεών που περιέχουν διαβρωτικό υγρό του 65° (b) με χαρακτηριστικό αριθμό 3244 ταξινομημένες στο (c) των διαφόρων ειδών, βλέπε το περιθωριακό 81 111.

212 811-  
212 819

## ΤΜΗΜΑ 2. Κατασκευή

212 820 Περιβλήματα προοριζόμενα για τη μεταφορά υλών ονομαστικά καταχωρημένων στα 6° και 14° θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 2.1 MPa (21 bar) (πίεση μετρητή). Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 14° θα είναι εφοδιασμένα με επίστρωση μολύβδου όχι μικρότερη από 5 mm σε πάχος, ή με ισοδύναμη επίστρωση. Η απαίτηση της Προσθήκης Β.1d θα έχει εφαρμογή στα υλικά και την κατασκευή συγκολλημένων περιβλημάτων, προοριζόμενων για τη μεταφορά υλών του 6°.

212 821 Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 810 (b) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 1.0 MPa (10 bar) (πίεση μετρητή).

Όπου η χρήση αλουμινίου είναι αναγκαία για περιβλήματα προοριζόμενα για τη μεταφορά νιτρικού οξέος του 2° (a), τέτοια περιβλήματα θα κατασκευάζονται από αλουμίνιο καθαρότητας όχι μικρότερης από 99.5% ακόμη και όπου η πίεση υπολογισμού κατά το περιθωριακό 212 127 (2) δίνει υψηλότερη τιμή, το πάχος του τοιχώματος δεν χρειάζεται να υπερβαίνει τα 15 mm.

212 822 Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 810 (c) θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή).

Εάν τα περιβλήματα είναι κατασκευασμένα από καθαρό αλουμίνιο, το πάχος του τοιχώματος δεν χρειάζεται να είναι μεγαλύτερο από 15 mm ακόμη και όπου η πίεση υπολογισμού κατά το περιθωριακό 212 127(2) δίνει υψηλότερη τιμή.

## Προσθήκη Β.1b

**212 823** Περιβλήματα προοριζόμενα για τη μεταφορά των κοιωδών ή κοκκωδών υλών που αναφέρονται στο περιθωριακό 212 810 (d) θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους I της παρούσης Προσθήκης.

**212 824-  
212 829**

**ΤΜΗΜΑ 3. Είδη εξοπλισμού**

**212 830** Όλα τα ανοίγματα περιβλημάτων προοριζόμενων για τη μεταφορά υλών των 6°, 7° και 14° θα είναι επάνω από τη στάθμη της επιφάνειας του υγρού. Σωληνώσεις ή συνδέσεις σωληνώσεων δεν θα διαπερνούν τα τοιχώματα του περιβλήματος κάτω από τη στάθμη της επιφάνειας του υγρού. Επιπλέον, τα ανοίγματα καθαρισμού (fist holes) που αναφέρονται στο περιθωριακό 212 132 δεν θα επιτρέπονται. Τα εμπορευματοκιβώτια-δεξαμενές θα μπορούν να κλείνονται ερμητικά<sup>26/</sup> και τα κλεισίματα θα μπορούν να προστατεύονται με πάμα που κλειδώνει.

**212 831** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 810 (b), (c) και (d) μπορεί να είναι επίσης του τύπου εκκένωσης από τον πυθμένα.

**212 832** Εάν περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 810 (b) είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται εκρηγνύομενος δίσκος μπροστά από τη βαλβίδα. Η διευθέτηση του εκρηγνύομενου δίσκου και τη βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή.

**212 833** Περιβλήματα προοριζόμενα για τη μεταφορά τριοξειδίου του θείου του 1° (a) θα είναι θερμομονωμένα και εξοπλισμένα με συσκευή θέρμανσης στο εξωτερικό μέρος.

**212 834** Περιβλήματα και ο λειτουργικός εξοπλισμός αυτών προοριζόμενα για μεταφορά διαλυμάτων υποχλωριωδών αλάτων του 61° θα σχεδιάζονται έτσι ώστε να αποτρέπουν την εισδοχή ξένης ουσίας, τη διαρροή υγρού ή τυχόν ανάπτυξη επικίνδυνης υπερβολικής πίεσης μέσα στο περιβλήμα.

**212 835-  
212 839**

**ΤΜΗΜΑ 4. Έγκριση τύπου**

**212 840-  
212 849** (Δεν υπάρχουν ειδικές απαιτήσεις)

**ΤΜΗΜΑ 5. Δοκιμές**

**212 850** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 6° θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή τουλάχιστον 1.0 MPa (10 bar) και εκείνα που προορίζονται για τη μεταφορά υλών του 7° θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή όχι μικρότερη από 400 kPa (4 bar).

Τα υλικά κάθε συγκολλημένου περιβλήματος προοριζόμενου για τη μεταφορά υλών του 6° θα δοκιμάζονται με τη μέθοδο που περιγράφεται στην Προσθήκη Β.1d.

## Προσθήκη Β.1b

**212 851** Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 14° ή των υλών που αναφέρονται στο περιθωριακό 212 810 (b) και (c) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή όχι μικρότερη από 400 kPa (4 bar). Η δοκιμή υδραυλικής πίεσης για περιβλήματα προοριζόμενα για τη μεταφορά τριοξειδίου του θείου του 1° (a) θα επαναλαμβάνεται κάθε δύομισι χρόνια.

Περιβλήματα κατασκευασμένα από καθαρό αλουμίνιο και προοριζόμενα για τη μεταφορά νιτρικού οξέος του 2° (a) χρειάζεται να υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση μετρητή μόνον 250 kPa (2.5 bar).

Η κατάσταση της επίστρωσης περιβλημάτων προοριζόμενων για τη μεταφορά υλών του 14° θα επιθεωρείται κάθε έτος από ειδικό εγκεκριμένο από την αρμόδια αρχή, ο οποίος θα επιθεωρεί το εσωτερικό του περιβλήματος.

**212 852** Περιβλήματα προοριζόμενα για τη μεταφορά των υλών που αναφέρονται στο περιθωριακό 212 810 (d) θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές στην πίεση υπολογισμού τους κατά τα οριζόμενα στο περιθωριακό 212 123.

**212 853-  
212 859**

**ΤΜΗΜΑ 6. Επισήμανση**

**212 860** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 6° και 14°, θα φέρουν, επιπλέον των στοιχείων που αναφέρονται στο περιθωριακό 212 160, την ημερομηνία (μήνας, έτος) της πιο πρόσφατης επιθεώρησης της εσωτερικής κατάστασης.

**212 861** Περιβλήματα προοριζόμενα για τη μεταφορά αδρανούς τριοξειδίου του θείου του 1° (a) και ύλες των 6° και 14° θα αναγράφουν επιπλέον, στην πινακίδα που αναφέρεται στο περιθωριακό 212 160, το μέγιστο επιτρεπόμενο βάρος φόρτωσης σε kg του περιβλήματος.

**212 862-  
212 869**

**ΤΜΗΜΑ 7. Λειτουργία**

**212 870** Περιβλήματα προοριζόμενα για τη μεταφορά αδρανούς τριοξειδίου του θείου του 1° (a) δεν θα πληρούνται σε ποσοστό μεγαλύτερο από 88% της χωρητικότητάς τους εκείνα που προορίζονται για τη μεταφορά υλών του 14° θα πληρούνται σε ποσοστό όχι μικρότερο από 88% και όχι μεγαλύτερο από 92% της χωρητικότητάς τους ή σε 2.86 kg ανά λίτρο χωρητικότητας.

Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 6° δεν θα πληρούνται κατά περισσότερο από 0.84 kg ανά λίτρο χωρητικότητας.

**212 871** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 6°, 7° και 14° θα είναι ερμητικά κλειστά<sup>26/</sup> [βλέπε περιθωριακό 212 127 (2)] κατά τη μεταφορά και τα κλεισίματα θα προστατεύονται με πόματα που κλειδώνουν.

**212 872-  
212 899**

<sup>26/</sup> Βλέπε υποσημείωση<sup>8/</sup>.

## Προσθήκη Β.1b

**ΚΛΑΣΗ 9. ΔΙΑΦΟΡΕΣ ΕΠΙΚΙΝΔΥΝΕΣ ΥΛΕΣ ΚΑΙ ΑΝΤΙΚΕΙΜΕΝΑ**212 900-  
212 909**ΤΜΗΜΑ 1. Γενικά, πλαίσιο (χρήση των εμπορευματοκιβωτίων-δεξαμενών) ορισμοί****Χρήση**

212 910 Υλεις των 1°, 2°, 4°, 11° και 12° του περιθωριακού 2901 μπορεί να μεταφέρονται σε εμπορευματοκιβώτια-δεξαμενές.

*ΣΗΜΕΙΩΣΗ:* Για τη μεταφορά χύμα υλών των 4° και 12° του περιθωριακού 2901, βλέπε περιθωριακό 91 111.

212 911-  
212 919**ΤΜΗΜΑ 2. Κατασκευή**

212 920 Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1°, 4°, 11° και 12° θα σχεδιάζονται σύμφωνα με τις απαιτήσεις του Μέρους I της παρούσης Προσθήκης.

212 921 Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 2° θα σχεδιάζονται για πίεση υπολογισμού [βλέπε περιθωριακό 212 127 (2)] όχι μικρότερη από 400 kPa (4 bar) (πίεση μετρητή).

212 922-  
212 929**ΤΜΗΜΑ 3. Είδη εξοπλισμού**

212 930 Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1° και 2° θα μπορούν να κλείνονται ερμητικά <sup>26/</sup>. Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 4° (c) θα είναι εξοπλισμένα με βαλβίδα ασφαλείας.

212 931 Εάν περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1° και 2° είναι εξοπλισμένα με βαλβίδες ασφαλείας, θα τοποθετείται εκρηγνυόμενος δίσκος μπροστά από τις βαλβίδες. Η διεύθετη του εκρηγνυόμενου δίσκου και της βαλβίδας ασφαλείας θα είναι τέτοια ώστε να ικανοποιεί την αρμόδια αρχή.

212 932-  
212 939**ΤΜΗΜΑ 4. Έγκριση τύπου**

212 940-  
212 949 (Δεν υπάρχουν ειδικές απαιτήσεις)

**ΤΜΗΜΑ 5. Δοκιμές**

212 950 Περιβλήματα προοριζόμενα για τη μεταφορά υλών του 2° θα υποβάλλονται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης σε πίεση τουλάχιστον 400 kPa (4 bar) (πίεση μετρητή).

<sup>26/</sup> Βλέπε υποσημείωση <sup>8/</sup>.



## Προσθήκη Β.1b

**212 951** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1°, 4°, 11° και 12° θα υπόκεινται στις αρχικές και περιοδικές δοκιμές υδραυλικής πίεσης στην πίεση υπολογισμού που χρησιμοποιείται στο σχεδιασμό τους κατά τα οριζόμενα στο περιθωριακό 212 123.

**212 952-**  
**212 959**

**ΤΜΗΜΑ 6. Επισήμανση**

**212 960-**  
**212 969** (Δεν υπάρχουν ειδικές απαιτήσεις)

**ΤΜΗΜΑ 7. Λειτουργία**

**212 970** Περιβλήματα προοριζόμενα για τη μεταφορά υλών των 1° και 2° θα είναι ερμητικά κλειστά <sup>26/</sup> κατά τη μεταφορά.

**212 971** Εμπορευματοκιβώτια-δεξαμενές εγκεκριμένα για τη μεταφορά υλών των 1° και 2° δεν θα χρησιμοποιούνται για τη μεταφορά τροφίμων, αντικειμένων κατανάλωσης ή ζωοτροφών.

**212 972-**  
**212 999**

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<sup>26/</sup>

Βλέπε υποσημείωση <sup>8/</sup>.

## Προσθήκη Β.1c

**ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΣΤΑΘΕΡΕΣ ΔΕΞΑΜΕΝΕΣ ΚΑΙ  
ΑΠΟΣΥΝΑΡΜΟΛΟΓΟΥΜΕΝΕΣ ΔΕΞΑΜΕΝΕΣ ΚΑΤΑΣΚΕΥΑΣΜΕΝΕΣ ΑΠΟ  
ΕΝΙΣΧΥΜΕΝΑ ΠΛΑΣΤΙΚΑ**

**ΣΗΜΕΙΩΣΗ 1:** *Η παρούσα Προσθήκη έχει εφαρμογή σε σταθερές δεξαμενές και αποσυναρμολογούμενες δεξαμενές δεν έχει εφαρμογή σε συστοιχίες δοχείων, σε εμπορευματοκιβώτια-δεξαμενές, ή σε δοχεία.*

**ΣΗΜΕΙΩΣΗ 2:** *Για δοχεία, βλέπε τις απαιτήσεις που τα αφορούν στο Παράρτημα Α (κόλα).*

213 000-  
213 009

**ΤΜΗΜΑ 1.** Γενικές διατάξεις που αφορούν τη χρήση και κατασκευή σταθερών και αποσυναρμολογούμενων δεξαμενών

**ΣΗΜΕΙΩΣΗ:** *Σύμφωνα με τις διατάξεις του περιθωριακού 10 121 (2) η μεταφορά επικίνδυνων υλών σε σταθερές ή αποσυναρμολογούμενες δεξαμενές κατασκευασμένες από ενισχυμένα πλαστικά σύμφωνα με τις απαιτήσεις της παρούσης Προσθήκης επιτρέπεται μόνο όπου η χρήση τέτοιων δεξαμενών για εκείνες τις ύλες εγκρίνεται ρητά υπό το περιθωριακό 213 010.*

**Χρήση**

**213 010** Οι ακόλουθες ύλες μπορεί να μεταφέρονται σε δεξαμενές από ενισχυμένο πλαστικό σύμφωνα με τις διατάξεις της παρούσης Προσθήκης:

- (a) αργό πετρέλαιο και άλλα ακατέργαστα έλαια πτητικά προϊόντα από την απόσταξη του αργού πετρελαίου και των λουπών ακατέργαστων ελαίων του 3° (b) της Κλάσης 3'
- (b) ημιβεράα προϊόντα από την απόσταξη πετρελαίου και άλλων ακατέργαστων ελαίων του 31° (c) της Κλάσης 3'
- (c) πετρέλαια θερμάνσεως και πετρέλαια ντίζελ του 31° (c) της Κλάσης 3'
- (d) υδατικά διαλύματα υπεροξειδίου του υδρογόνου του 1° (b) και (c) και διαλύματα του 11° (b) της Κλάσης 5.1'
- (e) ύλες των 1° (b) και (c), 2° (b), 5°, 8° (b) και (c), 17° (c), 42°, 43° (c) και 61° της Κλάσης 8.

213 011-  
213 099

**Κατασκευή**

**213 100** Οι δεξαμενές θα συμφωνούν με τις ακόλουθες απαιτήσεις της Προσθήκης Β.1a:

(1) Γενικές διατάξεις με εφαρμογή σε δεξαμενές που χρησιμοποιούνται για μεταφορά υλών όλων των κλάσεων:

Περιθωριακά 211 120 (4), (5) και (6) 211 121 211 122 211 124 211 126 211 127 (7)

211 128 211 130 211 132 211 140 211 150 έως 211 154 211 160 και 211 161 211 171 211 172 (1) και (2) 211 173 έως 211 178.

## Προσθήκη Β.1c

**213 100** (2) Διατάξεις με εφαρμογή σε δεξαμενές που χρησιμοποιούνται για μεταφορά υλών της Κλάσης 3: Περιβλήματα εξοπλισμένα με συσκευή εξαερισμού που δεν μπορεί να κλειστεί και προοριζόμενα για τη μεταφορά εύφλεκτων υγρών με σημείο ανάφλεξης που δεν υπερβαίνει τους 55 °C θα έχουν φλογοπαγίδα στη συσκευή εξαερισμού.

Η δοκιμή στεγανότητας και η εσωτερική επιθεώρηση θα γίνονται κάθε τρία έτη.

(3) Ειδικές διατάξεις με εφαρμογή σε δεξαμενές χρησιμοποιούμενες για τη μεταφορά υλών της Κλάσης 5.1: περιθωριακό 211 532.

(4) Διατάξεις με εφαρμογή σε δεξαμενές χρησιμοποιούμενες για μεταφορά υλών της Κλάσης 8: περιθωριακό 211 834.

**213 101** Τα τοιχώματα της δεξαμενής δεν πρέπει να παρουσιάζουν ελαττώματα του υλικού που να προκαλούν ελάττωση της ασφάλειας.

**213 102** Τα τοιχώματα της δεξαμενής πρέπει να έχουν αντοχή διάρκειας στις μηχανικές, θερμικές και χημικές καταπονήσεις στις οποίες υποβάλλονται.

#### Ανοίγματα δεξαμενών

**213 103** (1) Όπου η δεξαμενή έχει ένα ή περισσότερα ανοίγματα εκκένωσης κάτω από τη στάθμη του υγρού, τυχόν σωλήνας ή βαλβίδα εφαρμοσμένη σε άνοιγμα ή ανοίγματα αυτού του είδους θα προστατεύονται είτε τοποθετούμενα σε εσοχή στο περίβλημα της δεξαμενής είτε με οποιοδήποτε άλλο μέσο εγκεκριμένο από την αρμόδια αρχή και παρέχον ισοδύναμη προστασία.

(2) Η χρήση βιδωτών βυσμάτων απαγορεύεται αυστηρά. Οι βαλβίδες θα ανήκουν σε υπόδειγμα εγκεκριμένο από την αρμόδια αρχή.

(3) Τα ανοίγματα πλήρωσης θα κλείνονται με ερμητική συσκευή. Εάν η συσκευή προεξέχει προς το έξω μέρος του περιβλήματος της δεξαμενής θα προστατεύεται με πάμα ικανό να αντέχει στρεπτικές καταπονήσεις λόγω τυχαίας ανατροπής της δεξαμενής.

~~213 104-~~  
213 119

#### ΤΜΗΜΑ 2. Υλικά που χρησιμοποιούνται για τα τοιχώματα της δεξαμενής

**213 120** Τα τοιχώματα των δεξαμενών μπορεί να κατασκευάζονται από τα ακόλουθα υλικά:

(1) Συνθετική ρητίνη

- μη-κορεσμένες ρητίνες πολυεστέρα
- εποξειδικές ρητίνες
- άλλες ρητίνες με παρόμοια χαρακτηριστικά, εφόσον καταδεικνύεται η ασφάλεια του τοιχώματος.

## Προσθήκη Β.1c

**213 120** (2) Ενισχύσεις με ίνες  
(συνεχ.)

Ίνες γυαλιού (γυαλί τύπων Ε και C) <sup>1/</sup> με κατάλληλο επίχρισμα, παραδείγματος χάριν με βάση σιλανίου ή παρόμοια προϊόντα. Οι ίνες γυαλιού μπορεί να χρησιμοποιούνται στη μορφή κομμένων ή μη ινών περιλαμβανομένων προεντεταμένων συνεχών ινών ή νημάτων, ψαθών, ψαθών επιφάνειας ή υφάσματος.

## (3) Πρόσθετα

- (a) Πρόσθετα απαραίτητα για τη μεταχείριση ρητινών, παραδείγματος χάριν, καταλύτες, επιταχυντές, μονομερή, σκληρυντικά, θιξοτροπικές ύλες, σύμφωνα με οδηγίες του κατασκευαστή της ρητίνης.
- (b) Διαλυτικά, φυσικές χρωστικές ύλες, τεχνητές χρωστικές ύλες και άλλα προϊόντα που βοηθούν να επιτευχθούν οι απαιτούμενες ιδιότητες, παραδείγματος χάριν, την αύξηση της αντιστάσεως στη φωτιά, εφόσον δεν προκαλούν μείωση στην ασφάλεια χρήσεως των τοιχωμάτων της δεξαμενής.

~~213 121-~~  
~~213 129~~

**ΤΜΗΜΑ 3. Δομή των τοιχωμάτων της δεξαμενής**

**213 130** Η εξωτερική επιφανειακή στρώση των τοιχωμάτων της δεξαμενής πρέπει να αντέχει σε ατμοσφαιρικά φαινόμενα και επίσης σε σύντομη επαφή με την προς μεταφορά ύλη.

**213 131** Τα τοιχώματα της δεξαμενής και των σφραγισμένων αρμών πρέπει να ικανοποιούν τις απαιτήσεις μηχανικής αντίστασης που αναφέρονται στο Τμήμα 4.

**213 132** Η εσωτερική επιφανειακή στρώση των τοιχωμάτων πρέπει να αντέχει στις διαρκείς επιδράσεις της προς μεταφορά ύλης. Η στρώση αυτή πρέπει να κατασκευάζεται από ενισχυμένη ρητίνη με ελάχιστο πάχος 1 mm. Οι ίνες που χρησιμοποιούνται δεν πρέπει να ελαττώνουν την χημική αντίσταση της στρώσης. Το εσωτερικό μέρος της στρώσης πρέπει να είναι πλούσιο σε ρητίνες και να έχει ελάχιστο πάχος 0.2 mm.

Οι απαιτήσεις που αναλύονται στα περιθωριακά 213 140 (6) και 213 142 (2) του Τμήματος 4 πρέπει να ικανοποιούνται.

**213 133** Τα τελειωμένα τοιχώματα πρέπει να ικανοποιούν τις απαιτήσεις που αναλύονται στο περιθωριακό 213 140 (3) του Τμήματος 4.

**213 134** Το ελάχιστο πάχος του τοιχώματος θα είναι

- 3.5 mm εάν η χωρητικότητα της δεξαμενής δεν υπερβαίνει τα 3 m<sup>3</sup>
- 5.0 mm εάν η χωρητικότητα της δεξαμενής είναι μεγαλύτερη από 3 m<sup>3</sup>.

~~213 135-~~  
~~213 139~~

<sup>1/</sup> Το γυαλί των τύπων Ε και C ορίζεται στον Πίνακα 1.

## Προσθήκη Β.1c

**ΤΜΗΜΑ 4. Μέθοδοι δοκιμής και απαιτούμενες ποιότητες****Δοκιμές και ποιότητες που απαιτούνται για υλικά για την πρότυπη δεξαμενή****213 140 (1) Λήψη δειγμάτων**

Τα δείγματα που απαιτούνται για τη δοκιμή πρέπει όπου είναι δυνατό να λαμβάνονται από τα τοιχώματα της δεξαμενής. Για το σκοπό αυτό μπορεί να χρησιμοποιούνται κομμάτια που προέρχονται από την κατασκευή ανοιγμάτων, κ.λπ.

**(2) Ποσοστό ίνας γυαλιού**

Η δοκιμή πρέπει να διεξάγεται σύμφωνα με τις μεθόδους που προβλέπονται στην Υπόδειξη ISO R1172 1970.

Το περιεχόμενο γυαλιού με ίνες του δείγματος πρέπει να είναι μεγαλύτερο από 25% και μικρότερο από 75% κατά βάρος.

**(3) Βαθμός πολυμερισμού****(a) Τοίχωμα σε ρητίνες πολυεστέρα**

Το κατάλοιπο περιεχόμενο στυρενίου μπορεί να μην είναι άνω του 2%, υπολογισμένο επί της ολικής ποσότητας ρητινών. Η δοκιμή θα διεξάγεται σύμφωνα με κατάλληλη μέθοδο <sup>2/</sup>.

**(b) Τοίχωμα σε εποξειδικές ρητίνες**

Το εικχόλισμα ακετόνης μπορεί να μην είναι περισσότερο από 2% υπολογισμένο επί της ολικής ποσότητας ρητινών. Η δοκιμή θα διεξάγεται σύμφωνα με κατάλληλη μέθοδο <sup>3/</sup>.

**(4) Καμπτική και εφελκυστική αντοχή**

Οι μηχανικές ιδιότητες πρέπει να καθορίζονται:

- για το περίβλημα, στην αξονική και την περιφερειακή διεύθυνση.
- για τα άκρα και τα τοιχώματα των διαμερισμάτων, σε κάθε διεύθυνση.

Εάν οι κύριες διευθύνσεις του οπλισμού δεν συμπίπτουν με την αξονική και περιφερειακή διεύθυνση (παραδείγματος χάριν στην περίπτωση διαξονικής περιέλιξης), η αντοχή πρέπει να καθορίζεται στις κύριες κατευθύνσεις του οπλισμού και να υπολογίζεται για την αξονική και την περιφερειακή διεύθυνση εφαρμόζοντας τον ακόλουθο τύπο:

<sup>2/</sup> Η μέθοδος που προβλέπεται στην προδιαγραφή DIN 16945 του Ιουνίου 1969, παράγραφος 6.4.3. θεωρείται κατάλληλη.

<sup>3/</sup> Η μέθοδος που προβλέπεται στην προδιαγραφή DIN 16945 του Ιουνίου 1969, παράγραφος 6.4.2. θεωρείται κατάλληλη.

## Προσθήκη Β.1c

213 140 Εφελκυστική  
(συνεχ.)

$$\sigma_{T,c} = 2 \sigma_{T,H} \sin^2 \alpha$$

T = εφελκυστική

$$\sigma_{T,a} = 2 \sigma_{T,H} \cos^2 \alpha$$

c = περιφερειακή

a = αξονική

## Καμπτική

$$\sigma_{F,c} = 2 \sigma_{F,H} \sin^2 \alpha$$

H = ελικοειδής

F = καμπτική

$$\sigma_{F,a} = 2 \sigma_{F,H} \cos^2 \alpha$$

= προτιμησιακή γωνία περιέλιξης

Η αντοχή πρέπει να δοκιμάζεται σύμφωνα με τις μεθόδους που προβλέπονται στο έγγραφο ISO/TC61/WG2/TG "Δοκιμές σε πλαστικά ενισχυμένα με γυαλί" No. 4 του Φεβρουαρίου 1971.

Η καμπτική αντοχή πρέπει να δοκιμάζεται σύμφωνα με τις μεθόδους που προβλέπονται στην Υπόδειξη ISO/TC61 No. 1540 του Απριλίου 1970.

## Απαιτήσεις

Οι νέες δεξαμενές πρέπει να έχουν τους ακόλουθους συντελεστές ασφαλείας έναντι θραύσεως:

συντελεστής ασφαλείας για στατική φόρτιση: 7.5

συντελεστής ασφαλείας για δυναμική φόρτιση: 5.5

Οι τιμές επιτάχυνσης που πρέπει να εφαρμόζονται στον υπολογισμό του δυναμικού φορτίου είναι οι ακόλουθες:

2 g στην κατεύθυνση κίνησης

1 g σε ορθή γωνία προς την κατεύθυνση κίνησης

1 g κατακόρυφα προς τα άνω και

2 g κατακόρυφα προς τα κάτω.

Καθώς τα χαρακτηριστικά φύλλου ενισχυμένου πλαστικού μπορεί να ποικίλλουν αναλόγως της κατασκευής του, δεν προβλέπονται ελάχιστες τιμές για την καμπτική και εφελκυστική αντοχή για φορτία:

A =  $e \sigma_T$  όπου  $\sigma_T$  είναι η εφελκυστική αντοχή κατά τη θραύση

B =  $e^2 \sigma_F$  όπου  $\sigma_F$  είναι η καμπτική αντοχή κατά τη θραύση

όπου e είναι το πάχος του τοιχώματος.

Οι ελάχιστες τιμές για τις δυνάμεις A και B είναι:

Για κάμψη:

$$\text{χωρητικότητα δεξαμενής} \leq 3 \text{ m}^3$$

- περιφερειακή διεύθυνση B = 600 daN

- αξονική διεύθυνση B = 300 daN

## Προσθήκη Β.1c

213 140  
(συνεχ.)

χωρητικότητα δεξαμενής	>	3 m <sup>3</sup>		
- περιφερειακή διεύθυνση			B	= 600 daN
- αξονική διεύθυνση			B	= 600 daN

Για εφελκυσμό:

- περιφερειακή διεύθυνση			A	= 100 daN/mm
- αξονική διεύθυνση			A	= 70 daN/mm

Το μέτρο ελαστικότητας E για την κάμψη μετράται στους -40 °C και στους +60 °C. Οι δύο τιμές δεν μπορεί να διαφέρουν κατά περισσότερο από 30% από την τιμή που λαμβάνεται στους 20 °C. Η συμπεριφορά του υλικού του τοιχώματος κατά εφελκυστική δοκιμή που διαρκεί περισσότερες από 1 000 ώρες.

Η τάση δοκιμής είναι:  $\frac{\sigma_T}{7,5}$

Κατά τη δοκιμή ο συντελεστής  $K = \frac{\epsilon_{1000}}{\epsilon_0}$  εν μπορεί να είναι μεγαλύτερος από 1.6.

$\epsilon_0$  = επιμήκυνση του φορτωμένου δείγματος στην αρχή της δοκιμής

$\epsilon_{1000}$  = επιμήκυνση του φορτωμένου δείγματος στο τέλος της δοκιμής

(5) *Κρουστική συμπεριφορά*(a) *Φύση της δοκιμής*

Η κρουστική συμπεριφορά καθορίζεται σε δείγμα φύλλου που αντιστοιχεί στο δομικό υλικό που χρησιμοποιείται για την κατασκευή της δεξαμενής. Η δοκιμή διενεργείται με ρίψη μάζας χάλυβα 5 kg επάνω στην επιφάνεια του φύλλου που αντιστοιχεί στην εξωτερική επιφάνεια της δεξαμενής.

(b) *Μηχανισμός*

Ο μηχανισμός αποτελείται από μάζα χάλυβα 5 kg, συσκευή καθοδήγησης για αυτή τη μάζα και φέρουσα βάση του δείγματος. Γενικό διάγραμμα του μηχανισμού δίνεται στο σχήμα 1. Η μάζα έχει τη μορφή χαλύβδινου κυλίνδρου εφοδιασμένου με δύο διαύλους καθοδήγησης, με το κάτω άκρο να έχει σφαιρικό σχήμα, διαμέτρου 90 mm. Η συσκευή καθοδήγησης τοποθετείται κατακόρυφα στο τοίχωμα.

Ο φορέας του δείγματος αποτελείται από δύο γωνιακές ράβδους διατομής 100 x 100 x 25 mm και μήκους 300 mm, συγκολλημένες σε μεταλλικό στήριγμα 400 x 400 mm. Το διάκενο μεταξύ των δύο ράβδων είναι 175 mm. Ο φορέας του δείγματος, στερεωμένος στο έδαφος, είναι εφοδιασμένος με κοιλότητα βάθους 50 mm για να επιτρέπει την κάμψη του δείγματος.

## Προσθήκη Β.1c

213 140  
(συνεχ.)

## (c) Προετοιμασία των δειγμάτων

Από το δείγμα λαμβάνονται τρία δείγματα, κάθε ένα διαστάσεων 200 x 200 mm x το πάχος του δείγματος.

## (d) Μέθοδος λειτουργίας

Το δείγμα τοποθετείται συμμετρικά στον φορέα του δείγματος εάν είναι δυνατό ακουμπά στο στήριγμα ακολουθώντας δύο βασικές ευθείες γραμμές της επιφάνειας, κατά τρόπο ώστε η μάζα να χτυπά το κέντρο της όψης του δείγματος που αντιστοιχεί στην εξωτερική επιφάνεια της δεξαμενής.

Η μάζα αφήνεται να πέσει από καθορισμένο ύψος, μεριμνώντας ώστε να εξασφαλισθεί ότι δεν θα αναπηδήσει για να χτυπήσει το δείγμα για δεύτερη φορά.

Η δοκιμή πρέπει να διεξάγεται σε θερμοκρασία περιβάλλοντος.

Το ύψος στο οποίο ανυψώνεται η μάζα στην συσκευή καθοδήγησης σημειώνεται.

Τα άλλα δύο δείγματα δοκιμάζονται κατά τον ίδιο τρόπο.

## (e) Απαίτηση

Το ύψος ρίψεως για μάζα 5 kg θα είναι 1 μέτρο· το δείγμα δεν πρέπει να επιτρέπει τη διαρροή ποσότητας μεγαλύτερης από 1 λίτρο ανά 24 ώρες όταν υποβάλλεται σε στήλη νερού ύψους 1 m.

## (6) Αντοχή σε χημικούς παράγοντες

Επίπεδες πλάκες δοκιμής από ενισχυμένο πλαστικό, παρασκευασμένες στο εργαστήριο, υποβάλλονται σε προσβολή από την επικίνδυνη ύλη σε θερμοκρασία 50 °C για 30 ημέρες σύμφωνα με την ακόλουθη διαδικασία:

## (a) Περιγραφή του μηχανισμού δοκιμής (παρουσιάζεται στο σχήμα 2)

Ο μηχανισμός δοκιμής συμπεριλαμβάνει γυάλινο κύλινδρο, διαμέτρου 140 x 150 mm, ύψους 150 mm με δύο ακροφύσια τοποθετημένα στις 135° το ένα εξοπλισμένο με αρμό NS 29 για να υποδεχθεί ενδιάμεσο σωλήνα για συμπυκνωτή αναρροής (1), το άλλο ακροφύσιο εξοπλισμένο με αρμό NS 14.5 για να υποδεχθεί θερμομόμετρο (2), ενδιάμεσο σωλήνα για συμπυκνωτή αναρροής και συμπυκνωτή αναρροής που δεν εμφανίζονται στο διάγραμμα. Το γυάλινο μέρος του μηχανισμού θα είναι μέσα σε γυαλί ανθεκτικό σε αλλαγές θερμοκρασίας.

Τα δείγματα που λαμβάνονται από τις πλάκες δοκιμής αποτελούν τη βάση και την κορυφή του γυάλινου κυλίνδρου. Σφραγίζονται στα πλάγια του κυλίνδρου με κολάρο PTFE. Ο κύλινδρος με τα δύο δείγματα σφηνώνεται μεταξύ δύο πλακών πίεσης από ανοξείδωτο χάλυβα με έξι κοιλίες που σφίγγουν με περικόχλια πεταλούδες. Ροδέλα από αμιάντο πρέπει να τοποθετείται μεταξύ των πλακών πίεσης και των δειγμάτων. Αυτές οι ροδέλες δεν παρουσιάζονται στο σχήμα 2. Η θέρμανση επιτυγχάνεται από έξω μέσω αυτομάτως ελεγχόμενου σωληνωτού θερμαντήρα. Η θερμοκρασία μετράται στον θάλαμο που περιέχει το υγρό.



## Προσθήκη Β.1c

213 140  
(συνεχ.)(b) *Λειτουργία του μηχανισμού δοκιμής*

Ο μηχανισμός δοκιμής επιτρέπει να δοκιμάζονται μόνο επίπεδες πλάκες ομοιόμορφου πάχους. Οι πλάκες δοκιμής πρέπει, εάν είναι δυνατό, να έχουν πάχος 4 mm. Σε περίπτωση που οι πλάκες καλυφθούν με επίχρισμα κολλοειδούς, πρέπει να δοκιμάζονται σε κατάσταση πρακτικής χρήσης. Έξι εξαγωνικά δείγματα, με μήκος της κάθε πλευράς 100 mm, κόβονται από την πλάκα δοκιμής.

Για κάθε δοκιμή, παρασκευάζονται τρία δείγματα ανά μηχανισμό. Ένα από τα δείγματα αυτά χρησιμοποιείται ως αναφορά και τα άλλα δύο χρησιμοποιούνται για έλεγχο στην υγρή ζώνη και την ζώνη ατμών της συσκευής αντίστοιχα.

(c) *Διαδικασία δοκιμής*

Τα προς δοκιμή δείγματα τοποθετούνται στο μηχανισμό με την επιφάνεια που μπορεί να επιχρισθεί με κολλοειδές στραμμένη προς τα μέσα. 1 200 ml υγρού δοκιμής χύνεται μέσα στον γυάλινο κύλινδρο. Ο μηχανισμός κατόπιν θερμαίνεται στην θερμοκρασία δοκιμής. Η θερμοκρασία διατηρείται σταθερή κατά τη δοκιμή. Μετά τη δοκιμή ο μηχανισμός ψύχεται στην θερμοκρασία περιβάλλοντος και το υγρό της δοκιμής απομακρύνεται. Τα δοκιμασμένα δείγματα πλένονται αμέσως με απεσταγμένο νερό. Υγρά που δεν είναι διαλυτά στο νερό απομακρύνονται με διαλύτη που δεν προσβάλλει τα δείγματα. Δεν μπορεί να γίνει μηχανικός καθαρισμός των πλακών εξαιτίας του κινδύνου βλάβης της επιφάνειας των δειγμάτων.

(d) *Αξιολόγηση*

Γίνεται οπτικός έλεγχος:

- εάν ο οπτικός έλεγχος αποκαλύψει υπερβολική προσβολή (ραγμές, φυσαλίδες, πόρους, αποφλοΐωση, διαστολή, ή τραχύτητα), η δοκιμή θεωρείται οριστικά αρνητική
- εάν ο οπτικός έλεγχος δεν αποκαλύψει ανωμαλίες, γίνονται καμπτικές δοκιμές με τις μεθόδους που ορίζονται στο περιθωριακό 213 140 (4) στα δύο δείγματα που υποβλήθηκαν σε χημική προσβολή και στο δείγμα αναφοράς. Στην περίπτωση αυτή η καμπτική αντοχή δεν θα είναι μεγαλύτερη από την τιμή, μειωμένη κατά 20%, που επιβεβαιώνεται για την πλάκα δοκιμής που δεν υποβλήθηκε σε καμία καταπόνηση.

**Δοκιμή και ποιότητα που απαιτείται για την πρότυπη μονάδα**

**213 141** Η πρότυπη δεξαμενή θα υποβάλλεται σε δοκιμή υδραυλικής πίεσης που διενεργείται από ειδικό εγκεκριμένο από τις αρμόδιες αρχές ενός Κράτους Μέλους.

Εάν η πρότυπη δεξαμενή χωρίζεται σε διαμερίσματα είτε με διαφράγματα ή με διαχωριστικές πλάκες, η δοκιμή θα διενεργείται σε μονάδα κατασκευασμένη για αυτό το σκοπό με τα ίδια εξωτερικά άκρα όπως ολόκληρη η δεξαμενή και η οποία αντιπροσωπεύει το μέρος της δεξαμενής που υποβάλλεται, υπό κανονικές συνθήκες χρήσης, στις μεγαλύτερες καταπονήσεις.

Αυτή η δοκιμή δεν πρέπει να διενεργείται εάν ήδη έχει γίνει επιτυχής δοκιμή σε άλλη πρότυπη μονάδα του ίδιου τμήματος ή τμήματος μεγαλύτερων διαστάσεων, γεωμετρικά όμοιας με αυτή της εν λόγω πρότυπης μονάδας, ακόμη και εάν εκείνη η μονάδα έχει διαφορετική εσωτερική επιφανειακή στρώση.

Η δοκιμή αυτή πρέπει να καταδεικνύει ότι η πρότυπη μονάδα έχει, υπό κανονικές συνθήκες χρήσης, συντελεστή όχι μικρότερο από 7.5 σε ότι αφορά την θραύση.

## Προσθήκη B.1c

**213 141** Πρέπει να αποδεικνύεται, π.χ. δι'υπολογισμού, ότι οι συντελεστές ασφαλείας έναντι θραύσης (συνεχ.) που δίνονται στο περιθωριακό 213 140 (4) τηρούνται για κάθε τμήμα της δεξαμενής.

Η θραύση επέρχεται όταν υγρό της δοκιμής διαφεύγει από την δεξαμενή με τη μορφή πιδάκων. Συνεπώς, πριν από αυτή τη θραύση, η παρουσία σχισμών και οι μέσω αυτών των σχισμών απώλειες υγρού υπό μορφή σταγονιδίων επιτρέπεται.

Η πρότυπη μονάδα θα υποβάλλεται σε υδραυλική πίεση.

$$H = 7.5 \times d \times h$$

όπου H είναι το ύψος της στήλης νερού

h είναι το ύψος της δεξαμενής

d είναι η πυκνότητα της προς μεταφοράν ύλης.

Εάν επέλθει θραύση με ύψος στήλης ύδατος  $H_1$  μικρότερο του H, πρέπει να εξακολουθεί να είναι

$$H_1 \geq 7.5 \times d \times (h - h_1)$$

όπου  $h_1$  είναι το ύψος του υψηλότερου σημείου όπου εμφανίζεται ο πρώτος πίδακας υγρού.

Σε περίπτωση που η παροχή υγρού στο σημείο  $h_1$  είναι πολύ μεγάλη, είναι απαραίτητο να γίνει προσωρινή επισκευή και προσωρινή τοπική ενίσχυση για να επιτρέψει τη συνέχιση της δοκιμής έως το ύψος H.

#### Έλεγχος ομοιομορφίας σε δεξαμενές που παράγονται σε σειρά

**213 142** (1) Η επιθεώρηση της ομοιομορφίας σε δεξαμενές που παράγονται σε σειρά θα διενεργείται διεξάγοντας μία ή περισσότερες από τις δοκιμές που αναφέρονται στο περιθωριακό 213 140. Εντούτοις, η μέτρηση του βαθμού πολυμερισμού αντικαθίσταται με μέτρηση σκληρότητας Barcol.

(2) Σκληρότητα Barcol

Η δοκιμή πρέπει να διενεργείται σύμφωνα με κατάλληλες διαδικασίες <sup>4/</sup>. Η σκληρότητα Barcol που μετράται στην εσωτερική επιφάνεια της τελειωμένης δεξαμενής δεν θα είναι μικρότερη από το 75% της τιμής που λαμβάνεται στο εργαστήριο σε καθαρή σκληρωμένη ρητίνη.

(3) Το ποσοστό ινών γυαλιού πρέπει να είναι εντός των ορίων που προβλέπονται στο περιθωριακό 213 140 (2) και, επιπλέον, δεν πρέπει να παρεκκλίνει κατά περισσότερο από 10% της τιμής για την πρότυπη δεξαμενή.

Δοκιμές και ποιότητες που απαιτούνται για όλες τις δεξαμενές πριν τεθούν σε λειτουργία

**213 143** Δοκιμή στεγανότητας

Η δοκιμή στεγανότητας θα διενεργείται σύμφωνα με τις διατάξεις των περιθωριακών 211 150, 211 151 και 211 152 και η σφραγίδα του ειδικού θα τοποθετείται στη δεξαμενή.

<sup>4/</sup> Οι διαδικασίες που προβλέπονται στην προδιαγραφή ASTM-D 2583-67 θεωρούνται κατάλληλες.

## Προσθήκη Β.1c

213 144-  
213 149**ΤΜΗΜΑ 5. Ειδικές διατάξεις για δεξαμενές που χρησιμοποιούνται για τη μεταφορά υλών με σημείο ανάφλεξης 55 °C ή χαμηλότερο**

**213 150** Η δεξαμενή πρέπει να κατασκευάζεται έτσι ώστε να εξασφαλίζεται η εξάλειψη του στατικού ηλεκτρισμού από τα διάφορα συστατικά μέρη, έτσι ώστε να αποφεύγεται η συσσώρευση επικίνδυνων ηλεκτρικών φορτίων.

**213 151** Όλα τα μεταλλικά μέρη της δεξαμενής και της μεταφορικής μονάδας και επίσης οι στρώσεις των τοιχωμάτων που είναι αγωγοί του ηλεκτρισμού πρέπει να είναι διασυνδεδεμένα.

**213 152** Η αντίσταση ανάμεσα σε κάθε αγωγίμο μέρος και τη βάση δεν πρέπει να υπερβαίνει τα  $10^6$  ohm.

**Εξάλειψη των κινδύνων λόγω φορτίσεων που δημιουργούνται από την τριβή**

**213 153** Η επιφανειακή αντίσταση και η αντίσταση εκκένωσης στη γη ολόκληρης της επιφάνειας της δεξαμενής θα συμφωνούν με τις απαιτήσεις του περιθωριακού 213 154.

**213 154** Η επιφανειακή αντίσταση και η αντίσταση εκκένωσης στη γη μετρημένες σύμφωνα με το περιθωριακό 213 155 πρέπει να ικανοποιούν τις ακόλουθες απαιτήσεις.

(1) Τοιχώματα που δεν είναι εξοπλισμένα με ηλεκτρικά αγωγίμα στοιχεία:

(a) Επιφάνειες επί των οποίων είναι δυνατό το βάδισμα:

η αντίσταση εκκένωσης στη γη δεν θα είναι μεγαλύτερη από  $10^8$  ohm.

(b) Άλλες επιφάνειες:

η επιφανειακή αντίσταση δεν θα είναι μεγαλύτερη από  $10^9$  ohm.

(2) Τοιχώματα εξοπλισμένα με ηλεκτρικά αγωγίμα στοιχεία:

(a) Επιφάνειες επί των οποίων είναι δυνατό το βάδισμα:

η αντίσταση εκκένωσης στη γη δεν θα είναι μεγαλύτερη από  $10^8$  ohm.

(b) Άλλες επιφάνειες:

η αγωγιμότητα θα θεωρείται επαρκής εάν το μέγιστο πάχος μη αγωγίμων στρώσεων σε αγωγίμα στοιχεία, παραδείγματος χάριν, αγωγίμα φύλλα, μεταλλικό πλέγμα ή άλλο κατάλληλο υλικό, που συνδέονται με τη σύνδεση γείωσης, δεν υπερβαίνει τα 2 mm, και τα οποία, στην περίπτωση μεταλλικού πλέγματος, το εμβαδόν της επιφάνειας του πλέγματος δεν υπερβαίνει τα  $64 \text{ cm}^2$ .

(3) Οποιαδήποτε μέτρηση της επιφανειακής αντίστασης ή αντίστασης εκκένωσης στη γη πρέπει να διενεργείται στην ίδια τη δεξαμενή θα αντικαθίσταται σε διαστήματα όχι μεγαλύτερα από ένα έτος για να εξασφαλίζεται ότι δεν υπερβαίνονται οι καθορισμένες αντιστάσεις.

## Προσθήκη Β.1c

## Μέθοδοι δοκιμής

**213 155** (1) Επιφανειακή αντίσταση ( $R_{100}$ ) - (αντίσταση μόνωσης) σε ohm, ηλεκτρόδια αγωγιμής μογογιάς σύμφωνα με το σχήμα 3 της Υπόδειξης IEC 167 του 1964, μετρημένη στην πρότυπη ατμόσφαιρα 23/50 σύμφωνα με την Υπόδειξη ISO R291, παράγραφος 3.1, του 1963.

(2) Η αντίσταση εκκένωσης στη γη σε ohm είναι ο λόγος μεταξύ της συνεχούς τάσεως που μετράται ανάμεσα σε ηλεκτρόδιο που περιγράφεται παρακάτω σε επαφή με την επιφάνεια της δεξαμενής του οχήματος και στη γειωμένη βάση του οχήματος, και του συνολικού ρεύματος.

Η ρύθμιση των δειγμάτων είναι η ίδια όπως στο 1. Το ηλεκτρόδιο είναι δίσκος με εμβαδόν επιφάνειας  $20 \text{ cm}^2$  και διάμετρο 50 mm. Η στενή επαφή του με την επιφάνεια της δεξαμενής πρέπει να εξασφαλίζεται, παραδείγματος χάριν, χρησιμοποιώντας νωπό χαρτί ή νωπό σπόγγο ή άλλη κατάλληλη ύλη. Η γειωμένη βάση του οχήματος χρησιμοποιείται ως το άλλο ηλεκτρόδιο. Θα εφαρμόζεται συνεχής τάση εντός του εύρους 100 volt-500 volt. Η μέτρηση θα διενεργείται αφού η τάση δοκιμής έχει εφαρμοσθεί επί ένα λεπτό. Το ηλεκτρόδιο μπορεί να τοποθετείται σε οποιοδήποτε σημείο της εσωτερικής ή της εξωτερικής επιφάνειας της δεξαμενής.

Εάν η μέτρηση είναι αδύνατη στη δεξαμενή, μπορεί να διενεργηθεί επίσης, υπό τις ίδιες συνθήκες, στο εργαστήριο, σε δείγμα του υλικού.

## Εξάλειψη των κινδύνων λόγω φορτίσεων που δημιουργούνται κατά την πλήρωση

**213 156** Γειωμένα μεταλλικά μέρη θα υπάρχουν και θα είναι διευθετημένα έτσι ώστε σε οποιοδήποτε στάδιο της διαδικασίας πλήρωσης ή κένωσης να υπάρχει επιφάνεια όχι μικρότερη από 0.04 τετρ. μέτρα γειωμένου μετάλλου σε επαφή με το προϊόν ανά κυβικό μέτρο του προϊόντος που περιέχεται στη δεξαμενή τη στιγμή εκείνη, και να μην είναι κανένα μέρος του προϊόντος σε απόσταση μεγαλύτερη από 2.0 μέτρα από το πλησιέστερο γειωμένο μεταλλικό μέρος. Τέτοια μεταλλικά μέρη μπορεί να έχουν τη μορφή:

- (a) Βαλβίδας με μεταλλικό πόδα, στομίου σωλήνα, ή πλάκας εφόσον η ολική επιφάνεια του μετάλλου που έρχεται σε επαφή με το υγρό δεν είναι μικρότερη από την οριζόμενη, ή
- (b) Μεταλλική σχάρα με πάχος συρμάτων όχι μικρότερο από 1 mm σε διάμετρο και επιφάνεια οπής όχι μεγαλύτερη από 4 τετρ. εκατοστά, εφόσον η ολική επιφάνεια της σχάρας που έρχεται σε επαφή με το υγρό δεν είναι μικρότερη από την οριζόμενη.

**213 157** Το περιθωριακό 213 156 δεν θα έχει εφαρμογή σε δεξαμενές από ενισχυμένα πλαστικά εξοπλισμένες με οποιοδήποτε άλλο σύστημα για την εξάλειψη του κινδύνου από φορτίσεις που παράγονται κατά την πλήρωση, εφόσον έχει καταδειχθεί με πρακτική συγκριτική δοκιμή σύμφωνα με το περιθωριακό 213 158 ότι ο χρόνος υφέσεως της παραγόμενης φόρτισης μέσα στη δεξαμενή κατά την πλήρωση είναι ισοδύναμος προς αυτόν που επιτυγχάνεται για μεταλλική δεξαμενή συγκρίσιμων διαστάσεων.

## Συγκριτική δοκιμή

**213 158** (1) Η συγκριτική δοκιμή του χρόνου υφέσεως του ηλεκτροστατικού φορτίου σύμφωνα με τους όρους δοκιμής που περιγράφονται στο (2) θα διενεργείται σε πρότυπη δεξαμενή από ενισχυμένο πλαστικό και δεξαμενή από χάλυβα κατά τον ακόλουθο τρόπο (βλέπε σχήμα 3).

## Προσθήκη Β.1c

213 158  
(συνεχ.)

- (a) Η δεξαμενή από ενισχυμένο πλαστικό θα συναρμολογείται με τον ίδιο τρόπο σαν να ερησιμοποιείται, παραδείγματος χάριν, σε στήριγμα από χάλυβα που απομμεείται το πλαίσιο οχήματος, και θα πληρούται σε ποσοστό όχι μικρότερο από το 75% της χωρητικότητας με καύσιμο κίνησης ντίζελ, ποσοστό του οποίου διοχετεύεται μέσω κατάλληλου μικροφίλτρου κατά τρόπο ώστε η πυκνότητα φορτίου της τελικής ροής να είναι περίπου  $100 \mu\text{C}/\text{m}^3$ .
- (b) Η αντοχή πεδίου στον χώρο ατμών της δεξαμενής θα μετράται με κατάλληλο μετρητή πεδίου συνεχούς ανάγνωσης τοποθετημένο με κατακόρυφο τον άξονα και σε απόσταση τουλάχιστον 20 cm από τον κατακόρυφο σωλήνα πλήρωσεως.
- (c) Παρόμοια δοκιμή θα διενεργείται σε δεξαμενή από χάλυβα της οποίας το πλάτος, μήκος, πάχος και ο όγκος αποκλίνουν το πολύ κατά 15% εκείνων της δεξαμενής από ενισχυμένο πλαστικό, ή σε δεξαμενή από ενισχυμένο πλαστικό παρομοίων διαστάσεων, επχρισμένη εσωτερικά με φύλλο μετάλλου συνδεδεμένο με τη γη.

(2) Θα ικανοποιούνται οι ακόλουθοι όροι δοκιμής:

- (a) η δοκιμή θα διενεργείται σε καλυμμένη περιοχή σε συνθήκες σχετικής υγρασίας μικρότερης από 80%.
- (b) Το καύσιμο κίνησης ντίζελ που χρησιμοποιείται στη δοκιμή θα έχει αγωγιμότητα αδρανείας στη θερμοκρασία μέτρησης μεταξύ 3 και 5 pS/m. Αυτή θα μετράται σε στοιχείο στο οποίο

$$\frac{VT}{d^2} \text{ είναι μικρότερο ή ίσο του } 2.5 \times 10^6$$

όπου  $V$  = η εφαρμοζόμενη τάση  
 $d$  = το διάκενο μεταξύ των ηλεκτροδίων σε μέτρα  
 $T$  = η διάρκεια μέτρησης σε δευτερόλεπτα

Η αγωγιμότητα αδρανείας που μετράται σε δείγματα του προϊόντος που έχουν ληφθεί από τη δεξαμενή δοκιμής μετά την πλήρωση δεν θα διαφέρει σε διαδοχικές δοκιμές σε δεξαμενές από πλαστικό και μέταλλο κατά περισσότερο από 0.5 pS/m

- (c) Η πλήρωση θα γίνεται σε σταθερό ρυθμό μέσα στο εύρος μεταξύ 1 και 2  $\text{m}^3/\text{min}$  και θα είναι η ίδια για τη δεξαμενή από ενισχυμένο πλαστικό και για τη δεξαμενή από χάλυβα. Στο τέλος της πλήρωσης, η ροή πρέπει να σταματήσει σε χρόνο μικρότερο από το χρόνο υφέσεως για το φορτίο στη δεξαμενή από χάλυβα.
- (d) Η πυκνότητα φορτίου θα μετράται με κατάλληλο μετρητή πεδίου διαρκούς ανάγνωσης (παραδείγματος χάριν, τύπου μύλου) βυθισμένου στο προϊόν και τοποθετημένου όσο το δυνατόν πιο κοντά στο σωλήνα πλήρωσης.
- (e) Οι σωλήνες παροχής και ο σωλήνας κατακόρυφης πλήρωσης θα έχουν εσωτερική διάμετρο 10 cm και θα τερματίζουν σε στόμιο σωλήνα πλήρωσης τύπου "T".
- (f) Κατάλληλο μικροφίλτρο <sup>5/</sup>, με ρυθμιζόμενη παράπλευρη που επιτρέπει τη ρύθμιση της αναλογίας ροής που διέρχεται μέσα από αυτό, θα τοποθετείται σε απόσταση όχι μεγαλύτερη από 5 m από το στόμιο του σωλήνα πλήρωσης.

5/

Το Rellumit 5 έχει βρεθεί ότι είναι κατάλληλο.

2112

Προσθήκη Β.1c

213 158 (g) Η στάθμη του υγρού δεν θα φθάνει στον πυθμένα του σωλήνα πλήρωσης ή του  
(συνεχ.) μετρητή πεδίου.

Σύγκριση χρόνων υφέσεως

(3) Η αρχική τιμή της αντοχής πεδίου θα είναι αυτή που καταγράφεται στο ενωρίτερο χρονικό σημείο μετά τη διακοπή της ροής του καυσίμου όποτε έχει διαπιστωθεί ήπια φθίνουσα καμπύλη. Ο χρόνος υφέσεως και στις δύο δοκιμές θα εκφράζεται ως ο χρόνος που χρειάζεται για την αντοχή πεδίου να φθίνει από την αρχική τιμή στο 37% της αρχικής τιμής.

(4) Ο χρόνος υφέσεως της δεξαμενής από ενισχυμένο πλαστικό δεν θα υπερβαίνει αυτόν της δεξαμενής από χάλυβα.

213 159-  
213 999

## Προσθήκη Β.1c

## Πίνακας 1

## ΣΥΝΘΕΣΗ ΤΟΥ ΓΥΑΛΙΟΥ

## Γυαλί E: Σύνθεση κατά βάρος:

Πυριτία	(Si O <sub>2</sub> )	52	έως	55	%
Αλουμίνα	(AL <sub>2</sub> O <sub>3</sub> )	14	έως	15.5	%
Άσβεστος	(Ca O)	16.5	έως	18	%
Μαγνησία	(Mg O)	4	έως	5.5	%
Οξείδιο του βορίου	(B <sub>2</sub> O <sub>3</sub> )	6.5	έως	21	%
Φθόριο	(F)	0.2	έως	0.6	%
Οξείδιο του τρισηθενούς σιδήρου	(Fe <sub>2</sub> O <sub>3</sub> )	)	)	)	< 1 %
Οξείδιο του τιτανίου	(Ti O <sub>2</sub> )	)	)	)	
Οξείδια αλκαλίων	(Na <sub>2</sub> O + K <sub>2</sub> O)				< 1 %

## Γυαλί C: Σύνθεση κατά βάρος:

Πυριτία	(Si O <sub>2</sub> )	63.5	έως	65	%
Αλουμίνα	(AL <sub>2</sub> O <sub>3</sub> )	4	έως	4.5	%
Άσβεστος	(Ca O)	14	έως	14.5	%
Μαγνησία	(Mg O)	2.5	έως	3	%
Οξείδιο του βορίου	(B <sub>2</sub> O <sub>3</sub> )	5	έως	6.5	%
Σίδηρος	(Fe <sub>2</sub> O <sub>3</sub> )				0.3 %
Οξείδιο του νατρίου	(Na <sub>2</sub> O)	7	έως	9	%
Οξείδιο του καλίου	(K <sub>2</sub> O)	0.7	έως	1	%

Προσθήκη Β.1b

Σχήμα 1

Συσκευή για τη μέτρηση της κρουστικής αντοχής διαμέσου καταπίετοντος βάρους με σφαιρικά άκρα



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2115

Προσθήκη Β.1c

Σχήμα 2

Συσκευή για τη δοκιμή της αντίστασης σε χημικούς παράγοντες

Προσθήκη Β.1b

Σχήμα 3

Σχηματική διάταξη RIC για συγκριτική δοκιμή

**ΑΠΑΙΤΗΣΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΤΑ ΥΛΙΚΑ ΚΑΙ ΤΗΝ ΚΑΤΑΣΚΕΥΗ ΣΤΑΘΕΡΩΝ ΣΥΓΚΟΛΛΗΜΕΝΩΝ ΔΕΞΑΜΕΝΩΝ, ΑΠΟΣΥΝΑΡΜΟΛΟΓΟΥΜΕΝΩΝ ΣΥΓΚΟΛΛΗΜΕΝΩΝ ΔΕΞΑΜΕΝΩΝ, ΚΑΙ ΣΥΓΚΟΛΛΗΜΕΝΩΝ ΠΕΡΙΒΑΗΜΑΤΩΝ ΕΜΠΟΡΕΥΜΑΤΟΚΙΒΩΤΙΩΝ-ΔΕΞΑΜΕΝΩΝ ΓΙΑ ΤΑ ΟΠΟΙΑ ΑΠΑΙΤΕΙΤΑΙ ΠΙΕΣΗ ΔΟΚΙΜΗΣ ΟΧΙ ΜΙΚΡΟΤΕΡΗ ΑΠΟ 1 MPa (10 BAR), ΚΑΙ ΣΤΑΘΕΡΩΝ ΣΥΓΚΟΛΛΗΜΕΝΩΝ ΔΕΞΑΜΕΝΩΝ, ΑΠΟΣΥΝΑΡΜΟΛΟΓΟΥΜΕΝΩΝ ΣΥΓΚΟΛΛΗΜΕΝΩΝ ΔΕΞΑΜΕΝΩΝ ΚΑΙ ΣΥΓΚΟΛΛΗΜΕΝΩΝ ΠΕΡΙΒΑΗΜΑΤΩΝ ΕΜΠΟΡΕΥΜΑΤΟΚΙΒΩΤΙΩΝ-ΔΕΞΑΜΕΝΩΝ ΠΡΟΟΡΙΖΟΜΕΝΩΝ ΓΙΑ ΤΗ ΜΕΤΑΦΟΡΑ ΥΓΡΟΠΟΙΗΜΕΝΩΝ ΑΕΡΙΩΝ ΒΑΘΙΑΣ ΚΑΤΑΨΥΞΕΩΣ ΤΗΣ ΚΛΑΣΗΣ 2**

214 000-  
214 249

**1. Υλικά και περιβλήματα**

**214 250** (1) Περιβλήματα προοριζόμενα για τη μεταφορά υλών της Κλάσης 2, 1° έως 6° και 9°, Κλάσης 4.2, 6° (a), 17° (a), 19° (a) και 31° (a) έως 33° (a) ή Κλάσης 8, 6°, θα κατασκευάζονται από χάλυβα.

(2) Για περιβλήματα κατασκευασμένα από λεπτόκοκκους χάλυβες για τη μεταφορά:

- αμμωνίας του περιθωριακού 2201, 3° (at) και 9° (at),
- άλλες ύλες της Κλάσης 2 των οποίων οι ονομασίες στο περιθωριακό 2201 ακολουθούνται από την λέξη "(διαβρωτικό)", και
- ύλες του περιθωριακού 2801, 6°

ο χάλυβας θα έχει εγγυημένη αντοχή διαρροής όχι μεγαλύτερη από 460 N/mm<sup>2</sup> και μέγιστη τελική εφελκυστική αντοχή 725 N/mm<sup>2</sup>. Αυτά τα περιβλήματα θα υφίστανται θερμική κατεργασία για την εκτόνωση των θερμικών τάσεων.

(3) Περιβλήματα προοριζόμενα για τη μεταφορά υγροποιημένων αερίων βαθιάς καταψύξεως της Κλάσης 2 θα κατασκευάζονται από χάλυβα, αλουμίνιο, κράμα αλουμινίου, χαλκό ή κράμα χαλκού, π.χ., μπρούντζο. Εντούτοις, περιβλήματα κατασκευασμένα από χαλκό ή κράμα χαλκού θα επιτρέπονται μόνο για αέρια που δεν περιέχουν ακετυλένιο· το αιθυλένιο, εντούτοις, δεν μπορεί να περιέχει περισσότερο από 0.005% ακετυλένιο.

(4) Μόνο υλικά ενδεικνύμενα για τις κατώτατες και ανώτατες θερμοκρασίες εργασίας των περιβλημάτων και των εξαρτημάτων και προσαρτημάτων τους μπορεί να χρησιμοποιούνται.

**214 251** Τα ακόλουθα υλικά θα επιτρέπονται για την κατασκευή περιβλημάτων:

(a) χάλυβες μη υποκείμενοι σε ψαθυρή θραύση στην ελάχιστη θερμοκρασία εργασίας (βλέπε περιθωριακό 214 265), μπορεί να χρησιμοποιούνται οι ακόλουθοι:

1. μαλακοί χάλυβες (εκτός από αέρια του περιθωριακού 2201, 7° και 8°)
2. λεπτόκοκκοι αμιγείς χάλυβες, με κατώτερη θερμοκρασία -60 °C
3. χάλυβες νικελίου (με περιεκτικότητα σε νικέλιο 0.5 έως 9%), με κατώτερη θερμοκρασία -196 °C, αναλόγως της περιεκτικότητας σε νικέλιο
4. ωστενιτικοί χάλυβες χρωμίου-νικελίου, με κατώτερη θερμοκρασία -270°C

## Προσθήκη B.1d

- 214 251** (b) αλουμίνιο καθαρότητας όχι μικρότερης από 99.5%, ή κράματα αλουμινίου (βλέπε (συνεχ.) περιθωριακό 214 266)
- (c) αποξειδωμένος χαλκός καθαρότητας όχι μικρότερης από 99.9%, ή κράματα χαλκού με περιεκτικότητα σε χαλκό άνω του 56% (βλέπε περιθωριακό 214 267).
- 214 252** (1) Περιβλήματα κατασκευασμένα από χάλυβα, αλουμίνιο ή κράματα αλουμινίου θα είναι είτε χωρίς ραφή είτε συγκολλημένα.
- (2) Περιβλήματα κατασκευασμένα από ωστενιτικό χάλυβα, χαλκό ή κράματα χαλκού μπορεί να είναι σκληρής συγκόλλησης.
- 214 253** Τα εξαρτήματα και προσαρτήματα μπορεί να είναι είτε βιδωμένα στα περιβλήματα είτε να είναι ασφαλισμένα σε αυτά ως ακολούθως:
- (a) περιβλήματα κατασκευασμένα από χάλυβα, αλουμίνιο ή κράμα αλουμινίου: με συγκόλληση
- (b) περιβλήματα κατασκευασμένα από ωστενιτικό χάλυβα, χαλκό ή κράμα χαλκού: με συγκόλληση ή σκληρή συγκόλληση.
- 214 254** Η κατασκευή περιβλημάτων και η πρόδεδεσή τους στο όχημα, στο πλαίσιο υποστηρίξεως ή στο πλαίσιο του εμπορευματοκιβωτίου θα είναι τέτοια ώστε να αποκλείει με βεβαιότητα τυχόν μείωση στη θερμοκρασία των φερόντων στοιχείων τέτοια που θα ήταν πιθανό να τα καταστήσει ψαθυρά. Τα ίδια τα μέσα πρόσδεσης περιβλημάτων θα είναι σχεδιασμένα έτσι ώστε ακόμη και όταν το περίβλημα είναι στην χαμηλότερη θερμοκρασία εργασίας του να εξακολουθούν να έχουν τις αναγκαίες μηχανικές ιδιότητες.

**214 255-  
214 264**

## 2. Απαιτήσεις δοκιμής

(a) *Περιβλήματα από χάλυβα*

- 214 265** Τα υλικά που χρησιμοποιούνται για την κατασκευή περιβλημάτων και κορδονιών συγκόλλησης θα ικανοποιούν, στην κατώτερη θερμοκρασία εργασίας τους, αλλά τουλάχιστον στους -20 °C, τουλάχιστον τις ακόλουθες απαιτήσεις ως προς την κρουστική αντοχή.

Οι δοκιμές θα διενεργούνται με δοκίμια με εγκοπή σχήματος V.

Η ελάχιστη κρουστική αντοχή (βλέπε περιθωριακά 214 275 έως 214 277) για δοκίμια με τον επιμήκη άξονά τους σε ορθή γωνία προς την κατεύθυνση κυλίσεως και εγκοπή σχήματος V (σύμφωνα με το ISO R 148) κάθετη στην επιφάνεια της πλάκας, θα είναι 34 J/cm<sup>2</sup> για τον μαλακό χάλυβα (ο οποίος, λόγω των υπάρχουσών προδιαγραφών ISO, μπορεί να δοκιμάζεται με δοκίμια που έχουν τον επιμήκη άξονα στην κατεύθυνση κύλισης) τον χάλυβα φερριτικού κράματος με Ni < 5%, τον χάλυβα φερριτικού κράματος 5% ≤ Ni ≤ 9% ή τον ωστενιτικό χάλυβα Cr - Ni.

Στην περίπτωση ωστενιτικών χαλύβων, μόνο το κορδόνι συγκόλλησης είναι ανάγκη να υποβάλλεται σε δοκιμή κρουστικής αντοχής.

Για θερμοκρασίες εργασίας κάτω των -196 °C η δοκιμή κρουστικής αντοχής δεν διενεργείται στην κατώτατη θερμοκρασία εργασίας, αλλά στους -196 °C.

(b) *Περιβλήματα κατασκευασμένα από αλουμίνιο ή κράμα αλουμινίου*

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2119

Προσθήκη Β.1d

## Προσθήκη Β.1d

214 266 Οι ραφές των περιβλημάτων θα ικανοποιούν τις απαιτήσεις που ορίζονται από την αρμόδια αρχή.

(c) *Περιβλήματα κατασκευασμένα από χαλκό ή κράμα χαλκού*

214 267 Δεν είναι ανάγκη να διενεργούνται δοκιμές για να καθορισθεί εάν η κρουστική αντοχή είναι επαρκής.

214 268-

214 274

### 3. Μέθοδοι δοκιμής

(a) *Δοκιμές κρουστικής αντοχής*

214 275 Για φύλλα πάχους μικρότερου από 10 mm αλλά όχι μικρότερου από 5 mm, δοκίμια διατομής 10 mm x e mm, όπου το "e" συμβολίζει το πάχος του φύλλου, θα χρησιμοποιούνται. Η μηχανική ρύθμιση στα 7.5 mm ή τα 5 mm επιτρέπεται εάν είναι αναγκαία. Θα απαιτείται η ελάχιστη τιμή των 34 J/cm<sup>2</sup> σε κάθε περίπτωση.

**ΣΗΜΕΙΩΣΗ:** Καμία δοκιμή κρουστικής αντοχής δεν θα διενεργείται σε φύλλα πάχους μικρότερου από 5 mm, ή στις ραφές συγκόλλησής τους.

214 276 (1) Με σκοπό να δοκιμασθούν φύλλα, η κρουστική αντοχή θα καθορίζεται σε τρία δοκίμια. Τα δοκίμια θα λαμβάνονται σε ορθή γωνία προς την διεύθυνση κυλίσεως· εντούτοις, για μαλακό χάλυβα μπορεί να λαμβάνονται στην διεύθυνση κυλίσεως.

(2) Για να δοκιμάζονται οι ραφές συγκόλλησης τα δοκίμια θα λαμβάνονται ως ακολούθως:

όταν  $e \leq 10$  mm:

τρία δοκίμια με την εγκοπή στο κέντρο της συγκόλλησης

τρία δοκίμια με την εγκοπή στο κέντρο της ζώνης προσβολής από θερμότητα (η εγκοπή V να διασχίζει το όριο της περιοχής τήξεως στο κέντρο του δείγματος)

Κέντρο της συγκόλλησης

Ζώνη προσβεβλημένη από τη θερμότητα

## Προσθήκη Β.1d

214 276 όταν  $10 \text{ mm} < e \leq 20 \text{ mm}$ :  
(συνεχ.)

τρία δοκίμια από το κέντρο της συγκόλλησης

τρία δοκίμια από τη ζώνη προσβολής από τη θερμότητα (η εγκοπή V να διασχίζει το όριο της περιοχής τήξεως στο κέντρο του δείγματος)

Κέντρο της συγκόλλησης

Ζώνη προσβεβλημένη από τη θερμότητα

όταν  $e > 20 \text{ mm}$ :

δύο ομάδες των τριών δοκιμίων, η μία στην άνω όψη, η άλλη στην κάτω όψη σε κάθε ένα από τα σημεία που αναφέρονται παρακάτω (η εγκοπή V να διασχίζει το όριο της περιοχής τήξεως στο κέντρο του δείγματος για τα δοκίμια που έχουν ληφθεί από την ζώνη που προσβάλλεται από θερμότητα)

Κέντρο της συγκόλλησης

Ζώνη προσβεβλημένη από τη θερμότητα

## Προσθήκη Β.1d

**214 277** (1) Για τα φύλλα, ο μέσος όρος των τριών δοκιμών θα ικανοποιεί την ελάχιστη τιμή των  $34 \text{ J/cm}^2$  που αναφέρεται στο περιθωριακό 214 265· το πολύ μία από τις επιμέρους τιμές μπορεί να είναι κάτω από την ελάχιστη τιμή και τότε όχι κάτω των  $24 \text{ J/cm}^2$ .

(2) Για τις συγκολλήσεις, η μέση τιμή που λαμβάνεται από τα τρία δοκίμια που έχουν ληφθεί στο κέντρο της συγκόλλησης δεν θα είναι κάτω από την ελάχιστη τιμή των  $34 \text{ J/cm}^2$ · το πολύ μία από τις επιμέρους τιμές μπορεί να είναι κάτω από την ελάχιστη τιμή και τότε όχι κάτω των  $24 \text{ J/cm}^2$ .

(3) Για την προσβαλλόμενη από τη θερμότητα ζώνη (η εγκοπή V να διασχίζει το όριο της περιοχής τήξεως στο κέντρο του δείγματος) οι τιμές που λαμβάνονται από ένα το πολύ από τα τρία δοκίμια μπορεί να είναι μικρότερες από την ελάχιστη τιμή των  $34 \text{ J/cm}^2$ , όχι όμως κάτω των  $24 \text{ J/cm}^2$ .

**214 278** Εάν οι απαιτήσεις που προβλέπονται στο περιθωριακό 214 277 δεν ικανοποιούνται, μπορεί να γίνει μόνο μία νέα δοκιμή εάν:

(a) η μέση τιμή των πρώτων τριών δοκιμών είναι κάτω από την ελάχιστη τιμή των  $34 \text{ J/cm}^2$ , ή

(b) περισσότερες από μία από τις επιμέρους τιμές είναι μικρότερες από την ελάχιστη τιμή των  $34 \text{ J/cm}^2$  αλλά όχι κάτω των  $24 \text{ J/cm}^2$ .

**214 279** Σε επαναλαμβανόμενη κρουστική δοκιμή σε φύλλα ή συγκολλήσεις, καμία από τις επιμέρους τιμές δεν μπορεί να είναι κάτω των  $34 \text{ J/cm}^2$ . Η μέση τιμή όλων των αποτελεσμάτων της αρχικής δοκιμής και της νέας δοκιμής πρέπει να είναι ίση προς ή μεγαλύτερη από την ελάχιστη των  $34 \text{ J/cm}^2$ .

Σε επαναλαμβανόμενη δοκιμή κρουστικής αντοχής στην προσβεβλημένη από τη θερμότητα ζώνη, καμία από τις επιμέρους τιμές δεν μπορεί να είναι κάτω των  $34 \text{ J/cm}^2$ .



## ΠΡΟΣΘΗΚΗ Β.2

**ΕΝΙΑΙΕΣ ΔΙΑΤΑΞΕΙΣ ΠΟΥ ΑΦΟΡΟΥΝ ΤΗΝ ΚΑΤΑΣΚΕΥΗ ΟΧΗΜΑΤΩΝ ΠΟΥ  
ΠΡΟΟΡΙΖΟΝΤΑΙ ΓΙΑ ΤΗ ΜΕΤΑΦΟΡΑ ΕΠΙΚΙΝΔΥΝΩΝ ΕΜΠΟΡΕΥΜΑΤΩΝ  
ΠΕΡΙΛΑΜΒΑΝΟΜΕΝΩΝ ΔΙΑΤΑΞΕΩΝ ΓΙΑ ΤΗΝ ΕΓΚΡΙΣΗ ΤΟΥ ΤΥΠΟΥ ΤΟΥΣ ΟΠΟΥ ΑΥΤΗ  
ΑΠΑΙΤΕΙΤΑΙ**

220 000-  
220 099

**ΤΜΗΜΑ 1. Πλαίσιο**

- 220 100 (1) Οι διατάξεις της παρούσης Προσθήκης έχουν εφαρμογή στην κατασκευή βασικών οχημάτων, κινητήριων οχημάτων και των συρομένων οχημάτων τους που προορίζονται για τη μεταφορά επικίνδυνων εμπορευμάτων, τα οποία υπόκεινται σε έγκριση κατά τα περιθωριακά 10 282, 11 282, 10 283, και σε μεταφορικές μονάδες "τύπου II" σύμφωνα με το περιθωριακό 11 204(2), και στην έγκριση του τύπου τους.
- (2) Για την έγκριση τύπου ενός τύπου οχήματος σύμφωνα με το περιθωριακό 10 281, όλα τα Τμήματα της παρούσας Προσθήκης θα έχουν εφαρμογή.
- (3) Στην περίπτωση απλών οχημάτων τα οποία δεν έχουν υποβληθεί στην διαδικασία έγκρισης τύπου σύμφωνα με το περιθωριακό 10 281, μόνο οι διατάξεις του Τμήματος 5 της παρούσης Προσθήκης έχουν εφαρμογή.

220 101-  
220 199

**ΤΜΗΜΑ 2. Ορισμοί**

220 200 Για τους σκοπούς αυτής της Προσθήκης:

- (1) "Όχημα" σημαίνει όχημα με πλαίσιο και κουβούκλιο, ελκυστήρας για επικαθήμενο όχημα ή πλαίσιο συρόμενου οχήματος ή συρόμενο όχημα με αυτοστηριζόμενο αμάξωμα που προορίζονται για τη μεταφορά επικίνδυνων αγαθών
- (2) "Τύπος οχήματος" σημαίνει οχήματα τα οποία δεν διαφέρουν ουσιαστικά ως προς τα κατασκευαστικά χαρακτηριστικά που αναφέρονται σε αυτή την Προσθήκη.

220 201-  
220 299

**ΤΜΗΜΑ 3. Αίτηση έγκρισης τύπου**

- 220 300 Η αίτηση για την έγκριση τύπου ενός τύπου οχήματος ως προς τα συγκεκριμένα κατασκευαστικά χαρακτηριστικά του θα υποβάλλεται από τον κατασκευαστή του οχήματος ή από τον δεόντως εξουσιοδοτημένο αντιπρόσωπό του.
- 220 301 Η αίτηση έγκρισης τύπου θα συνοδεύεται από τα κάτωθι αναφερόμενα έγγραφα εις τριπλούν και από τα ακόλουθα στοιχεία:
- (1) λεπτομερή περιγραφή του τύπου οχήματος σχετικά με τη δομή του, τον κινητήρα (συμπύεσης-ανάφλεξης, θετικής ανάφλεξης), τις διαστάσεις, τη σύνθεση και τα συστατικά υλικά
- (2) τον τύπο οχήματος σε σχέση με τα επικίνδυνα εμπορεύματα που το όχημα προορίζεται να μεταφέρει, δηλ.:

Τύπος EX/II για οχήματα προοριζόμενα για τη μεταφορά εκρηκτικών ως μεταφορικές μονάδες τύπου II (βλέπε περιθωριακό 11 204)

## Προσθήκη Β.2

<b>220 301</b> (συνεχ.)	Τύπος EX/III	για οχήματα προοριζόμενα για τη μεταφορά εκρηκτικών ως μεταφορικές μονάδες τύπου III (βλέπε περιθωριακό 11 204)
	Τύπος FL	για οχήματα προοριζόμενα για τη μεταφορά υγρών με σημείο ανάφλεξης όχι μεγαλύτερο από 61 °C ή εύφλεκτα αέρια, σε σταθερές δεξαμενές, αποσυναρμολογούμενες δεξαμενές ή συστοιχίες δοχείων
	Τύπος OX	για οχήματα προοριζόμενα για τη μεταφορά υλών της κλάσης 5.1, περιθωριακό 2501, είδος 1°(a), σε σταθερές δεξαμενές, αποσυναρμολογούμενες δεξαμενές ή συστοιχίες δοχείων
	Τύπος AT	για οχήματα προοριζόμενα για τη μεταφορά επικίνδυνων εμπορευμάτων σε εμπορευματοκιβώτια-δεξαμενές με χωρητικότητα μεγαλύτερη από 3 000 λίτρα, ή οχήματα εκτός από εκείνα των τύπων EX/II, EX/III, FL ή OX προοριζόμενα για τη μεταφορά επικίνδυνων εμπορευμάτων σε σταθερές δεξαμενές, αποσυναρμολογούμενες δεξαμενές ή συστοιχίες δοχείων

(3) σχέδια του οχήματος και

(4) στοιχεία για:

(a) το μέγιστο τεχνικό βάρος (kg)

(b) τον (τους) τύπο (-ους) αντοχής του συστήματος (-άτων) πεδήσεως.

**220 302** Ένα όχημα αντιπροσωπευτικό του προς έγκριση τύπου θα κατατίθεται στην τεχνική υπηρεσία που είναι υπεύθυνη για τη διενέργεια των δοκιμών έγκρισης.

**220 303** Η αρμόδια αρχή θα εξακριβώνει την ύπαρξη ικανοποιητικών ρυθμίσεων για την εξασφάλιση του αποτελεσματικού ελέγχου ομοιομορφίας της παραγωγής προτού δοθεί η έγκριση τύπου.

**220 304-  
220 399**

#### ΤΜΗΜΑ 4. Έγκριση τύπου

**220 400** Εάν το όχημα που κατατίθεται για έγκριση κατά τα της παρούσης Προσθήκης ικανοποιεί τις διατάξεις του Τμήματος 5 παρακάτω, θα δίνεται έγκριση για αυτόν τον τύπο οχήματος.

**220 401** Για κάθε εγκεκριμένο τύπο θα ορίζεται αριθμός έγκρισης. Τα πρώτα δύο ψηφία του (00 για την Προσθήκη στην παρούσα μορφή της) θα δηλώνουν τη σειρά αναθεωρήσεων που συμπεριλαμβάνει τις πιο πρόσφατες τεχνικές αναθεωρήσεις επί των διατάξεων κατά το χρόνο έκδοσης της έγκρισης. Το ίδιο Κράτος Μέλος δεν μπορεί να ορίσει τον ίδιο αριθμό έγκρισης σε άλλο τύπο οχήματος κατά την έννοια του ανωτέρω περιθωριακού 220 200 (2).

**220 402** Η ειδοποίηση για την έγκριση ή την επέκταση έγκρισης τύπου οχήματος κατά τα της παρούσης Προσθήκης θα ανακοινώνεται στα Κράτη Μέλη μέσω εντύπου κατά το υπόδειγμα που αναπαράγεται στο περιθωριακό 221 000.

**220 403** Σε κάθε όχημα που ανήκει σε τύπο οχήματος εγκεκριμένο κατά την παρούσα Προσθήκη θα προσαρτάται, σε εμφανές και εύκολα προσπελάσιμο μέρος που θα αναφέρεται στο έντυπο έγκρισης, διεθνές σήμα έγκρισης αποτελούμενο από:

## Προσθήκη Β.2

**220 403** (1) έναν κύκλο που περιβάλλει τα γράμματα "ADR" ακολουθούμενα από τον χαρακτηριστικό (συνεχ.) αριθμό του Κράτους που παρέσχε την έγκριση<sup>1/</sup>

(2) ο αριθμός έγκρισης στα δεξιά του κύκλου που προβλέπεται στο (1) και

(3) πρόσθετο σύμβολο που χωρίζεται από τον αριθμό έγκρισης και αποτελούμενο από το σύμβολο που χαρακτηρίζει τον τύπο οχήματος σύμφωνα με το περιθωριακό 220 301(2).

**220 404** Το σήμα έγκρισης θα είναι καθαρά αναγνώσιμο και ανεξίτηλο.

**220 405** Το σήμα έγκρισης θα τοποθετείται κοντά ή επάνω στην πινακίδα δεδομένων του οχήματος που έχει προσαρτηθεί από τον κατασκευαστή.

**220 406-  
220 499**

#### ΤΜΗΜΑ 5. Τεχνικές διατάξεις

**220 500** Αυτοκίνητα οχήματα και συρόμενα οχήματα που προορίζονται για χρήση ως μεταφορικές μονάδες για επικίνδυνα εμπορεύματα, αναλόγως της κατηγορίας και του τύπου τους, θα συμφωνούν με τις ακόλουθες διατάξεις κατά τον παρακάτω πίνακα.

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<sup>1/</sup> 1 για τη Γερμανία, 2 για τη Γαλλία, 3 για την Ιταλία, 4 για τις Κάτω Χώρες, 5 για τη Σουηδία, 6 για το Βέλγιο, 7 για την Ουγγαρία, 8 για την Τσεχική Δημοκρατία, 9 για την Ισπανία, 10 για την Γιουγκοσλαβία, 11 για το Ηνωμένο Βασίλειο, 12 για την Αυστρία, 13 για το Λουξεμβούργο, 14 για την Ελβετία, 15 (ελεύθερο), 16 για τη Νορβηγία, 17 για τη Φινλανδία, 18 για τη Δανία, 19 για τη Ρουμανία, 20 για την Πολωνία, 21 για την Πορτογαλία, 22 για τη Ρωσική Ομοσπονδία, 23 για την Ελλάδα, 24 (δεσμευμένο), 25 για την Κροατία, 26 για τη Σλοβενία, 27 για τη Σλοβακία, 28 για τη Λευκορωσία, 29 και 30 (δεσμευμένα), 31 για τη Βοσνία Ερζεγοβίνη.

ΤΕΧΝΙΚΑ ΧΑΡΑΚΤΗΡΗΤΙΚΑ		ΤΥΠΟΣ ΟΧΗΜΑΤΟΣ ΚΑΤΑ ΤΟ ΠΕΡΙΩΡΙΑΚΟ 220 301 (2)				
		ΕΧ/Π	ΕΧ/ΠΙ	ΑΤ	FL	OX
220 510	<b>ΗΛΕΚΤΡΟΛΟΓΙΚΟΣ ΕΞΟΠΛΙΣΜΟΣ</b>					
220 511	- καλώδια		X	X	X	X
220 512	- κεντρικός διακόπτης συσσωρευτή		X		X	
220 513	- συσσωρευτές	X	X		X	
220 514	- ταχογράφοι		X		X	
220 515	- μονίμως ενεργοποιημένες εγκαταστάσεις		X		X	
220 516	- ηλεκτρική εγκατάσταση όπισθεν κουβουκλίου		X		X	
220 520	<b>ΠΕΔΗΣΗ</b>					
220 521	- μηχανισμός έναντι στο κλείδωμα		X	X	X	X
220 522	- αντοχή		X	X	X	X
220 530	<b>ΚΙΝΑΥΝΟΙ ΠΥΡΚΑΙΑΣ</b>					
220 531	- κουβούκλιο: υλικά	X	X			
220 532	- κουβούκλιο: θερμική προστασία					
220 533	- δεξαμενές καυσίμων	X	X		X	X
220 534	- κινητήρας	X	X		X	X
220 535	- σύστημα εξάτμισης	X	X		X	
220 536	- σύστημα πέδησης αντοχής		X	X	X	X
220 536	- βοηθητική θέρμανση	X	X			
220 540	<b>ΠΕΡΙΟΡΙΣΜΟΣ ΤΑΧΥΤΗΤΑΣ</b>	X	X	X	X	X

## Προσθήκη Β.2

220 501-  
220 509**Ηλεκτρολογικός εξοπλισμός***Γενικές διατάξεις*

**220 510** Η ηλεκτρολογική εγκατάσταση στο σύνολό της θα ικανοποιεί τις διατάξεις των περιθωριακών 220 511 έως 220 515 σύμφωνα με τον πίνακα του περιθωριακού 220 500.

*Καλώδια*

**220 511** (1) Το μέγεθος των αγωγών θα είναι αρκετά μεγάλο ώστε να αποφεύγεται η υπερθέρμανση. Οι αγωγοί θα είναι επαρκώς μονωμένοι. Όλα τα κυκλώματα θα προστατεύονται με ασφάλειες ή αυτόματους διακόπτες κυκλώματος, εκτός από τα ακόλουθα:

- από τον συσσωρευτή στα συστήματα ψυχρής εκκίνησης και παύσης του κινητήρα
- από τον συσσωρευτή στον εναλλάκτη
- από τον εναλλάκτη στο κιβώτιο της ασφάλειας ή του διακόπτη κυκλώματος
- από τον συσσωρευτή στον εκκινητήρα (μίζα)
- από τον συσσωρευτή στην υποδοχή ελέγχου ισχύος του συστήματος πέδησης αντοχής (βλέπε περιθωριακό 220 522 παρακάτω), εάν το σύστημα αυτό είναι ηλεκτρικό ή ηλεκτρομαγνητικό.

Τα παραπάνω απροστάτευτα κυκλώματα θα είναι κατά το δυνατόν μικρού μήκους.

(2) Τα καλώδια θα προσδένονται με ασφάλεια και θα τοποθετούνται κατά τρόπο ώστε οι αγωγοί να προστατεύονται επαρκώς έναντι μηχανικών και θερμικών καταπονήσεων.

*Κεντρικός διακόπτης συσσωρευτή*

**220 512** (1) Ο διακόπτης για τη διακοπή των ηλεκτρικών κυκλωμάτων θα τοποθετείται όσο το δυνατόν πλησιέστερα στον συσσωρευτή.

(2) Συσκευές άμεσου ή έμμεσου ελέγχου θα εγκαθίστανται, μία στο κουβούκλιο του οδηγού και μία δεύτερη στο εξωτερικό του οχήματος. Θα είναι εύκολα προσπελάσιμες και θα επισημαίνονται ευδιάκριτα. Η συσκευή ελέγχου που τοποθετείται στο κουβούκλιο του οδηγού θα είναι άμεσα προσιτή στον οδηγό από τη θέση του οδηγού. Θα προστατεύεται έναντι μη θελημένης λειτουργίας είτε με την προσθήκη προστατευτικού καλύμματος, ή με τη χρήση διπλής συσκευής ελέγχου κίνησης ή με άλλο κατάλληλο μέσο.

(3) Θα είναι δυνατό το άνοιγμα του διακόπτη ενώ ο κινητήρας λειτουργεί, χωρίς να προκαλείται επικίνδυνη υπερβολική τάση. Η λειτουργία του κινητήρα δεν θα αποτελεί κίνδυνο πυρκαϊάς σε εκρηκτική ατμόσφαιρα· αυτό μπορεί να εξασφαλίζεται χρησιμοποιώντας διακόπτη που έχει περιβλήμα με βαθμό προστασίας IP65 σύμφωνα με την Προδιαγραφή IEC 529.

(4) Οι καλωδιώσεις στον κεντρικό διακόπτη του συσσωρευτή θα έχουν βαθμό προστασίας IP54. Εντούτοις, αυτό δεν έχει εφαρμογή εάν οι συνδέσεις αυτές περιέχονται σε υποδοχή η οποία μπορεί να είναι το κιβώτιο συσσωρευτή. Στην περίπτωση αυτή αρκεί να μονωθούν οι συνδέσεις έναντι βραχυκυκλώματος, παραδείγματος χάριν με πάμα από ελαστικό.

## Προσθήκη Β.2

*Συσσωρευτές*

- 220 513** Οι ακροδέκτες του συσσωρευτή θα είναι ηλεκτρικά μονωμένοι ή καλυμμένοι με το μονωτικό κάλυμμα του κιβωτίου του συσσωρευτή. Εάν οι συσσωρευτές δεν βρίσκονται κάτω από το καπό του κινητήρα, θα τοποθετούνται σε εξαιρεζόμενο κιβώτιο.

*Ταχογράφοι*

- 220 514** Η ηλεκτρική παροχή στον ταχογράφο θα παρέχεται με μπαριέρα ασφαλείας συνδεδεμένη απευθείας στον συσσωρευτή. Τα καλώδια ηλεκτρικής παροχής από και προς τον ταχογράφο, τα οποία παραμένουν ενεργά όταν ο κεντρικός διακόπτης του συσσωρευτή είναι ανοικτός, θα είναι φύσει ασφαλή, κατά τις απαιτήσεις της Ευρωπαϊκής Προδιαγραφής EN 50 020. Ο ταχογράφος και η μπαριέρα ασφαλείας θα ικανοποιούν τις απαιτήσεις του σχετικού ηλεκτρολογικού εξοπλισμού κατά την Ευρωπαϊκή Προδιαγραφή EN 50 020.

*Μόνιμα ενεργές εγκαταστάσεις*

- 220 515** Τα μέρη της ηλεκτρολογικής εγκατάστασης, εκτός από τον ταχογράφο, που παραμένουν ενεργά όταν ο κεντρικός διακόπτης του συσσωρευτή είναι ανοικτός, θα είναι κατάλληλα για χρήση σε επικίνδυνη περιοχή και θα ικανοποιούν τις δέουσες απαιτήσεις της Ευρωπαϊκής Προδιαγραφής EN 50 014 και μίας από τις Ευρωπαϊκές Προδιαγραφές EN 50 015 έως 50 020 ή EN 50 028. Θα ικανοποιούνται οι απαιτήσεις για τη σχετική ομάδα αερίων αναλόγως του μεταφερόμενου προϊόντος.

*Διατάξεις που αφορούν το μέρος της ηλεκτρολογικής εγκατάστασης που βρίσκεται στο πίσω μέρος του κουβουκλίου του οδηγού*

- 220 516** Ολόκληρη η εγκατάσταση θα είναι έτσι σχεδιασμένη, κατασκευασμένη και προστατευμένη ώστε να μην μπορεί να προκαλέσει τυχόν ανάφλεξη ή βραχυκύκλωμα κάτω από κανονικές συνθήκες χρήσης των οχημάτων και ώστε αυτοί οι κίνδυνοι να μπορούν να ελαχιστοποιηθούν σε περίπτωση πρόσκρουσης ή παραμόρφωσης. Ιδιαίτερως:

*(1) Καλώδια*

Τα καλώδια που βρίσκονται πίσω από το κουβούκλιο του οδηγού θα προστατεύονται έναντι πρόσκρουσης, απόξεσης και τριβής κατά την κανονική λειτουργία του οχήματος. Παραδείγματα κατάλληλης προστασίας δίνονται στα σχήματα 1, 2, 3 και 4 παρακάτω. Εντούτοις, τα αισθητήρια καλώδια συσκευών πέδησης με μηχανισμό έναντι στο κλειδώμα δεν χρειάζονται πρόσθετη προστασία.

2129

Προσθήκη Β.2

ΣΧΗΜΑΤΑ

Σχήμα 1

Αυλακωτός αγωγός καλωδίων από πολυαμίδιο

χωριστά  
μονωμένα  
καλώδια

Σχήμα 2

Αυλακωτός αγωγός καλωδίων από πολυαμίδιο

Μονωτικό περίβλημα

χωριστά  
μονωμένα  
καλώδια

Σχήμα 3

Περίβλημα από πολυουρεθάνη

Με εσωτερικό περίβλημα

χωριστά  
μονωμένα  
καλώδια

Σχήμα 4

Εξωτερική στρώση

Εσωτερική στρώση

χωριστά  
μονωμένα  
καλώδια

Προστασία με μεταλλικές ίνες

## Προσθήκη Β.2

**220 516 (2) Φωτισμός**  
(συνεχ.)

Δεν θα χρησιμοποιούνται λαμπτήρες με βιδωτό πόμα.

*Ηλεκτρολογικός μηχανισμός ανύψωσης*

**220 517** Ο ηλεκτρολογικός εξοπλισμός του μηχανισμού ανύψωσης του άξονα φορείου θα εγκαθίσταται έξω από το πλαίσιο του σασί σε σφραγισμένη υποδοχή.

**220 518-**  
**220 519****Εξοπλισμός πέδησης**

*Γενικές διατάξεις*

**220 520** Επιπλέον των ακόλουθων τεχνικών διατάξεων, προς εφαρμογή σύμφωνα με τον πίνακα του περιθωριακού 220 500, αυτοκίνητα οχήματα και συρόμενα οχήματα που προορίζονται για χρήση ως μεταφορικές μονάδες για επικίνδυνα εμπορεύματα θα εκπληρώνουν όλες τις σχετικές τεχνικές απαιτήσεις του Κανονισμού ECE Νο 13 <sup>2/</sup> ή της Οδηγίας 71/320/EEC <sup>2/</sup> των οποίων η τελευταία αναθεωρημένη μορφή έχει εφαρμογή κατά το χρόνο έγκρισης του οχήματος.

*Σύστημα Πέδησης με Μηχανισμό έναντι στο Κλείδωμα*

**220 521** (1) Αυτοκίνητα οχήματα με μέγιστο βάρος που υπερβαίνει τους 16 τόνους, ή εγκεκριμένα για τη έλξη συρόμενου οχήματος με μέγιστο βάρος που υπερβαίνει 10 τόνους, θα είναι εξοπλισμένα με σύστημα πέδησης με μηχανισμό έναντι στο κλείδωμα της κατηγορίας I σύμφωνα με τον Κανονισμό ECE Νο 13 <sup>2/</sup>, Παράρτημα 13, ή την Οδηγία 71/320/EEC <sup>3/</sup>.

(2) Συρόμενα οχήματα με μέγιστο βάρος που υπερβαίνει τους 10 τόνους θα είναι εξοπλισμένα με σύστημα πέδησης με μηχανισμό έναντι στο κλείδωμα της κατηγορίας A σύμφωνα με τον Κανονισμό ECE No. 13 <sup>2/</sup>, Παράρτημα 13, ή την Οδηγία 71/320/EEC <sup>3/</sup>.

(3) Οι ηλεκτρολογικές συνδέσεις μεταξύ ελκόντων οχημάτων και ελκομένων για το σύστημα του συρόμενου οχήματος με μηχανισμό έναντι στο κλείδωμα θα πραγματοποιούνται με συζευκτήρα σύμφωνα με την ISO 7638:1985.

<sup>2/</sup> "Κανονισμός ECE No ...." σημαίνει κανονισμό που δημοσιεύεται ως συμπλήρωμα (στην τελευταία αναθεωρημένη μορφή του) στην Συμφωνία αναφορικά με την υιοθέτηση ομοίμορφων όρων έγκρισης και αμοιβαίας αναγνώρισης έγκρισης για τον εξοπλισμό και τα μέρη αυτοκινήτου οχήματος, η οποία συνήφθη στην Γενεύη την 20ή Μαρτίου 1958.

<sup>3/</sup> Στην τελευταία αναθεωρημένη του μορφή (αρχικά δημοσιευμένο στην Επίσημη Εφημερίδα των Ευρωπαϊκών Κοινοτήτων No. L 202 της 6.9.1971).



## Προσθήκη Β.2

## Σύστημα πέδησης αντοχής

**220 522** (1) Σύστημα πέδησης αντοχής σημαίνει σύστημα προοριζόμενο να σταθεροποιεί την ταχύτητα του οχήματος σε μεγάλο μήκος κατωφέρειας, χωρίς τη χρήση των συστημάτων πέδησης λειτουργίας, δευτερευόντων ή σταθμεύσεως.

(2) Αυτοκίνητα οχήματα με μέγιστο βάρος που υπερβαίνει τους 16 τόνους ή εγκεκριμένα για να έλκουν συρόμενο όχημα με μέγιστο βάρος που υπερβαίνει τους 10 τόνους θα είναι εξοπλισμένα με σύστημα πέδησης αντοχής που τηρεί τις ακόλουθες απαιτήσεις:

- (a) Το σύστημα πέδησης αντοχής μπορεί να είναι μία απλή συσκευή ή συνδυασμός πολλών συσκευιών. Κάθε συσκευή μπορεί να έχει αυτόνομο χειρισμό.
- (b) Και οι τρεις δυνατότητες χειρισμού πέδησης που προβλέπονται στον Κανονισμό ECE N° 13 <sup>4/</sup>, , παράγραφος 2.14 ή στην Οδηγία 71/320/EEC <sup>5/</sup> θα επιτρέπονται, αλλά, στην περίπτωση βλάβης του συστήματος με μηχανισμό έναντι στο κλειδίωμα, οι ενσωματωμένοι ή συνδεδεμένοι επιβραδυντές θα σβήνουν αυτομάτα.
- (c) Η αποτελεσματικότητα του συστήματος πέδησης αντοχής θα ελέγχεται από το σύστημα πέδησης με μηχανισμό έναντι στο κλειδίωμα έτσι ώστε ο άξονας (ή οι άξονες) που φρενάρουν με το σύστημα πέδησης αντοχής να μην μπορούν να μπλοκάρουν από το σύστημα πέδησης αντοχής σε ταχύτητες άνω των 15 km/h. Εντούτοις, η διάταξη αυτή δεν θα έχει εφαρμογή στο μέρος του συστήματος πέδησης που αποτελείται από την φυσική πέδηση του κινητήρα.
- (d) Το σύστημα πέδησης αντοχής θα περιλαμβάνει πολλά επίπεδα λειτουργίας, περιλαμβανομένου ενός χαμηλού επιπέδου κατάλληλου για την αφόρτωτη κατάσταση. Όπου το σύστημα πέδησης αντοχής αυτοκίνητου οχήματος συνίσταται στον κινητήρα του, οι διαφορετικές σχέσεις ταχυτήτων θα λαμβάνονται υπόψη στον ορισμό των διαφορετικών επιπέδων λειτουργίας.
- (e) Η απόδοση του συστήματος πέδησης πρέπει να είναι τέτοια ώστε να ικανοποιεί τις απαιτήσεις του Κανονισμού ECE N° 13 <sup>4/</sup>, Παράρτημα 5 (δοκιμή Τύπου II A), ή των αντίστοιχων διατάξεων της Οδηγίας 71/320/EEC <sup>5/</sup>, με το βάρος έμφορτου οχήματος να συμπεριλαμβάνει το έμφορτο βάρος του αυτοκινούμενου οχήματος και το εγκεκριμένο μέγιστο ελκόμενο βάρος που όμως δεν υπερβαίνει συνολικά τους 44 τόνους.
- (f) Εάν το αυτοκίνητο όχημα δεν ικανοποιεί τις απαιτήσεις απόδοσης για το σύστημα πέδησης αντοχής κατά τα οριζόμενα στο (2) (e) παραπάνω, θα ικανοποιεί τουλάχιστον τις απαιτήσεις του Κανονισμού ECE N° 13 <sup>4/</sup>, Παράρτημα 5, ή των αντίστοιχων διατάξεων της Οδηγίας 71/320/EEC <sup>5/</sup>, και θα περιορίζεται στο να συνδέεται μόνο με συρόμενο όχημα εξοπλισμένο με σύστημα πέδησης αντοχής. Ένα τέτοιο αυτοκίνητο όχημα πρέπει να είναι εξοπλισμένο με συσκευή ελέγχου για το σύστημα πέδησης αντοχής πάνω στο συρόμενο όχημα.

(3) Εάν συρόμενο όχημα είναι εξοπλισμένο με σύστημα πέδησης αντοχής αυτό θα ικανοποιεί τις απαιτήσεις του Κανονισμού ECE N° 13 <sup>4/</sup>, Παράρτημα 5, ή των αντίστοιχων διατάξεων της Οδηγίας 71/320/EEC <sup>5/</sup>, και των διατάξεων των (2) (a) έως (2) (d) παραπάνω.

**220 523-**  
**220 529**

<sup>4/</sup> Βλέπε υποσημείωση 2/.

<sup>5/</sup> Βλέπε υποσημείωση 3/.

## Προσθήκη Β.2

## Αποτροπή κινδύνων πυρκαϊάς

## Γενικές διατάξεις

- 220 530** Οι ακόλουθες τεχνικές διατάξεις θα έχουν εφαρμογή σύμφωνα με τον πίνακα του περιθωριακού 220 500.

## Κουβούκλιο οχήματος

- 220 531** (1) Μόνο υλικό που δεν αναφλέγεται εύκολα θα χρησιμοποιείται στην κατασκευή του κουβουκλίου του οδηγού. Η διάταξη αυτή θα θεωρείται ότι τηρείται εάν, σύμφωνα με τη διαδικασία που καθορίζεται στην προδιαγραφή ISO 3795:1989, δείγματα των ακόλουθων μερών του κουβουκλίου έχουν ρυθμό καύσεως που δεν υπερβαίνει τα 100 mm/min: μαξιλάρια καθισμάτων, πλάτες καθισμάτων, ζώνες ασφαλείας, επιστρωση κορυφής, ανοιγόμενες οροφές, ακουμπιστήρια, όλα τα διακοσμητικά πλαίσια περιλαμβανομένων των πλαισίων στις θύρες, μπροστά, πίσω και στα πλάγια, ράφια διαμερισμάτων, στηρίγματα κεφαλής, καλύμματα δαπέδων, αντιηλιακά γείσα, κουρτίνες, στόρια, καλύμματα φτερών, καλύμματα διαμερίσματος μηχανής, καλύμματα στρωμάτων και οποιαδήποτε άλλα εσωτερικά υλικά, περιλαμβανομένων στοιχείων μαλακού υλικού ενεργοποιούμενων κατά τη σύγκρουση, τα οποία είναι σχεδιασμένα να απορροφούν ενέργεια ερχόμενα σε επαφή με τους επιβαίνοντες σε περίπτωση σύγκρουσης.

(2) Εκτός εάν το κουβούκλιο του οδηγού είναι κατασκευασμένο από υλικά που δεν αναφλέγονται εύκολα, πέτασμα κατασκευασμένο από μέταλλο ή άλλο κατάλληλο υλικό του ίδιου πλάτους με τη δεξαμενή θα τοποθετείται στο πίσω μέρος του κουβουκλίου. Τυχόν παράθυρα στο πίσω μέρος του κουβουκλίου ή στο πέτασμα θα είναι ερμητικά κλειστά και κατασκευασμένα από γυαλί ασφαλείας ανθεκτικό στη φωτιά με πλαίσια ανθεκτικά στη φωτιά. Επιπλέον, θα υπάρχει κενός χώρος όχι μικρότερος από 15 cm μεταξύ της δεξαμενής και του κουβουκλίου ή του πετάσματος.

## Δεξαμενές καυσίμων

- 220 532** Οι δεξαμενές για τον ανεφοδιασμό του κινητήρα του οχήματος θα ικανοποιούν τις ακόλουθες απαιτήσεις:

(1) Οι δεξαμενές καυσίμων θα είναι τοποθετημένες έτσι ώστε να προστατεύονται κατά το δυνατόν έναντι τυχόν σύγκρουσης.

(2) Σε περίπτωση οποιασδήποτε διαρροής, το καύσιμο θα αποστραγγίζεται στο έδαφος χωρίς να έρχεται σε επαφή με θερμά μέρη του οχήματος ή του φορτίου.

(3) Δεξαμενές καυσίμων που περιέχουν βενζίνη θα είναι εξοπλισμένες με αποτελεσματική φλογοπαγίδα στο άνοιγμα πλήρωσης ή με κλείσιμο με το οποίο το άνοιγμα να μπορεί να κρατηθεί ερμητικά σφραγισμένο.

## Κινητήρας

- 220 533** Ο κινητήρας που προωθεί το όχημα θα είναι εξοπλισμένος και τοποθετημένος έτσι ώστε να αποφεύγεται οποιοσδήποτε κίνδυνος για το φορτίο λόγω θέρμανσης ή ανάφλεξης. Στην περίπτωση μεταφοράς εκρηκτικών υλών ή αντικειμένων (τύποι οχήματος EX/II και EX/III) ο κινητήρας θα τοποθετείται μπροστά από το εμπρόσθιο τοίχωμα του αμαξώματος: μπορεί εντούτοις να τοποθετείται κάτω από το αμάξωμα, εφόσον αυτό γίνεται με τρόπο ώστε να αποφεύγεται οποιαδήποτε θέρμανση, έστω και τοπική, του φορτίου.

## Προσθήκη Β.2

*Σύστημα εξάτμισης*

**220 534** Το σύστημα εξάτμισης καθώς και οι σωλήνες εξάτμισης θα είναι κατάλληλα προσανατολισμένοι ή προστατευμένοι ώστε να αποφεύγεται οποιοσδήποτε κίνδυνος για το φορτίο λόγω θέρμανσης ή ανάφλεξης. Μέρη του συστήματος εξάτμισης τοποθετημένα ακριβώς κάτω από την δεξαμενή καυσίμου (ντίτζελ) θα έχουν περιθώριο τουλάχιστον 100 mm ή θα είναι προστατευμένα με θερμικό πέτασμα. Στην περίπτωση μεταφοράς εκρηκτικών υλών ή αντικειμένων (τύποι οχήματος EX/II και EX/III) το σύστημα εξάτμισης θα τοποθετείται μπροστά από το μπροστινό τοίχωμα του αμαξώματος ή χωριστά από το μέρος του οχήματος που μεταφέρει το φορτίο με πέτασμα που αντέχει στη φωτιά και θερμομονωτικό. Σε αυτήν την περίπτωση το στόμιο του σωλήνα εξάτμισης θα είναι προσανατολισμένο προς το έξω μέρος του οχήματος.

*Οχήμα πέδησης αντοχής*

**220 535** Οχήματα εξοπλισμένα με συστήματα πέδησης αντοχής που εκπέμπουν υψηλές θερμοκρασίες τοποθετούμενα πίσω από το οπίσθιο τοίχωμα του κουβουκλίου του οδηγού θα είναι εξοπλισμένα με θερμομονωτικό πέτασμα στερεωμένο με ασφάλεια και τοποθετημένο ανάμεσα σε αυτό το σύστημα και τη δεξαμενή ή το φορτίο ώστε να αποφεύγεται τυχόν θέρμανση, ακόμη και τοπική, του περιβλήματος της δεξαμενής ή του φορτίου.

Επιπλέον, το θερμομονωτικό πέτασμα θα προστατεύει το σύστημα πέδησης έναντι τυχόν εκροής ή διαρροής, έστω και τυχαίας, του φορτίου. Για παράδειγμα, προστασία που περιλαμβάνει πέτασμα με πέτασμα διπλού περιβλήματος θα θεωρείται ικανοποιητική.

*Βοηθητική συσκευή θέρμανσης*

**220 536** Η βοηθητική θέρμανση του κουβουκλίου θα είναι επαρκώς ασφαλής ως προς την πρόληψη πυρκαϊάς και θα τοποθετείται μπροστά από το προστατευτικό τοίχωμα (οπίσθιο τοίχωμα του κουβουκλίου). Η συσκευή θέρμανσης θα τοποθετείται όσο το δυνατόν πιο μπροστά και πιο ψηλά (τουλάχιστον 80 cm πάνω από τη στάθμη εδάφους) και θα είναι εξοπλισμένη με συσκευές που θα αποτρέπουν την επαφή οποιουδήποτε αντικειμένου με τις θερμές επιφάνειες της συσκευής ή των σωλήνα εξάτμισής της. Μόνο συσκευές με μέσο για την ταχεία επανεκκίνηση του εξαερισμού του αέρα συμπίεσης (μέγιστο 20 s) μπορεί να χρησιμοποιούνται.

220 537-

220 539

*Συσκευή περιορισμού ταχύτητας*

**220 540** Αυτοκίνητα οχήματα (ενιαία οχήματα και ελκυστήρες για επικαθήμενα) με μέγιστο βάρος που υπερβαίνει τους 12 τόνους, θα είναι εξοπλισμένα σύμφωνα με το περιθωριακό 10 261 με συσκευή περιορισμού ταχύτητας σύμφωνα με τις διατάξεις του Κανονισμού ECE Νο 89<sup>6/</sup> ή των Οδηγιών 92/6/EEC και 92/24/EEC. Η καθορισμένη ταχύτητα V κατά τα οριζόμενα στην παράγραφο 2.1.2 του Κανονισμού ECE No. 89<sup>6/</sup> δεν θα υπερβαίνει τα 85 km/h.

220 541-

220 599

<sup>6/</sup> Βλέπε υποσημείωση 2/.

## Προσθήκη Β.2

**ΤΜΗΜΑ 6. Τροποποίηση του τύπου οχήματος και επέκταση έγκρισης**

**220 600** Κάθε τροποποίηση του τύπου οχήματος θα ανακοινώνεται στο διοικητικό τμήμα που ενέκρινε τον τύπο οχήματος. Το τμήμα μπορεί τότε:

(1)Είτε να κρίνει ότι οι τροποποιήσεις που έγιναν είναι απίθανο να έχουν αισθητό αρνητικό αποτέλεσμα και ότι σε κάθε περίπτωση το όχημα εξακολουθεί να καλύπτει τις απαιτήσεις, ή

(2)Να απαιτήσει νέα έκθεση δοκιμής από την τεχνική υπηρεσία που είναι υπεύθυνη για την διενέργεια των δοκιμών.

**220 601.** Η επιβεβαίωση ή άρνηση της έγκρισης, με καθορισμό της μεταβολής, θα κοινοποιείται μέσω της διαδικασίας που καθορίζεται στο περιθωριακό 220 402 προς τα Κράτη Μέλη.

**220 602** Η αρμόδια αρχή που εκδίδει επέκταση έγκρισης θα ορίσει αύξοντα αριθμό σε κάθε έντυπο επικοινωνίας που συντάσσεται για τέτοια επέκταση και θα ενημερώνει σχετικά τα άλλα Μέρη μέσω εγγράφου επικοινωνίας σύμφωνα με το υπόδειγμα του περιθωριακού 221 000.

**220 603-  
220 699**

**ΤΜΗΜΑ 7. Ομοιομορφία παραγωγής****Αρχική αξιολόγηση**

**220 700** Η αρχή έγκρισης ενός Κράτους Μέλους θα επαληθεύει - πριν να παράσχει έγκριση τύπου - την ύπαρξη ικανοποιητικών ρυθμίσεων και διαδικασιών για την εξασφάλιση αποτελεσματικού ελέγχου έτσι ώστε τα οχήματα κατά την παραγωγή να είναι σύμφωνα με τον εγκεκριμένο τύπο.

**220 701** Η απαίτηση στο περιθωριακό 220 700 θα εξακριβώνεται προς ικανοποίηση της αρχής που παρέχει έγκριση τύπου αλλά μπορεί επίσης να εξακριβώνεται, εκ μέρους της αρχής που παρέχει έγκριση τύπου, από την αρχή έγκρισης ετέρου Κράτους Μέλους. Σε αυτήν την περίπτωση, η τελευταία αρχή έγκρισης ετοιμάζει δήλωση συμφωνίας διακρίνοντας τις περιοχές και τις εγκαταστάσεις παραγωγής που έχει καλύψει ως σχετικές με το όχημα (τα οχήματα) των οποίων πρόκειται να εγκριθεί ο τύπος.

**220 702** Η αρχή έγκρισης θα δέχεται επίσης την εγγραφή του κατασκευαστή στην εναρμονισμένη προδιαγραφή ISO 9002 (το πλαίσιο της οποίας καλύπτει το όχημα ή τα οχήματα προς έγκριση) ή ισοδύναμη προδιαγραφή έγκρισης ως ικανοποιούσα τις απαιτήσεις του περιθωριακού 220 700. Ο κατασκευαστής θα παρέχει στοιχεία για την εγγραφή και θα αναλαμβάνει να ενημερώνει την αρχή έγκρισης για τυχόν αναθεωρήσεις της ισχύος ή του πλαισίου της.

**220 703** Κατά τη λήψη αίτησης από την αρχή άλλου Κράτους Μέλους η αρχή έγκρισης θα στέλνει πάραυτα τη δήλωση συμφωνίας που αναφέρεται στην τελευταία πρόταση του περιθωριακού 220 701 ή να ενημερώσει ότι δεν είναι σε θέση να παράσχει τέτοια δήλωση.

**220 704-  
220 709**

**Ομοιομορφία παραγωγής**

**220 710** Κάθε όχημα που εγκρίνεται σύμφωνα με την παρούσα Προσθήκη θα κατασκευάζεται έτσι ώστε να συμφωνεί με τον τύπο που εγκρίνεται τηρώντας τις διατάξεις που αναφέρονται στο Τμήμα 5 παραπάνω.

## Προσθήκη Β.2

**220 711** Η αρχή έγκρισης ενός Κράτους Μέλους που δίνει έγκριση τύπου σύμφωνα με την παρούσα Προσθήκη θα επαληθεύει την ύπαρξη επαρκών ρυθμίσεων και εγγράφων σχεδίων ελέγχου, προς συμφωνία με τον κατασκευαστή για κάθε έγκριση, για τη διεξαγωγή σε καθορισμένα διαλείμματα των δοκιμών αυτών ή των σχετικών ελέγχων που είναι αναγκαίοι για την εξακρίβωση της συνεχούς συμφωνίας με τον εγκεκριμένο τύπο, περιλαμβάνοντας ειδικά, όπου έχει εφαρμογή, δοκιμές που αναφέρονται στην παρούσα Προσθήκη.

**220 712** Ο κάτοχος της έγκρισης ειδικά:

(1) Θα εξασφαλίζει την ύπαρξη διαδικασιών για αποτελεσματικό έλεγχο της συμφωνίας των οχημάτων προς την έγκριση τύπου

(2) Θα έχει πρόσβαση στον εξοπλισμό δοκιμής που είναι απαραίτητος για τον έλεγχο της συμφωνίας προς κάθε εγκεκριμένο τύπο

(3) Θα εξασφαλίζει ότι τα στοιχεία των αποτελεσμάτων της δοκιμής καταγράφονται και ότι τα επισυναπτόμενα έγγραφα παραμένουν διαθέσιμα για περίοδο που θα καθορίζεται σε συμφωνία με την αρχή έγκρισης. Η περίοδος αυτή δεν θα υπερβαίνει τα 10 έτη

(4) Θα αναλύει τα αποτελέσματα κάθε τύπου δοκιμής, με σκοπό να εξακριβώσει και να εξασφαλίσει τη σταθερότητα των χαρακτηριστικών των οχημάτων, αφήνοντας περιθώριο για διακύμανση της βιομηχανικής παραγωγής

(5) Θα εξασφαλίζει ότι για κάθε τύπο οχήματος, θα διενεργούνται τουλάχιστον οι έλεγχοι και οι δοκιμές που προβλέπονται στην παρούσα Προσθήκη

(6) Θα εξασφαλίζει ότι οποιοδήποτε σύνολο δειγμάτων ή δοκιμών παρέχει ενδείξεις ασυμφωνίας προς τον εν λόγω τύπο δοκιμής θα οδηγεί σε περαιτέρω δειγματοληψία και δοκιμή. Όλα τα αναγκαία μέτρα θα λαμβάνονται για να αποκαταστήσουν την ομοιομορφία της αντίστοιχης παραγωγής.

**220 713** Η αρχή που έχει παράσχει έγκριση τύπου μπορεί σε οποιοδήποτε χρόνο να επαληθεύσει τις μεθόδους ελέγχου ομοιομορφίας που εφαρμόζονται σε κάθε εγκατάσταση παραγωγής. Η κανονική συχνότητα αυτών των επαληθεύσεων θα είναι συνεπής προς τις ρυθμίσεις (εάν υπάρχουν) που έχουν γίνει αποδεκτές κατά τα περιθωριακά 220 701 ή 220 702 της παρούσης Προσθήκης και θα είναι τέτοια ώστε να εξασφαλίζει ότι οι σχετικοί έλεγχοι θεωρούνται επί περίοδο αντίστοιχη του κλίματος εμπιστοσύνης που έχει επιβάλλει η αρχή έγκρισης.

(1) Σε κάθε επιθεώρηση, τα αρχεία δοκιμής και τα αρχεία παραγωγής θα είναι διαθέσιμα στον επισκέπτη επιθεωρητή.

(2) Όπου η φύση της δοκιμής το επιτρέπει, ο επιθεωρητής μπορεί να επιλέγει δείγματα τυχαίως για δοκιμή στο εργαστήριο του κατασκευαστή ή υπό της Τεχνικής Υπηρεσίας κατά το παρακάτω Τμήμα 9. Ο ελάχιστος αριθμός δειγμάτων μπορεί να καθορίζεται σύμφωνα με τα αποτελέσματα της επαληθεύσης από τον ίδιο τον κατασκευαστή.

(3) Όπου το επίπεδο ελέγχου φαίνεται να μην είναι ικανοποιητικό, ή όποτε κρίνεται αναγκαίο να επαληθευτεί η εγκυρότητα των δοκιμών που διενεργούνται σε εφαρμογή του (2) παραπάνω, ο επιθεωρητής θα επιλέγει δείγματα προς αποστολή στην Τεχνική Υπηρεσία η οποία διεξάγει τις δοκιμές έγκρισης τύπου.

(4) Η αρχή έγκρισης μπορεί να διενεργεί οποιοδήποτε έλεγχο ή δοκιμή προβλέπεται σε αυτήν την Προσθήκη.

(5) Σε περιπτώσεις όπου εξάγονται μη ικανοποιητικά αποτελέσματα κατά μία επιθεώρηση, η αρχή έγκρισης θα εξασφαλίζει τη λήψη όλων των αναγκαίων μέτρων για την αποκατάσταση της ομοιομορφίας της παραγωγής το ταχύτερο δυνατόν.

Προσθήκη Β.2

220 714-  
220 719

**Ποινές για την μη ομοιομορφία της παραγωγής**

**220 720** Η έγκριση που παρέχεται ως προς έναν τύπο οχήματος κατά την παρούσα Προσθήκη μπορεί να αποσύρεται εάν οι διατάξεις που αναφέρονται στο Τμήμα 5 παραπάνω δεν τηρούνται.

**220 721** Εάν ένα Κράτος Μέλος αποσύρει έγκριση που έχει παράσχει νωρίτερα, θα ειδοποιεί αμέσως σχετικά τα λοιπά Συμβαλλόμενα Μέρη μέσω εντύπου επικοινωνίας σύμφωνα με το υπόδειγμα του περιθωριακού 221 000.

220 722-  
220 799

**ΤΜΗΜΑ 8. Οριστική διακοπή παραγωγής**

**220 800** Εάν ο κάτοχος της έγκρισης παύσει εντελώς την κατασκευή ενός τύπου οχήματος εγκεκριμένου σύμφωνα με αυτήν την Προσθήκη, θα ενημερώνει σχετικά την αρχή που παρέσχε την έγκριση. Μόλις λάβει τη σχετική κοινοποίηση, η αρχή αυτή θα ενημερώνει σχετικά τα λοιπά Μέρη μέσω εντύπου επικοινωνίας σύμφωνα με το υπόδειγμα στο περιθωριακό 221 000.

220 801-  
220 999

2137

Προσθήκη Β.2

221 000

ΑΝΑΚΟΙΝΩΣΗ

[μέγιστο μέγεθος: Α4 (210 mm x 297 mm)]

1/

εκδοθέν υπό:

Όνομασία Διοικήσεως:

.....  
.....  
.....

σχετικά με <sup>2/</sup>:

**ΠΑΡΟΧΗ ΕΓΚΡΙΣΗΣ  
ΕΠΕΚΤΑΣΗ ΕΓΚΡΙΣΗΣ  
ΑΠΟΡΡΙΨΗ ΕΓΚΡΙΣΗΣ  
ΑΠΟΣΥΡΣΗ ΕΓΚΡΙΣΗΣ  
ΟΡΙΣΤΙΚΗ ΔΙΑΚΟΠΗ ΠΑΡΑΓΩΓΗΣ ΤΥΠΟΥ ΟΧΗΜΑΤΟΣ ΩΣ ΠΡΟΣ  
ΣΥΓΚΕΚΡΙΜΕΝΑ ΚΑΤΑΣΚΕΥΑΣΤΙΚΑ ΧΑΡΑΚΤΗΡΙΣΤΙΚΑ ΓΙΑ ΤΗ ΜΕΤΑΦΟΡΑ  
ΕΠΙΚΙΝΔΥΝΩΝ ΕΜΠΟΡΕΥΜΑΤΩΝ**

Αριθ. έγκρισης .....

Αριθ. Επέκτασης .....

1. Εμπορικό όνομα ή σήμα του οχήματος:.....
2. Τύπος οχήματος: αμάξωμα-κουβούκλιο, ελκυστήρας για επικαθήμενο όχημα, στρομόλο όχημα, επικαθήμενο όχημα, στρομόλο όχημα με αυτοστηριζόμενο αμάξωμα<sup>2/</sup>.....
3. Τύπος οχήματος σύμφωνα με το περιθωριακό 220 301 (2) (ΕΧ/II, ΕΧ/III, FL, ΟΧ, ΑΤ).....
4. Επωνυμία και διεύθυνση κατασκευαστή: .....
5. Εάν υπάρχει, επωνυμία και διεύθυνση αντιπροσώπου του κατασκευαστή:.....
6. Βάρος οχήματος: .....
- 6.1 Τεχνικό μέγιστο βάρος πλήρους οχήματος: .....
7. Ειδικός εξοπλισμός οχήματος: .....
- 7.1 Το όχημα είναι/δεν είναι εξοπλισμένο με ειδικές ηλεκτρικές συσκευές.  
Συνοπτική περιγραφή: .....
- 7.2 Το όχημα είναι/δεν είναι εξοπλισμένο με συσκευή πέδησης με μηχανισμό έναντι στο κλειδώμα.  
Αριθμός έγκρισης: .....
- Κατηγορία συσκευής:.....

<sup>2/</sup> Χαρακτηριστικός αριθμός του Κράτους το οποίο παρέσχε/ επεξέτεινε/ απέρριψε/ απέσυρε την έγκριση (βλέπε υποσημείωση 1/ στο περιθωριακό 220 403 (1)).

<sup>3/</sup> Διαγράψτε όσα δεν έχουν εφαρμογή.

## Προσθήκη Β.2

7.3 Το όχημα είναι/δεν είναι εξοπλισμένο με σύστημα πέδησης αντοχής.

Αριθμός έγκρισης: .....

Τεχνικό μέγιστο βάρος του οχήματος που αντιστοιχεί στην απόδοση του συστήματος πέδησης αντοχής .....

Συνοπτική περιγραφή: .....

7.4 Το όχημα είναι/δεν είναι εξοπλισμένο με συσκευές για την αποτροπή κινδύνων πυρκαϊάς

Συνοπτική περιγραφή: .....

7.5 Στην περίπτωση αυτοκίνητου οχήματος:

7.5.1 Τύπος κινητήρα: θετική ανάφλεξη/ ανάφλεξη με συμπίεση: .....

7.5.2 Το όχημα είναι/δεν είναι εξοπλισμένο με συσκευή για τον περιορισμό της ταχύτητας από την κατασκευή ρυθμισμένο σε ταχύτητα ..... km/h.

Αριθμός έγκρισης: .....

8. Όχημα κατατεθέν προς έγκριση στις: .....

9. Τεχνική υπηρεσία υπεύθυνη για τη διεξαγωγή επιθεωρήσεων έγκρισης .....

10. Ημερομηνία έκθεσης που εκδόθηκε από αυτήν την υπηρεσία: .....

11. Αριθμός έκθεσης που εκδόθηκε από αυτήν την υπηρεσία: .....

12. Δόθηκε/επεκτάθηκε/αποσύρθηκε έγκριση<sup>3/</sup> .....

13. Θέση σήματος έγκρισης πάνω στο όχημα: .....

14. Τόπος: .....

15. Ημερομηνία: .....

16. Υπογραφή: .....

221 001-  
229 999

<sup>3/</sup> Διαγράψτε όσα δεν έχουν εφαρμογή.



## ΠΡΟΣΘΗΚΗ Β.3

ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΕΓΚΡΙΣΗΣ ΓΙΑ ΟΧΗΜΑΤΑ  
ΠΟΥ ΜΕΤΑΦΕΡΟΥΝ ΟΡΙΣΜΕΝΑ ΕΠΙΚΙΝΔΥΝΑ ΕΜΠΟΡΕΥΜΑΤΑ

(βλέπε περιθωριακό 10 282)

230 000 **ΣΗΜΕΙΩΣΗ:** Οι διαστάσεις του πιστοποιητικού θα είναι 210 x 297 mm (μέγεθος A 4). Θα χρησιμοποιούνται τόσο η εμπρός όσο και η πίσω όψη. Το χρώμα θα είναι λευκό, με διαγώνια λωρίδα χρώματος ροζ.

ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΕΓΚΡΙΣΗΣ ΓΙΑ ΟΧΗΜΑΤΑ ΠΟΥ ΜΕΤΑΦΕΡΟΥΝ ΟΡΙΣΜΕΝΑ  
ΕΠΙΚΙΝΔΥΝΑ ΕΜΠΟΡΕΥΜΑΤΑ

1. Αριθμός Πιστοποιητικού.

βεβαιώνει ότι το όχημα που αναφέρεται παρακάτω ικανοποιεί τους όρους που προβλέπονται από την Ευρωπαϊκή Συμφωνία για τη Διεθνή Μεταφορά Επικίνδυνων Εμπορευμάτων Οδικώς (ADR) για την αποδοχή της για τη διεθνή μεταφορά επικίνδυνων εμπορευμάτων οδικώς.

2. Κατασκευαστής και τύπος οχήματος .....

3. Αριθμός εγγραφής (εάν υπάρχει) και αριθμός πλαισίου .....

4. Επωνυμία και επιχειρηματική διεύθυνση του μεταφορέα, του χειριστή ή του ιδιοκτήτη .....

5. Το όχημα που αναφέρεται παραπάνω έχει υποβληθεί στις επιθεωρήσεις που προβλέπονται στην ADR, Παράρτημα Β, περιθωριακά 10 282/10 283 <sup>1/</sup> και εκπληρώνει τους όρους που απαιτούνται για την αποδοχή του για τη διεθνή μεταφορά οδικώς επικίνδυνων εμπορευμάτων των ακόλουθων κλάσεων, αριθμών ειδών και γραμμμάτων (όπου χρειάζεται θα δίνονται τα ονόματα των υλών ή ο χαρακτηριστικός αριθμός της ύλης):

6. Παρατηρήσεις .....

7. Ισχύει μέχρι ..... Σφραγίδα εκδόσης αρχής εν: Ημερομηνία:  
Υπογραφή .....

2140

Προσθήκη Β.3

- 230 000 8. Η ισχύς παρατείνεται μέχρι..... Σφραγίδα εκδόσης αρχής εν: Ημερομηνία:  
(συνεχ.) Υπογραφή
- .....
9. Η ισχύς παρατείνεται μέχρι..... Σφραγίδα εκδόσης αρχής εν: Ημερομηνία:  
Υπογραφή:
- .....
10. Η ισχύς παρατείνεται μέχρι..... Σφραγίδα εκδόσης αρχής εν: Ημερομηνία:  
Υπογραφή
- .....
11. Η ισχύς παρατείνεται μέχρι..... Σφραγίδα εκδόσης αρχής εν: Ημερομηνία:  
Υπογραφή:
- .....

**ΣΗΜΕΙΩΣΗ 1:** Για κάθε όχημα θα υπάρχει ξεχωριστό πιστοποιητικό εκτός εάν απαιτείται διαφορετικά π.χ. για την Κλάση 1.

**ΣΗΜΕΙΩΣΗ 2:** Το παρόν πιστοποιητικό πρέπει να επιστρέφεται στην εκδούσα αρχή όταν το όχημα τίθεται εκτός λειτουργίας εάν το όχημα μεταφέρεται σε άλλον μεταφορέα, χειριστή ή ιδιοκτήτη, κατά τα οριζόμενα στο είδος 4 με τη λήξη της ισχύος του πιστοποιητικού και εάν υπάρχει αλλαγή υλικού σε ένα ή περισσότερα ουσιώδη χαρακτηριστικά του οχήματος.

230 001-  
239 999

2141

**ΠΡΟΣΘΗΚΗ Β.4**

**240 000- Επιφυλασσόμενα**  
**249 999**

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## ΠΡΟΣΘΗΚΗ Β.5

## 250 000 Πίνακας υλών και αριθμοί αναγνωρίσεως

(1) Ο αριθμός αναγνωρίσεως κινδύνου αποτελείται από δύο ή τρία ψηφία: Γενικά οι αριθμοί δείχνουν τους παρακάτω κινδύνους:

- |   |  |
|---|--|
| 2 | Εκπομπή αερίου λόγω πύεσεως ή χημικής αντίδρασης                     |
| 3 | Το εύφλεκτο των υγρών (ατμών) και αερίων των αυτοθερμαινόμενων υγρών |
| 4 | Το εύφλεκτο των στερεών των αυτοθερμαινόμενων στερεών                |
| 5 | Οξειδωτική (εντατικοποίηση πυρός) επίδραση                           |
| 6 | Τοξικότητα ή κίνδυνος μόλυνσης                                       |
| 7 | Ραδιενέργεια   |
| 8 | Διαβρωτικότητα   |
| 9 | Κίνδυνος αφνίδιας βίαιης αντίδρασης.                                 |

**ΣΗΜΕΙΩΣΗ:** Ο κίνδυνος για αφνίδια σφοδρή αντίδραση μέσα στα πλαίσια του νοήματος της εικόνας 9 περιλαμβάνει την πιθανότητα που προκύπτει από την φύση της ύλης, για κίνδυνο έκρηξης, αντίδρασης διάσπασης και πολυμερισμού που ακολουθεί την απελευθέρωση σημαντικής θερμότητας ή εύφλεκτων ή/και τοξικών αερίων.

Ο διπλασιασμός ψηφίου δείχνει εντατικοποίηση αυτού του συγκριμένου κινδύνου.

Όπου ο κίνδυνος που σχετίζεται με μία ύλη μπορεί ικανοποιητικά να καταδειχθεί με ένα μόνο ψηφίο, αυτό ακολουθείται από μηδέν.

Οι παρακάτω συνδυασμοί ψηφίων, εντούτοις, έχουν ειδική έννοια: 22, 323, 333, 362, 382, 423, 44, 446, 462, 482, 539, 606, 623, 642, 823, 842 και 90, βλέπε (2) παρακάτω.

Αν ένας αριθμός αναγνωρίσεως κινδύνου έχει μπροστά το γράμμα "X", αυτό δείχνει ότι η ύλη θα αντιδράσει επικίνδυνα με το νερό. Γι' αυτές τις ύλες, το νερό θα χρησιμοποιείται μόνο με έγκριση από τους ειδικούς.

(2) Οι αριθμοί αναγνωρίσεως κινδύνου που αναφέρονται στην παράγραφο (3) έχουν τις παρακάτω έννοιες:

- |     |   |
|-----|---|
| 20  | αδρανές αέριο   |
| 22  | καταψυγμένο αέριο   |
| 223 | καταψυγμένο εύφλεκτο αέριο  |
| 225 | καταψυγμένο οξειδωτικό (που εντατικοποιεί τη φωτιά) αέριο               |
| 23  | εύφλεκτο αέριο  |
| 236 | εύφλεκτο αέριο, τοξικό  |
| 239 | εύφλεκτο αέριο, το οποίο μπορεί ξαφνικά να οδηγήσει σε σφοδρή αντίδραση |
| 25  | οξειδωτικό (εντατικό της φωτιάς) αέριο                                  |
| 26  | τοξικό αέριο  |

## Προσθήκη Β.5

250 000 (συνεχ.)	265	τοξικό αέριο, οξειδωτικό (εντατικό της φωτιάς)
	266	πολύ τοξικό αέριο
	268	τοξικό αέριο, διαβρωτικό
	286	διαβρωτικό αέριο, τοξικό
	30	εύφλεκτο υγρό (σημείο αναφλέξεως μεταξύ 23 °C και 61 °C, συμπεριλαμβανομένων) ή εύφλεκτο υγρό ή στερεό σε λυωμένη κατάσταση με σημείο αναφλέξεως άνω των 61 °C, θερμαινόμενο σε μία θερμοκρασία ίση με ή άνω του σημείου αναφλέξεώς του, ή αυτο-θερμαινόμενο υγρό
	323	εύφλεκτο υγρό το οποίο αντιδρά με το νερό, αναδύοντας εύφλεκτα αέρια
	X323	εύφλεκτο υγρό το οποίο αντιδρά επικίνδυνα με το νερό, αναδύοντας εύφλεκτα αέρια <sup>2/</sup>
	33	πολύ εύφλεκτο υγρό (σημείο αναφλέξεως κάτω από 23 °C)
	333	πυροφορικό υγρό
	X333	πυροφορικό υγρό, που αντιδρά επικίνδυνα με το νερό <sup>2/</sup>
	336	πολύ εύφλεκτο υγρό, τοξικό
	338	πολύ εύφλεκτο υγρό, διαβρωτικό
	X338	πολύ εύφλεκτο υγρό, διαβρωτικό, που αντιδρά επικίνδυνα με το νερό <sup>2/</sup>
	339	πολύ εύφλεκτο υγρό που μπορεί ξαφνικά να οδηγήσει σε σφοδρή αντίδραση
	36	εύφλεκτο υγρό (σημείο αναφλέξεως ανάμεσα στους 23 °C και 61 °C συμπεριλαμβανομένων), ελαφρά τοξικό, ή αυτοθερμαινόμενο τοξικό υγρό
	362	εύφλεκτο τοξικό υγρό, που αντιδρά με το νερό, αναδύοντας εύφλεκτα αέρια
	X362	εύφλεκτο τοξικό υγρό, που αντιδρά επικίνδυνα με το νερό, αναδύοντας εύφλεκτα αέρια <sup>2/</sup>
	38	εύφλεκτο υγρό (σημείο αναφλέξεως μεταξύ 23 °C και 61 °C, συμπεριλαμβανομένων), διαβρωτικό
	382	εύφλεκτο υγρό, διαβρωτικό, που αντιδρά με το νερό, αναδύοντας εύφλεκτα αέρια
	X382	εύφλεκτο υγρό, διαβρωτικό, που αντιδρά επικίνδυνα με το νερό, αναδύοντας εύφλεκτα αέρια <sup>2/</sup>
	39	εύφλεκτο υγρό, το οποίο μπορεί να οδηγήσει αιφνίδια σε σφοδρή αντίδραση
	40	εύφλεκτο ή αυτοθερμαινόμενο στερεό
	423	στερεό που αντιδρά με το νερό, αναδύοντας εύφλεκτα αέρια
	X423	εύφλεκτο στερεό που αντιδρά επικίνδυνα με το νερό, αναδύοντας εύφλεκτα αέρια <sup>2/</sup>
	44	εύφλεκτο στερεό, σε λυωμένη κατάσταση σε υψηλή θερμοκρασία
	446	εύφλεκτο στερεό, τοξικό, σε λυωμένη κατάσταση σε υψηλή θερμοκρασία
	46	εύφλεκτο ή αυτοθερμαινόμενο στερεό, τοξικό
	462	τοξικό στερεό, που αντιδρά με το νερό, αναδύοντας εύφλεκτα αέρια
	48	εύφλεκτο ή αυτοθερμαινόμενο στερεό, διαβρωτικό
	482	διαβρωτικό στερεό, που αντιδρά με το νερό, αναδύοντας εύφλεκτα αέρια

<sup>2/</sup> Το νερό δεν θα χρησιμοποιείται εκτός εάν εγκριθεί από τους ειδικούς.

## Προσθήκη Β.5

250 000 (συνεχ.)	50 539	οξειδωτική (εντείνουσα τη φωτιά) ύλη εύφλεκτο οργανικό υπεροξειδίο
	55	πολύ οξειδωτική (εντείνουσα τη φωτιά) ύλη
	556	πολύ οξειδωτική (εντείνουσα τη φωτιά) ύλη, τοξική
	558	πολύ οξειδωτική (εντείνουσα τη φωτιά) ύλη, διαβρωτική
	559	πολύ οξειδωτική (εντείνουσα τη φωτιά) ύλη που μπορεί ξαφνικά να οδηγήσει σε σφοδρή αντίδραση
	56	οξειδωτική ύλη (εντείνουσα τη φωτιά), τοξική
	568	οξειδωτική ύλη (εντείνουσα τη φωτιά), τοξική, διαβρωτική
	58	οξειδωτική ύλη (εντείνουσα τη φωτιά), διαβρωτική
	59	οξειδωτική ύλη (εντείνουσα τη φωτιά), που μπορεί να οδηγήσει ξαφνικά σε σφοδρή αντίδραση
	60	τοξική ή ελαφρά τοξική ύλη
	606	μολυσματική ύλη
	623	τοξικό υγρό, που αντιδρά με το νερό, αναδύοντας εύφλεκτα αέρια
	63	τοξική ύλη, εύφλεκτη (σημείο αναφλέξεως μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων)
	638	τοξική ύλη, εύφλεκτη (σημείο αναφλέξεως μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων), διαβρωτική
	639	τοξική ύλη, εύφλεκτη (σημείο αναφλέξεως μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων) η οποία μπορεί να οδηγήσει ξαφνικά σε σφοδρή αντίδραση
	64	τοξικό στερεό, εύφλεκτο ή αυτοθερμαινόμενο
	642	τοξικό στερεό, που αντιδρά με το νερό, αναδύοντας εύφλεκτα αέρια
	65	τοξική ύλη, οξειδωτική (εντείνουσα τη φωτιά)
	66	πολύ τοξική ύλη
	663	πολύ τοξική ύλη, εύφλεκτη (σημείο αναφλέξεως όχι υπεράνω των 61 °C)
	664	πολύ τοξικό στερεό, εύφλεκτο ή αυτοθερμαινόμενο
	665	πολύ τοξική ύλη, οξειδωτική (εντείνουσα τη φωτιά)
	668	πολύ τοξική ύλη, διαβρωτική
	669	πολύ τοξική ύλη, η οποία μπορεί να οδηγήσει ξαφνικά σε σφοδρή αντίδραση
	68	τοξική ύλη, διαβρωτική
	69	τοξική ή ελαφρά τοξική ύλη, η οποία μπορεί να οδηγήσει ξαφνικά σε σφοδρή αντίδραση
	70	ραδιενεργής ύλη
	72	ραδιενεργή αέρια
	723	ραδιενεργή αέρια, εύφλεκτα
	73	ραδιενεργή υγρά, εύφλεκτα (σημείο ανάφλεξης όχι υπεράνω των 61 °C)
	74	ραδιενεργή στερεά, εύφλεκτα
	75	ραδιενεργής ύλη, οξειδωτική (εντείνουσα τη φωτιά)
	76	ραδιενεργής ύλη, τοξική
	78	ραδιενεργής ύλη, διαβρωτική

*\*/ Το νερό δεν θα χρησιμοποιείται εκτός εάν εγκριθεί από τους ειδικούς.*

## Προσθήκη Β.5

250 000 (συνεχ.)	80	διαβρωτική ή ελαφρά διαβρωτική ύλη
	X80	διαβρωτική ή ελαφρά διαβρωτική ύλη, που αντιδρά επικίνδυνα με το νερό <sup>2/</sup>
	823	διαβρωτικό υγρό που αντιδρά με το νερό, αναδύοντας εύφλεκτα αέρια
	83	διαβρωτική ή ελαφρά διαβρωτική ύλη, εύφλεκτη (σημείο αναφλέξεως μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων)
	X83	διαβρωτική ή ελαφρά διαβρωτική ύλη, εύφλεκτη (σημείο αναφλέξεως μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων), που αντιδρά επικίνδυνα με το νερό <sup>2/</sup>
	836	διαβρωτική ή ελαφρά διαβρωτική ύλη, εύφλεκτη (σημείο αναφλέξεως μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων), τοξική
	839	διαβρωτική ή ελαφρά διαβρωτική ύλη, εύφλεκτη (σημείο αναφλέξεως μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων) η οποία μπορεί να οδηγήσει ξαφνικά σε σφοδρή αντίδραση
	X839	διαβρωτική ή ελαφρά διαβρωτική ύλη, εύφλεκτη (σημείο αναφλέξεως μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων), η οποία μπορεί να οδηγήσει ξαφνικά σε σφοδρή αντίδραση και η οποία αντιδρά επικίνδυνα με το νερό <sup>2/</sup>
	84	διαβρωτικό στερεό, εύφλεκτο ή αυτοθερμαινόμενο
	842	διαβρωτικό στερεό, που αντιδρά με το νερό, αναδύοντας εύφλεκτα αέρια
	85	διαβρωτική ή ελαφρά διαβρωτική ύλη, οξειδωτική (εντείνουσα τη φωτιά)
	856	διαβρωτική ή ελαφρά διαβρωτική ύλη, οξειδωτική (εντείνουσα τη φωτιά) και τοξική
	86	διαβρωτική ή ελαφρά διαβρωτική ύλη, τοξική
	88	πολύ διαβρωτική ύλη
	X88	πολύ διαβρωτική ύλη, που αντιδρά επικίνδυνα με το νερό <sup>2/</sup>
	883	πολύ διαβρωτική ύλη, εύφλεκτη (σημείο αναφλέξεως μεταξύ 23 °C και 61 °C συμπεριλαμβανομένων)
	884	πολύ διαβρωτικό στερεό, εύφλεκτο ή αυτοθερμαινόμενο
	885	πολύ διαβρωτική ύλη, οξειδωτική (εντείνουσα τη φωτιά)
	886	πολύ διαβρωτική ύλη, τοξικό
	X886	πολύ διαβρωτική ύλη, τοξικό, που αντιδρά επικίνδυνα με το νερό <sup>2/</sup>
	89	διαβρωτική ή ελαφρά διαβρωτική ύλη, η οποία μπορεί να οδηγήσει ξαφνικά σε σφοδρή αντίδραση
	90	περιβαλλοντικά επικίνδυνη ύλη, διάφορες επικίνδυνες ύλες

(3) Οι αριθμοί αναγνώρισης που αναφέρονται στο περιθωριακό 10 500 αναγράφονται λεπτομερώς στους παρακάτω Πίνακες I, II και III.

**NOTE 1:** Οι αριθμοί αναγνώρισης που θα εμφανίζονται στις πορτοκαλίες πλάκες πρέπει να αναζητηθούν πρώτα στον πίνακα I. Αν στην περίπτωση υλών των Κλάσεων 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 7, 8 και 9 η ονομασία της ύλης που πρόκειται να μεταφερθεί ή η συλλογική επικεφαλίδα που την καλύπτει δεν αναφέρεται στον Πίνακα I, ο αριθμός αναγνώρισης θα ληφθεί από τον Πίνακα II.

**NOTE 2:** Ο Πίνακας III περιέχει όλες τις εγγραφές των Πινάκων I και II ταξινομημένες με βάση τον αριθμό αναγνώρισης της ύλης.

<sup>2/</sup> Το νερό δεν θα χρησιμοποιείται εκτός εάν εγκριθεί από τους ειδικούς.

## Πίνακας Ι

Υλεις αναγραφόμενες με τη χημική τους ονομασία ή υπό συλλογικές επικεφαλίδες στις οποίες δίνεται συγκριμένος "αριθμός αναγνώρισεως ύλης" (στήλη β). [Για διαλύματα και μείγματα υλών, (όπως παρασκευάσματα και απόβλητα), βλέπε επίσης το περιθωριακό 2002 (8) και (9)].

Ο παρών πίνακας περιλαμβάνει επίσης ύλες που δεν εμφανίζονται στους πίνακες Κλάσης υλών, αλλά οι οποίες όμως εμπίπτουν στις Κλάσεις και τους αριθμούς ειδών που αναγράφονται στη στήλη (ε).

**ΣΗΜΕΙΩΣΗ:** Για ύλες των Κλάσεων 3, 4.1, 4.2, 4.3, 5.1, 6.1, 6.2, 7, 8 και 9 που δεν περιλαμβάνονται στον παρόντα πίνακα, βλέπε τον Πίνακα ΙΙ. Οι ύλες αναγράφονται κατά αλφαβητική σειρά.

Ονομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Αβιετικό αλουμίνιο	2715	40	4.1	4.1, 12°(c)
Αβιετικό ασβέστιο	1313	40	4.1	4.1, 12°(c)
Αβιετικό ασβέστιο, λυωμένο	1314	40	4.1	4.1, 12°(c)
Αβιετικό κοβάλτιο, καταβυθισμένο	1318	40	4.1	4.1, 12°(c)
Αβιετικό μαγγάνιο	1330	40	4.1	4.1, 12°(c)
Αβιετικός ψευδάργυρος	2714	40	4.1	4.1, 12°(c)
Αδιπονιτρίλιο	2205	60	6.1	6.1, 12°(c)
Αέρας, βαθιάς κατάψυξης	1003	225	2+05	2, 8°(a)
Αέρας, συμπιεσμένος	1002	20	2	2, 2°(a)
Αέριο πόλης	2600	236	3+6.1	2, 2°(bt)
Αέριο σύνθεσης	2600	236	3+6.1	2, 2°(bt)
Αζωτο, βαθιάς κατάψυξης	1977	22	2	2, 7°(a)
Αζωτο, πεπιεσμένο	1066	20	2	2, 1°(a)
Αιθάλη	1361	40	4.2	4.2, 1°(b),(c)
Αιθάνιο	1035	23	3	2, 5°(b)
Αιθάνιο, βαθιάς κατάψυξης	1961	223	3	2, 7°(b)
Αιθανολαμίνη, ή διάλυμα αυτής	2491	80	8	8, 53°(c)
Αιθανόλη ή διάλυμα αιθανόλης διάλυμα περιέχον περισσότερο από 70 % -κ.ο. αλκοόλη	1170	33	3	3, 3°(b)



250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Αιθερικός διαιθυλεστέρας του τριφθοριούχου βορίου	2604	883	8+3	8, 33°(a)
Αιθυλαμίνη, άνυδρη	1036	236	3+6.1	2, 3°(bt)
2-Αιθυλανιλίνη	2273	60	6.1	6.1, 12°(c)
N-Αιθυλανιλίνη	2272	60	6.1	6.1, 12°(c)
Αιθυλβουτυλαιθέρας	1179	33	3	3, 3°(b)
2-Αιθυλβουτυραλδεΐδη	1178	33	3	3, 3°(b)
Αιθυλδιχλωροσιλάνιο	1183	X338	4.3+3+8	4.3, 1°(a)
Αιθυλενμίμη, αδρανής	1185	663	6.1+3	6.1, 4°
Αιθυλένιο	1962	23	3	2, 5°(b)
Αιθυλένιο, ακετυλένιο και προπυλένιο σε μείγμα, υγρό υπό κατάψυξη	3138	223	3	2, 8°(b)
Αιθυλένιο, βαθιάς κατάψυξης	1038	223	3	2, 7°(b)
Αιθυλενοδιαμίνη	1604	83	8+3	8, 54°(b)
Αιθυλενοξείδιο με άζωτο	1040	236	3+6.1	2, 4°(ct)
Αιθυλενοξείδιο περιέχον όχι περισσότερο από 10% διοξείδιο του άνθρακα κατά βάρος	1041	236	3+6.1	2, 4°(ct)
Αιθυλενοξείδιο περιέχον περισσότερο από 10% αλλά όχι περισσότερο από 50% διοξείδιο του άνθρακα	1041	236	3+6.1	2, 6°(ct)
Αιθυλενοχλωρυδρίνη	1135	663	6.1+3	6.1, 16°(a)
Αιθυλ-μεθυλ-κετόνη (μεθυλ-αιθυλ-κετόνη)	1193	33	3	3, 3°(b)
Αιθυλοαμλοκετόνες	2271	30	3	3, 31°(c)
Αιθυλοβενζόλιο	1175	33	3	3, 3°(b)
N-Αιθυλο-N-βενζυλανιλίνη	2274	60	6.1	6.1, 12°(c)
N-Αιθυλοβενζυλοτολουϊδίνες	2753	60	6.1	6.1, 12°(c)
2-Αιθυλοβουτανόλη	2275	30	3	3, 31°(c)
Αιθυλοβρωμίδιο	1891	60	6.1	6.1, 15°(b)
Αιθυλοδιχλωροαρσίνη	1892	66	6.1	6.1, 34°(a)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2-Αιθυλοεξυλαμίνη	2276	38	3+8	3, 33°(c)
Αιθυλομερκαπτάνη	2363	33	3+6.1	3, 2°(a)
1-Αιθυλοπιπεριδίνη	2386	338	3+8	3, 23°(b)
Αιθυλοπροπυλαιθέρας	2615	33	3	3, 3°(b)
N- Αιθυλοτολουϊδίνες	2754	60	6.1	6.1, 12°(b)
Αιθυλοφαινυλοδιχλωροσιλάνιο	2435	X80	-8	8, 36°(b)
Αιθυλοχλωρίδιο	1037	236	3+6.1	2, 3°(bt)
Αιθυλτριχλωροσιλάνιο	1196	X338	3+8	3, 21°(b)
Ακάθαρτο (αργό) πετρέλαιο	1267	33	3	3, 1°(a), 2°(a),(b), 3°(b)
Ακάθαρτο (αργό) πετρέλαιο	1267	30	3	3, 31°(c)
Ακεταλδεϋδη	1089	33	3	3, 1°(a)
Ακετάλη	1088	33	3	3, 3°(b)
Ακετοαρσενίτης του χαλκού	1585	60	6.1	6.1, 51°(b)
Ακετόνη	1090	33	3	3, 3°(b)
Ακετονιτρίλιο (μεθυλοκυανίδιο)	1648	33	3	3, 3°(b)
Ακετυλοβρωμίδιο	1716	80	8	8, 35°(b)1.
Ακετυλοϊωδίδιο	1898	80	8	8, 35°(b)1.
Ακετυλομεθυλοκαρβινόλη	2621	30	3	3, 31°(c)
Ακετυλοχλωρίδιο	1717	X338	3+8	3, 25°(b)
Ακριδίνη	2713	60	6.1	6.1, 12°(c)
Ακρολεΐνη, αδρανής	1092	663	6.1+3	6.1, 8°(a)
Ακρυλαμίδια	2074	60	6.1	6.1, 12°(c)
Ακρυλικό οξύ, αδρανές	2218	839	8+3	8, 32°(b)2.
Ακρυλικός αιθυλεστέρας, αδρανής	1917	339	3	3, 3°(b)
Ακρυλικός βουτυλεστέρας, αδρανής	2348	39	3	3, 31°(c)
Ακρυλικός ισοβουτυλεστέρας, αδρανής	2527	39	3	3, 31°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Ακρυλικός μεθυλεστέρας, αδρανής	1919	339	3	3, 3°(b)
Ακρυλονιτρίλιο, αδρανές	1093	336	3+6.1	3, 11°(a)
Άλας υδραργύρου με ιωδιδικό κάλιο	1643	60	6.1	6.1, 52°(b)
Άλας υδραργύρου με χλωριούχο αμμώνιο	1630	60	6.1	6.1, 52°(b)
Άλατα του διχλωροϊσοκυανουρικού οξέος	2465	50	5.1	5.1, 26°(b)
Αλδόλη	2839	60	6.1	6.1, 14°(b)
Αλκαλικά αμίδια μετάλλου	1390	423	4.3	4.3, 19°(b)
Αλκαλική διασπορά μετάλλου	1391	X423	4.3	4.3, 11°(a)
Αλκαλικό αμάλγαμα μετάλλου	1389	X423	4.3	4.3, 11°(a)
Αλκοολικό διάλυμα υδροκυανίου	3294	663	6.1+3	6.1, 2°
Αλκοολούχα ποτά	3065	30	3	3, 31°(c)
Αλκοολούχα ποτά	3065	33	3	3, 3°(b)
Αλκυλαλογονίδια αλουμινίου	3052	X333	4.2+4.3	4.2, 32°(a)
Αλκύλια αλουμινίου	3051	X333	4.2+4.3	4.2, 31°(a)
Αλκύλια μαγνησίου	3053	X333	4.2+4.3	4.2, 31°(a)
Αλκύλια του λιθίου	2445	X333	4.2+4.3	4.2, 31°(a)
Αλκυλιδρίδια του αλουμινίου	3076	X333	4.2+4.3	4.2, 32°(a)
Αλκυλοσουλφονικά οξέα, στερεά	2583	80	8	8, 1°(b)
Αλκυλοσουλφονικά οξέα, στερεά	2585	80	8	8, 34°(c)
Αλκυλοσουλφονικά οξέα, υγρά	2584	80	8	8, 1°(b)
Αλκυλοσουλφονικά οξέα, υγρά	2586	80	8	8, 34°(c)
Αλκυλοφωσφορικά οξέα	2571	80	8	8, 34°(b)
Αλλυλαιθυλαιθέρας	2335	336	3+6.1	3, 17°(b)
Αλλυλαμίνη	2334	663	6.1+3	6.1, 7°(a)2.
Αλλυλική αλκοόλη	1098	663	6.1+3	6.1, 8°(a)
Αλλυλικό βρωμίδιο	1099	336	3+6.1	3, 16°(a)
Αλλυλικό χλωρίδιο	1100	336	3+6.1	3, 16°(a)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Αλλυλογλυκιδυλαιθέρας	2219	30	3	3, 31°(c)
Αλλυλοτριχλωροσιλάνιο, σταθεροποιημένο	1724	X839	8+3	8, 37°(b)
Αμάλγαμα μετάλλου της σειράς αλκαλικών γαιών	1392	X423	4.3	4.3, 11°(a)
2-(2-Αμινοαιθοξυ) αιθανόλη	3055	80	8	8, 53°(c)
N-Αμινοαιθυλοπιπεραζίνη	2815	80	8	8, 53°(c)
2-Αμινο-5-Διαιθυλαμινοπεντάνιο	2946	60	6.1	6.1, 12°(c)
Αμινοπυριδίνες (ο-, m-, p-)	2671	60	6.1	6.1, 12°(b)
Αμινοφαινόλες (ο-, m-, p-)	2512	60	6.1	6.1, 12°(c)
2-Αμινο-4-χλωροφαινόλη	2673	60	6.1	6.1, 12°(b)
Αμμωνία	1005	268	6.1	2, 3°(at)
Αμμωνία διαλυμένη σε νερό με περισσότερο από 35% αλλά όχι περισσότερο από 40% αμμωνία	2073	268	6.1	2, 9°(at)
Αμμωνία διαλυμένη σε νερό με περισσότερο από 40% αλλά όχι περισσότερο από 50% αμμωνία	2073	268	6.1	2, 9°(at)
Αμυλαμίνη (n-αμυλαμίνη, τριτοταγής-αμυλαμίνη)	1106	338	3+8	3, 22°(b)
Αμυλαμίνη (sec-αμυλαμίνη)	1106	38	3+8	3, 33°(c)
Αμυλικές αλκοόλες	1105	30	3	3, 31°(c)
Αμυλικές αλκοόλες	1105	33	3	3, 3°(b)
Αμυλικό χλωρίδιο	1107	33	3	3, 3°(b)
n-Αμυλμεθυλκετόνη	1110	30	3	3, 31°(c)
Αμυλμερκαπτάνη	1111	33	3	3, 3°(b)
Αμυλοτριχλωροσιλάνιο	1728	X80	8	8, 36°(b)
Ανθρακας	1361	40	4.2	4.2, 1°(b),(c)
Ανθρακας, ενεργός	1362	40	4.2	4.2, 1°(c)
Ανθρακικός διαιθυλεστέρας (Ανθρακικός	2366	30	3	3, 31°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
αιθυλεστέρας)				
Ανθρακικός διμεθυλεστέρας	1161	33	3	3, 3°(b)
Ανιλίνη	1547	60	6.1	6.1, 12°(b)
Ανισιδίνες	2431	60	6.1	6.1, 12°(c)
Ανισόλη (φαινυλομεθυλαιθέρας)	2222	30	3	3, 31°(c)
Ανισούλογλωρίδιο	1729	80	8	8, 35°(b)1.
Αντιμόνιο σε σκόνη	2871	60	6.1	6.1, 59°(c)
α-Πινένιο	2368	30	3	3, 31°(c)
Αργό, βαθιάς κατάψυξης	1951	22	2	2, 7°(a)
Αργό, πεπεσμένο	1006	20	2	2, 1°(a)
Αρσανλικό νάτριο	2473	60	6.1	6.1, 34°(c)
Αρσενικά άλατα μολύβδου	1617	60	6.1	6.1, 51°(b)
Αρσενικό αμμώνιο	1546	60	6.1	6.1, 51°(b)
Αρσενικό ασβέστιο	1573	60	6.1	6.1, 51°(b)
Αρσενικό κάλιο	1677	60	6.1	6.1, 51°(b)
Αρσενικό μαγνήσιο	1622	60	6.1	6.1, 51°(b)
Αρσενικό νάτριο	1685	60	6.1	6.1, 51°(b)
Αρσενικό οξύ, στερεό	1554	60	6.1	6.1, 51°(b)
Αρσενικό οξύ, υγρό	1553	66	6.1	6.1, 51°(a)
Αρσενικός δισθενής σίδηρος	1608	60	6.1	6.1, 51°(b)
Αρσενικός τρισθενής σίδηρος	1606	60	6.1	6.1, 51°(b)
Αρσενικός υδράργυρος	1623	60	6.1	6.1, 51°(b)
Αρσενικός ψευδάργυρος	1712	60	6.1	6.1, 51°(b)
Αρσενικό	1558	60	6.1	6.1, 51°(b)
Αρσενίτης καλίου	1678	60	6.1	6.1, 51°(b)
Αρσενίτης του αργύρου	1683	60	6.1	6.1, 51°(b)
Αρσενίτης του μολύβδου	1618	60	6.1	6.1, 51°(b)
Αρσενίτης του νατρίου, στερεός	2027	60	6.1	6.1, 51°(b)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Αρσενίτης του στροντίου	1691	60	6.1	6.1, 51°(b)
Αρσενίτης του χαλκού	1586	60	6.1	6.1, 51°(b)
Αρσενίτης του ψευδαργύρου	1712	60	6.1	6.1, 51°(b)
Αρσενίτης τρισθενούς σιδήρου	1607	60	6.1	6.1, 51°(b)
Αρυλοσουλφονικά οξέα, στερεά	2583	80	8	8, 1°(b)
Αρυλοσουλφονικά οξέα, στερεά	2585	80	8	8, 34°(c)
Αρυλοσουλφονικά οξέα, υγρά	2584	80	8	8, 1°(b)
Αρυλοσουλφονικά οξέα, υγρά	2586	80	8	8, 34°(c)
Ασβέστιο	1401	423	4.3	4.3, 11°(b)
Ασβεστομαγνησιούχο πυρίτιο	2844	423	4.3	4.3, 12°(c)
Ασφαλτούχος σχιστόλιθος	1288	30	3	3, 31°(c)
Ασφαλτούχος σχιστόλιθος	1288	33	3	3, 3°(b)
Αφνιο σε σκόνη, νωπό	1326	40	4.1	4.1, 13°(b)
Αφνιο σε σκόνη, ξηρό	2545	40	4.2	4.2, 12°(b),(c)
Βαλεραλδεΐδη	2058	33	3	3, 3°(b)
Βαλεριανολοχλωρίδιο	2502	83	8+3	8, 35°(b)2.
Βαμβάκι άχρηστο, ελαιώδες	1364	40	4.2	4.2, 3° (c)
Βαμβάκι, βρεγμένο	1365	40	4.2	4.2, 3° (c)
Βάμματα, φαρμακευτικά	1293	30	3	3, 31°(c)
Βάμματα, φαρμακευτικά	1293	33	3	3, 3°(b)
Βαναδικό νατραμμώνιο	2863	60	6.1	6.1, 58°(b)
Βάριο	1400	423	4.3	4.3, 11°(b)
Βενζιδίνη	1885	60	6.1	6.1, 12°(b)
Βενζοϊκός μεθυλεστεράς	2938	60	6.1	6.1, 14°(c)
Βενζοϊκός υδράργυρος	1631	60	6.1	6.1, 52°(b)
Βενζοκινόνη	2587	60	6.1	6.1, 14°(b)
Βενζόλιο	1114	33	3	3, 3°(b)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Βενζολοσουλφονολοχλωρίδιο	2225	80	8	8, 35°(c)
Βενζονιτρίλιο	2224	60	6.1	6.1, 12°(b)
Βενζοτριφθορίδιο	2338	33	3	3, 3°(b)
Βενζοτριχλωρίδιο	2226	80	8	8, 66°(b)
Βενζυλωδίδιο	2653	60	6.1	6.1, 15°(b)
Βενζυλοβρωμίδιο	1737	68	6.1+8	6.1, 27°(b)
Βενζυλοδιμεθυλαμίνη	2619	83	8+3	8, 54°(b)
Βενζυλοχλωρίδιο	1738	68	6.1+8	6.1, 27°(b)
Βηρύλλιο σε σκόνη	1567	64	6.1+4.1	6.1, 54°(b)1.
Βινυλαιθυλαιθέρας, αδρανής	1302	339	3	3, 2°(a)
Βινυλιδενοχλωρίδιο, αδρανές	1303	339	3	3, 1°(a)
Βινυλοβρωμίδιο	1085	236	3+6.1	2, 3°(ct)
Βινυλοϊσοβουτυλαιθέρας, αδρανής	1304	339	3	3, 3°(b)
Βινυλοπιριδίνη, αδρανής	3073	639	6.1+3	6.1, 11°(b)
Βινυλοτολουόλιο, αδρανές (o-,m-,p-)	2618	39	3	3, 31°(c)
Βινυλοτριχλωροσιλάνιο, αδρανές	1305	X338	3+8	3, 21°(a)
Βινυλοφθορίδιο	1860	239	3	2, 5°(c)
Βινυλοχρωμίδιο	1086	239	3	2, 3°(c)
Βορικό τριαλλύλιο	2609	60	6.1	6.1, 14°(c)
Βορικό τριόξοπροπύλιο	2616	30	3	3, 31°(c)
Βορικό τριόξοπροπύλιο	2616	33	3	3, 3°(b)
Βορικός αιθυλεστέρας	1176	33	3	3, 3°(b)
Βορικός τριμεθυλεστέρας	2416	33	3	3, 3°(b)
Βοριοϋδρίδιο του αλουμινίου	2870	X333	4.2+4.3	4.2, 17°(a)
Βοριοϋδρίδιο του αλουμινίου σε συσκευές	2870	X333	4.2+4.3	4.2, 17°(a)
Βορνεόλη (βορνεοκαμφορά)	1312	40	4.1	4.1, 6°(c)
1,2-Βουταδιένιο	1010	239	3	2, 3°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1,3-Βουταδιένιο	1010	239	3	2, 3 <sup>ο</sup> (c)
Βουτάνιο, τεχνικά καθαρό	1011	23	3	2, 3 <sup>ο</sup> (b)
Βουτανοδιόνη (διακετύλιο)	2346	33	3	3, 3 <sup>ο</sup> (b)
Βουτανόλες	1120	33	3	3, 3 <sup>ο</sup> (b)
Βουτανόλες	1120	30	3	3, 31 <sup>ο</sup> (c)
Βουτοξύλιο	2708	30	3	3, 31 <sup>ο</sup> (c)
n-Βουτυλαμίνη	1125	338	3+8	3, 22 <sup>ο</sup> (b)
N-Βουτυλανιλίνη	2738	60	6.1	6.1, 12 <sup>ο</sup> (b)
1-Βουτυλένιο (1-Βουτένιο)	1012	23	3	2, 3 <sup>ο</sup> (b)
cis-2-Βουτυλένιο (cis-2-Βουτένιο)	1012	23	3	2, 3 <sup>ο</sup> (b)
trans-2-Βουτυλένιο (trans-2-Βουτένιο)	1012	23	3	2, 3 <sup>ο</sup> (b)
1,2-Βουτυλενοξείδιο, σταθεροποιημένο	3022	339	3	3, 3 <sup>ο</sup> (b)
Βουτυλικός μεθυλεστέρας	1237	33	3	3, 3 <sup>ο</sup> (b)
N,n-Βουτυλιμιδαζόλη	2690	60	6.1	6.1, 12 <sup>ο</sup> (b)
Βουτυλοβενζόλια	2709	30	3	3, 31 <sup>ο</sup> (c)
Βουτυλοβινυλαιθέρας, αδρανής	2352	339	3	3, 3 <sup>ο</sup> (b)
η-Βουτυλοβρωμίδιο	1126	33	3	3, 3 <sup>ο</sup> (b)
n-Βουτυλομεθακρυλικά άλατα, αδρανή	2227	39	3	3, 31 <sup>ο</sup> (c)
Βουτυλομεθυλαιθέρας	2350	33	3	3, 3 <sup>ο</sup> (b)
Βουτυλομερκαπτάνη	2347	33	3	3, 3 <sup>ο</sup> (b)
Βουτυλοτολουόλια	2667	60	6.1	6.1, 25 <sup>ο</sup> (c)
Βουτυλοτριχλωροσιλάνιο	1747	X83	8+3	8, 37 <sup>ο</sup> (b)
1,4-Βουτνεδιόλη	2716	60	6.1	6.1, 14 <sup>ο</sup> (c)
Βουτυραλδεϋδη	1129	33	3	3, 3 <sup>ο</sup> (b)
Βουτυραλδοξίμη	2840	30	3	3, 31 <sup>ο</sup> (c)
Βουτυρικό οξύ	2820	80	8	8, 32 <sup>ο</sup> (c)
Βουτυρικοί αμυλεστέρες	2620	30	3	3, 31 <sup>ο</sup> (c)



250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Βουτυρικός αιθυλεστέρας	1180	30	3	3, 31°(c)
Βουτυρικός ανυδρίτης	2739	80	8	8, 32°(c)
Βουτυρικός βινυλεστέρας, αδρανής	2838	339	3	3, 3°(b)
Βουτυρικός ισοπροπυλεστέρας	2405	30	3	3, 31°(c)
Βουτυρονιτρίλιο	2411	336	3+6.1	3, 11°(b)
Βρυκίνη	1570	66	6.1	6.1, 90°(a)
Βρωμικό βάριο	2719	56	5.1+6.1	5.1, 29°(b)
Βρωμικό κάλιο	1484	50	5.1	5.1, 16°(b)
Βρωμικό μαγνήσιο	1473	50	5.1	5.1, 16°(b)
Βρωμικό νάτριο	1494	50	5.1	5.1, 16°(b)
Βρωμικός ψευδάργυρος	2469	50	5.1	5.1, 16°(c)
Βρώμιο ή διάλυμα βρωμίου	1744	886	8+6.1	8, 14°
Βρωμιούχα άλατα υδραργύρου	1634	60	6.1	6.1, 52°(b)
Βρωμιούχο αλουμίνιο, άνυδρο	1725	80	8	8, 11°(b)
Βρωμιούχο αρσενικό	1555	60	6.1	6.1, 51°(b)
Βρωμιούχο διφαινυλομεθύλιο	1770	80	8	8, 65°(b)
Βρωμιούχο κυανογόνο	1889	668	6.1+8	6.1, 27°(a)
Βρωμιούχο μεθυλομαγνήσιο σε αιθυλαιθέρα	1928	X323	4.3+3	4.3, 3°(a)
2-Βρωμοαιθυλαιθυλαιθέρας	2340	33	3	3, 3°(b)
Βρωμοακετόνη	1569	63	6.1+3	6.1, 16°(b)
Βρωμοακετυλοβρωμίδιο	2513	X80	8	8, 35°(b)1.
Βρωμοβενζόλιο	2514	30	3	3, 31°(c)
1-Βρωμοβουτάνιο	1126	33	3	3, 3°(b)
2-Βρωμοβουτάνιο	2339	33	3	3, 3°(b)
1-Βρωμο-3-μεθυλοβουτάνιο	2341	30	3	3, 31°(c)
Βρωμομεθυλοπροπάνια	2342	33	3	3, 3°(b)
2-Βρωμο-2-νιτροπροπανο-1,3-διόλη	3241	60	6.1	6.1, 17°(c)

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Βρωμοξικό οξύ	1938	80	8	8, 31°(b)
Βρωμοξικός αιθυλεστέρας	1603	63	6.1+3	6.1, 16°(b)
Βρωμοξικός μεθυλεστέρας	2643	60	6.1	6.1, 17°(b)
2-Βρωμοπεντάνιο	2343	33	3	3, 3°(b)
Βρωμοπροπάνια	2344	33	3	3, 3°(b)
3-Βρωμοπροπύνιο	2345	33	3	3, 3°(b)
Βρωμοτριφθορομεθάνιο (R 13 B1)	1009	20	2	2, 5°(a)
Βρωμόφορμιο	2515	60	6.1	6.1, 15°(c)
Βρωμοχλωροδιφθορομεθάνιο (R 12B1)	1974	20	2	2, 3°(a)
Βρωμοχλωρομεθάνιο	1887	60	6.1	6.1, 15°(c)
1-Βρωμο-3-χλωροπροπάνιο	2688	60	6.1	6.1, 15°(c)
Γαλακτικό αντιμόνιο	1550	60	6.1	6.1, 59°(c)
Γαλακτικός αιθυλεστέρας	1192	30	3	3, 31°(c)
Γάλλιο	2803	80	8	8, 65°(c)
Γκαζόιλ (αεριέλαιο)	1202	30	3	3, 31°(c)
Γλυκερολο-α-μονοχλωρυδρίνη	2689	60	6.1	6.1, 17°(c)
Γλυκιδαλδεΐδη	2622	336	3+6.1	3, 17°(b)
Γλυκονικός υδράργυρος	1637	60	6.1	6.1, 52°(b)
Δεκαβοράνιο	1868	46	4.1+6.1	4.1, 16°(b)
Δεκαεξυλοτριχλωροσιλάνιο	1781	X80	8	8, 36°(b)
Δεκαοκτυλοτριχλωροσιλάνιο	1800	X80	8	8, 36°(b)
n-Δεκάνιο	2247	30	3	3, 31°(c)
Δεκαϋδροναφθαλένιο	1147	30	3	3, 31°(c)
Δευτέριο	1957	23	3	2, 1°(b)
Δημήτριο	3078	423	4.3	4.3, 13°(b)
Δι-n-αμυλαμίνη	2841	36	3+6.1	3, 32°(c)
Δι-n-βουτυλαμίνη	2248	83	8+3	8, 54°(b)
Δι-n-προπυλαιθέρας	2384	33	3	3, 3°(b)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Διαιθοξυμεθάνιο	2373	33	3	3, 3°(b)
3,3-Διαιθοξυπροπένιο	2374	33	3	3, 3°(b)
Διαιθυλαιθέρας (Αιθυλαιθέρας)	1155	33	3	3, 2°(a)
Διαιθυλαιθέρας της αιθυλενογλυκόλης	1153	30	3	3, 31°(c)
N,N-Διαιθυλαιθυλενοδιαμίνη	2685	83	8+3	8, 54°(b)
N,N-Διαιθυλανιλίνη	2432	60	6.1	6.1, 12°(c)
Διαιθυλαμίνη	1154	338	3+8	3, 22°(b)
Διαιθυλαμινοαιθανόλη	2686	30	3	3, 31°(c)
Διαιθυλαμινοπροπυλαμίνη	2684	38	3+8	3, 33°(c)
Διαιθυλενοτριάμίνη	2079	80	8	8, 53°(b)
Διαιθυλκετόνη	1156	33	3	3, 3°(b)
Διαιθυλοβενζόλια (o-, m-, p-)	2049	30	3	3, 31°(c)
Διαιθυλοδιχλωροσιλάνιο	1767	X83	8+3	8, 37°(b)
Διαιθυλοθειοφωσφορυλοχλωρίδιο	2751	80	8	8, 35°(b)1.
Διαιθυλοσουλφίδιο	2375	33	3	3, 3°(b)
Διαιθυλοψευδάργυρος	1366	X333	4.2+4.3	4.2, 31°(a)
Διακετοναλκοόλη, τεχνική	1148	33	3	3, 3°(b)
Διακετοναλκοόλη, χημικά καθαρή	1148	30	3	3, 31°(c)
Διαλλυλαιθέρας	2360	336	3+6.1	3, 17°(b)
Διαλλυλαμίνη	2359	338	3+8+6.1	3, 27°(b)
Διάλυμα αιθανόλης (διάλυμα αιθυλικής αλκοόλης) περιέχον περισσότερο από 24 κ.ο.-% και όχι περισσότερο από 70 κ.ο.-% αλκοόλη	1170	30	3	3, 31°(c)
Διάλυμα αμμωνίας περιέχον μεταξύ 10 και 35% αμμωνία	2672	80	8	8, 43°(c)
Διάλυμα αργλικού νατρίου	1819	80	8	8, 42°(b),(c)
Διάλυμα βρωμιούχου αλουμινίου	2580	80	8	8, 5°(c)
Διάλυμα δινιτροφαινόλης	1599	60	6.1	6.1, 12°(b),(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Διάλυμα εξαμεθυλενοδιαμίνης	1783	80	8	8, 53°(b), (c)
Διάλυμα θειούχου αμμωνίου	2683	86	8+6.1+3	8, 45°(b)2.
Διάλυμα καουτσούκ	1287	33	3	3, 5°(a),(b),(c)
Διάλυμα καουτσούκ	1287	30	3	3, 31°(c)
Διάλυμα κυπριαιθυλενοδιαμίνης	1761	86	8+6.1	8,53°(b)(c)
Διάλυμα μεθυλικού νατρίου	1289	338	3+8	3, 24°(b)
Διάλυμα μεθυλικού νατρίου	1289	38	3+8	3, 33°(c)
Διάλυμα μονοχλωρικού οξέος	1750	68	6.1+8	6.1, 27°(b)
Διάλυμα νιτρικού ουρανυλίου, ενυδατωμένο	2980	78	7A,7B or 7C+8	7, Sch 5,6 or 13
Διάλυμα νιτροκυτταρίνης, εύφλεκτο	2059	33	3	3, 4°(a),(b)
Διάλυμα νιτροκυτταρίνης, εύφλεκτο	2059	30	3	3, 34°(c)
Διάλυμα νιτρώδους αιθυλίου	1194	336	3+6.1	3, 15°(a)
Διάλυμα οξειδίου της τρις-(1-αζιριδιλυλό) φωσφίνης	2501	60	6.1	6.1, 23°(b),(c)
Διάλυμα πενταχλωριούχου αντιμονίου	1731	80	8	8, 12°(b),(c)
Διάλυμα πολυθειούχου αμμωνίου	2818	86	8+6.1	8, 45°(c)
Διάλυμα πολυθειούχου αμμωνίου	2818	86	8+6.1	8, 45°(b)1.
Διάλυμα ρητίνης, εύφλεκτο	1866	33	3	3, 5°(a),(b),(c)
Διάλυμα ρητίνης, εύφλεκτο	1866	30	3	3, 31°(c)
Διάλυμα τριϊσοκυανατοϊσοκυανουρικών αλάτων των ισοφορονοδιϊσοκυανικών αλάτων	2906	30	3	3, 31°(c)
Διάλυμα τριχλωροξικού οξέος	2564	80	8	8, 32°(c)
Διάλυμα τριχλωροξικού οξέος	2564	80	8	8, 32°(b)1.
Διάλυμα υδροβρωμικού οξέος	1788	80	8	8, 5°(b),(c)
Διάλυμα υδροϊωδικού οξέος	1787	80	8	8, 5°(b),(c)
Διάλυμα υδροξειδίου του καυσίου	2681	80	8	8, 42°(b),(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Διάλυμα υδροξειδίου του καλίου	1814	80	8	8, 42°(b),(c)
Διάλυμα υδροξειδίου του λιθίου	2679	80	8	8, 42°(b),(c)
Διάλυμα υδροξειδίου του νατρίου	1824	80	8	8, 42°(b),(c)
Διάλυμα υδροξειδίου του ρουβιδίου	2677	80	8	8, 42°(b),(c)
Διάλυμα υδροφθορικού οξέος περιέχον λιγότερο από 60% υδροφθόριο	1790	86	8+6.1	8, 7°(b)
Διάλυμα υδροφθορικού οξέος περιέχον περισσότερο από 85% υδροφθόριο	1790	886	8+6.1	8, 6°
Διάλυμα υδροφθορικού οξέος περιέχον μεταξύ 60 και 85% υδροφθόριο	1790	886	8+6.1	8, 7°(a)
Διάλυμα υδροφθοριούχου αμμωνίου	2817	86	8+6.1	8, 7°(b),(c)
Διάλυμα υδροχλωρικού οξέος	1789	80	8	8, 5°(b),(c)
Διάλυμα φαινόλης	2821	60	6.1	6.1, 14°(b),(c)
Διάλυμα φθοριούχου χρωμίου	1757	80	8	8, 8°(b),(c)
Διάλυμα φορμαλδεϋδης	2209	80	8	8, 63°(c)
Διάλυμα φορμαλδεϋδης, εύφλεκτο	1198	38	3+8	3, 33°(c)
Διάλυμα χαλκοκυανιούχου νατρίου	2317	66	6.1	6.1, 41°(a)
Διάλυμα χλωρικού οξέος	1755	80	8	8, 17°(b),(c)
Διάλυμα χλωριούχου αλουμινίου	2581	80	8	8, 5°(c)
Διάλυμα χλωριούχου σιδήρου	2582	80	8	8, 5°(c)
Διάλυμα χλωριούχου ψευδαργύρου	1840	80	8	8, 5°(c)
Διαμίνη του μαγνησίου	2004	40	4.2	4.2, 16°(b)
4,4'-Διαμινοδιφαινυλομεθάνιο	2651	60	6.1	6.1, 12°(c)
Διασπορά μετάλλου της σειράς αλκαλικών γαιών	1391	X423	4.3	4.3, 11°(a)
Διβενζυλοδιχλωροσιλάνιο	2434	X80	8	8, 36°(b)
Διβινυλαιθέρας, αδρανής	1167	339	3	3, 2°(a)
Διβουτυλαιθέρας	1149	30	3	3, 31°(c)
Διβουτυλαμινοαιθανόλη	2873	60	6.1	6.1, 12°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Διβρωμοβενζόλιο	2711	30	3	3, 31°(c)
1,2-Διβρωμοβουταν-3-όνη	2648	60	6.1	6.1, 17°(b)
Διβρωμομεθάνιο	2664	60	6.1	6.1, 15°(c)
Διβρωμοχλωροπροπάνια	2872	60	6.1	6.1, 15°(c)
1,2-Δι-(διμεθυλάμινο) αιθάνιο	2372	33	3	3, 3°(b)
Διθειονικό κάλιο	1929	40	4.2	4.2, 13°(b)
Διθειονικό νάτριο (άλας νατρίου με υδρόθειο)	1384	40	4.2	4.2, 13°(b)
Διθειοπυροφωσφορικός τετρααιθυλεστέρας	1704	60	6.1	6.1, 23°(b)
Διθειούχο σελήνιο	2657	60	6.1	6.1, 55°(b)
Διθειούχο τιτάνιο	3174	40	4.2	4.2, 13°(c)
Διθειούχος άνθρακας	1131	336	3+6.1	3, 18°(a)
Διθειωνώδες ασβέστιο	1923	40	4.2	4.2, 13°(b)
Διθυλενοδιβρωμιδίο	1605	66	6.1	6.1, 15°(a)
Διϋσοβουτυλαμίνη	2361	38	3+8	3, 33°(c)
Δισοβουτυλκετόνη	1157	30	3	3, 31°(c)
Διϋσοκυανική ισοφορόνη	2290	60	6.1	6.1, 19°(c)
4,4'-Διϋσοκυανικό διφαινυλομεθάνιο	2489	60	6.1	6.1, 19°(c)
Διϋσοκυανικό τολουόλιο	2078	60	6.1	6.1, 19°(b)
Διϋσοκυανικό τριμεθυλοεξαμεθυλένιο	2328	60	6.1	6.1, 19°(c)
Δισοπροπυλαιθέρας	1159	33	3	3, 3°(b)
Δισοπροπυλαμίνη	1158	338	3+8	3, 22°(b)
Δικετένιο, αδρανές	2521	663	6.1+3	6.1, 13°(a)
Δικυκλοεξυλαμίνη	2565	80	8	8, 53°(c)
Δικυκλοπενταδιένια	2048	30	3	3, 31°(c)
1,1-Διμεθοξυαιθάνιο	2377	33	3	3, 3°(b)
1,2-Διμεθοξυαιθάνιο	2252	33	3	3, 3°(b)
Διμεθυλαιθέρας	1033	23	3	2, 3°(b)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Διμεθυλαιθερικά άλατα τριφθοριούχου βορίου	2965	382	4.3+3+8	4.3, 2°(a)
2-Διμεθυλαμινοαιθανόλη	2051	83	8+3	8, 54°(b)
2-Διμεθυλαμινοακετονιτρίλιο	2378	336	3+6.1	3, 11°(b)
Διμεθυλανίνη, άνυδρη	1032	236	3+6.1	2, 3°(bt)
N,N-Διμεθυλανιλίνη	2253	60	6.1	6.1, 12°(b)
Διμεθυλδιχλωροσιλάνιο	1162	X338	3+8	3, 21°(b)
2,3-Διμεθυλοβουτάνιο	2457	33	3	3, 3°(b)
1,3-Διμεθυλοβουτυλαμίνη	2379	338	3+8	3, 22°(b)
Διμεθυλοδιαιοξυσιλάνιο	2380	33	3	3, 3°(b)
Διμεθυλοδιοξάνια	2707	33	3	3, 3°(b)
Διμεθυλοδιοξάνια	2707	30	3	3, 31°(c)
Διμεθυλοθειοφωσφορολοχλωρίδιο	2267	68	6.1+8	6.1, 27°(b)
Διμεθυλοκαρβαμούλοχλωρίδιο	2262	80	8	8, 35°(b)1.
Διμεθυλοκυκλοεξάνια	2263	33	3	3, 3°(b)
Διμεθυλοκυκλοεξυλαμίνη	2264	83	8+3	8, 54°(b)
Διμεθυλο-N-προπυλαμίνη	2266	338	3+8	3, 22°(b)
Διμεθυλοσουλφίδιο	1164	33	3	3, 2°(b)
Διμεθυλοσουλφίδιο	2381	33	3	3, 3°(b)
N,N-Διμεθυλοφορμαμίδιο	2265	30	3	3, 31°(c)
Διμεθυλοψευδάργυρος	1370	X333	4.2+4.3	4.2, 31°(a)
Διμεθυλδραζίνη, ασυμμετρική	1163	663	6.1+3+8	6.1, 7°(a)1.
Διμεθυλδραζίνη, συμμετρική	2382	663	6.1+3	6.1, 7°(a)2.
Διμερής ακροεΐνη, σταθεροποιημένη	2607	39	3	3, 31°(c)
Δινιτρο- ο-κρεζολικό αμμώνιο	1843	60	6.1	6.1, 12°(b)
Δινιτρο-ο-κρεζόλη	1598	60	6.1	6.1, 12°(b)
Δινιτροανιλίνες	1596	60	6.1	6.1, 12°(b)
Δινιτροβενζόλια	1597	60	6.1	6.1, 12°(b)

250 000

(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Δινιτροτουλόλια	2038	60	6.1	6.1, 12°(b)
Δινιτροτουλόλιο, τετηγμένο	1600	60	6.1	6.1, 24°(b)1.
Διοξάνιο	1165	33	3	3, 3°(b)
Διοξειδίο του αζώτου (NO <sub>2</sub> )	1067	265	6.1+05	2, 3°(at)
Διοξειδίο του άνθρακα	1013	20	2	2, 5°(a)
Διοξειδίο του άνθρακα περιέχον όχι λιγότερο από 1% και όχι περισσότερο από 10% οξυγόνο κατά βάρος	1014	20	2	2, 6°(a)
Διοξειδίο του άνθρακα περιέχον όχι περισσότερο από 35% αιθυλενοξειδίο κατά βάρος	1952	239	3	2, 6°(c)
Διοξειδίο του άνθρακα περιέχον όχι περισσότερο από 35% αιθυλενοξειδίο κατά βάρος	1041	239	3	2, 6°(c)
Διοξειδίο του άνθρακα, βαθιάς κατάψυξης	2187	22	2	2, 7°(a)
Διοξειδίο του θείου	1079	26	6.1	2, 3°(af)
Διοξειδίο του μολύβδου	1872	56	5.1+6.1	5.1, 29°(c)
Διοξολάνιο	1166	33	3	3, 3°(b)
Διπεντένιο	2052	30	3	3, 31°(c)
Διπροπυλαμίνη	2383	338	3+8	3, 22°(b)
Διπροπυλοκετόνες	2710	30	3	3, 31°(c)
2,3-Διϋδροπυράνιο	2376	33	3	3, 3°(b)
Διφαινυλαμινοχλωροαρσίνη	1698	66	6.1	6.1, 34°(a)
Διφαινύλιο του μαγνησίου	2005	X333	4.2+4.3	4.2, 31°(a)
Διφαινυλοδιχλωροσιλάνιο	1769	X80	8	8, 36°(b)
Διφαινυλοχλωροαρσίνη	1699	66	6.1	6.1, 34°(a)
1,1-Διφθοροαιθάνιο (R 152a)	1030	23	3	2, 3°(b)
1,1-Διφθοροαιθυλένιο (Φθοριούχο βινυλιδένιο)	1959	239	3	2, 5°(c)
Διφθοροφωσφορικό οξύ, άνυδρο	1768	80	8	8, 8°(b)



250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Διχλωριούχος φαινυλοφώσφορος	2798	80	8	8, 35°(b)1.
1,1-Διχλωροαιθάνιο (Αιθυλιδενοχλωρίδιο)	2362	33	3	3, 3°(b)
1,2-Διχλωροαιθάνιο (Διχλωριούχο αιθυλένιο)	1184	336	3+6.1	3, 16°(b)
1,2-Διχλωροαιθυλένιο	1150	33	3	3, 3°(b)
1,3-Διχλωροακετόνη	2649	60	6.1	6.1, 17°(b)
Διχλωροανιλίνες	1590	60	6.1	6.1, 12°(b)
ο-Διχλωροβενζόλιο	1591	60	6.1	6.1, 15°(c)
2,2'-Διχλωροδιαιθυλαιθέρας	1916	63	6.1+3	6.1, 16°(b)
Διχλωροδιφθορομεθάνιο (R 12)	1028	20	2	2, 3°(a)
Διχλωροϊσοκυανουρικό οξύ, ξηρό	2465	50	5.1	5.1, 26°(b)
Διχλωροϊσοπροπυλαιθέρας	2490	60	6.1	6.1, 17°(b)
Διχλωρομεθάνιο	1593	60	6.1	6.1, 15°(c)
1,1-Διχλωρο-1-νιτροαιθάνιο	2650	60	6.1	6.1, 17°(b)
Διχλωροξικό οξύ	1764	80	8	8, 32°(b)1.
Διχλωροξικός μεθυλεστεράς	2299	60	6.1	6.1, 17°(c)
Διχλωροπεντάνια	1152	30	3	3, 31°(c)
1,2-Διχλωροπροπάνιο	1279	33	3	3, 3°(b)
1,3-Διχλωροπροπανάλη-2	2750	60	6.1	6.1, 17°(b)
Διχλωροπροπένια	2047	30	3	3, 31°(c)
Διχλωροπροπένια	2047	33	3	3, 3°(b)
1,2-Διχλωρο-1,1,2,2-τετραφθοροαιθάνιο (R 114)	1958	20	2	2, 3°(a)
Διχλωροφαινυλοτριχλωροσιλάνιο	1766	X80	8	8, 36°(b)
Διχλωροφθορομεθάνιο (R 21)	1029	20	2	2, 3°(a)
Διχρωμικό αμμώνιο	1439	50	5.1	5.1, 27°(b)
Δωδεκυλοτριχλωροσιλάνιο	1771	X80	8	8, 36°(b)
Εκχυλίσματα, αρώματα, υγρά	1197	33	3	3,

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
				5°(a),(b),(c)
Εκχυλίσματα, αρώματα, υγρά	1197	30	3	3, 31°(c)
Εκχυλίσματα, αρωματικά, υγρά	1169	30	3	3, 31°(c)
Εκχυλίσματα, αρωματικά, υγρά	1169	33	3	3, 5°(a),(b),(c)
Ελαια ακετόνης	1091	33	3	3, 3°(b)
Ελαϊκός υδράργυρος	1640	60	6.1	6.1, 52°(b)
Ελαιοχρώματα	1263	30	3	3, 31°(c)
Ελαιοχρώματα	1263	33	3	3, 5°(a),(b),(c)
Εναιώρημα ζirkονίου σε εύφλεκτο υγρό	1308	33	3	3, 1°(a), 2°(a),(b), 3°(b)
Εναιώρημα ζirkονίου σε εύφλεκτο υγρό	1308	30	3	3, 31°(c)
Ενδεκάνιο	2330	30	3	3, 31°(c)
Εννεάνια	1920	30	3	3, 31°(c)
Εννεανυλοτριγλωροσιλάνιο	1799	X80	8	8, 36°(b)
Ενώσεις καδμίου	2570	66	6.1	6.1, 61°(a)
Ενώσεις καδμίου	2570	60	6.1	6.1, 61° (b),(c)
Ενώσεις πυριτίου με ασβέστιο	1405	423	4.3	4.3, 12° (b),(c)
Εξαδιένιο	2458	33	3	3, 3°(b)
Εξαλδεϋδη	1207	30	3	3, 31°(c)
Εξαμεθυλενμίνη	2493	338	3+8	3, 23°(b)
Εξαμεθυλενοδιαμίνη, στερεά	2280	80	8	8, 52°(c)
Εξαμεθυλενοδιϊσοκυανικά άλατα	2281	60	6.1	6.1, 19°(b)
Εξαμεθυλενοτετραμίνη	1328	40	4.1	4.1, 6°(c)
Εξάνια	1208	33	3	3, 3°(b)
Εξανόλες	2282	30	3	3, 31°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Εξαφθοροαιθάνιο (R 116)	2193	20	2	2, 5°(a)
Εξαφθοροακετόνη, ενυδατωμένη	2552	60	6.1	6.1, 17°(b)
Εξαφθοροπροπυλένιο (R 1216)	1858	26	6.1	2, 3°(at)
Εξαφθοροφωσφορικό οξύ	1782	80	8	8, 8°(b)
Εξαχλωρακετόνη	2661	60	6.1	6.1, 17°(c)
Εξαχλωροβενζόλιο	2729	60	6.1	6.1, 15°(c)
Εξαχλωροβουταδιένιο	2279	60	6.1	6.1, 15°(c)
Εξαχλωροκυκλοπενταδιένιο	2646	66	6.1	6.1, 15°(a)
Εξαχλωροφαίνιο	2875	60	6.1	6.1, 17°(c)
Εξυλοτριχλωροσιλάνιο	1784	X80	8	8, 36°(b)
Επιβρωμοϋδρίνη	2558	663	6.1+3	6.1, 16°(a)
Επικαλυπτικό διάλυμα	1139	33	3	3, 5° (a),(b),(c)
Επικαλυπτικό διάλυμα	1139	30	3	3, 31°(c)
Επιχλωρυδρίνη	2023	63	6.1+3	6.1, 16°(b)
1,2-Εποξυ-3-αιθοξυπροπάνιο	2752	30	3	3, 31°(c)
Επταθειούχος φώσφορος	1339	40	4.1	4.1, 11°(b)
n-Επταλδεϋδη	3056	30	3	3, 31°(c)
Επτάνια	1206	33	3	3, 3°(b)
n-Επτένιο	2278	33	3	3, 3°(b)
1-Εξένιο	2370	33	3	3, 3°(b)
Ζιρκόνιο μη χρησιμοποιήσιμο	1932	40	4.2	4.2, 12°(c)
Ζιρκόνιο σε σκόνη, νοπό	1358	40	4.1	4.1, 13°(b)
Ζιρκόνιο σε σκόνη, ξηρό	2008	40	4.2	4.2, 12°(b),(c)
Ζιρκόνιο, ξηρό	2858	40	4.1	4.1, 13°(c)
Ζυμέλαιο	1201	33	3	3, 3°(b)
Ζυμέλαιο	1201	30	3	3, 31°(c)
Ήλιο, βαθιάς κατάψυξης	1963	22	2	2, 7°(a)

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Ηλιο, πεπεσμένο	1046	20	2	2, 1°(a)
4-Θειαιπεντανάλη	2785	60	6.1	6.1, 21°(c)
Θευική νικοτίνη, σε διάλυμα	1658	60	6.1	6.1, 90°(b)
Θευική νικοτίνη, στερεά	1658	60	6.1	6.1, 90°(b)
Θευική υδροξυλαμίνη	2865	80	8	8, 16°(c)
Θευικό βαναδύλιο	2931	60	6.1	6.1, 58°(b)
Θευικό οξύ (που αποβάλλεται μετά τον καθαρισμό του πετρελαίου)	1906	80	8	8, 1°(b)
Θευικό οξύ, αμιζόν	1831	X886	8+6.1	8, 1°(a)
Θευικό οξύ, με περισσότερο από 51% οξύ	2796	80	8	8, 1°(b)
Θευικό οξύ, περιέχον περισσότερο από 51% οξύ	1830	80	8	8, 1°(b)
Θευικό οξύ, χρησιμοποιημένο	1832	80	8	8, 1°(b)
Θευικός διαιθυλεστέρας	1594	60	6.1	6.1, 14°(b)
Θευικός διμεθυλεστέρας	1595	668	6.1+8	6.1, 27°(a)
Θευικός μόλυβδος	1794	80	8	8, 1°(b)
Θευικός υδράργυρος	1645	60	6.1	6.1, 52°(b)
Θειογαλακτικό οξύ	2936	60	6.1	6.1, 21°(b)
Θειογλυκόλη	2966	60	6.1	6.1, 21°(b)
Θειογλυκολικό οξύ	1940	80	8	8, 32°(b)1.
Θειοδιχλωριούχος φαινυλοφώσφορος	2799	80	8	8, 35°(b)1.
Θειοκυανικός υδράργυρος	1646	60	6.1	6.1, 52°(b)
Θειονυλοχλωρίδιο	1836	X88	8	8, 12°(a)
Θειοξικό οξύ	2436	33	3	3, 3°(b)
Θειούχο κάλιο, άνυδρο	1382	40	4.2	4.2, 13°(b)
Θειούχο κάλιο, ενυδατωμένο	1847	80	8	8, 45°(b)1.
Θειούχο κάλιο, με λιγότερο από 30% νερό από κρυστάλλωση	1382	40	4.2	4.2, 13°(b)

250 060  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Θειούχο νάτριο, άνυδρο	1385	40	4.2	4.2, 13°(b)
Θειούχο νάτριο, ενυδατωμένο	1849	80	8	8, 45°(b)1.
Θειούχο νάτριο, με λιγότερο από 30% νερό από κρυστάλλωση	1385	40	4.2	4.2, 13°(b)
Θειούχος άνθρακας	1131	336	3+6.1	3, 18°(a)
Θειοφαίνειο	2414	33	3	3, 3°(b)
Θειοφθορίδιο	1080	20	2	2, 5°(a)
Θειοφωσγένιο	2474	60	6.1	6.1, 21°(b)
Θειοφωσφορυλοχλωρίδιο	1837	80	8	8, 12°(b)
Θειοχλωρίδια	1828	X88	8	8, 12°(a)
Θείο	1350	40	4.1	4.1, 11°(c)
Θείο, τετηγμένο	2448	44	4.1	4.1, 15°
Θειώδες οξύ	1833	80	8	8, 1°(b)
3,3'-Ιμινοδιπροπυλαμίνη	2269	80	8	8, 53°(c)
Ισοβαλεριανικός μεθυλεστέρας	2400	33	3	3, 3°(b)
Ισοβουτάνιο	1969	23	3	2, 3°(b)
Ισοβουτανόλη	1212	30	3	3, 31°(c)
Ισοβουτυλαμίνη	1214	338	3+8	3, 22°(b)
Ισοβουτυλένιο	1055	23	3	2, 3°(b)
Ισοβουτυραλδεΐδη	2045	33	3	3, 3°(b)
Ισοβουτυρικό οξύ	2529	38	3+8	3, 33°(c)
Ισοβουτυρικός αιθυλεστέρας	2385	33	3	3, 3°(b)
Ισοβουτυρικός ανυδρίτης	2530	38	3+8	3, 33°(c)
Ισοβουτυρικός ισοβουτυλεστέρας	2528	30	3	3, 31°(c)
Ισοβουτυρικός ισοπροπυλεστέρας	2406	33	3	3, 3°(b)
Ισοβουτυρονιτρίλιο	2284	336	3+6.1	3, 11°(b)
Ισοβουτυρυλοχλωρίδιο	2395	338	3+8	3, 25°(b)
Ισοεξένιο	2288	33	3	3, 3°(b)

250 060  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Επκέτα (d)	Αριθμός Κλάσης και είδους (e)
Ισοεπτάνιο	2287	33	3	3, 3°(b)
Ισοθειοκυανικό αλλύλιο, αδρανές	1545	639	6.1+3	6.1, 20°(b)
Ισοθειοκυανικός μεθυλεστέρας	2477	63	6.1+3	6.1, 20°(b)
Ισοκυανικοβενζοτριφθορίδια	2285	63	6.1+3	6.1, 18°(b)
Ισοκυανικός n-βουτυλεστέρας	2485	663	6.1+3	6.1, 6°(a)
Ισοκυανικός n-προπυλεστέρας	2482	663	6.1+3	6.1, 6°(a)
Ισοκυανικός διγλωροφαινυλεστέρας	2250	60	6.1	6.1, 19°(b)
Ισοκυανικός ισοβουτυλεστέρας	2486	336	3+6.1	3, 14°(b)
Ισοκυανικός ισοπροπυλεστέρας	2483	336	3+6.1	3, 14°(a)
Ισοκυανικός κυκλοεξυλεστέρας	2488	63	6.1+3	6.1, 18°(b)
Ισοκυανικός μεθοξυμεθυλεστέρας	2605	336	3+6.1	3, 14°(a)
Ισοκυανικός τριτοταγής βουτυλεστέρας	2484	663	6.1+3	6.1, 6°(a)
Ισοκυανικός φαινυλεστέρας	2487	63	6.1+3	6.1, 18°(b)
Ισομερικές ενώσεις διίσοβουτυλενίου	2050	33	3	3, 3°(b)
Ισοοκτένια	1216	33	3	3, 3°(b)
Ισοπεντένια	2371	33	3	3, 1°(a)
Ισοπρένιο, αδρανές	1218	339	3	3, 2°(a)
Ισοπροπανόλη (Ισοπροπυλική αλκοόλη)	1219	33	3	3, 3°(b)
Ισοπροπενυλοβενζόλιο	2303	30	3	3, 31°(c)
Ισοπροπυλαμίνη	1221	338	3+8	3, 22°(a)
Ισοπροπυλοβενζόλιο (Κουμήνιο)	1918	30	3	3, 31°(c)
Ισοφοροδιαμίνη	2289	80	8	8, 53°(c)
2-Ιωδοβουτάνιο	2390	33	3	3, 3°(b)
Ιωδιούχο αλλύλιο	1723	338	3+8	3, 25°(b)
Ιωδιούχος υδράργυρος	1638	60	6.1	6.1, 52°(b)
Ιωδομεθυλοπροπάνια	2391	33	3	3, 3°(b)
Ιωδοπροπάνια	2392	30	3	3, 31°(c)
Καΐσιο	1407	X423	4.3	4.3, 11°(a)

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Κακοδυλικό νάτριο	1688	60	6.1	6.1, 51°(b)
Κακοδυλικό οξύ (αλκαρζέν)	1572	60	6.1	6.1, 51°(b)
Κάλιο	2257	X423	4.3	4.3, 11°(a)
Καμφορά, συνθετική	2717	40	4.1	4.1, 6°(c)
Καμφορέλαιο	1130	30	3	3, 31°(c)
Καουτσούκ μη χρησιμοποιήσιμο ή κακής ποιότητας	1345	40	4.1	4.1, 1°(b)
Καπρονικό οξύ	2829	80	8	8, 32°(c)
Καρβίδιο αλουμινίου	1394	423	4.3	4.3, 17°(b)
Καρβίδιο ασβεστίου	1402	423	4.3	4.3, 17°(b)
Καρβονύλιο του νικελίου	1259	663	6.1+3	6.1, 3°
Καταλύτης μετάλλου, νωπός	1378	40	4.2	4.2, 12°(b)
Καταλύτης μετάλλου, ξηρός	2881	40	4.2	4.2, 12°(b),(c)
Καύσιμα αεροπορίας, στροβιλομηχανών	1863	33	3	3, 1°(a), 2°(a),(b), 3°(b)
Καύσιμα αεροπορίας, στροβιλομηχανών	1863	30	3	3, 31°(c)
Καύσιμο ντήζελ	1202	30	3	3, 31°(c)
Καφέ αμίαντος (Αμοσίτης ή Μυσορίτης)	2212	90	9	9, 1°(b)
Κηροζίνη	1223	30	3	3, 31°(c)
Κινολίνη	2656	60	6.1	6.1, 12°(c)
Κλάσματα λιθανθρακόπισσας	1136	33	3	3, 3°(b)
Κλάσματα λιθανθρακόπισσας	1136	30	3	3, 31°(c)
Κολλώδεις ύλες	1133	33	3	3, 5°(a),(b),(c)
Κολλώδεις ύλες	1133	30	3	3, 31°(c)
Κόπρα (ενδοκάρπιο του κοκοκάρου)	1363	40	4.2	4.2, 2°(c)
Κράματα μαγνησίου	1869	40	4.1	4.1, 13°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Κράματα μετάλλων με κάλιο	1420	X423	4.3	4.3, 11°(a)
Κράματα νατρίου με κάλιο	1422	X423	4.3	4.3, 11°(a)
Κρεζόλες (ο-, m-, p-)	2076	68	6.1 + 8	6.1, 27°(b)
Κροτοναλδεΐδη, σταθεροποιημένη	1143	663	6.1 + 3	6.1, 8° (a)
Κροτονικό οξύ	2823	80	8	8, 31°(c)
Κροτονικός αιθυλεστέρας	1862	33	3	3, 3°(b)
Κροτονυλένιο (2-Βουτύλιο)	1144	339	3	3, 1° (a)
Κρυζυλικό οξύ	2022	68	6.1 + 8	6.1, 27°(b)
Κρυπτό, βαθιάς κατάψυξης	1970	22	2	2, 7°(a)
Κρυπτό, πεπεσμένο	1056	20	2	2, 1°(a)
Κυαναμίδιο ασβεστίου	1403	423	4.3	4.3, 19°(c)
Κυανίδιο του αργύρου	1684	60	6.1	6.1, 41°(b)
Κυανίδιο του βρωμοβενζολίου	1694	66	6.1	6.1, 17°(a)
Κυανίδιο του νικελίου	1653	60	6.1	6.1, 41°(b)
Κυανίδιο του υδραργύρου	1636	60	6.1	6.1, 41°(b)
Κυανιδρίνη της ακετόνης, σταθεροποιημένη	1541	66	6.1	6.1, 12°(a)
Κυανιούχος χαλκός	1587	60	6.1	6.1, 41°(b)
Κυανοξικός αιθυλεστέρας	2666	60	6.1	6.1, 12°(c)
Κυανουρικό χλωρίδιο	2670	80	8	8, 39°(b)
Κυανούχος μόλυβδος	1620	60	6.1	6.1, 41°(b)
Κυανούχος ψευδάργυρος	1713	66	6.1	6.1, 41°(a)
1,5,9-Κυκλοδωδεκατριένιο	2518	60	6.1	6.1, 25°(c)
Κυκλοεξάνιο	1145	33	3	3, 3°(b)
Κυκλοεξανόνη	1915	30	3	3, 31°(c)
Κυκλοεξένιο	2256	33	3	3, 3°(b)
Κυκλοεξενυλοτριχλωροσιλάνιο	1762	X80	8	8, 36°(b)
Κυκλοεξυλαμίνη	2357	83	8+3	8, 54°(b)



250 065  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Κυκλοεξυλομερκαπτάνη	3054	30	3	3, 31°(c)
Κυκλοεξυλοτριχλωροσιλάνιο	1763	X80	8	8, 36°(b)
Κυκλοεπτάνιο	2241	33	3	3, 3°(b)
Κυκλοεπτατριένιο	2603	336	3+6.1	3, 19°(b)
Κυκλοεπτένιο	2242	33	3	3, 3°(b)
Κυκλοεπτένιο	2242	33	3	3, 3°(b)
Κυκλοοκταδιένια	2520	30	3	3, 31°(c)
Κυκλοοκτατετραένιο	2358	33	3	3, 3°(b)
Κυκλοπεντάνιο	1146	33	3	3, 3°(b)
Κυκλοπεντανόλη	2244	30	3	3, 31°(c)
Κυκλοπεντανόνη	2245	30	3	3, 31°(c)
Κυκλοπεντένιο	2246	33	3	3, 2°(b)
Κυκλοπροπάνιο	1027	23	3	2, 3°(b)
Κυμένα (ο-, m-, p-) (Μεθυλοίσοπροπυλοβενζόλια)	2046	30	3	3, 31°(c)
Λάδι κολοφώνιου (ρητινόπισσας)	1286	30	3	3, 31°(c)
Λάδι κολοφώνιου (ρητινόπισσας)	1286	33	3	3, 5°(a),(b),(c)
Λάδι πεύκου	1272	30	3	3, 31°(c)
Λεπτή σκόνη ψευδαργύρου	1436	423	4.3+4.2	4.3, 14°(b),(c)
Λευκός αμίαντος (Actinolite, Anthophyllite, Chrysotile ή Tremolite)	2590	90	9	9, 1°(c)
Λίθιο	1415	X423	4.3	4.3, 11°(a)
Λιπάσματα νιτρικού αμμωνίου, τύπου A1	2067	50	5.1	5.1, 21°(c)
Λιπάσματα νιτρικού αμμωνίου, τύπου A2	2068	50	5.1	5.1, 21°(c)
Λιπάσματα νιτρικού αμμωνίου, τύπου A3	2069	50	5.1	5.1, 21°(c)
Λιπάσματα νιτρικού αμμωνίου, τύπου A4	2070	50	5.1	5.1, 21°(c)
Μαγνήσιο	1869	40	4.1	4.1, 13°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Μαγνήσιο σε κόκκους, καλυμμένο	2950	423	4.3	4.3, 11°(c)
Μαγνήσιο σε σκόνη	1418	423	4.3+4.2	4.3, 14°(b)
Μαλεϊνικό ανυδρίδιο	2215	80	8	8, 31°(c)
Μαneb	2210	40	4.2+4.3	4.2, 16°(c)
Μαneb, σταθεροποιημένο	2968	423	4.3	4.3, 20°(c)
Μεθακρυλαδεϋδη, αδρανής	2396	336	3+6.1	3, 17°(b)
Μεθακρυλικό διμεθυλαμινοαιθύλιο	2522	69	6.1	6.1, 12°(b)
Μεθακρυλικό οξύ, αδρανές	2531	89	8	8, 32°(c)
Μεθακρυλικός αιθυλεστέρας	2277	339	3	3, 3°(b)
Μεθακρυλικός ισοβουτυλεστέρας, αδρανής	2283	39	3	3, 31°(c)
Μεθακρυλονιτρίλιο, αδρανές	3079	336	3+6.1	3, 11°(a)
Μεθαλλυλική αλκοόλη	2614	30	3	3, 31°(c)
Μεθάνιο, βαθιάς κατάψυξης	1972	223	3	2, 7°(b)
Μεθάνιο, πεπιεσμένο	1971	23	3	2, 1°(b)
Μεθανόλη	1230	336	3+6.1	3, 17°(b)
Μεθανοσουλφονολοχλωρίδιο	3246	668	6.1+8	6.1, 27°(a)
4-Μεθοξυ-4-μεθυλοπενταν-2-όνη	2293	30	3	3, 31°(c)
1-Μεθοξυ-2-προπανόλη	3092	30	3	3, 31°(c)
Μεθυλάλη	1234	33	3	3, 2°(b)
Μεθυλαλλυλοχλωρίδιο	2554	33	3	3, 3°(b)
Μεθυλαμίνη, άνυδρη	1061	236	3+6.1	2, 3°(bt)
N-Μεθυλανιλίνη	2294	60	6.1	6.1, 12°(c)
Μεθυλ-βινυλ-κετόνη	1251	339	3	3, 3°(b)
Μεθυλδιχλωροσιλάνιο	1242	X338	4.3+3+8	4.3, 1°(a)
Μεθυλικό νάτριο	1431	48	4.2+8	4.2, 15°(b)
Μεθυλ-ισοβουτυλ-κετόνη	1245	33	3	3, 3°(b)
Μεθυλ-ισοπροπενυλ-κετόνη, αδρανής	1246	339	3	3, 3°(b)

250 060  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Μεθυλωδίδιο	2644	60	6.1	6.1, 15°(b)
2-Μεθυλο-5-αιθυλοπυριδίνη	2300	60	6.1	6.1, 12°(c)
α-Μεθυλοβαλεραλδεϋδη	2367	33	3	3, 3°(b)
α-Μεθυλοβενζυλαλκοόλη	2937	60	6.1	6.1, 14°(c)
Μεθυλοβινυλαιθέρας	1087	236	3+6.1	2, 3°(ct)
3-Μεθυλοβουταν-2-όνη	2397	33	3	3, 3°(b)
2-Μεθυλο-1-βουτένιο	2459	33	3	3, 1°(a)
2-Μεθυλο-2-βουτένιο	2460	33	3	3, 2°(b)
3-Μεθυλο-1-βουτένιο (Ισοπροπυλαιθυλένιο)	2561	33	3	3, 1°(a)
N-Μεθυλοβουτυλαμίνη	2945	338	3+8	3, 22°(b)
Μεθυλοβρωμίδιο	1062	26	6.1	2, 3°(at)
5-Μεθυλοεξαν-2-όνη	2302	30	3	3, 31°(c)
Μεθυλοϊσοβουτυλοκαρβινόλη	2053	30	3	3, 31°(c)
Μεθυλοκυκλοεξάνιο	2296	33	3	3, 3°(b)
Μεθυλοκυκλοεξανόλες	2617	30	3	3, 31°(c)
Μεθυλοκυκλοεξανόνες	2297	30	3	3, 31°(c)
Μεθυλοκυκλοπεντάνιο	2298	33	3	3, 3°(b)
Μεθυλομερκαπτάνη	1064	236	3+6.1	2, 3°(bt)
Μεθυλομορφολίνη	2535	338	3+8	3, 23°(b)
Μεθυλοπενταδιένιο	2461	33	3	3, 3°(b)
2-Μεθυλοπενταν -2-όνη	2560	30	3	3, 31°(c)
1-Μεθυλοπιπεριδίνη	2399	338	3+8	3, 23°(b)
Μεθυλοπροπυλαιθέρας	2612	33	3	3, 2°(b)
Μεθυλοτετραϋδροφουράνιο	2536	33	3	3, 3°(b)
Μεθυλο-τριτοταγής βουτυλαιθέρας	2398	33	3	3, 3°(b)
Μεθυλοφαινυλοδιχλωροσιλάνιο	2437	X80	8	8, 36°(b)
2-Μεθυλοφουράνιο	2301	33	3	3, 3°(b)

250 όου  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Μεθυλοχλωρίδιο	1063	236	3+6.1	2, 3°(bt)
Μεθυλ-προπυλ-κετόνη	1249	33	3	3, 3°(b)
Μεθυλτριχλωροσιλάνιο	1250	X338	3+8	3, 21°(a)
Μεθυλδραζίνη	1244	663	6.1+3+8	6.1, 7°(a)1.
Μεθυλ-χλωρομεθυλ-αιθέρας	1239	663	6.1+3	6.1, 9°(a)
Μελάνι τυπογραφίας	1210	33	3	3,5°(a),(b),(c)
Μελάνι τυπογραφίας	1210	30	3	3,31°(c)
Μεσιτυλοξείδιο	1229	30	3	3, 31°(c)
Μεταβαναδικό αμμώνιο	2859	60	6.1	6.1, 58°(b)
Μεταβαναδικό κάλιο	2864	60	6.1	6.1, 58°(b)
Μεταλδεύδη	1332	40	4.1	4.1, 6°(c)
Μηλονονιτρίλιο	2647	60	6.1	6.1, 12°(b)
Μείγμα αερίου R 502	1973	20	2	2, 4°(a)
Μείγμα αερίων R 500	2602	20	2	2, 4°(a)
Μείγμα αερίων R 503	2599	20	2	2, 6°(a)
Μείγμα αιθυλενοξειδίου και προπυλενοξειδίου	2983	336	3+6.1	3, 17°(a)
Μείγμα αλάτων χλωρίου και βορίου	1458	50	5.1	5.1, 11°(b)
Μείγμα αντι-νοκ καυσίμων μηχανών	1649	66	6.1	6.1, 31°(a)
Μείγμα αρσενικού ασβεστίου και αρσενίτη του ασβεστίου, στερεό	1574	60	6.1	6.1, 51°(b)
Μείγμα αρσενικού ψευδαργύρου και αρσενίτη του ψευδαργύρου	1712	60	6.1	6.1, 51°(b)
Μείγμα ενυδατωμένου υποχλωριώδους ασβεστίου	2880	50	5.1	5.1, 15°(b)
Μείγμα μεθυλοβρωμιδίου και αιθυλενοδιβρωμιδίου, υγρό	1647	66	6.1	6.1, 15°(a)
Μείγμα νιτρικού καλίου και νιτρώδους νατρίου	1487	50	5.1	5.1, 24°(b)
Μείγμα νιτρικού νατρίου και νιτρικού	1499	50	5.1	5.1, 22°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
καλίου				
Μείγμα οξέος νιτρώσεως περιέχον περισσότερο από 50% νιτρικό οξύ	1796	885	8+05	8, 3°(a)
Μείγμα οξέος νιτρώσεως περιέχον λιγότερο από 50% νιτρικό οξύ	1796	80	8	8, 3°(b)
Μείγμα οξέος νιτρώσεως, χρησιμοποιημένο με λιγότερο από 50% νιτρικό οξύ	1826	80	8	8, 3°(b)
Μείγμα οξέος νιτρώσεως, χρησιμοποιημένο με περισσότερο από 50% νιτρικό οξύ	1826	885	8+05	8, 3°(a)
Μείγμα τριχλωριούχου τιτανίου	2869	80	8	8, 11°(b),(c)
Μείγμα υδροφθορικού οξέος και φωσφορικού οξέος	1786	886	8+6.1	8, 7°(a)
Μείγμα υπεροξειδίου του υδρογόνου και υπεροξικού οξέος, σταθεροποιημένο	3149	58	5.1+8	5.1, 1°(b)
Μείγμα υποχλωριώδους ασβεστίου, ξηρό	1748	50	5.1	5.1, 15°(b)
Μείγμα υποχλωριώδους ασβεστίου, ξηρό	2208	50	5.1	5.1, 15°(c)
Μείγμα χλωρικών αλάτων και χλωριούχου μαγνησίου	1459	50	5.1	5.1, 11°(b)
Μείγματα 1,3-βουταδιενίου και υδρογονανθράκων	1010	239	3	2, 4°(c)
Μείγματα F1, F2 και F3	1078	20	2	2, 4°(a)
Μείγματα διχλωροδιφθορομεθάνιου και αιθυλενοξειδίου με όχι περισσότερο από 12% αιθυλενοξείδιο κατά βάρος	3070	26	6.1	2, 4°(at)
Μείγματα μεθυλακετυλενίου και προπαδιενίου με υδρογονάνθρακες	1060	239	3	2, 4°(c)
Μείγματα μεθυλοβρωμιδίου και αιθυλενοβρωμιδίου	1647	236	3+6.1	2, 4°(bt)
Μείγματα μεθυλοβρωμιδίου και χλωροπικρίνης (υγροποιημένο αέριο)	1581	26	6.1	2, 4°(at)
Μείγματα μεθυλοχλωριδίου και μεθυλενοχλωριδίου (υγροποιημένο αέριο)	1912	236	3+6.1	2, 4°(bt)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Μείγματα μεθυλοχλωριδίου και χλωροπικρίνης (υγροποιημένο αέριο)	1582	236	3+6.1	2, 4°(bt)
Μείγματα υδρογονανθράκων (υγροποιημένα αέρια)(Μείγματα Α, Α0, Α1, Β και C)	1965	23	3	2, 4°(b)
Μονοβουτυλαιθέρας της αιθυλενογλυκόλης	2369	60	6.1	6.1, 14°(c)
Μονομεθυλαιθέρας της αιθυλενογλυκόλης	1171	30	3	3, 31°(c)
Μονομεθυλαιθέρας της αιθυλενογλυκόλης	1188	30	3	3, 31°(c)
Μονομερές στυρένιο, αδρανές (Βινυλοβενζόλιο)	2055	39	3	3, 31°(c)
Μονομερές του μεθακρυλικού μεθυλεστέρα, αδρανές	1247	339	3	3, 3°(b)
Μονοξείδιο του άνθρακα	1016	236	6.1+3	2, 1°(bt)
Μονοξείδιο του καλίου	2033	80	8	8, 41°(b)
Μονοξείδιο του νατρίου	1825	80	8	8, 41°(b)
Μονοχλωρικό οξύ, στερεό	1751	68	6.1+8	6.1, 27°(b)
Μονοχλωριούχο ιώδιο	1792	80	8	8, 12°(b)
Μονοχλωροξικό νάτριο	2659	60	6.1	6.1, 17°(c)
Μονοχλωροξικό οξύ, τεττημένο	3250	68	6.1+8	6.1, 24°(b)
Μονοχλωροξικός αιθυλεστέρας	1181	63	6.1+3	6.1, 16°(b)
Μονοχλωροξικός βινυλεστέρας	2589	63	6.1+3	6.1, 16°(b)
Μονοχλωροξικός ισοπροπυλεστέρας	2947	30	3	3, 31°(c)
Μονοχλωροξικός μεθυλεστέρας	2295	63	6.1+3	6.1, 16°(b)
Μορφολίνη	2054	30	3	3, 31°(c)
Μπλε αμίαντος (Κροκιδωλίτης)	2212	90	9	9, 1°(b)
Μυρμηκικό οξύ	1779	80	8	8, 32°(b)1.
Μυρμηκικοί αμυλεστέρες	1109	30	3	3, 31°(c)
Μυρμηκικοί προπυλεστέρες	1281	33	3	3, 3°(b)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Μυρμηκικός αιθυλεστέρας	1190	33	3	3, 3°(b)
Μυρμηκικός αλλυλαιθέρας	2336	336	3+6.1	3, 17°(a)
n-Μυρμηκικός βουτυλεστέρας	1128	33	3	3, 3°(b)
Μυρμηκικός ισοβουτυλεστέρας	2393	33	3	3, 3°(b)
Μυρμηκικός μεθυλεστέρας	1243	33	3	3, 1°(a)
Νατράσβεστος	1907	80	8	8, 41°(c)
Νάτριο	1428	X423	4.3	4.3, 11°(a)
Ναφθαλένιο, τετηγμένο	2304	44	4.1	4.1, 5°
Ναφθαλένιο, ακάθαρμο ή καθαρισμένο	1334	40	4.1	4.1, 6°(c)
Ναφθενικά άλατα του κοβαλτίου, σε σκόνη	2001	40	4.1	4.1, 12°(c)
α-Ναφθυλαμίνη	2077	60	6.1	6.1, 12°(c)
β-Ναφθυλαμίνη	1650	60	6.1	6.1, 12°(b)
Ναφθυλθειουρία	1651	60	6.1	6.1, 21°(b)
Ναφθυλουρία	1652	60	6.1	6.1, 12°(b)
Νέον, βαθιάς κατάψυξης	1913	22	2	2, 7°(a)
Νέον, πεπεσμένο	1065	20	2	2, 1°(a)
Νικοτίνη	1654	60	6.1	6.1, 90°(b)
Νιτρανισόλη	2730	60	6.1	6.1, 12°(c)
Νιτρική γουανιδίνη	1467	50	5.1	5.1, 22°(c)
Νιτρικό άλας τρισθενούς σιδήρου	1466	50	5.1	5.1, 22°(c)
Νιτρικό αλουμίνιο	1438	50	5.1	5.1, 22°(c)
Νιτρικό αμμώνιο	1942	50	5.1	5.1, 21°(c)
Νιτρικό αμμώνιο, υγρό, (θερμό συμπυκνωμένο διάλυμα)	2426	59	5.1	5.1, 20°
Νιτρικό αμύλιο	1112	30	3	3, 31°(c)
Νιτρικό ασβέστιο	1454	50	5.1	5.1, 22°(c)
Νιτρικό βάριο	1446	56	5.1+6.1	5.1, 29°(b)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Νιτρικό βηρύλλιο	2464	56	5.1+6.1	5.1, 29°(b)
Νιτρικό διδύμιο	1465	50	5.1	5.1, 22°(c)
Νιτρικό ζιρκόνιο	2728	50	5.1	5.1, 22°(c)
Νιτρικό θάλλιο	2727	65	6.1+05	6.1, 68°(b)
Νιτρικό καίσιο	1451	50	5.1	5.1, 22°(c)
Νιτρικό κάλιο	1486	50	5.1	5.1, 22°(c)
Νιτρικό λίθιο	2722	50	5.1	5.1, 22°(c)
Νιτρικό μαγνήσιο	1474	50	5.1	5.1, 22°(c)
Νιτρικό μαγνήσιο	2724	50	5.1	5.1, 22°(c)
Νιτρικό νάτριο	1498	50	5.1	5.1, 22°(c)
Νιτρικό νικέλιο	2725	50	5.1	5.1, 22°(c)
Νιτρικό οξύ περιέχον λιγότερο από 70% καθαρό οξύ	2031	80	8	8, 2°(b)
Νιτρικό οξύ περιέχον περισσότερο από 70% καθαρό οξύ	2031	885	8	8, 2°(a)1.
Νιτρικό οξύ, ερυθρό, αμιζον	2032	856	8+05+6.1	8, 2°(a)2.
Νιτρικό στρόντιο	1507	50	5.1	5.1, 22°(c)
Νιτρικό χρώμιο	2720	50	5.1	5.1, 22°(c)
Νιτρικός άργυρος	1493	50	5.1	5.1, 22°(b)
Νιτρικός μόλυβδος	1469	56	5.1+6.1	5.1, 29°(c)
Νιτρικός υδράργυρος	1625	60	6.1	6.1, 52°(b)
Νιτρικός υφιδράργυρος	1627	60	6.1	6.1, 52°(b)
Νιτρικός φαινυλιδράργυρος	1895	60	6.1	6.1, 33°(b)
Νιτρικός ψευδάργυρος	1514	50	5.1	5.1, 22°(b)
Νιτροαιθάνιο	2842	30	3	3, 31°(c)
Νιτροανιλίνες (ο-, m-, p-)	1661	60	6.1	6.1, 12°(b)
Νιτροβενζενосуλφονικό οξύ	2305	80	8	8, 34°(b)
Νιτροβενζόλιο	1662	60	6.1	6.1, 12°(b)
Νιτροβενζοτριφθορίδια	2306	60	6.1	6.1, 12°(b)



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(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Νιτροβρωμοβενζόλιο	2732	60	6.1	6.1, 12°(c)
Νιτροκρεζόλες (ο-, m-, p-)	2446	60	6.1	6.1, 12°(c)
Νιτροναφθαλένιο	2538	40	4.1	4.1, 6°(c)
Νιτροξυλόλια (ο-, m-, p-)	1665	60	6.1	6.1, 12°(b)
Νιτροπροπάνια	2608	30	3	3, 31°(c)
Νιτροτολουιδίνες (μονο)	2660	60	6.1	6.1, 12°(c)
Νιτροτολουόλια (ο-, m-, p-)	1664	60	6.1	6.1, 12°(b)
Νιτροφαινόλες	1663	60	6.1	6.1, 12°(c)
3-Νιτρο-4-χλωροβενζοτριφθορίδια	2307	60	6.1	6.1, 12°(b)
Νιτρώδες αμμώνιο του ψευδαργύρου	1512	50	5.1	5.1, 23°(b)
Νιτρώδες αμόλιο	1113	33	3	3, 3°(b)
Νιτρώδες βουτύλιο	2351	33	3	3, 3°(b)
Νιτρώδες βουτύλιο	2351	30	3	3, 31°(c)
Νιτρώδες δικυκλοεξυλαμμάνιο	2687	40	4.1	4.1, 11°(c)
Νιτρώδες κάλιο	1488	50	5.1	5.1, 23°(b)
Νιτρώδες νάτριο	1500	50	5.1	5.1, 23°(c)
Νιτρώδες νικέλιο	2726	50	5.1	5.1, 23°(c)
p-Νιτρωδο-διμεθυλανιλίνη	1369	40	4.2	4.2, 5°(b)
Νιτρωδυλοθειικό οξύ	2308	80	8	8, 1°(b)
2,5-Νορμποραδιένιο (Δικυκλοεπταδιένιο), αδρανές	2251	339	3	3, 3°(b)
Νουκλεατικός υδράργυρος	1639	60	6.1	6.1, 52°(b)
Ξέον	2036	20	2	2, 5°(a)
Ξέον, βαθιάς κατάψυξης	2591	22	2	2, 7°(a)
Ξυλένια	1307	30	3	3, 31°(c)
Ξυλένια	1307	33	3	3, 3°(b)
Ξυλενόλες	2261	60	6.1	6.1, 14°(b)
Ξυλιδίνα	1711	60	6.1	6.1, 12°(b)

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(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Επικέτα (d)	Αριθμός Κλάσης και είδους (e)
Ξυλοβρωμίδιο	1701	60	6.1	6.1, 15°(b)
Οινόπνευμα κινητήρων	1203	33	3	3, 3°(b)
Οκταδιένιο	2309	33	3	3, 3°(b)
Οκταδεύδες (Αιθυλεξαλδεύδες)	1191	30	3	3, 31°(c)
Οκτάνια	1262	33	3	3, 3°(b)
Οκταφθοροκυκλοβουτάνιο (RC 318)	1976	20	2	2, 3°(a)
Οκτυλοτριχλωροσιλάνιο	1801	X80	8	8, 36°(b)
Οξαλικός αιθυλεστέρας	2525	60	6.1	6.1, 14°(c)
Οξειδιο του βαρίου	1884	60	6.1	6.1, 60°(c)
Οξειδιο του σιδήρου, χρησιμοποιημένο	1376	40	4.2	4.2, 16°(c)
Οξειδιο του υδραργύρου	1641	60	6.1	6.1, 52°(b)
Οξικό βινύλιο, αδρανές	1301	339	3	3, 3°(b)
Οξικό οξύ, παγόμορφο	2789	83	8+3	8, 32°(b)2.
Οξικό οξύ, σε διάλυμα	2789	83	8+3	8, 32°(b)2.
Οξικό οξύ, σε διάλυμα	2790	80	8	8, 32° (b)1.,(c)
Οξικοί αμυλεστέρες	1104	30	3	3, 31°(c)
Οξικοί βουτυλεστέρες	1123	30	3	3, 31°(c)
Οξικοί βουτυλεστέρες	1123	33	3	3, 3°(b)
Οξικός αιθυλβουτυλεστέρας	1177	30	3	3, 31°(c)
Οξικός αιθυλεστέρας	1173	33	3	3, 3°(b)
Οξικός αλλυλεστέρας	2333	336	3+6.1	3, 17°(b)
Οξικός ανυδρίτης	1715	83	8+3	8, 32°(b)2.
Οξικός ισοβουτυλεστέρας	1213	33	3	3, 3°(b)
Οξικός ισοπροπυλεστέρας	2403	33	3	3, 3°(b)
Οξικός ισοπροπυλεστέρας	1220	33	3	3, 3°(b)
Οξικός κυκλοεξυλεστέρας	2243	30	3	3, 31°(c)
Οξικός μεθυλαμυλεστέρας	1233	30	3	3, 31°(c)

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(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Οξικός μεθυλεστέρας	1231	33	3	3, 3°(b)
Οξικός μόλυβδος	1616	60	6.1	6.1, 62°(c)
Οξικός μονομεθυλαιθέρας της αιθυλενογλυκόλης	1172	30	3	3, 31°(c)
Οξικός μονομεθυλαιθέρας της αιθυλενογλυκόλης	1189	30	3	3, 31°(c)
Οξικός υδράργυρος	1629	60	6.1	6.1, 52°(b)
n-Οξικός προπυλεστέρας	1276	33	3	3, 3°(b)
Οξικός φαινυλδράργυρος	1674	60	6.1	6.1, 33°(b)
Οξιμη της ακεταλδεϋδης	2332	30	3	3, 31°(c)
Οξινο διφθοριούχο νάτριο	2439	80	8	8, 9°(b)
Οξινο θειικό αμμώνιο	2506	80	8	8, 13°(b)
Οξινο θειικό κάλιο	2509	80	8	8, 13°(b)
Οξινο φωσφορικό αμύλιο	2819	80	8	8, 38°(c)
Οξινο φωσφορικό βουτύλιο	1718	80	8	8, 38°(c)
Οξινο φωσφορικό διίσοοκτύλιο	1902	80	8	8, 38°(c)
Οξινο φωσφορικό ισοπροπύλιο	1793	80	8	8, 38°(c)
Οξινος φώσφορος	2834	80	8	8, 16°(c)
Οξυβρωμιούχος φώσφορος	1939	80	8	8, 11°(b)
Οξυβρωμιούχος φώσφορος, τετηγμένο	2576	80	8	8, 15°
Οξυγόνο, βαθιάς κατάψυξης	1073	225	2+05	2, 7°(a)
Οξυγόνο, πεπεσμένο	1072	20	2+05	2, 1°(a)
Οξυκυανίδιο του υδραργύρου, απευαισθητοποιημένο	1642	60	6.1	6.1, 41°(b)
Οξυτριχλωριούχο βανάδιο	2443	80	8	8, 12°(b)
Οξυχλωριούχο σελήνιο	2879	886	8+6.1	8, 12°(a)
Οξυχλωριούχο χρώμιο	1758	88	8	8, 12°(a)
Οξυχλωριούχος φώσφορος	1810	80	8	8, 12°(b)
Ορθομυρμηκικός αιθυλεστέρας	2524	30	3	3, 31°(c)

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(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Ορθοπυριτικός μεθυλεστέρας (Τετραμεθοξυσιλάνιο)	2606	663	6.1+3	6.1, 8°(a)
Ορθοιτιτανικός τετραπροπυλεστέρας	2413	30	3	3, 31°(c)
Παραδεύδη	1264	30	3	3, 31°(c)
Παρασκευάσματα maneb	2210	40	4.2+4.3	4.2, 16°(c)
Παρασκευάσματα maneb, σταθεροποιημένα	2968	423	4.3	4.3, 20°(c)
Παραφορμαλδεύδη	2213	40	4.1	4.1, 6°(c)
Πενταβοράνιο	1380	333	4.2+6.1	4.2, 19°(a)
Πενταβρωμιούχος φώσφορος	2691	80	8	8, 11°(b)
Πενταθειούχος φώσφορος	1340	423	4.3	4.3, 20°(b)
Πεντακαρβονύλιο του σιδήρου	1994	663	6.1+3	6.1, 3°
Πενταμέθυλο επτάνιο (Ισοδωδεκάνιο)	2286	30	3	3, 31°(c)
Πεντάνια, υγρά	1265	33	3	3, 1°(a)
Πεντάνια, υγρά	1265	33	3	3, 2°(b)
Πεντανο-2,4-διόνη	2310	30	3	3, 31°(c)
Πενταφθοριούχο αντιμόνιο	1732	86	8+6.1	8, 10°(b)
Πενταφθοριούχο βρώμιο	1745	568	5.1+6.1+8	5.1, 5°
Πενταφθοριούχο ιώδιο	2495	568	5.1+6.1+8	5.1, 5°
Πενταφθοροαιθάνιο (R 125)	3220	20	2	2, 5°(a)
Πενταχλωριούχο αντιμόνιο, υγρό	1730	80	8	8, 12°(b)
Πενταχλωριούχο μολυβδένιο	2508	80	8	8, 11°(c)
Πενταχλωριούχος φώσφορος	1806	80	8	8, 11°(b)
Πενταχλωροαιθάνιο	1669	60	6.1	6.1, 15°(b)
Πενταχλωροφαινικό νάτριο	2567	60	6.1	6.1, 17°(b)
Πενταχλωροφαινόλη	3155	60	6.1	6.1, 17°(b)
1-Πεντένιο (n-Αμυλένιο)	1108	33	3	3, 1°(a)
1-Πεντόλη	2705	80	8	8, 66°(b)
Πεντοξειδίο του αρσενικού	1559	60	6.1	6.1, 51°(b)

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(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Πεντοξειδίο του βαναδίου	2862	60	6.1	6.1, 58°(b)
Πεντοξειδίο του φωσφόρου	1807	80	8	8, 16°(b)
Πετρέλαιο θέρμανσης (ελαφρό)	1202	30	3	3, 31°(c)
Πικολίνες	2313	30	3	3, 31°(c)
Πιπεραζίνη	2579	80	8	8, 52°(c)
Πιπεριδίνη	2401	338	3+8	3, 23°(b)
Πίτσες, υγρές	1999	30	3	3, 31°(c)
Πίτσες, υγρές	1999	33	3	3, 5°(b),(c)
Πολυαλογονωμένα διφαινύλια, στερεά	3152	90	9	9, 2°(b)
Πολυαλογονωμένα διφαινύλια, υγρά	3151	90	9	9, 2°(b)
Πολυαλογονωμένα τερφαινύλια, στερεά	3152	90	9	9, 2°(b)
Πολυαλογονωμένα τερφαινύλια, υγρά	3151	90	9	9, 2°(b)
Πολυβαναδικό αμμώνιο	2861	60	6.1	6.1, 58°(b)
Πολυμερικές κλίνες, επεκτεινόμενες	2211	90	9	9, 4°(c)
Πολυχλωριωμένα διφαινύλια	2315	90	9	9, 2°(b)
Πορφυρό του Λονδίνου	1621	60	6.1	6.1, 51°(b)
Προϊόντα αρωματοποίησης	1266	33	3	3, 5°(a),(b),(c)
Προϊόντα αρωματοποίησης	1266	30	3	3, 31°(c)
Προπάνιο, τεχνικά καθαρό	1978	23	3	2, 3°(b)
Προπανοθιόλες (προπολυμερκαπτάνες)	2402	33	3	3, 3°(b)
n-Προπανόλη	1274	33	3	3, 3°(b)
n-Προπανάλη	1274	30	3	3, 31°(c)
Προπιοναλδεΐδη	1275	33	3	3, 3°(b)
Προπιονικό οξύ	1848	80	8	8, 32°(c)
Προπιονικός αιθυλεστέρας	1195	33	3	3, 3°(b)
Προπιονικός ανυδρίτης	2496	80	8	8, 32°(c)
Προπιονικός βουτυλεστέρας	1914	30	3	3, 31°(c)

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(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Προπιονικός ισοβουτυλεστέρας	2394	33	3	3, 3°(b)
Προπιονικός ισοπροπυλεστέρας	2409	33	3	3, 3°(b)
Προπιονικός μεθυλεστέρας	1248	33	3	3, 3°(b)
Προπιονιτρίλιο	2404	336	3+6.1	3, 11°(b)
Προπιονυλοχλωρίδιο	1815	338	3+8	3, 25°(b)
Προπυλαμίνη	1277	338	3+8	3, 22°(b)
Προπυλένιο	1077	23	3	2, 3°(b)
1,2-Προπυλενοδιαμίνη	2258	83	8+3	8, 54°(b)
Προπυλενιμίνη, αδρανής	1921	336	3+6.1	3, 12°
Προπυλενοξείδιο, αδρανές	1280	339	3	3, 2°(a)
Προπυλενοχλωρυδρίνη	2611	63	6.1+3	6.1, 16°(b)
n-Προπυλοβενζόλιο	2364	30	3	3, 31°(c)
Προπυλοτριχλωροσιλάνιο	1816	X83	8+3	8, 37°(b)
Πυριδίνη	1282	33	3	3, 3°(b)
Πυριτική σκόνη αλουμινίου, μη καλυμμένη	1398	423	4.3	4.3, 13°(c)
Πυριτικό μαγνήσιο	2624	423	4.3	4.3, 12°(b)
Πυριτικός τετρααιθυλεστέρας	1292	30	3	3, 31°(c)
Πυρίτιο σε σκόνη, άμορφο	1346	40	4.1	4.1, 13°(c)
Πυριτιούχο λίθιο	1417	423	4.3	4.3, 12°(b)
Πυροσουλφουρυλοχλωρίδιο	1817	80	8	8, 12°(b)
Πυρρολιδίνη	1922	338	3+8	3, 23°(b)
Ρεζορσίνη	2876	60	6.1	6.1, 14°(c)
Ρουβίδιο	1423	X423	4.3	4.3, 11°(a)
Σαλικυλική νικοτίνη	1657	60	6.1	6.1, 90°(b)
Σαλικυλικός υδράργυρος	1644	60	6.1	6.1, 52°(b)
Σελήνιο σε σκόνη	2658	60	6.1	6.1, 55°(c)
Σιδηροδημήτριο	1323	40	4.1	4.1, 13°(b)

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(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Σιδηρομεταλλικά ρινίσματα, εκτροπανίσματα, υπολείμματα τόννου ή κομμάτια	2793	40	4.2	4.2, 12°(c)
Σιδηροπυρρική σκόνη αλουμινίου	1395	462	4.3+6.1	4.3, 15°(b)
Σιδηροπυρρικό λίθιο	2830	423	4.3	4.3, 12°(b)
Σιδηροπυρρίτιο	1408	462	4.3+6.1	4.3, 15°(c)
Σκόνη αλουμινίου, επικαλυμμένη	1309	40	4.1	4.1, 13° (b),(c)
Σκόνη αλουμινίου, μη καλυμμένη	1396	423	4.3	4.3, 13°(b)
Σκόνη με αρσενικό	1562	60	6.1	6.1, 51°(b)
Σκόνη ψευδαργύρου	1436	423	4.3+4.2	4.3, 14°(b),(c)
Σκουριά αλουμινίου	3170	423	4.3	4.3, 13° (b),(c)
Σουλφαμικό οξύ	2967	80	8	8, 16°(c)
Σουλφουρυλογλωρίδιο	1834	X88	8	8, 12°(a)
Σπογγώδες τιτάνιο, σε μορφή σκόνης ή κόκκων	2878	40	4.1	4.1, 13°(c)
Σπογγώδης σίδηρος, χρησιμοποιημένος	1376	40	4.2	4.2, 16°(c)
Στρυχνίνη ή άλατα αυτής	1692	66	6.1	6.1, 90°(a)
Σύμπλοκο τριφθοριούχου βορίου και οξικού οξέος	1742	80	8	8, 33°(b)
Σύμπλοκο τριφθοριούχου βορίου και προπιονικού οξέος	1743	80	8	8, 33°(b)
Συντηρητικά ξύλου, υγρά	1306	33	3	3, 5°(b),(c)
Συντηρητικά ξύλου, υγρά	1306	30	3	3, 31°(c)
Συσσωμάτωμα σπόρων	1386	40	4.2	4.2, 2°(c)
Συσσωμάτωματα σπόρων	2217	40	4.2	4.2, 2°(c)
Τερπινολένιο	2541	30	3	3, 31°(c)
Τετρααιθυλενοπενταμίνη	2320	80	8	8, 53°(c)
Τετραβρωμιούχος άνθρακας	2516	60	6.1	6.1, 15°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Τετραβρωμοαιθάνιο	2504	60	6.1	6.1, 15°(c)
Τετραθειούχος φώσφορος	1341	40	4.1	4.1, 11°(b)
Τετραμεθυλοσιλάνιο	2749	33	3	3, 1°(a)
Τετραμερές προπυλένιο	2850	30	3	3, 31°(c)
Τετρανιτρομεθάνιο	1510	559	5.1+6.1	5.1, 2°(a)
1,2,3,6-Τετραϋδροβενζαλδεΐδη	2498	30	3	3, 31°(c)
Τετραϋδροθειοφαίνιο (θειολάννιο)	2412	33	3	3, 3°(b)
1,2,3,6-Τετραϋδροπυριδίνη	2410	33	3	3, 3°(b)
Τετραϋδροφθαλκικοί ανυδρίτες	2698	80	8	8, 31°(c)
Τετραϋδροφουράνιο	2056	33	3	3, 3°(b)
Τετραϋδροφουρουλαμίνη	2943	30	3	3, 31°(c)
1,1,1,2-Τετραφθοροαιθάνιο (R 134a)	3159	20	2	2, 3°(a)
Τετραφθορομεθάνιο (R 14)	1982	20	2	2, 1°(a)
Τετραφωσφορικός εξααιθυλεστέρας	1611	60	6.1	6.1, 23°(b)
Τετραχλωράνθρακας	1846	60	6.1	6.1, 15°(b)
Τετραχλωριούχο βανάδιο	2444	88	8	8, 12°(a)
Τετραχλωριούχο ζιρκόνιο	2503	80	8	8, 11°(c)
Τετραχλωριούχο πυρίτιο	1818	80	8	8, 12°(b)
Τετραχλωριούχο τιτάνιο	1838	80	8	8, 12°(b)
1,1,2,2-Τετραχλωροαιθάνιο	1702	60	6.1	6.1, 15°(b)
Τετραχλωροαιθυλένιο	1897	60	6.1	6.1, 15°(c)
Τέφρα ψευδαργύρου	1435	423	4.3	4.3, 13°(c)
Τιτάνιο σε σκόνη, ναπό	1352	40	4.1	4.1, 13°(b)
Τιτάνιο σε σκόνη, ξηρό	2546	40	4.2	4.2, 12°(b),(c)
Τολουϊδίνες	1708	60	6.1	6.1, 12°(b)
Τολουόλιο	1294	33	3	3, 3°(b)
2,4-Τολουύλενοδιαμίνη	1709	60	6.1	6.1, 12°(c)



250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Τουρπεντίνης	1299	30	3	3, 31°(c)
Τριαιθυλενοτετραμίνη	2259	80	8	8, 53°(b)
Τριαλλυλαμίνη	2610	38	3+8	3, 33°(c)
Τριβουτυλαμίνη	2542	80	8	8, 53°(c)
Τριβρωμιούχο βόριο (βρωμιούχο βόριο)	2692	X88	8	8, 12°(a)
Τριβρωμιούχος φώσφορος	1808	80	8	8, 12°(b)
Τριεθυλαμίνη	1296	338	3+8	3, 22°(b)
Τριθειούχος φώσφορος	1343	40	4.1	4.1, 11°(b)
Τριϊσοβουτυλένιο (τριμερές ισοβουτυλένιο)	2324	30	3	3, 31°(c)
Τριμεθυλακετυλοχλωρίδιο	2438	663	6.1+3+8	6.1, 10°(a)
Τριμεθυλαμίνη, άνυδρη	1083	236	3+6.1	2, 3°(bt)
1,3,5-Τριμεθυλοβενζόλιο	2325	30	3	3, 31°(c)
Τριμεθυλοεξαμεθυλενοδιαμίνες	2327	80	8	8, 53°(c)
Τριμεθυλοκυκλοεξυλαμίνη	2326	80	8	8, 53°(c)
Τριμεθυλοχλωροσιλάνιο	1298	X338	3+8	3, 21°(b)
Τριοξείδιο του αρσενικού	1561	60	6.1	6.1, 51°(b)
Τριοξείδιο του θείου, αδρανές	1829	X88	8	8, 1°(a)
Τριοξείδιο του φωσφόρου	2578	80	8	8, 16°(c)
Τριοξείδιο του χρωμίου, άνυδρο	1463	58	5.1+8	5.1, 31°(b)
Τριοξοπυριτικό δινάτριο πεντένυδρο	3253	80	8	8, 41°(c)
Τριπροπυλαμίνη	2260	38	3+8	3, 33°(c)
Τριπροπυλένιο	2057	33	3	3, 3°(b)
Τριπροπυλένιο	2057	30	3	3, 31°(c)
Τριτοταγής οκτυλομερκαπτάνη	3023	63	6.1+3	6.1, 20°(b)
Τριφθοριούχο Βόριο	1008	26	6.1	2, 1°(at)
Τριφθοριούχο βόριο, ενυδατωμένο	2851	80	8	8, 10°(b)
Τριφθοριούχο βρώμιο	1746	568	5.1+6.1+8	5.1, 5°

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1,1,1-Τριφθοροαιθάνιο	2035	23	3	2, 3°(b)
Τριφθορομεθάνιο (R 23)	1984	20	2	2, 5°(a)
2-Τριφθορομεθυλανιλίνη	2942	60	6.1	6.1, 12°(c)
3-Τριφθορομεθυλανιλίνη	2948	60	6.1	6.1, 17°(b)
Τριφθοροξικό οξύ	2699	88	8	8, 32°(a)
Τριφθοροχλωροαιθυλένιο (R 1113)	1082	236	3+6.1	2, 3°(ct)
Τριχλωρίδιο του αρσενικού	1560	66	6.1	6.1, 51°(a)
Τριχλωρικό οξύ	1839	80	8	8, 31°(b)
Τριχλωριούχο αντιμόνιο	1733	80	8	8, 11°(b)
Τριχλωριούχο βανάδιο	2475	80	8	8, 11°(c)
Τριχλωριούχος σίδηρος, άνυδρος	1773	80	8	8, 11°(c)
Τριχλωριούχος φώσφορος	1809	886	8+6.1	8, 12°(a)
1,1,1-Τριχλωροαιθάνιο	2831	60	6.1	6.1, 15°(c)
Τριχλωροαιθυλένιο	1710	60	6.1	6.1, 15°(c)
Τριχλωροακετυλοχλωρίδιο	2442	X80	8	8, 35°(b)1.
Τριχλωροβενζόλια, υγρά	2321	60	6.1	6.1, 15°(c)
Τριχλωροβουτένιο	2322	60	6.1	6.1, 15°(b)
Τριχλωροϊσοκυανουρικό οξύ, ξηρό	2468	50	5.1	5.1, 26°(b)
Τριχλωροξικός μεθυλεστέρας	2533	60	6.1	6.1, 17°(c)
Τριχλωροσίλάνιο	1295	X338	4.3+3+8	4.3, 1°(a)
Τρυγική νικοτίνη	1659	60	6.1	6.1, 90°(b)
Τρυγικό αντιμωνοκάλιο	1551	60	6.1	6.1, 59°(c)
Υβρίδιο ζirkονίου	1437	40	4.1	4.1, 14°(b)
Υβριδίου του λιθίου, λυωμένο στερεό	2805	423	4.3	4.3, 16°(b)
Υγρά μπαταρίας, αλκαλικά	2797	80	8	8, 42°(b)
Υγρά μπαταρίας, όξινα	2796	80	8	8, 1°(b)
Υδατικό διάλυμα αιθυλαμίνης	2270	338	3+8	3, 22°(b)
Υδατικό διάλυμα αρσενίτη του νατρίου	1686	60	6.1	6.1,

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(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
				51°(b),(c)
Υδατικό διάλυμα διθειικών αλάτων	2837	80	8	8, 1°(b),(c)
Υδατικό διάλυμα διμεθυλαμίνης	1160	338	3+8	3, 22°(b)
Υδατικό διάλυμα μεθυλαμίνης	1235	338	3+8	3, 22°(b)
Υδατικό διάλυμα τριμεθυλαμίνης	1297	338	3+8	3, 22°(a),(b)
Υδατικό διάλυμα τριμεθυλαμίνης	1297	38	3+8	3, 33°(c)
Υδατικό διάλυμα υδραζίνης	2030	86	8+6.1	8, 44°(b)
Υδατικό διάλυμα υδραζίνης	3293	60	6.1	6.1, 65°(c)
Υδατικό διάλυμα υδροκυανίου (Υδροκυάνιο)	1613	663	6.1+3	6.1, 2°
Υδατικό διάλυμα υπεροξειδίου του υδρογόνου	2014	58	5.1+8	5.1, 1°(b)
Υδατικό διάλυμα υπεροξειδίου του υδρογόνου	2984	50	5.1	5.1, 1°(c)
Υδατικό διάλυμα υπεροξειδίου του υδρογόνου, σταθεροποιημένο	2015	559	5.1+8	5.1, 1°(a)
Υδατικό διάλυμα χλωρικού ασβεστίου	2429	50	5.1	5.1, 11°(b)
Υδατικό διάλυμα χλωρικού καλίου	2427	50	5.1	5.1, 11°(b)
Υδατικό διάλυμα χλωρικού νατρίου	2428	50	5.1	5.1, 11°(b)
Υδατικό διάλυμα χλωρικού οξέος	2626	50	5.1	5.1, 4°(b)
Υδραέριο	2600	236	3+6.1	2, 2°(bt)
Υδραζίνη, ένυδρη	2030	86	8+6.1	8, 44°(b)
Υδράργυρος	2809	80	8	8, 66°(c)
Υδρίδιο του νατραργιλίου	2835	423	4.3	4.3, 16°(b)
Υδρίδιου του τιτανίου	1871	40	4.1	4.1, 14°(b)
Υδροβρώμιο	1048	286	8+6.1	2, 3°(at)
Υδρογόνο, βαθιάς κατάψυξης	1966	223	3	2, 7°(b)
Υδρογόνο, πεπιεσμένο	1049	23	3	2, 1°(b)
Υδροδιφθοριούχο αμμώνιο, στερεό	1727	80	8	8, 9°(b)

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Υδροδιφθοριούχο κάλιο	1811	86	8+6.1	8, 9°(b)
Υδροθειούχο νάτριο	2318	40	4.2	4.2, 13°(b)
Υδροθείο	1053	236	3+6.1	2, 3°(bt)
Υδροκινόνη	2662	60	6.1	6.1, 14°(c)
Υδροξείδιο του καϊσίου	2682	80	8	8, 41°(b)
Υδροξείδιο του καλίου, στερεό	1813	80	8	8, 41°(b)
Υδροξείδιο του λιθίου, ενυδατωμένο	2680	80	8	8, 41°(b)
Υδροξείδιο του νατρίου, στερεό	1823	80	8	8, 41°(b)
Υδροξείδιο του ρουβιδίου	2678	80	8	8, 41°(b)
Υδροξείδιο του τετραμεθυλαμμωνίου	1835	80	8	8, 51°(b)
Υδροξείδιο του φαινυλδραργύρου	1894	60	6.1	6.1, 33°(b)
Υδροσουλφίδιο του νατρίου	2949	80	8	8, 45°(b)1.
Υδροφθόριο, άνυδρο	1052	886	8+6.1	8, 6°
Υδροχλωρική 4-χλωρο-ο-τολουϊδίνη	1579	60	6.1	6.1, 17°(c)
Υδροχλωρική ανιλίνη	1548	60	6.1	6.1, 12°(c)
Υδροχλωρική νικοτίνη ή διάλυμα αυτής	1656	60	6.1	6.1, 90°(b)
Υδροχλώριο	1050	286	8+6.1	2, 5°(at)
Υλικά σχετικά με ελαιοχρώματα	1263	30	3	3, 31°(c)
Υλικά σχετικά με ελαιοχρώματα	1263	33	3	3, 5°(a),(b),(c)
Υπερανθρακικό νάτριο	2467	50	5.1	5.1, 19°(c)
Υπερθεϊκό αμμώνιο	1444	50	5.1	5.1, 18°(c)
Υπερθεϊκό κάλιο	1492	50	5.1	5.1, 18°(c)
Υπερθεϊκό νάτριο	1505	50	5.1	5.1, 18°(c)
Υπερμαγγανικό ασβέστιο	1456	50	5.1	5.1, 17°(b)
Υπερμαγγανικό βάριο	1448	56	5.1+6.1	5.1, 29°(b)
Υπερμαγγανικό κάλιο	1490	50	5.1	5.1, 17°(b)
Υπερμαγγανικό νάτριο	1503	50	5.1	5.1, 17°(b)

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(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Υπερμαγνητικός ψευδάργυρος	1515	50	5.1	5.1, 17°(b)
Υπεροξειδίο του ασβεστίου	1457	50	5.1	5.1, 25°(b)
Υπεροξειδίο του βαρίου	1449	56	5.1+6.1	5.1, 29°(b)
Υπεροξειδίο του λιθίου	1472	50	5.1	5.1, 25°(b)
Υπεροξειδίο του μαγνησίου	1476	50	5.1	5.1, 25°(b)
Υπεροξειδίο του στροντίου	1509	50	5.1	5.1, 25°(b)
Υπεροξειδίο του υδρογόνου της ουρίας	1511	58	5.1+8	5.1, 31°(c)
Υπεροξειδίο του υδρογόνου, σταθεροποιημένο	2015	559	5.1+8	5.1, 1°(a)
Υπεροξειδίο του ψευδαργύρου	1516	50	5.1	5.1, 25°(b)
Υπεροξοβορικό νάτριο, άνυδρο	3247	50	5.1	5.1, 27°(b)
Υπερχλωρικό	1802	85	8	8, 4°(b)
Υπερχλωρικό ασβέστιο	1455	50	5.1	5.1, 13°(b)
Υπερχλωρικό βάριο	1447	56	5.1+6.1	5.1, 29°(b)
Υπερχλωρικό κάλιο	1489	50	5.1	5.1, 13°(b)
Υπερχλωρικό μαγνήσιο	1475	50	5.1	5.1, 13°(b)
Υπερχλωρικό νάτριο	1502	50	5.1	5.1, 13°(b)
Υπερχλωρικό οξύ, με περισσότερο από 50% αλλά όχι περισσότερο από 72% οξύ, κατά βάρος	1873	558	5.1+8	5.1, 3°(a)
Υπερχλωρικό στρόντιο	1508	50	5.1	5.1, 13°(b)
Υπερχλωρικός μόλυβδος	1470	56	5.1+6.1	5.1, 29°(b)
Υπερχλωρομεθυλομερκαπτάνη	1670	66	6.1	6.1, 17°(a)
Υποκατάστατο τουρπεντίνη	1300	33	3	3, 3°(b)
Υποκατάστατο τουρπεντίνη	1300	30	3	3, 31°(c)
Υποξειδίο του αζώτου (N <sub>2</sub> O)	1070	25	2+05	2, 5°(a)
Υποξειδίο του αζώτου, βαθιάς κατάψυξης	2201	225	2+05	2, 7°(a)
Υποχλωριώδες ασβέστιο, ενυδατωμένο	2880	50	5.1	5.1, 15°(b)
Υποχλωριώδες ασβέστιο, ξηρό	1748	50	5.1	5.1, 15°(b)

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Υποχλωριώδες βάριο	2741	56	5.1+6.1	5.1, 29°(b)
Υποχλωριώδες διάλυμα με περιεκτικότητα σε ενεργό χλώριο μεταξύ 5 και 16%	1791	80	8	8, 61°(b),(c)
Υποχλωριώδες λίθιο, σε μείγμα ή ξηρό	1471	50	5.1	5.1, 15°(b)
Φαινακυλοβρωμίδιο	2645	60	6.1	6.1, 17°(b)
Φαινετιδίνια	2311	60	6.1	6.1, 12°(c)
Φαινόλη, στερεά	1671	60	6.1	6.1, 14°(b)
Φαινόλη, τετηγμένη	2312	60	6.1	6.1, 24°(b)
Φαινολικά άλατα, στερεά	2905	80	8	8, 62°(c)
Φαινολικά άλατα, υγρά	2904	80	8	8, 62°(c)
Φαινολοσουλφονικό οξύ, υγρό	1803	80	8	8, 34°(b)
Φαινυλακετονιτρίλιο, υγρό	2470	60	6.1	6.1, 12°(c)
Φαινυλακετυλοχλωρίδιο	2577	80	8	8, 35°(b)1.
Φαινυλενοδιαμίνες (ο-, m-, p-)	1673	60	6.1	6.1, 12°(c)
Φαινυλομερκαπτάνη	2337	663	6.1+3	6.1, 20°(a)
Φαινυλοτριχλωροσιλάνιο	1804	X80	8	8, 36°(b)
Φαινυλδραζίνη	2572	60	6.1	6.1, 12°(b)
Φθαλικό ανυδρίδιο	2214	80	8	8, 31°(c)
Φθοριούχο αμμώνιο	2505	60	6.1	6.1, 63°(c)
Φθοριούχο κάλιο	1812	60	6.1	6.1, 63°(c)
Φθοριούχο νάτριο	1690	60	6.1	6.1, 63°(c)
Φθοριούχο χρώμιο, στερεό	1756	80	8	8, 9°(b)
Φθοροανιλίνη	2941	60	6.1	6.1, 12°(c)
Φθοροβενζόλιο	2387	33	3	3, 3°(b)
Φθοροβορικό οξύ	1775	80	8	8, 8°(b)
Φθοροξικό κάλιο	2628	66	6.1	6.1, 17°(a)
Φθοροξικό νάτριο	2629	66	6.1	6.1, 17°(a)
Φθοροξικό οξύ	2642	66	6.1	6.1, 17°(a)

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(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Φθοροπυριτικό αμμώνιο	2854	60	6.1	6.1, 64°(c)
Φθοροπυριτικό κάλιο	2655	60	6.1	6.1, 64°(c)
Φθοροπυριτικό μαγνήσιο	2853	60	6.1	6.1, 64°(c)
Φθοροπυριτικό νάτριο	2674	60	6.1	6.1, 64°(c)
Φθοροπυριτικό οξύ	1778	80	8	8, 8°(b)
Φθοροπυριτικός ψευδάργυρος	2855	60	6.1	6.1, 64°(c)
Φθοροσουλφονικό οξύ	1777	88	8	8, 8°(a)
Φθοροτολουόλια	2388	33	3	3, 3°(b)
Φθοροφωσφορικό οξύ, άνυδρο	1776	80	8	8, 8°(b)
Φουμαρυλογλωρίδιο	1780	80	8	8, 35°(b)1.
Φουράνιο	2389	33	3	3, 1°a)
Φουρφουράλη (φουρφουραλαλδεϋδη)	1199	30	3	3, 31°(c)
Φουρφουρυλαλκοόλη	2874	60	6.1	6.1, 14°(c)
Φουρφουρυλαμίνη	2526	38	3+8	3, 33°(c)
Φυσικό αέριο, βαθιάς κατάψυξης	1972	223	3	2, 8°(b)
Φυσικό αέριο, πεπεσμένο	1971	23	3	2, 2°(b)
Φωσγένιο	1076	266	6.1+8	2, 3°(at)
Φωσφορικό οξύ	1805	80	8	8, 17°(c)
Φωσφορικό τρικρεζύλιο	2574	60	6.1	6.1, 23°(b)
9-Φωσφοροδικυκλοεννεάνια (κυκλοοκταδιενοφωσφίνη)	2940	40	4.2	4.2, 5°(b)
Φώσφορος, άμορφος	1338	40	4.1	4.1, 11°(c)
Φώσφορος, λευκός ή κίτρινος, ξηρός	1381	46	4.2+6.1	4.2, 11°(a)
Φώσφορος, λευκός ή κίτρινος, τετηγμένος	2447	446	4.2+6.1	4.2, 22°
Φωσφορώδης μόλυβδος, διβασικός	2989	40	4.1	4.1, 11°(b),(c)
Φωσφορώδης τριαιθυλεστέρας	2323	30	3	3, 31°(c)
Φωσφορώδης τριμεθυλεστέρας	2329	30	3	3, 31°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Χαλκοκυανίδιου του καλίου	1679	60	6.1	6.1, 41°(b)
Χαρτί, κατεργασμένο με ακόρεστο λάδι	1379	40	4.2	4.2, 3°(c)
Χλωρακετονιτρίλιο	2668	63	6.1+3	6.1, 11°(b)
Χλωράλη, άνυδρη, αδρανής	2075	60	6.1	6.1, 17°(b)
Χλωριδιφθορομεθάνιο (R 22)	1018	20	2	2, 3°(a)
Χλωρικό ασβέστιο	1452	50	5.1	5.1, 11°(b)
Χλωρικό βάριο	1445	56	5.1+6.1	5.1, 29°(b)
Χλωρικό βουτυρύλιο	2353	338	3+8	3, 25°(b)
Χλωρικό θάλλιο	2573	56	5.1+6.1	5.1, 29°(b)
Χλωρικό κάλιο	1485	50	5.1	5.1, 11°(b)
Χλωρικό μαγνήσιο	2723	50	5.1	5.1, 11°(b)
Χλωρικό νάτριο	1495	50	5.1	5.1, 11°(b)
Χλωρικό στρόντιο	1506	50	5.1	5.1, 11°(b)
Χλωρικός χαλκός	2721	50	5.1	5.1, 11°(b)
Χλωρικός ψευδάργυρος	1513	50	5.1	5.1, 11°(b)
Χλωριούχα φαινυλοκαρβιλαμίνη	1672	66	6.1	6.1, 17°(a)
Χλωριούχο αλουμίνιο, άνυδρο	1726	80	8	8, 11°(b)
Χλωριούχο βενζοΐλιο	1736	80	8	8, 35°(b)1.
Χλωριούχο βενζυλιδένιο	1886	60	6.1	6.1, 15°(b)
Χλωριούχο διχλωροακετύλιο	1765	Χ80	8	8, 35°(b)1.
Χλωριούχο χλωροακετύλιο	1752	668	6.1+8	6.1, 27°(a)
Χλωριούχος κασσίτερος, άνυδρος	1827	80	8	8, 12°(b)
Χλωριούχος κασσίτερος, ενυδατωμένος	2440	80	8	8, 11°(c)
Χλωριούχος υδράργυρος	1624	60	6.1	6.1, 52°(b)
Χλωριούχος χαλκός	2802	80	8	8, 11°(c)
Χλωριούχος ψευδάργυρος, άνυδρος	2331	80	8	8, 11°(c)
Χλώριο	1017	266	6.1+8	2, 3°(at)



250 000  
(συνεχ.)

## Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Χλωριώδες ασβέστιο	1453	50	5.1	5.1, 14°(b)
Χλωριώδες διάλυμα με όχι λιγότερο από 16% διαθέσιμο χλώριο	1908	80	8	8, 61°(b),(c)
Χλωριώδες νάτριο	1496	50	5.1	5.1, 14°(b)
Χλωροακεταλδεΐδη	2232	66	6.1	6.1, 17°(a)
Χλωροακετόνη, σταθεροποιημένη	1695	60	6.1	6.1, 17°(b)
Χλωροακετοφαινόλη	1697	60	6.1	6.1, 17°(b)
Χλωροανιλίνες, στερεές	2018	60	6.1	6.1, 12°(b)
Χλωροανιλίνες, υγρές	2019	60	6.1	6.1, 12°(b)
Χλωροανισιδίνες	2233	60	6.1	6.1, 17°(c)
Χλωροβενζόλιο	1134	30	3	3, 31°(c)
Χλωροβενζοτριφθορίδια (ο-, m-, p-)	2234	30	3	3, 31°(c)
Χλωροβενζυλοχλωρίδια	2235	60	6.1	6.1, 17°(c)
Χλωροβουτάνια	1127	33	3	3, 3°(b)
Χλωροδινιτροβενζόλια	1577	60	6.1	6.1, 12°(b)
1-Χλωρο-1,1-διφθοροαιθάνιο (R 142b)	2517	23	3	2, 3°(b)
Χλωροθειομυρμηκικός αιθυλεστέρας	2826	80	8	8, 64°(b)
Χλωροκρεζόλες	2669	60	6.1	6.1, 14°(b)
Χλωρομεθυλοαιθυλαιθέρας	2354	336	3+6.1	3, 16°(b)
3-Χλωρο-4-μεθυλοφαινυλοϊσοκυανικά άλατα	2236	60	6.1	6.1, 19°(b)
Χλωρομυρμηκικός αιθυλεστέρας	1182	663	6.1+3+8	6.1, 10°(a)
Χλωρομυρμηκικός μεθυλεστέρας	1238	663	6.1+3+8	6.1, 10°(a)
Χλωρονιτροανιλίνες	2237	60	6.1	6.1, 17°(c)
Χλωρονιτροβενζόλια	1578	60	6.1	6.1, 12°(b)
Χλωρονιτροτολουόλια	2433	60	6.1	6.1, 17°(c)
Χλωροπενταφθοροαιθάνιο (R 115)	1020	20	2	2, 3°(a)
Χλωροπικρίνη	1580	66	6.1	6.1, 17°(a)

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
Χλωροπλατινικό οξύ, στερεό	2507	80	8	8, 16°(c)
Χλωροπρένιο, αδρανές	1991	336	3+6.1	3, 16°(a)
1-Χλωροπροπάνιο (Προπυλοχλωρίδιο)	1278	33	3	3, 2°(b)
2-Χλωροπροπάνιο	2356	33	3	3, 2°(a)
3-Χλωροπροπανόλη -1	2849	60	6.1	6.1, 17°(c)
2-Χλωροπροπένιο	2456	33	3	3, 1°(a)
2-Χλωροπροπιονικό οξύ	2511	80	8	8, 32°(c)
2-Χλωροπροπιονικός αιθυλεστέρας	2935	30	3	3, 31°(c)
2-Χλωροπροπιονικός ισοπροπυλεστέρας	2934	30	3	3, 31°(c)
2-Χλωροπροπιονικός μεθυλεστέρας	2933	30	3	3, 31°(c)
2-Χλωροπυριδίνη	2822	60	6.1	6.1, 12°(b)
Χλωροσουλφονικό οξύ	1754	88	8	8, 12°(a)
1-Χλώρο-1,2,2,2-τετραφθοροαιθάνιο (R 124)	1021	20	2	2, 3°(a)
1-Χλώρο-2,2,2-τριφθοροαιθάνιο (R 133a)	1983	20	2	2, 3°(a)
Χλωροτολουϊδίνες	2239	60	6.1	6.1, 17°(c)
Χλωροτολουόλιο (ο-, m-, p-)	2238	30	3	3, 31°(c)
Χλωροτριφθορομεθάνιο (R 13)	1022	20	2	2, 5°(a)
Χλωροφαινόλες, στερεές	2020	60	6.1	6.1, 17°(c)
Χλωροφαινόλες, υγρές	2021	60	6.1	6.1, 17°(c)
Χλωροφαινολικά άλατα, στερεά	2905	80	8	8, 62°(c)
Χλωροφαινολικά άλατα, υγρά	2904	80	8	8, 62°(c)
Χλωροφαινυλοτριχλωροσιλάνιο	1753	X80	8	8, 36°(b)
Χλωροφορμικός 2-αιθυλεξυλεστέρας	2748	68	6.1+8	6.1, 27°(b)
Χλωροφορμικός αλλυλεστέρας	1722	638	6.1+8+3	6.1, 28°(a)
Χλωροφορμικός βενζυλεστέρας	1739	88	8	8, 64°(a)
n-Χλωροφορμικός βουτυλεστέρας	2743	638	6.1+3+8	6.1, 28°(b)
Χλωροφορμικός κυκλοβουτυλεστέρας	2744	638	6.1+3+8	6.1, 28°(b)

2197

250 000  
(συνεχ.)

Προσθήκη Β.5

Όνομασία ύλης (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
n-Χλωροφορμικός προπυλεστέρας	2740	668	6.1+8+3	6.1, 28°(a)
Χλωροφορμικός τριτοταγής βουτυλοκυκλοεξυλεστέρας	2747	60	6.1	6.1, 17°(c)
Χλωροφορμικός φαινυλεστέρας	2746	68	6.1+8	6.1, 27°(b)
Χλωροφορμικός χλωρομεθυλεστέρας	2745	68	6.1+8	6.1, 27°(b)
Χλωροφόρμιο	1888	60	6.1	6.1, 15°(c)
Χρώματα ή υλικά σχετικά με χρώματα	3066	80	8	8, 66°(b),(c)
Χρωμοθειικό οξύ	2240	88	8	8, 1°(a)

250 000  
(συνεχ.)

## Προσθήκη Β.5

## Πίνακας ΙΙ

Κατάλογος συλλογικών επικεφαλίδων ή εγγραφών ε.α.ο. οι οποίες δεν αναγράφονται κατά αλφαβητική σειρά, ή οι οποίες δεν κατατάσσονται σε κάποια συλλογική επικεφαλίδα του Πίνακα Ι.

Ο Πίνακας αυτός περιλαμβάνει δύο είδη συλλογικών επικεφαλίδων ή εγγραφών ε.α.ο.:

- ειδικές συλλογικές επικεφαλίδες ή εγγραφές ε.α.ο. που εφαρμόζονται σε ομάδες χημικών ενώσεων του ίδιου τύπου,
- γενικές συλλογικές επικεφαλίδες ή εγγραφές ε.α.ο. που εφαρμόζονται σε ομάδες υλών που παρουσιάζουν όμοιους πρωτεύοντες και δευτερεύοντες κινδύνους.

Υλεις θα κατατάσσονται σε κάποια γενική συλλογική επικεφαλίδα ή εγγραφή ε.α.ο. μόνο εάν δεν είναι μπορούν να καταταχθούν σε κάποια ειδική συλλογική επικεφαλίδα ή ε.α.ο.

**ΣΗΜΕΙΩΣΗ:**

Ο Πίνακας αυτός ισχύει μόνο για όλες που δεν περιλαμβάνονται στον Πίνακα Ι.

Ομάδα υλών (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός κλάσης και είδους (e)
<b>Κλάση 3: Εύφλεκτα υγρά</b> <b>Ειδικές εγγραφές ε.α.ο. ή ειδικές συλλογικές επικεφαλίδες</b>				
Κλάσματα πετρελαίου, ε.α.ο.	1268 1268 1268 1268 1268	33 33 33 33 30	3 3 3 3 3	3, 1 <sup>ο</sup> (a) 3, 2 <sup>ο</sup> (a) 3, 2 <sup>ο</sup> (b) 3, 3 <sup>ο</sup> (b) 3, 31 <sup>ο</sup> (c)
Προϊόντα πετρελαίου, ε.α.ο.	1268 1268 1268 1268 1268	33 33 33 33 30	3 3 3 3 3	3, 1 <sup>ο</sup> (a) 3, 2 <sup>ο</sup> (a) 3, 2 <sup>ο</sup> (b) 3, 3 <sup>ο</sup> (b) 3, 31 <sup>ο</sup> (c)
Υδρογονάνθρακες, υγροί, ε.α.ο.	3295 3295 3295 3295 3295	33 33 33 33 30	3 3 3 3 3	3, 1 <sup>ο</sup> (a) 3, 2 <sup>ο</sup> (a) 3, 2 <sup>ο</sup> (b) 3, 3 <sup>ο</sup> (b) 3, 31 <sup>ο</sup> (c)
Αλδεύδες, εύφλεκτες, ε.α.ο.	1989 1989 1989	33 33 30	3 3 3	3, 2 <sup>ο</sup> (b) 3, 3 <sup>ο</sup> (b) 3, 31 <sup>ο</sup> (c)
Αλκοόλες, εύφλεκτες, ε.α.ο.	1987 1987 1987	33 33 30	3 3 3	3, 2 <sup>ο</sup> (b) 3, 3 <sup>ο</sup> (b) 3, 31 <sup>ο</sup> (c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός κλάσης και είδους (e)
Κετόνες, ε.α.ο.	1224 1224 1224	33 33 30	3 3 3	3, 2°(b) 3, 3°(b) 3, 31°(c)
Αιθέρες, ε.α.ο.	3271 3271	33 30	3 3	3, 3°(b) 3, 31°(c)
Εστέρες, ε.α.ο.	3272 3272	33 30	3 3	3, 3°(b) 3, 31°(c)
Νιτρίλια, εύφλεκτα, τοξικά, ε.α.ο.	3273	336	3+6.1	3, 11°(a),(b)
Ισοκυανικά άλατα ή διαλύματα αυτών, εύφλεκτα, τοξικά, ε.α.ο.	2478 2478	336 36	3+6.1 3+6.1	3, 14°(b) 3, 32°(c)
Αλκοόλες, εύφλεκτες, τοξικές, ε.α.ο.	1986 1986	336 36	3+6.1 3+6.1	3, 17°(a),(b) 3, 32°(c)
Αλδεΐδες, εύφλεκτες, τοξικές, ε.α.ο.	1988 1988	336 36	3+6.1 3+6.1	3, 17°(a),(b) 3, 32°(c)
Μερκαπτάνες ή μείγμα μερκαπτανών, υγρές, εύφλεκτες, τοξικές, ε.α.ο.	1228 1228	336 36	3+6.1 3+6.1	3, 18°(b) 3, 32°(c)
Φάρμακα, υγρά, εύφλεκτα, τοξικά, ε.α.ο.	3248 3248	336 36	3+6.1 3+6.1	3, 19°(b) 3, 32°(c)
Χλωροσιλάνια, εύφλεκτα, διαβρωτικά, ε.α.ο.	2985	338	3+8	3, 21°(b)
Αμίνες ή πολυαμίνες, εύφλεκτες, διαβρωτικές, ε.α.ο.	2733 2733	338 38	3+8 3+8	3, 22°(a),(b) 3, 33°(c)
Διαλύματα αλκοολικών αλάτων, ε.α.ο.	3274	338	3+8	3, 24°(b)
Τερπένια υδρογονάνθρακες, ε.α.ο.	2319	30	3	3, 31°(c)
<b>Παρασιτοκτόνα</b>				
Οργανοφωσφορικά παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά	2784	336	3+6.1	3, 41°(a),(b)
Οργανοχλωρικά παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά	2762	336	3+6.1	3, 42°(a),(b)
Παρασιτοκτόνα με φαινόξυ ομάδες, υγρά, εύφλεκτα, τοξικά	2766	336	3+6.1	3, 43°(a),(b)
Καρβαμικά παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά	2758	336	3+6.1	3, 44°(a),(b)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών  (a)	Χαρακτηριστικός αριθμός υλής (Κάτω μέρος)  (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος)  (c)	Ετικέτα  (d)	Αριθμός κλάσης και είδους  (e)
Παρασιτοκτόνα με βάση τον υδράργυρο, υγρά, εύφλεκτα, τοξικά	2778	336	3+6.1	3, 45°(a),(b)
Παρασιτοκτόνα οργανοκασσιτερικά, υγρά, εύφλεκτα, τοξικά	2787	336	3+6.1	3, 46°(a),(b)
Παρασιτοκτόνα παράγωγα της κουμαρίνης, υγρά, εύφλεκτα, τοξικά	3024	336	3+6.1	3, 47°(a),(b)
Παρασιτοκτόνα διπυριδιλίου, υγρά, εύφλεκτα, τοξικά	2782	336	3+6.1	3, 48°(a),(b)
Παρασιτοκτόνα με αρσενικό, υγρά, εύφλεκτα, τοξικά	2760	336	3+6.1	3, 49°(a),(b)
Παρασιτοκτόνα με βάση το χαλκό, υγρά, εύφλεκτα, τοξικά	2776	336	3+6.1	3, 50°(a),(b)
Παρασιτοκτόνα υποκατεστημένης νιτροφαινόλης, υγρά, εύφλεκτα, τοξικά	2780	336	3+6.1	3, 51°(a),(b)
Παρασιτοκτόνα τριαζίνης, υγρά, εύφλεκτα, τοξικά	2764	336	3+6.1	3, 52°(a),(b)
Παρασιτοκτόνα βενζοϊκών παραγώγων, υγρά, εύφλεκτα, τοξικά	2770	336	3+6.1	3, 53°(a),(b)
Παρασιτοκτόνα παραγώγων του φθαλιμίδη, υγρά, εύφλεκτα, τοξικά	2774	336	3+6.1	3, 54°(a),(b)
Παρασιτοκτόνα φαινιλουρίας, υγρά, εύφλεκτα, τοξικά	2768	336	3+6.1	3, 55°(a),(b)
Διθειοκαρβαμικά Παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά	2772	336	3+6.1	3, 56°(a),(b)
Παρασιτοκτόνα, υγρά, εύφλεκτα, τοξικά, ε.α.ο.	3021	336	3+6.1	3, 57°(a),(b)
<b>Γενικές εγγραφές ε.α.ο.</b>				
Εύφλεκτα υγρά, ε.α.ο.	1993	33	3	3, 1°(a)
	1993	33	3	3, 2°(a)
	1993	33	3	3, 2°(b)
	1993	33	3	3, 3°(b)
	1993	33	3	3, 5°(c)
	1993	30	3	3, 31°(c)
Εύφλεκτα υγρά, τοξικά, ε.α.ο.	1992	336	3+6.1	3, 19°(a),(b)
	1992	36	3+6.1	3, 32°(c)

Ομάδα υλών (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός κλάσης και είδους (e)
Εύφλεκτα υγρά, διαβρωτικά, ε.α.ο.	2924 2924	338 38	3+8 3+8	3, 26°(a),(b) 3, 33°(c)
Εύφλεκτα υγρά, τοξικά, διαβρωτικά, ε.α.ο.	3286	368	3+6.1+8	3, 27°(a),(b)
Υγρά υψηλής θερμοκρασίας, εύφλεκτα, ε.α.ο.	3256	30	3	3, 61°(c)
<b>Κλάση 4.1: Εύφλεκτα στερεά</b>				
<b>Ειδικές εγγραφές ε.α.ο.</b>				
Υδρίδια μετάλλων, εύφλεκτα, ε.α.ο.	3182	40	4.1	4.1, 14°(b),(c)
<b>Γενικές εγγραφές ε.α.ο.</b>				
Στερεά περιέχοντα εύφλεκτα υγρά, ε.α.ο.	3175	40	4.1	4.1, 4°(c)
Εύφλεκτα στερεά, οργανικά, τετηγμένα, ε.α.ο.	3176	44	4.1	4.1, 5°
Εύφλεκτα στερεά, οργανικά, ε.α.ο.	1325	40	4.1	4.1, 6°(b),(c)
Εύφλεκτα στερεά, τοξικά, οργανικά, ε.α.ο.	2926	46	4.1+6.1	4.1, 7°(b),(c)
Εύφλεκτα στερεά, διαβρωτικά, οργανικά, ε.α.ο.	2925	48	4.1+8	4.1, 8°(b),(c)
Εύφλεκτα στερεά, ανόργανα, ε.α.ο.	3178	40	4.1	4.1, 11°(b),(c)
Μεταλλικά άλατα οργανικών ενώσεων, εύφλεκτα, ε.α.ο.	3181	40	4.1	4.1, 12°(b),(c)
Σκόνη μετάλλου, εύφλεκτη, ε.α.ο.	3089	40	4.1	4.1, 13°(b),(c)
Εύφλεκτα στερεά, τοξικά, ανόργανα, ε.α.ο.	3179	46	4.1+6.1	4.1, 16°(b),(c)
Εύφλεκτα στερεά, διαβρωτικά, ανόργανα, ε.α.ο.	3180	48	4.1+8	4.1, 17°(b),(c)
<b>Κλάση 4.2: Ύλες υποκείμενες σε αυτόματο ή αυτογενή ανάφλεξη</b>				

Ομάδα υλών (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός κλάσης και είδους (e)
<b>Ειδικές εγγραφές ε.α.ο.</b>				
Ίνες, ζωικές, φυτικές ή συνθετικές ε.α.ο.	1373	40	4.2	4.2, 3°(c)
Αλκοολικά άλατα μετάλλων της σειράς των αλκαλικών γαιών, ε.α.ο.	3205	40	4.2	4.2, 14°(b),(c)
Αλκοολικά άλατα αλκαλικών μετάλλων, ε.α.ο.	3206	48	4.2+8	4.2, 15°(b),(c)
Μεταλλικά αλκύλια, ε.α.ο. ή μεταλλικά αρύλια, ε.α.ο.	2003	X333	4.2+4.3	4.2, 31°(a)
Αλκυλαλογονίδια μετάλλων, ε.α.ο. ή αρυλαλογονίδια μετάλλων, ε.α.ο.	3049	X333	4.2+4.3	4.2, 32°(a)
Αλκυλαλδριδία μετάλλων, ε.α.ο. ή αρυλαλδριδία μετάλλων, ε.α.ο.	3050	X333	4.2+4.3	4.2, 32°(a)
<b>Γενικές εγγραφές ε.α.ο.</b>				
Αυτοθερμαινόμενα στερεά, οργανικά, ε.α.ο.	3088	40	4.2	4.2, 5°(b),(c)
Αυτοαναφλέξιμα υγρά, οργανικά, ε.α.ο.	2845	333	4.2	4.2, 6°(a)
Αυτοθερμαινόμενα υγρά, οργανικά, ε.α.ο.	3183	30	4.2	4.2, 6°(b),(c)
Αυτοθερμαινόμενα στερεά, τοξικά, οργανικά, ε.α.ο.	3128	46	4.2+6.1	4.2, 7°(b),(c)
Αυτοθερμαινόμενα υγρά, τοξικά, οργανικά, ε.α.ο.	3184	36	4.2+6.1	4.2, 8°(b),(c)
Αυτοθερμαινόμενα στερεά, διαβρωτικά, οργανικά, ε.α.ο.	3126	48	4.2+8	4.2, 9°(b),(c)
Αυτοθερμαινόμενα υγρά, διαβρωτικά, οργανικά, ε.α.ο.	3185	38	4.2+8	4.2, 10°(b),(c)
Σκόνη μετάλλου, αυτοθερμαινόμενη, ε.α.ο.	3189	40	4.2	4.2, 12°(b),(c)
Αυτοθερμαινόμενα στερεά, ανόργανα, ε.α.ο.	3190	40	4.2	4.2, 16°(b),(c)
Αυτοαναφλέξιμα υγρά, ανόργανα, ε.α.ο.	3194	333	4.2	4.2, 17°(a)
Αυτοθερμαινόμενα υγρά, ανόργανα, ε.α.ο.	3186	30	4.2	4.2, 17°(b),(c)
Αυτοθερμαινόμενα στερεά, τοξικά, ανόργανα, ε.α.ο.	3191	46	4.2+6.1	4.2, 18°(b),(c)



Ομάδα υλών	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος)	Ετικέτα	Αριθμός κλάσης και είδους
(a)	(b)	(c)	(d)	(e)
Αυτοθερμαινόμενα υγρά, τοξικά, ανόργανα, ε.α.ο.	3187	36	4.2+6.1	4.2, 19°(b),(c)
Αυτοθερμαινόμενα στερεά, διαβρωτικά, ανόργανα, ε.α.ο.	3192	48	4.2+8	4.2, 20°(b),(c)
Αυτοθερμαινόμενα υγρά, διαβρωτικά, ανόργανα, ε.α.ο.	3188	38	4.2+8	4.2, 21°(b),(c)
Αυτοαναφλέξιμες οργανομεταλλικές ενώσεις, ε.α.ο.	3203	X333	4.2+4.3	4.2, 33°(a)
<b>Κλάση 4.3: Ύλες που βγάζουν εύφλεκτα αέρια σε επαφή με το νερό</b>				
<b>Ειδικές εγγραφές ε.α.ο.</b>				
Χλωροσιλάνια, ενεργά με το νερό, εύφλεκτα, διαβρωτικά, ε.α.ο.	2988	X338	4.3+3+8	4.3, 1°(a)
Αλκαλικά κράματα μετάλλων, υγρά, ε.α.ο.	1421	X423	4.3	4.3, 11°(a)
Κράμα μετάλλων της σειράς αλκαλικών γαιών, ε.α.ο.	1393	423	4.3	4.3, 11°(b)
Υβρίδια μετάλλων, ενεργά με το νερό, ε.α.ο.	1409	423	4.3	4.3, 16°(b)
<b>Γενικές εγγραφές ε.α.ο.</b>				
Οργανομεταλλικές ενώσεις ή διαλύματα ή διασπορές, ενεργές με το νερό, εύφλεκτες, ε.α.ο.	3207 3207	X323 323	4.3+3 4.3+3	4.3, 3°(a) 4.3, 3°(b),(c)
Μεταλλικές ύλες, ενεργές με το νερό, ε.α.ο.	3208	423	4.3	4.3, 13°(b),(c)
Μεταλλικές ύλες, ενεργές με το νερό, αυτοθερμαινόμενες, ε.α.ο.	3209	423	4.3+4.2	4.3, 14°(b),(c)
Στερεά, ενεργά με το νερό, ε.α.ο.	2813	423	4.3	4.3, 20°(b),(c)
Υγρά, ενεργά με το νερό, ε.α.ο.	3148 3148	X323 323	4.3 4.3	4.3, 21°(a) 4.3, 21°(b),(c)
Στερεά, ενεργά με το νερό, τοξικά, ε.α.ο.	3134	462	4.3+6.1	4.3, 22°(b),(c)
Υγρά, ενεργά με το νερό, τοξικά, ε.α.ο.	3130 3130	X362 362	4.3+6.1 4.3+6.1	4.3, 23°(a) 4.3, 23°(b),(c)
Στερεά, ενεργά με το νερό, διαβρωτικά,	3131	482	4.3+8	4.3, 24°(b),(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών  (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος)  (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος)  (c)	Ετικέτα  (d)	Αριθμός κλάσης και είδους  (e)
ε.α.ο.				
Υγρά, ενεργά με το νερό, διαβρωτικά, ε.α.ο.	3129 3129	X382 382	4.3+8 4.3+8	4.3, 25°(a) 4.3, 25°(b),(c)
<b>Κλάση 5.1: Οξειδωτικές ύλες</b>				
<b>Ειδικές εγγραφές ε.α.ο.</b>				
Χλωρικά άλατα, ανόργανα, ε.α.ο.	1461	50	5.1	5.1, 11°(b)
Υδατικά διαλύματα χλωρικών αλάτων, ανόργανα ε.α.ο.	3210	50	5.1	5.1, 11°(b)
Υπερχλωρικά άλατα, ανόργανα, ε.α.ο.	1481	50	5.1	5.1, 13°(b)
Υδατικά διαλύματα υπερχλωρικών αλάτων, ανόργανα, ε.α.ο.	3211	50	5.1	5.1, 13°(b)
Χλωριώδη άλατα, ανόργανα, ε.α.ο.	1462	50	5.1	5.1, 14°(b)
Υποχλωριώδη άλατα, ανόργανα, ε.α.ο.	3212	50	5.1	5.1, 15°(b)
Βρωμικά άλατα, ανόργανα, ε.α.ο.	1450	50	5.1	5.1, 16°(b)
Υδατικά διαλύματα βρωμικών αλάτων, ανόργανα, ε.α.ο.	3213	50	5.1	5.1, 16°(b),(c)
Υπερμαγγανικά άλατα, ανόργανα, ε.α.ο.	1482	50	5.1	5.1, 17°(b)
Υδατικά διαλύματα υπερμαγγανικών αλάτων, ανόργανα, ε.α.ο.	3214	50	5.1	5.1, 17°(b)
Υπερθειικά άλατα, ανόργανα, ε.α.ο.	3215	50	5.1	5.1, 18°(c)
Υδατικά διαλύματα υπερθειικών αλάτων, ανόργανα, ε.α.ο.	3216	50	5.1	5.1, 18°(c)
Υπερανθρακικά άλατα, ανόργανα, ε.α.ο.	3217	50	5.1	5.1, 19°(c)
Νιτρικά άλατα, ανόργανα, ε.α.ο.	1477	50	5.1	5.1, 22°(b),(c)
Υδατικά διαλύματα νιτρικών αλάτων, ανόργανα, ε.α.ο.	3218	50	5.1	5.1, 22°(b),(c)
Ανόργανα νιτρώδη άλατα, ε.α.ο.	2627	50	5.1	5.1, 23°(b)
Υδατικά διαλύματα νιτρωδών αλάτων, ανόργανα, ε.α.ο.	3219	50	5.1	5.1, 23°(b),(c)
Υπεροξειδία, ανόργανα, ε.α.ο.	1483	50	5.1	5.1, 25°(b)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός κλάσης και είδους (e)
<b>Γενικές εγγραφές ε.α.ο.</b>				
Οξειδωτικά στερεά, ε.α.ο.	1479	50	5.1	5.1, 27°(b),(c)
Οξειδωτικά στερεά, τοξικά, ε.α.ο.	3087	56	5.1+6.1	5.1, 29°(b),(c)
Οξειδωτικά στερεά, διαβρωτικά, ε.α.ο.	3085	58	5.1+8	5.1, 31°(b),(c)
<b>Κλάση 5.2: Οργανικά υπεροξειδία</b>				
<b>Ειδικές συλλογικές επικεφαλίδες</b>				
Οργανικά υπεροξειδία, τύπου F, υγρά	3109	539	5.2+(8)	5.2, 9°(b)
Οργανικά υπεροξειδία, τύπου F, υγρά, με ελεγχόμενη θερμοκρασία	3119	539	5.2	5.2, 19°(b)
Οργανικά υπεροξειδία, τύπου F, στερεά	3110	539	5.2	5.2, 10°(b)
Οργανικά υπεροξειδία, τύπου F, στερεά, με ελεγχόμενη θερμοκρασία	3120	539	5.2	5.2, 20°(b)
<b>Κλάση 6.1: Τοξικές ύλες</b>				
<b>Ειδικές εγγραφές ε.α.ο. ή Ειδικές συλλογικές επικεφαλίδες</b>				
<b>Οργανικές ύλες</b>				
Νιτρίλια, τοξικά, εύφλεκτα, ε.α.ο.	3275 3275	663 63	6.1+3 6.1+3	6.1, 11°(a) 6.1, 11°(b)
Νιτρίλια, τοξικά, ε.α.ο.	3276 3276	66 60	6.1 6.1	6.1, 12°(a) 6.1, 12°(b),(c)
Μείγματα χλωροπικρίνης, ε.α.ο.	1583 1583	66 60	6.1 6.1	6.1, 17°(a) 6.1, 17°(b),(c)
Αλογονωμένο ερεθιστικό υγρό, ε.α.ο.	1610 1610	66 60	6.1 6.1	6.1, 17°(a) 6.1, 17°(b),(c)
Χλωροφορμικά άλατα, τοξικά, διαβρωτικά, ε.α.ο.	3277	68	6.1+8	6.1, 27°(b)
Χλωροφορμικά άλατα, τοξικά, διαβρωτικά, εύφλεκτα, ε.α.ο.	2742	638	6.1+3+8	6.1, 28°(b)
Ισοκυανικά άλατα, τοξικά, εύφλεκτα, ε.α.ο.	3080	63	6.1+3	6.1, 18°(b)

Ομάδα υλών	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος)	Ετικέτα	Αριθμός κλάσης και είδους
(a)	(b)	(c)	(d)	(e)
Διαλύματα ισοκυανικών αλάτων, τοξικά, εύφλεκτα, ε.α.ο.	3080	63	6.1+3	6.1, 18°(b)
Ισοκυανικά άλατα, τοξικά, ε.α.ο.	2206	60	6.1	6.1, 19°(b),(c)
Διαλύματα ισοκυανικών αλάτων, τοξικά, ε.α.ο.	2206	60	6.1	6.1, 19°(b),(c)
Μερκαπτάνες, υγρές, τοξικές, εύφλεκτες, ε.α.ο.	3071	63	6.1+3	6.1, 20°(b)
Μείγμα μερκαπτανών, υγρό, τοξικό, εύφλεκτο, ε.α.ο.	3071	63	6.1+3	6.1, 20°(b)
Οργανοφωσφορικές ενώσεις, τοξικές, εύφλεκτες, ε.α.ο.	3279 3279	663 663	6.1+3 6.1+3	6.1, 22°(a) 6.1, 22°(b)
Οργανοφωσφορικές ενώσεις, τοξικές, ε.α.ο.	3278 3278	66 60	6.1 6.1	6.1, 23°(a) 6.1, 23°(b),(c)
Απολυμαντικά, υγρά, τοξικά, ε.α.ο.	3142 3142	66 60	6.1 6.1	6.1, 25°(a) 6.1, 25°(b),(c)
Απολυμαντικά, στερεά, τοξικά, ε.α.ο.	1601 1601	66 60	6.1 6.1	6.1, 25°(a) 6.1, 25°(b),(c)
Βαφές, υγρές, τοξικές, ε.α.ο.	1602 1602	66 60	6.1 6.1	6.1, 25°(a) 6.1, 25°(b),(c)
Ενδιάμεσα βαφής, υγρά, τοξικά, ε.α.ο.	1602 1602	66 60	6.1 6.1	6.1, 25°(a) 6.1, 25°(b),(c)
Βαφές, στερεές, τοξικές, ε.α.ο.	3143 3143	66 60	6.1 6.1	6.1, 25°(a) 6.1, 25°(b),(c)
Ενδιάμεσα βαφής, στερεά, τοξικά, ε.α.ο.	3143 3143	66 60	6.1 6.1	6.1, 25°(a) 6.1, 25°(b),(c)
Συστατικά δακρυγόνων αερίων, υγρά ή στερεά, ε.α.ο.	1693 1693	66 60	6.1 6.1	6.1, 25°(a) 6.1, 25°(b)
<b>Οργανομεταλλικές ύλες</b>				
Ενώσεις οργανοκασσιτερικές, υγρές, ε.α.ο.	2788 2788	66 60	6.1 6.1	6.1, 32°(a) 6.1, 32°(b),(c)
Ενώσεις οργανοκασσιτερικές, στερεές, ε.α.ο.	3146 3146	66 60	6.1 6.1	6.1, 32°(a) 6.1, 32°(b),(c)
Φενυλδραργυρικές ενώσεις, ε.α.ο.	2026 2026	66 60	6.1 6.1	6.1, 33°(a) 6.1, 33°(b),(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών  (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος)  (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος)  (c)	Ετικέτα  (d)	Αριθμός κλάσης και είδους  (e)
Οργανοαρσενικές ενώσεις, ε.α.ο.	3280 3280	66 60	6.1 6.1	6.1, 34°(a) 6.1, 34°(b),(c)
Καρβονύλια μετάλλων, ε.α.ο.	3281 3281	66 60	6.1 6.1	6.1, 36°(a) 6.1, 36°(b),(c)
<b>Ανόργανες ύλες</b>				
Κυανίδια, ανόργανα, στερεά, ε.α.ο.	1588 1588	66 60	6.1 6.1	6.1, 41°(a) 6.1, 41°(b),(c)
Κυανιούχα διαλύματα, ε.α.ο.	1935 1935	66 60	6.1 6.1	6.1, 41°(a) 6.1, 41°(b),(c)
Ενώσεις αρσενικού, υγρές, ε.α.ο. (αρσενικά άλατα, αρσενίτες και θειούχα άλατα του αρσενικού)	1556 1556	66 60	6.1 6.1	6.1, 51°(a) 6.1, 51°(b),(c)
Ενώσεις αρσενικού, στερεές, ε.α.ο. (αρσενικά άλατα, αρσενίτες και θειούχα άλατα του αρσενικού)	1557 1557	66 60	6.1 6.1	6.1, 51°(a) 6.1, 51°(b),(c)
Ενώσεις υδραργύρου, υγρές, ε.α.ο.	2024 2024	66 60	6.1 6.1	6.1, 52°(a) 6.1, 52°(b),(c)
Ενώσεις υδραργύρου, στερεές, ε.α.ο.	2025 2025	66 60	6.1 6.1	6.1, 52°(a) 6.1, 52°(b),(c)
Ενώσεις θαλλίου, ε.α.ο.	1707	60	6.1	6.1, 53°(b)2.
Ενώσεις βηρυλλίου, ε.α.ο.	1566	60	6.1	6.1, 54°(b)2.,(c)
Ενώσεις σεληνίου, ε.α.ο.	3283 3283	66 60	6.1 6.1	6.1, 55°(a) 6.1, 55°(b),(c)
Ενώσεις τελλουρίου, ε.α.ο.	3284	60	6.1	6.1, 57°(b),(c)
Ενώσεις βαναδίου, ε.α.ο.	3285	60	6.1	6.1, 58°(b),(c)
Ενώσεις αντιμονίου, ανόργανες, υγρές, ε.α.ο.	3141	60	6.1	6.1, 59°(c)
Ενώσεις αντιμονίου, ανόργανες, στερεές, ε.α.ο.	1549	60	6.1	6.1, 59°(c)
Ενώσεις βαρίου, ε.α.ο.	1564	60	6.1	6.1, 60°(b),(c)
Ενώσεις μολύβδου, διαλυτές, ε.α.ο.	2291	60	6.1	6.1, 62°(c)
Φθοροπυριτικά άλατα, ε.α.ο.	2856	60	6.1	6.1, 64°(c)
Ενώσεις καδμίου	2570	66	6.1	6.1, 61°(a)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών  (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος)  (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος)  (c)	Ετικέτα  (d)	Αριθμός κλάσης και ειδους  (e)
	2570	60	6.1	6.1, 61°(b),(c)
<b>Παρασιτοκτόνα</b>				
Οργανοφωσφορικά παρασιτοκτόνα, στερεά, τοξικά	2783 2783	66 60	6.1 6.1	6.1, 71°(a) 6.1, 71°(b),(c)
Οργανοφωσφορικά παρασιτοκτόνα, υγρά, τοξικά, εύφλεκτα	3017 3017	663 63	6.1+3 6.1+3	6.1, 71°(a) 6.1, 71°(b),(c)
Οργανοφωσφορικά παρασιτοκτόνα, υγρά, τοξικά	3018 3018	66 60	6.1 6.1	6.1, 71°(a) 6.1, 71°(b),(c)
Οργανοχλωρικά παρασιτοκτόνα, στερεά, τοξικά	2761 2761	66 60	6.1 6.1	6.1, 72°(a) 6.1, 72°(b),(c)
Οργανοχλωρικά παρασιτοκτόνα, υγρά, τοξικά, εύφλεκτα	2995 2995	663 63	6.1+3 6.1+3	6.1, 72°(a) 6.1, 72°(b),(c)
Οργανοχλωρικά παρασιτοκτόνα, υγρά, τοξικά	2996 2996	66 60	6.1 6.1	6.1, 72°(a) 6.1, 72°(b),(c)
Παρασιτοκτόνα με φαινόξυ ομάδες, στερεά, τοξικά	2765 2765	66 60	6.1 6.1	6.1, 73°(a) 6.1, 73°(b),(c)
Παρασιτοκτόνα με φαινόξυ ομάδες, υγρά, τοξικά, εύφλεκτα	2999 2999	663 63	6.1+3 6.1+3	6.1, 73°(a) 6.1, 73°(b),(c)
Παρασιτοκτόνα με φαινόξυ ομάδες, υγρά, τοξικά	3000 3000	66 60	6.1 6.1	6.1, 73°(a) 6.1, 73°(b),(c)
Καρβαμικά παρασιτοκτόνα, στερεά, τοξικά	2757 2757	66 60	6.1 6.1	6.1, 74°(a) 6.1, 74°(b),(c)
Καρβαμικά παρασιτοκτόνα, υγρά, τοξικά εύφλεκτα	2991 2991	663 63	6.1+3 6.1+3	6.1, 74°(a) 6.1, 74°(b),(c)
Καρβαμικά παρασιτοκτόνα, υγρά, τοξικά	2992 2992	66 60	6.1 6.1	6.1, 74°(a) 6.1, 74°(b),(c)
Παρασιτοκτόνα με βάση τον υδράργυρο, στερεά, τοξικά	2777 2777	66 60	6.1 6.1	6.1, 75°(a) 6.1, 75°(b),(c)
Παρασιτοκτόνα με βάση τον υδράργυρο, υγρά, τοξικά, εύφλεκτα	3011 3011	663 63	6.1+3 6.1+3	6.1, 75°(a) 6.1, 75°(b),(c)
Παρασιτοκτόνα με βάση τον υδράργυρο, υγρά, τοξικά	3012 3012	66 60	6.1 6.1	6.1, 75°(a) 6.1, 75°(b),(c)
Παρασιτοκτόνα οργανοκασσιτερικά, στερεά, τοξικά	2786 2786	66 60	6.1 6.1	6.1, 76°(a) 6.1, 76°(b),(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός κλάσης και είδους (e)
Παρασιτοκτόνα οργανοκασσιτερικά, υγρά, τοξικά, εύφλεκτα	3019 3019	663 63	6.1+3 6.1+3	6.1, 76°(a) 6.1, 76°(b),(c)
Παρασιτοκτόνα οργανοκασσιτερικά, υγρά, τοξικά	3020 3020	66 60	6.1 6.1	6.1, 76°(a) 6.1, 76°(b),(c)
Παρασιτοκτόνα παράγωγα της κουμαρίνης, υγρά, τοξικά, εύφλεκτα	3025 3025	663 63	6.1+3 6.1+3	6.1, 77°(a) 6.1, 77°(b),(c)
Παρασιτοκτόνα παράγωγα της κουμαρίνης, υγρά, τοξικά	3026 3026	66 60	6.1 6.1	6.1, 77°(a) 6.1, 77°(b),(c)
Παρασιτοκτόνα παράγωγα της κουμαρίνης, στερεά, τοξικά	3027 3027	66 60	6.1 6.1	6.1, 77°(a) 6.1, 77°(b),(c)
Παρασιτοκτόνα διπυριδιλίου, στερεά, τοξικά	2781 2781	66 60	6.1 6.1	6.1, 78°(a) 6.1, 78°(b),(c)
Παρασιτοκτόνα διπυριδιλίου, υγρά, τοξικά, εύφλεκτα	3015 3015	663 63	6.1+3 6.1+3	6.1, 78°(a) 6.1, 78°(b),(c)
Παρασιτοκτόνα διπυριδιλίου, υγρά, τοξικά	3016 3016	66 60	6.1 6.1	6.1, 78°(a) 6.1, 78°(b),(c)
Παρασιτοκτόνα με αρσενικό, στερεά, τοξικά	2759 2759	66 60	6.1 6.1	6.1, 79°(a) 6.1, 79°(b),(c)
Παρασιτοκτόνα με αρσενικό, υγρά, τοξικά, εύφλεκτα	2993 2993	663 63	6.1+3 6.1+3	6.1, 79°(a) 6.1, 79°(b),(c)
Παρασιτοκτόνα με αρσενικό, υγρά, τοξικά	2994 2994	66 60	6.1 6.1	6.1, 79°(a) 6.1, 79°(b),(c)
Παρασιτοκτόνα με βάση το χαλκό, στερεά, τοξικά	2775 2775	66 60	6.1 6.1	6.1, 80°(a) 6.1, 80°(b),(c)
Παρασιτοκτόνα με βάση το χαλκό, υγρά, τοξικά, εύφλεκτα	3009 3009	663 63	6.1+3 6.1+3	6.1, 80°(a) 6.1, 80°(b),(c)
Παρασιτοκτόνα με βάση το χαλκό, υγρά, τοξικά	3010 3010	66 60	6.1 6.1	6.1, 80°(a) 6.1, 80°(b),(c)
Παρασιτοκτόνα υποκατεστημένης νιτροφαινόλης, στερεά, τοξικά	2779 2779	66 60	6.1 6.1	6.1, 81°(a) 6.1, 81°(b),(c)
Παρασιτοκτόνα υποκατεστημένης νιτροφαινόλης, υγρά, τοξικά, εύφλεκτα	3013 3013	663 63	6.1+3 6.1+3	6.1, 81°(a) 6.1, 81°(b),(c)
Παρασιτοκτόνα υποκατεστημένης νιτροφαινόλης, υγρά, τοξικά	3014 3014	66 60	6.1 6.1	6.1, 81°(a) 6.1, 81°(b),(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών  (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος)  (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος)  (c)	Ετικέτα  (d)	Αριθμός κλάσης και είδους  (e)
Παρασιτοκτόνα τριαζίνης, στερεά, τοξικά	2763	66	6.1	6.1, 82°(a)
	2763	60	6.1	6.1, 82°(b),(c)
Παρασιτοκτόνα τριαζίνης, υγρά, τοξικά, εύφλεκτα	2997	663	6.1+3	6.1, 82°(a)
	2997	63	6.1+3	6.1, 82°(b),(c)
Παρασιτοκτόνα τριαζίνης, υγρά, τοξικά	2998	66	6.1	6.1, 82°(a)
	2998	60	6.1	6.1, 82°(b),(c)
Παρασιτοκτόνα βενζοϊκών παραγώγων, στερεά, τοξικά	2769	66	6.1	6.1, 83°(a)
	2769	60	6.1	6.1, 83°(b),(c)
Παρασιτοκτόνα βενζοϊκών παραγώγων, υγρά, τοξικά, εύφλεκτα	3003	663	6.1+3	6.1, 83°(a)
	3003	63	6.1+3	6.1, 83°(b),(c)
Παρασιτοκτόνα βενζοϊκών παραγώγων, υγρά, τοξικά	3004	66	6.1	6.1, 83°(a)
	3004	60	6.1	6.1, 83°(b),(c)
Παρασιτοκτόνα παραγώγων του φθαλιμιδίου, υγρά, τοξικά	2773	66	6.1	6.1, 84°(a)
	2773	60	6.1	6.1, 84°(b),(c)
Παρασιτοκτόνα παραγώγων του φθαλιμιδίου, υγρά, τοξικά, εύφλεκτα	3007	663	6.1+3	6.1, 84°(a)
	3007	63	6.1+3	6.1, 84°(b),(c)
Παρασιτοκτόνα παραγώγων του φθαλιμιδίου, υγρά, τοξικά	3008	66	6.1	6.1, 84°(a)
	3008	60	6.1	6.1, 84°(b),(c)
Παρασιτοκτόνα φαινιλουρίας, στερεά, τοξικά	2767	66	6.1	6.1, 85°(a)
	2767	60	6.1	6.1, 85°(b),(c)
Παρασιτοκτόνα φαινιλουρίας, υγρά, τοξικά, εύφλεκτα	3001	663	6.1+3	6.1, 85°(a)
	3001	63	6.1+3	6.1, 85°(b),(c)
Παρασιτοκτόνα φαινιλουρίας, υγρά, τοξικά	3002	66	6.1	6.1, 85°(a)
	3002	60	6.1	6.1, 85°(b),(c)
Διθειοκαρβαμικά Παρασιτοκτόνα, στερεά, τοξικά	2771	66	6.1	6.1, 86°(a)
	2771	60	6.1	6.1, 86°(b),(c)
Διθειοκαρβαμικά Παρασιτοκτόνα, υγρά, τοξικά, εύφλεκτα	3005	663	6.1+3	6.1, 86°(a)
	3005	63	6.1+3	6.1, 86°(b),(c)
Διθειοκαρβαμικά Παρασιτοκτόνα, υγρά, τοξικά	3006	66	6.1	6.1, 86°(a)
	3006	60	6.1	6.1, 86°(b),(c)
Παρασιτοκτόνα στερεά, τοξικά, ε.α.ο.	2588	66	6.1	6.1, 87°(a)
	2588	60	6.1	6.1, 87°(b),(c)
Παρασιτοκτόνα υγρά, τοξικά, ε.α.ο.	2902	66	6.1	6.1, 87°(a)
	2902	60	6.1	6.1, 87°(b),(c)



250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός κλάσης και είδους (e)
Παρασιτοκτόνα υγρά, τοξικά, εύφλεκτα, ε.α.ο.	2903 2903	663 63	6.1+3 6.1+3	6.1, 87°(a) 6.1, 87°(b),(c)
<b>Ενεργές ύλες</b>				
Αλκαλοειδή ή άλατα αλκαλοειδών, υγρά, ε.α.ο.	3140 3140	66 60	6.1 6.1	6.1, 90°(a) 6.1, 90°(b),(c)
Αλκαλοειδή ή άλατα αλκαλοειδών, στερεά, ε.α.ο.	1544 1544	66 60	6.1 6.1	6.1, 90°(a) 6.1, 90°(b),(c)
Ενώσεις ή παρασκευάσματα νικοτίνης, υγρά, ε.α.ο.	3144 3144	66 60	6.1 6.1	6.1, 90°(a) 6.1, 90°(b),(c)
Ενώσεις ή παρασκευάσματα νικοτίνης, στερεά, ε.α.ο.	1655 1655	66 60	6.1 6.1	6.1, 90°(a) 6.1, 90°(b),(c)
Τοξίνες, εξαγόμενες από ζωική πηγή, ε.α.ο.	3172 3172	66 60	6.1 6.1	6.1, 90°(a) 6.1, 90°(b),(c)
Φάρμακα, υγρά, τοξικά, ε.α.ο.	1851	60	6.1	6.1, 90°(b),(c)
Φάρμακα, στερεά, τοξικά, ε.α.ο.	3249	60	6.1	6.1, 90°(b),(c)
<b>Γενικές εγγραφές ε.α.ο.</b>				
<b>Οργανικές ύλες</b>				
Τοξικά υγρά, οργανικά, ε.α.ο.	2810 2810	66 60	6.1 6.1	6.1, 25°(a) 6.1, 25°(b),(c)
Τοξικά στερεά, οργανικά, ε.α.ο.	2811 2811	66 60	6.1 6.1	6.1, 25°(a) 6.1, 25°(b),(c)
Τοξικά υγρά, εύφλεκτα, οργανικά, ε.α.ο.	2929 2929	663 63	6.1+3 6.1+3	6.1, 26°(a)1. 6.1, 26°(b)1.
Τοξικά στερεά, εύφλεκτα, οργανικά, ε.α.ο.	2930 2930	664 64	6.1+4.1 6.1+4.1	6.1, 26°(a)2. 6.1, 26°(b)2.
Τοξικά υγρά, διαβρωτικά, οργανικά, ε.α.ο.	2927 2927	668 68	6.1+8 6.1+8	6.1, 27°(a) 6.1, 27°(b)
Τοξικά στερεά, διαβρωτικά, οργανικά, ε.α.ο.	2928 2928	668 68	6.1+8 6.1+8	6.1, 27°(a) 6.1, 27°(b)
<b>Οργανομεταλλικές ύλες</b>				
Οργανομεταλλικές ενώσεις, τοξικές, ε.α.ο.	3282 3282	66 60	6.1 6.1	6.1, 35°(a) 6.1, 35°(b),(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος)	Ετικέτα	Αριθμός κλάσης και είδους
(a)	(b)	(c)	(d)	(e)
<b>Ανόργανες ύλες</b>				
Τοξικά υγρά, ενεργά με το νερό, ε.α.ο.	3123	623	6.1+4.3	6.1, 44°(b),(c)
Τοξικά στερεά, ενεργά με το νερό, ε.α.ο.	3125	642	6.1+4.3	6.1, 44°(b),(c)
Στερεά περιέχοντα τοξικά υγρά, ε.α.ο.	3243	60	6.1	6.1, 65°(b)
Τοξικά υγρά, ανόργανα, ε.α.ο.	3287 3287	66 60	6.1 6.1	6.1, 65°(a) 6.1, 65°(b),(c)
Τοξικά στερεά, ανόργανα, ε.α.ο.	3288 3288	66 60	6.1 6.1	6.1, 65°(a) 6.1, 65°(b),(c)
Τοξικά στερεά, αυτοθερμαινόμενα, ε.α.ο.	3124 3124	664 64	6.1+4.2 6.1+4.2	6.1, 66°(a) 6.1, 66°(b)
Τοξικά υγρά, διαβρωτικά, ανόργανα, ε.α.ο.	3289 3289	668 68	6.1+8 6.1+8	6.1, 67°(a) 6.1, 67°(b)
Τοξικά στερεά, διαβρωτικά, ανόργανα, ε.α.ο.	3290 3290	668 68	6.1+8 6.1+8	6.1, 67°(a) 6.1, 67°(b)
Τοξικά υγρά, οξειδωτικά, ε.α.ο.	3122 3122	665 65	6.1+05 6.1+05	6.1, 68°(a) 6.1, 68°(b)
Τοξικά στερεά, οξειδωτικά, ε.α.ο.	3086 3086	665 65	6.1+05 6.1+05	6.1, 68°(a) 6.1, 68°(b)
<b>Κλάση 6.2: Μολυσματικές ύλες</b>				
<b>Ειδικές συλλογικές επικεφαλίδες</b>				
Μολυσματικές ύλες, με επίδραση στον άνθρωπο	2814	606	6.2	6.2, 3°(b)
Μολυσματικές ύλες, με επίδραση μόνο στα ζώα	2900	606	6.2	6.2, 3°(b)
<b>Γενικές εγγραφές ε.α.ο.</b>				
Νοσοκομειακά απόβλητα, απροσδιόριστα, ε.α.ο.	3291	606	6.2	6.2, 4°(b)
<b>Κλάση 7: Ραδιενεργά υλικά</b>				
<b>Ειδικές εγγραφές ε.α.ο.</b>				
Ραδιενεργά υλικά, χαμηλής ειδικής δραστηριότητας (LSA), ε.α.ο.	2912	70 72	7A,7B ή 7C 7A,7B ή	7, Sch 5,6 ή 13

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός κλάσης και είδους (e)
αέρια		723	7C 7A,7B, ή 7C+3	
αέρια, εύφλεκτα		73	7A,7B ή 7C+3	
υγρά, εύφλεκτα με σημείο ανάφλεξης όχι άνω των 61°C		74	7A,7B ή 7C+4.1	
στερεά, εύφλεκτα		75	7A,7B ή 7C+05	
οξειδωτικά		76	7A,7B ή 7C+6.1	
τοξικά		78	7A,7B ή 7C+8	
διαβρωτικά				
<b>Γενικές εγγραφές ε.α.ο.</b>				
Ραδιενεργά υλικά, ε.α.ο.	2982	70	7A,7B ή 7C	7, Sch 9,10,11 ή 13.
αέρια		72	7A,7B ή 7C	
αέρια, εύφλεκτα		723	7A,7B ή 7C+3	
υγρά, εύφλεκτα με σημείο ανάφλεξης όχι άνω των 61°C		73	7A,7B ή 7C+3	
στερεά, εύφλεκτα		74	7A,7B ή 7C+4.1	
οξειδωτικά		75	7A,7B ή 7C+05	
τοξικά		76	7A,7B ή 7C+6.1	
διαβρωτικά		78	7A,7B ή 7C+8	
<b>Κλάση 8: Διαβρωτικές ύλες</b>				
<b>Ειδικές εγγραφές ε.α.ο.</b>				
<b>Ανόργανες ύλες</b>				
Υδροδιφθορίδια, ε.α.ο.	1740	80	8	8, 9°(b),(c)
Υδατικά διαλύματα διθειώδους άλατος, ε.α.ο.	2693	80	8	8, 17°(c)
<b>Οργανικές ύλες</b>				

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών  (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος)  (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος)  (c)	Ετικέτα  (d)	Αριθμός κλάσης και είδους  (e)
Χλωροσιλάνια, διαβρωτικά, ε.α.ο.	2987	80	8	8, 36°(b)
Χλωροσιλάνια, διαβρωτικά, εύφλεκτα, ε.α.ο.	2986	X83	8+3	8, 37°(b)
Αλκυλοφαινόλες, στερεές, ε.α.ο.	2430	88	8	8, 39°(a)
	2430	80	8	8, 39°(b),(c)
Αλκυλοφαινόλες, υγρές, ε.α.ο.	3145	88	8	8, 40°(a)
	3145	80	8	8, 40°(b),(c)
Αμίνες ή πολυαμίνες, στερεές, διαβρωτικές, ε.α.ο.	3259	88	8	8, 52°(a)
	3259	80	8	8, 52°(b),(c)
Αμίνες ή πολυαμίνες, υγρές, διαβρωτικές, ε.α.ο.	2735	88	8	8, 53°(a)
	2735	80	8	8, 53°(b),(c)
Αμίνες ή πολυαμίνες, υγρές, διαβρωτικές, εύφλεκτες, ε.α.ο.	2734	883	8+3	8, 54°(a)
	2734	83	8+3	8, 54°(b)
Βαφές ή ενδιάμεσα βαφών, στερεές, διαβρωτικές, ε.α.ο.	3147	80	8	8, 65°(b),(c)
Βαφές ή ενδιάμεσα βαφών, υγρές, διαβρωτικές, ε.α.ο.	2801	80	8	8, 66°(b),(c)
Απολυμαντικά, υγρά, διαβρωτικά, ε.α.ο.	1903	88	8	8, 66°(a)
	1903	80	8	8, 66°(b),(c)
<b>Γενικές εγγραφές ε.α.ο.</b>				
<b>Οξίνες ύλες</b>				
Διαβρωτικά στερεά, όξινα, ανόργανα, ε.α.ο.	3260	88	8	8, 16°(a)
	3260	80	8	8, 16°(b),(c)
Διαβρωτικά υγρά, όξινα, ανόργανα, ε.α.ο.	3264	88	8	8, 17°(a)
	3264	80	8	8, 17°(b),(c)
<b>Οργανικές ύλες</b>				
Διαβρωτικά στερεά, όξινα, οργανικά, ε.α.ο.	3261	88	8	8, 39°(a)
	3261	80	8	8, 39°(b),(c)
Διαβρωτικά υγρά, όξινα, οργανικά, ε.α.ο.	3265	88	8	8, 40°(a)
	3265	80	8	8, 40°(b),(c)
<b>Βασικές ύλες</b>				

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός κλάσης και είδους (e)
<b>Ανόργανες ύλες</b>				
Καυστικό αλκαλικό υγρό, ε.α.ο.	1719	80	8	8, 42°(b),(c)
Διαβρωτικά στερεά, βασικά, ανόργανα, ε.α.ο.	3262 3262	88 80	8 8	8, 46°(a) 8, 46°(b),(c)
Διαβρωτικά υγρά, βασικά, ανόργανα, ε.α.ο.	3266 3266	88 80	8 8	8, 47°(a) 8, 47°(b),(c)
<b>Οργανικές ύλες</b>				
Διαβρωτικά στερεά, βασικά, οργανικά, ε.α.ο.	3263 3263	88 80	8 8	8, 55°(a) 8, 55°(b),(c)
Διαβρωτικά υγρά, βασικά, οργανικά, ε.α.ο.	3267 3267	88 80	8 8	8, 56°(a) 8, 56°(b),(c)
<b>Άλλες διαβρωτικές ύλες</b>				
Στερεά περιέχοντα διαβρωτικά υγρά, ε.α.ο.	3244	80	8	8, 65°(b)
Διαβρωτικά στερεά, ε.α.ο.	1759 1759	88 80	8 8	8, 65°(a) 8, 65°(b),(c)
Διαβρωτικά υγρά, ε.α.ο.	1760 1760	88 80	8 8	8, 66°(a) 8, 66°(b),(c)
Διαβρωτικά στερεά, εύφλεκτα, ε.α.ο.	2921 2921	884 84	8+4.1 8+4.1	8, 67°(a) 8, 67°(b)
Διαβρωτικά υγρά, εύφλεκτα, ε.α.ο.	2920 2920	883 83	8+3 8+3	8, 68°(a) 8, 68°(b)
Διαβρωτικά στερεά, αυτοθερμαινόμενα, ε.α.ο.	3095	84	8+4.2	8, 69°(b)
Διαβρωτικά υγρά, αυτοθερμαινόμενα, ε.α.ο.	3301 3301	884 84	8+4.2 8+4.2	8, 70°(a) 8, 70°(b)
Διαβρωτικά στερεά, ενεργά με το νερό, ε.α.ο.	3096	842	8+4.3	8, 71°(b)
Διαβρωτικά υγρά, ενεργά με το νερό, ε.α.ο.	3094	823	8+4.3	8, 72°(a),(b)
Διαβρωτικά στερεά, οξειδωτικά, ε.α.ο.	3084 3084	885 85	8+05 8+05	8, 73°(a) 8, 73°(b)
Διαβρωτικά υγρά, οξειδωτικά, ε.α.ο.	3093 3093	885 85	8+05 8+05	8, 74°(a) 8, 74°(b)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Ομάδα υλών  (a)	Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος)  (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος)  (c)	Ετικέτα  (d)	Αριθμός κλάσης και είδους  (e)
Διαβρωτικά στερεά, τοξικά, ε.α.ο.	2923 2923	886 86	8+6.1 8+6.1	8, 75°(a) 8, 75°(b),(c)
Διαβρωτικά υγρά, τοξικά, ε.α.ο.	2922 2922	886 86	8+6.1 8+6.1	8, 76°(a) 8, 76°(b),(c)
<b>Κλάση 9: Διάφορες επικίνδυνες ύλες και είδη</b>				
<b>Υλες περιβαλλοντικά επικίνδυνες</b>				
Υλες περιβαλλοντικά επικίνδυνες, υγρές, ε.α.ο.	3082	90	9	9, 11°(c)
Υλες περιβαλλοντικά επικίνδυνες, στερεές, ε.α.ο.	3077	90	9	9, 12°(c)

250 000  
(συνεχ.)

Προσθήκη Β.5

## Πίνακας ΙΙΙ

Αριθμητικός κατάλογος - αυτός ο πίνακας περιέχει όλες τις εγγραφές των πινάκων Ι και ΙΙ κατά σειρά αριθμού αναγνώρισης ύλης

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1002	Αέρας, συμπιεσμένος	20	2	2, 2°(a)
1003	Αέρας, βαθιάς κατάψυξης	225	2+05	2, 8°(a)
1005	Άμμωνία	268	6.1	2, 3°(af)
1006	Αργό, πεπιεσμένο	20	2	2, 1°(a)
1008	Τριφθοριούχο Βόριο	26	6.1	2, 1°(af)
1009	Βρωμοτριφθορομεθάνιο (R 13 B1)	20	2	2, 5°(a)
1010	1,3-Βουταδιέριο	239	3	2, 3°(c)
1010	Μείγματα 1,3-βουταδιενίου και υδρογονανθράκων	239	3	2, 4°(c)
1010	1,2-Βουταδιέριο	239	3	2, 3°(c)
1011	Βουτάνιο, τεχνικά καθαρό	23	3	2, 3°(b)
1012	1-Βουτυλέριο (1-Βουτέριο)	23	3	2, 3°(b)
1012	cis-2-Βουτυλέριο (cis-2-Βουτέριο)	23	3	2, 3°(b)
1012	trans-2-Βουτυλέριο (trans-2-Βουτέριο)	23	3	2, 3°(b)
1013	Διοξείδιο του άνθρακα	20	2	2, 5°(a)
1014	Διοξείδιο του άνθρακα περιέχον όχι λιγότερο από 1% και όχι περισσότερο από 10% οξυγόνο κατά βάρος	20	2	2, 6°(a)
1016	Μονοξείδιο του άνθρακα	236	6.1+3	2, 1°(bt)
1017	Χλώριο	266	6.1+8	2, 3°(af)
1018	Χλωριδιφθορομεθάνιο (R 22)	20	2	2, 3°(a)
1020	Χλωροπενταφθοροαιθάνιο (R 115)	20	2	2, 3°(a)
1021	1-Χλώρο-1,2,2,2-τετραφθοροαιθάνιο (R 124)	20	2	2, 3°(a)
1022	Χλωροτριφθορομεθάνιο (R 13)	20	2	2, 5°(a)
1027	Κυκλοπροπάνιο	23	3	2, 3°(b)
1028	Διχλωροδιφθορομεθάνιο (R 12)	20	2	2, 3°(a)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1029	Διγλωροφθορομεθάνιο (R 21)	20	2	2, 3°(a)
1030	1,1-Διφθοροαιθάνιο (R 152a)	23	3	2, 3°(b)
1032	Διμεθυλανίνη, άνυδρη	236	3+6.1	2, 3°(bt)
1033	Διμεθυλαιθέρας	23	3	2, 3°(b)
1035	Αιθάνιο	23	3	2, 5°(b)
1036	Αιθυλαμίνη, άνυδρη	236	3+6.1	2, 3°(bt)
1037	Αιθυλοχλωρίδιο	236	3+6.1	2, 3°(bt)
1038	Αιθυλένιο, βαθιάς κατάψυξης	223	3	2, 7°(b)
1040	Αιθυλενοξειδίο με άζωτο	236	3+6.1	2, 4°(ct)
1041	Αιθυλενοξειδίο περιέχον όχι περισσότερο από 10% διοξειδίο του άνθρακα κατά βάρος	236	3+6.1	2, 4°(ct)
1041	Αιθυλενοξειδίο περιέχον περισσότερο από 10% αλλά όχι περισσότερο από 50% διοξειδίο του άνθρακα	236	3+6.1	2, 6°(ct)
1041	Διοξειδίο του άνθρακα περιέχον όχι περισσότερο από 35% αιθυλενοξειδίο κατά βάρος	239	3	2, 6°(c)
1046	Ήλιο, πεπιεσμένο	20	2	2, 1°(a)
1048	Υδροβρώμιο	286	8+6.1	2, 3°(at)
1049	Υδρογόνο, πεπιεσμένο	23	3	2, 1°(b)
1050	Υδροχλώριο	286	8+6.1	2, 5°(at)
1052	Υδροφθόριο, άνυδρο	886	8+6.1	8, 6°
1053	Υδρόθειο	236	3+6.1	2, 3°(bt)
1055	Ισοβουτυλένιο	23	3	2, 3°(b)
1056	Κρυπτό, πεπιεσμένο	20	2	2, 1°(a)
1060	Μείγματα μεθυλακετυλενίου και προπαδιενίου με υδρογονάνθρακες	239	3	2, 4°(c)
1061	Μεθυλαμίνη, άνυδρη	236	3+6.1	2, 3°(bt)
1062	Μεθυλοβρωμίδιο	26	6.1	2, 3°(at)
1063	Μεθυλοχλωρίδιο	236	3+6.1	2, 3°(bt)



Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1064	Μεθυλομερκαπτάνη	236	3+6.1	2, 3°(bt)
1065	Νέον, πεπιεσμένο	20	2	2, 1°(a)
1066	Άζωτο, πεπιεσμένο	20	2	2, 1°(a)
1067	Διοξείδιο του αζώτου (NO <sub>2</sub> )	265	6.1+05	2, 3°(at)
1070	Υποξείδιο του αζώτου (N <sub>2</sub> O)	25	2+05	2, 5°(a)
1072	Οξυγόνο, πεπιεσμένο	20	2+05	2, 1°(a)
1073	Οξυγόνο, βαθιάς κατάψυξης	225	2+05	2, 7°(a)
1076	Φωσγένιο	266	6.1+8	2, 3°(at)
1077	Προπυλένιο	23	3	2, 3°(b)
1078	Μείγματα F1, F2 και F3	20	2	2, 4°(a)
1079	Διοξείδιο του θείου	26	6.1	2, 3°(at)
1080	Θειοφθορίδιο	20	2	2, 5°(a)
1082	Τριφθοροχλωροαιθυλένιο (R 1113)	236	3+6.1	2, 3°(ct)
1083	Τριμεθυλαμίνη, άνυδρη	236	3+6.1	2, 3°(bt)
1085	Βινυλοβρωμίδιο	236	3+6.1	2, 3°(ct)
1086	Βινυλοχλωμίδιο	239	3	2, 3°(c)
1087	Μεθυλοβινυλαιθέρας	236	3+6.1	2, 3°(ct)
1088	Ακετάλη	33	3	3, 3°(b)
1089	Ακεταλδεΐδη	33	3	3, 1°(a)
1090	Ακετόνη	33	3	3, 3°(b)
1091	Ελαια ακετόνης	33	3	3, 3°(b)
1092	Ακρολεΐνη, αδρανής	663	6.1+3	6.1, 8°(a)
1093	Ακρυλονιτρίλιο, αδρανές	336	3+6.1	3, 11°(a)
1098	Αλλυλική αλκοόλη	663	6.1+3	6.1, 8°(a)
1099	Αλλυλικό βρωμίδιο	336	3+6.1	3, 16°(a)
1100	Αλλυλικό χλωρίδιο	336	3+6.1	3, 16°(a)
1104	Οξικοί αμυλεστέρες	30	3	3, 31°(c)
1105	Αμυλικές αλκοόλες	30	3	3, 31°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1105	Αμυλικές αλκοόλες	33	3	3, 3°(b)
1106	Αμυλαμίνη (n-αμυλαμίνη, τριτοταγής-αμυλαμίνη)	338	3+8	3, 22°(b)
1106	Αμυλαμίνη (sec-αμυλαμίνη)	38	3+8	3, 33°(c)
1107	Αμυλικό χλωρίδιο	33	3	3, 3°(b)
1108	1-Πεντένιο (n-Αμυλένιο)	33	3	3, 1°(a)
1109	Μυρμηκικοί αμυλεστέρες	30	3	3, 31°(c)
1110	n-Αμυλμεθυλκετόνη	30	3	3, 31°(c)
1111	Αμυλμερκαπτάνη	33	3	3, 3°(b)
1112	Νιτρικό αμύλιο	30	3	3, 31°(c)
1113	Νιτρώδες αμύλιο	33	3	3, 3°(b)
1114	Βενζόλιο	33	3	3, 3°(b)
1120	Βουτανόλες	33	3	3, 3°(b)
1120	Βουτανόλες	30	3	3, 31°(c)
1123	Οξικοί βουτυλεστέρες	30	3	3, 31°(c)
1123	Οξικοί βουτυλεστέρες	33	3	3, 3°(b)
1125	n-Βουτυλαμίνη	338	3+8	3, 22°(b)
1126	1-Βρωμοβουτάνιο (n-Βουτυλοβρωμίδιο)	33	3	3, 3°(b)
1127	Χλωροβουτάνια	33	3	3, 3°(b)
1128	n-Μυρμηκικός βουτυλεστέρας	33	3	3, 3°(b)
1129	Βουτυραλδεΐδη	33	3	3, 3°(b)
1130	Καμφορέλαιο	30	3	3, 31°(c)
1131	Διθειούχος άνθρακας (Θειούχος άνθρακας)	336	3+6.1	3, 18°(a)
1133	Κολλώδεις ύλες	33	3	3, 5°(a),(b),(c)
1133	Κολλώδεις ύλες	30	3	3, 31°(c)
1134	Χλωροβενζόλιο	30	3	3, 31°(c)
1135	Αιθυλενοχλωρυδρίνη	663	6.1+3	6.1, 16°(a)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1136	Κλάσματα λιθανθρακόπισσας	33	3	3, 3°(b)
1136	Κλάσματα λιθανθρακόπισσας	30	3	3, 31°(c)
1139	Επικαλυπτικό διάλυμα	33	3	3, 5°(a),(b),(c)
1139	Επικαλυπτικό διάλυμα	30	3	3, 31°(c)
1143	Κροτοναλδεϋδη, σταθεροποιημένη	663	6.1 + 3	6.1, 8° (a)
1144	Κροτονυλένιο (2-Βουτύλιο)	339	3	3, 1° (a)
1145	Κυκλοεξάνιο	33	3	3, 3°(b)
1146	Κυκλοπενάνιο	33	3	3, 3°(b)
1147	Δεκαϋδροναφθαλένιο	30	3	3, 31°(c)
1148	Διακετοναλκοόλη, τεχνική	33	3	3, 3°(b)
1148	Διακετοναλκοόλη, χημικά καθαρή	30	3	3, 31°(c)
1149	Διβουτυλαιθέρας	30	3	3, 31°(c)
1150	1,2-Διχλωροαιθυλένιο	33	3	3, 3°(b)
1152	Διχλωροπεντάνια	30	3	3, 31°(c)
1153	Διαιθυλαιθέρας της αιθυλενογλυκόλης	30	3	3, 31°(c)
1154	Διαιθυλαμίνη	338	3+8	3, 22°(b)
1155	Διαιθυλαιθέρας (Αιθυλαιθέρας)	33	3	3, 2°(a)
1156	Διεθυλκετόνη	33	3	3, 3°(b)
1157	Δισοβουτυλκετόνη	30	3	3, 31°(c)
1158	Δισοπροπυλαμίνη	338	3+8	3, 22°(b)
1159	Δισοπροπυλαιθέρας	33	3	3, 3°(b)
1160	Υδατικό διάλυμα διμεθυλαμίνης	338	3+8	3, 22°(b)
1161	Ανθρακικός διμεθυλεστέρας	33	3	3, 3°(b)
1162	Διμεθυλδιχλωροσιλάνιο	X338	3+8	3, 21°(b)
1163	Διμεθυλυδραζίνη, ασυμμετρική	663	6.1+3+8	6.1, 7°(a)1.
1164	Διμεθυλοσουλφίδιο	33	3	3, 2°(b)
1165	Διοξάνιο	33	3	3, 3°(b)
1166	Διοξολάνιο	33	3	3, 3°(b)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Επίκετα (d)	Αριθμός Κλάσης και είδους (e)
1167	Διβινυλαιθέρας, αδρανής	339	3	3, 2°(a)
1169	Εκχυλίσματα, αρωματικά, υγρά	33	3	3, 5°(a),(b),(c)
1169	Εκχυλίσματα, αρωματικά, υγρά	30	3	3, 31°(c)
1170	Αιθανόλη ή διάλυμα αιθανόλης διάλυμα περιέχον περισσότερο από 70 % -κ.ο. αλκοόλη	33	3	3, 3°(b)
1170	Διάλυμα αιθανόλης (διάλυμα αιθυλικής αλκοόλης) περιέχον περισσότερο από 24 κ.ο.-% και όχι περισσότερο από 70 κ.ο.-% αλκοόλη	30	3	3, 31°(c)
1171	Μονομεθυλαιθέρας της αιθυλενογλυκόλης	30	3	3, 31°(c)
1172	Οξικός μονομεθυλαιθέρας της αιθυλενογλυκόλης	30	3	3, 31°(c)
1173	Οξικός αιθυλεστέρας	33	3	3, 3°(b)
1175	Αιθυλοβενζόλιο	33	3	3, 3°(b)
1176	Βορικός αιθυλεστέρας	33	3	3, 3°(b)
1177	Οξικός αιθυλβουτυλεστέρας	30	3	3, 31°(c)
1178	2-Αιθυλβουτυραλδεΐδη	33	3	3, 3°(b)
1179	Αιθυλβουτυλαιθέρας	33	3	3, 3°(b)
1180	Βουτυρικός αιθυλεστέρας	30	3	3, 31°(c)
1181	Μονοχλωροξικός αιθυλεστέρας	63	6.1+3	6.1, 16°(b)
1182	Χλωρομυρμηκικός αιθυλεστέρας	663	6.1+3+8	6.1, 10°(a)
1183	Αιθυλδιχλωροσιλάνιο	X338	4.3+3+8	4.3, 1°(a)
1184	1,2-Διχλωροαιθάνιο (Διχλωροίχο αιθυλένιο)	336	3+6.1	3, 16°(b)
1185	Αιθυλενιμίνη, αδρανής	663	6.1+3	6.1, 4°
1188	Μονομεθυλαιθέρας της αιθυλενογλυκόλης	30	3	3, 31°(c)
1189	Οξικός μονομεθυλαιθέρας της αιθυλενογλυκόλης	30	3	3, 31°(c)
1190	Μυρμηκικός αιθυλεστέρας	33	3	3, 3°(b)

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(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1191	Οκταδεϋδες (Αιθυλεξαλδεϋδες)	30	3	3, 31°(c)
1192	Γαλακτικός αιθυλεστέρας	30	3	3, 31°(c)
1193	Αιθυλ-μεθυλ-κετόνη (μεθυλ-αιθυλ-κετόνη)	33	3	3, 3°(b)
1194	Διάλυμα νιτρόδους αιθυλίου	336	3+6.1	3, 15°(a)
1195	Προπιονικός αιθυλεστέρας	33	3	3, 3°(b)
1196	Αιθυλτριχλωροσιλάνιο	X338	3+8	3, 21°(b)
1197	Εκχυλίσματα, αρώματα, υγρά	33	3	3, 5°(a),(b),(c)
1197	Εκχυλίσματα, αρώματα, υγρά	30	3	3, 31°(c)
1198	Διάλυμα φορμαλδεϋδης, εύφλεκτο	38	3+8	3, 33°(c)
1199	Φουρφουράλη (φουρφουραλδεϋδη)	30	3	3, 31°(c)
1201	Ζυμέλαιο	33	3	3, 3°(b)
1201	Ζυμέλαιο	30	3	3, 31°(c)
1202	Γκαζόιλ (αεριέλαιο)	30	3	3, 31°(c)
1202	Καύσιμο ντήζελ	30	3	3, 31°(c)
1202	Πετρέλαιο θέρμανσης (ελαφρό)	30	3	3, 31°(c)
1203	Οινόπνευμα κινητήρων	33	3	3, 3°(b)
1206	Επτάνια	33	3	3, 3°(b)
1207	Εξαλδεϋδη	30	3	3, 31°(c)
1208	Εξάνια	33	3	3, 3°(b)
1210	Μελάνι τυπογραφίας	33	3	3,5°(a),(b),(c)
1210	Μελάνι τυπογραφίας	30	3	3,31°(c)
1212	Ισοβουτανόλη	30	3	3, 31°(c)
1213	Οξικός ισοβουτυλεστέρας	33	3	3, 3°(b)
1214	Ισοβουτυλαμίνη	338	3+8	3, 22°(b)
1216	Ισοοκτένια	33	3	3, 3°(b)
1218	Ισοπρένιο, αδρανές	339	3	3, 2°(a)
1219	Ισοπροπανόλη (Ισοπροπυλική αλκοόλη)	33	3	3, 3°(b)
1220	Οξικός ισοπρόπυλεστέρας	33	3	3, 3°(b)

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(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1221	Ισοπροπυλαμίνη	338	3+8	3, 22°(a)
1223	Κηροζίνη	30	3	3, 31°(c)
1224	Κετόνες, ε.α.ο.	33	3	3, 2°(b), 3°(b)
1224	Κετόνες, ε.α.ο.	30	3	3, 31°(c)
1228	Μερκαπτάνες ή μείγμα μερκαπτανών, υγρές, εύφλεκτες, τοξικές, ε.α.ο.	336	3+6.1	3, 18°(b)
1228	Μερκαπτάνες ή μείγμα μερκαπτανών, υγρές, εύφλεκτες, τοξικές, ε.α.ο.	36	3+6.1	3, 32°(c)
1229	Μεσιτολοξειδίο	30	3	3, 31°(c)
1230	Μεθανόλη	336	3+6.1	3, 17°(b)
1231	Οξικός μεθυλεστέρας	33	3	3, 3°(b)
1233	Οξικός μεθυλαμυλεστέρας	30	3	3, 31°(c)
1234	Μεθυάλη	33	3	3, 2°(b)
1235	Υδατικό διάλυμα μεθυλαμίνης	338	3+8	3, 22°(b)
1237	Βουτυλικός μεθυλεστέρας	33	3	3, 3°(b)
1238	Χλωρομυρμηκικός μεθυλεστέρας	663	6.1+3+8	6.1, 10°(a)
1239	Μεθυλ-χλωρομεθυλ-αιθέρας	663	6.1+3	6.1, 9°(a)
1242	Μεθυλδιχλωροσιλάνιο	X338	4.3+3+8	4.3, 1°(a)
1243	Μυρμηκικός μεθυλεστέρας	33	3	3, 1°(a)
1244	Μεθυλνυδραξίνη	663	6.1+3+8	6.1, 7°(a)l.
1245	Μεθυλ-ισοβουτυλ-κετόνη	33	3	3, 3°(b)
1246	Μεθυλ-ισοπροπενυλ-κετόνη, αδρανής	339	3	3, 3°(b)
1247	Μονομερές του μεθακρυλικού μεθυλεστέρα, αδρανές	339	3	3, 3°(b)
1248	Προπονικός μεθυλεστέρας	33	3	3, 3°(b)
1249	Μεθυλ-προπυλ-κετόνη	33	3	3, 3°(b)
1250	Μεθυλτριχλωροσιλάνιο	X338	3+8	3, 21°(a)
1251	Μεθυλ-βινυλ-κετόνη	339	3	3, 3°(b)
1259	Καρβονύλιο του νικελίου	663	6.1+3	6.1, 3°

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1262	Οκτάνια	33	3	3, 3 <sup>ο</sup> (b)
1263	Ελαιοχρώματα	33	3	3, 5 <sup>ο</sup> (a),(b),(c)
1263	Ελαιοχρώματα	30	3	3, 31 <sup>ο</sup> (c)
1263	Υλικά σχετικά με ελαιοχρώματα	33	3	3, 5 <sup>ο</sup> (a),(b),(c)
1263	Υλικά σχετικά με ελαιοχρώματα	30	3	3, 31 <sup>ο</sup> (c)
1264	Παραλδεύδη	30	3	3, 31 <sup>ο</sup> (c)
1265	Πεντάνια, υγρά	33	3	3, 1 <sup>ο</sup> (a)
1265	Πεντάνια, υγρά	33	3	3, 2 <sup>ο</sup> (b)
1266	Προϊόντα αρωματοποίησης	33	3	3, 5 <sup>ο</sup> (a),(b),(c)
1266	Προϊόντα αρωματοποίησης	30	3	3, 31 <sup>ο</sup> (c)
1267	Ακάθαρτο (αργό) πετρέλαιο	33	3	3, 1 <sup>ο</sup> (a), 2 <sup>ο</sup> (a),(b), 3 <sup>ο</sup> (b)
1267	Ακάθαρτο (αργό) πετρέλαιο	30	3	3, 1 <sup>ο</sup> (a), 2 <sup>ο</sup> (a),(b), 3 <sup>ο</sup> (c)
1268	Κλάσματα πετρελαίου, ε.α.ο.	33	3	3, 1 <sup>ο</sup> (a), 2 <sup>ο</sup> (a),(b), 3 <sup>ο</sup> (c)
1268	Κλάσματα πετρελαίου, ε.α.ο.	30	3	3, 31 <sup>ο</sup> (c)
1268	Προϊόντα πετρελαίου, ε.α.ο.	33	3	3, 1 <sup>ο</sup> (a), 2 <sup>ο</sup> (a),(b), 3 <sup>ο</sup> (c)
1268	Προϊόντα πετρελαίου, ε.α.ο.	30	3	3, 31 <sup>ο</sup> (c)
1272	Λάδι πεύκου	30	3	3, 31 <sup>ο</sup> (c)
1274	n-Προπανόλη	33	3	3, 3 <sup>ο</sup> (b)
1274	n-Προπανόλη	30	3	3, 31 <sup>ο</sup> (c)
1275	Προπιοναλδεύδη	33	3	3, 3 <sup>ο</sup> (b)
1276	n-οξικός προπυλεστέρας	33	3	3, 3 <sup>ο</sup> (b)
1277	Προπυλαμίνη	338	3+8	3, 22 <sup>ο</sup> (b)
1278	1-Χλωροπροπάνιο (Προπυλοχλωρίδιο)	33	3	3, 2 <sup>ο</sup> (b)
1279	1,2-Διχλωροπροπάνιο	33	3	3, 3 <sup>ο</sup> (b)
1280	Προπυλενοξείδιο, αδρανές	339	3	3, 2 <sup>ο</sup> (a)

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(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1281	Μυρμηκικοί προπυλεστέρες	33	3	3, 3 <sup>o</sup> (b)
1282	Πυριδίνη	33	3	3, 3 <sup>o</sup> (b)
1286	Λάδι κολοφώνιου (ρητινόπισσας)	33	3	3, 5 <sup>o</sup> (a),(b),(c)
1286	Λάδι κολοφώνιου (ρητινόπισσας)	30	3	3, 31 <sup>o</sup> (c)
1287	Διάλυμα καουτσούκ	33	3	3, 5 <sup>o</sup> (a),(b),(c)
1287	Διάλυμα καουτσούκ	30	3	3, 31 <sup>o</sup> (c)
1288	Ασφαλτούχος σχιστόλιθος	33	3	3, 3 <sup>o</sup> (b)
1288	Ασφαλτούχος σχιστόλιθος	30	3	3, 31 <sup>o</sup> (c)
1289	Διάλυμα μεθυλικού νατρίου	338	3+8	3, 24 <sup>o</sup> (b)
1289	Διάλυμα μεθυλικού νατρίου	38	3+8	3, 33 <sup>o</sup> (c)
1292	Πυριτικός τετρααιθυλεστέρας	30	3	3, 31 <sup>o</sup> (c)
1293	Βάμματα, φαρμακευτικά	33	3	3, 3 <sup>o</sup> (b)
1293	Βάμματα, φαρμακευτικά	30	3	3, 31 <sup>o</sup> (c)
1294	Τολουόλιο	33	3	3, 3 <sup>o</sup> (b)
1295	Τριχλωροσιλάνιο	X338	4.3+3+8	4.3, 1 <sup>o</sup> (a)
1296	Τριμεθλαμίνη	338	3+8	3, 22 <sup>o</sup> (b)
1297	Υδατικό διάλυμα τριμεθλαμίνης	338	3+8	3, 22 <sup>o</sup> (a),(b)
1297	Υδατικό διάλυμα τριμεθλαμίνης	38	3+8	3, 33 <sup>o</sup> (c)
1298	Τριμεθυλοχλωροσιλάνιο	X338	3+8	3, 21 <sup>o</sup> (b)
1299	Τουρπεντίνης	30	3	3, 31 <sup>o</sup> (c)
1300	Υποκατάστατο τουρπεντίνης	33	3	3, 3 <sup>o</sup> (b)
1300	Υποκατάστατο τουρπεντίνης	30	3	3, 31 <sup>o</sup> (c)
1301	Οξικό βινύλιο, αδρανές	339	3	3, 3 <sup>o</sup> (b)
1302	Βινylαιθυλαιθέρας, αδρανής	339	3	3, 2 <sup>o</sup> (a)
1303	Βινylιδενοχλωρίδιο, αδρανές	339	3	3, 1 <sup>o</sup> (a)
1304	Βινylοϊσοβουτυλαιθέρας, αδρανής	339	3	3, 3 <sup>o</sup> (b)
1305	Βινylοτριχλωροσιλάνιο, αδρανές	X338	3+8	3, 21 <sup>o</sup> (a)
1306	Συντηρητικά ξύλου, υγρά	33	3	3, 5 <sup>o</sup> (b),(c)



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## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1306	Συντηρητικά ξύλου, υγρά	30	3	3, 31°(c)
1307	Ξυλένια	33	3	3, 3°(b)
1307	Ξυλένια	30	3	3, 31°(c)
1308	Εναιώρημα ζirkονίου σε εύφλεκτο υγρό	33	3	3, 1°(a), 2°(a),(b), 3°(b)
1308	Εναιώρημα ζirkονίου σε εύφλεκτο υγρό	30	3	3, 31°(c)
1309	Σκόνη αλουμινίου, επικαλυμμένη	40	4.1	4.1, 13°(b),(c)
1312	Βορνεόλη (βορνεοκαμφορά)	40	4.1	4.1, 6°(c)
1313	Αβιετικό ασβέστιο	40	4.1	4.1, 12°(c)
1314	Αβιετικό ασβέστιο, λυωμένο	40	4.1	4.1, 12°(c)
1318	Αβιετικό κοβάλτιο, καταβυθισμένο	40	4.1	4.1, 12°(c)
1323	Σιδηροδημητήριο	40	4.1	4.1, 13°(b)
1325	Εύφλεκτα στερεά, οργανικά, ε.α.ο.	40	4.1	4.1, 6°(b),(c)
1326	Αφνιο σε σκόνη, νωπό	40	4.1	4.1, 13°(b)
1328	Εξαμεθυλοτετραμίνη	40	4.1	4.1, 6°(c)
1330	Αβιετικό μαγγάνιο	40	4.1	4.1, 12°(c)
1332	Μεταλλεδδη	40	4.1	4.1, 6°(c)
1334	Ναφθαλίνο, ακάθαρτο ή καθαρισμένο	40	4.1	4.1, 6°(c)
1338	Φώσφορος, άμορφος	40	4.1	4.1, 11°(c)
1339	Επταθειούχος φώσφορος	40	4.1	4.1, 11°(b)
1340	Πενταθειούχος φώσφορος	423	4.3	4.3, 20°(b)
1341	Τετραθειούχος φώσφορος	40	4.1	4.1, 11°(b)
1343	Τριθειούχος φώσφορος	40	4.1	4.1, 11°(b)
1345	Καουτσούκ μη χρησιμοποιήσιμο ή κακής ποιότητας	40	4.1	4.1, 1°(b)
1346	Πυρίτιο σε σκόνη, άμορφο	40	4.1	4.1, 13°(c)
1350	Θείο	40	4.1	4.1, 11°(c)
1352	Τιτάνιο σε σκόνη, νωπό	40	4.1	4.1, 13°(b)

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(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1358	Ζιρκόνιο σε σκόνη, νωπό	40	4.1	4.1, 13°(b)
1361	Ανθρακας	40	4.2	4.2, 1°(b),(c)
1361	Αιθάλη	40	4.2	4.2, 1°(b),(c)
1362	Ανθρακας, ενεργός	40	4.2	4.2, 1°(c)
1363	Κόπρα (ενδοκάρπιο του κοκοκάρου)	40	4.2	4.2, 2°(c)
1364	Βαμβάκι άχρηστο, ελαιώδες	40	4.2	4.2, 3° (c)
1365	Βαμβάκι, βρεγμένο	40	4.2	4.2, 3° (c)
1366	Διαιθυλοψευδάργυρος	X333	4.2+4.3	4.2, 31°(a)
1369	p-Νιτρωδο-διμεθυλανιλίνη	40	4.2	4.2, 5°(b)
1370	Διμεθυλοψευδάργυρος	X333	4.2+4.3	4.2, 31°(a)
1373	Ίνες, ζωικές, φυτικές ή συνθετικές ε.α.ο.	40	4.2	4.2, 3°(c)
1373	Ίνες, ζωικές, φυτικές ή συνθετικές ε.α.ο.	40	4.2	4.2, 3°(c)
1376	Οξειδίο του σιδήρου, χρησιμοποιημένο	40	4.2	4.2, 16°(c)
1376	Σπογγώδης σίδηρος, χρησιμοποιημένος	40	4.2	4.2, 16°(c)
1378	Καταλύτης μετάλλου, νωπός	40	4.2	4.2, 12°(b)
1379	Χαρτί, κατεργασμένο με ακόρεστο λάδι	40	4.2	4.2, 3°(c)
1380	Πενταβοράνιο	333	4.2+6.1	4.2, 19°(a)
1381	Φώσφορος, λευκός ή κίτρινος, ξηρός	46	4.2+6.1	4.2, 11°(a)
1382	Θειούχο κάλιο, άνυδρο	40	4.2	4.2, 13°(b)
1382	Θειούχο κάλιο, με λιγότερο από 30% νερό από κρυστάλλωση	40	4.2	4.2, 13°(b)
1384	Διθειονικό νάτριο (άλας νατρίου με υδρόθειο)	40	4.2	4.2, 13°(b)
1385	Θειούχο νάτριο, άνυδρο	40	4.2	4.2, 13°(b)
1385	Θειούχο νάτριο, με λιγότερο από 30% νερό από κρυστάλλωση	40	4.2	4.2, 13°(b)
1386	Συσσωμάτωμα σπόρων	40	4.2	4.2, 2°(c)
1389	Αλκαλικό αμάλγαμα μετάλλου	X423	4.3	4.3, 11°(a)
1390	Αλκαλικά αμίδια μετάλλου	423	4.3	4.3, 19°(b)

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## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1391	Αλκαλική διασπορά μετάλλου	X423	4.3	4.3, 11°(a)
1391	Διασπορά μετάλλου της σειράς αλκαλικών γαιών	X423	4.3	4.3, 11°(a)
1392	Αμάλγαμα μετάλλου της σειράς αλκαλικών γαιών	X423	4.3	4.3, 11°(a)
1393	Κράμα μετάλλων της σειράς αλκαλικών γαιών, ε.α.ο.	423	4.3	4.3, 11°(b)
1394	Καρβίδιο αλουμινίου	423	4.3	4.3, 17°(b)
1395	Σιδηροπυριτική σκόνη αλουμινίου	462	4.3+6.1	4.3, 15°(b)
1396	Σκόνη αλουμινίου, μη καλυμμένη	423	4.3	4.3, 13°(b)
1398	Πυριτική σκόνη αλουμινίου, μη καλυμμένη	423	4.3	4.3, 13°(c)
1400	Βάριο	423	4.3	4.3, 11°(b)
1401	Ασβέστιο	423	4.3	4.3, 11°(b)
1402	Καρβίδιο ασβεστίου	423	4.3	4.3, 17°(b)
1403	Κυαναμίδιο ασβεστίου	423	4.3	4.3, 19°(c)
1405	Ενώσεις πυριτίου με ασβέστιο	423	4.3	4.3, 12°(b),(c)
1407	Καίσιο	X423	4.3	4.3, 11°(a)
1408	Σιδηροπυρίτιο	462	4.3+6.1	4.3, 15°(c)
1409	Υβρίδια μετάλλων, ενεργά με το νερό, ε.α.ο.	423	4.3	4.3, 16°(b)
1415	Λίθιο	X423	4.3	4.3, 11°(a)
1417	Πυριτιούχο λίθιο	423	4.3	4.3, 12°(b)
1418	Μαγνήσιο σε σκόνη	423	4.3+4.2	4.3, 14°(b)
1418	Κράμα μαγνησίου σε σκόνη	423	4.3+4.2	4.3, 14°(b)
1420	Κράματα μετάλλων με κάλιο	X423	4.3	4.3, 11°(a)
1421	Αλκαλικά κράματα μετάλλων, υγρά, ε.α.ο.	X423	4.3	4.3, 11°(a)
1422	Κράματα νατρίου με κάλιο	X423	4.3	4.3, 11°(a)
1423	Ρουβίδιο	X423	4.3	4.3, 11°(a)
1428	Νάτριο	X423	4.3	4.3, 11°(a)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1431	Μεθυλικό νάτριο	48	4.2+8	4.2, 15°(b)
1435	Τέφρα ψευδαργύρου	423	4.3	4.3, 13°(c)
1436	Σκόνη ψευδαργύρου	423	4.3+4.2	4.3, 14°(b),(c)
1436	Λεπτή σκόνη ψευδαργύρου	423	4.3+4.2	4.3, 14°(b),(c)
1437	Υβρίδιο ζιρκονίου	40	4.1	4.1, 14°(b)
1438	Νιτρικό αλουμίνιο	50	5.1	5.1, 22°(c)
1439	Διχρωμικό αμμώνιο	50	5.1	5.1, 27°(b)
1444	Υπερθειικό αμμώνιο	50	5.1	5.1, 18°(c)
1445	Χλωρικό βάριο	56	5.1+6.1	5.1, 29°(b)
1446	Νιτρικό βάριο	56	5.1+6.1	5.1, 29°(b)
1447	Υπερχλωρικό βάριο	56	5.1+6.1	5.1, 29°(b)
1448	Υπερμαγγανικό βάριο	56	5.1+6.1	5.1, 29°(b)
1449	Υπεροξειδίο του βαρίου	56	5.1+6.1	5.1, 29°(b)
1450	Βρωμικά άλατα, ανόργανα, ε.α.ο.	50	5.1	5.1, 16°(b)
1451	Νιτρικό καΐσιο	50	5.1	5.1, 22°(c)
1452	Χλωρικό ασβέστιο	50	5.1	5.1, 11°(b)
1453	Χλωριώδες ασβέστιο	50	5.1	5.1, 14°(b)
1454	Νιτρικό ασβέστιο	50	5.1	5.1, 22°(c)
1455	Υπερχλωρικό ασβέστιο	50	5.1	5.1, 13°(b)
1456	Υπερμαγγανικό ασβέστιο	50	5.1	5.1, 17°(b)
1457	Υπεροξειδίο του ασβεστίου	50	5.1	5.1, 25°(b)
1458	Μείγμα αλάτων χλωρίου και βορίου	50	5.1	5.1, 11°(b)
1459	Μείγμα χλωρικών αλάτων και χλωριούχου μαγνησίου	50	5.1	5.1, 11°(b)
1461	Χλωρικά άλατα, ανόργανα, ε.α.ο.	50	5.1	5.1, 11°(b)
1462	Χλωριώδη άλατα, ανόργανα, ε.α.ο.	50	5.1	5.1, 14°(b)
1463	Τριοξειδίο του χρωμίου, άνυδρο	58	5.1+8	5.1, 31°(b)
1465	Νιτρικό διδύμιο	50	5.1	5.1, 22°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1466	Νιτρικό άλας τρισθενούς σιδήρου	50	5.1	5.1, 22°(c)
1467	Νιτρική γουανιδίνη	50	5.1	5.1, 22°(c)
1469	Νιτρικός μόλυβδος	56	5.1+6.1	5.1, 29°(c)
1470	Υπερχλωρικός μόλυβδος	56	5.1+6.1	5.1, 29°(b)
1471	Υποχλωριώδες λιθίο, σε μείγμα ή ξηρό	50	5.1	5.1, 15°(b)
1472	Υπεροξειδίο του λιθίου	50	5.1	5.1, 25°(b)
1473	Βρωμικό μαγνήσιο	50	5.1	5.1, 16°(b)
1474	Νιτρικό μαγνήσιο	50	5.1	5.1, 22°(c)
1475	Υπερχλωρικό μαγνήσιο	50	5.1	5.1, 13°(b)
1476	Υπεροξειδίο του μαγνησίου	50	5.1	5.1, 25°(b)
1477	Νιτρικά άλατα, ανόργανα, ε.α.ο.	50	5.1	5.1, 22°(b),(c)
1479	Οξειδωτικά στερεά, ε.α.ο.	50	5.1	5.1, 27°(b),(c)
1481	Υπερχλωρικά άλατα, ανόργανα, ε.α.ο.	50	5.1	5.1, 13°(b)
1482	Υπερμαγγανικά άλατα, ανόργανα, ε.α.ο.	50	5.1	5.1, 17°(b)
1483	Υπεροξειδία, ανόργανα, ε.α.ο.	50	5.1	5.1, 25°(b)
1484	Βρωμικό κάλιο	50	5.1	5.1, 16°(b)
1485	Χλωρικό κάλιο	50	5.1	5.1, 11°(b)
1486	Νιτρικό κάλιο	50	5.1	5.1, 22°(c)
1487	Μείγμα νιτρικού καλίου και νιτρώδους νατρίου	50	5.1	5.1, 24°(b)
1488	Νιτρώδες κάλιο	50	5.1	5.1, 23°(b)
1489	Υπερχλωρικό κάλιο	50	5.1	5.1, 13°(b)
1490	Υπερμαγγανικό κάλιο	50	5.1	5.1, 17°(b)
1492	Υπερθεϊκό κάλιο	50	5.1	5.1, 18°(c)
1493	Νιτρικός άργυρος	50	5.1	5.1, 22°(b)
1494	Βρωμικό νάτριο	50	5.1	5.1, 16°(b)
1495	Χλωρικό νάτριο	50	5.1	5.1, 11°(b)
1496	Χλωριώδες νάτριο	50	5.1	5.1, 14°(b)
1498	Νιτρικό νάτριο	50	5.1	5.1, 22°(c)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1499	Μείγμα νιτρικού νατρίου και νιτρικού καλίου	50	5.1	5.1, 22°(c)
1500	Νιτρώδες νάτριο	50	5.1	5.1, 23°(c)
1502	Υπερχλωρικό νάτριο	50	5.1	5.1, 13°(b)
1503	Υπερμαγγανικό νάτριο	50	5.1	5.1, 17°(b)
1505	Υπερθειικό νάτριο	50	5.1	5.1, 18°(c)
1506	Χλωρικό στρόντιο	50	5.1	5.1, 11°(b)
1507	Νιτρικό στρόντιο	50	5.1	5.1, 22°(c)
1508	Υπερχλωρικό στρόντιο	50	5.1	5.1, 13°(b)
1509	Υπεροξείδιο του στρόντιου	50	5.1	5.1, 25°(b)
1510	Τετρανιτρομεθάνιο	559	5.1+6.1	5.1, 2°(a)
1511	Υπεροξείδιο του υδρογόνου της ουρίας	58	5.1+8	5.1, 31°(c)
1512	Νιτρώδες αμμώνιο του ψευδαργύρου	50	5.1	5.1, 23°(b)
1513	Χλωρικός ψευδάργυρος	50	5.1	5.1, 11°(b)
1514	Νιτρικός ψευδάργυρος	50	5.1	5.1, 22°(b)
1515	Υπερμαγγανικός ψευδάργυρος	50	5.1	5.1, 17°(b)
1516	Υπεροξείδιο του ψευδαργύρου	50	5.1	5.1, 25°(b)
1541	Κυανιδρίνη της ακετόνης, σταθεροποιημένη	66	6.1	6.1, 12°(a)
1544	Αλκαλοειδή ή άλατα αλκαλοειδών, στερεά, ε.α.ο.	66	6.1	6.1, 90°(a)
1544	Αλκαλοειδή ή άλατα αλκαλοειδών, στερεά, ε.α.ο.	60	6.1	6.1, 90°(b),(c)
1545	Ισοθειοκυανικό αλλύλιο, αδρανές	639	6.1+3	6.1, 20°(b)
1546	Αρσενικό αμμώνιο	60	6.1	6.1, 51°(b)
1547	Ανιλίνη	60	6.1	6.1, 12°(b)
1548	Υδροχλωρική ανιλίνη	60	6.1	6.1, 12°(c)
1549	Ενώσεις αντιμονίου, ανόργανες, στερεές, ε.α.ο.	60	6.1	6.1, 59°(c)
1550	Γαλακτικό αντιμόνιο	60	6.1	6.1, 59°(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1551	Τρυγικό αντιμωνοκάλιο	60	6.1	6.1, 59°(c)
1553	Αρσενικό οξύ, υγρό	66	6.1	6.1, 51°(a)
1554	Αρσενικό οξύ, στερεό	60	6.1	6.1, 51°(b)
1555	Βρωμιούχο αρσενικό	60	6.1	6.1, 51°(b)
1556	Ενώσεις αρσενικού, υγρές, ε.α.ο.	66	6.1	6.1, 51°(a)
1556	Ενώσεις αρσενικού, υγρές, ε.α.ο.	60	6.1	6.1, 51°(b),(c)
1557	Ενώσεις αρσενικού, στερεές, ε.α.ο.	66	6.1	6.1, 51°(a)
1557	Ενώσεις αρσενικού, στερεές, ε.α.ο.	60	6.1	6.1, 51°(b),(c)
1558	Αρσενικό	60	6.1	6.1, 51°(b)
1559	Πεντοξειδίο του αρσενικού	60	6.1	6.1, 51°(b)
1560	Τριχλωρίδιο του αρσενικού	66	6.1	6.1, 51°(a)
1561	Τριοξειδίο του αρσενικού	60	6.1	6.1, 51°(b)
1562	Σκόνη με αρσενικό	60	6.1	6.1, 51°(b)
1564	Ενώσεις βαρίου, ε.α.ο.	60	6.1	6.1, 60°(b),(c)
1566	Ενώσεις βηρυλλίου, ε.α.ο.	60	6.1	6.1, 54°(b)2.,(c)
1567	Βηρύλλιο σε σκόνη	64	6.1+4.1	6.1, 54°(b)1.
1569	Βρωμοακετόνη	63	6.1+3	6.1, 16°(b)
1570	Βρυκίνη	66	6.1	6.1, 90°(a)
1572	Κακοδυλικό οξύ (αλκαρζέν)	60	6.1	6.1, 51°(b)
1573	Αρσενικό ασβέστιο	60	6.1	6.1, 51°(b)
1574	Μείγμα αρσενικού ασβεστίου και αρσενίτη του ασβεστίου, στερεό	60	6.1	6.1, 51°(b)
1577	Χλωροδιπροβενζόλια	60	6.1	6.1, 12°(b)
1578	Χλωρονιπροβενζόλια	60	6.1	6.1, 12°(b)
1579	Υδροχλωρική 4-χλωρο-ο-τολουϊδίνη	60	6.1	6.1, 17°(c)
1580	Χλωροπικρίνη	66	6.1	6.1, 17°(a)
1581	Μείγματα μεθυλοβρωμιδίου και χλωροπικρίνης (υγροποιημένο αέριο)	26	6.1	2, 4°(at)

250 000  
(συνεχ.)

Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1582	Μείγματα μεθυλοχλωριδίου και χλωροπικρίνης (υγροποιημένο αέριο)	236	3+6.1	2, 4°(bf)
1583	Μείγματα χλωροπικρίνης, ε.α.ο.	66	6.1	6.1, 17°(a)
1583	Μείγματα χλωροπικρίνης, ε.α.ο.	60	6.1	6.1, 17°(b),(c)
1585	Ακετοαρσενίτης του χαλκού	60	6.1	6.1, 51°(b)
1586	Αρσενίτης του χαλκού	60	6.1	6.1, 51°(b)
1587	Κυανούχος χαλκός	60	6.1	6.1, 41°(b)
1588	Κυανίδια, ανόργανα, στερεά, ε.α.ο.	66	6.1	6.1, 41°(a)
1588	Κυανίδια, ανόργανα, στερεά, ε.α.ο.	60	6.1	6.1, 41°(b),(c)
1590	Διχλωροανιλίνες	60	6.1	6.1, 12°(b)
1591	ο-Διχλωροβενζόλιο	60	6.1	6.1, 15°(c)
1593	Διχλωρομεθάνιο	60	6.1	6.1, 15°(c)
1594	Θευκός διαιθυλεστέρας	60	6.1	6.1, 14°(b)
1595	Θευκός διμεθυλεστέρας	668	6.1+8	6.1, 27°(a)
1596	Δινιτροανιλίνες	60	6.1	6.1, 12°(b)
1597	Δινιτροβενζόλια	60	6.1	6.1, 12°(b)
1598	Δινιτρο-ο-κρεζόλη	60	6.1	6.1, 12°(b)
1599	Διάλυμα δινιτροφαινόλης	60	6.1	6.1, 12°(b),(c)
1600	Δινιτροτολουόλιο, τετηγμένο	60	6.1	6.1, 24°(b)1.
1601	Απολυμαντικά, στερεά, τοξικά, ε.α.ο.	66	6.1	6.1, 25°(a)
1601	Απολυμαντικά, στερεά, τοξικά, ε.α.ο.	60	6.1	6.1, 25°(b),(c)
1602	Βαφές, υγρές, τοξικές, ε.α.ο.	66	6.1	6.1, 25°(a)
1602	Βαφές, υγρές, τοξικές, ε.α.ο.	60	6.1	6.1, 25°(b),(c)
1602	Ενδιάμεσα βαφής, υγρά, τοξικά, ε.α.ο.	66	6.1	6.1, 25°(a)
1602	Ενδιάμεσα βαφής, υγρά, τοξικά, ε.α.ο.	60	6.1	6.1, 25°(b),(c)
1603	Βρωμοξικός αιθυλεστέρας	63	6.1+3	6.1, 16°(b)
1604	Αιθυλενοδιαμίνη	83	8+3	8, 54°(b)
1605	Διθυλενοδιβρωμίδιο	66	6.1	6.1, 15°(a)



Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1606	Αρσενικός τρισθενής σίδηρος	60	6.1	6.1, 51°(b)
1607	Αρσενίτης τρισθενούς σιδήρου	60	6.1	6.1, 51°(b)
1608	Αρσενικός δισθενής σίδηρος	60	6.1	6.1, 51°(b)
1610	Αλογονωμένο ερεθιστικό υγρό, ε.α.ο.	66	6.1	6.1, 17°(a)
1610	Αλογονωμένο ερεθιστικό υγρό, ε.α.ο.	60	6.1	6.1, 17°(b),(c)
1611	Τετραφωσφορικός εξααιθυλεστέρας	60	6.1	6.1, 23°(b)
1613	Υδατικό διάλυμα υδροκυανίου (Υδροκυάνιο)	663	6.1+3	6.1, 2°
1616	Οξικός μόλυβδος	60	6.1	6.1, 62°(c)
1617	Αρσενικά άλατα μολύβδου	60	6.1	6.1, 51°(b)
1618	Αρσενίτης του μολύβδου	60	6.1	6.1, 51°(b)
1620	Κυανούχος μόλυβδος	60	6.1	6.1, 41°(b)
1621	Πορφυρό του Λονδίνου	60	6.1	6.1, 51°(b)
1622	Αρσενικό μαγνήσιο	60	6.1	6.1, 51°(b)
1623	Αρσενικός υδράργυρος	60	6.1	6.1, 51°(b)
1624	Χλωριούχος υδράργυρος	60	6.1	6.1, 52°(b)
1625	Νιτρικός υδράργυρος	60	6.1	6.1, 52°(b)
1627	Νιτρικός υφιδράργυρος	60	6.1	6.1, 52°(b)
1629	Οξικός υδράργυρος	60	6.1	6.1, 52°(b)
1630	Άλας υδραργύρου με χλωριούχο αμμώνιο	60	6.1	6.1, 52°(b)
1631	Βενζοϊκός υδράργυρος	60	6.1	6.1, 52°(b)
1634	Βρωμιούχα άλατα υδραργύρου	60	6.1	6.1, 52°(b)
1636	Κυανίδιο του υδραργύρου	60	6.1	6.1, 41°(b)
1637	Γλυκονικός υδράργυρος	60	6.1	6.1, 52°(b)
1638	Ιωδιούχος υδράργυρος	60	6.1	6.1, 52°(b)
1639	Νουκλεατικός υδράργυρος	60	6.1	6.1, 52°(b)
1640	Ελαϊκός υδράργυρος	60	6.1	6.1, 52°(b)
1641	Οξειδίο του υδραργύρου	60	6.1	6.1, 52°(b)
1642	Οξυκυανίδιο του υδραργύρου,	60	6.1	6.1, 41°(b)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
	απευαισθητοποιημένο			
1643	Άλας υδραργύρου με ιωδιδικό κάλιο	60	6.1	6.1, 52°(b)
1644	Σαλικυλικός υδράργυρος	60	6.1	6.1, 52°(b)
1645	Θειικός υδράργυρος	60	6.1	6.1, 52°(b)
1646	Θειοκυανικός υδράργυρος	60	6.1	6.1, 52°(b)
1647	Μείγματα μεθυλοβρωμιδίου και αιθυλενοβρωμιδίου	236	3+6.1	2, 4°(bt)
1647	Μείγμα μεθυλοβρωμιδίου και αιθυλενοδιβρωμιδίου, υγρό	66	6.1	6.1, 15°(a)
1648	Ακετοντρίλιο (μεθυλοκυανίδιο)	33	3	3, 3°(b)
1649	Μείγμα αντι-νοκ καυσίμων μηχανών	66	6.1	6.1, 31°(a)
1650	β-Ναφθυλαμίνη	60	6.1	6.1, 12°(b)
1651	Ναφθυλθειουρία	60	6.1	6.1, 21°(b)
1652	Ναφθυλουρία	60	6.1	6.1, 12°(b)
1653	Κυανίδιο του νικελίου	60	6.1	6.1, 41°(b)
1654	Νικοτίνη	60	6.1	6.1, 90°(b)
1655	Ενώσεις ή παρασκευάσματα νικοτίνης, στερεά, ε.α.ο.	66	6.1	6.1, 90°(a)
1655	Ενώσεις ή παρασκευάσματα νικοτίνης, στερεά, ε.α.ο.	60	6.1	6.1, 90°(b),(c)
1656	Υδροχλωρική νικοτίνη ή διάλυμα αυτής	60	6.1	6.1, 90°(b)
1657	Σαλικυλική νικοτίνη	60	6.1	6.1, 90°(b)
1658	Θειική νικοτίνη, στερεά	60	6.1	6.1, 90°(b)
1658	Θειική νικοτίνη, σε διάλυμα	60	6.1	6.1, 90°(b)
1659	Τρυγική νικοτίνη	60	6.1	6.1, 90°(b)
1661	Νιτροανιλίνες (ο-, m-, p-)	60	6.1	6.1, 12°(b)
1662	Νιτροβενζόλιο	60	6.1	6.1, 12°(b)
1663	Νιτροφαινόλες	60	6.1	6.1, 12°(c)
1664	Νιτροτολουόλια (ο-, m-, p-)	60	6.1	6.1, 12°(b)
1665	Νιτροξυλόλια (ο-, m-, p-)	60	6.1	6.1, 12°(b)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Επικέτα (d)	Αριθμός Κλάσης και είδους (e)
1669	Πενταχλωροαιθάνιο	60	6.1	6.1, 15°(b)
1670	Υπερχλωρομεθυλομερκαπτάνη	66	6.1	6.1, 17°(a)
1671	Φαινόλη, στερεά	60	6.1	6.1, 14°(b)
1672	Χλωριούχα φαινυλοκαρβιλαμίνη	66	6.1	6.1, 17°(a)
1673	Φαινυλενοδιαμίνες (ο-, m-, p-)	60	6.1	6.1, 12°(c)
1674	Οξικός φαινυλδράργυρος	60	6.1	6.1, 33°(b)
1677	Αρσενικό κάλιο	60	6.1	6.1, 51°(b)
1678	Αρσενίτης καλίου	60	6.1	6.1, 51°(b)
1679	Χαλκοκυανίδιου του καλίου	60	6.1	6.1, 41°(b)
1683	Αρσενίτης του αργύρου	60	6.1	6.1, 51°(b)
1684	Κυανίδιο του αργύρου	60	6.1	6.1, 41°(b)
1685	Αρσενικό νάτριο	60	6.1	6.1, 51°(b)
1686	Υδατικό διάλυμα αρσενίτη του νατρίου	60	6.1	6.1, 51°(b),(c)
1688	Κακοδυλικό νάτριο	60	6.1	6.1, 51°(b)
1690	Φθοριούχο νάτριο	60	6.1	6.1, 63°(c)
1691	Αρσενίτης του στροντίου	60	6.1	6.1, 51°(b)
1692	Στρυχνίνη ή άλατα αυτής	66	6.1	6.1, 90°(a)
1693	Συστατικά δακρυγόνων αερίων, υγρά ή στερεά, ε.α.ο.	66	6.1	6.1, 25°(a)
1693	Συστατικά δακρυγόνων αερίων, υγρά ή στερεά, ε.α.ο.	60	6.1	6.1, 25°(b)
1694	Κυανίδιο του βρωμοβενζολίου	66	6.1	6.1, 17°(a)
1695	Χλωροακετόνη, σταθεροποιημένη	60	6.1	6.1, 17°(b)
1697	Χλωροακετοφαινόλη	60	6.1	6.1, 17°(b)
1698	Διφαινυλαμινοχλωροαρσίνη	66	6.1	6.1, 34°(a)
1699	Διφαινυλοχλωροαρσίνη	66	6.1	6.1, 34°(a)
1701	Ξυλυλοβρωμίδιο	60	6.1	6.1, 15°(b)
1702	1,1,2,2-Τετραχλωροαιθάνιο	60	6.1	6.1, 15°(b)
1704	Διθειοπυροφωσφορικός	60	6.1	6.1, 23°(b)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
	τετρααιθυλεστέρας			
1707	Ενώσεις θαλλίου, ε.α.ο.	60	6.1	6.1, 53°(b)2.
1708	Τολουϊδίνες	60	6.1	6.1, 12°(b)
1709	2,4-Τολουϋλενοδιαμίνη	60	6.1	6.1, 12°(c)
1710	Τριχλωροαιθυλένιο	60	6.1	6.1, 15°(c)
1711	Ξυλιδίνια	60	6.1	6.1, 12°(b)
1712	Αρσενικός ψευδάργυρος	60	6.1	6.1, 51°(b)
1712	Μείγμα αρσενικού ψευδαργύρου και αρσενίτη του ψευδαργύρου	60	6.1	6.1, 51°(b)
1712	Αρσενίτης του ψευδαργύρου	60	6.1	6.1, 51°(b)
1713	Κυανούχος ψευδάργυρος	66	6.1	6.1, 41°(a)
1715	Οξικός ανυδρίτης	83	8+3	8, 32°(b)2.
1716	Ακετυλοβρωμίδιο	80	8	8, 35°(b)1.
1717	Ακετυλοχλωρίδιο	X338	3+8	3, 25°(b)
1718	Οξίνο φωσφορικό βουτύλιο	80	8	8, 38°(c)
1719	Καυστικό αλκαλικό υγρό, ε.α.ο.	80	8	8, 42°(b),(c)
1722	Χλωροφορμικός αλλυλεστέρας	638	6.1+8+3	6.1, 28°(a)
1723	Ιωδιούχο αλλύλιο	338	3+8	3, 25°(b)
1724	Αλλυλοτριχλωροσιλάνιο, σταθεροποιημένο	X839	8+3	8, 37°(b)
1725	Βρωμιούχο αλουμίνιο, άνυδρο	80	8	8, 11°(b)
1726	Χλωριούχο αλουμίνιο, άνυδρο	80	8	8, 11°(b)
1727	Υδροδιφθοριούχο αμμόνιο, στερεό	80	8	8, 9°(b)
1728	Αμλοτριχλωροσιλάνιο	X80	8	8, 36°(b)
1729	Ανισούλοχλωρίδιο	80	8	8, 35°(b)1.
1730	Πενταχλωριούχο αντιμόνιο, υγρό	80	8	8, 12°(b)
1731	Διάλυμα πενταχλωριούχου αντιμονίου	80	8	8, 12°(b),(c)
1732	Πενταφθοριούχο αντιμόνιο	86	8+6.1	8, 10°(b)
1733	Τριχλωριούχο αντιμόνιο	80	8	8, 11°(b)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1736	Χλωριούχο βενζοΐλιο	80	8	8, 35°(b)1.
1737	Βενζυλοβρωμίδιο	68	6.1+8	6.1, 27°(b)
1738	Βενζυλοχλωρίδιο	68	6.1+8	6.1, 27°(b)
1739	Χλωροφορμικός βενζυλεστέρας	88	8	8, 64°(a)
1740	Υδροδιφθορίδια, ε.α.ο.	80	8	8, 9°(b),(c)
1742	Σύμπλοκο τριφθοριούχου βορίου και οξικού οξέος	80	8	8, 33°(b)
1743	Σύμπλοκο τριφθοριούχου βορίου και προπιονικού οξέος	80	8	8, 33°(b)
1744	Βρώμιο ή διάλυμα βρωμίου	886	8+6.1	8, 14°
1745	Πενταφθοριούχο βρώμιο	568	5.1+6.1+8	5.1, 5°
1746	Τριφθοριούχο βρώμιο	568	5.1+6.1+8	5.1, 5°
1747	Βουτυλοτριχλωροσιλάνιο	X83	8+3	8, 37°(b)
1748	Υποχλωριώδες ασβέστιο, ξηρό	50	5.1	5.1, 15°(b)
1748	Μείγμα υποχλωριώδους ασβέστιου, ξηρό	50	5.1	5.1, 15°(b)
1750	Διάλυμα μονοχλωρικού οξέος	68	6.1+8	6.1, 27°(b)
1751	Μονοχλωρικό οξύ, στερεό	68	6.1+8	6.1, 27°(b)
1752	Χλωριούχο χλωροακετύλιο	668	6.1+8	6.1, 27°(a)
1753	Χλωροφαινυλοτριχλωροσιλάνιο	X80	8	8, 36°(b)
1754	Χλωροσουλφονικό οξύ	88	8	8, 12°(a)
1755	Διάλυμα χλωρικού οξέος	80	8	8, 17°(b),(c)
1756	Φθοριούχο χρώμιο, στερεό	80	8	8, 9°(b)
1757	Διάλυμα φθοριούχου χρωμίου	80	8	8, 8°(b),(c)
1758	Οξυχλωριούχο χρώμιο	88	8	8, 12°(a)
1759	Διαβρωτικά στερεά, ε.α.ο.	88	8	8, 65°(a)
1759	Διαβρωτικά στερεά, ε.α.ο.	80	8	8, 65°(b),(c)
1760	Διαβρωτικά υγρά, ε.α.ο.	88	8	8, 66°(a)
1760	Διαβρωτικά υγρά, ε.α.ο.	80	8	8, 66°(b),(c)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1761	Διάλυμα κυπριαιθυλενοδιαμίνης	86	8+6.1	8,53°(b)(c)
1762	Κυκλοεξενυλοτριγλωροσιλάνιο	X80	8	8,36°(b)
1763	Κυκλοεξυλοτριγλωροσιλάνιο	X80	8	8,36°(b)
1764	Διγλωροξικό οξύ	80	8	8,32°(b)l.
1765	Χλωριούχο διγλωροακετύλιο	X80	8	8,35°(b)l.
1766	Διγλωροφαινυλοτριγλωροσιλάνιο	X80	8	8,36°(b)
1767	Διαιθυλοδιγλωροσιλάνιο	X83	8+3	8,37°(b)
1768	Διφθοροφωσφορικό οξύ, άνυδρο	80	8	8,8°(b)
1769	Διφαινυλοδιγλωροσιλάνιο	X80	8	8,36°(b)
1770	Βρωμιούχο διφαινυλομεθύλιο	80	8	8,65°(b)
1771	Δωδεκυλοτριγλωροσιλάνιο	X80	8	8,36°(b)
1773	Τριγλωριούχος σίδηρος, άνυδρος	80	8	8,11°(c)
1775	Φθοροβορικό οξύ	80	8	8,8°(b)
1776	Φθοροφωσφορικό οξύ, άνυδρο	80	8	8,8°(b)
1777	Φθοροσουλφονικό οξύ	88	8	8,8°(a)
1778	Φθοροπυρρικό οξύ	80	8	8,8°(b)
1779	Μυρμηκικό οξύ	80	8	8,32°(b)l.
1780	Φουμαρυλοχλωρίδιο	80	8	8,35°(b)l.
1781	Δεκαεξυλοτριγλωροσιλάνιο	X80	8	8,36°(b)
1782	Εξαφθοροφωσφορικό οξύ	80	8	8,8°(b)
1783	Διάλυμα εξαμεθυλενοδιαμίνης	80	8	8,53°(b), (c)
1784	Εξυλοτριγλωροσιλάνιο	X80	8	8,36°(b)
1786	Μείγμα υδροφθορικού οξέος και φωσφορικού οξέος	886	8+6.1	8,7°(a)
1787	Διάλυμα υδροϊωδικού οξέος	80	8	8,5°(b),(c)
1788	Διάλυμα υδροβρωμικού οξέος	80	8	8,5°(b),(c)
1789	Διάλυμα υδροχλωρικού οξέος	80	8	8,5°(b),(c)
1790	Διάλυμα υδροφθορικού οξέος περιέχον περισσότερο από 85% υδροφθόριο	886	8+6.1	8,6°

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1790	Διάλυμα υδροφθορικού οξέος περιέχον μεταξύ 60 και 85% υδροφθόριο	886	8+6.1	8, 7°(a)
1790	Διάλυμα υδροφθορικού οξέος περιέχον λιγότερο από 60% υδροφθόριο	86	8+6.1	8, 7°(b)
1791	Υποχλωριώδες διάλυμα με περιεκτικότητα σε ενεργό χλώριο μεταξύ 5 και 16%	80	8	8, 61°(b),(c)
1792	Μονοχλωριούχο ιώδιο	80	8	8, 12°(b)
1793	Οξίνο φωσφορικό ισοπροπύλιο	80	8	8, 38°(c)
1794	Θεικός μάλυβδος	80	8	8, 1°(b)
1796	Μείγμα οξέος νιτρώσεως περιέχον περισσότερο από 50% νιτρικό οξύ	885	8+05	8, 3°(a)
1796	Μείγμα οξέος νιτρώσεως περιέχον λιγότερο από 50% νιτρικό οξύ	80	8	8, 3°(b)
1799	Εννεανυλοτριχλωροσιλάνιο	X80	8	8, 36°(b)
1800	Δεκαοκτυλοτριχλωροσιλάνιο	X80	8	8, 36°(b)
1801	Οκτυλοτριχλωροσιλάνιο	X80	8	8, 36°(b)
1802	Υπερχλωρικό	85	8	8, 4°(b)
1803	Φαινολοσουλφονικό οξύ, υγρό	80	8	8, 34°(b)
1804	Φαινυλοτριχλωροσιλάνιο	X80	8	8, 36°(b)
1805	Φωσφορικό οξύ	80	8	8, 17°(c)
1806	Πενταχλωριούχος φώσφορος	80	8	8, 11°(b)
1807	Πεντοξειδίο του φωσφόρου	80	8	8, 16°(b)
1808	Τριβρωμιούχος φώσφορος	80	8	8, 12°(b)
1809	Τριχλωριούχος φώσφορος	886	8+6.1	8, 12°(a)
1810	Οξυχλωριούχος φώσφορος	80	8	8, 12°(b)
1811	Υδροδιφθοριούχο κάλιο	86	8+6.1	8, 9°(b)
1812	Φθοριούχο κάλιο	60	6.1	6.1, 63°(c)
1813	Υδροξειδίο του καλίου, στερεό	80	8	8, 41°(b)
1814	Διάλυμα υδροξειδίου του καλίου	80	8	8, 42°(b),(c)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1815	Προπιονυλοχλωρίδιο	338	3+8	3, 25°(b)
1816	Προπυλοτριγλωροσιλάνιο	X83	8+3	8, 37°(b)
1817	Πυροσουλφουρυλοχλωρίδιο	80	8	8, 12°(b)
1818	Τετραχλωριούχο πυρίτιο	80	8	8, 12°(b)
1819	Διάλυμα αργλικού νατρίου	80	8	8, 42°(b),(c)
1823	Υδροξειδίο του νατρίου, στερεό	80	8	8, 41°(b)
1824	Διάλυμα υδροξειδίου του νατρίου	80	8	8, 42°(b),(c)
1825	Μονοξειδίο του νατρίου	80	8	8, 41°(b)
1826	Μείγμα οξέος νιτρώσεως, χρησιμοποιημένο με λιγότερο από 50% νιτρικό οξύ	80	8	8, 3°(b)
1826	Μείγμα οξέος νιτρώσεως, χρησιμοποιημένο με περισσότερο από 50% νιτρικό οξύ	885	8+05	8, 3°(a)
1827	Χλωριούχος κασσίτερος, άνυδρος	80	8	8, 12°(b)
1828	Θειοχλωρίδια	X88	8	8, 12°(a)
1829	Τριοξειδίο του θείου, αδρανές	X88	8	8, 1°(a)
1830	Θειικό οξύ, περιέχον περισσότερο από 51% οξύ	80	8	8, 1°(b)
1831	Θειικό οξύ, αμιζον	X886	8+6.1	8, 1°(a)
1832	Θειικό οξύ, χρησιμοποιημένο	80	8	8, 1°(b)
1833	Θειώδες οξύ	80	8	8, 1°(b)
1834	Σουλφουρυλοχλωρίδιο	X88	8	8, 12°(a)
1835	Υδροξειδίο του τετραμεθυλαμμωνίου	80	8	8, 51°(b)
1836	Θειονυλοχλωρίδιο	X88	8	8, 12°(a)
1837	Θειοφωσφορυλοχλωρίδιο	80	8	8, 12°(b)
1838	Τετραχλωριούχο τιτάνιο	80	8	8, 12°(b)
1839	Τριγλωρικό οξύ	80	8	8, 31°(b)
1840	Διάλυμα χλωριούχου ψευδαργύρου	80	8	8, 5°(c)
1843	Δινιτρο-ο-κρεζολικό αμμώνιο	60	6.1	6.1, 12°(b)



250 000  
(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Επικέτα (d)	Αριθμός Κλάσης και είδους (e)
1846	Τετραχλωράνθρακας	60	6.1	6.1, 15°(b)
1847	Θειούχο κάλιο, ενυδατωμένο	80	8	8, 45°(b)1.
1848	Προπιονικό οξύ	80	8	8, 32°(c)
1849	Θειούχο νάτριο, ενυδατωμένο	80	8	8, 45°(b)1.
1851	Φάρμακα, υγρά, τοξικά, ε.α.ο.	60	6.1	6.1, 90°(b),(c)
1858	Εξαφθοροπροπυλένιο (R 1216)	26	6.1	2, 3°(at).
1860	Βινυλοφθορίδιο	239	3	2, 5°(c)
1862	Κροτονικός αιθυλεστέρας	33	3	3, 3°(b)
1863	Καύσιμα αεροπορίας, στροβιλομηχανών	33	3	3, 1°(a), 2°(a),(b), 3°(b)
1863	Καύσιμα αεροπορίας, στροβιλομηχανών	30	3	3, 31°(c)
1866	Διάλυμα ρητίνης, εύφλεκτο	33	3	3, 5°(a),(b),(c)
1866	Διάλυμα ρητίνης, εύφλεκτο	30	3	3, 31°(c)
1868	Δεκαβοράνιο	46	4.1+6.1	4.1, 16°(b)
1869	Μαγνήσιο	40	4.1	4.1, 13°(c)
1869	Κράματα μαγνησίου	40	4.1	4.1, 13°(c)
1871	Υδρίδιου του τιτανίου	40	4.1	4.1, 14°(b)
1872	Διοξείδιο του μολύβδου	56	5.1+6.1	5.1, 29°(c)
1873	Υπερχλωρικό οξύ, με περισσότερο από 50% αλλά όχι περισσότερο από 72% οξύ, κατά βάρος	558	5.1+8	5.1, 3°(a)
1884	Οξειδίο του βαρίου	60	6.1	6.1, 60°(c)
1885	Βενζιδίνη	60	6.1	6.1, 12°(b)
1886	Χλωριούχο βενζυλιδένιο	60	6.1	6.1, 15°(b)
1887	Βρωμοχλωρομεθάνιο	60	6.1	6.1, 15°(c)
1888	Χλωροφόρμιο	60	6.1	6.1, 15°(c)
1889	Βρωμιούχο κυανογόνο	668	6.1+8	6.1, 27°(a)
1891	Αιθυλοβρωμίδιο	60	6.1	6.1, 15°(b)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1892	Αιθυλοδιχλωροαρσίνη	66	6.1	6.1, 34°(a)
1894	Υδροξειδιο του φαινυλδραργύρου	60	6.1	6.1, 33°(b)
1895	Νιτρικός φαινυλδράργυρος	60	6.1	6.1, 33°(b)
1897	Τετραχλωροαιθυλένιο	60	6.1	6.1, 15°(c)
1898	Ακετυλοϊωδιδιο	80	8	8, 35°(b)1.
1902	Οξινο φωσφορικό διίσοοκτύλιο	80	8	8, 38°(c)
1903	Απολυμαντικά, υγρά, διαβρωτικά, ε.α.ο.	88	8	8, 66°(a)
1903	Απολυμαντικά, υγρά, διαβρωτικά, ε.α.ο.	80	8	8, 66°(b),(c)
1906	Θεικό οξύ (που αποβάλλεται μετά τον καθαρισμό του πετρελαίου)	80	8	8, 1°(b)
1907	Νατράσβεστος	80	8	8, 41°(c)
1908	Χλωριώδες διάλυμα με όχι λιγότερο από 16% διαθέσιμο χλώριο	80	8	8, 61°(b),(c)
1912	Μείγματα μεθυλοχλωριδίου και μεθυλενοχλωριδίου (υγροποιημένο αέριο)	236	3+6.1	2, 4°(bt)
1913	Νέον, βαθιάς κατάψυξης	22	2	2, 7°(a)
1914	Προπυλικός βουτυλεστερας	30	3	3, 31°(c)
1915	Κυκλοεξανόνη	30	3	3, 31°(c)
1916	2,2'-Διχλωροδιαιθυλαιθέρας	63	6.1+3	6.1, 16°(b)
1917	Ακρυλικός αιθυλεστερας, αδρανής	339	3	3, 3°(b)
1918	Ισοπροπυλοβενζόλιο (Κουμήνιο)	30	3	3, 31°(c)
1919	Ακρυλικός μεθυλεστερας, αδρανής	339	3	3, 3°(b)
1920	Εννεάνια	30	3	3, 31°(c)
1921	Προπυλενμίνη, αδρανής	336	3+6.1	3, 12°
1922	Πυρρολιδίνη	338	3+8	3, 23°(b)
1923	Διθειωνώδες ασβέστιο	40	4.2	4.2, 13°(b)
1928	Βρωμιούχο μεθυλομαγνήσιο σε αιθυλαιθέρα	X323	4.3+3	4.3, 3°(a)
1929	Διθειονικό κάλιο	40	4.2	4.2, 13°(b)
1932	Ζιρκόνιο μη χρησιμοποιήσιμο	40	4.2	4.2, 12°(c)

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## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1935	Κυανιούχα διαλύματα, ε.α.ο.	66	6.1	6.1, 41°(a)
1935	Κυανιούχα διαλύματα, ε.α.ο.	60	6.1	6.1, 41°(b),(c)
1938	Βρωμοξικό οξύ	80	8	8, 31°(b)
1939	Οξυβρωμιούχος φώσφορος	80	8	8, 11°(b)
1940	Θειογλυκολικό οξύ	80	8	8, 32°(b)1.
1942	Νιτρικό αμμώνιο	50	5.1	5.1, 21°(c)
1951	Αργό, βαθιάς κατάψυξης	22	2	2, 7°(a)
1952	Διοξείδιο του άνθρακα περιέχον όχι περισσότερο από 35% αιθυλενοξείδιο κατά βάρος	239	3	2, 6°(c)
1957	Δευτέριο	23	3	2, 1°(b)
1958	1,2-Διχλωρο-1,1,2,2-τετραφθοροαιθάνιο (R 114)	20	2	2, 3°(a)
1959	1,1-Διφθοροαιθυλένιο (Φθοριούχο βινυλιδένιο)	239	3	2, 5°(c)
1961	Αιθάνιο, βαθιάς κατάψυξης	223	3	2, 7°(b)
1962	Αιθυλένιο	23	3	2, 5°(b)
1963	Ήλιο, βαθιάς κατάψυξης	22	2	2, 7°(a)
1965	Μείγματα υδρογονανθράκων (υγροποιημένα αέρια)(Μείγματα A, A0, A1, B και C)	23	3	2, 4°(b)
1966	Υδρογόνο, βαθιάς κατάψυξης	223	3	2, 7°(b)
1969	Ισοβουτάνιο	23	3	2, 3°(b)
1970	Κρπτό, βαθιάς κατάψυξης	22	2	2, 7°(a)
1971	Μεθάνιο, πεπιεσμένο	23	3	2, 1°(b)
1971	Φυσικό αέριο, πεπιεσμένο	23	3	2, 2°(b)
1972	Φυσικό αέριο, βαθιάς κατάψυξης	223	3	2, 8°(b)
1972	Μεθάνιο, βαθιάς κατάψυξης	223	3	2, 7°(b)
1973	Μείγμα αερίου R 502	20	2	2, 4°(a)
1974	Βρωμοχλωροδιφθορομεθάνιο (R 12B1)	20	2	2, 3°(a)

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## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
1976	Οκταφθοροκυκλοβουτάνιο (RC 318)	20	2	2, 3°(a)
1977	Αζωτο, βαθιάς κατάψυξης	22	2	2, 7°(a)
1978	Προπάνιο, τεχνικά καθαρό	23	3	2, 3°(b)
1982	Τετραφθορομεθάνιο (R 14)	20	2	2, 1°(a)
1983	1-Χλωρο-2,2,2-τριφθοροαιθάνιο (R 133a)	20	2	2, 3°(a)
1984	Τριφθορομεθάνιο (R 23)	20	2	2, 5°(a)
1986	Αλκοόλες, εύφλεκτες, τοξικές, ε.α.ο.	336	3+6.1	3, 17°(a),(b)
1986	Αλκοόλες, εύφλεκτες, τοξικές, ε.α.ο.	36	3+6.1	3, 32°(c)
1987	Αλκοόλες, εύφλεκτες, ε.α.ο.	33	3	3, 2°(b), 3°(b)
1987	Αλκοόλες, εύφλεκτες, ε.α.ο.	30	3	3, 31°(c)
1988	Αλδεϋδες, εύφλεκτες, τοξικές, ε.α.ο.	336	3+6.1	3, 17°(a),(b)
1988	Αλδεϋδες, εύφλεκτες, τοξικές, ε.α.ο.	36	3+6.1	3, 32°(c)
1989	Αλδεϋδες, εύφλεκτες, ε.α.ο.	33	3	3, 2°(b) 3°(b)
1989	Αλδεϋδες, εύφλεκτες, ε.α.ο.	30	3	3, 31°(c)
1991	Χλωροπρένιο, αδρανές	336	3+6.1	3, 16°(a)
1992	Εύφλεκτα υγρά, τοξικά, ε.α.ο.	336	3+6.1	3, 19°(a),(b)
1992	Εύφλεκτα υγρά, τοξικά, ε.α.ο.	36	3+6.1	3, 32°(c)
1993	Εύφλεκτα υγρά, ε.α.ο.	33	3	3, 1°(a) 2°(a),(b), 3°(b) 5°(c)
1993	Εύφλεκτα υγρά, ε.α.ο.	30	3	3, 31°(c)
1994	Πεντακάρβονυλιο του σιδήρου	663	6.1+3	6.1, 3°
1999	Πίτσες, υγρές	33	3	3, 5°(b),(c)
1999	Πίτσες, υγρές	30	3	3, 31°(c)
2001	Ναφθενικά άλατα του κοβαλτίου, σε σκόνη	40	4.1	4.1, 12°(c)
2003	Μεταλλικά αλκάλια, ε.α.ο. ή μεταλλικά αρύλια, ε.α.ο.	X333	4.2+4.3	4.2, 31°(a)
2004	Διαμίνη του μαγνησίου	40	4.2	4.2, 16°(b)
2005	Διφαινύλιο του μαγνησίου	X333	4.2+4.3	4.2, 31°(a)

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(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2008	Ζιρκόνιο σε σκόνη, ξηρό	40	4.2	4.2, 12 <sup>o</sup> (b),(c)
2014	Υδατικό διάλυμα υπεροξειδίου του υδρογόνου	58	5.1+8	5.1, 1 <sup>o</sup> (b)
2015	Υπεροξείδιο του υδρογόνου, σταθεροποιημένο	559	5.1+8	5.1, 1 <sup>o</sup> (a)
2015	Υδατικό διάλυμα υπεροξειδίου του υδρογόνου, σταθεροποιημένο	559	5.1+8	5.1, 1 <sup>o</sup> (a)
2018	Χλωροανιλίνες, στερεές	60	6.1	6.1, 12 <sup>o</sup> (b)
2019	Χλωροανιλίνες, υγρές	60	6.1	6.1, 12 <sup>o</sup> (b)
2020	Χλωροφαινόλες, στερεές	60	6.1	6.1, 17 <sup>o</sup> (c)
2021	Χλωροφαινόλες, υγρές	60	6.1	6.1, 17 <sup>o</sup> (c)
2022	Κρυζυλικό οξύ	68	6.1 + 8	6.1, 27 <sup>o</sup> (b)
2023	Επιχλωρυδρίνη	63	6.1+3	6.1, 16 <sup>o</sup> (b)
2024	Ενώσεις υδραργύρου, υγρές, ε.α.ο.	66	6.1	6.1, 52 <sup>o</sup> (a)
2024	Ενώσεις υδραργύρου, υγρές, ε.α.ο.	60	6.1	6.1, 52 <sup>o</sup> (b),(c)
2025	Ενώσεις υδραργύρου, στερεές, ε.α.ο.	66	6.1	6.1, 52 <sup>o</sup> (a)
2025	Ενώσεις υδραργύρου, στερεές, ε.α.ο.	60	6.1	6.1, 52 <sup>o</sup> (b),(c)
2026	Φενυλδραργυρικές ενώσεις, ε.α.ο.	66	6.1	6.1, 33 <sup>o</sup> (a)
2026	Φενυλδραργυρικές ενώσεις, ε.α.ο.	60	6.1	6.1, 33 <sup>o</sup> (b),(c)
2027	Αρσενίτης του νατρίου, στερεός	60	6.1	6.1, 51 <sup>o</sup> (b)
2030	Υδραζίνη, ένυδρη	86	8+6.1	8, 44 <sup>o</sup> (b)
2030	Υδατικό διάλυμα υδραζίνης	86	8+6.1	8, 44 <sup>o</sup> (b)
2031	Νιτρικό οξύ περιέχον λιγότερο από 70% καθαρό οξύ	80	8	8, 2 <sup>o</sup> (b)
2031	Νιτρικό οξύ περιέχον περισσότερο από 70% καθαρό οξύ	885	8	8, 2 <sup>o</sup> (a)1.
2032	Νιτρικό οξύ, ερυθρό, αμιζόν	856	8+05+6.1	8, 2 <sup>o</sup> (a)2.
2033	Μονοξείδιο του καλίου	80	8	8, 41 <sup>o</sup> (b)
2035	1,1,1-Τριφθοροαιθάνιο	23	3	2, 3 <sup>o</sup> (b)
2036	Ξέον	20	2	2, 5 <sup>o</sup> (a)

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## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2038	Δινιτροτουλόλια	60	6.1	6.1, 12°(b)
2045	Ισοβουτυραλδεΐδη	33	3	3, 3°(b)
2046	Κυμένα (ο-, m-, p-) (Μεθυλοϊσοπροπυλοβενζόλια)	30	3	3, 31°(c)
2047	Διχλωροπροπένια	33	3	3, 3°(b)
2047	Διχλωροπροπένια	30	3	3, 31°(c)
2048	Δικυκλοπενταδιένια	30	3	3, 31°(c)
2049	Διαιθυλοβενζόλια (ο-, m-, p-)	30	3	3, 31°(c)
2050	Ισομερικές ενώσεις διίσοβουτυλενίου	33	3	3, 3°(b)
2051	2-Διμεθυλαμινοαιθανόλη	83	8+3	8, 54°(b)
2052	Διπεντένιο	30	3	3, 31°(c)
2053	Μεθυλοϊσοβουτυλοκαρβινόλη	30	3	3, 31°(c)
2054	Μορφολίνη	30	3	3, 31°(c)
2055	Μονομερές στυρένιο, αδρανές (Βινυλοβενζόλιο)	39	3	3, 31°(c)
2056	Τετραϋδροφουράνιο	33	3	3, 3°(b)
2057	Τριπροπυλένιο	33	3	3, 3°(b)
2057	Τριπροπυλένιο	30	3	3, 31°(c)
2058	Βαλεραλδεΐδη	33	3	3, 3°(b)
2059	Διάλυμα νιτροκυτταρίνης, εύφλεκτο	33	3	3, 4°(a),(b)
2059	Διάλυμα νιτροκυτταρίνης, εύφλεκτο	30	3	3, 34°(c)
2067	Λιπάσματα νιτρικού αμμωνίου, τύπου A1	50	5.1	5.1, 21°(c)
2068	Λιπάσματα νιτρικού αμμωνίου, τύπου A2	50	5.1	5.1, 21°(c)
2069	Λιπάσματα νιτρικού αμμωνίου, τύπου A3	50	5.1	5.1, 21°(c)
2070	Λιπάσματα νιτρικού αμμωνίου, τύπου A4	50	5.1	5.1, 21°(c)
2073	Αμμωνία διαλυμένη σε νερό με περισσότερο από 35% αλλά όχι περισσότερο από 40% αμμωνία	268	6.1	2, 9°(at)

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## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2073	Αμμωνία διαλυμένη σε νερό με περισσότερο από 40% αλλά όχι περισσότερο από 50% αμμωνία	268	6.1	2, 9°(at)
2074	Ακρυλαμίδια	60	6.1	6.1, 12°(c)
2075	Χλωράλη, άνυδρη, αδρανής	60	6.1	6.1, 17°(b)
2076	Κρεζόλες (ο-, m-, p-)	68	6.1 + 8	6.1, 27°(b)
2077	α-Ναφθυλαμίνη	60	6.1	6.1, 12°(c)
2078	Δίσσοκτανικό τολουόλιο	60	6.1	6.1, 19°(b)
2079	Διαιθυλενοτριαμίνη	80	8	8, 53°(b)
2187	Διοξείδιο του άνθρακα, βαθιάς κατάψυξης	22	2	2, 7°(a)
2193	Εξαφθοροαιθάνιο (R 116)	20	2	2, 5°(a)
2201	Υποξείδιο του αζώτου, βαθιάς κατάψυξης	225	2+05	2, 7°(a)
2205	Αδιονιτρίλιο	60	6.1	6.1, 12°(c)
2206	Ισοκτανικά άλατα, τοξικά, ε.α.ο.	60	6.1	6.1, 19°(b),(c)
2206	Διαλύματα ισοκτανικών αλάτων, τοξικά, ε.α.ο.	60	6.1	6.1, 19°(b),(c)
2208	Μείγμα υποχλωριώδους ασβεστίου, ξηρό	50	5.1	5.1, 15°(c)
2209	Διάλυμα φορμαλδεΐδης	80	8	8, 63°(c)
2210	Maneb	40	4.2+4.3	4.2, 16°(c)
2210	Παρασκευάσματα maneb	40	4.2+4.3	4.2, 16°(c)
2211	Πολυμερικές κλίνες, επεκτεινόμενες	90	9	9, 4°(c)
2212	Μπλε αμίαντος (Κροκιδωλίτης)	90	9	9, 1°(b)
2212	Καφέ αμίαντος (Αμοσίτης ή Μυσορίτης)	90	9	9, 1°(b)
2213	Παραφορμαλδεΐδη	40	4.1	4.1, 6°(c)
2214	Φθαλικό ανυδρίδιο	80	8	8, 31°(c)
2215	Μαλεϊνικό ανυδρίδιο	80	8	8, 31°(c)
2217	Συσσωματώματα σπόρων	40	4.2	4.2, 2°(c)
2218	Ακρυλικό οξύ, αδρανές	839	8+3	8, 32°(b)2.
2219	Αλλυλογλυκυδουλαιθέρας	30	3	3, 31°(c)

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## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Επκέτα (d)	Αριθμός Κλάσης και είδους (e)
2222	Ανισόλη (φαινυλομεθυλαιθέρας)	30	3	3, 31°(c)
2224	Βενζονιτρίλιο	60	6.1	6.1, 12°(b)
2225	Βενζολοσουλφονυλογλωρίδιο	80	8	8, 35°(c)
2226	Βενζοτριχλωρίδιο	80	8	8, 66°(b)
2227	n-Βουτυλομεθακρυλικά άλατα, αδρανή	39	3	3, 31°(c)
2232	Χλωροακεταλδεύδη	66	6.1	6.1, 17°(a)
2233	Χλωροανισιδίνες	60	6.1	6.1, 17°(c)
2234	Χλωροβενζοτριφθορίδια (o-, m-, p-)	30	3	3, 31°(c)
2235	Χλωροβενζυλογλωρίδια	60	6.1	6.1, 17°(c)
2236	3-Χλωρο-4-μεθυλοφαινυλοϊσοκυανικά άλατα	60	6.1	6.1, 19°(b)
2237	Χλωρονιτροανιλίνες	60	6.1	6.1, 17°(c)
2238	Χλωροτολουόλιο (o-, m-, p-)	30	3	3, 31°(c)
2239	Χλωροτολουιδίνες	60	6.1	6.1, 17°(c)
2240	Χρωμοθειικό οξύ	88	8	8, 1°(a)
2241	Κυκλοεπτάνιο	33	3	3, 3°(b)
2242	Κυκλοεπτένιο	33	3	3, 3°(b)
2243	Οξικός κυκλοεξυλεστέρας	30	3	3, 31°(c)
2244	Κυκλοπεντανόλη	30	3	3, 31°(c)
2245	Κυκλοπεντανόνη	30	3	3, 31°(c)
2246	Κυκλοπεντένιο	33	3	3, 2°(b)
2247	n-Δεκάνιο	30	3	3, 31°(c)
2248	Δι-n-βουτυλαμίνη	83	8+3	8, 54°(b)
2250	Ισοκυανικός διχλωροφαινυλεστέρας	60	6.1	6.1, 19°(b)
2251	2,5-Νορμποραδιένιο (Δικυκλοεπταδιένιο), αδρανές	339	3	3, 3°(b)
2252	1,2-Διμεθοξυαιθάνιο	33	3	3, 3°(b)
2253	N,N-Διμεθυλανιλίνη	60	6.1	6.1, 12°(b)



Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2256	Κυκλοεξένιο	33	3	3, 3°(b)
2257	Κάλιο	X423	4.3	4.3, 11°(a)
2258	1,2-Προπυλενοδιαμίνη	83	8+3	8, 54°(b)
2259	Τριαθυλενοτετραμίνη	80	8	8, 53°(b)
2260	Τριπροπυλαμίνη	38	3+8	3, 33°(c)
2261	Ξυλενόλες	60	6.1	6.1, 14°(b)
2262	Διμεθυλοκαρβαμυλόχλωρίδιο	80	8	8, 35°(b)1.
2263	Διμεθυλοκυκλοεξάνια	33	3	3, 3°(b)
2264	Διμεθυλοκυκλοεξυλαμίνη	83	8+3	8, 54°(b)
2265	N,N-Διμεθυλοφορμαμίδιο	30	3	3, 31°(c)
2266	Διμεθυλο-N-προπυλαμίνη	338	3+8	3, 22°(b)
2267	Διμεθυλοθειοφωσφορυλοχλωρίδιο	68	6.1+8	6.1, 27°(b)
2269	3,3'-Ιμινοδιπροπυλαμίνη	80	8	8, 53°(c)
2270	Υδατικό διάλυμα αιθυλαμίνης	338	3+8	3, 22°(b)
2271	Αιθυλοαμυλοκετόνες	30	3	3, 31°(c)
2272	N-Αιθυλανιλίνη	60	6.1	6.1, 12°(c)
2273	2- Αιθυλανιλίνη	60	6.1	6.1, 12°(c)
2274	N-Αιθυλο-N-βενζυλανιλίνη	60	6.1	6.1, 12°(c)
2275	2-Αιθυλοβουτανόλη	30	3	3, 31°(c)
2276	2-Αιθυλοεξυλαμίνη	38	3+8	3, 33°(c)
2277	Μεθακρυλικός αιθυλεστέρας	339	3	3, 3°(b)
2278	n-Επτένιο	33	3	3, 3°(b)
2279	Εξαχλωροβουταδιένιο	60	6.1	6.1, 15°(c)
2280	Εξαμεθυλενοδιαμίνη, στερεά	80	8	8, 52°(c)
2281	Εξαμεθυλενοδιϊσοκτανικά άλατα	60	6.1	6.1, 19°(b)
2282	Εξανόλες	30	3	3, 31°(c)
2283	Μεθακρυλικός ισοβουτυλεστέρας, αδρανής	39	3	3, 31°(c)
2284	Ισοβουτυρονιτρίλιο	336	3+6.1	3, 11°(b)

250 000  
(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2285	Ισοκτανικοβενζοτριφθορίδια	63	6.1+3	6.1, 18°(b)
2286	Πενταμέθυλο επτάνιο (Ισοδωδεκάνιο)	30	3	3, 31°(c)
2287	Ισοεπτένιο	33	3	3, 3°(b)
2288	Ισοεξένιο	33	3	3, 3°(b)
2289	Ισοφορονοδιαμίνη	80	8	8, 53°(c)
2290	Διϊσοκτανική ισοφορόνη	60	6.1	6.1, 19°(c)
2291	Ενώσεις μολύβδου, διαλυτές, ε.α.ο.	60	6.1	6.1, 62°(c)
2293	4-Μεθοξυ-4-μεθυλοπενταν-2-όνη	30	3	3, 31°(c)
2294	N-Μεθυλανιλίνη	60	6.1	6.1, 12°(c)
2295	Μονοχλωροξικός μεθυλεστέρας	63	6.1+3	6.1, 16°(b)
2296	Μεθυλοκυκλοεξάνιο	33	3	3, 3°(b)
2297	Μεθυλοκυκλοεξανόνες	30	3	3, 31°(c)
2298	Μεθυλοκυκλοπεντάνιο	33	3	3, 3°(b)
2299	Διχλωροξικός μεθυλεστέρας	60	6.1	6.1, 17°(c)
2300	2-Μεθυλο-5-αιθυλοπυριδίνη	60	6.1	6.1, 12°(c)
2301	2-Μεθυλοφουράνιο	33	3	3, 3°(b)
2302	5-Μεθυλοεξαν-2-όνη	30	3	3, 31°(c)
2303	Ισοπροπενυλοβενζόλιο	30	3	3, 31°(c)
2304	Ναφθαλένιο, τετηγμένο	44	4.1	4.1, 5°
2305	Νιτροβενζενοσουλφονικό οξύ	80	8	8, 34°(b)
2306	Νιτροβενζοτριφθορίδια	60	6.1	6.1, 12°(b)
2307	3-Νιτρο-4-χλωροβενζοτριφθορίδια	60	6.1	6.1, 12°(b)
2308	Νιτροδυλοθεϊκό οξύ	80	8	8, 1°(b)
2309	Οκταδιένιο	33	3	3, 3°(b)
2310	Πεντανο-2,4-διόνη	30	3	3, 31°(c)
2311	Φαινετιδίνα	60	6.1	6.1, 12°(c)
2312	Φαινόλη, τετηγμένη	60	6.1	6.1, 24°(b)
2313	Πικολίνες	30	3	3, 31°(c)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Επκέτα (d)	Αριθμός Κλάσης και είδους (e)
2315	Πολυχλωριωμένα διφαινύλια	90	9	9, 2°(b)
2317	Διάλυμα χαλκοκυανιούχου νατρίου	66	6.1	6.1, 41°(a)
2318	Υδροθειούχο νάτριο	40	4.2	4.2, 13°(b)
2319	Τερπένια υδρογονάνθρακες, ε.α.ο.	30	3	3, 31°(c)
2320	Τετρααιθυλοπενταμίνη	80	8	8, 53°(c)
2321	Τριχλωροβενζόλια, υγρά	60	6.1	6.1, 15°(c)
2322	Τριχλωροβουτένιο	60	6.1	6.1, 15°(b)
2323	Φωσφορώδης τριαιθυλεστέρας	30	3	3, 31°(c)
2324	Τρίσοβουτυλένιο (τριμερές ισοβουτυλένιο)	30	3	3, 31°(c)
2325	1,3,5-Τριμεθυλοβενζόλιο	30	3	3, 31°(c)
2326	Τριμεθυλοκυκλοεξαλαμίνη	80	8	8, 53°(c)
2327	Τριμεθυλοεξαμεθυλενοδιαμίνες	80	8	8, 53°(c)
2328	Δίσοκυανικό τριμεθυλοεξαμεθυλένιο	60	6.1	6.1, 19°(c)
2329	Φωσφορώδης τριμεθυλεστέρας	30	3	3, 31°(c)
2330	Ενδεκάνιο	30	3	3, 31°(c)
2331	Χλωριούχος ψευδάργυρος, άνυδρος	80	8	8, 11°(c)
2332	Οξίμη της ακεταλδεϋδης	30	3	3, 31°(c)
2333	Οξικός αλλυλεστέρας	336	3+6.1	3, 17°(b)
2334	Αλλυλαμίνη	663	6.1+3	6.1, 7°(a)2.
2335	Αλλυλαιθυλαιθέρας	336	3+6.1	3, 17°(b)
2336	Μυρμηκικός αλλυλαιθέρας	336	3+6.1	3, 17°(a)
2337	Φαινυλομερκαπτάνη	663	6.1+3	6.1, 20°(a)
2338	Βενζοτριφθορίδιο	33	3	3, 3°(b)
2339	2-Βρωμοβουτάνιο	33	3	3, 3°(b)
2340	2-Βρωμοαιθυλαιθυλαιθέρας	33	3	3, 3°(b)
2341	1-Βρωμο-3-μεθυλοβουτάνιο	30	3	3, 31°(c)
2342	Βρωμομεθυλοπροπάνια	33	3	3, 3°(b)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2343	2-Βρωμοπεντάνιο	33	3	3, 3 <sup>o</sup> (b)
2344	Βρωμοπροπάνια	33	3	3, 3 <sup>o</sup> (b)
2345	3-Βρωμοπροπάνιο	33	3	3, 3 <sup>o</sup> (b)
2346	Βουτανοδιόνη (διακετύλιο)	33	3	3, 3 <sup>o</sup> (b)
2347	Βουτυλομερκαπτάνη	33	3	3, 3 <sup>o</sup> (b)
2348	Ακρυλικός βουτυλεστέρας, αδρανής	39	3	3, 31 <sup>o</sup> (c)
2350	Βουτυλομεθυλαιθέρας	33	3	3, 3 <sup>o</sup> (b)
2351	Νιτρώδες βουτύλιο	33	3	3, 3 <sup>o</sup> (b)
2351	Νιτρώδες βουτύλιο	30	3	3, 31 <sup>o</sup> (c)
2352	Βουτυλοβινυλαιθέρας, αδρανής	339	3	3, 3 <sup>o</sup> (b)
2353	Χλωρικό βουτυρύλιο	338	3+8	3, 25 <sup>o</sup> (b)
2354	Χλωρομεθυλοαιθυλαιθέρας	336	3+6.1	3, 16 <sup>o</sup> (b)
2356	2-Χλωροπροπάνιο	33	3	3, 2 <sup>o</sup> (a)
2357	Κυκλοεξυλαμίνη	83	8+3	8, 54 <sup>o</sup> (b)
2358	Κυκλοοκτατετραένιο	33	3	3, 3 <sup>o</sup> (b)
2359	Διαλλυλαμίνη	338	3+8+6.1	3, 27 <sup>o</sup> (b)
2360	Διαλλύλαιθέρας	336	3+6.1	3, 17 <sup>o</sup> (b)
2361	Διϊσοβουτυλαμίνη	38	3+8	3, 33 <sup>o</sup> (c)
2362	1,1-Διχλωροαιθάνιο (Αιθυλιδενοχλωρίδιο)	33	3	3, 3 <sup>o</sup> (b)
2363	Αιθυλομερκαπτάνη	33	3+6.1	3, 2 <sup>o</sup> (a)
2364	n-Προπυλοβενζόλιο	30	3	3, 31 <sup>o</sup> (c)
2366	Ανθρακικός διαιθυλεστέρας (Ανθρακικός αιθυλεστέρας)	30	3	3, 31 <sup>o</sup> (c)
2367	α-Μεθυλοβαλεραλδεϋδη	33	3	3, 3 <sup>o</sup> (b)
2368	α-Πινένιο	30	3	3, 31 <sup>o</sup> (c)
2369	Μονοβουτυλαιθέρας της αιθυλενογλυκόλης	60	6.1	6.1, 14 <sup>o</sup> (c)
2370	1-Εξένιο	33	3	3, 3 <sup>o</sup> (b)

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(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2371	Ισοπεντένια	33	3	3, 1 <sup>ο</sup> (a)
2372	1,2-Δι-(διμεθυλάμινο) αιθάνιο	33	3	3, 3 <sup>ο</sup> (b)
2373	Διαιθοξυμεθάνιο	33	3	3, 3 <sup>ο</sup> (b)
2374	3,3-Διαιθοξυπροπένιο	33	3	3, 3 <sup>ο</sup> (b)
2375	Διαιθυλοσουλφίδιο	33	3	3, 3 <sup>ο</sup> (b)
2376	2,3-Διϊδροπυράνιο	33	3	3, 3 <sup>ο</sup> (b)
2377	1,1-Διμεθοξυαιθάνιο	33	3	3, 3 <sup>ο</sup> (b)
2378	2-Διμεθυλαμινοακετονιτρίλιο	336	3+6.1	3, 11 <sup>ο</sup> (b)
2379	1,3-Διμεθυλοβουτυλαμίνη	338	3+8	3, 22 <sup>ο</sup> (b)
2380	Διμεθυλοδιαιθοξυσιλάνιο	33	3	3, 3 <sup>ο</sup> (b)
2381	Διμεθυλοσουλφίδιο	33	3	3, 3 <sup>ο</sup> (b)
2382	Διμεθυλυδραξίνη, συμμετρική	663	6.1+3	6.1, 7 <sup>ο</sup> (a)2.
2383	Διπροτυλαμίνη	338	3+8	3, 22 <sup>ο</sup> (b)
2384	Δι-n-προπυλαιθέρας	33	3	3, 3 <sup>ο</sup> (b)
2385	Ισοβουτυρικός αιθυλεστέρας	33	3	3, 3 <sup>ο</sup> (b)
2386	1-Αιθυλοπιπεριδίνη	338	3+8	3, 23 <sup>ο</sup> (b)
2387	Φθοροβενζόλιο	33	3	3, 3 <sup>ο</sup> (b)
2388	Φθοροτολουόλια	33	3	3, 3 <sup>ο</sup> (b)
2389	Φουράνιο	33	3	3, 1 <sup>ο</sup> a)
2390	2-Ιωδοβουτάνιο	33	3	3, 3 <sup>ο</sup> (b)
2391	Ιωδομεθυλοπροπάνια	33	3	3, 3 <sup>ο</sup> (b)
2392	Ιωδοπρόπάνια	30	3	3, 31 <sup>ο</sup> (c)
2393	Μυρμηκικός ισοβουτυλεστέρας	33	3	3, 3 <sup>ο</sup> (b)
2394	Προπιονικός ισοβουτυλεστέρας	33	3	3, 3 <sup>ο</sup> (b)
2395	Ισοβουτυρυλοχλωρίδιο	338	3+8	3, 25 <sup>ο</sup> (b)
2396	Μεθακρυλαλδεύδη, αδρανής	336	3+6.1	3, 17 <sup>ο</sup> (b)
2397	3-Μεθυλοβουταν-2-όνη	33	3	3, 3 <sup>ο</sup> (b)
2398	Μεθυλο-τριτοταγής βουτυλαιθέρας	33	3	3, 3 <sup>ο</sup> (b)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2399	1-Μεθυλοπιπεριδίνη	338	3+8	3, 23°(b)
2400	Ισοβαλεριανικός μεθυλεστέρας	33	3	3, 3°(b)
2401	Πιπεριδίνη	338	3+8	3, 23°(b)
2402	Προπανοθιόλες (προπυλομερκαπτάνες)	33	3	3, 3°(b)
2403	Οξικός ισοπροπενυλεστέρας	33	3	3, 3°(b)
2404	Προπιονιτρίλιο	336	3+6.1	3, 11°(b)
2405	Βουτυρικός ισοπροπυλεστέρας	30	3	3, 31°(c)
2406	Ισοβουτυρικός ισοπροπυλεστέρας	33	3	3, 3°(b)
2409	Προπιονικός ισοπροπυλεστέρας	33	3	3, 3°(b)
2410	1,2,3,6-Τετραϋδροπιριδίνη	33	3	3, 3°(b)
2411	Βουτυρονιτρίλιο	336	3+6.1	3, 11°(b)
2412	Τετραϋδροθειοφαίνιο (θειολάννιο)	33	3	3, 3°(b)
2413	Ορθοπιτανικός τετραπροπυλεστέρας	30	3	3, 31°(c)
2414	Θειοφαίνιο	33	3	3, 3°(b)
2416	Βορικός τριμεθυλεστέρας	33	3	3, 3°(b)
2426	Νιτρικό αμμώνιο, υγρό, (θερμό συμπκνωμένο διάλυμα)	59	5.1	5.1, 20°
2427	Υδατικό διάλυμα χλωρικού καλίου	50	5.1	5.1, 11°(b)
2428	Υδατικό διάλυμα χλωρικού νατρίου	50	5.1	5.1, 11°(b)
2429	Υδατικό διάλυμα χλωρικού ασβεστίου	50	5.1	5.1, 11°(b)
2430	Αλκυλοφαινόλες, στερεές, ε.α.ο.	88	8	8, 39°(a)
2430	Αλκυλοφαινόλες, στερεές, ε.α.ο.	80	8	8, 39°(b),(c)
2431	Ανισιδίνες	60	6.1	6.1, 12°(c)
2432	N,N-Διαιθυλανιλίνη	60	6.1	6.1, 12°(c)
2433	Χλωρονιτροτολουόλια	60	6.1	6.1, 17°(c)
2434	Διβενζυλοδιχλωροσιλάνιο	X80	8	8, 36°(b)
2435	Αιθυλοφαινυλοδιχλωροσιλάνιο	X80	8	8, 36°(b)
2436	Θειοξικό οξύ	33	3	3, 3°(b)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2437	Μεθυλοφαινυλοδιχλωροσιλάνιο	X80	8	8, 36°(b)
2438	Τριμεθυλακετυλοχλωρίδιο	663	6.1+3+8	6.1, 10°(a)
2439	Οξινό διφθοριούχο νάτριο	80	8	8, 9°(b)
2440	Χλωριούχος κασσίτερος, ενυδατωμένος	80	8	8, 11°(c)
2442	Τριχλωροακετυλοχλωρίδιο	X80	8	8, 35°(b)1.
2443	Οξυτριχλωριούχο βανάδιο	80	8	8, 12°(b)
2444	Τετραχλωριούχο βανάδιο	88	8	8, 12°(a)
2445	Αλκύλια του λιθίου	X333	4.2+4.3	4.2, 31°(a)
2446	Νιτροκρεζόλες (ο-, m-, p-)	60	6.1	6.1, 12°(c)
2447	Φώσφορος, λευκός ή κίτρινος, τετηγμένος	446	4.2+6.1	4.2, 22°
2448	Θείο, τετηγμένο	44	4.1	4.1, 15°
2456	2-Χλωροπροπένιο	33	3	3, 1°(a)
2457	2,3-Διμεθυλοβουτάνιο	33	3	3, 3°(b)
2458	Εξαδιένιο	33	3	3, 3°(b)
2459	2-Μεθυλο-1-βουτένιο	33	3	3, 1°(a)
2460	2-Μεθυλο-2-βουτένιο	33	3	3, 2°(b)
2461	Μεθυλοπενταδιένιο	33	3	3, 3°(b)
2464	Νιτρικό βηρύλλιο	56	5.1+6.1	5.1, 29°(b)
2465	Διχλωροϊσοκυανουρικό οξύ, ξηρό	50	5.1	5.1, 26°(b)
2465	Αλατα του διχλωροϊσοκυανουρικού οξέος	50	5.1	5.1, 26°(b)
2467	Υπερανθρακικό νάτριο	50	5.1	5.1, 19°(c)
2468	Τριχλωροϊσοκυανουρικό οξύ, ξηρό	50	5.1	5.1, 26°(b)
2469	Βρωμικός ψευδάργυρος	50	5.1	5.1, 16°(c)
2470	Φαινυλακετονιτρίλιο, υγρό	60	6.1	6.1, 12°(c)
2473	Αρσανικό νάτριο	60	6.1	6.1, 34°(c)
2474	Θειοφωσγένιο	60	6.1	6.1, 21°(b)
2475	Τριχλωριούχο βανάδιο	80	8	8, 11°(c)
2477	Ισοθειοκυανικός μεθυλεστέρας	63	6.1+3	6.1, 20°(b)

## Προσθήκη Β.5

250 000  
(συνεχ.)

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Ονομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2478	Ισοκυανικά άλατα ή διαλύματα αυτών, εύφλεκτα, τοξικά, ε.α.ο.	336	3+6.1	3, 14°(b)
2478	Ισοκυανικά άλατα ή διαλύματα αυτών, εύφλεκτα, τοξικά, ε.α.ο.	36	3+6.1	3, 32°(c)
2482	Ισοκυανικός η-προπυλεστεράς	663	6.1+3	6.1, 6°(a)
2483	Ισοκυανικός ισοπροπυλεστεράς	336	3+6.1	3, 14°(a)
2484	Ισοκυανικός τριτοταγής βουτυλεστεράς	663	6.1+3	6.1, 6°(a)
2485	Ισοκυανικός η-βουτυλεστεράς	663	6.1+3	6.1, 6°(a)
2486	Ισοκυανικός ισοβουτυλεστεράς	336	3+6.1	3, 14°(b)
2487	Ισοκυανικός φαινυλεστεράς	63	6.1+3	6.1, 18°(b)
2488	Ισοκυανικός κυκλοεξυλεστεράς	63	6.1+3	6.1, 18°(b)
2489	4,4'-διϊσοκυανικό διφαινυλομεθάνιο	60	6.1	6.1, 19°(c)
2490	Διχλωροϊσοπροπυλαιθέρας	60	6.1	6.1, 17°(b)
2491	Αιθανολαμίνη, ή διάλυμα αυτής	80	8	8, 53°(c)
2493	Εξαμεθυλενμίνη	338	3+8	3, 23°(b)
2495	Πενταφθοριούχο ιώδιο	568	5.1+6.1+8	5.1, 5°
2496	Προπιονικός ανυδρίτης	80	8	8, 32°(c)
2498	1,2,3,6-Τετραϋδροβενζαλδεΐδη	30	3	3, 31°(c)
2501	Διάλυμα οξειδίου της τρις-(1-αζιριδινυλό) φωσφίνης	60	6.1	6.1, 23°(b),(c)
2502	Βαλεριανολοχλωρίδιο	83	8+3	8, 35°(b)2.
2503	Τετραχλωριούχο ζιρκόνιο	80	8	8, 11°(c)
2504	Τετραβρωμοαιθάνιο	60	6.1	6.1, 15°(c)
2505	Φθοριούχο αμμώνιο	60	6.1	6.1, 63°(c)
2506	Οξίνο θεικό αμμώνιο	80	8	8, 13°(b)
2507	Χλωροπλατινικό οξύ, στερεό	80	8	8, 16°(c)
2508	Πενταχλωριούχο μολυβδένιο	80	8	8, 11°(c)
2509	Οξίνο θεικό κάλιο	80	8	8, 13°(b)
2511	2-Χλωροπροπιονικό οξύ	80	8	8, 32°(c)



250 000  
(συνεχ.)

## Προσθήκη Β.5

Χαρακτηριστικός αριθμός ύλης (Κάτω μέρος) (a)	Όνομασία ύλης (b)	Χαρακτηριστικός αριθμός κινδύνου (Άνω μέρος) (c)	Ετικέτα (d)	Αριθμός Κλάσης και είδους (e)
2512	Αμινοφαινόλες (ο-, m-, p-)	60	6.1	6.1, 12°(c)
2513	Βρωμοακετυλοβρωμίδιο	X80	8	8, 35°(b)1.
2514	Βρωμοβενζόλιο	30	3	3, 31°(c)
2515	Βρωμοφόρμιο	60	6.1	6.1, 15°(c)
2516	Τετραβρωμιούχος άνθρακας	60	6.1	6.1, 15°(c)
2517	1-Χλωρο-1,1-διφθοροαιθάνιο (R 142b)	23	3	2, 3°(b)
2518	1,5,9-Κυκλοδοδεκατριένιο	60	6.1	6.1, 25°(c)
2520	Κυκλοοκταδιένια	30	3	3, 31°(c)
2521	Δικετένιο, αδρανές	663	6.1+3	6.1, 13°(a)
2522	Μεθακρυλικό διμεθυλαμινοαιθύλιο	69	6.1	6.1, 12°(b)
2524	Ορθομυρμηκικός αιθυλεστέρας	30	3	3, 31°(c)
2525	Οξαλικός αιθυλεστέρας	60	6.1	6.1, 14°(c)
2526	Φουρφουραμίνη	38	3+8	3, 33°(c)
2527	Ακρυλικός ισοβουτυλεστέρας, αδρανής	39	3	3, 31°(c)
2528	Ισοβουτυρικός ισοβουτυλεστέρας	30	3	3, 31°(c)
2529	Ισοβουτυρικό οξύ	38	3+8	3, 33°(c)
2530	Ισοβουτυρικός ανυδρίτης	38	3+8	3, 33°(c)
2531	Μεθακρυλικό οξύ, αδρανές	89	8	8, 32°(c)
2533	Τριχλωροξικός μεθυλεστέρας	60	6.1	6.1, 17°(c)
2535	Μεθυλομορφολίνη	338	3+8	3, 23°(b)
2536	Μεθυλοτετραϋδροφουράνιο	33	3	3, 3°(b)
2538	Νιτροναφθαλένιο	40	4.1	4.1, 6°(c)
2541	Τερπινολένιο	30	3	3, 31°(c)
2542	Τριβουτυλαμίνη	80	8	8, 53°(c)
2545	Αφνιο σε σκόνη, ξηρό	40	4.2	4.2, 12°(b),(c)
2546	Τιτάνιο σε σκόνη, ξηρό	40	4.2	4.2, 12°(b),(c)
2552	Εξαφθοροακετόνη, ενυδατωμένη	60	6.1	6.1, 17°(b)
2554	Μεθυλαλλυλοχλωρίδιο	33	3	3, 3°(b)

## Κλάση 8

**2801** 2357 κυκλοξευλαμίνη, 2619 βενζυλοδιμεθυλαμίνη,  
 (συνεχ.) 2685 N,N-δισουλαιθυλενοδιαμίνη,  
2734 αμίνες, υγρές, διαβρωτικές, εύφλεκτες, ε.α.ο. ή  
2734 πολυαμίνες, υγρές, διαβρωτικές, εύφλεκτες, ε.α.ο.

55° Στερεές οργανικές βασικές ύλες και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3263 διαβρωτικά στερεά, βασικά, οργανικά, ε.α.ο.,
- (b) 3263 διαβρωτικά στερεά, βασικά, οργανικά, ε.α.ο.,
- (c) 3263 διαβρωτικά στερεά, βασικά, οργανικά, ε.α.ο.

56° Υγρές οργανικές βασικές ύλες και διαλύματα και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 3267 διαβρωτικά υγρά, βασικά, οργανικά, ε.α.ο.,
- (b) 3267 διαβρωτικά υγρά, βασικά, οργανικά, ε.α.ο.,
- (c) 3267 διαβρωτικά υγρά, βασικά, οργανικά, ε.α.ο.

## C. Άλλες διαβρωτικές ύλες

61° Διαλύματα χλωριωδών και υποχλωριωδών αλάτων:

- (b) 1791 διάλυμα υποχλωριώδους αλάτος με όχι λιγότερο από 16 % διαθέσιμο χλώριο,  
1908 διάλυμα χλωριώδους αλάτος, με όχι λιγότερο από 16 % διαθέσιμο χλώριο,
- (c) 1791 διάλυμα υποχλωριώδους αλάτος με περισσότερο από 5 % αλλά λιγότερο από 16 % διαθέσιμο χλώριο, 1908 διάλυμα χλωριώδους αλάτος, με περισσότερο από 5 % αλλά λιγότερο από 16 % διαθέσιμο χλώριο.

**ΣΗΜΕΙΩΣΗ 1:** Διαλύματα χλωριωδών και υποχλωριωδών αλάτων με όχι περισσότερο από 5 % διαθέσιμο χλώριο δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 2:** Στερεά χλωριώδη άλατα και υποχλωριώδη άλατα είναι ύλες της κλάσης 5.1 (βλέπε περιθωριακό 2501, 14°, 15° και 29°).

62° Χλωροφαινολικά και φαινολικά άλατα:

- (c) 2904 χλωροφαινολικά άλατα, υγρά ή 2904 φαινολικά άλατα, υγρά, 2905 χλωροφαινολικά άλατα,  
στερεά ή 2905 φαινολικά άλατα, στερεά.

63° Διαλύματα φορμαλδεΐδης:

- (c) 2209 διάλυμα φορμαλδεΐδης με όχι λιγότερο από 25 % φορμαλδεΐδη.

**ΣΗΜΕΙΩΣΗ 1:** 1198 διαλύματα φορμαλδεΐδης, εύφλεκτα είναι ύλες της κλάσης 3 [βλέπε περιθωριακό 2301, 33° (c)].

## Κλάση 8

**2801 ΣΗΜΕΙΩΣΗ 2:** Διαλύματα φορμαλδεΐδης, μη-εόφλεκτα, με λιγότερο από 25 % (συνεχ.) φορμαλδεΐδη δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

64° Χλωροφορμικά και χλωροθειοφορμικά άλατα:

- (a) 1739 γλωροφορμικός βενζυλεστεράς,
- (b) 2826 χλωροθειοφορμικός αιθυλεστεράς.

**ΣΗΜΕΙΩΣΗ:** Χλωροφορμικά άλατα που έχουν κυρίαρχα τοξικές ιδιότητες είναι όλες της κλάσης 6.1 (βλέπε περιθωριακό 2601, 10°, 17°, 27° και 28°).

65° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 1759 διαβρωτικά στερεά, ε.α.ο.,
- (b) 1770 διφαινυλομεθυλοβρωμίδιο,  
1759 διαβρωτικά στερεά, ε.α.ο.,  
3147 βαφές, στερεές, διαβρωτικές, ε.α.ο. ή 3147 ενδιάμεσα βαφών, στερεά, διαβρωτικά, ε.α.ο.,  
3244 στερεά που περιέχουν διαβρωτικά υγρά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Μείγματα στερεών όχι υποκείμενα στις διατάξεις αυτής της Οδηγίας και διαβρωτικά υγρά μπορούν να μεταφέρονται υπό τον αριθμό 3244, χωρίς να υπόκεινται στα κριτήρια ταξινόμησης του περιθωριακού 2800 (3), υπό την προϋπόθεση ότι δεν υπάρχει ελεύθερο υγρό ορατό την ώρα που η ύλη φορτώνεται ή την ώρα που η μονάδα μεταφοράς κλείνεται. Κάθε συσκευασία θα πρέπει να αντιστοιχεί σε έναν τύπο σχεδιασμού που έχει περάσει τον έλεγχο στεγανότητας για το επίπεδο της ομάδας (b).

- (c) 2803 γάλλιο,  
1759 διαβρωτικά στερεά, ε.α.ο.,  
3147 βαφές, στερεές, διαβρωτικές, ε.α.ο. ή 3147 ενδιάμεσα βαφών, στερεά, διαβρωτικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται στο 2803 γάλλιο [βλέπε περιθωριακό 2807 (4)].

66° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

- (a) 1760 διαβρωτικά υγρά, ε.α.ο.,  
1903 απολυμαντικά, υγρά, διαβρωτικά, ε.α.ο.,
- (b) 2226 βενζοτριγλωρίδιο (τριχλωρομεθυλοβενζόλιο),  
2705 1-πεντόλη (3-μεθυλο-2-πεντενο-4-ιν-1-όλη), 3066 χρώμα (συμπεριλαμβανομένων χρώματος, λάκας, σμάλτου, βαφής, γομαλάκας, βερνικιού, λούστρου, υγρού πληρωτικού μέσου και υγρής βάσης λάκας) ή 3066 υλικά σχετιζόμενα με χρώμα συμπεριλαμβανομένων ενόσεων λέπτυνσης ή μείωσης του χρώματος,  
1760 διαβρωτικά υγρά, ε.α.ο.,  
1903 απολυμαντικά, υγρά, διαβρωτικά, ε.α.ο.,  
2801 βαφές, υγρές, διαβρωτικές, ε.α.ο. ή 2801 ενδιάμεσα βαφών, υγρά, διαβρωτικά, ε.α.ο.,

## Κλάση 8

2801  
(συνεχ.)

- (c) 2809 υδράργυρος, 3066 χρώμα (συμπεριλαμβανομένων χρώματος, λάκας, σφάλτου, βαφής, γομαλάκας, βερνικιού, λούστρου, υγρού πληρωτικού μέσου και υγρής βάσης λάκας) ή 3066 υλικά σχετιζόμενα με χρώμα συμπεριλαμβανομένων ενώσεων λεπτότητας ή μείωσης του χρώματος, 1760 διαβρωτικά υγρά, ε.α.ο., 1903 απολυμαντικά, υγρά, διαβρωτικά, ε.α.ο., 2801 βαφές, υγρές, διαβρωτικές, ε.α.ο. ή 2801 ενδιάμεσα βαφών, υγρά, διαβρωτικά, ε.α.ο.

**ΣΗΜΕΙΩΣΗ 1:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται στον 2809 υδράργυρο [βλέπε περιθωριακό 2807 (4)].

**ΣΗΜΕΙΩΣΗ 2:** Οποιαδήποτε ύλη αυτής της Οδηγίας που αναφέρεται με συγκεκριμένη ονομασία υπό άλλα είδη δεν μπορεί να μεταφέρεται υπό τις καταχωρήσεις για 3066 χρώμα ή 3066 υλικά σχετιζόμενα με χρώμα.

Υλες μεταφερόμενες υπό αυτές τις καταχωρήσεις μπορούν να περιέχουν 20% ή λιγότερο νιτροκυταρίνη υπό την προϋπόθεση η νιτροκυταρίνη να περιέχει όχι περισσότερο από 12.6% άζωτο.

- 67° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών, (όπως παρασκευάσματα και απόβλητα), εύφλεκτες, που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:
- (a) 2921 διαβρωτικά στερεά, εύφλεκτα, ε.α.ο.,
- (b) 2921 διαβρωτικά στερεά, εύφλεκτα, ε.α.ο.
- 68° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών, (όπως παρασκευάσματα και απόβλητα), εύφλεκτες, με σημείο βρασμού μεγαλύτερο από 35 °C, που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:
- (a) 2920 διαβρωτικά υγρά, εύφλεκτα, ε.α.ο.,
- (b) 2920 διαβρωτικά υγρά, εύφλεκτα, ε.α.ο.
- 69° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών, αυτοθερμαινόμενες, (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:
- (a) 3095 διαβρωτικά στερεά, αυτοθερμαινόμενα, ε.α.ο.,
- (b) 3095 διαβρωτικά στερεά, αυτοθερμαινόμενα, ε.α.ο.
- 70° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών, αυτοθερμαινόμενες, (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:
- (a) 3301 διαβρωτικά υγρά, αυτοθερμαινόμενα, ε.α.ο.,
- (b) 3301 διαβρωτικά υγρά, αυτοθερμαινόμενα, ε.α.ο.
- 71° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών, (όπως παρασκευάσματα και απόβλητα) που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια και που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:
- (a) 3096 διαβρωτικά στερεά, ενεργά με το νερό, ε.α.ο.,

## Κλάση 8

2801  
(συνεχ.)(b) 3096 διαβρωτικά στερεά, ενεργά με το νερό, ε.α.ο.*ΣΗΜΕΙΩΣΗ: Ο όρος "Ενεργή με το νερό" δηλώνει μία ύλη που, σε επαφή με το νερό, εκλύει εύφλεκτα αέρια.*

72° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών (όπως παρασκευάσματα και απόβλητα) που, σε επαφή με το νερό, εκλύουν εύφλεκτα αέρια και που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 3094 διαβρωτικά υγρά, ενεργά με το νερό, ε.α.ο.(b) 3094 διαβρωτικά υγρά, ενεργά με το νερό, ε.α.ο.*ΣΗΜΕΙΩΣΗ: Ο όρος "ενεργή με το νερό" δηλώνει μία ύλη που, σε επαφή με το νερό, εκλύει εύφλεκτα αέρια.*

73° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών, οξειδωτικές, (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 3084 διαβρωτικά στερεά, οξειδωτικά, ε.α.ο.(b) 3084 διαβρωτικά στερεά, οξειδωτικά, ε.α.ο.

74° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών, οξειδωτικές, (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 3093 διαβρωτικά υγρά, οξειδωτικά, ε.α.ο.(b) 3093 διαβρωτικά υγρά, οξειδωτικά, ε.α.ο.

75° Στερεές διαβρωτικές ύλες και μείγματα αυτών των υλών, τοξικές (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 2923 διαβρωτικά στερεά, τοξικά, ε.α.ο.(b) 2923 διαβρωτικά στερεά, τοξικά, ε.α.ο.(c) 2923 διαβρωτικά στερεά, τοξικά, ε.α.ο.

76° Υγρές διαβρωτικές ύλες και διαλύματα και μείγματα αυτών των υλών, τοξικές, (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν σε άλλα συγκεντρωτικά κεφάλαια:

(a) 2922 διαβρωτικά υγρά, τοξικά, ε.α.ο.(b) 2922 διαβρωτικά υγρά, τοξικά, ε.α.ο.(c) 2922 διαβρωτικά υγρά, τοξικά, ε.α.ο.

## Κλάση 8

2801 D. Είδη που περιέχουν διαβρωτικές ύλες  
(συνεχ.)

## 81° Μπαταρίες:

- (c) 2794 μπαταρίες, υγρές, γεμισμένες με οξύ, ηλεκτρικής συσσώρευσης,  
2795 μπαταρίες, υγρές, γεμισμένες με άλκαλι, ηλεκτρικής συσσώρευσης,  
2800 μπαταρίες, υγρές, χωρίς διαρροή, ηλεκτρικής συσσώρευσης,  
3028 μπαταρίες, ξηρές που περιέχουν υδροξείδιο του καλίου στερεό, ηλεκτρικής συσσώρευσης.

**ΣΗΜΕΙΩΣΗ 1:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτά τα είδη [βλέπε περιθωριακό 2807 (5)]

**ΣΗΜΕΙΩΣΗ 2:** Μπαταρίες (χαρακτηριστικός αριθμός 2800) μπορούν να θεωρούνται ότι είναι χωρίς διαρροή υπό την προϋπόθεση ότι είναι ικανές να αντέξουν τους διαφορικούς ελέγχους δόνησης και πίεσης που δίνονται παρακάτω, χωρίς διαρροή υγρών μπαταρίας.

**Έλεγχος δόνησης:** Η μπαταρία συνδέεται άκαμπτα στην πλατφόρμα μίας μηχανής δόνησης και εφαρμόζεται μία απλή αρμονική κίνηση με πλάτος 0.8 mm (1.6 mm μέγιστη συνολική διαδρομή). Η συχνότητα μεταβάλλεται με ρυθμό 1 Hz/min μεταξύ των ορίων 10 Hz έως 55 Hz. Όλο το εύρος συχνότητας και η επιστροφή διατρέχεται σε  $95 \pm 5$  λεπτά για κάθε θέση (διεύθυνση δόνησης) της μπαταρίας. Η μπαταρία ελέγχεται σε τρεις αμοιβαία κάθετες θέσεις (ώστε να συμπεριληφθεί έλεγχος με ανοίγματα πλήρωσης και εξαεριστήρες, εάν υπάρχουν, σε ανεστραμμένη θέση) για ίσες χρονικές περιόδους.

**Διαφορικός έλεγχος πίεσης:** Μετά από τον έλεγχο δόνησης, η μπαταρία αποθηκεύεται για έξι ώρες στους  $24 \pm 4$  °C ενώ υπόκειται σε διαφορική πίεση τουλάχιστον 88 kPa. Η μπαταρία ελέγχεται σε τρεις αμοιβαία κάθετες θέσεις (ώστε να συμπεριληφθεί έλεγχος με ανοίγματα πλήρωσης και εξαεριστήρες, εάν υπάρχουν, σε ανεστραμμένη θέση) για τουλάχιστον έξι ώρες σε κάθε θέση.

## 82° Άλλα είδη που περιέχουν διαβρωτικές ύλες:

- (b) 1774 φορτία πυροσβεστήρων, διαβρωτικά υγρά, 2028 βόμβες, καπνογόνες, μη-εκρηκτικές με διαβρωτικό υγρό, χωρίς πυροκροτικό μηχανισμό.

## E. Κενές συσκευασίες

- 91° Κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά γύμα (IBC), κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών, ακαθάριστων, καθώς και κενά οχήματα για μεταφορά γύμα και κενά μικρά εμπορευματοκιβώτια για μεταφορά γύμα, ακαθάριστα, που περιείχαν ύλες της κλάσης 8.

2801a Ούτε οι διατάξεις αυτής της κλάσης που περιέχονται σε αυτό το Παράρτημα, ούτε εκείνες που περιέχονται στο παράρτημα Β εφαρμόζονται στα:

- (1) Ύλες των 1° έως 5°, 7° έως 13°, 16°, 17°, 31° έως 47°, 51° έως 56° και 61° έως 76°, μεταφερόμενες σε συμφωνία με τις παρακάτω διατάξεις:

- (a) Ύλες ταξινομημένες στο (a) κάθε είδους:

Υγρά: όχι περισσότερο από 100 ml ανά εσωτερική συσκευασία και όχι περισσότερο από 400 ml ανά κόλο,

## Κλάση 8

2801a  
(συνεχ.)

Στερεά: όχι περισσότερο από 500 g ανά εσωτερική συσκευασία και όχι περισσότερο από 2 kg ανά κόλο.

(b) Υγρές ταξινομημένες στο (b) κάθε είδους:

Υγρά: όχι περισσότερο από 1 λίτρο ανά εσωτερική συσκευασία και όχι περισσότερο από 4 λίτρα ανά κόλο,

Στερεά: όχι περισσότερο από 3 kg ανά εσωτερική συσκευασία και όχι περισσότερο από 12 kg ανά κόλο.

(c) Υγρές ταξινομημένες στο (c) κάθε είδους:

Υγρά: όχι περισσότερο από 3 λίτρα ανά εσωτερική συσκευασία και όχι περισσότερο από 12 λίτρα ανά κόλο,

Στερεά: όχι περισσότερο από 6 kg ανά εσωτερική συσκευασία και όχι περισσότερο από 24 kg ανά κόλο.

Αυτές οι ποσότητες υλών θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες που ικανοποιούν τουλάχιστον τις συνθήκες του περιθωριακού 3538.

Οι "Γενικές συνθήκες συσκευασίας" του περιθωριακού 3500 (1), (2) και (5) έως (7) θα πρέπει να τηρούνται.

(2) Μπαταρίες χωρίς διαρροή με χαρακτηριστικό αριθμό 2800 της 81° εάν σε θερμοκρασία 55 °C, ο υλεκτρολύτης δεν θα ρέει από ένα ραγισμένο ή σπασμένο κιβώτιο και δεν υπάρχει ελεύθερο υγρό για να ρέει και εάν όταν είναι συσκευασμένες για μεταφορά, οι πόλοι είναι προστατευμένοι από βραχυκυκλώματα.

(3) Κατασκευασμένα είδη ή όργανα που περιέχουν όχι περισσότερο από 1 kg υδράργυρο της 66° (c).

## 2. Διατάξεις

## A. Κόλα

## 1. Γενικές συνθήκες συσκευασίας

2802

(1) Οι συσκευασίες θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.5, εκτός εάν ειδικές συνθήκες για τη συσκευασία ορισμένων υλών καθορίζονται στα περιθωριακά 2803 έως 2808.

(2) Τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC) θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.6.

(3) Σε συμφωνία με τις διατάξεις των περιθωριακών 2800 (3) (b) και 3511 (2) ή 3611 (2) αντίστοιχα, θα πρέπει να χρησιμοποιούνται τα παρακάτω:

- συσκευασίες της ομάδας συσκευασίας I, μαρκαρισμένες με το γράμμα "X", για τις εξαιρετικά διαβρωτικές ύλες που είναι ταξινομημένες υπό το γράμμα (a) κάθε είδους,
- συσκευασίες της ομάδας συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X", ή IBC της ομάδας συσκευασίας II, μαρκαρισμένα με το γράμμα "Y", για τις διαβρωτικές ύλες που είναι ταξινομημένες υπό το γράμμα (b) κάθε είδους,

## Κλάση 8

- 2802** - συσκευασίες της ομάδας συσκευασίας III, II ή I, μαρκαρισμένες με το γράμμα "Z", "Y" ή (συνεχ.) "X", ή IBC της ομάδας συσκευασίας III ή II, μαρκαρισμένα με το γράμμα "Z" ή "Y", για τις ελαφρώς διαβρωτικές ύλες που είναι ταξινομημένες υπό το γράμμα (c) κάθε είδους.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά υλών της κλάσης 8 σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές και για τη μεταφορά χύμα στερεών αυτής της κλάσης, βλέπε Παράρτημα Β.

**2. Ειδικές συνθήκες για συσκευασία ορισμένων υλών**

- 2803** Υδροφθόριο, άνυδρο και διάλυμα υδροφθορικού οξέος που περιέχει περισσότερο από 85 % υδροφθόριο της 6<sup>ο</sup> θα πρέπει να συσκευάζονται σε δοχεία πίεσης κατασκευασμένα από ανθρακίχο χάλυβα ή κατάλληλο κράμα χάλυβα. Θα πρέπει να επιτρέπονται τα παρακάτω δοχεία πίεσης:

- (a) κύλινδροι με χωρητικότητα όχι μεγαλύτερη από 150 λίτρα,
- (b) δοχεία με χωρητικότητα όχι μικρότερη από 100 λίτρα και όχι μεγαλύτερη από 1,000 λίτρα (για παράδειγμα, κυλινδρικά δοχεία εφοδιασμένα με κυλιόμενα τσέρκια ή δοχεία τοποθετημένα πάνω σε δοκούς).

Τα δοχεία πίεσης θα πρέπει να ικανοποιούν τις σχετικές απαιτήσεις της κλάσης 2 (βλέπε περιθωριακά 2211, 2213 (1) και (2), 2215, 2216 και 2218).

Το πάχος τοιχωμάτων των δοχείων πίεσης δεν θα πρέπει να είναι μικρότερο από 3 mm.

Πριν χρησιμοποιηθούν για πρώτη φορά, τα δοχεία πίεσης θα πρέπει να υπόκεινται σε έλεγχο υδραυλικής πίεσης σε πίεση όχι μικρότερη από 1 MPa (10 bar) πίεση πιεζομέτρου. Ο έλεγχος πίεσης θα πρέπει να επαναλαμβάνεται κάθε οκτώ χρόνια και θα πρέπει να συνοδεύεται από μία εσωτερική επιθεώρηση των δοχείων πίεσης και έναν έλεγχο των εξαρτημάτων τους. Επιπλέον, η αντίσταση των δοχείων πίεσης στη διάβρωση θα πρέπει να ελέγχεται με κατάλληλα όργανα (π.χ. με υπερήχους), και η κατάσταση των εξαρτημάτων να επιβεβαιώνεται, κάθε δύο χρόνια.

Οι έλεγχοι και επιθεωρήσεις θα πρέπει να διεξάγονται υπό την επίβλεψη ενός εμπειρογνώμονα εγκεκριμένου από την αρμόδια αρχή.

Το μέγιστο βάρος του περιεχομένου ανά λίτρο χωρητικότητας για υδροφθόριο, άνυδρο ή διάλυμα υδροφθορικού οξέος δεν θα πρέπει να υπερβαίνει τα 0.84 kg.

- 2804** (1) Βρώμιο και διάλυμα βρωμίου της 14<sup>ο</sup> θα πρέπει να συσκευάζονται σε γυάλινες εσωτερικές συσκευασίες, που περιέχουν όχι περισσότερο από 2.5 λίτρα κάθε μία, ή σε εσωτερικές συσκευασίες φθοριούχου πολυβινυλιδενίου (PVDF) που περιέχουν όχι περισσότερο από 15 λίτρα κάθε μία, που θα πρέπει να τοποθετούνται σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538. Οι συνδυασμένες συσκευασίες θα πρέπει να ελέγχονται και εγκρίνονται σε συμφωνία με την προσθήκη A.5 για την ομάδα συσκευασίας I.

(2) Βρώμιο που περιέχει λιγότερο από 0.005 % νερό, ή μεταξύ 0.005 % και 0.2 % νερό, υπό την προϋπόθεση ότι στην τελευταία περίπτωση λαμβάνονται μέτρα για την αποφυγή διάβρωσης της επένδυσης των δοχείων, μπορεί επίσης να μεταφέρεται σε δοχεία που ικανοποιούν τις παρακάτω συνθήκες:

- (a) τα δοχεία θα πρέπει να είναι κατασκευασμένα από χάλυβα και εξοπλισμένα με στεγανή επένδυση κατασκευασμένη από μόλυβδο ή από κάποιο άλλο υλικό που παρέχει ισοδύναμη προστασία και με ερμητικό πώμα. Δοχεία κατασκευασμένα από μέταλλο μονέλ ή νικέλιο, ή με νικέλινη επένδυση, θα πρέπει επίσης να επιτρέπονται,
- (b) η χωρητικότητα των δοχείων δεν θα πρέπει να υπερβαίνει τα 450 λίτρα,



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2804  
(συνεχ.)

- (c) τα δοχεία δεν θα πρέπει να γεμίζονται περισσότερο από το 92 % της χωρητικότητας τους ή περισσότερο από 2.86 kg ανά λίτρο χωρητικότητας,
- (d) τα δοχεία θα πρέπει να είναι οξυγονοκολλημένα και σχεδιασμένα για υπολογιζόμενη πίεση όχι μικρότερη από 2.1 MPa (21 bar) πίεση πιεζομέτρου. Τα υλικά και η εργασία θα πρέπει κατά τα άλλα να ικανοποιούν τις σχετικές απαιτήσεις της κλάσης 2 [βλέπε περιθωριακό 2211 (1)]. Ο αρχικός έλεγχος μη-επενδεδυμένων χαλύβδινων δοχείων θα πρέπει να υπόκειται στις διατάξεις της κλάσης 2 [βλέπε περιθωριακά 2215 (1) και 2216 (1)],
- (e) τα πώματα θα πρέπει να προεξέχουν όσο το λιγότερο δυνατόν από το δοχείο και να είναι εφοδιασμένα με προστατευτικά καλύμματα. Τα πώματα και τα καλύμματα θα πρέπει να είναι εφοδιασμένα με φλάντζες κατασκευασμένες από υλικό όχι ικανό να προσβληθεί από το βρώμιο. Τα πώματα θα πρέπει να είναι στο πιο πάνω μέρος των δοχείων με τέτοιο τρόπο ώστε να μην μπορούν σε καμία περίπτωση να είναι σε μόνιμη επαφή με την υγρή φάση,
- (f) τα δοχεία θα πρέπει να είναι εφοδιασμένα με εξαρτήματα που θα τους επιτρέπουν να στέκονται σταθερά όρθια και με εξαρτήματα ανύψωσης (δακτυλίου, στεφάνες κ.λπ.) στην κορυφή, που θα πρέπει να ελέγχονται σε φορτίο διπλάσιο από το φορτίο εργασίας.

(3) Πριν τεθούν σε υπηρεσία, δοχεία σε συμφωνία με το (2) παραπάνω θα πρέπει να υπόκεινται σε έλεγχο στεγανότητας σε πίεση τουλάχιστον 200 kPa (2 bar) πίεση πιεζομέτρου. Ο έλεγχος στεγανότητας θα πρέπει να επαναλαμβάνεται κάθε δύο χρόνια και θα πρέπει να συνοδεύεται από μία εσωτερική επιθεώρηση του δοχείου και έλεγχο του απόβαρου του. Ο έλεγχος και η επιθεώρηση θα πρέπει να διεξάγονται υπό την επίβλεψη ενός εμπειρογνώμονα εγκεκριμένου από την αρμόδια αρχή.

(4) Δοχεία σε συμφωνία με το (2) θα πρέπει να φέρουν, με καθαρά ευανάγνωστους και διαρκείας χαρακτήρες:

- την ονομασία του κατασκευαστή ή την μάρκα κατασκευής και τον αριθμό του δοχείου,
- τη λέξη "Βρώμιο",
- απόβαρο του δοχείου και το επιτρεπτό μέγιστο βάρος του γεμισμένου δοχείου,
- ημερομηνία (μήνα, χρόνο) του αρχικού ελέγχου και του τελευταίου περιοδικού ελέγχου,
- σφραγίδα του εμπειρογνώμονα που διεξήγαγε τους ελέγχους και τις επιθεωρήσεις.

2805

(1) Ύλες ταξινομημένες στο (a) των διαφόρων ειδών θα πρέπει να συσκευάζονται σε:

- (a) χαλύβδινα βαρέλια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3520, ή
- (b) αλουμινένια βαρέλια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3521, ή
- (c) χαλύβδινα μπατόνια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3522, ή
- (d) πλαστικά βαρέλια μη-μετακινούμενης κεφαλής χωρητικότητας όχι μεγαλύτερης από 60 λίτρα ή πλαστικά μπατόνια μη-μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3526, ή
- (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή

## Κλάση 8

- 2805** (f) συνδυασμένες συσκευασίες με εσωτερικές συσκευασίες από γυαλί, πλαστικό ή μέταλλο σύμφωνα με το περιθωριακό 3538, ή
- (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργιλος) σύμφωνα με το περιθωριακό 3539.

**ΣΗΜΕΙΩΣΗ 1** στο (d): Η επιτρεπτή περίοδος χρήσης για συσκευασίες που προορίζονται για τη μεταφορά νιτρικού οξέος της 2°(α) και διάλυμα υδροφθορικού οξέος θα πρέπει να είναι δύο χρόνια από την ημερομηνία κατασκευής τους.

**ΣΗΜΕΙΩΣΗ 2** στα (f) και (g): Οι εσωτερικές συσκευασίες ή τα δοχεία από γυαλί δεν θα πρέπει να επιτρέπονται για φθορίδια της 7°(α), 8°(α) ή 33°(α).

(2) Στερεές ύλες κατά την έννοια του περιθωριακού 2800 (5) μπορούν επίσης να συσκευάζονται σε:

- (a) βαρέλια μετακινούμενης κεφαλής σύμφωνα με τα περιθωριακά 3520 για 3521 για αλουμίνιο, 3523 για κόντρα-πλακέ, 3525 για φύλλο ή 3526 για πλαστικό υλικό, ή σε μπιτόνια μετακινούμενης σύμφωνα με τα περιθωριακά 3522 για χάλυβα ή 3526 για εάν είναι αναγκαίο με έναν ή περισσότερους εσωτερικούς σάκους, ή
- (b) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, με έναν περισσότερους αδιαπέραστους εσωτερικούς σάκους.

**2806** (1) Ύλες ταξινομημένες στο (b) των διαφόρων ειδών θα πρέπει να συσκευάζονται σε:

- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
- (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
- (c) χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
- (d) πλαστικά βαρέλια ή πλαστικά μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
- (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
- (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργιλος) σύμφωνα με το περιθωριακό 3539.

**ΣΗΜΕΙΩΣΗ 1** στα (a), (b), (c) και (d): Απλοποιημένες συνθήκες εφαρμόζονται σε βαρέλια και μπιτόνια μετακινούμενης κεφαλής για ιξώδεις ύλες με ιξώδες μεγαλύτερο από 200 mm<sup>2</sup>/s στους 23 °C και για στερεές ύλες (βλέπε περιθωριακά 3512, 3553, 3554 και 3560).

**ΣΗΜΕΙΩΣΗ 2** στο (d): Η επιτρεπτή περίοδος χρήσης για συσκευασίες που προορίζονται για τη μεταφορά νιτρικού οξέος που περιέχει περισσότερο από 55% καθαρό οξύ της 2° (b) και διάλυμα υδροφθορικού οξέος της 7° (b) θα πρέπει να είναι δύο χρόνια από την ημερομηνία κατασκευής τους.

**ΣΗΜΕΙΩΣΗ 3** στα (f) και (g): Εσωτερικές συσκευασίες ή δοχεία από γυαλί δεν θα πρέπει να επιτρέπονται για φθορίδια των 7° (b), 8° (b), 9° (b), 10° (b) ή 33° (b).

## Κλάση 8

**2806** (2) Υγες ταξινομημένες στο (b) των διαφόρων ειδών που έχουν τάση ατμών στους 50 °C όχι (συνεχ.) μεγαλύτερη από 110 kPa (1.10 bar) μπορούν επίσης να συσκευάζονται σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624 ή σύνθετα IBC με άκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625.

(3) Στερεές ύλες κατά την έννοια του περιθωριακού 2800 (5) μπορεί επίσης να συσκευάζονται σε:

- (a) βαρέλια σύμφωνα με τα περιθωριακά 3523 για κόντρα-πλακέ ή 3525 για φύλλο φάιμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους διαπεράστους εσωτερικούς σάκους, ή
- (b) αδιάβροχους σάκους σύμφωνα με τα περιθωριακά 3533 για υλικά υφαντουργίας, 3534 για πλεγμένο πλαστικό υλικό, 3535 για πλαστικό φιλμ ή 3536 για αδιάβροχο χαρτί, υπό την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται ως πλήρες φορτίο ή οι σάκοι είναι ασφαλισμένοι πάνω σε παλέτες, ή
- (c) σύνθετα IBC με πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625, IBC από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3626 ή ξύλινα IBC σύμφωνα με το περιθωριακό 3627, ή
- (d) εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623 με εξαίρεση τα IBC των τύπων 13H1, 13L1 και 13M1 και υπό την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται ως πλήρες φορτίο ή τα εύκαμπτα IBC είναι φορτωμένα πάνω σε παλέτες.

(4) Είδη της 82° θα πρέπει να συσκευάζονται ως εξής:

- (a) φορτία πυροσβεστήρων, διαβρωτικού υγρού, σε ξύλινα κιβώτια σύμφωνα με τα περιθωριακά 3527, 3528 ή 3529, ή κιβώτια από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3530, ή κιβώτια τεταμένου πλαστικού τύπου 4H1 σύμφωνα με το περιθωριακό 3531.
- (b) βόμβες, καπνογόνες, μη-εκρηκτικές με διαβρωτικό υγρό, χωρίς πυροκροτικό μηχανισμό, μονωμένες με προστατευτικό υλικό σε κιβώτια, σωλήνες ή χωρισμένα τμήματα είτε σε ξύλινα κιβώτια σύμφωνα με τα περιθωριακά 3527, 3528 ή 3529, είτε σε χαλύβδινα κιβώτια του τύπου 4A σύμφωνα με το περιθωριακό 3532.

**2807** (1) Υγες ταξινομημένες στο (c) εκτός από γάλλιο της 65° (c) και υδράργυρο της 66° (c), των διαφόρων ειδών θα πρέπει να συσκευάζονται σε:

- (a) χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
- (b) αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
- (c) χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
- (d) πλαστικά βαρέλια ή πλαστικά μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
- (e) σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
- (g) σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργυλος) σύμφωνα με το περιθωριακό 3539, ή
- (h) ελαφρού περιτυπώματος μεταλλικές συσκευασίες σύμφωνα με το περιθωριακό 3540.

## Κλάση 8

**2807 ΣΗΜΕΙΩΣΗ** στα (a), (b), (c), (d) και (h): Απλοποιημένες συνθήκες εφαρμόζονται στα βαρέλια, (συνεχ.) μπιτόνια και ελαφρού περιτοπώματος μεταλλικές συσκευασίες μετακινούμενης κεφαλής για ιζήδες ύλες με ιζήδες μεγαλύτερο από 200 mm<sup>3</sup>/s στους 23 °C και για στερεές ύλες (βλέπε περιθωριακά 3512, 3552 έως 3554 και 3560).

(2) Ύλες ταξινομημένες στο (c) εκτός από γάλλιο της 65° (c) και υδράργυρο της 66° (c), των διαφόρων ειδών που έχουν τάση ατμών στους 50 °C όχι μεγαλύτερη από 110 kPa (1.10 bar) μπορούν επίσης να συσκευάζονται σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, IBC άκαμπτου πλαστικού σύμφωνα με το περιθωριακό 3624 ή σύνθετα IBC με άκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625.

(3) Στερεές ύλες κατά την έννοια του περιθωριακού 2800 (5) μπορούν επίσης να συσκευάζονται:

- (a) σε βαρέλια σύμφωνα με τα περιθωριακά 3523 για κόντρα-πλακέ, ή 3525 για φύλλο φάιμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους διαπεραστούς εσωτερικούς σάκου, ή
- (b) σε αδιάβροχους σάκους σύμφωνα με τα περιθωριακά 3533 για υλικό υφαντουργίας, 3534 για πλεγμένα πλαστικά υλικά ή 3535 για πλαστικά φιλμ ή 3536 για αδιάβροχο χαρτί, ή
- (c) σε εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623 με εξαίρεση τα IBC των τύπων 13H1, 13L1 και 13M1 ή σε σύνθετα IBC με εύκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625 ή σε IBC από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3626 ή ξύλινα IBC σύμφωνα με το περιθωριακό 3627.

(4) (a) Γάλλιο της 65° (c) και υδράργυρος της 66° (c) θα πρέπει να συσκευάζονται σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538. Αυτές οι συνδυασμένες συσκευασίες μπορούν να συνίστανται από γυαλί, πορσελάνη, ψαμμάργιλο ή πλαστικές εσωτερικές συσκευασίες, μέγιστης καθαρής ποσότητας 10 kg. Μπορούν να χρησιμοποιούνται οι παρακάτω εξωτερικές συσκευασίες:

κιβώτια από φυσικό ξύλο σύμφωνα με το περιθωριακό 3527, κιβώτια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3528, κιβώτια από ανασυσταμένο ξύλο σύμφωνα με το περιθωριακό 3529, κιβώτια από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3530, πλαστικά κιβώτια σύμφωνα με το περιθωριακό 3531 χαλύβδινα βαρέλια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3520, χαλύβδινα μπιτόνια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3522, βαρέλια από κόντρα-πλακέ σύμφωνα με το περιθωριακό 3523, βαρέλια από φάιμπερ σύμφωνα με το περιθωριακό 3525, ή σε πλαστικά βαρέλια μετακινούμενης κεφαλής σύμφωνα με το περιθωριακό 3526.

(b) Υδράργυρος μπορεί επίσης να συσκευάζεται σε οξυγονοκολλημένες χαλύβδινες φιάλες με εσωτερικούς θολωτούς πάτους ως μεμονωμένες συσκευασίες. Το πόμα θα πρέπει να είναι ένας κοχλίας με κωνικό σπείρωμα και το άνοιγμα δεν θα πρέπει να υπερβαίνει τα 20 mm.

(5) (a) Είδη της 81°, εκτός από μπαταρίες, υγρές, χωρίς διαρροή, θα πρέπει να δένονται με αδρανές προστατευτικό υλικό ή με έναν ισοδύναμο τρόπο σε ξύλινα κιβώτια ή σε κιβώτια από άκαμπτο πλαστικό ή σε ξύλινο δικτυωτό κιβώτιο. Οι μπαταρίες θα πρέπει να μονώνονται έναντι βραχυκυκλώματος.

(b) Μπαταρίες του τύπου χωρίς διαρροή (χαρακτηριστικός αριθμός 2800) θα πρέπει να προστατεύονται έναντι βραχυκυκλωμάτων και θα πρέπει να συσκευάζονται με ασφάλεια σε γερές εξωτερικές συσκευασίες.

## Κλάση 8

- 2807** *ΣΗΜΕΙΩΣΗ:* Μπαταρίες χωρίς διαρροή που είναι μέρος αναπόσπαστο και αναγκαίο για τη λειτουργία μηχανικού ή ηλεκτρονικού εξαρτήματος, θα πρέπει να δένονται με ασφάλεια στη θήκη μπαταρίας στο εξάρτημα και να προστατεύονται με τέτοιο τρόπο για την αποφυγή φθοράς και βραχυκυκλώματος.
- (c) Είδη της 81° μπορούν να μεταφέρονται σε παλέτες. Θα πρέπει να στοιβάζονται και να ασφαρίζονται επαρκώς σε δέτες διαχωριζόμενους από ένα στρώμα μη-αγώγιμου υλικού. Οι πόλοι της μπαταρίας δεν θα πρέπει, σε οποιαδήποτε περίπτωση, να στηρίζουν το βάρος άλλων στοιχείων που έχουν τοποθετηθεί από πάνω. Οι μπαταρίες θα πρέπει να απομονώνονται με τέτοιο τρόπο ώστε να αποφεύγονται βραχυκυκλώματα. Κάθε μπαταρία δεν χρειάζεται να είναι μαρκαρισμένη και επισημασμένη εάν το φορτίο της παλέτας φέρει ένα μαρκάρισμα και μία ετικέτα κινδύνου.
- 2808** Συσκευασίες, συμπεριλαμβανομένων IBC, που περιέχουν 1791 διάλυμα υποχλωριώδους άλατος της 61° θα πρέπει να είναι εφοδιασμένες με εξαεριστήρια σύμφωνα με τα περιθωριακά 3500 (8) ή 3601 (6) αντίστοιχα.
- 2809** Τετηγμένος οξυβρωμιούχος φωσφόρος της 15° μπορεί να μεταφέρεται μόνον σε οχήματα-δεξαμενές (βλέπε Προσθήκη B.1a) ή σε εμπορευματοκιβώτια-δεξαμενές (βλέπε Προσθήκη B.1b).
- 2810**
- 3. Μικτή συσκευασία**
- 2811** (1) Ύλες που καλύπτονται από τον ίδιο αριθμό είδους μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538.
- (2) Ύλες διαφορετικών ειδών αυτής της κλάσης σε ποσότητες όχι μεγαλύτερες, ανά εσωτερική συσκευασία, από 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί και/ή με εμπορεύματα όχι υποκειμένα στις διατάξεις αυτής της Οδηγίας [βλέπε περιθωριακό 2800 (8)], σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538 υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.
- (3) Ύλες της 4° δεν θα πρέπει να συσκευάζονται μαζί με άλλα εμπορεύματα, εκτός από ύλες της 3° της κλάσης 5.1; περιθωριακό 2501. Ύλες των 6° και 14° δεν θα πρέπει να συσκευάζονται μαζί με άλλα εμπορεύματα.
- (4) Ύλες ταξινομημένες στο (a) των διαφόρων ειδών δεν θα πρέπει να συσκευάζονται μαζί με ύλες και είδη των κλάσεων 1 και 5.2 και υλικά της κλάσης 7.
- (5) Εκτός εάν αλλιώς ειδικά ορίζεται, υγρές ύλες ταξινομημένες στο (a) των διαφόρων ειδών, σε ποσότητες όχι μεγαλύτερες από 0.5 λίτρο ανά εσωτερική συσκευασία και 1 λίτρο ανά κόλο και ύλες ταξινομημένες στο (b) ή (c) των διαφόρων ειδών, σε ποσότητες όχι μεγαλύτερες, ανά εσωτερική συσκευασία, από 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538 με ύλες ή είδη άλλων Κλάσεων, υπό την προϋπόθεση ότι μικτή συσκευασία επιτρέπεται επίσης για τις ύλες και τα είδη αυτών των Κλάσεων και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας [βλέπε περιθωριακό 2800 (8)], υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.
- (6) Οι παρακάτω θεωρούνται επικίνδυνες αντιδράσεις:
- ανάφλεξη και/ή εκπομπή σημαντικής θερμότητας,
  - εκπομπή εύφλεκτων και/ή τοξικών αερίων,
  - σχηματισμός διαβρωτικών υγρών,
  - σχηματισμός ασταθών υλών.

## Κλάση 8

- 2811** (7) Η μικτή συσκευασία όξινων υλών με βασικές ύλες σε ένα κόλο δεν θα πρέπει να επιτρέπεται εάν οι δύο ύλες είναι συσκευασμένες σε εύθραυστες συσκευασίες. (συνεχ.)
- (8) Οι διατάξεις των περιθωριακών 2001 (7), 2002 (6) και (7) και 2802 θα πρέπει να ισχύουν.
- (9) Εάν χρησιμοποιούνται ξύλινα κιβώτια ή κιβώτια από φύλλο φάιμπερ, ένα κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg.

4. *Μαρκάρισμα και ετικέτες κινδύνου στα κόλα***2812. Μαρκάρισμα**

- (1) Κάθε κόλο θα πρέπει να είναι καθαρά μαρκαρισμένη με τον χαρακτηριστικό αριθμό των εμπορευμάτων που θα καταχωρείται στο έγγραφο μεταφοράς, μετά από τα γράμματα "UN".

**Ετικέτες κινδύνου**

- (2) Κόλα που περιέχουν ύλες ή είδη της κλάσης 8 θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 8.
- (3) Κόλα που περιέχουν ύλες των 32° (b) 2., 33° (a), 35° (b) 2., 37°, 54°, 64° (b) και 68° θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 3.
- (4) Κόλα που περιέχουν ύλες των 44° (a) και 45° (b) 2. θα πρέπει επιπλέον να φέρουν ετικέτες σύμφωνα με τα υποδείγματα Αριθμ. 3 και 6.1.
- (5) Κόλα που περιέχουν ύλες της 67° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.1.
- (6) Κόλα που περιέχουν ύλες των 69° και 70° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.2.
- (7) Κόλα που περιέχουν ύλες των 71° και 72° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 4.3.
- (8) Κόλα που περιέχουν ύλες των 3° (a), 4°, 73° και 74° θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 05.
- (9) Κόλα που περιέχουν ύλες της 2° (a) 2. θα πρέπει επιπλέον να φέρουν ετικέτες σύμφωνα με το υπόδειγματα Αριθμ. 05 και 6.1.
- (10) Κόλα που περιέχουν ύλες που αναφέρονται παρακάτω θα πρέπει επιπλέον να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 6.1:

Αριθμός είδους	Χαρακτηριστικός αριθμός ύλης	Ύλη
1° (a)	1831	Θειικό οξύ, ατμίζον (oleum)
6°		Όλες οι ύλες
7°		Όλες ύλες
9° (b)	1811	Όξινο διφθοριούχο κάλιο (διφθοριούχο κάλιο)

Αριθμός είδους	Χαρακτηριστικός αριθμός ύλης	Υλη
10° (b)	1732	Πενταφθοριούχο αντιμόνιο
12° (a)	1809	Τριχλωριούχος φωσφόρος
	2879	Οξυχλωριούχο σελήνιο
14°		Όλες οι ύλες
44° (b)		Όλες οι ύλες
45° (b) 1. και (c)	2818	Διάλυμα πολυθειούχου αμμωνίου
53° (b) και (c)	1761	Διάλυμα κυπριαιθυλενοδιαμίνης
75°		Όλες οι ύλες
76°		Όλες οι ύλες

(11) Κόλα που περιέχουν εύθραυστα δοχεία όχι ορατά από έξω θα πρέπει επιπλέον να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 12.

(12) Κόλα που περιέχουν υγρά σε δοχεία, τα πώματα των οποίων δεν είναι ορατά από έξω, καθώς και κόλα που περιέχουν εξαεριζόμενα δοχεία ή εξαεριζόμενα δοχεία χωρίς εξωτερική συσκευασία, θα πρέπει επιπλέον να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

## 2813

**B. Στοιχεία στο έγγραφο μεταφοράς**

2814 Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς ύλης και με μία από τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2801.

Εάν η ύλη δεν αναφέρεται με συγκεκριμένη ονομασία αλλά είναι καταγεγραμμένη σε μία ε.α.ο. καταχώρηση, η περιγραφή των εμπορευμάτων θα πρέπει να συνίσταται από τον χαρακτηριστικό αριθμό και τον χαρακτηρισμό ε.α.ο., ακολουθούμενο από τη χημική ή τεχνική ονομασία.<sup>3/</sup>

Η περιγραφή των εμπορευμάτων θα πρέπει να ακολουθείται από στοιχεία της κλάσης, τον αριθμό είδους, εάν εφαρμόζεται, το γράμμα, και τα αρχικά "ADR" (ή "RID"), π.χ. "8, 1°(a), ADR".

Για τη μεταφορά αποβλήτων [βλέπε περιθωριακό 2000 (5)] η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "Απόβλητα, που περιέχουν ..." και το(τα) συστατικό(ά) που έχει(έχουν) χρησιμοποιηθεί για την ταξινόμηση των αποβλήτων στο περιθωριακό 2002 (8) θα καταχωρείται(ονται) με τη(τις) χημική(ές) ονομασία(ες) του(ς), π.χ. "Απόβλητα που περιέχουν 1824 διάλυμα υδροξειδίου του νατρίου, 8, 42°(b) ADR".

<sup>3/</sup> Η τεχνική ονομασία θα πρέπει να είναι μία ονομασία που ήδη χρησιμοποιείται σε επιστημονικά και τεχνικά εγχειρίδια, περιοδικά και κείμενα. Εμπορικές ονομασίες δεν θα πρέπει να χρησιμοποιούνται για αυτόν το σκοπό.

## Κλάση 8

**2814** (συνεχ.) Για τη μεταφορά διαλυμάτων ή μειγμάτων (όπως παρασκευάσματα και απόβλητα) που περιέχουν διάφορα συστατικά υποκείμενα σ' αυτήν την Οδηγία, δεν θα είναι γενικά αναγκαίο να αναφέρονται περισσότερα από δύο συστατικά που κυρίως συμβάλλουν στον κίνδυνο ή τους κινδύνους του διαλύματος και του μείγματος. Για τη μεταφορά διαλυμάτων και μειγμάτων που περιέχουν μόνον ένα συστατικό υποκείμενο στις διατάξεις αυτής της Οδηγίας, οι λέξεις "διάλυμα" ή "μείγμα" θα πρέπει να προστίθενται ως μέρος της ονομασίας στο έγγραφο μεταφοράς [βλέπε περιθωριακό 2002 (8)].

Όταν μία στερεή ύλη παραδίδεται για μεταφορά στην τετηγμένη κατάσταση, η περιγραφή των εμπορευμάτων θα πρέπει να συμπληρώνεται από τη λέξη "τετηγμένο", εκτός εάν ήδη συμπεριλαμβάνεται στην ονομασία.

Εάν ένα διάλυμα ή μείγμα με συγκεκριμένη ονομασία ή που περιέχει μία ύλη με συγκεκριμένη ονομασία δεν υπόκειται στις συνθήκες αυτής της κλάσης, σε συμφωνία με το περιθωριακό 2800 (5), ο αποστολέας μπορεί να εγγράψει στο έγγραφο μεταφοράς: "Όχι Εμπορεύματα της κλάσης 8".

2815-  
2821

## C. Κενές συσκευασίες

- 2822** (1) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, της 91° θα πρέπει να είναι κλεισμένες με τον ίδιο τρόπο και με τον ίδιο βαθμό στεγανότητας σαν να ήταν γεμάτες.
- (2) Ακαθάριστες κενές συσκευασίες, συμπεριλαμβανομένων κενών IBC, της 91° θα πρέπει να φέρουν τις ίδιες επικέτες κινδύνου σαν να ήταν γεμάτες.
- (3) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μία από τις ονομασίες που υπογραμμίζονται στο 91°, π.χ. "Κενές συσκευασίες, 8, 91°, ADR".

Στην περίπτωση κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών, κενών εμπορευματοκιβωτίων-δεξαμενών και κενών μικρών εμπορευματοκιβωτίων για μεταφορά χύμα, ακαθάρσιων, αυτή η περιγραφή θα πρέπει να συμπληρώνεται από την προσθήκη των λέξεων "Τελευταίο φορτίο" μαζί με την ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ. "Τελευταίο φορτίο: 1830 Θεϊκό οξύ, 1° (b)".

2823-  
2824

## D. Μεταβατικά μέτρα

- 2825** Υλεις της κλάσης 8 μπορούν να μεταφέρονται μέχρι τις 30 Ιουνίου 1995 σε συμφωνία με τις απαιτήσεις για την Κλάση 8 που εφαρμόζεται μέχρι τις 31 Δεκεμβρίου 1994. Το έγγραφο μεταφοράς θα πρέπει, σε τέτοιες περιπτώσεις, να φέρει την επιγραφή "Μεταφορά σε συμφωνία με την ADR που ισχύει πριν την 1 Ιανουαρίου 1995".

2826-  
2899



**ΚΛΑΣΗ 9. ΔΙΑΦΟΡΕΣ ΕΠΙΚΙΝΔΥΝΕΣ ΥΛΕΣ ΚΑΙ ΕΙΔΗ****1. Κατάλογος υλών**

**2900** Το κεφάλαιο της κλάσης 9 καλύπτει ύλες και είδη που, κατά τη διάρκεια της μεταφοράς, παρουσιάζουν έναν κίνδυνο που δεν καλύπτεται από τα κεφάλαια άλλων κλάσεων. Εκείνες οι ύλες και τα είδη που αναφέρονται στο περιθωριακό 2901 υπόκεινται στις συνθήκες που τίθενται στα περιθωριακά 2901 έως 2920 και στις διατάξεις αυτού του παραρτήματος και του παραρτήματος Β. Θεωρούνται τότε ως ύλες και είδη αυτής της Οδηγίας<sup>1/</sup>.

Υλες της κλάσης 9 που αναφέρονται στα διάφορα είδη του περιθωριακού 2901 θα πρέπει να καταχωρούνται σε μία από τις παρακάτω ομάδες που χαρακτηρίζονται από το γράμμα (b) ή (c) σύμφωνα με το βαθμό κινδύνου τους:

γράμμα (b) - επικίνδυνες ύλες

γράμμα (c) - ύλες που παρουσιάζουν έναν μικρότερο κίνδυνο.

**ΣΗΜΕΙΩΣΗ:** Για την ταξινόμηση διαλυμάτων και μεγμάτων (όπως παρασκευάσματα και απόβλητα), βλέπε επίσης περιθωριακό 2002 (8).

**2901** A. Ύλες που, σε περίπτωση εισπνοής ως λεπτή σκόνη, μπορούν να θέσουν σε κίνδυνο την υγεία

1° Αμιάντος και μείγματα που περιέχουν αμιάντο, όπως:

(b) 2212 Μπλε αμιάντος (κροκιδολίτης), 2212 καφέ αμιάντος (αμοσίτης ή μυσορίτης),

(c) 2590 Λευκός αμιάντος (χρυσοσίτη, ακτινολίτης, ανθοφυλίτης ή τρεμολίτης)

**ΣΗΜΕΙΩΣΗ:** Τάλης που περιέχει τρεμολίτη και/ή ακτινολίτη είναι ύλη της 1° (c), Αριθμ. 2590.

B. Ύλες και συσκευές που σε περίπτωση φωτιάς μπορούν να σχηματίσουν διοξίνες

2° Πολυχλωρωμένα και πολυαλογονωμένα διφαινόλια (PCBs) και τερφαινόλια (PCTs) και μείγματα που περιέχουν αυτές τις ύλες:

(b) 2315 πολυχλωρωμένα διφαινόλια, 3151 πολυαλογονωμένα διφαινόλια, υγρά ή 3151 πολυαλογονωμένα τερφαινόλια, υγρά, 3152 πολυαλογονωμένα διφαινόλια, στερεά ή 3152 πολυαλογονωμένα τερφαινόλια, στερεά.

**ΣΗΜΕΙΩΣΗ:** Μείγματα με περιεκτικότητα σε PCB ή PCT όχι μεγαλύτερη από 50 mg/kg δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

3° Συσκευές όπως μετασχηματιστές, πυκνωτές και συσκευές που περιέχουν ύλες της 2° (b) ή μείγματα αυτών.

<sup>1/</sup> Για τις ποσότητες υλών ή ειδών του περιθωριακού 2901 που δεν υπόκεινται στις διατάξεις για αυτήν την κλάση που περιέχονται είτε σε αυτό το Παράρτημα είτε στο παράρτημα Β, βλέπε περιθωριακό 2901a.

## Κλάση 9

## 2901 C. Υλεις που παράγουν εύφλεκτο ατμό

(συνεχ.)

4° Διαστελλόμενα πολυμερή που περιέχουν εύφλεκτα υγρά με σημείο ανάφλεξης όχι μεγαλύτερο από 55 °C.

(c) 2211 πολυμερικές κλίνες, διαστελλόμενες, που παράγουν εύφλεκτο ατμό.

## D. Μπαταρίες λιθίου

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σε αυτά τα είδη (βλέπε περιθωριακό 2906).

5° 3090 μπαταρίες λιθίου, 3091 μπαταρίες λιθίου που περιέχονται σε εξαρτήματα

**ΣΗΜΕΙΩΣΗ 1:** Κάθε στοιχείο δεν θα πρέπει να περιέχει περισσότερο από 12 g λίθιο. Η ποσότητα λιθίου που περιέχεται σε κάθε μπαταρία δεν θα πρέπει να είναι μεγαλύτερη από 500 g.

Με την έγκριση της αρμόδιας αρχής της χώρας προέλευσης, η ποσότητα λιθίου σε κάθε στοιχείο μπορεί να αυξηθεί σε 60 g και ένα κύλλο μπορεί να περιέχει έως 2500 g λίθιο. Η αρμόδια αρχή θα πρέπει να προσδιορίζει τις συνθήκες μεταφοράς καθώς και τον τύπο και τη διάρκεια του ελέγχου.

**ΣΗΜΕΙΩΣΗ 2:** Στοιχεία και μπαταρίες θα πρέπει να είναι εφοδιασμένα με ένα αποτελεσματικό μέσο πρόληψης των εξωτερικών βραχυκυκλωμάτων. Κάθε στοιχείο και μπαταρία θα πρέπει να έχει ενσωματωμένη μία συσκευή εξερισμού ασφαλείας ή να είναι σχεδιασμένο με τέτοιο τρόπο ώστε να προλαμβάνεται η βίαιη θραύση υπό κανονικές συνθήκες μεταφοράς. Μπαταρίες που περιέχουν στοιχεία ή σειρά στοιχείων συνδεδεμένων παράλληλα θα πρέπει να είναι εφοδιασμένες με διόδους για την αποφυγή αντίστροφης ροής ρεύματος. Μπαταρίες που περιέχονται σε εξαρτήματα θα πρέπει να προστατεύονται έναντι βραχυκυκλωμάτων και να κρατούνται με ασφάλεια στη θέση τους.

**ΣΗΜΕΙΩΣΗ 3:** Τα στοιχεία και οι μπαταρίες θα πρέπει να είναι έτσι σχεδιασμένα και κατασκευασμένα ώστε να είναι ικανά να ικανοποιούν τους παρακάτω ελέγχους:

**Έλεγχος 1:** το στοιχείο ή η μπαταρία θα πρέπει να υπόκεινται σε έλεγχο θερμικής σταθερότητας στους 75 °C για 48 ώρες και να μην εμφανίζουν εμφανή παραμόρφωση, διαρροή ή εσωτερική θέρμανση.

Αυτός ο έλεγχος θα πρέπει να εκτελείται σε τουλάχιστον 10 στοιχεία και μία μπαταρία από κάθε τύπο λαμβανόμενο από την παραγωγή κάθε εβδομάδα.

**Έλεγχος 2:** ως αποτέλεσμα σκόπμου βραχυκυκλώματος, το στοιχείο ή η μπαταρία θα πρέπει να καθίσταται αδρανές, κατά προτίμηση χωρίς εξερισμό (μέσω της χρήσης εσωτερικών συσκευών ασφαλείας). Εάν λαμβάνει χώρα εξερισμός, μία ανοιχτή φλόγα θα πρέπει να εφαρμόζεται στις αναθυμιάσεις του εξερισμού για να αποδειχθεί ότι δεν υπάρχει εκρηκτική κατάσταση.

Αυτός ο έλεγχος θα πρέπει να εκτελείται σε τουλάχιστον τρία στοιχεία και μία μπαταρία από κάθε τύπο λαμβανόμενο από την παραγωγή κάθε εβδομάδα.

**ΣΗΜΕΙΩΣΗ 4:** Στοιχεία που έχουν αποφορτιστεί στο βαθμό που η τάση ανοιχτού κυκλώματος να είναι μικρότερη από δύο volts ή ίση με τα δύο τρίτα της τάσης του μη-αποφορτισμένου στοιχείου, όποια τιμή από τις δύο είναι μικρότερη, ή μπαταρίες που περιέχουν ένα ή περισσότερα τέτοια στοιχεία δεν θα γίνονται δεκτά για μεταφορά.

## Κλάση 9

2901  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ 5:** Στοιχεία από μπαταρίες που περιέχονται σε εξαρτήματα δεν θα πρέπει να είναι ικανά να αποφορτίζονται κατά τη διάρκεια της μεταφοράς στο βαθμό που η τάση ανοιχτού κυκλώματος να πέφτει κάτω από 2 volts ή τα δύο τρίτα της τάσης του μη-αποφορτισμένου στοιχείου, όποια τιμή από τις δύο είναι μικρότερη.

**ΣΗΜΕΙΩΣΗ 6:** Είδη της 5<sup>ο</sup> που δεν ικανοποιούν αυτές τις συνθήκες δεν θα γίνονται δεκτά για μεταφορά.

## Ε. Σωστικά μέσα

**ΣΗΜΕΙΩΣΗ:** Ειδικές συνθήκες συσκευασίας εφαρμόζονται σ' αυτά τα είδη (βλέπε περιθωριακό 2907).

6<sup>ο</sup> 2990 σωστικά μέσα αυτοδιογκούμενα, όπως γλίστρες εκκένωσης αεροσκαφών και εξαρτήσεις επιβίωσης αεροσκαφών.

**ΣΗΜΕΙΩΣΗ:** Αυτά τα μέσα παρουσιάζουν έναν κίνδυνο εάν η αυτοδιογκούμενη συσκευή ενεργοποιηθεί κατά τη διάρκεια της μεταφοράς και μπορεί επίσης να περιλαμβάνει μία ή περισσότερες από τις παρακάτω ύλες ή είδη αυτής της Οδηγίας ως εξαρτήματα:

συσκευές σηματοδότησης της κλάσης 1, όπως καπνογόνες και φωτιστικές βολίδες σηματοδότησης:

μη-εύφλεκτα, μη-τοξικά αέρια της κλάσης 2,

εύφλεκτες ύλες των κλάσεων 3 ή 4.1,

οργανικά υπεροξειδία της κλάσης 5.2, ως συστατικά επισκευαστικών εξαρτήσεων,

μπαταρίες ηλεκτρικής συσώρευσης της κλάσης 8.

7<sup>ο</sup> 3072 σωστικά μέσα όχι αυτοδιογκούμενα, που περιλαμβάνουν μία ή περισσότερες από τις παρακάτω ύλες ή είδη της ADR ως εξαρτήματα:

συσκευές σηματοδότησης της κλάσης 1, όπως καπνογόνες ή φωτιστικές βολίδες σηματοδότησης,

μη-εύφλεκτα, μη-τοξικά αέρια της κλάσης 2,

εύφλεκτες ύλες των κλάσεων 3 ή 4.1,

οργανικά υπεροξειδία της κλάσης 5.2, ως συστατικά επισκευαστικών εξαρτημάτων,

μπαταρίες ηλεκτρικής συσώρευσης ή διαβρωτικά στερεά της κλάσης 8.

8<sup>ο</sup> Μέρη μηχανοκίνητων οχημάτων

3268 συσκευές φουσκώματος αερόσακκων ή 3268 θάλαμοι αερόσακκων ή προ-εντατές ζωνών ασφαλείας ή 3268 θάλαμοι ζωνών ασφαλείας

3268

**ΣΗΜΕΙΩΣΗ 1:** Αυτό το είδος εφαρμόζεται στα είδη που μπορούν να ταξινομηθούν στην Κλάση 1 σε συμφωνία με το περιθωριακό 2100 (2) (b), που χρησιμοποιούνται ως σωστικοί αερόσακκοι ή ζώνες ασφαλείας των οχημάτων, όταν μεταφέρονται ως συστατικά μέρη και όταν οι 'συσκευές φουσκώματος αερόσακκων', 'προ-εντατές ζωνών ασφαλείας', 'θάλαμοι αερόσακκων' ή 'θάλαμοι ζωνών ασφαλείας' συσκευασμένα όπως για μεταφορά έχουν ελεγχθεί σε συμφωνία με τη σειρά ελέγχου 6 (c) του τμήματος I των Ελέγχων και Κριτηρίων των

## Κλάση 9

2901  
(συνεχ.)

Υποδείξων για τη Μεταφορά Επικίνδυνων Εμπορευμάτων,<sup>2/</sup> χωρίς έκρηξη της συσκευής, χωρίς θρυμματισμό των περιβλημάτων της συσκευής και χωρίς προβολή επικίνδυνης ή θερμικής επίδρασης, που θα δυσχέρανε σημαντικά τις προσπάθειες πυρόσβεσης ή αντίδρασης σε άλλες καταστάσεις κινδύνου στην άμεσα κοντινή περιοχή.

**ΣΗΜΕΙΩΣΗ 2:** Τέτοιοι αερόσακκοι ή ζώνες ασφαλείας που εγκαθίστανται σε οχήματα ή σε πλήρη μέρη οχημάτων όπως άξονες τιμονιού, φύλλα πόρτας κ.λπ. δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας.

## F. Περιβαλλοντικά επικίνδυνες ύλες

**ΣΗΜΕΙΩΣΗ:** Η καταχώρηση μίας ύλης στην 11<sup>ο</sup> ή 12<sup>ο</sup> θα πρέπει να είναι όπως υποδεικνύεται στην προσθήκη Α.3, μέρος G, περιθωριακά 3390 έως 3396.

- 11<sup>ο</sup> Υγρές ύλες ρυπογόνες για το θαλάσσιο περιβάλλον και διαλύματα και μείγματα τέτοιων υλών (όπως παρασκευάσματα και απόβλητα), που δεν μπορούν να ταξινομηθούν στις άλλες κλάσεις, ή στα είδη 1<sup>ο</sup> έως 8<sup>ο</sup>, 13<sup>ο</sup> και 14<sup>ο</sup> αυτής της κλάσης.

(c) 3082 Περιβαλλοντικά επικίνδυνη ύλη, υγρή, ε.α.ο., όπως:

πολυ (3-6) αιθοξυλική αλκοόλη C<sub>6</sub>-C<sub>17</sub> (δευτεροταγής)

πολυ (1-3) αιθοξυλική αλκοόλη C<sub>12</sub>-C<sub>15</sub>

πολυ (1-6) αιθοξυλική αλκοόλη C<sub>13</sub>-C<sub>15</sub>

alfa-cypermethrin

φθαλικό βουτυλοβενζύλιο

χλωρωμένες παραφίνες (C<sub>10</sub>-C<sub>13</sub>)

1-χλωροοκτάνιο

φωσφορικό κρεζυλοδιφαινύλιο

cyfluthrin

ακρυλικός δεκυλεστεράς

φθαλικό δι-η-βουτύλιο

1, 6-διχλωροεξάνιο

διϊσοπροπυλοβενζόλια

ακρυλικός ισοδεκυλεστεράς

φωσφορικός ισοδεκυλοδιφαινύλιο

νιτρικό ισοκτύλιο

malathion

resmethrin

φωσφορικά τριαρύλια

φωσφορικά τρικρεζύλια

τριαιθυλοβενζόλιο

φωσφορικό τριξυλενύλιο

- 12<sup>ο</sup> Στερεές ύλες ρυπογόνες για το θαλάσσιο περιβάλλον και μείγματα τέτοιων υλών (όπως παρασκευάσματα και απόβλητα) που δεν μπορούν να ταξινομηθούν στις άλλες κλάσεις, ή στα είδη 1<sup>ο</sup> έως 8<sup>ο</sup>, 13<sup>ο</sup> και 14<sup>ο</sup> αυτής της κλάσης.

<sup>2/</sup> Υποδείξεις για τη Μεταφορά Επικίνδυνων Εμπορευμάτων, Έλεγχοι και Κριτήρια (Δεύτερη έκδοση), δημοσιευμένες από τον Οργανισμό Ηνωμένων Εθνών υπό το σύμβολο ST/SG/AC.10/11/Rev.1.

## Κλάση 9

2901  
(συνεχ.)(c) 3077 Περιβαλλοντικά επικίνδυνη ύλη, στερεή, ε.α.ο., όπως:

χλωροεξιδίνη  
 χλωριωμένες παραφίνες (C<sub>10</sub>-C<sub>13</sub>)  
 p-δυχλωροβενζόλιο  
 διφαινύλιο  
 διφαινυλαιθέρας  
 οξείδιο fenbutadīn  
 χλωριούχος υδράργυρος (καλομέλας)  
 φωσφορικός τριβουτυλοκασσίτερος  
 βρωμιούχος ψευδάργυρος

13° Γενετικά τροποποιημένοι μικρο-οργανισμοί.

**ΣΗΜΕΙΩΣΗ 1:** Γενετικά τροποποιημένοι μικρο-οργανισμοί είναι μικρο-οργανισμοί στους οποίους το γενετικό υλικό έχει σκόπιμα μεταβληθεί με τεχνικά μέσα ή με τέτοια μέσα που δεν μπορούν να συμβούν φυσικά.

**ΣΗΜΕΙΩΣΗ 2:** Γενετικά τροποποιημένοι μικρο-οργανισμοί που είναι μολυσματικοί είναι ύλες της κλάσης 6.2 (βλέπε περιθωριακό 2651, είδη 1° έως 3°, χαρακτηριστικοί αριθμοί 2814 και 2900).

**ΣΗΜΕΙΩΣΗ 3:** Γενετικά τροποποιημένοι μικρο-οργανισμοί κατά την έννοια αυτού του είδους είναι εκείνοι που δεν είναι επικίνδυνοι για ανθρώπους και ζώα, αλλά που θα μπορούσαν να μεταβάλουν ζώα, φυτά, μικροβιολογικές ύλες και οικοσυστήματα με τέτοιον τρόπο που δεν μπορεί να συμβεί φυσικά.

(b) 3245 Γενετικά τροποποιημένοι μικρο-οργανισμοί

**ΣΗΜΕΙΩΣΗ 1:** Γενετικά τροποποιημένοι μικρο-οργανισμοί που έχουν λάβει συγκατάθεση για σκόπιμη απελευθέρωση στο περιβάλλον, <sup>3/</sup> δεν υπόκεινται στις διατάξεις αυτής της κλάσης αυτής της Οδηγίας.

**ΣΗΜΕΙΩΣΗ 2:** Για το σκοπό των απαιτήσεων συσκευασίας του περιθωριακού 2903, ύλες και μείγματα υλών θεωρούνται ότι είναι στερεά εάν δεν περιέχουν ελεύθερο υγρό σε θερμοκρασία χαμηλότερη από 45 °C.

**ΣΗΜΕΙΩΣΗ 3:** Ζωντανά σπονδυλωτά ή ασπόνδυλα ζώα δεν θα πρέπει να χρησιμοποιούνται για τη μεταφορά υλών ταξινομημένων υπό αυτό το είδος εκτός εάν η ύλη δεν μπορεί να μεταφερθεί με άλλον τρόπο.

14° Γενετικά τροποποιημένοι οργανισμοί

**ΣΗΜΕΙΩΣΗ:** Γενετικά τροποποιημένοι οργανισμοί, για τους οποίους είναι γνωστό ή υπάρχει η υποψία ότι είναι επικίνδυνοι για το περιβάλλον θα πρέπει να μεταφέρονται σε συμφωνία με τις συνθήκες που ορίζονται από την αρμόδια αρχή της χώρας προέλευσης.

G. Κενές συσκευασίες

**ΣΗΜΕΙΩΣΗ 1:** Κενές συσκευασίες με υπολείμματα από το προηγούμενο περιεχόμενο τους κολλημένα στο εξωτερικό δεν θα γίνονται δεκτά για μεταφορά.

<sup>3/</sup> Βλέπε ειδικά το Μέρος C της Οδηγίας 90/220/EEC (Επίσημη Εφημερίδα της Ευρωπαϊκής Κοινότητας, Αριθμ. L 117, της 8 Μαΐου 1990, σελ. 18-20), που εκθέτει τις διαδικασίες εξουσιοδότησης για της Ευρωπαϊκή Κοινότητα.

## Κλάση 9

2901  
(συνεχ.)**ΣΗΜΕΙΩΣΗ 2:** Ακαθάριστα κενά δοχεία συγκράτησης για συσκευές της 3<sup>ο</sup> δεν θα γίνονται δεκτά για μεταφορά.

21<sup>ο</sup> Κενές συσκευασίες, συμπεριλαμβανομένων κενών ενδιάμεσων εμπορευματοκιβωτίων για μεταφορά χύμα (IBC), κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών και κενών εμπορευματοκιβωτίων-δεξαμενών, ακαθάριστες, που περιείχαν ύλες της 1<sup>ο</sup> ή 2<sup>ο</sup> της κλάσης 9.

2901a (1) Ύλες ταξινομημένες στο (b) ή (c) των 1<sup>ο</sup>, 2<sup>ο</sup>, 4<sup>ο</sup> και 11<sup>ο</sup> έως 13<sup>ο</sup> μεταφερόμενες σε συμφωνία με τις παρακάτω διατάξεις δεν υπόκεινται στις διατάξεις για αυτήν την κλάση που περιέχεται σε αυτό το Παράρτημα ή στο παράρτημα B:

- (a) Ύλες ταξινομημένες υπό το γράμμα (b) κάθε είδους:  
υγρά, έως 500 ml ανά εσωτερική συσκευασία και έως 2 λίτρα ανά κόλο,  
στερεά, έως 1 kg ανά εσωτερική συσκευασία και έως 4 kg ανά κόλο.
- (b) Ύλες ταξινομημένες υπό το γράμμα (c) κάθε είδους:  
υγρά, έως 3 λίτρα ανά εσωτερική συσκευασία και έως 12 λίτρα ανά κόλο:  
στερεά, έως 6 kg ανά εσωτερική συσκευασία και έως 24 kg ανά κόλο.

Αυτές οι ποσότητες υλών θα πρέπει να μεταφέρονται σε συνδυασμένες συσκευασίες σύμφωνα τουλάχιστον με τις συνθήκες του περιθωριακού 3538.

Οι "Γενικές συνθήκες συσκευασίας" του περιθωριακού 3500 (1), (2) και (5) έως (7) θα πρέπει να ισχύουν.

(2) Οι παρακάτω ύλες και είδη της 1<sup>ο</sup> είναι επιπλέον υποκείμενες στις διατάξεις για αυτήν την Κλάση που περιέχονται σε αυτό το παράρτημα και στο παράρτημα B:

- (a) αμιάντος έτσι εμβαπτισμένος ή τοποθετημένος σε ένα φυσικό ή τεχνητό δεσμευτικό υλικό (όπως τσιμέντο, πλαστικό, άσφαλτος, ρητίνες ή ορυκτό μέταλλευμα) ώστε να μην μπορεί να σημειωθεί διαφυγή επικίνδυνων ποσοτήτων αναπνεύσιμων ινών αμιάντου κατά τη διάρκεια της μεταφοράς,
- (b) τελικά προϊόντα που περιέχουν αμιάντο όταν είναι έτσι συσκευασμένα ώστε να μην μπορεί να σημειωθεί διαφυγή επικίνδυνων ποσοτήτων αναπνεύσιμων ινών αμιάντου κατά τη διάρκεια της μεταφοράς.

(3) Συσκευές της 3<sup>ο</sup> που περιέχουν υγρά της 2<sup>ο</sup> (b), έως 500 ml ανά συσκευή και έως 2 λίτρα ανά κόλο, δεν υπόκεινται στις διατάξεις για αυτήν την Κλάση που περιέχονται σε αυτό το Παράρτημα ή στο παράρτημα B. Οι συσκευές θα πρέπει, όμως, να συσκευάζονται σε συμφωνία με το περιθωριακό 2905 (1) (a).

(4) Μπαταρίες λιθίου της 5<sup>ο</sup> σύμφωνα με τις παρακάτω διατάξεις και εξαρτήματα που περιέχουν μόνον τέτοιες μπαταρίες, δεν υπόκεινται στις διατάξεις για αυτήν την Κλάση που περιέχονται σε αυτό το Παράρτημα και στο παράρτημα B:

- (a) κάθε στοιχείο με υγρή κάθοδο περιέχει όχι περισσότερο από 0.5 g λίθιο ή κράμα λιθίου και κάθε στοιχείο με στερεή κάθοδο περιέχει όχι περισσότερο από 1 g λίθιο ή κράμα λιθίου,

## Κλάση 9

2901a  
(συνεχ.)

- (b) κάθε μπαταρία με στερεή κάθοδο περιέχει όχι περισσότερο από μία συνολική ποσότητα 2 g λίθιο ή κράμα λιθίου και κάθε μπαταρία με υγρή κάθοδο περιέχει όχι περισσότερο από μία συνολική ποσότητα 1 g λίθιο ή κράμα λιθίου,
- (c) κάθε στοιχείο ή μπαταρία που περιέχει υγρή κάθοδο είναι ερμητικά σφραγισμένο,
- (d) τα στοιχεία είναι διαχωρισμένα έτσι ώστε να αποφεύγονται βραχυκυκλώματα,
- (e) οι μπαταρίες είναι διαχωρισμένες έτσι ώστε να αποφεύγονται βραχυκυκλώματα και είναι συσκευασμένες σε γερές συσκευασίες, εκτός από όταν είναι εγκαταστημένες σε ηλεκτρονικές συσκευές,
- (f) εάν μία μπαταρία υγρής καθόδου περιέχει περισσότερο από 0.5 g λίθιο ή κράμα λιθίου, ή μία μπαταρία στερεής καθόδου περιέχει περισσότερο από 1 g λίθιο ή κράμα λιθίου, δεν περιέχει υγρό ή αέριο που θεωρείται επικίνδυνο εκτός εάν το υγρό ή το αέριο, εάν είναι ελεύθερο, θα ήταν πλήρως απορροφημένο ή εξουδετερωμένο από άλλα υλικά στη μπαταρία.

## 2. Διατάξεις

## A. Κόλα

## 1. Γενικές συνθήκες συσκευασίας

- 2902 (1) Οι συσκευασίες θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.5, εκτός εάν ειδικές συνθήκες για τη συσκευασία ορισμένων υλών καθορίζονται στο τμήμα A.2.
- (2) Τα ενδιάμεσα εμπορευματοκιβώτια για μεταφορά χύμα (IBC) θα πρέπει να ικανοποιούν τις συνθήκες της προσθήκης A.6.
- (3) Σε συμφωνία με τις διατάξεις των περιθωριακών 2900 και 3511 (2) ή 3611 (2) θα πρέπει να χρησιμοποιούνται τα παρακάτω:

συσκευασίες των ομάδων συσκευασίας II ή I, μαρκαρισμένες με το γράμμα "Y" ή "X", ή IBC της ομάδας συσκευασίας II, μαρκαρισμένα με το γράμμα "Y", για τις επικίνδυνες ύλες που είναι ταξινομημένες υπό το γράμμα (b) κάθε είδους,

συσκευασίες των ομάδων συσκευασίας III, II ή I, μαρκαρισμένες με το γράμμα "Z", "Y" ή "X", ή IBC, μαρκαρισμένα με το γράμμα "Z" ή "Y", για τις λιγότερο επικίνδυνες ύλες που είναι ταξινομημένες υπό το γράμμα (c) κάθε είδους.

**ΣΗΜΕΙΩΣΗ:** Για τη μεταφορά υλών της κλάσης 9 σε οχήματα-δεξαμενές, αποσυναρμολογούμενες δεξαμενές ή εμπορευματοκιβώτια-δεξαμενές και για τη μεταφορά χύμα στερεών αυτής της κλάσης, βλέπε Παράρτημα B.

## 2. Ειδικές συνθήκες συσκευασίας

- 2903 (1) Υλεις ταξινομημένες στο (b) των διαφόρων ειδών του περιθωριακού 2901 θα πρέπει να συσκευάζονται:
- (a) σε χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
  - (b) σε αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
  - (c) σε χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
  - (d) σε πλαστικά βαρέλια ή πλαστικά μπιτόνια σύμφωνα με το περιθωριακό 3526, ή

## Κλάση 9

2903  
(συνεχ.)

- (e) σε σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
- (f) σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
- (g) σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624 ή σύνθετα IBC με ένα άκαμπτο πλαστικό εσωτερικό δοχείο σύμφωνα με το περιθωριακό 3625.

*ΣΗΜΕΙΩΣΗ στα (a), (b), (c) και (d): Απλοποιημένες συνθήκες εφαρμόζονται στα βαρέλια και μπιτόνια μετακινούμενης κεφαλής για ιξώδεις ύλες με ιξώδες μεγαλύτερο από 200 mm<sup>2</sup>/s στους 23 °C (βλέπε περιθωριακά 3512, 3553, 3554 και 3560) και για στερεά.*

- (2) Στερεές ύλες με σημείο τήξης μεγαλύτερο από 45 °C μπορούν επίσης να συσκευάζονται:
  - (a) σε βαρέλια σύμφωνα με το περιθωριακό 3523 για κόντρα-πλακέ ή 3525 για φύλλο φάιμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
  - (b) σε αδιάβροχους σάκους σύμφωνα με τα περιθωριακά 3533 για υλικά υφαντουργίας, 3534 για πλεγμένα πλαστικά υλικά, 3535 για πλαστικά φιλμ ή 3536 για αδιάβροχο χαρτί, υπό την προϋπόθεση ότι τα εμπορεύματα αποστέλλονται ως πλήρες φορτίο ή οι σάκοι είναι ασφαλισμένοι πάνω σε παλέτες, ή
  - (c) σε σύνθετα IBC με εύκαμπτο πλαστικό εσωτερικό-δοχείο σύμφωνα με το περιθωριακό 3625, IBC από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3626 ή ξύλινα IBC σύμφωνα με το περιθωριακό 3627, ή
  - (d) σε εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623 με εξαίρεση τα IBC των τύπων 13L1 και 13M1, υπό την προϋπόθεση ότι τα εμπορεύματα μεταφέρονται ως πλήρες φορτίο ή τα εύκαμπτα IBC είναι φορτωμένα πάνω σε παλέτες.

2904

- (1) Ύλες ταξινομημένες στο (c) των διαφόρων ειδών του περιθωριακού 2901 θα πρέπει να συσκευάζονται:
  - (a) σε χαλύβδινα βαρέλια σύμφωνα με το περιθωριακό 3520, ή
  - (b) σε αλουμινένια βαρέλια σύμφωνα με το περιθωριακό 3521, ή
  - (c) σε χαλύβδινα μπιτόνια σύμφωνα με το περιθωριακό 3522, ή
  - (d) σε πλαστικά βαρέλια ή πλαστικά μπιτόνια σύμφωνα με το περιθωριακό 3526, ή
  - (e) σε σύνθετες συσκευασίες (από πλαστικό υλικό) σύμφωνα με το περιθωριακό 3537, ή
  - (f) σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538, ή
  - (g) σε σύνθετες συσκευασίες (γυαλί, πορσελάνη ή ψαμμάργγλος) σύμφωνα με το περιθωριακό 3539, ή
  - (h) σε ελαφρού περιτυπώματος μεταλλικές συσκευασίες σύμφωνα με το περιθωριακό 3540, ή
  - (i) σε μεταλλικά IBC σύμφωνα με το περιθωριακό 3622, άκαμπτα πλαστικά IBC σύμφωνα με το περιθωριακό 3624 ή σύνθετα IBC σύμφωνα με το περιθωριακό 3625.



## Κλάση 9

**2904**  
(συνεχ.)

**ΣΗΜΕΙΩΣΗ** στα (a), (b), (c), (d) και (h): Απλοποιημένες συνθήκες εφαρμόζονται σε βαρέλια, μπιτόνια και ελαφρού περιτοπώματος μεταλλικές συσκευασίες μετακινούμενης κεφαλής για ιξώδεις ύλες με ιξώδες μεγαλύτερο από 200 mPa·s στους 23 °C (βλέπε περιθωριακά 3512, 3552 έως 3554 και 3560) και για στερεά.

- (2) Στερεές ύλες με σημείο τήξης μεγαλύτερο από 45 °C μπορούν επίσης να συσκευάζονται:
- (a) σε βαρέλια σύμφωνα με το περιθωριακό 3523 για κόντρα-πλακέ ή 3525 για φύλλο φάιμπερ, εάν είναι αναγκαίο με έναν ή περισσότερους αδιαπέραστους εσωτερικούς σάκους, ή
  - (b) σε αδιάβροχους σάκους σύμφωνα με τα περιθωριακά 3533 για υλικά υφαντουργίας, 3534 για πλεγμένα πλαστικά υλικά, 3535 για πλαστικά φιλμ ή 3536 για αδιάβροχο χαρτί, ή
  - (c) σε εύκαμπτα IBC σύμφωνα με το περιθωριακό 3623, IBC από φύλλο φάιμπερ σύμφωνα με το περιθωριακό 3626 ή ξύλινα IBC σύμφωνα με το περιθωριακό 3627.

**ΣΗΜΕΙΩΣΗ:** IBC σύμφωνα με το περιθωριακό 3626 που περιέχουν ύλες της 4° (c) και μεταφέρονται ως πλήρες φορτίο χρειάζεται μόνον να ικανοποιούν τις απαιτήσεις του περιθωριακού 3621 (1) έως (3), (5) και (6).

- (3) Ύλες της 4° (c) μπορούν επίσης να συσκευάζονται σε σφιστά κλεισμένες στεγανές συσκευασίες που χρειάζεται μόνον να ικανοποιούν τις συνθήκες του περιθωριακού 3500 (1), (2) και (5) έως (7).
- (4) Είδη της 8° (c) θα πρέπει να συσκευάζονται σε συνδυασμένες συσκευασίες σύμφωνα με το περιθωριακό 3538 και με έναν τύπο σχεδιασμού ελεγχόμενο και εγκεκριμένο για την ομάδα συσκευασίας III.

**2905**

- (1) Συσκευές της 3° θα πρέπει να συσκευάζονται:

- (a) σε στεγανές συσκευασίες, ή
- (b) σε στεγανά εμπορευματοκιβώτια.

(2) Συσκευές της 3° μπορούν επίσης να μεταφέρονται σε στεγανά δοχεία (δοχεία συγκράτησης) που πρέπει να είναι ικανά να κρατήσουν, επιπλέον των συσκευών, τουλάχιστον 1.25 φορές τις ύλες της 2° (b) που βρίσκονται στις συσκευές. Πρέπει να υπάρχει επαρκές αδρανές υλικό στα δοχεία για να απορροφά τουλάχιστον 1.1 φορές τις ύλες της 2° (b) που περιέχονται στις συσκευές. Οι συσκευές και τα δοχεία θα πρέπει να είναι έτσι σχεδιασμένα ώστε να αποφεύγεται οποιαδήποτε διαρροή υγρού υπό κανονικές συνθήκες μεταφοράς.

**2906**

- (1) Είδη της 5° θα πρέπει να συσκευάζονται σε:

- (a) κιβώτια σύμφωνα με το περιθωριακό 3527 για φυσικό ξύλο, 3528 για κόντρα-πλακέ ή 3530 για φύλλο φάιμπερ, ή
- (b) σε βαρέλια σύμφωνα με το περιθωριακό 3523 για κόντρα-πλακέ, 3525 για φάιμπερ ή 3526 για πλαστικό, μετακινούμενης κεφαλής, ή
- (c) σε συνδυασμένες συσκευασίες με εσωτερικές συσκευασίες από φύλλο φάιμπερ και εξωτερικές συσκευασίες από χάλυβα ή αλουμίνιο σύμφωνα με το περιθωριακό 3538. Οι εσωτερικές συσκευασίες θα πρέπει να είναι διαχωρισμένες η μία από την άλλη και από τις εσωτερικές επιφάνειες των εξωτερικών συσκευασιών με τη χρήση μη-εύφλεκτου προστατευτικού υλικού με τουλάχιστον 25 mm πάχος.

## Κλάση 9

**2906** (συνεχ.) Οι συνδυασμένες συσκευασίες θα πρέπει να συμφωνούν με έναν τύπο σχεδιασμού που είναι ελεγμένος και εγκεκριμένος, σε συμφωνία με την προσθήκη Α.5, για την ομάδα συσκευασίας II. Καμία ξεχωριστή συσκευασία ή εσωτερική συσκευασία μίας συνδυασμένης συσκευασίας δεν θα πρέπει να περιέχει περισσότερο από 500 g λίθιο (βλέπε, όμως, περιθωριακό 2901, 5°, Σημείωση 1).

(2) Μπαταρίες λιθίου της 5° θα πρέπει να συσκευάζονται και να στοιβάζονται με ασφάλεια έτσι ώστε να αποφεύγεται η μετακίνηση που θα μπορούσε να οδηγήσει σε βραχυκυκλώματα.

(3) Εξαρτήματα που περιέχουν μπαταρίες λιθίου της 5° θα πρέπει να ασφαρίζονται έναντι μετακίνησης μέσα στη συσκευασία και να είναι έτσι συσκευασμένα ώστε να αποφεύγεται η τυχαία λειτουργία κατά τη διάρκεια της μεταφοράς.

**2907** (1) Σωστικά μέσα της 6° θα πρέπει να συσκευάζονται, μεμονωμένα, σε γερές εξωτερικές συσκευασίες.

(2) Ύλες και είδη αυτής της Οδηγίας που περιέχονται σε σωστικά μέσα της 6° ή 7° ως εξαρτήματα θα πρέπει να συσκευάζονται σε εσωτερικές συσκευασίες. Αυτές οι εσωτερικές συσκευασίες θα πρέπει να στοιβάζονται έτσι ώστε να αποφεύγεται οποιαδήποτε μετακίνηση μέσα στα μέσα.

(3) Μη-εύφλεκτα, μη-τοξικά αέρια της κλάσης 2 θα πρέπει να περιέχονται σε κυλίνδρους σύμφωνα με το περιθωριακό 2202 που μπορούν να συνδεθούν με το σωστικό μέσο.

(4) Συσκευές σηματοδότησης της κλάσης 1 θα πρέπει να συσκευάζονται σε πλαστικές ή από φύλλο φάιμπερ εσωτερικές συσκευασίες.

(5) Σπίρτα που ανάβουν παντού της κλάσης 4.1 (περιθωριακό 2401, 2° (c), Αριθμ. 1331) θα πρέπει να συσκευάζονται σε εσωτερικές συσκευασίες για την αποφυγή οποιασδήποτε μετακίνησης.

**2908** (1) Εάν ύλες της 13° μεταφέρονται σε βαθιά κατεψυγμένο άζωτο, οι εσωτερικές συσκευασίες θα πρέπει να είναι σύμφωνες με τις διατάξεις αυτής της κλάσης και τα δοχεία για το άζωτο θα πρέπει να ικανοποιούν τις διατάξεις της κλάσης 2.

(2) Ζωντανά ζώα σε συμφωνία με την 13°, ΣΗΜΕΙΩΣΗ 3, θα πρέπει να συσκευάζονται, μαρκάρονται, περιγράφονται και μεταφέρονται σε συμφωνία με τους σχετικούς κανονισμούς για τη μεταφορά ζώων<sup>4/</sup>.

**2909-  
2910**

### 3. Μικτή συσκευασία

**2911** (1) Ύλες που καλύπτονται από τον ίδιο αριθμό είδους μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538.

(2) Ύλες διαφορετικών ειδών της κλάσης 9 εκτός από ύλες της 13°, σε ποσότητες όχι μεγαλύτερες, ανά εσωτερική συσκευασία, 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί και/ή με εμπροσθέντα όχι υποκείμενα στις διατάξεις αυτής της Οδηγίας, σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538.

**2911** (συνεχ.) (3) Ύλες της κλάσης 9 εκτός από ύλες της 13°, σε ποσότητες όχι μεγαλύτερες, ανά εσωτερική συσκευασία, 3 λίτρα για υγρά και/ή 5 kg για στερεά, μπορούν να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538 με ύλες ή είδη άλλων κλάσεων, υπό την

<sup>4/</sup> Τέτοιοι κανονισμοί περιέχονται π.χ., στην Οδηγία 91/628/EEC (Επίσημη Εφημερίδα της Ευρωπαϊκής Κοινότητας Αριθμ. L340 της 11 Δεκεμβρίου 1992, σ.17) και στις Υποδείξεις του Συμβουλίου της Ευρώπης (Υπουργική Επιτροπή) για τη μεταφορά ορισμένων ειδών ζώων.

## Κλάση 9

προϋπόθεση ότι μικτή συσκευασία επιτρέπεται επίσης για τις ύλες και τα είδη αυτών των κλάσεων και/ή με εμπορεύματα που δεν υπόκεινται στις διατάξεις αυτής της Οδηγίας, υπό την προϋπόθεση ότι δεν αντιδρούν επικίνδυνα μεταξύ τους.

- (4) Οι παρακάτω θεωρούνται επικίνδυνες αντιδράσεις:
- (a) ανάφλεξη και/ή εκπομπή σημαντικής θερμότητας,
  - (b) εκπομπή εύφλεκτων και/ή τοξικών αερίων,
  - (c) σχηματισμός διαβρωτικών υγρών,
  - (d) σχηματισμός ασταθών υλών.
- (5) Υλεις της 13° δεν θα πρέπει να συσκευάζονται μαζί σε μία συνδυασμένη συσκευασία σύμφωνα με το περιθωριακό 3538 με άλλα εμπορεύματα. Αυτό δεν θα πρέπει να εφαρμόζεται σε ύλες προστιθέμενες ως ψυκτικά μέσα, π.χ. πάγος, ξηρός πάγος ή βαθιά κατεψυγμένο υγρό άζωτο.
- (6) Οι διατάξεις των περιθωριακών 2001 (7), 2002 (6) και (7) και 2902 θα πρέπει να ισχύουν.
- (7) Εάν χρησιμοποιούνται ξύλινα ή από φύλλο φάιμπερ κιβώτια, κάθε κόλο δεν θα πρέπει να ζυγίζει περισσότερο από 100 kg.

#### 4. *Μαρκάρισμα και ετικέτες κινδύνου στα κόλα (βλέπε Προσθήκη Α.9)*

##### *Μαρκάρισμα*

- 2912 (1) Κάθε κόλο θα πρέπει να είναι καθαρά και με τρόπο διαρκείας μαρκαρισμένη με τον χαρακτηριστικό αριθμό των εμπορευμάτων που εγγράφεται στο έγγραφο μεταφοράς, μετά από τα γράμματα 'UN'.
- (2) Συσκευασίες που περιέχουν ύλες της 4° (c) θα πρέπει να φέρουν το παρακάτω μαρκάρισμα: "Διατηρείται μακριά από οποιαδήποτε πηγή ανάφλεξης". Αυτό το μαρκάρισμα θα πρέπει να είναι σε μία επίσημη γλώσσα της χώρας αποστολής και επίσης, εάν εκείνη η γλώσσα δεν είναι αγγλικά, γαλλικά ή γερμανικά, στα αγγλικά, γαλλικά ή γερμανικά, εκτός εάν οποιεσδήποτε συμφωνίες μεταξύ των ενδιαφερόμενων για τη μεταφορά χωρών, ορίζουν διαφορετικά.

##### *Ετικέτες κινδύνου*

- (3) Κόλα που περιέχουν ύλες ή είδη αυτής της κλάσης, με εξαίρεση τις ύλες της 4° (c), θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 9.
- (4) Κόλα που περιέχουν ύλες της 2° (b) με σημείο ανάφλεξης έως και 61 °C θα πρέπει, επιπλέον, να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 3.
- (5) Κόλα που περιέχουν είδη της 6° ή 7° δεν θα πρέπει να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 9 εκτός εάν το είδος είναι πλήρως κλεισμένο από συσκευασία, ξύλινο δικτυωτό κιβώτιο ή άλλο μέσο που παρεμποδίζει τον άμεσο προσδιορισμό του είδους.
- (6) Νέα κόλα που περιέχουν ύλες της 13° μεταφερόμενες σε βαθιά κατεψυγμένο άζωτο θα πρέπει επίσης να φέρουν ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 2.

## Κλάση 9

2912 (7) Κόλα που περιέχουν εύθραυστα δοχεία όχι ορατά από έξω θα πρέπει να φέρουν σε δύο (συνεχ.) αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 12.

(8) Κόλα που περιέχουν υγρά σε δοχεία τα πάματα των οποίων δεν είναι ορατά από έξω θα πρέπει να φέρουν σε δύο αντίθετες πλευρές ετικέτα σύμφωνα με το υπόδειγμα Αριθμ. 11.

2913

## B. Στοιχεία στο έγγραφο μεταφοράς

2914 (1) Η περιγραφή των εμπορευμάτων στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με έναν από τους χαρακτηριστικούς αριθμούς - εκτός για ύλες της 14<sup>ο</sup> - και μία από τις ονομασίες που υπογραμμίζονται στο περιθωριακό 2901. Εάν η ύλη δεν αναφέρεται με ονομασία, αλλά είναι καταγεγραμμένη σε μία ε.α.ο. καταχώρηση, η περιγραφή των εμπορευμάτων θα πρέπει να συνίσταται από τον χαρακτηριστικό αριθμό και τον χαρακτηρισμό ε.α.ο., ακολουθούμενο από την χημική ή τεχνική <sup>5/</sup> ονομασία της ύλης, ή για ύλες της 13<sup>ο</sup>, από τη βιολογική ονομασία 5/ της ύλης.

Η περιγραφή των εμπορευμάτων θα πρέπει να ακολουθείται από στοιχεία της κλάσης, τον αριθμό είδους, εάν εφαρμόζεται, το γράμμα, και τα αρχικά "ADR" (ή "RID"), π.χ. "9, 1<sup>ο</sup> (b), ADR".

Για τη μεταφορά αποβλήτων (βλέπε περιθωριακό 2000 (5)), η περιγραφή των εμπορευμάτων θα πρέπει να είναι: "Απόβλητα, που περιέχουν ..." και το συστατικό(ά) που χρησιμοποιείται(ούνται) για την ταξινόμηση των αποβλήτων υπό το περιθωριακό 2002 (8) θα καταχωρείται(ζονται) με την(τις) χημική(ές) ονομασία(ες) του(ς), π.χ. "Απόβλητα που περιέχουν 2212 καφέ αμίαντο, 9,1<sup>ο</sup> (b), ADR".

Για τη μεταφορά διαλυμάτων και μειγμάτων (όπως παρασκευάσματα και απόβλητα) που περιέχουν διάφορα συστατικά που υπόκεινται στις διατάξεις αυτής της Οδηγίας, δεν θα είναι γενικά αναγκαίο να αναφέρονται περισσότερα από δύο συστατικά που κατά κύριο λόγο συμβάλουν στον κίνδυνο ή τους κινδύνους των διαλυμάτων και των μειγμάτων.

Για τη μεταφορά διαλυμάτων και μειγμάτων που περιέχουν μόνον ένα συστατικό που υπόκειται στις διατάξεις αυτής της Οδηγίας, οι λέξεις 'διάλυμα' ή 'μείγμα' θα πρέπει να προστίθεται ως μέρος της ονομασίας στο έγγραφο μεταφοράς [βλέπε περιθωριακό 2002 (8)].

Όταν μία στερεή ύλη παραδίδεται για μεταφορά στην τετηγμένη κατάσταση, η περιγραφή των εμπορευμάτων θα πρέπει να συμπληρώνεται από τη λέξη 'τετηγμένο', εκτός εάν ήδη συμπεριλαμβάνεται στην ονομασία.

Για τη μεταφορά εύκολα αλλοιούμενων υλών της 13<sup>ο</sup> κατάλληλες πληροφορίες θα πρέπει να δίνονται, π.χ.: 'Ψύξη στους +2<sup>ο</sup>/+4 °C' ή 'Μεταφέρεται σε κατεψυγμένη κατάσταση' ή 'Να μην καταψύχεται'.

(2) Για τη μεταφορά ειδών της 5<sup>ο</sup> με την έγκριση της αρμόδιας αρχής (βλέπε Σημείωση 1 στο περιθωριακό 2901, 5<sup>ο</sup>), ένα αντίγραφο της έγκρισης με τις συνθήκες μεταφοράς θα πρέπει να επισυνάπτεται στο έγγραφο μεταφοράς. Αυτή η έγκριση θα πρέπει να συντάσσεται σε μία επίσημη γλώσσα της χώρας αποστολής και επίσης, εάν εκείνη η γλώσσα δεν είναι αγγλικά, γαλλικά ή γερμανικά, στα αγγλικά, γαλλικά ή γερμανικά, εκτός εάν οποιεσδήποτε συμφωνίες μεταξύ των ενδιαφερόμενων για τη μεταφορά χωρών ορίζουν διαφορετικά.

<sup>5/</sup> Η τεχνική ή βιολογική ονομασία θα πρέπει να είναι μία ονομασία που ήδη χρησιμοποιείται σε επιστημονικά και τεχνικά εγχειρίδια, περιοδικά και κείμενα. Εμπορικές ονομασίες δεν θα πρέπει να χρησιμοποιούνται για αυτόν τον σκοπό. Στην περίπτωση παραποικτίων, η ονομασία που θα εγγραφεί θα πρέπει να είναι εκείνη που δίνεται στο Πρότυπο ISO 1750: 1981 εάν αναφέρεται.

## Κλάση 9

2915-  
2920

## C. Κενές συσκευασίες

- 2921 (1) Εάν οι κενές συσκευασίες συμπεριλαμβανομένων IBC, ακαθάριστων, της 21<sup>ο</sup> είναι σάκοι, αυτές θα πρέπει να τοποθετούνται σε κιβώτια ή αδιάβροχους σάκους για την αποφυγή οποιασδήποτε διαρροής της ύλης.
- (2) Άλλες κενές συσκευασίες συμπεριλαμβανομένων IBC, ακαθάριστων, της 21<sup>ο</sup> θα πρέπει να είναι κλεισμένες με τον ίδιο τρόπο και να παρουσιάζουν τον ίδιο βαθμό στεγανότητας σαν να ήταν γεμάτες.
- (3) Κενές συσκευασίες, ακαθάριστες, της 21<sup>ο</sup> θα πρέπει να φέρουν τις ίδιες ετικέτες κινδύνου σαν να ήταν γεμάτες.
- (4) Η περιγραφή στο έγγραφο μεταφοράς θα πρέπει να συμφωνεί με μία από τις ονομασίες που υπογραμμίζονται στην 21<sup>ο</sup>, π.χ. "Κενή συσκευασία, 9, 21<sup>ο</sup>, ADR". Στην περίπτωση κενών οχημάτων-δεξαμενών, κενών αποσυναρμολογούμενων δεξαμενών και κενών εμπορευματοκιβωτίων-δεξαμενών ακαθάριστων, αυτή η περιγραφή θα πρέπει να συμπληρώνεται από την προσθήκη των λέξεων "Τελευταίο φορτίο" μαζί με την ονομασία και τον αριθμό είδους των εμπορευμάτων που φορτώθηκαν τελευταία, π.χ. "Τελευταίο φορτίο: 2212 καφέ αμιάντος, 1<sup>ο</sup> (b)".

2922-  
2999

2288

**ΠΡΟΣΘΗΚΗ Β.6**

**ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΕΚΠΑΙΔΕΥΣΕΩΣ ΟΔΗΓΟΥ  
ΣΥΜΦΩΝΑ ΜΕ ΤΟ ΠΕΡΙΘΩΡΙΑΚΟ 10 315 (1)**

(Βλέπε Περιθωριακό 10 381)

**260 000** Το πιστοποιητικό ικανότητας για οδηγούς οχημάτων που μεταφέρουν επικίνδυνα εμπορεύματα, που εκδίδεται σύμφωνα με τις οδηγίες του περιθωριακού 10 315 θα αναπαράγεται με βάση το σχήμα του υποδείγματος που ακολουθεί. Συνίσταται το σχήμα να είναι το ίδιο με την Ευρωπαϊκή εθνική άδεια οδήγησης, δηλαδή A7 (7A x 105 mm) ή ένα διπλό φύλλο που να μπορεί να διπλωθεί σ' αυτό το σχήμα.

(Για το υπόδειγμα του πιστοποιητικού βλέπε στην επόμενη σελίδα)

## Προσθήκη Β.6

## Υπόδειγμα Πιστοποιητικού

<b>1</b>	<b>2</b>
ADR - ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΕΚΠΑΙΔΕΥΣΗΣ ΓΙΑ ΟΔΗΓΟΥΣ ΟΧΗΜΑΤΩΝ ΠΟΥ ΜΕΤΑΦΕΡΟΥΝ ΕΠΙΚΙΝΔΥΝΑ ΕΜΠΟΡΕΥΜΑΤΑ σε δεξαμενές 1/                      άλλα εκτός δεξαμενών 1/	Επίθετο .....
Αριθμός Πιστοποιητικού .....	Όνομα (τα) .....
Διακριτικό σήμα του εκδίδοντος Κράτους .....	Ημ/νία γέννησης ... Εθνικότητα .....
ισχύον για κλάση(εις) 1/ 2/    Εκδοθέν από	Υπογραφή κατόχου .....
σε δεξαμενές                      σε άλλα εκτός δεξαμενών	Ημερομηνία .....
1    1	Υπογραφή 4/ .....
2    2.....	Ανανέωση έως .....
3    3	Από .....
4.1, 4.2, 4.3                      4.1, 4.2, 4.3.....	Ημερομηνία .....
5.1, 5.2                                      5.1, 5.2	Υπογραφή 4/ .....
6.1, 6.2                                      6.1, 6.2.....	Ανανέωση έως .....
7    7	Από .....
8    8.....	Ημερομηνία .....
9    9	Υπογραφή 4/ .....
έως (ημερομηνία) 3/ .....	.....
1/ Διαγράψτε ότι δεν ισχύει.	4/ και/ή σφραγίδα (ή βούλα) της εκδόσας αρχή
2/ Για επέκταση σε άλλες κλάσεις, βλέπε σελίδα 3	
3/ Για ανανέωση, βλέπε σελίδα 2.	

<b>3</b>	<b>4</b>
ΕΠΕΚΤΑΣΗ ΣΤΗΝ (ΣΤΙΣ) <u>Μόνο για εθνικούς κανονισμούς</u>	
ΚΛΑΣΣΗ(ΕΙΣ) 5/	

σε δεξαμενές	
1	
2	
3	Ημερομηνία .....
4.1, 4.2, 4.3	
5.1, 5.2	Υπογραφή και/ή
6.1, 6.2	σφραγίδα ή βούλα
7	.....
8	
9	
σε άλλα εκτός δεξαμενών	
1	
2	
3	Ημερομηνία .....
4.1, 4.2, 4.3	
5.1, 5.2	Υπογραφή και/ή
6.1, 6.2	σφραγίδα ή βούλα
7	.....
8	
9	

5/ Διαγράψτε ότι δεν ισχύει.

2290

Προσθήκη Α.9

3902  
(συνεχ.)

250 001

Οι χαρακτηριστικοί αριθμοί θα αναγράφονται στην πινακίδα όπως υποδεικνύεται παρακάτω:

Χαρακτηριστικός αριθμός  
κινδύνου  
(2 ή 3 ψηφία)

Χαρακτηριστικός αριθμός  
ύλης  
(4 ψηφία)

Φόντο πορτοκαλί.  
Πλαίσιο, οριζόντια γραμμή και ψηφία μαύρα,  
πάχος 15 mm.

250 002-  
259 999