



Treaty Series No. 59 (2025)

Amendments

to the International Maritime Dangerous Goods (IMDG) Code of the International
Convention for the Safety of Life at Sea

For Adoption dates – see page 3

[For entry into force dates - see page 3]

*Presented to Parliament
by the Secretary of State for Foreign, Commonwealth and Development Affairs
by Command of His Majesty
October 2025*



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**AMENDMENTS TO THE INTERNATIONAL MARITIME DANGEROUS
GOODS (IMDG) CODE OF THE INTERNATIONAL CONVENTION FOR
THE SAFETY OF LIFE AT SEA**

The Resolutions were adopted on:

Resolution MSC.501(105), adopted on 28 April 2022

Resolution MSC.477(102), adopted on 11 November 2020

Resolution MSC.442(99), adopted on 24 May 2018

Resolution MSC.406(96), adopted on 13 May 2016

Resolution MSC.372(93), adopted on 22 May 2014

Resolution MSC.328(90), adopted on 26 May 2012

Resolution MSC.262(84), adopted on 16 May 2008

Resolution MSC.205(81), adopted on 18 May 2006

Resolution MSC.157(78), adopted on 20 May 2004

Resolution MSC.122(75), adopted on 24 May 2002

The Amendments entered into force:

Resolution MSC.501(105) – 1 January 2024

Resolution MSC.477(102) – 1 June 2022

Resolution MSC.442(99) – 1 January 2020

Resolution MSC.406(96) – 1 January 2018

Resolution MSC.372(93) – 1 January 2016

Resolution MSC.328(90) – 1 January 2014

Resolution MSC.262(84) – 1 January 2010

Resolution MSC.205(81) – 1 January 2008

Resolution MSC.157(78) – 1 January 2006

Resolution MSC.122(75) – 1 January 2004

ANNEX 8

RESOLUTION MSC.262(84)

Adopted on 16 May 2008

**ADOPTION OF AMENDMENTS TO THE INTERNATIONAL MARITIME
DANGEROUS GOODS (IMDG) CODE**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.122(75) by which it adopted the International Maritime Dangerous Goods Code (hereinafter referred to as “the IMDG Code”), which has become mandatory under chapter VII of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended (hereinafter referred to as “the Convention”),

NOTING ALSO Article VIII(b) and regulation VII/1.1 of the Convention concerning amendment procedure for amending the IMDG Code,

HAVING CONSIDERED, at its eighty-fourth session, amendments to the IMDG Code, proposed and circulated in accordance with Article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with Article VIII(b)(iv) of the Convention, amendments to the IMDG Code, the text of which is set out in the Annex to the present resolution;
2. DETERMINES, in accordance with Article VIII(b)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2009, unless prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world’s merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to the Convention to note that, in accordance with Article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2010 upon their acceptance in accordance with paragraph 2 above;
4. AGREES that Contracting Governments to the Convention may apply the aforementioned amendments in whole or in part on a voluntary basis as from 1 January 2009;
5. REQUESTS the Secretary-General, in conformity with Article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Contracting Governments to the Convention;
6. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization, which are not Contracting Governments to the Convention.

ANNEX

**AMENDMENTS TO THE INTERNATIONAL MARITIME
DANGEROUS GOODS (IMDG) CODE**

- Contents** Delete the comma after the word “goods” in 4.1.1
- Preamble** Paragraph 9 Add “MEPC adopted resolution MEPC.156(55), a revised text to take into account the GHS criteria” after “... entered into force in 1994, 1996 and 2002”

PART 1

Chapter 1.1

- 1.1.1.5.1** Replace “chapter 1.3” with “paragraphs 1.3.1.4 to 1.3.1.7”
- 1.1.1.5.2** Replace “will be” with “is”
- 1.1.1.5.8** Replace “(Contact information of competent authorities)” with “(Contact information for the main designated national competent authorities)”
- 1.1.2.2.1** Replace **Footnote** with “The revised text of Annex III was adopted by resolution MEPC.156(55) and will enter into force on 1 January 2010, which is the mandatory entry into force date of amendment 34-08 to the IMDG Code”
- 1.1.2.2.1** Replace the text of MARPOL Annex III with:

“Annex III

Regulations for the Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form

Regulation 1

Application

- 1 Unless expressly provided otherwise, the regulations of this annex apply to all ships carrying harmful substances in packaged form.
- .1 For the purpose of this annex, “harmful substances” are those substances which are identified as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code)* or which meet the criteria in the Appendix of this annex.
- .2 For the purposes of this annex, “packaged form” is defined as the forms of containment specified for harmful substances in the IMDG Code.

* Refer to the IMDG Code adopted by the Organization by resolution MSC.122(75), as amended.

- 2 The carriage of harmful substances is prohibited, except in accordance with the provisions of this annex.
- 3 To supplement the provisions of this Annex, the Government of each Party to the Convention shall issue, or cause to be issued, detailed requirements on packing, marking, labelling, documentation, stowage, quantity limitations and exceptions for preventing or minimizing pollution of the marine environment by harmful substances.*
- 4 For the purposes of this Annex, empty packagings which have been used previously for the carriage of harmful substances shall themselves be treated as harmful substances unless adequate precautions have been taken to ensure that they contain no residue that is harmful to the marine environment.
- 5 The requirements of this Annex do not apply to ship's stores and equipment.

Regulation 2

Packing

Packages shall be adequate to minimize the hazard to the marine environment, having regard to their specific contents.

Regulation 3

Marking and labelling

- 1 Packages containing a harmful substance shall be durably marked with the correct technical name (trade names alone shall not be used) and, further, shall be durably marked or labelled to indicate that the substance is a marine pollutant. Such identification shall be supplemented where possible by any other means, for example, by use of the relevant United Nations number.
- 2 The method of marking the correct technical name and of affixing labels on packages containing a harmful substance shall be such that this information will still be identifiable on packages surviving at least three months' immersion in the sea. In considering suitable marking and labelling, account shall be taken of the durability of the materials used and of the surface of the package.
- 3 Packages containing small quantities of harmful substances may be exempted from the marking requirements.*

* Refer to the specific exemptions provided for in the IMDG Code adopted by resolution MSC.122(75), as amended.

Regulation 4*

Documentation

- 1 In all documents relating to the carriage of harmful substances by sea where such substances are named, the correct technical name of each such substance shall be used (trade names alone shall not be used) and the substance further identified by the addition of the words “MARINE POLLUTANT”.
- 2 The shipping documents supplied by the shipper shall include, or be accompanied by; a signed certificate or declaration that the shipment offered for carriage is properly packaged and marked, labelled or placarded as appropriate and in proper condition for carriage to minimize the hazard to the marine environment.
- 3 Each ship carrying harmful substances shall have a special list or manifest setting forth the harmful substances on board and the location thereof. A detailed stowage plan which sets out the location of the harmful substances on board may be used in place of such special list or manifest. Copies of such documents shall also be retained on shore by the owner of the ship or his representative until the harmful substances are unloaded. A copy of one of these documents shall be made available before departure to the person or organization designated by the port State authority.
- 4 At any stopover, where any loading or unloading operations, even partial, are carried out, a revision of the documents listing the harmful substances taken on board, indicating their location on board or showing a detailed stowage plan, shall be made available before departure to the person or organization designated by the port State authority.
- 5 When the ship carries a special list or manifest or a detailed stowage plan, required for the carriage of dangerous goods by the International Convention for the Safety of Life at Sea, 1974, as amended, the documents required by this regulation may be combined with those for dangerous goods. Where documents are combined, a clear distinction shall be made between dangerous goods and harmful substances covered by this annex.

Regulation 5

Stowage

Harmful substances shall be properly stowed and secured so as to minimize the hazards to the marine environment without impairing the safety of the ship and persons on board.

* Reference to “documents” in this regulation does not preclude the use of electronic data processing (EDP) and electronic data interchange (EDI) transmission techniques as an aid to paper documentation.

Regulation 6

Quantity limitations

Certain harmful substances may, for sound scientific and technical reasons, need to be prohibited for carriage or be limited as to the quantity which may be carried aboard any one ship. In limiting the quantity, due consideration shall be given to size, construction and equipment of the ship, as well as the packaging and the inherent nature of the substances.

Regulation 7

Exceptions

- 1 Jettisoning of harmful substances carried in packaged form shall be prohibited, except where necessary for the purpose of securing the safety of the ship or saving life at sea.
- 2 Subject to the provisions of the present Convention, appropriate measures based on the physical, chemical and biological properties of harmful substances shall be taken to regulate the washing of leakages overboard, provided that compliance with such measures would not impair the safety of the ship and persons on board.

Regulation 8

*Port State control on operational requirements**

- 1 A ship when in a port or an offshore terminal of another Party is subject to inspection by officers duly authorized by such Party concerning operational requirements under this annex, where there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the prevention of pollution by harmful substances.
- 2 In the circumstances given in paragraph 1 of this regulation, the Party shall take such steps as will ensure that the ship shall not sail until the situation has been brought to order in accordance with the requirements of this annex.
- 3 Procedures relating to the port State control prescribed in Article 5 of the present Convention shall apply to this regulation.
- 4 Nothing in this regulation shall be construed to limit the rights and obligations of a Party carrying out control over operational requirements specifically provided for in the present Convention.

* Refer to the Procedures for port State control adopted by the Organization by resolution A.787(19) and amended by resolution A.882(21).

Appendix to Annex III

CRITERIA FOR THE IDENTIFICATION OF HARMFUL SUBSTANCES IN PACKAGED FORM

For the purposes of this annex, substances identified by any one of the following criteria are harmful substances* :

Category: Acute 1

| | |
|---|--------------------|
| 96 hr LC ₅₀ (for fish) | ≤ 1 mg/l and/or |
| 48 hr EC ₅₀ (for crustacea) | ≤ 1 mg/l and/or |
| 72 or 96 hr ErC ₅₀ (for algae or other aquatic plants) | ≤ 1 mg/l |

Category: Chronic 1

| | |
|---|--------------------|
| 96 hr LC ₅₀ (for fish) | ≤ 1 mg/l and/or |
| 48 hr EC ₅₀ (for crustacea) | ≤ 1 mg/l and/or |
| 72 or 96 hr ErC ₅₀ (for algae or other aquatic plants) | ≤ 1 mg/l |

and the substance is not rapidly degradable and/or the log K_{ow} ≥ 4 (unless the experimentally determined BCF < 500).

Category: Chronic 2

| | |
|---|------------------------|
| 96 hr LC ₅₀ (for fish) | >1 to ≤ 10 mg/l and/or |
| 48 hr EC ₅₀ (for crustacea) | >1 to ≤ 10 mg/l and/or |
| 72 or 96 hr ErC ₅₀ (for algae or other aquatic plants) | >1 to ≤ 10 mg/l |

and the substance is not rapidly degradable and/or the log K_{ow} ≥ 4 (unless the experimentally determined BCF < 500), unless the chronic toxicity NOECs are > 1 mg/l.

* The criteria are based on those developed by the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS), as amended.

For definitions of acronyms or terms used in this appendix, refer to the relevant paragraphs of the IMDG Code.

- 1.1.3** Delete section
- Renumber “**1.1.4**” as “**1.1.3**”
- Renumber “**1.1.4.1**” as “**1.1.3.1**”

Consequential amendments:

- 1.1.3** Replace “Transport of radioactive material” with “Dangerous goods forbidden from transport”
- 1.1.4** Delete
- 2.0.4.2** Replace “1.1.4” with “1.1.3”
- 3.1.2.6** Replace “1.1.4” with “1.1.3”
- 5.1.5.2.3** Replace “1.1.3.4” with “1.5.4”
- 6.4.23.6** Replace “1.1.3.1” with “1.5.3.1”
- 6.4.23.7** Replace “1.1.3.1” with “1.5.3.1”
- 6.4.23.8(d)** Replace “1.1.3.1” with “1.5.3.1”
- 6.4.23.11(i)** Replace “1.1.3.1” with “1.5.3.1”
- 6.4.23.12(r)** Replace “1.1.3.1” with “1.5.3.1”
- 6.4.23.13(l)** Replace “1.1.3.1” with “1.5.3.1”
- 6.4.23.14(t)** Replace “1.1.3.1” with “1.5.3.1”
- 6.4.23.24(1)** Replace “1.1.3.1” with “1.5.3.1”
- 6.4.23.24(2)** Replace “1.1.3.1” with “1.5.3.1”
- 6.4.23.24(3)** Replace “1.1.3.1” with “1.5.3.1”
- 6.4.23.24(4)** Replace “1.1.3.1” with “1.5.3.1”

Chapter 1.2

1.2.1 “Competent authority”

Replace the definition with “Competent authority means any body or authority designated or otherwise recognized as such for any purpose in connection with this Code.”

“Compliance assurance”

Replace “concerning the transport of radioactive material are met in practice; see paragraph 1.1.3.3.2.” with “are met in practice.”

“Freight container”

Delete “For freight containers for the transport of radioactive material, see 2.7.2.”

Insert new paragraph “For freight containers for the transport of radioactive material a freight container may be used as a packaging. A small freight container is that which has either any overall outer dimension less than 1.5 m, or an internal volume of not more than 3 m³. Any other freight container is considered to be a large freight container.”

“GHS”

Replace “first” with “second revised”

Replace “ST/SG/AC.10/30/Rev.1” with “ST/SG/AC.10/30/Rev.2”

“Liquids”

Replace “ECE/TRANS/175” in the footnote with “ECE/TRANS/185 (Sales No. E.06.VIII.1)”

“Packages”

Replace “*Packages*” with “*Package*” in the title

Delete “For packages for radioactive material, see 2.7.2.” after “... prepared for transport”

“Packaging”

Replace the definition with “*Packaging* means one or more receptacles and any other components or materials necessary for the receptacles to perform their containment and other safety functions.”

“Quality assurance”

Delete “For radioactive material, see 1.1.3.3.1”

“Recycled plastics material”

Insert after the definition “**Note:** ISO 16103:2005 “Packaging – Transport packages for dangerous goods - Recycled plastics material”, provides additional guidance on procedures to be followed in approving the use of recycled plastics material.”

Insert new definition “*Animal material* means animal carcasses, animal body parts, or animal foodstuffs;”

Insert new definition “*Approval*”

Multilateral approval, for the transport of class 7 material, means approval by the relevant competent authority of the country of origin of the design or shipment, as applicable, and also, where the consignment is to be transported through or into any other country, approval by the competent authority of that country. The term “through or into” specifically excludes “over”, i.e. the approval and notification requirements shall not apply to a country over which radioactive material is carried in an aircraft, provided that there is no scheduled stop in that country.

Unilateral approval, for the transport of class 7 material, 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.

Insert new definition “*Confinement system*, for the transport of class 7 material, 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.”

Insert new definition “*Containment system*, for the transport of class 7 material, means the assembly of components of the packaging specified by the designer as intended to retain the radioactive material during transport.”

Insert new definition “*Criticality safety index (CSI) assigned to a package, overpack or freight container containing fissile material*, for the transport of class 7 material, means a number which is used to provide control over the accumulation of packages, overpacks or freight containers containing fissile material.”

Insert new definition “*Design*, for the transport of class 7 material, 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.”

Insert new definition “*Exclusive use*, for the transport of class 7 material, means the sole use, by a single consignor, of a conveyance or of a large freight 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.”

Insert new definition “*Maximum normal operating pressure*, for the transport of class 7 material, 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 transport.”

Insert new definition “*Radiation level*, for the transport of class 7 material, means the corresponding dose rate expressed in millisieverts per hour.”

Insert new definition “*Radioactive contents*, for the transport of class 7 material, mean the radioactive material together with any contaminated or activated solids, liquids, and gases within the packaging.”

Insert new definition “*Transport index (TI) assigned to a package, overpack or freight container, or to unpackaged LSA-I or SCO-I*, for the transport of class 7 material, means a number which is used to provide control over radiation exposure.”

1.2.2.2 Replace “Whenever the word “weight” is used, it means “mass”.” with “(Reserved)”.

1.2.3 Delete “GESAMP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (IMO/FAO/UNESCOIOC/WMO/WHO/IAEA/UN/UNEP)”.

Chapter 1.3

1.3.0 Replace “this chapter remain recommendatory.” with “paragraphs 1.3.1.4 to 1.3.1.7 remain recommendatory.”

1.3.1.1 Replace “should” with “shall”

Insert second paragraph “Entities engaging shore-based personnel in such activities shall determine which staff will be trained, what levels of training they require and the training methods used to enable them to comply with the provisions of the IMDG Code. This training shall be provided or verified upon employment in a position involving dangerous goods transport. For personnel who have not yet received the required training, the entities shall ensure that those personnel may only perform functions under the direct supervision of a trained person. The training shall be periodically supplemented with refresher training to take account of changes in regulations and practice. The competent authority, or its authorized body, may audit the entity to verify the effectiveness of the system in place, in providing training of staff commensurate with their role and responsibilities in the transport chain.”

1.3.1.2 Replace “pack dangerous goods in packages” with “pack dangerous goods”

Replace “pack/unpack CTUs” with “load/unload Cargo Transport Units”

Replace “should” with “shall”

1.3.1.2.1.1 Replace “should” with “shall”

1.3.1.2.1.2 Replace “should” with “shall”

1.3.1.2.2 Replace “should” with “shall”

Insert “An indicative list for guidance purposes only of some of the functions typically found in dangerous goods transport operations by sea and training requirements is given in paragraph 1.3.1.6.”

1.3.1.2.3 Delete paragraph

1.3.1.3 Replace paragraph with “Details of all the training undertaken shall be kept by both the employer and the employee. Training records shall be made available to the competent authority if requested.”

1.3.1.4 Replace paragraph with “*Safety training*: Commensurate with the risk of exposure in the event of a release and the functions performed, each person should receive training on:

- .1 methods and procedures for accident avoidance, such as proper use of package-handling equipment and appropriate methods of stowage of dangerous goods;
- .2 available emergency response information and how to use it;
- .3 general dangers presented by the various classes of dangerous goods and how to prevent exposure to those hazards, including, if appropriate, the use of personal protective clothing and equipment; and
- .4 immediate procedures to be followed in the event of an unintentional release of dangerous goods, including any emergency response procedures for which the person is responsible and personal protection procedures to be followed.”

1.3.1.5 Insert new paragraph before the table “The following indicative table is for information purposes only as every entity is arranged differently and may have varied roles and responsibilities within that entity.”

Delete “in packages” in line 2 – Function

Insert “and excepted quantities” after “limited quantities” in line 2 – Specific training requirements

Insert “and excepted quantities” after “limited quantities” in line 3 – Specific training requirements

Replace “Pack/unpack” with “Load/unload” in line 4 – Function

1.3.1.6 Replace title with “Indicative table describing sections of the IMDG Code or other relevant instruments that may be appropriate to be considered in any training for the transport of dangerous goods”

Replace “Guidelines for Packing Cargo Transport Units” with “Guidelines for Packing of Cargo Transport Units”

Replace “Pack/unpack” with “Load/unload” in line 4 – Function

Remarks: Insert “.” after “apply”

1.3.1.7 Insert “which may be appropriate” after “publications”

1.3.1.7.10 Replace “The Recommendations on the Safe Use of Pesticides in Ships, as amended” with “MSC/Circ. [...] Recommendations on the safe use of pesticides in ships applicable to the fumigation of cargo transport units”

Chapter 1.4

1.4.3.1 Insert “Class 1 Division 1.4. UN Nos. 0104, 0237, 0255, 0267, 0289, 0361, 0365, 0366, 0440, 0441, 0455, 0456 and 0500” after “Class 1 Division 1.3 compatibility group C explosives”

Class 5.1 Replace “and ammonium nitrate fertilizers” with “, ammonium nitrate fertilizers and ammonium nitrate emulsions or suspensions or gels”

Chapter 1.5

Insert new **Chapter 1.5:**

“Chapter 1.5

General provisions concerning class 7

1.5.1 Scope and application

1.5.1.1 The provisions of this Code establish 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 transport of radioactive material. These provisions are based on the IAEA Regulations for the Safe Transport of Radioactive Material (2005 Edition), Safety Standards Series No. TS-R-1, IAEA, Vienna (2005). Explanatory material on the 1996 edition of TS-R-1 can be found in “Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material¹”, Safety Standard Series No. TS-G-1.1 (ST-2), IAEA, Vienna (2002).

1.5.1.2 The objective of the provisions of this Code is to protect persons, property and the environment from the effects of radiation during the transport of radioactive material. This protection is achieved by requiring:

¹ A revised edition containing explanatory material on the 2005 edition of TS-R-1 is likely to be published by IAEA in 2008.

- .1 Containment of the radioactive contents;
- .2 Control of external radiation levels;
- .3 Prevention of criticality; and
- .4 Prevention of damage caused by heat.

These provisions are satisfied firstly by applying a graded approach to contents limits for packages and conveyances 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.

1.5.1.3

The provisions of this Code apply to the transport of radioactive material by sea including transport which is incidental to the use of the radioactive material. Transport 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, transport 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 the provisions of this Code that is characterized by three general severity levels:

- .1 Routine conditions of transport (incident free);
- .2 Normal conditions of transport (minor mishaps); and
- .3 Accident conditions of transport.

1.5.1.4

The provisions of this Code shall not apply to:

- .1 Radioactive material that is an integral part of the means of transport;
- .2 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;
- .3 Radioactive material implanted or incorporated into a person or live animal for diagnosis or treatment;
- .4 Radioactive material in consumer products which have received regulatory approval, following their sale to the end user;

- .5 Natural material and ores containing naturally occurring radionuclides which are either in their natural state, or have only been processed for purposes other than for extraction of the radionuclides, and 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 2.7.2.2.1.2, or calculated in accordance with 2.7.2.2.2 to 2.7.2.2.6; and
- .6 Non-radioactive solid objects with radioactive substances present on any surfaces in quantities not in excess of the limit set out in the definition for “contamination” in 2.7.1.2.

1.5.1.5 Specific provisions for the transport of excepted packages

1.5.1.5.1 Excepted packages which may contain radioactive material in limited quantities, instruments, manufactured articles and empty packagings as specified in 2.7.2.4.1 may be transported under the following conditions:

- .1 The applicable provisions specified in 2.0.3.5, 2.7.2.4.1.2 to 2.7.2.4.1.6 (as applicable), 4.1.9.1.2, 5.2.1.1, 5.2.1.2, 5.2.1.5.1 to 5.2.1.5.3, 5.4.1.4.1.1 and 7.3.4.2;
- .2 The provisions for excepted packages specified in 6.4.4; and
- .3 If the excepted package contains fissile material, one of the fissile exceptions provided by 2.7.2.3.5 shall apply and the provision of 6.4.7.2 shall be met.

1.5.1.5.2 The following provisions shall not apply to excepted packages and the controls for transport of excepted packages: 1.4.2, 1.4.3, 2.7.2.3.3.1.1, 2.7.2.3.3.2, 4.1.9.1.3, 4.1.9.1.4, 4.1.9.1.6, 4.1.9.1.7, 5.1.3.2, 5.2.2.1.12.1, 5.4.1.5.7.1, 5.4.1.5.7.2, 5.4.1.6, 6.4.6.1, 7.1.14.11 to 7.1.14.14, 7.2.9.1, 7.2.9.2, 7.2.1 and 7.3.4.1.

1.5.2 **Radiation protection programme**

1.5.2.1 The transport 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.

1.5.2.2 Doses to persons shall be below the relevant dose limits. 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, within the restrictions that the doses to individual be subject to dose constraints. A structured and systematic approach shall be adopted and shall include consideration of the interfaces between transport and other activities.

1.5.2.3 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 provisions in 1.5.2.2, 1.5.2.4 to 1.5.2.7. Programme documents shall be available, on request, for inspection by the relevant competent authority.

1.5.2.4 For occupational exposures arising from transport activities, where it is assessed that the effective dose:

- .1 is likely to be between 1 and 6 mSv in a year, a dose assessment programme via workplace monitoring or individual monitoring shall be conducted;
- .2 is likely to exceed 6 mSv in a year, individual monitoring shall be conducted.

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

Note: For occupational exposures arising from transport activities, where it is assessed that the effective dose is most unlikely to exceed 1 mSv in a year, no special work patterns, detailed monitoring, dose assessment programmes or individual record keeping need be required.

1.5.3 Quality assurance

1.5.3.1 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 transport and in-transit storage operations to ensure compliance with the relevant provisions of this Code. 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:

- .1 the manufacturing methods and materials used are in accordance with the approved design specifications; and
- .2 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.

1.5.4 Special arrangement

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

1.5.4.2 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 this Code is impracticable and that the requisite standards of safety established by this Code 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 transport shall be at least equivalent to that which would be provided if all the applicable provisions had been met. For international consignments of this type, multilateral approval shall be required.

1.5.5 Radioactive material possessing other dangerous properties

1.5.5.1 In addition to the radioactive and fissile properties, any subsidiary risk of the contents of a 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 transport, in order to be in compliance with all relevant provisions for dangerous goods. (See also special provision 172 and, for excepted packages, special provision 290.)

1.5.6 Non-compliance

1.5.6.1 In the event of a non-compliance with any limit in the provisions of this Code applicable to radiation level or contamination,

- .1 The consignor shall be informed of the non-compliance
 - (i) by the carrier if the non-compliance is identified during transport; or
 - (ii) by the consignee if the non-compliance is identified at receipt;
- .2 The carrier, consignor or consignee, as appropriate, shall:
 - (i) take immediate steps to mitigate the consequences of the non-compliance;

- (ii) investigate the non-compliance and its causes, circumstances and consequences;
 - (iii) take appropriate action to remedy the causes and circumstances that led to the non-compliance and to prevent a recurrence of similar circumstances that led to the non-compliance; and
 - (iv) communicate to the relevant competent authority(ies) on the causes of the non-compliance and on corrective or preventive actions taken or to be taken; and
- .3 The communication of the non-compliance to the consignor and relevant competent authority(ies), respectively, shall be made as soon as practicable and it shall be immediate whenever an emergency exposure situation has developed or is developing.”

Consequential amendments:

Contents Page:

Chapter 1.5 Insert “**Chapter 1.5 General provisions concerning class 7**

- 1.5.1 Scope and application
- 1.5.2 Radiation protection program
- 1.5.3 Quality assurance
- 1.5.4 Special arrangement
- 1.5.5 Radioactive material possessing other dangerous properties
- 1.5.6 Non-compliance”

PART 2

Chapter 2.0

- 2.0.1.1** Insert “solid” before “desensitized explosives” for Class 4.1
- 2.0.1.2.1** Replace paragraph with “Many of the substances assigned to classes 1 to 9 are deemed as being marine pollutants (see chapter 2.10).”
- 2.0.1.7** Replace paragraph with “Known marine pollutants are noted in the Dangerous Goods List and are indicated in the Index.”
- 2.0.4.1** Replace “GAS SAMPLE, NON-PRESSURIZED, FLAMMABLE, UN 3167” with “UN 3167, GAS SAMPLE, NON-PRESSURIZED, FLAMMABLE”

Chapter 2.1

2.1.3.5.5 Replace “Division de risque” with “Classification” (French)

Replace **Note 2** with “**Note 2:** “Flash composition” in this table refers to pyrotechnic compositions in powder form or as pyrotechnic units as presented in the fireworks, that are used to produce an aural effect, or used as a bursting charge or lifting charge, unless the time taken for the pressure rise is demonstrated to be more than 8 ms for 0.5 g of pyrotechnic composition in Test Series 2(c) (i) “Time/pressure test” of the UN Manual of Tests and Criteria.”

In the table against “Shell, spherical or cylindrical/Preloaded mortar, shell in mortar” insert new third entry:

| <i>Specification</i> | <i>Classification</i> |
|---|-----------------------|
| colour shell: > 25% flash composition as loose powder and/or report effects | 1.1G |

Chapter 2.2

2.2.2.2.2 Insert “. The oxidizing ability shall be determined by tests or by calculation in accordance with methods adopted by ISO (see ISO 10156:1996 and ISO 10156-2:2005)” after “... more than air does”

2.2.2.5 Replace paragraph with “Gases of class 2.2 are not subject to the provisions of this Code if they are transported at a pressure of less than 200 kPa at 20°C and are not liquefied or refrigerated liquefied gases.”

2.2.3.4 Insert “(see ISO 10156:1996 and ISO 10156-2:2005)” after “... Organization for Standardization”

Chapter 2.3

2.3.2.5 Replace “are not toxic or corrosive;” with “are not toxic, corrosive or environmentally hazardous;”

Chapter 2.4

2.4.2.3.2.4 Insert “the United Nations” before “*Manual of Tests and Criteria*”

2.4.2.4.1.1 Replace “and UN 3380” with “, UN 3380 and UN 3474”

Chapter 2.5

In the table amend the entries listed below as follows:

2.5.3.2.4

| Number (generic entry) | Organic peroxide | | Column | Amendment |
|---|---|---------------------------|------------------|---|
| Move this entry from UN 3101 to UN 3105 | tert-AMYL PEROXY-3,5,5-TRIMETHYLHEXANOATE | As fourth entry | Packing method | Replace “OP5” with “OP7” |
| UN 3103 | 1,6-DI-(tert-BUTYLPEROXYCARBONYLOXY)-HEXANE | | Concentration | Replace “<72” with “≤ 72” |
| UN 3107 | tert-BUTYLHYDROPROXIDE | (English only) | Organic Peroxide | Insert a space between the words “BUTYL” and “HYDROPE ROXIDE” |
| UN 3107 | DI-tert-AMYLPEROXIDE | (English only) | Organic Peroxide | Insert a space between the words “AMYL” and “PEROXIDE” |
| UN 3108 | “n-BUTYL-DI-(BUTYLPEROXY) VALERATE” | (English and French only) | Organic Peroxide | Insert “tert-” before “BUTYLPEROXY) VALERATE” |

| Number (generic entry) | Organic peroxide | | Column | Amendment |
|---|---|----------------|------------------|--|
| UN 3109 | 2,5-DIMETHYL-2,5-DI(<i>tert</i> -BUTYLPEROXY)-HEXANE | | Diluent type B | Move “≥48” from ‘Diluent type B’ to ‘Diluent type A’ |
| UN 3110 | DICUMYL PEROXIDE (<i>Concentration > 52-100</i>) | | Inert solid | Delete “≤ 48” |
| UN 3115 | DIACETYLPEROXIDE | (English only) | Organic Peroxide | Insert space between “DIACETYL” and “PEROXIDE” |
| Move this entry from UN 3117 to UN 3119 | DI-(2-ETHYLHEXYL) PEROXYDICARBONATE (<i>Concentration ≤ 62 as a stable dispersion in water</i>) | | Number | |
| UN 3117 | 1,1-DIMETHYL-3-HYEROXYBUTYLPEROXYNEOHEPTANOATE | (English Only) | Organic Peroxide | Insert space between “HYEROXY BUTYL” and “PEROXYNE OHEPTANO ATE” |
| UN 3119 | DI-(2-ETHYLHEXYL) PEROXYDICARBONATE (<i>Concentration ≤ 52 as a stable dispersion in water</i>) | | | Delete the entry |

Note 8 Replace “≤ 0.7%” with “≤ 10.7%” (English only)

Insert new entries:

| Number (generic entry) | Organic peroxide | Concentration (%) | Diluent type A (%) | Diluent type B (%) | Insert solid (%) | Water (%) | Packing method | Control temperature (°C) | Emergency temperature (°C) | Subsidiary risks and remarks |
|------------------------|--|-------------------|--------------------|--------------------|------------------|-----------|----------------|--------------------------|----------------------------|------------------------------|
| 3119 | tert-AMYL PEROXYNEODECANOATE | ≤ 47 | ≥ 53 | | | | OP8 | 0 | + 10 | |
| 3106 | tert-BUTYL PEROXY 3,5,5-TRIMETHYLHEXANOATE | ≤ 42 | | | ≥ 58 | | OP7 | | | |
| 3115 | CUMYL PEROXYNEO-DECANOATE | ≤ 87 | ≥ 13 | | | | OP7 | - 10 | 0 | |
| 3105 | 2,2-DI-(tert-AMYLPEROXY)-BUTANE | ≤ 57 | ≥ 43 | | | | OP7 | | | |
| 3103 | 1,1-DI-(tert-BUTYLPEROXY)-CYCLOHEXANE | ≤ 72 | | ≥ 28 | | | OP5 | | | 30) |
| 3105 | 1,1-DI-(tert-BUTYLPEROXY)-CYCLOHEXANE + tert-BUTYL PEROXY-2-ETHYLHEXANOATE | ≤ 43 + ≤ 16 | ≥ 41 | | | | OP 7 | | | |
| 3103 | 1,1-DI-(tert-BUTYLPEROXY)-3,3,5-TRIMETHYLCYCLOHEXANE | ≤ 90 | | ≥ 10 | | | OP5 | | | 30) |
| 3118 | DI-2,4-DICHLOROBENZOYL PEROXIDE | ≤ 52 as a paste | | | | | OP8 | + 20 | + 25 | |
| 3115 | 3-HYDROXY-1,1-DIMETHYLBUTYL PEROXYNEODECANOATE | ≤ 77 | ≥ 23 | | | | OP 7 | - 5 | + 5 | |

| Number (generic entry) | Organic peroxide | Concentration (%) | Diluent type A (%) | Diluent type B (%) | Insert solid (%) | Water (%) | Packing method | Control temperature (°C) | Emergency temperature (°C) | Subsidiary risks and remarks |
|------------------------------|--|--------------------------------------|--------------------------|--------------------------|------------------------|--------------|-------------------|--------------------------------|----------------------------------|------------------------------------|
| 3119 | 3-HYDROXY-1,1-DIMETHYLBUTYL PEROXYNEODECANOATE | ≤ 52 as a stable dispersion in water | | | | | OP 8 | - 5 | + 5 | |
| 3117 | 3-HYDROXY-1,1-DIMETHYLBUTYL PEROXYNEODECANOATE | ≤ 52 | ≥ 48 | | | | OP 8 | - 5 | + 5 | |
| 3109 | METHYL ISOPROPYL KETONE PEROXIDE(S) | See remark 31) | ≥ 70 | | | | OP8 | | | 31) |
| 3107 | 3,3,5,7,7-PENTAMETHYL-1,2,4-TRIOXEPANE | ≤ 100 | | | | | OP8 | | | |

After the table:

Insert “(30) Diluent type B with boiling point > 130°C”

Insert “(31) Active oxygen ≤ 6.7%.”

Chapter 2.6

2.6.2.1.1 Replace “...for acute oral toxicity...” with “...*for acute oral toxicity*...” (English only)

2.6.2.2.3.1 In the second sentence, replace “exhibit” with “exhibits” (English only)

2.6.3.2.3.6

Note: Renumber as **Note 1**

Insert “in the absence of any concern for infection (e.g., evaluation of vaccine induced immunity, diagnosis of autoimmune disease, etc.)” after “antibody detection in humans or animals”

2.6.3.5.2 Insert “For the assignment, international, regional or national waste catalogues may be taken into account.” after “... substances shall be assigned to UN 3291”

2.6.3.6.2 Replace “Animal carcasses affected by pathogens of category A” with “Animal material affected by pathogens of Category A. Animal material affected by pathogens of Category B other than those which would be assigned to Category A if they were in cultures shall be assigned to UN 3373.”

Delete “Other animal carcasses affected by pathogens included in Category B shall be transported in accordance with provisions determined by the competent authority.”

Chapter 2.7

Replace chapter 2.7 with:

“Chapter 2.7

Class 7 – Radioactive material

Note: For class 7, the type of packaging may have a decisive effect on classification.

2.7.1 Definitions

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 2.7.2.2.1 to 2.7.2.2.6.

2.7.1.2 Contamination

Contamination means the presence of a radioactive substance on a surface in quantities in excess of 0.4 Bq/cm² for beta and gamma emitters and low toxicity alpha emitters, or 0.04 Bq/cm² for all other alpha emitters.

Non-fixed contamination means contamination that can be removed from a surface during routine conditions of transport.

Fixed contamination means contamination other than non-fixed contamination.

2.7.1.3 Definitions of specific terms

A_1 and A_2

A_1 means the activity value of special form radioactive material which is listed in the Table in 2.7.2.2.1 or derived in 2.7.2.2.2 and is used to determine the activity limits for the provisions of this Code.

A_2 means the activity value of radioactive material, other than special form radioactive material, which is listed in the Table in 2.7.2.2.1 or derived in 2.7.2.2.2 and is used to determine the activity limits for the provisions of this Code.

Fissile material means uranium-233, uranium-235, plutonium-239, plutonium-241, or any combination of these radionuclides. Excepted from this definition is:

- .1 Natural uranium or depleted uranium which is unirradiated; and
- .2 Natural uranium or depleted uranium which has been irradiated in thermal reactors only.

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.

Low specific activity (LSA) material means radioactive material which by its nature has a limited specific activity, or radioactive material for which limits of estimated average specific activity apply. External shielding materials surrounding the LSA material shall not be considered in determining the estimated average specific activity.

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.

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 of the material in which the radionuclides are essentially uniformly distributed.

Special form radioactive material means either:

- .1 An indispensible solid radioactive material; or
- .2 A sealed capsule containing radioactive material.

Surface contaminated object (SCO) means a solid object which is not itself radioactive but which has radioactive material distributed on its surfaces.

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 2×10^3 Bq of plutonium per gram of uranium-235, not more than 9×10^6 Bq of fission products per gram of uranium-235 and not more than 5×10^{-3} g of uranium-236 per gram of uranium-235.

Uranium – natural, depleted, enriched means the following:

Natural uranium means uranium (which may be chemically separated) 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.

2.7.2 Classification

2.7.2.1 General provisions

2.7.2.1.1 Radioactive material shall be assigned to one of the UN number specified in Table 2.7.2.1.1 depending on the activity level of the radionuclides contained in a package, the fissile or non-fissile properties of these radionuclides, the type of package to be presented for transport, and the nature or form of the contents of the package, or special arrangements governing the transport operation, in accordance with the provisions laid down in 2.7.2.2 to 2.7.2.5.

| Table 2.7.2.1.1 Assignment of UN numbers | |
|--|--|
| Excepted packages (1.5.1.5) | |
| UN 2908 | RADIOACTIVE MATERIAL, EXCEPTED PACKAGE – EMPTY PACKAGING |
| UN 2909 | RADIOACTIVE MATERIAL, EXCEPTED PACKAGE – ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM |
| UN 2910 | RADIOACTIVE MATERIAL, EXCEPTED PACKAGE – LIMITED QUANTITY OF MATERIAL |
| UN 2911 | RADIOACTIVE MATERIAL, EXCEPTED PACKAGE – INSTRUMENTS or ARTICLES |
| Low specific activity radioactive material (2.7.2.3.1) | |
| UN 2912 | RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non-fissile or fissile-excepted |
| UN 3321 | RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), non fissile or fissile-excepted |
| UN 3322 | RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-III), non fissile or fissile-excepted |
| UN 3324 | RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), FISSILE |
| UN 3325 | RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY, (LSA-III), FISSILE |
| Surface contaminated objects (2.7.2.3.2) | |
| UN 2913 | RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non-fissile or fissile-excepted |
| UN 3326 | RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), FISSILE |
| Type A packages (2.7.2.4.4) | |
| UN 2915 | RADIOACTIVE MATERIAL, TYPE A PACKAGE, non-special form, non-fissile or fissile-excepted |
| UN 3327 | RADIOACTIVE MATERIAL, TYPE A PACKAGE, FISSILE, non-special form |
| UN 3332 | RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, non fissile or fissile-excepted |
| UN 3333 | RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, FISSILE |
| Type B(U) package (2.7.2.4.6) | |
| UN 2916 | RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, non-fissile or fissile-excepted |
| UN 3328 | RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, FISSILE |

| Table 2.7.2.1.1 Assignment of UN numbers | |
|---|---|
| Type B(M) package (2.7.2.4.6) | <p>UN 2917 RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, non-fissile or fissile-excepted</p> <p>UN 3329 RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, FISSILE</p> |
| Type C package (2.7.2.4.6) | <p>UN 3323 RADIOACTIVE MATERIAL, TYPE C PACKAGE, non fissile or fissile-excepted</p> <p>UN 3330 RADIOACTIVE MATERIAL, TYPE C PACKAGE, FISSILE</p> |
| Special arrangement (2.7.2.5) | <p>UN 2919 RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, non-fissile or fissile-excepted</p> <p>UN 3331 RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, FISSILE</p> |
| Uranium hexafluoride (2.7.2.4.5) | <p>UN 2977 RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE</p> <p>UN 2978 RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non-fissile or fissile-excepted</p> |

2.7.2.2 *Determination of activity level*

2.7.2.2.1 The following basic values for individual radionuclides are given in Table 2.7.2.2.1:

- .1 A_1 and A_2 in TBq;
- .2 Activity concentration for exempt material in Bq/g; and
- .3 Activity limits for exempt consignments in Bq.

Table 2.7.2.2.1: Basic radionuclides values for individual radionuclides

Insert existing Table 2.7.7.2.1 with footnotes (a) – (g)

2.7.2.2.2 For individual radionuclides which are not listed in Table 2.7.2.2.1 the determination of the basic radionuclide values referred to in 2.7.2.2.1 shall require multilateral approval. It is permissible to use an A_2 value calculated using a dose coefficient for the appropriate lung absorption type as recommended by the International Commission on Radiological Protection, if the chemical forms of each radionuclide under both normal and accident conditions of transport are taken into consideration. Alternatively, the radionuclide values in Table 2.7.2.2.2 may be used without obtaining competent authority approval.

Table 2.7.2.2.2: Basic radionuclide values for unknown radionuclides or mixtures

| Radioactive contents | A ₁ | A ₂ | Activity concentration for exempt material | Activity limit for exempt consignments |
|---|----------------|----------------------|--|--|
| | (TBq) | (TBq) | (Bq/g) | (Bq) |
| Only beta or gamma emitting nuclides are known to be present | 0.1 | 0.02 | 1 × 10 ¹ | 1 × 10 ⁴ |
| Alpha emitting nuclides but no neutron emitters are known to be present | 0.2 | 9 × 10 ⁻⁵ | 1 × 10 ⁻¹ | 1 × 10 ³ |
| Neutron emitting nuclides are known to be present or no relevant data are available | 0.001 | 9 × 10 ⁻⁵ | 1 × 10 ⁻¹ | 1 × 10 ³ |

2.7.2.2.3 In the calculations of A₁ and A₂ for a radionuclide not in Table 2.7.2.2.1, 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 A₁ or A₂ 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.

2.7.2.2.4 For mixtures of radionuclides, the determination of the basic radionuclide values referred to in 2.7.2.2.1 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 A₁ or A₂, or the activity concentration for exempt material or the activity limit for an exempt consignment as appropriate for the radionuclide i; and
- X_m is the derived value of A₁ or A₂, or the activity concentration for exempt material or the activity limit for an exempt consignment in the case of a mixture.

2.7.2.2.5 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 formulae in 2.7.2.2.4 and 2.7.2.4.4. 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.

2.7.2.2.6 For individual radionuclides or for mixtures of radionuclides for which relevant data are not available, the values shown in Table 2.7.2.2.2 shall be used.

2.7.2.3 Determination of other material characteristics

2.7.2.3.1 *Low specific activity (LSA) material*

2.7.2.3.1.1 (Reserved)

2.7.2.3.1.2 LSA material shall be in one of three groups:

.1 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) Natural uranium, depleted uranium, natural thorium or their compounds or mixtures, providing they are unirradiated and in solid or liquid form;
- (iii) radioactive material for which the A_2 value is unlimited, excluding material classified as fissile according to 2.7.2.3.5; 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 2.7.2.2.1 to 2.7.2.2.6, excluding material classified as fissile according to 2.7.2.3.5;

.2 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} A₂/g for solids and gases, and 10^{-5} A₂/g for liquids;

- .3 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 A₂; and
 - (iii) the estimated average specific activity of the solid, excluding any shielding material, does not exceed 2×10^{-3} A₂/g.

2.7.2.3.1.3 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 2.7.2.3.1.4 the activity in the water would not exceed 0.1 A₂.

2.7.2.3.1.4 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.

2.7.2.3.1.5 Demonstration of compliance with the performance standards in 2.7.2.3.1.4 shall be in accordance with 6.4.12.1 and 6.4.12.2.

2.7.2.3.2 *Surface contaminated object (SCO)*

SCO is classified in one of two groups:

- .1 SCO-I: A solid object on which:
- (i) the non-fixed contamination on the accessible surface averaged over 300 cm² (or the area of the surface if less than 300 cm²) does not exceed 4 Bq/cm² for beta and gamma emitters and low toxicity alpha emitters, or 0.4 Bq/cm² for all other alpha emitters;

- (ii) the fixed contamination on the accessible surface averaged over 300 cm^2 (or the area of the surface if less than 300 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; and
 - (iii) the non-fixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm^2 (or the area of the surface if less than 300 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;
- .2 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 2.7.2.3.2.1 above and on which:
- (i) the non-fixed contamination on the accessible surface averaged over 300 cm^2 (or the area of the surface if less than 300 cm^2) does not exceed 400 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters, or 40 Bq/cm^2 for all other alpha emitters;
 - (ii) the fixed contamination on the accessible surface, averaged over 300 cm^2 (or the area of the surface if less than 300 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 cm^2 (or the area of the surface if less than 300 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.

2.7.2.3.3 *Special form radioactive material*

2.7.2.3.3.1

- .1 Special form radioactive material shall have at least one dimension not less than 5 mm.
- .2 When a sealed capsule constitutes part of the special form radioactive material, the capsule shall be so manufactured that it can be opened only by destroying it.
- .3 The design for special form radioactive material requires unilateral approval.

- 2.7.2.3.3.2** 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 2.7.2.3.3.4 to 2.7.2.3.3.8, it shall meet the following requirements:
- .1 It would not break or shatter under the impact, percussion and bending tests 2.7.2.3.3.5.1, 2.7.2.3.3.5.2, 2.7.2.3.3.5.3, or 2.7.2.3.3.6.1 as applicable;
 - .2 It would not melt or disperse in the applicable heat test 2.7.2.3.3.5.4 or 2.7.2.3.3.6.2 as applicable; and
 - .3 The activity in the water from the leaching tests specified in 2.7.2.3.3.7 and 2.7.2.3.3.8 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.
- 2.7.2.3.3.3** Demonstration of compliance with the performance standards in 2.7.2.3.3.2 shall be in accordance with 6.4.12.1 and 6.4.12.2.
- 2.7.2.3.3.4** 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 2.7.2.3.3.5 or alternative tests as authorized in 2.7.2.3.3.6. 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 2.7.2.3.3.7 for indispersible solid material or 2.7.2.3.3.8 for encapsulated material.
- 2.7.2.3.3.5** The relevant test methods are:
- .1 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;
 - .2 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 ± 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;

- .3 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 ± 0.3) mm;
- .4 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.

2.7.2.3.3.6 Specimens that comprise or simulate radioactive material enclosed in a sealed capsule may be excepted from:

- .1 The tests prescribed in 2.7.2.3.3.5.1 and 2.7.2.3.3.5.2 provided the mass of the special form radioactive material:
 - (i) is less than 200 g and they are alternatively subjected to the class 4 impact test prescribed in ISO 2919:1999 “Radiation protection – Sealed radioactive sources – General requirements and classification”; or
 - (ii) is less than 500 g and they are alternatively subjected to the class 5 impact test prescribed in ISO 2919:1999 “Radiation protection – Sealed radioactive sources – General requirements and classification”; and
- .2 The test prescribed in 2.7.2.3.3.5.4 provided they are alternatively subjected to the class 6 temperature test specified in ISO 2919:1999 “Radiation protection – Sealed radioactive sources – General requirements and classification”.

2.7.2.3.3.7 For specimens which comprise or simulate indispersible solid material, a leaching assessment shall be performed as follows:

- .1 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;

- .2 The water with specimen shall then be heated to a temperature of (50 ± 5) °C and maintained at this temperature for 4 hours;
- .3 The activity of the water shall then be determined;
- .4 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%;
- .5 The specimen shall then be immersed in water of the same specification as in 2.7.2.3.3.7.1 above and the water with the specimen heated to (50 ± 5) °C and maintained at this temperature for 4 hours;
- .6 The activity of the water shall then be determined.

2.7.2.3.3.8 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:

- .1 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 ± 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.
- .2 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.

2.7.2.3.4 *Low dispersible material*

2.7.2.3.4.1 The design for low dispersible radioactive material shall require multilateral approval. Low dispersible radioactive material shall be such that the total amount of this radioactive material in a package shall meet the following provisions:

- .1 The radiation level at 3 m from the unshielded radioactive material does not exceed 10 mSv/h;
- .2 If subjected to the tests specified in 6.4.20.3 and 6.4.20.4, the airborne release in gaseous and particulate forms of up to 100 µm aerodynamic equivalent diameter would not exceed 100 A₂. A separate specimen may be used for each test; and
- .3 If subjected to the test specified in 2.7.2.3.1.4 the activity in the water would not exceed 100 A₂. In the application of this test, the damaging effects of the tests specified in 2.7.2.3.4.1.2 above shall be taken into account.

2.7.2.3.4.2 Low dispersible material shall be tested as follows:

A specimen that comprises or simulates low dispersible radioactive material shall be subjected to the enhanced thermal test specified in 6.4.20.3 and the impact test specified in 6.4.20.4. A different specimen may be used for each of the tests. Following each test, the specimen shall be subjected to the leach test specified in 2.7.2.3.1.4. After each test it shall be determined if the applicable provisions of 2.7.2.3.4.1 have been met.

2.7.2.3.4.3 Demonstration of compliance with the performance standards in 2.7.2.3.4.1 and 2.7.2.3.4.2 shall be in accordance with 6.4.12.1 and 6.4.12.2.

2.7.2.3.5 *Fissile material*

Packages containing fissile radionuclides shall be classified under the relevant entry of table 2.7.2.1.1 for fissile material unless one of the conditions .1 to .4 of this paragraph is met. Only one type of exception is allowed per consignment.

- .1 A mass limit per consignment such that:

$$\frac{\text{mass of uranium - 235 (g)}}{X} + \frac{\text{mass of other fissile material (g)}}{Y} < 1$$

where X and Y are the mass limits defined in Table 2.7.2.3.5, provided that the smallest external dimension of each package is not less than 10 cm and 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 conveyance; 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 are 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 1% of the applicable consignment mass limits provided in Table 2.7.2.3.5, except for deuterium in natural concentration in hydrogen.

- .2 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;
- .3 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;
- .4 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 2.7.2.3.5: 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 |

2.7.2.4 Classification of packages or unpacked material

The quantity of radioactive material in a package shall not exceed the relevant limits for the package type as specified below.

2.7.2.4.1 Classification as excepted package

2.7.2.4.1.1 Packages may be classified as excepted packages if:

- .1 They are empty packagings having contained radioactive material;
- .2 They contain instruments or articles in limited quantities;
- .3 They contain articles manufactured of natural uranium, depleted uranium or natural thorium; or
- .4 They contain radioactive material in limited quantities.

2.7.2.4.1.2 A package containing radioactive material may be classified as an excepted package provided that the radiation level at any point on its external surface does not exceed 5 $\mu\text{Sv/h}$.

Table 2.7.2.4.1.2: Activity limits for excepted packages

| Physical state of contents | Instruments or article | | Materials Package limits ^a |
|----------------------------|--------------------------|-----------------------------|--|
| | Item limits ^a | Package limits ^a | |
| (1) | (2) | (3) | (4) |
| Solids | | | |
| special form | $10^{-2} A_1$ | A_1 | $10^{-3} A_1$ |
| other form | $10^{-2} A_2$ | A_2 | $10^{-3} A_2$ |
| Liquids | $10^{-3} A_2$ | $10^{-1} A_2$ | $10^{-4} A_2$ |
| Gases | | | |
| 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 | $10^{-3} A_2$ | $10^{-2} A_2$ | $10^{-3} A_2$ |

^a For mixtures of radionuclides, see 2.7.2.2.4 to 2.7.2.2.6.

2.7.2.4.1.3 Radioactive material which is enclosed in or is included as a component part of an instrument or other manufactured article may be classified under UN 2911, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE – INSTRUMENTS or ARTICLES provided that:

- .1 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
- .2 each instrument or manufactured article bears the marking “RADIOACTIVE” except:

- (i) radioluminescent time-pieces or devices;
 - (ii) consumer products that either have received regulatory approval according to 1.5.1.4.4 or do not individually exceed the activity limit for an exempt consignment in Table 2.7.2.2.1 (column 5), provided such products are transported in a package that bears the marking “RADIOACTIVE” on an internal surface in such a manner that warning of the presence of radioactive material is visible on opening the package; and
- .3 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); and
 - .4 the limits specified in columns 2 and 3 of Table 2.7.2.4.1.2 are met for each individual item and each package, respectively.

2.7.2.4.1.4 Radioactive material with an activity not exceeding the limit specified in column 4 of Table 2.7.2.4.1.2, may be classified under UN 2910, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE – LIMITED QUANTITY OF MATERIAL provided that:

- .1 the package retains its radioactive contents under routine conditions of transport; and
- .2 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.

2.7.2.4.1.5 An empty packaging which had previously contained radioactive material with an activity not exceeding the limit specified in column 4 of Table 2.7.2.4.1.2 may be classified under UN 2908, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE – EMPTY PACKAGING, provided that:

- .1 it is in a well-maintained condition and securely closed;
- .2 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;
- .3 the level of internal non-fixed contamination, when averaged over any 300 cm², does not exceed:
 - (i) 400 Bq/cm² for beta and gamma emitters and low toxicity alpha emitters; and

(ii) 40 Bq/cm² for all other alpha emitters; and

.4 any labels which may have been displayed on it in conformity with 5.2.2.1.12.1 are no longer visible.

2.7.2.4.1.6 Articles manufactured of natural uranium, depleted uranium or natural thorium and articles in which the sole radioactive material is unirradiated natural uranium, unirradiated depleted uranium or unirradiated natural thorium may be classified under UN 2909, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE – ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM, provided that the outer surface of the uranium or thorium is enclosed in an inactive sheath made of metal or some other substantial material.

2.7.2.4.2 *Classification as Low specific activity (LSA) material*

Radioactive material may only be classified as LSA material if the conditions of 2.7.2.3.1 and 4.1.9.2 are met.

2.7.2.4.3 *Classification as Surface contaminated object (SCO)*

Radioactive material may be classified as SCO if the conditions of 2.7.2.3.2.1 and 4.1.9.2 are met.

2.7.2.4.4 *Classification as Type A package*

Packages containing radioactive material may be classified as Type A packages provided that the following conditions are met:

Type A packages shall not contain activities greater than the following:

- .1 For special form radioactive material – A₁; or
- .2 For all other radioactive material – A₂.

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;

A₁(i) is the A₁ value for radionuclide i;

C (j) is the activity of radionuclide j as other than special form radioactive material; and

A₂ (j) is the A₂ value for radionuclide j.

2.7.2.4.5 *Classification of Uranium hexafluoride*

Uranium hexafluoride shall only be assigned to UN No.2977, RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE, or 2978, RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non-fissile or fissile-excepted.

2.7.2.4.5.1 Packages containing uranium hexafluoride shall not contain:

- .1 a mass of uranium hexafluoride different from that authorized for the package design;
- .2 a mass of uranium hexafluoride greater than 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; or
- .3 Uranium hexafluoride other than in solid form or at an internal pressure above atmospheric pressure when presented for transport.

2.7.2.4.6 *Classification as Type B(U), Type B(M) or Type C packages*

2.7.2.4.6.1 Packages not otherwise classified in 2.7.2.4 (2.7.2.4.1 to 2.7.2.4.5) shall be classified in accordance with the competent authority approval certificate for the package issued by the country of origin of design.

2.7.2.4.6.2 A package may only be classified as a Type B(U) if it does not contain:

- .1 activities greater than those authorized for the package design;
- .2 Radionuclides different from those authorized for the package design; or
- .3 contents in a form, or a physical or chemical state different from those authorized for the package design;

as specified in the certificate of approval.

2.7.2.4.6.3 A package may only be classified as a Type B(M) if it does not contain:

- .1 activities greater than those authorized for the package design;

- .2 Radionuclides different from those authorized for the package design; or
 - .3 contents in a form, or a physical or chemical state different from those authorized for the package design,
- as specified in the certificate of approval.

2.7.2.4.6.4 A package may only be classified as a Type C if it does not contain:

- .1 activities greater than those authorized for the package design;
 - .2 Radionuclides different from those authorized for the package design; or
 - .3 contents in a form, or physical or chemical state different from those authorized for the package design,
- as specified in the certificate of approval.

2.7.2.5 Special arrangements

Radioactive material shall be classified as transported under special arrangement when it is intended to be transported in accordance with 1.5.4.”

Consequential amendments

Contents page:

| | |
|-----------------|-------------------------------|
| 2.7.1 to 2.7.10 | Delete entries |
| 2.7.1 | Insert “2.7.1 Definitions” |
| 2.7.2 | Insert “2.7.2 Classification” |

Amend all references to renumbered paragraphs of chapter 2.7:

| | |
|-------------------------|--|
| 3.3.1 SP290 | Replace “2.7.9.1” with “1.5.1.5.1” |
| 4.1.9.2.3.2 | Replace “2.7.2” with “2.7.2.3.2” |
| 4.1.9.2.3.3 | Replace “2.7.5(a)(i)” with “2.7.2.3.2.1(i)” |
| 5.2.2.1.12.1 | Replace “2.7.8.4” with “5.1.5.3.4” |
| 5.2.2.1.12.2.1.1 | Replace “2.7.7.2.1” with “2.7.2.2.1” |
| 5.2.2.1.12.2.4 | Replace “2.7.6.1.1” with “5.1.5.3.1” |
| 5.2.2.1.12.2.4 | Replace “2.7.6.1.2” with “5.1.5.3.2” |
| 6.4.8.8 | Replace “2.7.7.2.4 – 2.7.7.2.6” with “2.7.2.2.4 – to 2.7.2.2.6” |
| 6.4.10.3 | Replace “2.7.7.2.4 – 2.7.7.2.6” with “2.7.2.2.4 – 2.7.2.2.6” |
| 6.4.12.1 | Replace “2.7.3.3, 2.7.3.4, 2.7.4.1, 2.7.4.2, 2.7.10.1 and 2.7.10.2” with “2.7.2.3.1.3, 2.7.2.3.1.4, 2.7.2.3.3.1, 2.7.2.3.3.2, 2.7.2.3.4.1 and 2.7.2.3.4.2” |

- 6.4.12.2** Replace “2.7.3.3, 2.7.3.4, 2.7.4.1, 2.7.4.2, 2.7.10.1 and 2.7.10.2” with “2.7.2.3.1.3, 2.7.2.3.1.4, 2.7.2.3.3.1, 2.7.2.3.3.2, 2.7.2.3.4.1 and 2.7.2.3.4.2”
- 6.4.14** Replace “2.7.4.5” with “2.7.2.3.3.5”
- 6.4.24.1** Replace “2.7.7” with “2.7.2.2, 2.7.2.4.1, 2.7.2.4.4, 2.7.2.4.5, 2.7.2.4.6 and 4.1.9.3”
- 6.4.24.2** Replace “2.7.7” with “2.7.2.2, 2.7.2.4.1, 2.7.2.4.4, 2.7.2.4.5, 2.7.2.4.6 and 4.1.9.3”
- 6.4.24.3** Replace “2.7.7” with “2.7.2.2, 2.7.2.4.1, 2.7.2.4.4, 2.7.2.4.5, 2.7.2.4.6 and 4.1.9.3”

Chapter 2.8

- 2.8.2.5.3.2** Replace “corrosion rate on steel” with “corrosion rate on either steel”

Insert “when tested on both materials” after “... test temperature of 55°C”

Insert “**Note:** Where an initial test on either steel or aluminium indicates the substance being tested is corrosive the follow up test on the other metal is not required.” after “... part III, Section 37.”

Chapter 2.9

Replace the heading “**Class 9 – Miscellaneous dangerous substances and articles**” with “**Miscellaneous dangerous substances and articles (Class 9) and environmentally hazardous substances**”

Insert after title

“**Note 1:** For the purposes of this Code, the environmentally hazardous substances (aquatic environment) criteria contained in this chapter apply to the classification of marine pollutants (see 2.10).”

Note 2: Although the environmentally hazardous substances (aquatic environment) criteria apply to all hazard classes (see 2.10.2.3 and 2.10.2.5), the criteria have been included in this chapter.”

- 2.9.2.1.2** Delete “The properties or characteristics of each substance are given in the Dangerous Goods List in chapter 3.2 pertaining to the substance or article.”

Insert:

“2.9.3 Environmentally hazardous substances (aquatic environment)”

2.9.3.1 General definitions

2.9.3.1.1 Environmentally hazardous substances include, *inter alia*, liquid or solid substances pollutant to the aquatic environment and solutions and mixtures of such substances (such as preparations and wastes).

For the purposes of this section,

“Substance” means chemical elements and their compounds in the natural state or obtained by any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

2.9.3.1.2 The aquatic environment may be considered in terms of the aquatic organisms that live in the water, and the aquatic ecosystem of which they are part¹. The basis, therefore, of the identification of hazard is the aquatic toxicity of the substance or mixture, although this may be modified by further information on the degradation and bioaccumulation behaviour.

2.9.3.1.3 While the following classification procedure is intended to apply to all substances and mixtures, it is recognized that in some cases, e.g., metals or poorly soluble inorganic compounds, special guidance will be necessary².

2.9.3.1.4 The following definitions apply for acronyms or terms used in this section:

| | |
|---------------------|---|
| BCF | Bioconcentration Factor; |
| BOD | Biochemical Oxygen Demand; |
| COD | Chemical Oxygen Demand; |
| GLP | Good Laboratory Practices; |
| EC ₅₀ | the effective concentration of substance that causes 50% of the maximum response; |
| ErC ₅₀ | EC ₅₀ in terms of reduction of growth; |
| K _{ow} | octanol/water partition coefficient; |
| LC ₅₀ | (50% lethal concentration) the concentration of a substance in water which causes the death of 50% (one half) in a group of test animals; |
| L(E)C ₅₀ | LC ₅₀ or EC ₅₀ ; |
| NOEC | No Observed Effect Concentration; |
| OECD | Test Guidelines Test guidelines published by the Organization for Economic Co-operation and Development (OECD). |

1 This does not address aquatic pollutants for which there may be a need to consider effects beyond the aquatic environment such as the impacts on human health, etc.

2 This can be found in annex 10 of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

2.9.3.2 Definitions and data requirements

2.9.3.2.1 The basic elements for classification of environmentally hazardous substances (aquatic environment) are:

- acute aquatic toxicity;
- potential for or actual bioaccumulation;
- degradation (biotic or abiotic) for organic chemicals; and
- chronic aquatic toxicity.

2.9.3.2.2 While data from internationally harmonized test methods are preferred, in practice, data from national methods may also be used where they are considered as equivalent. In general, freshwater and marine species toxicity data can be considered as equivalent data and are preferably to be derived using OECD Test Guidelines or equivalent according to the principles of Good Laboratory Practices (GLP). Where such data are not available, classification shall be based on the best available data.

2.9.3.2.3 *Acute aquatic toxicity* shall normally be determined using a fish 96 hour LC₅₀ (OECD Test Guideline 203 or equivalent), a crustacea species 48 hour EC₅₀ (OECD Test Guideline 202 or equivalent) and/or an algal species 72 or 96 hour EC₅₀ (OECD Test Guideline 201 or equivalent). These species are considered as surrogates for all aquatic organisms. Data on other species such as Lemna may also be considered if the test methodology is suitable.

2.9.3.2.4 *Bioaccumulation* means net result of uptake, transformation and elimination of a substance in an organism due to all routes of exposure (i.e. air, water, sediment/soil and food). The potential for bioaccumulation shall normally be determined by using the octanol/water partition coefficient, usually reported as a log K_{ow} determined according to OECD Test Guideline 107 or 117. While this represents a potential to bioaccumulate, an experimentally determined Bioconcentration Factor (BCF) provides a better measure and shall be used in preference when available. A BCF shall be determined according to OECD Test Guideline 305.

2.9.3.2.5 *Environmental degradation* may be biotic or abiotic (eg. hydrolysis) and the criteria used reflect this fact. Ready biodegradation is most easily defined using the OECD biodegradability tests (OECD Test Guideline 301 (A - F)). A pass level in these tests may be considered as indicative of rapid degradation in most aquatic environments. As these are freshwater tests, use of results from OECD Test Guideline 306, which is more suitable for the marine environment, is also included. Where such data are not available, a BOD (5 days)/COD ratio ≥ 0.5 is considered as indicative of rapid degradation. Abiotic degradation such as hydrolysis, primary degradation, both abiotic and biotic, degradation in non-aquatic media and proven rapid degradation in the environment may all be considered in defining rapid degradability³.

3 Special guidance on data interpretation is provided in chapter 4.1 and annex 9 of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

2.9.3.2.5.1 Substances are considered rapidly degradable in the environment if the following criteria are met:

- .1 In 28-day ready biodegradation studies, the following levels of degradation are achieved:
 - (i) tests based on dissolved organic carbon: 70%;
 - (ii) tests based on oxygen depletion or carbon dioxide generation: 60% of theoretical maxima;

These levels of biodegradation shall be achieved within 10 days of the start of degradation which point is taken as the time when 10% of the substance has been degraded; or

- .2 In those cases where only BOD and COD data are available, when the ratio of BOD₅/COD is ≥ 0.5 ; or
- .3 If other convincing scientific evidence is available to demonstrate that the substance or mixture can be degraded (biotically and/or abiotically) in the aquatic environment to a level above 70% within a 28 day period.

2.9.3.2.6 *Chronic toxicity* data are less available than acute data and the range of testing procedures less standardized. Data generated according to the OECD Test Guidelines 210 (Fish Early Life Stage) or 211 (Daphnia Reproduction) and 201 (Algal Growth Inhibition) may be accepted. Other validated and internationally accepted tests may also be used. The “No Observed Effect Concentrations” (NOECs) or other equivalent L(E)Cx shall be used.

2.9.3.3 Substance classification categories and criteria

2.9.3.3.1 Substances shall be classified as “environmentally hazardous substances (aquatic environment)”, if they satisfy the criteria for Acute 1, Chronic 1 or Chronic 2, according to the following tables:

Acute toxicity

Category: Acute 1

| | |
|--|-----------------|
| 96 hr LC ₅₀ (for fish) | ≤ 1 mg/l and/or |
| 48 hr EC ₅₀ (for crustacea) | ≤ 1 mg/l and/or |
| 72 or 96hr ErC ₅₀ (for algae or other aquatic plants) | ≤ 1 mg/l |

Chronic toxicity

Category: Chronic 1

| | |
|--|-----------------|
| 96 hr LC ₅₀ (for fish) | ≤ 1 mg/l and/or |
| 48 hr EC ₅₀ (for crustacea) | ≤ 1 mg/l and/or |
| 72 or 96hr ErC ₅₀ (for algae or other aquatic plants) | ≤ 1 mg/l |

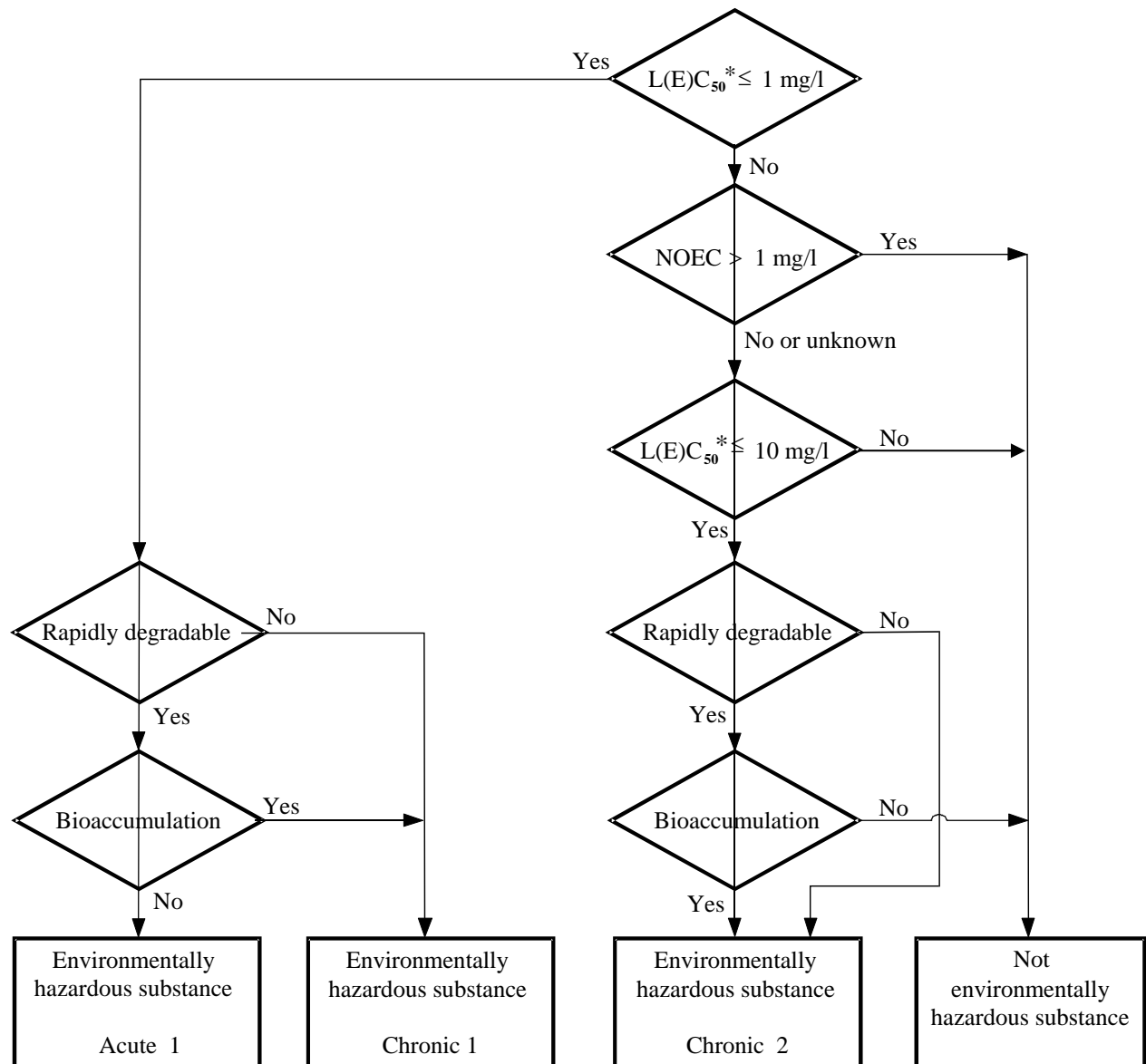
and the substance is not rapidly degradable and/or the log K_{ow} ≥ 4 (unless the experimentally determined BCF < 500)

Category: Chronic 2

| | |
|--|---------------------------|
| 96 hr LC ₅₀ (for fish) | >1 to ≤ 10 mg/l and/or |
| 48 hr EC ₅₀ (for crustacea) | >1 to ≤ 10 mg/l and/or |
| 72 or 96hr ErC ₅₀ (for algae or other aquatic plants) | >1 to ≤ 10 mg/l |

and the substance is not rapidly degradable and/or the log K_{ow} ≥ 4 (unless the experimentally determined BCF < 500), unless the chronic toxicity NOECs are > 1 mg/l

The classification flowchart below outlines the process to be followed.



* Lowest value of 96-hour LC₅₀, 48-hour EC₅₀ or 72-hour ErC₅₀, as appropriate.

2.9.3.4 Mixtures classification categories and criteria

2.9.3.4.1 The classification system for mixtures covers the classification categories which are used for substances meaning acute category 1 and chronic categories 1 and 2. In order to make use of all available data for purposes of classifying the aquatic environmental hazards of the mixture, the following assumption is made and is applied, where appropriate:

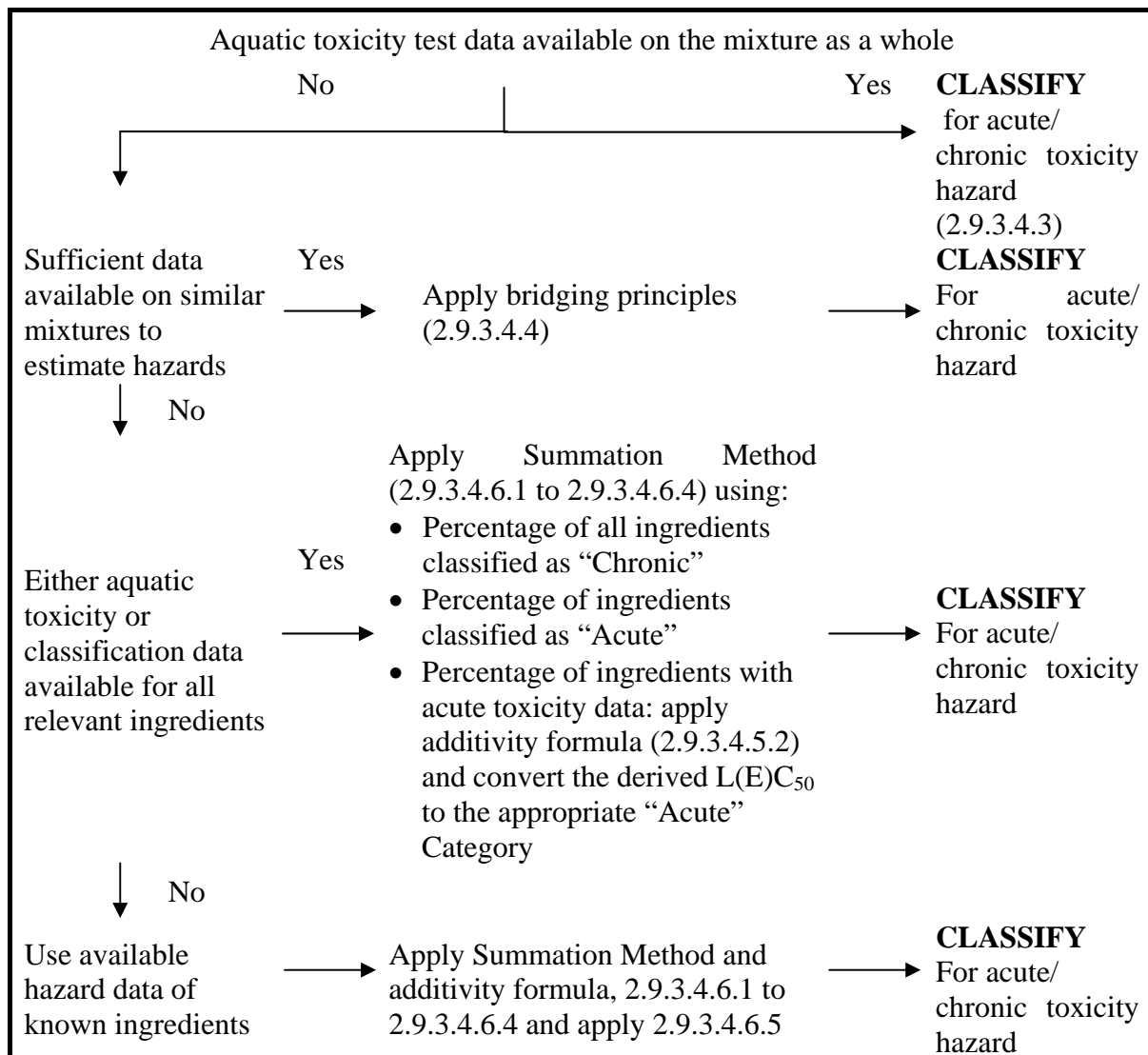
The “relevant ingredients” of a mixture are those which are present in a concentration of 1% by mass or greater, unless there is a presumption (e.g., in the case of highly toxic ingredients) that an ingredient present at less than 1% can still be relevant for classifying the mixture for aquatic environmental hazards.

2.9.3.4.2 The approach for classification of aquatic environmental hazards is tiered and dependent upon the type of information available for the mixture itself and its ingredients. Elements of the tiered approach include:

- .1 classification based on tested mixtures;
- .2 classification based on bridging principles;
- .3 the use of “summation of classified ingredients” and/or an “additivity formula”.

Figure 2.9.1 below outlines the process to be followed.

Figure 2.9.1: Tiered approach to classification of mixtures for acute and chronic aquatic environmental hazards



2.9.3.4.3 *Classification of mixtures when data are available for the complete mixture*

2.9.3.4.3.1 When the mixture as a whole has been tested to determine its aquatic toxicity, it shall be classified according to the criteria that have been agreed for substances, but only for acute toxicity. The classification is based on the data for fish, crustacea and algae/plants. Classification of mixtures by using LC₅₀ or EC₅₀ data for the mixture as a whole is not possible for chronic categories since both toxicity data and environmental fate data are needed, and there are no degradability and bioaccumulation data for mixtures as a whole. It is not possible to apply the criteria for chronic classification because the data from degradability and bio-accumulation tests of mixtures cannot be interpreted; they are meaningful only for single substances.

2.9.3.4.3.2 When there is acute toxicity test data (LC₅₀ or EC₅₀) available for the mixture as a whole, this data as well as information with respect to the classification of ingredients for chronic toxicity shall be used to complete the classification for tested mixtures as follows. When chronic (long-term) toxicity data (NOEC) is also available, this shall be used in addition.

- .1 L(E)C₅₀ (LC₅₀ or EC₅₀) of the tested mixture ≤ 1 mg/l and NOEC of the tested mixture ≤ 1.0 mg/l or unknown:
 - classify mixture as category acute 1;
 - apply summation of classified ingredients approach (see 2.9.3.4.6.3 and 2.9.3.4.6.4) for chronic classification (chronic 1, 2, or no need of chronic classification).

- .2 L(E)C₅₀ of the tested mixture ≤ 1 mg/l and NOEC of the tested mixture > 1.0 mg/l:
 - classify mixture as category acute 1;
 - apply summation of classified ingredients approach (see 2.9.3.4.6.3 and 2.9.3.4.6.4) for classification as Category Chronic 1. If the mixture is not classified as Category Chronic 1, then there is no need for chronic classification.

- .3 L(E)C₅₀ of the tested mixture > 1 mg/l, or above the water solubility, and NOEC of the tested mixture ≤ 1.0 mg/l or unknown:
 - no need to classify for acute toxicity;
 - apply summation of classified ingredients approach (see 2.9.3.4.6.3 and 2.9.3.4.6.4) for chronic classification or no need for chronic classification.

- .4 L(E)C₅₀ of the tested mixture > 1 mg/l, or above the water solubility, and NOEC of the tested mixture > 1.0 mg/l:
- No need to classify for acute or chronic toxicity.

2.9.3.4.4 *Bridging principles*

2.9.3.4.4.1 Where the mixture itself has not been tested to determine its aquatic environmental hazard, but there are sufficient data on the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, this data shall be used in accordance with the following agreed bridging rules. This ensures that the classification process uses the available data to the greatest extent possible in characterizing the hazards of the mixture without the necessity for additional testing in animals.

2.9.3.4.4.2 *Dilution*

2.9.3.4.4.2.1 If a mixture is formed by diluting another classified mixture or a substance with a diluent which has an equivalent or lower aquatic hazard classification than the least toxic original ingredient and which is not expected to affect the aquatic hazards of other ingredients, then the mixture shall be classified as equivalent to the original mixture or substance.

2.9.3.4.4.2.2 If a mixture is formed by diluting another classified mixture or a substance with water or other totally non-toxic material, the toxicity of the mixture shall be calculated from the original mixture or substance.

2.9.3.4.4.3 *Batching*

2.9.3.4.4.3.1 The aquatic hazard classification of one production batch of a complex mixture shall be assumed to be substantially equivalent to that of another production batch of the same commercial product and produced by or under the control of the same manufacturer, unless there is reason to believe there is significant variation such that the aquatic hazard classification of the batch has changed. If the latter occurs, new classification is necessary.

2.9.3.4.4.4 *Concentration of mixtures which are classified with the most severe classification categories (chronic 1 and acute 1)*

2.9.3.4.4.4.1 If a mixture is classified as chronic 1 and/or acute 1, and ingredients of the mixture which are classified as chronic 1 and/or acute 1 are further concentrated, the more concentrated mixture shall be classified with the same classification category as the original mixture without additional testing.

2.9.3.4.4.5 *Interpolation within one toxicity category*

2.9.3.4.4.5.1 If mixtures A and B are in the same classification category and mixture C is made in which the toxicologically active ingredients have concentrations intermediate to those in mixtures A and B, then mixture C shall be in the same category

as A and B. Note that the identity of the ingredients is the same in all three mixtures.

2.9.3.4.4.6 Substantially similar mixtures

2.9.3.4.4.6.1 Given the following:

- .1 Two mixtures:
 - i) A + B
 - ii) C + B
- .2 The concentration of ingredient B is the same in both mixtures;
- .3 The concentration of ingredient A in mixture (i) equals that of component C in mixture (ii);
- .4 Classification for A and C are available and are the same, i.e. they are in the same hazard category and are not expected to affect the aquatic toxicity of B,

then there shall be no need to test mixture (ii) if mixture (i) is already characterized by testing and both mixtures are classified in the same category.

2.9.3.4.5 *Classification of mixtures when data are available for all components or only for some components of the mixture*

2.9.3.4.5.1 The classification of a mixture shall be based on summation of the classification of its ingredients. The percentage of ingredients classified as “Acute” or “Chronic” will feed straight into the summation method. Details of the summation method are described in 2.9.3.4.6.1 to 2.9.3.4.6.4.1.

2.9.3.4.5.2 Mixtures are often made of a combination of both ingredients that are classified (as Acute 1 and/or Chronic 1, 2) and those for which adequate test data is available. When adequate toxicity data is available for more than one ingredient in the mixture, the combined toxicity of those [components] shall be calculated using the following additivity formula, and the calculated toxicity shall be used to assign that portion of the mixture an acute toxicity hazard which is then subsequently used in applying the summation method.

$$\frac{\sum C_i}{L(E)C_{50m}} = \sum_n \frac{C_i}{L(E)C_{50i}}$$

where:

C_i = concentration of ingredient i (mass percentage);

$L(E)C_{50i}$ = (mg/l) LC_{50} or EC_{50} for ingredient i;

n = number of ingredients, and i is running from 1 to n; and

$L(E)C_m$ = $L(E)C_{50}$ of the part of the mixture with test data

2.9.3.4.5.3 When applying the additivity formula for part of the mixture, it is preferable to calculate the toxicity of this part of the mixture using for each substance toxicity values that relate to the same species (i.e. fish, daphnia or algae) and then to use the highest toxicity (lowest value) obtained (i.e. use the most sensitive of the three species). However, when toxicity data for each ingredient are not available in the same species, the toxicity value of each ingredient shall be selected in the same manner that toxicity values are selected for the classification of substances, i.e., the higher toxicity (from the most sensitive test organism) is used. The calculated acute toxicity shall then be used to classify this part of the mixture as Acute 1 using the same criteria described for substances.

2.9.3.4.5.4 If a mixture is classified in more than one way, the method yielding the more conservative result shall be used.

2.9.3.4.6 *Summation method*

2.9.3.4.6.1 **Classification procedure**

2.9.3.4.6.1.1 In general a more severe classification for mixtures overrides a less severe classification, e.g., a classification with chronic 1 overrides a classification with chronic 2. As a consequence the classification procedure is already completed if the results of the classification is chronic 1. A more severe classification than chronic 1 is not possible and it is not necessary therefore to undergo the further classification procedure.

2.9.3.4.6.2 **Classification for the acute category 1**

2.9.3.4.6.2.1 All ingredients classified as acute 1 shall be considered. If the sum of these ingredients is greater than or equal to 25% the whole mixture shall be classified as category acute 1. If the result of the calculation is a classification of the mixture as category acute 1, the classification process is completed.

2.9.3.4.6.2.2 The classification of mixtures for acute hazards based on this summation of classified ingredients, is summarized in Table 2.9.1 below.

Table 2.9.1: Classification of a mixture for acute hazards, based on summation of classified ingredients

| Sum of ingredients classified as: | Mixture is classified as: |
|-----------------------------------|---------------------------|
| Acute 1 $\times M^1 \geq 25\%$ | Acute 1 |

¹ For explanation of the M factor, see 2.9.3.4.6.4.

2.9.3.4.6.3 Classification for the chronic categories 1, 2

2.9.3.4.6.3.1 First, all ingredients classified as chronic 1 are considered. If the sum of these ingredients is greater than or equal to 25% the mixture shall be classified as category chronic 1. If the result of the calculation is a classification of the mixture as category chronic 1 the classification procedure is completed.

2.9.3.4.6.3.2 In cases where the mixture is not classified as chronic 1, classification of the mixture as chronic 2 is considered. A mixture shall be classified as chronic 2 if 10 times the sum of all ingredients classified as chronic 1 plus the sum of all ingredients classified as chronic 2 is greater than or equal to 25%. If the result of the calculation is classification of the mixture as chronic 2, the classification process is completed.

2.9.3.4.6.3.3 The classification of mixtures for chronic hazards, based on this summation of classified ingredients, is summarized in Table 2.9.2 below.

Table 2.9.2: Classification of a mixture for chronic hazards, based on summation of classified ingredients

| Sum of ingredients classified as: | Mixture is classified as: |
|---|---------------------------|
| Chronic 1 \times M ¹ \geq 25% | Chronic 1 |
| (M \times 10 \times Chronic 1)+Chronic 2 \geq 25% | Chronic 2 |

¹ For explanation of the M factor, see 2.9.3.4.6.4.

2.9.3.4.6.4 Mixtures with highly toxic ingredients

2.9.3.4.6.4.1 Acute category 1 ingredients with toxicities well below 1 mg/l may influence the toxicity of the mixture and are given increased weight in applying the summation of classification approach. When a mixture contains ingredients classified as acute or chronic category 1, the tiered approach described in 2.9.3.4.6.2 and 2.9.3.4.6.3 shall be applied using a weighted sum by multiplying the concentrations of acute category 1 ingredients by a factor, instead of merely adding up the percentages. This means that the concentration of “Acute 1” in the left column of Table 2.9.1 and the concentration of “Chronic 1” in the left column of Table 2.9.2 are multiplied by the appropriate multiplying factor. The multiplying factors to be applied to these ingredients are defined using the toxicity value, as summarized in Table 2.9.3 below. Therefore, in order to classify a mixture containing acute 1 and/or chronic 1 ingredients, the classifier needs to be informed of the value of the M factor in order to apply the summation method. Alternatively, the additivity formula (2.9.3.4.5.2) may be used when toxicity data are available for all highly toxic ingredients in the mixture and there is convincing evidence that all other ingredients, including those for which specific acute toxicity data are not available, are of low or no toxicity and do not significantly contribute to the environmental hazard of the mixture.

Table 2.9.3: Multiplying factors for highly toxic ingredients of mixtures

| L(E)C ₅₀ value | Multiplying factor (M) |
|------------------------------------|------------------------|
| $0.1 < L(E)C_{50} \leq 1$ | 1 |
| $0.01 < L(E)C_{50} \leq 0.1$ | 10 |
| $0.001 < L(E)C_{50} \leq 0.01$ | 100 |
| $0.0001 < L(E)C_{50} \leq 0.001$ | 1000 |
| $0.00001 < L(E)C_{50} \leq 0.0001$ | 10000 |
| (continue in factor 10 intervals) | |

2.9.3.4.6.5 Classification of mixtures with ingredients without any useable information

2.9.3.4.6.5.1 In the event that no useable information on acute and/or chronic aquatic hazard is available for one or more relevant ingredients, it is concluded that the mixture cannot be attributed (a) definitive hazard category(ies). In this event, the mixture shall be classified based on the known ingredients only with the additional statement that: “x percent of the mixture consists of ingredient(s) of unknown hazards to the aquatic environment.”

2.9.3.5 **Substances or mixtures dangerous to the aquatic environment not otherwise classified under the provisions of this Code**

2.9.3.5.1 Substances or mixtures dangerous to the aquatic environment not otherwise classified under this Code shall be designated:

UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
or

UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

They shall be assigned to Packing Group III”.

Consequential amendments:

Contents page:

Chapter 2.9 Replace “**Class 9 – Miscellaneous dangerous substances and articles**” with “**Miscellaneous dangerous substances and articles (Class 9) and environmentally hazardous substances**”.

2.9.3 Insert “2.9.3 Environmentally hazardous substances (aquatic environment)”

Chapter 2.10

2.10.1 Replace definition with “*Marine pollutants* means substances which are subject to the provisions of Annex III of MARPOL 73/78, as amended.”

2.10.2 Replace section with:

“2.10.2 General provisions

2.10.2.1 Marine pollutants shall be transported under the provisions of Annex III of MARPOL 73/78, as amended.

2.10.2.2 The Index indicates by the symbol **P** in column headed MP those substances, materials and articles that are identified as marine pollutants.

2.10.2.3 Marine pollutants shall be transported under the appropriate entry according to their properties if they fall within the criteria of any of the classes 1 to 8. If they do not fall within the criteria of any of these classes, they shall be transported under the entry: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., UN 3077 or ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., UN 3082, as appropriate, unless there is a specific entry in class 9.

2.10.2.4 Column 4 of the Dangerous Goods List also provides information on marine pollutants using the symbol **P**.

2.10.2.5 When a substance, material or article possesses properties that meet the criteria of a marine pollutant but is not identified in this Code, such substance, material or article shall be transported as a marine pollutant in accordance with the Code.

2.10.2.6 With the approval of the competent authority (see 7.9.2), substances, materials or articles that are identified as marine pollutants in this Code but which no longer meet the criteria as a marine pollutant need not be transported in accordance with the provisions of this Code applicable to marine pollutants.”

2.10.3 Replace section with:

“2.10.3 Classification

2.10.3.1 Marine pollutants shall be classified in accordance with chapter 2.9.3.”

2.10.4 Delete section

Consequential amendments:

Contents page:

2.10.2 Replace “Properties” with “General provisions”

2.10.3 Delete “of solutions, mixtures and isomers”

2.10.4 Delete “2.10.4 Guidelines for the identification of harmful substances in packaged form (marine pollutants)”

PART 3

Replace “**and limited quantities exceptions**” with “, **special provisions and exceptions**” in the heading.

Consequential amendment:

Contents page:

PART 3 Replace “**AND LIMITED QUANTITIES EXCEPTIONS**” with “, **SPECIAL PROVISIONS AND EXCEPTIONS**”

Chapter 3.1

3.1.2 Delete “Where, in this Code, the term “Proper Shipping Name” is used, it is the “correct technical name” required by regulation 4 of Annex III of MARPOL 73/78, as amended.” in **Note 1**

3.1.2. Delete “3.4.5 and” in **Note 2**

3.1.2.2.2 Amend the name to read: “ALKYLSULPHONIC ACIDS, SOLID or ARYLSULPHONIC ACIDS, SOLID” in UN 2583

3.1.2.8.1.1 Resize printing to standard size (English only).

3.1.2.8.1.3 Delete “If a package contains a marine pollutant, the recognized chemical name of the marine pollutant needs to be shown.”

3.1.2.8.1.4 Renumber paragraph as 3.1.2.8.1.3

3.1.2.9 Insert “Marine Pollutants”

3.1.2.9.1 Insert “For generic or “not otherwise specified” (N.O.S.) entries, the proper shipping name shall be supplemented with the recognized chemical name of the marine pollutant.”

3.1.2.9.2 Examples illustrating the selection of the Proper Shipping Name supplemented with the recognized technical name of goods for such entries are indicated below:

UN 1993, FLAMMABLE LIQUID, N.O.S. (propyl acetate, di-n-butyltin-di-2-ethylhexanoate), class 3, PG III, (50°C c.c.), MARINE POLLUTANT

UN 1263, PAINT (triethylbenzene), class 3, PG III, (27°C c.c.), MARINE POLLUTANT

3.1.4.4.1

UN 1805 Replace “liquid” with “solution” (English and French only)

UN 1811 Insert “, solid” after “hydrogendifluoride” (English and French only)

- UN 1848** Replace “90% by mas” with “less than 90% acid by mass” (English only)
- UN 2511** Replace “2-chloropropionic acid” with “2-Chloropropionic acid” (English only)
- UN 2531** Replace “inhibited” with “stabilized” (English only)
- UN 2740** Replace “*n*-Propyl” with “Propyl”
- UN 2794** Insert “2794 Batteries, wet filled with acid electric storage”
- 3.1.4.4.2**
- UN 2073** Replace “< 0.880 at 15°C in water” with “less than 0.880 at 15°C in water, with more than 35% but not more than 50% ammonia”
- 3.1.4.4.6**
- UN 2205** Replace “1,4-dicyanobutane” with “Adiponitryl”
- 3.1.4.4.7**
- UN 1794** Replace “> 3% free acid” with “more than 3% free acid”
- UN 2331** Replace “chlorate” with “choride” (English only)
- UN 2777** Replace “Mercury-based” with “Mercury based” (English only)
- UN 2778** Replace “Mercury-based” with “Mercury based” (English only)
- UN 2878** Insert a comma after the word “titanium” (twice) (English only)
- UN 3011** Replace “Mercury-based” with “Mercury based” (English and French only)
- UN 3012** Replace “Mercury-based” with “Mercury based” (English only)
- 3.1.4.4.8**
- UN 2208** Replace “>” with “more than” and “with not less” with “not more than”
- UN 2741** Replace “> 22%” with “more than 22%”
- 3.1.4.4.10**
- UN 1278** Replace “Propyl chloride” with “I-Chloropropane”
- UN 1702** Replace “Tetrachloroethane” with “1,1,2,2- Tetrachloroethane”
- UN 1991** Replace “inhibited” with “stabilized” (English only)

UN 2339 Replace “2-bromobutane” with “2-Bromobutane” (English only)

3.1.4.4.11

UN 2777 Replace “Mercury-based” with “Mercury based” (English only)

UN 2778 Replace “Mercury-based” with “Mercury based” (English only)

UN 3011 Replace “Mercury-based” with “Mercury based” (English only)

UN 3012 Replace “Mercury-based” with “Mercury based” (English only)

3.1.4.4.12

UN 1487 Replace “mixtures” with “mixture” (English only)

3.1.4.4.15

UN 1383 Insert “pyrophoric” before the word “metal” (English and French only)

3.1.4.4.18

UN 2672 Insert a comma before the words “by mass” (English only)

UN 2073 Add “in water” after “at 15°C”

Consequential amendments

5.4.1.4.3.5 Insert “and for generic or not otherwise specified” (N.O.S.) entries, the proper shipping name shall be supplemented with the recognized chemical name of the marine pollutant (see 3.1.2.9).”

Chapter 3.2

3.2.1

3.2.1 Replace the running title “Dangerous goods list” with the title “Dangerous Goods List” (English only)

Column 1 Replace “Committee” with “Sub-Committee”

Column 4 Replace section with:

“**Subsidiary risk(s)** – this column contains the class number(s) of any subsidiary risk(s) which have been identified by applying the classification system described in part 2. This column also identifies a dangerous good as a marine pollutant as follows:

P – Marine pollutant a non-exhaustive list of known marine pollutants, based on previous criteria and assignment”

Column 7 Replace section with:

“Column 7a “Limited Quantities” – this column provides the maximum quantity per inner packaging or article for transporting dangerous goods as limited quantities in accordance with chapter 3.4.

Column 7b “Excepted Quantities” – this column provides an alpha numeric code described in sub-section 3.5.1.2 which indicates the maximum quantity per inner and outer packaging for transporting dangerous goods as excepted quantities in accordance with chapter 3.5.”

Column 12 Replace paragraph with “(Reserved)”

Column 13 Delete “UN”

3.2.2 Abbreviations and symbols

Table Delete lines 3 and 5

Dangerous goods list

Column (7) Renumber as column (7a)

Column (7b) Insert new column headed “Excepted quantities”

Column (7a/b) Insert common heading “Limited and Excepted quantity provisions”

Column 12 Delete column

Column 13 Replace “UN t” with “T”

Insert a new row below the headings with the corresponding reference paragraphs as follows:

| | | | | | | | | | | | |
|--|-------|-----|-----|---------|-----|------|------|-------|-------|-------|-------|
| | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) |
| | 3.1.2 | 2.0 | 2.0 | 2.0.1.3 | 3.3 | 3.4 | 3.5 | 4.1.4 | 4.1.4 | 4.1.4 | 4.1.4 |

Insert a new row below the headings with the corresponding reference paragraphs as follows:

| | | | | |
|-------|-------|---------|------|------|
| (13) | (14) | (15) | (16) | (17) |
| 4.2.5 | 4.2.5 | 5.4.3.2 | 7.1 | |
| 4.3 | | 7.3 | 7.2 | |

Replace column (7) with split column (7a) and (7b)

| Limited and Excepted quantity provisions | |
|--|------------|
| LQ (7a) | EQ (7b) |

UN 2031 PG II

Replace entry with:

| (1) | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) |
|------|---|-----|-----|-----|-----|------|------|------|------|-------|------------|
| 2031 | NITRIC ACID other than red fuming, with at least 65% but with not more than 70% nitric acid | 8 | 5.1 | II | - | 1I | E2 | P001 | PP81 | IBC02 | B15 B20 |
| 2031 | NITRIC ACID, other than red fuming, with less than 65% nitric acid | 8 | - | II | - | 1I | E2 | P001 | PP81 | IBC02 | B15 B20 |

| (13) | (14) | (15) | (16) | (17) | (18) |
|------|------|----------|--|--|------|
| T8 | TP2 | F-A, S-Q | Category D. Segregation as for class 5.1 but "Separated from" classes 4.1, 5.1 and 7 | Colourless liquid. Oxidant; may cause fire in contact with organic materials such as wood, cotton or straw, evolving highly toxic gases (brown fumes). Highly corrosive to most metals. Causes severe burns to skin, eyes, mucous membranes. | 2031 |
| T8 | TP2 | F-A, S-B | Category D | See entry above. | 2031 |

UN Nos. 3334 and 3335

Replace entries with:

| (1) | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) |
|------|---------------------------------|-----|-----|-----|-----|------|------|-----|-----|------|------|
| 3334 | AVIATION REGULATED LIQUID N.O.S | 9 | - | - | 960 | - | - | - | - | - | - |
| 3335 | AVIATION REGULATED SOLID, N.O.S | 9 | - | - | 960 | - | - | - | - | - | - |

| (13) | (14) | (15) | (16) | (17) | (18) |
|------|------|------|------|--|------|
| - | - | - | - | Not subject to the provisions of this Code but may be subject to provisions governing the transport of dangerous goods by other modes. | 3334 |
| - | - | - | - | Not subject to the provisions of this Code but may be subject to provisions governing the transport of dangerous goods by other modes. | 3335 |

Column (1) Renumber "UN 0333, 1.4S" as "UN 0337"

Column (2) Insert a comma after the words "30% water" for UN 0114

Column (2) Insert a comma after the words "20% water" for UN 0129

Column (2) Insert a comma after the words "20% water" for UN 0135

Column (2) Delete the comma after the word "wetted" for UN 0220 (English only)

- Column (2)** Insert a comma after the word “carbon” for UN 0222 (English only)
- Column (2)** Delete “,” after “... RDX)” for UN 0391
- Column (2)** Delete the comma after the word “RDX)” for UN 0391 (English only)
- Column (2)** Insert “, PENTHRITE” before “, PETN” for UN 0411 (French)
- Column (2)** Delete “-” after “, PLASTICS” for UN 0459
- Column (2)** Delete “-” after “, PLASTICS” for UN 0460
- Column (2)** Delete the comma after “NITRITE” for UN 1194 (English only)
- Column (2)** Insert “(PICRIC ACID)” after “TRINITROPHENOL” for UN 1344
- Column (2)** Insert “(TNT)” after “TRINITROTOLUENE” for UN 1356
- Column (2)** Insert commas after “12%” and “15”, respectively for UN 1374 (English only)
- Column (2)** Insert a comma after the word “acid” and before the words “by mass” for UN 1779 (English and French only)
- Column (2)** Replace “hydrofluoric acid” with “hydrogen fluoride” for UN 1790
- Column (2)** Delete “solution” for UN 1790 (twice) (French)
- Column (2)** Insert a comma after the word “90%” and before the words “by mass” for UN 1848 (English and French only)
- Column (2)** Insert a comma after the word “12%” and before the words “by mass” for UN 2216 (English and French only)
- Column (2)** Replace “ISOCYANATES” with “ISOCYANATE” (twice) for UN 2478 (English only)
- Column (2)** Insert a comma after the word “ammonia” and before the words “by mass” for UN 2672 (English and French only)
- Column (2)** Insert a comma after the word “PENTOXIDE” and before the word “non-fused” for UN 2862
- Column (2)** Delete the comma after the words “N.O.S” for UN 2903 (English only)
- Column (2)** Insert a comma before the words “non-fissile” for UN 2912 (English and Spanish only)
- Column (2)** Insert a comma before the words “non-fissile” for UN 2916 (English and Spanish only)

- Column (2)** Insert a comma before the words “non-fissile” for UN 2917 (English and Spanish only)
- Column (2)** Insert a comma before the words “non-fissile” for UN 2919
- Column (2)** Replace “LITHIUM BATTERIES” with “LITHIUM METAL BATTERIES (including lithium alloy batteries)” for UN 3090
- Column (2)** Insert “METAL” after “LITHIUM” for UN 3091 (twice)
Insert “(including lithium alloy batteries)” after “WITH EQUIPMENT”
- Column (2)** Insert a comma after the word “acid” and before the word “STABILIZED” for UN 3149 (English only)
- Column (2)** Delete comma after the word “ALCOHOL” and before the word “with” for UN 3294 (English only)
- Column (2)** Insert a comma after the word “water” and before the words “by mass” for UN 3317 (English and French only)
- Column (2)** Insert a comma before the word “non-fissile” for UN 3323 (English only)
- Column (2)** Insert a comma before the word “non-special form” for UN 3327
- Column (2)** Insert a comma before the word “non-fissile” for UN 3332 (English and Spanish only)
- Column (2)** Add “,” after “... LIQUID” for UN 3334
- Column (2)** Insert “(PENTAERYTHRITOL TETRANITRATE; PETN)” after “... TETRANITRATE” for UN 3344
- Column (2)** Add “,” after “TOXINS” for UN 3462 PG I, II and III
- Column (2)** Insert “or HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM CONTAINED IN EQUIPMENT or HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM PACKED WITH EQUIPMENT” after “... STORAGE SYSTEM” for UN 3468
- Column (2)** Replace “FUEL CELL CARTRIDGES” with “FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT” for UN 3473
- Column (4)** Delete “●” for:
- No PG UN Nos. 1075, 1078, 1950, 1953, 1954, 1955, 1956, 1964, 1965, 1967, 1968, 3156, 3157, 3158, 3160, 3161, 3162, 3163, 3164, 3167, 3168, 3169, 3303, 3304, 3305, 3306, 3307, 3308, 3309, 3310, 3311, 3312, 3319, 3343, 3354 and 3355

PG I UN Nos. 1133, 1139, 1263, 1268, 1383, 1389, 1392, 1409, 1421, 1479, 1544, 1556, 1557, 1583, 1601, 1602, 1693, 1694, 1759, 1760, 1866, 1903, 1986, 1988, 1989, 1992, 1993, 2430, 2570, 2588, 2630, 2733, 2734, 2735, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2771, 2772, 2775, 2776, 2779, 2780, 2781, 2782, 2783, 2784, 2801, 2810, 2811, 2813, 2845, 2846, 2902, 2903, 2920, 2921, 2922, 2923, 2924, 2927, 2928, 2929, 2930, 2988, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 3005, 3006, 3009, 3010, 3013, 3014, 3015, 3016, 3017, 3018, 3021, 3024, 3025, 3026, 3027, 3084, 3085, 3086, 3087, 3093, 3094, 3095, 3096, 3098, 3099, 3100, 3121, 3122, 3123, 3124, 3125, 3129, 3130, 3131, 3132, 3134, 3135, 3137, 3139, 3140, 3142, 3143, 3145, 3147, 3148, 3172, 3194, 3200, 3208, 3209, 3259, 3260, 3261, 3262, 3263, 3264, 3265, 3266, 3267, 3273, 3275, 3276, 3278, 3279, 3280, 3281, 3282, 3283, 3284, 3285, 3286, 3287, 3288, 3289, 3290, 3295, 3301, 3336, 3345, 3346, 3347, 3348, 3349, 3350, 3351, 3352, 3381, 3382, 3383, 3384, 3385, 3386, 3387, 3388, 3389, 3390, 3391, 3392, 3393, 3394, 3395, 3396, 3397, 3398, 3399, 3401, 3402, 3439, 3440, 3448, 3449, 3462, 3464, 3465, 3466, 3467 and 3469

PG II UN Nos. 1133, 1139, 1169, 1197, 1203, 1224, 1228, 1263, 1266, 1268, 1287, 1293, 1300, 1306, 1325, 1393, 1409, 1450, 1458, 1459, 1461, 1462, 1477, 1479, 1482, 1483, 1544, 1556, 1557, 1564, 1583, 1601, 1602, 1693, 1719, 1740, 1759, 1760, 1851, 1866, 1903, 1908, 1986, 1987, 1988, 1989, 1992, 1993, 1999, 2206, 2430, 2478, 2557, 2570, 2588, 2627, 2733, 2734, 2735, 2742, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2771, 2772, 2775, 2776, 2779, 2780, 2781, 2782, 2783, 2784, 2801, 2810, 2811, 2813, 2837, 2902, 2903, 2920, 2921, 2922, 2923, 2924, 2925, 2926, 2927, 2928, 2929, 2930, 2985, 2986, 2987, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 3005, 3006, 3009, 3010, 3013, 3014, 3015, 3016, 3017, 3018, 3021, 3024, 3025, 3026, 3027, 3066, 3071, 3080, 3084, 3085, 3086, 3087, 3088, 3089, 3093, 3094, 3095, 3096, 3097, 3098, 3099, 3100, 3121, 3122, 3123, 3124, 3125, 3126, 3127, 3128, 3129, 3130, 3131, 3132, 3133, 3134, 3135, 3139, 3140, 3142, 3143, 3147, 3148, 3172, 3175, 3176, 3178, 3179, 3180, 3181, 3182, 3183, 3184, 3185, 3186, 3187, 3188, 3189, 3190, 3191, 3192, 3205, 3206, 3208, 3209, 3210, 3211, 3212, 3213, 3214, 3218, 3219, 3243, 3244, 3248, 3249, 3259, 3260, 3261, 3262, 3264, 3265, 3266, 3267, 3269, 3271, 3272, 3273, 3274, 3275, 3276, 3277, 3278, 3279, 3280, 3281, 3282, 3283, 3284, 3285, 3286, 3287, 3288, 3289, 3290, 3295, 3301, 3336, 3344, 3345, 3346, 3347, 3348, 3349, 3350, 3351, 3352, 3357, 3361, 3362, 3395, 3396, 3397, 3398, 3399, 3400, 3407, 3439, 3440, 3448, 3462, 3464, 3465, 3466, 3467, 3469, 3470 and 3471

PG III UN Nos. 1133, 1139, 1169, 1197, 1224, 1228, 1263, 1266, 1268, 1287, 1293, 1300, 1306, 1325, 1353, 1373, 1458, 1459, 1477, 1479, 1481, 1482, 1483, 1544, 1556, 1557, 1564, 1583, 1601, 1602, 1719, 1740, 1759, 1760, 1851, 1866, 1903, 1908, 1986, 1987, 1988, 1989, 1992, 1993, 1999, 2006, 2206, 2238, 2319, 2430, 2478, 2570, 2588, 2623, 2667, 2693, 2733, 2735, 2757, 2759, 2761, 2763, 2771, 2775, 2779,

2781, 2783, 2801, 2810, 2811, 2813, 2837, 2856, 2902, 2903, 2904, 2905, 2922, 2923, 2924, 2925, 2926, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 3005, 3006, 3009, 3010, 3013, 3014, 3015, 3016, 3017, 3018, 3025, 3026, 3027, 3066, 3077, 3082, 3085, 3087, 3088, 3089, 3097, 3098, 3099, 3126, 3127, 3128, 3129, 3130, 3131, 3132, 3133, 3134, 3135, 3139, 3140, 3142, 3143, 3145, 3145, 3147, 3148, 3172, 3176, 3178, 3179, 3180, 3181, 3182, 3183, 3184, 3185, 3186, 3187, 3188, 3189, 3190, 3191, 3192, 3205, 3206, 3208, 3209, 3210, 3211, 3213, 3215, 3216, 3218, 3219, 3248, 3249, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3263, 3264, 3265, 3266, 3267, 3269, 3271, 3272, 3276, 3278, 3280, 3281, 3282, 3283, 3284, 3285, 3287, 3288, 3295, 3336, 3345, 3347, 3348, 3349, 3351, 3352, 3395, 3396, 3397, 3398, 3399, 3400, 3407, 3439, 3440, 3462, 3464, 3465, 3466, 3467, 3469 and 3471

Column (4) Replace “PP” with “P” for:

PG I UN Nos. 1259, 1381, 1626, 1698, 1699, 2024, 2025, 2026, 2316, 2317, 2447, 2471, 2777, 2778, 2786, 2787, 2788, 3011, 3012, 3019, 3020, 3146 and 3450

PG II UN Nos. 1587, 1623, 1624, 1625, 1627, 1629, 1630, 1631, 1634, 1636, 1637, 1639, 1640, 1641, 1642, 1643, 1644, 1645, 1646, 1653, 1674, 1679, 1894, 1895, 2024, 2025, 2026, 2315, 2567, 2574, 2777, 2778, 2786, 2787, 2788, 3011, 3012, 3019, 3020, 3146, 3151, 3152, 3155 and 3432

PG III UN Nos. 2024, 2025, 2026, 2046, 2279, 2518, 2777, 2786, 2788, 3011, 3012, 3019, 3020 and 3146

Column (4) Replace “0” with “-” for UN 0004

Column (4) Insert “5.1” for UN 1017

Column (4) Replace “5.1P” with “5.1” over “P” for UN 2727(English only)

Column (4) Replace “172” with “SP 172” for UN 3322 (English only)

Column (5) Replace “I” with “II” for UN Nos. 1250 and 1305

Column (6) Insert “332” for UN 1474

Column (6) Insert “340” for UN Nos. 3269 and 3316

Column (6) Insert “179” for UN Nos. 3077 and 3082

Column (6) Insert “335” for UN Nos. 3077 and 3082

Column (6) Insert “341” for UN Nos. 2814, 2900 and 3373

Column (6) Delete “330” for UN Nos. 1170, 1987 and 1993

Column (6) Delete “918” for UN No. 1357

Column (6) Delete “944” for:

PG II UN Nos. 1133, 1139, 1169, 1197, 1203, 1224, 1228, 1263, 1266, 1268, 1287, 1293, 1300, 1306, 1325, 1450, 1458, 1459, 1461, 1462, 1477, 1479, 1481, 1482, 1483, 1719, 1740, 1759, 1760, 1866, 1903, 1908, 1986, 1987, 1988, 1989, 1992, 1993, 1999, 2430, 2478, 2627, 2733, 2734, 2735, 2758, 2760, 2762, 2764, 2772, 2776, 2780, 2782, 2784, 2801, 2920, 2921, 2922, 2923, 2924, 3021, 3024, 3066, 3084, 3085, 3087, 3089, 3093, 3095, 3096, 3098, 3099, 3139, 3145, 3147, 3175, 3178, 3179, 3180, 3181, 3182, 3210, 3211, 3212, 3214, 3218, 3219, 3244, 3248, 3259, 3260, 3261, 3262, 3263, 3264, 3265, 3266, 3267, 3269, 3271, 3272, 3273, 3274, 3286, 3295, 3336, 3346, 3350, 3407, 3469, 3470 and 3471

PG III UN Nos. 1133, 1139, 1169, 1197, 1224, 1228, 1263, 1266, 1268, 1287, 1293, 1300, 1306, 1325, 1353, 1458, 1459, 1477, 1479, 1481, 1482, 1483, 1544, 1556, 1557, 1564, 1583, 1601, 1602, 1719, 1740, 1759, 1760, 1851, 1866, 1903, 1908, 1986, 1987, 1988, 1989, 1992, 1993, 1999, 2206, 2319, 2430, 2478, 2570, 2588, 2623, 2667, 2693, 2733, 2735, 2757, 2759, 2761, 2763, 2771, 2775, 2779, 2781, 2783, 2801, 2810, 2811, 2813, 2837, 2856, 2902, 2903, 2904, 2905, 2922, 2923, 2924, 2925, 2926, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 3005, 3006, 3009, 3010, 3013, 3014, 3015, 3016, 3017, 3018, 3025, 3026, 3027, 3066, 3077, 3082, 3085, 3087, 3089, 3098, 3099, 3134, 3139, 3140, 3142, 3143, 3145, 3147, 3148, 3172, 3178, 3179, 3180, 3181, 3182, 3208, 3210, 3211, 3213, 3215, 3216, 3218, 3219, 3248, 3249, 3259, 3260, 3261, 3262, 3263, 3264, 3265, 3266, 3267, 3269, 3271, 3272, 3276, 3278, 3280, 3281, 3282, 3283, 3284, 3285, 3287, 3288, 3295, 3336, 3345, 3347, 3348, 3349, 3351, 3352, 3407, 3439, 3440, 3462, 3464, 3465, 3466, 3467, 3469 and 3471

Column (7a) Replace “None” with “0” wherever it appears

Column (7a) Replace “3 l” with “1 l” for UN 1170, PG II

Column (7a) Replace “g” and “kg” with “m^l” and “l” respectively for UN 3148 PG II and PG III

Column (7a) Replace “1 l” with “0” for UN 1818

Column (7a) Replace “500 ml” with “1 l” for UN 2315, UN 2778, UN 2787 and UN 3151, PG II

Replace “500 g” with “1 kg” for UN 3152 and UN 3432, PG II

Column (7a) Replace “500 ml” with “5 l” for UN 2024, UN 2046, UN 2279, UN 2518, UN 2788, UN 3011, UN 3012, UN 3019 and UN 3020, PG III

Replace “500 g” with “5 kg” for UN 2025, UN 2026, UN 2777, UN 2786 and UN 3146, PG III

Column (7b) Insert “E0” for:

All goods of classes 1, 2.1, 2.3, 5.2, 6.2 and 7

All goods of class 2.2 with a subsidiary risk in column (4) and UN Nos. 1044, 1950, 2037, 2857 and 3164

UN Nos. 1204, 2059, 3064, 3256, 3343, 3357, 3379 and 3473 in class 3

All goods of class 3 with a subsidiary risk in column (4), PG I

All goods of class 4.1, PG I, and UN Nos. 1327, 2304, 2448, 2555, 2556, 2557, 2907, 3176 (PG II and PG III), 3221 to 3240, 3319, 3344 and 3360

All goods of class 4.2, PG I, and UN 1856

All goods of class 4.3, PG I, and UN 3292

All goods of class 5.1, PG I and UN Nos. 2426 and 3356

All goods of class 8, PG I, and UN Nos. 1774, 2028, 2215 (MOLTEN), 2576, 2794, 2795, 2800, 2803, 2809 and 3028

UN Nos. 1845, 2807, 2990, 3072, 3090, 3091, 3166, 3171, 3245, 3257, 3258, 3268, 3359 and 3363 of class 9

UN Nos. 1600, 1700, 2016, 2017, 2312 and 3250 of class 6.1

Column (7b) Insert “E1” for:

All goods of class 2.2 without subsidiary risk in column (4)

All goods of class 3 without a subsidiary risk in column (4), PG III, except for UN Nos. 2059, 3256 and 3269

All goods of class 3 with a subsidiary risk in column (4), PG III

All goods of class 4.1, PG III, except for UN Nos. 2304, 2448 and 3176

All goods of class 4.2, PG III

All goods of class 4.3, PG III

All goods of class 5.1, PG III

All goods of class 6.1, PG III

All goods of class 8, PG III, except for UN Nos. 2215 (MOLTEN), 2803 and 2809

All goods of class 9, PG III, except for UN 1845, 2807, 3257, 3258 and 3268

Column (7b) Insert “E2” for:

All goods of class 3 without a subsidiary risk in column (4), PG II, except for UN Nos. 1204, 2059, 3064, 3269 and 3357

All goods of class 3 with a subsidiary risk in column (4), PG II

All goods of class 4.1, PG II, except for UN Nos. 2555, 2556, 2557, 2907, 3176, 3319 and 3344

All goods of class 4.2, PG II

All goods of class 4.3, PG II, except for UN 3292

All goods of class 5.1, PG II, except for UN 3356

All goods of class 8, PG II, except for UN Nos. 1774, 2028 and 2576

All goods of class 9, PG II, except for UN Nos. 3090, 3091, 3480 and 3481

Column (7b) Insert “E3” for all goods of class 3 without a subsidiary risk in column (4), PG I, except for UN Nos. 2059 and 3379

Column (7b) Insert “E4” for all goods of class 6.1, PG II, except for UN Nos. 1600, 1700, 2016, 2017, 2312 and 3250

Column (7b) Insert “E5” for all goods of class 6.1, PG I

Column (7b) Insert “See SP340” for UN Nos. 3269 and 3316

Column (8) Replace “P003” with “P004” for UN 3473

Column (8) Replace “P001” with “P010” for UN Nos. 1162, 1196, 1250, 1298, 1305, 1724, 1728, 1747, 1753, 1762, 1763, 1766, 1767, 1769, 1771, 1781, 1784, 1799, 1800, 1801, 1804, 1816, 2434, 2435, 2437, 2985, 2986, 2987, 3361 and 3362

Column (8) Replace “P601” with “P804” for UN 1744

- Column (8)** Replace “P001” with “P010” for UN 1818
- Column (9)** Delete “PP6” for UN Nos. 1851, 3248 and 3249, PG II and PG III
- Column (9)** Delete “PP88” for UN 3473
- Column (9)** Insert “PP1” for UN 3082
- Column (9)** Insert “PP31” for UN 3398 and UN 3399, PG I, PG II and PG III
- Column (9)** Delete “PP82” for UN 1744
- Column (10)** Insert “IBC02” for UN 2059 PG II
- Column (10)** Insert “IBC03” for UN 2059 PG III
- Column (10)** Delete “IBC01” for UN Nos. 3361 and 3362
- Column (10)** Delete “IBC02” for UN Nos. 1162, 1196, 1298, 1724, 1728, 1747, 1753, 1762, 1763, 1766, 1767, 1769, 1771, 1781, 1784, 1799, 1800, 1801, 1804, 1816, 1818, 2434, 2435, 2437, 2985, 2986 and 2987
- Column (11)** Insert “B2” and “B4” for UN 3432
- Column (11)** Insert “B2” for UN Nos. 1463, 1473, 1484, 1485, 1487, 1488, 1490, 1493, 1494, 1495, 1512, 1514, 1751, 2465, 2468, 2627 and 3247
- Column (11)** Replace “T7” with “-” for UN 2949
- Column (13)** Insert “BK2” for UN Nos. 2814 and 3373
- Column (13)** Delete “only for animal carcasses” for UN 2900
- Column (13)** Insert “T9” for UN Nos. 2813 and 3131, PG I
- Column (13)** Replace “T11” with “T10” for UN Nos. 1250 and 1305
- Column (13)** Replace “T14” with “T22” for UN Nos. 1092, 1238, 1239 and 1244, PG I
- Column (13)** Replace “T14” with “T20” for UN Nos. 1098, 1143, 1163, 1595, 1695, 1752, 1809, 2334, 2337, 2646 and 3023, PG I
- Column (13)** Replace “T7” with “T10” for UN Nos. 1162, 1196, 1298, 1724, 1728, 1747, 1753, 1762, 1763, 1766, 1767, 1769, 1771, 1781, 1784, 1799, 1800, 1801, 1804, 1816, 1818, 2434, 2435 and 2437
- Column (13)** Replace “T10” with “T14” for UN Nos. 1183, 1242 and 2988

Column (13) Insert “T22” for UN Nos. 1185, 1994 and 2480, PG I

Column (13) Replace “T11” with “T14” for UN Nos. 2985, 2986, 3361 and 3362

Column (13) Replace “T10” with “T20” for UN 1569

Column (13) Insert “T20” for UN 1647, PG I

Column (13) Insert “TP2” and “TP13” for UN 1647, PG I

Column (13) Replace “TP2” with “T7” for UN 2949

Column (13) Insert “BK2” for UN 3077

Column (13) Insert “T14” for UN 3129 PG I

Column (13) Insert “T11” for UN 3129 PG II

Column (13) Insert “T7” for UN 3129 PG III

Column (13) Insert “T9” for UN 3148 PG I

Column (13) Insert “T7” for UN 3148 PG II

Column (13) Insert “T7” for UN 3148 PG III

Column (14) Delete “TP9” for:

PG I UN Nos. 1268, 1383, 1544, 1556, 1557, 1588, 1601, 1655, 1759, 1760, 1935, 1986, 1988, 1989, 1992, 1993, 2025, 2026, 2430, 2588, 2733, 2734, 2735, 2758, 2760, 2762, 2764, 2772, 2776, 2778, 2780, 2782, 2784, 2787, 2788, 2801, 2810, 2811, 2845, 2902, 2903, 2920, 2921, 2922, 2923, 2924, 2927, 2928, 2929, 2930, 2988, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 3005, 3006, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3024, 3025, 3026, 3084, 3086, 3095, 3096, 3124, 3125, 3143, 3145, 3146, 3147, 3200, 3259, 3260, 3261, 3262, 3263, 3264, 3265, 3266, 3267, 3273, 3275, 3276, 3278, 3279, 3280, 3281, 3282, 3283, 3284, 3285, 3286, 3287, 3288, 3289, 3290, 3295, 3345, 3346, 3347, 3348, 3349, 3350, 3351, 3352, 3381, 3382, 3383, 3384, 3385, 3386, 3387, 3388, 3389, 3390, 3439, 3440, 3448, 3462, 3464, 3465, 3466, and 3467

Column (14) Delete “TP12” for:

PG I UN Nos. 1739, 1744, 1745, 1746, 1754, 1758, 1777, 1786, 1790, 1796, 1798, 1826, 1828, 1829, 1831, 1834, 1836, 1873, 2031, 2032, 2240, 2692, 2699, 2879, and 3246

PG II UN Nos. 1716, 1717, 1736, 1737, 1738, 1742, 1743, 1755, 1764, 1768, 1776, 1778, 1782, 1789, 1790, 1796, 1817, 1826, 1830, 1832, 1906, 2031, 2308, 2353, 2513, 2571, 2584, 2796, and 2817

PG III UN Nos. 1755, 1789 and 2817

Column (14) Insert “TP27” for UN Nos. 3361 and 3362

Column (14) Insert “TP35” for UN Nos. 1092, 1238, 1239 and 1244, PG I

Column (14) Insert “TP35” for UN Nos. 1098, 1143, 1163, 1595, 1695, 1752, 1809, 2334, 2337, 2646 and 3023, PG I

Column (14) Insert “TP7” for UN Nos. 1162, 1196, 1250, 1298, 1305, 1724, 1728, 1747, 1753, 1762, 1763, 1766, 1767, 1769, 1771, 1781, 1784, 1799, 1800, 1801, 1804, 1816, 2434, 2435, 2437, 2985, 2986, 2987, 3361 and 3362

Column (14) Insert “TP2” and “TP13” for UN Nos. 1185, 1994 and 2480, PG I

Column (14) Insert “TP13” for UN 1239, PG I, and for UN Nos. 1781, 1804, 1818, 2986 and 2987

Column (14) Insert “TP7” for UN Nos. 2813 and 3131, PG I

Column (14) Insert “TP33” for UN Nos. 2813 and 3131, PG I

Column (14) Replace “-” with “TP2” for UN 2949

Column (14) Insert “TP2” and “TP7” for UN 3129 PG I

Column (14) Insert “TP2” for UN 3129 PG II

Column (14) Insert “TP1” for UN 3129 PG III

Column (14) Insert “TP2” and “TP7” for UN 3148 PG I

Column (14) Insert “TP2” for UN 3148 PG II

- Column (14)** Insert “TP1” for UN 3148 PG III
- Column (14)** Insert “TP9” for UN 3375
- Column (17)** Insert a colon after the word “Flashpoint” for UN 2604 (English only)
- Column (16)** Replace “chlorates and perchlorates” with “chlorates or perchlorates” for UN 0082
- Column (16)** Replace the words “siftproof” and “packaging” with the words “sift-proof” and “packages”, respectively for UN 0160 (English only)
- Column (16)** Replace the words “siftproof” and “packaging” with the words “sift-proof” and “packages”, respectively for UN 0161 (English only)
- Column (16)** Insert a full stop at the end of the sentence for UN 0243 (English only)
- Column (16)** Insert a full stop at the end of the sentence for UN 0244 (English only)
- Column (16)** Insert a full stop at the end of the sentence for UN 0245 (English only)
- Column (16)** Delete the comma after the words “WHITE PHOSPHORUS” for UN 0246 (English and French only)
- Column (16)** Insert a full stop at the end of the sentence for UN 0248 (English only)
- Column (16)** Insert a full stop at the end of the sentence for UN 0248 (English only)
- Column (16)** Insert a full stop at the end of the sentence for UN 0249 (English only)
- Column (16)** Insert a full stop at the end of the sentence UN 0250 (English only)
- Column (16)** Insert a full stop at the end of the sentence UN 0303 (English only)
- Column (16)** Insert a full stop at the end of the sentence UN 0332 (English only)
- Replace “chlorates and perchlorates” with “chlorates or perchlorates”
- Column (16)** Insert a full stop at the end of the sentence UN 0354 (English only)
- Column (16)** Insert a full stop at the end of the sentence UN 0355 (English only)
- Column (16)** In the first sentence, insert a semi-colon after the word “stowage” for UN 0498 (English only)
- Column (16)** In the first sentence, insert a semi-colon after the word “stowage” for UN 0499 (English only)
- Column (16)** Insert “Segregation as for class 5.1 but “Separated from” class 7 for UN 1017

- Column (16)** Replace “Category B” with “Category D” for UN 1082
- Column (16)** Insert the words “goods of” before the words “class 1” for UN 1131 (English only)
- Column (16)** Insert the words “goods of” before the words “class 1” for UN 1259(English only)
- Column (16)** Insert a full stop at the end of the sentence for UN 1386 (English only)
- Column (16)** Insert the word “is” after “stowage” and before “recommended” for UN 1363 (English and French only)
- Column (16)** Insert after “ammonium compounds” “, other than AMMONIUM PERSULPHATE (UN 1444),” for UN 1492 and UN 1505
- Column (16)** Replace “carbon tetrachloride” with “CARBON TETRACHLORIDE (UN 1846)” for UN 3254
- Column (16)** Delete “UN 3052 and UN 3461” for UN 2716
- Column (16)** Insert the words “goods of” after “carrying” and before “class 1” for UN 3194 (English and French only)
- Column (16)** Insert “However the segregation provisions concerning ammonium compounds do not apply to mixtures of ammonium persulphates and/or potassium persulphates and/or sodium persulphates” for UN 3215
- Column (16)** Replace “Category E” with “Category D” for UN 3399 PG I and II
- Column (17)** Insert “For ships transporting an INF cargo as defined in regulation VII/14 of the SOLAS Convention, 1974, as amended, refer also to the INF Code.” for UN Nos. 2916, 2917, 2919, 3323, 3328, 3329, 3330 and 3331.
- Column (17)** Insert a full stop at the end of the sentence for UN 0018(English only)
- Column (17)** In the second sentence, replace “substance” with “substances” for UN 0151 (English only)
- Column (17)** Replace “substances” with “substance” for UN 0216 (English only)
- Column (17)** Insert a full stop at the end of the sentence for UN 0246 (English only)
- Column (17)** Insert quotation marks after “WEAPONS, BLANK” and before “CARTRIDGES” for UN 0338 (English and French only)
- Column (17)** Insert quotation marks after “PROJECTILE” and before “CARTRIDGES” for UN 0339 (English and French only)
- Column (17)** Insert a comma after the word “CASES” for UN 0446

- Column (17)** Insert a comma after the word “CASES” for UN 0447
- Column (17)** Move the sentence “Highly irritating to skin, eyes and mucous membranes” to the end of the text for UN 1005
- Column (17)** Insert “Powerful oxidant which may cause fire” after “mucous membranes.” for UN 1017
- Column (17)** Insert “%” after “1.6” for UN 1088 (English only)
- Column (17)** Delete the comma after the word “liquid” for UN 1092
- Column (17)** Insert a colon after the words “Explosive limits” for UN 1106 (English only)
- Replace the comma after “22%” with a full stop for UN 1106 (English only)
- Column (17)** Move the sentence “Toxic if swallowed, by skin contact or by inhalation” to the end of the text for UN 1131
- Column (17)** Remove the sentence “reacts violently with acids” from the end of the text and insert it before “Highly toxic if swallowed...” for UN 1163
- Column (17)** Replace “Flashpoint” with “flashpoint” for UN 1170 (English only)
- Column (17)** Insert a colon after the word “product” for UN 1194 (English only)
- Column (17)** Remove the sentence “Reacts violently with acids” and insert it before the sentence “Causes burns...” for UN 1235
- Column (17)** Remove the sentence “Reacts violently with acids” and insert it after the sentence “Miscible with water.” For UN 1244
- Column (17)** Delete the comma before the word “cotton” for UN 1318
- Column (17)** Replace “explosive” with “explosives” for UN 1321
- Column (17)** Delete the comma after the words “such as” for UN 1350 (English and Spanish only)
- Column (17)** Move the sentence “Harmful if swallowed or by skin contact” to the end of the text for UN 1354
- Column (17)** Move the sentence “Harmful if swallowed or by skin contact” to the end of the text for UN 1356
- Column (17)** Replace “acid” with “acids” for UN 1390 (English only)
- Column (17)** Replace “acid” with “acids” for UN 1405 (English only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1455 (English and Spanish only)

- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1456 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1458 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1459 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1473 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1475 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1484 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1485 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1490 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1495 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1496 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1502 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1503 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1506 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1508 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1513 (English and Spanish only)
- Column (17)** Insert a comma after the word “fire” and before the word “may” for UN 1515 (English and Spanish only)
- Column (17)** Replace the first “acid” with “acids” for UN 1626 (English only)

- Column (17)** Replace the first “acid” with “acids” for UN 1636 (English only)
- Column (17)** Replace the first “acid” with “acids” for UN 1642 (English only)
- Column (17)** Replace “acid” with “acids” for UN 1688 (English only)
- Column (17)** Insert a colon after the word “Flashpoint” and before the word “25°C” for UN 1695 (English only)
- Column (17)** Move the sentence “Reacts violently with acids” after the sentence “Corrosive..” and before the sentence “Reacts with ammonium” for UN 1719 (English and French only)
- Column (17)** Replace “acid” with “acids” for UN 1727 (English only)
- Column (17)** Replace “acid” with “acids” for UN 1756 (English only)
- Column (17)** Replace “acid” with “acids” for UN 1757 (English only)
- Column (17)** Remove the sentence “Pure FORMIC ACID...” from the end of the text and insert it before the sentence “Corrosive to most metals” for UN 1779
- Column (17)** Replace “acid” with “acids” for UN 1791 (English only)
- Column (17)** Delete the comma after the word “liquid” for UN 1808
- Column (17)** Delete the comma after the word “liquid” for UN 1809
- Column (17)** Delete the comma after the word “liquid” for UN 1810
- Column (17)** Delete the comma after the word “liquid” for UN 1817
- Column (17)** Delete the comma after the word “liquid” for UN 1828
- Column (17)** Delete the comma after the word “liquid” for UN 1837
- Column (17)** Insert a colon after the words “Boiling range” for UN 1863 (English only)
- Column (17)** Replace “acid” with “acids” for UN 1869 (English only)
- Column (17)** Replace “acid” with “acids” for UN 1908 (English only)
- Column (17)** Insert “%” after “1.8” for UN 1917 (English only)
- Column (17)** Remove the sentence “Reacts violently with acids” and insert it before the second sentence of the text for UN 1922
- Column (17)** Replace “acid” with “acids” for UN 1935 (English only)

- Column (17)** Delete the comma after the word “air” for UN 1923 (English only)
- Column (17)** Insert a comma after the word “liquefied” for UN 1951
- Column (17)** Replace “Poisonous” with “Toxic” for UN 1975 (English and Spanish only)
- Column (17)** Replace “acid” with “acids” for UN 2019 (English only)
- Column (17)** Remove the sentence “Reacts violently with acids” and insert it after the second sentence of the text for UN 2029
- Column (16)** Remove the parentheses around the words “c.c.” for UN 2211
- Column (17)** Delete the comma after the word “liquid” for UN 2258
- Column (17)** Replace “liquid” with “liquids” for UN 2348 (English and Spanish only)
- Column (17)** Replace “liquid” with “liquids” for UN 2371 (English only)
- Column (17)** Remove the sentence “Reacts violently with acids” and insert it after the sentence “Miscible with water.” for UN 2379
- Column (17)** Remove the sentence “Reacts violently with acids” and insert it after the sentence “Miscible with water.” for UN 2382
- Column (17)** Remove the sentence “Reacts violently with acids” and insert it after the sentence “Immiscible with water.” for UN 2386
- Column (17)** Remove the sentence “Reacts violently with acids” and insert it after the sentence “Miscible with water.” for UN 2399
- Column (17)** Replace “acid” with “acids” for UN 2624 (English only)
- Column (17)** Replace “flashpoints” with “flashpoint” for UN 2742 (English only)
- Column (17)** Replace “Salt-c” with “C” for UN 2950
- Column (17)** Move the sentence “Cause burns to skin, eyes and mucous membranes” to the end of the text for UN 2986
- Column (17)** Move the sentence “Cause burns to skin, eyes and mucous membranes” to the end of the text for UN 2987
- Column (17)** Replace “Causes” with “Cause” for UN 2988 (English only)
- Column (17)** At the beginning of the sentence, replace “They” with “It” for UN 2995
- Column (17)** At the beginning of the sentence, replace “They” with “It” for UN 2997

- Column (17)** At the beginning of the sentence, replace “They” with “It”, and “Mercury-based” with “Mercury based” for UN 3011(second replacement English only)
- Column (17)** Replace “Mercury-based” with “Mercury based” for UN 3012 (English only)
- Column (17)** Insert a new line before paragraph 5 for UN 3065 (English only)
- Column (17)** Delete “or lithium alloy” for UN 3090
- Column (17)** Replace “Immiscible with” with “Insoluble in” for UN 3232
- Column (17)** Replace “Immiscible with” with “Insoluble in” for UN 3238
- Column (17)** Replace “Immiscible with” with “Insoluble in” for UN 3240
- Column (17)** Replace “acid” with “acids” for UN 3275 (English only)
- Column (17)** Replace “acid” with “acids” for UN 3276 (English only)
- Column (17)** Replace “Soluble in water” with “Miscible with water” for UN 3302
- Column (17)** Insert the word “c.c.” after “-30°C” for UN 3342
- Column (17)** Replace “generator” with “generators” for UN 3356 (English only)
- Column (17)** Replace existing text with “See entry above” for UN 3412 (English only)
- Column (17)** Delete the parentheses around the word “c.c.” for UN 3463 (English only)
- Column (17)** Insert “, which is much lighter than air” after “odourless gas” for UN 3468
- Column (17)** Replace existing text with “See entry above” for UN 3469
- Column (17)** Replace existing text with “See entry above” for UN 3471 (English only)
- Column (17)** Insert “Fuel cell cartridges may also be shipped in, or packed with, equipment.” after “... water solutions.” for UN 3473
- Column (17)** Insert “Electrical batteries containing lithium ion encased in a rigid metallic body. Lithium batteries may also be shipped in, or packed with, equipment. Electrical lithium batteries may cause fire due to an explosive rupture of the body caused by improper construction or reaction with contaminants.” for UN Nos. 3480 and 3481
- Column (17)** Replace “See 1.1.3.1.1 and IAEA Transport Schedule” with “See 1.5.1” for UN Nos. 2908, 2909, 2910, 2911, 2912, 2913, 2915, 2916, 2917, 2919, 2977, 2978, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332 and 3333

Insert new entries:

| (1) | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) | (13) | (14) | (15) | (16) | (17) | (18) |
|------|--|------|-----|-----|-----|------|------|---------|--------------|------|------|------|------|-------------|-------------|--|------|
| 0505 | SIGNALS, DISTRESS, ship | 1.4G | - | - | - | 0 | E0 | P135 | - | - | - | - | - | F-B, S-X | Category 06 | See glossary of terms in appendix B for "SIGNALS, DISTRESS, ship" | 0506 |
| 0506 | SIGNALS, DISTRESS, ship | 1.4S | - | - | - | 0 | E0 | P135 | - | - | - | - | - | F-B, S-X | Category 05 | See glossary of terms in appendix B for "SIGNALS, DISTRESS, ship" | 0506 |
| 0507 | SIGNALS, SMOKE | 1.4S | - | - | - | 0 | E0 | P135 | - | - | - | - | - | F-B, S-X | Category 05 | See glossary of terms in appendix B for "SIGNALS, SMOKE" | 0507 |
| 0508 | 1-HYDROXYBENZOTRIAZOLE, ANHYDROUS, dry or wetted with less than 20% water, by mass | 1.3C | - | - | - | 0 | E0 | P114(b) | PP48 PP50 | - | - | - | - | F-B, S-Y | Category 10 | Substance | 0508 |
| 1910 | CALCIUM OXIDE | 8 | - | - | 960 | - | - | - | - | - | - | - | - | - | - | Not subject to the provisions of this Code but may be subject to provisions governing the transport of dangerous goods by other modes. | 1910 |

| (1) | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) | (13) | (14) | (15) | (16) | (17) | (18) |
|------|-------------------------|-----|-----|-----|-----|------|------|-----|-----|------|------|------|------|------|------|--|------|
| 2808 | MAGNETIZED MATERIAL | 9 | - | - | 960 | - | - | - | - | - | - | - | - | - | - | Not subject to the provisions of this Code but may be subject to provisions governing the transport of dangerous goods by other modes. | 2807 |
| 2812 | SODIUM ALUMINATE, SOLID | 8 | - | - | 960 | - | - | - | - | - | - | - | - | - | - | Not subject to the provisions of this Code but may be subject to provisions governing the transport of dangerous goods by other modes. | 2812 |

| (1) | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) | (13) | (14) | (15) | (16) | (17) | (18) |
|------|--|-----|-----|-----|-----|------|------|-----|-----|------|------|------|------|------|------|--|------|
| 3166 | ENGINE, INTERNAL COMBUSTION or VEHICLE, FLAMMABLE GAS POWERED or VEHICLE, FLAMMABLE LIQUID POWERED | 9 | - | - | 960 | - | - | - | - | - | - | - | - | - | - | Types of articles transported under this entry include internal combustion engines, compression/ignition engines, motor vehicles, hybrid vehicles, motorcycles and boats. Not subject to the provisions of this Code but may be subject to provisions governing the transport of dangerous goods by other modes. | 3166 |

| (1) | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) | (13) | (14) | (15) | (16) | (17) | (18) |
|------|--|-----|-----|-----|-----|------|------|-----|-----|------|------|------|------|------|------|---|------|
| 3171 | BATTERY-POWERED VEHICLE or BATTERY-POWERED EQUIPMENT | 9 | - | - | 960 | - | - | - | - | - | - | - | - | - | - | Types of articles transported under this entry include vehicles or equipment powered by wet batteries, sodium batteries or lithium batteries with the batteries installed, such as electrically- powered cars, lawnmowers, wheelchairs and other mobility aids. Not subject to the provisions of this Code but may be subject to provisions governing the transport of dangerous goods by other modes. | 3171 |

| (1) | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) | (13) | (14) | (15) | (16) | (17) | (18) |
|------|--|-----|-----|-----|-----|------|------|------|------|--------|------|------|------|----------|---|--|------|
| 3474 | 1-HYDROXYBENZOTRIAZOLE, ANHYDROUS, WETTED with not less than 20% water, by mass | 4.1 | - | I | 28 | 0 | E0 | P406 | PP48 | - | - | - | - | F-B, S-J | Category D. "Away from" class 3 and heavy metals and their salts. | Desensitized explosive. White to light beige powder. Explosive and sensitive to friction in the dry state. When involved in a fire, evolves toxic fumes; in closed compartments these fumes may form an explosive mixture with air. May form extremely sensitive compounds with heavy metals or their salts. | 3474 |
| 3475 | ETHANOL AND GASOLINE MIXTURE or ETHANOL AND MOTOR SPIRIT MIXTURE or ETHANOL AND PETROL MIXTURE, with more than 10% ethanol | 3 | - | II | 333 | 11 | E2 | P001 | - | IBC 02 | - | T4 | TP1 | F-E, S-E | Category E. | Colourless, volatile liquids. Miscibility with water depends on the composition. | 3475 |

| (1) | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) | (13) | (14) | (15) | (16) | (17) | (18) |
|------|---|-----|-----|-----|------------|-----------------|------|------|-----|------|------|------|------|----------|-------------|--|------|
| 3476 | FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing water-reactive substances | 4.3 | - | - | 328 334 | 500 ml or 500 g | E0 | P004 | - | - | - | - | - | F-G, S-P | Category A. | Fuel cell cartridges containing water reactive substances may also be shipped in or packed with, equipment. | 3476 |
| 3477 | FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing corrosive substances | 8 | - | - | 328 334 | 1 l or 1 kg | E0 | P004 | - | - | - | - | - | F-A, S-B | Category A. | Fuel cell cartridges containing corrosive substances may also be shipped in or packed with, equipment. | 3477 |
| 3478 | FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing liquefied flammable gas | 2.1 | - | - | 328 338 | 120 ml | E0 | P004 | - | - | - | - | - | F-D, S-U | Category B. | Fuel cell cartridges containing butane or other flammable liquefied gas may also be shipped in or packed with equipment. | 3478 |

| (1) | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) | (13) | (14) | (15) | (16) | (17) | (18) |
|------|--|-----|-----|-----|------------|-----------|------|------|-----|------|------|------|------|-------------|-------------|---|------|
| 3479 | FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing hydrogen in metal hydride | 2.1 | - | - | 328 339 | 120 ml | E0 | P004 | - | - | - | - | - | F-D, S-U | Category B. | Fuel cell cartridges containing hydrogen, butane or other flammable odourless gas, which is much lighter than air, may also be shipped in or packed with equipment. | 3479 |

| (1) | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) | (13) | (14) | (15) | (16) | (17) | (18) |
|------|---|-----|-----|-----|--------------------------|------|------|------|-----|------|------|------|------|-------------|-------------|---|------|
| 3480 | LITHIUM ION BATTERIES (including lithium ion polymer batteries) | 9 | - | II | 188 230 310 957 | 0 | E0 | P903 | - | - | - | - | - | F-A, S-I | Category A. | Electrical batteries containing lithium ion encased in a rigid metallic body. Lithium ion batteries may also be shipped in, or packed with, equipment. Electrical lithium batteries may cause fire due to an explosive rupture of the body caused by improper construction or reaction with contaminants. | 3480 |

| (1) | (2) | (3) | (4) | (5) | (6) | (7a) | (7b) | (8) | (9) | (10) | (11) | (13) | (14) | (15) | (16) | (17) | (18) |
|------|---|-----|-----|-----|-------------------|------|------|------|-----|------|------|------|------|-------------|-------------|---|------|
| 3481 | LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries) | 9 | - | II | 188 230 957 | 0 | E0 | P903 | - | - | - | - | - | F-A, S-I | Category A. | Electrical batteries containing lithium ion encased in a rigid metallic body. Lithium ion batteries may also be shipped in, or packed with, equipment. Electrical lithium batteries may cause fire due to an explosive rupture of the body caused by improper construction or reaction with contaminants. | 3481 |

Chapter 3.3

- SP106** Delete
- SP169** Replace “no more than” with “not more than” (English only)
- Replace “these regulations” with “the provisions of this Code” (English only)
- SP181** Insert the word “see” before “5.4.2.5.5.1” (English only)
- SP188** Replace SP188 with “Cells and batteries offered for transport are not subject to other provisions of this Code if they meet the following:
- .1 For a lithium metal or lithium alloy cell, the lithium content is not more than 1g, and for a lithium-ion cell, the Watt-hour rating is not more than 20 Wh;
 - .2 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 Watt-hour rating is not more than 100 Wh. Lithium ion batteries subject to this provision shall be marked with the Watt-hour rating on the outside case;
 - .3 Each cell or battery is of the type proved to meet the requirements of each test in the United Nations Manual of Tests and Criteria, Part III, sub-section 38.3;
 - .4 Cells and batteries, except when installed in equipment, shall be packed in inner packagings that completely enclose the cell or battery. Cells and batteries shall be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit. The inner packagings shall be packed in strong outer packagings which conform to the provisions of 4.1.1.1, 4.1.1.2, and 4.1.1.5.
 - .5 Cells and batteries when installed in equipment shall be protected from damage and short circuit, and the equipment shall be equipped with an effective means of preventing accidental activation. When batteries are installed in equipment, the equipment shall be packed in strong outer packagings constructed of suitable material of adequate strength and design in relation to the packagings capacity and its intended use unless the battery is afforded equivalent protection by the equipment in which it is contained.
 - .6 Except for packages containing no more than four cells installed in equipment or no more than two batteries installed in equipment, each package shall be marked with the following:
 - (i) an indication that the package contains “lithium metal” or “lithium ion” cells or batteries, as appropriate;

- (ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;
 - (iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and
 - (iv) a telephone number for additional information.
- .7 Each consignment of one or more packages marked in accordance with paragraph .6 shall be accompanied with a document including the following:
- (i) an indication that the package contains “lithium metal” or “lithium ion” cells or batteries, as appropriate;
 - (ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;
 - (iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and
 - (iv) a telephone number for additional information.
- .8 Except when batteries are installed in equipment, each package shall be 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
- .9 Except when batteries are installed in or packed with equipment, packages shall not exceed 30 kg gross mass.”

As used above and elsewhere in this Code, “lithium content” means the mass of lithium in the anode of a lithium metal or lithium alloy cell. Separate entries exist for lithium metal batteries and lithium ion batteries to facilitate the transport of these batteries for specific modes of transport and to enable the application of different emergency response actions.”

SP198 Replace “UN 1210, UN 1263 and UN 3066.” with “UN Nos. 1210, 1263, 3066, 3469 and 3470.”

SP199 Replace “are considered insoluble. See ISO 3711:1990.” with “(see ISO 3711:1990 “Lead chromate pigments and lead chromate-molybdate pigments – Specifications and methods of test”) are considered insoluble and are not subject to the provisions of this Code unless they meet the criteria for inclusion in another hazard class.”

SP216 Replace “bulk packaging” with “bulk container”

SP217 Replace “bulk packaging” with “bulk container”

SP218 Replace “bulk packaging” with “bulk container”

SP236 Replace “The quantity limit shown in column 7 of the Dangerous Goods List applies to the base material.” with “The quantity limit and the excepted quantity code shown in columns 7a and 7b of the Dangerous Goods List apply to the base material”

SP251 Replace “the word “NONE” has been indicated in column 7” with “the quantity “0” has been indicated in column 7a”

Replace “quantity limits applicable to individual substances as specified in column 7” with “quantity limits for limited quantities applicable to individual substances as specified in column 7a”

SP289 Replace “Air bags or seat-belts” with “Air bag inflators, air bag modules or seat-belt pretensioners”

SP299.iv Tampico Fibre, dry having a density not less than 360 kg/m³

SP301 Replace “in column 7” by “in column 7a” (twice)

SP307.2 Insert “and/or mineral calcium sulphate” after “dolomite”

SP310 Replace “100 lithium cells” with “100 cells”

SP328 Replace text with:

“328 This entry applies to fuel cell cartridges including when contained in equipment or packed with equipment. Fuel cell cartridges installed in or integral to a fuel cell system are regarded as contained in equipment. Fuel cell cartridge means an article that stores fuel for discharge into the fuel cell through a valve(s) that controls the discharge of fuel into the fuel cell. Fuel cell cartridges, including when contained in equipment, shall be designed and constructed to prevent fuel leakage under normal conditions of transport.

Fuel cell cartridge design types using liquids as fuels shall pass an internal pressure test at a pressure of 100 kPa (gauge) without leakage.

Except for fuel cell cartridges containing hydrogen in metal hydride which shall be in compliance with special provision 339, each fuel cell cartridge design type shall be shown to pass a 1.2 meter drop test onto an unyielding surface in the orientation most likely to result in failure of the containment system with no loss of contents.”

- SP330** Delete
- Insert “**SP332** Magnesium nitrate hexahydrate is not subject to the provisions of this Code.
- SP333** Ethanol and gasoline, motor spirit or petrol mixtures for use in spark-ignition engines (e.g., in automobiles, stationary engines and other engines) shall be assigned to this entry regardless of variations in volatility.
- SP334** A fuel cell cartridge may contain an activator provided it is fitted with two independent means of preventing unintended mixing with the fuel during transport.
- SP335** Mixtures of solids which are not subject to the provisions of this Code and environmentally hazardous liquids assigned to UN 3082 may be classified and transported as UN 3077, provided there is no free liquid visible at the time the substance is loaded or at the time the packaging or cargo transport unit is closed. If free liquid is visible at the time the mixture is loaded or at the time the packaging or cargo transport unit is closed the mixture shall be classified as UN 3082. Each cargo transport unit shall be leakproof when used as a bulk container. Sealed packets and articles containing less than 10 ml of an environmentally hazardous liquid assigned to UN 3082, absorbed into a solid material but with no free liquid in the packet or article, or containing less than 10 g of an environmentally hazardous solid assigned to UN 3077, are not subject to the provisions of this Code.
- SP338** Each fuel cell cartridge transported under this entry and designed to contain a liquefied flammable gas shall:
- .1 Be capable of withstanding, without leakage or bursting, a pressure of at least two times the equilibrium pressure of the contents at 55°C;
 - .2 Not contain more than 200 ml of liquefied flammable gas with a vapour pressure not exceeding 1 000 kPa at 55°C; and
 - .3 Pass the hot water bath test prescribed in 6.2.4.1 of chapter 6.2.
- SP339** Fuel cell cartridges containing hydrogen in a metal hydride transported under this entry shall have a water capacity less than or equal to 120 ml. The pressure in the fuel cell cartridge shall not exceed 5 MPa at 55°C. The design type shall withstand, without leaking or bursting, a pressure of two (2) times the design pressure of the cartridge at 55°C or 200 kPa more than the design pressure of the cartridge at 55°C, whichever is greater. The pressure at which this test is conducted is referred to in the Drop Test and the Hydrogen Cycling Test as the “minimum shell burst pressure”.

Fuel cell cartridges shall be filled in accordance with procedures provided by the manufacturer. The manufacturer shall provide the following information with each fuel cell cartridge:

- .1 Inspection procedures to be carried out before initial filling and before refilling of the fuel cell cartridge;
- .2 Safety precautions and potential hazards to be aware of;
- .3 Method for determining when the rated capacity has been achieved;
- .4 Minimum and maximum pressure range;
- .5 Minimum and maximum temperature range; and
- .6 Any other requirements to be met for initial filling and refilling including the type of equipment to be used for initial filling and refilling.

The fuel cell cartridges shall be designed and constructed to prevent fuel leakage under normal conditions of transport. Each cartridge design type, including cartridges integral to a fuel cell, shall be subjected to and shall pass the following tests:

Drop test

A 1.8 metre drop test onto an unyielding surface in four different orientations:

- .1 Vertically, on the end containing the shut-off valve assembly;
- .2 Vertically, on the end opposite to the shut-off valve assembly;
- .3 Horizontally, onto a steel apex with a diameter of 38 mm, with the steel apex in the upward position; and
- .4 At a 45° angle on the end containing the shut-off valve assembly.

There shall be no leakage, determined by using a soap bubble solution or other equivalent means on all possible leak locations, when the cartridge is charged to its rated charging pressure. The fuel cell cartridge shall then be hydrostatically pressurized to destruction. The recorded burst pressure shall exceed 85% of the minimum shell burst pressure.

Fire test

A fuel cell cartridge filled to rated capacity with hydrogen shall be subjected to a fire engulfment test. The cartridge design, which may

include a vent feature integral to it, is deemed to have passed the fire test if:

- .1 The internal pressure vents to zero gauge pressure without rupture of the cartridge; or
- .2 The cartridge withstands the fire for a minimum of 20 minutes without rupture.

Hydrogen cycling test

This test is intended to ensure that a fuel cell cartridge design stress limits are not exceeded during use.

The fuel cell cartridge shall be cycled from not more than 5% rated hydrogen capacity to not less than 95% rated hydrogen capacity and back to not more than 5% rated hydrogen capacity. The rated charging pressure shall be used for charging and temperatures shall be held within the operating temperature range. The cycling shall be continued for at least 100 cycles.

Following the cycling test, the fuel cell cartridge shall be charged and the water volume displaced by the cartridge shall be measured. The cartridge design is deemed to have passed the hydrogen cycling test if the water volume displaced by the cycled cartridge does not exceed the water volume displaced by an uncycled cartridge charged to 95% rated capacity and pressurized to 75% of its minimum shell burst pressure.

Production leak test

Each fuel cell cartridge shall be tested for leaks at $15^{\circ}\text{C} \pm 5^{\circ}\text{C}$, while pressurized to its rated charging pressure. There shall be no leakage, determined by using a soap bubble solution or other equivalent means on all possible leak locations.

Each fuel cell cartridge shall be permanently marked with the following information:

- .1 The rated charging pressure in megapascals (MPa);
- .2 The manufacturer's serial number of the fuel cell cartridges or unique identification number; and
- .3 The date of expiry based on the maximum service life (year in four digits; month in two digits).

SP340 Chemical kits, first aid kits and polyester resin kits containing dangerous substances in inner packagings which do not exceed the quantity limits for excepted quantities applicable to individual substances as specified in

column 7b of the Dangerous Goods List may be transported in accordance with chapter 3.5. Class 5.2 substances, although not individually authorized as excepted quantities in the Dangerous Goods List, are authorized in such kits and are assigned code E2 (see 3.5.1.2).

- SP341** Bulk transport of infectious substances in BK2 bulk containers is only permitted for infectious substances contained in animal material as defined in 1.2.1 (see 4.3.2.4.1).”
- SP900** Delete comma after the word “BROMATE” (English only)
- Delete comma after the word “CHLORATE” (English only)
- Delete comma after the word “PERMANGANATE” (English only)
- Delete comma after the word “CYANIDE” (English only)
- SP909** Delete “The provisions of this entry are applicable to:
- substances designated as marine pollutants by a superscript “**P**” or “**PP**” next to its name in the Index; and
 - mixtures or isomers of substances identified as marine pollutants by a “**P**” or “**PP**” in the Index and which meet the criteria of 2.10.3 and which do not meet the classification criteria of any other hazard class.”
- SP910.1** Replace “the IMO publication *Recommendations on the Safe Use of Pesticides in Ships*” with “MSC/Circ.[...] Recommendations on the safe use of pesticides in ships applicable to the fumigation of cargo transport units”
- SP911** Delete
- SP919** Replace the words “packing method” with the words “packing instruction”
- SP920** Replace “provision” with “provisions” (English only)
- SP921** Replace “provision” with “provisions” (English only)
- SP922** Replace “provision” with “provisions” (English only)
- SP927** Replace “provision” with “provisions” (English only)
- SP929** Insert a full stop after the words “SEED CAKE, UN 2217” (English only)
- SP930** Replace “provision” with “provisions” (English only)
- SP931** Replace “provision” with “provisions” (English only)

- SP937** Replace “provision” with “provisions” (English only)
- SP939** Replace “provision” with “provisions” (English only)
- SP944** Delete
- SP951** Replace “packaging” with “container”
- SP952** Replace “packaging” with “container”
- SP960** Insert “Not subject to the provisions of this Code but may be subject to provisions governing the transport of dangerous goods by other modes.”

Consequential Amendment:

- Column (6)** Delete “911” for UN 1013

Chapter 3.4

- 3.4.1** Replace “in column 7” with “in column 7a” (twice)
Replace “the word “None”” with “the quantity “0””
- 3.4.8.2** Delete

Chapter 3.5

Insert new **Chapter 3.5:**

“Chapter 3.5

Dangerous goods packed in excepted quantities

3.5.1 Excepted quantities

3.5.1.1 Excepted quantities of dangerous goods of certain classes, other than articles, meeting the provisions of this chapter are not subject to any other provisions of this Code except for:

- .1 The training provisions in chapter 1.3;
- .2 The classification procedures and packing group criteria in Part 2, Classification;
- .3 The packaging provisions of 4.1.1.1, 4.1.1.2, 4.1.1.4, 4.1.1.4.1 and 4.1.1.6 in Part 4; and
- .4 The provisions for documentation specified in chapter 5.4.

Note: In the case of radioactive material, the provisions for radioactive material in excepted packages in 1.5.1.5 apply.

3.5.1.2 Dangerous goods which may be carried as excepted quantities in accordance with the provisions of this chapter are shown in column 7b of the dangerous goods list by means of an alphanumeric code as follows:

| Code | Maximum net quantity per inner packaging (in grams for solids and ml for liquids and gases) | Maximum net quantity per outer packaging (in grams for solids and ml for liquids and gases, or sum of grams and ml in the case of mixed packaging) |
|-------------|---|---|
| E0 | Not permitted as Excepted Quantity | |
| E1 | 30 | 1000 |
| E2 | 30 | 500 |
| E3 | 30 | 300 |
| E4 | 1 | 500 |
| E5 | 1 | 300 |

For gases, the volume indicated for inner packagings refers to the water capacity of the inner receptacle and the volume indicated for outer packagings refers to the combined water capacity of all inner packagings within a single outer packaging.

3.5.1.3 Where dangerous goods in excepted quantities for which different codes are assigned are packaged together the total quantity per outer packaging shall be limited to that corresponding to the most restrictive code.

3.5.2 Packagings

3.5.2.1 Packagings used for the transport of dangerous goods in excepted quantities shall be in compliance with the following:

- .1 There shall be an inner packaging and each inner packaging shall be constructed of plastic (when used for liquid dangerous goods it shall have a thickness of not less than 0.2 mm), or of glass, porcelain, stoneware, earthenware or metal (see also 4.1.1.2) and the closure of each inner packaging shall be held securely in place with wire, tape or other positive means; any receptacle having a neck with moulded screw threads shall have a leak proof threaded type cap. The closure shall be resistant to the contents;
- .2 Each inner packaging shall be securely packed in an intermediate packaging with cushioning material in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents. The intermediate packaging shall completely contain the contents in case of breakage or leakage, regardless of package orientation. For liquid dangerous goods, the intermediate packaging shall contain sufficient absorbent material to absorb the entire contents of the inner packaging. In such cases, the absorbent material may be the cushioning

material. Dangerous goods shall not react dangerously with cushioning, absorbent material and packaging material or reduce the integrity or function of the materials;

- .3 The intermediate packaging shall be securely packed in a strong, rigid outer packaging (wooden, fibre-board or other equally strong material);
- .4 Each package type shall be in compliance with the provisions in 3.5.3;
- .5 Each package shall be of such a size that there is adequate space to apply all necessary markings; and
- .6 Overpacks may be used and may also contain packages of dangerous goods or goods not subject to the provisions of this Code.

3.5.3 *Tests for packages*

3.5.3.1 The complete package as prepared for transport, with inner packagings filled to not less than 95% of their capacity for solids or 98% for liquids, shall be capable of withstanding, as demonstrated by testing which is appropriately documented, without breakage or leakage of any inner packaging and without significant reduction in effectiveness:

- .1 Drops onto a rigid, non-resilient flat and horizontal surface from a height of 1.8 m:
 - (i) Where the sample is in the shape of a box, it shall be dropped in each of the following orientations:
 - flat on the base;
 - flat on the top;
 - flat on the longest side;
 - flat on the shortest side;
 - on a corner;
 - (ii) Where the sample is in the shape of a drum, it shall be dropped in each of the following orientations:
 - diagonally on the top chime, with the centre of gravity directly above the point of impact;
 - diagonally on the base chime;
 - flat on the side.

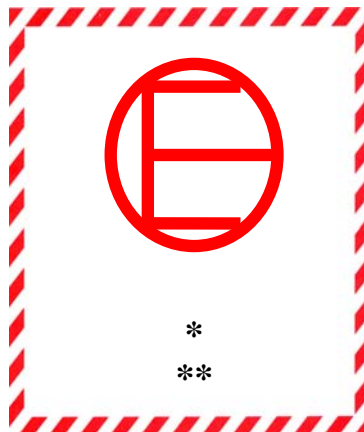
Note: Each of the above drops may be performed on different but identical packages.

.2 A force applied to the top surface for a duration of 24 hours, equivalent to the total weight of identical packages if stacked to a height of 3 m (including the drop sample).

3.5.3.2 For the purposes of testing, the substances to be transported in the packaging 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. In the drop tests for liquids, when another substance is used, its relative density (specific gravity) and viscosity shall be similar to those of the substance to be transported.

3.5.4 Marking of packages

3.5.4.1 Packages containing excepted quantities of dangerous goods prepared in accordance with this chapter shall be durably and legibly marked with the mark shown below. The primary hazard class of each of the dangerous goods contained in the package shall be shown in the mark. Where the name of the consignor or consignee is not shown elsewhere on the package this information shall be included within the mark.



Excepted quantities mark

Hatching and symbol of the same colour, black or red,
on white or suitable contrasting background

* *The class shall be shown in this location.*

** *The name of the consignor or of the consignee shall be shown in this location if not shown elsewhere on the package.*

3.5.4.2 The dimensions of the mark shall be a minimum of 100 mm x 100 mm.

3.5.4.3 An overpack containing dangerous goods in excepted quantities shall display the markings required by 3.5.4.1, unless such markings on packages within the overpack are clearly visible.

3.5.5 Maximum number of packages in any cargo transport unit

3.5.5.1 The number of packages containing dangerous goods packed in excepted quantities in any cargo transport unit shall not exceed 1,000.

3.5.6 Documentation

3.5.6.1 In addition to the provisions for documentation specified in chapter 5.4, the words “dangerous goods in excepted quantities” and the number of packages shall be included on the dangerous goods declaration together with the description of the shipment.

3.5.7 Stowage

3.5.7.1 Notwithstanding the stowage provisions indicated in the Dangerous Goods List, dangerous goods transported under the provisions of this chapter are allocated stowage category A.

3.5.8 Segregation

3.5.8.1 The segregation provisions of chapter 7.2 are not applicable for packagings containing dangerous goods in excepted quantities or in relation to other dangerous goods.

3.5.8.2 The segregation provisions of chapter 7.2 are not applicable for different dangerous goods in excepted quantities in the same outer packaging provided that they do not react dangerously with each other (see 4.1.1.6)

Consequential amendments:

Contents page:

Chapter 3.5 Insert “Chapter 3.5 Dangerous goods packed in excepted quantities

3.5.1 Excepted quantities

3.5.2 Packagings

3.5.3 Tests for packages

3.5.4 Marking of packages

3.5.5 Maximum number of packages in any cargo transport unit

3.5.6 Documentation

3.5.7 Stowage

3.5.8 Segregation”

PART 4

Chapter 4.1

- 4.1.1** Replace text of note with “For the packing of goods of classes 2, 6.2 and 7, the general provisions of this section only apply as indicated in 4.1.8.2 (class 6.2), 4.1.9.1.5 (class 7) and in the applicable packing instructions of 4.1.4 (P201 and LP02 for class 2 and P620, P621, P650, IBC620 and LP621 for class 6.2).”
- 4.1.1.3** **Insert “otherwise” before “provided”**
- Insert “However, IBCs manufactured before 1 January 2011 and conforming to a design type which has not passed the vibration test of 6.5.6.13 or which has not passed the drop test criteria of 6.5.6.9.5.4 may still be used.” after “with the provisions of 6.1.5, 6.3.5, 6.5.6 or 6.6.5, as applicable.”
- 4.1.1.16** Replace “class I” with “class 1” (English only)
- 4.1.2.2** Number first paragraph “**4.1.2.2.1**”
Number second paragraph “**4.1.2.2.2**”
- 4.1.2.2.1.2** Insert “and” after “... as appropriate;”
- 4.1.3.6.4** Replace “doivent” with “peuvent” after “, les recipients à pression” (French version)
- 4.1.4.1** P001/P002/P400/P401/P402/P403/P404/P410/P601/P602/P800
- Replace “**Pressure receptacles** may be used provided that the general provisions of 4.1.3.6 are met.” with “**Pressure receptacles**, provided that the general provisions of 4.1.3.6 are met”
- P001 – PP1** Replace “UN 1133, UN 1210, UN 1263 and UN 1866, packagings for substances of packing groups II and III in quantities of 5 l or less per metal or plastics” with “UN Nos. 1133, 1210, 1263 and 1866 and for adhesives, printing inks, printing ink related materials, paints, paint related materials and resin solutions which are assigned to UN 3082, metal or plastics packagings for substances of packing groups II and III in quantities of 5 litres or less per”
- P001 – PP6** Delete
- P001 – PP31** Replace “3207” with “3398 (PG II and III), 3399 (PG II and III)”
- P001 – PP81** Replace “hydrofluoric acid” with “hydrogen fluoride”
- P002 – PP6** Delete
- P003 – PP17** Replace “packagings shall not exceed 55 kg net mass for fibreboard” with “packages shall not exceed 55 kg net mass for fibreboard packagings”

P003 – PP88 Delete

P010 Insert **P010**:

| P010 | | P010 |
|---|---|---------------------------------------|
| PACKING INSTRUCTION | | |
| 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 (see 4.1.3.3) |
| Glass 1 l Steel 40 l | Drums steel (1A2) 400 kg plastics (1H2) 400 kg plywood (1D) 400 kg fibre (1G) 400 kg Boxes steel (4A) 400 kg natural wood (4C1, 4C2) 400 kg plywood (4D) 400 kg reconstituted wood (4F) 400 kg fibreboard (4G) 400 kg expanded plastics (4H1) 60 kg solid plastics (4H2) 400 kg | |
| Single packagings | | Maximum capacity (see 4.1.3.3) |
| Drums steel, non-removable head (1A1) | | 450 l |
| Jerricans steel, non-removable head (3A1) | | 60 l |
| Composite packagings plastics receptacle in steel drums (6HA1) | | 250 l |

P099 Insert “for these goods” before “by the competent authority”

Insert “A copy of the competent authority approval shall accompany each consignment or the transport document shall include an indication that the packaging was approved by the competent authority.” after “may be used (see 4.1.3.7).”

P112 (a) Replace “removable-head” with “removable head” (English only)

P114 (a) Replace “removable-head” with “removable head” (English only)

P114(b) Insert “**PP48** For UN 0508, metal packagings shall not be used.”

P114(b) – PP50 Replace “For UN 0160 and UN 0161” with “For UN Nos. 0160, 0161 and 0508”

Replace “required” with “necessary”

- P116** Replace “removable-head” with “removable head” (English only)
- P143** In the title, replace “provisions” with “provision” (English only)
- P200(3)(b)** Replace “provided that the above criterion is met, except where special packing provision “o” applies” with:
- “The use of test pressures and filling ratios other than those in the table is permitted, except where (4), special packing provision “o” applies, provided that:
- (i) the criterion of (4), special packing provision “r” is met when applicable; or
 - (ii) the above criterion is met in all other cases.”
- P200(4)(k)** Replace “assemblies (groups)” with “groups”
- P200(4)(n)** Replace paragraph with “Cylinders and individual cylinders in a bundle shall contain not more than 5 kg of the gas. When bundles containing UN 1045 Fluorine, compressed are divided into groups of cylinders in accordance with special packing provision “k” each group shall contain not more than 5 kg of the gas.”
- P200(4)(r)** Insert new provision “The filling ratio of this gas shall be limited such that, if complete decomposition occurs, the pressure does not exceed two thirds of the test pressure of the pressure receptacle.”
- P200(4)(z)** Insert “Mixtures containing UN 2192 germane, other than mixtures of up to 35% germane in hydrogen or nitrogen or up to 28% germane in helium or argon, shall be filled to a pressure such that, if complete decomposition of the germane occurs, two thirds of the test pressure of the pressure receptacle shall not be exceeded.” after “may be transported in pressure drums.”
- Table 1** Replace “200” with “225” in column “Test pressure, bar*” for UN 1660
- Replace “50” with “33” in column “Maximum working pressure” for UN 1660
- Table 2** Insert “5.1” in column “Subsidiary risk” for UN 1017
- Replace “1.02” with “0.064” in column “Filling ratio” for UN 2192
- Insert “, r” in column “Special packing provisions” for UN 2192
- Delete “d,” in column “Special packing provisions” for UN 2203 (twice)

Insert “, r” in column “Special packing provisions” for UN 2676

Insert “200” in the column “Test Pressure, bar*” and for UN 2189

Insert “1.08” in column “Filling ratio” for UN 2189

Replace values in column “Filling ratio”:

| UN No. | Name | Test pressure, bar | Filling ratio |
|--------|--------------------------------|--------------------|---------------|
| 1011 | Butane | 10 | 0.52 |
| 1013 | Carbon dioxide | 190 | 0.68 |
| 1013 | Carbon dioxide | 250 | 0.76 |
| 1020 | Chloropentafluoroethane (R115) | 25 | 1.05 |
| 1022 | Chlorotrifluoromethane (R13) | 250 | 1.11 |
| 1035 | Ethane | 120 | 0.30 |
| 1035 | Ethane | 300 | 0.40 |
| 1048 | Hydrogen bromide | 60 | 1.51 |
| 1080 | Sulphur hexafluoride | 70 | 1.06 |
| 1080 | Sulphur hexafluoride | 140 | 1.34 |
| 1080 | Sulphur hexafluoride | 160 | 1.38 |
| 1962 | Ethylene | 300 | 0.38 |
| 1973 | R502 | 31 | 1.01 |
| 1976 | Octafluorocyclobutane (RC318) | 11 | 1.32 |
| 1982 | Tetrafluoromethane (R14) | 200 | 0.71 |
| 1982 | Tetrafluoromethane (R14) | 300 | 0.90 |
| 1984 | Trifluoromethane (R23) | 190 | 0.88 |
| 1984 | Trifluoromethane (R23) | 250 | 0.96 |
| 2035 | 1,1,1-trifluoroethane (R143a) | 35 | 0.73 |
| 2036 | Xenon | 130 | 1.28 |
| 2193 | Hexafluoroethane (R116) | 200 | 1.13 |
| 2196 | Tungsten hexafluoride | 10 | 3.08 |
| 2198 | Phosphorus pentafluoride | 300 | 1.25 |
| 2424 | Octafluoropropane (R218) | 25 | 1.04 |
| 2454 | Methyl fluoride (R41) | 300 | 0.63 |
| 2599 | R503 | 31 | 0.12 |
| 2599 | R503 | 42 | 0.17 |
| 2599 | R503 | 100 | 0.64 |

Replace values in columns “Test pressure” and “Filling ratio”:

| UN No. | Name | Test pressure, bar | | Filling ratio |
|--------|---|--------------------|---------|---------------|
| | | Existing | Amended | |
| 1005 | Ammonia, anhydrous | 33 | 29 | 0.54 |
| 1018 | Chlorodifluoromethane (R22) | 29 | 27 | Unchanged |
| 1021 | 1-Chloro-1,2,2,2-tetrafluoroethane (R124) | 12 | 11 | Unchanged |
| 1027 | Cyclopropane | 20 | 18 | 0.55 |
| 1028 | Dichlorodifluoromethane (R12) | 18 | 16 | Unchanged |
| 1030 | 1,1-Difluoroethane (R152a) | 18 | 16 | Unchanged |
| 1053 | Hydrogen sulphide | 55 | 48 | Unchanged |
| 1077 | Propylene | 30 | 27 | Unchanged |
| 1079 | Sulphur dioxide | 14 | 12 | Unchanged |
| 1978 | Propane | 25 | 23 | 0.43 |

| | | Test pressure, bar | | |
|------|-----------------------------------|--------------------|-----|-----------|
| | | | | |
| 2204 | Carbonyl sulphide | 26 | 30 | 0.87 |
| 2676 | Stibine | 20 | 200 | 0.49 |
| 3159 | 1,1,1,2-Tetrafluoroethane (R134a) | 22 | 18 | 1.05 |
| 3220 | Pentafluoroethane (R125) | 36 | 35 | 0.87 |
| 3296 | Heptafluoropropane (R227) | 15 | 13 | 1.21 |
| 3338 | R407A | 36 | 32 | Unchanged |
| 3339 | R407B | 38 | 33 | Unchanged |
| 3340 | R407C | 35 | 30 | Unchanged |

Insert new packing instruction **P004**:

| P004 | PACKING INSTRUCTION | P004 |
|--|----------------------------|-------------|
| <i>This instruction applies to UN Nos. 3473, 3476, 3477, 3478 and 3479</i> | | |
| The following packagings are authorized provided the general provisions of 4.1.1.1, 4.1.1.2, 4.1.1.3, 4.1.1.6 and 4.1.3 are met: | | |
| <p>(1) For fuel cell cartridges, packagings conforming to the packing group II performance level; and</p> <p>(2) For fuel cell cartridges contained in equipment or packed with equipment, strong outer packagings. Large robust equipment (see 4.1.3.8) containing fuel cell cartridges may be transported unpackaged. When fuel cell cartridges are packed with equipment, they shall be packed in inner packagings or placed in the outer packaging with cushioning material or divider(s) so that the fuel cell cartridges are protected against damage that may be caused by the movement or placement of the contents within the outer packaging. Fuel cell cartridges which are installed in equipment shall be protected against short circuit and the entire system shall be protected against inadvertent operation.</p> | | |

P402 – PP31 Replace “and 3207 (PGI)” with “, 3398 (PG I) and 3399 (PG I)”

P404 Replace “, 3393 and 3461.” with “and 3393.”

P404 – PP31 Replace “, 3200 and 3461,” with “and 3200,”

P406 Insert “**PP48** For UN 3474, metal packagings shall not be used.”

P601(2) Delete “or additionally, for UN 1744 only, in polyvinylidene fluoride (PVDF) inner packagings,”

P601 Delete **PP82**

P602 In the first sentence, insert a comma after the word “authorized” (English only)

P620 In the first sentence, insert a comma after the word “authorized” (English only)

P620.1(i) Replace “watertight” with “leakproof”

P620.1(ii) Replace “watertight” with “leakproof”

- P620.2** Delete “of adequate strength for its capacity, mass and intended use”
- P620 2(b)** Replace “6.3.1.1” with “6.3.3”
- P620 4** Insert “4 Alternative packagings for the transport of animal material may be authorized by the competent authority in accordance with the provisions of 4.1.3.7.”
- P621** Delete “and the special provisions of 4.1.8” after “general provisions of 4.1.1 and 4.1.3”
- P650** In the diamond shaped mark, insert a space between “UN” and “3373”
- P650** Insert “**Additional requirement:**
- (1) Alternative packagings for the transport of animal material may be authorized by the competent authority in accordance with the provisions of 4.1.3.7.”
- P650 (4)** Replace “package” with “packaging” in the last sentence
- P650(6)** Replace “6.3.2.5” with “6.3.5.3”
- Replace “6.3.2.2 to 6.3.2.4” with “6.3.5.2”
- P800** Delete the colon at the end of the sentence (English only)
- P801** Insert “, except 4.1.1.3,” after “provisions of 4.1.1”
- Replace “Part 6” with “part 6” (English and Spanish only)

Insert new packing instruction **P804:**

| P804 | PACKING INSTRUCTION | P804 |
|--|----------------------------|-------------|
| <i>This instruction applies to UN 1744.</i> | | |
| <p>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> | | |
| <p>(1) Combination packagings with a maximum gross mass of 25 kg, consisting of:</p> | | |
| <ul style="list-style-type: none">- one or more glass inner packaging(s) with a maximum capacity of 1.3 litres each and filled to not more than 90% of their capacity, the closure(s) of which shall be physically held in place by any means capable of preventing back-off or loosening by impact or vibration during transport, individually placed in:- metal receptacles together with cushioning and absorbent material sufficient to absorb the entire contents of the glass inner packaging(s), further packed in:- 1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings. | | |
| <p>(2) Combination packagings consisting of metal or 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 transport.</p> | | |
| <p>(3) Packagings consisting of:</p> | | |
| <p>Outer packagings:</p> | | |
| <p>Steel or plastic drums, removable head (1A2 or 1H2) tested in accordance with the test requirements in 6.1.5 at a mass corresponding to the mass of the assembled package either as a packaging intended to contain inner packagings, or as a single packaging intended to contain solids or liquids, and marked accordingly;</p> | | |
| <p>Inner packagings:</p> | | |
| <p>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> | | |
| <ul style="list-style-type: none">(a) The hydraulic pressure test shall be conducted at a pressure of at least 300 kPa (3 bar) (gauge pressure);(b) The design and production leakproofness tests shall be conducted at a test pressure of 30 kPa (0,3 bar);(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;(d) Their capacity shall not exceed 125 litres; | | |

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|-------------|--|-------------|
| | <p>(e) Closures shall be of a screw type that are:</p> <ul style="list-style-type: none"> (i) Physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transport; (ii) Provided with a cap seal; <p>(f) The outer and inner packagings shall be subjected periodically to an internal inspection and leakproofness test according to (b) at intervals of not more than two and a half years; and</p> <p>(g) The outer and inner packagings shall bear in clearly legible and durable characters:</p> <ul style="list-style-type: none"> (i) the date (month, year) of the initial test and the latest periodic test and inspection of the inner packaging; and (ii) the name or authorized symbol of the expert performing the tests and inspections. <p>(4) Pressure receptacles, provided that the general provisions of 4.1.3.6 are met.</p> <ul style="list-style-type: none"> (a) They shall be subjected to an initial test and periodic tests every 10 years at a pressure of not less than 1 MPa (10 bar) (gauge pressure); (b) They shall be subjected periodically to an internal inspection and leakproofness test at intervals of not more than two and a half years; (c) They may not be equipped with any pressure relief device; (d) Each pressure receptacle shall be closed with a plug or valve(s) fitted with a secondary closure device; and (e) The materials of construction for the pressure receptacle, valves, plugs, outlet caps, luting and gaskets shall be compatible with each other and with the contents. | |

P903 Replace “UN 3090 and UN 3091.” with “UN Nos. 3090, 3091, 3480 and 3481.”

Delete “lithium” before “cells and batteries” (twice)

P904 Replace “Part 6” with “part 6” (English and Spanish only)

4.1.4.2

IBC01 Delete the *Additional provision*

IBC02 Delete the *Additional provision*

Insert “B15 For UN 2031 with more than 55% nitric acid, the permitted use of rigid plastics IBCs and of composite IBCs with a rigid plastics inner receptacle shall be two years from their date of manufacture.”

IBC03 Delete the *Additional provision*

IBC03(B11) Insert “Notwithstanding the provisions of 4.1.1.10 “ before “UN 2672 ammonia solution”

IBC05(B2) Delete “packing group II”

IBC06(B2) Delete “packing group II”

IBC07(B2) Delete “packing group II”

IBC08(B2) Delete “packing group II”

IBC99 Insert “for these goods” before “by the competent authority”

Insert “A copy of the competent authority approval shall accompany each consignment or the transport document shall include an indication that the packaging was approved by the competent authority.” after “competent authority may be used (see 4.1.3.7).”

IBC520 Replace “32%” with “37%” for UN 3109 – tert-Butyl peroxy-3, 5, 5-trimethylhexanoate, not more than 32% in diluent type A (third entry)

Replace “52%” with “62%” for UN 3119 – Di-(2-ethylhexyl) peroxydicarbonate, not more than 52%, stable dispersion, in water (eleventh entry)

IBC520 Delete “and the special provisions of 4.1.8”

Insert new entries:

| UN No. | Organic peroxide | Type of IBC | Maximum quantity (litres) | Control temperature | Emergency temperature |
|--------|---|-------------|---------------------------|---------------------|-----------------------|
| 3109 | tert-Butyl peroxybenzoate, not more than 32% in diluent type A | 31A | 1250 | | |
| 3109 | 1,1-Di-(tert-Butylperoxy)cyclohexane, not more than 37% in diluent type A | 31A | 1250 | | |
| 3119 | tert-Amyl peroxy-pivalate, not more than 32% in diluent type A | 31A | 1250 | +10 | +15 |
| 3119 | tert-Butyl peroxyneodecanoate, not more than 52%, stable dispersion, in water | 31A | 1250 | -5 | +5 |
| 3119 | Di-(2-neodecanoylperoxyisopropyl)benzene, not more than 42%, stable dispersion, in water | 31A | 1250 | -15 | -5 |
| 3119 | 3-Hydroxy-1,1-dimethylbutyl peroxy-neodecanoate, not more than 52%, stable dispersion, in water | 31A | 1250 | -15 | -5 |

4.1.4.3

LP01 In the first sentence, insert a comma after the word “authorized” (English only)

LP02 In the first sentence, insert a comma after the word “authorized” (English only)

Bring words and figures to the centre of columns in column 3

LP99 Insert “for these goods” before “by the competent authority”

Insert “A copy of the competent authority approval shall accompany each consignment or the transport document shall include an indication that the packaging was approved by the competent authority” after “**competent authority may be used (see 4.1.3.7).**”

LP621` Delete “and the special provisions of 4.1.8”

4.1.6 Amend the heading to read: “Special packing provisions for goods of class 2”

4.1.6.1.2 Delete “Pressure receptacles for UN 1001 acetylene ... compatible with the pressure receptacles.”

4.1.7.4.1 Delete first round bracket after “2.4.2.3.2.3” (English only)

4.1.8 Replace “(class 6.2)” with “**of Category A (class 6.2, UN 2814 and UN 2900)**”

4.1.8.2 Replace “liquids shall be filled into packagings, including IBCs, which” with “liquids shall only be filled into packagings which”

4.1.8.3 Delete “For UN 2814 and UN 2900,” and “and assignment to UN 2814 or UN 2900”

4.1.8.4 Delete “thoroughly”

Insert “to nullify any hazard” after “sterilized”

4.1.8.5 Replace with the text of existing 6.3.2.8

4.1.9.1.1 Replace “2.7.7.1.” with “2.7.2.2, 2.7.2.4.1, 2.7.2.4.4, 2.7.2.4.5, 2.7.2.4.6 and 4.1.9.3

The types of packages for radioactive materials covered by the provisions of this Code are:

- .1 Excepted package (see 1.5.1.5);
- .2 Industrial package Type 1 (Type IP-1 package);
- .3 Industrial package Type 2 (Type IP-2 package);

- .4 Industrial package Type 3 (Type IP-3 package);
- .5 Type A package;
- .6 Type B(U) package;
- .7 Type B(M) package;
- .8 Type C package.

Packages containing fissile material or uranium hexafluoride are subject to additional requirements.”

Replace section 4.1.9.1.6 with:

“4.1.9.1.6 Before the first shipment of any package, the following provisions shall be fulfilled:

- .1 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;
- .2 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;
- .3 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.

4.1.9.1.7 Before each shipment of any package, the following provisions shall be fulfilled:

- .1 For any package it shall be ensured that all the provisions specified in the relevant provisions of this Code have been satisfied;
- .2 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;
- .3 For each package requiring competent authority approval, it shall be ensured that all the requirements specified in the approval certificates have been satisfied;

- .4 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;
- .5 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 6.4.8.8 and 6.4.10.3 were made;
- .6 For each special form radioactive material, it shall be ensured that all the provisions specified in the approval certificate and the relevant provisions of these Regulations have been satisfied;
- .7 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;
- .8 For each low dispersible radioactive material, it shall be ensured that all the requirements specified in the approval certificate and the relevant provisions of these Regulations have been satisfied.

4.1.9.1.8 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.

4.1.9.1.9 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.

4.1.9.1.10 Except for packages or overpacks transported under exclusive use by rail or by road under the conditions specified in 7.1.14.7.1, or under exclusive use and special arrangement by ship under the conditions specified in 7.1.14.9, the maximum radiation level at any point on any external surface of a package or overpack shall not exceed 2 mSv/h.

4.1.9.1.11 The maximum radiation level at any point on any external surface of a package or overpack under exclusive use shall not exceed 10 mSv/h.

4.1.9.1.12 Pyrophoric radioactive material shall be packaged in Type A, Type B(U), Type B(M) or Type C packages and shall also be suitably inerted.”

4.1.9.3 Insert new section:

“4.1.9.3 Packages containing fissile material

Unless not classified as fissile in accordance with 2.7.2.3.5, packages containing fissile material shall not contain:

- .1 A mass of fissile material different from that authorized for the package design;
 - .2 Any radionuclide or fissile material different from those authorized for the package design; or
 - .3 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.”

Chapter 4.2

4.2.0.1 Delete “IMO type portable tanks and road tank vehicles may continue to be constructed in accordance with the provisions of the IMDG Code in force on 1 July 1999 (amendment 29) until 1 January 2003.”

Replace “Tanks certified and approved prior to 1 January 2003” with “IMO type portable tanks and road tank vehicles certified and approved prior to 1 January 2003 in accordance with the provisions of the IMDG Code in force on 1 July 1999 (amendment 29)”

Delete “However, the provisions of column (12) may be used instead of the provisions of column (13) until 1 January 2010.”

4.2.1.13.8 Insert “**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.”

4.2.5.2.6

T23 Insert “or type B” after “type A” for UN 3119 - Di-(3, 5, 5-trimethylhexanoyl) peroxide, not more than 38% in diluent type A

Insert new entry:

| UN No | Substance | Min. test pressure (bar) | Min. shell thickness (mm-reference steel) | Bottom opening requirements | Pressure-relief requirements | Degree of filling | Control temp. | Emergency temp. |
|-------|---|--------------------------|---|-----------------------------|------------------------------|-------------------|---------------|-----------------|
| 3119 | tert-Amyl peroxyneodecanoate, not more than 47% in diluent type A | | | | | | -10 | -5 |

4.2.5.3

TP12 Delete

TP13 Replace “is transported.” With “is transported, unless no self-contained breathing apparatus, as required by SOLAS regulation II-2/19 (II-2/54), is onboard”

TP35 Insert “Portable tank instruction T14 may continue to be applied until 31 December 2014.”

Chapter 4.3

4.3.2.4 Delete “waste”

4.3.2.4.1 Replace “*Bulk waste goods of class 6.2 (UN Nos. 2814 and 2900 (animal carcasses only))*” with “*Transport in bulk containers of animal material of class 6.2*”

Insert “Animal material containing infectious substances (UN Nos. 2814, 2900 and 3373) is authorized for transport in bulk containers provided the following conditions are met:” before “.1 closed bulk containers ...”

4.3.2.4.1.2 Replace “Waste goods UN 2814 and 2900” with “The animal material”

4.3.2.4.1.3 Delete “used for the transport of waste goods UN 2814 and 2900”

Insert “**Note:** Additional provisions may be required by appropriate national health authorities.”

PART 5

Chapter 5.1

5.1.2.1 Insert “, except as required in 5.2.2.1.12.” after “in the overpack are visible.”

5.1.3.2 Replace “Tanks and intermediate bulk containers” with “Packagings, including IBCs, and tanks”

5.1.5 Delete “**Note:** The provisions of chapter 5.2 apply to all class 7 packages as defined in 2.7.2.”

5.1.5.1 Delete paragraph 5.1.5.1

Consequential amendments:

5.1.5.1 Renumber paragraphs 5.1.5.2 to 5.1.5.3.3

- 5.1.5.2.1** Replace “5.1.5.2.2”, “5.1.5.2.3” and “5.1.5.2.4” with “5.1.5.1.2”, “5.1.5.1.3” and “5.1.5.1.4”
- 6.4.22.2** Replace “5.1.5.3.1” with “5.1.5.2.1”
- 6.4.22.3** Replace “5.1.5.3.1” with “5.1.5.2.1”
- 6.4.23.2** Replace “5.1.5.3.1” with “5.1.5.2.1”
- 6.4.23.14(h)** Replace “5.1.5.2.2” with “5.1.5.1.2”

5.1.5.2.2 (current 5.1.5.3.2)

Delete “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 Insert new section:

“5.1.5.3 Determination of transport index (TI) and criticality safety index (CSI)

5.1.5.3.1 The transport index (TI) for a package, overpack or freight container, or for unpackaged LSA-I or SCO-I, shall be the number derived in accordance with the following procedure:

- .1 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, freight 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;

- .2 For tanks, freight containers and unpackaged LSA-I and SCO-I, the value determined in 5.1.5.3.1.1 above shall be multiplied by the appropriate factor from Table 5.1.5.3.1;

- .3 The value obtained in 5.1.5.3.1.1 and 5.1.5.3.1.2 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 5.1.5.3.1: Multiplication factors for tanks, freight containers and unpackaged LSA-I and SCO-I

| Size of load ^a | 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 |

^a Largest cross-sectional area of the load being measured.

5.1.5.3.2 The transport index for each overpack, freight container or conveyance 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.

5.1.5.3.3 The criticality safety index for each overpack or freight container shall be determined as the sum of the CSIs of all the packages contained. The same procedure shall be followed for determining the total sum of the CSIs in a consignment or aboard a conveyance.

5.1.5.3.4 Packages and overpacks shall be assigned to either category I-WHITE, II-YELLOW or III-YELLOW in accordance with the conditions specified in Table 5.1.5.3.4 and with the following requirements:

- .1 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;
- .2 The transport index shall be determined following the procedures specified in 5.1.5.3.1 and 5.1.5.3.2;
- .3 If the surface radiation level is greater than 2 mSv/h, the package or overpack shall be transported under exclusive use and under the provisions of 7.2.3.1.3, 7.2.3.2.1, or 7.2.3.3.3, as appropriate;
- .4 A package transported under a special arrangement shall be assigned to category III-YELLOW except when otherwise specified in the competent authority approval certificate of the country of origin of design (see 2.7.2.4.6);

- .5 An overpack which contains packages transported under special arrangement shall be assigned to category III-YELLOW except when otherwise specified in the competent authority approval certificate of the country of origin of design (see 2.7.2.4.6).

Table 5.1.5.3.4: Categories of packages and overpacks

| Conditions | | |
|--|--|-------------------------|
| Transport index | Maximum radiation level at any point on external surface | Category |
| 0 ^a | Not more than 0.005 mSv/h | I-WHITE |
| More than 0 but not more than 1 ^a | 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 ^b |

^a If the measured TI is not greater than 0.05, the value quoted may be zero in accordance with 5.1.5.3.1.3.

^b Shall also be transported under “exclusive use”.

Chapter 5.2

5.2.1.5.2 Replace paragraph with “In the case of excepted packages marking the proper shipping name is not required.”

5.2.1.6 Replace section with:

“**5.2.1.6.1** Packages containing marine pollutants meeting the criteria of 2.10.3 shall be durably marked with the marine pollutant mark with the exception of single packagings and combination packagings containing inner packagings with:

- contents of 5 l or less for liquids; or
- contents of 5 kg or less for solids.

5.2.1.6.2 The marine pollutant mark shall be located adjacent to the markings required by 5.2.1.1. The provisions of 5.2.1.2 and 5.2.1.4 shall be met.

5.2.1.6.3 The marine pollutant mark shall be as shown below. For packagings, the dimensions shall be at least 100 mm × 100 mm, except in the case of packages of such dimensions that they can only bear smaller marks.

Marine pollutant mark



Symbol (fish and tree): black on white or suitable contrasting background”

- 5.2.1.7** Delete “open” before “cryogenic receptacles intended for the transport of”
- 5.2.1.7.1(a)** Insert “except for cryogenic receptacles” after “pressure receptacles”
- 5.2.1.8** Insert new section:
- “5.2.1.8 Excepted quantity mark**
- 5.2.1.8.1** Packages containing excepted quantities of dangerous goods shall be marked according to 3.5.4.”
- 5.2.2.1.12.1** Replace “Except as provided for large freight containers and tanks in accordance with 5.3.1.1.5.1” with “Except when enlarged labels are used in accordance with 5.3.1.1.5.1”
- 5.2.2.1.12.2.4** Replace “See 2.7.6.1.1 and 2.7.6.1.2” with “The number determined in accordance with 5.1.5.3.1 and 5.1.5.3.2”
- 5.2.2.2.1.1** Replace “They shall have a line of the same colour as the symbol, 5 mm inside the edge and running parallel with it.” with “They shall have a line 5 mm inside the edge and running parallel with it. In the upper half of a label the line shall have the same colour as the symbol and in the lower half it shall have the same colour as the figure in the bottom corner.”
- 5.2.2.2.1.2** Replace “ISO 7225:1994” with “ISO 7225:2005” (twice)
- 5.2.2.2.1.3** Replace with “With the exception of divisions 1.4, 1.5 and 1.6 of class 1, the upper half of the label shall contain the pictorial symbol and the lower half shall contain the class number 1, 2, 3, 4, 4.1, 5.2, 6, 7, 8 or 9 as appropriate. The label may include text such as the UN number, or words describing the hazard class (e.g., “flammable”) in accordance with 5.2.2.2.1.5 provided the text does not obscure or detract from the other label elements.”
- 5.2.2.2.1.4** Replace “Except for divisions 1.4, 1.5 and 1.6, labels for class 1 show in the lower half” with “In addition, except for divisions 1.4, 1.5 and 1.6, labels for class 1 shall show in the lower half, above the class number,”

Replace “Labels for divisions 1.4, 1.5 and 1.6 show in the upper half the division number and in the lower half the” with “Labels for divisions 1.4, 1.5 and 1.6 shall show in the upper half the division number and in the lower half the class number and the”

5.2.2.2.1.6.3 Renumber as “5.2.2.2.1.6.4”

Insert “the class 5.2 label, where the symbol may be shown in white; and”

Consequential amendments:

5.2.2.2.2 Replace “5.2.2.2.1.6.3” with “5.2.2.2.1.6.4” for class 2.1

Replace:



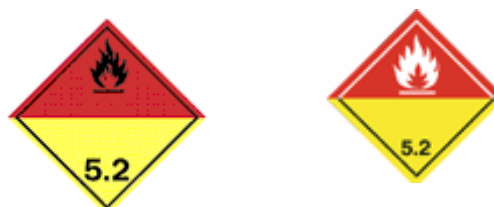
(No. 5.2(b))

Class 5.2

Organic peroxides

Symbol (flame): black or white;
Background: upper half red; lower half yellow;
Figure '5.2' in bottom corner.

with:



(No. 5.2(b))

Class 5.2

Organic peroxides

Symbol (flame): black or white;
Background: upper half red; lower half yellow;
Figure '5.2' in bottom corner.

5.2.2.2.1.6.2 Delete “and” after “... where they may be shown in white;”

Chapter 5.3

5.3.1.2.1.1 Delete “of the same colour as the symbol”

5.3.1.2.1.1 Replace “;” with “. In the upper half of the placard the line shall have the same colour as the symbol and in the lower half it shall have the same colour as the figure in the bottom corner.”

5.3.2.1.2.1 Replace “against a white background in the lower half of each primary hazard class placard; or” with “against a white background in the area below the pictorial symbol and above the class number and the compatibility group letter in a manner that does not obscure or detract from the other required label elements (see 5.3.2.1.3); or”

- 5.3.2.3** Replace “The mark shall conform to 5.2.1.6.3 and shall have sides of at least 250 mm.” with “The mark shall conform to the specifications given in 5.2.1.6.3, and shall have minimum dimensions of 250 mm x 250 mm.”

Chapter 5.4

- 5.4.1.2.5** Replace footnote with “¹ For standardized formats, see also the relevant recommendations of the UNECE United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), in particular Recommendation No.1 (United Nations Lay-out Key for Trade Documents) (ECE/TRADE/137, edition 81.3), UN Layout Key for Trade Documents – Guidelines for Applications (ECE/TRADE/270, edition 2002), Recommendation No.11 (Documentary Aspects of the International Transport of Dangerous Goods).

(ECE/TRADE/204, edition 96.1 – currently under revision) and Recommendation No.22 (Lay-out Key for standard Consignment Instructions) (ECE/TRADE/168, edition 1989). Refer also to the UN/CEFACT Summary of Trade Facilitation Recommendations (ECE/TRADE/346, edition 2006) and the United Nations Trade Data Elements Directory (UNTDDED) (ECE/TRADE/362, edition 2005).”

- 5.4.1.4.4** Delete “, n.o.s.” for UN 2761

- 5.4.1.5.2.1** Replace “in column 7” with “in column 7a”

- 5.4.1.5.11.1** Replace paragraph with “For substances, mixtures, solutions or preparations classified under N.O.S. entries not included in the segregation groups listed in 3.1.4.4 but belonging, in the opinion of the consignor, to one of these groups (see 3.1.4.2), the appropriate segregation group name preceded by the phrase “IMDG Code segregation group” shall be included in the transport document after the dangerous goods description. For example:

“UN 1760 CORROSIVE LIQUID, N.O.S. (Phosphoric acid)
8 III IMDG Code segregation group – 1 Acids”

- 5.4.1.5.13** Insert new paragraph “**5.4.1.5.13**”:

- “5.4.1.5.13 *Transport of IBCs or portable tanks after the date of expiry of the last periodic test or inspection***

For transport in accordance with 4.1.2.2.2.2, 6.7.2.19.6.2, 6.7.3.15.6.2 or 6.7.4.14.6.2, a statement to this effect shall be included in the transport document, as follows: “Transport in accordance with 4.1.2.2.2.2”, “Transport in accordance with 6.7.2.19.6.2”, “Transport in accordance with 6.7.3.15.6.2” or “Transport in accordance with 6.7.4.14.6.2” as appropriate.”

Insert new section

“5.4.1.5.14 Dangerous goods in excepted quantities

5.4.1.5.14.1 When dangerous goods are transported according to the exceptions for dangerous goods packed in excepted quantities provided for in column 7b of the Dangerous Goods List and chapter 3.5, the words “dangerous goods in excepted quantities” shall be included.”

5.4.2.2 Insert “Facsimile signatures are acceptable where applicable laws and regulations recognize the legal validity of facsimile signatures.” after “shall be identified on the document.”

5.4.2.3 Insert new paragraph “**5.4.2.3**”:

“5.4.2.3 If the dangerous goods documentation is presented to the carrier by means of electronic data processing (EDP) or electronic data interchange (EDI) transmission techniques, the signature(s) may be replaced by the name(s) (in capitals) of the person authorized to sign.”

5.4.5.1 Insert a full stop at the end of the note, after “tanks” (English only)

PART 6

Chapter 6.1

6.1.1.3 Insert “**Note:** ISO 16106:2006 “Packaging – Transport packages for dangerous goods – Dangerous goods packagings, intermediate bulk containers (IBCs) and large packagings – Guidelines for the application of ISO 9001” provides acceptable guidance on procedures which may be followed.” after “packaging meets the provisions of this chapter.”

6.1.2.6 Insert “**Note:** *Plastics materials*, is taken to include other polymeric materials such as rubber.” after “Glass, porcelain or stoneware”

6.1.3.1(a) Replace “This shall not be used for any purpose other than certifying that a packaging complies with the relevant provisions of this chapter.” with “This symbol shall not be used for any purpose other than certifying that a packaging complies with the relevant requirements in chapter 6.1, 6.2, 6.3, 6.5 or 6.6.”

6.1.5.1.2 Replace “Tests shall be successfully performed on each packaging design type before such packaging is used.” with “Each packaging design type shall successfully pass the tests prescribed in this chapter before being used.”

6.1.5.3.4 Replace “The target shall be a rigid, non-resilient, flat and horizontal surface.” with:

“Target

The target shall be a non-resilient and horizontal surface and shall be:

- .1 Integral and massive enough to be immovable;
- .2 Flat with a surface kept free from local defects capable of influencing the test results;
- .3 Rigid enough to be non-deformable under test conditions and not liable to become damaged by the tests; and
- .4 Sufficiently large to ensure that the test package falls entirely upon the surface.”

Chapter 6.2

Title Replace “*and small receptacles containing gas (gas cartridges)*” with “, *small receptacles containing gas (gas cartridges) and fuel cell cartridges containing liquefied flammable gas*”

6.2.1 Replace “*and small receptacles containing gas (gas cartridges)*” with “, *small receptacles containing gas (gas cartridges) and fuel cell cartridges containing liquefied flammable gas*”

6.2.1.1.6 Replace “Manifolds shall be designed such that they are protected from impact.” with “Manifold assemblies (e.g., manifold, valves, and pressure gauges) shall be designed and constructed such that they are protected from impact damage and forces normally encountered in transport. Manifolds shall have at least the same test pressure as the cylinders.”

Replace “means shall be provided” with “each pressure receptacle shall have an isolation valve”

6.2.1.1.9 Insert “*Additional requirements for the construction of pressure receptacles for acetylene*”.

Pressure receptacles for UN 1001 acetylene, dissolved, and UN 3374 acetylene, solvent free, shall be filled with a porous material, uniformly distributed, of a type that conforms to the requirements and testing specified by the competent authority and which:

- .1 is compatible with the pressure receptacle and does not form harmful or dangerous compounds either with the acetylene or with the solvent in the case of UN 1001; and

- .2 is capable of preventing the spread of decomposition of the acetylene in the porous material.

In the case of UN 1001, the solvent shall be compatible with the pressure receptacles.”

- 6.2.1.3.1** Replace “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.” with “Valves, piping and other fittings subjected to pressure, excluding pressure relief devices, shall be designed and constructed so that the burst pressure is at least 1.5 times the test pressure of the pressure receptacle.”
- 6.2.1.6.1.5** Insert new paragraph “.5 Check of service equipment, other accessories and pressure-relief devices, if to be reintroduced into service.”
- 6.2.1.6.2** Replace paragraph with “Pressure receptacles intended for the transport of UN 1001 acetylene, dissolved and UN 3374 acetylene, solvent free, shall be examined only as specified in 6.2.1.6.1.1, 6.2.1.6.3 and 6.2.1.6.1.5. In addition the condition of the porous material (e.g., cracks, top clearance, loosening, or settlement) shall be examined.”
- 6.2.2.1.3** Delete “ISO 11118:1999 Gas cylinders – Non-refillable metallic gas cylinders – Specification and test methods”
- 6.2.2.2** Insert after the table “**Note:** The limitations imposed in ISO 11114-1 on high strength steel alloys at ultimate tensile strength levels up to 1 100 MPa do not apply to SILANE (UN 2203).” after “Part 2: Non-metallic materials”
- 6.2.2.4** Replace “ISO 6406:1992 Periodic inspection and testing of seamless steel gas cylinders” with “ISO 6406:2005 Seamless steel gas cylinders – Periodic inspection and testing”
- Replace “ISO 10461:1993” with “ISO 10461:2005/A1:2006”
- Replace “ISO 10462:1994 Cylinders for dissolved acetylene – Periodic inspection and maintenance” with “ISO 10462:2005 Transportable cylinders for dissolved acetylene – Periodic inspection and maintenance”
- 6.2.2.7.1** **Replace** “This symbol shall only be marked on pressure receptacles which conform to the provisions of this Code for UN pressure receptacles.” with “This symbol shall not be used for any purpose other than certifying that a packaging complies with the relevant requirements in chapter 6.1, 6.2, 6.3, 6.5 or 6.6.”
- 6.2.4** Replace “and small receptacles containing gas (gas cartridges)” with “, small receptacles containing gas (gas cartridges) and fuel cell cartridges containing liquefied flammable gas”
- 6.2.4.1** Insert “and fuel cell cartridges containing liquefied flammable gas” after “(gas cartridges)”

- 6.2.4.1.1** Insert “or fuel cell cartridge” after “Each receptacle”
Insert “or the fuel cell cartridge” after “95% of the capacity of the receptacle”
Insert “or the fuel cell cartridges” after “or if the receptacles”
Insert “or fuel cell cartridge” after “but in addition one receptacle”
- 6.2.4.1.2** Insert “or fuel cell cartridge” after “receptacle” (twice)
- 6.2.4.2.2.3** Replace “weight” with “mass”

Consequential amendments:

Contents page:

- Chapter 6.2** Replace “and small receptacles containing gas (gas cartridges)” with “, small receptacles containing gas (gas cartridges) and fuel cell cartridges containing liquefied flammable gas”
- 6.2.1.4** Renumber “6.2.1.4” as “6.2.1.5”
Renumber “6.2.1.4.1” as “6.2.1.5.1”
Renumber “6.2.1.4.2” as “6.2.1.5.2”
- 6.2.1.5** Renumber “6.2.1.5” as “6.2.1.6”
Renumber “6.2.1.5.1” as “6.2.1.6.1”
Renumber “6.2.1.5.1” as “6.2.1.6.2”
- 6.2.1.6** Renumber “6.2.1.6” as “6.2.1.4”
Renumber “6.2.1.6.1” as “6.2.1.4.1”
Renumber “6.2.1.6.1” as “6.2.1.4.2”
- 6.2.4** Replace “and small receptacles containing gas (gas cartridges)” with “, small receptacles containing gas (gas cartridges) and fuel cell cartridges containing liquefied flammable gas”
- 4.1.6.1.4** Replace “6.2.1.5” with “6.2.1.6”
- 4.1.6.1.10** Replace “6.2.1.5” with “6.2.1.6”
- 4.2.4.2** Replace “6.2.1.5” with “6.2.1.6”

- 6.2.1.4.2** Replace “6.2.1.4.1.1” with “6.2.1.5.1.1”
Replace “6.2.1.4.1.2” with “6.2.1.5.1.2”
Replace “6.2.1.4.1.4” with “6.2.1.5.1.4”
Replace “6.2.1.4.1.6” with “6.2.1.5.1.6”
Replace “6.2.1.4.1.7” with “6.2.1.5.1.7”
Replace “6.2.1.4.1.8” with “6.2.1.5.1.8”
Replace “6.2.1.4.1.9” with “6.2.1.5.1.9”
- 6.7.5.12.4** Replace “6.2.1.5” with “6.2.1.6”

Chapter 6.3

- Title** Replace “**substances**” with “**infectious substances of category A**”
- 6.3.1.1** Replace paragraph with “The provisions of this chapter apply to packagings intended for the transport of infectious substances of Category A.”
- 6.3.1.2** Delete
- 6.3.1.3** Delete
- 6.3.2** Replace section with:
- “6.3.2 Provisions for packagings**
- 6.3.2.1** The provisions for packagings in this section are based on packagings, as specified in 6.1.4, 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 this chapter provided that they are equally effective, acceptable to the competent authority and able successfully to withstand the tests described in 6.3.5. Methods of testing other than those described in the provisions of this Code are acceptable provided they are equivalent.
- 6.3.2.2** Packagings shall be manufactured and tested under a quality assurance programme which satisfies the competent authority in order to ensure that each packaging meets the provisions of this chapter.
- Note:** ISO 16106:2006 “Packaging – Transport packages for dangerous goods – Dangerous goods packagings, intermediate bulk containers (IBCs) and large packagings – Guidelines for the application of ISO 9001” provides acceptable guidance on procedures which may be followed.”

6.3.2.3 Insert text of existing 6.3.1.3

6.3.3 Replace section with:

“6.3.3 Code for designating types of packagings

6.3.3.1 The codes for designating types of packagings are set out in 6.1.2.7.

6.3.3.2 The letters “U” or “W” may follow the packaging code. The letter “U” signifies a special packaging conforming to the provisions of 6.3.5.1.6. The letter “W” signifies that the packaging, although, of the same type indicated by the code is manufactured to a specification different from that in 6.1.4 and is considered equivalent under the provisions of 6.3.2.1.”

Insert new sections 6.3.4 and 6.3.5:

“6.3.4 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 provisions of this chapter which are related to the manufacture, but not to the use, of the packaging.

Note 2: The marking is intended to be of assistance to packaging manufacturers, reconditioners, packaging users, carriers and regulatory authorities.

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.

6.3.4.1 Each packaging intended for use according to the provisions of this Code 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.

6.3.4.2 Insert text of existing 6.3.1.1 with the following modifications:

Replace “6.3.2” with “6.3.5”

6.3.4.2(a) Replace “the United Nations Packaging symbol;” with “the United Nations Packaging symbol. This symbol shall not be used for any purpose other than certifying that a packaging complies with the relevant provisions in chapter 6.1, 6.2, 6.3, 6.5 or 6.6;”

- 6.3.4.2(g)** Replace “6.3.2.9” with “6.3.5.1.6”
- 6.3.4.2(h)** Delete “shall be clearly separated, such as by a slash or space, so as to be easily identifiable” after “with subparagraphs (a) to (g)”
- 6.3.4.3** Marking shall be applied in the sequence shown in 6.3.4.2 (a) to (g); each element of the marking required in these sub-paragraphs shall be clearly separated, e.g., by a slash or space, so as to be easily identifiable. For examples, see 6.3.4.4
- Any additional markings authorized by a competent authority shall still enable the parts of the mark to be correctly identified with reference to 6.3.4.1
- 6.3.4.4** Insert text of existing 6.3.1.2 with the following modifications:
- Replace “**4G/CLASS 6.2/01**” with “**4G/CLASS 6.2/06**”
- Replace “6.3.1.1” with “6.3.4.2” (twice)
- 6.3.5** Insert heading of existing 6.3.2
- 6.3.5.1** **Performance and frequency of tests**
- 6.3.5.1.1** The design type of each packaging shall be tested as provided in this section in accordance with procedures established by the competent authority.
- 6.3.5.1.2** Each packaging design type shall successfully pass the tests prescribed in this chapter before being 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.
- 6.3.5.1.3** Tests shall be repeated on production samples at intervals established by the competent authority.
- 6.3.5.1.4** Tests shall also be repeated after each modification which alters the design, material or manner of construction of a packaging.
- 6.3.5.1.5** Insert text of existing 6.3.2.7 with the following modifications:
- Replace “of inner packagings or inner packagings of lower net mass” with “or lower net mass of primary receptacles”
- Delete “, bags” after “such as drums”

- 6.3.5.1.6** Insert text of existing 6.3.2.9 with the following modifications:
- Replace “Inner” with “Primary”
 - Replace “intermediate (secondary)” with “secondary”
 - Replace “outer” with “rigid outer”
- 6.3.5.1.6.1** Replace “intermediate/outer packaging combination” with “rigid outer packaging”
- Replace “6.3.2.3” with “6.3.5.2.2”
 - Replace “inner” with “primary”
- 6.3.5.1.6.2** Replace “inner” with “primary” (twice)
- 6.3.5.1.6.3** Replace “inner” with “primary” (seven times)
- Replace “intermediate” with “secondary” (twice)
 - Insert “spaces” after “to take up the void”
- 6.3.5.1.6.4** Replace “outer” with “rigid outer”
- Replace “inner receptacles” with “packagings”
- 6.3.5.1.6.5** Replace “inner” with “primary” (twice)
- 6.3.5.1.6.6** Replace “outer” with “rigid outer”
- Replace “inner” with “primary” (twice)
- 6.3.5.1.6.7** Replace “6.3.1.1” with “6.3.4.2” (twice)
- 6.3.5.1.7** The competent authority may at any time require proof, by tests in accordance with this section, that serially-produced packagings meet the provisions of the design type tests.
- 6.3.5.1.8** 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.
- 6.3.5.2** Preparation of packagings for testing
- 6.3.5.2.1** Insert text of existing 6.3.2.2 with the following modifications:
- Replace “98% capacity” with “not less than 98% of its capacity”**
- Insert “**Note:** The term water includes water/antifreeze solution with a minimum specific gravity of 0.95 for testing at -18°C.” after “98% of its capacity.”

6.3.5.2.2 Tests and number of samples required

Tests required for packaging types

| Type of packaging ^a | | | Tests required | | | | | Stack 6.1.5.6 |
|---|-----------------------|-------|-----------------------------------|-------------------------------------|-------------------|---|---------------------|--|
| Rigid outer packaging | Primary receptacle | | Water spray 6.3.5.3.6. 1 | Cold conditioning 6.3.5.3.6.2 | Drop 6.3.5.3 | Additional drop 6.3.5.3.6.3 | Puncture 6.3.5.4 | |
| | Plastics | Other | No. of samples | No. of samples | No. of samples | No. of samples | No. of samples | |
| Fibreboard box | x | | 5 | 5 | 10 | Required on one sample when the packaging is intended to contain dry ice. | 2 | Required on three samples when testing a “U”- marked packaging as defined in 6.3.5.1.6 for specific provisions. |
| | | x | 5 | 0 | 5 | | 2 | |
| Fibreboard drum | x | | 3 | 3 | 6 | | 2 | |
| | | x | 3 | 0 | 3 | | 2 | |
| Plastics box | x | | 0 | 5 | 5 | | 2 | |
| | | x | 0 | 5 | 5 | | 2 | |
| Plastics drum/ jerrican | x | | 0 | 3 | 3 | | 2 | |
| | | x | 0 | 3 | 3 | | 2 | |
| Boxes of other material | x | | 0 | 5 | 5 | | 2 | |
| | | x | 0 | 0 | 5 | | 2 | |
| Drums/ jerricans of other material | x | | 0 | 3 | 3 | 2 | | |
| | | x | 0 | 0 | 3 | 2 | | |

^a “Type of packaging” categorizes packagings for test purposes according to the kind of packaging and its material characteristics.

Note 1: In instances where a primary receptacle is made of two or more materials, the material most liable to damage determines the appropriate test.

Note 2: The material of the secondary packagings are not taken into consideration when selecting the test or conditioning for the test.

Explanation for use of the table:

If the packaging to be tested consists of a fibreboard outer box with a plastics primary receptacle, five samples must undergo the water spray test (see 6.3.5.3.6.1) prior to dropping and another five must be conditioned to -18°C (see 6.3.5.3.6.2) prior to dropping. If the packaging is to contain dry ice then one further single sample shall be dropped five times after conditioning in accordance with 6.3.5.3.6.3.

Packagings prepared as for transport shall be subjected to the tests in 6.3.5.3 and 6.3.5.4. 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.

6.3.5.3 Drop test

6.3.5.3.1 Samples shall be subjected to free-fall drops from a height of 9 m onto a non-resilient, horizontal, flat, massive and rigid surface in conformity with 6.1.5.3.4.

6.3.5.3.2 Where the samples are in the shape of a box; five shall be dropped one in each of the following orientations:

- .1 flat on the base;
- .2 flat on the top;
- .3 flat on the longest side;
- .4 flat on the shortest side; and
- .5 on a corner.

6.3.5.3.3 Where the samples are in the shape of a drum, three shall be dropped one in each of the following orientations:

- .1 diagonally on the top chime, with the centre of gravity directly above the point of impact;
- .2 diagonally on the base chime; and
- .3 flat on the side.

6.3.5.3.4 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.

6.3.5.3.5 Following the appropriate drop sequence, there shall be no leakage from the primary receptacle(s) which shall remain protected by cushioning/absorbent material in the secondary packaging.

6.3.5.3.6 *Special preparation of test sample for the drop test*

6.3.5.3.6.1 Fibreboard – Water spray test

Fibreboard outer packagings: The sample 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 6.3.5.3.1.

6.3.5.3.6.2 Plastics material – Cold conditioning

Plastics primary receptacles or outer packagings: The temperature of the test sample and its contents shall be reduced to -18°C or lower for a period of at least 24 hours and within 15 minutes of removal from that atmosphere the test sample shall be subjected to the test described in 6.3.5.3.1. Where the sample contains dry ice, the conditioning period shall be reduced to 4 hours.

6.3.5.3.6.3 Packagings intended to contain dry ice – Additional drop test

Where the packaging is intended to contain dry ice, a test additional to that specified in 6.3.5.3.1 and, when appropriate, in 6.3.5.3.6.1 or 6.3.5.3.6.2 shall be carried out. One sample shall be stored so that all the dry ice dissipates and then that sample shall be dropped in one of the orientations described in 6.3.5.3.2 which shall be that most likely to result in failure of the packaging.

6.3.5.4 Puncture test

6.3.5.4.1 *Packagings with a gross mass of 7 kg or less*

Insert text of existing 6.3.2.6.1 with the following modification:

Replace “not exceeding 38 mm” with “of 38 mm”

6.3.5.4.2 *Packagings with a gross mass exceeding 7 kg*

Insert text of existing 6.3.2.6.2 with the following modifications:

Replace “the primary receptacle(s) and the outer surface” with “the centre of the primary receptacle(s) and the outer surface”

Insert “with its top face lowermost” before “in a vertical free fall”

Replace “the steel rod would penetrate” with “the steel rod would be capable of penetrating”

Replace “there shall be no leakage” with “penetration of the secondary packaging is acceptable provided that there is no leakage”

6.3.5.5 Insert heading of existing 6.3.3

6.3.5.5.1 Insert text of existing 6.3.3.1 with the following modifications:

Insert “written” before “test report”

6.3.5.5.1.4 Replace “the test report” with “the test and of the report”

6.3.5.5.1.8 Replace “Characteristics of test contents, e.g., viscosity and relative density for liquids and particle size for solids;” with “Test contents;”

6.3.5.5.2 Insert text of existing 6.3.3.2”

Consequential amendments:

Contents page:

Chapter 6.3 Replace “**substances**” with “**infectious substances of category A**”

6.3.2 Replace “Test p” with “P”

6.3.3 Replace “Test report” with “Code for designating types of packagings”

6.3.4 Insert “6.3.4 Marking”

6.3.5 Insert “6.3.5 Test provisions for packagings”

Chapter 6.4

6.4.5.4.1.2 Replace “conform to the standards prescribed in chapter 6.1, or other provisions at least equivalent to those standards” with “satisfy the provisions for packing group I or II in chapter 6.1 of this Code”

6.4.5.4.2.2 Replace “conform to the standards prescribed in chapter 6.7, or other provisions at least equivalent to those standards” with “satisfy the provisions of chapter 6.7 of this Code”

6.4.5.4.3 Replace “that they conform to standards at least equivalent to those prescribed in 6.4.5.4.2.” with “that:

- .1 They satisfy the provisions of 6.4.5.1;
- .2 They are designed to satisfy the provisions prescribed in regional or national regulations for the transport of dangerous goods and are capable of withstanding a test pressure of 265 kPa; and
- .3 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 transport and of preventing an increase of more than 20% in the maximum radiation level at any external surface of the tanks.”

6.4.5.4.4 Insert “of a permanent enclosed character” after “Freight containers”

- 6.4.5.4.5.2** Replace “conform to the standards and test prescribed in chapter 6.5, for packing group I or II, and if they were subjected to the tests prescribed” with “satisfy the provisions of chapter 6.5 of this Code for packing group I or II, and if they were subjected to the tests prescribed in that chapter”
- 6.4.8.8** Justify the text to the left after .2(i) and .2(ii)
- 6.4.11.2** Replace “of this paragraph” with “of 2.7.2.3.5”
- 6.4.11.2.1 to 6.4.11.2.4** Delete text and table
- 6.4.11.11** Replace ““*N*” is subcritical” with ““*N*” packages shall be subcritical”
- 6.4.11.12** Replace ““*N*” is subcritical” with ““*N*” packages shall be subcritical”
- 6.4.11.13** Insert “**6.4.11.13** 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).”
- 6.4.23.14(o)** Insert “6.4.8.4,” before “6.4.8.5”

Chapter 6.5

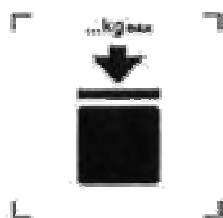
- 6.5.1.2** In the definition of *Plastics*:
Insert “*material*” after “*Plastics*”
Delete “, etc”
- 6.5.1.4.1(a)** Renumber 6.5.1.4.1 (a) 6.5.1.4.1.1
- 6.5.1.4.1(b)** Renumber 6.5.1.4.1 (b) as 6.5.1.4.1.2
- 6.5.2.1.1.1** Insert “This symbol shall not be used for any purpose other than certifying that a packaging complies with the relevant requirements in chapter 6.1, 6.2, 6.3, 6.5 or 6.6.” before “For metal IBCs”
- 6.5.2.1.2** In the fourth, fifth, sixth and seventh examples, insert a full stop after the word “packaging” (English only)
In the fifth example, insert a full stop after the word “solids” (English only)
In the sixth example, insert a full stop after the word “stacked” (English only)
- 6.5.2.2.1** Replace “*” with “^a” (five times)

Insert new entry:

| Additional marking | Category of IBC | | | | |
|--|-----------------|-------------------|---------------|----------------|------------|
| | Metal | Rigid Plastics | Composi te | Fibreboar d | Woode n |
| Maximum permitted stacking load ^b | X | X | X | X | X |

Insert “^b See 6.5.2.2.2 This additional marking shall apply to all IBCs manufactured, repaired or remanufactured as from 1 January 2011..” after “^a The unit used shall be indicated.”

6.5.2.2.2 Replace paragraph with “The maximum permitted stacking load applicable when the IBC is in use shall be displayed on a symbol as follows:



IBCs capable of being stacked



IBCs NOT capable of being stacked

The symbol shall be not less than 100 mm × 100 mm, be durable and clearly visible. The letters and numbers indicating the mass shall be at least 12 mm high.

The mass marked above the symbol shall not exceed the load imposed during the design type test (see 6.5.6.6.4) divided by 1.8.

Note: The provisions of 6.5.2.2.2 shall apply to all IBCs manufactured, repaired or remanufactured as from 1 January 2011.”

6.5.2.2.3 Replace paragraph with “Each flexible IBC may also bear a pictogram or pictograms indicating the recommended lifting methods.”

6.5.2.2.4 Insert the existing text of 6.5.2.2.3

6.5.2.2.5 Insert the existing text of 6.5.2.2.5

6.5.4.1 Insert “**Note:** ISO 16106:2006 “Packaging – Transport packages for dangerous goods – Dangerous goods packagings, intermediate bulk containers (IBCs) and large packagings – Guidelines for the application of ISO 9001” provides acceptable guidance on procedures which may be followed.”

6.5.4.4.2 Insert “at least equally effective as the test prescribed in 6.5.6.7.3” after “a suitable leakproofness test”

Replace “For this test the IBC need not have its closures fitted.” with “For this test the IBC shall be fitted with the primary bottom closure.”

6.5.4.5.4 Renumber as 6.5.4.4.4

6.5.5.4.1 In the last paragraph replace “6.5.1.4.1.2” with “6.5.1.4.1(b)”

6.5.6.1.1 Replace “Tests shall be successfully performed on each IBC design type before such an IBC is used.” with “Each IBC design type shall successfully pass the tests prescribed in this chapter before being used.”

6.5.6.3.5 Replace the seven first columns with the following new eight first columns (3 last columns unchanged):

| Type of IBC | Vibration ^f | Bottom lift | Top lift ^a | Stacking ^b | Leak-proofness | Hydraulic pressure | Drop |
|-----------------------|------------------------|------------------|-----------------------|-----------------------|----------------|--------------------|------------------|
| Metal: | | | | | | | |
| 11A, 11B, 11N | - | 1st ^a | 2nd | 3rd | - | - | 4th ^e |
| 21A, 21B, 21N | - | 1st ^a | 2nd | 3rd | 4th | 5th | 6th ^e |
| 31A, 31B, 31N | 1st | 2nd ^a | 3rd | 4th | 5th | 6th | 7th ^e |
| Flexible ^d | - | - | x ^c | x | - | - | x |
| Rigid plastics: | | | | | | | |
| 11H1, 11H2 | - | 1st ^a | 2nd | 3rd | - | - | 4th |
| 21H1, 21H2 | - | 1st ^a | 2nd | 3rd | 4th | 5th | 6th |
| 31H1, 31H2 | 1st | 2nd ^a | 3rd | 4th | 5th | 6th | 7th |
| Composite: | | | | | | | |
| 11HZ1, 11HZ2 | - | 1st ^a | 2nd | 3rd | - | - | 4th ^e |
| 21HZ1, 21HZ2 | - | 1st ^a | 2nd | 3rd | 4th | 5th | 6th ^e |
| 31HZ1, 31HZ2 | 1st | 2nd ^a | 3rd | 4th | 5th | 6th | 7th ^e |
| Fibreboard | - | 1st | - | 2nd | - | - | 3rd |
| Wooden | - | 1st | - | 2nd | - | - | 3rd |

Insert “^f Another IBC of the same design may be used for the vibration test.”

6.5.6.5.5.1 Replace “no permanent deformation which renders the IBC, including the base pallet, if any, unsafe for transport” with “the IBC remains safe for normal conditions of transport, there is no observable permanent deformation of the IBC, including the base pallet, if any,”

6.5.6.7.3 Delete “Other methods at least equally effective may be used.”

6.5.6.9.3 Replace “rigid, non-resilient, smooth, flat and horizontal surface, in such a manner so as to ensure that the point of impact is on” with “non-resilient, horizontal, flat, massive and rigid surface in conformity with the requirements of 6.1.5.3.4, in such a manner as to ensure that the point of impact is”

6.5.6.9.5.4 Insert new paragraph “All IBCs: no damage which renders the IBC unsafe to be transported for salvage or for disposal, and no loss of contents. In addition, the IBC shall be capable of being lifted by an appropriate means until clear of the floor for five minutes.

Note: The criterion in 6.5.6.9.5.4 applies to design types for IBCs manufactured as from 1 January 2011.”

6.5.6.13 Insert new section 6.5.6.13:

“6.5.6.13 *Vibration test*

6.5.6.13.1 *Applicability*

For all IBCs used for liquids, as a design type test.

Note: This test applies to design types for IBCs manufactured as from 1 January 2011.

6.5.6.13.2 *Preparation of the IBC for test*

A sample IBC shall be selected at random and shall be fitted and closed as for transport. The IBC shall be filled with water to not less than 98% of its maximum capacity.

6.5.6.13.3 *Test method and duration*

6.5.6.13.3.1 The IBC shall be placed in the center of the test machine platform with a vertical sinusoidal, double amplitude (peak-to peak displacement) of $25 \text{ mm} \pm 5\%$. If necessary, restraining devices shall be attached to the platform to prevent the specimen from moving horizontally off the platform without restricting vertical movement.

6.5.6.13.3.2 The test shall be conducted for one hour at a frequency that causes part of the base of the IBC to be momentarily raised from the vibrating platform for part of each cycle to such a degree that a metal shim can be completely inserted intermittently at, at least, one point between the base of the IBC and the test platform. The frequency may need to be adjusted after the initial set point to prevent the packaging from going into resonance. Nevertheless, the test frequency shall continue to allow placement of the metal shim under the IBC as described in this paragraph. The continuing ability to insert the metal shim is essential to passing the test. The metal shim used for this test shall be at least 1.6 mm thick, 50 mm wide, and be of sufficient length to be inserted between the IBC and the test platform a minimum of 100 mm to perform the test.

6.5.6.13.4 *Criteria for passing the test*

No leakage or rupture shall be observed. In addition, no breakage or failure of structural components, such as broken welds or failed fastenings, shall be observed.”

Consequential amendments:

6.5.6.2.1 Replace “6.5.6.12” with “6.5.6.13”

6.5.6.2.3 Replace “6.5.6.13” with “6.5.6.14”

6.5.6.14 Renumber 6.5.6.13 to 6.5.6.14

Chapter 6.6

6.6.1.2 Insert “**Note:** ISO 16106:2006 “Packaging – Transport packages for dangerous goods – Dangerous goods packagings, intermediate bulk containers (IBCs) and large packagings – Guidelines for the application of ISO 9001” provides acceptable guidance on procedures which may be followed.” after “meets the provisions of this chapter.”

6.6.3.1(a) Insert “This symbol shall not be used for any purpose other than certifying that a packaging complies with the relevant requirements in chapter 6.1, 6.2, 6.3, 6.5 or 6.6.” before “For metal large packagings”

6.6.3.2 Insert a full stop at the end of the sentence (English only)

6.6.5.1.2 Replace “Tests shall be successfully performed on each large packaging design type before such a packaging is used.” with “Each large packaging design type shall successfully pass the tests prescribed in this chapter before being used.”

6.6.5.3.4.3 Replace “rigid, non-resilient, smooth, flat and horizontal surface,” with “non resilient, horizontal, flat, massive and rigid surface in conformity with the requirements of 6.1.5.3.4,”

Chapter 6.7

6.7.1.1 Delete “of classes 1, 2, 3, 4, 5, 6, 8 and 9”

6.7.2.12.2.1 Replace “kW.m⁻².K⁻¹” with “kW/m.K”

6.7.3.2.12.2 Replace “W.m⁻².K⁻¹” with “W/mK”

6.7.3.8.1.1 Replace “kW.m⁻².K⁻¹” with “kW/m.K”

Insert “C may also be taken from the following table” before the table

- 6.7.4.14.4** Insert “and tests” after “5-year periodic inspection”
- 6.7.4.14.5** Replace paragraph with “(Reserved)”
- 6.7.4.14.10** Replace “, 6.7.4.14.5 and 6.7.4.14.7” with “and 6.7.4.14.7”
- 6.7.5.3.2** Replace “isolated by a valve into assemblies of not more than 3000 litres” with “divided into groups of not more than 3000 litres each isolated by a valve”
- 6.7.5.4.1** **Replace** “shall be isolated by a valve into assemblies of not more than 3000 litres. Each assembly shall be fitted” with “shall be divided into groups of not more than 3000 litres each isolated by a valve. Each group shall be fitted”

PART 7

Chapter 7.1

- 7.1.7.4.5.2.2** Insert a comma between the words “deck” and “deckhead” (English only)

Insert new paragraph

“7.1.7.4.10 Loading and unloading operations

In the event that a package containing goods of class 1 is found to be suffering from breakage or leakage expert advice should be obtained for its safe handling and disposal (see 7.3.1.3). Loading and unloading procedures and equipment used should be of such a nature that sparks are not produced, in particular where the floors of the cargo compartment are not constructed of close-boarded wood. All cargo handlers should be briefed by the shipper or receiver of the possible risks and necessary precautions, prior to commencing the handling of explosives.”

- 7.1.9.2** Replace “substances with a flashpoint of 23°C c.c. or less” with “substances with a flashpoint of less than 23°C c.c.”
- 7.1.9.6** Replace “flammable liquids with a flashpoint of 23°C c.c. or less” with “flammable liquids with a flashpoint of less than 23°C c.c.”

Chapter 7.2

- 7.2.7.1.1** Replace “and sodium nitrate of class 5.1” with “(UN 1942), AMMONIUM NITRATE FERTILZERS (UN 2067), alkali metal nitrates (e.g. UN 1486) and alkaline earth metal nitrates (e.g. UN 1454)”

Chapter 7.3

Insert new paragraph

“7.3.1.3 In the event that a package containing dangerous goods is found to be suffering from breakage or leakage while the ship is in port, the port authorities should be informed and appropriate procedures should be followed.”

7.3.4.3 Replace “Safety Guide No. TS-G-1-2 (ST-3) (ISBN 92-0-111602-0)” with “Safety Standard Series No. TS-G-1.2 (ST-3), IAEA, Vienna (2002).”

Chapter 7.4

7.4.2.5 Replace “3.5 of the IMO publication *Recommendations on the Safe Use of Pesticides in Ships*” in the footnote with “MSC/Circ.[...] Recommendations on the safe use of pesticides in ships applicable to the fumigation of cargo transport units”

7.4.4.1.1 Replace “23°C c.c. or less” with “less than 23°C c.c.”

7.4.4.1.2 Replace “below” with “less than”

7.4.4.1.3 Replace “below” with “less than”

7.4.5.8 Replace “23°C c.c. or less” with “less than 23°C c.c.”

7.4.5.11 Replace “23°C c.c. or less” with “less than 23°C c.c.”

7.4.5.13 Replace “23°C c.c. or less” with “less than 23°C c.c.”

Chapter 7.7

7.7.3.1.3 Replace “W/m² K” with “W/(m².K)”

7.7.6 Replace “below” with “less than”

7.7.6.1 Replace “below” with “less than”

7.7.6.2 Replace “below” with “less than”

Chapter 7.9

7.9.1 Note 2 Replace “1.1.3.4” with “1.5.4”

7.9.3 Subject to review by the Secretariat on the basis of information received from member States and Organizations.

Update the following Contact information:

Amend the entry of Germany to read:

Federal Ministry of transport, Building and Urban Affairs
Division A 33 – Transport of Dangerous Goods
PO Box 20 01 00
D 53170 Bonn
GERMANY
Telephone: +49 228 3000 or 300-extension
+49 228 300 2643
Telefax: +49 228 300 3428
E-mail: Ref-A33@bmvs.bund.de

Insert:

GHANA

The Director General
Ghana Maritime Authority
P.M.B. 34, Ministries Post Office
Accra
GHANA
Telephone: +233 21 662122
Telefax: +233 21 677702

Amend the entry of Iran (Islamic Republic of) to read:

Ports and Shipping Organization
PSO Building, South Didar Ave,
Shahid Haghani Highway, Vanak Square
Tehran
IRAN
Telephone: +98 21 8493 2201
Telefax: +98 21 8493 2227

Amend the entry of Italy to read:

Italian Coast Guard Headquarters
Ponte Dei Mille
Genoa
16100
ITALY
Telephone: +39 010 25 18 154 + 102
+39 010 25 18 154 + 111
Fax: +39 010 24 78 245
E-mail: 001@sicnavge.it
005@sicnavge.it

Insert:

MONTENEGRO

Ministry of Interior and Public Administration of the Republic of Montenegro
Department for Contingency Plans and Civil Security
REPUBLIC OF MONTENEGRO
Telephone: +382 81 241 590
Fax: +382 81 246 779
E-mail: mup.emergency@cg.yu

Amend the entry of New Zealand to read:

Maritime New Zealand
Level 10 Optimisation House
1 Grey Street
PO Box 27006
Wellington
NEW ZEALAND
Telephone: +64 4 473 0111
Telefax: +64 4 494 1263
E-mail: enquiries@maritimenz.govt.nz
Website: www.maritimenz.govt.nz

Amend the entry of Norway to read:

Norwegian Maritime Directorate
Smedasundeh 50B
P.O. Box 2222
N-5509 HAUGESUND
NORWAY
Telephone: +47 5274 5000
Fax: +47 5244 5001
E-mail: postmottak@sjofartsdir.no

Amend the entry of Peru to read:

Dirección General de Capitanías y Guardacostas
Autoridad Marítima del Perú
Dirección de Medio Ambiente
Jr. Independencia No 150
Callao
PERU
Telefax: +51 1 613 6857
E-mail: dicapi.medioambiente@dicapi.mil.peru

Autoridad Portuaria Nacional
Unidad de Protección y Seguridad
Contralmirante Raygada No. 111
Callao
PERU
Telephone: +51 1 453 5656 ext. 114
 +51 1 453 8112
Fax: +51 1 453 5656

Amend the entry of Poland to read:

Ministry of Maritime Economy
Department of Maritime Safety
00-928 Warsaw
ul. Chalubinskiego 4/6
POLAND
Telephone: +48 22 630 15 40
Telefax: +48 22 830 09 47

Amend the entry of the Republic of Korea to read:

Maritime Technology Team
Maritime Safety Bureau
Ministry of Maritime Affairs and Fisheries
140-2 Gye-Dong, Jongno-gu, Seoul, 110-793
REPUBLIC OF KOREA
Telephonhe: +82 2 3674 6323
Telefax: +82 2 3674 6327

Insert:

UNITED ARAB EMIRATES

National Authority of Communications
Marine Affairs Department
PO Box 900 Abu Dhabi
UNITED ARAB EMIRATES
Telephone: +9712 4182 124
Fax: +9712 4491 500
Email: marine@naoc.gov.ae

Amend the entry of the United States to read:

US Department of Transportation
Pipeline and Hazardous Materials Safety Administration
Office of International Standards
East building/PHH-70
1200 New Jersey Ave S.E.
Washington DC 20590

USA
Telephone: +1 202 366 0656
Telefax: +1 202 366 5713
Email: infocntr@dot.gov
Website: hazmat.dot.gov

United States Coast Guard
Hazardous Materials Standards Division (G-3PSO-3)
2100 Second Street SW
Washington, D.C. 20593-0001
USA
Telephone: +1 202 372 1420
+1 202 372 1426
Telefax: +1 202 372 1926

APPENDIX A

Replace “division 6.1” with “class 6.1”

Replace “61°C” with “60°C” In the General entries for ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S.

- Class 1.3L** Insert “4.3” in the column marked “Subsidiary risk” for UN 0249
- Class 3** Delete the comma after the words “N.O.S” UN 3343 (English and French only)
- Class 3** Delete the comma after the words “N.O.S.” in the column marked “Proper shipping name” for UN 3357 (English and French only)
- Class 3** Replace “61°C” with “60°C” for UN 3256
- Class 4.1** Delete “5.1” in the column marked “Subsidiary Risk” for UN 3181 (English only)
- Class 4.1** Replace “6.1” with “5.1” in the column marked “Subsidiary Risk” for UN 3097 (English only)
- Class 4.1** Replace “8” with “6.1” in the column marked “Subsidiary Risk” for UN 3179 (English only)
- Class 4.1** Insert “8” in the column marked “Subsidiary Risk” for UN 3180 (English only)
- Class 6.1** Replace title with “NICOTINE COMPOUND, LIQUID, N.O.S. or NICOTINE PREPARATION, LIQUID, N.O.S.” in the column marked “Proper shipping name” for UN 3144 (English only)
- Class 6.1** Delete “3” in the column marked “Subsidiary Risk” for UN 3466 (English only)

- Class 6.1** Delete “8” in the column marked “Subsidiary Risk” for UN 3275 (English only)
- Class 6.1** Delete “8” in the column marked “Subsidiary Risk” for UN 3279 (English only)
- Class 6.1** Replace existing entry with “3+8” in the column marked “Subsidiary Risk” for UN 2742 (English only)
- Class 6.1** Replace existing entry with “3+8” in the column marked “Subsidiary Risk” for UN 3362 (English only)
- Class 6.1** Insert “8” in the column marked “Subsidiary Risk” for UN 3277 (English only)
- Class 6.2** Replace existing entry with “BIOLOGICAL SUBSTANCE, CATEGORY B” for UN 3373 (English and French only)
- Class 6.1** Insert “8” in the column marked “Subsidiary Risk” for UN 3361 (English only)
- Class 8** Insert new entry (English and French only)

| Class or division | Subsidiary risk | UN Number | Proper Shipping Name |
|-------------------|-----------------|-----------|-------------------------------------|
| 8 | 6.1 | 3471 | HYDROGENDIFLUORIDES SOLUTION, N.O.S |

INDEX

Note 1 Replace “Certain marine pollutants or severe marine pollutants are identified only in the Index” with “Certain marine pollutants are identified only in the Index.”

Replace “These marine pollutants or severe marine pollutants have not been assigned to an N.O.S. or generic entry. These marine pollutants or severe marine pollutants may possess properties of classes 1 to 8 and shall be classified accordingly.” with “These marine pollutants have not been assigned to an N.O.S. or generic entry. These marine pollutants may possess properties of classes 1 to 8 and shall be classified accordingly.”

Delete:

| Substance, material or article | MP | Class | UN No. |
|--------------------------------------|----|-------|--------|
| Paraffins, <i>see</i> | - | 3 | 1223 |
| 2,4-D, <i>see</i> PHENOXY PESTICIDE | P | - | - |
| 2,4-DB, <i>see</i> PHENOXY PESTICIDE | - | - | - |

Replace:

| Substance, material or article | MP | Class | UN No. |
|--------------------------------------|----|-------|--------|
| 2,4-D, <i>see</i> PHENOXY PESTICIDE | P | - | - |
| 2,4-DB, <i>see</i> PHENOXY PESTICIDE | - | - | - |

With:

| Substance, material or article | MP | Class | UN No. |
|--|----|-------|--------|
| 2,4-D, <i>see</i> PHENOXYACETIC ACID DERIVATIVE | - | - | - |
| 2,4-DB, <i>see</i> PHENOXYACETIC ACID DERIVATIVE | - | - | - |

Replace “-” with “P” for:

| Substance, material or article | MP | Class | UN No. |
|---|----|-------|--------|
| <i>N, N</i> -Bis(2-hydroxyethyl)oleamide (loa), <i>see</i> Note 1 | - | - | |

Replace “PP” with “P” for:

| Substance, material or article | MP | Class | UN No. |
|--|----|-------|--------|
| Aldrin, <i>see</i> ORGANOCHLORINE PESTICIDE | PP | | |
| Azinphos-ethyl, <i>see</i> ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Azinphos-methyl, <i>see</i> ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Binapacryl, <i>see</i> SUBSTITUTED NITROPHENOL PESTICIDE | PP | | |
| Brodifacoum, <i>see</i> COUMARIN DERIVATIVE PESTICIDE | PP | | |
| Bromophos-ethyl, <i>see</i> ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Camphechlor, <i>see</i> ORGANOCHLORINE PESTICIDE | PP | - | |
| Carbophenothion, <i>see</i> ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Chlordane, <i>see</i> ORGANOCHLORINE PESTICIDE | PP | | |
| Chlorinated Paraffins (C10-C13), <i>see</i> | PP | 9 | 3082 |
| Chlorinated Paraffins (C14-C17) with more than 1% shorter chain length, <i>see</i> | PP | 9 | 3082 |
| Chlorpyrifos, <i>see</i> ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Chlorthiophos, <i>see</i> ORGANOPHOSPHORUS PESTICIDE | PP | | |
| COPPER CHLORIDE | PP | 8 | 2802 |
| COPPER CYANIDE | PP | 6.1 | 1587 |
| Copper Metal Powder, <i>see</i> Note 1 | PP | | |
| Copper Sulphate, anhydrous, hydrates and solutions, <i>see</i> Note 1 | PP | | |
| Coumaphos, <i>see</i> COUMARIN DERIVATIVE PESTICIDE | PP | | |
| Cresyl Diphenyl Phosphate, <i>see</i> | PP | 9 | 3082 |
| Cupric Chloride, <i>see</i> | PP | 8 | 2802 |
| Cupric Cyanide, <i>see</i> | PP | 6.1 | 1587 |
| Cupric Sulphate, <i>see</i> Note 1 | PP | | |
| Cuprous Chloride, <i>see</i> | PP | 8 | 2802 |
| 1,5,9-CYCLODODECATRIENE | PP | 6.1 | 2518 |
| Cyhexatin, <i>see</i> ORGANOTIN PESTICIDE, | PP | | |
| CYMENES | PP | 3 | 2046 |
| Cymol, <i>see</i> | PP | 3 | 2046 |

| Substance, material or article | MP | Class | UN No. |
|--|----|-------|--------|
| Cypermethrin, see PYRETHROID PESTICIDE | PP | | |
| DDT, see ORGANOCHLORINE PESTICIDE | PP | | |
| Dialifos, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Dialifos, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Diazinon, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Dichlofenthion, see ORGANOPHOSPHORUS PESTICIDE and | PP | | |
| Dichlorvos, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Diclofop-methyl, see Note 1 | PP | | |
| Dieldrin, see ORGANOCHLORINE PESTICIDE | PP | | |
| Dimethoate, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| N,N-Dimethyldodecylamine, see Note 1 | PP | | |
| DIPHENYLAMINE CHLOROARSINE | PP | 6.1 | 1698 |
| DIPHENYLCHLOROARSINE, LIQUID | PP | 6.1 | 1699 |
| DIPHENYLCHLOROARSINE, SOLID | PP | 6.1 | 3450 |
| Dodecyl Hydroxypropyl Sulphide, see Note 1 | PP | | |
| Dodecylphenol, see | PP | 8 | 3145 |
| Endosulfan, see ORGANOCHLORINE PESTICIDE | PP | | |
| Endrin, see ORGANOCHLORINE PESTICIDE | PP | | |
| EPN, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Esfenvalerate, see Note 1 | PP | | |
| Ethion, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Fenbutatin Oxide, see Note 1 | PP | | |
| Fenitrothion, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Fenoxapro-ethyl, see Note 1 | PP | | |
| Fenoxaprop-P-ethyl, see Note 1 | PP | | |
| Fenpropathrin, see PESTICIDE, N.O.S. | PP | | |
| Fenthion, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Fentin Acetate, see ORGANOTIN PESTICIDE | PP | | |
| Fentin Hydroxide, see ORGANOTIN PESTICIDE | PP | | |
| Fonofos, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Furathiocarb (iso), see CARBAMATE PESTICIDES | PP | | |
| Heptachlor, see ORGANOCHLORINE PESTICIDE | PP | | |
| Hexachloro-1,3-butadiene, see | PP | 6.1 | 2279 |
| HEXACHLOROBUTADIENE | PP | 6.1 | 2279 |
| 1,3-Hexachlorobutadiene, see | PP | 6.1 | 2279 |
| Isopropyltoluene, see | PP | 3 | 2046 |
| Isopropyltoluol, see | PP | 3 | 2046 |

| Substance, material or article | MP | Class | UN No. |
|---|----|-------|--------|
| Isoxathion, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Lindane, see ORGANOCHLORINE PESTICIDE | PP | | |
| Mercuric Acetate, see | PP | 6.1 | 1629 |
| Mercuric Ammonium Chloride, see | PP | 6.1 | 1630 |
| MERCURIC ARSENATE | PP | 6.1 | 1623 |
| Mercuric Benzoate, see | PP | 6.1 | 1631 |
| Mercuric Bisulphate, see | PP | 6.1 | 1645 |
| Mercuric Bromide, see | PP | 6.1 | 1634 |
| MERCURIC CHLORIDE | PP | 6.1 | 1624 |
| Mercuric Cyanide, see | PP | 6.1 | 1636 |
| Mercuric Gluconate, see | PP | 6.1 | 1637 |
| MERCURIC NITRATE | PP | 6.1 | 1625 |
| Mercuric Oleate, see | PP | 6.1 | 1640 |
| Mercuric Oxide, see | PP | 6.1 | 1641 |
| Mercuric Oxycyanide, Desensitized, see | PP | 6.1 | 1642 |
| MERCURIC POTASSIUM CYANIDE | PP | 6.1 | 1626 |
| Mercuric Sulphate, see | PP | 6.1 | 1645 |
| Mercuric Thiocyanate, see | PP | 6.1 | 1646 |
| Mercuriol, see | PP | 6.1 | 1639 |
| Mercurous Acetate, see | PP | 6.1 | 1629 |
| Mercurous Bisulphate, see | PP | 6.1 | 1645 |
| Mercurous Bromide, see | PP | 6.1 | 1634 |
| Mercurous Chloride, see | PP | 9 | 3077 |
| MERCUROUS NITRATE | PP | 6.1 | 1627 |
| Mercurous Salicylate, see | PP | 6.1 | 1644 |
| Mercurous Sulphate, see | PP | 6.1 | 1645 |
| MERCURY ACETATE | PP | 6.1 | 1629 |
| MERCURY AMMONIUM CHLORIDE | PP | 6.1 | 1630 |
| MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | PP | 3 | 2778 |
| MERCURY BASED PESTICIDE, LIQUID, TOXIC | PP | 6.1 | 3012 |
| MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C | PP | 6.1 | 3011 |
| MERCURY BASED PESTICIDE, SOLID, TOXIC | PP | 6.1 | 2777 |
| MERCURY BENZOATE | PP | 6.1 | 1631 |
| Mercury Bichloride, see | PP | 6.1 | 1624 |
| Mercury Bisulphate, see | PP | 6.1 | 1645 |
| MERCURY BROMIDES | PP | 6.1 | 1634 |
| MERCURY COMPOUND, LIQUID, N.O.S. | PP | 6.1 | 2024 |
| MERCURY COMPOUND, SOLID, N.O.S. | PP | 6.1 | 2025 |
| MERCURY CYANIDE | PP | 6.1 | 1636 |
| MERCURY GLUCONATE | PP | 6.1 | 1637 |

| Substance, material or article | MP | Class | UN No. |
|---|----|-------|--------|
| MERCURY NUCLEATE | PP | 6.1 | 1639 |
| MERCURY OLEATE | PP | 6.1 | 1640 |
| MERCURY OXIDE | PP | 6.1 | 1641 |
| MERCURY OXYCYANIDE, DESENSITIZED | PP | 6.1 | 1642 |
| Mercury Potassium Cyanide, see | PP | 6.1 | 1626 |
| MERCURY POTASSIUM IODIDE | PP | 6.1 | 1643 |
| MERCURY SALICYLATE | PP | 6.1 | 1644 |
| MERCURY SULPHATE | PP | 6.1 | 1645 |
| MERCURY THIOCYANATE | PP | 6.1 | 1646 |
| Mercury(II) (mercuric) Compounds or Mercury(I) (mercurous) Compounds, see MERCURY BASED PESTICIDE | PP | | |
| Methylpropylbenzenes, see | PP | 3 | 2046 |
| Mevinphos, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Nickel (II) Cyanide, see | PP | 6.1 | 1653 |
| NICKEL CARBONYL | PP | 6.1 | 1259 |
| NICKEL CYANIDE | PP | 6.1 | 1653 |
| Nickel Tetracarbonyl, see | PP | 6.1 | 1259 |
| ORGANOTIN COMPOUND, LIQUID, N.O.S. | PP | 6.1 | 2788 |
| ORGANOTIN COMPOUND, SOLID, N.O.S. | PP | 6.1 | 3146 |
| Organotin Compounds (pesticides), see ORGANOTIN PESTICIDE | PP | | |
| ORGANOTIN PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | PP | 3 | 2787 |
| ORGANOTIN PESTICIDE, LIQUID, TOXIC | PP | 6.1 | 3020 |
| ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C | PP | 6.1 | 3019 |
| ORGANOTIN PESTICIDE, SOLID, TOXIC | PP | 6.1 | 2786 |
| OSMIUM TETROXIDE | PP | 6.1 | 2471 |
| Parathion, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Parathion-methyl, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| PCBs, LIQUID, see | PP | 9 | 2315 |
| PCBs, SOLID, see | PP | 9 | 3432 |
| PENTACHLOROPHENOL | PP | 6.1 | 3155 |
| Pentachlorophenol, see ORGANOCHLORINE PESTICIDE | PP | | |
| Phenarsazine Chloride, see | PP | 6.1 | 1698 |
| Phenthoate, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| PHENYLMERCURIC ACETATE | PP | 6.1 | 1674 |
| PHENYLMERCURIC COMPOUND, N.O.S. | PP | 6.1 | 2026 |

| Substance, material or article | MP | Class | UN No. |
|--|----|-------|--------|
| PHENYLMERCURIC HYDROXIDE | PP | 6.1 | 1894 |
| PHENYLMERCURIC NITRATE | PP | 6.1 | 1895 |
| Phorate, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Phosalone, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Phosphamidon, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| PHOSPHORUS, WHITE, DRY | PP | 4.2 | 1381 |
| PHOSPHORUS, WHITE, IN SOLUTION | PP | 4.2 | 1381 |
| PHOSPHORUS, WHITE, MOLTEN | PP | 4.2 | 2447 |
| PHOSPHORUS, WHITE, UNDER WATER | PP | 4.2 | 1381 |
| PHOSPHORUS, YELLOW, DRY | PP | 4.2 | 1381 |
| PHOSPHORUS, YELLOW, IN SOLUTION | PP | 4.2 | 1381 |
| PHOSPHORUS, YELLOW, UNDER WATER | PP | 4.2 | 1381 |
| Pirimiphos-ethyl, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| POLYCHLORINATED BIPHENYLS, LIQUID | PP | 9 | 2315 |
| POLYCHLORINATED BIPHENYLS, SOLID | PP | 9 | 3432 |
| POLYHALOGENATED BIPHENYLS, LIQUID | PP | 9 | 3151 |
| POLYHALOGENATED BIPHENYLS, SOLID | PP | 9 | 3152 |
| POLYHALOGENATED TERPHENYLS, LIQUID | PP | 9 | 3151 |
| POLYHALOGENATED TERPHENYLS, SOLID | PP | 9 | 3152 |
| POTASSIUM CUPROCYANIDE | PP | 6.1 | 1679 |
| Potassium Cyanocuprate(I), see | PP | 6.1 | 1679 |
| Potassium Cyanomercurate, see | PP | 6.1 | 1626 |
| Potassium Mercuric Iodide, see | PP | 6.1 | 1643 |
| Pyrazophos, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Quizalofop, see Note 1 | PP | | |
| Quizalofop-p-ethyl, see Note 1 | PP | | |
| Silafluofen, see Note 1 | PP | | |
| Sodium Copper Cyanide Solution, see | PP | 6.1 | 2317 |
| Sodium Copper Cyanide, Solid, see | PP | 6.1 | 2316 |
| SODIUM CUPROCYANIDE SOLUTION | PP | 6.1 | 2317 |
| SODIUM CUPROCYANIDE, SOLID | PP | 6.1 | 2316 |
| Sodium Dicyanocuprate(I), Solid, see | PP | 6.1 | 2316 |
| SODIUM PENTACHLOROPHENATE | PP | 6.1 | 2567 |
| Sulprophos, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Terbufos, see ORGANOPHOSPHORUS PESTICIDE | PP | | |
| Tetrachlorvinphos, see Note 1 | PP | | |
| Tetraethyl lead, see | PP | 6.1 | 1649 |
| Triaryl Phosphates, N.O.S., see | PP | 9 | 3082 |

| Substance, material or article | MP | Class | UN No. |
|--|----|-------|--------|
| Tributyltin Compounds, see ORGANOTIN PESTICIDE | PP | | |
| 1,2,3-Trichlorobenzenes, see Note 1 | PP | | |
| TRICRESYL PHOSPHATE with more than 3% ortho-isomer | PP | 6.1 | 2574 |
| Tricresyl Phosphate, not less than 1% but not more than 3% ortho- isomer, see | PP | 9 | 3082 |
| Triphenyl Phosphate, see | PP | 9 | 3077 |
| Triphenyl Phosphate/tert-butylatedTriphenyl Phosphates mixtures containing 10% to 48% of Triphenyl Phosphate, see Note 1 | PP | | |
| Triphenyltin Compounds (other than Fentin Acetate and Fentin Hydroxide), see ORGANOTIN PESTICIDE | PP | | |
| Tritolyl Phosphate, see | PP | 6.1 | 2574 |
| White Phosphorus, Dry, see | PP | 4.2 | 1381 |
| White Phosphorus, Wet, see | PP | 4.2 | 1381 |
| Yellow Phosphorus, Dry, see | PP | 4.2 | 1381 |
| Yellow Phosphorus, Wet, see | PP | 4.2 | 1381 |

Delete “●” for:

| Substance, material or article | MP | Class | UN No. |
|---|----|-------|--------|
| ADHESIVES containing flammable liquid | ● | 3 | 1133 |
| AEROSOLS | ● | 2 | 1950 |
| ALCOHOLATES SOLUTION, N.O.S. in alcohol | ● | 3 | 3274 |
| ALCOHOLS, FLAMMABLE, TOXIC, N.O.S. | ● | 3 | 1986 |
| ALCOHOLS, N.O.S. | ● | 3 | 1987 |
| ALDEHYDES, FLAMMABLE, TOXIC, N.O.S. | ● | 3 | 1988 |
| ALDEHYDES, N.O.S. | ● | 3 | 1989 |
| ALKALI METAL ALCOHOLATES, SELF-HEATING, CORROSIVE, N.O.S. | ● | 4.2 | 3206 |
| ALKALI METAL ALLOY, LIQUID, N.O.S. | ● | 4.3 | 1421 |
| ALKALI METAL AMALGAM, LIQUID | ● | 4.3 | 1389 |
| ALKALI METAL AMALGAM, SOLID | ● | 4.3 | 3401 |
| Alkaline Caustic Liquid, N.O.S., see | ● | 8 | 1719 |
| ALKALINE EARTH METAL ALCOHOLATES, N.O.S. | ● | 4.2 | 3205 |
| ALKALINE EARTH METAL ALLOY, N.O.S. | ● | 4.3 | 1393 |
| ALKALINE EARTH METAL AMALGAM, LIQUID | ● | 4.3 | 1392 |
| ALKALINE EARTH METAL AMALGAM, SOLID | ● | 4.3 | 3402 |
| ALKALOIDS SALTS, LIQUID, N.O.S. | ● | 6.1 | 3140 |

| Substance, material or article | MP | Class | UN No. |
|--|----|-------|--------|
| ALKALOIDS SALTS, SOLID, N.O.S. | ● | 6.1 | 1544 |
| ALKALOIDS, LIQUID, N.O.S. | ● | 6.1 | 3140 |
| ALKALOIDS, SOLID, N.O.S. | ● | 6.1 | 1544 |
| ALKYLPHENOLS, LIQUID, N.O.S. (including C2 -C12 homologues) | ● | 8 | 3145 |
| ALKYLPHENOLS, SOLID, N.O.S.(including C2 - C12 homologues) | ● | 8 | 2430 |
| Aluminium Powder, Pyrophoric, see | ● | 4.2 | 1383 |
| AMINES, FLAMMABLE, CORROSIVE, N.O.S. | ● | 3 | 2733 |
| AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. | ● | 8 | 2734 |
| AMINES, LIQUID, CORROSIVE, N.O.S. | ● | 8 | 2735 |
| AMINES, SOLID, CORROSIVE, N.O.S. | ● | 8 | 3259 |
| Ammonium Bisulphite Solution, see | ● | 8 | 2693 |
| Animal Fabrics, Oily, see | ● | 4.2 | 1373 |
| Animal Fibres, Oily, see | ● | 4.2 | 1373 |
| Arsenates, Liquid, N.O.S., Inorganic, see | ● | 6.1 | 1556 |
| Arsenates, Solid, N.O.S., Inorganic, see | ● | 6.1 | 1557 |
| ARSENIC COMPOUND, LIQUID, N.O.S. inorganic, including: Arsenates, n.o.s., Arsenites, n.o.s., and Arsenic sulphides, n.o.s. | ● | 6.1 | 1556 |
| ARSENIC COMPOUND, SOLID, N.O.S. inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s. | ● | 6.1 | 1557 |
| Arsenic Sulphides, Liquid, N.O.S., Inorganic, see | ● | 6.1 | 1556 |
| Arsenic Sulphides, Solid, N.O.S., Inorganic, see | ● | 6.1 | 1557 |
| ARSENICAL PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | ● | 3 | 2760 |
| ARSENICAL PESTICIDE, LIQUID, TOXIC | ● | 6.1 | 2994 |
| ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C | ● | 6.1 | 2993 |
| ARSENICAL PESTICIDE, SOLID, TOXIC | ● | 6.1 | 2759 |
| Arsenites, Liquid, N.O.S., Inorganic, see | ● | 6.1 | 1556 |
| Arsenites, Solid, N.O.S., Inorganic, see | ● | 6.1 | 1557 |
| ARTICLES, PRESSURIZED, HYDRAULIC (containing non-flammable gas) | ● | 2.2 | 3164 |
| ARTICLES, PRESSURIZED, PNEUMATIC (containing non- flammable gas) | ● | 2.2 | 3164 |
| Asphalt, see | ● | 3 | 1999 |
| Barium Alloys, non-pyrophoric, see | ● | 4.3 | 1393 |
| BARIUM ALLOYS, PYROPHORIC | ● | 4.2 | 1854 |
| Barium Amalgams, see | ● | 4.3 | 1392 |
| BARIUM COMPOUND, N.O.S. | ● | 6.1 | 1564 |
| Barium Powder, Pyrophoric, see | ● | 4.2 | 1383 |
| Bifluorides, N.O.S., see | ● | 8 | 1740 |

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| BIPYRIDILIUM PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | • | 3 | 2782 |
| BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC | • | 6.1 | 3016 |
| BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C | • | 6.1 | 3015 |
| BIPYRIDILIUM PESTICIDE, SOLID, TOXIC | • | 6.1 | 2781 |
| BISULPHATES, AQUEOUS SOLUTION | • | 8 | 2837 |
| BISULPHITES, AQUEOUS SOLUTION, N.O.S. | • | 8 | 2693 |
| Bitumen, see | • | 3 | 1999 |
| Borate and Chlorate Mixture, see | • | 5.1 | 1458 |
| BROMATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. | • | 5.1 | 3213 |
| BROMATES, INORGANIC, N.O.S. | • | 5.1 | 1450 |
| Butylphenols, Liquid, N.O.S., see | • | 8 | 3145 |
| Butylphenols, Solid, N.O.S., see | • | 8 | 2430 |
| BUTYLTOLUENES | • | 6.1 | 2667 |
| CADMIUM COMPOUND | • | 6.1 | 2570 |
| Caesium Alloy (liquid), see | • | 4.3 | 1421 |
| Caesium Amalgams, see | • | 4.3 | 1389 |
| Caesium Powder, Pyrophoric, see | • | 4.2 | 1383 |
| Calcium Alloy, non-pyrophoric, see | • | 4.3 | 1421 |
| Calcium Amalgams, see | • | 4.3 | 1389 |
| CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | • | 3 | 2758 |
| CARBAMATE PESTICIDE, LIQUID, TOXIC | • | 6.1 | 2992 |
| CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flashpoint not less than 23°C | • | 6.1 | 2991 |
| CARBAMATE PESTICIDE, SOLID, TOXIC | • | 6.1 | 2757 |
| CAUSTIC ALKALI LIQUID, N.O.S. | • | 8 | 1719 |
| Cellulose Nitrate with plasticizing substance, see | • | 4.1 | 2557 |
| Cement, Liquid, see | • | 3 | 1133 |
| CHLORATE AND BORATE MIXTURE | • | 5.1 | 1458 |
| CHLORATE AND MAGNESIUM CHLORIDE MIXTURE SOLUTION | • | 5.1 | 3407 |
| CHLORATE AND MAGNESIUM CHLORIDE MIXTURE, SOLID | • | 5.1 | 1459 |
| CHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. | • | 5.1 | 3210 |
| CHLORATES, INORGANIC, N.O.S. | • | 5.1 | 1461 |
| CHLORITE SOLUTION | • | 8 | 1908 |
| CHLORITES, INORGANIC, N.O.S. | • | 5.1 | 1462 |
| Chlorocarbonates, Toxic, Corrosive, Flammable, N.O.S., see | • | 6.1 | 2742 |
| Chlorocarbonates, Toxic, Corrosive, N.O.S., see | • | 6.1 | 3277 |
| CHLOROFORMATES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S. | • | 6.1 | 2742 |

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| CHLOROFORMATES, TOXIC, CORROSIVE, N.O.S. | • | 6.1 | 3277 |
| CHLOROPHENOLATES, LIQUID | • | 8 | 2904 |
| CHLOROPHENOLATES, SOLID | • | 8 | 2905 |
| CHLOROPICRIN MIXTURE, N.O.S. | • | 6.1 | 1583 |
| CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S. | • | 8 | 2986 |
| CHLOROSILANES, CORROSIVE, N.O.S. | • | 8 | 2987 |
| CHLOROSILANES, FLAMMABLE, CORROSIVE, N.O.S. | • | 3 | 2985 |
| CHLOROSILANES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S. | • | 6.1 | 3362 |
| CHLOROSILANES, TOXIC, CORROSIVE, N.O.S. | • | 6.1 | 3361 |
| CHLOROSILANES, WATER-REACTIVE, FLAMMABLE, CORROSIVE, N.O.S. | • | 4.3 | 2988 |
| CHLOROTOLUENES | • | 3 | 2238 |
| Coal Tar Naphtha, see | • | 3 | 1268 |
| COATING SOLUTION (includes surface treatments or coatings used for industrial purposes such as vehicle under-coating, drum or barrel lining) | • | 3 | 1139 |
| Collodion Cotton with plasticizing substance, see | • | 4.1 | 2557 |
| COMPRESSED GAS, FLAMMABLE, N.O.S. | • | 2.1 | 1954 |
| COMPRESSED GAS, N.O.S. | • | 2.2 | 1956 |
| COMPRESSED GAS, OXIDIZING, N.O.S. | • | 2.2 | 3156 |
| COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S. | • | 2.3 | 3304 |
| COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S. | • | 2.3 | 3305 |
| COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. | • | 2.3 | 1953 |
| COMPRESSED GAS, TOXIC, N.O.S. | • | 2.3 | 1955 |
| COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S. | • | 2.3 | 3306 |
| COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S. | • | 2.3 | 3303 |
| Copper Arsenate, see | • | 6.1 | 1557 |
| COPPER BASED PESTICIDE, LIQUID, TOXIC | • | 6.1 | 3010 |
| COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint less than 23°C | • | 3 | 2776 |
| COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C | • | 6.1 | 3009 |
| COPPER BASED PESTICIDE, SOLID, TOXIC | • | 6.1 | 2775 |
| CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. | • | 8 | 3265 |
| CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. | • | 8 | 3264 |

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| CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. | • | 8 | 3266 |
| CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. | • | 8 | 3267 |
| CORROSIVE LIQUID, FLAMMABLE, N.O.S. | • | 8 | 2920 |
| CORROSIVE LIQUID, N.O.S. | • | 8 | 1760 |
| CORROSIVE LIQUID, OXIDIZING, N.O.S. | • | 8 | 3093 |
| CORROSIVE LIQUID, SELF-HEATING, N.O.S. | • | 8 | 3301 |
| CORROSIVE LIQUID, TOXIC, N.O.S. | • | 8 | 2922 |
| CORROSIVE LIQUID, WATER-REACTIVE, N.O.S. | • | 8 | 3094 |
| CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. | • | 8 | 3260 |
| CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. | • | 8 | 3261 |
| CORROSIVE SOLID, BASIC, INORGANIC, N.O.S. | • | 8 | 3262 |
| CORROSIVE SOLID, BASIC, ORGANIC, N.O.S. | • | 8 | 3263 |
| CORROSIVE SOLID, FLAMMABLE, N.O.S. | • | 8 | 2921 |
| CORROSIVE SOLID, N.O.S. | • | 8 | 1759 |
| CORROSIVE SOLID, OXIDIZING, N.O.S. | • | 8 | 3084 |
| CORROSIVE SOLID, SELF- HEATING, N.O.S. | • | 8 | 3095 |
| CORROSIVE SOLID, TOXIC, N.O.S. | • | 8 | 2923 |
| CORROSIVE SOLID, WATER-REACTIVE, N.O.S. | • | 8 | 3096 |
| Cosmetics, see | • | 3 | 1266 |
| COUMARIN DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | • | 3 | 3024 |
| COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC | • | 6.1 | 3026 |
| COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC | • | 6.1 | 3027 |
| COUMARIN DERIVATIVEPESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C | • | 6.1 | 3025 |
| Crude naphtha, see | • | 3 | 1268 |
| Cut-backs, see | • | 3 | 1999 |
| Cyanides, Organic, flammable, toxic, N.O.S., see | • | 3 | 3273 |
| Cyanides, Organic, toxic, flammable, N.O.S., see | • | 6.1 | 3275 |
| Cyanides, Organic, toxic, N.O.S., see | • | 6.1 | 3276 |
| DISINFECTANT, LIQUID, CORROSIVE, N.O.S. | • | 8 | 1903 |
| DISINFECTANT, LIQUID, TOXIC, N.O.S. | • | 6.1 | 3142 |
| DISINFECTANT, SOLID, TOXIC, N.O.S. | • | 6.1 | 1601 |
| DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S. | • | 8 | 2801 |
| DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S. | • | 6.1 | 1602 |
| DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S. | • | 8 | 3147 |

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| DYE INTERMEDIATE, SOLID, TOXIC, N.O.S. | ● | 6.1 | 3143 |
| DYE, LIQUID, CORROSIVE, N.O.S. | ● | 8 | 2801 |
| DYE, LIQUID, TOXIC, N.O.S. | ● | 6.1 | 1602 |
| DYE, SOLID, CORROSIVE, N.O.S. | ● | 8 | 3147 |
| DYE, SOLID, TOXIC, N.O.S. | ● | 6.1 | 3143 |
| ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flashpoint above 60°C, at or above its flash point | ● | 3 | 3256 |
| ELEVATED TEMPERATURE LIQUID, N.O.S. at or above 100°C and below its flashpoint (including molten metals, molten salts, etc.) | ● | 9 | 3257 |
| ELEVATED TEMPERATURE SOLID, N.O.S. at or above 240°C | ● | 9 | 3258 |
| ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. | ● | 9 | 3082 |
| ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. | ● | 9 | 3077 |
| ETHERS, N.O.S. | ● | 3 | 3271 |
| EXTRACTS, AROMATIC, LIQUID | ● | 3 | 1169 |
| EXTRACTS, FLAVOURING, LIQUID | ● | 3 | 1197 |
| FABRICS IMPREGNATED WITH WEAKLY NITRATED NITROCELLULOSE, N.O.S. | ● | 4.1 | 1353 |
| FABRICS, ANIMAL with oil | ● | 4.2 | 1373 |
| FABRICS, SYNTHETIC N.O.S. with oil | ● | 4.2 | 1373 |
| FABRICS, VEGETABLE with oil | ● | 4.2 | 1373 |
| FIBRES WITH WEAKLY NITRATED NITROCELLULOSE, N.O.S. | ● | 4.1 | 1353 |
| FIBRES, SYNTHETIC N.O.S. with oil | ● | 4.2 | 1373 |
| FIBRES, ANIMAL with oil, N.O.S. | ● | 4.2 | 1373 |
| FIBRES, VEGETABLE with oil, N.O.S. | ● | 4.2 | 1373 |
| FIRELIGHTERS, SOLID with flammable liquid | ● | 4.1 | 2623 |
| FLAMMABLE LIQUID, CORROSIVE, N.O.S. | ● | 3 | 2924 |
| FLAMMABLE LIQUID, N.O.S. | ● | 3 | 1993 |
| FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. | ● | 3 | 3286 |
| FLAMMABLE LIQUID, TOXIC, N.O.S. | ● | 3 | 1992 |
| FLAMMABLE SOLID, CORROSIVE, INORGANIC, N.O.S. | ● | 4.1 | 3180 |
| FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S. | ● | 4.1 | 2925 |
| FLAMMABLE SOLID, INORGANIC, N.O.S. | ● | 4.1 | 3178 |
| FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S. | ● | 4.1 | 3176 |
| FLAMMABLE SOLID, ORGANIC, N.O.S. | ● | 4.1 | 1325 |
| FLAMMABLE SOLID, OXIDIZING, N.O.S. | ● | 4.1 | 3097 |

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| FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. | ● | 4.1 | 3179 |
| FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S. | ● | 4.1 | 2926 |
| FLUROSILICATES, N.O.S. | ● | 6.1 | 2856 |
| Gas Drips, Hydrocarbon, see HYDROCARBONS, LIQUID, N.O.S. | ● | - | - |
| GAS SAMPLE, NON-PRESSURIZED, FLAMMABLE, N.O.S. not refrigerated liquid | ● | 2.1 | 3167 |
| GAS SAMPLE, NON-PRESSURIZED, TOXIC, FLAMMABLE, N.O.S. not refrigerated liquid | ● | 2.3 | 3168 |
| GAS SAMPLE, NON-PRESSURIZED, TOXIC, N.O.S. not refrigerated liquid | ● | 2.3 | 3169 |
| GAS, REFRIGERATED LIQUID, FLAMMABLE, N.O.S. | ● | 2.1 | 3312 |
| GAS, REFRIGERATED LIQUID, N.O.S. | ● | 2.2 | 3158 |
| GAS, REFRIGERATED LIQUID, OXIDIZING, N.O.S. | ● | 2.2 | 3311 |
| GASOLINE | ● | 3 | 1203 |
| Gasoline, Casinghead, see | ● | 3 | 1203 |
| Hydrides, Metal, Water-reactive, N.O.S., see | ● | 4.3 | 1409 |
| HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S. | ● | 2.1 | 1964 |
| HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. | ● | 2.1 | 1965 |
| HYDROCARBONS, LIQUID, N.O.S. | ● | 3 | 3295 |
| Hydrogen Sulphates, Aqueous Solution, see | ● | 8 | 2837 |
| HYDROGENDIFLUORIDES SOLUTION, N.O.S. | ● | 8 | 3471 |
| HYDROGENDIFLUORIDES, SOLID, N.O.S. | ● | 8 | 1740 |
| HYPOCHLORITES, INORGANIC, N.O.S. | ● | 5.1 | 3212 |
| INSECTICIDE GAS, FLAMMABLE, N.O.S. | ● | 2.1 | 3354 |
| INSECTICIDE GAS, N.O.S. | ● | 2.2 | 1968 |
| INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S. | ● | 2.3 | 3355 |
| INSECTICIDE GAS, TOXIC, N.O.S. | ● | 2.3 | 1967 |
| ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S. | ● | 3 | 2478 |
| ISOCYANATE SOLUTION, TOXIC, FLAMMABLE, N.O.S. | ● | 6.1 | 3080 |
| ISOCYANATE SOLUTION, TOXIC, N.O.S. | ● | 6.1 | 2206 |
| ISOCYANATES, FLAMMABLE, TOXIC, N.O.S. | ● | 3 | 2478 |
| ISOCYANATES, TOXIC, FLAMMABLE, N.O.S. | ● | 6.1 | 3080 |
| ISOCYANATES, TOXIC, N.O.S. | ● | 6.1 | 2206 |
| KETONES, LIQUID, N.O.S. | ● | 3 | 1224 |
| LIQUEFIED GAS, FLAMMABLE, N.O.S. | ● | 2.1 | 3161 |
| LIQUEFIED GAS, N.O.S. | ● | 2.2 | 3163 |

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| LIQUEFIED GAS, OXIDIZING, N.O.S. | • | 2.2 | 3157 |
| LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S. | • | 2.3 | 3309 |
| LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S. | • | 2.3 | 3310 |
| LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S. | • | 2.3 | 3307 |
| LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S. | • | 2.3 | 3308 |
| LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S. | • | 2.3 | 3160 |
| LIQUEFIED GAS, TOXIC, N.O.S. | • | 2.3 | 3162 |
| LPG, see | • | 2.1 | 1075 |
| Magnesium Chloride and Chlorate Mixture, see | • | 5.1 | 1459 |
| MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S | • | 3 | 3248 |
| MEDICINE, LIQUID, TOXIC, N.O.S. | • | 6.1 | 1851 |
| MEDICINE, SOLID, TOXIC, N.O.S. | • | 6.1 | 3249 |
| MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S. | • | 3 | 3336 |
| MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, TOXIC, N.O.S | • | 3 | 1228 |
| MERCAPTAN MIXTURE, LIQUID, TOXIC, FLAMMABLE, N.O.S. | • | 6.1 | 3071 |
| MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. | • | 3 | 3336 |
| MERCAPTANS, LIQUID, FLAMMABLE, TOXIC, N.O.S. | • | 3 | 1228 |
| MERCAPTANS, LIQUID, TOXIC, FLAMMABLE, N.O.S. | • | 6.1 | 3071 |
| Metal Alkyl Halides, Water-reactive, N.O.S., see | • | 4.2 | 3394 |
| Metal Alkyl Hydrides, Water-reactive, N.O.S., see | • | 4.2 | 3394 |
| Metal Alkyls, Water-reactive, N.O.S., see | • | 4.2 | 3394 |
| Metal Aryl Halides, Water-reactive, N.O.S., see | • | 4.2 | 3394 |
| Metal Aryl Hydrides, Water-reactive, N.O.S., see | • | 4.2 | 3394 |
| Metal Aryls, Water-reactive, N.O.S., see | • | 4.2 | 3394 |
| METAL CARBOXYLS, LIQUID, N.O.S. | • | 6.1 | 3281 |
| METAL CARBOXYLS, SOLID, N.O.S. | • | 6.1 | 3466 |
| METAL HYDRIDES, FLAMMABLE, N.O.S. | • | 4.1 | 3182 |
| METAL HYDRIDES, WATER-REACTIVE, N.O.S. | • | 4.3 | 1409 |
| METAL POWDER, FLAMMABLE, N.O.S. | • | 4.1 | 3089 |
| METAL POWDER, SELF-HEATING, N.O.S. | • | 4.2 | 3189 |
| METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S. | • | 4.1 | 3181 |
| METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S. | • | 4.3 | 3208 |
| METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S. | • | 4.3 | 3209 |
| Methylchlorobenzenes, see | • | 3 | 2238 |

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| MOTOR SPIRIT | • | 3 | 1203 |
| Naphtha, Petroleum, see | • | 3 | 1268 |
| Naphtha, see | • | 3 | 1268 |
| NITRATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. | • | 5.1 | 3218 |
| NITRATES, INORGANIC, N.O.S. | • | 5.1 | 1477 |
| NITRILES, FLAMMABLE, TOXIC, N.O.S. | • | 3 | 3273 |
| NITRILES, TOXIC, FLAMMABLE, N.O.S. | • | 6.1 | 3275 |
| NITRILES, TOXIC, LIQUID, N.O.S. | • | 6.1 | 3276 |
| NITRILES, TOXIC, SOLID, N.O.S. | • | 6.1 | 3439 |
| NITRITES, INORGANIC, AQUEOUS SOLUTION, N.O.S. | • | 5.1 | 3219 |
| NITRITES, INORGANIC, N.O.S. | • | 5.1 | 2627 |
| NITROCELLULOSE with not more than 12.6% nitrogen, by dry mass MIXTURE WITH PLASTICIZER WITHOUT PIGMENT | • | 4.1 | 2557 |
| NITROCELLULOSE with not more than 12.6% nitrogen, by dry mass MIXTURE WITHOUT PLASTICIZER WITH PIGMENT | • | 4.1 | 2557 |
| NITROCELLULOSE with not more than 12.6% nitrogen, by dry mass MIXTURE WITHOUT PLASTICIZER WITHOUT PIGMENT | • | 4.1 | 2557 |
| NITROCELLULOSE with not more than 12.6% nitrogen, by dry mass, MIXTURE WITH PLASTICIZER WITH PIGMENT | • | 4.1 | 2557 |
| Nitrocotton with plasticizing substance, see | • | 4.1 | 2557 |
| NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, FLAMMABLE, N.O.S. with not more than 30% nitroglycerin, by mass | • | 3 | 3343 |
| NITROGLYCERIN MIXTURE, DESENSITIZED, LIQUID, N.O.S with not more than 30% nitroglycerin, by mass | • | 3 | 3357 |
| NITROGLYCERIN MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 2% but not more than 10% nitroglycerin, by mass | • | 4.1 | 3319 |
| ORGANOARSENIC COMPOUND, LIQUID, N.O.S. | • | 6.1 | 3280 |
| ORGANOARSENIC COMPOUND, SOLID, N.O.S. | • | 6.1 | 3465 |
| ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | • | 3 | 2762 |
| ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC | • | 6.1 | 2996 |
| ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C | • | 6.1 | 2995 |

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| ORGANOCHLORINE TOXIC | PESTICIDE, | SOLID, | ● | 6.1 | 2761 |
| ORGANOMETALLIC TOXIC, N.O.S. | COMPOUND, | SOLID, | ● | 6.1 | 3467 |
| ORGANOMETALLIC LIQUID, N.O.S. | COMPOUND, | TOXIC, | ● | 6.1 | 3282 |
| ORGANOMETALLIC PYROPHORIC | SUBSTANCE, | LIQUID, | ● | 4.2 | 3392 |
| ORGANOMETALLIC PYROPHORIC, WATER-REACTIVE | SUBSTANCE, | LIQUID, | ● | 4.2 | 3394 |
| ORGANOMETALLIC WATER-REACTIVE | SUBSTANCE, | LIQUID, | ● | 4.3 | 3398 |
| ORGANOMETALLIC WATER-REACTIVE, FLAMMABLE | SUBSTANCE, | LIQUID, | ● | 4.3 | 3399 |
| ORGANOMETALLIC PYROPHORIC | SUBSTANCE, | SOLID, | ● | 4.2 | 3391 |
| ORGANOMETALLIC PYROPHORIC, WATER-REACTIVE | SUBSTANCE, | SOLID, | ● | 4.2 | 3393 |
| ORGANOMETALLIC SELF-HEATING | SUBSTANCE, | SOLID, | ● | 4.2 | 3400 |
| ORGANOMETALLIC WATER-REACTIVE | SUBSTANCE, | SOLID, | ● | 4.3 | 3395 |
| ORGANOMETALLIC WATER-REACTIVE, FLAMMABLE | SUBSTANCE, | SOLID, | ● | 4.3 | 3396 |
| ORGANOMETALLIC WATER-REACTIVE, SELF-HEATING | SUBSTANCE, | SOLID, | ● | 4.3 | 3397 |
| ORGANOPHOSPHORUS FLAMMABLE, N.O.S. | COMPOUND, | TOXIC, | ● | 6.1 | 3279 |
| ORGANOPHOSPHORUS LIQUID, N.O.S. | COMPOUND, | TOXIC, | ● | 6.1 | 3278 |
| ORGANOPHOSPHORUS SOLID, N.O.S. | COMPOUND, | TOXIC, | ● | 6.1 | 3464 |
| ORGANOPHOSPHORUS FLAMMABLE, TOXIC flashpoint less than 23°C | PESTICIDE, | LIQUID, | ● | 3 | 2784 |
| ORGANOPHOSPHORUS TOXIC | PESTICIDE, | LIQUID, | ● | 6.1 | 3018 |
| ORGANOPHOSPHORUS TOXIC, FLAMMABLE flashpoint not less than 23°C | PESTICIDE, | LIQUID, | ● | 6.1 | 3017 |
| ORGANOPHOSPHORUS TOXIC | PESTICIDE, | SOLID, | ● | 6.1 | 2783 |
| OXIDIZING LIQUID, CORROSIVE, N.O.S. | | | ● | 5.1 | 3098 |
| OXIDIZING LIQUID, N.O.S. | | | ● | 5.1 | 3139 |
| OXIDIZING LIQUID, TOXIC, N.O.S. | | | ● | 5.1 | 3099 |
| OXIDIZING SOLID, CORROSIVE, N.O.S. | | | ● | 5.1 | 3085 |
| OXIDIZING SOLID, FLAMMABLE, N.O.S. | | | ● | 5.1 | 3137 |

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| OXIDIZING SOLID, N.O.S. | ● | 5.1 | 1479 |
| OXIDIZING SOLID, SELF-HEATING, N.O.S. | ● | 5.1 | 3100 |
| OXIDIZING SOLID, TOXIC, N.O.S. | ● | 5.1 | 3087 |
| OXIDIZING SOLID, WATER-REACTIVE, N.O.S. | ● | 5.1 | 3121 |
| PAINT (including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler and liquid lacquer base) | ● | 3 | 1263 |
| PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) | ● | 8 | 3066 |
| PAINT RELATED MATERIAL (including paint thinning or reducing compound) | ● | 3 | 1263 |
| PAINT RELATED MATERIAL (including paint thinning or reducing compound) | ● | 8 | 3066 |
| PAINT, CORROSIVE, FLAMMABLE (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL CORROSIVE, FLAMMABLE (including paint thinning or reducing compound) | ● | 8 | 3470 |
| PAINT, FLAMMABLE, CORROSIVE (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL, FLAMMABLE, CORROSIVE (including paint thinning or reducing compound) | ● | 3 | 3469 |
| PENTAERYTHRITE TETRANITRATE MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 10% but not more than 20% PETN, by mass | ● | 4.1 | 3344 |
| PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. | ● | 5.1 | 3211 |
| PERCHLORATES, INORGANIC, N.O.S. | ● | 5.1 | 1481 |
| PERFUMERY PRODUCTS with flammable liquid | ● | 3 | 1266 |
| PERMANGANATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. | ● | 5.1 | 3214 |
| PERMANGANATES, INORGANIC, N.O.S. | ● | 5.1 | 1482 |
| PEROXIDES, INORGANIC, N.O.S. | ● | 5.1 | 1483 |
| PERSULPHATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. | ● | 5.1 | 3216 |
| PERSULPHATES, INORGANIC, N.O.S. | ● | 5.1 | 3215 |
| PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S. flashpoint less than 23°C | ● | 3 | 3021 |
| PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S. flashpoint not less than 23°C | ● | 6.1 | 2903 |
| PESTICIDE, LIQUID, TOXIC, N.O.S. | ● | 6.1 | 2902 |

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| PESTICIDE, SOLID, TOXIC, N.O.S. | ● | 6.1 | 2588 |
| PETROL | ● | 3 | 1203 |
| PETROLEUM DISTILLATES, N.O.S. | ● | 3 | 1268 |
| Petroleum Ether, see | ● | 3 | 1268 |
| PETROLEUM GASES, LIQUEFIED | ● | 2.1 | 1075 |
| Petroleum Naphtha, see | ● | 3 | 1268 |
| Petroleum Oil, see | ● | 3 | 1268 |
| PETROLEUM PRODUCTS, N.O.S. | ● | 3 | 1268 |
| Petroleum Raffinate, see | ● | 3 | 1268 |
| PHENOLATES, LIQUID | ● | 8 | 2904 |
| PHENOLATES, SOLID | ● | 8 | 2905 |
| PHENOXYACETIC ACID DERIVATIVE | | | |
| PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | ● | 3 | 3346 |
| PHENOXYACETIC ACID DERIVATIVE | | | |
| PESTICIDE, LIQUID, TOXIC | ● | 6.1 | 3348 |
| PHENOXYACETIC ACID DERIVATIVE | | | |
| PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C | ● | 6.1 | 3347 |
| PHENOXYACETIC ACID DERIVATIVE | | | |
| PESTICIDE, SOLID, TOXIC | ● | 6.1 | 3345 |
| PLASTICS, NITROCELLULOSE-BASED, SELF- HEATING, N.O.S. | ● | 4.2 | 2006 |
| POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S. | ● | 3 | 2733 |
| POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. | ● | 8 | 2734 |
| POLYAMINES, LIQUID, CORROSIVE, N.O.S. | ● | 8 | 2735 |
| POLYAMINES, SOLID, CORROSIVE, N.O.S. | ● | 8 | 3259 |
| POLYESTER RESIN KIT | ● | 3 | 3269 |
| PYRETHROID PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | ● | 3 | 3350 |
| PYRETHROID PESTICIDE, LIQUID, TOXIC | ● | 6.1 | 3352 |
| PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C | ● | 6.1 | 3351 |
| PYRETHROID PESTICIDE, SOLID, TOXIC | ● | 6.1 | 3349 |
| PYROPHORIC ALLOY, N.O.S. | ● | 4.2 | 1383 |
| PYROPHORIC LIQUID, INORGANIC, N.O.S. | ● | 4.2 | 3194 |
| PYROPHORIC LIQUID, ORGANIC, N.O.S. | ● | 4.2 | 2845 |
| PYROPHORIC METAL, N.O.S. | ● | 4.2 | 1383 |
| PYROPHORIC SOLID, INORGANIC, N.O.S. | ● | 4.2 | 3200 |
| PYROPHORIC SOLID, ORGANIC, N.O.S. | ● | 4.2 | 2846 |
| REFRIGERANT GAS, N.O.S. | ● | 2.2 | 1078 |
| RESIN SOLUTION flammable | ● | 3 | 1866 |
| Road Asphalt, see | ● | 3 | 1999 |
| RUBBER SOLUTION | ● | 3 | 1287 |

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| SELENATES | • | 6.1 | 2630 |
| SELENITES | • | 6.1 | 2630 |
| SELENIUM COMPOUND, LIQUID, N.O.S. | • | 6.1 | 3440 |
| SELENIUM COMPOUND, SOLID, N.O.S. | • | 6.1 | 3283 |
| SELF-HEATING LIQUID, CORROSIVE, INORGANIC, N.O.S. | • | 4.2 | 3188 |
| SELF-HEATING LIQUID, CORROSIVE, ORGANIC, N.O.S. | • | 4.2 | 3185 |
| SELF-HEATING LIQUID, INORGANIC, N.O.S. | • | 4.2 | 3186 |
| SELF-HEATING LIQUID, ORGANIC, N.O.S. | • | 4.2 | 3183 |
| SELF-HEATING LIQUID, TOXIC, INORGANIC, N.O.S. | • | 4.2 | 3187 |
| SELF-HEATING LIQUID, TOXIC, ORGANIC, N.O.S. | • | 4.2 | 3184 |
| SELF-HEATING SOLID, CORROSIVE, INORGANIC, N.O.S. | • | 4.2 | 3192 |
| SELF-HEATING SOLID, CORROSIVE, ORGANIC, N.O.S. | • | 4.2 | 3126 |
| SELF-HEATING SOLID, INORGANIC, N.O.S. | • | 4.2 | 3190 |
| SELF-HEATING SOLID, ORGANIC, N.O.S. | • | 4.2 | 3088 |
| SELF-HEATING SOLID, OXIDIZING, N.O.S. | • | 4.2 | 3127 |
| SELF-HEATING SOLID, TOXIC, INORGANIC, N.O.S. | • | 4.2 | 3191 |
| SELF-HEATING SOLID, TOXIC, ORGANIC, N.O.S. | • | 4.2 | 3128 |
| Silicofluorides, N.O.S., see | • | 6.1 | 2856 |
| Sodium Dicyanocuprate(I) Solution, see | • | 6.1 | 2317 |
| SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S. | • | 8 | 3244 |
| SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S. | • | 4.1 | 3175 |
| SOLIDS CONTAINING TOXIC LIQUID, N.O.S. | • | 6.1 | 3243 |
| Solvents, Flammable, N.O.S., see | • | 3 | 1993 |
| Solvents, Toxic, Flammable, N.O.S., see | • | 3 | 1992 |
| Strontium Alloy, non-pyrophoric, see | • | 4.3 | 1393 |
| Strontium Alloy, Pyrophoric, see | • | 4.2 | 1383 |
| SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | • | 3 | 2780 |
| SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC | • | 6.1 | 3014 |
| SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C | • | 6.1 | 3013 |
| SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC | • | 6.1 | 2779 |

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| Synthetic Fabrics, Oily, see | • | 4.2 | 1373 |
| Synthetic Fibres, Oily, see | • | 4.2 | 1373 |
| TARS, LIQUID including road asphalt and oils, bitumen and cut backs | • | 3 | 1999 |
| TEAR GAS SUBSTANCE, LIQUID, N.O.S. | • | 6.1 | 1693 |
| TEAR GAS SUBSTANCE, SOLID, N.O.S. | • | 6.1 | 3448 |
| TELLURIUM COMPOUND, N.O.S. | • | 6.1 | 3284 |
| TERPENE HYDROCARBONS, N.O.S. | • | 3 | 2319 |
| Terpenes, N.O.S., see | • | 3 | 2319 |
| THIOCARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | • | 3 | 2772 |
| THIOCARBAMATE PESTICIDE, LIQUID, TOXIC | • | 6.1 | 3006 |
| THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C | • | 6.1 | 3005 |
| THIOCARBAMATE PESTICIDE, SOLID, TOXIC | • | 6.1 | 2771 |
| TINCTURES, MEDICINAL | • | 3 | 1293 |
| TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀ | • | 6.1 | 3390 |
| TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀ | • | 6.1 | 3389 |
| TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀ | • | 6.1 | 3384 |
| TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀ | • | 6.1 | 3383 |
| TOXIC BY INHALATION LIQUID, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀ | • | 6.1 | 3382 |
| TOXIC BY INHALATION LIQUID, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀ | • | 6.1 | 3381 |

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| TOXIC BY INHALATION LIQUID, OXIDIZING, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀ | • | 6.1 | 3388 |
| TOXIC BY INHALATION LIQUID, OXIDIZING, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀ | • | 6.1 | 3387 |
| TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀ | • | 6.1 | 3386 |
| TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀ | • | 6.1 | 3385 |
| TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S. | • | 6.1 | 3289 |
| TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. | • | 6.1 | 2927 |
| TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. | • | 6.1 | 2929 |
| TOXIC LIQUID, INORGANIC, N.O.S. | • | 6.1 | 3287 |
| TOXIC LIQUID, ORGANIC, N.O.S. | • | 6.1 | 2810 |
| TOXIC LIQUID, OXIDIZING, N.O.S. | • | 6.1 | 3122 |
| TOXIC LIQUID, WATER-REACTIVE, N.O.S. | • | 6.1 | 3123 |
| TOXIC SOLID, CORROSIVE, INORGANIC, N.O.S. | • | 6.1 | 3290 |
| TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. | • | 6.1 | 2928 |
| TOXIC SOLID, FLAMMABLE, ORGANIC, N.O.S. | • | 6.1 | 2930 |
| TOXIC SOLID, INORGANIC, N.O.S. | • | 6.1 | 3288 |
| TOXIC SOLID, ORGANIC, N.O.S. | • | 6.1 | 2811 |
| TOXIC SOLID, OXIDIZING, N.O.S. | • | 6.1 | 3086 |
| TOXIC SOLID, SELF-HEATING, N.O.S. | • | 6.1 | 3124 |
| TOXIC SOLID, WATER-REACTIVE, N.O.S. | • | 6.1 | 3125 |
| TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S. | • | 6.1 | 3172 |
| TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S. | • | 6.1 | 3462 |
| TRIAZINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC flashpoint less than 23°C | • | 3 | 2764 |
| TRIAZINE PESTICIDE, LIQUID, TOXIC | • | 6.1 | 2998 |
| TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flashpoint not less than 23°C | • | 6.1 | 2997 |

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|--|---|-----|------|
| TRIAZINE PESTICIDE, SOLID, TOXIC | • | 6.1 | 2763 |
| Trimethylgallium, see | • | 4.2 | 3394 |
| TURPENTINE SUBSTITUTE | • | 3 | 1300 |
| VANADIUM COMPOUND, N.O.S. | • | 6.1 | 3285 |
| Vegetable Fabrics, Oily, see | • | 4.2 | 1373 |
| Vegetable Fibres, Oily, see | • | 4.2 | 1373 |
| WATER-REACTIVE LIQUID, CORROSIVE, N.O.S. | • | 4.3 | 3129 |
| WATER-REACTIVE LIQUID, N.O.S. | • | 4.3 | 3148 |
| WATER-REACTIVE LIQUID, TOXIC, N.O.S. | • | 4.3 | 3130 |
| WATER-REACTIVE SOLID, CORROSIVE, N.O.S. | • | 4.3 | 3131 |
| WATER-REACTIVE SOLID, FLAMMABLE, N.O.S. | • | 4.3 | 3132 |
| WATER-REACTIVE SOLID, N.O.S. | • | 4.3 | 2813 |
| WATER-REACTIVE SOLID, OXIDIZING, N.O.S. | • | 4.3 | 3133 |
| WATER-REACTIVE SOLID, SELF-HEATING, N.O.S. | • | 4.3 | 3135 |
| WATER-REACTIVE SOLID, TOXIC, N.O.S. | • | 4.3 | 3134 |
| WOOD PRESERVATIVES, LIQUID | • | 3 | 1306 |

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|---|---|-----|------|
| Replace (French version) | | | |
| ACIDE FLUORHYDRIQUE, solution contenant au plus 60% de fluorure d'hydrogène | - | 8 | 1790 |
| with | | | |
| ACIDE FLUORHYDRIQUE, contenant au plus 60% de fluorure d'hydrogène | - | 8 | 1790 |
| Replace (French version) | | | |
| ACIDE FLUORHYDRIQUE, solution contenant plus de 60% de fluorure d'hydrogène | - | 8 | 1790 |
| with | | | |
| ACIDE FLUORHYDRIQUE, contenant plus de 60% de fluorure d'hydrogène | - | 8 | 1790 |
| Replace (French version) | | | |
| ALKYLALUMINIUMS | - | 4.2 | 3051 |
| with | | | |
| Alkylaluminiums, <i>voir</i> | - | 4.2 | 3394 |
| Replace | | | |
| 2-Butenoic Acid, <i>see</i> | - | 8 | 2823 |
| with | | | |
| 2-Butenoic Acid, Solid, <i>see</i> | - | 8 | 2823 |
| 2-Butenoic Acid, Liquid, <i>see</i> | - | 8 | 3472 |
| Replace | | | |
| Barium Amalgams, <i>see</i> | - | 4.3 | 1392 |
| with | | | |
| Barium Amalgams, Liquid, <i>see</i> | - | 4.3 | 1392 |
| Barium Amalgams, Solid, <i>see</i> | - | 4.3 | 3402 |
| Insert new entry | | | |
| BATTERY-POWERED VEHICLE or | - | 9 | 3171 |
| BATTERY-POWERED EQUIPMENT | | | |
| Replace | | | |
| Caesium Amalgams, <i>see</i> | - | 4.3 | 1389 |
| with | | | |
| Caesium Amalgams, Liquid, <i>see</i> | - | 4.3 | 1389 |
| Caesium Amalgams, Solid, <i>see</i> | - | 4.3 | 3401 |
| Replace | | | |
| Calcium Amalgams, <i>see</i> | - | 4.3 | 1389 |
| with | | | |
| Calcium Amalgams, Liquid, <i>see</i> | - | 4.3 | 1389 |
| Calcium Amalgams, Solid, <i>see</i> | - | 4.3 | 3402 |

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|---|---|------|------|
| Insert new entry CALCIUM OXIDE | - | 8 | 1910 |
| Replace Cesium, <i>see</i> with Caesium, <i>see</i> CAESIUM | - | 4.3 | 1407 |
| | - | - | - |
| Replace CHARGES, BURSTING, PLASTICS-BONDED with CHARGES, BURSTING, PLASTICS BONDED | - | 1.4D | 0459 |
| | - | 1.4D | 0459 |
| Replace CHARGES, BURSTING, PLASTICS-BONDED with CHARGES, BURSTING, PLASTICS BONDED | - | 1.4S | 0460 |
| | - | 1.4S | 0460 |
| Replace 2,4-Di- <i>tert</i> -butylphenol, <i>see</i> with 2,4-Di- <i>tert</i> -butylphenol, <i>see</i> Note 1 | - | 8 | 2430 |
| | - | - | - |
| Replace 2,6-Di- <i>tert</i> -butylphenol, <i>see</i> with 2,6-Di- <i>tert</i> -butylphenol, <i>see</i> Note 1 | - | 8 | 2430 |
| | - | - | - |
| Insert new entry ENGINE, INTERNAL COMBUSTION or VEHICLE, FLAMMABLE GAS POWERED or VEHICLE, FLAMMABLE LIQUID POWERED | - | 9 | 3166 |
| Insert new entry ETHANOL AND GASOLINE MIXTURE or ETHANOL AND MOTOR SPIRIT MIXTURE or ETHANOL AND PETROL MIXTURE, with more than 10% ethanol | - | 3 | 3475 |

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|---|---|-----|------|
| Replace FUEL CELL CARTRIDGES containing flammable liquids with FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PLACED WITH EQUIPMENT | - | 3 | 3473 |
| Insert new entry FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing corrosive substances | - | 8 | 3477 |
| Insert new entry FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing hydrogen in metal hydride | - | 2.1 | 3479 |
| Insert new entry FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing liquefied flammable gas | - | 2.1 | 3478 |
| Insert new entry FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing water-reactive substances | - | 4.3 | 3476 |
| Replace HYDROFLUORIC ACID solution, with more than 60% hydrofluoric acid with HYDROFLUORIC ACID solution, with more than 60% hydrogen fluoride | - | 8 | 1790 |
| Replace HYDROFLUORIC ACID solution, with not more than 60% hydrofluoric acid with HYDROFLUORIC ACID solution, with not more than 60% hydrogen fluoride | - | 8 | 1790 |
| | - | 8 | 1790 |

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|--|---|------|------|
| Replace HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM | - | 2.1 | 3468 |
| with HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM or HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM CONTAINED IN EQUIPMENT OR HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM PACKED WITH EQUIPMENT | - | 2.1 | 3468 |
| Insert new entry 1-HYDROXYBENZOTRIAZOLE, ANHYDROUS, dry or wetted with less than 20% water, by mass | - | 1.3C | 0508 |
| Insert new entry 1-HYDROXYBENZOTRIAZOLE, ANHYDROUS, WETTED with not less than 20% water, by mass | - | 4.1 | 3474 |
| Replace Lithium Amalgams, <i>see</i> | - | 4.3 | 1389 |
| with Lithium Amalgams, Liquid, <i>see</i> | - | 4.3 | 1389 |
| Lithium Amalgams, Solid, <i>see</i> | - | 4.3 | 3401 |
| Replace LITHIUM BATTERIES | - | 9 | 3090 |
| with LITHIUM METAL BATTERIES (including lithium alloy batteries) | - | 9 | 3090 |
| Replace LITHIUM BATTERIES CONTAINED IN EQUIPMENT | - | 9 | 3091 |
| with LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT | - | 9 | 3091 |
| Replace LITHIUM BATTERIES PACKED WITH EQUIPMENT | - | 9 | 3091 |
| with LITHIUM METAL BATTERIES PACKED WITH EQUIPMENT | - | 9 | 3091 |

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|---|-------------|-------------------|----------------------|
| Insert new entry LITHIUM ION BATTERIES (including lithium ion polymer batteries) | - | 9 | 3480 |
| Insert new entry LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries) | - | 9 | 3481 |
| Replace Magnesium Amalgams, <i>see</i> with Magnesium Amalgams, Liquid, <i>see</i> Magnesium Amalgams, Solid, <i>see</i> | - - - | 4.3 4.3 4.3 | 1392 1392 3402 |
| Insert new entry MAGNETIZED MATERIAL | - | 9 | 2807 |
| Replace 3-Methacrylic Acid, <i>see</i> with 3-Methacrylic Acid, Solid, <i>see</i> 3-Methacrylic Acid, Liquid, <i>see</i> | - - - | 8 8 8 | 2823 2823 3472 |
| Replace NITRIC ACID other than red fuming, with not more than 70% nitric acid with NITRIC ACID other than red fuming, with at least 65% but with not more than 70% nitric acid NITRIC ACID other than red fuming, with less than 65% nitric acid | - - - | 8 8 8 | 2031 2031 2031 |
| Replace PENTAERYTHRITE TETRANITRATE MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 10% but not more than 20% PETN, by mass with PENTAERYTHRITE TETRANITRATE (PENTAERYTHRITOL TETRANITRATE; PETN) MIXTURE, DESENSITIZED, SOLID, N.O.S. with more than 10% but not more than 20% PETN, by mass | - - - | 4.1 4.1 | 3344 3344 |

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|--|---|------|------|
| Replace | | | |
| Potassium Amalgams, <i>see</i> | - | 4.3 | 1389 |
| with | | | |
| Potassium Amalgams, Liquid, <i>see</i> | - | 4.3 | 1389 |
| Potassium Amalgams, Solid, <i>see</i> | - | 4.3 | 3401 |
| Replace | | | |
| Rubidium Amalgams, <i>see</i> | - | 4.3 | 1389 |
| with | | | |
| Rubidium Amalgams, Liquid, <i>see</i> | - | 4.3 | 1389 |
| Rubidium Amalgams, Solid, <i>see</i> | - | 4.3 | 3401 |
| Insert new entry | | | |
| SIGNALS, DISTRESS, ship | - | 1.4G | 0506 |
| Insert new entry | | | |
| SIGNALS, DISTRESS, ship | - | 1.4S | 0506 |
| Insert new entry | | | |
| SIGNALS, SMOKE | - | 1.4S | 0507 |
| Insert new entry | | | |
| SODIUM ALUMINATE, SOLID | - | 8 | 2812 |
| Replace | | | |
| Sodium Amalgams, <i>see</i> | - | 4.3 | 1389 |
| With | | | |
| Sodium Amalgams, Liquid, <i>see</i> | - | 4.3 | 1389 |
| Sodium Amalgams, Solid, <i>see</i> | - | 4.3 | 3401 |
| Replace | | | |
| Strontium Amalgams, <i>see</i> | - | 4.3 | 1392 |
| With | | | |
| Strontium Amalgams, Liquid, <i>see</i> | - | 4.3 | 1392 |
| Strontium Amalgams, Solid, <i>see</i> | - | 4.3 | 3402 |
| Replace | | | |
| TRINITROPHENOL, WETTED with not less than 30% water, by mass | - | 4.1 | 1344 |
| with | | | |
| TRINITROPHENOL (PICRIC ACID), WETTED with not less than 30% water, by mass | - | 4.1 | 1344 |
| Replace | | | |
| TRINITROLUENE, WETTED with not less than 30% water, by mass | - | 4.1 | 1356 |
| with | | | |
| TRINITROLUENE (TNT), WETTED with not less than 30% water, by mass | - | 4.1 | 1356 |

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|---------|---|---|-----|------|
| Insert | Aluminium alkyls, <i>see</i> | - | 4.2 | 3394 |
| | Aluminium alkyl halides, liquid, <i>see</i> | - | 4.2 | 3394 |
| | Aluminium alkyl halides, solid, <i>see</i> | - | 4.2 | 3393 |
| | Aluminium alkyl hydrides, <i>see</i> | - | 4.2 | 3394 |
| Insert | Diethylzinc, <i>see</i> | - | 4.2 | 3394 |
| | Dimethylzinc, <i>see</i> | - | 4.2 | 3394 |
| | Lithium alkyls, liquid, <i>see</i> | - | 4.2 | 3394 |
| Replace | LITHIUM ALKYLs, SOLID | - | 4.2 | 3443 |
| with | Lithium alkyls, solid, <i>see</i> | - | 4.2 | 3393 |
| Insert | Magnesium alkyls, <i>see</i> | - | 4.2 | 3394 |
| | Magnesium diphenyl, <i>see</i> | - | 4.2 | 3393 |
| Insert | Organometallic compound solid, water reactive, flammable, <i>see</i> | - | 4.3 | 3396 |
| | Organometallic compound dispersion, water reactive, flammable, <i>see</i> | - | 4.3 | 3399 |
| | Organometallic compound solution, water reactive, flammable, <i>see</i> | - | 4.3 | 3399 |
| Replace | ORGANOMETALLIC COMPOUND, SOLID, TOXIC, N.O.S | - | 6.1 | 3467 |
| with | ORGANOMETALLIC COMPOUND, SOLID, TOXIC, N.O.S | - | 6.1 | 3467 |
| Insert | Pyrophoric organometallic compound, water reactive, liquid, <i>see</i> | - | 4.2 | 3394 |
| | Pyrophoric organometallic compound, water reactive, solid, <i>see</i> | - | 4.2 | 3393 |

ANNEX 5**RESOLUTION MSC.205(81)
(adopted on 18 May 2006)****ADOPTION OF AMENDMENTS TO THE INTERNATIONAL MARITIME
DANGEROUS GOODS (IMDG) CODE**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.122(75) by which it adopted the International Maritime Dangerous Goods Code (hereinafter referred to as “the IMDG Code”), which has become mandatory under chapter VII of the International Convention for the Safety of Life at Sea, 1974, as amended (hereinafter referred to as “the Convention”),

NOTING ALSO article VIII(b) and regulation VII/1.1 of the Convention concerning the amendment procedure for amending the IMDG Code,

HAVING CONSIDERED, at its eighty-first session, amendments to the IMDG Code, proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the IMDG Code, the text of which is set out in the Annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2007, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world’s merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2008 upon their acceptance in accordance with paragraph 2 above;
4. AGREES that Contracting Governments to the Convention may apply the aforementioned amendments in whole or in part on a voluntary basis as from 1 January 2007;
5. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Contracting Governments to the Convention;
6. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization, which are not Contracting Governments to the Convention.

ANNEX

**AMENDMENTS TO THE INTERNATIONAL MARITIME DANGEROUS GOODS
(IMDG) CODE (RESOLUTION MSC.122(75))**

PART 1

Chapter 1.1

- 1.1.3.2.3 Insert the following new first sentence “Doses to persons shall be below the relevant dose limits”.
- At the end of the second sentence, replace: “and doses to persons shall be below the relevant dose limits”, with “within the restriction that the doses to individuals be subject to dose constraints.”.
- 1.1.3.2.4 Replace “the radiation hazards involved and” with “radiation protection including”.
- Replace “to ensure restriction of their exposure and that” with “to restrict their occupational exposure and the exposure”.
- 1.1.3.2.5 In the French version, replace “dose effective” with “dose efficace”.
- Delete indent .1 and renumber .2 and .3 as .1 and .2.
- 1.1.3.4.1 Insert “of radioactive material” after “which consignments”.
- Delete “applicable to radioactive material” at the end.
- 1.1.3.4.2 Delete “international”, in the last sentence.

Chapter 1.2

1.2.1 In the definition of “Elevated temperature substance”, amend “61°C” to read “60°C”.
In the definition of “Remanufactured IBCs”, amend “6.5.4.1.1” to read “6.5.6.1.1”.

1.2.3 Add the following abbreviations in alphabetical order:

“ASTM American Society for Testing and Materials (ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA, 19428-2959, United States of America);”

“CGA Compressed Gas Association (CGA, 4221 Walney Road, 5th Floor, Chantilly VA 20151-2923, United States of America);”

“EN (standard) means a European standard published by the European Committee for Standardization (CEN) (CEN – 36 rue de Stassart, B-1050 Brussels, Belgium);”

“IAEA International Atomic Energy Agency (IAEA, P.O. Box 100 – A -1400 Vienna, Austria);”

“ICAO International Civil Aviation Organization (ICAO, 999 University Street, Montreal, Quebec H3C 5H7, Canada);”

“IMO International Maritime Organization (IMO, 4 Albert Embankment, London SE1 7SR, United Kingdom);”

“ISO (standard) an international standard published by the International Organization for Standardization (ISO - 1, rue de Varembe, CH-1204 Geneva 20, Switzerland);”

“UNECE United Nations Economic Commission for Europe (UNECE, Palais des Nations, 8-14 avenue de la Paix, CH-1211 Geneva 10, Switzerland);”

and delete the current abbreviations and text against IAEA, IMO, ISO and UN ECE and provide addresses of other organizations.

Chapter 1.4

1.4.3.1 For class 6.2, insert “(UN Nos. 2814 and 2900)” after “Category A”.
For class 7, replace “type B or type C” with “Type B(U) or Type B(M) or Type C”.
Delete the last paragraph.

1.4.3.5 Add a new paragraph after 1.4.3.4 to read as follows:

“1.4.3.5 For radioactive material, the provisions of this chapter are deemed to be complied with when the provisions of the Convention on Physical Protection of Nuclear Material and of IAEA INFCIRC/225 (Rev.4) are applied”.

PART 2

Chapter 2.1

2.0.2.4 Amend “2.5.3.3.2” to read “2.5.3.3”.

2.1.3.5 Insert the following new paragraphs:

“2.1.3.5 Assignment of fireworks to hazard divisions

2.1.3.5.1 Fireworks shall normally be assigned to hazard divisions 1.1, 1.2, 1.3, and 1.4 on the basis of test data derived from Test Series 6 of the United Nations *Manual of Test and Criteria*. However, since the range of such articles is very extensive and the availability of test facilities may be limited, assignment to hazard divisions may also be made in accordance with the procedure in 2.1.3.5.2.

2.1.3.5.2 Assignment of fireworks to UN Nos.0333, 0334, 0335 or 0336 may be made on the basis of analogy, without the need for Test Series 6 testing, in accordance with the default fireworks classification table in 2.1.3.5.5. Such assignment shall be made with the agreement of the competent authority. Items not specified in the table shall be classified on the basis of test data derived from Test Series 6 of the United Nations *Manual of Test and Criteria*.

NOTE: *The addition of other types of fireworks to column 1 of the table in 2.1.3.5.5 shall only be made on the basis of full test data submitted to the UN Sub-Committee of Experts on the Transport of Dangerous Goods for consideration.*

2.1.3.5.3 Where fireworks of more than one hazard division are packed in the same package they shall be classified on the basis of the highest hazard division unless test data derived from Test Series 6 of the United Nations *Manual of Test and Criteria* indicate otherwise.

2.1.3.5.4 The classification shown in the table in 2.1.3.5.5 applies only for articles packed in fibreboard boxes (4G).

2.1.3.5.5 *Default fireworks classification table*^{*}

NOTE 1: *References to percentages in the table, unless otherwise stated, are to the mass of all pyrotechnic composition (e.g., rocket motors, lifting charge, bursting charge and effect charge).*

NOTE 2: *“Flash composition” in this table refers to pyrotechnic compositions containing an oxidizing substance, or black powder, and a metal powder fuel that are used to produce an aural report effect or used as a bursting charge in fireworks devices.*

NOTE 3: *Dimensions in mm refers to:*

* This table contains a list of firework classifications that may be used in the absence of Test Series 6, of the United Nations *Manual of Test and Criteria*, data (see 2.1.3.5.2).

- *for spherical and peanut shells the diameter of the sphere of the shell;*
- *for cylinder shells the length of the shell;*
- *for a shell in mortar, Roman candle, shot tube firework or mine the inside diameter of the tube comprising or containing the firework;*
- *for a bag mine or cylinder mine, the inside diameter of the mortar intended to contain the mine.*

| Type | Includes: / Synonym: | Definition | Specification | Classification |
|-----------------------------------|---|--|--|----------------|
| Shell, spherical or cylindrical | Spherical display shell: aerial shell, colour shell, dye shell, multi-break shell, multi-effect shell, nautical shell, parachute shell, smoke shell, star shell; report shell: maroon, salute, sound shell, thunderclap, aerial shell kit | Device with or without propellant charge, with delay fuse and bursting charge, pyrotechnic unit(s) or loose pyrotechnic composition and designed to be projected from a mortar | All report shells | 1.1G |
| | | | Colour shell: ≥ 180 mm | 1.1G |
| | | | Colour shell: < 180 mm with $> 25\%$ flash composition, as loose powder and/ or report effects | 1.1G |
| | | | Colour shell: < 180 mm with $\leq 25\%$ flash composition, as loose powder and/ or report effects | 1.3G |
| | | | Colour shell: ≤ 50 mm, or ≤ 60 g pyrotechnic composition, with $\leq 2\%$ flash composition as loose powder and/ or report effects | 1.4G |
| | Peanut shell | Device with two or more spherical aerial shells in a common wrapper propelled by the same propellant charge with separate external delay fuses | The most hazardous spherical aerial shell determines the classification | |
| Preloaded mortar, shell in mortar | | Assembly comprising a spherical or cylindrical shell inside a mortar from which the shell is designed to be projected | All report shells | 1.1G |
| | | | Colour shell: ≥ 180 mm | 1.1G |
| | | | Colour shell: > 50 mm and < 180 mm | 1.2G |
| | | | Colour shell: ≤ 50 mm, or < 60 g pyrotechnic composition, with $\leq 25\%$ flash composition as loose powder and/ or report effects | 1.3G |

| Type | Includes: / Synonym: | Definition | Specification | Classification |
|---|---|--|--|----------------|
| Shell, spherical or cylindrical (<i>cont'd</i>) | Shell of shells (spherical) (Reference to percentages for shell of shells are to the gross mass of the fireworks article) | Device without propellant charge, with delay fuse and bursting charge, containing report shells and inert materials and designed to be projected from a mortar | > 120 mm | 1.1G |
| | | Device without propellant charge, with delay fuse and bursting charge, containing report shells = 25g flash composition per report unit, with = 33% flash composition and ≥ 60% inert materials and designed to be projected from a mortar | = 120 mm | 1.3G |
| | | Device without propellant charge, with delay fuse and bursting charge, containing colour shells and/or pyrotechnic units and designed to be projected from a mortar | > 300 mm | 1.1G |
| | | Device without propellant charge, with delay fuse and bursting charge, containing colour shells = 70mm and/or pyrotechnic units, with = 25% flash composition and = 60% pyrotechnic composition and designed to be projected from a mortar | > 200 mm and = 300 mm | 1.3G |
| | | Device with propellant charge, with delay fuse and bursting charge, containing colour shells = 70 mm and/or pyrotechnic units, with = 25% flash composition and = 60% pyrotechnic composition and designed to be projected from a mortar | = 200 mm | 1.3G |
| Battery/ combination | Barrage, bombardos, cakes, finale box, flowerbed, hybrid, multiple tubes, shell cakes, banger batteries, flash banger batteries | Assembly including several elements either containing the same type or several types each corresponding to one of the types of fireworks listed in this table, with one or two points of ignition | The most hazardous firework type determines the classification | |

| Type | Includes: / Synonym: | Definition | Specification | Classification |
|--------------|---|--|--|----------------|
| Roman candle | Exhibition candle, candle, bombettes | Tube containing a series of pyrotechnic units consisting of alternate pyrotechnic composition, propellant charge, and transmitting fuse | ≥ 50 mm inner diameter, containing flash composition, or < 50 mm with $> 25\%$ flash composition | 1.1G |
| | | | ≥ 50 mm inner diameter, containing no flash composition | 1.2G |
| | | | < 50 mm inner diameter and = 25% flash composition | 1.3G |
| | | | ≤ 30 mm inner diameter, each pyrotechnic unit = 25 g and = 5% flash composition | 1.4G |
| Shot tube | Single shot Roman candle, small preloaded mortar | Tube containing a pyrotechnic unit consisting of pyrotechnic composition, propellant charge with or without transmitting fuse | = 30 mm inner diameter and pyrotechnic unit > 25 g, or $> 5\%$ and = 25% flash composition | 1.3G |
| | | | ≤ 30 mm inner diameter, pyrotechnic unit = 25 g and = 5% flash composition | 1.4G |
| Rocket | Avalanche rocket, signal rocket, whistling rocket, bottle rocket, sky rocket, missile type rocket, table rocket | Tube containing pyrotechnic composition and/or pyrotechnic units, equipped with stick(s) or other means for stabilization of flight, and designed to be propelled into the air | Flash composition effects only | 1.1G |
| | | | Flash composition $> 25\%$ of the pyrotechnic composition | 1.1G |
| | | | > 20 g pyrotechnic composition and flash composition = 25 % | 1.3G |
| | | | ≤ 20 g pyrotechnic composition, black powder bursting charge and = 0.13 g flash composition per report and = 1 g in total | 1.4G |

| Type | Includes: / Synonym: | Definition | Specification | Classification |
|--------------|---|--|--|----------------|
| Mine | Pot-au-feu, ground mine, bag mine, cylinder mine | <p>Tube containing propellant charge and pyrotechnic units and designed to be placed on the ground or to be fixed in the ground. The principal effect is ejection of all the pyrotechnic units in a single burst producing a widely dispersed visual and/or aural effect in the air or:</p> <p>Cloth or paper bag or cloth or paper cylinder containing propellant charge and pyrotechnic units, designed to be placed in a mortar and to function as a mine</p> | > 25% flash composition, as loose powder and/ or report effects | 1.1G |
| | | | ≥ 180 mm and ≤ 25% flash composition, as loose powder and/ or report effects | 1.1G |
| | | | < 180 mm and ≤ 25% flash composition, as loose powder and/ or report effects | 1.3G |
| | | | ≤ 150 g pyrotechnic composition, containing ≤ 5% flash composition as loose powder and/ or report effects. Each pyrotechnic unit ≤ 25 g, each report effect < 2g ; each whistle, if any, ≤ 3 g | 1.4G |
| Fountain | Volcanos, gerbs, showers, lances, Bengal fire, flitter sparkle, cylindrical fountains, cone fountains, illuminating torch | Non-metallic case containing pressed or consolidated pyrotechnic composition producing sparks and flame | ≥ 1 kg pyrotechnic composition | 1.3G |
| | | | < 1 kg pyrotechnic composition | 1.4G |
| Sparkler | Handheld sparklers, non-handheld sparklers, wire sparklers | Rigid wire partially coated (along one end) with slow burning pyrotechnic composition with or without an ignition tip | Perchlorate based sparklers: > 5 g per item or > 10 items per pack | 1.3G |
| | | | Perchlorate based sparklers: = 5 g per item and = 10 items per pack; Nitrate based sparklers: = 30 g per item | 1.4G |
| Bengal stick | Dipped stick | Non-metallic stick partially coated (along one end) with slow-burning pyrotechnic | Perchlorate based items: > 5 g per item or > 10 items per pack | 1.3G |

| Type | Includes: / Synonym: | Definition | Specification | Classification |
|------------------------------------|---|--|--|----------------|
| | | composition and designed to be held in the hand | Perchlorate based items: = 5 g per item and = 10 items per pack; nitrate based items: = 30 g per item | 1.4G |
| Low hazard fireworks and novelties | Table bombs, throwdowns, crackling granules, smokes, fog, snakes, glow worm, serpents, snaps, party poppers | Device designed to produce very limited visible and/ or audible effect which contains small amounts of pyrotechnic and/ or explosive composition | Throwdowns and snaps may contain up to 1.6 mg of silver fulminate; snaps and party poppers may contain up to 16 mg of potassium chlorate/ red phosphorous mixture; other articles may contain up to 5 g of pyrotechnic composition, but no flash composition | 1.4G |
| Spinner | Aerial spinner, helicopter, chaser, ground spinner | Non-metallic tube or tubes containing gas- or spark-producing pyrotechnic composition, with or without noise producing composition, with or without aerofoils attached | Pyrotechnic composition per item > 20 g, containing ≤ 3% flash composition as report effects, or whistle composition ≤ 5 g | 1.3G |
| | | | Pyrotechnic composition per item ≤ 20 g, containing ≤ 3% flash composition as report effects, or whistle composition ≤ 5 g | 1.4G |
| Wheels | Catherine wheels, Saxon | Assembly including drivers containing pyrotechnic composition and provided with a means of attaching it to a support so that it can rotate | ≥ 1 kg total pyrotechnic composition, no report effect, each whistle (if any) ≤ 25 g and = 50 g whistle composition per wheel | 1.3G |
| | | | < 1 kg total pyrotechnic composition, no report effect, each whistle (if any) ≤ 5 g and = 10 g whistle composition per wheel | 1.4G |

| Type | Includes: / Synonym: | Definition | Specification | Classification |
|----------------|---|---|---|----------------|
| Aerial wheel | Flying Saxon, UFO's, rising crown | Tubes containing propellant charges and sparks- flame- and/ or noise producing pyrotechnic compositions, the tubes being fixed to a supporting ring | > 200 g total pyrotechnic composition or > 60 g pyrotechnic composition per driver, ≤ 3% flash composition as report effects, each whistle (if any) ≤ 25 g and = 50 g whistle composition per wheel | 1.3G |
| | | | ≤ 200 g total pyrotechnic composition and ≤ 60 g pyrotechnic composition per driver, ≤ 3% flash composition as report effects, each whistle (if any) ≤ 5 g and = 10 g whistle composition per wheel | 1.4G |
| Selection pack | Display selection box, display selection pack, garden selection box, indoor selection box; assortment | A pack of more than one type each corresponding to one of the types of fireworks listed in this table | The most hazardous firework type determines the classification | |
| Firecracker | Celebration cracker, celebration roll, string cracker | Assembly of tubes (paper or cardboard) linked by a pyrotechnic fuse, each tube intended to produce an aural effect | Each tube = 140 mg of flash composition or = 1 g black powder | 1.4G |
| Banger | Salute, flash banger, lady cracker | Non-metallic tube containing report composition intended to produce an aural effect | > 2 g flash composition per item | 1.1G |
| | | | ≤ 2 g flash composition per item and = 10 g per inner packaging | 1.3G |
| | | | ≤ 1 g flash composition per item and = 10 g per inner packaging or = 10 g black powder per item | 1.4G |

Chapter 2.2

2.2.2.2 Delete “are transported at a pressure not less than 280 kPa at 20°C, or as refrigerated liquids, and which”.

2.2.2.5 Add a new paragraph to read as follows:

“2.2.2.5 Gases of class 2.2, other than refrigerated liquefied gases, are not subject to the provisions of this Code if they are transported at an absolute pressure less than 280 kPa at 20°C.”.

Chapter 2.3

2.3.1.2 Amend “61°C” to read “60°C”.

2.3.2.5 First indent; amend “61°C” to read “60°C”.

2.3.2.6 In the hazard grouping based on flammability table, amend “61” to read “60”.

Chapter 2.4

2.4.2.3.1.1.2 Amend to read as follows:

“.2 they are oxidizing substances according to the classification procedure for class 5.1 (see 2.5.2) except that mixtures of oxidizing substances which contain 5.0% or more of combustible organic substances shall be subjected to the classification procedure defined in Note 3;”.

Add a new NOTE 3 to read as follows:

“NOTE 3: *Mixtures of oxidizing substances meeting the criteria of class 5.1 which contain 5.0% or more of combustible organic substances, which do not meet the criteria, mentioned in .1, .3, .4 or .5 above, shall be subjected to the self-reactive substance classification procedure.*

A mixture showing the properties of a self-reactive substance, type B to F, shall be classified as a self-reactive substance of class 4.1.

A mixture showing the properties of a self-reactive substance, type G, according to the principle of 2.4.2.3.3.2.7 shall be considered for classification as a substance of class 5.1 (see 2.5.2).”.

2.4.2.3.2.3 Add the following new entry to the table:

| UN generic entry | SELF-REACTIVE SUBSTANCE | Concentration (%) | Packing method | Control temperature (°C) | Emergency temperature (°C) | Remarks |
|------------------|--|-------------------|----------------|--------------------------|----------------------------|---------|
| 3228 | ACETONE-PYROGALLOL COPOLYMER 2-DIAZO-1-NAPHTHOL-5-SULPHONATE | 100 | OP8 | | | |

In remark (2) after the table, insert “(Model No.1, see 5.2.2.2.2)” after “risk label”.

2.4.2.3.3.2 .2 Insert “(Model No.1, see 5.2.2.2.2)” after “risk label”.

2.4.2.3.3.3 Delete.

2.4.5 In the flowchart on classification of organometallic substances, amend “61°C” to read “60°C”.

Chapter 2.5

2.5.3.2.4 Amend the following entries in the table as follows:

| Number (generic entry) | ORGANIC PEROXIDE | Concentration (%) | Diluent type A (%) | Diluent Type B (%) | Inert solid (%) | Water (%) | Packing Method | Control temperature (°C) | Emergency temperature (°C) | Subsidiary risks and remarks |
|------------------------|--|--------------------------------|--------------------|--------------------|-----------------|-----------|----------------|--------------------------|----------------------------|------------------------------|
| 3101 | 2,5 DIMETHYL-2,5-DI-(<i>tert</i> -BUTYLPEROXY)-HEXYNE-3 | > 86-100 | | | | | OP5 | | | (3) |
| 3107 | POLYETHER POLY- <i>tert</i> -BUTYLPEROXY CARBONATE | ≤ 52 | | ≥ 48 | | | OP8 | | | |
| 3115 | ISOPROPYL <i>sec</i> -BUTYL PEROXYDICARBONATE + DI- <i>sec</i> -BUTYL PEROXYDICARBONATE + DI-ISOPROPYL PEROXYDICARBONATE | ≤ 32 + ≤ 15-18 + ≤ 12-15 | ≥ 38 | | | | OP7 | -20 | -10 | |

In Note (8) after the table, replace “< 10.7%” with “≤ to 10.7%”.

In Note (18) after the table, add at the end of the sentence “for concentrations below 80%”.

2.5.3.3.2.2 Insert “(Model No.1, see 5.2.2.2.2)” after “risk label”.

2.5.3.3.2.6 Amend “4.2.1.12” to read “4.2.1.13”.

2.5.3.3.3 Delete.

Chapter 2.6

2.6.2.2.4.5 Amend “2.6.2.2.4.1” to read “2.6.2.2.4.3”.

2.6.2.2.4.1 Amend the table to read as follows:

| Packing group | Oral toxicity LD ₅₀ (mg/kg) | Dermal toxicity LD ₅₀ (mg/kg) | Inhalation toxicity by dusts and mists LC ₅₀ (mg/l) |
|---------------|---|---|--|
| I | ≤ 5.0 | ≤ 50 | ≤ 0.2 |
| II | > 5.0 and ≤ 50 | > 50 and ≤ 200 | > 0.2 and ≤ 2.0 |
| III* | > 50 and ≤ 300 | > 200 and ≤ 1000 | > 2.0 and ≤ 4.0 |

2.6.2.2.4.7.1 In the explanation of “*f_i*”, replace “liquid” with “mixture”.

2.6.2.2.4.7.2 Insert “comprising the mixture” after “component substance” and before “using the formula”.

2.6.3.1.3 Amend to read as follows:

“*Cultures* are the result of a process by which pathogens are intentionally propagated. This definition does not include human or animal patient specimens as defined in 2.6.3.1.4.”.

2.6.3.1.4 Add a new 2.6.3.1.4 to read as follows and renumber subsequent paragraphs accordingly:

“2.6.3.1.4 *Patient specimens* are human or animal materials, collected directly from humans or animals, including, but not limited to, excreta, secretions, blood and its components, tissue and tissue fluid swabs, and body parts being transported for purposes such as research, diagnosis, investigational activities, disease treatment and prevention.”.

2.6.3.2.1 Insert “, UN 3291” after “UN 2900”.

2.6.3.2.2.1 In the first sentence, replace “disease to humans or animals” with “disease in otherwise healthy humans or animals”.

In the Table with the indicative examples:

Under UN 2814:

- Replace “Hantaviruses causing hantavirus pulmonary syndrome” with “Hantavirus causing hemorrhagic fever with renal syndrome”.
- Add “(cultures only)” after “Rabies virus”, “Rift Valley fever virus” and “Venezuelan equine encephalitis virus”.

Under UN 2900:

- Delete “African horse sickness virus” and “Bluetongue virus”.
- Insert “Velogenic” before “Newcastle disease virus”.
- Add “(cultures only)” after each micro-organism in the list.

2.6.3.2.2.2 Delete “except that cultures, as defined in 2.6.3.1.3, shall be assigned to UN 2814 or UN 2900 as appropriate”.

In the Note amend the proper shipping name to read: “BIOLOGICAL SUBSTANCE, CATEGORY B”.

2.6.3.2.3 Renumber current 2.6.3.2.3 as 2.6.3.2.3.1 and add a new 2.6.3.2.3 to read as follows:

“2.6.3.2.3 *Exemptions*”.

Insert the following new subparagraphs:

“2.6.3.2.3.2 Substances containing micro-organisms which are non-pathogenic to humans or animals are not subject to the provisions of this Code unless they meet the criteria for inclusion in another class.

2.6.3.2.3.3 Substances in a form that any present pathogens have been neutralized or inactivated such that they no longer pose a health risk are not subject to the provisions of this Code unless they meet the criteria for inclusion in another class.

2.6.3.2.3.4 Environmental samples (including food and water samples) which are not considered to pose a significant risk of infection are not subject to the provisions of this Code unless they meet the criteria for inclusion in another class.”.

2.6.3.2.4 Current 2.6.3.2.4 becomes new 2.6.3.2.3.5. Amend the beginning of the paragraph to read as follows: “Dried blood spots, collected by applying a drop of blood onto absorbent material, or faecal occult blood screening tests and blood or blood components...”.

Current 2.6.3.2.5 Delete.

2.6.3.2.3.6 Add a new paragraph to read as follows:

“2.6.3.2.3.6 Human or animal specimens for which there is minimal likelihood that pathogens are present are not subject to the provisions of this Code if the specimen is transported in a packaging which will prevent any leakage and which is marked with the words “Exempt human specimen” or “Exempt animal specimen”, as appropriate. The packaging should meet the following conditions:

- (a) The packaging should consist of three components:
 - (i) a leak-proof primary receptacle(s);
 - (ii) a leak-proof secondary packaging; and
 - (iii) an outer packaging of adequate strength for its capacity, mass and intended use, and with at least one surface having minimum dimensions of 100 mm x 100 mm;
- (b) For liquids, absorbent material in sufficient quantity to absorb the entire contents should be placed between the primary receptacle(s) and the secondary packaging so that, during transport, any release or leak of a liquid substance will not reach the outer packaging and will not compromise the integrity of the cushioning material;
- (c) When multiple fragile primary receptacles are placed in a single secondary packaging, they should be either individually wrapped or separated to prevent contact between them.

NOTE: An element of professional judgment is required to determine if a substance is exempt under this paragraph. That judgment should be based on the known medical history, symptoms and individual circumstances of the source, human or animal, and endemic local conditions. Examples of specimens which may be transported under this paragraph include the blood or urine tests to monitor cholesterol levels, blood glucose levels, hormone levels, or prostate specific antibodies (PSA); those required to monitor organ function such as heart, liver or kidney function for humans or animals with non-infectious diseases, or therapeutic drug monitoring; those conducted for insurance or employment purposes and are intended to determine the presence of drugs or alcohol; pregnancy test; biopsies to detect cancer; and antibody detection in humans or animals.”

2.6.3.5.1 Delete “or containing Category B infectious substances in cultures” in the first sentence and “, other than in cultures,” in the last sentence.

2.6.3.6 Add the following new title:

“2.6.3.6 Infected animals”

2.6.3.6.1 Current 2.6.3.2.6 becomes new 2.6.3.6.1. In new 2.6.3.6.1 add the following new first sentence: “Unless an infectious substance cannot be consigned by any other means, live animals shall not be used to consign such a substance.”.

2.6.3.6.2 Add a new 2.6.3.6.2 to read as follows:

“2.6.3.6.2 Animal carcasses affected by pathogens of category A or which would be assigned to Category A in cultures only, shall be assigned to UN 2814 or UN 2900 as appropriate.

Other animal carcasses affected by pathogens included in Category B shall be transported in accordance with provisions determined by the competent authority.”.

Chapter 2.7

- 2.7.1.2 (e) Replace “the values specified in 2.7.7.2.” with “the values specified in 2.7.7.2.1 (b), or calculated in accordance with 2.7.7.2.2 to 2.7.7.2.6.”.
- 2.7.1.2 (f) Replace “defined” with “set out in the definition for ‘contamination’ ”.
- 2.7.2 In the definition of “*Multilateral approval*”, amend the first sentence to read as follows:
- Multilateral approval* means approval by the relevant competent authority of the country of origin of the design or shipment, as applicable and also, where the consignment is to be transported through or into any other country, approval by the competent authority of that country.”.
- In the definition of “*Freight container in the case of radioactive material transport*”, amend the end of the first sentence and the beginning of the current second sentence to read as follows: “...transport without intermediate reloading which is of a permanent enclosed character, ...”.
- In the definition of “*Specific activity of a radionuclide*”, delete: “or volume”.
- In the definition of “Natural Uranium” (under “Uranium-natural, depleted, enriched”) replace “chemically separated uranium” with “uranium (which may be chemically separated)”.
- 2.7.3.2 (a)(ii) Amend to read: “Natural uranium, depleted uranium, natural thorium or their compounds or mixtures, providing they are unirradiated and in solid or liquid form;”.
- 2.7.4.6 (a) Amend to read:
- “(a) The tests prescribed in 2.7.4.5 (a) and 2.7.4.5 (b) provided the mass of the special form radioactive material
- (i) is less than 200 g and they are alternatively subjected to the class 4 impact test prescribed in ISO 2919:1990 “Radiation protection - Sealed radioactive sources - General requirements and classification”; or
- (ii) is less than 500 g and they are alternatively subjected to the class 5 impact test prescribed in ISO 2919:1990: “Sealed Radioactive Sources – Classification”; and”.
- 2.7.7.1.7 Amend the beginning of the first sentence to read: “Unless excepted by 6.4.11.2, packages containing ...”.

2.7.7.1.8 Amend to read as follows:

“Packages containing uranium hexafluoride shall not contain:

- (a) a mass of uranium hexafluoride different from that authorized for the package design;
- (b) a mass of uranium hexafluoride greater than 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; or
- (c) uranium hexafluoride other than in solid form or at an internal pressure above atmospheric pressure when presented for transport.”.

2.7.7.2.1 In the table, amend the value in the last column for Te-121m to read “ 1×10^6 ” instead of “ 1×10^5 ”.

Amend (a) and (b) after the table as follows:

- “(a) A_1 and/or A_2 values for these parent radionuclides include contributions from daughter radionuclides with half-lives less than 10 days, as listed in the following:

| | |
|---------|---------------|
| Mg-28 | Al-28 |
| Ar-42 | K-42 |
| Ca-47 | Sc-47 |
| Ti-44 | Sc-44 |
| Fe-52 | Mn-52m |
| Fe-60 | Co-60m |
| Zn-69m | Zn-69 |
| Ge-68 | Ga-68 |
| Rb-83 | Kr-83m |
| Sr-82 | Rb-82 |
| Sr-90 | Y-90 |
| Sr-91 | Y-91m |
| Sr-92 | Y-92 |
| Y-87 | Sr-87m |
| Zr-95 | Nb-95m |
| Zr-97 | Nb-97m, Nb-97 |
| Mo-99 | Tc-99m |
| Tc-95m | Tc-95 |
| Tc-96m | Tc-96 |
| Ru-103 | Rh-103m |
| Ru-106 | Rh-106 |
| Pd-103 | Rh-103m |
| Ag-108m | Ag-108 |
| Ag-110m | Ag-110 |
| Cd-115 | In-115m |
| In-114m | In-114 |
| Sn-113 | In-113m |
| Sn-121m | Sn-121 |
| Sn-126 | Sb-126m |

| | |
|---------|--|
| Te-118 | Sb-118 |
| Te-127m | Te-127 |
| Te-129m | Te-129 |
| Te-131m | Te-131 |
| Te-132 | I-132 |
| I-135 | Xe-135m |
| Xe-122 | I-122 |
| Cs-137 | Ba-137m |
| Ba-131 | Cs-131 |
| Ba-140 | La-140 |
| Ce-144 | Pr-144m, Pr-144 |
| Pm-148m | Pm-148 |
| Gd-146 | Eu-146 |
| Dy-166 | Ho-166 |
| Hf-172 | Lu-172 |
| W-178 | Ta-178 |
| W-188 | Re-188 |
| Re-189 | Os-189m |
| Os-194 | Ir-194 |
| Ir-189 | Os-189m |
| Pt-188 | Ir-188 |
| Hg-194 | Au-194 |
| Hg-195m | Hg-195 |
| Pb-210 | Bi-210 |
| Pb-212 | Bi-212, Tl-208, Po-212 |
| Bi-210m | Tl-206 |
| Bi-212 | Tl-208, Po-212 |
| At-211 | Po-211 |
| Rn-222 | Po-218, Pb-214, At-218, Bi-214, Po-214 |
| Ra-223 | Rn-219, Po-215, Pb-211, Bi-211, Po-211, Tl-207 |
| Ra-224 | Rn-220, Po-216, Pb-212, Bi-212, Tl-208, Po-212 |
| Ra-225 | Ac-225, Fr-221, At-217, Bi-213, Tl-209, Po-213, Pb-209 |
| Ra-226 | Rn-222, Po-218, Pb-214, At-218, Bi-214, Po-214 |
| Ra-228 | Ac-228 |
| Ac-225 | Fr-221, At-217, Bi-213, Tl-209, Po-213, Pb-209 |
| Ac-227 | Fr-223 |
| Th-228 | Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208, Po-212 |
| Th-234 | Pa-234m, Pa-234 |
| Pa-230 | Ac-226, Th-226, Fr-222, Ra-222, Rn-218, Po-214 |
| U-230 | Th-226, Ra-222, Rn-218, Po-214 |
| U-235 | Th-231 |
| Pu-241 | U-237 |
| Pu-244 | U-240, Np-240m |
| Am-242m | Am-242, Np-238 |
| Am-243 | Np-239 |
| Cm-247 | Pu-243 |
| Bk-249 | Am-245 |
| Cf-253 | Cm-249” |

(b) Insert “Ag-108m Ag-108” after: “Ru-106 Rh-106”.

Delete: “Ce-134, La-134”; “Rn-220, Po-216”; “Th-226, Ra-222, Rn-218, Po-214”; and “U-240, Np-240m”.

2.7.7.2.2 In the first sentence, delete “competent authority approval, or for international transport,” and amend the beginning of the second sentence to read as follows: “It is permissible to use an A_2 value calculated using a dose coefficient for the appropriate lung absorption type as recommended by the International Commission on Radiological Protection, if the chemical forms of each radionuclide under both normal ...”.

In the table:

- Amend the second entry in the first column to read: “Alpha emitting nuclides but no neutron emitters are known to be present”.
- Amend the third entry in the first column to read: “Neutron emitting nuclides are known to be present or no relevant data are available”.

2.7.8.4 Add at the end: “except under the provisions of 2.7.8.5”.
(d) and (e)

2.7.8.5 Add a new 2.7.8.5 to read:

“2.7.8.5 In case of international transport of packages requiring competent authority design or shipment approval, for which different approval types apply in the different countries concerned by the shipment, assignment to the category as required in 2.7.8.4 shall be in accordance with the certificate of the country of origin of design.”.

2.7.9.3 (b) In the first sentence, insert “manufactured” after “or” and before “article”.

Chapter 2.8

2.8.2.2 Amend the beginning of the last sentence to read as follows: “Liquids, and solids which may become liquid during transport, which are judged not to cause...”
(*remainder of the sentence unchanged*).

2.8.2.5.3.2 In the second sentence, amend “SAE 1015” to read “SAE 1020”.

PART 3

Chapter 3.1

3.1.2.6.1 Insert “or equal to” after “less than” and before “50°C”.

3.1.4.4 In the acids’ list, amend the proper shipping names of UN 1779, UN 1848, UN 2626 and UN 2823 to read: “Formic acid with more than 85% acid by mass”, “Propionic acid with not less than 10% and 90% by mass”, “Chloric acid, aqueous solution with not more than 10% chloric acid” and “Crotonic acid, solid” respectively.

In the acids’ list, delete the entry for 2253.

In the acids’ list, add the following entries in proper order:

“2353 Butyryl chloride

3412 Formic acid with not less than 10% but not more than 85% acid by mass

3412 Formic acid with not less than 5% but not more than 10% acid by mass

3463 Propionic acid with not less than 90% acid by mass

3472 Crotonic acid, liquid”

In the liquid halogenated hydrocarbons’ list, amend the proper shipping name of UN 1303 to read “Vinylidene chloride, stabilized”.

In the alkalis’ list, amend the proper shipping names of UN 1835, UN 2030, UN 2270, UN 2733, UN 2734 to read “Tetramethylammonium hydroxide solution”, “Hydrazine, aqueous solution with more than 37% hydrazine, by mass”, “Ethylamine, aqueous solution with not less than 50% but not more than 70% ethylamine”, “Amines, flammable, corrosive, n.o.s. or polyamines, flammable, corrosive, n.o.s.” and “Amines, liquid, corrosive, flammable, n.o.s. or polyamines, liquid, corrosive, flammable, n.o.s.” respectively.

Chapter 3.2

3.2.1 In the explanations for column (7), insert “or article” after “inner packaging” in the first sentence.

In the explanations for column (13), add the following text at the end: “The gases authorized for transport in MEGCs are indicated in the column “MEGC” in Tables 1 and 2 of packing instruction P200 in 4.1.4.1.”.

Dangerous Goods List

- UN 0153 Amend “P112 (a), (b) or (c)” to read “P112 (b) or (c)” in column 8.
- UN 0224 Amend the name in column (2) to read “BARIUM AZIDE, dry or wetted with less than 50% water, by mass”.
- UN 1014 Delete this entry.
- UN 1015 Delete this entry.
- UN 1040 Insert “TP 90” in column (14) and “TP91” in column (12).
- UN 1143 Amend the name in column (2) to read as follows: “CROTONALDEHYDE or CROTONALDEHYDE, STABILIZED” and add “324” in column (6).
- UN 1170 Insert “330” in column (6) and delete “PP2” from column (9).
- UN 1198 Replace “61°C” with “60°C” in the second sentence in column (17).
- UN 1263 Add “TP27”, “TP28” and “TP29” in column (14) for packing groups I, II and III, respectively.
- UN 1268 Delete “TP9” in column (14) for packing groups II and III.
- UN 1272 Replace “61°C” with “60°C” in the second sentence in column (17).
- UN 1295 Insert “See 7.2.1.13.1.2” in column (16).
- UN 1366 Delete this entry.
- UN 1370 Delete this entry.
- UN 1386 In column (8), delete “BP” for PG III.
- UN 1386 In column (8), delete “BP” for PG III.
- UN 1391 Replace “282” with “329” in column (6).
- UN 1463 Add “6.1” before “8” in column (4). Add “Segregation as for class 5.1 but “Separated from” classes 4.1 and 7” in column (16).
- UN 1569 Replace “T3” and “TP33” with “T10” and “TP2, TP13” in columns (13) and (14) respectively.
- UN 1649 Replace “162” with “329” in column (6) and insert “If flammable: F-E, S-D” in column (15).
- UN 1689 Add “B1” in column (11).

- UN 1733 Replace “1 L” with “1 kg” in column (7) and “P001” with “P002” in column (8).
- UN 1733 Replace “IBC02” with “IBC08” in column (10) and add “B2, B4” in column (11), “T3” in column (13) and “TP33” in column (14). In column (17) delete the first sentence.
- UN 1740 Amend the name in column (2) to read: “HYDROGENDIFLUORIDES, SOLID, N.O.S.”
- UN 1745 Add “TP2 , TP12 and TP13” in column (14).
- UN 1746 Add “TP2 , TP12 and TP13” in column (14).
- UN 1779 Amend the name in column (2), to read as follows: “FORMIC ACID with more than 85% acid by mass” and add “3” in column (4). In column (15) replace “F-A, S-B” with “F-E, S-C”. In column (17), first sentence, insert “flammable” between “colourless” and “liquid”. In column (17), add at the end “Pure FORMIC ACID: flashpoint 42°C c.c.”
- UN 1818 Insert “See 7.2.1.13.1.2” in column (16).
- UN 1848 Amend the name in column (2) to read as follows: “PROPIONIC ACID with not less than 10% and less than 90% acid by mass”. Delete “938” in column (6).
- UN 1849 Replace “T4” with “-” in column (12).
- UN 1942 Amend the first two sentences in column (16) to read: “Category C. Category A only if the special stowage provisions of 7.1.11.5 are complied with.”
- UN 1950 Add “See SP63” in column (3), “327” and “959” in column (6), “LP02” in column (8) and “PP87” and “L2” in column (9). Insert the following text in column (16):
- “For WASTE AEROSOLS: Category C. Clear of living quarters and away from sources of heat. Segregation as for the appropriate sub-division of class 2.”. In the paragraph for AEROSOLS with a capacity above 1l in column (16), replace “division” with “sub-division”.
- UN 1956 Insert “292” in column (6).
- UN 1979 Delete this entry.
- UN 1980 Delete this entry.
- UN 1981 Delete this entry.
- UN 1987 Insert “330” in column (6).
- UN 1993 Insert “330” in column (6).
- UN 2005 Delete this entry.
- UN 2014 Insert “See 7.2.1.13.1.2” in column (16).

- UN 2015 Replace “T10” with “T9” in column (13) and replace “T9” with “-” in column (12).
- UN 2030 Replace “298” with “329” in column (6) for packing group I. In column (13), replace “T20” with “T10” for packing group I and “T15” with “T7” for packing group II, and in column (14), replace “TP2” with “TP1” for packing group III. Insert “If flammable: F-E, S-C” in column (15) for packing group I.
- UN 2067 Amend the first two sentences in column (16) to read “Category C. Category A only if the special stowage provisions of 7.1.11.5 are complied with.”
- UN 2189 Insert “See 7.2.1.13.1.2” in column (16).
- UN 2211 Amend the text in column (16) to read “Category E. Shaded from radiant heat and protected from sparks and open flame. When stowed under deck, mechanical ventilation shall be in accordance with SOLAS regulation II-2/19 (II-2/54) for flammable liquids with flashpoint below 23°C (c.c). Segregation as for class 3 but “Separated from” class 1 except division 1.4S.”.
- UN 2258 Amend the proper shipping name to read “1, 2-PROPYLENEDIAMINE” in column (2).
- UN 2290 Replace “nitric” by “nitrous” in column (17).
- UN 2308 Replace “B11” with “B20” in column (11).
- UN 2346 Replace “P” with “-” in column (4).
- UN 2445 Delete this entry.
- UN 2477 Replace “61°C” with “60°C” in the second sentence in column (17).
- UN 2600 Delete this entry.
- UN 2616 Replace “61°C” with “60°C” in the second sentence in column (17) for packing group II.
- UN 2662 Delete this entry.
- UN 2683 Replace “61°C” with “60°C” in the fourth sentence in column (16).
- UN 2687 Replace “P” with “-” in column (4).
- UN 2758 Add “61” in column (6).
- UN 2760 Add “61” in column (6).
- UN 2762 Add “61” in column (6).
- UN 2764 Add “61” in column (6).
- UN 2772 Add “61” in column (6).
- UN 2776 Add “61” in column (6).

- UN 2778 Add “61” in column (6).
- UN 2779 Replace “See above” with “Category A. Clear of living quarters” in column (16) for packing groups II and III.
- UN 2780 Add “61” in column (6).
- UN 2782 Add “61” in column (6).
- UN 2784 Add “61” in column (6).
- UN 2787 Add “61” in column (6).
- UN 2789 Replace “61°C” with “60°C” in the third sentence in column (17).
- UN 2802 Amend the third sentence in column (17) to read “Corrosive to steel.”.
- UN 2814 Insert “BK2 only for animal carcasses” in column (13). Delete “See also 5.5.1” in column (17).
- UN 2823 Amend the name in column (2) to read: “CROTONIC ACID, SOLID”.
- UN 2870 In columns (13) and (14) of the entry ALUMINIUM BOROHYDRIDE, insert “T21” and “TP7, TP33” respectively.
- UN 2870 In columns (13) and (14) of the entry for ALUMINIUM BOROHYDRIDE IN DEVICES delete “T21” and “TP7, TP33” respectively.
- UN 2880 For packing group II: insert “322” in column (6);
For packing group III: replace “316” with “223”, “313” and “314”;
- UN 2900 Insert “only for animal carcasses” after “BK2” in column (13).
- UN 2903 Replace “61°C” with “60°C” in the first sentence in column (17) for packing group I.
- UN 2912 Add “325” in column (6).
- UN 2915 Add “325” in column (6).
- UN 2927 Replace “TP 11” with “T11” in column (13) for packing group II.
- UN 2949 Insert “T7” and “TP2” in columns (12) and (13) respectively.
- UN 2984 Insert “See 7.2.1.13.1.2” in column (16).
- UN 2991 Replace “61°C” with “60°C” in the first sentence in column (17) for packing group I.
- UN 2993 Amend the proper shipping name to read “ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE flashpoint not less than 23°C” in column (2) for all packing groups. Replace “61°C” with “60°C” in the first sentence in column (17) for packing group I.
- UN 3005 Replace “61°C” with “60°C” in the first sentence in column (17) for packing group I.

- UN 3009 Replace “61°C” with “60°C” in the first sentence in column (17) for packing group I.
- UN 3011 Replace “61°C” with “60°C” in the first sentence in column (17) for packing group I.
- UN 3013 Replace “61°C” with “60°C” in the first sentence in column (17) for packing group I.
- UN 3015 Replace “61°C” with “60°C” in the first sentence in column (17) for packing group I.
- UN 3017 Replace “61°C” with “60°C” in the first sentence in column (17) for packing group I.
- UN 3019 Replace “61°C” with “60°C” in the first sentence in column (17) for packing group I.
- UN 3021 Add “61” in column (6).
- UN 3024 Add “61” in column (6).
- UN 3025 Replace “61°C” with “60°C” in the first sentence in column (17) for packing group I.
- UN 3051 Delete this entry.
- UN 3052 Delete this entry.
- UN 3053 Delete this entry.
- UN 3065 Amend the end of the first paragraph in column (17) to read:

“...may be transported in wooden barrels with a capacity of more than 250 litres and not more than 500 litres meeting the general requirements of 4.1.1, as appropriate, on the following conditions:...”.

Replace the word “casks” wherever it appears with “wooden barrels” in column (17).
- UN 3066 Add “TP28” and “TP29” in column (14) for packing groups II and III, respectively.
- UN 3076 Delete this entry.
- UN 3100 Insert “?” in column (4) for packing group I.
- UN 3100 Insert a new entry for packing group II to read “3100” “OXIDIZING SOLID, SELF-HEATING, N.O.S”, “5.1”, “4.2, “?”, “II”, “76, 274”, “None”, “P099”, “-”, “-”, “-”, “-”, “-”, “-”, “F-A, S-Q”, “-”, “-” in columns (1), (2), (3), (4), (5), (6), (7), (8), (9), (10), (11), (12), (13), (14), (15), (16) and (17) respectively.
- UN 3101 Add “323” in column (6).
- UN 3102 Add “323” in column (6).
- UN 3103 Add “323” in column (6).
- UN 3104 Add “323” in column (6).
- UN 3105 Add “323” in column (6) and insert “See 7.2.1.13.1.2” in column (16).

- UN 3106 Add “323” in column (6).
- UN 3107 Add “323” in column (6) and insert “See 7.2.1.13.1.2” in column (16).
- UN 3108 Add “323” in column (6).
- UN 3109 Add “323” in column (6) and insert “See 7.2.1.13.1.2” in column (16).
- UN 3110 Add “323” in column (6).
- UN 3111 Add “323” in column (6).
- UN 3112 Replace “?” with “-” in column (4) and add “323” in column (6).
- UN 3113 Add “323” in column (6).
- UN 3114 Add “323” in column (6).
- UN 3115 Add “323” in column (6).
- UN 3116 Add “323” in column (6).
- UN 3117 Add “323” in column (6).
- UN 3118 Add “323” in column (6).
- UN 3119 Add “323” in column (6).
- UN 3120 Add “323” in column (6).
- UN 3127 Insert “?” in column (4) for packing groups II and III.
- UN 3130 Add “If under deck, in a mechanically ventilated space.” in column (16) for packing group II.
- UN 3131 Replace “P402” with “P403” in column (8) for packing group I.
- UN 3133 Insert “?” in column (4) for packing groups II and III.
- UN 3137 Insert “?” in column (4).
- UN 3149 Insert “See 7.2.1.13.1.2” in column (16).
- UN 3245 Amend the proper shipping name in column (2) to read as follows: “GENETICALLY MODIFIED MICROORGANISMS or GENETICALLY MODIFIED ORGANISMS”.
- UN 3254 Replace “TP33” with “TP 2” in column (14).
- UN 3256 Replace “61°C” with “60°C” in the proper shipping name in column (2).
- UN 3259 Replace “T3” with “T1” in column (13) for packing group III.
- UN 3291 Insert “BK2” in column (13).

- UN 3314 Amend the text in column (16) to read “Category E. Shaded from radiant heat and protected from sparks and open flame. When stowed under deck, mechanical ventilation shall be in accordance with SOLAS regulation II-2/19 (II-2/54) for flammable liquids with flashpoint below 23°C (c.c). Segregation as for class 3 but “Separated from” class 1 except division 1.4S.”.
- UN 3321 Add “325” in column (6).
- UN 3322 Add “325” in column (6).
- UN 3324 Add “326” in column (6).
- UN 3325 Add “326” in column (6).
- UN 3327 Add "326" in column (6).
- UN 3346 Add “61” in column (6).
- UN 3350 Add “61” in column (6).
- UN 3359 In column (17), amend the first sentence to read: “A FUMIGATED UNIT is a closed cargo transport unit containing goods or materials that either are or have been fumigated within the unit.”.
- UN 3359 In column (17), amend the last sentence to read: “A closed cargo transport unit that has been fumigated is not subject to the provisions of this Code if it has been completely ventilated either by opening the doors of the unit or by mechanical ventilation after fumigation and if the date of ventilation is marked on the fumigation warning sign (see also special provision 910).”.
- UN 3360 Replace “620” with “360” in the last sentence in column (17).
- UN 3373 Amend the proper shipping name in column (2) to read: “BIOLOGICAL SUBSTANCE, CATEGORY B” and add “T1” and “TP1” in columns (13) and (14), respectively. In column (17) amend existing text to read “Substances which are known or are reasonably expected to contain pathogens, transported in a form that when exposure to it occurs, are not capable of causing permanent disability, life-threatening or fatal disease to humans or animals. Human or animal specimens for which there is minimal likelihood that pathogens are present, are not subject to the provisions of this Code (see 2.6.3.2.3.6). Other exemptions are stated in 2.6.3.2.3.”.
- UN 3375 Amend the existing text in column (17) to read: “Non sensitized emulsions, suspensions and gels consisting primarily of a mixture of ammonium nitrate and fuel, intended to produce a Type E blasting explosive only after further processing prior to use. Substances shall satisfactorily pass Test Series 8 of the United Nations Manual of Tests and Criteria, Part I, Section 18 and be approved by the competent authority.”.
- UN 3378 Delete “B13” in column (11) for packing group III.
- UN 3424 Delete “, especially lead” after “heavy metals” in second sentence in column (16) for packing group III.
- UN 3433 Delete this entry.

UN 3435 Delete this entry.

UN 3457 Add “Segregation as for class 5.1 but “Away from” classes 4.1, 5.1 and 7.” in column (16).

UN 3461 Delete this entry.

Add the following new entries in the DGL and the Index as appropriate:

| UN No. | Name and description | Class or division | Subsidiary risk(s) | Packing | | IBC | | Portable tanks and bulk containers | | | EmS | Stowage and segregation | Properties and observations | UN No. | | | |
|--------|---|-------------------|--------------------|---------------|--------------------|--------------------|--------------|------------------------------------|-------------|------------|------|-------------------------|-----------------------------|----------|---------------------------------------|--|------------|
| | | | | Packing group | Special provisions | Limited quantities | Instructions | Provisions | Instruction | Provisions | | | | | IMO | UN | Provisions |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3412 | FORMIC ACID with not less than 10% but not more than 85% acid by mass | 8 | | II | | 1 L | P001 | | IBC02 | | | T7 | TP2 | F-A, S-B | Category A. Clear of living quarters. | Colourless liquid with a pungent odour. Corrosive to most metals. Causes burns to skin, eyes and mucous membranes. | 3412 |
| | FORMIC ACID with not less than 5% but less than 10% acid by mass | 8 | | III | | 5 L | P001 LP01 | | IBC03 | | | T4 | TP1 | F-A, S-B | Category A. Clear of living quarters. | See entry above. | 3412 |
| 3463 | PROPIONIC ACID with not less than 90% acid by mass | 8 | 3 | II | | 1 L | P001 | | IBC02 | | | T7 | TP2 | F-E, S-C | Category A. | Colourless flammable liquid with a pungent odour. Miscible with water. Corrosive to lead and most other metals. Burns skin. Vapours irritate mucous membranes. Pure PROPIONIC ACID: flashpoint 50°C c.c. | 3463 |

| UN No. | Name and description | Class or division | Subsidiary risk(s) | Packing group | Special provisions | Limited quantities | Packing | | IBC | | Portable tanks and bulk containers | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|--|-------------------|--------------------|---------------|--------------------|--------------------|---------------|-------------|--------------|-------------|------------------------------------|------|--------------------|----------|---------------------------------------|---|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3469 | PAINT, FLAMMABLE, CORROSIVE (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL, FLAMMABLE, CORROSIVE (including paint thinning or reducing compound) | 3 | 8 • | I | 163 | NONE | P001 | | | | | T11 | TP2 TP27 | F-E, S-C | Category E. Clear of living quarters. | Miscibility with water depends upon the composition. Corrosive contents cause burns to skin, eyes and mucous membranes. | 3469 |
| | | 3 | 8 • | II | 163 944 | 1 L | P001 | | IBC02 | | | T7 | TP2 TP8 TP28 | F-E, S-C | Category B. Clear of living quarters. | See entry above. | 3469 |
| | | 3 | 8 • | III | 163 223 944 | 5 L | P001 | | IBC03 | | | T4 | TP1 TP29 | F-E, S-C | Category A. Clear of living quarters. | See entry above. | 3469 |

| UN No. | Name and description | Class or division | Subsidiary risk(s) | Packing group | Special provisions | Limited quantities | Packing | | IBC | | Portable tanks and bulk containers | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|---|-------------------|--------------------|---------------|--------------------|--------------------|--------------|------------|-------------|------------|------------------------------------|------|--------------------|----------|--|---|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3470 | PAINT, CORROSIVE, FLAMMABLE (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL CORROSIVE, FLAMMABLE (including paint thinning or reducing compound) | 8 | 3 • | II | 163 944 | 1 L | P001 | | IBC02 | | | T7 | TP2 TP8 TP28 | F-E, S-C | Category B. Clear of living quarters. | Miscibility with water depends upon the composition. Corrosive contents cause burns to skin, eyes and mucous membranes. | 3470 |
| 3471 | HYDROGEN DIFLUORIDE SOLUTION, N.O.S. | 8 | 6.1 • | II | 944 | 1 L | P001 | | IBC02 | | | T7 | TP2 | F-A, S-B | Category A. Shade from radiant heat. Clear of living quarters. "Separated from" acids. | When involved in a fire or in contact with acids, evolves hydrogen fluoride, an extremely irritating and corrosive gas. Corrosive to glass, other siliceous materials and most metals. Toxic if swallowed, by skin contact or by inhalation. Causes burns to skin, eyes and mucous membranes. | 3471 |

| UN No. | Name and description | Class or division | Subsidiary risk(s) | Packing group | Special provisions | Limited quantities | Packing | | IBC | | Portable tanks and bulk containers | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|---|-------------------|--------------------|---------------|--------------------|--------------------|--------------|------------|-------------|------------|------------------------------------|------|------------|----------|--|---|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| | | 8 | 6.1 • | III | 223 944 | 5 L | P001 | | IBC03 | | | T4 | TP1 | F-A, S-B | Category A. Shade from radiant heat. Clear of living quarters. "Separated from" acids. | See entry above. | 3471 |
| 3472 | CROTONIC ACID, LIQUID | 8 | | III | | 5 L | P001 LP01 | | IBC03 | | | T4 | TP1 | F-A, S-B | Category A. Keep as cool as reasonably practicable. | Causes burns to skin, eyes and mucous membranes. | 3472 |
| 3473 | FUEL CELL CARTRIDGES containing flammable liquids | 3 | | | 328 | 1 L | P003 | PP88 | | | | | | F-E, S-D | Category A. | Fuel cell cartridges containing flammable liquids including methanol or methanol/water solutions. | 3473 |

Chapter 3.3

3.3.1 **SP133** Insert “(Model No.1, see 5.2.2.2.2)” after “risk label”.

SP162 Delete.

SP181 Insert “(Model No.1, see 5.2.2.2.2)” after “risk label”.

SP204 Insert “(Model No.8, see 5.2.2.2.2)” after “risk label”.

SP215 In the last sentence, amend “azocarbonamide” to read “azodicarbonamide”.

SP216 In the last sentence, insert “and articles” before “containing” and amend the end to read: “... free liquid in the packet or article.”.

SP247 Amend the end of the first paragraph to read:

“...may be transported in wooden barrels with a capacity of more than 250 litres and not more than 500 litres meeting the general requirements of 4.1.1, as appropriate, on the following conditions:...”.

In subparagraph .5, add at the end “or regulation II-2/54 of SOLAS 74, as amended by the resolutions indicated in II-2/1.2.1, as applicable”.

Replace the word “casks” wherever it appears with “wooden barrels” in the special provision.

SP251 In the first sentence, add “for example” before “for medical,” add “or repair” before “purposes”. Replace “or” between “analytical” and “testing” with “,”.

SP282 Delete.

SP289 Amend as follows:

Replace “vehicles” and “vehicle” with “conveyances” and “conveyance”, respectively.

SP292 Amend to read as follows:

“Mixtures containing not more than 23.5% oxygen by volume may be transported under this entry when no other oxidizing gases are present. A class 5.1 subsidiary risk label is not required for any concentrations within this limit.”.

SP293 Amend to read:

“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 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.”.

SP297 In the first paragraph, amend “5.4.2.1.9” to read “5.4.2.1.8”.

SP298 Delete.

SP299 In paragraph (iii), replace “620” with “360”.

SP303 Amend to read as follows:

“Receptacles shall be assigned to the class and, if any, subsidiary hazard of the gas or mixture of gases contained therein determined in accordance with the provisions of chapter 2.2.”.

SP309 Amend to read as follows:

“This entry applies to non sensitized emulsions, suspensions and gels consisting primarily of a mixture of ammonium nitrate and fuel, intended to produce a Type E blasting explosive only after further processing prior to use.

The mixture for emulsions typically has the following composition: 60-85% ammonium nitrate, 5-30% water, 2-8% fuel, 0.5-4% emulsifier agent, 0-10% soluble flame suppressants, and trace additives. Other inorganic nitrate salts may replace part of the ammonium nitrate.

The mixture for suspensions and gels typically has the following composition: 60-85% ammonium nitrate, 0-5% sodium or potassium perchlorate, 0-17% hexamine nitrate or monomethylamine nitrate, 5-30% water, 2-15% fuel, 0.5-4% thickening agent, 0-10% soluble flame suppressants, and trace additives. Other inorganic nitrate salts may replace part of the ammonium nitrate.

Substances shall satisfactorily pass Test Series 8 of the United Nations Manual of Tests and Criteria, Part I, Section 18 and be approved by the competent authority.”.

SP313 Insert “(Model No.8, see 5.2.2.2.2)” after “risk label”.

SP316 Delete “or hydrated”.

SP319 Delete the first sentence.

SP320 Delete.

Add the following new special provisions:

- “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 *United Nations Manual of Tests and Criteria*, Part 1)”.
- 322** When transported in non-friable tablet form, these goods are assigned to packing group III.
- 323** The label conforming to the model No.5.2(a) as in 5.2.2.2.2 may be used until 1 January 2011.
- 324** This substance needs to be stabilized when in concentrations of not more than 99%.
- 325** In the case of non-fissile or fissile excepted uranium hexafluoride, the material shall be classified under UN 2978.
- 326** In the case of fissile uranium hexafluoride, the material shall be classified under UN 2977.
- 327** Waste aerosols consigned in accordance with 5.4.1.4.3.3 may be transported under this entry for the purposes of reprocessing or disposal. They need not be protected against inadvertent discharge provided that measures to prevent dangerous build up of pressure and dangerous atmospheres are addressed. Waste aerosols, other than those leaking or severely deformed, shall be packed in accordance with packing instruction P003 and special provision PP87, or packing instruction LP02 and special packing provision L2. Leaking or severely deformed aerosols shall be transported in salvage packagings provided appropriate measures are taken to ensure there is no dangerous build up of pressure. Waste aerosols shall not be transported in closed freight containers.
- 328** This entry applies to fuel cell cartridges containing flammable liquids including methanol or methanol/water solutions. Fuel cell cartridge means a container that stores fuel for discharge into fuel cell powered equipment through a valve(s) that controls the discharge of fuel into such equipment and is free of electric charge generating components. The cartridge shall be designed and constructed to prevent the fuel from leaking during normal conditions of transport.
- This entry applies to fuel cell cartridge design types shown without their packaging to pass an internal pressure test at a pressure of 100 kPa (gauge).
- 329** Where substances have a flashpoint of 60°C or less, the package(s) shall bear a “FLAMMABLE LIQUID” subsidiary risk label (Model No.3, see 5.2.2.2.2) in addition to the hazard label(s) required by this Code.
- 330** Alcohols containing petroleum products (e.g. gasoline) up to 5% shall be transported under the entry UN 1987 ALCOHOLS, N.O.S.

- 909** In the penultimate paragraph of SP 909, delete the words “other than the marine environment” and amend “environments” to read “the environment”.
- 910** Amend the first sentence to read:
- “A FUMIGATED UNIT is a closed cargo transport unit containing goods or materials that either are or have been fumigated within the unit.”.
- 910** Amend paragraph 6 to read:
- “A closed cargo transport unit that has been fumigated is not subject to the provisions of this Code if it has been completely ventilated either by opening the doors of the unit or by mechanical ventilation after fumigation and if the date of ventilation is marked on the fumigation warning sign. When the fumigated goods or materials have been unloaded, the fumigation warning sign(s) shall be removed (see also 7.4.3).”
- 938** Delete.
- 959** Add new SP959 to read:
- “959 Waste aerosols authorized for transport under special provision 327 shall only be transported on short international voyages. Long international voyages are authorized only with the approval of the competent authority. Packagings shall be marked and labelled and cargo transport units shall be marked and placarded for appropriate sub-division of class 2 and, if applicable, the subsidiary risk(s).”.

Chapter 3.4

- 3.4.1 Insert a new sentence before the last sentence to read as follows:
“The provisions of chapter 1.4 do not apply to the transport of dangerous goods packed in limited quantities.”.
- Amend the beginning of the last sentence to read:
“All other provisions”.
- 3.4.2.1 In the first sentence amend “packaged” to read “packed”.
- 3.4.2.1 Insert a new second sentence to read: “However, the use of inner packagings is not necessary for the transport of articles such as aerosols or “receptacles, small, containing gas”.”
- Amend 3.4.4.1 to read:
- “3.4.4.1 Different dangerous substances in limited quantities may be packed in the same outer packaging, provided:
- .1 the substances comply with the provisions of 7.2.1.11; and

- .2 the segregation provisions of chapter 7.2, including the provisions in column (16) of the Dangerous Goods List, are taken into account. However, notwithstanding the individual provisions specified in the Dangerous Goods List, substances in packing group III within the same class may be packed together subject to compliance with 3.4.4.1.1 of the IMDG Code. The following statement shall be included in the transport document: “Transport in accordance with 3.4.4.1.2 of the IMDG Code” (see 5.4.1.5.2.2).”.
- 3.4.5.2 Amend the first sentence to read “Cargo transport units containing dangerous goods in only limited quantities need not be placarded nor marked according to 5.3.2.0 and 5.3.2.1.
- 3.4.6.2 Delete.
- 3.4.7 Add “*” after “UN Number” and insert the following footnote “The diamond mark is not required.”.

PART 4

Chapter 4.1

Renumber all references to renumbered paragraphs of chapters 6.1, 6.5 and 6.6, as appropriate.

4.1.1 In the Note, insert “only” after “6.2 and 7” and replace “P621” with “P620, P621, P650”.

4.1.1.5 Insert the following new second sentence:

“Inner packagings containing liquids shall be packaged with their closures upward and placed within outer packagings consistent with the orientation markings prescribed in 5.2.1.7 of this Code.”.

4.1.1.5.1 Insert a new paragraph 4.1.1.5.1 with the same text as in existing 6.1.5.1.6 with the insertion of the words “or a large packaging” after “combination packaging” and the words “or large packaging” after “outer packaging” in the first sentence. Renumber the current 4.1.1.5.1 and 4.1.1.5.2 as 4.1.1.5.2 and 4.1.1.5.3 respectively.

4.1.1.7.2 Replace “shall” with “should” at the end of the paragraph.

4.1.1.8 Amend to read as follows:

“4.1.1.8 Where pressure may develop in a package by the emission of gas from the contents (as a result of temperature increase or other causes), the packaging or IBC 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 or IBC is in the attitude in which it is intended to be transported, leakages of liquid and the penetration of foreign substances are prevented under normal conditions of transport.

4.1.1.8.1 Liquids may only be filled into inner packagings which have an appropriate resistance to internal pressure that may be developed under normal conditions of transport.”.

4.1.1.12 In the first sentence, replace “, including IBCs,” with “as specified in chapter 6.1” and delete “, or 6.5.4.7 for the various types of IBCs”.

Delete .3.

In the last paragraph, delete “, or IBC,” in the first sentence and “or IBC” in the second sentence.

4.1.1.17.5 Replace “6.1.5.8” with “6.1.5.7”.

4.1.1.17.6 Add a new paragraph to read as follows:

“4.1.1.17.6 Appropriate measures shall be taken to ensure there is no dangerous build up of pressure.”.

4.1.2.1 Replace “61°C” with “60°C”.

4.1.2.2 Replace the first sentence with the following paragraph:

“Every metal, rigid plastics and composite IBC, shall be inspected and tested, as relevant, in accordance with 6.5.1.6.4 or 6.5.1.6.5:

- (a) before it is put into service;
- (b) thereafter at intervals not exceeding two and a half and five years, as appropriate;
- (c) after the repair or remanufacture, before it is re-used for transport.”

Amend the second sentence to read “An IBC shall not be filled and offered for transport after the date of expiry of the last periodic test or inspection.”.

4.1.3.6 Amend to read as follows:

“4.1.3.6 Pressure receptacles for liquids and solids

4.1.3.6.1 Unless otherwise indicated in this Code, pressure receptacles conforming to:

- a) the applicable requirements of chapter 6.2; or
- b) the National or International standards on the design, construction, testing, manufacturing and inspection, as applied by the country in which the pressure receptacles are manufactured, provided that the provisions of 4.1.3.6 and 6.2.3.3 are met,

are authorized for the transport of any liquid or solid substance other than explosives, thermally unstable substances, organic peroxides, self-reactive substances, substances where significant pressure may develop by evolution of chemical reaction and radioactive material (unless permitted in 4.1.9).

This sub-section is not applicable to the substances mentioned in 4.1.4.1, packing instruction P200, table 3.

4.1.3.6.2 Every design type of pressure receptacle shall be approved by the competent authority of the country of manufacture or as indicated in chapter 6.2.

4.1.3.6.3 Unless otherwise indicated, pressure receptacles having a minimum test pressure of 0.6 MPa shall be used.

4.1.3.6.4 Unless otherwise indicated, pressure receptacles may be provided with an emergency pressure relief device designed to avoid bursting in case of overflow or fire accidents.

Pressure receptacle valves shall be designed and constructed in such a way that they are inherently able to withstand damage without release of the contents or shall be protected from damage which could cause inadvertent release of the contents of the pressure receptacle, by one of the methods as given in 4.1.6.1.8 (.1) to (.5).

4.1.3.6.5 The level of filling shall not exceed 95% of the capacity of the pressure receptacle at 50°C. Sufficient ullage (outage) shall be left to ensure that the pressure receptacle will not be liquid full at a temperature of 55°C.

4.1.3.6.6 Unless otherwise indicated pressure receptacles shall be subjected to a periodic inspection and test every 5 years. The periodic inspection shall include an external examination, an internal examination or alternative method as approved by the competent authority, a pressure test or equivalent effective non-destructive testing with the agreement of the competent authority including an inspection of all accessories (e.g., tightness of valves, emergency relief valves or fusible elements). Pressure receptacles shall not be filled after they become due for periodic inspection and test but may be transported after the expiry of the time limit. Pressure receptacle repairs shall meet the requirements of 4.1.6.1.11.

4.1.3.6.7 Prior to filling, the filler shall perform an inspection of the pressure receptacle and ensure that the pressure receptacle is authorized for the substances to be transported and that the provisions of this Code have been met. Shut-off valves shall be closed after filling and remain closed during transport. The consignor shall verify that the closures and equipment are not leaking.

4.1.3.6.8 Refillable pressure receptacles shall not be filled with a substance different from that previously contained unless the necessary operations for change of service have been performed.

4.1.3.6.9 Marking of pressure receptacles for liquids and solids according to 4.1.3.6 (not conforming to the requirements of chapter 6.2) shall be in accordance with the requirements of the competent authority of the country of manufacturing.”.

4.1.4.1 **P001** Insert a new row after “Composite packagings” to read as follows:

“Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met.”.

Add “or” at the end of special packing provision PP1(a).

Amend special packing provision PP2, to read as follows:

“**PP2** For UN 3065, wooden barrels with a maximum capacity of 250 litres and which do not meet the provisions of chapter 6.1 may be used.”.

P002 Insert a new row after “Composite packagings” to read as follows:

“Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met.”.

In special packing provision **PP37**, amend the second sentence to read as follows:

“All bags of any type shall be transported in closed cargo transport units or be placed in closed rigid overpacks.”.

P003 Add the following new special packing provisions PP87 and PP88:

“**PP87** For UN 1950 waste aerosols transported in accordance with special provision 327, the packagings shall have a means of retaining any free liquid that might escape during transport, e.g. absorbent material. The packaging shall be adequately ventilated to prevent the creation of flammable atmosphere and the build-up of pressure.

PP88 For UN 3473 when fuel cell cartridges are packed with equipment, they shall be packed in inner packagings or placed in the outer packaging with cushioning material so that the cartridges are protected against damage that may be caused by the movement or placement of the equipment and the cartridges within the outer packaging.”.

P112(b) Delete “and UN 0223” in special packing provision PP47.

P200 In paragraph (3)(b), in the sentence preceding the first equation, replace “gases for which data are not provided in the table” with “gases and gas mixtures for which relevant data are not available”.

In paragraph (3)(c), in the sentence before the equation, replace “gases for which filling data are not provided in the table” with “gases and gas mixtures for which relevant data are not available”.

In paragraph (4), amend special provisions “k”, “l”, “n” and “z” as follows:

Special provision “k”: Replace lines 4 to 8 with the following text:

“Bundles containing UN 1045 Fluorine, compressed, may be constructed with isolation valves on assemblies (groups) of cylinders not exceeding 150 litres total water capacity instead of isolation valves on every cylinder.

Cylinders and individual cylinders in a bundle shall have a test pressure greater than or equal to 200 bar and a minimum wall thickness of 3.5 mm for aluminium alloy or 2 mm for steel. Individual cylinders not complying with this requirement shall be transported in a rigid outer packaging that will adequately protect the cylinder and its fittings and meeting the packing group I performance level. Pressure drums shall have a minimum wall thickness as specified by the competent authority.”.

Special provision “l”: In the last sentence, replace “total quantity” with “maximum net mass”.

Special provision “n”: Amend to read as follows:

“Individual cylinders and assemblies of cylinders within a bundle shall contain not more than 5 kg of UN 1045 Fluorine compressed. Bundles containing UN 1045 Fluorine, compressed, may be divided in assemblies (groups) of cylinders not exceeding 150 litres total water capacity.”.

Special provision “p”: Amend “porous mass” to read “porous material”.

Special provision “z”: Amend the third paragraph to read as follows:

“Toxic substances with an LC₅₀ less than or equal to 200 ml/m³ shall not be transported in tubes, pressure drums or MEGCs and shall meet the requirements of special packing provision “k”. However, UN 1975 Nitric oxide and dinitrogen tetroxide mixture may be transported in pressure drums.”.

In Tables 1 and 2, delete the entries for the following UN Nos.: 1014, 1015, 1979, 1980, 1981 and 2600.

In Table 1, in the heading of column 13 and in the footnote, replace “Working pressure” with “Maximum working pressure”.

In Table 2:

- For UN Nos. 2192 and 2199, add “q” (twice for UN No. 2199) in the column under the heading “Special packing provisions”.
- For UN 2451, delete “300” and “0.75” in the columns for “Test pressure” and “Filling ratio”, respectively.

In Table 3: add a cross in the column “Pressure drums” for UN Nos. 1745, 1746 and 2495.

P400 (1) Amend to read as follows:

“Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met. They shall be made of steel and shall be subjected to an initial test and periodic tests every 10 years at a pressure of not less than 1MPa (10 bar, gauge pressure). During carriage, the liquid shall be under a layer of inert gas with a gauge pressure of not less than 20 kPa (0.2 bar).”.

P401 (1) and P402 (1) Amend to read as follows:

“Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met. They shall be made of steel and subjected to an initial test and periodic tests every 10 years at a pressure of not less than 0.6MPa (6 bar, gauge pressure). During carriage, the liquid shall be under a layer of inert gas with a gauge pressure of not less than 20 kPa (0.2 bar).”.

P403, P404 and P410 Insert a new row after “Composite packagings” to read as follows:

“Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met.”.

P404 In the second row, delete UN numbers “2005, 3052, 3203, 3392, 3394, 3395, 3396, 3397, 3398, 3399 and 3400”.

Delete UN numbers “2005, 3052 and 3203” in special packing provision PP31.

P520 Under “Additional provisions” in “4”, insert “(Model No.1, see 5.2.2.2.2)” after “risk label”.

P601 and P602 Amend paragraph (1) to read as follows:

- “(1) Combination packagings with a maximum gross mass of 15 kg, consisting of:
- one or more glass inner packaging(s) with a maximum quantity of 1 litre each and filled to not more than 90% of their capacity; the closure(s) of which shall be physically held in place by any means capable of preventing back-off or loosening by impact or vibration during transport, individually placed in;
 - metal receptacles together with cushioning and absorbent material sufficient to absorb the entire contents of the glass inner packaging(s), further packed in;
 - 1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings.”.

Amend paragraph (4) to read as follows:

“(4) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met. They shall be subjected to an initial test and periodic tests every 10 years at a pressure of not less than 1MPa (10 bar) (gauge pressure). Pressure receptacles may not be equipped with any pressure relief device. Each pressure receptacle containing a toxic by inhalation liquid with an LC₅₀ less than or equal to 200 ml/m³ (ppm) shall be closed with a plug or valve conforming to the following:

- (a) Each plug or valve shall have a taper-threaded connection directly to the pressure receptacle and be capable of withstanding the test pressure of the pressure receptacle without damage or leakage;
- (b) Each valve shall be of the packless type with non-perforated diaphragm, except that, for corrosive materials, a valve may be of the packed type with an assembly made gas-tight by means of a seal cap with gasket joint attached to the valve body or the pressure receptacle to prevent loss of material through or past the packing;

- (c) Each valve outlet shall be sealed by a threaded cap or threaded solid plug and inert gasket material;
- (d) The materials of construction for the pressure receptacle, valves, plugs, outlet caps, luting and gaskets shall be compatible with each other and with the lading.

Each pressure receptacle with a wall thickness at any point of less than 2.0 mm and each pressure receptacle that does not have fitted valve protection shall be transported in an outer packaging. Pressure receptacles shall not be manifolded or interconnected.”.

P650 Amend paragraph (2) to read as follows:

“(2) The packaging shall consist of at least three components:

- (a) a primary receptacle;
- (b) a secondary packaging; and
- (c) a outer packaging;

of which either the secondary or the outer packaging shall be rigid.”

In paragraph (4):

Amend the second sentence to read as follows: “The mark shall be in the form of a square set at an angle of 45° (diamond-shaped) with each side having a length of at least 50 mm, the width of the line shall be at least 2 mm and the letters and numbers shall be at least 6 mm high.”.

Add the following new third sentence: “The proper shipping name “BIOLOGICAL SUBSTANCE, CATEGORY B” in letters at least 6 mm high shall be marked on the outer package adjacent to the diamond-shaped mark.”.

Insert a new paragraph (5) to read as follows and renumber subsequent paragraphs accordingly:

“(5) At least one surface of the outer packaging shall have a minimum dimension of 100 mm × 100 mm.”.

Amend current paragraph (5) (renumbered (6)) to read as follows:

“(6) The completed package shall be capable of successfully passing the drop test in 6.3.2.5 as specified in 6.3.2.2 to 6.3.2.4 of this Code at a height of 1.2 m. Following the appropriate drop sequence, there shall be no leakage from the primary receptacle(s) which shall remain protected by absorbent material, when required, in the secondary packaging.”.

In (7) (renumbered (8)), add a new subparagraph (d) to read as follows:

“(d) If there is any doubt as to whether or not residual liquid may be present in the primary receptacle during transport then a packaging suitable for liquids, including absorbent materials, shall be used.”.

In the last sentence of paragraph (8)(a) (renumbered (9)(a)), insert “the package (the outer packaging or the overpack)” after “packagings and” and before “shall be marked”.

Insert a new paragraph (10) to read as follows and renumber subsequent paragraphs accordingly:

“(10) When packages are placed in an overpack, the package markings required by this packing instruction shall either be clearly visible or be reproduced on the outside of the overpack.”.

Add a new paragraph (13) to read as follows:

“(13) Other dangerous goods shall not be packed in the same packaging as class 6.2 infectious substances unless they are necessary for maintaining the viability, stabilizing or preventing degradation or neutralizing the hazards of the infectious substances. A quantity of 30 ml or less of dangerous goods included in Classes 3, 8 or 9 may be packed in each primary receptacle containing infectious substances. When these small quantities of dangerous goods are packed with infectious substances in accordance with this packing instruction no other provisions of the Code need be met.”.

P800 Amend paragraph (1) to read as follows:

“(1) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met.”.

P802 In paragraph (4), delete “Austenitic”.

Amend paragraph (5) to read as follows:

“(5) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met.”.

P906 In the second row, amend “3452” to read “3432”.

4.1.4.2 **IBC02** Add “,2984” after “2014” in special packing provision B5.

4.1.4.3 **LP02** Add a new special packing provision “L2” to read as follows:

“**L2** For UN 1950 aerosols, the large packaging shall meet the packing group III performance level. Large packagings for waste aerosols transported in accordance with special provision 327 shall have in addition

a means of retaining any free liquid that might escape during transport e.g., absorbent material.”.

- 4.1.6.1.2 Amend “porous mass” to read “porous material” (twice).
- 4.1.6.1.8 Delete “for unprotected valves as described in .4,” in the last paragraph.
- 4.1.9.1.3 Amend to read:

“A package shall not contain any items other than those that are necessary for the use of the radioactive material. The interaction between these items and the package under the conditions of transport applicable to the design, shall not reduce the safety of the package.”.
- 4.1.9.2.2 Amend to read: “For LSA material and SCO which is or contains fissile material the applicable provisions of 6.4.11.1, 7.2.9.4 and 7.2.9.5 shall be met.”.

Chapter 4.2

- 4.2.0 Amend the title to read:

“**4.2.0 Transitional provisions**”
- 4.2.0 Number the existing text (including the Notes) under 4.2.0 as 4.2.0.1.
- 4.2.0.2 Add a new 4.2.0.2 to read as follows:

“4.2.0.2 UN portable tanks and MEGCs constructed according to a design approval certificate which has been issued before 1 January 2008 may continue to be used provided that they are found to meet the applicable periodic inspection and test provisions.”.
- 4.2.1.15 Add a new 4.2.1.15 to read as follows:

“4.2.1.15 Additional provisions applicable to the transport of class 6.2 substances in portable tanks (Reserved).”.
- Renumber subsequent paragraphs accordingly.
- 4.2.1.18.1 Replace “(10)” with “(13)”.
- 4.2.5.1.1 Add a note at the end of the paragraph to read as follows:

“**NOTE:** The gases authorized for transport in MEGCs are indicated in the column “MEGC” in Tables 1 and 2 of packing instruction P200 in 4.1.4.1.”.
- 4.2.5.3 In TP4, replace “4.2.1.15.2” with “4.2.1.16.2”. In TP33 replace “4.2.1.18” with “4.2.1.19”.
- In TP5, amend “shall not be exceeded” to read “shall be met”.

Add a new “TP 90” to read: “Tanks with bottom openings may be used on short international voyages.”.

Add a new “TP 91” to read: “Portable tanks with bottom openings may also be used on long international voyages.”.

Chapter 4.3

4.3.2.4.1 Amend 4.3.2.4.1 to read:

“4.3.2.4.1 Bulk waste goods of class 6.2 (UN Nos.2814 and 2900 (animal carcasses only))”.

4.3.2.4.1.2 Replace “UN 2900” with “UN 2814 and UN 2900”.

4.3.2.4.1.3 Replace “UN 2900” with “UN 2814 and UN 2900”.

4.3.2.4.2 Add a new paragraph 4.3.2.4.2 to read as follows:

“4.3.2.4.2 Bulk wastes of class 6.2 (UN 3291)

- .1 only closed bulk containers (BK2) shall be permitted;
- .2 closed bulk containers, and their openings, shall be leakproof by design. These bulk containers shall have non porous interior surfaces and shall be free from cracks or other features that could damage packagings inside, impede disinfection or permit inadvertent release;
- .3 wastes of UN 3291 shall be contained within the closed bulk container in UN type tested and approved sealed leakproof plastics bags tested for solids of packing group II and marked in accordance with 6.1.3.1. Such plastics bags shall be capable of passing the tests for tear and impact resistance according to ISO 7765-1:1988 “Plastics film and sheeting. Determination of impact resistance by the free-falling dart method. Part 1: Staircase methods” and ISO 6383-2:1983 “Plastics. Film and sheeting. Determination of tear resistance. Part 2: Elmendorf method”. Each bag shall have an impact resistance of at least 165 g and a tear resistance of at least 480 g in both parallel and perpendicular planes with respect to the length of the bag. The maximum net mass of each plastics bag shall be 30 kg;
- .4 single articles exceeding 30 kg such as soiled mattresses may be transported without the need for a plastics bag when authorized by the competent authority;
- .5 wastes of UN 3291 which contain liquids shall only be transported in plastics bags containing sufficient absorbent material to absorb the entire amount of liquid without it spilling in the bulk container;

- .6 wastes of UN 3291 containing sharp objects shall only be transported in UN type tested and approved rigid packagings meeting the provisions of packing instructions P621, IBC620 or LP621.
- .7 rigid packagings specified in packing instructions P621, IBC620 or LP621 may also be used. They shall be properly secured to prevent damage during normal conditions of transport. Wastes transported in rigid packagings and plastics bags together in the same closed bulk container shall be adequately segregated from each other, e.g., by suitable rigid barriers or dividers, mesh nets or otherwise securing the packagings, such that they prevent damage to the packagings during normal conditions of transport;
- .8 wastes of UN 3291 in plastics bags shall not be compressed in a closed bulk container in such a way that bags may be rendered no longer leakproof;
- .9 the closed bulk container shall be inspected for leakage or spillage after each journey. If any wastes of UN 3291 have leaked or been spilled in the closed bulk container, it shall not be re-used until after it has been thoroughly cleaned and, if necessary, disinfected or decontaminated with an appropriate agent. No other goods shall be transported together with UN 3291 other than medical or veterinary wastes. Any such other wastes transported in the same closed bulk container shall be inspected for possible contamination.”.

PART 5

Chapter 5.1

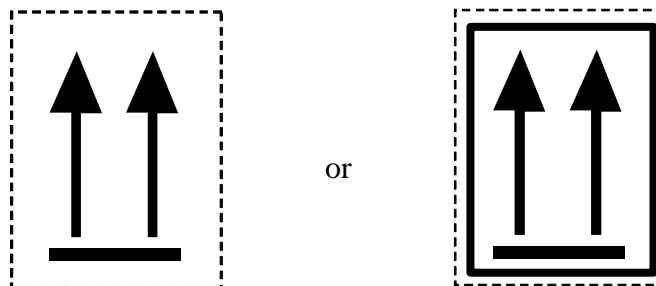
- 5.1.2.1 Add at the end of the last sentence “unless markings and labels representatives of all dangerous goods, as required by chapter 5.2, in the overpack are visible.”.
- 5.1.2.3 Add a new paragraph to read as follows:
- “5.1.2.3 Each package bearing package orientation markings as prescribed in 5.2.1.7 of this Code and which is overpacked, placed in a unit load or used as an inner packaging in a large packaging shall be oriented in accordance with such markings.”.
- 5.1.5.1.2.3 Amend to read:
- “For each package requiring competent authority approval, it shall be ensured that all the requirements specified in the approval certificates have been satisfied;”.
- 5.1.5.2.2.3 Amend to read:
- “The shipment of packages containing fissile materials if the sum of the criticality safety indexes of the packages in a single freight container or in a single conveyance exceeds 50. Excluded from this requirement shall be shipments by seagoing vessels, if the sum of the criticality safety indexes does not exceed 50 for any hold, compartment or defined deck area and the distance of 6 m between groups of packages or overpacks as required in table 7.1.8.4.2 is met; and”.
- 5.1.5.2.4.4.5 Insert “symbol” after “SI prefix”.

Chapter 5.2

- 5.2.1.4 and 5.2.2.1.7 Add “and large packagings” after “capacity”.
- 5.2.1.5.4.3 Amend the end of the sentence to read as follows: “...origin of design and either the name of the manufacturer or other identification of the packaging specified by the competent authority of the country of origin of design.”.
- 5.2.1.5.8 Add the following new paragraph:
- “5.2.1.5.8 In case of international transport of packages requiring competent authority design or shipment approval, for which different approval types apply in the different countries concerned, marking shall be in accordance with the certificate of the country of origin of the design.”.
- 5.2.1.7 Add the following new paragraphs:
- “5.2.1.7 Except as provided in 5.2.1.7.1:

- combination packagings having inner packagings containing liquid dangerous goods;
- single packagings fitted with vents; and
- open cryogenic receptacles intended for the transport of refrigerated liquefied gases,

shall be legibly marked with package orientation arrows which are similar to the illustration shown below or with those meeting the specifications of ISO 780:1985. The orientation arrows shall appear on two opposite vertical sides of the package with the arrows pointing in the correct upright direction. They shall be rectangular and of a size that is clearly visible commensurate with the size of the package. Depicting a rectangular border around the arrows is optional.



Two black or red arrows on white or suitable contrasting background. The rectangular border is optional

5.2.1.7.1 Orientation arrows are not required on packages containing:

- (a) pressure receptacles;
- (b) dangerous goods in inner packagings of not more than 120 ml which are prepared with sufficient absorbent material between the inner and outer packagings to completely absorb the liquid contents;
- (c) class 6.2 infectious substances in primary receptacles of not more than 50 ml;
- (d) class 7 radioactive material in Type IP-2, IP-3, A, B(U), B(M) or C packages; or
- (e) articles which are leak-tight in all orientations (e.g. alcohol or mercury in thermometers, aerosols, etc.).

5.2.1.7.2 Arrows for purposes other than indicating proper package orientation shall not be displayed on a package marked in accordance with this sub-section.”.

5.2.2.1.2 Amend to read as follows:

“Where articles or substances are specifically listed in the Dangerous Goods List, a danger class label shall be affixed for the hazard shown in column 3. A subsidiary risk label shall also be affixed for any risk indicated by a class or division number in column 4 of the Dangerous Goods List. However, special provisions indicated in column 6 may also require a subsidiary risk label where no subsidiary risk is indicated in column 4 or may exempt from the requirement for a subsidiary risk label where such a risk is indicated in the Dangerous Goods List.”

5.2.2.1.12.2.2 Insert “symbol” after “SI prefix”.

5.2.2.1.12.5 Add the following new paragraph:

“5.2.2.1.12.5 In case of international transport of packages requiring competent authorities design or shipment approval, for which different approval types apply in the different countries concerned, labelling shall be in accordance with the certificate of the country of origin of design.”.

5.2.2.1.13 Delete.

5.2.2.2.1 Add the following note at the end of the existing text:

“NOTE: Where appropriate, labels in 5.2.2.2.2 are shown with a dotted outer boundary as provided for in 5.2.2.2.1.1. This is not required when the label is applied on a background of contrasting colour.”.

5.2.2.2.1.1 Add the following sentence at the end: “Labels shall be displayed on a background of contrasting colour, or shall have either a dotted or solid outer boundary line.”.

5.2.2.2.2 In the labels for class 5:

Replace the text under label No. 5.1 with the following:

“(No.5.1)
Class 5.1
Oxidizing substances
Symbol (flame over circle): black. Background: yellow
Figure “5.1” in bottom corner”

Retain the existing label No.5.2 and replace the text below it by:

“(No.5.2(a)*)
Class 5.2
Organic peroxides
Symbol (flame over circle): black. Background: yellow
Figure “5.2” in bottom corner”

and add a footnote to read: “* May be used until 1 January 2011.”.

Add label No.5.2(b) and the text under the label with the following:



“(No.5.2(b))
Class 5.2
Organic peroxides
Symbol (flame): black or white.
Background: upper half red; lower half yellow.
Figure “5.2” in bottom corner”.

5.2.2.2.2 In the label for class 8:

Replace the shaded hand with unshaded hand. Add a footnote to read “A class 8 label with a shaded hand may also be used”.

Chapter 5.3

5.3.1.1.2 Add the following sentence at the end: “Placards shall be displayed on a background of contrasting colour, or shall have either a dotted or solid outer boundary line.”.

5.3.1.1.3 Amend the first sentence to read as follows:

“Placards shall also be displayed for those subsidiary risks for which a subsidiary risk label is required according to 5.2.2.1.2.”

5.3.2.4 Amend the first sentence to read: “Cargo transport units containing dangerous goods in only limited quantities need not be placarded nor marked according to 5.3.2.0 and 5.3.2.1.”

5.3.2.5.2 Amend 5.3.2.5.2 to read:

“5.3.2.5.2 A fumigated unit shall be marked with the warning sign, as specified in .3, affixed in a location where it will be easily seen by persons attempting to enter the interior of the unit. The marking, as required by this paragraph, shall remain on the unit until the following provisions are met:

- .1 the fumigated unit has been ventilated to remove harmful concentrations of fumigant gas; and
- .2 the fumigated goods or materials have been unloaded.”

5.3.2.5.3 Add the following to the fumigation warning sign before the phrase “DO NOT ENTER”:

“VENTILATED ON [date *]”

Chapter 5.4

5.4.1.4.1 Replace current .2 and .3 with the following:

- .2 The proper shipping name, as determined according to 3.1.2, including the technical name enclosed in parenthesis, as applicable (see 3.1.2.8);
- .3 The primary hazard class or, when assigned, the division of the goods, including for Class 1, the compatibility group letter. The words “Class” or “Division” may be included preceding the primary hazard class or division numbers;”.

Insert a new .4 to read as follows:

- .4 Subsidiary hazard class or division number(s) corresponding to the subsidiary risk label(s) required to be applied, when assigned, shall be entered following the primary hazard class or division and shall be enclosed in parenthesis. The words “Class” or “Division” may be included preceding the subsidiary hazard class or division numbers;”.

Current “.4” becomes new “.5”.

5.4.1.4.2 Amend the first paragraph and the examples to read as follows:

“The five elements of the dangerous goods description specified in 5.4.1.4.1 shall be shown in the order listed above (i.e. .1, .2, .3, .4 and .5) with no information interspersed, except as provided in this Code.

5.4.1.4.3.6 Amend “61°C” to read “60°C”.

5.4.1.4.4 Amend to read:

“5.4.1.4.4 Examples of a dangerous goods description:

UN1098 ALLYL ALCOHOL 6.1 (3) I (21°C c.c.)

UN1098, ALLYL ALCOHOL, class 6.1, (class 3), PG I, (21°C c.c.)

UN 1092, Acrolein, stabilized, class 6.1 (3), PG I, (-24°C c.c.) MARINE POLLUTANT

UN 2761, Organochlorine pesticide, solid, toxic, n.o.s (Aldrin 19%), class 6.1, PG III, MARINE POLLUTANT”

5.4.1.5.1 In the current last but one sentence, replace “packagings” with “packages” and insert the following sentence before the last sentence: “UN packaging codes may only be used to supplement the description of the kind of package (e.g., one box (4G)).”.

5.4.1.5.2 Number the first paragraph as “5.4.1.5.2.1”.

5.4.1.5.2.2 Add a new paragraph to read:

“5.4.1.5.2.2 Where a shipment is offered in accordance with 3.4.4.1.2, the following statement shall be included in the transport document: “Transport in accordance with 3.4.4.1.2 of the IMDG Code.”.

5.4.1.5.7.1.3 Insert “symbol” after “SI prefix”.

5.4.1.5.7.3 Insert the following new paragraph:

“5.4.1.5.7.3 In case of international transport of packages requiring competent authorities design or shipment approval, for which different approval types apply in the different countries concerned, the UN number and proper shipping name required in 5.4.1.4.1 shall be in accordance with the certificate of the country of origin of design.”.

Renumber existing 5.4.1.5.7.3 as 5.4.1.5.7.4.

5.4.1.5.11 Amend the heading of 5.4.1.5.11 to read:

“5.4.1.5.11 Special provisions for segregation”

5.4.1.5.11 Number the first paragraph as “5.4.1.5.11.1” and replace “shown” with “included”.

5.4.1.5.11.2 Add a new paragraph to read:

“5.4.1.5.11.2 When substances are loaded together in a cargo transport unit in accordance with 7.2.1.13.1.2, the following statement shall be included in the transport document: “Transport in accordance with 7.2.1.13.1.2 of the IMDG Code.”.

5.4.1.5.11.3 Add a new paragraph to read:

“5.4.1.5.11.3 When acid and alkali substances of class 8 are transported in the same cargo transport unit, whether in the same packaging or not, in accordance with 7.2.1.13.2, the following statement shall be included in the transport document: “Transport in accordance with 7.2.1.13.2 of the IMDG Code.”.

5.4.1.5.12 Replace “shown” with “included”.

PART 6

Chapter 6.1

- 6.1.2.5 Under 2., replace “wooden barrel” with “(Reserved)”.
- 6.1.2.7 In the table, replace the text in the row for “Wooden barrels” with “(Reserved)”.
- 6.1.4.6 Amend to read: “6.1.4.6 (Deleted)”.
- 6.1.4.19.1.1 Amend “6.1.4.8.4” and “6.1.4.8.7” to read “6.1.4.8.3” and “6.1.4.8.6”, respectively.
- 6.1.4.19.2.8 Amend “6.1.4.8.3” and “6.1.4.8.7” to read “6.1.4.8.2” and “6.1.4.8.6”, respectively.
- 6.1.5.1.6 Replace current text with the following:
“6.1.5.1.6 (Reserved)

NOTE: *For the conditions for assembling different inner packagings in an outer packaging and permissible variations in inner packagings, see 4.1.1.5.1.”.*
- 6.1.5.2.4 Delete. Renumber next paragraph accordingly.
- 6.1.5.2.5 Amend “6.1.4.8.4” to read “6.1.4.8.3” at the end of the first sentence.
- 6.1.5.3.1 In the table, delete “wooden barrels” under “Packaging”.

Chapter 6.2

- 6.2.1.3.6.5.4 Amend the footnote to read as follows:
“*See for example CGA Publications S-1.2-2003 “Pressure Relief Device Standards - Part 2 - Cargo and Portable Tanks for Compressed Gases” and S-1.1-2003 “Pressure Relief Device Standards - Part 1 - Cylinders for Compressed Gases”.*”.
- 6.2.1.4.1.10 Amend “porous mass” to read “porous material”.
- 6.2.1.5.1 Amend subparagraph .3 to read as follows:
“.3 Check of the threads if there is evidence of corrosion or if the fittings are removed;”

Amend the end of Note 2 under subparagraph .4 to read as follows:

“... based on acoustic emission testing, ultrasonic examination or a combination of acoustic emission testing and ultrasonic examination.”.

6.2.1.5.2 Amend “porous mass” to read “porous material”.

6.2.2.1.1 Insert the following new entry at the end of the table:

| | |
|------------------|---|
| ISO 11119-3:2002 | Gas cylinders of composite construction - Specification and test methods - Part 3: Fully wrapped fibre reinforced composite gas cylinders with non-load-sharing metallic or non-metallic liners |
|------------------|---|

6.2.2.1.3 In the table, under “For the cylinder shell:”, delete the reference to ISO 7866:1999. Amend “porous mass” to read “porous material”.

6.2.2.1.4 Add a new paragraph to read as follows:

“6.2.2.1.4 The following standard applies for the design, construction and initial inspection and test of UN cryogenic receptacles, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.2.5:

| | |
|------------------|---|
| ISO 21029-1:2004 | Cryogenic vessels – Transportable vacuum insulated vessels of not more than 1000 l volume – Part 1: Design, fabrication, inspection and tests |
|------------------|---|

6.2.2.5.2.1 Amend “6.2.2.6” and “6.2.2.7” to read “6.2.2.7” and “6.2.2.8” respectively at the end of the first paragraph.

6.2.2.5.3.1 In .1, insert “of personnel” after “responsibilities” and delete “, and power of the management”. Delete the “,” and insert “and” between “structure” and “responsibilities”.

In .2, replace “systematic actions” with “procedures”.

Delete the commas before “and” in .3 and .4.

6.2.2.5.4.10 Amend to read as follows:

“6.2.2.5.4.10 Modifications to approved design types

The manufacturer shall either:

- (a) inform the issuing competent authority of modifications to the approved design type, where such modifications do not constitute a new design, as specified in the pressure receptacle standard; or

- (b) request a subsequent design type approval 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.”.

6.2.2.7.2 In (g) add the following new last sentence at the end of the existing text:

“In the case of pressure receptacles for UN 1001 acetylene, dissolved and UN 3374 acetylene, solvent free, at least one decimal shall be shown after the decimal point and two digits for pressure receptacles of less than 1 kg;”.

In (k) and (l): Insert “, any coating,” after “during filling” and replace “two” with “three” in the first sentence. Insert the following new last sentence at the end of the existing text:

“At least one decimal shall be shown after the decimal point. For pressure receptacles of less than 1 kg, the mass shall be expressed to two significant figures rounded down to the last digit;”.

6.2.2.7.2 (g), Amend “porous mass” to read “porous material”.
(k) and (l)

6.2.2.7.7 Add the following new paragraph:

“6.2.2.7.7 For acetylene cylinders, with the agreement of the competent authority, the date of the most recent periodic inspection and the stamp of the body performing the periodic inspection and test may be engraved on a ring held on the cylinder by the valve. The ring shall be configured so that it can only be removed by disconnecting the valve from the cylinder.”.

6.2.4 Renumber current paragraphs 6.2.4.1 and 6.2.4.2 as 6.2.4.1.1 and 6.2.4.1.2 respectively and insert a new 6.2.4.1 to read as follows:

“6.2.4.1 *Small receptacles containing gas (gas cartridges)*”

Add the following new paragraphs:

“6.2.4.2 *Aerosol dispensers*

Each filled aerosol dispenser shall be subjected to a test performed in a hot water bath or an approved water bath alternative.

6.2.4.2.1 *Hot water bath test*

6.2.4.2.1.1 The temperature of the water bath and the duration of the test shall be such that the internal pressure reaches that which would be reached at 55°C (50°C if the liquid phase does not exceed 95% of the capacity of the aerosol dispenser at 50°C). If the contents are sensitive to heat or if the aerosol dispensers are made of plastics material which softens at this test temperature, the temperature of the bath shall be set at between 20°C and 30°C but, in addition, one aerosol dispenser in 2000 shall be tested at the higher temperature.

6.2.4.2.1.2 No leakage or permanent deformation of an aerosol dispenser may occur, except that a plastic aerosol dispenser may be deformed through softening provided that it does not leak.

6.2.4.2.2 *Alternative methods*

With the approval of the competent authority alternative methods which provide an equivalent level of safety may be used provided that the requirements of 6.2.4.2.2.1, 6.2.4.2.2.2 and 6.2.4.2.2.3 are met.

6.2.4.2.2.1 Quality system

Aerosol dispenser fillers and component manufacturers shall have a quality system. The quality system shall implement procedures to ensure that all aerosol dispensers that leak or that are deformed are rejected and not offered for transport.

The quality system shall include:

- (a) a description of the organizational structure and responsibilities;
- (b) the relevant inspection and test, quality control, quality assurance, and process operation instructions that will be used;
- (c) quality records, such as inspection reports, test data, calibration data and certificates;
- (d) management reviews to ensure the effective operation of the quality system;
- (e) a process for control of documents and their revision;
- (f) a means for control of non-conforming aerosol dispensers;
- (g) training programmes and qualification procedures for relevant personnel; and
- (h) procedures to ensure that there is no damage to the final product.

An initial audit and periodic audits shall be conducted to the satisfaction of the competent authority. These audits shall ensure the approved system is and remains adequate and efficient. Any proposed changes to the approved system shall be notified to the competent authority in advance.

6.2.4.2.2.2 Pressure and leak testing of aerosol dispensers before filling

Every empty aerosol dispenser shall be subjected to a pressure equal to or in excess of the maximum expected in the filled aerosol dispensers at 55°C (50°C if the liquid phase does not exceed 95% of the capacity of the receptacle at 50°C). This shall be at least two-thirds of the design pressure of the aerosol dispenser. If any aerosol dispenser shows evidence of leakage at a rate equal to or greater than 3.3×10^{-2} mbar.l.s⁻¹ at the test pressure, distortion or other defect, it shall be rejected.

6.2.4.2.2.3 Testing of the aerosol dispensers after filling

Prior to filling, the filler shall ensure that the crimping equipment is set appropriately and the specified propellant is used.

Each filled aerosol dispenser shall be weighed and leak tested. The leak detection equipment shall be sufficiently sensitive to detect at least a leak rate of 2.0×10^{-3} mbar.l.s⁻¹ at 20°C.

Any filled aerosol dispenser which shows evidence of leakage, deformation or excessive weight shall be rejected.”.

6.2.4.3 Add a new paragraph to read as follows:

“6.2.4.3 With the approval of the competent authority, aerosols and receptacles, small, containing pharmaceutical products and non flammable gases which are required to be sterile, but may be adversely affected by water bath testing, are not subject to 6.2.4.1 and 6.2.4.2 if:

- (a) They are manufactured under the authority of a national health administration and, if required by the competent authority, follow the principles of Good Manufacturing Practice (GMP) established by the World Health Organization (WHO)²; and
- (b) An equivalent level of safety is achieved by the manufacturer’s use of alternative methods for leak detection and pressure resistance, such as helium detection and water bathing a statistical sample of at least 1 in 2000 from each production batch.”.

Chapter 6.4

6.4.5.2.2 Amend to read as follows:

“.2 more than a 20% increase in the maximum radiation level at any external surface of the package.”.

6.4.5.4.1.3(ii) Amend to read “more than a 20% increase in the maximum radiation level at any external surface of the package.”.

6.4.5.4.2.3 Amend to read “more than a 20% increase in the maximum radiation level at any external surface of the package.”.

² WHO Publication: “Quality assurance of pharmaceuticals. A compendium of guidelines and related materials. Volume 2: Good manufacturing practices and inspection”.

- 6.4.5.4.4.3.2 Amend to read “more than a 20% increase in the maximum radiation level at any external surface of the package.”.
- 6.4.5.4.5.2.2 Amend to read “more than a 20% increase in the maximum radiation level at any external surface of the package.”.
- 6.4.7.14(b) Amend to read “more than a 20% increase in the maximum radiation level at any external surface of the package.”.
- 6.4.7.16 In the first sentence, replace “liquids” with “liquid radioactive material”.
- 6.4.8.3 In the first sentence, delete “Except as required in 6.4.3.1 for a package transported by air,” and replace “6.4.8.4,” with “6.4.8.5 and in the absence of insolation,”.
- 6.4.8.4 The text of current 6.4.8.13 becomes new 6.4.8.4, with the following amendments:

In the first sentence, insert “under exclusive use” before “shall not exceed 85°C” and replace “6.4.8.4” with “6.4.8.5”. Delete the second sentence: (“The package shall... exceeds 50°C.”).
- 6.4.8.4 to 6.4.8.12 Renumber as 6.4.8.5 to 6.4.8.13. Amend all cross-references accordingly.
- 6.4.11.2.1 Amend the end of the sentence after the formula to read: “provided that the smallest external dimension of each package is not less than 10 cm and that either:”.
- Amend .3 to read as follows:

“.3 there are 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 1% of the applicable consignment mass limits provided in Table 6.4.11.2, except for deuterium in natural concentration in hydrogen.”.
- 6.4.11.7 (b) Amend the first sentence to read as follows: “For packages containing uranium hexafluoride only, with maximum enrichment of 5 mass percent uranium-235:”.
- 6.4.13 Amend “6.4.1” to read “6.4.15”.
- 6.4.20.2(a) Delete the duplicated words “at the top” in the second sentence.
- 6.4.22.1(a) Amend to read as follows:
and (b)
- “(a) Each design that meets the provisions of 6.4.6.4 shall require multilateral approval;
- (b) Each design that meets the provisions 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, unless multilateral approval is otherwise required by this Code.”.

- 6.4.23.3(a) Replace “the consignment” with “the shipment”.
- 6.4.23.14 Insert a new paragraph (m) to read as follows:
- “(m) A description of the containment system;”
Renumber current subparagraphs (m) and (n) accordingly.
- Under (n), insert a new subparagraph (ii) to read as follows:
- “(ii) A description of the confinement system;”
Renumber current subparagraphs (ii) to (vi) accordingly.
- Insert a new subparagraph (p) to read as follows:
- “(p) For packages containing more than 0.1 kg of uranium hexafluoride, a statement specifying those prescriptions of 6.4.6.4 that apply if any and any amplifying information which may be useful to other competent authorities.”
Renumber current subparagraphs (o) to (u) accordingly.
- 6.4.23.15 Delete the last sentence.
- 6.4.24.3 In the first sentence, delete “until 31 December 2003” and insert “the multilateral approval of package design;” before “the mandatory programme of quality assurance”.
- Delete the sentence: “After this date use may continue subject, additionally, to multilateral approval of package design.”.

Chapter 6.5

- 6.5.1 Amend the title to read “**General requirements**”.
- 6.5.1.4.3 In the table, in the entry for “HZ Composite with plastics inner receptacle”, second column, insert “inner” after “plastics” (six times).
- 6.5.1.5 Delete “6.5.1.5 Construction provisions”.
- 6.5.1.5.9 Delete.
- Section 6.5.3 Insert a new section 6.5.3 as follows:
- 6.5.3 and 6.5.3.1 Insert two new paragraphs to read as follows:
- “6.5.3 Construction requirements**
- 6.5.3.1 *General requirements*”**
- 6.5.3.1.1 to
6.5.3.1.8: Existing 6.5.1.5.1 to 6.5.1.5.8 become new paragraphs 6.5.3.1.1 to 6.5.3.1.8.

Section 6.5.4 Text of existing 6.5.1.6 with appropriate renumbering of paragraphs, subparagraphs and references to paragraphs numbers, becomes text of new sub-section 6.5.4, as follows:

6.5.4 Heading of existing 6.5.1.6.

6.5.4.1 Text of existing 6.5.1.6.1.

6.5.4.2 Text of existing 6.5.1.6.2 with the following modifications:

Replace “periodic tests” with “periodic inspections and tests” and “6.5.4.14” with “6.5.4.4” respectively.

6.5.4.3 Text of existing 6.5.1.6.3.

6.5.4.4 Text of existing 6.5.1.6.4 with the following modifications:

In the first paragraph, replace “Inspection:” with the heading “Inspection and testing” and add a new NOTE after the heading to read as follows:

“NOTE: See also 6.5.4.5 for tests and inspections on repaired IBCs.”.

The text beginning with “every metal, rigid plastics...” and subparagraphs .1 and .2 become new 6.5.4.4.1 with the following modifications:

In .1, insert “(including after remanufactured)” after “put into service”.

Insert a new sentence, after the last sentence of subparagraph .2 (“Thermal insulation, ... body of the IBC.”), to read as follows: “Each IBC shall correspond in all respects to its design type.”.

Insert a new paragraph 6.5.4.4.2 as follows:

“6.5.4.4.2 Every metal, rigid plastics and composite IBC for liquids, or for solids which are filled or discharged under pressure, shall undergo a suitable leakproofness test and be capable of meeting the test level indicated in 6.5.6.7.3:

- (a) before it is first used for transport;
- (b) at intervals of not more than two and a half years.

For this test the IBC need not have its closures fitted. The inner receptacle of a composite IBC may be tested without the outer casing, provided the test results are not affected.”.

The last paragraph of existing 6.5.1.6.4 (“A report of each inspection ... requirements in 6.5.2.2.1.”) becomes new 6.5.4.4.3 with the following modifications:

In the first sentence, add “and test” after “each inspection” and “or test” after “next inspection” respectively.

In the second sentence, add “and test” after “inspection” twice.

6.5.4.5 Title of existing 6.5.1.6.6.

6.5.4.5.1 Text of existing 6.5.1.6.5.

6.5.4.5.2 Text of existing 6.5.1.6.6.1. Replace “6.5.4.14.3 and 6.5.1.6.4.1.1” with “6.5.4.4”.

6.5.4.5.3 Text of existing 6.5.1.6.6.2.

6.5.4.5.4 Text of existing 6.5.1.6.6.3. Replace “6.5.1.6.6.1” with “6.5.4.5.2”.

6.5.4.5.5 Text of existing 6.5.1.6.7.

Renumber existing sections 6.5.3 and 6.5.4 in 6.5.5 and 6.5.6 respectively, and renumber accordingly subsequent paragraphs and references thereto.

6.5.6.1.3 (current 6.5.4.1.3) Delete.

6.5.6.5.2 (current 6.5.4.5.2) Replace the last sentence of this paragraph with the following text:

“Flexible IBCs shall be filled with a representative material and then shall be loaded to six times their maximum permissible gross mass, the load being evenly distributed.”.

6.5.6.5.5.2 (current 6.5.4.5.5.2): Add at the end: “and no loss of contents.”.

6.5.6.9.2 (current 6.5.4.9.2) In subparagraph .1, amend the first sentence to read:

“Metal IBCs: the IBC shall be filled to not less than 95% of its maximum capacity for solids or 98% of its maximum capacity for liquids.”.

Amend subparagraph .2 to read as follows: “Flexible IBCs: the IBC shall be filled to the maximum permissible gross mass, the contents being evenly distributed.”.

In subparagraph .3, amend the first sentence to read: “Rigid plastics and composite IBCs: the IBC shall be filled to not less than 95% of its maximum capacity for solids or 98% of its maximum capacity for liquids.”.

In subparagraph .4, insert “maximum” before “capacity” and delete “in accordance with the design type”.

6.5.6.9.4 (current 6.5.4.9.4) Amend to read as follows:

“6.5.6.9.4 *Drop height*

For solids and liquids, if the test is performed with the solid or liquid to be transported 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 transported have a relative density not exceeding 1.2:

| Packing group II | Packing group III |
|------------------|-------------------|
| 1.2 m | 0.8 m |

- (b) Where the substances to be transported 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 transported rounded up to the first decimal as follows:

| Packing group II | Packing group III |
|------------------|-------------------|
| $d \times 1.0$ m | $d \times 0.67$ m |

6.5.6.14 to 6.5.6.14.4 (current 6.5.4.14 to 6.5.4.14.4) Delete.

Chapter 6.6

6.6.5.1.6 Amend to read as follows:

“6.6.5.1.6 (Reserved)

NOTE: For the conditions for assembling different inner packagings in a large packaging and permissible variations in inner packagings, see 4.1.1.5.1.”.

6.6.5.2.2 Insert a new 6.6.5.2.2 with the same text as existing 6.5.4.1.3, replacing the reference to 6.5.4.9.4 by a reference to 6.6.5.3.4.4 in subparagraph .1.

Renumber accordingly existing 6.6.5.2.2 to 6.6.5.2.3 and references thereto.

6.6.5.3.2.4 and 6.6.5.3.3.5 Amend by replacing the existing text with that of 6.5.4.5.5 (renumbered 6.5.6.5.5) and 6.5.4.6.5 (renumbered 6.5.6.6.5) respectively, but replacing the word “IBCs” by “large packagings”.

Chapter 6.7

6.7.1.1 In the first sentence, amend “classes 2” to read “classes 1,2,”.

6.7.2.19.1, 6.7.3.15.1

and 6.7.4.14.1 Replace the existing text and list of standards with the following text:

“Portable tanks meeting the definition of container in the International Convention for Safe Containers (CSC), 1972, as amended, shall not be used unless they are successfully qualified by subjecting a representative prototype of each design to the Dynamic, Longitudinal Impact Test prescribed in the United Nations Manual for Tests and Criteria, Part IV, Section 41. This provision only applies to portable tanks which are constructed according to a design approved certificate which has been issued on and after 1 January 2008.”.

6.7.3.8.1.1 In the footnote, replace “CGA S-1.2-1995” and “CGA Pamphlet S-1.2-1995” with “CGA S-1.2-2003 “Pressure Relief Device Standards-Part 2-Cargo and Portable Tanks for Compressed Gases”.”.

6.7.4.7.4 Add the following footnote “See for example CGA Pamphlet S-1.2-2003 “Pressure Relief Device Standards-Part 2-Cargo and Portable Tanks for Compressed Gases.””.

6.7.5.4.1 Replace the first sentence with the following two sentences:

“The elements of MEGCs used for the transport of UN 1013 carbon dioxide and UN 1070 nitrous oxide shall be isolated by a valve into assemblies of not more than 3,000 litres. Each assembly shall be fitted with one or more pressure relief devices.”.

(Current final sentence remains unchanged).

6.7.5.5.1 and

6.7.5.5.2 Replace “CGA S-1.2-1995” with “CGA S-1.2-2003 “Pressure Relief Device Standards, Part 2, Cargo and Portable Tanks for Compressed Gases”.”

Replace “CGA S-1.1-1994” with “CGA S-1.1-2003 “Pressure Relief Device Standards, Part 1, Cylinders for Compressed Gases”.”

6.7.5.6.1 Amend to read as follows:

“6.7.5.6.1 Pressure relief devices shall be clearly and permanently marked with the following:

- (a) the manufacturer’s name and relevant catalogue number;
- (b) the set pressure and/or the set temperature;
- (c) the date of the last test.”.

6.7.5.6.2 Delete this paragraph and renumber subsequent paragraph accordingly.

6.7.5.8.1 In the third sentence, replace “and oxidising” with “, pyrophoric and oxidizing”.

6.7.5.12.1 Replace the existing text and list of standards with the following text:

“MEGCs meeting the definition of container in the CSC shall not be used unless they are successfully qualified by subjecting a representative prototype of each design to the Dynamic, Longitudinal Impact Test prescribed in the United Nations Manual for Tests and Criteria, Part IV, Section 41. This provision only applies to MEGCs which are constructed according to a design approved certificate which has been issued on and after 1 January 2008.”.

Chapter 6.8

6.8.3.3.2.1.5 Amend “6.7.4.2.1” to read “6.7.4.2.13”.

PART 7

Chapter 7.1

7.1.1.15 Amend “top of side walls ...” to read “top or side walls ...” in the first sentence.

7.1.11.5.1 Amend to read:

“7.1.11.5.1 AMMONIUM NITRATE, UN 1942 and AMMONIUM NITRATE BASED FERTILIZERS, UN 2067 may be stowed under deck in a clean cargo space capable of being opened up in an emergency. The possible need to open hatches in case of fire to provide maximum ventilation and to apply water in an emergency and the consequent risk to the stability of the ship through flooding of cargo space shall be considered before loading.”

Chapter 7.2

7.2.7.1.3.1 In the list of Dangerous Goods List entries delete the following entries:

| | | |
|-----------------|------|------|
| “DIETHYLZINC | 1366 | 4.2 |
| DIMETHYLZINC | 1370 | 4.2 |
| MAGNESIUM ALKYL | 3053 | 4.2” |

Amend paragraph 7.2.1.13 to read:

“7.2.1.13 Special provisions for segregation”

Add new 7.2.1.13.1 to read:

“7.2.1.13.1 No segregation needs to be applied

- .1 between dangerous goods of different classes which comprise the same substance but vary only in their water content, such as sodium sulphide in classes 4.2 and 8 or for class 7 if the difference is due to quantity only;
- .2 between dangerous goods which belong to a group of substances of different classes but for which scientific evidence exists that they do not react dangerously when in contact with each other. Substances within the same table shown below are compatible with one another.

| UN No. | Proper Shipping Name | Class | Subsidiary risk(s) | Packing group |
|--------|--|-------|--------------------|---------------|
| 2014 | HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary) | 5.1 | 8 | II |

| Table 1 | | | | |
|---------|---|-------|--------------------|---------------|
| UN No. | Proper Shipping Name | Class | Subsidiary risk(s) | Packing group |
| 2984 | HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 8% but less than 20% hydrogen peroxide (stabilized as necessary) | 5.1 | | III |
| 3105 | ORGANIC PEROXIDE TYPE D, LIQUID (peroxyacetic acid, type D, stabilized) | 5.2 | 8 | |
| 3107 | ORGANIC PEROXIDE TYPE E, LIQUID (peroxyacetic acid, type E, stabilized) | 5.2 | 8 | |
| 3109 | ORGANIC PEROXIDE TYPE F, LIQUID (peroxyacetic acid, type F, stabilized) | 5.2 | 8 | |
| 3149 | HYDROGEN PEROXIDE AND PEROXYACETIC ACID, MIXTURE with acid(s), water and not more than 5% peroxyacetic acid, STABILIZED | 5.1 | 8 | II |

| Table 2 | | | | |
|---------|-----------------------|-------|--------------------|---------------|
| UN No. | Proper Shipping Name | Class | Subsidiary risk(s) | Packing group |
| 1295 | TRICHLOROSILANE | 4.3 | 3/8 | I |
| 1818 | SILICON TETRACHLORIDE | 8 | - | II |
| 2189 | DICHLOROSILANE | 2.3 | 2.1/8 | - |

7.2.1.13.2 Insert new paragraph 7.2.1.13.2 to read:

“7.2.1.13.2 Notwithstanding the provisions of 7.2.1.7.1 to 7.2.1.7.4, substances of class 8, packing group II or III, that would otherwise be required to be segregated from one another due to the provisions pertaining to segregation groups as identified by an entry in column (16) of the dangerous goods list indicating “Away from” or “Separated from” “acids” or “Away from” or “Separated from” “alkalis”, may be transported in the same cargo transported unit, whether in the same packaging or not, provided:

- .1 the substances comply with the provisions of 7.2.1.11;
- .2 the package does not contain more than 30 litres for liquids or 30 kg for solids;
- .3 the transport document includes the statement required by 5.4.1.5.11.3; and

- .4 a copy of the test report that verifies that the substances do not react dangerously with each other shall be provided if requested by the competent authority.”

7.2.7.2.1.1 Amend “7.2.7.4” to read “7.2.7.2.1.5” in the second sentence.

Chapter 7.3

7.3.2.1 Replace “61°C” with “60°C”.

Chapter 7.4

7.4.2.5.1 Amend 7.4.2.5.1 to read:

“7.4.2.5.1 Unless otherwise specified in this Code, the provisions concerning ventilation that are set out in various places in this Code shall be taken to refer to the space aboard the ship in which cargo transport units are stowed and shall not be interpreted to require ventilation into cargo transport unit.”.

7.4.3.2 Add at the end of 7.4.3.2:

“Ventilated containers shall be marked with the date of ventilation on the fumigated warning sign(s). When the fumigated goods or materials have been unloaded, the fumigation warning sign(s) shall be removed.”.

7.4.5.13 In the first indent, insert before “and the refrigeration”, “or regulation II-2/54 of SOLAS 74, as amended by the resolutions indicated II-2/1.2.1, as applicable,”.

7.4.6.4.2 Add, after “class 1”, “other than division 1.4”.

Chapter 7.7

7.7.6 Insert new 7.7.6 as follows:

“7.7.6 Special provisions for flammable gases or liquids having a flashpoint below 23°C c.c. transported under temperature control

7.7.6.1 When flammable gases or liquids having a flashpoint below 23°C c.c. are packed or loaded in a cargo transport unit equipped with a refrigerating or heating system, the cooling or heating equipment shall comply with 7.7.3.

7.7.6.2 When flammable liquids having a flashpoint below 23°C c.c. and not requiring temperature control for safety reasons are transported under temperature control conditions for commercial reasons, explosion-proof electrical fittings are not required, when the substances are pre-cooled to and transported at a control temperature of at least 10°C below the flashpoint. In case of failure of the refrigerating system, the system shall be disconnected from the power supply.”

- 7.7.6 (existing) Renumber as 7.7.7.
7.7.7 (existing) Renumber as 7.7.8.
7.7.8 (new) Replace “exemption” with “approval”.

Chapter 7.9

- 7.9.3 Replace existing 7.9.3 with the following:

“7.9.3 Contact information for the main designated national competent authorities

Contact information for the main designated national competent authorities concerned is given in this paragraph^{*}. Corrections to these addresses should be sent to the Organization^{**}.

* Reference is made to MSC.1/Circ.1201, as may be amended, which provides a more comprehensive listing of contact information for competent authorities and bodies.

** International Maritime Organization
4 Albert Embankment
London SE1 7SR
United Kingdom
Email: info@imo.org
Fax: +44 207587 3210

**LIST OF CONTACT INFORMATION FOR THE MAIN DESIGNATED NATIONAL
COMPETENT AUTHORITY**

| Country | Contact information for the main designated national competent authority |
|-----------------------|--|
| ALGERIA | Ministère des Transports/Direction de la Marine Marchande 119 Rue Didouche Mourad Alger ALGÉRIE Telephone: +213 26061 46 Telex: 66063 DGAF DZ |
| AMERICAN SAMOA | Silila Patane Harbour Master Port Administration Pagopago American Samoa AMERICAN SAMOA 96799 |
| ARGENTINA | Prefectura Naval Argentina (Argentine Coast Guard) Dirección de protección ambiental Departamento de protección ambiental y mercancías peligrosas Division mercancías y residuos peligrosos Avda. Eduardo Madero 235 4º piso, Oficina 4.36 y 4.37 Buenos Aires (C1106ACC) REPÚBLICA ARGENTINA Telephone: +54 11 4318 7669 Telefax: +54 11 4318 7474 Email: dpma-mp@prefecturanaval.gov.ar |
| AUSTRALIA | Manager, Ship Inspection Maritime Operations Australian Maritime Safety Authority GPO Box 2181 Canberra ACT 2601 AUSTRALIA Telephone: +61 2 6279 5048 Telefax: +61 2 6279 5058 Email: psc@amsa.gov.au Website: www.amsa.gov.au |

| Country | Contact information for the main designated national competent authority |
|-----------------|---|
| BAHAMAS | Bahamas Maritime Authority Second Floor Latham House 16 Minories London, EC3N 1EH UNITED KINGDOM Telephone: +44 (0)20 7264 2550 Telefax: +44 (0)20 7264 2579 Email: tech@bahamasmaritime.com |
| BARBADOS | Director of Maritime Affairs Ministry of Tourism and International Transport 2 nd Floor Carlisle House Hincks Street Bridgetown St. Michael Barbados Telephone: +1 246 426 2710/3342 Telefax: +1 246 426 7882 Email: ctech@sunbeach.net |
| BELGIUM | Federal Public Service Mobility and Transport Directorate-general Maritime Transport Rue du Progrès 56 1210 Brussels B-BELGIUM Telephone: +32 2 277 3500 Telefax: +32 2 277 4051 Email: dg.mar@mobilite.fgov.be Website: www.mobilite.fgov.be |
| BELIZE | Ports Commissioner Belize Port Authority PO Box 633 Belize City BELIZE C.A. Telephone: +501 227 2540/0981 Telefax: +501 227 2500 |
| BRAZIL | Diretoria de Portos e Costas (DPC-20) Rua Teófilo Otoni No. 04 Centro Rio de Janeiro CEP 20090-070 BRAZIL Telephone: +55 21 2104 5203 Telefax: +55 21 2104 5202 Email: secom@dpc.mar.mil.br |

| Country | Contact information for the main designated national competent authority |
|-----------------|---|
| BULGARIA | Ministry of Transport Bulgarian Maritime Administration Directorate European Integration and International Affairs 9 Diakon Ignatiy Str. Sofia 1000 BULGARIA Telephone: +359 2 930 09 10 / 930 09 50 Telefax: +359 2 930 09 20 E-mail: ivalev@marad.bg Website: www.marad.bg |
| CANADA | The Chairman Board of Steamship Inspection Transport Canada -Marine Safety Tower C, Place de Ville 330 Sparks Street, 10th Floor Ottawa, Ontario K1A ON5 CANADA Telephone: +1 613 991 3132 +1 613 991 3143 +1 613 991 3139/40 Telefax: +1 613 993 8196 |
| CHILE | Dirección General del Territorio Marítimo y de Marina Mercante Dirección de Seguridad y Operaciones Marítimas Depto. Prevención de Riesgos Errázuriz 537 Valparaiso CHILE Telephone: +56 32 208256 Telefax: +56 32 208262 Telex: 230602 DGTM CL 330461 DGTM CK |
| CHINA | Maritime Safety Administration People's Republic of China 11 Jianguomen Nei Avenue Beijing 100736 CHINA Telephone: +86 10 6529 2588 +86 10 6529 2218 Telefax: +86 10 6529 2245 Telex: 222258 CMSAR CN |

| Country | Contact information for the main designated national competent authority |
|-----------------------|---|
| CROATIA | Ministry of Maritime Affairs Transport and Communication Marine Safety Division Prisavlje 14 1000 Zagreb REPUBLIC OF CROATIA Telephone: +385 1 611 5966 Telefax: +385 1 611 5968 Email: pomorski-promet@zg.tel.hr |
| CUBA | Ministerio del Transporte Dirección de Seguridad e Inspección Marítima Boyeros y Tulipán Plaza Ciudad de la Habana CUBA Telephone: +53 7 881 6607 +53 7 881 9498 Telefax: +53 7 881 1514 Email: dsim@mitrans.transnet.cu |
| CYPRUS | Department of Merchant Shipping Ministry of Communications and Works Kylinis Street Mesa Geitonia CY-4007 Lemesos P.O. Box 56193 CY-3305 Lemesos CYPRUS Telephone: +357 5 848 100 Telefax: +357 5 848 200 Telex: 2004 MERSHIP CY Email: dms@cytanet.com.cy |
| CZECH REPUBLIC | Ministry of Transport of the Czech Republic Navigation and Waterways Division Nábr. L.. Svobody 12 110 15 Praha 1 CZECH REPUBLIC Telephone: +42 (0)2 230 312 25 Telefax: +42 (0)2 248 105 96 Telex: +42 (0)2 12 10 96 Domi C |

| Country | Contact information for the main designated national competent authority |
|-------------------------------|--|
| DENMARK | Danish Maritime Authority P.O. Box 2605 Vermundsgade 38C 2100 Copenhagen Ø DENMARK Telephone: +45 39 17 44 00 Telefax: +45 39 17 44 01 Email: SFS@dma.dk |
| ECUADOR | Dirección General de la Marine Mercante y del Litoral P.O. Box 7412 Guayaquil ECUADOR Telephone: +593 4 526 760 Telefax: +593 4 324 246 Telex: 04 3325 DIGMER ED |
| ESTONIA | Estonian Maritime Administration Maritime Safety Division Valge 4 EST-11413 Tallinn ESTONIA Telephone: +372 6205 700/715 Telefax: +372 6205 706 Email: mot@vta.ee |
| FINLAND | Finnish Maritime Administration P.O. Box 171 FI-00181 Helsinki FINLAND Telephone: +358 20 448 1 Telefax: +358 20 448 4500 +358 20 448 4336 Email: keskushallinto@fma.fi |
| FINLAND (continued) | <i>Packaging and Certification Institute</i> Safety Technology Authority (TUKES) P.O Box 123 FI-00181 Helsinki FINLAND Telephone: +358 961671 Telefax: +358 96167466 Email: kirjaamo@tukes.fi |

| Country | Contact information for the main designated national competent authority |
|----------------|--|
| FRANCE | MTETM/DGMT/MMD Arche sud 92055 La Défense cedex FRANCE Telephone: +33 (0)1 40 81 86 49 Telefax: +33 (0)1 40 81 10 65 Email: olga.lefevre@equipement.gouv.fr |
| GAMBIA | The Managing Director Gambia Ports Authority Banjul THE GAMBIA Telephone: +220 27266 Telefax: +220 27268 Telex: 2235 GAMPORTS GV |
| GERMANY | Federal Ministry of Transport, Building and Urban Affairs Dangerous Goods Branch Robert-Schuman-Platz 1 D-53175 Bonn GERMANY Telephone: +49 228 3000 or 300- extension +49 228 300 2643 Telefax: +49 228 300 3428 Email: Ref-A33@bmvbs.bund.de |
| GREECE | Ministry of Mercantile Marine Safety of Navigation Division International Relations Department 150 Gr. Lambraki Av. 185 18 Piraeus GREECE Telephone: +301 4191188 Telefax: +301 4128150 Telex: +212022, 212239 YEN GR Email: dan@yen.gr |

| Country | Contact information for the main designated national competent authority |
|------------------|---|
| GUYANA | Guyana Maritime Authority/Administration Ministry of Public Works and Communications Building Top Floor Fort street Kingston Georgetown REPUBLIC OF GUYANA Telephone: +592 226 3356 +592 225 7330 +592 226 7842 Telefax: +592 226 9581 Email: MARAD@networksgy.com |
| ICELAND | Iceland Maritime Administration Verturvör 2 IS-202 Kópavogur ICELAND Telephone: +354 560 0000 Telefax: +354 560 0060 E-mail: skrifstofa@vh.is |
| INDIA | The Directorate General of Shipping Jahz Bhawan Walchand Hirachand Marg Bombay 400 001 INDIA Telephone: +91 22 263651 Telex: +DEGESHIP 2813-BOMBAY |
| INDONESIA | Director of Marine Safety Directorate-General Sea Communication (Department Perhubungan) JI. Merdeka Barat No.8 Jakarta Pusat. INDONESIA Telephone: +62 381 3269 Telefax: +62 384 0788 |
| IRAN | Ports and Shipping Organization 751 Enghelab Avenue Tehran IRAN Telephone: +98 21 8809280 to 89 Telefax: +98 21 8804100 Telex: 212271 BNDR-IR |

| Country | Contact information for the main designated national competent authority |
|----------------|--|
| IRELAND | <p>The Chief Surveyor Marine Survey Office Department of Transport Leeson Lane Dublin 2 IRELAND Telephone: +353 1 604 14 20 Telefax: +353 1 604 14 08 E-mail: mso@transport.ie</p> |
| ISRAEL | <p>Shipping and Ports Inspectorate Itzhak Rabin Government Complex Building 2 Pal-Yam 15a Haifa 31999 ISRAEL Telephone: +972 4 8632080 Telefax: +972 4 8632118 Email: techni@mot.gov.il</p> |
| ITALY | <p>Italian Coast Guard Headquarters Viale dell'Arte 16 00144 Rome ITALY Telephone: +39 06 5908 4919 Telefax: +39 06 5908 4918 Email: uff1.rep6.cogecap@infrastrutturetrasporti.it</p> |
| JAMAICA | <p>The Maritime Authority of Jamaica 4th Floor, Dyoll Building 40 Knutsford Boulevard Kingston 5 JAMAICA, W.I. Telephone: +1 876 929 2201 +1 876 754 7260/5 Telex: +1 876 7256 Email: maj@jamaicaships.com Website: www.jamaicaships.com</p> |

| Country | Contact information for the main designated national competent authority |
|----------------|---|
| JAPAN | Inspection and Measurement Division Maritime Bureau Ministry of Land, Infrastructure and Transport 2-1-3 Kasumigaseki, Chiyoda-ku Tokyo JAPAN Telephone: +81 3 5253 8639 Telefax: +81 3 5253 1644 Email: MRB_KSK@mlit.go.jp |
| LATVIA | Maritime Administration of Latvia 5 Trijadibas iela L V-1 048 Riga LATVIA Telephone: +371 70 62 171 +371 70 62 120 +371 70 62 117 Telefax: +371 78 60 082 |
| LIBERIA | Office of the Commissioner of Maritime Affairs Bureau of Maritime Affairs, R.L. Tubman Boulevard P.O. Box 10-9042 1000 Monrovia 10 LIBERIA Telephone: +231 224 604 / 908 Telefax: +231 226 069 Office of the Deputy Commissioner of Maritime Affairs, R.L. Technical Division Marine Operations Department c/o Liberian International Ship & Corporate Registry 8619 Westwood Center Drive, Suite 300 Vienna, Virginia, 22182 U.S.A. Telephone: +1 703 790 3434 Telefax: +1 703 790 5655 Email: info@liscr.com Website: www.liscr.com |

| Country | Contact information for the main designated national competent authority |
|--------------------|--|
| NETHERLANDS | <p>Ministry of Transport, Public Works and Water Management Directorate-General for Civil Aviation and Freight Transport P.O. Box 20904 2500 EX The Hague THE NETHERLANDS Telephone: +31 70 351 6171 Telefax: +31 70 351 1479</p> <p>Ministry of Transport, Public Works and Water Management Transport Information Centre P.O. Box 90653 2509 LR The Hague THE NETHERLANDS Telephone: +31 70 305 2444 Telefax: +31 70 305 2424 Email: vervoerinfo@ivw.nl</p> |
| NEW ZEALAND | <p>Director of Maritime New Zealand Maritime New Zealand Level 8 Gen-i Tower 109 Featherston Street P.O. Box 27006 Wellington NEW ZEALAND Telephone: +64 4 473 0111 Telefax: +64 4 494 1263 E-Mail: dangerous.goods@maritimenz.govt.nz Website: www.maritimenz.govt.nz</p> |
| NORWAY | <p>Norwegian Maritime Directorate Stensberggt. 27 P.O. Box 8123 Dep. 0032 Oslo NORWAY Telephone: +47 22 45 45 00 Telefax: +47 22 56 87 80 Email: postmottak@sjofartsdir.no</p> |

| Country | Contact information for the main designated national competent authority |
|-------------------------|---|
| PAKISTAN | Mercantile Marine Department 70/4 Timber Hard N.M. Reclamation Keamari, Post Box No. 4534 Karachi 75620 PAKISTAN Telephone: +92 21 2851306 +92 21 2851307 Telefax: +92 21 4547472 (24 hours) +92 21 4547897 Telex: 29822 DGPS PK (24 hours) |
| PANAMA | Autoridad Marítima de Panamá Edificio 5534 Diablo Heights PO Box 8062 Panama 7 REPUBLIC OF PANAMA Telephone: +507 232 5100/5295 Telefax: +507 232 5527 Email: ampadmon@amp.gob.pa Website: www.amp.gob.pa |
| PAPUA NEW GUINEA | First Assistant Secretary Department of Transport Division of Marine P.O. Box 457 Konedobu PAPUA NEW GUINEA (PNG) Telephone: +675 211866 Telex: 22203 |
| PERU | Dirección General de Capitanías y Guardacostas Marine de Guerra del Perú Constitución 150 Callao PERU Telephone: +51-1-4200162 Telefax: +51-1-4690505 Telex: 26042 PE DICAPI 26069 PE COSCTAL |

| Country | Contact information for the main designated national competent authority |
|----------------------------|--|
| PHILIPPINES | Philippines Ports Authority Port of Manila Safety Staff P.O. Box 193 Port Area Manila 2803 PHILIPPINES Telephone: +63 2473441 to 49 |
| POLAND | Ministry of Transport and Maritime Economy Department of Maritime and Inland Waters Administration ul. Chalubinskiego 4/6 00-928 Warsaw POLAND Telephone: +48 22 6 211 448 Telefax: +48 22 6 288 515 Telex: 816651 PKL PL |
| PORTUGAL | Direcção-Geral de Navegação e dos Transportes Marítimos Praça Luis de Camoes, 22 -2º Dto 1200 Lisboa PORTUGAL Telephone: +351 1 373821 Telefax: +351 1 373826 Telex: 16753 SEMM PO |
| REPUBLIC OF KOREA | Maritime Safety Policy Division Maritime Safety Bureau Ministry of Maritime Affairs and Fisheries 140-2 Gye-Dong, Jongno-Gu, Seoul, 110-793 REPUBLIC OF KOREA Telephone: +82 2 3674 6312 Telefax: +82 2 3674 6317 |
| RUSSIAN FEDERATION* | Department of State Policy for Maritime and River Transport Ministry of Transport of the Russian Federation Rozhdestvenka Street, 1, bldg. 1 Moscow 109012 RUSSIAN FEDERATION Telephone: +7 495 926 14 74 |

* Except for governmental explosives.

| Country | Contact information for the main designated national competent authority |
|------------------------------|---|
| SAINT KITTS AND NEVIS | Department of Maritime Affairs Director of Maritime Affairs Ministry of Transport P.O. Box 186 Needsmust ST. KITTS WI Tel: +869 466-7032/4846 Fax: +869 465-0604/9475 E-mail: Maritimeaffairs@yahoo.com |
| SAUDI ARABIA | Port Authority Saudi Arabia Civil Defence Riyadh SAUDI ARABIA Telephone: +966 1 464 9477 |
| SINGAPORE | Maritime and Port Authority of Singapore Shipping Division 21st Storey PSA Building 460 Alexandra Road SINGAPORE 119963 Telephone: +65 375 1931/6223/1600 Telefax: +65 375 6231 Email: shipping@mpa.gov.sg |
| SLOVENIA | Uprava Republike Siovenije za pomorstvo Ukmarjev trg 2 66 000 Koper SLOVENIA Telephone: +386 66 271 216 Telefax: +386 66 271 447 Telex: +34 235 UP POM SI |
| SOUTH AFRICA | South African Maritime Safety Authority P.O. Box 13186 Hatfield 0028 Pretoria SOUTH AFRICA Telephone: +27 12 342 3049 Telefax: +27 12 342 3160 South African Maritime Safety Authority Hatfield Gardens, Block E (Ground Floor) Corner Arcadia and Grosvenor Street Hatfield 0083 Pretoria SOUTH AFRICA |

| Country | Contact information for the main designated national competent authority |
|--------------------|---|
| SPAIN | Dirección General de la Marina Mercante Subdirección General de Trafico, Seguridad y Contaminación c/Ruiz de Alarcón, 1 28014 Madrid SPAIN Telephone: +34 91 597 92 69/70 Telefax: +34 91 597 92 87 Email: mercancias.peligrosas@mfom.es |
| SWEDEN | Swedish Maritime Administration Maritime Safety Inspectorate Ship Technical Division SE-601 78 Norrköping SWEDEN Telephone: +46 11 191000 Telefax: +46 11 239934 E-mail: inspektion@sjofartsverket.se |
| SWITZERLAND | Office suisse de la navigation maritime Nauenstrasse 49 P.O. Box CH-4002 Basel SWITZERLAND Telephone: +41 61 27091 20 Telefax: +41 61 270 91 29 Email: dv-ssa@eda.admin.ch |
| THAILAND | Ministry of Transport and Communications Ratchadamnoen-Nok Avenue Bangkok 10100 THAILAND Telephone: +66 2 2813422 Telefax: +66 2 2801714 Telex: 70000 MINOCOM TH |
| TUNISIA | Ministère du Transport Direction Générale de la Marine Marchande Avenue 7 novembre (près l'aéroport) 2035 Tunis B.P. 179 Tunis cedex TUNISIA Telephone: +216 71 806 362 Telefax: +216 71 806 413 |

| Country | Contact information for the main designated national competent authority |
|-----------------------|--|
| UNITED KINGDOM | Maritime and Coastguard Agency Bay 2/21 Spring Place 105 Commercial Road Southampton, SO15 1EG UNITED KINGDOM Telephone: +44 23 8032 9182 / 100 Telefax: +44 23 8032 9204 Email: dangerous.goods@mcga.gov.uk |
| UNITED STATES | US Department of Transportation Pipeline and Hazardous Materials Safety Administration Office of International Standards 400 Seventh Street SW Washington, D.C. 20590-0001 U.S.A. Telephone: +1 202 366 0656 Telefax: +1 202 366 5713 Email: infocntr@dot.gov Website: hazmat.dot.gov United States Coast Guard Hazardous Materials Standards Division (G-PSO-3) 2100 Second Street SW Washington, D.C. 20593-0001 U.S.A. Telephone: +1 202 267 1577 +1 202 267 1217 Telefax: +1 202 267 4570 |
| URUGUAY | Prefectura del Puerto de Montevideo Rambla 25 de Agosto de 1825 S/N Montevideo URUGUAY Telephone: +598 2 960123 +598 2 960022 Telex: 23929 COMAPRE-UY |
| VANUATU | Commissioner of Maritime Affairs Vanuatu Maritime Authority P.O Box 320 Port Vila VANUATU Telephone: +678 23128 Telefax: +678 22949 Email: vma@vanuatu.com.vu |

Appendix A

In the table for class 6.2, amend the proper shipping name to read “BIOLOGICAL SUBSTANCES, CATEGORY B”.

In the table for class 8, amend the proper shipping name of UN No.1740 to read “HYDROGEN DIFLUORIDE, SOLID, N.O.S.”, and add a new entry under Specific entries “8” “6.1” “3471” “HYDROGEN DIFLUORIDE SOLUTION, N.O.S.”.

Index

Delete the entries for “1,4-Benzenediol”, “p-Dihydroxybenzene”, “Hydroquinol”, “HYDROQUINONE, SOLID”, “Quinol” and “HYDROQUINONE SOLUTION”.

Delete all entries relevant to UN nos.1014, 1015, 1979, 1980, 1981, 2600, 2662 and 3435.

Delete all entries relevant to UN nos. 1366, 1370, 2005, 2445, 3051, 3052, 3053, 3076, 3433 and 3461.

Amend the proper shipping names for UN nos.1143, 1740, 1779, 1848, 2823, 2993, 3245, 3256 and 3373.

Add entries relevant to UN Nos.3412 (two entries depending upon the concentration of acid), 3463, 3469, 3470, 3471, 3472 and 3473.

In column (2) of the entry for “*ortho*-Aminoanisole, see”, replace “P” with “-”.

In column (4) of the entry for “n-Amylbenzene, see Note 1” add “-”.

In column (2) of the entry for “BUTANEDIONE”, delete “P”.

In column (4) of the entry for “Camphechlor”, insert “-”.

Delete the entry for “Copper Chloride (solution)”.

In column (2) of the entry for “Cupric Chloride, see”, replace “P” with “PP”.

In column (2) of the entry for “Cuprous Chloride, see”, replace “P” with “PP”.

In column (2) of the entry for “DICYCLOHEXYLAMMONIUM NITRITE”, replace “P” with “-”.

In the entry for “Difluoroethane and Dichlorodifluoromethane, Azeotropic Mixture with approximately 74% dichlorodifluoromethane, see DICHLORODIFLUOROMETHANE and DIFLUOROETHANE, AZEOTROPIC MIXTURE”, amend “and” to read “AND”.

In column (4) of the entry for “Dioxathion” insert “-”.

In column (2) of the entries for “FIBRES, VEGETABLE with oil” and “FIBRES, ANIMAL with oil”, add “N.O.S.”.

In column (2) of the entry for ORGANIC PEROXIDE TYPE B, SOLID, TEMPERATURE CONTROLLED, replace “?” with “-”.

Amend “ORGANOMETALLIC SUBSTANCE, SOLID, TOXIC” to read “ORGANOMETALLIC COMPOUND, SOLID, TOXIC”.

In column (2) of the entry for “OXIDIZING SOLID, FLAMMABLE, N.O.S.” replace “-” with “?”.

In column (2) of the entry for “OXIDIZING SOLID, SELF-HEATING, N.O.S.” replace “-” with “?”.

Amend “1,2-PROPYLENEDIAMINES” to read “1,2-PROPYLENEDIAMINE”.

In column (2) of the entry for “SELF-HEATING SOLID, OXIDIZING, N.O.S.” replace “-” with “?”.

Delete the entry for “Sodium Alloys (liquid), *see also* POTASSIUM SODIUM ALLOYS”.

In column (2) of the entry for “WATER-REACTIVE SOLID, OXIDIZING, N.O.S.” replace “-” with “?”.

ANNEX 7

**RESOLUTION MSC.157(78)
(adopted on 20 May 2004)****ADOPTION OF AMENDMENTS TO THE INTERNATIONAL MARITIME
DANGEROUS GOODS (IMDG) CODE**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.122(75) by which it adopted the International Maritime Dangerous Goods Code (hereinafter referred to as "the IMDG Code"), which has become mandatory under chapter VII of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended (hereinafter referred to as "the Convention") on 1 January 2004,

NOTING ALSO article VIII(b) and regulation VII/1.1 of the Convention concerning the amendment procedure for amending the IMDG Code,

HAVING CONSIDERED, at its seventy-eighth session, amendments to the IMDG Code, proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the IMDG Code, the text of which is set out in the Annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2005, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2006 upon their acceptance in accordance with paragraph 2 above;
4. BEING COGNIZANT that amendments to other modal instruments dealing with the carriage of dangerous goods come into force on 1 January 2005;
5. ENCOURAGES Contracting Governments to the Convention to apply the aforementioned amendments in whole or in part on a voluntary basis as from 1 January 2005;
6. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Contracting Governments to the Convention;

7. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization, which are not Contracting Governments to the Convention.

ANNEX

**AMENDMENTS TO THE INTERNATIONAL MARITIME
DANGEROUS GOODS (IMDG) CODE***

VOLUME 1

Foreword

CONTENTS

Chapter 1.4 Add to read "**Security provisions**"

- 1.4.1 General provisions for companies, ships and facilities
- 1.4.2 General provisions for shore-side personnel
- 1.4.3 Provisions for high consequence dangerous goods

Chapter 2.4

Add:

- 2.4.5 Classification of organometallic substances
- 2.9.2 Amend to read "Assignment to class 9"

Chapter 4.2

- 4.2.6 Amend to read "Additional provisions for the use of road tank vehicles"
- 4.2.7 Delete

Chapter 4.3 Amend to read: "**Use of bulk containers**"

- 4.3.1 Amend to read "General provisions"
- 4.3.2 Amend to read "Additional provisions applicable to bulk goods of classes 4.2, 4.3, 5.1, 6.2, 7 and 8"

Chapter 5.5 Delete the whole chapter

PART 6 Amend title to read: "**... PORTABLE TANKS, MULTIPLE-ELEMENT
GAS CONTAINERS (MEGCs) AND ROAD TANK VEHICLES**"

Chapter 6.2

- 6.2.2 Delete "certified"
- 6.2.3 Delete "certified"

* As adopted by resolution MSC.122(75)

Chapter 6.9 Add to read "**Provisions for the design, construction, inspection and testing of bulk containers**"

- 6.9.1 Definitions
- 6.9.2 Application and general provisions
- 6.9.3 Provisions for the design, construction, inspection and testing of freight containers used as bulk containers
- 6.9.4 Provisions for the design, construction, inspection and approval of bulk containers other than freight containers"

Chapter 7.9 Amend to read "Exemptions, Approvals and Certificates"

Add:

- 7.9.1 Exemptions

Add:

- 7.9.2 Approvals (including permits, authorizations or agreements) and certificates

Add:

- 7.9.3 Addresses of competent authorities

PART 1

Chapter 1.1

- 1.1.1.3 Amend "materials" to read "material".

(new)

- 1.1.1.5.2 Add "chapter 1.4 (security provisions) except 1.4.1.1, which will be mandatory;" and renumber the remaining paragraphs.

(old)

- 1.1.1.5.5 Delete "chapter 3.5 (Transport schedules for class 7 - radioactive material)".

- 1.1.1.5.8 Add "section 7.9.3 (addresses of competent authorities)."; and renumber accordingly.

- 1.1.2.2.1 Regulation 1, delete second footnote and replace "†" in 1.3.3 with "**"

- 1.1.3.1.1 Amend to read "These provisions establish 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 transport of radioactive material. These provisions, which are based upon the International Atomic Energy Agency's (IAEA's) Regulations for the safe transport of radioactive material, 1996 edition, (Revised) Safety Standards Series No. TS-R-1 (ST-1, Revised) (ISBN 92-0-104996-X), establish requirements particularly for shipowners and for those handling packages containing radioactive materials in ports and on board ships without necessarily consulting IAEA regulations.

However, the published IAEA regulations also include Schedules of requirements for transport of specified types of radioactive material consignments, which are not included in this Code. These schedules summarize the requirements of those regulations, but do not contain any additional provisions. Schedules may be consulted for quick reference, but do not take precedence over the provisions of TS-R-1 or of this Code."

1.1.3.6 Add a new sub-section to read as follows:

"1.1.3.6 *Non-compliance*

1.1.3.6.1 In the event of non-compliance with any limit in this Code applicable to radiation level or contamination:

- .1 the consignor shall be informed of the non-compliance by the carrier if the non-compliance is identified during transport; or by the consignee if the non-compliance is identified on receipt;
- .2 the carrier, consignor or consignee, as appropriate shall:
 - (i) take immediate steps to mitigate the consequences of the non-compliance;
 - (ii) investigate the non-compliance and its causes, circumstances and consequences;
 - (iii) take appropriate action to remedy the causes and circumstances that led to the non-compliance and to prevent a recurrence of similar circumstances that led to the non-compliance; and
 - (iv) communicate to the relevant competent authority(ies) the causes of the non-compliance and on corrective or preventive actions taken or to be taken; and
- .3 communication of the non-compliance to the consignor and relevant competent authority(ies), respectively, shall be made as soon as practicable and shall be immediate whenever emergency exposure has developed or is developing."

1.1.4.1 Amend to read "... or vapours under normal conditions of transport".

Chapter 1.2

1.2.1 In the definition of "tank", delete the words "with a capacity of not less than 450 litres" and add at the end "and has a capacity of not less than 450 litres when used for the transport of gases of class 2."

- Insert a new definition for "*Routine maintenance of flexible IBCs*" under "*Intermediate Bulk Containers (IBCs)*" as follows:

"Routine maintenance of flexible IBCs is the routine performance on plastics or textile flexible IBCs of operations, such as:

- a) cleaning; or
- b) replacement of non-integral components, such as non-integral liners and closure ties, with components conforming to the original manufacturer's specification;

provided that these operations do not adversely affect the containment function of the flexible IBC or alter the design type.

NOTE: For rigid IBCs, see "*Routine maintenance of rigid IBCs*".

- Replace "*Routine maintenance of IBCs*" with "*Routine maintenance of rigid IBCs*" and add a note at the end of the existing text to read as follows:

NOTE: For flexible IBCs, see "*Routine maintenance of flexible IBCs*".

- In the definition of "*Repaired IBCs*", insert the word "rigid" before "IBCs" in the last but one sentence and add the following sentence at the end of the existing text: "Flexible IBCs are not repairable, unless approved by the competent authority."

Delete the last three sentences of the definition of "Road tank vehicle".

Delete existing definition of "Bulk packagings".

Insert the following new definition:

"Bulk containers are containment systems (including any liner or coating) intended for the transport of solid substances which are in direct contact with the containment system. Packagings, intermediate bulk containers (IBCs), large packagings and portable tanks are not included.

Bulk containers are:

- of a permanent character and accordingly strong enough to be suitable for repeated use;
- specially designed to facilitate the transport of goods by one or more means of transport without intermediate reloading;
- fitted with devices permitting ready handling; and
- have a capacity of not less than 1 cubic metre.

Examples of bulk containers are freight containers, offshore bulk containers, skips, bulk bins, swap bodies, trough-shaped containers, roller containers, load compartments of vehicles."

In the definition of "Aerosols", for "6.2.2" read "6.2.4".

In the definition of "Recycled plastics material" for "6.1.1.2.5" read "6.1.1.3".

Amend existing definition to read:

Elevated temperature substance means a substance which is transported or offered for transport:

- in the liquid state at a temperature at or above 100 °C;
- in the liquid state with a flashpoint above 61°C that is intentionally heated to a temperature above its flashpoint; or
- in a solid state and at a temperature at or above 240 °C.

Amend the last sentence of the definition of "*Freight container*" to read:

"For freight containers for the transport of radioactive material, see 2.7.2."

Insert the following new definitions:

Offshore bulk container means a bulk container specially designed for repeated use for the transport of dangerous goods to, from and between offshore facilities. An offshore bulk container is designed and constructed in accordance with MSC/Circ.860 "Guidelines for the approval of containers handled in open seas".

GHS means the *Globally Harmonized System of Classification and Labelling of Chemicals*, published by the United Nations as document ST/SG/AC.10/30."

- 1.2.2.4 Amend "1.2.2.4.1, 1.2.2.4.2 and 1.2.2.4.3" to read as sub-paragraphs .1, .2 and .3, begin each with "in" and end .1 and .2 with a semi-colon.

Chapter 1.3

- 1.3.1.1 Amend "shall" to read "should". Add the following sentence at the end: "Training requirements specific to security of dangerous goods in Chapter 1.4. should also be addressed."

1.3.1.4.1 amend to read "identification".

1.3.1.4.2 for "bulk packaging" read "bulk container".

1.3.1.4.6 } for "discharging" read "discharge".

1.3.1.4.7 }

1.3.1.3 Insert a new 1.3.1.3 to read as follows:

"Records of all safety training undertaken should be kept by the employer and made available to the employee if requested."

Re-number existing 1.3.1.3 to 1.3.1.6 as 1.3.1.4 to 1.3.1.7.

In (new) 1.3.1.5, amend references in headings to "1.3.1.6" to read "1.3.1.7";

In (new) 1.3.1.7.8 add "(CSC)" after "Containers".

Chapter 1.4

Add a new chapter as follows:

"CHAPTER 1.4 SECURITY PROVISIONS

Introductory note

The provisions of this chapter address the security of dangerous goods in transport by sea. National competent authorities may apply additional security provisions, which should be considered when offering or transporting dangerous goods. The provisions of this chapter remain recommendatory except 1.4.1.1 (see 1.1.1.5).

1.4.1 General provisions for companies, ships and port facilities

1.4.1.1 The relevant provisions of chapter XI-2 of SOLAS 74, as amended, and of part A of the International Ship and Port Facility Security (ISPS) Code apply to companies, ships and port facilities engaged in the transport of dangerous goods and to which regulation XI-2 of SOLAS 74, as amended, apply taking into account the guidance given in part B of the ISPS Code.

1.4.1.2 For cargo ships of less than 500 gross tons engaged in the transport of dangerous goods, it is recommended that Contracting Governments to SOLAS 74, as amended, consider security provisions for these cargo ships.

1.4.1.3 Any shore-based company personnel, ship based personnel and port facility personnel engaged in the transport of dangerous goods should be aware of the security requirements for such goods, in addition to those specified in the ISPS Code, and commensurate with their responsibilities.

1.4.1.4 The training of the company security officer, shore-based company personnel having specific security duties, port facility security officer and port facility personnel having specific duties, engaged in the transport of dangerous goods, should also include elements of security awareness related to those goods.

1.4.1.5 All shipboard personnel and port facility personnel who are not mentioned in 1.4.1.4 and are engaged in the transport of dangerous goods should be familiar with the provisions of the relevant security plans related to those goods, commensurate with their responsibilities.

1.4.2 General provisions for shore-side personnel

1.4.2.1 For the purpose of this subsection, *Shore-side personnel* covers individuals mentioned in 1.3.1.2. However, the provisions of 1.4.2 do not apply to:

- the company security officer and appropriate shore-based company personnel mentioned in 13.1 of part A of the ISPS Code,
- the ship security officer and the shipboard personnel mentioned in 13.2 and 13.3 of part A of the ISPS Code,
- the port facility security officer, the appropriate port facility security personnel and the port facility personnel having specific security duties mentioned in 18.1 and 18.2 of part A of the ISPS Code.

For the training of those officers and personnel, refer to the International Ship and Port Facility Security (ISPS) Code.

1.4.2.2 Shore-side personnel engaged in transport by sea of dangerous goods should consider security provisions for the transport of dangerous goods commensurate with their responsibilities.

1.4.2.3 Security training

1.4.2.3.1 The training of shore-side personnel, as specified in chapter 1.3, shall also include elements of security awareness.

1.4.2.3.2 Security awareness training should address the nature of security risks, recognizing security risks, methods to address and reduce risks and actions to be taken in the event of a security breach. It should include awareness of security plans (if appropriate, refer to 1.4.3) commensurate with the responsibilities of individuals and their part in implementing security plans.

1.4.2.3.3 Such training should be provided or verified upon employment in a position involving dangerous goods transport and should be periodically supplemented with retraining.

1.4.2.3.4 Records of all security training undertaken should be kept by the employer and made available to the employee if requested.

1.4.3 Provisions for high consequence dangerous goods

1.4.3.1 For the purposes of this section, high consequence dangerous goods are those which have the potential for misuse in a terrorist incident and which may, as a result, produce serious consequences such as mass casualties or mass destruction. The following is an indicative list of high consequence dangerous goods:

| | |
|-----------|--|
| Class 1 | Division 1.1 explosives |
| Class 1 | Division 1.2 explosives |
| Class 1 | Division 1.3 compatibility group C explosives |
| Class 1 | Division 1.5 explosives |
| Class 2.1 | Flammable gases in quantities greater than 3000 l in a road tank vehicle, a railway tank wagon or a portable tank |
| Class 2.3 | Toxic gases |
| Class 3 | Flammable liquids of packing groups I and II in quantities greater than 3000 l in a road tank vehicle, a railway tank wagon or a portable tank |
| Class 3 | Desensitized liquid explosives |
| Class 4.1 | Desensitized solid explosives |
| Class 4.2 | Goods of packing group I in quantities greater than 3000 kg or 3000 l in a road tank vehicle, a railway tank wagon, a portable tank or a bulk container |
| Class 4.3 | Goods of packing group I in quantities greater than 3000 kg or 3000 l in a road tank vehicle, a railway tank wagon, a portable tank or a bulk container |
| Class 5.1 | Oxidizing liquids of packing group I in quantities greater than 3000 l in a road tank vehicle, a railway tank wagon or a portable tank |
| Class 5.1 | Perchlorates, ammonium nitrate and ammonium nitrate fertilizers in quantities greater than 3000 kg or 3000 l in a road tank vehicle, a railway tank wagon, a portable tank or a bulk container |
| Class 6.1 | Toxic substances of packing group I |
| Class 6.2 | Infectious substances of category A |

- Class 7 Radioactive material in quantities greater than 3000 A1 (special from) or 3000 A2, as applicable, in type B or type C packages
- Class 8 Corrosive substances of packing group I in quantities greater than 3000 kg or 3000 l in a road tank vehicle, a railway tank wagon, a portable tank or a bulk container

For purposes of non-proliferation of nuclear material, the Convention on Physical Protection of Nuclear Material applies to international transport, supported by IAEA INFCIRC/225 (Rev.4).

- 1.4.3.2 The provisions of this section do not apply to ships and to port facilities (see the ISPS Code for ship security plan and for port facility security plan).
- 1.4.3.3 Consignors and others engaged in the transport of high consequence dangerous goods should adopt, implement and comply with a security plan that addresses at least the elements specified in 1.4.3.4.
- 1.4.3.4 The security plan should comprise at least the following elements:
- .1 specific allocation of responsibilities for security to competent and qualified persons with appropriate authority to carry out their responsibilities;
 - .2 records of dangerous goods or types of dangerous goods transported;
 - .3 review of current operations and assessment of vulnerabilities, including intermodal transfer, temporary transit storage, handling and distribution, as appropriate;
 - .4 clear statements of measures, including training, policies (including response to higher threat conditions, new employee/employment verification, etc.), operating practices (e.g. choice/use of routes where known, access to dangerous goods in temporary storage, proximity to vulnerable infrastructure, etc.), equipment and resources that are to be used to reduce security risks;
 - .5 effective and up to date procedures for reporting and dealing with security threats, breaches of security or security-related incidents;
 - .6 procedures for the evaluation and testing of security plans and procedures for periodic review and update of the plans;
 - .7 measures to ensure the security of transport information contained in the plan; and
 - .8 measures to ensure that the distribution of transport information is limited as far as possible. (Such measures shall not preclude provision of transport documentation required by chapter 5.4 of this Code.)

PART 2

Chapter 2.0

- 2.0.3.6 Add "*" after "3 I" in first column.
- 2.1.0 In Note 1, amend to read: "It is intended that these entries should only be used when ...".

Chapter 2.3

- 2.3.1.4 In the last sentence, replace "and UN 3343" with ", UN 3343, UN 3357 and UN 3379".
- 2.3.2.5 In the last sentence, delete "paragraph".

Chapter 2.4

Add a new introductory note to read as follows:

- "2.4.0 Since organometallic substances can be classified in classes 4.2 or 4.3 with additional subsidiary risks, depending on their properties, a specific classification flowchart for these substances is given in 2.4.5."
- 2.4.2.3.2.2 Amend the two first sentences of this paragraph to read as follows:
- "Self-reactive substances permitted for transport in packagings are listed in 2.4.2.3.2.3, those permitted for transport in IBCs are listed in packing instruction IBC520 and those permitted for transport in portable tanks are listed in portable tank instruction T23. For each permitted substance listed, the appropriate generic entry of the Dangerous Goods List (UN 3221 to UN 3240) is assigned, and appropriate subsidiary risks and remarks providing relevant transport information are given."
- 2.4.2.3.2.3 In the title, add at the end: "in packagings".
- Add the following text before the existing Note 1: "In the column "Packing Method" codes "OP1" to "OP8" refer to packing methods in packing instruction P520. Self-reactive substances to be transported shall fulfil the classification and the control and emergency temperatures (derived from the SADT) as listed. For substances permitted in IBCs, see packing instruction IBC520, and for those permitted in tanks, see portable tank instruction T23".
- Delete Note 2. As a consequence, "**Note 1**" becomes "**Note**".

Within the table in section 2.4.2.3.2.3, in the second of the entries for UN 3226, for "1,1-AZODI(HEXAHYDROBENZONITRILE)" read "1,1'-AZODI(HEXAHYDROBENZONITRILE)".

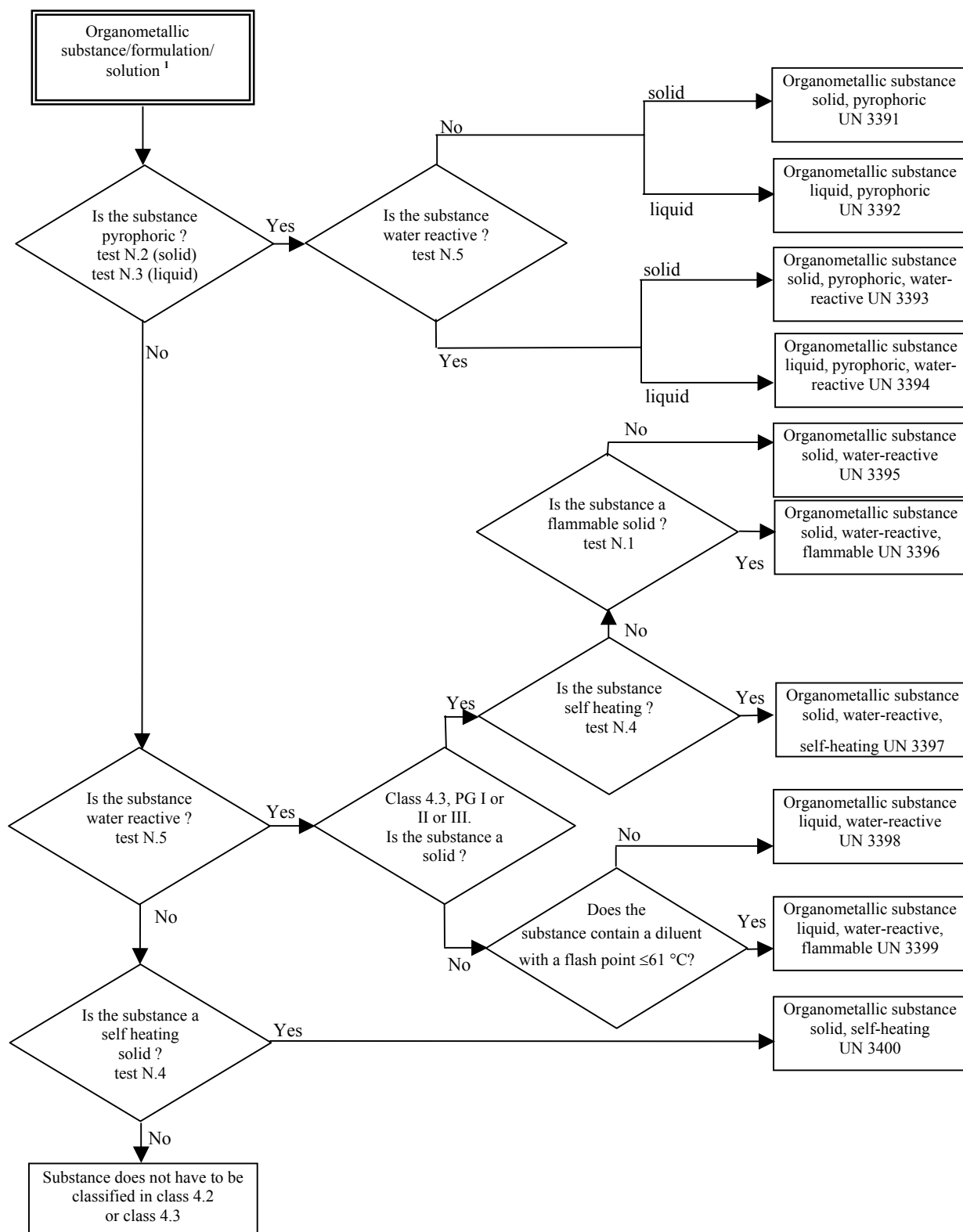
Within the table in section 2.4.2.3.2.3, in the fourth of the entries for UN 3236 on that page, for "3-(HYDROXYETHOXY)-4-(PYRROLIDIN-1YL)-BENZENEDIAZONIUM ZINC CHLORIDE" read "3-(2-HYDROXYETHOXY)-4-(PYRROLIDIN-1-YL)- BENZENEDIAZONIUM ZINC CHLORIDE".

- 2.4.2.3.2.4 Amend the beginning of the first sentence to read: "Classification of self-reactive substances not listed in 2.4.2.3.2.3, packing instruction IBC520 or portable tank instruction T23 and assignment to...".
- 2.4.2.4.1.1 Amend the list of UN numbers at the end to read ", UN 3370, UN 3376 and UN 3380."
- 2.4.5 Add a new paragraph 2.4.5 and a new flowchart as follows:

"2.4.5 Classification of organometallic substances

Depending on their properties, organometallic substances may be classified in classes 4.2 or 4.3, as appropriate, in accordance with the following flowchart:

Flowchart scheme for organometallic substances^{1, 2}



¹ If applicable and testing is relevant, taking into account reactivity properties, class 6.1 and class 8 properties shall be considered according to the Precedence of hazards table 2.0.3.6.

² Test methods N.1 to N.5 can be found in the United Nations Manual of Tests and Criteria, Part III, Section 33.

Chapter 2.5

2.5.3.2.3 Amend the two first sentences of this paragraph to read as follows:

"Organic peroxides permitted for transport in packagings are listed in 2.5.3.2.4, those permitted for transport in IBCs are listed in packing instruction IBC520 and those permitted for transport in portable tanks are listed in portable tank instruction T23. For each permitted substance listed, the generic entry of the Dangerous Goods List (UN 3101 to UN 3120) is assigned, appropriate subsidiary risks and remarks providing relevant transport information are given."

2.5.3.2.4 In the title add, at the end: "in packagings".

Replace the existing note under the title with the following text:

"Note: Packing Method" codes "OP1" to "OP8" refer to packing methods in packing instruction P520. Peroxides to be transported shall fulfil the classification and the control and emergency temperatures (derived from the SADT) as listed. For substances permitted in IBCs, see packing instruction IBC520, and for those permitted in tanks, see portable tank instruction T23."

In the table:

In the column "Subsidiary risks and remarks", delete "30)".

Amend the entries listed below as follows:

List of currently assigned organic peroxides

| Number (generic entry) | ORGANIC PEROXIDE | Concentration (%) | Diluent type A (%) | Diluent type B (%) | Inert solid (%) | Water (%) | Packing Method | Control Temperature (°C) | Emergency temperature (°C) | Subsidiary risks and remarks |
|------------------------|--|-------------------|--------------------|--------------------|-----------------|-----------|----------------|--------------------------|----------------------------|------------------------------|
| 3101 | tert-AMYL PEROXY-3,5,5-TRIMETHYLHEXANOATE | ≤ 100 | | | | | OP5 | | | 3) |
| | tert-BUTYL PEROXYACETATE | >52-77 | ≥ 23 | | | | OP5 | | | 3) |
| | 1,1-DI-(tert-BUTYLPEROXY)CYCLOHEXANE | > 80 – 100 | | | | | OP5 | | | 3) |
| | 1,1-DI-(tert-BUTYLPEROXY)-3,3,5-TRIMETHYLCYCLOHEXANE | >90-100 | | | | | OP5 | | | 3) |
| | METHYL ETHYL KETONE PEROXIDE(S) | see remark 8) | – 48 | | | | OP5 | | | 3) 8) 13) |
| | 2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXYNE-3 | ≥ 86 – 100 | | | | | OP5 | | | 3) |
| 3102 | tert-BUTYL MONOPEROXYMALEATE | >52-100 | | | | | OP5 | | | 3) |
| | 3-CHLOROPEROXYBENZOIC ACID | >57-86 | > | | ≥ 14 | | OP1 | | | 3) |
| | DIBENZOYL PEROXIDE | >51-100 | | | ≤ 48 | | OP2 | | | 3) |
| | DIBENZOYL PEROXIDE | >77-94 | | | | ≥ 6 | OP4 | | | 3) |
| | DI-4-CHLOROBENZOYL PEROXIDE | ≤ 77 | | | | ≥ 23 | OP5 | | | 3) |
| | DI-2,4-DICHLOROBENZOYL PEROXIDE | ≤ 77 | | | | ≥ 23 | OP5 | | | 3) |
| | 2,2- DIHYDROPEROXYPROPANE | ≤ 27 | | | ≤ 73 | | OP5 | | | 3) |
| | 2,5-DIMETHYL-2,5-DI-(BENZOYLPEROXY)HEXANE | >82-100 | | | | | OP5 | | | 3) |
| | DI-(2-PHENOXYETHYL) PEROXYDICARBONATE | >85-100 | | | | | OP5 | | | 3) |
| | DISUCCINIC ACID PEROXIDE | >72-100 | | | | | OP4 | | | 3) 17) |
| 3103 | tert-AMYL PEROXYBENZOATE | ≤ 100 | | | | | OP5 | | | |
| | tert-AMYLPEROXY ISOPROPYL CARBONATE | ≤ 77 | > 23 | | | | OP5 | | | |
| | n-BUTYL-4,4-DI-(tert-BUTYLPEROXY)VALERATE | >52-100 | | | | | OP5 | | | |
| | tert-BUTYL HYDROPEROXIDE | >79-90 | | | | ≥ 10 | OP5 | | | 13) |
| | tert-BUTYL HYDROPEROXIDE + DI-tert-BUTYL PEROXIDE | < 82 + >9 | | | | ≥ 7 | OP5 | | | 13) |
| | tert-BUTYL MONOPEROXYMALEATE | ≤ 52 | ≥ 48 | | | | OP6 | | | |
| | tert-BUTYL PEROXYACETATE | > 32 – 52 | ≥ 48 | | | | OP6 | | | |
| | tert-BUTYL PEROXYBENZOATE | > 77 – 100 | | | | | OP5 | | | |
| | tert-BUTYLPEROXY ISOPROPYLCARBONATE | ≤ 77 | ≥ 23 | | | | OP5 | | | |
| | tert-BUTYLPEROXY-2-METHYLBENZOATE | ≤ 100 | | | | | OP5 | | | |
| | 1,1-DI-(tert-AMYLPEROXY)CYCLOHEXANE | ≤ 82 | ≥ 18 | | | | OP6 | | | |
| | 1,1-DI-(tert-BUTYLPEROXY)-3,3,5-TRIMETHYLCYCLOHEXANE | ≤ 77 | | ≥ 23 | | | OP5 | | | |
| | 2,2-DI-(tert-BUTYLPEROXY)BUTANE | ≤ 52 | ≥ 48 | | | | OP6 | | | |
| | 1,1-DI-(tert-BUTYLPEROXY)CYCLOHEXANE | > 52-80 | ≥ 20 | | | | OP5 | | | |
| | 1,6-DI-(tert-BUTYLPEROXYCARBONYLOXY) HEXANE | < 72 | ≥ 28 | | | | OP5 | | | |
| | 1,1-DI-(tert-BUTYLPEROXY)-3,3,5-TRIMETHYLCYCLOHEXANE | > 57-90 | ≥ 10 | | | | OP5 | | | |
| | 2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXYNE-3 | > 52-86 | ≥ 14 | | | | OP5 | | | 26) |
| | ETHYL 3,3-DI-(tert-BUTYLPEROXY)BUTYRATE | > 77-100 | | | | | OP5 | | | |
| | ORGANIC PEROXIDE, LIQUID, SAMPLE | | | | | | OP2 | | | 11) |
| 3104 | CYCLOHEXANONE PEROXIDE(S) | ≤ 91 | | | | ≥ 9 | OP6 | | | 13) |
| | DIBENZOYL PEROXIDE | ≤ 77 | | | | ≥ 23 | OP6 | | | |

| Number (generic entry) | ORGANIC PEROXIDE | Concentration (%) | Diluent type A (%) | Diluent type B (%) | Inert solid (%) | Water (%) | Packing Method | Control Temperature (°C) | Emergency temperature (°C) | Subsidiary risks and remarks |
|------------------------|--|----------------------|--------------------|--------------------|-----------------|-----------|----------------|--------------------------|----------------------------|------------------------------|
| | 2,5-DIMETHYL-2,5-DI(BENZOYLPEROXY)HEXANE | ≤ 82 | | | | ≥ 18 | OP5 | | | |
| | 2,5-DIMETHYL-2,5-DIHYDROPEROXYHEXANE | ≤ 82 | | | | ≥ 18 | OP6 | | | |
| | ORGANIC PEROXIDE, SOLID, SAMPLE | | | | | | OP2 | | | |
| | ORGANIC PEROXIDE, SOLID, SAMPLE | | | | | | OP2 | | | 11) |
| 3105 | ACETYL ACETON PEROXIDE | ≤ 42 | ≥ 48 | | | ≥ 8 | OP7 | | | 2) |
| | tert-AMYL PEROXY-2-ETHYLHEXYL CARBONATE | ≤ 100 | | | | | OP7 | | | |
| | tert-AMYL PEROXYACETATE | ≤ 62 | ≥ 38 | | | | OP7 | | | |
| | tert-BUTYL HYDROPEROXIDE | ≤ 80 | ≥ 20 | | | | OP7 | | | 4) 13) |
| | tert-BUTYL PEROXYBENZOATE | > 52 – 77 | ≥ 23 | | | | OP7 | | | |
| | tert-BUTYL PEROXYBUTYL FUMARATE | ≤ 52 | ≥ 48 | | | | OP7 | | | |
| | tert-BUTYL PEROXYCROTONATE | ≤ 77 | ≥ 23 | | | | OP7 | | | |
| | tert-BUTYL PEROXY-2-ETHYLHEXYLCARBONATE | ≤ 100 | | | | | OP7 | | | |
| | 1-(2-tert-BUTYLPEROXY ISOPROPYL)-3-ISOPROPENYLBENZENE | ≤ 77 | ≥ 23 | | | | OP7 | | | |
| | tert-BUTYL PEROXY-3,5,5-TRIMETHYLHEXANOATE | > 32 – 100 | | | | | OP7 | | | |
| | CYCLOHEXANONE PEROXIDE(S) | ≤ 72 | ≥ 28 | | | | OP7 | | | 5) |
| | DI-tert-BUTYL PEROXYAZELATE | ≤ 52 | ≥ 48 | | | | OP7 | | | |
| | 1,1-DI-(tert-BUTYLPEROXY)CYCLOHEXANE | > 42 – 52 | ≥ 48 | | | | OP7 | | | |
| | DI-(tert-BUTYLPEROXY)PHTHALATE | > 42 – 52 | ≥ 48 | | | | OP7 | | | |
| | 2,2-DI-(tert-BUTYLPEROXY)PROPANE | ≤ 52 | ≥ 48 | | | | OP7 | | | |
| | 2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE | > 52 – 100 | | | | | OP7 | | | |
| | 2,5-DIMETHYL-2,5-DI-(3,5,5-TRIMETHYLHEXANOYLPEROXY)HEXANE | ≤ 77 | ≥ 23 | | | | OP7 | | | |
| | ETHYL 3,3-DI-(tert-AMYLPEROXY)BUTYRATE | ≤ 67 | ≥ 33 | | | | OP7 | | | |
| | ETHYL 3,3-DI-(tert-BUTYLPEROXY)BUTYRATE | ≤ 77 | ≥ 23 | | | | OP7 | | | |
| | p-MENTHYL HYDROPEROXIDE | > 72 – 100 | | | | | OP7 | | | 13) |
| | METHYL ETHYL KETONE PEROXIDE(S) | see remark 9) | ≥ 55 | | | | OP7 | | | 9) |
| | METHYL ISOBUTYL KETON PEROXIDE(S) | ≤ 62 | ≥ 19 | | | | OP7 | | | 22) |
| | PEROXYACETIC ACID, TYPE D, stabilized | ≤ 43 | | | | | OP7 | | | 13) 14) 19) |
| | PINANYL HYDROPEROXIDE | >56 – 100 | | | | | OP7 | | | 13) |
| | 1,1,3,3-TETRAMETHYLBUTYL HYDROPEROXIDE | ≤ 100 | | | | | OP7 | | | |
| | 3,6,9-TRIETHYL-3,6,9-TRIMETHYL-1,4,7-TRIPEROXONANE | ≤ 42 | ≥ 58 | | | | OP7 | | | 28) |
| 3106 | ACETYL ACETONE PEROXIDE | ≤ 32 as a paste | | | | | OP7 | | | 20) |
| | tert-BUTYL PEROXYBENZOATE | ≤ 52 | | | ≥ 48 | | OP7 | | | |
| | tert-BUTYL PEROXY-2-ETHYLHEXANOATE + 2,2-DI-(tert-BUTYLPEROXY)BUTANE | ≤ 12 + ≤ 14 | ≥ 14 | | > 60 | | OP7 | | | |
| | tert-BUTYLPEROXY STEARYLCARBONATE | ≤ 100 | | | | | OP7 | | | |
| | 3-CHLOROPEROXYBENZOIC ACID | ≤ 57 | | | ≥ 3 | ≥ 40 | OP7 | | | |
| | 3-CHLOROPEROXYBENZOIC ACID | ≤ 77 | | | ≥ 6 | ≥ 17 | OP7 | | | |
| | CYCLOHEXANONE PEROXIDE(S) | ≤ 72 as a paste | | | | | OP7 | | | 5) 20) |
| | DIBENZOYL PEROXIDE | ≤ 62 | | | ≥ 28 | ≥ 10 | OP7 | | | |
| | DIBENZOYL PEROXIDE | > 52 – 62 as a paste | | | | | OP7 | | | 20) |
| | DIBENZOYL PEROXIDE | > 35 – 52 | | | ≥ 48 | | OP7 | | | |

| Number (generic entry) | ORGANIC PEROXIDE | Concentration (%) | Diluent type A (%) | Diluent type B (%) | Inert solid (%) | Water (%) | Packing Method | Control Temperature (°C) | Emergency temperature (°C) | Subsidiary risks and remarks |
|------------------------|---|----------------------------------|--------------------|--------------------|-----------------|-----------|----------------|--------------------------|----------------------------|------------------------------|
| | 1,1-DI-(tert-BUTYLPEROXY)CYCLOHEXANE | ≤ 42 | ≥ 13 | | ≥ 45 | | OP7 | | | |
| | DI-(2-tert-BUTYLPEROXYISOPROPYL)BENZENE(S) | > 42 – 100 | | | ≤ 57 | | OP7 | | | |
| | DI-(tert-BUTYLPEROXY)PHTHALATE | ≤ 52 as a paste | | | | | OP7 | | | 20) |
| | 2,2-DI-(tert-BUTYLPEROXY)PROPANE | ≤ 42 | ≥ 13 | | ≥ 45 | | OP7 | | | |
| | DI-4-CHLOROBENZOYL PEROXIDE | ≤ 52 as a paste | | | | | OP7 | | | 20) |
| | 2,2-DI-(4,4-DI(tert-BUTYLPEROXY) CYCLOHEXYL)-PROPANE | ≤ 42 | | | ≥ 58 | | OP7 | | | |
| | DI-2,4-DICHLOROBENZOYL PEROXIDE | ≤ 52 as a paste with silicon oil | | | | | OP7 | | | |
| | DI-(1-HYDROXYCYCLOHEXYL)PEROXIDE | ≤ 100 | | | | | OP7 | | | |
| | DI-ISOPROPYLBENZENE DIHYDROPEROXIDE | ≤ 82 | ≥ 5 | | | ≥ 5 | OP7 | | | 24) |
| | DILAUROYL PEROXIDE | ≤ 100 | | | | | OP7 | | | |
| | DI-(4-METHYLBENZOYL) PEROXIDE | ≤ 52 as paste with silicon oil | | | | | OP7 | | | |
| | 2,5-DIMETHYL-2,5-DI-(BENZOYLPEROXI)HEXANE | ≤ 82 | | | ≥ 18 | | OP7 | | | |
| | 2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXYNE-3 | ≤ 52 | | | ≥ 48 | | OP7 | | | |
| | DI-(2-PHENOXYETHYL) PEROXYDICARBONATE | ≤ 85 | | | | ≥ 15 | OP7 | | | |
| | ETHYL 3,3-DI-(tert-BUTYLPEROXY)BUTYRATE | ≤ 52 | | | ≥ 48 | | OP7 | | | |
| 3107 | tert-AMYL HYDROPEROXIDE | ≤ 88 | ≥ 6 | | | ≥ 6 | OP8 | | | |
| | tert-BUTYL CUMYL PEROXIDE | > 42 – 100 | | | | | OP8 | | | |
| | tert-BUTYLHYDROPEROXIDE | ≤ 79 | | | | > 14 | OP8 | | | 13) 23) |
| | CUMYL HYDROPEROXIDE | > 90 – 98 | ≤ 10 | | | | OP8 | | | 13) |
| | DI-tert-AMYLPEROXIDE | ≤ 100 | | | | | OP8 | | | |
| | DIBENZOYL PEROXIDE | > 36 – 42 | ≥ 18 | | | ≤ 40 | OP8 | | | |
| | DI-tert-BUTYL PEROXIDE | > 52 – 100 | | | | | OP8 | | | |
| | 1,1-DI-(tert-BUTYLPEROXY)CYCLOHEXANE | ≤ 27 | ≥ 25 | | | | OP8 | | | 21) |
| | DI-(tert-BUTYLPEROXY)PHTHALATE | ≤ 42 | ≥ 58 | | | | OP8 | | | |
| | 1,1-DI-(tert-BUTYLPEROXY)-3,3,5-TRIMETHYLCYCLOHEXANE | ≤ 57 | ≥ 43 | | | | OP8 | | | |
| | 1,1-DI-(tert-BUTYLPEROXY)-3,3,5-TRIMETHYLCYCLOHEXANE | ≤ 32 | ≥ 26 | ≥ 42 | | | OP8 | | | |
| | 2,2-DI-(4,4-DI(tert-BUTYLPEROXY) CYCLOHEXYL)PROPANE | ≤ 22 | | ≥ 78 | | | OP8 | | | |
| | METHYL ETHYL KETONE PEROXIDE(S) | see remark 10) | – 60 | | | | OP8 | | | 10) |
| | PEROXYACETIC ACID, TYPE E, stabilized | ≤ 43 | | | | | OP8 | | | 13) 15) 19) |
| | POLYETHER POLY-tert-BUTYLPEROXYCARBONATE | ≤ 52 | | ≥ 23 | | | OP8 | | | |
| 3108 | tert-BUTYL CUMYL PEROXIDE | ≤ 52 | | | ≥ 48 | | OP8 | | | |
| | n-BUTYL-4,4-DI-(BUTYLPEROXY)VALERATE | ≤ 52 | | | ≥ 48 | | OP8 | | | |
| | tert-BUTYL MONOPEROXYMALEATE | ≤ 52 | | | ≥ 48 | | OP8 | | | |
| | tert-BUTYL MONOPEROXYMALEATE | ≤ 52 as a paste | | | | | OP8 | | | |
| | 1-(2-tert-BUTYLPEROXY ISOPROPYL)-3-ISOPROPENYLBENZENE | ≤ 42 | | | ≥ 58 | | OP8 | | | |
| | DIBENZOYL PEROXIDE | ≤ 56.5 as a paste | | | | ≥ 15 | OP8 | | | |
| | DIBENZOYL PEROXIDE | ≤ 52 as a paste | | | | | OP8 | | | 20) |
| | 2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE | ≤ 47 as a paste | | | | | OP8 | | | |
| | 2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE | ≤ 77 | | | ≥ 23 | | OP8 | | | |
| 3109 | tert-BUTYL HYDROPEROXIDE | ≤ 72 | | | | ≥ 28 | OP8, | | | 13) |
| | tert-BUTYL PEROXYACETATE | ≤ 32 | | ≥ 68 | | | OP8 | | | |
| | tert-BUTYL PEROXY-3,5,5-TRIMETHYLHEXANOATE | ≤ 32 | | ≥ 68 | | | OP8 | | | |

| Number (generic entry) | ORGANIC PEROXIDE | Concentration (%) | Diluent type A (%) | Diluent type B (%) | Inert solid (%) | Water (%) | Packing Method | Control Temperature (°C) | Emergency temperature (°C) | Subsidiary risks and remarks |
|------------------------|---|--------------------------------------|--------------------|--------------------|-----------------|-----------|----------------|--------------------------|----------------------------|------------------------------|
| | CUMYL HYDROPEROXIDE | ≤ 90 | ≥ 10 | | | | OP8 | | | 13) 18) |
| | DIBENZOYL PEROXIDE | ≤ 42 as a stable dispersion in water | | | | | OP8 | | | |
| | DI-tert-BUTYL PEROXIDE | ≤ 52 | | ≥ 48 | | | OP8, | | | 25) |
| | 1,1-DI-(tert-BUTYLPEROXY)CYCLOHEXANE | < 42 | ≥ 58 | | | | OP8 | | | |
| | 1,1-DI-(tert-BUTYLPEROXY)CYCLOHEXANE | ≤ 13 | ≥ 13 | ≥ 74 | | | OP8 | | | |
| | DILAUROYL PEROXIDE | ≤ 42 as a stable dispersion in water | | | | | OP8 | | | |
| | 2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE | ≤ 52 | | ≥ 48 | | | OP8 | | | |
| | ISOPROPYL CUMYL HYDROPEROXIDE | ≤ 72 | ≥ 28 | | | | OP8 | | | 13) |
| | p-MENTHYL HYDROPEROXIDE | ≤ 72 | ≥ 28 | | | | OP8 | | | 27) |
| | PEROXYACETIC ACID, TYPE F, stabilized | ≤ 43 | | | | | OP8 | | | 13) 16) 19) |
| | PINANYL HYDROPEROXIDE | ≤ 56 | ≥ 44 | | | | OP8 | | | |
| 3110 | DICUMYL PEROXIDE | > 52 – 100 | | | ≤ 48 | | OP8 | | | 12) |
| | 1,1-DI-(tert-BUTYLPEROXY)-3,3,5-TRIMETHYLCYCLOHEXANE | ≤ 57 | | | ≥ 43 | | OP8 | | | |
| 3111 | tert-BUTYL PEROXYISOBUTYRATE | > 52 – 77 | | ≥ 23 | | | OP5 | +15 | +20 | 3) |
| | DIISOBUTYRYL PEROXIDE | > 32 – 52 | | ≥ 48 | | | OP5 | -20 | -10 | 3) |
| | ISOPROPYL sec-BUTYL PEROXYDICARBONATE + DI-sec-BUTYL PEROXYDICARBONATE + DI-ISOPROPYL PEROXYDICARBONATE | ≤ 52 + ≤ 28 + ≤ 22 | | | | | OP5 | -20 | -10 | 3) |
| 3112 | ACETYL CYCLOHEXANESULPHONYL PEROXIDE | ≤ 82 | | | | ≥ 12 | OP4 | -10 | 0 | 3) |
| | DICYCLOHEXYL PEROXYDICARBONATE | > 91 – 100 | | | | | OP3 | +10 | +15 | 3) |
| | DIISOPROPYL PEROXYDICARBONATE | > 52 – 100 | | | | | OP2 | -15 | -5 | 3) |
| | DI-(2-METHYLBENZOYL) PEROXIDE | ≤ 87 | | | | ≥ 13 | OP5 | +30 | +35 | 3) |
| 3113 | tert-AMYL PEROXYPIVALATE | ≤ 77 | | ≥ 23 | | | OP5 | +10 | +15 | |
| | tert-BUTYL PEROXYDIETHYLACETATE | ≤ 100 | | | | | OP5 | +20 | +25 | |
| | tert-BUTYL PEROXY-2-ETHYLHEXANOATE | > 52 – 100 | | | | | OP6 | +20 | +25 | |
| | tert-BUTYL PEROXYPIVALATE | > 67 – 77 | ≥ 23 | | | | OP5 | 0 | +10 | |
| | DI-sec-BUTYL PEROXYDICARBONATE | > 52 – 100 | | | | | OP4 | -20 | -10 | |
| | DI-(2-ETHYLHEXYL)PEROXYDICARBONATE | > 77 – 100 | | | | | OP5 | -20 | -10 | |
| | 2,5-DIMETHYL-2,5-DI-(2-ETHYLHEXANOYLPEROXY)HEXANE | ≤ 100 | | | | | OP5 | +20 | +25 | |
| | DI-n-PROPYL PEROXYDICARBONATE | ≤ 100 | | | | | OP3 | -25 | -15 | |
| | DI-n-PROPYL PEROXYDICARBONATE | ≤ 77 | | ≥ 23 | | | OP5 | -20 | -10 | |
| | ORGANIC PEROXIDE, LIQUID, SAMPLE, TEMPERATURE CONTROLLED | | | | | | OP2 | | | 11) |
| 3114 | DI-(4-tert-BUTYLCYCLOHEXYL)PEROXYDICARBONATE | ≤ 100 | | | | | OP6 | +30 | +35 | |
| | DICYCLOHEXYL PEROXYDICARBONATE | ≤ 91 | | | | ≥ 9 | OP5 | +10 | +15 | |
| | DIDECANOYL PEROXIDE | ≤ 100 | | | | | OP6 | +30 | +35 | |
| | DI-n-OCTANOYL PEROXIDE | ≤ 100 | | | | | OP5 | +10 | +15 | |
| | ORGANIC PEROXIDE, SOLID, SAMPLE, TEMPERATURE CONTROLLED | | | | | | OP2 | | | 11) |
| 3115 | ACETYL CYCLOHEXANESULPHONYL PEROXIDE | ≤ 32 | | ≥ 68 | | | OP7 | -10 | 0 | |
| | tert-AMYL PEROXY-2-ETHYLHEXANOATE | ≤ 100 | | | | | OP7 | +20 | +25 | |

| Number (generic entry) | ORGANIC PEROXIDE | Concentration (%) | Diluent type A (%) | Diluent type B (%) | Inert solid (%) | Water (%) | Packing Method | Control Temperature (°C) | Emergency temperature (°C) | Subsidiary risks and remarks |
|------------------------|---|------------------------------------|--------------------|--------------------|-----------------|-----------|----------------|--------------------------|----------------------------|------------------------------|
| | tert-AMYL PEROXYNEODECANOATE | ≤ 77 | | ≥ 23 | | | OP7 | 0 | +10 | |
| | tert-BUTYL PEROXY-2-ETHYLHEXANOATE + 2,2-DI-(tert-BUTYLPEROXY)BUTANE | < 31 + < 36 | | ≥ 33 | | | OP7 | +35 | +40 | |
| | tert-BUTYL PEROXYISOBUTYRATE | ≤ 52 | | ≥ 48 | | | OP7 | +15 | +20 | |
| | tert-BUTYL PEROXYNEODECANOATE | > 77 – 100 | | | | | OP7 | -5 | +5 | |
| | tert-BUTYL PEROXYNEODECANOATE | ≤ 77 | | ≥ 23 | | | OP7 | 0 | +10 | |
| | tert-BUTYL PEROXYNEOHEPTANOATE | ≤ 77 | ≥ 23 | | | | OP7 | 0 | +10 | |
| | tert-BUTYL PEROXYPIVALATE | > 27 – 67 | | ≥ 33 | | | OP7 | 0 | +10 | |
| | CUMYL PEROXYNEODECANOATE | ≤ 77 | | ≥ 23 | | | OP7 | -10 | 0 | |
| | CUMYL PEROXYNEOHEPTANOATE | ≤ 77 | ≥ 23 | | | | OP7 | -10 | 0 | |
| | CUMYL PEROXYPIVALATE | ≤ 77 | | ≥ 23 | | | OP7 | -5 | +5 | |
| | DIACETONE ALCOHOL PEROXIDES | ≤ 57 | | ≥ 26 | | ≥ 8 | OP7 | +40 | +45 | 6) |
| | DIACETYLPEROXIDE | ≤ 27 | | ≥ 73 | | | OP7 | +20 | +25 | 7) 13) |
| | DI-n-BUTYL PEROXYDICARBONATE | > 27 – 52 | | ≥ 48 | | | OP7 | -15 | -5 | |
| | DI-sec-BUTYL PEROXYDICARBONATE | ≤ 52 | | ≥ 48 | | | OP7 | -15 | -5 | |
| | DI-(2-ETHOXYETHYL)PEROXYDICARBONATE | ≤ 52 | | ≥ 48 | | | OP7 | -10 | 0 | |
| | DI-(2-ETHYLHEXYL)PEROXYDICARBONATE | ≤ 77 | | ≥ 23 | | | OP7 | -15 | -5 | |
| | DIISOBUTYRYL PEROXIDE | ≤ 32 | | ≥ 68 | | | OP7 | -20 | -10 | |
| | DIISOPROPYL PEROXYDICARBONATE | ≤ 52 | | ≥ 48 | | | OP7 | -20 | -10 | |
| | DIISOPROPYL PEROXYDICARBONATE | ≤ 28 | ≥ 72 | | | | OP7 | -15 | -5 | |
| | DI-(3-METHOXYBUTYL) PEROXYDICARBONATE | ≤ 52 | | ≥ 48 | | | OP7 | -5 | +5 | |
| | DI-(3-METHYLBENZOYL) PEROXIDE + BENZOYL (3-METHYLBENZOYL) PEROXIDE + DIBENZOYL PEROXIDE | ≤ 20 + ≤ 18 + ≤ 4 | | ≥ 58 | | | OP7 | +35 | +40 | |
| | DI-(2-NEODECANOYLPEROXYISOPROPYL)BENZENE | ≤ 52 | | ≥ 48 | | | OP7 | -10 | 0 | |
| | DI-(3,5,5-TRIMETHYLHEXANOYL) PEROXIDE | > 38 – 82 | | ≥ 18 | | | OP7 | 0 | +10 | |
| | 1-(2-ETHYLHEXANOYLPEROXY)-1,3-DIMETHYLBUTYL PEROXYPIVALATE | ≤ 52 | | ≥ 45 | ≥ 10 | | OP7 | -20 | -10 | |
| | tert-HEXYL PEROXYNEODECANOATE | ≤ 71 | ≥ 29 | | | | OP7 | 0 | +10 | |
| | tert-HEXYL PEROXYPIVALATE | ≤ 72 | | ≥ 28 | | | OP7 | +10 | +15 | |
| | ISOPROPYL sec-BUTYL PEROXYDICARBONATE + DI-sec-BUTYL PEROXYDICARBONATE + DI-ISOPROPYL PEROXYDICARBONATE | ≤ 32 + ≤ 12 – 18 + ≤ 12 – 15 | ≤ 38 | | | | OP7 | -20 | -10 | |
| | METHYLCYCLOHEXANONE PEROXIDE(S) | ≤ 67 | | ≥ 33 | | | OP7 | +35 | +40 | |
| | 1,1,3,3-TETRAMETHYLBUTYL PEROXY-2 ETHYLHEXANOATE | ≤ 100 | | | | | OP7 | +15 | +20 | |
| | 1,1,3,3-TETRAMETHYLBUTYL PEROXYNEODECANOATE | ≤ 72 | | ≥ 28 | | | OP7 | -5 | +5 | |
| | 1,1,3,3-TETRAMETHYLBUTYL PEROXYPIVALATE | ≤ 77 | ≥ 23 | | | | OP7 | 0 | +10 | |
| 3116 | DICETYL PEROXYDICARBONATE | ≤ 100 | | | | | OP7 | +30 | +35 | |
| | DIMYRISTYL PEROXYDICARBONATE | ≤ 100 | | | | | OP7 | +20 | +25 | |
| | DI-n-NONANOYL PEROXIDE | ≤ 100 | | | | | OP7 | 0 | +10 | |
| | DISUCCINIC ACID PEROXIDE | ≤ 72 | | | | ≥ 28 | OP7 | +10 | +15 | |
| 3117 | tert-BUTYL PEROXY-2-ETHYLHEXANOATE | > 32 – 52 | | ≥ 48 | | | OP8 | +30 | +35 | |
| | DI-n-BUTYL PEROXYDICARBONATE | < 27 | | ≥ 73 | | | OP8 | -10 | 0 | |

| Number (generic entry) | ORGANIC PEROXIDE | Concentration (%) | Diluent type A (%) | Diluent type B (%) | Inert solid (%) | Water (%) | Packing Method | Control Temperature (°C) | Emergency temperature (°C) | Subsidiary risks and remarks |
|------------------------|--|---|--------------------|--------------------|-----------------|-----------|----------------|--------------------------|----------------------------|------------------------------|
| | tert-BUTYL PEROXYNEOHEPTANOATE | ≤ 42 as a stable dispersion in water | | | | | OP8 | 0 | +10 | |
| | DI-(2-ETHYLHEXYL)PEROXYDICARBONATE | ≤ 62 as a stable dispersion in water | | | | | OP8 | -15 | -5 | |
| | 1,1-DIMETHYL-3-HYDROXYBUTYLPEROXYNEOHEPTANOATE | ≤ 52 | ≥ 48 | | | | OP8 | 0 | +10 | |
| | DIPROPIONYL PEROXIDE | ≤ 27 | | ≥ 73 | | | OP8 | +15 | +20 | |
| 3118 | tert-BUTYL PEROXY-2-ETHYLHEXANOATE | ≤ 52 | | | ≥ 48 | | OP8 | +20 | +25 | |
| | tert-BUTYL PEROXYNEODECANOATE | ≤ 42 as a stable dispersion in water (frozen) | | | | | OP8 | 0 | +10 | |
| | DI-n-BUTYL PEROXYDICARBONATE | ≤ 42 as a stable dispersion in water (frozen) | | | | | OP8 | -15 | -5 | |
| | PEROXYLAURIC ACID | ≤ 100 | | | | | OP8 | +35 | +40 | |
| 3119 | | | | | | | | | | |
| | tert-BUTYL PEROXY-2-ETHYLHEXANOATE | ≤ 32 | | ≥ 68 | | | OP8 | +40 | +45 | |
| | tert-BUTYL PEROXYNEODECANOATE | ≤ 52 as a stable dispersion in water | | | | | OP8 | 0 | +10 | |
| | tert-BUTYL PEROXYNEODECANOATE | ≤ 32 | ≥ 68 | | | | OP8 | 0 | +10 | |
| | tert-BUTYL PEROXYPIVALATE | ≤ 27 | | ≥ 73 | | | OP8 | +30 | +35 | |
| | CUMYL PEROXYNEODECANOATE | ≤ 52 as a stable dispersion in water | | | | | OP8 | -10 | 0 | |
| | DI-(4-tert-BUTYLCYCLOHEXYL)PEROXYDICARBONATE | ≤ 42 as a stable dispersion in water | | | | | OP8 | +30 | +35 | |
| | DICETYL PEROXYDICARBONATE | ≤ 42 as a stable dispersion in water | | | | | OP8 | +30 | +35 | |
| | DICYCLOHEXYL PEROXYDICARBONATE | ≤ 42 as a stable dispersion in water | | | | | OP8 | +15 | +20 | |
| | DI-(2-ETHYLHEXYL)PEROXYDICARBONATE | ≤ 52 as a stable dispersion in water | | | | | OP8 | -15 | -5 | |
| | DIMYRISTYL PEROXYDICARBONATE | ≤ 42 as a stable dispersion in water | | | | | OP8 | +20 | +25 | |
| | DI-(3,5,5-TRIMETHYLHEXANOYL) PEROXIDE | ≤ 52 as a stable dispersion in water | | | | | OP8 | +10 | +15 | |
| | DI-(3,5,5-TRIMETHYLHEXANOYL) PEROXIDE | ≤ 38 | ≥ 62 | | | | OP8 | +20 | +25 | |
| | 1,1,3,3-TETRAMETHYLBUTYL PEROXYNEODECANOATE | ≤ 52 as a stable dispersion in water | | | | | OP8, N | -5 | +5 | |
| 3120 | DI-(2-ETHYLHEXYL)PEROXYDICARBONATE | ≤ 52 as a stable dispersion in water (frozen) | | | | | OP8 | -15 | -5 | |
| Exempt | CYCLOHEXANONEPEROXIDE(S) | ≤ 32 | | | ≥ 68 | | | | | 29) |
| | DIBENZOYL PEROXIDE | ≤ 35 | | | ≥ 65 | | | | | 29) |
| | DI-(2-tert-BUTYLPEROXYISOPROPYL)BENZENE(S) | ≤ 42 | | | ≥ 58 | | | | | 29) |
| | DI-4-CHLOROBENZOYL PEROXIDE | ≤ 32 | | | ≥ 68 | | | | | 29) |
| | DICUMYLPEROXIDE | ≤ 52 | | | ≥ 48 | | | | | 29) |

Remarks on 2.5.3.2.4

- 1) Diluent type B may always be replaced by diluent type A. The boiling point of diluent type B shall be at least 60°C higher than the SADT of the organic peroxide
- 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 are allowed
- 8) Available oxygen $>$ 10% and $<$ 10.7%, with or without water
- 9) Available oxygen \leq 10%, with or without water
- 10) Available oxygen \leq 8.2%, with or without water
- 11) See 2.5.3.2.5.1
- 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 2.5.3.3.2.4
- 15) Peroxyacetic acid formulations which fulfil the criteria of 2.5.3.3.2.5
- 16) Peroxyacetic acid formulations which fulfil the criteria of 2.5.3.3.2.6
- 17) Addition of water to this organic peroxide will decrease its thermal stability
- 18) No "CORROSIVE" subsidiary risk required
- 19) Mixtures with hydrogen peroxide, water and acid(s)
- 20) With diluent type A, with or without water
- 21) With \geq 25% diluent type A by mass, and in addition ethylbenzene.
- 22) With \geq 19% diluent type A by mass, and in addition methyl isobutyl ketone
- 23) With $<$ 6% di-tert-butyl peroxide
- 24) With \leq 8% 1-isopropylhydroperoxy-4-isopropylhydroxybenzene
- 25) Diluent type B with boiling point $>$ 110 °C
- 26) With $<$ 0.5% hydroperoxides content
- 27) For concentrations more than 56%, a "CORROSIVE" subsidiary risk label is 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 200 - 260°C
- 29) Not subject to the provisions of this Code for class 5.2

- 2.5.3.2.5 Amend the beginning of the first sentence to read: "Classification of organic peroxides not listed in 2.5.3.2.4, packing instruction IBC520 or portable tank instruction T23 and assignment to...".

Chapter 2.6

- 2.6.1 In Class 6.2 text, replace "or recombinant micro-organisms (hybrid or mutant), that are known or reasonably expected to cause infectious disease in animals or humans." with "and other agents such as prions, which can cause disease in humans or animals."
- 2.6.2.1.1 Replace the existing definition for "*LD₅₀ for acute oral toxicity*" with the following text: "*LD₅₀ (median lethal dose) for acute oral toxicity* is the statistically derived single dose of a substance that can be expected to cause death within 14 days in 50 per cent of young adult albino rats when administered by the oral route. The *LD₅₀* value is expressed in terms of mass of test substance per mass of test animal (mg/kg)."
- 2.6.2.2.4.3 Move the footnote "*" as a Note in the main text and replace "Tear gases" with "Tear gas substances".
- 2.6.3 Replace the existing text with the following:

"2.6.3 Class 6.2 - Infectious substances

2.6.3.1 Definitions

For the purposes of this Code:

- 2.6.3.1.1 *Infectious substances* are substances which are known or are reasonably expected to contain pathogens. Pathogens are defined as micro-organisms (including bacteria, viruses, rickettsiae, parasites, fungi) and other agents such as prions, which can cause disease in humans or animals.
- 2.6.3.1.2 *Biological products* are those products derived from living organisms which are manufactured and distributed in accordance with the requirements of appropriate national 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 investigation purposes related thereto. They include, but are not limited to, finished or unfinished products such as vaccines.
- 2.6.3.1.3 *Cultures* (laboratory stocks) are the result of a process by which pathogens are amplified or propagated in order to generate high concentrations, thereby increasing the risk of infection when exposure to them occurs. This definition refers to cultures prepared for the intentional generation of pathogens and does not include cultures intended for diagnostic and clinical purposes.

2.6.3.1.4 *Genetically modified micro-organisms and organisms* are micro-organisms and organisms in which genetic material has been purposely altered through genetic engineering in a way that does not occur naturally.

2.6.3.1.5 *Medical or clinical wastes* are wastes derived from the medical treatment of animals or humans or from bio-research.

2.6.3.2 Classification of infectious substances

2.6.3.2.1 Infectious substances shall be classified in class 6.2 and assigned to UN 2814, UN 2900 or UN 3373, as appropriate.

2.6.3.2.2 Infectious substances are divided into the following categories:

2.6.3.2.2.1 Category A: An infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease to humans or animals. Indicative examples of substances that meet these criteria are given in the table in this paragraph.

Note: An exposure occurs when an infectious substance is released outside the protective packaging, resulting in physical contact with humans or animals.

- (a) Infectious substances meeting these criteria which cause disease in humans or in both humans and animals shall be assigned to UN 2814. Infectious substances which cause disease only in animals shall be assigned to UN 2900.
- (b) Assignment to UN 2814 or UN 2900 shall be based on the known medical history and symptoms of the source human or animal, endemic local conditions, or professional judgement concerning individual circumstances of the human or animal source.

Note 1: *The Proper Shipping Name for UN 2814 is INFECTIOUS SUBSTANCE, AFFECTING HUMANS. The Proper Shipping Name for UN 2900 is INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only.*

Note 2: *The following table is not exhaustive. Infectious substances, including new or emerging pathogens, which do not appear in the table but which meet the same criteria shall be assigned to Category A. In addition, if there is doubt as to whether or not a substance meets the criteria it shall be included in Category A.*

Note 3: *In the following table, the micro-organism names written in italics are bacteria, mycoplasmas, rickettsia or fungi.*

| INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED (2.6.3.2.2.1 (a)) | |
|---|---|
| UN Number and Proper Shipping Name | Micro-organism |
| UN 2814 Infectious substance, affecting humans | <i>Bacillus anthracis (cultures only)</i> <i>Brucella abortus (cultures only)</i> <i>Brucella melitensis (cultures only)</i> <i>Brucella suis (cultures only)</i> <i>Burkholderia mallei - Pseudomonas mallei – Glanders (cultures only)</i> <i>Burkholderia pseudomallei – Pseudomonas pseudomallei (cultures only)</i> <i>Chlamydia psittaci - avian strains (cultures only)</i> <i>Clostridium botulinum (cultures only)</i> <i>Coccidioides immitis (cultures only)</i> <i>Coxiella burnetii (cultures only)</i> Crimean-Congo hemorrhagic fever virus Dengue virus (cultures only) Eastern equine encephalitis virus (cultures only) <i>Escherichia coli, verotoxigenic (cultures only)</i> Ebola virus Flexal virus <i>Francisella tularensis (cultures only)</i> Guanarito virus Hantaan virus Hantaviruses causing hantavirus pulmonary syndrome Hendra virus Hepatitis B virus (cultures only) Herpes B virus (cultures only) Human immunodeficiency virus (cultures only) Highly pathogenic avian influenza virus (cultures only) Japanese Encephalitis virus (cultures only) Junin virus Kyasanur Forest disease virus Lassa virus Machupo virus Marburg virus Monkeypox virus <i>Mycobacterium tuberculosis (cultures only)</i> Nipah virus Omsk hemorrhagic fever virus Poliovirus (cultures only) Rabies virus <i>Rickettsia prowazekii (cultures only)</i> <i>Rickettsia rickettsii (cultures only)</i> Rift Valley fever virus Russian spring-summer encephalitis virus (cultures only) Sabia virus <i>Shigella dysenteriae type 1 (cultures only)</i> Tick-borne encephalitis virus (cultures only) Variola virus Venezuelan equine encephalitis virus West Nile virus (cultures only) Yellow fever virus (cultures only) <i>Yersinia pestis (cultures only)</i> |

| INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED (2.6.3.2.2.1 (a)) | |
|---|--|
| UN Number and Proper Shipping Name | Micro-organism |
| <p>UN 2900 Infectious substance, affecting animals only</p> | <p>African horse sickness virus African swine fever virus Avian paramyxovirus Type 1 - Newcastle disease virus Bluetongue virus Classical swine fever virus Foot and mouth disease virus Lumpy skin disease virus <i>Mycoplasma mycoides</i> - Contagious bovine pleuropneumonia Peste des petits ruminants virus Rinderpest virus Sheep-pox virus Goatpox virus Swine vesicular disease virus Vesicular stomatitis virus</p> |

2.6.3.2.2.2 Category B: An infectious substance which does not meet the criteria for inclusion in Category A. Infectious substances in Category B shall be assigned to UN 3373 except that cultures, as defined in 2.6.3.1.3, shall be assigned to UN 2814 or UN 2900, as appropriate.

Note: The Proper Shipping Name for UN 3373 is "DIAGNOSTIC SPECIMENS" or "CLINICAL SPECIMENS."

2.6.3.2.3 Substances which do not contain infectious substances or substances which are unlikely to cause disease in humans or animals are not subject to the provisions of this Code, unless they meet the criteria for inclusion in another class.

2.6.3.2.4 Blood or blood components which have been collected for the purposes of transfusion or for the preparation of blood products to be used for transfusion or transplantation and any tissues or organs intended for use in transplants are not subject to this Code.

2.6.3.2.5 Substances for which there is a low probability that infectious substances are present, or where the concentration is at a level naturally encountered, are not subject to this Code. Examples are: foodstuffs, water samples, living persons and substances which have been treated so that the pathogens have been neutralized or deactivated.

2.6.3.2.6 A live animal which has been intentionally infected and is known or suspected to contain an infectious substance shall only be transported under terms and conditions approved by the competent authority.

2.6.3.3 Biological products

2.6.3.3.1 For the purposes of this Code, biological products are divided into the following groups:

- (a) those which are manufactured and packaged in accordance with the requirements of appropriate national authorities and transported 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 provisions of this Code.
- (b) those which do not fall under (a) and are known or reasonably believed to contain infectious substances and which meet the criteria for inclusion in Category A or Category B. Substances in this group shall be assigned to UN 2814, UN 2900 or UN 3373, as appropriate.

Note: Some licensed biological products may present a biohazard only in certain parts of the world. Competent authorities may require that such biological products comply with local requirements for infectious substances or may impose other restrictions.

2.6.3.4 Genetically modified micro-organisms and organisms

2.6.3.4.1 Genetically modified micro-organisms not meeting the definition of infectious substance shall be classified in accordance with chapter 2.9.

2.6.3.5 Medical or clinical wastes

2.6.3.5.1 Medical or clinical wastes containing Category A infectious substances or containing Category B infectious substances in cultures shall be assigned to UN 2814 or UN 2900, as appropriate. Medical or clinical wastes containing infectious substances in Category B, other than cultures, shall be assigned to UN 3291.

2.6.3.5.2 Medical or clinical wastes which are reasonably believed to have a low probability of containing infectious substances shall be assigned to UN 3291.

Note: The Proper Shipping Name for UN 3291 is CLINICAL WASTE, UNSPECIFIED, N.O.S. or (BIO) MEDICAL WASTE, N.O.S. or REGULATED MEDICAL WASTE, N.O.S.

2.6.3.5.3 Decontaminated medical or clinical wastes which previously contained infectious substances are not subject to the provisions of this Code unless they meet the criteria for inclusion in another class."

Chapter 2.7

Except for the definition in 2.7.2, replace, throughout the chapter, "Industrial package Type 1 (Type IP-1)" with "Type IP-1 package", "Industrial package Type 2 (Type IP-2)" with "Type IP-2 package" and "Industrial package Type 3 (Type IP-3)" with "Type IP-3 package".

2.7.1.2 In (e), insert the following text after "naturally occurring radionuclides":

"which are either in their natural state, or have only been processed for purposes other than for extraction of the radionuclides, and"

Add a new (f) as follows:

"(f) Non-radioactive solid objects with radioactive substances present on any surfaces in quantities not exceeding the limit defined in 2.7.2".

2.7.2 In the definition of "package", add "package" after "Type IP-1", "Type IP-2" and "Type IP-3".

2.7.6.1.1 Amend the title of the table to read: "Multiplication factor for tanks, freight containers and unpackaged LSA-I and SCO-I".

2.7.6.2.2 Amend to read: "The criticality safety index for each overpack or freight container shall be determined as the sum of the CSIs of all the packages contained. The same procedure shall be followed for determining the total sum of the CSIs in a consignment or aboard a conveyance."

2.7.7.1.3 For "4.1.7.2.1" read "4.1.9.2.1".

2.7.7.2.1 In the table, for "Cf-252", replace " 5×10^{-2} " with " 1×10^{-1} " under the heading A_1 .

2.7.8.3 Insert the words "or overpack" after "package".

2.7.9.3 (b) Amend to read as follows:

" (b) each instrument or article bears the marking "RADIOACTIVE" except:

- i) radioluminescent time-pieces or devices;
- ii) consumer products that either have received regulatory approval according to 2.7.1.2(d) or do not individually exceed the activity limit for an exempt consignment in Table 2.7.7.2.1 (column 5), provided such products are transported in a package that bears the marking "RADIOACTIVE" on an internal surface in such a manner that warning of the presence of radioactive material is visible on opening the package, and".

Chapter 2.8

2.8.2.5.3.2 Replace the two last sentences of this subparagraph with the following text:

"For the purposes of testing steel, type S235JR+CR (1.0037 resp. St 37-2), S275J2G3+CR (1.0144 resp. St 44-3), ISO 3574:1999, Unified Numbering System (UNS) G10200 or SAE 1015, and for testing aluminium, non-clad, types 7075-T6 or AZ5GU-T6 shall be used. An acceptable test is prescribed in the *United Nations Manual of Tests and Criteria, Part III, Section 37*".

Chapter 2.9

Replace the existing text with the following:

"Chapter 2.9

2.9.1 Definitions

2.9.1.1 *Class 9 substances and articles (miscellaneous dangerous substances and articles)* are substances and articles which, during transport, present a danger not covered by other classes.

2.9.1.2 *Genetically modified micro-organisms (GMMOs) and genetically modified organisms (GMOs)* are micro-organisms and organisms in which genetic material has been purposely altered through genetic engineering in a way that does not occur naturally.

2.9.2 Assignment to class 9

2.9.2.1 Class 9 includes, *inter alia*:

- .1 substances and articles not covered by other classes which experience has shown, or may show, to be of such a dangerous character that the provisions of part A of chapter VII of SOLAS 1974, as amended, shall apply.
- .2 substances not subject to the provisions of part A in chapter VII of the aforementioned Convention, but to which the provisions of Annex III of MARPOL 73/78, as amended, apply. The properties or characteristics of each substance are given in the Dangerous Goods List in chapter 3.2 pertaining to the substance or article.
- .3 substances that are transported or offered for transport at temperatures equal to, or exceeding, 100°C, in a liquid state, and solids that are transported or offered for transport at temperatures equal to or exceeding 240°C.

- .4 GMMOs and GMOs which do not meet the definition of infectious substances (see 2.6.3) but which are capable of altering animals, plants or microbiological substances in a way not normally the result of natural reproduction. They shall be assigned to UN 3245. GMMOs or GMOs are not subject to the provisions of this Code when authorized for use by the competent authorities of the countries of origin, transit and destination."

PART 4

Chapter 4.1

4.1.1 In the NOTE, delete "only".

4.1.1.8 Amend to read as follows:

"Liquids may only be filled into inner packagings which have an appropriate resistance to internal pressure that may be developed under normal conditions of transport. Where pressure may develop in a package by the emission of gas from the contents (as a result of temperature increase or other causes), the packaging, including an IBC, may be fitted with a vent. A venting device shall be fitted if dangerous overpressure may develop due to normal decomposition of substances. However, the gas emitted shall not cause danger on account of its toxicity, its flammability, the quantity released, etc. The vent shall be so designed that, when the packaging, including an IBC, is in the attitude in which it is intended to be transported, leakages of liquid and the penetration of foreign matter are prevented under normal conditions of transport."

4.1.1.9 Insert the words "or routinely maintained" after "repaired", in the first and last sentences.

4.1.1.10 In the table in 4.1.1.10, in column 5 of the entry for UN 1155, for "100" read "199".

4.1.1.15 Add a new paragraph 4.1.1.15 as follows:

"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 transport 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 transported".

Renumber subsequent paragraphs and subparagraphs in 4.1.1 accordingly.

4.1.1.17.5 Amend to read " ... 5.2.1.3, 5.4.1.5.3, 6.1.2.4, 6.1.5.1.11 and 6.1.5.8."

4.1.2.3 Delete this paragraph and renumber the following paragraphs in 4.1.2 accordingly.

4.1.2.3 (new) Amend to read "IBCs of type 31HZ2 when transporting liquids shall be ...".

4.1.2.4 (new) Replace "rigid plastics and composite IBCs" with " rigid plastics, composite and flexible IBCs" in the first sentence.

4.1.3.4 Add a new line for large packagings, immediately before the line for IBCs, as follows:

"Large packagings
Flexible plastics: 51H (outer packaging)".

4.1.3.5 In the first sentence, delete "outer" (twice) and "in a combination packaging" and add "; 1A2" after "4G" and ""; 1A2V", "1A2U" or "1A2W"" after "4GW" in the examples between brackets.

4.1.3.6 Replace "Cylinders, bundles of cylinders, pressure drums and tubes" with "All cylinders, tubes, pressure drums and bundles of cylinders".

4.1.4.1 **P001** In Composite packagings, for " Plastics receptacle in steel or aluminium crate or box or plastics receptacle in wood, wickerwork hamper, fibreboard or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)

Glass receptacle in steel, aluminium, fibre, plywood, solid plastics or expanded plastics drum (6PA1, 6PB1, 6PG1, 6PD1, 6PH1 or 6PH2) or in a steel, aluminium, wood, fibreboard or plywood box (6PA2, 6PB2, 6PC, 6PG2 or 6PD2)" read "Plastics receptacle in steel or aluminium crate or box or plastics receptacle in wood, plywood, fibreboard or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)

Glass receptacle in steel, aluminium, fibre, plywood, solid plastics or expanded plastics drum (6PA1, 6PB1, 6PG1, 6PD1, 6PH1 or 6PH2) or in a steel, aluminium, wood or fibreboard box or in a wickerwork hamper (6PA2, 6PB2, 6PC, 6PG2 or 6PD2)".

In PP31, delete UN Nos. 1680, 1689

In PP31, add UN Nos. 3413, 3414

In PP81, for "For UN 1790 with not more than 85% ..." read " For UN 1790 with more than 60% but not more than 85% ...".

4.1.4.1 **P002** Under "Special packing provisions":

In special packing provision **PP9**, add a new sentence at the end to read as follows:

"For UN 3175 the leakproofness test is not required when the liquids are fully absorbed in solid material contained in sealed bags."

P002 Add to end of footnotes 4 and 5 "(see 4.1.3.4).".

P002 In PP31, delete UN Nos. 1693, 1694, 1699

P002 In PP31, add UN Nos. 3448, 3449, 3450

P002 Amend "PP78" to read "PP85".

Add, before (new) PP85:

"PP84 For UN 1057, rigid outer packagings meeting the packing group II performance level shall be used. The packagings shall be designed and constructed and arranged to prevent movement, inadvertent ignition of the devices or inadvertent release of flammable gas or liquid.

P134 Under "Drums", for "fibreboard (4G)" read "fibre (1G)".

P138 Under "Drums" for " fibreboard" read "fibre".

P200 In paragraph (2)(d), insert a note to read as follows:

"Note: For pressure receptacles which make use of composite materials, the periodic inspection frequencies shall be as determined by the competent authority which approved the receptacles."

In paragraph (4), under "Requirements for toxic substances with an LC₅₀ less than or equal to 200 ml/m³ (ppm), provision "k", amend the sentence beginning "The pressure receptacle(s) shall" and paragraphs (i) and (ii) to read "Cylinders and individual cylinders in a bundle shall have a test pressure greater than or equal to 200 bar and a minimum wall thickness of 3.5 mm for aluminium alloy or 2 mm for steel. Individual cylinders not complying with this requirement shall be transported in a rigid outer packaging that will adequately protect the cylinder and its fittings and meet the packing group I performance level. Pressure drums shall have a minimum wall thickness of 3.5 mm for aluminium alloy or 2 mm for steel."

In paragraph (4), under "Gas specific provisions", add a new provision "t" to read as follows:

- "t: (i) The wall thickness of pressure receptacles shall be not less than 3 mm.
- (ii) Prior to transport, it shall be ensured that the pressure has not risen due to potential hydrogen generation."

In "z", add at the end: "However, UN 1975 Nitric oxide and dinitrogen tetroxide mixtures may be transported in pressure drums."

Indent the last paragraph in line with the one above in "z".

Amendments to the tables:

Rearrange the order of the columns in Tables 2 and 3 according to the sequence in Table 1, (i.e. Cylinders, Tubes, Pressure drums, Bundles of cylinders, MEGCs...).

Delete all asterisks on LC₅₀ values and delete the associated footnote.

Amend Table 1 as follows:

| UN No. | Column | Amendment |
|--|---------------------------|-----------------------------|
| 1049 1953, 1955, 3303, 3304, 3305 and 3306 | MEGCs LC ₅₀ | Add "X" Add "≤ 5000" |
| 2600 | LC ₅₀ | Add "between 3760 and 5000" |

Amend Table 2 as follows:

| UN No. | Column | Amendment |
|--|----------------------------|--|
| 1010 | Name and description | replace "BUTADIENE, STABILIZED (mixtures of 1,3-butadiene and hydrocarbons)" with "BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED with more than 40% butadienes". |
| | "Test pressure, bar" | Delete "10" |
| | Filling ratio | Delete "0.50" |
| | Special packing provisions | Add "v," |
| 1067 1062 1581 | Pressure drums | Add "X" Amend name in second column to read: "METHYLBROMIDE with not more than 2% chloropicrin" Add to name in second column: "with more than 2% chloropicrin" |
| 3160, 3162, 3307, 3308, 3309 and 3310 | LC ₅₀ | Add "≤ 5000" |
| 3083 | Special packing provisions | Delete "k" |

Amend Table 3 as follows:

| UN No. | Column | Amendment |
|--------|----------------------------|-------------------------|
| 1051 | LC ₅₀ | Replace "140" with "40" |
| 1052 | Special packing provisions | Add "t" |
| 1746 | LC ₅₀ | Replace "180" with "50" |

P203 Replace the existing packing instruction P203 with the following:

| P203 | PACKING INSTRUCTION | P203 |
|--|----------------------------|-------------|
| <p>This instruction applies to Class 2 refrigerated liquefied gases in closed cryogenic receptacles. Refrigerated liquefied gases in open cryogenic receptacles shall conform to the construction, testing and filling requirements approved by the competent authority.</p> <p>For closed cryogenic receptacles, the general provisions of 4.1.6.1 shall be met.</p> <p>Closed cryogenic receptacles constructed as specified in chapter 6.2 are authorized for the transport of refrigerated liquefied gases.</p> <p>The closed cryogenic receptacles shall be so insulated that they do not become coated with frost.</p> <p>(1) Test pressure</p> <p>Refrigerated liquids shall be filled in closed cryogenic receptacles with the following minimum test pressures:</p> <p>(a) For closed cryogenic receptacles with vacuum insulation, the test pressure shall not be less than 1.3 times the sum of the maximum internal pressure of the filled receptacle, including during filling and discharge, plus 100 kPa (1 bar);</p> <p>(b) For other closed cryogenic receptacles, the test pressure shall be not less than 1.3 times the maximum internal pressure of the filled receptacle, taking into account the pressure developed during filling and discharge.</p> <p>(2) Degree of filling</p> <p>For non-flammable, non-toxic refrigerated liquefied gases the volume of liquid phase at the filling temperature and at a pressure of 100 kPa (1 bar) shall not exceed 98% of the water capacity of the pressure receptacle.</p> <p>For flammable refrigerated liquefied gases the degree of filling shall remain below the level at which the volume of the liquid phase would reach 98% of the water capacity at that temperature, if the contents were raised to the temperature at which the vapour pressure equalled the opening pressure of the relief valve.</p> <p>(3) Pressure relief devices</p> <p>Closed cryogenic receptacles shall be fitted with at least one pressure relief device.</p> <p>(4) Compatibility</p> <p>Materials used to ensure the leakproofness of the joints or for the maintenance of the closures shall be compatible with the contents. In the case of receptacles intended for the transport of oxidizing gases, (i.e. with a subsidiary risk 5.1) these materials shall not react with these gases in a dangerous manner.</p> | | |

P301 Amend (1) and (2) to read as two paragraphs of continuous text with five and four sentences, respectively.

P400 In paragraph (1), at the end of the second sentence, replace "in strong wood, fibreboard or plastics boxes" with "in strong rigid outer packagings", and in the third sentence, replace "box" with "outer packaging".

At the end of the table, add new special packing provision PP86, as follows:

PP86 For UN 3392 and UN 3394, air shall be eliminated from the vapour space by nitrogen or other means."

P401 Amend to read "Special packing provision".

P402 In PP31, add UN Nos. 1420, 1422.

P403 Under "Inner packagings", replace "have threaded closures" with "be hermetically sealed (e.g. by taping or by threaded closures)".

In PP31, delete UN Nos. 1389, 1392, 1420, 1422.

In PP31, add UN Nos. 3401, 3402, 3403, 3404.

At the end of the table, add a new special packing provision PP83, as follows:

"Special packing provisions

PP83 For UN 2813, waterproof bags containing not more than 20 g of substance for the purposes of heat formation may be packaged for transport. Each waterproof bag shall be sealed in a plastics bag and placed within an intermediate packaging. No outer packaging shall contain more than 400 g of substance. Water or liquid which may react with the water reactive substance shall not be included in the packaging."

P404 In the list of pyrophoric solids, add all UN Nos. from UN 3391 to UN 3400.

At the end of the table, add a new row with the heading "Special packing provisions" and a new special packing provision PP86, as follows:

"Special packing provisions

PP86 For UN 3391 and UN 3393, air shall be eliminated from the vapour space by nitrogen or other means."

P405 Amend to read: "Special packing provision".

P406 In PP26 for "and 3344" read ", 3344 and 3376".

P410 The third line under **Composite packagings** to read "Glass receptacle in steel, aluminium, plywood or fibre drum (6PA1, 6PB1, 6PD1 or 6PG1) or in steel, aluminium, wooden, **wickerwork hamper** or fibreboard box (6PA2, 6PB2, 6PC, 6PD2, or 6PG2) or in solid or expanded plastics packaging (6PH1 or 6PH2)".

Under "Special packing provisions", add PP83, as follows:

PP83 For UN 2813, waterproof bags containing not more than 20 g of substance for the purposes of heat formation may be packaged for transport. Each waterproof bag shall be sealed in a plastics bag and placed within an intermediate packaging. No outer packaging shall contain more than 400 g of substance. Water or liquid which may react with the water reactive substance shall not be included in the packaging."

P501 Delete "(3N2)", "metal other than steel or aluminium (3N1)" and "60 l".

P502 Delete "metal other than steel or aluminium (3N1)" and "60 l".

P504 Delete special provision PP29, and add PP10 as to read follows:

PP10 For UN 2014 and UN 3149, the packaging shall be vented".

In table, amend text under "Composite packagings" in line with amendment to P001 above.

P520 In column OP8, replace "200²" with "400²" and amend note 2 to read:

² *60 kg for jerricans/200 kg for boxes and, for solids, 400 kg in combination packagings with outer packagings comprising boxes (4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2) and with inner packagings of plastics or fibre with a maximum net mass of 25 kg."*

Amend end of Additional provision 2 to read: "...0.5 kg for solids or 0.5 l for liquids."

Amend third sentence in second box of text to read: "are listed in 2.4.2.3.2.3 and 2.5.3.2.4."

P601 In (3), replace "Combination packagings" with "Packagings consisting of:" and amend the first paragraph to read as follows:

"Outer packagings: Steel or plastics drums, removable head (1A2 or 1H2), tested in accordance with the test provisions in 6.1.5 at a mass corresponding to the mass of the assembled package either as a packaging intended to contain inner packagings, or as a single packaging intended to contain solids or liquids, and marked accordingly."

At the end of the table, add a new row with the heading "Special packing provisions" and a new special packing provision PP82, as follows:

"Special packing provision

PP82 For UN 1744, glass inner packagings with a capacity of not more than 1.3 l may be used in a permitted outer packaging with a maximum gross mass of 25 kg."

P602 In paragraph (3), amend the text between brackets in the first line, to read: "... 1H1, 6HA1 or 6HH1)".

P620 In .1(iii), insert "either" before "individually" and "or separated" after "wrapped" at the end.


In .2, replace "An outer packaging" with "A rigid outer packaging" in the first sentence and replace "at least" with "not less than" in the second sentence.

In 2, under "Additional provisions", replace existing "(a), (b), (i), (ii), (iii)" with the following:

- "(a) 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 secured by positive means, e.g., tape, paraffin sealing tape or a manufactured locking closure;
- (b) 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;
- (c) 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. The primary receptacle and the secondary packaging shall maintain their integrity at the temperature of the liquid nitrogen.

- (d) Lyophilized substances may also be transported in primary receptacles that are flame-sealed glass ampoules or rubber-stoppered glass vials fitted with metal seals."

P650 Replace the existing P650 with the following:

| P650 | PACKING INSTRUCTION | P650 |
|---|----------------------------|-------------|
| This packing instruction applies to UN 3373 | | |
| <p>(1) The packaging shall be of good quality, strong enough to withstand the shocks and loadings normally encountered during transport, including transshipment between cargo transport units and between cargo 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 to prevent any loss of contents that might be caused under normal conditions of transport by vibration or by changes in temperature, humidity or pressure.</p> <p>(2) The packaging shall consist of three components:</p> <ul style="list-style-type: none">(a) a primary receptacle;(b) a secondary packaging; and(c) an outer packaging. <p>(3) Primary receptacles shall be packed in secondary packagings in such a way that, under normal conditions of transport, 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 compromise the integrity of the cushioning material or of the outer packaging.</p> <p>(4) For transport, the mark illustrated below shall be displayed on the external surface of the outer packaging on a background of a contrasting colour and shall be clearly visible and legible. The width of the line shall be at least 2 mm; the letters and numbers shall be at least 6 mm high.</p> | | |
|  | | |

| P650 | PACKING INSTRUCTION (<i>cont'd</i>) | P650 |
|------|--|------|
| (5) | 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 of this Code except that the height of the drop shall not be less than 1.2 m. | |
| (6) | For liquid substances | |
| (a) | The primary receptacle(s) shall be leakproof; | |
| (b) | The secondary packaging shall be leakproof; | |
| (c) | If multiple fragile primary receptacles are placed in a single secondary packaging, they shall either be individually wrapped or separated to prevent contact between them; | |
| (d) | Absorbent material shall be placed between the primary receptacle(s) and the secondary packaging. The absorbent material shall be in a quantity sufficient to absorb the entire contents of the primary receptacle(s) so that any release of the liquid substance will not compromise the integrity of the cushioning material or of the outer packaging; | |
| (e) | The primary receptacle or the secondary packaging shall be capable of withstanding, without leakage, an internal pressure of 95 kPa (0.95 bar). | |
| (7) | For solid substances | |
| (a) | The primary receptacle(s) shall be siftproof; | |
| (b) | The secondary packaging shall be siftproof; | |
| (c) | If multiple fragile primary receptacles are placed in a single secondary packaging, they shall either be individually wrapped or separated to prevent contact between them. | |
| (8) | Refrigerated or frozen specimens: Ice, dry ice and liquid nitrogen | |
| (a) | When dry ice or liquid nitrogen is used to keep specimens cold, all applicable provisions of this Code shall be met. When used, ice or dry ice shall be placed outside the secondary packagings or in the outer packaging or an overpack. Interior supports shall be provided to secure the secondary packagings in the original position after the ice or dry ice has dissipated. If ice is used, the outside packaging or overpack shall be leakproof. If carbon dioxide, solid (dry ice) is used, the packaging shall be designed and constructed to permit the release of carbon dioxide gas to prevent a build-up of pressure that could rupture the packagings and shall be marked "Carbon dioxide, solid" or "Dry ice". | |
| (b) | The primary receptacle and the secondary packaging shall maintain their integrity at the temperature of the refrigerant used as well as the temperatures and the pressures which could result if refrigeration were lost. | |
| (9) | Infectious substances assigned to UN 3373 which are packed and marked in accordance with this packing instruction are not subject to any other provisions of this Code. | |
| (10) | Clear instructions on filling and closing such packages shall be provided by packaging manufacturers and subsequent distributors to the consignor or to the person who prepares the package (e.g. patient) to enable the package to be correctly prepared for transport. | |

P800 In paragraph 2 amend "2.5 l" to read "3.0 l".

P802 Amend PP79 to read: "For UN 1790 with more than 60% but not more than 85%". For "PP82" read "PP81".

P903 Add the following paragraph after the sentence "Packaging conforming to the packing group II performance level.":

"In addition, batteries with a strong, impact resistant outer casing of a gross mass of 12 kg or more, and assemblies of such batteries, may be packed in strong outer packagings, in protective enclosures (e.g., in fully enclosed or wooden slatted crates) unpackaged or on pallets. Batteries shall be secured to prevent inadvertent movement, and the terminals shall not support the weight of other superimposed elements."

P904 Amend (2) to read as follows:

- | | |
|------------|---|
| <p>(2)</p> | <p>(iii) absorbent material placed between the primary receptacle(s) and the secondary packaging. The absorbent material shall be in a quantity sufficient to absorb the entire contents of the primary receptacle(s) so that any release of the liquid substance will not compromise the integrity of the cushioning material or of the outer packaging;</p> <p>(iv) if multiple fragile primary receptacles are placed in a single secondary packaging they shall be individually wrapped or separated to prevent contact between them.</p> <p>(b) An outer packaging shall be strong enough for its capacity, mass and intended use and with a smallest external dimension of at least 100 mm.</p> |
|------------|---|

Additional provision

Dry ice and liquid nitrogen

When carbon dioxide, solid, (dry ice) is used as a refrigerant, the packaging shall be designed and constructed to permit the release of the gaseous carbon dioxide to prevent the build up of pressure that could rupture the packaging.

Substances consigned in liquid nitrogen or dry ice shall be packed in primary receptacles that are capable of withstanding very low temperatures. 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.

P906 Amend the sub-heading to read: "This instruction applies to UN Nos. 2315, 3151, 3152 and 3452."

P906(1) and (2) After "PCBs", insert "or polyhalogenated biphenyls or terphenyls" in (1) and ", polyhalogenated biphenyls or terphenyls" in (2).

4.1.4.2 **IBC02** Amend "B11" to read "B20".

IBC06 In IBC06, in number 3, for ".. and 31HZ1)" read ", 31HZ1 and 31HZ2)." And under the heading "Additional provision" for ",21HZ2 and 31HZ2" read "and 21HZ2".

IBC08 In special provision B6, insert "1408," after "1386,".

IBC520 UN 3119 Amend last entry to read:
"1,1,3,3-Trimethylbutyl peroxyneodecanoate, not more than".

IBC520 Insert the following new entries and heading:

| UN No. | Organic peroxide | Type of IBC | Maximum quantity (litres) | Control temperature | Emergency temperature |
|--------|---|-------------|-----------------------------|---------------------|-----------------------|
| 3119 | Dicyclohexylperoxydicarbonate, not more than 42% as a stable dispersion, in water | 31A | 1250 | + 10 °C | + 15 °C |
| 3110 | Dicumyl peroxide | | Amend "1250" to read "2000" | | |
| 3120 | ORGANIC PEROXIDE, TYPE F, SOLID, TEMPERATURE CONTROLLED | | | | |

4.1.4.3 **LP02** Insert "Flexible plastics (51H)³" in the column for "Large outer packagings", and a note 3 under the table, as follows: "³ To be used with flexible inner packagings only.".

4.1.6.1.2 Replace "material" with "mass" in the third sentence.

In .2, insert "porous" before "mass".

4.1.6.1.4 Amend as follows: "... have been performed. The change of service for compressed and liquefied gases shall be in accordance with ISO 11621:1997, as applicable. In addition, a pressure receptacle ...".

The existing second paragraph of 4.1.6.1.4 becomes new paragraph 4.1.6.1.5. Insert "Shut-off" before "valves" at the beginning of the second sentence.

Renumber subsequent paragraphs accordingly.

- 4.1.6.1.8 Amend the beginning of the first sentence to read as follows: "Valves shall be designed and constructed in such a way that they are inherently able to withstand damage without release of the contents or shall be protected from damage which could cause ...".

Delete subparagraph .4 and renumber subsequent subparagraphs accordingly.

Amend the end of the last paragraph to read: "... in .4, for valves with inherent protection, the provisions of annex B ...".

- 4.1.6.1.10 Amend the first sentence to read as follows: "Refillable pressure receptacles, other than cryogenic receptacles, shall be periodically inspected in accordance with 6.2.1.5 and packing instruction P200".

Delete "charged or" before "filled" in the second sentence.

- 4.1.6.1.11 Amend the first paragraph to read as follows:
"Repairs shall be consistent with the manufacture and testing requirements of the applicable design and construction standards and are only permitted as indicated in the relevant periodic inspection standards specified in 6.2.2.4. Pressure receptacles, other than the jacket of closed cryogenic receptacles, shall not be subjected to repairs of any of the following:".

- 4.1.6.1.12.2 Replace "and" with "or" at the end.

- 4.1.6.1.13 Replace "Charged" with "Filled" at the beginning of the first sentence and replace "and" with "or" at the end of subparagraph.3.

- 4.1.6.2 -
4.1.6.6.3 Delete these sections.

- 4.1.7.2.1 Amend to read: "The currently assigned organic peroxides specifically listed in packing instruction IBC520 may be transported in IBCs in accordance with this packing instruction.".

- 4.1.8.3 Add the following sentence at the end:
"When the infectious substances to be transported are unknown, but suspected of meeting the criteria for inclusion in category A and assignment to UN 2814 or UN 2900, the words "suspected category A infectious substance" shall be shown, in parentheses, following the Proper Shipping Name on the document inside the outer packaging.".

- 4.1.9.1.4 Replace "and intermediate bulk containers" with "IBCs and conveyances".

- 4.1.9.2.1 Replace "Industrial package Type 1 (Type IP-1), Industrial package Type 2 (Type IP-2), Industrial package Type 3 (Type IP-3)" with "Type IP-1 package, Type IP-2 package, Type IP-3 package,".

Chapter 4.2

4.2.0 Amend to read: "The provisions for the use and construction of portable tanks in this chapter and chapter 6.7 are based on the United Nations Recommendations on the transport of dangerous goods. IMO type portable tanks and road tank vehicles may continue to be constructed in accordance with the provisions of the IMDG Code in force on 1 July 1999 (amendment 29) until 1 January 2003. Tanks certified and approved prior to 1 January 2003 may continue to be used provided that they are found to meet the applicable periodic inspections and test provisions. They shall meet the provisions set out in columns (13) and (14) of chapter 3.2. However, the provisions of column (12) may be used instead of the provisions of column (13) until 1 January 2010. Detailed explanation and construction provisions may be found in DSC/Circ.12 (Guidance on the continued use of existing IMO type portable tanks and road tank vehicles for the transport of dangerous goods.

Note: IMO type 4, 6 and 8 road tank vehicles may be constructed after 1 January 2003 in accordance with the provisions of chapter 6.8.

4.2.1 Insert "class 1 and" before "classes 3 to 9".

4.2.1.1 Amend the end of the first sentence to read: "... transport of substances of classes 1, 3, 4, 5, 6, 7, 8 and 9.". Delete the last sentence.

4.2.1.4 Amend the second sentence to read as follows:
"When necessary, the shell shall be thermally insulated."

4.2.1.9.5.1 Amend the sentence before the formula to read as follows:
"The maximum degree of filling (in %) for solids transported above their melting points and for elevated temperature liquids shall be determined by the following formula:".

4.2.1.9.8 Add to read "Portable tanks shall not be filled or discharged while they remain on board."

4.2.1.18 Add a new paragraph 4.2.1.18 to read as follows:

4.2.1.18 *Additional provisions applicable to the transport of solid substances transported above their melting point*

4.2.1.18.1 Solid substances transported or offered for transport above their melting point which are not assigned a portable tank instruction in column (10) of the Dangerous Goods List of chapter 3.2 or when the assigned portable tank instruction does not apply to transport at temperatures above their melting point may be transported in portable tanks provided that the solid substances are classified in classes 4.1, 4.2, 4.3, 5.1, 6.1, 8 or 9 and have no subsidiary risk

other than that of class 6.1 or class 8 and are in packing group II or III.

4.2.1.18.2 Unless otherwise indicated in the Dangerous Goods List, portable tanks used for the transport of these solid substances above their melting point shall conform to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II. A portable tank that affords an equivalent or greater level of safety may be selected in accordance with 4.2.5.2.5. The maximum degree of filling (in %) shall be determined according to 4.2.1.9.5 (TP3)".

4.2.2.7.4 } Add to read "Portable tanks shall not be filled or discharged while they remain
4.2.3.6.5 } on board".

4.2.4.5.4 Amend "multiple-element gas containers" to read "MEGCs".

4.2.4.6 Amend "Charged" to read "Filled".

4.2.5.2.1 Replace "2" with "1" at the end of the first sentence.

4.2.5.2.2 Insert "class 1 and" before "classes 3 to 9" at the beginning of the first sentence.

4.2.5.2.5 Add at end "T50 None".

4.2.5.2.6 Insert the following paragraph after the title:

"Portable tank instructions specify the provisions applicable to a portable tank when used for the transport of specific substances. Portable tank instructions T1 to T22 specify the applicable minimum test pressure, the minimum shell thickness (in mm reference steel), and the pressure relief and bottom-opening provisions."

In the table for portable tank instruction "T1-T22" add a reference "^a" to a footnote at the end of the heading "Pressure relief provisions". The footnote will read as follows:

^a *When the word "Normal" is indicated, all the provisions of 6.7.2.8 apply except for 6.7.2.8.3."*

T23 For UN 3109, in the entry for Pinanyl hydroperoxyde, replace "50%" with "56%".

T50 In the table for portable tank instruction "T50":

- In the heading "Max. allowable working pressure (bar) Small, Bare; Sunshield; Insulated", add at the end "respectively^a" and a footnote to read as follows:

^a *"Small" means tanks having a shell with a diameter of 1.5 metres or less; "Bare" means tanks having a shell with a diameter of more than*

1.5 metres without insulation or sun shield (see 6.7.3.2.12); "Sunshield" means tanks having a shell with a diameter of more than 1.5 metres with sun shield (see 6.7.3.2.12); "Insulated" means tanks having a shell with a diameter of more than 1.5 metres with insulation (see 6.7.3.2.12); (see definition of "Design reference temperature" in 6.7.3.1)."

- Add a reference ^{"b"} to a footnote at the end of the heading "Pressure relief provisions", and a footnote to read as follows:

^{"b"} The word "Normal" in the pressure relief column indicates that a frangible disc as specified in 6.7.3.7.3 is not required."

- Add a new row as follows:

| UN No. | Non-refrigerated liquefied gases | Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated, respectively^(a) | Openings below liquid level | Pressure relief provisions ^(b) (see 6.7.3.7) | Maximum filling density |
|---------------|--|--|------------------------------------|--|--------------------------------|
| 1010 | Butadienes and hydrocarbon mixture, stabilized with more than 40% butadienes | See MAWP definition in 6.7.3.1 | Allowed | Normal | See 4.2.2.7 |

Amend existing entries to read as follows:

- 1062 Methylbromide with not more than 2% chloropicrin
- 1581 Chloropicrin and methyl bromide mixture with more than 2% chloropicrin

- 4.2.5.3 **TP3** Amend to read as follows: "The maximum degree of filling (in %) for solids transported above their melting points and for elevated temperature liquids shall be determined in accordance with 4.2.1.9.5."

Add the following new portable tank instructions:

"TP32 For UN 0331, UN 0332 and UN 3375, portable tanks may be used subject to the following conditions:

- (a) To avoid unnecessary confinement, each portable tank constructed of metal shall be fitted with a pressure relief device that may be of the reclosing spring loaded type, a frangible disc or a fusible element. The set to discharge or burst pressure, as applicable, shall not be greater than 2.65 bar for portable tanks with minimum test pressures greater than 4 bar.
- (b) Suitability for transport in tanks shall be demonstrated. One method to evaluate this suitability is test 8 (d) in Test Series 8 (see United Nations "Manual of Tests and Criteria", Part 1, Sub-section 18.7).

- (c) Substances shall not be allowed to remain in the portable tank for any period that could result in caking. Appropriate measures shall be taken to avoid accumulation and packing of substances in the tank (e.g. cleaning, etc).".

TP33 The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point and which are cooled and transported as a solid mass. For solids which are transported above their melting point, see 4.2.1.18.

TP34 Portable tanks need not be subjected to the impact test in 6.7.4.14.1 if the portable tank is marked "NOT FOR RAIL TRANSPORT" on the plate specified in 6.7.4.15.1 and also in letters at least 10 cm high on both sides of the outer jacket."

4.2.5.1.1 Delete "and paragraph 4.2.7" in the third sentence. Delete "Except as provided for solid substances in 4.2.7," in the fourth sentence. Delete "and in 4.2.7" in the fifth sentence.

4.2.6 Amend to read:

"4.2.6 Additional provisions for the use of road tank vehicles

4.2.6.1 The tank of a road tank vehicle shall be attached to the vehicle during normal operations of filling, discharge and transport. IMO type 4 tanks shall be attached to the chassis when transported on board ships. Road tank vehicles shall not be filled or discharged while they remain on board. A road tank vehicle shall be driven on board on its own wheels and be fitted with permanent tie-down attachments for securing on board the ship.

4.2.6.2 Road tank vehicles shall comply with the provisions of chapter 6.8. IMO type 4, 6 and 8 tanks may be used according to the provisions of chapter 6.8 for short international voyages only."

4.2.7 Delete this section.

Chapter 4.3

Delete existing chapter and replace with a new chapter as follows:

"CHAPTER 4.3

USE OF BULK CONTAINERS

Note: Sheeted bulk containers shall not be used for sea transport.

4.3.1 General provisions

4.3.1.1 These general provisions are applicable to the use of containers for the transport of solid substances in bulk. Substances shall be transported in closed bulk containers conforming to the applicable bulk container instruction identified by the code BK2 in column 13 of the Dangerous Goods List in chapter 3.2. The closed bulk container used shall conform to the requirements of chapter 6.9.

4.3.1.2 Except as provided in 4.3.1.3, bulk containers shall only be used when a substance is assigned a bulk container code in column 13 of the Dangerous Goods List.

4.3.1.3 When a substance is not assigned a bulk container code in column 13 of the Dangerous Goods List, interim approval for transport 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 bulk container instruction and the conditions under which the substance shall be transported. Appropriate measures should be initiated by the competent authority to have the assignment included in the Dangerous Goods List.

4.3.1.4 Substances which may become liquid at temperatures likely to be encountered during transport are not permitted in bulk containers.

4.3.1.5 Bulk containers shall be siftproof and shall be so closed that none of the contents can escape under normal conditions of transport including the effect of vibration, or by changes of temperature, humidity or pressure.

4.3.1.6 Bulk solids shall be loaded into bulk containers and evenly distributed in a manner that minimizes movement that could result in damage to the container or leakage of the dangerous goods.

4.3.1.7 Where venting devices are fitted, they shall be kept clear and operable.

4.3.1.8 Bulk solids shall not react dangerously with the material of the bulk container, gaskets, equipment including lids and tarpaulins, or with protective coatings, which are in contact with the contents, or significantly weaken them. Bulk containers shall be so constructed or adapted that the goods cannot penetrate between wooden floor coverings or come into contact with those parts of the bulk containers that may be affected by the dangerous goods or residues thereof.

- 4.3.1.9 Before being filled and offered for transport, each bulk container shall be inspected and cleaned to ensure that it does not contain any residue on the interior or exterior that could:
- cause a dangerous reaction with the substance intended for transport;
 - detrimentally affect the structural integrity of the bulk container; or
 - affect the dangerous goods retention capabilities of the bulk container.
- 4.3.1.10 During transport, no dangerous residues shall adhere to the outer surfaces of a bulk container.
- 4.3.1.11 If several closure systems are fitted in series, the system which is located nearest to the dangerous goods to be transported shall be closed first before filling.
- 4.3.1.12 Empty bulk containers that have contained dangerous goods shall be treated in the same manner as is prescribed in this Code for a filled bulk container, unless adequate measures have been taken to nullify any hazard.
- 4.3.1.13 If bulk containers are used for the carriage of bulk goods liable to cause a dust explosion, or evolve flammable vapours (e. g. for certain wastes), measures shall be taken to exclude sources of ignition and to prevent dangerous electrostatic discharge during transport loading or unloading of the goods.
- 4.3.1.14 Substances, for example wastes, which may react dangerously with one another and substances of different classes and goods not subject to this Code, which are liable to react dangerously with one another shall not be mixed together in the same bulk container. Dangerous reactions are:
- .1 combustion and/or evolution of considerable heat;
 - .2 emission of flammable and/or toxic gases;
 - .3 formation of corrosive liquids; or
 - .4 formation of unstable substances.
- 4.3.1.15 Before a bulk container is filled, it shall be visually examined to ensure it is structurally serviceable, its interior walls, ceiling and floors are free from protrusions or damage and that any inner liners or substance retaining equipment are free from rips, tears or any damage that would compromise its cargo retention capabilities. Structurally serviceable means the bulk container does not have major defects in its structural components, such as top and bottom side rails, top and bottom end rails, door sill and header, floor cross members, corner posts, and corner fittings in a freight container. Major defects include:
- .1 bends, cracks or breaks in the structural or supporting members that affect the integrity of the container;

- .2 more than one splice or an improper splice (such as a lapped splice) in top or bottom end rails or door headers;
- .3 more than two splices in any one top or bottom side rail;
- .4 any splice in a door sill or corner post;
- .5 door hinges and hardware that are seized, twisted, broken, missing, or otherwise inoperative;
- .6 gaskets and seals that do not seal;
- .7 any distortion of the overall configuration great enough to prevent proper alignment of handling equipment, mounting and securing chassis or vehicle, or insertion into ships' cargo spaces;
- .8 any damage to lifting attachments or handling equipment interface features; or
- .9 any damage to service or operational equipment.

4.3.2 Additional provisions applicable to bulk goods of classes 4.2, 4.3, 5.1, 6.2, 7 and 8

4.3.2.1 Bulk goods of class 4.2

The total mass carried in a bulk container shall be such that its spontaneous ignition temperature is greater than 55 °C

4.3.2.2 Bulk goods of class 4.3

Such goods shall be transported in bulk containers which are watertight.

4.3.2.3 Bulk goods of class 5.1

Bulk containers shall be so constructed or adapted that the goods cannot come into contact with wood or any other incompatible material.

4.3.2.4 Bulk waste goods of class 6.2

4.3.2.4.1 Bulk wastes of class 6.2 (UN 2900)

- .1 Closed bulk containers, and their openings, shall be leakproof by design or by the fitting of a suitable liner.
- .2 Waste goods UN 2900 shall be thoroughly treated with an appropriate disinfectant before loading prior to transport.

.3 Closed bulk containers used for the transport of waste goods UN 2900 shall not be re-used until they have been thoroughly cleaned and disinfected.

4.3.2.5 Bulk material of class 7

For the transport of unpackaged radioactive material, see 4.1.9.2.3.

4.3.2.6 Bulk goods of class 8

Such goods shall be transported in closed bulk containers which are watertight."

PART 5

Chapter 5.1

Note: Move the Note under the heading of 5.1.5

- 5.1.2.1 Add at the end of the sentence "An overpack, in addition, shall be marked with the word "OVERPACK".
- 5.1.2.2 Insert the following sentence after "this Code.": "The "OVERPACK" marking on an overpack is an indication of compliance with this provision."
- 5.1.3.3 Add "or empty uncleaned bulk containers" after "uncleaned packages" and "or bulk container" at the end. Delete "or" after "unit" and add comma.
- 5.1.4 Amend "Secondary" to read "Subsidiary".
- 5.1.5.1.2.6 Delete "special form" before "approval".

Chapter 5.2

- 5.2.1.5.4.1 Replace "an Industrial package Type 1", "an Industrial package Type 2" and "an Industrial package Type 3" with "a Type IP-1 package", "a Type IP-2 package" and "a Type IP-3 package" respectively.
- .3 Replace "an Industrial package Type 2, an Industrial package Type 3" with "a Type IP-2 package, a Type IP-3 package".
- 5.2.2.2.1.1 Amend last sentence to read: "They shall have a line ...".
- 5.2.2.1.2.1 Amend to read:

"A package containing a dangerous substance, which has a low degree of danger, may be exempt from these labelling requirements. In this case, a special provision specifying that no hazard label is required appears in column 6 of the Dangerous Goods List for the relevant substance. However, for certain substances the package shall be marked with the appropriate text as it appears in the special provision e.g.:

| Substance | UN No. | Class | Mark required on bales |
|--|---------------|--------------|-------------------------------|
| Baled hay in cargo transport unit | UN 1327 | 4.1 | None |
| Baled hay not in cargo transport unit | UN 1327 | 4.1 | Class 4.1 |
| Baled dry vegetable fibres in cargo transport unit | UN 3360 | 4.1 | None |

| Substance | UN No. | Class | Mark required on packages in addition to the Proper Shipping Name and UN number |
|------------------------------|---------------|--------------|--|
| Fishmeal* | UN 1374 | 4.2 | Class 4.2 ** |
| Batteries, wet non-spillable | UN 2800 | 8 | Class 8 *** |

* only applicable to fishmeal in packing group III

** exempt from class marking when loaded in a cargo transport unit containing only fishmeal under UN 1374

*** exempt from class marking when loaded in a cargo transport unit containing only batteries under UN 2800"

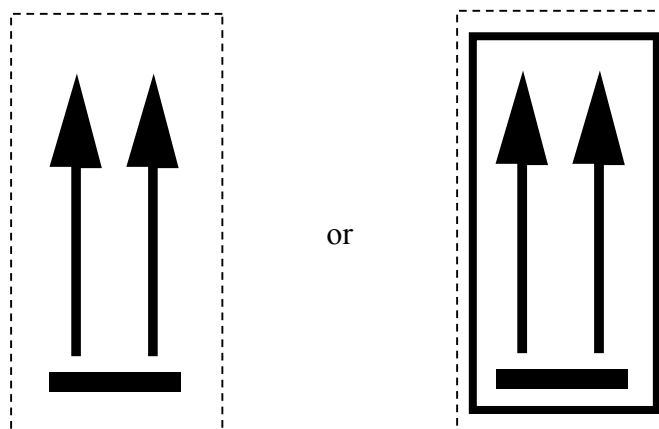
5.2.2.1.4 Amend second heading in table to read "... shown in chapter 2.2".

5.2.2.1.6 Amend the beginning of this paragraph to read:
"Except as provided in 5.2.2.2.1.2, each label shall:"

5.2.2.1.12.1 Amend end of penultimate sentence to read "... specified in this chapter."

5.2.2.1.13 Add a new paragraph to read as follows:

"The following orientation label shall be displayed on two opposite sides of cryogenic receptacles intended for the transport of refrigerated liquefied gases. They shall be rectangular, of standard format 74 × 105 mm (A7). If the size of the package so requires, the dimensions of the labels may be changed, provided that they remain clearly visible.



Two black or red arrows on white or suitable contrasting background

5.2.2.2.1.1 Insert "shall" before "have" in last sentence.

5.2.2.2.1.2 Add the following text at the end of the existing paragraph:

"Labels may overlap to the extent provided for by ISO 7225:1994 "Gas cylinders - Precautionary labels", however, in all cases, the labels representing the primary hazard and the numbers appearing on any label shall remain fully visible and the symbols recognizable."

Chapter 5.3

Add a new 5.3.1.3 to read:

"5.3.1.3 Fumigated units

Class 9 placards shall not be affixed to a fumigated unit except as required for other class 9 substances or articles packed therein."

5.3.1.1.4.1 For "freight container" read "cargo transport unit".

5.3.1.1.4.1.1 For "cargo transport unit" read "freight container".

5.3.2.0.2 Amend "bulk packagings" to read "bulk containers".

5.3.2.1.1 Amend .5 to read as follows: ".5 solid dangerous goods in bulk containers."

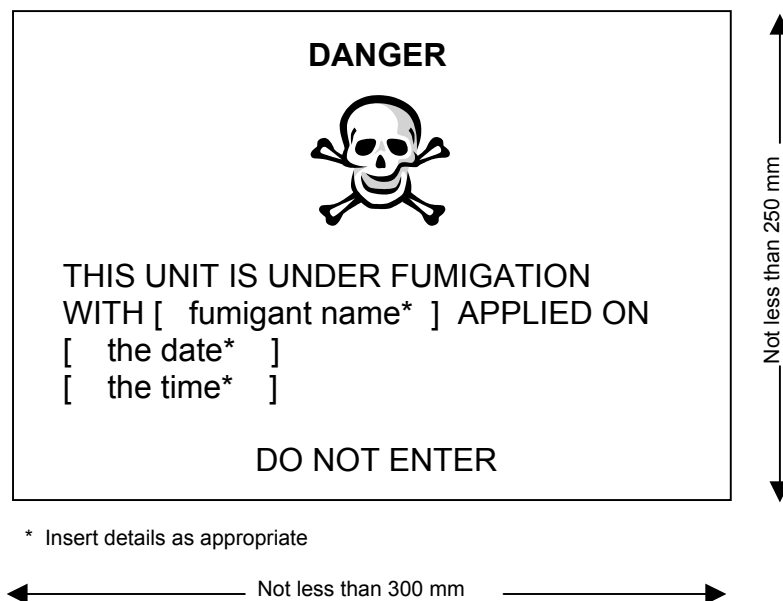
5.3.2.3 Amend to read "Cargo transport units containing marine pollutants shall clearly display the marine pollutant mark in locations indicated in 5.3.1.1.4.1, even if the cargo transport unit contains packages not required to bear the marine pollutant mark. The triangular mark shall conform to the specifications given in 5.2.1.6.3.1 and shall have sides of at least 250 mm".

5.3.2.5 Add a new 5.3.2.5 to read:

"5.3.2.5 Fumigated units

- .1 The marking of the proper shipping name (FUMIGATED UNIT) and the UN number (UN 3359) is not required on fumigated units. However, if a fumigated unit is loaded with dangerous goods, any mark required by the provisions in 5.3.2.0 to 5.3.2.4 shall be marked on the fumigated unit.
- .2 A closed fumigated unit shall be marked with a warning sign, as specified in .3, affixed in a location where it will be easily seen by persons attempting to enter the interior of the unit. When the fumigated unit has been ventilated to remove harmful concentrations of fumigant gas, the warning sign shall be removed.
- .3 The fumigation warning sign shall be rectangular and shall be not less than 300 mm wide and 250 mm high. The markings shall be in black print on a white background with lettering not less than 25 mm high. An illustration of this sign is given below:

Fumigation warning sign



"

Chapter 5.4

5.4.1.4.3.2 Add ", bulk containers", in the title after "packagings", and in the text between brackets after "IBCs".

5.4.1.4.4 In the entry for ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (calcium naphthenate), class 9, for "UN 3077" read "UN 3082", and for "(calcium naphthenate)" read "(hexylbenzene)".

In 4th example, amend "(-18°C)" to read "(18°C)".

5.4.1.5.7.1.8 Amend to read as follows:

".8 For consignments of more than one package, the information contained in 5.4.1.4.1.1 to .3 and 5.4.1.5.7.1.1 to .7 shall be given for each package. For packages in an overpack, freight container, or conveyance, a detailed statement of the contents of each package within the overpack, freight container, or conveyance and, where appropriate, of each overpack, freight container, or conveyance shall be included. If packages are to be removed from the overpack, freight container, or conveyance at a point of intermediate unloading, appropriate transport documents shall be made available;"

5.4.1.5.7.2 For "(see 7.14.4)" read "(see 7.1.14.4)".

5.4.1.5.9.2 In second line, amend "phlematizer" to read "phlegmatizer".

5.4.1.5.10 Delete "the provisions of paragraph".

5.4.1.5.11 Add new paragraph to read:

"5.4.1.5.11 Segregation groups for substances

For substances, mixtures, solutions or preparations consigned under N.O.S. entries not included in the segregation groups listed in 3.1.4.4 but belonging, in the opinion of the consignor, to one of these groups (see 3.1.4.2), the appropriate segregation group shall be shown in the transport document.*

** It is recognized that a segregation group is not applicable in all cases and may, therefore, not appear in the transport document."*

5.4.1.5.12 Add a new paragraph to read:

"5.4.1.5.12 *Transport of solid dangerous goods in bulk containers*

For bulk containers other than freight containers, the following statement shall be shown on the transport document (see 6.9.4.6):

"Bulk container BK2 approved by the competent authority of ..."

5.4.2.1 In the Note, insert "portable" before "tank".

5.4.3.1 For "5.4.1" read "5.4.1.4 and 5.4.1.5".

5.4.4.1 Insert "or other documents" after "special certificates".

5.4.4.2 Add new paragraph to read:

"5.4.4.2 Fumigated units

The transport document for a fumigated unit shall show the type and amount of fumigant used and the date and time of fumigation. In addition, instructions for disposal of any residual fumigant, including fumigation devices, if used, shall be provided."

Chapter 5.5 Delete whole chapter.

PART 6

Add "MULTIPLE ELEMENT GAS CONTAINERS (MEGCs)" after "PORTABLE TANKS" in main title.

Chapter 6.1

- 6.1.2.2 Delete "and infectious substances packagings".
- 6.1.2.7 Under "1" amend "N1" and "N2" to read "1N1" AND 1N2".
- 6.1.3.2 Amend referenced ISO standard to read "ISO 3574:1999 for steel."
- 6.1.3.4 Amend last sentence to read "Every other remanufactured metal drum ...".
- 6.1.3.6 Insert a new paragraph 6.1.3.6 to read as follows:
- "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."
- Renumber subsequent paragraphs accordingly and all cross-references within them.
- 6.1.3.7 Merge the unnumbered subparagraph to main text.
(new)
- 6.1.3.12 Move the Note following this paragraph to the left.
- 6.1.4.1.1 Add a Note to read as follows:
- "Note: For carbon steel drums, "suitable" steels are identified in ISO 3573:1999 "Hot rolled carbon steel sheet of commercial and drawing qualities" and ISO 3574:1999 "Cold-reduced carbon steel sheet of commercial and drawing qualities".*
- For carbon steel drums below 100 litres "suitable" steels in addition to the above standards are also identified in ISO 11949:1995 "Cold-reduced electrolytic tinfoil", ISO 11950:1995 "Cold-reduced electrolytic chromium/chromium oxide-coated steel" and ISO 11951:1995 "Cold-reduced blackplate in coil form for the production of tinfoil or electrolytic chromium/chromium-oxide coated steel."*
- 6.1.4.3.1 Amend to read "... constructed of metal or metal alloy ...".
- 6.1.4.8.2 Delete this paragraph and renumber all subsequent paragraphs and subparagraph accordingly.
- 6.1.4.18.1 Amend to read: "... net-cloth with adhesive bonding to the outermost ply. The strength ... and to its intended use. Joins ...".
- 6.1.4.18.2 Amend: "contained substance" to read "substance contained".

6.1.5.1.7.7 In the last sentence, amend "package marking" to read "packaging mark".

6.1.5.1.11.1.2 Replace "6.1.5.8" with "6.1.5.7".

6.1.5.2.1 In the second sentence, insert ", other than bags," after "packagings".

Insert the following new third sentence: "Bags shall be filled to the maximum mass at which they may be used."

6.1.5.2.2 Replace "6.1.5.3.4" with "6.1.5.3.5".

6.1.5.3.2.3 Amend "polystyrene" to read "plastics".

6.1.5.3.3 Add a new 6.1.5.3.3 to read as follows:

"Removable head packagings for liquids shall not be dropped until at least 24 hours after filling and closing to allow for any possible gasket relaxation."

Renumber subsequent paragraphs and subparagraphs accordingly.

6.1.5.3.5 (new) Replace the sentence: "For liquids if the test is performed with water:"... with "For liquids in single packagings and for inner packagings of combination packagings, if the test is performed with water:"

Add the following note before the table:

"Note: The term water includes water/antifreeze solutions with a minimum specific gravity of 0.95 for testing at - 18 °C."

6.1.5.3.6.2 Insert the words "while retaining its containment function," after "closure".

6.1.5.7 Delete this paragraph and renumber the paragraph and subparagraphs relating to "Test report" accordingly.

Chapter 6.2

Delete "certified" in relation to "UN certified" in paragraphs: 6.2.2, 6.2.2.4 and 6.2.3.

6.2.1.1.1 Insert ", including fatigue," after "to withstand all conditions".

6.2.1.1.3 Delete the first sentence.

6.2.1.1.5 Renumber the first sentence of this paragraph as 6.2.1.1.8 and amend as follows:

Insert "additional provisions" in place of "requirements" and delete "pressure" before "receptacles".

- 6.2.1.1.5.1 Renumber as 6.2.1.1.8.1 and delete "at the initial inspection".
- 6.2.1.1.5.2 Renumber as 6.2.1.1.8.2 and amend as follows:
2nd sentence: replace "continuous sheathing" with "a jacket".
3rd sentence: replace "sheathing" and "protective sheathing" with "jacket" and amend the end of the sentence to read as follows: "... (1 bar) calculated in accordance with a recognised technical code or a calculated critical collapsing pressure of not less than 200 kPa (2 bar) gauge pressure."
4th sentence: replace "sheathing" with "jacket".
- 6.2.1.1.6 Renumber as 6.2.1.1.5.
- 6.2.1.1.7 Renumber as 6.2.1.1.6. In the last sentence, delete "class 2.3", insert "toxic" before "liquefied" and replace "can be separately charged" with "can be filled separately".
- 6.2.1.1.7 Insert a new paragraph 6.2.1.1.7 to read as follows:

"Contact between dissimilar metals which could result in damage by galvanic action shall be avoided."
- 6.2.1.1.8.3 and
6.2.1.1.8.4 Add the following two new subparagraphs:
- .3 Closed cryogenic receptacles intended for the transport of refrigerated liquefied gases having a boiling point below -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 where there is a risk of contact with oxygen or with oxygen enriched liquid.
- .4 Closed cryogenic receptacles shall be designed and constructed with suitable lifting and securing arrangements."
- 6.2.1.3.2 Replace "4.1.6.1.7" with "4.1.6.1.8" in the last sentence.
- 6.2.1.3.4 In the first sentence, delete "approved", replace "required" with "specified" and "as specified by the country of use" with "in 6.2.1.3.6.4 and 6.2.1.3.6.5".

Insert the following new second sentence: "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."

In the last sentence, replace "receptacles" with "receptacle itself", before "under normal conditions of transport."
- 6.2.1.3.5 Delete this paragraph. As a consequence, current 6.2.1.3.6 becomes 6.2.1.3.5.

6.2.1.3.6 Add new paragraph and subparagraphs to read as follows:

"6.2.1.3.6 *Additional provisions for closed cryogenic receptacles*

6.2.1.3.6.1 Each filling and discharge opening in a closed cryogenic receptacle used for the transport of flammable refrigerated liquefied gases shall be fitted with at least two mutually independent shut-off devices in series, the first being a stop-valve, the second being a cap or equivalent device.

6.2.1.3.6.2 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.

6.2.1.3.6.3 Each connection on a closed cryogenic receptacle shall be clearly marked to indicate its function (e.g. vapour or liquid phase).

6.2.1.3.6.4 Pressure relief devices

6.2.1.3.6.4.1 Each closed cryogenic receptacle shall be provided with at least one pressure relief device. The pressure relief device shall be of the type that will resist dynamic forces including surge.

6.2.1.3.6.4.2 Closed cryogenic receptacles may, in addition, have a frangible disc in parallel with the spring loaded device(s) in order to meet the provisions of 6.2.1.3.6.5.

6.2.1.3.6.4.3 Connections to pressure relief devices shall be of sufficient size to enable the required discharge to pass unrestricted to the pressure relief device.

6.2.1.3.6.4.4 All pressure relief device inlets shall under maximum filling conditions be situated in the vapour space of the closed cryogenic receptacle and the devices shall be so arranged as to ensure that the escaping vapour is discharged unrestrictedly.

6.2.1.3.6.5 Capacity and setting of pressure relief devices

Note: In relation to pressure relief devices of closed cryogenic receptacles, MAWP means the maximum effective gauge pressure permissible at the top of a loaded closed cryogenic receptacle in its operating position including the highest effective pressure during filling and discharge.

6.2.1.3.6.5.1 The pressure relief device shall open automatically at a pressure not less than the MAWP and be fully open a pressure equal to 110% of the MAWP. It 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.

- 6.2.1.3.6.5.2 Frangible discs shall be set to rupture at a nominal pressure which is the lower of either the test pressure or 150% of the MAWP.
- 6.2.1.3.6.5.3 In the case of the loss of vacuum in a vacuum-insulated closed cryogenic receptacle the combined capacity of all pressure relief devices installed shall be sufficient so that the pressure (including accumulation) inside the closed cryogenic receptacle does not exceed 120% of the MAWP.
- 6.2.1.3.6.5.4 The required capacity of the pressure relief devices shall be calculated in accordance with an established technical code recognized by the competent authority¹.

6.2.1.4.1 Insert ", other than closed cryogenic receptacles," after "New pressure receptacles".

In subparagraph .3, delete "and". The sentence "Inspection of the external and internal conditions of the pressure receptacles" becomes new subparagraph .4.

Renumber subsequent subparagraphs accordingly.

In the note under new .7, replace "inspection body" with "competent authority".

In new .8, add the following sentence at the end: "In the case of welded pressure receptacles, particular attention shall be paid to the quality of the welds."

In new .10, replace "material" with "mass" and add ", if applicable," before "the quantity of solvent".

6.2.1.4.2 Add the following new paragraph:

"On an adequate sample of closed cryogenic receptacles, the inspections and tests specified in 6.2.1.4.1.1, .2, .4 and .6 shall be performed. In addition, welds shall be inspected by radiographic, ultrasonic or another suitable non-destructive test method on a sample of closed cryogenic receptacles, according to the applicable design and construction standard. This weld inspection does not apply to the jacket.

Additionally, all closed cryogenic receptacles shall undergo the inspections and tests specified in 6.2.1.4.1, .7, .8 and .9, as well as a leakproofness test and a test of the satisfactory operation of the service equipment after assembly."

6.2.1.5.1 Delete "under the supervision of an inspection body" and insert "by a body authorized by the competent authority," before "in accordance with the following:".
In .2, delete "by weighing," and replace "checks of" with "verification of minimum".

¹ See for example CGA Publications S-1.2-1995 and S-1.1-2001.

In .3, delete "neck" and add "if there is evidence of corrosion or if the fittings are removed;", at the end.

In Note 1 under .4, replace "inspection body" with "competent authority", and in Note 2, replace "and" with "or" before "tubes".

6.2.1.5.3 Delete.

6.2.2.1.1 Amend the end of the sentence before the table as follows: "... and test of UN cylinders, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.2.5:"

Add the following standards to the current table:

| | |
|------------------|--|
| ISO 11119-1:2002 | Gas cylinders of composite construction – Specification and test methods – Part 1: Hoop wrapped composite gas cylinders |
| ISO 11119-2:2002 | Gas cylinders of composite construction – Specification and test methods – Part 2: Fully wrapped fibre reinforced composite gas cylinders with load-sharing metal liners |

Add the following notes at the end of the table:

Note 1: *In the above referenced standards, composite cylinders shall be designed for unlimited service life.*

Note 2: *After the first 15 years of service, composite cylinders manufactured according to these standards may be approved for extended service by the competent authority which was responsible for the original approval of the cylinders and which will base its decision on the test information supplied by the manufacturer or owner or user."*

6.2.2.1.2 Amend the end of the sentence before the table as follows: "... and test of UN tubes, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.2.5:"

6.2.2.1.3 Amend the end of the sentence before the table as follows: "... and test of UN acetylene cylinders, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.2.5:"

6.2.2.4 Add the following standard to the current table:

| | |
|----------------|--|
| ISO 11623:2002 | Transportable gas cylinders – Periodic inspection and testing of composite gas cylinders |
|----------------|--|

6.2.2.5 In the title, insert "for manufacture" after "approval".

6.2.2.5.2.4 In the first sentence, replace "as an inspector" with "for the inspection".
 In .4, insert "commercial" after "ensure".

6.2.2.5.3.1.9 Insert "and qualification procedures" after " training programmes".

6.2.2.5.4.1 Replace "encompass" with "meet".

6.2.2.5.4.2 Replace "written approval" with "certificate" in the last sentence.

6.2.2.5.4.3 Indent the sub-entries .1 to .5 to subsection 8 further to the right.

6.2.2.5.4.6 Replace "6.2.2.5.4.2" with "6.2.2.5.4.3".

6.2.2.5.4.9 Replace "certification" with "approval" in the last paragraph.

6.2.2.6 Insert the following text as new sub-section 6.2.2.6:

"6.2.2.6 *Approval system for periodic inspection and testing of pressure receptacles*

6.2.2.6.1 *Definitions*

For the purposes of this section:

Approval system means a system for competent authority approval of a body performing periodic inspection and testing of pressure receptacles (hereinafter referred to as "periodic inspection and test body"), including approval of that body's quality system.

6.2.2.6.2 *General provisions*

Competent authority

6.2.2.6.2.1 The competent authority shall establish an approval system for the purpose of ensuring that the periodic inspection and testing of pressure receptacles conform to the provisions of this Code. In instances where the competent authority that approves a body performing periodic inspection and testing of a pressure receptacle is not the competent authority of the country approving the manufacture of the pressure receptacle, the marks of the approval country of periodic inspection and testing shall be indicated in the pressure receptacle marking (see 6.2.2.7). The competent authority of the country of approval for the periodic inspection and testing shall supply, upon request, evidence demonstrating compliance with this approval system, including the records of the periodic inspection and testing to its counterpart in a country of use. The competent authority of the country of approval may terminate the approval certificate referred to in 6.2.2.6.4.1, upon evidence demonstrating non-compliance with the approval system.

6.2.2.6.2.2 The competent authority may delegate its functions in this approval system, in whole or in part.

- 6.2.2.6.2.3 The competent authority shall ensure that a current list of approved periodic inspection and testing bodies and their identity marks is available.

Periodic inspection and testing body

- 6.2.2.6.2.4 The periodic inspection and testing body shall be approved by the competent authority and shall:

- .1 have a staff with an organizational structure, capable, trained, competent, and skilled, satisfactorily to perform its technical functions;
- .2 have access to suitable and adequate facilities and equipment;
- .3 operate in an impartial manner and be free from any influence which could prevent it from doing so;
- .4 ensure commercial confidentiality;
- .5 maintain clear demarcation between actual periodic inspection and testing body functions and unrelated functions;
- .6 operate a documented quality system in accordance with 6.2.2.6.3;
- .7 apply for approval in accordance with 6.2.2.6.4;
- .8 ensure that the periodic inspections and tests are performed in accordance with 6.2.2.6.5; and
- .9 maintain an effective and appropriate report and record system in accordance with 6.2.2.6.6.

6.2.2.6.3 *Quality system and audit of the periodic inspection and testing body*

- 6.2.2.6.3.1 Quality system. The quality system shall contain all the elements, requirements, and provisions adopted by the periodic inspection and test body. It shall be documented in a systematic and orderly manner in the form of written policies, procedures, and instructions. The quality system shall include:

- .1 a description of the organizational structure and responsibilities;

- .2 the relevant inspection and test, quality control, quality assurance, and process operation instructions that will be used;
- .3 quality records, such as inspection reports, test data, calibration data and certificates;
- .4 management reviews to ensure the effective operation of the quality system arising from the audits performed in accordance with 6.2.2.6.3.2;
- .5 a process for control of documents and their revision;
- .6 a means for control of non-conforming pressure receptacles; and
- .7 training programmes and qualification procedures for relevant personnel.

6.2.2.6.3.2 Audit. The periodic inspection and testing body and its quality system shall be audited in order to determine whether it meets the requirements of this Code to the satisfaction of the competent authority. An audit shall be conducted as part of the initial approval process (see 6.2.2.6.4.3). An audit may be required as part of the process to modify an approval (see 6.2.2.6.4.6). Periodic audits shall be conducted, to the satisfaction of the competent authority, to ensure that the periodic inspection and test body continues to meet the provisions of this Code. The periodic inspection and testing body shall be notified of the results of any audit. The notification shall contain the conclusions of the audit and any corrective actions required.

6.2.2.6.3.3 Maintenance of the quality system. The periodic inspection and testing body shall maintain the quality system as approved in order that it remains adequate and efficient. The periodic inspection and testing body shall notify the competent authority that approved the quality system of any intended changes, in accordance with the process for modification of an approval in 6.2.2.6.4.6.

6.2.2.6.4 *Approval process for periodic inspection and test bodies*

Initial approval

6.2.2.6.4.1 A body desiring to perform periodic inspection and testing of pressure receptacles in accordance with a pressure receptacle standard and with this Code shall apply for, obtain, and retain an Approval Certificate issued by the competent authority. This written approval shall, on request, be submitted to the competent authority of a country of use.

- 6.2.2.6.4.2 An application shall be made for each periodic inspection and test body and shall include:
- .1 the name and address of the periodic inspection and testing body and, if the application is submitted by an authorized representative, its name and address;
 - .2 the address of each facility performing periodic inspection and testing;
 - .3 the name and title of the person(s) responsible for the quality system;
 - .4 the designation of the pressure receptacles, the periodic inspection and test methods, and the relevant pressure receptacle standards met by the quality system;
 - .5 documentation on each facility, the equipment, and the quality system as specified under 6.2.2.6.3.1;
 - .6 the qualifications and training records of the periodic inspection and test personnel; and
 - .7 details of any refusal of approval of a similar application by any other competent authority.
- 6.2.2.6.4.3 The competent authority shall:
- .1 examine the documentation to verify that the procedures are in accordance with the requirements of the relevant pressure receptacle standards and of this Code; and
 - .2 conduct an audit in accordance with 6.2.2.6.3.2 to verify that the inspections and tests are carried out as required by the relevant pressure receptacle standards and by this Code, to the satisfaction of the competent authority.
- 6.2.2.6.4.4 After the audit has been carried out with satisfactory results and all applicable requirements of 6.2.2.6.4 have been satisfied, an Approval Certificate shall be issued. It shall include the name of the periodic inspection and testing body, the registered mark, the address of each facility, and the necessary data for identification of its approved activities (e.g. designation of pressure receptacles, periodic inspection and test method and pressure receptacle standards).
- 6.2.2.6.4.5 If the periodic inspection and testing body is denied approval, the competent authority shall provide written detailed reasons for such denial.

Modifications to periodic inspection and test body approvals

6.2.2.6.4.6 Following approval, the periodic inspection and testing body shall notify the issuing competent authority of any modifications to the information submitted under 6.2.2.6.4.2 relating to the initial approval. The modifications shall be evaluated in order to determine whether the requirements of the relevant pressure receptacle standards and of this Code will be satisfied. An audit in accordance with 6.2.2.6.3.2 may be required. The competent authority shall accept or reject these modifications in writing, and an amended Approval Certificate shall be issued as necessary.

6.2.2.6.4.7 Upon request, the competent authority shall communicate to any other competent authority, information concerning initial approvals, modifications of approvals, and withdrawn approvals.

6.2.2.6.5 *Periodic inspection and test and certification*

The application of the periodic inspection and test marking to a pressure receptacle shall be considered a declaration that the pressure receptacle complies with the applicable pressure receptacle standards and with the provisions of this Code. The periodic inspection and test body shall affix the periodic inspection and test marking, including its registered mark, to each approved pressure receptacle (see 6.2.2.7.6). A record certifying that a pressure receptacle has passed the periodic inspection and test shall be issued by the periodic inspection and test body, before the pressure receptacle is filled.

6.2.2.6.6 *Records*

The periodic inspection and testing body shall retain records of pressure receptacle periodic inspection and tests (both passed and failed), including the location of the test facility, for not less than 15 years. The owner of the pressure receptacle shall retain an identical record until the next periodic inspection and test unless the pressure receptacle is permanently removed from service."

Renumber existing 6.2.2.6 and 6.2.2.7 as 6.2.2.7 and 6.2.2.8 respectively.

6.2.2.7 (new) Amend the title to read: "Marking of refillable UN pressure receptacles".
Amend the first sentence to read as follows: "Refillable UN pressure receptacles shall be marked clearly and legibly with certification, operational and manufacturing marks."
In the third sentence, insert "or corrosion resistant plate welded on the outer jacket of a closed cryogenic receptacle" after "welded collar".
Replace ""UN" mark" with "UN packaging symbol" (twice).

6.2.2.7.1(a) Delete "certified".

- 6.2.2.7.2 In (g), amend the beginning of the first sentence to read: "the mass of the empty pressure receptacle ...". In the third sentence, delete "empty" before "mass".
In (h), add at the end: "or for closed cryogenic receptacles;"
In (i), in the first sentence, delete "intended" and "the transport of". Add the following sentence at the end: "In the case of closed cryogenic receptacles, the maximum allowable working pressure preceded by the letters "MAWP";"
In (j), amend the beginning of the sentence to read: "In the case of pressure receptacles for liquefied gases and refrigerated liquefied gases, the water ..." and replace "digits" with "figures", in the first sentence.
In (k) insert "pressure receptacles for" before "UN 1001" and replace "material" with "mass" after "porous".
In (l) insert "pressure receptacles for" before "UN 3374" and replace "material" with "mass" after "porous".
- 6.2.2.7.3 In (m), add the following sentence at the end: "This mark is not required for closed cryogenic receptacles;"
- 6.2.2.7.4 In the first sentence, delete "as shown in the example below:".
In the first indent, replace "6.2.2.6.3" with "6.2.2.7.3".
In the second indent, amend the beginning to read: "The operational marks in 6.2.2.7.2 shall be the middle grouping and the test pressure (f) shall be immediately ...".
In the third indent, replace "6.2.2.6.1" with "6.2.2.7.1".
Add the following sentence immediately before the diagram: "The following is an example of the markings applied to a cylinder."

In the illustration of the upper part of a gas cylinder below "(h)", for "**58MM**" read "**5.8MM**".
- 6.2.2.7.5 Insert the following new second sentence: "In the case of closed cryogenic receptacles, such marks may be on a separate plate attached to the outer jacket."
- 6.2.2.7.6 Replace current 6.2.2.6.6 with the following:

"In addition to the preceding marks, each refillable pressure receptacle that meets the periodic and test requirements of 6.2.2.4 shall be marked in sequence as follows:
- (a) the character(s) identifying the country authorizing the body performing the periodic inspection and test. This marking is not required if this body is approved by the competent authority of the country approving manufacture;
 - (b) the registered mark of the body authorized by the competent authority for performing periodic inspection and test;
 - (c) the date of the periodic inspection and test, the year (two digits) followed by the month (two digits) separated by a slash (i.e. "/"). Four digits may be used to indicate the year."

- 6.2.2.8 Wherever it appears throughout this sub-section, replace "UN-non refillable" with "non-refillable UN", and replace references to "6.2.2.6" with "6.2.2.7".
- 6.2.2.8.2 In the NOTE, delete "(see 5.2.2.2.1.2)".
- 6.2.3 Delete in the title "certified".

Chapter 6.3

In 6.3.2.9.1, for "6.3.2.6" read "6.3.2.3".

Chapter 6.4

Replace "Industrial package Type 1 (Type IP-1)", "Industrial package Type 2 (Type IP-2)" and "Industrial package Type 3 (Type IP-3)" with "Type IP-1 package", "Type IP-2 package" and "Type IP-3 package" respectively, all throughout this chapter.

- 6.4.3.3 Amend to read as follows:
"Packages containing radioactive material, to be transported by air, shall be capable of withstanding, without leakage, an internal pressure which produces a pressure differential of not less than maximum normal operating pressure plus 95 kPa."
- 6.4.6.1 Add the following new first sentence: "Packages designed to contain uranium hexafluoride shall meet the requirements prescribed elsewhere in this Code which pertain to the radioactive and fissile properties of the material."

Delete "the provisions of the International Organization for Standardization document".

Amend the beginning of the second sentence to read as follows: "Except as allowed in 6.4.6.4, uranium hexafluoride in quantities of 0.1 kg or more shall also be packaged ...".

Delete the current last sentence, i.e. "The package shall also meet fissile properties of the material."
- 6.4.6.2 In .2, insert "free drop" before "test" and in .3, insert "thermal" before "test".
In .1, delete "the International Organization for Standardization document".
- 6.4.6.4 Amend (a) to read as follows:

"(a) The packages are designed to international or national standards other than ISO 7195:1993, provided an equivalent level of safety is maintained;"
- In (b), insert "of" after "test pressure".

Add the following sentence after the subparagraphs (a) to (c): "In all other respects, the provisions of in 6.4.6.1 to 6.4.6.3 shall be satisfied."

6.4.7.16 Replace "6.4.7.14" with "6.4.7.14 (a)".

6.4.8.5 Replace the existing table with the following one:

| Case | Form and location of surface | Insolation for 12 hours per day (W/m ²) |
|------|--|---|
| 1 | Flat surfaces transported horizontally-downward facing | 0 |
| 2 | Flat surfaces transported horizontally-upward facing | 800 |
| 3 | Surfaces transported vertically | 200* |
| 4 | Other downward facing (not horizontal) surfaces | 200* |
| 5 | All other surfaces | 400* |

Note "*" under the table remains unchanged.

6.4.11.1 (b)(i) Amend to read as follows: "of 6.4.7.2 for packages containing fissile material;"

6.4.11.2.1 Amend the sentence after subparagraphs .1 to .3 to read as follows:
 "Neither beryllium nor deuterium in hydrogenous material enriched in deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table 6.4.11.2".

6.4.11.5 Replace "packaging" with "package".

6.4.11.10 Amend (a) as follows: "... conditions consistent with the Type C package tests specified in 6.4.20.1 ...".

In (b), amend the beginning to read: "in the assessment of 6.4.11.9, allowance ..."; insert "Type C package" before "tests specified" and "the water in-leakage test of" before "6.4.19.3".

6.4.14 Replace "6.4.17.2, 6.4.20.2, and 6.4.20.4" with "6.4.17.2 and 6.4.20.2".

6.4.20.2 (a) Amend the end of the last but one sentence to read: "... at the top with its edge rounded off to a radius of not more than 6 mm".

6.4.20.4 Amend the end of the last sentence to read: "... as defined in 6.4.14, except that the target surface may be at any orientation provided that the surface is normal to the specimen path."

Chapter 6.5

- 6.5.1.1.2 Amend "equivalent alternatives" to read "acceptable alternatives".
- 6.5.1.4.1 Amend "The IBC code" to read "The code".
- 6.5.1.6.4 Delete final "s" from heading.
- 6.5.2.1.1.7 Add "*" after "stacking test load", and the associated footnote to read: "* The stacking test load in kilograms 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 IBCs during transport (see 6.5.4.6.4).".
- 6.5.2.1.2 In the third example beginning "31H1/Y/04 99" amend "120" to read "1200".
- 6.5.2.2.2 Delete "handling and".
- 6.5.3.1.1 First sentence, for "... the transport of solids." read "... the transport of liquids and solids.".
- 6.5.3.1.6 Adjust the alignment of the last paragraph with that of 6.5.3.1.6.3.
- 6.5.3.1.7 Amend "pressure-relief" to read "pressure relief".
- 6.5.3.2.7 Amend to read: "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 Amend to read: "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.".
- 6.5.3.3.1 Amend to read: "These provisions apply to rigid plastics IBCs for the transport 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.".

- 6.5.3.3.4 Amend to read: "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."
- 6.5.3.4.7 Amend to read: "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 Amend to read: "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."
- 6.5.3.4.26 Delete "c" before "6".
- 6.5.3.5.3 Amend to read: "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^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.
- 6.5.3.6.4 Amend to read: "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."
- 6.5.3.6.10 Amend "on the base" to read "of the base".
- 6.5.4.3.5 In footnote (d), delete "in the table".
- 6.5.4.5.2 Amend "maximum permissible load" to read "maximum permissible gross mass".
- 6.5.4.7.3 In the second sentence, for "The airtightness of the IBC ..." read "The airtightness of the metal IBC ...".
- 6.5.4.8.2 Amend the last sentence to read "Pressure relief devices shall be removed and their apertures plugged, or shall be rendered inoperative."

Chapter 6.6

- 6.6.3.1 (g) Add "*" after "stacking test load", and the associated footnote to read: "* The stacking test load in kilogrammes to be placed on the large packaging 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 packaging during transport (see 6.6.5.3.3.4).".

Chapter 6.7

- 6.7.1.3 Delete "or is not authorized according to 4.2.7" in the first sentence.

- 6.7.2 Insert "class 1 and" before "classes 3 to 9".

- 6.7.2.1 In the definition of "*Design pressure*", replace "dynamic" with "static" in .2.3.

In the definition of "*Design temperature range*", insert "the other" before "substances" at the beginning of the second sentence.

In the definition of "portable tank" insert "class 1 and" before "classes 3 to 9" and delete the words "having a capacity of more than 450 litres" in the first sentence.

Insert the following definitions in alphabetical order:

Fine grain steel means steel which has a ferritic grain size of 6 or finer when determined in accordance with ASTM E 112-96 or as defined in EN 10028-3, Part 3.

Fusible element means a non-reclosable pressure relief device that is thermally actuated.

Offshore portable tank means a portable tank specially designed for repeated use for transport of dangerous goods to, from and between offshore facilities. An offshore portable tank is designed and constructed in accordance with MSC/Circ.860 "Guidelines for the Approval of Containers Handled in Open Seas".

- 6.7.2.1.3 For "4.2.4.2.6" read "4.2.5.2.6".

- 6.7.2.8.1 For "4.2.4.2.6" read "4.2.5.2.6".

- 6.7.2.12.2 Amend the beginning of the first sentence to read as follows:
"The combined delivery capacity of the pressure relief system (taking into account the reduction of the flow when the portable tank is fitted with frangible-discs preceding spring-loaded pressure relief devices or when the spring-loaded pressure relief devices are provided with a device to prevent the passage of the flame), in conditions of complete fire engulfment ...".

- 6.7.2.13.1.5 Replace "of the device" with "of the spring-loaded pressure relief devices, frangible-discs or fusible elements".
- 6.7.2.13.2 Insert the words "spring-loaded" before "pressure relief devices".
- 6.7.2.19.1, 6.7.3.15.1, 6.7.4.14.1 and
6.7.5.12.1 Replace the reference for the Canadian and German standards, respectively, with the following:
- "National Standard of Canada, CAN/CGSB-43.147-2002, "Construction, Modification, Qualification, Maintenance, and Selection and Use of Means of Containment for the Handling, Offering for Transport or Transporting of Dangerous Goods by Rail", March 2002, published by the Canadian General Standards Board (CGSB).
- Deutsche Bahn AG
DB Systemtechnik, Minden
Verifikation und Versuche, TZF 96.2
Portable tanks, longitudinal impact test"
- 6.7.2.20.1, 6.7.3.16.1 and 6.7.4.15.1 Move the footnotes to the end of the section.
- 6.7.3.1 In the definition of "*Design pressure*" replace "dynamic" with "static" in .2.2.
- 6.7.5.1 In the definition of "Elements" delete "restricted to".
- 6.7.5.2.1 Amend "loaded" to read "filled" in the first sentence.
- 6.7.5.2.8 Move the footnote to the end of the section.
- 6.7.5.4.1 Amend second sentence to read: "MEGCs for other gases ...".
- 6.7.5.5.1 Amend first sentence to read: "... complete fire engulfment of the MEGC, ...", and delete all hyphens from "pressure-relief".
- 6.7.5.12.4 Amend first sentence to read: "... inspection and test shall include ...".
- 6.7.5.13.1 Amend second sentence to read "... in accordance with chapter 6.2".

Chapter 6.9

Add a new chapter 6.9 as follows:

"CHAPTER 6.9 PROVISIONS FOR THE DESIGN, CONSTRUCTION, INSPECTION AND TESTING OF BULK CONTAINERS

Note: Sheeted bulk containers shall not be used for sea transport.

6.9.1 Definitions

For the purposes of this section:

Closed bulk containers are totally closed bulk containers having a rigid roof, sidewalls, end walls and floor (including hopper-type bottoms), including bulk containers with an opening roof, or side or end wall that can be closed during transport. Closed bulk containers may be equipped with openings to allow for the exchange of vapours and gases with air and which prevent under normal conditions of transport the release of solid contents as well as the penetration of rain and splash water.

Sheeted bulk containers are open-top bulk containers with rigid bottom (including hopper-type bottom), side and end walls and a non-rigid covering.

6.9.2 Application and general provisions

6.9.2.1 Bulk containers and their service and structural equipment shall be designed and constructed to withstand, without loss of contents, the internal pressure of the contents and the stresses of normal handling and transport.

6.9.2.2 Where a 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 unintended opening and the open or closed position shall be readily apparent.

6.9.2.3 *Code for designating types of bulk container*

The following table indicates the codes to be used for designating types of bulk containers:

| Types of bulk container | Code |
|---|-------------|
| Sheeted bulk container (Not allowed for sea transport) | BK1 |
| Closed bulk container | BK2 |

6.9.2.4 In order to take account of progress in science and technology, the use of alternative arrangements which offer at least equivalent safety as provided by the provisions of this chapter may be considered by the competent authority.

6.9.3 Provisions for the design, construction, inspection and testing of freight containers used as bulk containers

6.9.3.1 *Design and construction provisions*

6.9.3.1.1 The general design and construction provisions in this section are deemed to be met if the bulk container complies with the requirements of ISO 1496-4:1991 "Series 1 Freight containers - Specification and testing - Part 4: Non-pressurized containers for dry bulk" and the container is siftproof.

- 6.9.3.1.2 Freight containers designed and tested in accordance with ISO 1496-1:1990 "Series 1 Freight containers - Specification and testing - Part 1: General cargo containers for general purposes" shall be equipped with operational equipment which is, including its connection to the freight container, designed to strengthen the end walls and to improve the longitudinal restraint as necessary to comply with the test requirements of ISO 1496-4:1991, as relevant.
- 6.9.3.1.3 Bulk containers shall be siftproof. Where a liner is used to make the container siftproof, it shall be made of a suitable material. The strength of the material used for, and the construction of, the liner shall be appropriate to the capacity of the container and its intended use. Joins and closures of the liner shall withstand pressures and impacts liable to occur under normal conditions of handling and transport. For ventilated bulk containers, any liner shall not impair the operation of ventilating devices.
- 6.9.3.1.4 The operational equipment of bulk containers designed to be emptied by tilting shall be capable of withstanding the total filling mass in the tilted orientation.
- 6.9.3.1.5 Any movable roof or side or end wall or roof section shall be fitted with locking devices with securing devices designed to show the locked state to an observer at ground level.
- 6.9.3.2 *Service equipment***
- 6.9.3.2.1 Filling and discharge devices shall be so constructed and arranged as to be protected against the risk of being wrenched off or damaged during transport and handling. The filling and discharge devices shall be capable of being secured against unintended opening. The open and closed position and direction of closure shall be clearly indicated.
- 6.9.3.2.2 Seals of openings shall be so arranged as to avoid any damage by the operation, filling and emptying of the bulk container.
- 6.9.3.2.3 Where ventilation is required, bulk containers shall be equipped with means of air exchange, either by natural convection, e.g. by openings, or active elements, e.g. fans. The ventilation shall be designed to prevent negative pressures in the container at all times. Ventilating elements of bulk containers for the transport of flammable substances or substances emitting flammable gases or vapours shall be designed so as not to be a source of ignition.
- 6.9.3.3 *Inspection and testing***
- 6.9.3.3.1 Freight containers used maintained and qualified as bulk containers in accordance with the requirements of this section shall be tested and approved in accordance with the International Convention for Safe Containers (CSC) 1972, as amended.
- 6.9.3.3.2 Freight containers used and qualified as bulk containers shall be inspected periodically according to that Convention.

6.9.3.4 ***Marking***

6.9.3.4.1 Freight containers used as bulk containers shall be marked with a Safety Approval Plate in accordance with the International Convention for Safe Containers.

6.9.4 **Provisions for the design, construction and approval of bulk containers other than freight containers**

6.9.4.1 Bulk containers covered in this section include skips, offshore bulk containers, bulk bins, swap bodies, trough shaped containers, roller containers, and load compartments of vehicles.

6.9.4.2 These bulk containers shall be designed and constructed so as to be strong enough to withstand the shocks and loadings normally encountered during transport including, as applicable, transshipment between modes of transport.

6.9.4.3 Load compartments of vehicles shall comply with the requirements of, and be acceptable to, the competent authority responsible for land transport of the dangerous goods to be transported in bulk.

6.9.4.4 These bulk containers shall be approved by the competent authority and the approval shall include the code for designating types of bulk containers in accordance with 6.9.2.3 and the provisions for inspection and testing, as appropriate.

6.9.4.5 Where it is necessary to use a liner in order to retain the dangerous goods, it shall meet the provisions of 6.9.3.1.3.

6.9.4.6 The following statement shall be shown on the transport document:

"Bulk container BK2 approved by the competent authority of ...".

PART 7

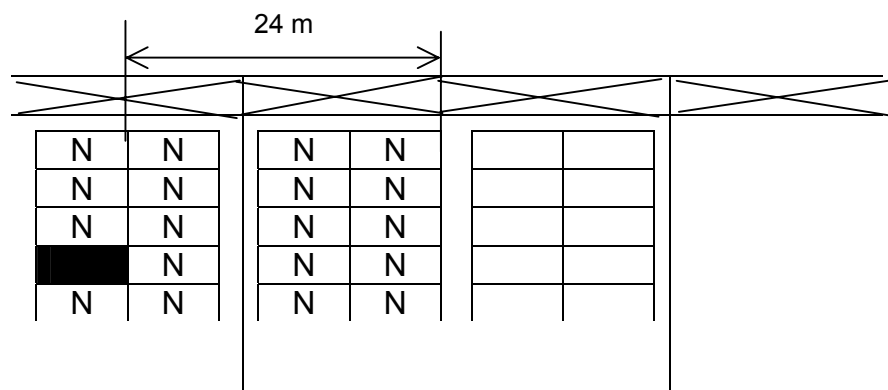
Chapter 7.1

- 7.1.1.5 Add to the end of the first sentence: ", for IBCs and large packagings the stacking test load shall be determined in accordance with 6.5.4.6.4 and 6.6.5.3.3.4 respectively".
- 7.1.5.3 Amend "Materials" to read "Material".
- 7.1.7.1.1 Amend to read:
- "*Closed cargo transport unit* means a unit which fully encloses the contents by permanent structures and can be secured to the ship's structure, and includes a magazine. Cargo transport units with fabric sides or tops are not closed cargo transport units. Where this stowage is specified, stowage in small compartments such as deck-houses and mast lockers are acceptable alternatives. The floor of any closed cargo transport unit or compartment shall either be constructed of wood, close-boarded or so arranged that goods are stowed on sparred gratings, wooden pallets or dunnage. Provided that the necessary additional specifications are met, a closed cargo transport unit may be used for type "A" or "C" class 1 stowage or as a magazine."
- 7.1.7.1.7.1 Delete the term "when stowed under deck".
- 7.1.7.3 Amend to read: "Goods of class 1 requiring *under deck* and *on deck* stowage shall be stowed in accordance with 7.1.7.4. However, the provisions of ...".
- 7.1.7.4 Amend to read "Stowage provisions for goods of class 1".
- 7.1.7.4.1 Add new "General".
- 7.1.7.4.1 (existing) becomes "7.1.7.4.1.1.
- .3 Amend to read "in all cases, all goods, including goods of class 1 stowed in cargo transport units, within the compartment or ...".
- 7.1.7.4.1.2 Add to read "Goods of class 1 with the exception of goods in division 1.4, shall not be stowed in the outermost row."
- 7.1.8.1.1 }
7.1.10.1.1 } For "shall, in general," read "should".
- 7.1.14.13 Amend the beginning to read as follows: "A freight container, tank, IBC or conveyance dedicated to the transport of unpackaged radioactive material under exclusive use ...".

- 7.1.14.5.3 Amend the end to read: "... of the conveyance, except for consignments transported under exclusive use by road or rail, for which the radiation limits around the vehicle are specified in 7.1.14.7.2 and 7.1.14.7.3".

Chapter 7.2

- 7.2.1.7.2.7 Add "(including their organometallic compounds)".
- 7.2.1.7.2.9 Amend to read "Lead and its compounds".
- 7.2.1.7.2.12 Amend to read "nitrites and their mixtures".
- 7.2.1.7.2.18 Add ".18 alkalis".
- 7.2.3.2 (page 368) In reference to the segregation provisions relating to "'Separated longitudinally by intervening complete compartment or hold from" .4 closed versus closed", amend the "Top view hold" sketch to show:



- 7.2.3.3 In table .3 and .4, in "ON DECK" column, add "IN OR" (x 5).
- 7.2.5.1.1 Add at end ", see also chapter 7.6."
- 7.2.7.1.3.1 Delete last example "3203, etc." and add
- | | | |
|---|------|-----|
| ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC | 3392 | 4.2 |
| ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE | 3394 | 4.2 |
- 7.2.7.2.1.5 Insert present 7.2.7.4.
- 7.2.7.4 Delete.
- 7.2.9.1 (b) Amend the end of this subparagraph to read: "...to the critical group, taking account of the exposures expected to be delivered by all other relevant sources and practices under control."

- 7.2.9.4 Amend to read as follows:
"Any group of packages, overpacks, and freight 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 the group does not exceed 50. Each group shall be stored so as to maintain a spacing of at least 6 m from other such groups."

Chapter 7.3

- 7.3.3.2 Add a new paragraph to read as follows:

"7.3.3.2 **Decontamination**

A cargo transport unit, a bulk container or a cargo space of a ship, which has been used to transport infectious substances, shall be inspected for release of the substance before re-use. If infectious substances were released during transport, the cargo transport unit, the bulk container or the cargo space of a ship shall be decontaminated before it is re-used. Decontamination may be achieved by any means which effectively inactivates the infectious substance released."

- 7.3.4.3 Amend title of IAEA document to read: "Planning and Preparing for Emergency Response to Transport Accidents involving Radioactive Material", Safety Guide No. TS-G-1-2 (ST-3) (ISBN 92-0-111602-0).

- 7.3.5.2 Amend "7.3.5" to read "7.3.6".

- 7.3.7.3.2 Insert "pressure" before "receptacles".

Chapter 7.4

- 7.4.3 Amend to read:

"7.4.3 Fumigated units

7.4.3.1 Cargo transport units under fumigation (fumigated units) shall be carried on board ships in accordance with the provisions of this Code relevant to the Proper Shipping Name FUMIGATED UNIT and UN number UN 3359 shown in the Dangerous Goods List in chapter 3.2. Particular transport conditions concerning UN 3359 are set out in special provision 910 in chapter 3.3.

7.4.3.2 A fumigated unit shall not be allowed on board until a sufficient period has elapsed to attain a reasonable uniform gas concentration throughout the cargo in it. Because of variations due to types and amounts of fumigants and commodities and temperature levels, the period between fumigant application and loading of the fumigated unit on board the ship shall be determined by the competent authority. Twenty-four hours is normally sufficient for this purpose. Unless the doors of a fumigated unit have been opened to allow the fumigant gas(es) and residues to be completely

ventilated or the unit has been mechanically ventilated, the shipment shall conform to the provisions of this Code concerning UN 3359.

7.4.3.3 The master shall be informed prior to the loading of a fumigated unit.

7.4.4.1.3 Amend to read "A cargo transport unit packed or loaded with flammable gas or flammable liquid having a flashpoint below +23°C c.c. transported *on deck* shall be stowed "away from" (as defined in 7.2.2.2.1) possible sources of ignition. In the case of container ships, a distance equivalent to one container space athwartships away from possible sources of ignition applied in any direction will satisfy this requirement."

Chapter 7.6

7.6.4.5 Add new "For segregation on shipborne barges and on board barge-carrying ships, see 7.2.5."

7.6.8.2 Delete "Portable magazines and".

7.6.8.3.1 Delete "portable steel magazines or in".

Chapter 7.9

Amend chapter 7.9 to read:

“CHAPTER 7.9

Exemptions, Approvals and Certificates

7.9.1 Exemptions

Note 1 The provisions of this section do not apply to exemptions mentioned in chapters 1 to 7.8 of this Code (e.g. exemptions for limited quantities in 3.4.7) and to approvals (including permits, authorizations or agreements) and certificates which are referred to in chapters 1 to 7.8 of this Code. For the said approvals and certificates, see 7.9.2.

Note 2 The provisions of this section do not apply to class 7. For consignments of radioactive material for which conformity with any provision of this Code applicable to class 7 is impracticable, refer to 1.1.3.4.

7.9.1.1 Where this Code requires that a particular provision for the transport of dangerous goods shall be complied with, a competent authority or competent authorities (port State of departure, port State of arrival or flag State) may authorize any other provision by exemption if satisfied that such provision is at least as effective and safe as that required by this Code. Acceptance of an exemption authorized under this section by a competent authority not party to it is subject to the discretion of that competent authority. Accordingly, prior to any shipment covered by the

exemption, the recipient of the exemption shall notify other competent authorities concerned.

7.9.1.2 Competent authority or competent authorities which have taken the initiative with respect to the exemption:

- .1 shall send a copy of such exemption to the International Maritime Organization which shall bring it to the attention of the Contracting Parties to SOLAS and/or MARPOL, as appropriate; and
- .2 if appropriate, take action to amend the IMDG Code to include the provisions covered by the exemption.

7.9.1.3 The period of validity of the exemption shall be not more than five years from the date of authorization. An exemption that is not covered under 7.9.1.2.2 may be renewed in accordance with the provisions of this section.

7.9.1.4 A copy of the exemption shall accompany each consignment when offered to the carrier for transport under the terms of the exemption. A copy of the exemption or an electronic copy thereof shall be maintained on board each ship transporting dangerous goods in accordance with the exemption, as appropriate.

7.9.2 Approvals (including permits, authorizations or agreements) and certificates

7.9.2.1 Approvals, including permits, authorizations or agreements, and certificates referred to in chapters 1 to 7.8 of this Code and issued by the competent authority (authorities when the Code requires a multilateral approval) or a body authorized by that competent authority (e.g. approvals for alternative packaging in 4.1.3.7, approval for segregation as in 7.2.2.3 or certificates for portable tanks in 6.7.2.18.1) shall be recognized, as appropriate:

- .1 by other contracting parties to SOLAS if they comply with the requirements of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended; and/or
- .2 by other contracting parties to MARPOL if they comply with the requirements of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78, Annex III), as amended.

7.9.3 Addresses of competent authorities

An indicative list of addresses in individual countries to which inquiries regarding competent authority exemptions, approvals (including permits, authorizations or

agreements) and certificates can be referred is given in this paragraph. Corrections to these addresses should be sent to the Organization.*

Table of 7.9.3 unchanged except for:

In the entry for AUSTRALIA, delete the existing contact addresses and the footnote and add a new contact address in the addresses of the offices of the designated national competent authorities to read:

"Canberra
Manager, Ship Inspection
Maritime Operations
Australian Maritime Safety Authority
GPO Box 2181
Canberra ACT 2601
AUSTRALIA
Telephone: +61 2 6279 5048
Fax: +61 2 6279 5058
Email: psc@amsa.gov.au
Website: <http://www.amsa.gov.au>

In the entry for BELGIUM, amend the contact addresses of the offices of the designated national competent authorities to read:

Antwerp Office
Federale Overheidsdienst Mobiliteit en Vervoer
Maritiem Vervoer
Scheepvaartveiligheid
Loodsgebouw
Tavernierkaai 3
B-2000 Antwerpen
BELGIUM
Telephone: +32 3 229 00 30
Fax: +32 3 229 00 31
Email: sc.antwerpen@mobiliteit.fgov.be

* International Maritime Organization
4 Albert Embankment
London SE1 7SR
United Kingdom
Email: info@imo.org
Fax: +44 20 7587 3120

Brussels Office

Federal Public Service Mobility and Transport
Directorate-General Maritime Transport
Aarlenstraat 104
B-1040 Brussels
BELGIUM
Telephone: +32 2 233 12 11
Fax: +32 2 230 30 02

Ostend Office

Federale Overheidsdienst Mobiliteit en Vervoer
Maritiem Vervoer
Scheepvaartcontrole
Natiënkaai 5
B-8400 Oostende
BELGIUM
Telephone: +32 59 56 14 50
Fax: +32 59 56 14 82
Email: sc.oostende@mobiliteit.fgov.be

In the entry for BRAZIL, amend the contact address of the offices of the designated national competent authorities to read:

Diretoria de Portos e Costas (DPC-20)
Rua Teófilo Otoni No. 4
Centro
Rio de Janeiro
CEP 20090-070
BRAZIL
Telephone: +55 21 2104 5203
Fax: +55 21 2104 5202
Email: secom@dpc.mar.mil.br

In the entry for ESTONIA, amend the contact address of the offices of the designated national competent authorities to read:

Estonian Maritime Administration
Maritime Safety Division
Valge 4
EST-11413 Tallinn
ESTONIA
Telephone: +372 6205 700/715
Fax: +372 6205 706
Email: mot@vta.ee

In the entry for GERMANY, amend the contact addresses of the offices of the designated national competent authorities to read:

Federal Ministry of Transport, Building and Housing
Dangerous Goods Branch
Robert-Schuman-Platz 1
D-53175 Bonn
GERMANY
Telephone: +49 228 3000 or 300-extension
+49 228 300 2643
Fax: +49 228 300 3428
Email: Ref-A33@bmvbw.bund.de

Packing, Testing and Certification Institute:

Federal Institute for Materials Research and Testing
Bundesanstalt für Material forschung und-prüfung (BAM)
Unter den Eichen 87
D-12205 Berlin
GERMANY
Telephone: +49 30 81 04 0 or Extension
+49 30 8104 1310
+49 30 8104 3407
Fax: +49 30 8104 1227
Email: ingo.doering@bam.de

In the entry for JAPAN, amend the first contact address of the office of the designated national competent authorities to read:

Inspection and Measurement Division
Maritime Bureau
Ministry of Land, Infrastructure and Transport
2-1-3 Kasumigaseki, Chiyoda-ku
Tokyo
JAPAN
Telephone: +81 3 5253 8639
Fax: +81 3 5253 1644
Email: MRB_KSK@mlit.go.jp

In the entry for the REPUBLIC OF KOREA, amend the contact addresses of the offices of the designated national competent authorities to read:

Maritime Safety Policy Division
Maritime Safety Management Bureau
Ministry of Maritime Affairs and Fisheries
50 Chungjeong-no, Seodaemun-gu, Seoul, 120-715,
REPUBLIC OF KOREA
Telephone : +82-2-3148-6312
Telefax : +82-2-3148-6317

Marine Environment & Safety Division
Busan Regional Maritime Affairs and Fisheries Office,
1116-1 Jwachon-dong, Dong-gu, Busan, 601-726,
REPUBLIC OF KOREA
Telephone : +82-51-609-6530
Telefax : +82-51-609-6529

Marine Environment & Safety Division
Incheon Regional Maritime Affairs and Fisheries Office
1-17 Hang-dong 7(chil)-ga, Jung-gu, Incheon, 400-705,
REPUBLIC OF KOREA
Telephone : +82-32-880-6451, 885-0014
Telefax : +82-32-885-0032

Seafarers and Ship Division
Yeosu Regional Maritime Affairs and Fisheries Office
335-1 Sujeong-dong, Yeosu, Chonnam, 550-705,
REPUBLIC OF KOREA
Telephone : +82-61-660-9044
Telefax : +82-61-662-6999

Seafarers and Ship Division
Masan Regional Maritime Affairs & Fisheries Office
1-5 Wolpo-dong, Masan, Kyeongnam, 631-709,
REPUBLIC OF KOREA
Telephone : +82-55-249-0325
Telefax : +82-55-242-1260

Seafarers and Ship Division
Ulsan Regional Maritime Affairs and Fisheries Office
139-9 Maeam-dong, Nam-gu, Ulsan, 680-050,
REPUBLIC OF KOREA
Telephone : +82-52-228-5550
Telefax : +82-52-228-5559

Seafarers and Ship Division
Donghae Regional Maritime Affairs and Fisheries Office
606 Songjung-dong, Donghae, Kangwondo, 240-130,
REPUBLIC OF KOREA
Telephone : +82-33-520-0688
Telefax : +82-33-521-6502

Seafarers and Ship Division
Kunsan Regional Maritime Affairs and Fisheries Office
1-7 Jangmi-dong, Kunsan, Chonbuk, 573-030,
REPUBLIC OF KOREA
Telephone : +82-63-441-2222
Telefax : +82-63-441-2351

Seafarers and Ship Division
Mokpo Regional Maritime Affairs and Fisheries Office
1482 Sanjung-dong, Mokpo, Chonnam, 530-350
REPUBLIC OF KOREA
Telephone : +82-61-242-1303
Telefax : +82-61-242-1392

Seafarers and Ship Division
Pohang Regional Maritime Affairs and Fisheries Office
58-8 Hanggu-dong, Pohang, Kyeongbuk, 790-120,
REPUBLIC OF KOREA
Telephone : +82-54-245-1534
Telefax : +82-54-242-1326

Seafarers and Ship Division
Jeju Regional Maritime Affairs and Fisheries Office
918 Geonip-dong, Jeju , Jeju Province, 690-704,
REPUBLIC OF KOREA
Telephone : +82-64-720-2642
Telefax : +82-64-720-2644

Seafarers and Ship Division
Daesan Regional Maritime Affairs & Fisheries Office
438-1 Giun-ri, Daesan-eup, Seosan, Chungnam, 356-871,
REPUBLIC OF KOREA
Telephone : +82-41-660-7700
Telefax : +82-41-663-0356

Testing and Certification
Korean Register of Shipping
23-7 Jang-dong, Yusung-gu, Daejeon, 305-600,
REPUBLIC OF KOREA
Telephone : +82-42-869-9330
Telefax : +82-42-862-6015

Inspecting Dangerous Goods Containers
Korea Maritime Dangerous Goods Inspection Center
112-2 Inui-dong, Jongro-gu, Seoul, 110-410,
REPUBLIC OF KOREA
Telephone : +82-2-766-1631
Telefax : +82-2-743-7017

In the entry for SWEDEN, amend the contact address of the office of the designated national competent authorities to read:

Swedish Maritime Administration
Maritime Safety Inspectorate
Ship Technical Division
SE-601 78 Norrköping
SWEDEN
Telephone: +46 11 19 10 00
Telefax: +46 11 23 99 34
Email: inspektion@sjofartsverket.se

SP, Swedish National Testing and Research Institute
Building Technology and Mechanics
Box 857
SE-501 15 Borås
SWEDEN
Telephone: +46 33 16 50 00
Telefax: +46 33 13 55 02

In the entry for SWITZERLAND, amend the contact address of the office of the designated national competent authorities to read:

Office suisse de la navigation maritime
Nauenstrasse 49
P. O. Box
CH-4002 Basel
SWITZERLAND
Telephone: +41 61 270 91 20
Fax: +41 61 270 91 29
Email: dv-ssa@eda.admin.ch

VOLUME 2

PART 3 Contents

Delete chapter 3.5 and the subsequent subchapters

Amend the title of PART 6 to read:

« ... PORTABLE TANKS, MULTIPLE-ELEMENT GAS CONTAINERS (MEGCs) AND ROAD TANK VEHICLES »

Chapter 3.1

3.1.2.2.3 Replace the existing text with the following:

"UN 2793 FERROUS METAL BORINGS, SHAVINGS, TURNINGS or CUTTINGS in a form liable to self-heating. The Proper Shipping Name is the most appropriate of the following combinations:

FERROUS METAL BORINGS
FERROUS METAL SHAVINGS
FERROUS METAL TURNINGS
FERROUS METAL CUTTINGS"

3.1.2.4 Replace the existing paragraph with the following text:

"3.1.2.4 Many substances have an entry for both the liquid and solid state (see definitions for liquid and solid in 1.2.1), or for the solid and solution. These are allocated separate UN numbers which are not necessarily adjacent to each other. Details are provided in the alphabetical index, e.g.:

| | | | |
|----------------------|---|-----|-------|
| NITROXYLENES, LIQUID | - | 6.1 | 1665 |
| NITROXYLENES, SOLID | - | 6.1 | 3447" |

3.1.2.7 Replace "included" with "transported".

3.1.2.8.1 Replace "their technical" with "the technical" in the first sentence.

3.1.2.8.1.4 Replace "UN 2003 METAL ALKYL, WATER-REACTIVE, N.O.S (trimethylgallium)" with "UN 3394 ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE (trimethylgallium)".

3.1.3.3 Align wording with 2.0.2.9.

3.1.4.2 Amend the third sentence to read:

"Although these N.O.S. entries are not themselves listed in the above groups, the consignor shall decide whether inclusion under the segregation group is appropriate and, if so, shall mention that fact in the transport document (see 5.4.1.5.11)."

3.1.4.4.1 Add the following UN numbers in the list of acids:

"1250 methyltrichlorosilane
1298 trimethylchlorosilane
1305 vinyltrichlorosilane
1717 acetyl chloride
1723 allyl iodide
1745 bromine pentafluoride
1746 bromide trifluoride
1770 diphenyl methylbromide
1798 nitrohydrochloric acid
1815 propionyl chloride
1873 perchloric acid with more than 50% but not more than 72% acid, by mass"
2353 N,N-dimethylaniline
2395 isobutyrylchloride
2495 iodine pentafluoride
2626 chloric acid, aqueous solution
3361 chlorosilanes, toxic, corrosive, n.o.s.
3362 chlorosilanes, toxic, corrosive, flammable, n.o.s."

Add an asterisk after the proper shipping names of UN Nos. 1052, 1777, 1786, 1787, 1788, 1789, 1790, 1796, 1798, 1802, 1826, 1830, 1831, 1832, 1873, 1906, 2031, 2032, 2240, 2308 and 2796.

Add the following at the end of the list (NOT END OF THE PAGE) of the segregation group for acids:

"* : identifies strong acids"

Delete UN 2812 and UN 3093 from segregation group **1 acids**.

Amend the list of acids to read:

"1742 boron trifluoride acetic acid complex, liquid
1743 boron trifluoride propionic acid complex, liquid
1805 phosphoric acid, liquid
1938 bromoacetic acid solution
2308 nitrosylsulphuric acid, liquid"

Add to the list of acids:

"3419 boron trifluoride acetic acid complex, solid
3420 boron trifluoride propionic acid complex, solid
3421 potassium hydrogendifluoride solution
3425 bromoacetic acid, solid
3453 phosphoric acid, solid
3456 nitrosylsulphuric acid, solid"

3.1.4.4.2 Add the following UN numbers:

"0004 Ammonium picrate dry or wetted with less than 10% water, by mass
0402 Ammonium perchlorate"

Delete UN 0223 and 2072

Amend to read:

"1835 tetramethylammonium hydroxide solution
1843 ammonium dinitro-o-cresolate, solid"

Add:

"3423 tetramethylammonium hydroxide, solid
3424 ammonium dinitro-o-cresolate solution"

3.1.4.4.4 Amend to read:

"1445 barium chlorate, solid
1459 chlorate and magnesium chloride mixture, solid"

Add:

"3405 barium chlorate solution
3407 chlorate and magnesium chloride mixture solution"

3.1.4.4.6 Amend to read:

"1680 potassium cyanide, solid
1689 sodium cyanide, solid
1694 bromobenzyl cyanides, liquid"

Add:

"3413 potassium cyanide solution
3414 sodium cyanide solution
3449 bromobenzyl cyanides, solid"

3.1.4.4.7 Amend the heading "7 Heavy metals and their salts" to read "7 Heavy metals and their salts (including their organometallic compounds)".

Delete UN 1477 Nitrates, inorganic, n.o.s., and UN 3282 Organometallic compound, toxic, n.o.s., from segregation group 7.

Amend to read:

"1470 lead perchlorate, solid"

Add:

"1389 alkali metal amalgam, liquid
1392 alkaline earth metal amalgam, liquid
3401 alkali metal amalgam, solid
3402 alkaline earth metal amalgam, solid
3408 lead perchlorate solution"

3.1.4.4.8 In "**8 Hypochlorites**", insert the entry "UN 2880 Calcium hypochlorite, hydrated or Calcium hypochlorite, hydrated mixture with not less than 5.5% but not more than 16% water after UN 2741".

3.1.4.4.9.1.1 Amend to read: "Lead and its compounds"

Amend to read:

"1470 lead perchlorate, solid"

Add:

"3408 lead perchlorate solution"

3.1.4.4.11 Add:

"1389 alkali metal amalgam, liquid
1392 alkaline earth metal amalgam, liquid
3401 alkali metal amalgam, solid
3402 alkaline earth metal amalgam, liquid"

3.1.4.4.13 Amend to read:

"1447 barium perchlorate, solid
1470 lead perchlorate, solid"

Add:

"3406 barium perchlorate solution
3408 lead perchlorate solution"

3.1.4.4.16 Add:

"3377 sodium perborate monohydrate
3378 sodium carbonate peroxyhydrate"

Add to 3.1.4.4 a new segregation group for alkalis as follows:

"18 Alkalis

1005 ammonia, anhydrous
1160 dimethylamine, aqueous solution
1163 dimethylhydrazine, unsymmetrical
1235 methylamine, aqueous solution
1244 methylhydrazine
1382 potassium sulphide, anhydrous or potassium sulphide with less than 30% water of crystallization
1385 sodium sulphide, anhydrous or sodium sulphide with less than 30% water of crystallization
1604 ethylenediamine
1719 caustic alkali liquid, n.o.s.
1813 potassium hydroxide, solid
1814 potassium hydroxide, solution
1819 sodium aluminate solution
1823 sodium hydroxide, solid
1824 sodium hydroxide solution
1825 sodium monoxide
1835 tetramethylammonium hydroxide
1847 potassium sulphide, hydrated with not less than 30% water of crystallization
1849 sodium sulphide, hydrated with not less than 30% water
1907 soda lime with more than 4% sodium hydroxide
1922 pyrrolidine
2029 hydrazine, anhydrous
2030 hydrazine, aqueous solution
2033 potassium monoxide
2073 ammonia solution relative density less than 0.880 at 15°C, with more than 35% but not more than 50% ammonia
2079 diethylenetriamine
2259 triethylenetetramine
2270 ethylamine, aqueous solution
2318 sodium hydrosulphide with less than 25% water of crystallization
2320 tetraethylenepentamine
2379 1,3-dimethylbutylamine
2382 dimethylhydrazine, symmetrical
2386 1-ethylpiperidine
2399 1-methylpiperidine
2401 piperidine
2491 ethanolamine or ethanolamine solution
2579 piperazine

- 2671 aminopyridines
- 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 by mass
- 2677 rubidium hydroxide solution
- 2678 rubidium hydroxide, solid
- 2679 lithium hydroxide solution
- 2680 lithium hydroxide
- 2681 caesium hydroxide solution
- 2682 caesium hydroxide
- 2683 ammonium sulphide solution
- 2733 amines, liquid, corrosive, flammable, n.o.s. or polyamines, liquid, corrosive, flammable, n.o.s.
- 2734 amines, liquid, flammable, corrosive, n.o.s. or polyamines, liquid, flammable, corrosive, n.o.s.
- 2735 amines, liquid, corrosive, n.o.s. or polyamines, liquid, corrosive, n.o.s.
- 2795 batteries, wet, filled with alkali electric storage
- 2797 battery fluid, alkali
- 2818 ammonium polysulphide solution
- 2949 sodium hydrosulphide, solid with not less than 25% water of crystallization
- 3028 batteries, dry, containing potassium hydroxide, solid electric storage
- 3073 vinylpyridines, stabilized
- 3253 disodium trioxosilicate
- 3259 amines, solid, corrosive, n.o.s. or polyamines, solid, corrosive, n.o.s.
- 3262 corrosive solid, basic, inorganic, n.o.s.
- 3263 corrosive solid, basic, organic, n.o.s.
- 3266 corrosive liquid, basic, inorganic, n.o.s.
- 3267 corrosive liquid, basic, organic, n.o.s.
- 3293 hydrazine, aqueous solution with not more than 37% hydrazine, by mass
- 3318 ammonia solution relative density less than 0.880 at 15°C in water, with more than 50% ammonia
- 3320 sodium borohydride and sodium hydroxide solution with not more than 12% sodium borohydride and not more than 40% sodium hydroxide, by mass
- 3423 tetramethylammonium hydroxide, solid"

Add for the above entries the sentence "'separated from" acids" in column 16 of the Dangerous Goods List.

Add for the above entries the sentence "reacts violently with acids" in column 17 of the Dangerous Goods List.

Chapter 3.2

- 3.2.1 Column 2 Add the following sentence at the end of the existing text:
"Unless otherwise indicated for an entry in the Dangerous Goods List, the word "SOLUTION" in a Proper Shipping Name means one or more named dangerous goods dissolved in a liquid that is not otherwise subject to this Code. When a flashpoint is mentioned in this column, the data is based on closed-cup (c.c) methods."
- Column 8 Delete "A code including the letters "BP" refers to the use of bulk packagings described in chapter 4.3." and "or "BP""; insert "or" between "P" and "LP".
- Column 13 Amend to read "UN tank and Bulk container instructions".
- Amend the second paragraph to read:
"When a T code is not provided in this column, it means that the dangerous goods are not authorized for transport in tanks unless specifically approved by the competent authority."
- Add the following sentences at the end of the existing amended text:
"Bulk container code – The code "BK2" refers to closed bulk containers used for the transport of bulk goods described in chapter 6.9. When a bulk container code is not provided, it means that the substance is not permitted in a bulk container. Transport in sheeted bulk containers is not permitted in this Code."
- 3.2.1 In column 8, delete "When "N/R" is ... packaged."

Dangerous Goods List. Move title page 3 pages forward before 3.2.1.

In column 2 of the Dangerous Goods List, delete "c.c."

Amend the heading applicable to columns 12, 13 and 14 to read: "Portable tanks and bulk containers". Amend the heading of column 12 to read "IMO tank instructions", the heading of column 13, to read "UN tank instructions" and the heading of column 14 to read "Provisions".

For UN Nos. 1611 and 1704 add "T7" and "TP2" in columns 13 and 14 respectively. In the Dangerous Goods List, assign "TP5" in column 14 to each refrigerated liquid gas that is assigned "T75" in column 13. (Apply to UN Nos. 1003, 1038, 1073, 1913, 1951, 1961, 1963, 1966, 1970, 1972, 1977, 2187, 2201, 2591, 3136, 3138, 3158, 3311 and 3312).

For UN Nos. 0331, 0332 and 3375, insert "T1" in column 13 and "TP1", "TP17" and "TP32" in column 14; and for UN 3375 delete "T2" from column 13 and "TP9" from column 14.

For UN Nos. 1334, 1350, 1363, 1376, 1386, 1395, 1398, 1402, 1408, 1435, 1438, 1446, 1454, 1469, 1474, 1485, 1486, 1495, 1498, 1499, 1942, 2067, 2071, 2211, 2213, 2216, 2217, 2793, 2950, 2969, 3170, 3175, 3243, 3244 and 3314 delete "BP" from column 8.

For UN Nos. 1334, 1350, 1438, 1454, 1474, 1486, 1495, 1498, 1499, 1942, 2067, 2213, 2969, 3170 (PG II and III), 3175, 3243, 1363, 1376, 1386, 1395, 1398, 1402, 1408, 1435, 1446, 1469, 1485, 2071, 2211, 2216, 2217, 2793, 2900, 2950, 3244 and 3314, insert "BK2" in column 13.

For the liquid, packing group I entries of UN Nos. 1583, 2810, 2927, 2929, 3122, 3123, 3275, 3276, 3278, 3279, 3280, 3281, 3287 and 3289 insert "315" in column 6.

For all the UN Nos. containing the words "fissile-excepted" in lower case in column 2, insert "317" in column 6. (*Apply to UN Nos.: 2912, 2913, 2915, 2916, 2917, 2919, 2978, 3321, 3322, 3323 and 3332*).

For UN Nos. 1366, 1370, 2005, 2445, 3051, 3052, 3053 and 3076, add "320" in column 6.

UN 0113 Amend the proper shipping name in column 2 to read: "GUANYL NITROSAMINOGUANYLIDENE HYDRAZINE, WETTED with not less than 30% water, by mass".

UN 0118 Delete comma after "(HEXOTOL)".

UN 0498 } In column 17, amend "liquid" to read "solid".
UN 0499 }

UN 0503 In columns 2 and 17, for "AIR-BAG" read "AIR BAG".

UN 1010 Add the following text at the end of the existing name in column 2:
"or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED with more than 40% butadienes".

UN 1057 Replace "P003" with "P002" in column 8 and add "PP84" in column 9.

UN 1062 Amend spelling of "chloropicrin".

UN 1070 In column 15, underline "F-C".

UN 1153 Insert an entry after UN 1153, PG II to read: "1153", "ETHYLENE GLYCOL DIETHYL ETHER", "3", "-", "III" "-", "5 1", "P001, LP01", "-", "IBC03", "-", "T1", "T2", "TP1", "F-E, S-D", "Category A", "see entry above", "1153".

UN 1203 (Amend the proper shipping name in the French amendment only.).

UN 1265 Amend column 2 to read "PENTANES, liquid".

UN 1278 In column 15 replace "S-C" with "S-D".

UN 1305 Delete ", STABILIZED" in column 2.

UN 1327 Add "29" in column 6.

UN 1350 In column 8 add "P002", and in column 17 delete ": (1) transported in quantities of less than 400 kg per package, or (2)".

- UN 1364 Add "29" and delete "281" in column 6.
- UN 1365 Delete "281" in column 6.
- UN 1389 Delete the solid entry and "or solid" in column 17 of the liquid entry.
- UN 1392 Delete the solid entry and delete "IBC04" and "B1" in columns 10 and 11 of the liquid entry respectively.
- UN 1403 Insert "934" in column 6 and delete "933".
- UN 1404 Delete "934" in column 6.
- UN 1408 Insert "B6" in column 11.
- UN 1420 Add ", LIQUID" in column 2, replace "P403" with "P402" in column 8, delete "IBC04" and "B1" in columns 10 and 11 respectively and delete "solid or" in column 17.
- UN 1422 Add ", LIQUID" in column 2, replace "P403" with "P402" in column 8, delete "IBC04" and "B1" in columns 10 and 11 respectively and delete "solid or" in column 17.
- UN 1445 Delete the solution entry and delete ", or aqueous solutions" in column 17 (first sentence) of the solid entry.
- UN 1447 Delete the solution entry and delete ", or aqueous solutions" in column 17 (first sentence) of the solid entry.
- UN 1459 Delete the solution entries (PG II and PG III) and delete "aqueous" and "or solution" in column 17 (first sentence) of the solid entry (PG II).
- UN 1470 Delete the solution entry and delete ", or aqueous solutions" in column 17 (first sentence) of the solid entry.
- UN 1471 Amend "should" to read "shall" in column 16.
- UN 1326 }
UN 1352 } Amend column 9 to read: "PP31 PP40".
UN 1358 }
UN 1871 }
- UN 1564 Add "LP02" in column 8 for PG III entry.
- UN 1577 Delete the solid entry. In column 17 (liquid entry), delete "crystals or" in the first sentence and delete the second sentence.

- UN 1578 Delete the liquid entry. In column 17 (solid entry), delete "see entry above" and insert the following paragraph "Yellows crystals. Melting point: approximately 30°C to 80°C. Toxic if swallowed, by skin contact or by inhalation."
- UN 1579 Delete the solution entry. Add "LP02" in column 8 (solid entry) and amend the first sentence in column 17 (solid entry) to read "Dry solid or paste".
- UN 1590 Delete the solid entry.
- UN 1597 Delete the solid entry. Replace "IBC02" by "IBC03" in column 10 (liquid entry, PG II). Delete "dust" in column 17 (liquid entry, PG II) and add a new entry for PG III as follows: "1597", "DINITROBENZENES, LIQUID", "6.1", "-", "III", "223", "5 I", "P001, LP01", "-", "IBC03", "-", "-", "T7", "TP2", "F-A, S-A", "Category A, "separated from" class 3", "see entry above".
- UN 1650 Delete the liquid entry. Add "IBC08" and "B2, B4" in column 10 and 11 (solid entry) respectively.
- UN 1656 Delete the solid entry. Amend column 2 (liquid entry, PG II) to read "NICOTINE HYDROCHLORIDE, LIQUID or SOLUTION", delete the first sentence and replace the second sentence by "Miscible with water" in column 17 (liquid entry, PG II). Add a new entry for PG III as follows: "1656", "NICOTINE HYDROCHLORIDE, LIQUID or SOLUTION", "6.1", "-", "III", "43, 223", "5 I", "P001, LP01", "-", "IBC03", "-", "-", "-", "-", "F-A, S-A", "Category A", "see entry above".
- UN 1658 Delete the solid entry. Delete the first sentence and replace the second sentence by "Miscible with water" in column 17 (liquid entry, PG II). Add a new entry for PG III as follows: "1658", "NICOTINE SULPHATE SOLUTION", "6.1", "-", "III", "223", "5 I", "P001, LP01", "-", "IBC03", "-", "-", "T7", "TP2", "F-A, S-A", "Category A", "see entry above".
- UN 1664 Delete the solid entry. Amend column 17 (liquid entry) to read: "Yellow liquids. Melting points: ortho-NITROTOLUENE: -4°C, meta-NITROTOLUENE: 15°C. Toxic if swallowed, by skin or by inhalation."
- UN 1665 Delete the solid entry. Delete "T13" in column 12 (liquid entry). Amend column 17 (liquid entry) to read: "Yellows liquids. Melting points: 2-NITRO-3-XYLENE: 14°C to 16°C, 3-NITRO-2-XYLENE: 7°C to 9°C, 4-NITRO-3-XYLENE: 2°C. Immiscible with water. Toxic if swallowed, by skin contact or by inhalation."
- UN 1680 Delete the solution entry. In column 17 (solid entry), amend the first and the second sentences to read: "White, deliquescent crystals or lumps. Soluble in water".
- UN 1689 Delete the solution entry. Delete "B1" in column 11 (solid entry). Delete "see entry above" and insert the following text in column 17 (solid entry): "White, deliquescent crystals or lumps. Soluble in water. Reacts with acids or acid fumes,

evolving hydrogen cyanide, a highly toxic and flammable gas. Highly toxic if swallowed, by skin contact or by dust inhalation."

- UN 1690 Delete the solution entry. In column 4 (solid entry), delete ".". In column 17 (solid entry), delete "or colourless liquid" in the first sentence.
- UN 1693 Delete the solid entries (PG II and III).
- UN 1694 Delete the solid entry. In column 17 (liquid entry), delete ", yellow crystals or" in the first sentence and delete ", meta-BROMOBENZYL CYANIDE 25°C" in the second sentence.
- UN 1697 Delete the liquid entry. In column 17 (solid entry), delete "see entry above" and insert the following: "White crystals evolving irritating vapour ("Tear Gas"). Melting point may be as low as 20°C. Toxic if swallowed, by skin contact or by inhalation."
- UN 1699 Delete the solid entry. Amend the text in column 17 (liquid entry) to read: "When pure, colourless liquid. The commercial product may be a dark brown liquid. Volatile liquid evolving an irritating vapour ("Tear Gas"). Highly toxic if swallowed, by skin contact or by inhalation."
- UN 1701 Add ", LIQUID" in column 2.
- UN 1708 Delete the solid entry. In column 17 (liquid entry), delete "or solids" in the first sentence and delete the second sentence.
- UN 1709 Delete the solution entry. Add "LP02" in column 8 (solid entry). In column 17 (solid entry), delete "see entry above" and insert the following text: "White crystals or powder. Toxic if swallowed, by skin contact or by inhalation."
- UN 1711 Delete the solid entry. In column 17 (liquid entry), delete the first sentence.
- UN 1729 Delete the liquid entry. In column 2 (solid entry), delete ", SOLID". Add "T3" and "TP33" in columns 13 and 14 (solid entry) respectively. In column 17 (solid entry), delete "see entry above" and insert the following text: "Crystalline powder. Melting point: 22°C. Reacts violently with water, evolving hydrogen chloride, an irritating and corrosive gas apparent as white fumes. In the presence of moisture, highly corrosive to most metals. Vapour irritates mucous membranes."
- UN 1733 Delete the solid entry. In column 2 (liquid entry), delete "SOLUTION". In column 17 (liquid entry), delete ", very deliquescent crystals or" in the first sentence.
- UN 1742 Delete the solid entry. In column 17 (liquid entry), delete the first two sentences.
- UN 1743 Delete the solid entry. In column 17 (liquid entry), delete the second and the third sentences.

- UN 1744 Add PP82 in column 9.
- UN 1748 Add "313, 314" in column 6 of the PG II entry. Replace "PP78" with "PP85" in column 9 of the PG II entry. Add a new entry for PG III as follows: "1748", "CALCIUM HYPOCHLORITE, DRY or CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 39% available chlorine (8.8% available oxygen)", "5.1", "-", "III", "316", "5 kg", "P002", "PP85", "-", "-", "-", "-", "-", "F-H, S-Q", "Category D. Cargo transport units shall be shaded from direct sunlight and stowed away from sources of heat. Packages in cargo transport units shall be stowed so as to allow for adequate air circulation throughout the cargo. "Separated from" ammonium compounds, acids, cyanides, hydrogen peroxides and liquid organic substances", "see entry above".
- UN 1805 Delete the solid entry. In column 2 (liquid entry), replace "LIQUID" with "SOLUTION" and add "223" in column 6 (liquid entry). In column 17 (liquid entry), amend the text to read "Miscible in water. Mildly corrosive to most metals."
- UN 1811 Delete the liquid entry. Amend the name in column 2 (solid entry) to read "POTASSIUM HYDROGEN DIFLUORIDE, SOLID". In column 17 (solid entry) delete "see entry above" and insert the following text: "White crystalline solid. Decomposed by heat or acids, evolving hydrogen fluoride, a toxic, extremely irritating and corrosive gas apparent as white fumes. In the presence of moisture, highly corrosive to glass, other siliceous materials and most metals. Toxic if swallowed, by skin contact or by inhalation. Causes burns to skin, eyes and mucous membranes."
- UN 1812 Delete the solution entry. In column 17 (solid entry) delete "see entry above" and insert the following text: "White, deliquescent crystals or powder. Decomposed by acids, evolving hydrogen fluoride, irritating and corrosive gas. Toxic if swallowed, by skin contact or by inhalation."
- UN 1826 Insert "B20" in column 11 for the PG II entry.
- UN 1827 Delete "B20" from column 11.
- UN 1835 Add "SOLUTION" in column 2. Amend the first sentence in column 17 (PG II) to read "Miscible with water". Add a new entry for PG III as follows: "1835", "TETRAMETHYLAMMONIUM HYDROXYDE SOLUTION", "8", "-", "III", "223", "5 l", "P001, LP01", "-", "IBC03", "-", "T4", "T7", "TP2", "F-A, S-B", "Category A, "Separated from" acids", "see entry above".
- UN 1843 Delete the liquid entry. In column 2 (solid entry), replace "ortho" by "o". Delete "T7", "T7" and "TP2" in columns 12, 13 and 14 (solid entry) respectively. In column 17 (solid entry) delete "see entry above" and insert the following text: "May support combustion and burn without oxygen. When involved in a fire, evolves toxic fumes. Forms extremely sensitive explosive compounds with lead, silver or other heavy metals and their compounds. Toxic if swallowed, by skin contact or by inhalation."

- UN 1848 Delete ", flammable" in column 17.
- UN 1856 Delete "281" from column 6.
- UN 1889 Add in column 16 ""Separated from" acids.".
- UN 1931 In column 16, amend last sentence to read "Away from class 6.2 and acids.".
- UN 1938 Delete the solid entry. In column 17 (liquid entry, PG II), delete the first and the second sentences. Add a new entry for PG III as follows: "1938", "BROMOACETIC ACID SOLUTION", "8", "-", "III", "223", "5 1", "P001, LP01", "-", "IBC03", "-", "-", "T7", "TP2", "F-A, S-B", "Category A, Clear of living quarters", "see entry above".
- UN 1942 Add "class 4.1" between ""Separated from"" and "combustible material" in column 16.
- UN 1950 Revise entry to read as follows:

"

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|------|----------|---|---------------|---|------------------|--------------|------|------|----|----|----|----|----|----------|----|----|------|
| 1950 | AEROSOLS | 2 | ● see SP63 | - | 63 190 277 | see SP277 | P003 | PP17 | - | - | - | - | - | F-D, S-U | * | - | 1950 |

* For AEROSOLS with a maximum capacity of 1 l.:
CATEGORY A.
 Segregation as for class 9 but "away from" sources of heat and "separated from" class 1 except division 1.4.

For AEROSOLS with a capacity above 1 l.:
CATEGORY B.
 Segregation as for the appropriate division of class 2."

- UN 1963 Add "TP34" in column 14.
- UN 1966 Add "TP34" in column 14 and ""Separated from "chlorine." in column 16.
- UN 1993 Insert "T4" in column 12 and amend "T4" to read "T7" in column 13 for the PG II entry, and amend "T2" to read "T4" for the PG III entry.
- UN 2003 Delete.
- UN 2014 Add "PP10" and delete "PP29" in column 9.
- UN 2015 In column 12, insert "T9".
- UN 2038 Delete the solid entry. In column 17 (liquid entry), replace the first sentence by "Immiscible with water."
- UN 2067 Add "class 4.1", between ""Separated from"" and "combustible material" in column 16
- UN 2074 Delete the solution entry. In column 17 (solid entry), delete "see entry above" and insert the following text: "Crystals or powder. Soluble in water. May polymerise violently on melting. Toxic if swallowed, by skin contact or by inhalation."
- UN 2076 Delete the solid entry. In column 17 (liquid entry), delete "or solids" in the first sentence, delete "or soluble in" in the second sentence and replace the third sentence by "Melting point of meta-CRESOL: 12°C".
- UN 2077 Delete the liquid entry. In column 2 (solid entry), delete ", SOLID". Add "T1" and "TP33" in columns 13 and 14 (solid entry). In column 17 (solid entry), delete "see entry above" and insert the following text: "White crystals. Toxic if swallowed, by skin contact or by inhalation."
- UN 2079 Amend column 16 to read ""Separated from" acids" as last sentence. Add in column 17 "Reacts violently with acids."
- UN 2208 Insert "313" and "314" in column 6 and "PP85" in column 9, delete PP78 from column 9, amend "should" to read "shall" in column 16 (x2).
- UN 2211 Amend "should" to read "shall" in column 16.
- UN 2235 Delete the solid entry. In column 2 (liquid entry), delete "para-". In column 17 (liquid entry), amend the text to read: "Colourless liquid. Immiscible with water. Toxic if swallowed, by skin contact or by inhalation."
- UN 2236 Delete the solid entry. In column 17 (liquid entry), amend the text to read: "Colourless liquid with a pungent odour. Immiscible with water. Reacts with water, evolving carbon dioxide. Toxic if swallowed, by skin contact or by inhalation."

- UN 2239 Delete the liquid entry. In column 17 (solid entry), delete "see entry above" and insert the following text: "Crystalline solids. Some isomers may melt at low temperature: melting range between 0°C and 24°C. Toxic if swallowed, by skin contact or by inhalation."
- UN 2259 Amend column 16, last sentence to read ""Separated from" acids." Add in column 17 "Reacts violently with acids."
- UN 2261 Delete the liquid entry. Delete "T7" and "TP2" in columns 13 and 14 (solid entry) respectively. In column 17 (solid entry), delete "see entry above" and insert the following text: "Crystals or needles. Toxic if swallowed, by skin contact or by inhalation."
- UN 2291 Add "LP02" in column 8.
- UN 2306 Delete the solid entry. In column 17 (liquid entry), delete "or low melting point (31°C to 32°C) solids" in the first sentence and amend the second sentence to read "Immiscible with water".
- UN 2308 Delete the solid entry. In column 17 (liquid entry), delete "Colourless, crystalline solid, or" in the first sentence.
- UN 2315 Delete the solid entry. In column 17 (liquid entry), amend the fifth sentence to read: "This entry also covers articles, such as transformers and condensers, containing free liquid polychlorinated biphenyls."
- UN 2401 Add in column 16 ""Separated from" acids." Add in column 17 "Reacts violently with acids."
- UN 2433 Delete the solid entry. In column 17 (liquid entry), delete the first and the second sentences. The (new) first sentence is amended to read "Immiscible with water."
- UN 2445 Add ", LIQUID" in column 2 and "320" in column 6. Delete "Liquid." in column 17.
- UN 2446 Add ", SOLID" in column 2.
- UN 2511 Delete " SOLUTION" in column 2 and insert "223" in column 6. Delete the entry for "2-CHLOROPROPIONIC ACID, SOLID". Delete in column 17 "Crystals or a" and "Dust and liquid".
- UN 2513 In column 16, add ""Separated from" alkalis."
- UN 2552 Add ", LIQUID" in column 2. In column 17, delete the first and the second sentences.
- UN 2579 Add in column 16 "Separated from" acids." Add in column 17 "Reacts violently with acids."
- UN 2626 Replace "kg" with "l" in column 7.

- UN 2662 Delete the solution entry. In column 17 (solid entry), delete "see entry above" and insert the following text: "White crystals. Soluble in water. Toxic if swallowed, by skin contact or by inhalation."
- UN 2669 Delete the solid entry. In column 17 (liquid entry, PG II), delete "White or pink crystals or" in the first sentence, delete the second and fourth sentences and delete "Liquids" at the beginning of the third sentence. Add a new entry for PG III as follows: "2669", "CHLOROCRESOLS SOLUTION", "6.1", "-", "III", "223", "5 1", "P001, LP01", "-", "IBC03", "-", "T4", "T7", "TP2", "F-A, S-A", "Category A, Keep as cool as reasonably practicable", "see entry above".
- UN 2691 In column 16, add ""Separated from" alkalis and ammonia."
- UN 2698 Delete "940" from column 6.
- UN 2730 Delete the solid entry. In column 17 (liquid entry), amend the text to read "Light reddish or amber liquid. Immiscible with water. Toxic if swallowed, by skin contact or by inhalation".
- UN 2732 Delete the solid entry. In column 17 (liquid entry), amend the text to read "Colourless to pale yellow liquids. Melting point of 1-BROMO-3-NITROBENZENE: 17°C. Immiscible with water. Toxic if swallowed, by skin contact or by inhalation."
- UN 2753 Delete the solid entry. In column 17 (liquid entry), amend the text to read "Liquids with a strong odour. Immiscible with water. Toxic if swallowed, by skin contact or by inhalation."
- UN 2730 Amend "1ℓ" to read "5ℓ" in column 7.
- UN 2794 Delete "III" in column 5 and amend column 7 to read "1ℓ".
- UN 2795 Delete "III" in column 5.
- UN 2800 Delete "III" in column 5. Delete "940" from column 6 and add "29". Amend column 7 to read "1ℓ".
- UN 2813 For packing groups I, II and III, add "PP83" in column 9.
- UN 2814 Delete "274" and add "318" in column 6.
- UN 2834 Delete the solution entry. Delete ", SOLID" in column 2 (solid entry). In column 17 (solid entry), delete "see entry above" and insert the following text: "Colourless to yellow deliquescent crystals. Soluble in water. Mildly corrosive to most metals. Causes burns to skin, eyes and mucous membranes."
- UN 2880 Add "313, 314" in column 6 of the PG II entry. Replace "PP78" by "PP85" in column 9 of the PG II entry. Amend "should" to read "shall" in column 16 (x2) of the PG II entry. Add a new entry for PG III as follows: "2880", "CALCIUM

HYPOCHLORITE, HYDRATED or CALCIUM HYPOCHLORITE HYDRATED MIXTURE with not less than 5.5% but not more than 16% water", "5.1", "-", "III", "316", "5 kg", "P002", "PP85", "-", "-", "-", "-", "-", "-", "F-H, S-Q", "Category D. Cargo transport units shall be shaded from direct sunlight and stowed away from sources of heat. Packages in cargo transport units shall be stowed so as to allow for adequate air circulation throughout the cargo. "Separated from" ammonium compounds, acids, cyanides, hydrogen peroxides and liquid organic substances", "see entry above".

- UN 2900 Delete "274" and add "318" in column 6.
- UN 2921 Replace "S-C" by "S-G" in column 15.
- UN 2949 Delete the solution entry. In column 17 (solid entry), delete "see entry above" and insert the following text: "Colourless needles or yellow flakes. Soluble in water with a foul odour. Melting point: 52°C. Reacts with acids, evolving hydrogen sulphide, a toxic and flammable gas. Causes burns to skin, eyes and mucous membranes."
- UN 2908 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 4."
- UN 2909 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 3."
- UN 2910 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 1."
- UN 2911 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 2."
- UN 2912 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 5."
- UN 2913 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 8."
- UN 2915 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 9."
- UN 2916 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 10."
- UN 2917 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 11."
- UN 2919 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 14."
- UN 2937 Delete the solid entry. In column 17 (liquid entry), delete "or solid" in the first sentence.
- UN 2977 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 6, 7, 9, 10 or 11, according to type of package."
- UN 2978 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 5, 6, 7, 9, 10 or 11, according to type of package."
- UN 2990 In column 6, add "956".

- UN 3020 Amend "1ℓ" to read "500mℓ" in column 7 for the PG III entry.
- UN 3049 Delete.
- UN 3050 Delete.
- UN 3052 Delete the solid entry. In column 17 (liquid entry), delete the first sentence.
- UN 3065 In column 17 of the PG III entry, amend the last sentence to read "5. when carried on board ships, the containers should be stowed in open cargo spaces or in enclosed cargo spaces complying with the requirements for class 3 flammable liquids with a flashpoint of 23°C c.c. or less in regulation II-2/19 of SOLAS 74, as amended."
- UN 3072 In column 6, add "956".
- UN 3090 Add "957" in column 6.
- UN 3091 Add "957" in column 6.
- UN 3125 Replace "P001" with "P002" in column 8 for PG III entry.
- UN 3149 Add "PP10" in column 9.
- UN 3151 Amend the third sentence in column 17 to read: "This entry also covers articles, such as transformers and condensers, containing free liquid polyhalogenated biphenyls or polyhalogenated terphenyls."
- UN 3152 In column 6, replace "908" with "958". Amend the fourth sentence in column 17 to read: "This entry covers articles, such as rags, cotton waste, clothing, sawdust, containing polyhalogenated biphenyls or polyhalogenated terphenyls where no free visible liquid is present."
- UN 3172 Delete the solid entries (PG I, II and III). Replace "Category A" with "Category B" in column 16 of the PG I and II entries.
- UN 3176 Delete "TP9" in column 14, twice.
- UN 3182 Amend column 9 of the PG II entry to read "PP31 PP40".
- UN 3203 Delete.
- UN 3205 Replace "S-Q" by "S-J" in column 15.
- UN 3206 Replace "S-Q" by "S-J" in column 15.
- UN 3207 Delete.
- UN 3209 Amend column 9 of the PG II entry, to read "PP31 PP40".

- UN 3212 Amend "should" to read "shall" in column 16.
- UN 3231 }
UN 3234 } For "2.4.2.3.2.7" read "2.4.2.3.2.3" in column 17.
UN 3237 }
UN 3240 }
- UN 3242 Delete the "●" in column 4.
- UN 3268 For "AIR-BAG" read "AIR BAG" in column 2.
- UN 3272 In column 10 of the PG III entry, insert "IBC03".
- UN 3276 Amend column 2 to read as follows: "NITRILES, TOXIC, LIQUID, N.O.S.".
- UN 3278 Delete the solid entries (PG I, II and III). For the liquid entry, amend the name in column 2 to read as follows: "ORGANOPHOSPHORUS COMPOUND, TOXIC, LIQUID, N.O.S.".
- UN 3280 Delete the solid entries (PG I, II and III). Amend column 2 to read as follows: "ORGANOARSENIC COMPOUND, LIQUID, N.O.S.". In column 17 (liquid entry), delete the first sentence.
- UN 3281 Delete the solid entries (PG I, II and III). Amend column 2 to read as follows: "METAL CARBONYLS, LIQUID, N.O.S.". In column 17 (liquid entry), delete the second sentence and delete "dust" in the fourth sentence.
- UN 3282 Delete the solid entries (PG I, II and III). Amend column 2 to read as follows: "ORGANOMETALLIC COMPOUND, TOXIC, LIQUID, N.O.S.".
- UN 3283 Amend the name in column 2 to read as follows: "SELENIUM COMPOUND, SOLID, N.O.S.".
- UN 3285 For "gm" read "g" in column 7.
- UN 3292 In column 6, delete "936".
- UN 3314 Replace "NONE" with "5 kg" in column 7.
- UN 3315 Delete the solid entry. Delete ", LIQUID" in column 2 (liquid entry).
- UN 3321 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 6.".
- UN 3322 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 7.".
- UN 3323 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 12.".
- UN 3324 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 6 and 13.".

- UN 3325 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 7 and 13."
- UN 3326 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 8 and 13."
- UN 3327 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 9 and 13."
- UN 3328 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 10 and 13."
- UN 3329 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 11 and 13."
- UN 3330 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 12 and 13."
- UN 3331 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 14 and 13."
- UN 3332 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 9."
- UN 3333 In column 17, amend to read "See 1.1.3.1.1, and IAEA Transport Schedule 9 and 13."
- UN 3326 } In column 2, insert comma after "RADIOACTIVE MATERIAL".
UN 3328 }
- UN 3332-UN 3333 Delete underlining from "S-S" in column 16.
- UN 3359 Amend existing text in column 17 to read:

"A 'FUMIGATED UNIT' is a closed cargo transport unit loaded with cargoes under fumigation. The fumigant gases used are either poisonous or asphyxiant. The gases are usually evolved from solid or liquid preparations distributed within the unit. Fumigants shall not be applied to the contents of a cargo transport unit once it has been loaded aboard the ship. A cargo transport unit that has been fumigated is not subject to the provisions of this Code if it has been completely ventilated either by opening the doors of the unit or by mechanical ventilation to ensure that no harmful concentration of gas remains (see also special provision 910)."
- UN 3360 In column 17, amend "COTTON, DRY" to read "cotton, dry" and add after "360 kg/m³" the following: ", flax, dry having a density not less than 400 kg/m³ and sisal, dry having a density not less than 620 kg/m³".
- UN 3363 In column 17, amend the text to read: "Types of articles transported under this entry contain only limited quantities of dangerous goods."

- UN 3364 Delete full stop in column 2.
- UN 3372 Delete.
- UN 3373 In the name in column 2, insert "or CLINICAL" before "SPECIMENS" and add "319" in column 6.
- UN 3375 Delete "306" in column 6. Add "class 4.1" between ""Separated from"" and "combustible material" in column 16. Delete the last sentence in column 17.
- UN 3376 Amend to read: "4 – NITROPHENYLHYDRAZINE, with not less than 30% water, by mass" in column 2.

Rationalized approach for the assignment of tank instructions for solids:

Assign TP9 to all solid n.o.s. entries of classes 4.2, 6.1 and 8, packing group I to which a T code has been assigned.

AMENDMENTS TO THE DANGEROUS GOODS LIST

CLASS 1

| UN number(s) concerned | Amendments |
|--|--|
| UN 0004, 0222, 0402 | Replace in column (16) ""Away from" EXPLOSIVE, BLASTING, TYPE C, UN 0083 which contains chlorates or perchlorates" by ""Away from" explosives containing chlorates or perchlorates" |
| UN 0083 | Replace in column (16) "When containing chlorates or perchlorates stow "away from" explosives containing ammonium nitrate or other ammonium salts" by ""Away from" ammonium compounds and explosives containing ammonium compounds or salts" |
| UN 0081, 0082, 0331, 0332 and 0241 | Add in column (16) "When containing ammonium compounds, "away from" chlorates or perchlorates and explosives containing chlorates and perchlorates" |
| UN 0395, 0396, 0397, 0398, 0399, 0400, 0449, 0450 (Class 1, J) | Replace "When under deck segregate from other explosives as for class 3" by ""Separated from" division 1.4 and "separated longitudinally by an intervening complete compartment or hold from" division 1.1, 1.2, 1.3, 1.5 and 1.6 except from explosives of compatibility group J" |

CLASS 2

| UN number(s) concerned | Amendments |
|------------------------|--|
| UN 3138, 2034, 2600 | Add in column (16) ""Separated from" chlorine" |
| UN 1003 | Delete ""separated from" acetylene" |
| UN 2418 | Add in column (16) "Separated from" acids |

CLASS 3

| UN number(s) concerned | Amendments |
|------------------------|--|
| UN 1235, 1297 | Replace in column (16) ""Away from" mercury and its compounds" by ""Separated from" mercury and mercury compounds" |
| UN 2347, 2378 | Replace in column (16) ""Away from" acids" by ""Separated from" acids" |
| UN 3022 | Replace in column (16) ""Away from" class 8" by ""Away from" acids and alkalis" |
| UN 1865 | Include in column (16) "Segregation as for class 5.1 but "away from" classes 4.1, 5.1 and 7" |

CLASS 4.1

| UN number(s) concerned | Amendments |
|---|---|
| UN 1309 | Replace in column (16) ""Separated from" iron oxide" by ""Separated from" class 5.1, acids, alkalis and iron oxide" |
| UN 1869 | Add in column (16) ""Separated from" class 5.1, acids, alkalis and iron oxide" |
| UN 2907 | Add in column (16) ""Away from" class 3 and heavy metals and their salts". To add in column (17) "May form extremely sensitive compounds with heavy metals or their salts" |
| UN 1324 | Replace in column (16) ""Separated from" class 3" by ""Away from" class 3" |
| UN 3221, 3222, 3223, 3224, 3225, 3226, 3227, 3228, 3229, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240 | Replace in column (16) ""Separated from" class 8" by ""Separated from" acids and alkalis" |
| UN 3242 | Replace in column (16) ""Separated from" class 5.1 and class 8" by ""Separated from" class 5.1, acids and alkalis" |
| UN 1326, 1346, 1358, 1868, | Add in column (16) ""Separated from" class 5.1" |
| UN 1326, 1338, 1339, 1340, 1341, 1343, 1350, 1358, 1868, 1869, 2448 | Delete in column (17) "most" and "such as chlorates, nitrates, perchlorates and permanganates" to read: "Forms explosive mixtures with oxidizing substances" |
| UN 1352, 2878 | Add in column (16) ""Separated from" class 5.1" Add in column (17) "Forms explosive mixtures with oxidizing substances" |

CLASS 4.2

| UN number(s) concerned | Amendments |
|------------------------|---|
| UN 1374 | Delete in column (16) ""Separated from" class 6.2" |
| UN 3254 | Replace in column (16) ""Separated from" peroxides, halogens, nitric oxides and carbon tetrachloride" by ""Separated from" carbon tetrachloride" |
| UN 1382, 1385 | Add in column (16) ""Separated from" acids" |
| UN 1556, 1557 | Add in column (16) "For arsenic sulphides, "separated from" acids" Add in column (17) "In contact with acids, arsenic sulphide evolves hydrogen sulphide, a toxic and flammable gas" |
| UN 2008, 2545, 2546 | Delete in column (17) "most" and "such as chlorates, nitrates, perchlorates and permanganates" to read: "Forms explosive mixtures with oxidizing substances" |
| UN 3189 | Add in column (17) "Forms explosive mixtures with oxidizing substances." |
| UN 3052, 3461 | Add in column (16) ""Separated from" UN 2716" |

CLASS 4.3

| UN number(s) concerned | Amendments |
|---|---|
| UN 1395, 1398 | Add ""Away from" liquid halogenated hydrocarbons" in column (16) |
| UN 1396, 1418 | Add in column (17) "Reacts with liquid halogenated hydrocarbons" |
| UN 1360, 1389, 1390, 1391, 1392, 1393, 1394, 1397, 1400, 1401, 1402, 1403, 1404, 1405, 1407, 1409, 1410, 1413, 1414, 1415, 1418, 1419, 1420, 1421, 1422, 1423, 1426, 1427, 1428, 1432, 1433, 1714, 1870, 2010, 2011, 2012, 2013, 2257, 2623, 2805, 2835, 2844, 2950, 2968, 3078 | Add in column (16) ""Separated from" acids" |
| UN 1395, 1396, 1398, 1408, 1436 | Add in column (16) ""Separated from" acids and alkalis" |

CLASS 5.1

| UN number(s) concerned | Amendments |
|---|--|
| UN 1445, 1447, 1450, 1452, 1453, 1455, 1458, 1459, 1461, 1462, 1470, 1473, 1475, 1481, 1484, 1485, 1489, 1494, 1495, 1496, 1502, 1506, 1508, 1513, 2469, 2573, 2719, 2721, 2723 | Replace in column (16) ""Separated from" powdered metals, ammonium compounds and cyanides" by ""Separated from" ammonium compounds and cyanides" |
| UN 2427, 2428, 2429, 3210, 3211, 3213 | Replace in column (16) ""Separated from" powdered metals, ammonium compounds and cyanides" by ""Separated from" ammonium compounds, cyanides and sulphur" |
| UN 1442 | Replace in column (16) ""Separated from" powdered metals, cyanides and hydrogen peroxide" by ""Separated from" cyanides and hydrogen peroxide" |
| UN 1492, 1505, 3215 | Add in column (16) ""Separated from" ammonium compounds and cyanides" to add in column (17) "Reacts fiercely with cyanides when heated or by friction. May form explosive mixture with powdered metals or ammonium compounds" |
| UN 3216 | Add in column (16) ""Separated from" ammonium compounds, cyanides and sulphur" |
| UN 1471, 1748, 2208, 2741, 2880, 3212 | Amend special segregation provisions in column (16) related to powdered metals, ammonium compounds, cyanides and hydrogen peroxide to read ""Separated from" ammonium compounds, acids, cyanides, hydrogen peroxides and liquid organic substances" To replace in column (17) of UN 2741 "reacts vigorously with sulphuric acid" by "Reacts with acids, evolving chlorine, an irritating, corrosive and toxic gas" |
| UN 1448, 1456, 1482, 1490, 1503, 1515 | Replace in column (16) ""Separated from" powdered metals, ammonium compounds, cyanides, hydrogen peroxide, peroxides and superoxides" by ""Separated from" ammonium compounds, cyanides and peroxides" |

| UN number(s) concerned | Amendments |
|---|---|
| UN 3214 | Replace in column (16) ""Separated from" powdered metals, ammonium compounds, cyanides, hydrogen peroxide, peroxides and superoxides" by ""Separated from" ammonium compounds, cyanides and peroxides and sulphur" |
| UN 1449, 1457, 1472, 1476, 1483, 1491, 1504, 1509, 1516, 2466, 2547 | Replace in column (16) ""Separated from" permanganates and powdered metals" by ""Separated from" permanganates, acids and class 4.1" |
| UN 2014, 2015, 2984, 3149 | Amend in column (16) the segregation provisions related to class 4.1, powdered metals and permanganates to read: ""Separated from" permanganates and class 4.1" |
| UN 2626 | Replace in column (16) ""Separated from" powdered metals, ammonium compounds and cyanides" by ""Separated from" ammonium compounds and cyanides" |
| UN 1479, 3085, 3087, 3098, 3099, 3139 | Replace in column (16) ""Separated from" ammonium compounds, cyanides and hydrogen peroxide" by ""Separated from" ammonium compounds, cyanides and peroxides" |
| UN 2627, 3219 | Delete "away from" powdered metals. To replace in column (16) of UN 3219 ""Separated from" ammonium compounds and cyanides" by ""Separated from" ammonium compounds, cyanides and sulphur" |
| UN 1477, 3218 | Delete "away from" powdered metals Add in column (16) of UN 1477: ""Separated from" ammonium compounds and cyanides" Add in column (16) of UN 3218: ""Separated from" ammonium compounds, cyanides and sulphur" |
| UN 1510 | Replace in column (16) ""Separated from" powdered metals and class 4.1" by ""Separated from" class 4.1" |
| UN 3247 | Delete in column (16) ""Separated from" powdered metals" |
| UN 1439 | Add in column (16) ""Separated from" strong acids" |
| UN 2495 | Add in column (16) ""Separated from" acids" |

CLASS 5.2

| UN number(s) concerned | Amendments |
|---|---|
| UN 3101, 3102, 3103, 3104, 3105, 3106, 3107, 3108, 3109, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3120 | Add in column (16) ""Separated from" acids and alkalis" |

CLASS 6.1

| UN number(s) concerned | Amendments |
|------------------------|---|
| UN 1541 | Replace in column (16) ""Away from" class 8" by ""Separated from" acids and alkalis". Add in column (17) "acids and" before "alkalis" |
| UN 2521 | Replace in column (16) ""Away from" class 8" by ""Away from" acids and alkalis" |
| UN 2785 | Replace in column (16) ""Away from" class 8" by ""Away from" acids and alkalis" |

| UN number(s) concerned | Amendments |
|---|---|
| UN 1843 | Amend column (16) to read "Category B. "Away from" heavy metals and their salts. "Separated from" classes 3 and 4.1. "Separated longitudinally by an intervening complete compartment or hold from" class 1." |
| UN 1599, 1687 | Replace in column (16) ""Away from" lead and its compounds" by ""Away from" heavy metals and their salts" |
| UN 2716 | Replace in column (16) ""Separated from" class 8 and from mercury salts" by ""Separated from" acids, alkalis, mercury salts, UN 3052 and UN 3461 |
| UN 2272, 2273, 2382, 2650 and 2738 | Add in column 16 ""Separated from" class 5.1" |
| UN 1546 | Add in column 16 ""Separated from" alkalis" |
| UN 1547, 1565, 1572, 1575, 1587, 1620, 1626, 1636, 1642, 1653, 1679, 1684, 1688, 1690, 1713, 1812, 2019, 2224, 2272, 2273, 2316, 2317, 2337, 2470, 2474, 2480, 2481, 2505, 2655, 2668, 2674, 2853, 2854, 2855, 2856, 2874, 3275, 3276 | Replace in column (16) ""Away from" acids" by ""Separated from" acids" |
| UN 2433, 2859, 2861 | Include in column (16) "Segregation as for class 5.1 but "away from" classes 4.1, 5.1 and 7" |
| UN 1694 | Add in column 16 ""Separated from" acids" |

CLASS 8

| UN number(s) concerned | Amendments |
|---|--|
| UN 2705 | Replace in column (16) ""Away from" class 8" by ""Away from" acids and alkalis" Replace in column (17) "May react in contact with a strongly alkaline substance" by "May react in contact with acids and alkalis" |
| UN 1719, 2033, 2677, 2678, 2679, 2681, 2682, 2797 | Add in column 16 ""Away from" ammonium salts" |
| UN 1727, 1740, 1756, 1811, 1835, 1847, 2079, 2259, 2439, 2683, 2693, 2734, 2735, 2818, 2949, 3259, 3262, 3263, 3266, 3267, 3320 | Replace in column (16) ""Away from" acids" by ""Separated from" acids" |
| UN 1732, 1755, 1806, 1908 | Include in column (16) "Segregation as for class 5.1 but "away from" classes 4.1, 5.1 and 7" |

Amend the columns 13 and 14 for all solid entries in the dangerous goods list as follows:

| Class | Sub. | PG | Tank Instruction 13 | Tank prov. 14 | Apply to |
|-------|------|-----|---------------------|---------------|--|
| 4.1 | | I | - | - | All UN Nos. in this group |
| | | II | T3 | TP33 | 1309, 1323, 1325 (replace "TP1" with "TP33"), 1326, 1339, 1341, 1343, 1345, 1352, 1358, 1437, 1868, 1871, 2925, 2926, 2989, 3089, 3175, 3178, 3179, 3180, 3181, 3182, 3242 |
| | | III | T1 | TP33 | 1309, 1312, 1313, 1314, 1318, 1325 (replace "TP1" with "TP33"), 1328, 1330, 1332, 1334, 1338, 1346, 1350, 1869, 2001, 2213, 2538, 2687, 2714, 2715, 2717, 2878, 2925, 2926, 2989, 3089, 3097, 3178, 3179, 3180, 3181, 3182 |
| 4.2 | | I | T21 | TP7 TP33 | 1383, 1854, 2005, 2008, 2870, 2881, 3200, 3254 |
| | | II | T3 | TP33 | 1361, 1369, 1374, 1378, 1382, 1384, 1385, 1431, 1923, 1929, 2004, 2008, 2318, 2545, 2546, 2881, 2940, 3088, 3189, 3190, 3191, 3192, 3205, 3206, 3313, 3341, 3342 |
| | | III | T1 | TP33 | 1361, 1362, 1373, 1376, 1932, 2008, 2210, 2545, 2546, 2881, 3088, 3174, 3189, 3190, 3191, 3192, 3205, 3206, 3313, 3341, 3342 |
| 4.3 | 6.1 | I | - | - | All UN Nos. in this group |
| | | I | T9 | TP7 TP33 | 1428, 2257 |
| | | II | T3 | TP33 | 1340, 1390, 1393, 1394, 1395, 1396, 1400, 1401, 1402, 1405, 1409, 1417, 1418, 1436, 2624, 2805, 2813, 2830, 2835, 3078, 3134, 3135, 3170, 3208, 3209 |
| | | III | T1 | TP33 | 1396, 1398, 1403, 1405, 1408, 1418, 1435, 1436, 2813, 2844, 2950, 2968, 3134, 3135, 3170, 3208, 3209 |
| 5.1 | | I | - | - | All UN Nos. in this group |
| | | II | T3 | TP33 | 1439, 1442, 1445, 1446, 1447, 1448, 1449, 1450, 1452, 1453, 1455, 1456, 1457, 1458, 1459, 1461, 1462, 1463, 1469, 1470, 1471, 1472, 1473, 1475, 1476, 1477, 1479, 1481, 1482, 1483, 1484, 1485, 1487, 1488, 1489, 1490, 1493, 1494, 1495, 1496, 1502, 1503, 1506, 1508, 1509, 1513, 1514, 1515, 1516, 2464, 2465, 2468, 2573, 2627, 2719, 2721, 2723, 2741, 3085, 3087, 3212, 3247 |
| | | III | T1 | TP33 | 1438, 1444, 1451, 1454, 1458, 1459, 1465, 1466, 1467, 1474, 1477, 1479, 1481, 1482, 1483, 1486, 1492, 1498, 1499, 1500, 1505, 1507, 1511, 1872, 1942, 2067, 2469, 2720, 2722, 2724, 2725, 2726, 2728, 3085, 3087, 3215 |
| 5.2 | | | T23 | TP33 | 3110, 3120 |

| Class | Sub. | PG | Tank Instruction 13 | Tank prov. 14 | Apply to |
|-------|------|-----|---------------------|---------------|--|
| 6.1 | | I | T6 | TP33 | 1544, 1557, 1565, 1570, 1575, 1588, 1601, 1626, 1655, 1680, 1689, 1692, 1698, 1713, 1889, 2025, 2026, 2316, 2471, 2570, 2588, 2628, 2629, 2630, 2642, 2757, 2759, 2761, 2763, 2771, 2775, 2777, 2779, 2781, 2783, 2786, 2811, 2928, 2930, 3027, 3048, 3086, 3124, 3125, 3143, 3146, 3283, 3284, 3285, 3288, 3290, 3345, 3349 |
| | | II | T3 | TP33 | 1544, 1546, 1554, 1555, 1557, 1558, 1559, 1561, 1562, 1564, 1566, 1567, 1569, 1572, 1573, 1574, 1578, 1585, 1586, 1587, 1588, 1596, 1598, 1601, 1606, 1607, 1608, 1617, 1618, 1620, 1621, 1622, 1623, 1624, 1625, 1627, 1629, 1630, 1631, 1634, 1636, 1637, 1638, 1639, 1640, 1641, 1642, 1643, 1644, 1645, 1646, 1650, 1651, 1652, 1653, 1655, 1657, 1659, 1661, 1671, 1674, 1677, 1678, 1679, 1683, 1684, 1685, 1688, 1691, 1697, 1707, 1712, 1751, 1843, 1885, 1894, 1895, 2018, 2025, 2026, 2027, 2250, 2261, 2567, 2570, 2587, 2588, 2645, 2647, 2649, 2657, 2671, 2673, 2727, 2757, 2759, 2761, 2763, 2771, 2775, 2777, 2779, 2781, 2783, 2786, 2811, 2859, 2861, 2863, 2864, 2928, 2930, 2931, 3027, 3086, 3124, 3125, 3143, 3146, 3155, 3243, 3249, 3283, 3284, 3285, 3288, 3290, 3345, 3349 |
| | | III | T1 | TP33 | 1544, 1548, 1549, 1550, 1551, 1557, 1564, 1566, 1579, 1588, 1601, 1616, 1655, 1663, 1673, 1690, 1709, 1812, 1884, 2020, 2025, 2026, 2074, 2233, 2237, 2239, 2291, 2446, 2473, 2505, 2512, 2516, 2570, 2588, 2651, 2655, 2659, 2660, 2662, 2674, 2713, 2716, 2729, 2757, 2759, 2761, 2763, 2771, 2775, 2777, 2779, 2781, 2783, 2786, 2811, 2853, 2854, 2855, 2856, 2862, 2871, 2875, 2876, 3027, 3143, 3146, 3249, 3283, 3284, 3285, 3288, 3345, 3349 |
| 8 | | I | T6 | TP33 | 1759, 1905, 2430, 2921, 2923, 3084, 3095, 3096, 3147, 3259, 3260, 3261, 3262, 3263 |
| | | II | T3 | TP33 | 1725, 1726, 1727, 1740, 1756, 1759, 1770, 1794, 1806, 1807, 1811, 1813, 1823, 1825, 1839, 1847, 1849, 1939, 2033, 2430, 2439, 2506, 2509, 2583, 2670, 2678, 2680, 2682, 2691, 2869, 2921, 2923, 3084, 3095, 3096, 3147, 3244, 3259, 3260, 3261, 3262, 3263 |
| | | III | T1 | TP33 | 1740, 1759, 1773, 1907, 2214, 2215, 2280, 2331, 2430, 2440, 2475, 2503, 2507, 2508, 2578, 2579, 2585, 2698, 2802, 2803, 2823, 2834, 2865, 2869, 2905, 2923, 2967, 3147, 3253, 3259, 3260, 3261, 3262, 3263 |
| 9 | | II | T3 | TP33 | 2212, 2969, 3152 |
| | | III | T1 | TP33 | 1841, 1931, 2211, 2216, 2590, 3077 |

Add the following new entries:

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|--------------------------------|-------------------|------------------|------------------|--------------------|--------------------|--------------|------------|-------------|------------|-------------------|-----------|------------|----------|---|---|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3377 | SODIUM PERBORATE MONOHYDRATE | 5.1 | - | III | - | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 BK2 | TP33 | F-A, S-Q | Category A. Keep as dry as reasonably practicable. "Separated from" permanganates. "Away from" any sources of heat. | White crystals or powder. Partially soluble in water. Mixtures with combustible material are readily ignited and may burn fiercely. Risk of decomposition when exposed to continuous heat (exothermic decomposition $\geq 60^{\circ}\text{C}$). When involved in a fire or exposed to high temperatures, it may decompose yielding oxygen and steam. Harmful if swallowed. | 3377 |
| 3378 | SODIUM CARBONATE PEROXYHYDRATE | 5.1 | - | II | - | 1 kg | P002 | - | IBC08 | B2, B4 | - | T3 BK2 | TP33 | F-A, S-Q | Category A. Keep as dry as reasonably practicable. "Separated from" permanganates. "Away from" any sources of heat. | White crystals or powder. Soluble in water. Mixtures with combustible material are readily ignited. Decomposes in contact with water and acids, forming hydrogen peroxide. Risk of decomposition when exposed to continuous heat (exothermic decomposition $\geq 60^{\circ}\text{C}$). When involved in a fire or exposed to high temperatures, it may decompose yielding oxygen and steam. Irritating to eyes, skin and mucous membranes. Harmful if swallowed. | 3378 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|--|-------------------|------------------|------------------|--------------------|--------------------|--------------|------------|-------------|------------|-------------------|-----------|--------------------|----------|---|---|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3378 | SODIUM CARBONATE PEROXYHYDRATE | 5.1 | - | III | - | 5 kg | P002 LP02 | - | IBC08 | B3, B13 | - | T1 BK2 | TP33 | S-Q | Category A. Keep as dry as reasonably practicable. "Separated from" permanganates. "Away from" any sources of heat. | See entry above | |
| 3379 | DESENSITIZED EXPLOSIVE, LIQUID, N.O.S. | 3 | - | I | 274 311 | None | P099 | - | - | - | - | - | - | S-Y | Category D. "Away from" heavy metals and their salts | Desensitized explosive. Explosive and sensitive to friction in the dry state. May form extremely sensitive compounds with heavy metals and their salts. | |
| 3380 | DESENSITIZED EXPLOSIVE, SOLID, N.O.S. | 4.1 | - | I | 274 311 | None | P099 | - | - | - | - | - | - | S-J | Category D. "Away from" class 3 and heavy metals and their salts. | Desensitized explosive. Explosive and sensitive to friction in the dry state. May form extremely sensitive compounds with heavy metals and their salts. | |
| 3381 | TOXIC BY INHALATION LIQUID, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀ | 6.1 | ● | I | 274 | None | P601 | - | - | - | - | T22 | TP2 TP13 TP9 | F-A, S-A | Category D. Clear of living quarters. | A variety of toxic liquids which present a significant toxic inhalation hazard. Highly toxic by inhalation. Toxic if swallowed or by skin contact. | 3381 |
| 3382 | TOXIC BY INHALATION LIQUID, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀ | 6.1 | ● | I | 274 | None | P602 | - | - | - | - | T20 | TP2 TP13 TP9 | F-A, S-A | Category D. Clear of living quarters. | A variety of toxic liquids which present a significant toxic inhalation hazard. Toxic by inhalation, if swallowed or by skin contact. | 3382 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | | Properties and observations | UN No. |
|--------|--|-------------------|------------------|------------------|--------------------|--------------------|--------------|------------|-------------|------------|-------------------|-----|--------------------|----------|---------------------------------------|--|-----------------------------|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | (15) | (16) | | |
| 3383 | TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀ | 6.1 | 3 ● | I | 274 | None | P601 | - | - | - | - | T22 | TP2 TP13 TP9 | F-E, S-D | Category D. Clear of living quarters. | A variety of toxic liquids which present a significant toxic inhalation hazard as well as being flammable. Highly toxic by inhalation. Toxic if swallowed or by skin contact. | 3383 | |
| 3384 | TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀ | 6.1 | 3 ● | I | 274 | None | P602 | - | - | - | - | T20 | TP2 TP13 TP9 | F-E, S-D | Category D. Clear of living quarters. | A variety of toxic liquids which present a significant toxic inhalation hazard as well as being flammable. Toxic by inhalation, if swallowed or by skin contact. | 3384 | |
| 3385 | TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀ | 6.1 | 4.3 ● | I | 274 | None | P601 | - | - | - | - | T22 | TP2 TP13 TP9 | F-G, S-N | Category D. Clear of living quarters. | A variety of toxic liquids which present a significant toxic inhalation hazard as well as being water-reactive. Highly toxic by inhalation. Toxic if swallowed or by skin contact. | 3385 | |
| 3386 | TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀ | 6.1 | 4.3 ● | I | 274 | None | P602 | - | - | - | - | T20 | TP2 TP13 TP9 | F-G, S-N | Category D. Clear of living quarters. | A variety of toxic liquids which present a significant toxic inhalation hazard as well as being water-reactive. Toxic by inhalation, if swallowed or by skin contact. | 3386 | |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | | Properties and observations | UN No. |
|--------|---|-------------------|------------------|------------------|--------------------|--------------------|--------------|------------|-------------|------------|-------------------|-----|--------------------|----------|---------------------------------------|---|-----------------------------|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | (15) | (16) | | |
| 3387 | TOXIC BY INHALATION LIQUID, OXIDIZING, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀ | 6.1 | 5.1 ● | I | 274 | None | P601 | - | - | - | - | T22 | TP2 TP13 TP9 | F-A, S-Q | Category D. Clear of living quarters. | A variety of toxic liquids which present a significant toxic inhalation hazard as well as being an oxidizer. Highly toxic by inhalation. Toxic if swallowed or by skin contact. | 3387 | |
| 3388 | TOXIC BY INHALATION LIQUID, OXIDIZING, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀ | 6.1 | 5.1 ● | I | 274 | None | P602 | - | - | - | - | T20 | TP2 TP13 TP9 | F-A, S-Q | Category D. Clear of living quarters. | A variety of toxic liquids which present a significant toxic inhalation hazard as well as being an oxidizer. Toxic by inhalation, if swallowed or by skin contact. | 3388 | |
| 3389 | TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀ | 6.1 | 8 ● | I | 274 | None | P601 | - | - | - | - | T22 | TP2 TP13 TP9 | F-A, S-B | Category D. Clear of living quarters. | A variety of toxic liquids which present a significant toxic inhalation hazard as well as being corrosive. Highly toxic by inhalation. Toxic if swallowed or by skin contact. | 3389 | |
| 3390 | TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀ | 6.1 | 8 ● | I | 274 | None | P602 | - | - | - | - | T20 | TP2 TP13 TP9 | F-A, S-B | Category D. Clear of living quarters. | A variety of toxic liquids which present a significant toxic inhalation hazard as well as being corrosive. Toxic by inhalation, if swallowed or by skin contact. | 3390 | |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|--|-------------------|------------------|------------------|--------------------|--------------------|--------------|------------|-------------|------------|-------------------|------|-------------|----------|--|---|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3391 | ORGANOMETALLIC SUBSTANCE, SOLID, PYROPHORIC | 4.2 | ● | I | 274 | None | P404 | PP86 | - | - | - | T21 | TP7 TP33 | F-G, S-M | Category D. | Liabile to ignite spontaneously in air. If shaken, may produce sparks. | 3391 |
| 3392 | ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC | 4.2 | ● | I | 274 | None | P400 | PP86 | - | - | - | T21 | TP2 TP7 | F-G, S-M | Category D. Prohibited on any ship carrying class 1 with the exceptions listed in 7.2.7.1.3.2. | Highly flammable liquids. Liabile to ignite spontaneously in air. In contact with air, evolves irritating and slightly toxic fumes. | 3392 |
| 3393 | ORGANOMETALLIC SUBSTANCE, SOLID, PYROPHORIC, WATER-REACTIVE | 4.2 | 4.3 ● | I | 274 | None | P404 | PP86 | - | - | - | T21 | TP7 TP33 | F-G, S-M | Category D. "Separated from" acids | Liabile to ignite spontaneously in air. If shaken, may produce sparks. Reacts violently with moisture, water and acids evolving flammable gas. | 3393 |
| 3394 | ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE | 4.2 | 4.3 ● | I | 274 | None | P400 | PP86 | - | - | - | T21 | TP2 TP7 | F-G, S-M | Category D. Prohibited on any ship carrying class 1 with the exceptions listed in 7.2.7.1.3.2. "Separated from" acids. | Highly flammable liquids. Liabile to ignite spontaneously in air. In contact with air, evolves irritating and slightly toxic fumes. Reacts violently with moisture, water and acids evolving flammable gas. | 3394 |
| 3395 | ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE | 4.3 | ● | I | 274 | None | P403 | - | - | - | - | T9 | TP7 TP33 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | Reacts violently with moisture, water and acids evolving flammable gas. | 3395 |
| 3395 | ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE | 4.3 | ● | II | 274 | 500 g | P410 | - | IBC04 | - | - | T3 | TP33 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids | See entry above. | 3395 |
| 3395 | ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE | 4.3 | ● | III | 223 274 | 1 kg | P410 | - | IBC06 | - | - | T1 | TP33 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids | See entry above. | 3395 |
| 3396 | ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE, FLAMMABLE | 4.3 | 4.1 ● | I | 274 | None | P403 | - | - | - | - | T9 | TP7 TP33 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | Flammable solids. Reacts violently with moisture, water and acids evolving flammable gas. | 3396 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|--|-------------------|------------------|------------------|--------------------|--------------------|--------------|------------|-------------|------------|-------------------|------|-------------|----------|---|---|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3396 | ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE, FLAMMABLE | 4.3 | 4.1 ● | II | 274 | 500 g | P410 | - | IBC04 | - | - | T3 | TP33 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | See entry above. | 3396 |
| 3396 | ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE, FLAMMABLE | 4.3 | 4.1 ● | III | 223 274 | 1 kg | P410 | - | IBC06 | - | - | T1 | TP33 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | See entry above. | 3396 |
| 3397 | ORGANOMETALLIC SUBSTANCE, SOLID WATER-REACTIVE, SELF-HEATING | 4.3 | 4.2 ● | I | 274 | None | P403 | - | - | - | - | T9 | TP7 TP33 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | Liable to self-heating or spontaneous combustion. Reacts violently with moisture, water and acids evolving flammable gas. | 3397 |
| 3397 | ORGANOMETALLIC SUBSTANCE, SOLID WATER-REACTIVE, SELF-HEATING | 4.3 | 4.2 ● | II | 274 | 500 g | P410 | - | IBC04 | - | - | T3 | TP33 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | See entry above. | 3397 |
| 3397 | ORGANOMETALLIC SUBSTANCE, SOLID WATER-REACTIVE, SELF-HEATING | 4.3 | 4.2 ● | III | 223 274 | 1 kg | P410 | - | IBC06 | - | - | T1 | TP33 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | See entry above. | 3397 |
| 3398 | ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE | 4.3 | ● | I | 274 | None | P402 | - | - | - | - | T13 | TP2 TP7 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | Reacts violently with moisture, water and acids evolving flammable gas. | 3398 |
| 3398 | ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE | 4.3 | ● | II | 274 | 500 ml | P001 | - | IBC01 | - | - | T7 | TP2 TP7 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | See entry above. | 3398 |
| 3398 | ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE | 4.3 | ● | III | 223 274 | 1l | P001 | - | IBC02 | - | - | T7 | TP2 TP7 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | See entry above. | 3398 |
| 3399 | ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE | 4.3 | 3 ● | I | 274 | None | P402 | - | - | - | - | T13 | TP2 TP7 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | Flammable liquids. Reacts violently with moisture, water and acids evolving flammable gas. | 3399 |
| 3399 | ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE | 4.3 | 3 ● | II | 274 | 500 ml | P001 | - | IBC01 | - | - | T7 | TP2 TP7 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | See entry above. | 3399 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|---|-------------------|------------------|------------------|--------------------|--------------------|--------------|------------|-------------|------------|-------------------|------|------------|----------|---|--|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3399 | ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE | 4.3 | 3 ● | III | 223 274 | 1 l | P001 | - | IBC02 | - | - | T7 | TP2 TP7 | F-G, S-N | Category E. Clear of living quarters. "Separated from" acids. | See entry above. | 3399 |
| 3400 | ORGANOMETALLIC SUBSTANCE, SOLID, SELF-HEATING | 4.2 | ● | II | 274 | 500 g | P410 | - | IBC06 | - | - | T3 | TP33 | F-A, S-J | Category C | Liable to self-heating or spontaneous combustion | 3400 |
| 3400 | ORGANOMETALLIC SUBSTANCE, SOLID, SELF-HEATING | 4.2 | ● | III | 223 274 | 1 kg | P002 | - | IBC08 | - | - | T1 | TP33 | F-A, S-J | Category C | See entry above. | 3400 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|-------------------------------------|-------------------|------------------|------------------|--------------------|--------------------|---------------|-------------|--------------|-------------|-------------------|------|-------------|----------|--|---|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3401 | ALKALI METAL AMALGAM, SOLID | 4.3 | ● | I | 182 | None | P403 | PP31 | - | - | - | T9 | TP7 TP33 | F-G, S-N | Category D. "Separated from" acids. | Silvery solid, consisting of metal alloyed with mercury. Reacts with moisture, water or acids, evolving hydrogen, a flammable gas. When heated, evolves toxic vapours. | 3401 |
| 3402 | ALKALINE EARTH METAL AMALGAM, SOLID | 4.3 | ● | I | 183 | None | P403 | PP31 | - | - | - | T9 | TP7 TP33 | F-G, S-N | Category D. "Separated from" acids. | Consists of metal alloyed with mercury. Contains 2% to 10% alkaline earth metals and may contain up to 98% mercury. Reacts with moisture, water or acids, evolving hydrogen, a flammable gas. When heated, evolves toxic vapours. | 3402 |
| 3403 | POTASSIUM METAL ALLOYS, SOLID | 4.3 | - | I | - | None | P403 | PP31 | - | - | - | T9 | TP7 TP33 | F-G, S-L | Category D. "Separated from" acids. | Soft, silvery metal. Floats on water. Reacts violently with moisture, water or acids, evolving hydrogen, which may be ignited by the heat of the reaction. Highly reactive, sometimes with explosive effect. | 3403 |
| 3404 | POTASSIUM SODIUM ALLOYS, SOLID | 4.3 | - | I | - | None | P403 | PP31 | - | - | - | T9 | TP7 TP33 | F-G, S-L | Category D. "Separated from" acids. | Soft, silvery metal. Floats on water. Reacts violently with moisture, water or acids, evolving hydrogen, which may be ignited by the heat of the reaction. Highly reactive, sometimes with explosive effect. | 3404 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|--------------------------|-------------------|------------------|------------------|--------------------|--------------------|---------------|-------------|--------------|-------------|-------------------|------|-------------|----------|--|--|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3405 | BARIUM CHLORATE SOLUTION | 5.1 | 6.1 | II | - | 1 I | P504 | - | IBC02 | - | - | T4 | TP1 | F-H, S-Q | Category A. "Separated from" ammonium compounds, cyanides and sulphur. | Colourless aqueous solutions. Reacts vigorously with sulphuric acid. Reacts fiercely with cyanides when heated. May form explosive mixtures with combustible material, powdered metals or ammonium compounds. These mixtures are liable to ignite. When involved in a fire, may cause an explosion. Toxic if swallowed, by skin contact or by inhalation. Leakage and subsequent evaporation of the water from the solutions may present increased dangers as follows : <ol style="list-style-type: none"> 1. in contact with combustible material (particularly fibrous material such as jute, cotton or sisal) or sulphur, danger of spontaneous combustion, 2. in contact with ammonium compounds, powdered metals or oils, danger of explosion. | 3405 |
| 3405 | BARIUM CHLORATE SOLUTION | 5.1 | 6.1 | III | 223 | 5 I | P001 | - | IBC02 | - | - | T4 | TP1 | F-H, S-Q | Category A. "Separated from" ammonium compounds, cyanides and sulphur. | See entry above | 3405 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|-----------------------------|-------------------|------------------|------------------|--------------------|--------------------|---------------|-------------|--------------|-------------|-------------------|------|-------------|----------|--|--|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3406 | BARIUM PERCHLORATE SOLUTION | 5.1 | 6.1 | II | - | 1I | P504 | - | IBC02 | - | - | T4 | TP1 | F-H, S-Q | Category A. "Separated from" ammonium compounds, cyanides and sulphur. | Reacts vigorously with sulphuric acid. Reacts fiercely with cyanides when heated. May form explosive mixtures with combustible material, powdered metals or ammonium compounds. These mixtures are liable to ignite. When involved in a fire, may cause an explosion. Toxic if swallowed, by skin contact or by inhalation. Leakage and subsequent evaporation of the water from the solutions may present increased dangers as follows : .1 in contact with combustible material (particularly fibrous material such as jute, cotton or sisal) or sulphur, danger of spontaneous combustion, .2 in contact with ammonium compounds, powdered metals or oils, danger of explosion. | 3406 |
| 3406 | BARIUM PERCHLORATE SOLUTION | 5.1 | 6.1 | III | 223 | 5 I | P001 | - | IBC02 | - | - | T4 | TP1 | F-H, S-Q | Category A. "Separated from" ammonium compounds, cyanides and sulphur. | See entry above | 3406 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|--|-------------------|------------------|------------------|--------------------|--------------------|---------------|-------------|--------------|-------------|-------------------|------|-------------|----------|--|--|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3407 | CHLORATE AND MAGNESIUM CHLORIDE MIXTURE SOLUTION | 5.1 | ● | II | 944 | 1 l | P504 | - | IBC02 | - | - | T4 | TP1 | F-H, S-Q | Category A. "Separated from" ammonium compounds, cyanides and sulphur. | Reacts vigorously with sulphuric acid. Reacts fiercely with cyanides when heated. May form explosive mixtures with combustible material, powdered metals or ammonium compounds. These mixtures are liable to ignite. When involved in a fire, may cause an explosion. Leakage and subsequent evaporation of the water from the solutions may present increased dangers as follows : <ol style="list-style-type: none"> .1 in contact with combustible material (particularly fibrous material such as jute, cotton or sisal) or sulphur, danger of spontaneous combustion, .2 in contact with ammonium compounds, powdered metals or oils, danger of explosion. | 3407 |
| 3407 | CHLORATE AND MAGNESIUM CHLORIDE MIXTURE SOLUTION | 5.1 | ● | III | 223 944 | 5 l | P504 | - | IBC02 | - | - | T4 | TP1 | F-H, S-Q | Category A. "Separated from" ammonium compounds, cyanides and sulphur. | See entry above | 3407 |
| 3408 | LEAD PERCHLORATE SOLUTION | 5.1 | 6.1 P | II | - | 1 l | P504 | - | IBC02 | - | - | T4 | TP1 | F-H, S-Q | Category A. "Separated from" ammonium compounds and cyanides | Reacts vigorously with sulphuric acid. Reacts fiercely with cyanides when heated. May form explosive mixtures with combustible material, powdered metals or ammonium compounds. These mixtures are liable to ignite. When involved in a fire, may cause an explosion. | 3408 |
| 3408 | LEAD PERCHLORATE SOLUTION | 5.1 | 6.1 P | III | 223 | 5 l | P001 | - | IBC02 | - | - | T4 | TP1 | F-H, S-Q | Category A. "Separated from" ammonium compounds and cyanides | See entry above. | 3408 |
| 3409 | CHLORONITROBENZENES, LIQUID | 6.1 | - | II | 279 | 100 ml | P001 | - | IBC02 | - | - | T7 | TP2 | F-A, S-A | Category A | Yellow liquid. Toxic if swallowed, by skin contact or by inhalation. | 3409 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|--|-------------------|------------------|------------------|--------------------|--------------------|---------------|-------------|--------------|-------------|-------------------|------|---------------------|----------|---|--|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3410 | 4-CHLORO- <i>o</i> -TOLUIDINE HYDROCHLORIDE SOLUTION | 6.1 | - | III | 223 | 5 l | P001 | - | IBC03 | - | - | T4 | TP1 | F-A, S-A | Category A | Toxic if swallowed, by skin contact or by inhalation. | 3410 |
| 3411 | beta-NAPHTHYLAMINE SOLUTION | 6.1 | - | II | - | 100 ml | P001 | - | IBC02 | - | - | T7 | TP2 | F-A, S-A | Category A | Toxic if swallowed, by skin contact or by inhalation. | 3411 |
| 3411 | beta-NAPHTHYLAMINE SOLUTION | 6.1 | - | III | 223 | 5 l | P001 | - | IBC02 | - | - | T7 | TP2 | F-A, S-A | Category A | See entry above. | 3411 |
| 3413 | POTASSIUM CYANIDE SOLUTION | 6.1 | P | I | - | None | P001 | PP31 | - | - | T10 | T14 | TP2 TP13 | F-A, S-A | Category B. "Separated from" acids. | Reacts with acids or acid fumes, evolving hydrogen cyanide, a highly toxic and flammable gas. Highly toxic if swallowed or by skin contact. | 3413 |
| 3413 | POTASSIUM CYANIDE SOLUTION | 6.1 | P | II | - | 100 ml | P001 | PP31 | IBC02 | - | T10 | T11 | TP2 TP13 TP27 | F-A, S-A | Category B. "Separated from" acids. | See entry above. | 3413 |
| 3413 | POTASSIUM CYANIDE SOLUTION | 6.1 | P | III | 223 | 5 l | P001 LP01 | PP31 | IBC03 | - | - | T7 | TP2 TP13 TP28 | F-A, S-A | Category A. "Separated from" acids. | See entry above. | 3413 |
| 3414 | SODIUM CYANIDE SOLUTION | 6.1 | P | I | - | None | P001 | PP31 | - | - | T10 | T14 | TP2 TP13 | F-A, S-A | Category B. "Separated from" acids | Reacts with acids or acid fumes, evolving hydrogen cyanide, a highly toxic and flammable gas. Highly toxic if swallowed or by skin contact. | 3414 |
| 3414 | SODIUM CYANIDE SOLUTION | 6.1 | P | II | - | 100 ml | P001 | PP31 | IBC02 | - | T10 | T11 | TP2 TP13 TP27 | F-A, S-A | Category B. "Separated from" acids. | See entry above. | 3414 |
| 3414 | SODIUM CYANIDE SOLUTION | 6.1 | P | III | 223 | 5 l | P001 LP01 | PP31 | IBC03 | - | - | T7 | TP2 TP13 TP28 | F-A, S-A | Category A. "Separated from" acids. | See entry above. | 3414 |
| 3415 | SODIUM FLUORIDE SOLUTION | 6.1 | - | III | 223 | 5 l | P001 LP01 | - | IBC03 | - | - | T4 | TP1 | F-A, S-A | Category A. "Separated from" acids. | Colourless liquid. React with acids, evolving hydrogen fluoride, a toxic, irritating and corrosive gas, apparent as white fumes. Toxic if swallowed, by skin contact or by inhalation. | 3415 |
| 3416 | CHLOROACETOPHENONE, LIQUID | 6.1 | - | II | - | None | P001 | - | IBC02 | - | - | T7 | TP2 TP13 | F-A, S-A | Category D. Keep as cool as reasonable practicable. Clear of living quarters. | Liquid evolving irritating vapour ("Tear Gas"). Toxic if swallowed, by skin contact or by inhalation. | 3416 |
| 3417 | XYLYL BROMIDE, SOLID | 6.1 | - | II | - | None | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-G | Category D. Clear of living quarters. | Crystals or powder, evolving irritating vapour ("Tear Gas"). Toxic if swallowed, by skin contact or by inhalation. | 3417 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|---|-------------------|------------------|------------------|--------------------|--------------------|--------------|------------|-------------|------------|-------------------|------|------------|----------|---|---|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3418 | 2,4-TOLUYLENEDIAMINE SOLUTION | 6.1 | - | III | 223 | 5 l | P001 LP01 | - | IBC03 | - | - | T4 | TP1 | F-A, S-A | Category A | Toxic if swallowed, by skin contact or by inhalation. | 3418 |
| 3419 | BORON TRIFLUORIDE ACETIC ACID COMPLEX, SOLID | 8 | - | II | - | 1 kg | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-B | Category A | White crystalline solid. Melting point: 23°C. Highly corrosive to most metals. Causes burns to skin, eyes and mucous membranes. | 3419 |
| 3420 | BORON TRIFLUORIDE PROPIONIC ACID COMPLEX, SOLID | 8 | - | II | - | 1 kg | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-B | Category A | White crystalline solid. Melting point: 28°C. Highly corrosive to most metals. Causes burns to skin, eyes and mucous membranes. | 3420 |
| 3421 | POTASSIUM HYDROGEN DIFLUORIDE SOLUTION | 8 | 6.1 | II | - | 1 l | P001 | - | IBC02 | - | T4 | T7 | TP2 | F-A, S-B | Category A. Shade from radiant heat. Clear of living quarters. "Separated from" acids | Decomposed by heat or acids, evolving hydrogen fluoride, a toxic, extremely irritating and corrosive gas apparent as white fumes. In the presence of moisture, highly corrosive to glass, other siliceous materials and most metals. Toxic if swallowed, by skin or by inhalation. Causes burns to skin, eyes and mucous membranes. | 3421 |
| 3421 | POTASSIUM HYDROGEN DIFLUORIDE SOLUTION | 8 | 6.1 | III | 223 | 5 l | P001 | - | IBC03 | - | - | T4 | TP1 | F-A, S-B | Category A. Shade from radiant heat. Clear of living quarters. "Separated from" acids | See entry above. | 3421 |
| 3422 | POTASSIUM FLUORIDE SOLUTION | 6.1 | - | III | 223 | 5 l | P001 LP01 | - | IBC03 | - | - | T4 | TP1 | F-A, S-A | Category A. "Separated from" acids | Decomposed by acid, evolving hydrogen fluoride, an irritating and corrosive gas. Toxic if swallowed, by skin contact or by inhalation. | 3422 |
| 3423 | TETRAMETHYLAMMONIUM HYDROXIDE, SOLID | 8 | - | II | - | 1 kg | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-B | Category A. "Separated from" acids. | Very soluble in water. Reacts violently with acids. | 3423 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|--|-------------------|------------------|------------------|--------------------|--------------------|--------------|------------|-------------|------------|-------------------|------|------------|----------|---|--|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3424 | AMMONIUM DINITRO- <i>o</i> -CRESOLATE SOLUTION | 6.1 | P | II | - | 100 ml | P001 | - | IBC02 | - | T4 | T7 | TP2 | F-A, S-A | Category B. "Away from" heavy metals, and their salts. "Separated from" classes 3 and 4.1. "Separated longitudinally by an intervening complete compartment or hold from" class 1. | The commercial product is a 50% suspension in water. May support combustion and burn without oxygen. When involved in a fire, evolves toxic fumes. Forms extremely sensitive explosive compounds with lead, silver or other heavy metals and their compounds. Toxic if swallowed, by skin contact or by inhalation | 3424 |
| 3424 | AMMONIUM DINITRO- <i>o</i> -CRESOLATE SOLUTION | 6.1 | P | III | 223 | 5 l | P001 | - | IBC02 | - | T4 | T7 | TP2 | F-A, S-A | Category A. "Away from" heavy metals, especially lead, and their salts. "Separated from" classes 3 and 4.1. "Separated longitudinally by an intervening complete compartment or hold from" class 1. | See entry above. | |
| 3425 | BROMOACETIC ACID, SOLID | 8 | - | II | - | 1 kg | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-B | Category A | Colourless, deliquescent crystals. Melting point: 51°C. Corrosive to most metals. Harmful if swallowed. Causes burns to eyes and skin. | 3425 |
| 3426 | ACRYLAMIDE SOLUTION | 6.1 | - | III | 223 | 5 l | P001 LP01 | - | IBC03 | - | - | T4 | TP1 | F-A, S-A | Category A. Keep as cool as reasonably practicable. | Toxic if swallowed, by skin contact or by inhalation | 3426 |
| 3427 | CHLOROBENZYL CHLORIDES, SOLID | 6.1 | P | III | - | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category A | Colourless crystalline solid. Melting point: 29°C. Immiscible with or insoluble in water. Toxic if swallowed, by skin contact or by inhalation. | 3427 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|---|-------------------|------------------|------------------|--------------------|--------------------|---------------|-------------|--------------|-------------|-------------------|------|-------------|----------|---|--|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3428 | 3-CHLORO-4-METHYLPHENYL ISOCYANATE, SOLID | 6.1 | - | II | - | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category B. Clear of living quarters. | Colourless solid with a pungent odour. Melting point: 23°C. Insoluble in water. Reacts with water, evolving carbon dioxide. Toxic if swallowed, by skin contact or by inhalation. | 3428 |
| 3429 | CHLOROTOLUIDINES, LIQUID | 6.1 | - | III | - | 5 l | P001 LP01 | - | IBC03 | - | T3 | T4 | TP1 | F-A, S-A | Category A | Brown liquids. Toxic if swallowed, by skin contact or by inhalation. | 3429 |
| 3430 | XYLENOLS, LIQUID | 6.1 | - | II | - | 100 ml | P001 | - | IBC02 | - | T4 | T7 | TP2 | F-A, S-A | Category A | The commercial products are liquids with a pungent tar odour. Toxic if swallowed, by skin contact or by inhalation. | 3430 |
| 3431 | NITROBENZOTRIFLUORIDES, SOLID | 6.1 | P | II | - | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A, Clear of living quarters. | Low melting point (31°C to 32°C) solids with an aromatic odour. Insoluble in water. Toxic if swallowed, by skin contact or by inhalation. | 3431 |
| 3432 | POLYCHLORINATED BIPHENYLS, SOLID | 9 | PP | II | 305 958 | 500 g | P906 | - | IBC08 | - | - | T3 | TP33 | F-A, S-A | Category A. "Separated from" foodstuffs. | Solid with perceptible odours. Insoluble in water. Harmful by ingestion or by skin contact. If spilled can be a persistent hazard to the environment. This entry covers articles, such as rags, cotton waste, clothing, sawdust, containing polychlorinated biphenyls where no free visible liquid is present. | 3432 |
| 3433 | LITHIUM ALKYLs, SOLID | 4.2 | 4.3 | I | 320 | None | P400 | - | - | - | - | T21 | TP7 TP33 | F-G, S-M | Category D | Ignite on exposure to air or carbon dioxide. Reacts violently in contact with water, acids, halogens, alcohols and amines, evolving flammable gas. | 3433 |
| 3434 | NITROCRESOLS, LIQUID | 6.1 | - | III | - | 5 l | P001 LP01 | - | IBC03 | - | - | T4 | TP1 | F-A, S-A | Category A | Slightly miscible in water. Toxic if swallowed, by skin contact or by inhalation. | 3434 |
| 3435 | HYDROQUINONE SOLUTION | 6.1 | - | III | 223 | 5 l | P001 LP01 | - | IBC03 | - | - | T4 | TP1 | F-A, S-A | Category A | Miscible with water. Toxic if swallowed, by skin contact or by inhalation. | 3435 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|-----------------------------------|-------------------|------------------|------------------|--------------------|--------------------|---------------|-------------|--------------|-------------|-------------------|------|--------------------|----------|--|---|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3436 | HEXAFLUOROACETONE HYDRATE, SOLID | 6.1 | - | II | - | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category B. Clear of living quarters. | This entry covers solid hydrate and hexafluoroacetone. Melting point of the pure substance: 23°C. Toxic if swallowed, by skin contact or by inhalation. | 3436 |
| 3437 | CHLOROCRESOLS, SOLID | 6.1 | - | II | - | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A. Keep as cool as reasonably practicable. | White or pink crystals with a phenol-like odour. Melting point: 45°C to 68°C. Slightly soluble in water. Decomposes when heated, evolving extremely toxic fumes (phosgene). Toxic if swallowed, by skin contact or by inhalation. | 3437 |
| 3438 | alpha-METHYLBENZYL ALCOHOL, SOLID | 6.1 | - | III | - | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category A | Slightly soluble in water. Melting point: 21°C (pure substance). Toxic if swallowed, by skin contact or by inhalation. | 3438 |
| 3439 | NITRILES, TOXIC, SOLID, N.O.S. | 6.1 | ● | I | 274 | None | P002 | - | IBC07 | B1 | - | T6 | TP9 TP33 | F-A, S-A | Category B. "Separated from" acids. | Solids, evolving toxic vapours. Reacts with acids or acid fumes, evolving hydrogen cyanide, a highly toxic and flammable gas. Soluble in water. Toxic if swallowed, by skin contact or by inhalation. | 3439 |
| 3439 | NITRILES, TOXIC, SOLID, N.O.S. | 6.1 | ● | II | 274 | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category B. "Separated from" acids. | See entry above. | 3439 |
| 3439 | NITRILES, TOXIC, SOLID, N.O.S. | 6.1 | ● | III | 223 274 944 | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category A. "Separated from" acids. | See entry above. | 3439 |
| 3440 | SELENIUM COMPOUND, LIQUID, N.O.S. | 6.1 | ● | I | - | None | P001 | - | - | - | - | T14 | TP2 TP9 TP27 | F-A, S-A | Category B. | Toxic if swallowed, by skin contact or by inhalation. | 3440 |
| 3440 | SELENIUM COMPOUND, LIQUID, N.O.S. | 6.1 | ● | II | - | 100 ml | P001 | - | IBC02 | - | - | T11 | TP2 TP27 | F-A, S-A | Category B. | See entry above. | 3440 |
| 3440 | SELENIUM COMPOUND, LIQUID, N.O.S. | 6.1 | ● | III | 223 944 | 5 l | P001 | - | IBC03 | - | - | T7 | TP1 TP28 | F-A, S-A | Category A. | See entry above. | 3440 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|-----------------------------------|-------------------|------------------|------------------|--------------------|--------------------|--------------|------------|-------------|------------|-------------------|------|-------------|----------|---|---|--------|
| | | | | | | | Instructions | Provisions | Instruction | Provisions | IMO | UN | Provisions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3441 | CHLORODINITROBENZENES, SOLID | 6.1 | P | II | 279 | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A. "Separated from" class 3 | Crystals. Melting point: 27°C to 53°C. May explode if involved in a fire. Toxic if swallowed, by skin contact or by inhalation. | 3441 |
| 3442 | DICHLOROANILINES, SOLID | 6.1 | P | II | 279 | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A. Clear of living quarters | Solid with a penetrating odour. Liquid mixtures of various isomers of dichloroanilines, some of which in the pure state may be solid, with a melting point varying from 24°C to 72°C. Toxic if swallowed, by skin contact or by inhalation. | 3442 |
| 3443 | DINITROBENZENES, SOLID | 6.1 | - | II | - | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A. "Separated from" class 3 | May explode if involved in a fire. Toxic if swallowed, by skin contact or by inhalation. | 3443 |
| 3444 | NICOTINE HYDROCHLORIDE, SOLID | 6.1 | - | II | 43 | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A | Deliquescent crystals or solids or pastes. Soluble in water. Toxic if swallowed, by skin contact or by inhalation. | 3444 |
| 3445 | NICOTINE SULPHATE, SOLID | 6.1 | - | II | | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A | Solid or paste. Soluble in water. Toxic if swallowed, by skin contact or by inhalation. | 3445 |
| 3446 | NITROTOLUENES, SOLID | 6.1 | - | II | | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A | Yellow solids. Melting point: para-NITROTOLUENE: 52°C to 54°C. Toxic if swallowed, by skin contact or by inhalation. | 3446 |
| 3447 | NITROXYLENES, SOLID | 6.1 | - | II | | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A | Yellow solids. Melting points: 4-NITRO-2-XYLENE: 29°C to 31°C, 5-NITRO-3-XYLENE: 72°C to 74°C. Insoluble in water. Toxic if swallowed, by skin contact or by inhalation. | 3447 |
| 3448 | TEAR GAS SUBSTANCE, SOLID, N.O.S. | 6.1 | ● | I | 4 | None | P002 | PP31 | - | - | - | T6 | TP9 TP33 | F-A, S-A | Category D. Clear of living quarters | "Tear gas substance" is a generic term for substances which, in minute quantities dispersed in air, cause extreme eye irritation and profuse tears. Toxic if swallowed, by skin contact or by inhalation. | 3448 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|-----------------------------------|-------------------|------------------|------------------|--------------------|--------------------|---------------|-------------|--------------|-------------|-------------------|------|-------------|----------|--|---|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3448 | TEAR GAS SUBSTANCE, SOLID, N.O.S. | 6.1 | ● | II | 4 | None | P002 | PP31 | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category D. Clear of living quarters | See entry above | 3448 |
| 3449 | BROMOBENZYL CYANIDES, SOLID | 6.1 | ● | I | 8 | None | P002 | PP31 | - | - | - | T6 | TP33 | F-A, S-A | Category D. Keep as cool as reasonable practicable. Clear of living quarters. "Separated from" acids. | Volatile, yellow crystals evolving irritating vapours ("Tear Gas"). Melting point: meta-BROMOBENZYL CYANIDE 25°C. Highly toxic if swallowed, by skin contact or by inhalation. | 3449 |
| 3450 | DIPHENYLCHLOROARSINE, SOLID | 6.1 | PP | I | | None | P002 | PP31 | IBC07 | B1 | - | T6 | TP33 | F-A, S-A | Category D. Clear of living quarters. | When pure, volatile, colourless crystals evolving an irritating vapour ("Tear Gas"). Melting point: 41°C. Highly toxic if swallowed, by skin contact or by inhalation. | 3450 |
| 3451 | TOLUIDINES, SOLID | 6.1 | - | II | 9 | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A | para-TOLUIDINE is solid in pure form, with a melting point of approximately 45°C. Toxic if swallowed, by skin contact or by inhalation. | 3451 |
| 3452 | XYLIDINES, SOLID | 6.1 | - | II | | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A | 3,4-dimethylaniline is a solid, which has a melting point of 47°C. Toxic if swallowed, by skin contact or by dust inhalation. | 3452 |
| 3453 | PHOSPHORIC ACID, SOLID | 8 | - | II | | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-B | Category A | Very deliquescent, crystalline solid. Melting point: 42°C. Soluble in water. Mildly corrosive to most metals. | 3453 |
| 3454 | DINITROTOLUENES, SOLID | 6.1 | - | II | | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category A | Yellow crystals or flakes, insoluble in water. Toxic if swallowed, by skin contact or by inhalation. | 3454 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|---------------------------------|-------------------|------------------|------------------|--------------------|--------------------|---------------|-------------|--------------|-------------|-------------------|------|-------------|----------|--|--|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3455 | CRESOLS, SOLID | 6.1 | 8 | II | | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-B | Category B | Light yellow solids. Soluble in water. Melting points of CRESOLS: ortho-CRESOL: 30°C, para-CRESOL: 35°C. Toxic if swallowed, by skin contact or by inhalation. Cause burns to skin, eyes and mucous membranes. | 3455 |
| 3456 | NITROSYLSULPHURIC ACID, SOLID | 8 | - | II | | 1 kg | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-B | Category D. Clear of living quarters. Segregation as for class 5.1, but "separated from" classes 4.1, 5.1 and 7. | Crystalline solid. Oxidant which may cause fire with organic materials (such as wood, straw, etc.). When involved in a fire, evolves toxic gases. In presence of moisture, highly corrosive to most metals. Causes burns to skin, eyes and mucous membranes. | 3456 |
| 3457 | CHLORONITROTOLUENES, SOLID | 6.1 | P | II | | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category A | Melting range 20°C to 40°C. Insoluble in water. Oxidizing substance which may explode or burn fiercely when in contact with organic materials. Toxic if swallowed, by skin contact or by inhalation. | 3457 |
| 3458 | NITROANISOLES, SOLID | 6.1 | - | II | 9 | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category A | Light reddish or amber crystals. Melting points: 38°C to 54°C. Insoluble in water. Toxic if swallowed, by skin contact or by inhalation. | 3458 |
| 3459 | NITROBROMOBENZENES, SOLID | 6.1 | - | II | | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category A | Colourless to pale yellow crystals which may liquefy under transport conditions. Melting points: 1-BROMO-2-NITROBENZENE: 43°C. 1-BROMO-4-NITROBENZENE: 127°C. Insoluble in water. Toxic if swallowed, by skin contact or by inhalation. | 3459 |
| 3460 | N-ETHYLBENZYL TOLUIDINES, SOLID | 6.1 | - | II | | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category A | Solids which may liquefy under transport conditions. Strong odour. Insoluble in water. Toxic if swallowed, by skin contact or by inhalation. | 3460 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|---|-------------------|------------------|------------------|--------------------|--------------------|---------------|-------------|--------------|-------------|-------------------|------|-------------|----------|--|---|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3461 | ALUMINIUM ALKYL HALIDES, SOLID | 4.2 | 4.3 | I | 0 | None | P404 | - | - | - | - | T21 | TP7 TP33 | F-G, S-M | Category D. "Separated from" UN 2716. | Ignite on exposure to air or carbon dioxide. Reacts violently in contact with water, acids, halogens, alcohols and amines, evolving flammable gas. | 3461 |
| 3462 | TOXINS EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S. | 6.1 | ● | I | 0 4 | None | P002 | - | IBC07 | B1 | - | T6 | TP9 TP33 | F-A, S-A | Category B | Toxins from plant, animal or bacterial sources which contain infectious substances or toxins that are contained in infectious substances should be classified in class 6.2. Toxic if swallowed, by skin contact or by inhalation. | 3462 |
| 3462 | TOXINS EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S. | 6.1 | ● | II | 0 4 | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category B | See entry above | 3462 |
| 3462 | TOXINS EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S. | 6.1 | ● | II | 0 3 4 4 | 5 kg | P002 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category A | See entry above | 3462 |
| 3464 | ORGANOPHOSPHORUS COMPOUND, TOXIC, SOLID, N.O.S. | 6.1 | ● | I | 0 4 | None | P002 | - | IBC07 | B1 | - | T6 | TP9 TP33 | F-A, S-A | Category B | Toxic if swallowed, by skin contact or by inhalation. | 3464 |
| 3464 | ORGANOPHOSPHORUS COMPOUND, TOXIC, SOLID, N.O.S. | 6.1 | ● | II | 0 4 | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category B | See entry above | 3464 |
| 3464 | ORGANOPHOSPHORUS COMPOUND, TOXIC, SOLID, N.O.S. | 6.1 | ● | II | 0 3 4 4 | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category A | See entry above | 3464 |
| 3465 | ORGANOARSENIC COMPOUND, SOLID, N.O.S. | 6.1 | ● | I | 0 4 | None | P002 | - | IBC07 | B1 | - | T6 | TP9 TP33 | F-A, S-A | Category B | Toxic if swallowed, by skin contact or by inhalation. | 3465 |
| 3465 | ORGANOARSENIC COMPOUND, SOLID, N.O.S. | 6.1 | ● | II | 0 4 | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category B | See entry above | 3465 |
| 3465 | ORGANOARSENIC COMPOUND, SOLID, N.O.S. | 6.1 | ● | II | 0 3 4 4 | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category A | See entry above | 3465 |

| UN No. | Name and description | Class or division | Subsidiary risks | UN packing group | Special provisions | Limited quantities | Packing | | IBC | | Tank instructions | | | EmS | Stowage and segregation | Properties and observations | UN No. |
|--------|---|-------------------|------------------|------------------|--------------------|--------------------|---------------|-------------|--------------|-------------|-------------------|------|-------------|----------|---|---|--------|
| | | | | | | | Instruc-tions | Provi-sions | Instruc-tion | Provi-sions | IMO | UN | Provi-sions | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| 3466 | METAL CARBOXYLS, SOLID, N.O.S. | 6.1 | ● | I | 4 | None | P002 | - | IBC07 | B1 | - | T6 | TP9 TP33 | F-A, S-A | Category D. Clear of living quarters | Insoluble in water. Toxic if swallowed, by skin contact or by dust inhalation | 3466 |
| 3466 | METAL CARBOXYLS, SOLID, N.O.S. | 6.1 | ● | II | 4 | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category B. Clear of living quarters | See entry above. | 3466 |
| 3466 | METAL CARBOXYLS, SOLID, N.O.S. | 6.1 | ● | II | 3 4 4 | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category B. Clear of living quarters | See entry above. | 3466 |
| 3467 | ORGANOMETALLIC COMPOUND, TOXIC, SOLID, N.O.S. | 6.1 | ● | I | 4 | None | P002 | - | IBC07 | B1 | - | T6 | TP9 TP33 | F-A, S-A | Category B | Toxic if swallowed, by skin contact or by inhalation. | 3467 |
| 3467 | ORGANOMETALLIC COMPOUND, TOXIC, SOLID, N.O.S. | 6.1 | ● | II | 4 | 500 g | P002 | - | IBC08 | B2 B4 | - | T3 | TP33 | F-A, S-A | Category B | See entry above. | 3467 |
| 3467 | ORGANOMETALLIC COMPOUND, TOXIC, SOLID, N.O.S. | 6.1 | ● | II | 3 4 4 | 5 kg | P002 LP02 | - | IBC08 | B3 | - | T1 | TP33 | F-A, S-A | Category A | See entry above. | 3467 |
| 3468 | HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM | 2.1 | - | - | 1 | None | P099 | - | - | - | - | - | - | F-D, S-U | Category D | Article containing flammable odourless gas. | 3468 |

AMENDMENTS TO SPECIAL PROVISIONS

Chapter 3.3

SP29 Amend to read:

"The packages, including bales, are exempt from labelling provided that they are marked with the appropriate class (*e.g.* "class 4.2"). Packages, with the exception of bales, shall also display the Proper Shipping Name and the UN number of the substance that they contain in accordance with 5.2.1. In any case, the packages, including bales, are exempt from class marking provided that they are loaded in a cargo transport unit and that they contain goods to which only one UN number has been assigned. The cargo transport units in which the packages, including bales, are loaded shall display any relevant labels, placards and marks in accordance with chapter 5.3."

SP63 Amend as follows:

Replace .1 and .2 with the following:

- ".1 class 2.1 applies if the contents include 85% by mass or more flammable components and the chemical heat of combustion is 30 kJ/g or more;
- ".2 class 2.2 applies if the contents contain 1% by mass or less flammable components and the heat of combustion is less than 20 kJ/g."

Insert a new .3 as follows:

- ".3 Otherwise the product shall be classified as tested by the tests described in the United Nations *Manual of Tests and Criteria*, Part III, section 31. Extremely flammable and flammable aerosols shall be classified in class 2.1; non-flammable in class 2.2;"

The existing subparagraphs .3, .4 and .5 become .4, .5 and 6, respectively.

Add a new subparagraph .7 as follows:

- ".7 Except for consignments transported in limited quantities (see chapter 3.4), packages containing aerosols shall bear labels for the primary risk and for the subsidiary risk(s), if any."

Add at the end a new paragraph to read as follows:

"Flammable components are flammable liquids, flammable solids or flammable gases and gas mixtures as defined in Notes 1 to 3 of sub-section 31.1.3 of Part III of the United Nations *Manual of Tests and Criteria*. This designation does not cover pyrophoric, self-heating or water-reactive substances. The chemical heat of

combustion shall be determined by one of the following methods ASTM D 240, ISO/FDIS 13943: 1999 (E/F) 86.1 to 86.3 or NFPA 30B."

SP 66 Amend to read:

"Mercurous chloride shall be transported under UN 3077 and cinnabar is not subject to the provisions of this Code."

SP 179 Amend to read:

"This designation shall be used for substances and mixtures which are dangerous to the aquatic environment or which are Marine Pollutants that do not meet the classification criteria of any other class or another substance within class 9. This designation may also be used for wastes not otherwise subject to this Code but which are covered under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989) and for substances designated to be environmentally hazardous substances by the competent authority of the country of origin, transit or destination which do not meet the criteria for an environmentally hazardous substance in accordance with this Code or for any other hazard class."

SP 215 Add the following text at the end:

"Homogeneous mixtures containing not more than 35 % by mass of azocarbonamide and at least 65 % of inert substance are not subject to this Code unless criteria of other classes are met."

SP219 Amend to read as follows:

"Genetically modified micro-organisms and genetically modified organisms which meet the definition of an infectious substance and the criteria for inclusion in class 6.2 in accordance with chapter 2.6 shall be transported as UN 2814, UN 2900 or UN 3373, as appropriate."

SP243 Amend to read as follows:

"Gasoline, motor spirit and petrol for use in spark-ignition engines (e.g. in automobiles, stationary engines and other engines) shall be assigned to this entry regardless of variations in volatility."

SP 247 Amend the last sentence to read ".5 when carried on board ships, the containers shall be stowed in open cargo spaces or in enclosed cargo spaces complying with the requirements for class 3 flammable liquids with a flashpoint of 23°C c.c. or less in regulation II-2/19 of SOLAS 74, as amended."

SP 281 Delete last sentence.

SP 294 Amend packing instruction reference to read "P407".

- SP 296** Replace the existing text with the following:
- "These entries apply to life-saving appliances such as life rafts, personal flotation devices and self-inflating slides. UN 2990 applies to self-inflating appliances. UN 3072 applies to life-saving appliances that are not self-inflating. Life-saving appliances may contain:
- .1 signal devices (class 1) which may include smoke and illumination signal flares packed in packagings that prevent them from being inadvertently activated;
 - .2 for UN 2990 only, cartridges, power device of division 1.4, compatibility group S, may be contained for purposes of the self-inflating mechanism and provided that the quantity of explosives per appliance does not exceed 3.2 g;
 - .3 class 2.2 compressed gases;
 - .4 electric storage batteries (class 8) and lithium batteries (class 9);
 - .5 first aid kits or repair kits containing small quantities of dangerous goods (e.g.: classes 3, 4.1, 5.2, 8 or 9 substances); or
 - .6 "Strike anywhere" matches packed in packagings that prevent them from being inadvertently activated."
- SP 299** Amend to read:
- "299 Consignments of:
- (i) Cotton, dry having a density not less than 360 kg/m³
 - (ii) Flax, dry having a density not less than 400 kg/m³
 - (iii) Sisal, dry having a density not less than 620 kg/m³
- according to ISO 8115:1986, are not subject to the provisions of this Code when transported in closed cargo transport units."
- SP 306** Delete.
- SP 309** Amend last sentence to read as follows:
"Substances shall satisfactorily pass Test Series 8 of the United Nations *Manual of Tests and Criteria*, Part I, Section 18."
- SP 900** Add, in alphabetical order, "Ammonium hypochlorite".
- SP 906** Delete.
- SP 908** Amend to read: "This entry also covers, articles, such as transformers and condensers, containing free liquid polychlorinated biphenyls, polyhalogenated biphenyls or polyhalogenated terphenyls."

SP 910 Amend to read:

"A 'FUMIGATED UNIT' is a closed cargo transport unit loaded with cargoes under fumigation. The fumigant gases used are either poisonous or asphyxiant. The gases are usually evolved from solid or liquid preparations distributed within the unit. Fumigated units are subject to the following provisions:

- 1 Cargo transport units shall be fumigated and handled taking into account the provisions of the IMO publication *Recommendations on the Safe Use of Pesticides in Ships*, as amended.
- 2 Only cargo transport units that can be closed in such a way that the escape of gas is reduced to a minimum shall be used for the transport of fumigated cargo.
- 3 Class 9 placards shall not be affixed to a fumigated unit, except as required for other class 9 substances or articles packed therein (see 5.3.1.3).
- 4 Fumigated units shall be marked with a warning sign affixed to the access door(s) identifying the type and amount of fumigant used and the date and time of fumigation (see 5.3.2.5).
- 5 The transport document for a fumigated unit shall show the type and amount of fumigant used and the date and time of fumigation (see 5.4.4.2). In addition, instructions for disposal for any residual fumigant, including fumigation devices if used, shall be provided.
- 6 A closed cargo transport unit that has been fumigated is not subject to the provisions of this Code if it has been completely ventilated either by opening the doors of the unit or by mechanical ventilation after fumigation to ensure that no harmful concentration of gas remains. When completely ventilated, the fumigation warning sign(s) shall be removed. (See also 7.4.3).
- 7 When fumigated units are stowed under deck, equipment for detecting fumigant gas(es) shall be carried on the ship with instructions for their use.
- 8 Fumigants shall not be applied to the contents of a cargo transport unit once it has been loaded aboard the ship."

SP 913 Delete.

SP 933 Delete.

SP 936 Delete.

SP 938 Add as the first sentence the following: "Propionic acid having a flashpoint at or below 61°C c.c. shall be transported under UN 2924."

SP 940 Delete.

Add the following new special provisions:

- "311** Substances shall not be transported under this entry unless approved by the competent authority on the basis of the results of appropriate tests according to Part I of the United Nations *Manual of Tests and Criteria*. Packaging shall ensure that the percentage of diluent does not fall below that stated in the competent authority approval at any time during transport.
- 313** Substances and mixtures meeting the criteria for class 8 shall be labelled with a "CORROSIVE" subsidiary risk label.
- 314** a) These substances are liable to exothermic decomposition at elevated temperatures. Decomposition can be initiated by heat or by impurities (e.g. powdered metals (iron, manganese, cobalt, magnesium) and their compounds).
- b) During the course of transport, these substances shall be shaded from direct sunlight and all sources of heat and be placed in adequately ventilated areas.
- 315** This entry shall not be used for class 6.1 substances which meet the inhalation toxicity criteria for packing group I described in 2.6.2.2.4.3.
- 316** This entry applies only to calcium hypochlorite, dry or hydrated, when transported in non friable tablet form.
- 317** "Fissile-excepted" applies only to those packages complying with 6.4.11.2.
- 318** For the purposes of documentation, the Proper Shipping Name shall be supplemented with the technical name (see 3.1.2.8). Technical names need not be shown on the package. When the infectious substances to be transported are unknown, but suspected of meeting the criteria for inclusion in category A and assignment to UN 2814 or UN 2900, the words "suspected category A infectious substance" shall be shown, in parentheses, following the Proper Shipping Name on the transport document, but not on the outer packagings.
- 319** This entry applies to human or animal material including, but not limited to, excreta, secreted, blood and its components, tissue and tissue fluids, and body parts being transported for purposes such as research, diagnosis, investigation, disease treatment or prevention. Substances packed and packages marked in accordance with packing instruction P650 are not subject to any other provisions of this Code.
- 320** Irrespective of 2.0.2.2, this entry or the appropriate generic entry may be used.

- 321** These storage systems shall always be considered as containing hydrogen.
- 956** Consignments of life-saving appliances, containing no dangerous goods other than carbon dioxide cylinders with a capacity not exceeding 100 cm³, provided that they are overpacked in wooden or fibreboard boxes with a maximum gross mass of 40 kg, are not subject to the provisions of this Code.
- 957** Lithium cells and batteries manufactured before 1 January 2003 that have not been tested in accordance with the requirements in chapter 38.3 of the United Nations *Manual of Tests and Criteria*, as well as articles which contain such lithium cells or batteries, may be transported until 31 December 2013 if all applicable provisions of this Code are met.
- 958** This entry covers articles, such as rags, cotton waste, clothing, sawdust, containing polychlorinated biphenyls, polyhalogenated biphenyls or polyhalogenated terphenyls where no free visible liquid is present."

Chapter 3.4

3.4.7 Delete "Proper Shipping Name and".

Chapter 3.5

Delete chapter 3.5.

APPENDIX A

Class 3 table

- 3256 Amend "60.5" to read "61" in entry.
- 3379 Add entry as "3 DESENSITIZED EXPLOSIVE, LIQUID, N.O.S."

Class 4.1 table

- 3380 Add entry as "4.1 DESENSITIZED EXPLOSIVE, SOLID, N.O.S."

Class 4.2 table

Delete entries 2003, 3049, 3050 and 3203.
Add entries 3391, 3392, 3393, 3394 and 3400 as in DGL.

Class 4.3 table

Delete entries 3207 and 3372.
Add entries 3395, 3396, 3397, 3398, 3399, 3401 and 3402, as in DGL.
Add "LIQUID" in entries 1389 and 1392.

Class 6.1 table

Add 10 entries 3381 to 3390, as in DGL under 'General entries'.
Add 8 entries 3439, 3440, 3448, 3462, 3464, 3465, 3466 and 3467, as in DGL.
Add "LIQUID" in entries 1693, 3172, 3276, 3278, 3280, 3281 and 3282.
Add "SOLID" in entry 3283.
Amend entry 2993 at end to read "... FLAMMABLE flashpoint between 23°C and 61°C".

Class 6.2 table

Amend the following entry to read: "6.2 3373 DIAGNOSTIC or CLINICAL SPECIMENS".

APPENDIX B

For "AIR-BAG" read "AIR BAG" (3 times).

INDEX

Amend the index in accordance with the relevant amendments adopted.

The EmS Guide

Delete the UN numbers before each EmS Schedule.

Index (to the EmS Guide)

Add the following:

| | | | | | | | | |
|------|-----|-----|------|-----|-----|------|-----|-----|
| 3377 | F-A | S-Q | 3407 | F-H | S-Q | 3438 | F-A | S-A |
| 3378 | F-A | S-Q | 3408 | F-H | S-Q | 3439 | F-A | S-A |
| 3379 | F-E | S-Y | 3409 | F-A | S-A | 3440 | F-A | S-A |
| 3380 | F-B | S-J | 3410 | F-A | S-A | 3441 | F-A | S-A |
| 3381 | F-A | S-A | 3411 | F-A | S-A | 3442 | F-A | S-A |
| 3382 | F-A | S-A | 3413 | F-A | S-A | 3443 | F-A | S-A |
| 3383 | F-E | S-D | 3414 | F-A | S-A | 3444 | F-A | S-A |
| 3384 | F-E | S-D | 3415 | F-A | S-A | 3445 | F-A | S-A |
| 3385 | F-G | S-N | 3416 | F-A | S-A | 3446 | F-A | S-A |
| 3386 | F-G | S-N | 3417 | F-A | S-G | 3447 | F-A | S-A |
| 3387 | F-A | S-Q | 3418 | F-A | S-A | 3448 | F-A | S-A |
| 3388 | F-A | S-Q | 3419 | F-A | S-B | 3449 | F-A | S-A |
| 3389 | F-A | S-B | 3420 | F-A | S-B | 3450 | F-A | S-A |
| 3390 | F-A | S-B | 3421 | F-A | S-B | 3451 | F-A | S-A |
| 3391 | F-G | S-M | 3422 | F-A | S-B | 3452 | F-A | S-A |
| 3392 | F-G | S-M | 3423 | F-A | S-B | 3453 | F-A | S-B |
| 3393 | F-G | S-M | 3424 | F-A | S-A | 3454 | F-A | S-A |
| 3394 | F-G | S-M | 3425 | F-A | S-B | 3455 | F-A | S-B |
| 3395 | F-G | S-N | 3426 | F-A | S-A | 3456 | F-A | S-B |
| 3396 | F-G | S-N | 3427 | F-A | S-A | 3457 | F-A | S-A |
| 3397 | F-G | S-N | 3428 | F-A | S-A | 3458 | F-A | S-A |
| 3398 | F-G | S-N | 3429 | F-A | S-A | 3459 | F-A | S-A |
| 3399 | F-G | S-N | 3430 | F-A | S-A | 3460 | F-A | S-A |
| 3400 | F-A | S-J | 3431 | F-A | S-A | 3461 | F-G | S-M |
| 3401 | F-G | S-N | 3432 | F-A | S-A | 3462 | F-A | S-A |
| 3402 | F-G | S-N | 3433 | F-G | S-M | 3464 | F-A | S-A |
| 3403 | F-G | S-L | 3434 | F-A | S-A | 3465 | F-A | S-A |
| 3404 | F-G | S-L | 3435 | F-A | S-A | 3466 | F-A | S-A |
| 3405 | F-H | S-Q | 3436 | F-A | S-A | 3467 | F-A | S-A |
| 3406 | F-H | S-Q | 3437 | F-A | S-A | 3468 | F-D | S-U |

Amend the following:

Underline the "F-X" code for:

UN 0018 UN 0019 UN 0020 UN 0021 UN 0248 UN 0249 UN 0301 UN 1001
UN 1003 UN 1014 UN 1038 UN 1070 UN 1072 UN 1073 UN 1075 UN 1162
UN 1250 UN 1298 UN 1381 UN 1415 UN 1418 UN 1717 UN 1965 UN 1966
UN 2201 UN 2447 UN 2977 UN 2978 UN 2985 UN 3138 UN 3156 UN 3157
UN 3160 UN 3268 UN 3309 UN 3312 UN 3332 UN 3333 UN 3374.

Underline the "S-X" code for:

UN 1001 UN 1136 UN 1139 UN 1263 UN 1295 UN 1614 UN 1993 UN 2029
UN 2210 UN 2749 UN 2802 UN 2809 UN 2968 UN 2977 UN 3257 UN 3258
UN 3316 UN 3324 UN 3325 UN 3326 UN 3327 UN 3328 UN 3329 UN 3330
UN 3331 UN 3359 UN 3363 UN 3374.

Delete the following UN numbers from the index: UN 2003, 2068, 2069, 2070,
3049, 3050, 3203, 3207, 3353 and 3372.

Amend the index as follows:

For UN 1278, replace "S-C" with "S-D".

For UN 2921, replace "S-C" with "S-G".

For UN 3205 and UN 3206, replace "S-Q" with "S-J".

ANNEX 12

**RESOLUTION MSC.122(75)
(adopted on 24 May 2002)**

**ADOPTION OF THE INTERNATIONAL MARITIME
DANGEROUS GOODS (IMDG) CODE**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING the adoption by the Assembly of resolution A.716(17) on the International Maritime Dangerous Goods (IMDG) Code,

RECOGNIZING the need to provide a mandatory application of the agreed international standards for the carriage of dangerous goods by sea,

NOTING ALSO resolution MSC.123(75) by which it adopted amendments to chapter VII of the International Convention for the Safety of Life at Sea (SOLAS) 1974, as amended (hereinafter referred to as "the Convention"), to make the provisions of the IMDG Code mandatory under the Convention,

HAVING CONSIDERED, at its seventy-fifth session, the text of the proposed IMDG Code,

1. ADOPTS the International Maritime Dangerous Goods (IMDG) Code, the text of which is set out in the Annex to the present resolution;
2. NOTES that, under the aforementioned amendments to chapter VII of the Convention, future amendments to the IMDG Code shall be adopted, brought into force and shall take effect in accordance with the provisions of article VIII of the Convention concerning the amendment procedures applicable to the Annex to the Convention other than chapter I thereof;
3. INVITES Contracting Governments to the Convention to note that the IMDG Code will take effect on 1 January 2004 upon entry into force of the amendments to chapter VII of the Convention;
4. AGREES that Contracting Governments to the Convention may apply the IMDG Code in whole or in part on a voluntary basis as from 1 January 2003;
5. REQUESTS the Secretary-General to transmit certified copies of this resolution and its Annex to all Contracting Governments to the Convention;
6. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to all Members of the Organization which are not Contracting Governments to the Convention;
7. NOTES that the annexed IMDG Code supersedes the existing Code adopted by resolution A.716(17).

ANNEX

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG) CODE

(For reasons of economy, the complete text of the IMDG Code, as given in document DSC 6/15/Add.1, has not been reproduced here.)

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