



Economic and Social Council

Distr.: General
30 March 2012

English
Original: English and French

Economic Commission for Europe

ADN Administrative Committee

European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)

Draft amendments to the Regulations annexed to ADN

At its eighth session (27 January 2012), the ADN Administrative Committee requested the secretariat to prepare a consolidated list of all the amendments which it had adopted for entry into force on 1 January 2013 so that they could be made the subject of an official proposal in accordance with the procedure set out in article 20 of ADN. The notification would have to be issued no later than 1 July 2012, with a reference to 1 January 2013 as the scheduled date of entry into force (see ECE/ADN/17, paragraph 17).

The present document* contains the requested consolidated list of amendments adopted by the Safety Committee at its seventeenth, eighteenth, nineteenth and twentieth sessions (see ECE/TRANS/WP.15/AC.2/36, Annex II, ECE/TRANS/WP.15/AC.2/36/Corr.1, ECE/TRANS/WP.15/AC.2/38, Annex, ECE/TRANS/WP.15/AC.2/40/Add.1 and ECE/TRANS/WP.15/AC.2/42, Annex I).

* For technical reasons, the paper version of this document is printed in black and white. For page 44, the electronic version should be consulted. For the Warning mark in 5.5.3.6 the text should be in red and the symbol in white and grey on a black background.

Part 1

Chapter 1.1

Insert the following new sub-sections:

1.1.3.8 (Reserved)

1.1.3.9 Exemptions related to dangerous goods used as a coolant or conditioner during carriage

When used in vehicles, wagons or containers for cooling or conditioning purposes, dangerous goods that are only asphyxiant (which dilute or replace the oxygen normally in the atmosphere) are only subject to the provisions of section 5.5.3."

1.1.4.3 Amend to read as follows:

1.1.4.3 Use of IMO type portable tanks approved for maritime transport

IMO type portable tanks (types 1, 2, 5 and 7) which do not meet the requirements of Chapters 6.7 or 6.8 of ADR, but which were built and approved before 1 January 2003 in accordance with the provisions of the IMDG Code (Amdt. 29-98) may continue to be used provided that they meet the applicable periodic inspection and test provisions of the IMDG Code¹. In addition, they shall meet the provisions corresponding to the instructions set out in columns (10) and (11) of Table A in Chapter 3.2 and the provisions of Chapter 4.2 of ADR. See also 4.2.0.1 of the IMDG Code."

1.1.5 Insert a new section 1.1.5 to read as follows:

1.1.5 Application of standards

Where the application of a standard is required and there is any conflict between the standard and the provisions of ADN, the provisions of ADN take precedence."

Chapter 1.2

1.2.1 The amendments to the definition of "Box" and for "Bag" do not apply to the English text.

1.2.1 In the definition of "battery-vehicle", in the first sentence, replace "to a transport unit" by "to this vehicle".

1.2.1 Delete the definition of "BC Code".

1.2.1 In the definition of "Bulk container", replace "'Bulk containers' means containment systems" with "'Bulk container' means a containment system". Replace "Bulk containers are" with "A bulk container is". In the second indent, replace "modes of carriage" with "means of transport".

1.2.1 In the definition of "Collective entry", replace "well defined" with "defined".

¹ The International Maritime Organization (IMO) has issued "Guidance on the Continued Use of Existing IMO Type Portable Tanks and Road Tank Vehicles for the Transport of Dangerous Goods" as circular DSC.1/Circ.12 and Corrigenda. The text of this guidance can be found on the IMO website at: www.imo.org.

1.2.1 In the definition of "*Combination packaging*", replace "for transport purposes" with "for carriage purposes" and "outer packing" by "outer packaging".

1.2.1 In the definition of "*GHS*", replace "third" with "fourth" and "ST/SG/AC.10/30/Rev.3" with "ST/SG/AC.10/30/Rev.4".

1.2.1 In the definition for "International regulations", replace "BC Code" by "IMSBC Code".

1.2.1 In the definition of "*Manual of Tests and Criteria*", amend the text in parentheses to read "ST/SG/AC.10/11/Rev.5 as amended by document ST/SG/AC.10/11/Rev.5/Amend.1".

1.2.1 In the definition of "*Maximum permissible gross mass*", in (a), amend the text in parentheses to read "for IBCs".

1.2.1 Delete the definition of "*Maximum permissible load*".

1.2.1 Amend the definition of "Pipes for loading and unloading (cargo piping)" to read as follows:

"Piping for loading and unloading (cargo piping) means all piping which may contain liquid or gaseous cargo, including pipes, hose assemblies, connected pumps, filters and closure devices."

Consequential amendment (English text): wherever it appears, replace "pipes for loading and unloading" by "piping for loading and unloading", "loading and unloading pipes" by "loading and unloading piping", "loading pipes" by "loading piping", "pipes for loading" by "piping for loading", "unloading pipes" by "unloading piping", and "pipes for unloading" by "piping for unloading".

1.2.1 In the definition of "*Pressure receptacle*", replace "and bundles of cylinders" by ", bundles of cylinders and salvage pressure receptacles".

1.2.1 In the definition of "*Salvage packaging*", replace "or leaking" by ", leaking or non-conforming".

1.2.1 In the definition of "*UN Model Regulations*", replace "sixteenth" by "seventeenth" and "(ST/SG/AC.10/1/Rev.16)" by "(ST/SG/AC.10/1/Rev.17)".

1.2.1 Add the following new definitions:

"*CMNI* means the Convention on the Contract for the Carriage of Goods by Inland Waterway (Budapest, 22 June 2001)."

"*Hoses* means flexible tubular semi-finished products of elastomers, thermoplastics or stainless steel composed of one or several coatings and liners."

"*Hose assemblies* means hoses, which are integrated or welded on both sides into hose fittings; hose fittings shall be integrated so that it is only possible to loosen them with a tool."

"*Hose fittings* means couplings and connection elements of hoses."

"*IMSBC Code* means the International Maritime Solid Bulk Cargoes Code of the International Maritime Organization (IMO);"

"*Liquefied Petroleum Gas (LPG)* means a low pressure liquefied gas composed of one or more light hydrocarbons which are assigned to UN 1011, UN 1075, UN 1965, UN 1969 or UN 1978 only and which consists mainly of propane, propene, butane, butane isomers, butene with traces of other hydrocarbon gases.

NOTE 1: *Flammable gases assigned to other UN numbers shall not be regarded as LPG.*

NOTE 2: For UN No. 1075 see NOTE 2 under 2F, UN No. 1965, in the table for liquefied gases in 2.2.2.3."

"Loading instrument: A loading instrument consists of a computer (hardware) and a programme (software) and offers the possibility of ensuring that in every ballast or loading case:

- the permissible values concerning longitudinal strength as well as the maximum permissible draught are not exceeded; and
- the stability of the vessel complies with the requirements applicable to the vessel. For this purpose intact stability and damage stability shall be calculated."

"Net explosive mass (NEM) means the total mass of the explosive substances, without the packagings, casings, etc. (Net explosive quantity (NEQ), net explosive contents (NEC), net explosive weight (NEW) or net mass of explosive contents are often used to convey the same meaning.);".

"Salvage pressure receptacle means a pressure receptacle with a water capacity not exceeding 1 000 litres into which are placed damaged, defective, leaking or non-conforming pressure receptacle(s) for the purpose of carriage e.g. for recovery or disposal;".

"Watertight means a structural component or device so fitted as to prevent any ingress of water;".

"Weathertight means a structural component or device so fitted that in normal conditions it allows only a negligible quantity of water to penetrate;".

Chapter 1.3

1.3.1 In NOTE 1, replace "see 1.8.3" with "see 1.8.3 instead of this section". In NOTE 2, replace "see Chapter 8.2" with "see Chapter 8.2 instead of this section". Delete NOTE 4.

Chapter 1.4

1.4.2.1.1 (b) After "Furnish the carrier with information and data", insert "in a traceable form".

1.4.2.2.1 Add a new indent (j) to read as follows:

"(j) Ascertain that the vessel substance list in accordance with 1.16.1.2.5 complies with Table C of chapter 3.2 including the modifications made to it."

1.4.3.3 (f) Amend to read as follows: "(f) He shall, after filling the tank, ensure that all closures are in a closed position and that there is no leakage;".

Chapter 1.6

1.6.1.1 Replace "2011" and "2010" by "2013" and "2012".

1.6.1 Add the following new transitional measures:

"1.6.1.21-23 (*Reserved*)

1.6.1.24 Lithium cells and batteries manufactured before 1 January 2014 which had been tested in accordance with the requirements applicable until 31 December 2012 but which had not been tested in accordance with the requirements applicable as from 1

January 2013, and appliances containing such lithium cells or batteries, may continue to be carried if all the other applicable requirements are fulfilled.

1.6.1.25 Packages marked with a UN number in accordance with the provisions of ADN applicable up to 31 December 2012 and which do not conform to the requirements of 5.2.1.1 regarding the size of the UN number and of the letters "UN" applicable as from 1 January 2013 may continue to be used until 31 December 2013, and, for cylinders of 60 litres water capacity or less, until the next periodic inspection but no later than 30 June 2018.

1.6.1.26 Large packagings manufactured or remanufactured before 1 January 2014 and which do not conform to the requirements of 6.6.3.1 of ADR regarding the height of letters, numerals and symbols applicable as from 1 January 2013 may continue to be used. Those manufactured or remanufactured before 1 January 2015 need not be marked with the maximum permitted stacking load in accordance with 6.6.3.3 of ADR. Such large packagings not marked in accordance with 6.6.3.3 of ADR may still be used after 31 December 2014 but must be marked in accordance with 6.6.3.3 of ADR if they are remanufactured after that date.

1.6.1.27 Means of containment integral to equipment or machinery containing liquid fuels of UN Nos. 1202, 1203, 1223, 1268, 1863 and 3475 constructed before 1 July 2013, which do not conform to the requirements of special provision 363 of chapter 3.3 applicable as from 1 January 2013, may still be used."

1.6.7.2.2.2 Add a new entry in the table to read as follows:

"7.2.3.20.1	Fitting of ballast tanks and compartments with level indicators	N.R.M. For Type C and G and Type N double hull tank vessels Renewal of the certificate of approval after 31 December 2012"
-------------	---	---

1.6.7.2.2.2 Add a new entry in the table to read as follows:

"8.1.6.2.	Hose assemblies	Hose assemblies of previous standards EN 12115:1999, EN 13765:2003 or EN ISO 10380:2003 may be used until 31 December 2018".
-----------	-----------------	--

1.6.7.2.2.3.1 Add a sentence at the end to read as follows: "This transitional provision is valid until 31 December 2018."

1.6.7.2.4 Add a new transitional measure as follows:

"1.6.7.2.4 Paragraphs 9.3.1.13.3, 9.3.2.13.3 and 9.3.3.13.3 may be applied until 31 December 2014 in the version applicable on 31 December 2012."

1.6.7.4.2 Transitional periods applicable to substances

In Table 2, make the following amendments:

UN No. (with description/comments if necessary)	Column	Amendment
1203	(18)	Replace "PP, EX, A" by: "PP, EP, EX, TOX, A".

<i>UN No. (with description/comments if necessary)</i>		<i>Column</i>	<i>Amendment</i>
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (NAPHTHA) 110 kPa < vp50 ≤ 175 kPa	(18)	Replace "PP, EX, A" by: "PP, EP, EX, TOX, A".
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (NAPHTHA) 110 kPa < vp50 ≤ 150 kPa	(18)	Replace "PP, EX, A" by: "PP, EP, EX, TOX, A".
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (NAPHTHA) vp50 ≤ 110 kPa	(18)	Replace "PP, EX, A" by: "PP, EP, EX, TOX, A".
1268	PETROLEUM DISTILLATES, N.O.S. with more than 10% BENZENE or PETROLEUM PRODUCTS, N.O.S. (BENZENE HEART CUT) vp50 ≤ 110 kPa	(18)	Replace "PP, EX, A" by: "PP, EP, EX, TOX, A".
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flashpoint above 60° C, at or above its flashpoint (Low QI Pitch)	(18)	Replace "PP, EX, A" by: "PP, EP, EX, TOX, A".
3257	For the 2 entries	(18)	Replace "PP" by: "*".
		(20)	Insert at the end "*see 3.2.3.3"
3295	HYDROCARBONS LIQUID, N.O.S. (POLYCYCLIC AROMATIC HYDROCARBONS MIXTURE)	(18)	Replace "PP, EX, A" by: "PP, EP, EX, TOX, A".
3295	HYDROCARBONS, LIQUID, N.O.S.	(18)	Replace "PP, EX, A" by: "*".
		(20)	Insert at the end "*see 3.2.3.3"

In Table 3, make the following amendments:

<i>UN No. (with description/comments if necessary)</i>		<i>Column</i>	<i>Amendment</i>
1202	GAS OIL or DIESEL FUEL or HEATING OIL (LIGHT) (flashpoint not more than 60° C)	(18)	Replace "PP" by: "*".
		(20)	Insert at the end "*see 3.2.3.3"
1202	GAS OIL or DIESEL FUEL or HEATING OIL (LIGHT) (flashpoint more than 60° C but not more than 100° C)	(18)	Replace "PP" by: "*".
		(20)	Insert at the end "*see 3.2.3.3"
1223		(16)	Replace "II A" by: "II A ⁷⁾ ".
1863	FUEL, AVIATION, TURBINE ENGINE	(18)	Replace "PP, EX, A" by: "*".
		(20)	Insert at the end "*see 3.2.3.3"

1.6.8 Add a new transitional measure to read as follows:

"1.6.8 Transitional provisions concerning training of the crew

The provisions of 7.1.3.15, 7.2.3.15, 8.2.2.3, 8.2.2.4 and 8.2.2.5 concerning the expert on board may be applied until 31 December 2014 in the version applicable on 31 December

2012. The responsible master and the person responsible for the loading or unloading of a barge shall be in possession of a certificate of special knowledge with the entry "The holder of this certificate has participated in an 8-lesson stability training" before 31 December 2019.

The condition for this entry is participation in a basic course required by the Regulations in force after 1 January 2013 or participation in a basic refresher course that, in derogation from 8.2.2.5, comprises 24 lessons of 45 minutes, including eight lessons devoted to the subject of stability."

Chapter 1.8

1.8.3.3 Amend the fourth indent of the second paragraph to read:

"- the proper training of the undertaking's employees, including on the changes to the Regulations, and the maintenance of records of such training;

1.8.5.1 Amend the end to read as follows ", shall ascertain that a report conforming to the model prescribed in 1.8.5.4 is made to the competent authority of the Contracting Party concerned at the latest one month after the occurrence."

Chapter 1.10

1.10.3.1 Amend to read as follows:

1.10.3.1 Definition of high consequence dangerous goods

1.10.3.1.1 High consequence dangerous goods are those which have the potential for misuse in a terrorist event and which may, as a result, produce serious consequences such as mass casualties, mass destruction or, particularly for Class 7, mass socio-economic disruption.

1.10.3.1.2 High consequence dangerous goods in classes other than Class 7 are those listed in Table 1.10.3.1.2 below and carried in quantities greater than those indicated therein.

[Insert existing Table 1.10.5 renumbered 1.10.3.1.2, but without the entry for Class 7.]

1.10.3.1.3 For dangerous goods of Class 7, high consequence radioactive material is that with an activity equal to or greater than a transport security threshold of 3 000 A₂ per single package (see also 2.2.7.2.2.1) except for the following radionuclides where the transport security threshold is given in Table 1.10.3.1.3 below.

Table 1.10.3.1.3

Transport security thresholds for specific radionuclides

<i>Element</i>	<i>Radionuclide</i>	<i>Transport security threshold (TBq)</i>
Americium	Am-241	0.6
Gold	Au-198	2
Cadmium	Cd-109	200
Californium	Cf-252	0.2
Curium	Cm-244	0.5
Cobalt	Co-57	7
Cobalt	Co-60	0.3
Caesium	Cs-137	1

<i>Element</i>	<i>Radionuclide</i>	<i>Transport security threshold (TBq)</i>
Iron	Fe-55	8000
Germanium	Ge-68	7
Gadolinium	Gd-153	10
Iridium	Ir-192	0.8
Nickel	Ni-63	600
Palladium	Pd-103	900
Promethium	Pm-147	400
Polonium	Po-210	0.6
Plutonium	Pu-238	0.6
Plutonium	Pu-239	0.6
Radium	Ra-226	0.4
Ruthenium	Ru-106	3
Selenium	Se-75	2
Strontium	Sr-90	10
Thallium	Tl-204	200
Thulium	Tm-170	200
Ytterbium	Yb-169	3

1.10.3.1.4 For mixtures of radionuclides, determination of whether or not the transport security threshold has been met or exceeded can be calculated by summing the ratios of activity present for each radionuclide divided by the transport security threshold for that radionuclide. If the sum of the fractions is less than 1, then the radioactivity threshold for the mixture has not been met nor exceeded.

This calculation can be made with the formula:

$$\sum_i \frac{A_i}{T_i} < 1$$

Where:

A_i = activity of radionuclide i that is present in a package (TBq)

T_i = transport security threshold for radionuclide i (TBq).

1.10.3.1.5 When radioactive material possesses subsidiary risks of other classes, the criteria of table 1.10.3.1.2 shall also be taken into account (see also 1.7.5)

1.10.3.2.1 and 1.10.3.3 (twice) Replace "high consequence dangerous goods (see Table 1.10.5)" with "high consequence dangerous goods (see Table 1.10.3.1.2) or high consequence radioactive material (see 1.10.3.1.3)".

1.10.4 Add the following new sentence at the end "In addition the provisions of this Chapter do not apply to the carriage of UN No. 2912 RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I) and UN No. 2913 RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I)".

1.10.5 Delete. Renumber 1.10.6 as 1.10.5.

1.10.6 (Renumbered 1.10.5) In footnote 2, delete the last sentence ("See also "Guidance and Considerations for the Implementation of INFCIRC/225/Rev.4, the Physical Protection of Nuclear Material and Nuclear Facilities, IAEA-TECDOC-967/Rev.1".").

Chapter 1.15

Amend paragraph 1.15.2.6 and the first paragraph of 1.15.2.7 to read as follows:

"1.15.2.6 The Administrative Committee shall set up a new Committee of Experts following the procedure set out under 1.15.2.2 which shall report to the Administrative Committee within a period of six months. The classification society shall be informed and invited by the Committee of Experts to comment on the findings.

1.15.2.7 The Administrative Committee may decide, in case of a failure(s) to meet the conditions and criteria in 1.15.3, that the classification society shall have the opportunity to present a plan to address the identified failure(s) within a deadline of six months and to avoid any re-occurrence or, in accordance with Article 17, 7 (c), to withdraw the name of the society in question from the list of societies recommended for recognition."

1.15.4 Amend 1.15.4 to read as follows:

"1.15.4.1 Recommended classification societies shall undertake to cooperate with each other so as to guarantee equivalence from the point of view of safety of their technical standards which are relevant to the implementation of the provisions of the present Agreement.

1.15.4.2 They shall exchange experiences in joint meetings at least once a year. They shall report annually to the Safety Committee. The Secretariat of the Safety Committee shall be informed of those meetings. The opportunity will be given to Contracting Parties to attend the meetings as observers.

1.15.4.3 Recommended classification societies shall undertake to apply the present and future provisions of the Agreement taking into account the date of their entry into force. In response to requests from the competent authority, recommended classification societies shall provide all relevant information regarding their technical requirements."

Chapter 1.16

1.16.1.2.5 Amend to read as follows:

"For tank vessels, the certificate of approval shall be supplemented by a list of all the dangerous goods accepted for carriage in the tank vessel, drawn up by the recognized classification society which has classified the vessel (vessel substance list). To the extent required for safe carriage, the list shall contain reservations for certain dangerous goods regarding:

- the criteria for strength and stability of the vessel; and
- the compatibility of the accepted dangerous goods with all the construction materials of the vessel, including installations and equipment, which come into contact with the cargo.

Classification societies shall update the vessel substance list at each renewal of the class of a vessel on the basis of the annexed Regulations in force at the time. Classification societies shall inform the owner of the vessel about amendments to Table C of chapter 3.2 which have become relevant in the meantime. If these amendments require an update of the vessel substance list, the owner of the vessel shall request this from a classification society. This updated vessel substance list shall be issued within the period referred to in 1.6.1.1.

The entire vessel substance list shall be withdrawn by the recognized classification society within the period referred to in 1.6.1.1 if, due to amendments to these Regulations or due to

changes in classification, goods contained in it are no longer permitted to be carried in the vessel.

The recognized classification society shall without delay transmit a copy of the vessel substance list to the authority responsible for issuing the certificate of approval and without delay inform it about amendments or withdrawal.

NOTE: When the substance list is available electronically, see 5.4.0.2."

1.16.15.2 Amend to read as follows:

"The competent authorities shall keep copies of all the certificates which they have issued, as well as of the associated vessel substance lists of the recognised classification societies and of all amendments, withdrawals, new issuances and declarations of cancellation of these documents."

Part 2

Chapter 2.1

2.1.3.3 In the first sentence, add "meeting the classification criteria of ADN" after "A solution or mixture".

2.1.3.5 Add "meeting the classification criteria of ADN and" after "solutions or mixtures".

2.1.3.5.3 Amend the beginning (before the parenthesis) of sub-paragraph (h) to read as follows:

"(h) Substances of Class 6.1 meeting the inhalation toxicity criteria of packing group I".

2.1.3.5.4 Add the following paragraph:

"If the hazard characteristics of the substance are such that the substance can be assigned to a UN number or an identification number, then the UN number shall take precedence."

2.1.3.5.5 At the end of the third paragraph, add the following sentence: "However, if it is known that the waste possesses only environmentally hazardous properties, it may be assigned to packing group III under UN Nos. 3077 or 3082."

2.1.3.8 Amend to read as follows:

"2.1.3.8 Substances of classes 1 to 6.2, 8 and 9, other than those assigned to UN Nos. 3077 and 3082, meeting the criteria of 2.2.9.1.10 are additionally to their hazards of classes 1 to 6.2, 8 and 9 considered to be environmentally hazardous substances. Other substances meeting the criteria of no other class, but those of 2.2.9.1.10 are to be assigned to UN Nos. 3077 and 3082 as appropriate."

Chapter 2.2

2.2.1.1.3 Replace "2.2.1.1.8" by "2.2.1.4".

2.2.1.1.5 For Division 1.6, delete "detonating".

2.2.1.1.6 In the description for compatibility group N, delete "detonating".

2.2.1.1.8 Transfer the text of 2.2.1.1.8 in a new sub-section 2.2.1.4 with the following modifications:

In the definition for "ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES, EEI)", delete "detonating" and "(EIDS)".

Add a new definition for "CARTRIDGES FOR TOOLS, BLANK" to read as follows:

"CARTRIDGES FOR TOOLS, BLANK: UN No. 0014

Article, used in tools, consisting of a closed cartridge case with a centre or rim fire primer with or without a charge of smokeless or black powder but with no projectile."

Add a new 2.2.1.1.8 to read as follows:

"2.2.1.1.8 *Exclusion from Class 1*

2.2.1.1.8.1 An article or a substance may be excluded from Class 1 by virtue of test results and the Class 1 definition with the approval of the competent authority of any ADN Contracting Party who may also recognize an approval granted by the competent authority of a country which is not an ADN Contracting Party provided that this approval has been granted in accordance with the procedures applicable according to RID, ADR, ADN, the IMDG Code or the ICAO Technical Instructions.

2.2.1.1.8.2 With the approval of the competent authority in accordance with 2.2.1.1.8.1, an article may be excluded from Class 1 when three unpackaged articles, each individually activated by its own means of initiation or ignition or external means to function in the designed mode, meet the following test criteria:

(a) No external surface shall have a temperature of more than 65 °C. A momentary spike in temperature up to 200 °C is acceptable;

(b) No rupture or fragmentation of the external casing or movement of the article or detached parts thereof of more than one metre in any direction;

NOTE: Where the integrity of the article may be affected in the event of an external fire these criteria shall be examined by a fire test, such as described in ISO 12097-3.

(c) No audible report exceeding 135 dB(C) peak at a distance of one metre;

(d) No flash or flame capable of igniting a material such as a sheet of 80 ± 10 g/m² paper in contact with the article; and

(e) No production of smoke, fumes or dust in such quantities that the visibility in a one cubic metre chamber equipped with appropriately sized blow out panels is reduced more than 50% as measured by a calibrated light (lux) meter or radiometer located one metre from a constant light source located at the midpoint on opposite walls. The general guidance on Optical Density Testing in ISO 5659-1 and the general guidance on the Photometric System described in Section 7.5 in ISO 5659-2 may be used or similar optical density measurement methods designed to accomplish the same purpose may also be employed. A suitable hood cover surrounding the back and sides of the light meter shall be used to minimize effects of scattered or leaking light not emitted directly from the source.

NOTE 1: *If during the tests addressing criteria (a), (b), (c) and (d) no or very little smoke is observed the test described in (e) may be waived.*

NOTE 2: *The competent authority referred to in 2.2.1.1.8.1 may require testing in packaged form if it is determined that, as packaged for carriage, the article may pose a greater risk."*

2.2.2.1.2 Insert a new subdivision at the end to read as follows:

"8. Chemicals under pressure: liquids, pastes or powders, pressurized with a propellant that meets the definition of a compressed or liquefied gas and mixtures thereof."

2.2.2.1.3 At the beginning, replace "(except aerosols)" by "(except aerosols and chemicals under pressure)".

In NOTE 2, at the end, add the following new sentence "For chemicals under pressure (UN Nos. 3500 to 3505), see 2.2.2.1.7."

2.2.2.1.5 At the beginning, replace "(except aerosols)" by "(except aerosols and chemicals under pressure)".

2.2.2.1.5 Under "Flammable gases", replace "ISO 10156:1996" by "ISO 10156:2010".

2.2.2.1.5 Under "Oxidizing gases", replace "ISO 10156:1996 or ISO 10156-2:2005" by "ISO 10156:2010".

2.2.2.1.6, first Note Replace "or of pyrophoric gases according to packing instruction P200" by "and gases identified as "Considered as pyrophoric" by table note c of Table 2 of packing instruction P200".

Add a new 2.2.2.1.7 to read as follows:

"2.2.2.1.7 *Chemicals under pressure*

Chemicals under pressure (UN Nos. 3500 to 3505) are assigned to one of the following groups according to their hazardous properties, as follows:

- A asphyxiant;
- F flammable;
- T toxic;
- C corrosive;
- FC flammable, corrosive;
- TF toxic, flammable.

The classification depends on the hazard characteristics of the components in the different states:

- The propellant;
- The liquid; or
- The solid.

NOTE 1: *Gases, which meet the definition of toxic gases or of oxidizing gases according to 2.2.2.1.5 or gases identified as "Considered as pyrophoric" by table note c of Table 2 of packing instruction P200 in 4.1.4.1 of ADR, shall not be used as a propellant in chemicals under pressure.*

NOTE 2: *Chemicals under pressure with contents meeting the criteria for packing group I for toxicity or corrosivity or with contents meeting both the criteria for packing group II or III for toxicity and for packing group II or III for corrosivity shall not be accepted for carriage under these UN numbers.*

NOTE 3: Chemicals under pressure with components meeting the properties of Class 1; liquid desensitized explosives of Class 3; self-reactive substances and solid desensitized explosives of Class 4.1; Class 4.2; Class 4.3; Class 5.1; Class 5.2; Class 6.2; or Class 7, shall not be used for carriage under these UN numbers.

NOTE 4: A chemical under pressure in an aerosol dispenser shall be carried under UN No. 1950.

The following criteria shall apply:

(a) Assignment to group A shall apply when the contents do not meet the criteria for any other group according to sub-paragraphs (b) to (e) below;

(b) Assignment to group F shall apply if one of the components, which can be a pure substance or a mixture, needs to be classified as flammable. Flammable components are flammable liquids and liquid mixtures, flammable solids and solid mixtures or flammable gases and gas mixtures meeting the following criteria:

(i) A flammable liquid is a liquid having a flashpoint of not more than 93 °C;

(ii) A flammable solid is a solid which meets the criteria in 2.2.41.1;

(iii) A flammable gas is a gas which meets the criteria in 2.2.2.1.5;

(c) Assignment to group T shall apply when the contents, other than the propellant, are classified as dangerous goods of Class 6.1, packing groups II or III;

(d) Assignment to group C shall apply when the contents, other than the propellant, are classified as dangerous goods of Class 8, packing groups II or III;

(e) When the criteria for two groups amongst groups F, T, and C are met, assignment to groups FC or TF shall apply, as relevant."

2.2.2.2.2 Amend the fourth indent to read as follows:

"Refrigerated liquefied gases which cannot be assigned to classification codes 3A, 3O or 3F, with the exception of substance identification number 9000 AMMONIA ANHYDROUS, DEEPLY REFRIGERATED of classification code 3TC in tank vessels."

2.2.2.3 Add the following new table at the end:

Chemicals under pressure		
Classification code	UN No.	Name of the substance or article
8A	3500	CHEMICAL UNDER PRESSURE, N.O.S.
8F	3501	CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S.
8T	3502	CHEMICAL UNDER PRESSURE, TOXIC, N.O.S.
8C	3503	CHEMICAL UNDER PRESSURE, CORROSIVE, N.O.S.
8TF	3504	CHEMICAL UNDER PRESSURE, FLAMMABLE, TOXIC, N.O.S.
8FC	3505	CHEMICAL UNDER PRESSURE, FLAMMABLE, CORROSIVE, N.O.S.

2.2.3.1.1, Note 1 At the beginning, delete ", non toxic and non corrosive,".

2.2.3.1.1, Note 2 Add "including synthetically manufactured products" after "heating oil (light)".

2.2.3.1.2 Replace "F Flammable liquids, without subsidiary risk:" with "F Flammable liquids, without subsidiary risk and articles containing such substances:" and add the following new entry under this heading: "F3 Articles containing flammable liquids".

Renumber the existing F3 and F4 as F4 and F5.

2.2.3.3 Amend "Flammable liquids" to read "Flammable liquids and articles containing such substances".

In the list of collective entries, for Flammable liquids without subsidiary risk F, insert a new entry to read:

articles	F3	3269 POLYESTER RESIN KIT 3473 FUEL CELL CARTRIDGES or 3473 FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or 3473 FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT
----------	----	--

and renumber the existing entries for F3 and F4 as F4 and F5.

Consequential amendment: in Tables A and C for UN No. 9001, replace "F3" by "F4" and for UN No. 9002, replace "F4" by "F5". In Table 1 in 1.6.7.4.2, for UN No. 9001, replace "F3" by "F4".

For F1, delete the entry for UN No. 3269 POLYESTER RESIN KITS.

2.2.51.3 Replace "Oxidizing substances" by "Oxidizing substances and articles containing such substances".

2.2.52.4 In the table, amend the entries listed below as follows:

<i>Organic peroxide</i>		<i>Column</i>	<i>Amendment</i>
DIISOPROPYL PEROXYDICARBONATE	(last row)	Concentration	Replace " ≤ 28 " by " ≤ 32 "
DIISOPROPYL PEROXYDICARBONATE	(last row)	Diluent type A	Replace " ≥ 72 " by " ≥ 68 "
DI-(3,5,5-TRIMETHYLHEXANOYL) PEROXIDE (concentration > 38-82)	(first row)	Concentration	Replace "> 38-82" by "> 52-82"

2.2.52.4 Insert the following new entries:

<i>Organic peroxide</i>	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
([3R-(3R,5aS,6S,8aS,9R,10R,12S,12aR**)]-DECAHYDRO-10-METHOXY-3,6,9-TRIMETHYL-3,12-EPOXY-12H-PYRANO[4,3-j]-1,2-BENZODIOXEPIN)	≤ 100					OP7			3106	
DI-(3,5,5-TRIMETHYLHEXANOYL) PEROXIDE	> 38-52	≥ 48				OP8	+10	+15	3119	
3,6,9-TRIETHYL-3,6,9-TRIMETHYL-1,4,7 TRIPEROXONANE	≤ 17	≥ 18		≥ 65		OP8			3110	

2.2.61.3 In the list of collective entries, for "Toxic substances with subsidiary risk(s)", for code TFC, delete the entries for UN Nos. 3492 and 3493.

2.2.61.3 In the list of collective entries, for "Toxic substances without subsidiary risk(s)", for the classification codes listed above, amend the name and description of the entries listed as indicated:

Code	UN No.	Name and description
T1	3276	NITRILES, LIQUID, TOXIC, N.O.S.
T1	3278	ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.
T3	3282	ORGANOMETALLIC COMPOUND, LIQUID, TOXIC, N.O.S.
T2	3439	NITRILES, SOLID, TOXIC, N.O.S.
T2	3464	ORGANOPHOSPHORUS COMPOUND, SOLID, TOXIC, N.O.S.
T3	3467	ORGANOMETALLIC COMPOUND, SOLID, TOXIC, N.O.S.

2.2.61.3 In the list of collective entries, for "Toxic substances without subsidiary risk(s)", code T4, UN Nos. 3381 and 3382, in the description, replace "with an inhalation toxicity" by "with an LC₅₀".

2.2.61.3 In the list of collective entries, for "Toxic substances with subsidiary risk(s)":

- Code TF1: UN Nos. 3383 and 3384;
- Code TW1: UN Nos. 3385 and 3386;
- Code TO1: UN Nos. 3387 and 3388;
- Code TC3: UN Nos. 3389 and 3390;
- Code TFC: UN Nos. 3488 and 3489; and
- Code TFW: UN Nos. 3490 and 3491;

In the description, replace "with an inhalation toxicity" by "with an LC₅₀".

2.2.62.1.5.3 Add the following new Note at the end:

NOTE: Medical equipment which has been drained of free liquid is deemed to meet the requirements of this paragraph and is not subject to the provisions of ADN."

Add a new paragraph 2.2.62.1.5.7 to read as follows:

"2.2.62.1.5.7 Except for:

- (a) Medical waste (UN No. 3291);
- (b) Medical devices or equipment contaminated with or containing infectious substances in Category A (UN No. 2814 or UN No. 2900); and
- (c) Medical devices or equipment contaminated with or containing other dangerous goods that meet the definition of another class,

medical devices or equipment potentially contaminated with or containing infectious substances which are being carried for disinfection, cleaning, sterilization, repair, or equipment evaluation are not subject to provisions of ADN other than those of this paragraph if packed in packagings designed and constructed in such a way that, under normal conditions of carriage, they cannot break, be punctured or leak their contents. Packagings shall be designed to meet the construction requirements listed in 6.1.4 or 6.6.5.

These packagings shall meet the general packing requirements of 4.1.1.1 and 4.1.1.2 and be capable of retaining the medical devices and equipment when dropped from a height of 1.2 m.

The packagings shall be marked "USED MEDICAL DEVICE" or "USED MEDICAL EQUIPMENT". When using overpacks, these shall be marked in the same way, except when the inscription remains visible."

2.2.8.1.2 Replace "C1-C10 Corrosive substances without subsidiary risk:" by "C1-C11 Corrosive substances without subsidiary risk and articles containing such substances:" and transfer the entry for C11 under this heading.

Amend the heading for CT to read "Corrosive substances, toxic and articles containing such substances".

Under this heading, insert a new subdivision CT3 to read as follows:

"CT3 Articles".

2.2.8.1.6 Add the following table at the end:

"Table 2.2.8.1.6

Table summarizing the criteria in 2.2.8.1.6

<i>Packing Group</i>	<i>Exposure Time</i>	<i>Observation Period</i>	<i>Effect</i>
I	≤ 3 min	≤ 60 min	Full thickness destruction of intact skin
II	> 3 min ≤ 1 h	≤ 14 d	Full thickness destruction of intact skin
III	> 1 h ≤ 4 h	≤ 14 d	Full thickness destruction of intact skin
III	-	-	Corrosion rate on either steel or aluminium surfaces exceeding 6.25 mm a year at a test temperature of 55 °C when tested on both materials"

2.2.8.3 Amend the headings of the tables as follows:

Replace "Corrosive substances without subsidiary risk" by "Corrosive substances without subsidiary risk and articles containing such substances".

Replace "Corrosive substances with subsidiary risk(s)" by "Corrosive substances with subsidiary risk(s) and articles containing such substances".

In the first table, for Articles, C11, insert the following new entries:

1774	FIRE EXTINGUISHER CHARGES, corrosive liquid
2028	BOMBS, SMOKE, NON-EXPLOSIVE with corrosive liquid, without initiating device
3477 3477	FUEL CELL CARTRIDGES containing corrosive substances, or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT, containing corrosive substances, or
3477	FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing corrosive substances

In the second table, for CT, insert a new entry to read:

articles _____ CT3 3506 MERCURY CONTAINED IN MANUFACTURED ARTICLES

2.2.9.1.7 Amend to read as follows:

"Lithium batteries

2.2.9.1.7 Cells and batteries, cells and batteries contained in equipment, or cells and batteries packed with equipment, containing lithium in any form shall be assigned to UN Nos. 3090, 3091, 3480 or 3481 as appropriate. They may be carried under these entries if they meet the following provisions:

(a) Each cell or battery is of the type proved to meet the requirements of each test of the *Manual of Tests and Criteria*, Part III, sub-section 38.3;

NOTE: *Batteries shall be of a design type proved to meet the testing requirements of the Manual of Tests and Criteria, part III, sub-section 38.3, irrespective of whether the cells of which they are composed are of a tested type.*

(b) Each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under normal conditions of carriage;

(c) Each cell and battery is equipped with an effective means of preventing external short circuits;

(d) Each battery containing cells or series of cells connected in parallel is equipped with effective means as necessary to prevent dangerous reverse current flow (e.g., diodes, fuses, etc.);

(e) Cells and batteries shall be manufactured under a quality management programme that includes:

(i) A description of the organizational structure and responsibilities of personnel with regard to design and product quality;

(ii) The relevant inspection and test, quality control, quality assurance, and process operation instructions that will be used;

(iii) Process controls that should include relevant activities to prevent and detect internal short circuit failure during manufacture of cells;

(iv) Quality records, such as inspection reports, test data, calibration data and certificates. Test data shall be kept and made available to the competent authority upon request;

(v) Management reviews to ensure the effective operation of the quality management programme;

(vi) A process for control of documents and their revision;

(vii) A means for control of cells or batteries that are not conforming to the type tested as mentioned in (a) above;

(viii) Training programmes and qualification procedures for relevant personnel; and

(ix) Procedures to ensure that there is no damage to the final product.

NOTE: *In house quality management programmes may be accepted. Third party certification is not required, but the procedures listed in (i) to (ix) above shall be properly recorded and traceable. A copy of the quality management programme shall be made available to the competent authority upon request.*

Lithium batteries are not subject to the provisions of ADN if they meet the requirements of special provision 188 of Chapter 3.3.

NOTE: *The entry UN 3171 Battery-powered vehicle or UN 3171 Battery-powered equipment only applies to vehicles powered by wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries and equipment powered by wet batteries or sodium batteries transported with these batteries installed.*

For the purpose of this UN number, vehicles are self-propelled apparatus designed to carry one or more persons or goods. Examples of such vehicles are electrically-powered cars, motorcycles, scooters, three- and four-wheeled vehicles or motorcycles, e-bikes, wheel-chairs, lawn tractors, boats and aircraft.

Examples of equipment are lawnmowers, cleaning machines or model boats and model aircraft. Equipment powered by lithium metal batteries or lithium ion batteries shall be consigned under the entries UN 3091 LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT or UN 3091 LITHIUM METAL BATTERIES PACKED WITH EQUIPMENT or UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or UN 3481 LITHIUM ION BATTERIES PACKED WITH EQUIPMENT, as appropriate.

Hybrid electric vehicles powered by both an internal combustion engine and wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries, transported with the battery(ies) installed shall be classified under the entries UN 3166 vehicle, flammable gas powered or UN 3166 vehicle, flammable liquid powered, as appropriate. Vehicles which contain a fuel cell shall be classified under the entries UN 3166 vehicle, fuel cell, flammable gas powered or UN 3166 vehicle, fuel cell, flammable liquid powered, as appropriate."

2.2.9.1.14 Add the following new entry in the list before the Note:

"Electric double layer capacitors (with an energy storage capacity greater than 0.3 Wh)".

2.2.9.1.14 Amend the fourth indent to read as follows:

"- Identification No. 9003 SUBSTANCES HAVING A FLASH-POINT ABOVE 60 °C AND NOT MORE THAN 100 °C which cannot be assigned to another class or another entry of Class 9. If these substances can also be assigned to Identification No. 9005 or Identification No. 9006, then Identification No. 9003 shall take precedence."

2.2.9.1.14 In the Note, after "UN No. 1845 carbon dioxide, solid (dry ice)", insert a reference "13" to a footnote. The footnote reads as follows: "For UN No. 1845 carbon dioxide, solid (dry ice) used as a coolant, see 5.5.3".

In the Note, before "UN No. 2807" insert "UN No. 2071 ammonium nitrate fertilizers, UN No. 2216 fish meal (fish scrap), stabilized,".

In the Note, after "3171 battery-powered equipment (wet battery)" insert "(see also the NOTE at the end of 2.2.9.1.7)".

2.2.9.3 For M11, add the following new entry at the end:

"3499 CAPACITOR, electric double layer (with an energy storage capacity greater than 0.3 Wh)".

Part 3

Chapter 3.1

3.1.3.2 In the first sentence, add "meeting the classification criteria of ADN" after "A solution or mixture".

3.1.3.3 Add "meeting the classification criteria of ADN" after "A solution or mixture".

Chapter 3.2

3.2.1 The amendment to the explanatory notes to column (8) of Table A does not concern the English version.

3.2.1 Table A

For UN Nos. 0004, 0005, 0006, 0007, 0009, 0010, 0012, 0014, 0015 (twice), 0016 (twice), 0018, 0019, 0027, 0028, 0029, 0030, 0033, 0034, 0035, 0037, 0038, 0039, 0042, 0043, 0044, 0048, 0049, 0050, 0054, 0055, 0056, 0059, 0060, 0065, 0066, 0070, 0072, 0073, 0074, 0075, 0076, 0077, 0078, 0079, 0081, 0082, 0083, 0084, 0092, 0093, 0094, 0099, 0101, 0102, 0103, 0104, 0105, 0106, 0107, 0110, 0113, 0114, 0118, 0121, 0124, 0129, 0130, 0131, 0132, 0133, 0135, 0136, 0137, 0138, 0143, 0144, 0146, 0147, 0150, 0151, 0153, 0154, 0155, 0159, 0160, 0161, 0167, 0168, 0169, 0171, 0173, 0174, 0180, 0181, 0182, 0183, 0186, 0190, 0191, 0192, 0193, 0194, 0195, 0196, 0197, 0204, 0207, 0208, 0209, 0212, 0213, 0214, 0215, 0216, 0217, 0218, 0219, 0220, 0221, 0222, 0224, 0225, 0226, 0234, 0235, 0236, 0237, 0238, 0240, 0241, 0242, 0243, 0244, 0245, 0246, 0247, 0248, 0249, 0250, 0254, 0255, 0257, 0266, 0267, 0268, 0271, 0272, 0275, 0276, 0277, 0278, 0279, 0280, 0281, 0282, 0283, 0284, 0285, 0286, 0287, 0288, 0289, 0290, 0291, 0292, 0293, 0294, 0295, 0296, 0297, 0299, 0300, 0301, 0303 (twice), 0305, 0306, 0312, 0313, 0314, 0315, 0316, 0317, 0318, 0319, 0320, 0321, 0322, 0323, 0324, 0325, 0326, 0327, 0328, 0329, 0330, 0331, 0332, 0333, 0334, 0335, 0336, 0337, 0338, 0339, 0340, 0341, 0342, 0343, 0344, 0345, 0346, 0347, 0348, 0349, 0350, 0351, 0352, 0353, 0354, 0355, 0356, 0357, 0358, 0359, 0360, 0361, 0362, 0363, 0364, 0365, 0366, 0367, 0368, 0369, 0370, 0371, 0372, 0373, 0374, 0375, 0376, 0377, 0378, 0379, 0380, 0381, 0382, 0383, 0384, 0385, 0386, 0387, 0388, 0389, 0390, 0391, 0392, 0393, 0394, 0395, 0396, 0397, 0398, 0399, 0400, 0401, 0402, 0403, 0404, 0405, 0406, 0407, 0408, 0409, 0410, 0411, 0412, 0413, 0414, 0415, 0417, 0418, 0419, 0420, 0421, 0424, 0425, 0426, 0427, 0428, 0429, 0430, 0431, 0432, 0433, 0434, 0435, 0436, 0437, 0438, 0439, 0440, 0441, 0442, 0443, 0444, 0445, 0446, 0447, 0448, 0449, 0450, 0451, 0452, 0453, 0454, 0455, 0456, 0457, 0458, 0459, 0460, 0461, 0462, 0463, 0464, 0465, 0466, 0467, 0468, 0469, 0470, 0471, 0472, 0473, 0474, 0475, 0476, 0477, 0478, 0479, 0480, 0481, 0482, 0483, 0484, 0485, 0486, 0487, 0488, 0489, 0490, 0491, 0492, 0493, 0494, 0495, 0496, 0497, 0498, 0499, 0500, 0501, 0502, 0503, 0504, 0505, 0506, 0507, 508 and 0509, delete "HA04, HA05, HA06" in column (11), middle.

For UN Nos. 0012, 0014 and 0055, insert "364" in column (6) and replace "0" by "5 kg" in column (7a).

For UN No. 0014, in column (2), after "CARTRIDGES, SMALL ARMS, BLANK", insert "or CARTRIDGES FOR TOOLS, BLANK".

For UN No. 0144, insert "358" and delete "500" in column (6).

For UN No. 0509, column (11) left, insert "LO01".

For UN No. 1006 and 1046, in column (6), add "653".

For UN Nos. 1011, 1049, 1075, 1954, 1965, 1969, 1971 and 1978, insert "660" in column (6).

For UN Nos. 1011, 1969 and 1978, insert "657" in column (6).

For UN No. 1057, insert "658" in column (6).

For UN Nos. 1072, 1956 and 3156, insert "655" in column (6).

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, 1818, 2434, 2435, 2437, 2985, 2986, 2987, 3361 and 3362, amend the code in column (7b) to read "E0".

Delete the entries for Packing Group I for UN Nos. 1169, 1197, 1266, 1286 and 1287.

For all entries of UN Nos. 1202, 1203, 1223, 1268, 1863 and 3475, insert "363" in column (6).

For UN No. 1792, add ", SOLID" at the end of the name in column (2) and in column (3b), replace "C1" by "C2".

For UN Nos. 1810, 1834 and 1838, column (9), after "PP, EP" insert "TOX, A", column (10), insert "VE02", column (12), replace "0" by "2".

For UN No. 1845, after "NOT SUBJECT TO ADN" add "- when used as a coolant, see 5.5.3".

For UN No. 2381, in column (3b), replace "F1" by "FT1", in column (5), insert "+ 6.1" after "3", in column (8), insert "T", in column (9), replace "PP, EX, A" by "PP, EP, EX, TOX, A", in column (10), insert "VE02" after "VE01" and in column (12), replace "1" by "2".

For UN No. 2481, column (12), replace "0" by "2".

For UN No. 2590: In column (7a), replace "0" by "5 kg".

For UN No. 2809, in column (3b), replace "C9" by "CT1", in column (5), insert "+ 6.1" after "8", in column (6), replace "599" by "365", in column (9), insert "TOX, A" after "PP, EP" and in column (10), insert "VE02".

For UN 2913 column (11), delete "RA03" on the right.

For UN No. 3064, insert "359" in column (6).

For UN Nos. 3090, 3091, 3480 and 3481, delete "656" in column (6).

For UN Nos. 3091 and 3481, insert "360" in column (6).

For UN No. 3171, after "NOT SUBJECT TO ADN" insert ", see also special provision 240 in Chapter 3.3".

For UN Nos. 3175 and 3243, insert "601" in column (6).

Replace the row for the entry UN 3256 by the following two rows:

(1)	(2)	(6)
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point and below 100 °C	274 560
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point and at or above 100 °C	274 560 580

The indications in columns (3a), (3b), (4), (5) and (7a) to (13) remain identical and unchanged for both cases.

For UN Nos. 3269 (twice) and 3473, in column (3b) replace "F1" by "F3".

For UN Nos. 3381 to 3390 and 3488 to 3491, replace "with an inhalation toxicity" by "with an LC₅₀" in column (2).

Delete the entries for UN Nos. 3492 and 3493.

For UN No. 3495, column (9), replace "PP, EX, TOX, A" by "PP, EP, TOX, A".

For the following entries, amend the name and description in column (2) as indicated below:

<i>UN No.</i>	<i>Name and description</i>
3276	NITRILES, LIQUID, TOXIC, N.O.S.
3278	ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.
3282	ORGANOMETALLIC COMPOUND, LIQUID, TOXIC, N.O.S.
3439	NITRILES, SOLID, TOXIC, N.O.S.
3464	ORGANOPHOSPHORUS COMPOUND, SOLID, TOXIC, N.O.S.
3467	ORGANOMETALLIC COMPOUND, SOLID, TOXIC, N.O.S.

Insert the following new entries:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)	(12)	(13)
3497	KRILL MEAL	4.2	S2	II	4.2	300	0	E2		PP			0	
3497	KRILL MEAL	4.2	S2	III	4.2	300	0	E1		PP			0	
3498	IODINE MONOCHLORIDE, LIQUID	8	C1	II	8		1 L	E2		PP, EP			0	
3499	CAPACITOR, electric double layer (with an energy storage capacity greater than 0.3 Wh)	9	M11		9	361	0	E0		PP			0	
3500	CHEMICAL UNDER PRESSURE, N.O.S.	2	8A		2.2	274 659	0	E0		PP			0	
3501	CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S.	2	8F		2.1	274 659	0	E0		PP, EX, A	VE01		1	
3502	CHEMICAL UNDER PRESSURE, TOXIC, N.O.S.	2	8T		2.2 +6.1	274 659	0	E0		PP, EP, TOX, A	VE02		2	
3503	CHEMICAL UNDER PRESSURE, CORROSIVE, N.O.S.	2	8C		2.2 +8	274 659	0	E0		PP, EP			0	
3504	CHEMICAL UNDER PRESSURE, FLAMMABLE, TOXIC, N.O.S.	2	8TF		2.1 +6.1	274 659	0	E0		PP, EP, EX, TOX, A	VE01, VE02		2	
3505	CHEMICAL UNDER PRESSURE, FLAMMABLE, CORROSIVE, N.O.S.	2	8FC		2.1 +8	274 659	0	E0		PP, EP, EX, A	VE01		1	
3506	MERCURY CONTAINED IN MANUFACTURED ARTICLES	8	CT3	III	8 +6.1	366	5 kg	E0		PP, EP, TOX, A	VE02		0	

3.2.3 Table C

Insert "3.2.3.1" before "Explanations concerning Table C".

3.2.3 Amend the explanatory note for column (20), 12 (k) to read as follows:

"(k) Hose assemblies for loading and unloading shall be marked as follows:"

3.2.3 In the explanatory note for column (20), 33 (f) .2 replace "piping/hose" by "pipe or hose assembly".

Explanatory remarks for column (20)

Insert the following new remark at the end:

"40. The closed tanker required for this substance must, if this tanker:

- Is designed according to paragraph 9.3.2.22.5 a) i) or d) or paragraph 9.3.3.22.5 a) i) or d), be furnished with heatable pressure relief and vacuum valves and, or
- Is designed according to paragraph 9.3.2.22.5 a) ii), v), b) or c) or paragraph 9.3.3.22.5 a) ii), v), b) or c), be furnished with heatable gas collection lines as well as heatable pressure relief and vacuum valves, or
- Is designed according to paragraph 9.3.2.22.5 a) iii) or iv) or paragraph 9.3.3.22.5 a) iii) or iv), be furnished with heatable gas collection lines as well as heatable pressure relief and vacuum valves and heatable flame arresters.

NOTE: If the gas collection line on board is not connected to a shore-based connection line, then heating of the gas collection lines is not authorized."

Insert "3.2.3.2 Table C" before Table C.

Table C

Make the following changes to Table C:

For entries with a reference to the flowchart, 1202, 1224, 1267, 1268, 1719, 1760, 1863, 1986, 1987, 1989, 1992, 1993, 2735, 2810, 2922, 2924, 2927, 2929, 3082, 3256, 3257, 3264, 3265, 3266, 3267, 3271, 3272, 3286, 3287, 3289, 3295, 9001, 9002, 9003, 9005 and 9006, replace "see flowchart" by "*see 3.2.3.3" in column (20).

3.2.3 Table C

Amend as follows:

UN No. (with description/comments if necessary)	Column	Amendment
1005	(5)	Replace "2.3+8+2.1" by "2.3+8+N1"
1010	1,3-BUTADIENE, STABILIZED	(18) Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1010	BUTADIENES STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, having a vapour pressure at 70° C not exceeding 1.1 MPa (11 bar) and a density at 50° C not lower than 0.525 kg/l	(2) Insert at the end "(contains less than 0.1% 1.3-butadiene)".
		(16) Replace "II B" by "II B ⁴ ".

<i>UN No. (with description/comments if necessary)</i>		<i>Column</i>	<i>Amendment</i>
1011		(2)	Insert at the end "(contains less than 0.1% 1,3-butadiene)".
		(5)	Delete "+CMR".
		(20)	Delete "; 99".
1040		(14)	Replace "yes" by "no".
1127	CHLOROBUTANES (2-CHLOROBUTANE)	(15)	Replace "T4 ³⁾ " by "T3".
1127	CHLOROBUTANES (1-CHLORO-2-METHYLPROPANE)	(15)	Replace "T4 ³⁾ " by "T3".
1135		(5)	Replace "6.1+3" by "6.1+3+N3".
1153		(15)	Replace "T4 ³⁾ " by "T 4".
		(16)	Replace "II B ⁴⁾ " by "II B".
1157		(15)	Replace "T4 ³⁾ " by "T2".
1160		(5)	Replace "3+8" by "3+8+N3".
		(16)	Replace "II B ⁴⁾ " by "II A".
1163		(16)	Replace "II B ⁴⁾ " by "II C".
1167		(16)	Replace "II B ⁷⁾ " by "II B".
1171		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1172		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1175		(16)	Replace "II B" by "II A".
1177		(16)	Replace "II A" by "II A ⁷⁾ ".
1179		(16)	Replace "II B" by "II B ⁴⁾ ".
1188		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1191		(5)	Replace "3+F" by "3+N3+F".
		(16)	Replace "II A" by "II A ⁷⁾ ".
1202	GAS OIL or DIESEL FUEL or HEATING OIL (LIGHT) (flashpoint not more than 60° C)	(18)	Replace "PP" by "*".
1202	GAS OIL or DIESEL FUEL or HEATING OIL (LIGHT) (flashpoint more than 60° C but not more than 100° C)	(18)	Replace "PP" by "*".
1203	MOTOR SPIRIT or GASOLINE or PETROL	(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1203	MOTOR SPIRIT or GASOLINE or PETROL, WITH MORE THAN 10% BENZENE 60° C < BOILING POINT ≤ 60° C	(5)	Replace "3+CMR+F" by "3+N2+CMR+F".
		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1203	MOTOR SPIRIT or GASOLINE or PETROL, WITH MORE THAN 10% BENZENE 60° C < BOILING POINT ≤ 85° C	(5)	Replace "3+CMR+F" by "3+N2+CMR+F".
		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".

<i>UN No. (with description/comments if necessary)</i>		<i>Column</i>	<i>Amendment</i>
1203	MOTOR SPIRIT or GASOLINE or PETROL WITH MORE THAN 10% BENZENE 85° C < BOILING POINT ≤ 115° C	(5)	Replace "3+CMR+F" by "3+N2+CMR+F".
		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1203	MOTOR SPIRIT or GASOLINE or PETROL, WITH MORE THAN 10% BENZENE BOILING POINT > 115° C	(5)	Replace "3+CMR+F" by "3+N2+CMR+F".
		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1208		(5)	Replace "3+N1" by "3+N2".
		(6)	Replace "C" by "N".
		(8)	Replace "2" by "3".
		(11)	Replace "95" by "97".
1214		(5)	Replace "3+8" by "3+8+N3".
		(16)	Replace "II A" by "II A ⁷ ".
1218		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1220		(16)	Replace "II A" by "II A ⁷ ".
1223		(16)	Replace "II A" by "II A ⁷ ".
1224	For the 2 entries	(18)	Replace "PP, EX, A" by "*".
1235		(5)	Replace "3+8" by "3+8+N3".
1247		(5)	Replace "3+unst." by "3+unst.+N3".
1267	For the 9 entries PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1267	For the 3 entries PETROLEUM CRUDE OIL	(18)	Replace "PP, EX, A" by "*".
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (NAPHTHA) 110 kPa < vp50 ≤ 175 kPa	(9)	Delete "3".
		(10)	Replace "10" by "50".
		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (NAPHTHA) 110 kPa < vp50 ≤ 150 kPa	(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (NAPHTHA) vp50 ≤ 110 kPa	(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1268	For the 10 entries PETROLEUM DISTILLATES, N.O.S. WITH MORE THAN 10% BENZENE or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (BENZENE HEART CUT) vp50 ≤ 110 kPa	(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".

<i>UN No. (with description/comments if necessary)</i>		<i>Column</i>	<i>Amendment</i>
1268	For the 3 entries PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	(18)	Replace "PP, EX, A" by "*".
1277		(15)	Replace "T3 ²⁾ " by "T2".
1280		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1294		(16)	Replace "II A ⁸⁾ " by "II A".
1578	For the entry with "2" in the "cargo tank equipment" column	(15)	Replace "T4 ³⁾ " by "T1".
1595		(13)	Replace "2" by "1".
1708	(o-TOLUIDINE)	(5)	Replace "6.1+N1" by "6.1+N1+CMR".
1708	(m-TOLUIDINE)	(5)	Replace "6.1+N1+CMR " by "6.1+N1 ".
1719	For the 2 entries	(18)	Replace "PP, EP" by "*".
1760	For the 3 entries CORROSIVE LIQUID, N.O.S.	(18)	Replace "PP, EP" by "*".
1764		(6)	Replace "C" by "N".
		(8)	Replace "2" by "3".
		(11)	Replace "95" by "97"
		(16)	Replace "II A" by "II A ⁷⁾ ".
		(20)	Before "17", insert "6: 17° C;".
1848		(15)	Delete "T1".
		(16)	Delete "II A ⁷⁾ ".
		(17)	Replace "yes" by "no".
		(18)	Replace "PP, EP, EX, A" by "PP, EP".
1863	For the 6 entries FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10% BENZENE	(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
1863	For the 3 entries FUEL, AVIATION, TURBINE ENGINE	(18)	Replace "PP, EX, A" by "*".
1922		(16)	Replace "II A" by "II A ⁷⁾ ".
1969		(2)	Insert at the end "(contains less than 0.1% 1.3-butadiene)".
		(16)	Replace "II A" by "II A ⁷⁾ ".
		(20)	Delete "; 99".
1987	For the 2 entries ALCOHOLS, N.O.S.	(18)	Replace "PP, EX, A" by "*".
1989	For the 2 entries	(18)	Replace "PP, EX, A" by "*".
1993	For the 9 entries FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".

UN No. (with description/comments if necessary)		Column	Amendment
1993	For the 3 entries FLAMMABLE LIQUID, N.O.S.	(18)	Replace "PP, EX, A" by "*".
2022		(16)	Replace "II A" by "II A ⁷⁾ ".
2046		(16)	Replace "II A" by "II A ⁷⁾ ".
2047	DICHLOROPROPENES (2,3-DICHLOROPROP-1-ENE)	(16)	Replace "II A" by "II A ⁷⁾ ".
		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
2047	DICHLOROPROPENES (MIXTURES of 2,3-DICHLOROPROP-1-ENE and 1,3-DICHLOROPROPENE)	(5)	Replace "3+N2+CMR" by "3+N1+CMR".
		(16)	Replace "II A" by "II A ⁷⁾ ".
		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
2047	DICHLOROPROPENES (MIXTURES of 2,3-DICHLOROPROP-1-ENE and 1,3-DICHLOROPROPENE)	(5)	Replace "3+N2+CMR" by "3+N1+CMR".
		(16)	Replace "II A" by "II A ⁷⁾ ".
		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
2047	DICHLOROPROPENES (1,3-DICHLOROPROPENE)	(5)	Replace "3+N2+CMR" by "3+N1+CMR".
		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
2051		(16)	Replace "II A" by "II A ⁷⁾ ".
2057	For the 2 entries	(5)	After "3", insert "+N3".
		(8)	Replace "2" by "3".
2205		(15)	Replace "T4 ³⁾ " by "T4".
		(20)	Before "17", insert "6: 6° C;".
2218		(16)	Replace "II A ⁷⁾ " by "II B".
2227		(5)	After "3+unst." insert "+N3+F".
2238	CHLOROTOLUENES (o-CHLOROTOLUENE)	(5)	Replace "3+S" by "3+N2+S".
2238	CHLOROTOLUENES (p-CHLOROTOLUENE)	(5)	Replace "3+S" by "3+N2+S".
2241		(16)	Replace "II A" by "II A ⁷⁾ ".
2259		(20)	Before "34", insert "6: 16° C; 17;".
2265		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
2266		(16)	Replace "II A" by "II A ⁷⁾ ".
2288		(5)	After "3+unst." insert "+N3".
2289		(16)	Replace "II A" by "II A ⁷⁾ ".
		(20)	Before "17; 34", insert "6: 14° C;".
2321		(16)	Replace "II A" by "II A ⁷⁾ ".
2325		(16)	Replace "II A" by "II A ⁷⁾ ".

<i>UN No. (with description/comments if necessary)</i>		<i>Column</i>	<i>Amendment</i>
2357		(16)	Replace "II A ⁸⁾ " by "II B ⁴⁾ ".
2381		(3b)	Replace "F1" by "FT1".
		(5)	Insert "+6.1" after "3".
		(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
		(19)	Replace "1" by "2".
2382		(14)	Replace "yes" by "no".
		(16)	Replace "II C" by "II C ⁵⁾ ".
2383		(5)	After "3+8" insert "+N3".
		(14)	Replace "no" by "yes".
2397		(16)	Replace "II A" by "II A ⁷⁾ ".
2404		(16)	Replace "II A" by "II A ⁷⁾ ".
2430	For the entry anti-explosion protection required	(6)	Replace "C" by "N".
		(8)	Replace "1" by "3".
		(11)	Replace "95" by "97".
2430	For the entry anti-explosion protection not required	(6)	Replace "C" by "N".
		(8)	Replace "2" by "3".
		(11)	Replace "95" by "97".
2477		(13)	Replace "2" by "1".
2491		(20)	Before "17; 34", insert "6: 14° C;"
2531		(20)	Replace "3; 4; 5; 17" by "3; 4; 5; 7; 17".
2564	For the entry packing group III	(15)	Delete "T1".
		(16)	Delete "II A ⁷⁾ ".
		(17)	Replace "yes" by "no".
		(18)	Delete ", EX, A".
2574		(5)	Replace "6.1+S" by "6.1+N1+S".
2618		(5)	Replace "3+unst.+F" by "3+unst.+N2+F".
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 (not more than 25% ammonia)	(20)	Insert "34".
2709		(6)	Replace "C" by "N".
		(8)	Replace "2" by "3".
		(11)	Replace "95" by "97".
		(16)	Replace "II A" by "II A ⁷⁾ ".
2733		(5)	After "3+8" insert "+N1".
		(16)	Replace "II A" by "II A ⁷⁾ ".
2735	For the 3 entries	(18)	Replace "PP, EP" by "*".
2789		(16)	Replace "II A" by "II A ⁷⁾ ".

<i>UN No. (with description/comments if necessary)</i>	<i>Column</i>	<i>Amendment</i>
2790	For the 2 entries	(11) Replace "95" by "97".
2850		(6) Replace "C" by "N".
		(8) Replace "2" by "3".
		(11) Replace "95" by "97".
		(15) Insert "T3".
		(16) Insert "II B ⁴⁾ ".
		(17) Replace "no" by "yes".
		(18) After "PP" insert ", EX, A".
2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (2-PROPANOL AND DIDECYLDIMETHYL-AMMONIUM CHLORIDE, AQUEOUS SOLUTION)	(2) Replace "DIDECYLDIMETHYL-AMMONIUM" by "DODECYLDIMETHYL-AMMONIUM".
		(11) Replace "95" by "97".
2924	For the 3 entries FLAMMABLE LIQUID, CORROSIVE, N.O.S.	(18) Replace "PP, EP, EX, A" by "*".
3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	(18) Replace "PP" by "*".
3175		(16) Replace "II A" by "II A ⁷⁾ ".
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flashpoint above 60° C, at or above its flashpoint (Low QI Pitch)	(18) Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flashpoint above 60° C, at or above its flashpoint	(18) Replace "PP, EX, A" by "*".
3257	For the 2 entries	(18) Replace "PP" by "*".
3264	For the 3 entries CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	(18) Replace "PP, EP" by "*".
3265	For the 3 entries	(18) Replace "PP, EP" by "*".
3266	For the 3 entries	(18) Replace "PP, EP" by "*".
3267	For the 3 entries	(18) Replace "PP, EP" by "*".
3271	For the 2 entries ETHERS, N.O.S.	(18) Replace "PP, EX, A" by "*".
3272	For the 2 entries	(18) Replace "PP, EX, A" by "*".
3289	For the entry with "I" in the "Packing group" column	(13) Replace "2" by "1".
3295	HYDROCARBONS, LIQUID, N.O.S. CONTAINS ISOPRENE AND PENTADIENE (vp50 > 110 kPa), STABILIZED	(5) Replace "3+unst. (N2, CMR)" by "3+unst.+N2+CMR".
		(18) Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
3295	HYDROCARBONS, LIQUID, N.O.S. (POLYCYCLIC AROMATIC HYDROCARBONS MIXTURE)	(18) Replace "PP, EX, A" by "PP, EP, EX, TOX, A".

<i>UN No. (with description/comments if necessary)</i>		<i>Column</i>	<i>Amendment</i>
3295	For the 13 entries HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10% BENZENE	(18)	Replace "PP, EX, A" by "PP, EP, EX, TOX, A".
3295	For the 3 entries HYDROCARBONS, LIQUID, N.O.S.	(18)	Replace "PP, EX, A" by "*".
3446	For the 2 entries	(5)	Replace "6.1+S" by "6.1+N2+S".
3451	For the 2 entries	(5)	After "6.1" insert "+N1".
3455	For the 2 entries	(5)	After "6.1+8" insert "+N3".
9001		(18)	Replace "PP, EX, A" by "*".
9002		(18)	Replace "PP, EX, A" by "*".
9003	SUBSTANCES WITH A FLASHPOINT ABOVE 60° C BUT NOT MORE THAN 100° C or SUBSTANCES WHERE 60° C < flashpoint ≤ 100° C, which are not assigned to another class	(18)	Replace "PP" by "*".
9005		(18)	Replace "PP" by "*".
9006		(18)	Replace "PP" by "*".

After UN No. 1010, BUTADIENES, STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, having a vapour pressure at 70° C not exceeding 1.1 MPa (11 bar) and a density at 50° C not lower than 0.525 kg/l, insert the following new entry:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1010	BUTADIENES, STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, having a vapour pressure at 70° C not exceeding 1.1 MPa (11 bar) and a density at 50° C not lower than 0.525 kg/l, (with 0.1% or more 1.3-butadiene)	2	2F		2.1+unst.+CMR	G	1	1	3		91		1	no	T2	II B ⁴⁾	yes	PP, EP, EX, TOX, A	1	2; 3; 31

After UN No. 1011, insert the following new entry:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1011	BUTANE (with 0.1% or more 1.3-butadiene)	2	2F		2.1+CMR	G	1	1	3		91		1	no	T2	II A	yes	PP, EP, EX, TOX, A	1	31

After UN No. 1969, insert the following new entry:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1969	ISOBUTANE (with 0.1% or more 1.3-butadiene)	2	2F		2.1+CMR	G	1	1	3		91		1	no	T2 ¹⁾	II A	yes	PP, EP, EX, TOX, A	1	31

Insert the following new entries:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE; LIQUID, N.O.S. (heavy heating oil)	9	M6	III	9+CMR (N1, N2, F or S)	N	2	3		10	97		3	yes			no	PP	0	40
3475	ETHANOL AND GASOLINE MIXTURE or ETHANOL AND MOTOR SPIRIT MIXTURE or ETHANOL AND PETROL MIXTURE, with more than 10% but not more than 90% ethanol	3	F1	II	3+N2+CMR+F	N	2	3	3	10	97	0.69 – 0.78 ¹⁰⁾	3	yes	T3	II A	yes	PP, EP, EX, TOX, A	1	
3475	ETHANOL AND GASOLINE MIXTURE or ETHANOL AND MOTOR SPIRIT MIXTURE or ETHANOL AND PETROL MIXTURE, with more than 90% ethanol	3	F1	II	3+N2+CMR+F	N	2	3	3	10	97	0.78 – 0.79 ¹⁰⁾	3	yes	T2	II B	yes	PP, EP, EX, TOX, A	1	

Before the flowchart for classification of liquids of Classes 3, 6.1, 8 and 9 for carriage in tanks in inland navigation, insert the following title:

"3.2.3.3 Flowchart, schemes and criteria for determining applicable special requirements (columns (6) to (20) of Table C)".

3.2.3.3 Flowchart, second box

After "Substances characterized by acute or chronic toxicity 1 (N1: criteria according to 2.2.9.1.10.2)" add "and vapour pressure at 50 °C \geq 1 kPa".

Flowchart, 3rd box

Replace:

- Corrosive substances that react dangerously with water, or
- Substances with long-term effects on health – CMR (criteria: Categories 1A or 1B of chapters 3.5, 3.6 and 3.7 of GHS)."

by:

- Corrosive substances that react dangerously with water,
- Acute or chronic toxicity 1 (N1: criteria according to 2.2.9.1.10.2) and vapour pressure at 50 °C $<$ 1 kPa, or
- Substances with long-term effects on health – CMR (criteria: Categories 1A or 1B of chapters 3.5, 3.6 and 3.7 of GHS)."

3.2.3.3 Column (20) Determination of the additional requirements or remarks

Add at the end:

"Remark 40: Reference shall be made in column (20) to remark 40 for UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (heavy heating oil)."

Chapter 3.3

3.3.1

SP188 (b) At the end, add ", except those manufactured before 1 January 2009".

SP188 (c) Amend to read as follows:

"(c) Each cell or battery meets the provisions of 2.2.9.1.7 (a) and (e);".

SP188 (e) Insert the following new second sentence: "This requirement does not apply to devices which are intentionally active in carriage (radio frequency identification (RFID) transmitters, watches, sensors, etc.) and which are not capable of generating a dangerous evolution of heat."

SP 207 The amendment does not apply to the English text.

SP230 Amend to read as follows:

"**230** Lithium cells and batteries may be carried under this entry if they meet the provisions of 2.2.9.1.7."

SP239 In the first sentence, replace, "sodium, sulphur and/or polysulphides" by "sodium, sulphur or sodium compounds (e.g. sodium polysulphides and sodium tetrachloroaluminate)".

- SP272** In the text in parentheses, at the end, add "or UN No. 0150 as appropriate".
- SP280** Replace "pressure vessel" by "pressure receptacle".
- SP289** Replace "installed in conveyances or in completed conveyance components" by "installed in vehicles, wagons, vessels or aircraft or in completed components".
- SP 296** The amendment to the first paragraph does not apply to the English text.
In sub-paragraph (c), insert "or liquefied" after "compressed".
Add the following new paragraph at the end:
"Life-saving appliances packed in strong rigid outer packagings with a total maximum gross mass of 40 kg, containing no dangerous goods other than compressed or liquefied gases of Class 2, group A or group O, in receptacles with a capacity not exceeding 120 ml, installed solely for the purpose of the activation of the appliance, are not subject to the requirements of ADN."
- SP300** Replace "Fish meal or fish scrap" by "Fish meal, fish scrap and krill meal".
- SP327** In the third sentence, replace "P003" by "P207".
- SP328** Add the following new paragraph at the end:
"When lithium metal or lithium ion batteries are contained in the fuel cell system, the consignment shall be consigned under this entry and under the appropriate entries for UN 3091 LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT or UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT."
- SP338** Amend paragraph (b) to read as follows:
"(b) Not contain more than 200 ml liquefied flammable gas, the vapour pressure of which shall not exceed 1 000 kPa at 55 °C; and".
- SP356** Amend the first sentence to read as follows: "Metal hydride storage systems installed in vehicles, wagons, vessels or aircraft or in completed components or intended to be installed in vehicles, wagons, vessels or aircraft shall be approved by the competent authority of the country of manufacture¹ before acceptance for carriage."
The text of footnote 1 is unchanged.
Replace "358-499 (*Reserved*)" by "367-499 (*Reserved*)".
- SP500** Amend to read "500 (*Deleted*)".
- SP 560** Amend to read as follows:
"**560** An elevated temperature liquid, n.o.s. at or above 100 °C (including molten metals and molten salts) or, for a substance having a flash-point, at a temperature below its flash-point, is a substance of Class 9 (UN No. 3257)".
- SP 584** Replace the two first indents by the following new indent:
"– it contains not more than 0.5% air in the gaseous state;"
- SP 593** At the end add "except as specified in 5.5.3".
- SP599** Amend to read "599 (*Deleted*)".
- SP 636 (b)** Amend the introductory sentence to read as follows:
"Up to the intermediate processing facility, used lithium cells and batteries with a gross mass of not more than 500 g each, whether or not contained in equipment, collected and handed over for carriage for disposal, together with or without other non-lithium cells or

batteries, are not subject to the other provisions of ADN if they meet the following conditions:".

SP 637 Renumber footnote 2 as footnote 3.

SP 653 Amend the first sentence to read as follows:

"653 The carriage of this gas in cylinders having a test pressure capacity product of maximum 15.2 MPa.litre (152 bar.litre) is not subject to the other provisions of ADN if the following conditions are met:"

SP 653 Amend the beginning of the fifth indent to read as follows:

"Each package is clearly and durably marked with "UN 1006" for argon compressed, "UN 1013" for carbon dioxide, "UN 1046" for helium compressed or "UN 1066" for nitrogen compressed..."

SP 655 Renumber footnote 3 as footnote 4.

SP 656 Amend to read "656 (*Deleted*)".

3.3.1 Add the following new special provisions:

"**123** (*Reserved*)".

"**240** See the last NOTE in 2.2.9.1.7.".

"**358** Nitroglycerin solution in alcohol with more than 1% but not more than 5% nitroglycerin may be classified in Class 3 and assigned to UN No. 3064 provided all the requirements of packing instruction P300 of 4.1.4.1 are complied with.".

"**359** Nitroglycerin solution in alcohol with more than 1% but not more than 5% nitroglycerin shall be classified in Class 1 and assigned to UN No. 0144 if not all the requirements of packing instruction P300 of 4.1.4.1 are complied with.".

"**360** Vehicles only powered by lithium metal batteries or lithium ion batteries shall be classified under the entry UN 3171 battery-powered vehicle.".

"**361** This entry applies to electric double layer capacitors with an energy storage capacity greater than 0.3 Wh. Capacitors with an energy storage capacity of 0.3 Wh or less are not subject to ADN. Energy storage capacity means the energy held by a capacitor, as calculated using the nominal voltage and capacitance. All capacitors to which this entry applies, including capacitors containing an electrolyte that does not meet the classification criteria of any class of dangerous goods, shall meet the following conditions:

(a) Capacitors not installed in equipment shall be carried in an uncharged state. Capacitors installed in equipment shall be carried either in an uncharged state or protected against short circuit;

(b) Each capacitor shall be protected against a potential short circuit hazard in carriage as follows:

(i) When a capacitor's energy storage capacity is less than or equal to 10Wh or when the energy storage capacity of each capacitor in a module is less than or equal to 10 Wh , the capacitor or module shall be protected against short circuit or be fitted with a metal strap connecting the terminals; and

(ii) When the energy storage capacity of a capacitor or a capacitor in a module is more than 10 Wh, the capacitor or module shall be fitted with a metal strap connecting the terminals;

(c) Capacitors containing dangerous goods shall be designed to withstand a 95 kPa pressure differential;

(d) Capacitors shall be designed and constructed to safely relieve pressure that may build up in use, through a vent or a weak point in the capacitor casing. Any liquid which is released upon venting shall be contained by the packaging or by the equipment in which a capacitor is installed; and

(e) Capacitors shall be marked with the energy storage capacity in Wh.

Capacitors containing an electrolyte not meeting the classification criteria of any class of dangerous goods, including when installed in equipment, are not subject to other provisions of ADN.

Capacitors containing an electrolyte meeting the classification criteria of any class of dangerous goods, with an energy storage capacity of 10 Wh or less are not subject to other provisions of ADN when they are capable of withstanding a 1.2 metre drop test unpackaged on an unyielding surface without loss of contents.

Capacitors containing an electrolyte meeting the classification criteria of any class of dangerous goods that are not installed in equipment and with an energy storage capacity of more than 10 Wh are subject to ADN.

Capacitors installed in equipment and containing an electrolyte meeting the classification criteria of any class of dangerous goods, are not subject to other provisions of ADN provided the equipment is packaged in a strong outer packaging constructed of suitable material and of adequate strength and design in relation to the packaging's intended use and in such a manner as to prevent accidental functioning of capacitors during carriage. Large robust equipment containing capacitors may be offered for carriage unpackaged or on pallets when capacitors are afforded equivalent protection by the equipment in which they are contained.

NOTE: Capacitors which by design maintain a terminal voltage (e.g. asymmetrical capacitors) do not belong to this entry."

"**362** (Reserved)".

"**363** This entry also applies to liquid fuels, other than those exempted according to 1.1.3.3, above the quantity specified in column (7a) of Table A of Chapter 3.2, in means of containment integral to equipment or machinery (e.g. generators, compressors, heating units, etc) as part of their original design type. They are not subject to other provisions of ADN if they meet the following:

(a) The means of containment are in compliance with the construction requirements of the competent authority of the country of manufacture ²;

(b) Any valves or openings (e.g. venting devices) in the means of containment containing dangerous goods are closed during carriage;

(c) The machinery or equipment is loaded in an orientation to prevent inadvertent leakage of dangerous goods and secured by means capable of restraining the machinery or equipment to prevent any movement during carriage which would change the orientation or cause it to be damaged;

² For example, compliance with the relevant provisions of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (Official Journal of the European Union No. L 157 of 9 June 2006, pp. 0024-0086).

(d) Where the means of containment has a capacity of more than 60 litres but not more than 450 litres, the machinery or equipment is labelled on one external side in accordance with 5.2.2 and where the capacity is greater than 450 litres but not more than 1 500 litres the machinery or equipment is labelled on all four external sides in accordance with 5.2.2; and

(e) Where the means of containment has a capacity greater than 1 500 litres, the machinery or equipment is placarded on all four external sides in accordance with 5.3.1.1.1, the requirement of 5.4.1 applies and the transport document includes the following additional statement: "Carriage in accordance with Special Provision 363".

"364 This article may only be carried under the provisions of Chapter 3.4 if, as presented for carriage, the package is capable of passing the test in accordance with Test Series 6(d) of Part I of the *Manual of Tests and Criteria* as determined by the competent authority."

"365 For manufactured instruments and articles containing mercury, see UN No. 3506."

"366 Manufactured instruments and articles containing not more than 1 kg of mercury are not subject to ADN."

"657 This entry shall be used for the technically pure substance only; for mixtures of LPG components, see UN 1965 or see UN 1075 in conjunction with NOTE 2 in 2.2.2.3."

Add a new special provision 658 to read as follows:

"658 UN No. 1057 LIGHTERS complying with standard EN ISO 9994:2006 + A1:2008 "Lighters – Safety Specification" and UN No. 1057 LIGHTER REFILLS, may be carried subject only to the provisions of 3.4.1 (a) to (f), 3.4.2 (except for the total gross mass of 30 kg), 3.4.3 (except for the total gross mass of 20 kg), 3.4.11 and 3.4.12, provided the following conditions are met:

(a) The total gross mass of each package is not more than 10 kg;

(b) Not more than 100 kg gross mass of such packages is carried in a wagon or vehicle; and

(c) Each outer packaging is clearly and durably marked with "UN 1057 LIGHTERS" or "UN 1057 LIGHTER REFILLS", as appropriate."

"659 Substances to which PP86 or TP7 are assigned in Column (9a) and Column (11) of Table A in Chapter 3.2 and therefore require air to be eliminated from the vapour space, shall not be used for carriage under this UN number but shall be carried under their respective UN numbers as listed in Table A of Chapter 3.2.

NOTE: See also 2.2.2.1.7."

"660 For the carriage of fuel gas containment systems designed to be fitted in motor vehicles containing this gas the provisions of sub-section 4.1.4.1, Chapter 5.2, Chapter 5.4 and Chapter 6.2 of ADR need not be applied, provided the following conditions are met:

(a) The fuel gas containment systems meet the requirements of ECE Regulation No. 67 Revision 2⁴, ECE Regulation No. 110 Revision 1⁵ or ECE Regulation No. 115⁶ or

⁴ ECE Regulation No. 67 (Uniform provisions concerning: I. Approval of specific equipment of motor vehicles using liquefied petroleum gases in their propulsion system; II. Approval of a vehicle fitted with specific equipment for the use of liquefied petroleum gases in its propulsion system with regard to the installation of such equipment).

⁵ ECE Regulation No. 110 (Uniform provisions concerning: I. Specific components of motor vehicles using compressed natural gas (CNG) in their propulsion system; II. vehicles with regard to the

Regulation (EU) No. 79/2009⁷ in combination with Regulation (EC) No. 406/2010⁸, as applicable.

(b) The fuel gas containment systems shall be leakproof and shall not exhibit any signs of external damage which may affect their safety.

NOTE 1: *Criteria may be found in standard ISO 11623:2002 Transportable gas cylinders – Periodic inspection and testing of composite gas cylinders (or ISO DIS 19078 Gas cylinders - Inspection of the cylinder installation, and requalification of high pressure cylinders for the on-board storage of natural gas as a fuel for automotive vehicles).*

2: *If the fuel gas containment systems are not leakproof or overfilled or if they exhibit damage that could affect their safety, they shall only be carried in salvage pressure receptacles in conformity with ADN.*

(c) If the fuel gas containment system is equipped with two valves or more integrated in line, two valves shall be so closed as to be gastight under normal conditions of carriage. If only one valve exists or only one valve works properly all openings with the exception of the opening of the pressure relief device shall be so closed as to be gastight under normal conditions of carriage.

(d) Fuel gas containment systems shall be carried in such a way as to prevent obstruction of the pressure relief device or any damage to the valves and any other pressurised part of the fuel gas containment systems and unintentional release of the gas under normal conditions of carriage. The fuel gas containment system shall be secured so as to prevent slipping, rolling or vertical movement.

(e) Fuel gas containment systems shall satisfy the provisions of 4.1.6.8 (a), (b), (c), (d) or (e) of ADR.

(f) The marking and labelling provisions of Chapter 5.2 shall be met, unless fuel gas containment systems are consigned in a handling device. If so, the markings and danger labels shall be affixed to the handling device.

(g) Documentation

Every consignment that is carried in accordance with this special provision shall be accompanied by a transport document, containing at least the following information:

- (i) The UN number of the gas contained in the fuel gas containment systems, preceded by the letters "UN";
- (ii) The proper shipping name of the gas;
- (iii) The label model number;
- (iv) The number of fuel gas containment systems;
- (v) In the case of liquefied gases the net mass in kg of the gas of each fuel gas containment system and in the case of compressed gases the nominal capacity in

installation of specific components of an approved type for the use of compressed natural gas (CNG) in their propulsion system).

⁶ ECE Regulation No. 115 (Uniform provisions concerning the approval of: I. Specific LPG (liquefied petroleum gases) retrofit systems to be installed in motor vehicles for the use of LPG in their propulsion system; II. Specific CNG (compressed natural gas) retrofit systems to be installed in motor vehicles for the use of CNG in their propulsion system).

⁷ Regulation (EC) No 79/2009 of the European Parliament and of the Council of 14 January 2009 on type-approval of hydrogen-powered motor vehicles, and amending Directive 2007/46/EC.

⁸ Commission Regulation (EU) No 406/2010 of 26 April 2010 implementing Regulation (EC) No 79/2009 of the European Parliament and of the Council on type-approval of hydrogen-powered motor vehicles.

litres of each fuel gas containment system followed by the nominal working pressure;

(vi) The names and the addresses of the consignor and the consignee.

(i) to (v) shall appear according to one of the following examples:

Example 1: UN 1971 natural gas, compressed, 2.1, 1 fuel gas containment system of 50 l in total, 200 bar

Example 2: UN 1965 hydrocarbon gas mixture, liquefied, n.o.s., 2.1, 3 fuel gas containment systems, each of 15 kg net mass of gas

NOTE: All other provisions of ADN shall be applied. "

Chapter 3.4

3.4.2 Amend to read as follows:

"3.4.2 Dangerous goods shall be packed only in inner packagings placed in suitable outer packagings. Intermediate packagings may be used. In addition, for articles of Division 1.4, Compatibility Group S, the provisions of section 4.1.5 of ADR shall be fully complied with. The use of inner packagings is not necessary for the carriage of articles such as aerosols or "receptacles, small, containing gas". The total gross mass of the package shall not exceed 30 kg."

3.4.3 Add the following text at the beginning: "Except for articles of Division 1.4, Compatibility Group S..."

3.4.7 The amendment does not apply to the English text.

3.4.13 (a) Amend to read as follows:

"(a) Transport units with a maximum mass exceeding 12 tonnes carrying dangerous goods packed in limited quantities shall be marked in accordance with 3.4.15 at the front and at the rear except when the transport unit contains other dangerous goods for which orange-coloured plate marking in accordance with 5.3.2 is required. In this latter case, the transport unit may display the required orange-coloured plate marking only, or both the orange-coloured plate marking in accordance with 5.3.2 and the marking in accordance with 3.4.15. "

3.4.13 (b) Amend to read as follows:

"(b) Containers carrying dangerous goods packed in limited quantities, on transport units with a maximum mass exceeding 12 tonnes, shall be marked in accordance with 3.4.15 on all four sides except when the container contains other dangerous goods for which placarding in accordance with 5.3.1 is required. In this latter case, the container may display the required placards only, or both the placards in accordance with 5.3.1 and the marking in accordance with 3.4.15."

Chapter 3.5

3.5.1 Insert a new sub-section 3.5.1.4 to read as follows:

"3.5.1.4 Excepted quantities of dangerous goods assigned to codes E1, E2, E4 and E5 with a maximum net quantity of dangerous goods per inner packaging limited to 1 ml for liquids and gases and 1 g for solids and a maximum net quantity of dangerous goods per

outer packaging which does not exceed 100 g for solids or 100 ml for liquids and gases are only subject to:

(a) The provisions of 3.5.2, except that an intermediate packaging is not required if the inner packagings are securely packed in an outer packaging with cushioning material in such a way that, under normal conditions of carriage, they cannot break, be punctured, or leak their contents; and for liquids, the outer packaging contains sufficient absorbent material to absorb the entire contents of the inner packagings; and

(b) The provisions of 3.5.3."

Part 4

Chapter 4.1

4.1.3 Amend the first indent to read as follows:

"- Chapter 4.3 of the IMDG Code with the exception of BK3 containers; or"

Part 5

Chapter 5.1

5.1.2.1 (a) Amend sub-paragraph (ii) and the subsequent paragraph to read as follows:

"(ii) marked with the UN number preceded by the letters "UN", labelled as required for packages in 5.2.2 and marked with the environmentally hazardous substance mark if required for packages in 5.2.1.8, for each item of dangerous goods contained in the overpack;

unless the UN numbers, the labels and the environmentally hazardous substance mark representative of all dangerous goods contained in the overpack are visible, except as required in 5.2.2.1.11. If the same UN number, the same label or the environmentally hazardous substance mark is required for different packages, it only needs to be applied once."

Chapter 5.2

5.2.1.1 Insert the following new second sentence: "The UN number and the letters "UN" shall be at least 12 mm high, except for packages of 30 litres capacity or less or of 30 kg maximum net mass and for cylinders of 60 litres water capacity or less, when they shall be at least 6 mm in height and except for packages of 5 litres or 5 kg or less when they shall be of an appropriate size."

5.2.1.3 Insert "and salvage pressure receptacles" after "salvage packagings".

5.2.1.8.3 Add the following new Note at the end:

"NOTE: The labelling provisions of 5.2.2 apply in addition to any requirement for packages to bear the environmentally hazardous substance mark."

5.2.1.9.2 Amend to read as follows:

"5.2.1.9.2 Orientation arrows are not required on:

- (a) Outer packagings containing pressure receptacles except cryogenic receptacles;
- (b) Outer packagings containing dangerous goods in inner packagings each containing not more than 120 ml, with sufficient absorbent material between the inner and outer packagings to completely absorb the liquid contents;
- (c) Outer packagings containing Class 6.2 infectious substances in primary receptacles each containing not more than 50 ml;
- (d) Type IP-2, type IP-3, type A, type B(U), type B(M) or type C packages containing Class 7 radioactive material;
- (e) Outer packagings containing articles which are leak-tight in all orientations (e.g. alcohol or mercury in thermometers, aerosols, etc.); or
- (f) Outer packagings containing dangerous goods in hermetically sealed inner packagings each containing not more than 500 ml."

5.2.2.2.1.2 In the first paragraph, add "and the environmentally hazardous substance mark when appropriate" after "specified in this section". In the second paragraph, add "and the environmentally hazardous substance mark (see 5.2.1.8.3)" before "may overlap to the extent".

Chapter 5.3

5.3.1.7.2 In the description under the placard in accordance with Model No. 7D, delete ", when required," and "(see 5.3.2.1.2)".

5.3.1.7.3 Add the following sentence at the end:

"If these labels are not visible from outside the carrying vehicle or wagon, placards according to 5.3.1.7.1 shall also be affixed to both sides of the wagon or to both sides and at the rear of the vehicle."

5.3.2.1.1 Add the following new paragraph at the end:

"If a trailer containing dangerous goods is detached from its motor vehicle during carriage of dangerous goods, an orange-coloured plate shall remain affixed to the rear of the trailer."

5.3.2.3.2 Amend the entry for 238 to read as follows:

"238 gas, flammable corrosive"

Chapter 5.4

5.4.1.1.2 (c) Add the following text at the end:

"For substances not mentioned by name in Table C (assigned to a generic entry or a N.O.S. entry and for which the flowchart in 3.2.3.3 is applicable) only the actual dangerous properties of the substance shall be mentioned."

5.4.1.1.3 Does not apply to the English version.

5.4.1.1.5 Amend to read as follows:

"5.4.1.1.5 *Special provisions for salvage packagings and salvage pressure receptacles*

When dangerous goods are carried in a salvage packaging or salvage pressure receptacle, the words "**SALVAGE PACKAGING**" or "**SALVAGE PRESSURE**

RECEPTACLE" shall be added after the description of the goods in the transport document."

5.4.1.1.18 In the first sub-paragraph after "ENVIRONMENTALLY HAZARDOUS", insert "or "MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS"".

In the second paragraph, delete: "instead of "ENVIRONMENTALLY HAZARDOUS"".

5.4.2 In footnote 5:

5.4.2.3 For "dangerous goods documentation" read "container/vehicle packing certificate".

5.4.2.4 For "dangerous goods transport information" read "container/vehicle packing certificate".

Chapter 5.5

Add the following new section:

5.5.3 Special provisions applicable to packages and vehicles and containers containing substances presenting a risk of asphyxiation when used for cooling or conditioning purposes (such as dry ice (UN 1845) or nitrogen, refrigerated liquid (UN 1977) or argon, refrigerated liquid (UN 1951))

5.5.3.1 Scope

5.5.3.1.1 This section is not applicable to substances which may be used for cooling or conditioning purposes when carried as a consignment of dangerous goods. When they are carried as a consignment, these substances shall be carried under the relevant entry of Table A in Chapter 3.2 in accordance with the associated conditions of carriage.

5.5.3.1.2 This section is not applicable to gases in cooling cycles.

5.5.3.1.3 Dangerous goods used for cooling or conditioning tanks or MEGCs during carriage are not subject to this section.

5.5.3.2 General

5.5.3.2.1 Vehicles and containers containing substances used for cooling or conditioning purposes (other than fumigation) during carriage are not subject to any provisions of ADN other than those of this section.

5.5.3.2.2 When dangerous goods are loaded in cooled or conditioned vehicles and containers any provisions of ADN relevant to these dangerous goods apply in addition to the provisions of this section.

5.5.3.2.3 *(Reserved)*

5.5.3.2.4 Persons engaged in the handling or carriage of cooled or conditioned vehicles and containers shall be trained commensurate with their responsibilities.

5.5.3.3 Packages containing a coolant or conditioner

5.5.3.3.1 Packaged dangerous goods requiring cooling or conditioning assigned to packing instructions P203, P620, P650, P800, P901 or P904 of 4.1.4.1 of ADR shall meet the appropriate requirements of that packing instruction.

5.5.3.3.2 For packaged dangerous goods requiring cooling or conditioning assigned to other packing instructions, the packages shall be capable of withstanding very low temperatures and shall not be affected or significantly weakened by the coolant or

conditioner. Packages shall be designed and constructed to permit the release of gas to prevent a build-up of pressure that could rupture the packaging. The dangerous goods shall be packed in such a way as to prevent movement after the dissipation of any coolant or conditioner.

5.5.3.3.3 Packages containing a coolant or conditioner shall be carried in well ventilated vehicles and containers.

5.5.3.4 *Marking of packages containing a coolant or conditioner*

5.5.3.4.1 Packages containing dangerous goods used for cooling or conditioning shall be marked with the name indicated in Column (2) of Table A of Chapter 3.2 of these dangerous goods followed by the words "AS COOLANT" or "AS CONDITIONER" as appropriate in an official language of the country of origin and also, if that language is not English, French or German, in English, French or German, unless agreements concluded between the countries concerned in the transport operation provide otherwise.

5.5.3.4.2 The markings shall be durable, legible and placed in such a location and of such a size relative to the package as to be readily visible.

5.5.3.5 *Vehicles and containers containing unpackaged dry ice*

5.5.3.5.1 If dry ice in unpackaged form is used, it shall not come into direct contact with the metal structure of a vehicle or container to avoid embrittlement of the metal. Measures shall be taken to provide adequate insulation between the dry ice and the vehicle or container by providing a minimum of 30 mm separation (e.g. by using suitable low heat conducting materials such as timber planks, pallets etc).

5.5.3.5.2 Where dry ice is placed around packages, measures shall be taken to ensure that packages remain in the original position during carriage after the dry ice has dissipated.

5.5.3.6 *Marking of vehicles and containers*

5.5.3.6.1 Vehicles and containers containing dangerous goods used for cooling or conditioning shall be marked with a warning mark, as specified in 5.5.3.6.2 affixed at each access point in a location where it will be easily seen by persons opening or entering the vehicle or container. This mark shall remain on the vehicle or container until the following provisions are met:

(a) The vehicle or container has been ventilated to remove harmful concentrations of coolant or conditioner; and

(b) The cooled or conditioned goods have been unloaded.

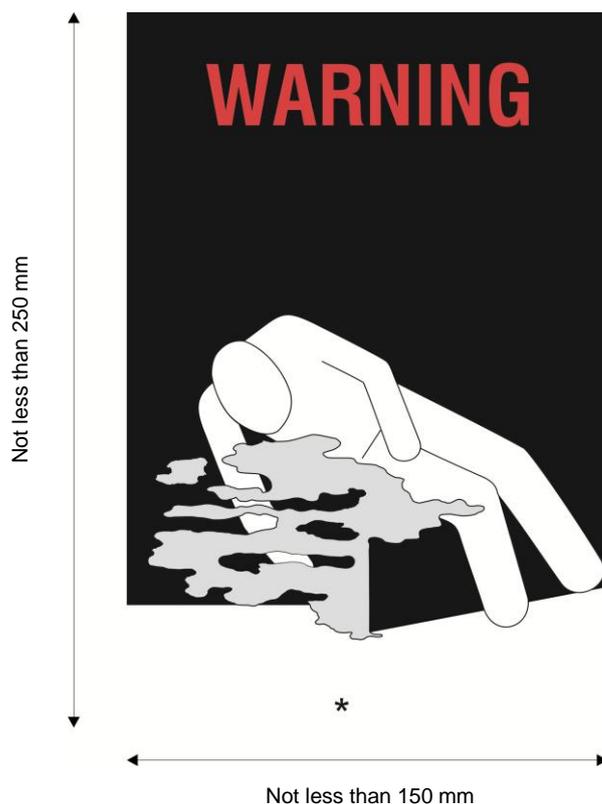
5.5.3.6.2 The warning mark shall be rectangular and shall not be less than 150 mm wide and 250 mm high. The warning mark shall include:

(a) The word "WARNING" in red or white with lettering not less than 25 mm high in an official language of the country of origin and also, if that language is not English, French or German, in English, French or German, unless agreements concluded between the countries concerned in the transport operation provide otherwise; and

(b) The name indicated in Column (2) of Table A of Chapter 3.2 followed by the words "AS COOLANT" or "AS CONDITIONER" as appropriate, shown below the symbol in black letters on a white background with lettering not less than 25 mm high in an official language of the country of origin and also, if that language is not English, French or German, in English, French or German, unless agreements concluded between the countries concerned in the transport operation provide otherwise.

For example: CARBON DIOXIDE, SOLID, AS COOLANT.

An illustration of this mark is given below.



* Insert the name indicated in column (2) of Table A of Chapter 3.2 followed by the words "AS COOLANT" or "AS CONDITIONER" as appropriate.

5.5.3.7 **Documentation**

5.5.3.7.1 Documents (such as a bill of lading, cargo manifest or CMR/CIM/CMNI consignment note) associated with the carriage of vehicles or containers that have been cooled or conditioned and have not been completely ventilated before carriage shall include the following information:

- (a) The UN number preceded by the letters "UN"; and
- (b) The name indicated in Column (2) of Table A of Chapter 3.2 followed by the words "AS COOLANT" or "AS CONDITIONER" as appropriate in an official language of the country of origin and also, if that language is not English, French or German, in English, French or German, unless agreements, if any, concluded between the countries concerned in the transport operation provide otherwise.

For example: UN 1845, CARBON DIOXIDE, SOLID, AS COOLANT.

5.5.3.7.2 The transport document may be in any form, provided it contains the information required in 5.5.3.7.1. This information shall be easy to identify, legible and durable."

Part 7

Chapter 7.1

7.1.3.15 Amend to read as follows:

"7.1.3.15 *Expert on board the vessel*

When dangerous goods are carried, the responsible master shall at the same time be an expert according to 8.2.1.2.

NOTE: Which master of the vessel's crew is the responsible master shall be determined and documented on board by the carrier. If there is no such determination, the requirement applies to every master.

By derogation from this, for the loading and unloading of dangerous goods in a barge, it is sufficient that the person who is responsible for loading and unloading and for ballasting of the barge has the expertise required according to 8.2.1.2."

7.1.4.14.1.4 Insert "and overpacks" after "packages".

7.1.4.14.6 Replace "BC Code" by "IMSBC Code"

7.1.6.11 Replace "BC Code" by "IMSBC Code" in ST01.

7.1.6.11 In ST02, replace "Appendix D.4 of the BC Code" by "subsection 38.2 of the *Manual of Tests and Criteria*".

7.1.6.11 Add the following text to the end of RA02:

"Surface contaminated objects group (SCO-II) shall not be carried in bulk."

Amend RA03 to read as follows:

"RA03: *Merged with RA02*"

7.1.6.12 Add the following text at the end of VE02:

"Alternatively, on vessels only containing these substances in containers in open holds, the holds containing such containers may be ventilated with the ventilation operating at full power only when it is suspected that the holds are not free of gas. Prior to unloading, the unloader shall be informed about this suspicion."

7.1.6.14 Add the following text to the end of HA03:

"Stacking of non-dangerous goods on top of packages containing these substances or articles is prohibited.

Where these substances or articles are loaded together with other goods in the same hold, these substances or articles shall be loaded after, and unloaded before, all the other goods.

There is no need for these substances or articles to be loaded after, and unloaded before, all others if these substances or articles are contained in containers.

While these substances or articles are being loaded or unloaded, no loading or unloading operations shall take place in the other holds and no filling or emptying of fuel tanks shall be allowed. The local competent authority may, however, permit exceptions to this provision."

Amend HA04, HA05 and HA06 to read as follows:

"HA04: *Merged with HA03*

HA05: *Merged with HA03*

HA06: *Merged with HA03".*

Chapter 7.2

7.2.1.21 Insert the following two new paragraphs:

"7.2.1.21.7 A substance which according to column (8) of Table C of Chapter 3.2 must be carried in cargo tank type 2 (integral cargo tank), may also be carried in a cargo tank type 1 (independent cargo tank) or cargo tank type 3 (cargo tank with walls distinct from the outer hull) of the vessel type prescribed in Table C or a vessel type prescribed in 7.2.1.21.2 to 7.2.1.21.5, provided that all other conditions of carriage required for this substance by Table C of Chapter 3.2 are met.

7.2.1.21.8 A substance which according to column (8) of Table C of Chapter 3.2 must be carried in cargo tank type 3 (cargo tank with walls distinct from the outer hull), may also be carried in a cargo tank type 1 (independent cargo tank) of the vessel type prescribed in Table C or a vessel type prescribed in 7.2.1.21.2 to 7.2.1.21.5 or in a Type C vessel with cargo tank type 2 (integral cargo tank), provided that at least the conditions of carriage concerning the prescribed N type are met and all other conditions of carriage required for this substance by Table C of Chapter 3.2 or 7.2.1.21.2 to 7.2.1.21.5 are met."

7.2.2.0.1 Amend the Note after 7.2.2.0.1 to read as follows:

"NOTE: The substances accepted for carriage in the individual vessel are listed in the vessel substance list to be drawn up by the recognised classification society (see 1.16.1.2.5)."

7.2.3.7.2 Insert "or at locations approved by the competent authority" after "vessel is underway".

7.2.3.15 Amend the first paragraph to read as follows:

"7.2.3.15 Expert on board the vessel

When dangerous substances are carried, the responsible master shall at the same time be an expert according to 8.2.1.2. In addition this expert shall be:

- An expert as referred to in 8.2.1.5 when dangerous goods are carried for which a type G tank vessel is prescribed in column (6) of Table C of Chapter 3.2; and
- An expert as referred to in 8.2.1.7 when dangerous goods are carried for which a type C tank vessel is prescribed in column (6) of Table C of Chapter 3.2.

NOTE: Which master of the vessel's crew is the responsible master shall be determined and documented on board by the carrier. If there is no such determination, the requirement applies to every master.

By derogation from this, for the loading and unloading of dangerous goods in a tank barge, it is sufficient that the person who is responsible for loading and unloading and for ballasting of the tank barge has the expertise required according to 8.2.1.2."

7.2.3.20.1 Amend to read as follows:

"Cofferdams and hold spaces containing insulated cargo tanks shall not be filled with water. Double-hull spaces, double bottoms and hold spaces which do not contain insulated cargo tanks may be filled with ballast water provided:

- this has been taken into account in the intact and damage stability calculations; and
- the filling is not prohibited in column (20) of Table C of Chapter 3.2.

If the water in the ballast tanks and compartments leads to the vessel no longer respecting these stability criteria:

- fixed level indicators shall be installed; or
- the filling level of the ballast tanks and compartments shall be checked daily before departure and during operations.

In case of the existence of level indicators, ballast tanks may also be partially filled. Otherwise they shall be completely full or empty."

7.2.4.21.1 Amend to read as follows:

"The degree of filling given in column (11) of Table C of Chapter 3.2 or calculated in accordance with 7.2.4.21.3 for the individual cargo tank shall not be exceeded."

7.2.4.21.3 Amend to read as follows:

"For carriage of substances having a relative density higher than that stated in the certificate of approval, the maximum permissible degree of filling of the cargo tanks shall be calculated in accordance with the following formula:

$$\text{maximum permissible degree of filling (\%)} = a * 100/b$$

a = relative density stated in the certificate of approval,

b = relative density of the substance.

The degree of filling given in column (11) of Table C of Chapter 3.2 shall, however, not be exceeded.

NOTE: Furthermore, the requirements concerning stability, longitudinal strength and the deepest permissible draught of the vessel shall be observed when filling the cargo tanks."

7.2.4.40 Modify the text to read as follows:

"During loading and unloading, the fire extinguishing systems, the fire main with hydrants complete with couplings and jet/spray nozzles or with couplings and hose assemblies with couplings and jet/spray nozzles shall be kept ready for operation in the cargo area on deck.

The freezing of fire-mains and hydrants shall be prevented."

Part 8

Chapter 8.1

8.1.2.2 Add the following text:

"(d) The inspection certificates concerning the fixed fire extinguishing systems prescribed in 9.1.0.40.2.9."

8.1.2.3 (c), second indent Add the following text at the end:

"the stability booklet and the proof of the loading instrument having been approved by the the recognized classification society;"

8.1.2.3 (g) Amend to read as follows: "the vessel substance list prescribed in 1.16.1.2.5;"

8.1.2.3 (h) Replace "pipes" by "hose assemblies".

8.1.2.3 Add the following text:

"(p) The inspection certificates concerning the fixed fire extinguishing systems prescribed in 9.3.1.40.2.9, 9.3.2.40.2.9 or 9.3.3.40.2.9."

8.1.2.4 At the end of the second paragraph, insert "and before the journey commences".

8.1.2.6 Replace "metal plate" by "plate".

8.1.2.7 In the first paragraph, replace "the metal plate" by "the plate" and replace "a second metal plate" by "a second metal or plastic plate". In the last paragraph, replace "metal plate" by "plate".

8.1.2.8 Amend to read as follows:

"8.1.2.8 All documents shall be on board in a language the master is able to read and understand. If that language is not English, French or German, all documents, with the exception of the copy of ADN with its annexed Regulations and those for which the Regulations include special provisions concerning languages, shall be on board also in English, French or German, unless agreements concluded between the countries concerned in the transport operation provide otherwise."

8.1.6.1 Amend to read as follows:

"8.1.6.1 Hand fire-extinguishers and fire-extinguishing hoses shall be inspected at least once every two years by persons authorized for this purpose by the competent authority. Proof of inspection shall be affixed to the hand fire-extinguishers. A certificate concerning this inspection shall be carried on board."

8.1.6.2 Amend to read as follows:

"Hose assemblies used for loading, unloading or delivering products for the operation of the vessel and residual cargo shall comply with European standard EN 12115:2011-04 (Rubber and thermoplastics hoses and hose assemblies) or EN 13765:2010-08 (Thermoplastic multilayer (non-vulcanized) hoses and hose assemblies) or EN ISO 10380:2003-10 (Corrugated metal hoses and hose assemblies). They shall be checked and inspected in accordance with table A.1 of standard EN 12115:2011-04 or table K.1 of standard EN 13765:2010-08 or paragraph 7 of standard EN ISO 10380:2003-10 at least once a year, according to the manufacturer's instructions, by persons authorized for this purpose by the competent authority. A certificate concerning this inspection shall be carried on board."

8.1.8.3 Replace "It shall conform to the model in 8.6.1.1 or 8.6.1.3" by "The certificate of approval shall conform to the model in 8.6.1.1 or 8.6.1.3 with regard to content, form and layout. Its dimensions are 210 mm x 297 mm (A4). Front and back pages may be used."

8.1.9.2 Insert "with regard to content, form and layout" after "these Regulations".

Chapter 8.2

8.2.1.4 Amend to read as follows:

"8.2.1.4 After five years the expert shall furnish proof, in the form of relevant particulars entered in the certificate by the competent authority or by a body recognized by it, of successful completion of a refresher course taken in the last year prior to the expiry of the certificate, covering at least the objectives referred to in 8.2.2.3.1.1 and in 8.2.2.3.1.2 or 8.2.2.3.1.3 and comprising current new developments in particular. A refresher course shall

be considered to have been successfully completed if a final written test conducted by the course organizer under 8.2.2.2 has been passed. The test can be retaken as often as desired during the validity of the certificate. The new period of validity shall begin on the expiry date of the certificate; if the test is passed more than one year before the date of expiry of the certificate, it shall begin on the date of the certificate of participation in the course."

8.2.2.3.1.1 Add the following text at the end:

"Stability:

- parameters of relevance to stability;
- heeling moments;
- exemplary calculations;
- damage stability, intermediate states and final state of flooding;
- influence of free surfaces;
- evaluation of stability on the basis of existing stability criteria (text of Regulations);
- evaluation of intact stability with the help of the lever arm curve;
- application of loading instruments;
- use of loading instruments;
- application of the stability booklet according to 9.3.13.3."

8.2.2.4 Replace "24 lessons" by "32 lessons" (twice) and "32 lessons" by "40 lessons".

8.2.2.5 In the last paragraph, replace "50%" by "30%" and add the following sentence at the end: "The proportion of stability training in the refresher course shall amount to at least 2 lessons."

8.2.2.6.3 Insert a new subparagraph (e) to read as follows:

"(e) Detailed plan for final tests."

8.2.2.6.5 Amend the second sentence to read as follows:

"Approval shall be granted in writing for a limited period."

8.2.2.7 Amend the title to read as follows:

"Examinations and final tests"

8.2.2.7.1.5 Amend the last sentence to read as follows:

"During the examination, the texts of the Regulations annexed to ADN and CEVNI or related police regulations may be consulted."

8.2.2.7.3 Add a new paragraph to read as follows:

"8.2.2.7.3 Refresher training course

8.2.2.7.3.1 At the end of the refresher course in accordance with paragraph 8.2.1.4, the course organizer shall conduct a test.

8.2.2.7.3.2 The test shall be in writing. Candidates shall be asked 20 multiple-choice questions. At the end of every refresher course, a fresh question paper shall be prepared. The test shall last 40 minutes. It shall be deemed to have been passed if at least 16 of the 20 questions have been answered correctly. During the test, the texts of ADN and CEVNI or related police regulations may be consulted.

8.2.2.7.3.3 The provisions of paragraphs 8.2.2.7.1.2 and 8.2.2.7.1.3 shall apply to the administration of the tests.

8.2.2.7.3.4 The course organizer shall deliver to successful candidates a written certificate for presentation to the competent authority under paragraph 8.2.2.8.

8.2.2.7.3.5 The course organizer shall keep test papers of candidates for five years from the date of the test."

Chapter 8.6

8.6.1.1 Amend item 8 of the Model for a certificate of approval for dry cargo vessels to read as follows:

"8. The vessel is approved for the carriage of the dangerous goods based on:

- inspection on ¹ (date).....
- The inspection report of a recognized classification society ¹ (name of the classification society..... (date).....
- The inspection report of the recognized inspection body¹ (name of the inspection body) (date)....."

8.6.1.3 Amend item 15 of the Model for a certificate of approval for tank vessels to read as follows:

"15. The vessel is approved for the carriage of the dangerous goods entered in the vessel substance list according to 1.16.1.2.5 based on

- inspection on ¹ (date).....
- The inspection report of a recognized classification society ¹ (name of the classification society..... (date).....
- The inspection report of the recognized inspection body¹ (name of the inspection body) (date)....."

8.6.1.3 and 8.6.1.4 Amend the seventh point under entry 8 to read as follows and delete the reference to footnote 2: "Ventilation system ensuring an overpressure"

Chapter 8.6

8.6.2 Certificate of special knowledge of ADN

Insert "The holder of this certificate has participated in an 8-lesson stability training" after "The holder of this certificate has special knowledge of ADN".

8.6.3 Amend page 1 of the ADN Checklist to read as follows:

ADN Checklist					1
concerning the observance of safety provisions and the implementation of the necessary measures for loading/unloading					
- Particulars of vessel					
..... No.					
(name of vessel)		(official number)			
.....					
(vessel type)					
- Particulars of loading or unloading operations					
.....					
(shore loading or unloading installation) (place)					
.....					
(date) (time)					
- Particulars of the cargo as indicated in the transport document					
Quantity m ³	Proper shipping name supplemented, when applicable, by the technical name	UN Number or Identification number	Dangers*	Packing Group	
.....	
.....	
.....	
- Particulars of last cargo**					
Proper shipping name supplemented, when applicable, by the technical name		UN Number or Identification number	Dangers*	Packing Group	
.....		
.....		
.....		

* Dangers indicated in column (5) of Table C, as relevant (as mentioned in the transport document in accordance with 5.4.1.1.2 (c).

**To be filled in only if vessel is to be loaded.

8.6.3, page 2 Replace "Name of substance" by "Proper shipping name*".

and add the following footnote:

"* The proper shipping name given in column (2) of Table C of Chapter 3.2, supplemented, when applicable, by the technical name in parenthesis."

8.6.3, page 3 of the ADN Checklist

Modify 6.1 to read as follows:

"6.1 Is the piping for loading or unloading between vessel and shore in satisfactory condition?

Is it correctly connected?"

6.4 Does not apply to the English text.

8.6.3 After the checklist according to 8.6.3, amend the explanation concerning Question 6 to read as follows:

"Question 6:

A valid inspection certificate for the hose assemblies must be available on board. The material of the piping for loading and unloading must be able to withstand the expected loads and be suitable for cargo transfer of the respective substances. The piping for loading and unloading between vessel and shore must be placed so that it cannot be damaged by ordinary movements of the vessel during the loading and unloading process or by variations of the water. In addition, all flanged joints must be fitted with appropriate gaskets and sufficient bolt connections in order to exclude the possibility of leakage."

8.6.3 After the checklist according to 8.6.3, in the explanation concerning Question 10, replace "cargo hoses" by "piping for loading and unloading between vessel and shore".

Part 9

Chapter 9.3

9.3.X.0.1 (b) Add the following text at the end: "In case it has not been possible to examine this during classification and inspection of the vessel a relevant reservation shall be entered in the vessel substance list according to 1.16.1.2.5."

9.3.1.0.3 (c) In the third indent, replace "hoses" by "hose assemblies" and in the fourth indent, replace "hoses" by "piping".

9.3.X.0.3 (c) Add a new indent to read as follows:

"- photo-optical copies of the certificate of approval according to 8.1.2.6 or 8.1.2.7."

9.3.X.8.1 At the end of the third paragraph add "(classification certificate)" and amend the sixth paragraph to read as follows: "The classification society shall draw up a vessel substance list mentioning all the dangerous goods accepted for carriage by the tank vessel (see also 1.16.1.2.5)."

9.3.X.13.3 Amend to read as follows:

"Proof of sufficient intact stability shall be furnished for all stages of loading and unloading and for the final loading condition for all the relative densities of the substances transported contained in the vessel substance list according to 1.16.1.2.5.

For every loading operation, taking account of the actual fillings and floating position of cargo tanks, ballast tanks and compartments, drinking water and sewage tanks and tanks containing products for the operation of the vessel, the vessel shall comply with the intact and damage stability requirements.

Intermediate stages during operations shall also be taken into consideration.

The proof of sufficient stability shall be shown for every operating, loading and ballast condition in the stability booklet, to be approved by the relevant classification society, which classes the vessel. If it is unpractical to pre-calculate the operating, loading and ballast conditions, a loading instrument approved by the recognised classification society which classes the vessel shall be installed and used which contains the contents of the stability booklet.

NOTE: A stability booklet shall be worded in a form comprehensible for the responsible master and containing the following details:

General description of the vessel:

- *General arrangement and capacity plans indicating the assigned use of compartments and spaces (cargo tanks, stores, accommodation, etc.);*
- *A sketch indicating the position of the draught marks referring to the vessel's perpendiculars;*
- *A scheme for ballast/bilge pumping and overflow prevention systems;*
- *Hydrostatic curves or tables corresponding to the design trim, and, if significant trim angles are foreseen during the normal operation of the vessel, curves or tables corresponding to such range of trim are to be introduced;*
- *Cross curves or tables of stability calculated on a free trimming basis, for the ranges of displacement and trim anticipated in normal operating conditions, with an indication of the volumes which have been considered buoyant;*
- *Tank sounding tables or curves showing capacities, centres of gravity, and free surface data for all cargo tanks, ballast tanks and compartments, drinking water and sewage water tanks and tanks containing products for the operation of the vessel;*
- *Lightship data (weight and centre of gravity) resulting from an inclining test or deadweight measurement in combination with a detailed mass balance or other acceptable measures. Where the above-mentioned information is derived from a sister vessel, the reference to this sister vessel shall be clearly indicated, and a copy of the approved inclining test report relevant to this sister vessel shall be included;*
- *A copy of the approved test report shall be included in the stability booklet;*
- *Operating loading conditions with all relevant details, such as:*
 - *Lightship data, tank fillings, stores, crew and other relevant items on board (mass and centre of gravity for each item, free surface moments for liquid loads);*
 - *Draughts amidships and at perpendiculars;*
 - *Metacentric height corrected for free surfaces effect;*
 - *Righting lever values and curve;*
 - *Longitudinal bending moments and shear forces at read-out points;*
 - *Information about openings (location, type of tightness, means of closure); and*
 - *Information for the master.*

- *Calculation of the influence of ballast water on stability with information on whether fixed level gauges for ballast tanks and compartments have to be installed or whether the ballast tank, or compartments shall be completely full or completely empty when underway.*

9.3.1.15.1 (a) Replace "0.79 m;" by "0.79 m, or when applicable, the distance allowed by section 9.3.4, reduced by 0.01 m;"

9.3.X.40.1 In the first paragraph of the second indent:

- In the second sentence, replace "spray nozzles" by "jet/spray nozzles".
- Insert a new third sentence to read as follows:

"Alternatively one or more of the hose assemblies may be substituted by directable jet/spray nozzles having a diameter of not less than 12 mm."

Add the following new text at the end:

"- The water supply system shall be capable of being put into operation from the wheelhouse and from the deck;

- Measures shall be taken to prevent the freezing of fire-mains and hydrants."

9.3.2.0.3 (c) In the first indent, replace "pipes" by "piping", in the fourth indent, replace "hoses" by "hose assemblies" and in the fifth indent, replace "hoses" by "piping".

9.3.2.15.1 (a) Replace "0.79 m;" by "0.79 m, or when applicable, the distance allowed by section 9.3.4, reduced by 0.01 m;"

9.3.2.26.4 In the third bullet, replace "hoses" by "hose assemblies".

9.3.3.0.3 (c) In the first indent, replace "hoses" by "piping", in the fourth indent, replace "hoses" by "hose assemblies" and in the fifth indent, replace "hoses" by "piping".

9.3.3.15.1 Amend the first paragraph to read "For vessels with independent cargo tanks and for double-hull vessels with cargo tanks integrated in the construction of the vessel, the following assumptions shall be taken into consideration for the damaged condition:"

9.3.3.15.1 (a) Replace "0.59 m;" by "0.59 m, or, when applicable, the distance allowed by section 9.3.4, reduced by 0.01 m;"

9.3.3.26.4 Replace "hoses" by "hose assemblies" (four times).
