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ADN Administrative Committee

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

Draft amendments to the Regulations annexed to ADN¹

At its twelfth session (31 January 2014), 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 2015 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 2014, with a reference to 1 January 2015 as the scheduled date of entry into force (see ECE/ADN/26, paragraph 14).

The present document² contains the requested consolidated list of amendments adopted by the Safety Committee at its twenty-first, twenty-second, twenty-third and twenty-fourth sessions (see ECE/TRANS/WP.15/AC.2/44, Annex II, ECE/TRANS/WP.15/AC.2/46, Annex I, ECE/TRANS/WP.15/AC.2/48, Annex I and ECE/TRANS/WP.15/AC.2/50, Annex I).

¹ Distributed in German by the Central Commission for the Navigation of the Rhine under the symbol CCNR/ZKR/ADN/27.

² For technical reasons, the paper version of this document is printed in black and white. For pages 45, 51 and 55 which contain colour, the electronic version should be consulted.

Chapter 1.1

1.1.3.1 (c) In the first sentence, after "per packaging", insert ", including intermediate bulk containers (IBCs) and large packagings,".

1.1.3.1 In the Note, replace "see 1.7.1.4" by "see also 1.7.1.4".

1.1.3.2 (c) Add the following new Note at the end:

"NOTE: *This exemption does not apply to lamps. For lamps see 1.1.3.10.*"

1.1.3.2 (h) Delete 1.1.3.2 (h) and replace by

"(h) *(Deleted)*".

1.1.3.3 Modify to read as follows:

"1.1.3.3 Exemptions related to dangerous goods used for the propulsion of vessels, vehicles or wagons carried, for the operation of their special equipment, for their upkeep or for their safety

"The requirements of ADN do not apply to substances used

- for the propulsion of vessels, vehicles or wagons carried,
- for the operation or upkeep of their permanently installed special equipment,
- for the operation or upkeep of their mobile special equipment used during carriage or intended to be used during carriage, or
- to ensure safety,

and which are carried on board in the packaging, receptacle or tanks intended for use for this purpose."

1.1.3.4 In the Note, replace "see 1.7.1.4" by "see also 1.7.1.4".

1.1.3 Insert a new sub-section to read as follows:

"1.1.3.10 Exemptions related to the carriage of lamps containing dangerous goods

The following lamps are not subject to ADN provided that they do not contain radioactive material and do not contain mercury in quantities above those specified in special provision 366 of Chapter 3.3:

(a) Lamps that are collected directly from individuals and households when carried to a collection or recycling facility;

NOTE: *This also includes lamps brought by individuals to a first collection point, and then carried to another collection point, intermediate processing or recycling facility.*

(b) Lamps each containing not more than 1 g of dangerous goods and packaged so that there is not more than 30 g of dangerous goods per package, provided that:

(i) the lamps are manufactured according to a certified quality management system;

NOTE: *ISO 9001:2008 may be used for this purpose.*

and

(ii) each lamp is either individually packed in inner packagings, separated by dividers, or surrounded with cushioning material to protect the lamps and

packed into strong outer packagings meeting the general provisions of 4.1.1.1 of ADR and capable of passing a 1.2 m drop test;

(c) Used, damaged or defective lamps each containing not more than 1 g of dangerous goods with not more than 30 g of dangerous goods per package when carried from a collection or recycling facility. The lamps shall be packed in strong outer packagings sufficient for preventing release of the contents under normal conditions of carriage meeting the general provisions of 4.1.1.1 of ADR and that are capable of passing a drop test of not less than 1.2 m;

(d) Lamps containing only gases of Groups A and O (according to 2.2.2.1) provided they are packaged so that the projectile effects of any rupture of the lamp will be contained within the package.

NOTE: *Lamps containing radioactive material are addressed in 2.2.7.2.2.2 (b).*"

1.1.4.2.1 In the first sentence, replace "and tank-containers" by ", tank-containers and MEGCs". In the first sentence of paragraph (c), replace "or tank-containers" by ", tank-containers or MEGCs". In the third sentence of paragraph (c), replace "and tank-containers" by ", tank-containers and MEGCs".

1.1.5 Add the following sentence at the end: "The requirements of the standard that do not conflict with ADN shall be applied as specified, including the requirements of any other standard, or part of a standard, referenced within that standard as normative."

Chapter 1.2

1.2.1 In the definitions, whenever the term "for the carriage of Class 7 material" is used, replace it by "for the carriage of radioactive material".

1.2.1 Amend the definitions hereafter as follows:

Approval Replace "6.4.22.6" by "6.4.22.8".

Auto-ignition temperature, Deflagration, Detonation, Explosion, and Explosive atmosphere, replace "EN 1127-1:1997, No. 331" by "EN 13237:2011".

In the definition of *Breathing apparatus (ambient air-dependent filter apparatus)* replace "EN 371:1992 or EN 372:1992" by "EN 14387:2004 + A1:2008".

In the definition of *Breathing apparatus (self-contained)*, replace "EN 137:1993" by "EN 137:2006".

In the definition of *Bulk container* add the following new Note at the end:

"NOTE: *This definition only applies to bulk containers meeting the requirements of chapter 6.11 of ADR.*"

Replace the first definition of "Cargo tank" by the following text and delete the existing definitions of "Independent cargo tank" and "Pressure tank".

"*Cargo tank* (when anti-explosion protection is required, comparable to zone 0) means a tank which is permanently attached to the vessel and intended for the carriage of dangerous goods;

Cargo tank design:

(a) *Pressure cargo tank* means a cargo tank independent of the vessel's hull, built according to dedicated recognised standards for a working pressure ≥ 400 kPa;

- (b) *Closed cargo tank* means a cargo tank connected to the outside atmosphere through a device preventing unacceptable internal overpressure or underpressure;
- (c) *Open cargo tank with flame arrester* means a cargo tank connected to the outside atmosphere through a device fitted with a flame arrester;
- (d) *Open cargo tank* means a cargo tank in open connection with the outside atmosphere;

Cargo tank type:

- (a) *Independent cargo tank* means a cargo tank which is permanently built in, but which is independent of the vessel's structure;
- (b) *Integral cargo tank* means a cargo tank which is constituted by the vessel's structure itself and bounded by the outer hull or by walls separate from the outer hull;
- (c) *Cargo tank with walls distinct from the outer hull* means an integral cargo tank of which the bottom and side walls do not form the outer hull of the vessel or an independent cargo tank;"

Replace the definition of "Cargo tank (condition)" by the following definitions:

"Cargo tank (discharged) means a cargo tank which after unloading may contain some residual cargo;

Cargo tank (empty) means a cargo tank which after unloading contains no residual cargo but may not be gas free;

Cargo tank (gas free) means a cargo tank which after unloading does not contain any residual cargo or any measurable concentration of dangerous gases;"

Amend the definition of "Closed-type sampling device" to read as follows:

"Closed-type sampling device means a device penetrating through the boundary of the cargo tank or through the piping for loading and unloading but constituting a part of a closed system designed so that during sampling no gas or liquid may escape from the cargo tank. The device shall be of a type approved by the competent authority for this purpose;"

Closure The amendment to the definition of "fermeture" in the French version does not apply to the English text.

Amend the Note in the definition of "Combination packaging" to read as follows:

"NOTE: The term "inner packaging" used for combination packagings shall not be confused with the term "inner receptacle" used for composite packagings."

Replace the definitions of "common vapour piping", "compensation piping", "gas return piping" and "venting piping" by the following new definitions:

"Vapour return piping (on shore) means a pipe of the shore facility which is connected during loading or unloading to the vessel's venting piping. This pipe is designed so as to protect the vessel against detonations or the passage of flames from the shore side;

Venting piping (on board) means a pipe of the vessel's installation connecting one or more cargo tanks to the vapour return piping during loading or unloading. This pipe is fitted with safety valves protecting the cargo tank(s) against unacceptable internal overpressure or vacuums;"

Amend the definition of "Composite packaging (plastics material)" and the related NOTE to read as follows:

"Composite packaging" means a packaging consisting of an outer packaging and an inner receptacle so constructed that the inner receptacle and the outer packaging form an integral packaging. Once assembled it remains thereafter an integrated single unit; it is filled, stored, carried and emptied as such;

NOTE: The term "inner receptacle" used for composite packagings shall not be confused with the term "inner packaging" used for combination packagings. For example, the inner of a 6HA1 composite packaging (plastics material) is such an inner receptacle since it is normally not designed to perform a containment function without its outer packaging and is not therefore an inner packaging.

Where a material is mentioned in brackets after the term "composite packaging", it refers to the inner receptacle."

Delete the definition of "Composite packaging (glass, porcelain or stoneware)" and related NOTE.

Container: In the definition of "small container", delete "either any overall outer dimension (length, width or height) less than 1.5 m, or".

Design: In the first sentence, insert "fissile material excepted under 2.2.7.2.3.5 (f)," after "the description of".

In the definition of *Electrical apparatus protected against water jets* replace "IEC publication 529" by "IEC publication 60529".

In the definition of *Escape device (suitable)* replace "EN 400:1993, EN 401:1993, EN 402:1993, EN 403:1993 or EN 1146:1997" by "EN 13794:2002, EN 402: 2003, EN 403: 2004 or EN 1146:2005".

Exclusive use: Replace "and unloading is carried" by "and unloading and shipment are carried" and insert ", where so required by ADN" after "consignee".

Amend the definition of *Explosion group* to read as follows:

"*Explosion group* means a grouping of flammable gases and vapours according to their maximum experimental safe gaps (standard gap width, determined in accordance with specified conditions) and minimum ignition currents, and of electrical apparatus intended to be used in a potentially explosive atmosphere (see EN IEC 60079-0:2012);"

In the definition of *Flame arrester*: Replace "EN 12 874 (1999)" by "EN ISO 16852:2010".

Full load In the Note, replace "Class 7" by "radioactive material".

GHS: Replace "fourth" by "fifth" and "ST/SG/AC.10/30/Rev.4" by "ST/SG/AC.10/30/Rev.5".

Amend the definition of *High-velocity vent valve* to read as follows:

"*High-velocity vent valve* means a pressure relief valve designed to have nominal flow velocities which exceed the flame velocity of the flammable mixture, thus preventing flame transmission. This type of installation shall be tested in accordance with standard EN ISO 16852:2010;"

Replace the definition of "Hold (condition)" by the following definitions:

"*Hold (discharged)* means a hold which after unloading may contain some dry cargo remains;

"*Hold (empty)* means a hold which after unloading contains no dry cargo remains (swept clean);"

Manual of Tests and Criteria: Amend the text in parentheses to read "ST/SG/AC.10/11/Rev.5 as amended by documents ST/SG/AC.10/11/Rev.5/Amend.1 and ST/SG/AC.10/11/Rev.5/Amend.2".

Nominal capacity of the receptacle : Delete the definition.

Overpack Replace "Class 7" by "radioactive material."

In the definition of "*Packaging*", replace "*Composite packaging (plastics material), Composite packaging (glass, porcelain or stoneware)*" by "*Composite packaging*".

Amend the definition of "*Partly closed sampling device*" to read as follows:

"*Partly closed-type sampling device* means a device penetrating through the boundary of the cargo tank or through the piping for loading and unloading such that during sampling only a small quantity of gaseous or liquid cargo can escape into the open air. As long as the device is not used it shall be closed completely. The device shall be of a type approved by the competent authority for this purpose;"

Replace the definition of "*Possibility of a sampling connection*" by the following definition:

"*Connection for a sampling device* means a connection allowing the installation of a closed-type or partly closed-type sampling device. The connection shall be fitted with a lockable mechanism resistant to the internal pressure of the cargo tank. The connection shall be of a type approved by the competent authority for the intended use;"

In the definition of *Protective gloves*: Replace "EN 374-1:1994, 374-2:1994 or 374-3:1994" by "EN 374-1:2003, EN 374-2:2003 or EN 374-3:2003 + AC:2006".

In the definition of *Protective shoes*: Replace "EN 346:1997" by "EN ISO 20346:2004".

In the definition of *Protective suit*: Replace "EN 340:1993" by "EN 340:2003".

Radiation level: Amend the end of the definition to read: "millisieverts per hour or microsieverts per hour;"

Amend the beginning of the definition of "*sampling opening*" to read as follows:

"*Sampling opening* means an opening with a diameter of not more than 0.30 m. When the list of substances on the vessel according to 1.16.1.2.5 contains substances for which protection against explosion is required in column (17) of Table C of Chapter 3.2, it shall be fitted ..."

Small receptacle containing gas (gas cartridge) Replace "meeting the relevant requirements of 6.2.6 of ADR" by "having a water capacity not exceeding 1000 ml for receptacles made of metal and not exceeding 500 ml for receptacles made of synthetic material or glass,"

In the definition of *Steady burning*: Replace "EN 12 874:1999" by "EN ISO 16852:2010".

In the definition of *Temperature class* replace "EC publication 79 and EN 50 014:1994" by "EN 13237:2011".

Modify the definition of *Types of protection* to read as follows:

"*Types of protection:* (see IEC 60079-0:2011)

EEx (d): flameproof enclosure (IEC 60079-1:2007);

EEx (e): increased safety (IEC 60079-7:2006);

EEx (ia) and EEx (ib): intrinsic safety (IEC 60079-11:2011);

EEx (m): encapsulation (IEC 60079-18:2009);

EEx (p): pressurized apparatus (IEC 60079-2:2007);

EEx (q): powder filling (IEC 60079-5:2007);"

Definition of "Type of vessel", captions to the sketches Replace "Condition of cargo tank" by "Cargo tank design" (11 times)

UN Model Regulations: Replace "seventeenth" by "eighteenth" and "(ST/SG/AC.10/1/Rev.17)" by "(ST/SG/AC.10/1/Rev.18)".

1.2.1 Add the following new definitions in alphabetical order:

"*Boil-off*" means the vapour produced above the surface of a boiling cargo due to evaporation. It is caused by heat ingress or a drop in pressure;"

"*Escape boat*" means a specially designed directly accessible boat designed to withstand all identified hazards of the cargo and to evacuate the people in danger;"

"*Escape route*" means a safe route from danger towards safety or to another means of evacuation;"

"*Evacuation boat*" means a manned and specially equipped boat called in for rescuing people in danger or evacuating them within the minimum safe period of time provided by a safe haven or a safe area;"

"*GESAMP*" means the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection. IMO publication: "The Revised GESAMP Hazard Evaluation Procedure for Chemical Substances Carried by Ships", GESAMP Reports and Studies No. 64, IMO, London, 2002.

In applying the GESAMP model for the purposes of the present Regulations, the reference temperature for the relative density, vapour pressure and water solubility is 20°C. The reference relative density to be used to differentiate between floating substances ("floater") and substances that sink ("sinker") is 1,000 (corresponding to the water density in inland waterways of 1000 kg/m³);"

"*Holding time*" means the time that will elapse from the establishment of the initial filling condition until the pressure has risen due to heat influx to the lowest set pressure of the safety valves;"

"*Large salvage packaging*" means a special packaging which

- (a) is designed for mechanical handling; and
- (b) exceeds 400 kg net mass or 450 litres capacity but has a volume of not more than 3 m³;

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

"*Life boat*" (i.e. ship's boat) means an onboard boat in transport, rescue, salvage and work duties;"

"*Liquefied natural gas (LNG)*" means natural gas (with a high content of methane, CH₄) that has liquefied under refrigeration;"

"*Management system*, for the carriage of radioactive material, means a set of interrelated or interacting elements (system) for establishing policies and objectives and enabling the objectives to be achieved in an efficient and effective manner;"

"*Means of evacuation*" means any means that can be used by people to move from danger to safety as follows:

Dangers that have to be taken into account are:

- For class 3, packing group III, UN 1202, second and third entry and for classes 4.1, 8 and 9 on tank vessels: leakage at the manifold;
- For other substances of class 3 and class 2 and for flammable substances of class 8 on tank vessels: fire in the area of the manifold on the deck and burning liquid on the water;
- For class 5.1 on tank vessels: oxidizing substances in combination with flammable liquids may cause an explosion;
- For class 6.1 on tank vessels: toxic gases around the manifold and in the direction of the wind;
- For dangerous goods on dry cargo vessels: dangers emanating from the goods in the cargo holds;"

"*Neutron radiation detector* means a device that detects neutron radiation. In such a device, a gas may be contained in a hermetically sealed electron tube transducer that converts neutron radiation into a measureable electric signal;"

"*Radiation detection system* means an apparatus that contains radiation detectors as components;"

"*Safe area* means a designated, recognisable area outside the cargo area which can be readily accessed by all persons on board. The safe area provides protection against the identified hazards of the cargo by a water spray system for at least 60 minutes. The safe area can be evacuated during an incident. A safe area is not acceptable when the identified danger is explosion;"

"*Safe haven* means a designated, recognisable, readily accessible module (fixed or floating) capable of protecting all persons on board against the identified hazards of the cargo for at least sixty minutes during which communication to the emergency and rescue services is possible. A safe haven can be integrated into the wheelhouse or into the accommodation. A safe haven can be evacuated during an incident. A safe haven on board is not acceptable when the identified danger is explosion. A safe haven on board and a floating safe haven outside the ship are certified by a recognized classification society. A safe haven on land is constructed according to local law;"

"*Water film* means a deluge of water for protection against brittle fracture;"

"*Water spray system* means an on-board installation that, by means of a uniform distribution of water, is capable of protecting all the vertical external surfaces of the ship's hull fore and aft, all vertical surfaces of superstructures and deckhouses and deck surfaces above the superstructures, engine rooms and spaces in which combustible materials may be stored. The capacity of the water spray system for the area to be protected should be at least 10 l/m² per minute. The water spray system shall be designed for full-year use. The spray system should be operable from the wheelhouse and the safe area;"

Chapter 1.4

1.4.2.2.1 (d) Amend to read as follows:

"ascertain that a second means of evacuation in the event of an emergency from the vessel side is available, when the landside installation is not equipped with a second necessary means of evacuation."

1.4.2.2.1 (d) Add the following Note:

"NOTE: Before loading and unloading, the carrier shall consult the administration of the landside installation on the availability of means of evacuation."

1.4.2.3.1 (d) Delete and replace by "(Deleted)".

1.4.3.1.1 (f) Amend to read as follows:

"He shall ascertain that the landside installation is equipped with one or two means of evacuation from the vessel in the event of an emergency."

1.4.3.3 (q) Amend to read as follows:

"He shall ascertain that the landside installation is equipped with one or two means of evacuation from the vessel in the event of an emergency."

1.4.3.3 (r) Replace "gas discharge pipe or the compensation pipe" by "vapour return piping".

1.4.3.3 (v) Replace "(v) (*Reserved*)" by the following text:

"(v) When special provision 803 applies, shall guarantee and document that the maximum permissible temperature of the cargo is not exceeded and shall provide instructions to the master."

1.4.3.3 (x) Amend to read as follows:

"He shall ascertain that the landside installation is equipped with one or two means of evacuation from the vessel in the event of an emergency."

1.4.3.7.1 Amend as follows:

1.4.3.7.1 Insert a new (g) before the title "*Additional obligations concerning the unloading of cargo tanks*" to read as follows:

"(g) Ascertain that the landside installation is equipped with one or two means of evacuation from the vessel in the event of an emergency;"

The existing (g) becomes (h).

1.4.3.7.1 Delete existing (h) and (n) and the title "*Additional obligations concerning the bulk unloading of dangerous solids in vessels*".

1.4.3.7.1 (i) Replace "gas compensation piping or the gas return pipe" by "vapour return piping".

Chapter 1.6

1.6.1.1 Amend to read as follows:

"1.6.1.1 Unless otherwise provided, the substances and articles of ADN may be carried until 30 June 2015 in accordance with the requirements of ADN applicable up to 31 December 2014."

1.6.1.10 Delete 1.6.1.10 and replace by "1.6.1.10 (*Deleted*)".

1.6.1.15 At the end, add "IBCs manufactured, remanufactured or repaired between 1 January 2011 and 31 December 2016 and marked with the maximum permitted stacking load in accordance with 6.5.2.2.2 of ADR in force up to 31 December 2014 may continue to be used."

1.6.1.16 Delete the transitional measure and replace by "(Deleted)". Renumber the footnotes in chapter 1.6 accordingly.

1.6.1.19 Delete the transitional measure and replace by "(Deleted)".

1.6.1.24 Delete 1.6.1.24 and replace by "1.6.1.24 (Deleted)".

1.6.1.25 The amendment does not apply to the English text.

1.6.1.26 At the end, add "Large packagings manufactured or remanufactured between 1 January 2011 and 31 December 2016 and marked with the maximum permitted stacking load in accordance with 6.6.3.3 of ADR in force up to 31 December 2014 may continue to be used."

1.6.1 Add the following new transitional measures:

"1.6.1.28 As an exception to the provisions of 1.6.1.1, accreditations in accordance with EN ISO/IEC 17020:2004 for the purposes of 1.8.6.8, 6.2.2.11, 6.2.3.6.1 of ADR and special provisions TA4 and TT9 of 6.8.4 of ADR and certifications for the purposes of 1.15.3.8 and 1.16.4.1 of these Regulations shall not be recognised after 28 February 2015.

1.6.1.29 Lithium cells and batteries manufactured according to a type meeting the requirements of sub-section 38.3 of the Manual of Tests and Criteria, Revision 3, Amendment 1 or any subsequent revision and amendment applicable at the date of the type testing may continue to be carried, unless otherwise provided in ADN.

Lithium cells and batteries manufactured before 1 July 2003 meeting the requirements of the Manual of Tests and Criteria, Revision 3, may continue to be carried if all other applicable requirements are fulfilled.

1.6.1.30 Labels, placards and markings which meet the requirements of 3.4.7, 3.4.8, 3.5.4.2, 5.2.1.8.3, 5.2.2.2.1.1, 5.3.1.7.1, 5.3.3, 5.3.6, 5.5.2.3.2 and 5.5.3.6.2 applicable up to 31 December 2014 may continue to be used until 31 December 2016.

1.6.1.31 Overpacks marked with the word "OVERPACK" in accordance with the provisions of ADN applicable up to 31 December 2014 and which do not conform to the requirements of 5.1.2.1 (a) regarding the size of the letters applicable as from 1 January 2015 may continue to be used until 31 December 2015.

1.6.1.32 Salvage packagings and salvage pressure receptacles marked with the word "SALVAGE" in accordance with the provisions of ADN applicable up to 31 December 2014 and which do not conform to the requirements of 5.2.1.3 regarding the size of the letters applicable as from 1 January 2015 may continue to be used until 31 December 2015.

1.6.1.33 Electric double layer capacitors of UN No. 3499, manufactured before 1 January 2014, need not be marked with the energy storage capacity in Wh as required by sub-paragraph (e) of special provision 361 of Chapter 3.3.

1.6.1.34 Asymmetric capacitors of UN No. 3508, manufactured before 1 January 2016, need not be marked with the energy storage capacity in Wh as required by sub-paragraph (c) of special provision 372 of Chapter 3.3."

1.6.7.1.2 (a) Amend to read as follows

"(a) "Vessel in service" means

- a vessel according to Article 8, paragraph 2, of ADN;
- a vessel for which a certificate of approval has already been issued according to 8.6.1.1 to 8.6.1.4;

In both cases vessels that, as from 31 December 2014, have been without a valid certificate of approval for more than twelve months shall be excluded;"

1.6.7.1.2 (b) Insert the following text after "after the date indicated),":

"the date of presentation for first inspection for obtaining a certificate of approval shall be decisive for nomination as a new vessel;"

1.6.7.1.2 (b) Does not apply to the English version

1.6.7.1.2 Insert a new indent (d) to read as follows:

"(d) Requirements of chapter 1.6.7 applicable on board vessels in service are only valid if N.R.M. is not applicable."

1.6.7.2.1.1 and 1.6.7.2.2.2 Insert a new entry in the tables of general transitional provisions as follows:

1.16.1.4 and 1.16.2.5	Annex to certificate of approval and provisional certificate of approval	Renewal of the certificate of approval after 31 December 2014
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Add a new transitional measure to read as follows:

"1.6.7.2.1.3 By way of derogation from 7.1.4.1, transport in bulk of UN Nos. 1690, 1812 and 2505, may be carried out with single hull vessels until 31.12.2018."

1.6.7.2.2.2, entry 1.2.1, Flame arrester Replace "EN 12 874:1999" by "EN ISO 16852:2010".

1.6.7.2.2.2, entry 1.2.1, High velocity vent valve Replace "EN 12 874:1999" by "EN ISO 16852:2010". Replace the text under "Time limits and comments" by "N.R.M. from 1 January 2015 Renewal of the certificate of approval after 31 December 2034."

Until then, the following requirements are applicable on board vessels in service:

High velocity vent valves shall conform to the standard EN 12874:1999 on board vessels built or modified from 1 January 2001 or if they have been replaced from 1 January 2001. In other cases, they shall be of a type approved by the competent authority for the use prescribed."

1.6.7.2.2.2 Delete the provisions relating to 7.2.3.20 "Use of cofferdams for ballasting".

1.6.7.2.2.2 Modify the provisions relating to 7.2.3.20.1 to read as follows:

"7.2.3.20.1	Ballast water Prohibition against filling cofferdams with water	N.R.M. Renewal of the certificate of approval after 31 December 2038 Until then, the following requirements apply on board vessels in service: Cofferdams may be filled with water during unloading to provide trim and to permit residue-free drainage as far as possible. When the vessel is underway, cofferdams may be filled with ballast water only when cargo tanks are empty.
7.2.3.20.1	Proof of stability in the event of a leak connected with ballast water	N.R.M. Renewal of the certificate of approval after 31 December 2044 for Type G and Type N vessels
7.2.3.20.1	Fitting of ballast tanks and compartments with level indicators	N.R.M. from 1 January 2013 Renewal of the certificate of approval after 31 December 2012 for Type C and G tank vessels and Type N double hull tank vessels"

1.6.7.2.2.2, entries for 9.3.2.0.1 (c) and 9.3.3.0.1 (c) Replace "vapour pipes" by "venting piping".

1.6.7.2.2.2, entry for 9.3.2.14.2 Stability (intact) Delete.

1.6.7.2.2.2 Insert a new transitional provision to read as follows:

9.3.2.20.1	Access to cofferdams or cofferdam compartments	N.R.M. from 1 January 2015
9.3.3.20.1		Renewal of the certificate of approval after 31 December 2034

1.6.7.2.2.2 Insert the following new transitional provision to read as follows:

9.3.1.21.3	Marking on each level gauge of all permissible maximum filling levels of cargo tanks	N.R.M. from 1 January 2015
9.3.2.21.3		Renewal of approval certificate after 31 December 2018
9.3.3.21.3		

1.6.7.2.2.2, entries for 9.3.2.25.2 (i) and 9.3.3.25.2 (h) Replace "vapour pipes" by "venting piping".

1.6.7.2.2.3.3 Replace "vapour pipes" by "venting piping".

1.6.7.2.2.4 Delete and replace by "(Deleted)".

1.6.7.4.2, heading of column (7) in the tables Does not apply to the English version

1.6.7.4.2 In Table 3., for UN No. 1202, second entry, in column (2), replace "EN 590:2004" by "EN 590:2009 + A1:2010".

1.6.8 Add a new paragraph at the end to read as follows :

"Until 31 December 2018, the expert on the carriage of gases (as referred to in 8.2.1.5) does not have to be the responsible master (as referred to in 7.2.3.15) but can be any member of the crew when the type G tank vessel is only carrying UN No. 1972. In this case, the responsible master shall have attended the specialization course on gases and shall also have followed an additional training on the carriage of liquefied natural gas (LNG) in accordance with 1.3.2.2."

Chapter 1.7

1.7 Replace the title by "GENERAL PROVISIONS CONCERNING RADIOACTIVE MATERIAL".

1.7.1.1 Amend the second and third sentences to read:

"These standards are based on the IAEA Regulations for the Safe Transport of Radioactive material, 2012 Edition, IAEA Safety Standards Series No. SSR-6, IAEA, Vienna (2012). Explanatory material can be found in "Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition), IAEA Safety Standards Series No. SSG-26, IAEA, Vienna (2014)."

1.7.1.2 In the second sentence of the last paragraph replace "imposing requirements" by "imposing conditions".

1.7.1.4 Amend the introductory sentence to read: "The provisions laid down in ADN do not apply to any of the following:".

1.7.1.4 Insert a new sub-paragraph (d) to read as follows and rename current sub-paragraphs (d) to (f) accordingly:

"(d) Radioactive material in or on a person who is to be transported for medical treatment because the person has been subject to accidental or deliberate intake of radioactive material or to contamination;"

Amend sub-paragraph (f) (former (e)) to read as follows:

"(f) Natural material and ores containing naturally occurring radionuclides (which may have been processed), provided the activity concentration of the material does not exceed 10 times the values specified in Table 2.2.7.2.2.1, or calculated in accordance with 2.2.7.2.2.2 (a) and 2.2.7.2.2.3 to 2.2.7.2.2.6. For natural materials and ores containing naturally occurring radionuclides that are not in secular equilibrium the calculation of the activity concentration shall be performed in accordance with 2.2.7.2.2.4;"

1.7.1.5.1 Amend to read as follows:

"1.7.1.5.1 Excepted packages which may contain radioactive material in limited quantities, instruments, manufactured articles or empty packagings as specified in 2.2.7.2.4.1 shall be subject only to the following provisions of Parts 5 to 7:

(a) The applicable provisions specified in 5.1.2.1, 5.1.3.2, 5.1.5.2.2, 5.1.5.2.3, 5.1.5.4, 5.2.1.9, 7.1.4.14.7.3.1, 7.1.4.14.7.5.1 to 7.1.4.14.7.5.4 and 7.1.4.14.7.7; and

(b) The requirements for excepted packages specified in 6.4.4 of ADR

except when the radioactive material possesses other hazardous properties and has to be classified in a class other than Class 7 in accordance with special provision 290 or 369 of Chapter 3.3, where the provisions listed in (a) and (b) above apply only as relevant and in addition to those relating to the main class."

1.7.1.5.2 Insert a new second sentence to read as follows:

"If the excepted package contains fissile material, one of the fissile exceptions provided by 2.2.7.2.3.5 shall apply and the requirements of 7.1.4.14.7.4.3 shall be met."

1.7.2.2 In the second sentence, delete the comma after "persons exposed".

1.7.2.4 Amend the end of the introductory sentence to read "that the effective dose either:" and insert "or" at the end of sub-paragraph (a).

1.7.3 Amend to read as follows:

"1.7.3 Management system

1.7.3.1 A management system based on international, national or other standards acceptable to the competent authority shall be established and implemented for all activities within the scope of ADN, as identified in 1.7.1.3, to ensure compliance with the relevant provisions of ADN. Certification that the design specification has been fully implemented shall be available to the competent authority. The manufacturer, consignor or user shall be prepared:

(a) To provide facilities for inspection during manufacture and use; and

(b) To demonstrate compliance with ADN to the competent authority.

Where competent authority approval is required, such approval shall take into account and be contingent upon the adequacy of the management system."

1.7.4.2 Replace "Class 7" by "radioactive material", twice.

1.7.6 The amendment does not apply to the English text.

1.7.6.1 In the introductory sentence, delete "a" before "non-compliance".

1.7.6.1 In (a) amend the introductory sentence to read:

"The consignor, consignee, carrier and any organization involved during carriage who may be affected, as appropriate, shall be informed of the non-compliance by:".

1.7.6.1 In (b) (iv), delete "and" at the end of the sentence.

The other amendments to 1.7.6.1 do not apply to the English text.

Chapter 1.8

1.8.1.2.1 Modify to read as follows:

"In order to carry out the checks provided for in Article 4, paragraph 3 of ADN, the Contracting Parties shall use the checklist developed by the Administrative Committee.* A copy of this checklist shall be given to the master of the vessel. Competent authorities of other Contracting Parties may decide to simplify or refrain from conducting subsequent checks if a copy of the checklist is presented to them. This paragraph shall not prejudice the right of Contracting Parties to carry out specific measures or more detailed checks.

**Note by the secretariat: The model of the checklist can be found on the United Nations Economic Commission for Europe website (<http://www.unece.org/trans/danger/danger.html>).³*

1.8.5.3 Replace "Class 7 material" by "radioactive material".

Chapter 1.10

1.10.4 Replace "Class 7" by "radioactive material".

Chapter 1.15

1.15.3.8 Replace "EN 29001:1997" by "EN ISO 9001:2008 + AC:2009" and "EN ISO/IEC 17020:2004" by "EN ISO/IEC 17020:2012 (except clause 8.1.3)".

Chapter 1.16

1.16. Insert a new section 1.16.1.4 to read as follows:

"1.16.1.4 Annex to the certificate of approval

1.16.1.4.1 The certificate of approval and the provisional certificate of approval according to 1.16.1.3.1 (a) shall be complemented by an annex in accordance with the model under 8.6.1.5.

1.16.1.4.2 The annex to the certificate of approval shall include the date from which the transitional provisions according to 1.6.7 may be applied. This date shall be:

(a) For vessels according to Article 8, paragraph 2 of ADN for which evidence can be provided that they were already approved for the carriage of dangerous goods on the territory of a Contracting Party before 26 May 2000, 26 May 2000;

³ This secretariat note is to be inserted in the consolidated publication of ADN 2015 but is not an integral part of the authentic legal text of the Regulations.

(b) For vessels according to Article 8, paragraph 2, of ADN for which evidence cannot be provided that they were already approved for the carriage of dangerous goods on the territory of a Contracting Party before 26 May 2000, the proven date of the first inspection for the issue of an approval for the carriage of dangerous goods on the territory of a Contracting Party or, if this date is not known, the date of issue of the first proven approval for the carriage of dangerous goods on the territory of a Contracting Party;

(c) For all other vessels, the proven date of the first inspection for the issue of a certificate of approval in the sense of ADN or, if this date is not known, the date of issue of the first certificate of approval in the sense of ADN;

(d) In derogation to (a) to (c) above, the date of a renewed first inspection according to 1.16.8 if the vessel no longer had a valid certificate of approval as from 31 December 2014 for more than twelve months.

1.16.1.4.3 All approvals for the carriage of dangerous goods issued on the territory of a Contracting Party which are valid as from the date under 1.16.1.4.2 and all ADN certificates of approval and provisional certificates of approval according to 1.16.1.3.1 (a) shall be entered in the annex to the certificate of approval.

Certificates of approval issued before the issuance of the annex to the certificate of approval shall be recorded by the competent authority that issues the annex to the certificate of approval."

1.16.2 Add the following new paragraphs at the end:

"1.16.2.5 The annex to the certificate of approval shall be issued by the competent authority of a Contracting Party. The Contracting Parties shall assist one another at the time of issuance. They shall recognize this annex to the certificate of approval. Each new certificate of approval or provisional certificate of approval issued in accordance with 1.16.1.3.1 (a) shall be entered in the annex to the certificate of approval. Should the annex to the certificate of approval be replaced (e.g. in case of damage or loss), all existing entries shall be transferred.

1.16.2.6 The annex to the certificate of approval shall be withdrawn and a new annex to the certificate of approval shall be issued if according to 1.16.8 a renewed first inspection takes place, as the validity of the certificate of approval expired, as from 31 December 2014, more than twelve months previously.

The valid date is the date on which the application was received by the competent authority. In this case, only such certificates of approval which have been issued after the renewed first inspection shall be recorded."

1.16.4.1 Replace "EN ISO/IEC 17020:2004" by "EN ISO/IEC 17020:2012 (except clause 8.1.3)".

1.16.6 Insert a new paragraph 1.16.6.4 to read as follows:

"1.16.6.4 In cases of the transfer of responsibility to another competent authority according to 1.16.6.3, the competent authority to which the last certificate of approval was returned shall submit on request the annex to the certificate according to 1.16.6.4 to the authority competent to issue the new certificate of approval."

1.16.8 Replace "six months" by "twelve months".

1.16.10.3 Replace "six months" by "twelve months".

Chapter 2.1

2.1.1.3 Add the following new paragraph at the end:

"Articles are not assigned to packing groups. For packing purposes any requirement for a specific packaging performance level is set out in the applicable packing instruction."

2.1.3.5.3 (a) Replace "for which special provision 290 of Chapter 3.3 applies" by "for which, except for UN 3507 URANIUM HEXAFLUORIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, special provision 290 of Chapter 3.3 applies".

2.1.5 Add a new paragraph to read as follows:

2.1.5 Classification of packagings, discarded, empty, uncleaned

Empty uncleaned packagings, large packagings or IBCs, or parts thereof, carried for disposal, recycling or recovery of their material, other than reconditioning, repair, routine maintenance, remanufacturing or reuse, may be assigned to UN 3509 if they meet the requirements for this entry."

Chapter 2.2

Amend Note 2 in 2.2.1.1.7.5 to read as follows:

"NOTE 2: "Flash composition" in this table refers to pyrotechnic substances in powder form or as pyrotechnic units as presented in the firework that are used to produce an aural effect or used as a bursting charge, or propellant charge unless the time taken for the pressure rise is demonstrated to be more than 6 ms for 0.5 g of pyrotechnic substance in the HSL Flash Composition Test in Appendix 7 of the Manual of Tests and Criteria."

2.2.1.4 Delete the entry for "AIR BAG INFLATORS or AIR BAG MODULES or SEAT BELT PRETENSIONERS: UN No. 0503" and insert a new entry to read as follows:

"SAFETY DEVICES, PYROTECHNIC: UN No. 0503

Articles which contain pyrotechnic substances or dangerous goods of other classes and are used in vehicles, vessels or aircraft to enhance safety to persons. Examples are: air bag inflators, air bag modules, seat-belt pretensioners and pyromechanical devices. These pyromechanical devices are assembled components for tasks such as but not limited to separation, locking, or occupant restraint."

2.2.2.1.2 Add a new indent 9. to read as follows:

"9. *Adsorbed gas*: a gas which when packaged for carriage is adsorbed onto a solid porous material resulting in an internal receptacle pressure of less than 101.3 kPa at 20 °C and less than 300 kPa at 50 °C."

2.2.2.3 Insert the following new table at the end:

Adsorbed gases		
Classification code	UN No.	Name of the substance or article
9A	3511	ADSORBED GAS, N.O.S.
9O	3513	ADSORBED GAS, OXIDIZING, N.O.S.
9F	3510	ADSORBED GAS, FLAMMABLE, N.O.S.
9T	3512	ADSORBED GAS, TOXIC, N.O.S.
9TF	3514	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.
9TC	3516	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.
9TO	3515	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.
9TFC	3517	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.
9TOC	3518	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.

2.2.3.1.1 Amend NOTE 3 to read as follows:

"NOTE 3: *Flammable liquids which are highly toxic by inhalation, as defined in 2.2.61.1.4 to 2.2.61.1.9, and toxic substances having a flash-point of 23 °C or above are substances of Class 6.1 (see 2.2.61.1). Liquids which are highly toxic by inhalation are indicated as "toxic by inhalation" in their proper shipping name in Column (2) or by special provision 354 in Column (6) of Table A of Chapter 3.2."*

2.2.3.1.5 Amend to read as follows:

"2.2.3.1.5 Viscous liquids which:

- have a flash-point of 23 °C or above and less than or equal to 60 °C;
- are not toxic, corrosive or environmentally hazardous;
- contain not more than 20% nitrocellulose provided the nitrocellulose contains not more than 12.6% nitrogen by dry mass; and

- are packed in receptacles of not more than 450 litre capacity;

are not subject to ADN, if:

(a) in the solvent separation test (see *Manual of Tests and Criteria*, Part III, sub-section 32.5.1), the height of the separated layer of solvent is less than 3% of the total height; and

(b) the flowtime in the viscosity test (see *Manual of Tests and Criteria*, Part III, sub-section 32.4.3), with a jet diameter of 6 mm is equal to or greater than:

(i) 60 seconds; or

(ii) 40 seconds if the viscous liquid contains not more than 60% of Class 3 substances."

2.2.43.1.3 Replace "light bulbs" by "lamps".

2.2.51.1.6 and 2.2.51.1.7 Amend to read as follows:

"Oxidizing solids

Classification

2.2.51.1.6 When oxidizing solid substances not mentioned by name in Table A of Chapter 3.2 are assigned to one of the entries listed in 2.2.51.3 on the basis of the test

procedure in accordance with the Manual of Tests and Criteria, Part III, sub-section 34.4.1 (test O.1) or alternatively, sub section 34.4.3 (test O.3), the following criteria shall apply:

(a) In the test O.1, a solid substance shall be assigned to Class 5.1 if, in the 4:1 or the 1:1 sample-to-cellulose ratio (by mass) tested, it ignites or burns or exhibits mean burning times equal to or less than that of a 3:7 mixture (by mass) of potassium bromate and cellulose; or

(b) In the test O.3, a solid substance shall be assigned to Class 5.1 if, in the 4:1 or the 1:1 sample-to-cellulose ratio (by mass) tested, it exhibits a mean burning rate equal to or greater than the mean burning rate of a 1:2 mixture (by mass) of calcium peroxide and cellulose.

Assignment of packing groups

2.2.51.1.7 Oxidizing solids classified under the various entries in Table A of Chapter 3.2 shall be assigned to packing groups I, II or III on the basis of test procedures of the Manual of Tests and Criteria, Part III, sub-section 34.4.1 (test O.1) or sub-section 34.4.3 (test O.3), in accordance with the following criteria:

(a) Test O.1:

(i) Packing group I: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time less than the mean burning time of a 3:2 mixture, by mass, of potassium bromate and cellulose;

(ii) Packing group II: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 2:3 mixture (by mass) of potassium bromate and cellulose and the criteria for packing group I are not met;

(iii) Packing group III: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 3:7 mixture (by mass) of potassium bromate and cellulose and the criteria for packing groups I and II are not met;

(b) Test O.3:

(i) Packing group I: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning rate greater than the mean burning rate of a 3:1 mixture (by mass) of calcium peroxide and cellulose;

(ii) Packing group II: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning rate equal to or greater than the mean burning rate of a 1:1 mixture (by mass) of calcium peroxide and cellulose, and the criteria for packing group I are not met;

(iii) Packing group III: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning rate equal to or greater than the mean burning rate of a 1:2 mixture (by mass) of calcium peroxide and cellulose, and the criteria for packing groups I and II are not met."

2.2.61.3 Amend the text of footnote (j) to read as follows:

"(j) Highly toxic and toxic flammable liquids having a flash-point below 23 °C are substances of Class 3 except those which are highly toxic by inhalation, as defined in 2.2.61.1.4 to 2.2.61.1.9. Liquids which are highly toxic by inhalation are indicated as "toxic by inhalation" in their proper shipping name in Column (2) or by special provision 354 in Column (6) of Table A of Chapter 3.2."

2.2.62.1.5.5 Amend to read as follows:

"2.2.62.1.5.5 Dried blood spots, collected by applying a drop of blood onto absorbent material, are not subject to ADN."

2.2.62.1.5 Insert two new paragraphs 2.2.62.1.5.6 and 2.2.62.1.5.7 to read as follows and renumber existing paragraphs accordingly:

"2.2.62.1.5.6 Faecal occult blood screening samples are not subject to ADN.

2.2.62.1.5.7 Blood or blood components which have been collected for the purposes of transfusion or for the preparation of blood products to be used for transfusion or transplantation and any tissues or organs intended for use in transplantation as well as samples drawn in connection with such purposes are not subject to ADN."

The first amendment to 2.2.7 does not apply to the English text.

2.2.7.1.3 Amend the definitions hereafter as follows:

Fissile nuclides: Amend the end of the introductory text before (a) to read: "of fissile material are the following:".

In (a), delete "and". In (b), replace "." by ";".

Insert the following new sub-paragraphs and text:

"(c) Material with fissile nuclides less than a total of 0.25 g;

(d) Any combination of (a), (b) and/or (c).

These exclusions are only valid if there is no other material with fissile nuclides in the package or in the consignment if shipped unpackaged."

Surface contaminated object: At the end, replace "surfaces" by "surface".

2.2.7.2.1.1 Amend the sentence before the table to read as follows: "Radioactive material shall be assigned to one of the UN numbers specified in Table 2.2.7.2.1.1, in accordance with 2.2.7.2.4 and 2.2.7.2.5, taking into account the material characteristics determined in 2.2.7.2.3."

Table 2.2.7.2.1.1 Add a new heading row to read:

UN Nos.	Proper shipping name and description ^a
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Table 2.2.7.2.1.1 For UN Nos. 2912, 3321, 3322, 2913, 2915, 3332, 2916, 2917, 3323, 2919 and 2978, insert a reference to a new note "b" after "fissile-excepted".

Table 2.2.7.2.1.1 Under the headings "Excepted packages" and "Uranium hexafluoride" add the following new entry:

"UN 3507 URANIUM HEXAFLUORIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE less than 0.1 kg per package, non-fissile or fissile-excepted^{b,c}."

Table 2.2.7.2.1.1 The amendments to the name for UN Nos. 2909, 2910 and 2911 do not apply to the English text.

Table 2.2.7.2.1.1 Add the following table notes "a", "b" and "c" after the table:

^a *The proper shipping name is found in the column "proper shipping name and description" and is restricted to that part shown in capital letters. In the cases of UN Nos. 2909, 2911, 2913 and 3326, where alternative proper shipping names are separated by the word "or" only the relevant proper shipping name shall be used.*

^b *The term "fissile-excepted" refers only to material excepted under 2.2.7.2.3.5.*

^c *For UN No. 3507, see also special provision 369 in Chapter 3.3."*

2.2.7.2.2 Amend the heading to read as follows:

"2.2.7.2.2 *Determination of radionuclide values*"

2.2.7.2.2.1 In (b), insert "limits" after "concentration".

Table 2.2.7.2.2.1 In the heading of the fourth column insert "limit" after "concentration".

In (a) after the table, in the introductory sentence, replace "from daughter radionuclides" by "from their progeny".

2.2.7.2.2.2 Amend the text before the table to read as follows:

"2.2.7.2.2.2 For individual radionuclides:

(a) Which are not listed in Table 2.2.7.2.2.1 the determination of the basic radionuclide values referred to in 2.2.7.2.2.1 shall require multilateral approval. For these radionuclides, activity concentration limits for exempt material and activity limits for exempt consignments shall be calculated in accordance with the principles established in the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, Safety Series No.115, IAEA, Vienna (1996). It is permissible to use an A_2 value calculated using a dose coefficient for the appropriate lung absorption type as recommended by the International Commission on Radiological Protection, if the chemical forms of each radionuclide under both normal and accident conditions of carriage are taken into consideration. Alternatively, the radionuclide values in Table 2.2.7.2.2.2 may be used without obtaining competent authority approval;

(b) In instruments or articles in which the radioactive material is enclosed or is included as a component part of the instrument or other manufactured article and which meet 2.2.7.2.4.1.3 (c), alternative basic radionuclide values to those in Table 2.2.7.2.2.1 for the activity limit for an exempt consignment are permitted and shall require multilateral approval. Such alternative activity limits for an exempt consignment shall be calculated in accordance with the principles set out in the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, Safety Series No.115, IAEA, Vienna (1996)."

Table 2.2.7.2.2.2 In the heading of the fourth column, insert "limit" after "concentration".

2.2.7.2.2.4 In the introductory sentence delete "the determination of" and in the legend for $X(i)$ and X_m replace "concentration" by "concentration limit".

2.2.7.2.3.1.2 In (a) (i), delete "which are intended to be processed for the use of these radionuclides".

2.2.7.2.3.1.2 Amend (a) (iii) to read: "(iii) radioactive material for which the A_2 value is unlimited. Fissile material may be included only if excepted under 2.2.7.2.3.5;"

2.2.7.2.3.1.2 In (a) (iv), replace ", excluding fissile material not excepted under 2.2.7.2.3.5" by ". Fissile material may be included only if excepted under 2.2.7.2.3.5".

2.2.7.2.3.1.2 In (b) (i), delete "or".

2.2.7.2.3.1.2 In (c), introductory sentence, replace "meeting the requirements" by "that meet the requirements".

2.2.7.2.3.1.2 In (c) (i) replace "bitumen, ceramic, etc." by "bitumen and ceramic".

2.2.7.2.3.3.5 (d) The amendment does not apply to the English text.

2.2.7.2.3.3.6 The amendment to the introductory sentence does not apply to the English text.

2.2.7.2.3.3.6 (a) Amend to read as follows:

"(a) The tests prescribed in 2.2.7.2.3.3.5 (a) and (b) provided that the specimens are alternatively subjected to the impact test prescribed in ISO 2919:2012: "Radiation Protection - Sealed Radioactive Sources - General requirements and classification":

- (i) The Class 4 impact test if the mass of the special form radioactive material is equal to or less than 200 g;
- (ii) The Class 5 impact test if the mass of the special form radioactive material is equal to or more than 200 g but is less than 500 g;"

2.2.7.2.3.3.6 In (b), replace "ISO 2919:1999" by "ISO 2919:2012".

2.2.7.2.3.3.8 In (b), replace "which are acceptable" by "provided that they are acceptable".

2.2.7.2.3.5 Amend the first paragraph to read as follows:

"Fissile material and packages containing fissile material shall be classified under the relevant entry as "FISSILE" in accordance with Table 2.2.7.2.1.1 unless excepted by one of the provisions of sub-paragraphs (a) to (f) below and carried subject to the requirements of 7.1.4.14.7.4.3. All provisions apply only to material in packages that meets the requirements of 6.4.7.2 of ADR unless unpackaged material is specifically allowed in the provision.".

2.2.7.2.3.5 Delete current sub-paragraphs (a) and (d). Current (b) and (c) become new (a) and (b) respectively.

2.2.7.2.3.5 Insert the following new sub-paragraphs (c) to (f):

"(c) Uranium with a maximum uranium enrichment of 5% by mass uranium-235 provided:

- (i) There is no more than 3.5 g of uranium-235 per package;
- (ii) The total plutonium and uranium-233 content does not exceed 1% of the mass of uranium-235 per package;
- (iii) Carriage of the package is subject to the consignment limit provided in 7.1.4.14.7.4.3 (c);

(d) Fissile nuclides with a total mass not greater than 2.0 g per package provided the package is carried subject to the consignment limit provided in 7.1.4.14.7.4.3 (d);

(e) Fissile nuclides with a total mass not greater than 45 g either packaged or unpackaged subject to limits provided in 7.1.4.14.7.4.3 (e);

(f) A fissile material that meets the requirements of 7.1.4.14.7.4.3 (b), 2.2.7.2.3.6 and 5.1.5.2.1.".

Table 2.2.7.2.3.5 Delete.

Insert a new paragraph 2.2.7.2.3.6 to read as follows:

"2.2.7.2.3.6 A fissile material excepted from classification as "FISSILE" under 2.2.7.2.3.5 (f) shall be subcritical without the need for accumulation control under the following conditions:

- (a) The conditions of 6.4.11.1 (a) of ADR;

(b) The conditions consistent with the assessment provisions stated in 6.4.11.12 (b) and 6.4.11.13 (b) of ADR for packages."

2.2.7.2.4.1.1 Amend to read as follows:

"2.2.7.2.4.1.1 A package may be classified as an excepted package if it meets one of the following conditions:

- (a) It is an empty package having contained radioactive material;
- (b) It contains instruments or articles not exceeding the activity limits specified in columns (2) and (3) of Table 2.2.7.2.4.1.2;
- (c) It contains articles manufactured of natural uranium, depleted uranium or natural thorium;
- (d) It contains radioactive material not exceeding the activity limits specified in column (4) of Table 2.2.7.2.4.1.2; or
- (e) It contains less than 0.1 kg of uranium hexafluoride not exceeding the activity limits specified in column (4) of Table 2.2.7.2.4.1.2."

2.2.7.2.4.1.3 In the introductory sentence replace "only if" by "provided that".

2.2.7.2.4.1.3 First amendment to (a) does not apply to the English text.

2.2.7.2.4.1.3 (a) Delete "and" at the end.

2.2.7.2.4.1.3 (b) Amend to read as follows:

"(b) Each instrument or manufactured article bears the marking "RADIOACTIVE" on its external surface except for the following:

- (i) radioluminescent time-pieces or devices;
- (ii) consumer products that have either received regulatory approval in accordance with 1.7.1.4 (e) or do not individually exceed the activity limit for an exempt consignment in Table 2.2.7.2.2.1 (column 5), provided such products are transported in a package that bears the marking "RADIOACTIVE" on its internal surface in such a manner that a warning of the presence of radioactive material is visible on opening the package; and
- (iii) other instruments or articles too small to bear the marking "RADIOACTIVE", provided that they are transported in a package that bears the marking "RADIOACTIVE" on its internal surface in such a manner that a warning of the presence of radioactive material is visible on opening the package;"

2.2.7.2.4.1.4 Amend (b) to read as follows:

"(b) The package bears the marking "RADIOACTIVE" on either:

- (i) An internal surface in such a manner that a warning of the presence of radioactive material is visible on opening the package; or
- (ii) The outside of the package, where it is impractical to mark an internal surface."

Insert a new paragraph 2.2.7.2.4.1.5 to read as follows:

"2.2.7.2.4.1.5 Uranium hexafluoride not exceeding the limits specified in Column 4 of Table 2.2.7.2.4.1.2 may be classified under UN 3507 URANIUM HEXAFLUORIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, less than 0.1 kg per package, non-fissile or fissile-excepted provided that:

- (a) The mass of uranium hexafluoride in the package is less than 0.1 kg;
- (b) The conditions of 2.2.7.2.4.5.1 and 2.2.7.2.4.1.4 (a) and (b) are met."

Current 2.2.7.2.4.1.5 becomes new 2.2.7.2.4.1.7.

2.2.7.2.4.1.6 Replace "only if" by "provided that". The second amendment does not apply to the English text.

2.2.7.2.4.1.7 (former 2.7.2.4.1.5) In the introductory sentence replace "only if" by "provided that". The other amendments do not apply to the English text.

2.2.7.2.4.4 In the sentence preceding sub-paragraph (a), replace "activities greater than the following:" by "activities greater than either of the following:".

2.2.7.2.4.4 In (a), delete "or".

2.2.7.2.4.4 In the legend for C(j), delete "and".

2.2.7.2.4.5 Amend to read as follows:

"2.2.7.2.4.5 Classification of uranium hexafluoride

2.2.7.2.4.5.1 Uranium hexafluoride shall only be assigned to:

(a) UN No. 2977, RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE;

(b) UN No. 2978, RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non-fissile or fissile-excepted; or

(c) UN No. 3507, URANIUM HEXAFLUORIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE less than 0.1 kg per package, non-fissile or fissile-excepted.

2.2.7.2.4.5.2 The contents of a package containing uranium hexafluoride shall comply with the following requirements:

(a) For UN Nos. 2977 and 2978, the mass of uranium hexafluoride shall not be different from that allowed for the package design, and for UN No. 3507, the mass of uranium hexafluoride shall be less than 0.1 kg;

(b) The mass of uranium hexafluoride shall not be greater than a value that would lead to an ullage smaller than 5% at the maximum temperature of the package as specified for the plant systems where the package shall be used; and

(c) The uranium hexafluoride shall be in solid form and the internal pressure shall not be above atmospheric pressure when presented for carriage."

2.2.7.2.4.6.1 Replace "competent authority approval certificate" by "competent authority certificate of approval".

2.2.7.2.4.6.2, 2.2.7.2.4.6.3 and 2.2.7.2.4.6.4 Replace by a new paragraph to read as follows:

"2.2.7.2.4.6.2 The contents of a Type B(U), Type B(M) or Type C package shall be as specified in the certificate of approval."

2.2.9.1.10 Insert the following new paragraphs:

"2.2.9.1.10.4 (Reserved)

"2.2.9.1.10.5 For carriage in tank vessels, substances, solutions and mixtures are considered as floating substances, solutions and mixtures (floaters) if they meet the following criteria:*

Water solubility	< 0.1%
Vapour pressure	< 0.3 kPa
Relative density	≤ 1,000.

For carriage in tank vessels, substances, solutions and mixtures are considered as substances, solutions and mixtures that sink (sinkers) if they meet the following criteria:*

Water solubility	< 0.1%
Relative density	> 1,000.

*The values of relative density, vapour pressure and water solubility to be used according to the GESAMP model are the values at 20 °C."

2.2.9.2 After "230" add ", 310"

2.2.9.3 Under "Substances which, on inhalation as fine dust, may endanger health" (M1), replace all three entries by:

"2212 ASBESTOS, AMPHIBOLE (amosite, tremolite, actinolite, anthophyllite, crocidolite)

2590 ASBESTOS, CHRYSOTILE".

2.2.9.3 Under "Life-saving appliances" (M5), replace the three entries for UN No. 3268 by:

"3268 SAFETY DEVICES, electrically initiated".

2.2.9.3 Under "Other substances..." (M11), replace the entry for UN No. 3499 by the following entry:

"3499 CAPACITOR, ELECTRIC DOUBLE LAYER (with an energy storage capacity greater than 0.3Wh)".

2.2.9.3 Under "Other substances..." (M11), after the entry for UN No. 3499, add the following entries:

"3508 CAPACITOR, ASYMMETRIC (with an energy storage capacity greater than 0.3Wh)

3509 PACKAGINGS, DISCARDED, EMPTY, UNCLEANED".

Chapter 3.2

3.2.1 Under "Explanations concerning Table A", in the second paragraph, add the following new sentence at the end of the second indent:

"When used in this table, an alphanumeric code starting with the letters "SP" designates a special provision of Chapter 3.3."

Table A

For UN No. 0222 Amend the designation in column (2) to read "AMMONIUM NITRATE". In column (6) insert "370".

For UN No. 0503 In column (2), amend name to read: "SAFETY DEVICES, PYROTECHNIC".

For UN Nos. 1001, 1002, 1006, 1009, 1010, 1011, 1012, 1013, 1018, 1020, 1021, 1022, 1027, 1028, 1029, 1030, 1032, 1033, 1035, 1036, 1037, 1039, 1041, 1046, 1049, 1055,

1056, 1058, 1060, 1061, 1063, 1065, 1066, 1070, 1072, 1075, 1077, 1078, 1080, 1081, 1083, 1085, 1086, 1087, 1858, 1860, 1912, 1952, 1954, 1956, 1957, 1958, 1959, 1962, 1964, 1965, 1968, 1969, 1971, 1973, 1974, 1976, 1978, 1982, 1983, 1984, 2034, 2035, 2036, 2044, 2193, 2200, 2203, 2419, 2422, 2424, 2451, 2452, 2453, 2454, 2517, 2599, 2601, 2602, 3070, 3153, 3154, 3156, 3157, 3159, 3161, 3163, 3220, 3252, 3296, 3297, 3298, 3299, 3337, 3338, 3339, 3340, 3354 and 3374 in column (6) add "662".

For UN No. 1008, in column (6) insert "373".

For UN Nos. 1051 PG I, 1089 PG I, 1228 PG II, 1259 PG I, 1261 PG II, 1278 PG II, 1308 PG I, 1331 PG III, 1361 PG II and PG III, 1363 PG III, 1364 PG III, 1365 PG III, 1373 PG III, 1376 PG III, 1378 PG II, 1379 PG III, 1386 PG III, 1545 PG II, 1560 PG I, 1569 PG II, 1583 all packing groups, 1603 PG II, 1613 PG I, 1614 PG I, 1649 PG I, 1672 PG I, 1693 PG I and PG II, 1694 PG I, 1697 PG II, 1698 PG I, 1699 PG I, 1701 PG II, 1722 PG I, 1732 PG II, 1792 PG II, 1796 PG II, 1802 PG II, 1806 PG II, 1808 PG II, 1826 PG II, 1832 PG II, 1837 PG II, 1868 PG II, 1889 PG I, 1906 PG II, 1932 PG III, 1939 PG II, 2002 PG III, 2006 PG III, 2030 PG II, 2073, 2212 PG II, 2217 PG III, 2254 PG III, 2295 PG I, 2363 PG I, 2381 PG II, 2404 PG II, 2438 PG I, 2442 PG II, 2443 PG II, 2558 PG I, 2626 PG II, 2691 PG II, 2740 PG I, 2743 PG II, 2749 PG I, 2798 PG II, 2799 PG II, 2826 PG II, 2835 PG II, 2881 PG II, 2956 PG III, 3048 PG I, 3122 PG I, 3123 PG I, 3129 PG II, 3130 PG II, 3208 PG II, 3242 PG II, 3251 PG III, 3294 PG I, 3315 PG I, 3336 PG I, 3416 PG II, 3448 PG I and PG II, 3450 PG I, 3483 PG I and 3498 PG II, amend the code in column (7b) to read "E0".

For UN No. 1082, in column (2), add "(REFRIGERANT GAS R 1113)" at the end.

For UN No. 1202, second entry, in column (2), replace "EN 590:2004" by "EN 590:2009 + A1:2010".

For all entries of UN Nos. 1210, 1263, 3066, 3469 and 3470 In column (6), insert "367".

For UN No. 1361, CARBON, animal or vegetable origin, packing group III, column (6)

Insert a reference to special provision "803".

For UN Nos. 1700, 2016, 2017, 3090, 3091, 3268, 3292, 3356, 3480, 3481 and 3506, delete the packing group in column (4).

For UN No. 1942 Amend column (2) to read "AMMONIUM NITRATE with not more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance".

For UN No. 1972, column (8) Insert "T".

For UN No. 2025 (all three packing groups), in column (6), insert "66" and delete "585".

For UN No. 2187 In column (6) delete "593".

For UN No. 2212 In column (2) amend the name to read "ASBESTOS, AMPHIBOLE (amosite, tremolite, actinolite, anthophyllite, crocidolite)". In column (6), insert "274".

For UN No. 2291 Insert "B" in column (8) and "A" in column (9).

For UN No. 2590 In column (2) amend the name to read "ASBESTOS, CHRYSOTILE".

For UN 2909 The amendment does not apply to the English text.

For UN 2910 The amendment to the name in column (2) does not apply to the English text.

For UN 2910 Delete "325" and insert "368" in column (6).

For UN 2911 The amendment to the name in column (2) does not apply to the English text.

For UN Nos. 2977 and 2978 In column (6), delete "172".

For UN Nos. 2977 and 2978, insert "EP" in column (9).

For UN No. 2978 Delete "B" in column (8).

For UN Nos. 3077 and 3082, in column (6), insert "375".

For UN Nos. 3090, 3091, 3480 and 3481 In column (6) insert "376" and "377" and delete "661".

For UN No. 3164, in column (6), insert "371".

For UN numbers 3256, 3257 and 3258, delete special provision 580 in column (6).

For UN No. 3268 In column (2), amend the name to read: "SAFETY DEVICES, electrically initiated".

For UN No. 3316 (both entries) In column (7a), replace "0" by "See SP 251". In column (7b), replace "E0" by "See SP 340".

For UN 3499 In column (2) amend the proper shipping name to read as follows: "CAPACITOR, ELECTRIC DOUBLE LAYER (with an energy storage capacity greater than 0.3Wh)".

Add the following new entries:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)	(12)	(13)
3507	URANIUM HEXAFLUORIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, less than 0.1 kg per package, non-fissile or fissile-excepted	8		I	8	317 369	0	E0		PP,EP				0
3508	CAPACITOR, ASYMMETRIC (with an energy storage capacity greater than 0.3Wh)	9	M11		9	372	0	E0		PP				0
3509	PACKAGINGS, DISCARDED, EMPTY, UNCLEARED	9	M11		9	663	0	E0		PP				0
3510	ADSORBED GAS, FLAMMABLE, N.O.S.	2	9F		2.1	274	0	E0		PP,EX,A	VE01			1
3511	ADSORBED GAS, N.O.S.	2	9A		2.2	274	0	E0		PP				0
3512	ADSORBED GAS, TOXIC, N.O.S.	2	9T		2.3	274	0	E0		PP,EP,TOX,A	VE02			2
3513	ADSORBED GAS, OXIDIZING, N.O.S.	2	9O		2.2+5.1	274	0	E0		PP				0
3514	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	2	9TF		2.3+2.1	274	0	E0		PP,EP,EX,TOX,A	VE01, VE02			2
3515	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	2	9TO		2.3+5.1	274	0	E0		PP,EP,TOX,A	VE02			2
3516	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	2	9TC		2.3+8	274	0	E0		PP,EP,TOX,A	VE02			2
3517	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2	9TFC		2.3+2.1 +8	274	0	E0		PP,EP,EX,TOX,A	VE01, VE02			2
3518	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	2	9TOC		2.3+5.1 +8	274	0	E0		PP,EP,TOX,A	VE02			2

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)	(12)	(13)
3519	BORON TRIFLUORIDE, ADSORBED	2	9TC		2.3+8		0	E0		PP,EP,TOX,A	VE02			2
3520	CHLORINE, ADSORBED	2	9TOC		2.3+5.1 +8		0	E0		PP,EP,TOX,A	VE02			2
3521	SILICON TETRAFLUORIDE, ADSORBED	2	9TC		2.3+8		0	E0		PP,EP,TOX,A	VE02			2
3522	ARSINE, ADSORBED	2	9TF		2.3+2.1		0	E0		PP,EP,EX,TOX,A	VE01, VE02			2
3523	GERMANE, ADSORBED	2	9TF		2.3+2.1		0	E0		PP,EP,EX,TOX,A	VE01, VE02			2
3524	PHOSPHORUS PENTAFLUORIDE, ADSORBED	2	9TC		2.3+8		0	E0		PP,EP,TOX,A	VE02			2
3525	PHOSPHINE, ADSORBED	2	9TF		2.3+2.1		0	E0		PP,EP,EX,TOX,A	VE01, VE02			2
3526	HYDROGEN SELENIDE, ADSORBED	2	9TF		2.3+2.1		0	E0		PP,EP,EX,TOX,A	VE01, VE02			2

3.2.2 Table B⁴

Amend the entries for "AIR BAG INFLATORS", "AIR BAG MODULES", and "SEAT-BELT PRETENSIONERS" to read as follows:

"Air bag inflators, see	1 9	0503 3268"
"Air bag modules, see	1 9	0503 3268"
"Seat-belt pretensioners, see	1 9	0503 3268"

In the entries for "Actinolite", "Anthophyllite", "Talcum with tremolite and/or actinolite" and "Tremolite" in the UN No. column, replace "2590" by "2212".

Delete the entries for "Asbestos, blue or brown", "Asbestos, white", "Chrysotile", "BLUE ASBESTOS (crocidolite)", "BROWN ASBESTOS (amosite, mysorite)", "WHITE ASBESTOS (chrysotile, actinolite, anthophyllite, tremolite)".

In the entry for "TRIFLUOROCHLOROETHYLENE, STABILIZED" UN No. 1082, add at the end ", REFRIGERANT GAS R 1113".

In the second entry for "AMMONIUM NITRATE", (UN 1942), amend the description to read as follows "AMMONIUM NITRATE with not more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance".

In the entry for "AMMONIUM NITRATE", (UN 0222), amend the description to read as follows "AMMONIUM NITRATE".

In the entry for "CAPACITOR, electric double layer..." (UN 3499), amend the description to read as follows: "CAPACITOR, ELECTRIC DOUBLE LAYER (with an energy storage capacity greater than 0.3 Wh)".

The amendments to the entries for "RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM", "RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL" and "RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - INSTRUMENTS or ARTICLES" do not apply to the English text.

Add the following new entries in alphabetical order:

<i>Name and description</i>	<i>Class</i>	<i>UN No.</i>
ADSORBED GAS, FLAMMABLE, N.O.S.	2	3510
ADSORBED GAS, N.O.S.	2	3511
ADSORBED GAS, OXIDIZING, N.O.S.	2	3513
ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	2	3516
ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2	3517

⁴ The modifications to Table B (which is not part of the authentic legal text of the Regulations) have no legal bearing and only of concern for the publication.

<i>Name and description</i>	<i>Class</i>	<i>UN No.</i>
ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	2	3514
ADSORBED GAS, TOXIC, N.O.S.	2	3512
ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	2	3518
ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	2	3515
Amphibole asbestos, see	9	2212
ARSINE, ADSORBED	2	3522
ASBESTOS, AMPHIBOLE	9	2212
ASBESTOS, CHRYSOTILE	9	2590
BORON TRIFLUORIDE, ADSORBED	2	3519
CAPACITOR, ASYMMETRIC (with an energy storage capacity greater than 0.3Wh)	9	3508
CHLORINE, ADSORBED	2	3520
Chrysotile, see	9	2590
GERMANE, ADSORBED	2	3523
HYDROGEN SELENIDE, ADSORBED	2	3526
Mercurous chloride, see	6.1	2025
PACKAGINGS, DISCARDED, EMPTY, UNCLEARED	9	3509
PHOSPHINE, ADSORBED	2	3525
PHOSPHORUS PENTAFLUORIDE, ADSORBED	2	3524
SAFETY DEVICES, electrically initiated	9	3268
SAFETY DEVICES, PYROTECHNIC	1	0503
SILICON TETRAFLUORIDE, ADSORBED	2	3521
URANIUM HEXAFLUORIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, less than 0.1 kg per package, non-fissile or fissile-excepted	8	3507

3.2.3

3.2.3.1, Explanations concerning Table C, column (7) Does not apply to the English version

3.2.3.1, Explanations concerning Table C, column (13) Amend to read as follows:

"Type of sampling device

Contains information concerning the prescribed type of sampling device.

1 Closed-type sampling device

2 Partly closed-type sampling device

3 Sampling opening"

3.2.3.1, explanatory notes, column (20), additional requirements/remark 5 Replace "vapour pipe" by "venting piping".

- 3.2.3.1, explanatory notes, column (20), additional requirement/ remark 6 Replace
"vapour pipes" by "venting piping" (three times).
- 3.2.3.1, explanatory notes, column (20), additional requirement/ remark 7 Replace
"vapour pipes" by "venting piping" (three times).
- 3.2.3.1, explanatory notes for column (20), additional requirements/remark 14 In the
first sentence, replace "under these conditions" by "in a type N vessel".
- 3.2.3.1, explanatory note 40 for column (20) Delete and replace by "(Deleted)".
- 3.2.3.1, explanatory notes for column (20) Insert the following new note:
"41. n-BUTYLBENZENE is assigned to the entry UN No. 2709 BUTYLBENZENES (n-BUTYLBENZENE)."
- 3.2.3.1, explanatory notes for column (20) Insert the following new note:
"42. Loading of refrigerated liquefied gases shall be carried out in such a manner as to ensure that unsatisfactory temperature gradients do not occur in any cargo tank, piping or other ancillary equipment. When determining the holding time (as described in 7.2.4.16.17), it shall be assured that the degree of filling does not exceed 98% in order to prevent the safety valves from opening when the tank is in liquid full condition. When refrigerated liquefied gases are carried using a system according to 9.3.1.24.1 (b) or 9.3.1.24.1 (c), a refrigeration system is not required."
- 3.2.3.2, Table C, heading of column (7) Does not apply to the English version.

3.2.3 Table C

For UN No. 1005, UN No. 1011 (twice), UN No. 1012, UN No. 1030, UN No. 1033, UN No. 1038, UN No. 1055, UN No. 1063, UN No. 1077, UN No. 1083, UN No. 1912, UN No. 1965 (9 times), UN No. 1969 (twice), UN No. 1978 and UN No. 9000, insert "2" in column (20).

For UN No. 1038, insert a reference to explanatory note "42" in column (20).

For UN No. 1206, in column (2), delete "(n-HEPTANE)".

For UN No. 1208, in column (2), delete "(n-HEXANE)" and in column (9), delete "3".

For UN No. 1262, in column (2), delete "(n-OCTANE)".

For UN No. 2709, in column (20), insert "41".

For UN No. 3082, HEAVY HEATING OIL Delete "40" in column (20)

3.2.3.2, Table C, Insert the following new entries:

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(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1265	PENTANES, liquid	3	F1	I	3+N2	*	*	*	*	*	*	*	*	yes	*	II A	yes	PP, EX, A	1	14; * see 3.2.3.3
1265	PENTANES, liquid	3	F1	II	3+N2	*	*	*	*	*	*	*	*	yes	*	II A	yes	PP, EX, A	1	14; * see 3.2.3.3
1972	METHANE REFRIGERATED LIQUID or NATURAL GAS, REFRIGERATED LIQUIFIED, with high methane content	2	3F		2.1	G	1	1	1		95		1	no	T1	IIA	yes	PP, EX, A	1	2; 31; 42
2709	BUTYLBENZENES (n-BUTYLBENZENE)	3	F1	III	3+N1+F	N	3	3			97	0.87	2	yes	T2	II A	yes	PP, EX, A	0	41

Replace the entries for UN Nos. 1764, 2430 (twice) and 2850 by the following entries:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1764	DICHLOROACETIC ACID	8	C3	II	8+N1	N	3	3			97	1.56	2	yes	T1	II A	yes	PP, EP, EX, A	0	17
2430	ALKYLPHENOLS SOLID, N.O.S. (NONYLPHENOL, ISOMERIC MIXTURE, MOLTEN)	8	C4	II	8+N1+F	N	3	1	2		95	0.95	2	yes	T2	II A ⁷⁾	yes	PP, EP, EX, A	0	7; 17
2430	ALKYLPHENOLS SOLID, N.O.S. (NONYLPHENOL, ISOMERIC MIXTURE, MOLTEN)	8	C4	II	8+N1+F	N	3	2	4		95	0.95	2	yes			no	PP, EP	0	7; 17; 20: +125 °C
2850	PROPYLENE TETRAMER	3	F1	III	3+N1+F	N	4	3			97	0.76	2	yes			no	PP	0	

3.2.3.2 In footnotes 1 and 2 related to the list of substances in Table C, replace "IEC 79-4" by "a standardized determination procedure".

3.2.3.2 In footnote 3 related to the list of substances in Table C, replace "IEC 79-IA" by "a standardized determination procedure".

3.2.3.2 Amend footnote 4 related to the list of substances in Table C to read as follows:

"The maximum experimental safe gap (MESG) has not been measured in accordance with a standardized determination procedure; therefore, assignment has been made to explosion group II B which is considered safe."

3.2.3.2 Amend footnote 5 related to the list of substances in Table C to read as follows:

"The maximum experimental safe gap (MESG) has not been measured in accordance with a standardized determination procedure; therefore, assignment has been made to explosion group II C which is considered safe."

3.2.3.2 Amend footnote 7 related to the list of substances in Table C to read as follows:

"The maximum experimental safe gap (MESG) has not been measured in accordance with a standardized determination procedure; therefore, assignment has been made to the explosion group that is considered safe."

3.2.3.2 Footnotes related to the list of substances, footnote 8 Modify to read as follows:

"8) The maximum experimental safe gap (MESG) has not been measured in accordance with a standardized determination procedure; therefore, assignment has been made to the explosion group in compliance with IEC 60079-20-1."

3.2.3.3 In the third and fifth boxes of the flowchart, replace "(criteria according to GESAMP) *" by "(criteria according to 2.2.9.1.10.5)" and delete footnote *.

3.2.3.3, column (16) Replace "IEC 60079-1-1" by "IEC 60079-20-1".

3.2.3.3, remark 2 for column (20) Amend to read as follows:

"Reference shall be made in column (20) to remark 2 for stabilized substances that react with oxygen and for gases for which danger 2.1 is mentioned in column 5."

3.2.3.3, column (20), remark 40 Delete and replace by "*No longer used.*".

3.2.3.3 Insert the following new remark 41 for column (20):

Remark 41: Reference shall be made in column (20) to remark 41 for UN No. 2709 BUTYLBENZENES (n-BUTYLBENZENE)."

3.2.3.3 Insert the following new remark 42 for column (20):

Remark 42: Reference shall be made in column (20) to remark 42 for UN No. 1038 ETHYLENE, REFRIGERATED LIQUID and for UN No. 1972 METHANE REFRIGERATED LIQUID or NATURAL GAS, REFRIGERATED LIQUID, with high methane content."

3.2.4.2, 3.1 Amend to read as follows:

"Auto-ignition temperature in accordance with IEC 60079-20-1:2010, EN 14522:2005, DIN 51 794:2003 in °C; where applicable, indicate the temperature class in accordance with IEC 60079-20-1:2010."

3.2.4.2, item 3.2 Modify to read as follows:

"Flash-point

For flash-points up to 175 ° C

Closed-cup test methods – non-equilibrium procedure

Abel method: EN ISO 13736:2008

Abel-Pensky method: DIN 51755–1:1974 or NF M T60-103:1968

Pensky-Martens method: EN ISO 2719:2012

Luchaire apparatus: French standard NF T60-103:1968

Tag method: ASTM D56-05(2010)

Closed-cup test methods – equilibrium procedure

Rapid equilibrium procedure: EN ISO 3679:2004; ASTM D3278-96(2011)

Closed-cup equilibrium procedure: EN ISO 1523:2002+AC1:2006; ASTM D3941-90 (2007)

For flash-points above 175 ° C

In addition to the above-mentioned methods, the following open-cup test method may be applied:

Cleveland method: EN ISO 2592:2002; ASTM D92-12."

3.2.4.2, item 3.3 Replace "EN 1839:2004" by "EN 1839:2012".

3.2.4.2, item 3.4 Replace "IEC 60079-1:2003....." by "IEC 60079-20-1:2010 in mm.".

3.2.4.3 Criteria for assignment of substances, A, 10

Replace "(criteria according to GESAMP), ³" by "(criteria according to 2.2.9.1.10.5)" and delete footnote ³.

3.2.4.3, column (16) Replace "IEC 60079-1-1" by "IEC 60079-20-1".

3.2.4.3, L column (20), remark 2 Amend to read as follows:

"Reference shall be made in column (20) to remark 2 for stabilized substances that react with oxygen and for gases for which danger 2.1 is mentioned in column (5).".

3.2.4.3, column (20), remark 40 Delete and replace by "*No longer used.*"

3.2.4.3 Insert the following new remark 41 for column (20):

"**Remark 41:** Reference shall be made in column (20) to remark 41 for UN No. 2709 BUTYLBENZENES (n-BUTYLBENZENE).".

3.2.4.3, L Insert the following new remark 42 for column (20):

"**Remark 42:** Reference shall be made in column (20) to remark 42 for UN No. 1038 ETHYLENE, REFRIGERATED LIQUID and for UN No. 1972 METHANE REFRIGERATED LIQUID or NATURAL GAS, REFRIGERATED LIQUID, with high methane content."

Chapter 3.3

SP122 At the end, add: ", 4.1.4.2 packing instruction IBC520 and 4.2.5.2.6 portable tank instruction T23 of ADR."

SP135 Amend to read as follows:

"135 The dihydrated sodium salt of dichloroisocyanuric acid does not meet the criteria for inclusion in Class 5.1 and is not subject to ADN unless meeting the criteria for inclusion in another Class."

SP172 Amend to read as follows:

"172 Where a radioactive material has (a) subsidiary risk(s):

(a) The substance shall be allocated to packing group I, II or III, if appropriate, by application of the packing group criteria provided in Part 2 corresponding to the nature of the predominant subsidiary risk;

(b) Packages shall be labelled with subsidiary risk labels corresponding to each subsidiary risk exhibited by the material; corresponding placards shall be affixed to vehicles or containers in accordance with the relevant provisions of 5.3.1;

(c) For the purposes of documentation and package marking, the proper shipping name shall be supplemented with the name of the constituents which most predominantly contribute to this (these) subsidiary risk(s) and which shall be enclosed in parenthesis;

(d) The dangerous goods transport document shall indicate the label model number(s) corresponding to each subsidiary risk in parenthesis after the Class number "7" and, where assigned the packing group as required by 5.4.1.1.1 (d).

For packing, see also 4.1.9.1.5 of ADR."

SP225 At the end, add:

"Fire extinguishers shall be manufactured, tested, approved and labelled according to the provisions applied in the country of manufacture.

NOTE: *Provisions applied in the country of manufacture" means the provisions applicable in the country of manufacture or those applicable in the country of use.*

Fire extinguishers under this entry include:

(a) portable fire extinguishers for manual handling and operation;

(b) fire extinguishers for installation in aircraft;

(c) fire extinguishers mounted on wheels for manual handling;

(d) fire extinguishing equipment or machinery mounted on wheels or wheeled platforms or units carried similar to (small) trailers, and

(e) fire extinguishers composed of a non-rollable pressure drum and equipment, and handled e.g. by fork lift or crane when loaded or unloaded.

NOTE: *Pressure receptacles which contain gases for use in the above-mentioned fire extinguishers or for use in stationary fire-fighting installations shall meet the requirements of Chapter 6.2 of ADR and all requirements applicable to the relevant gas when these pressure receptacles are carried separately."*

SP235 Amend to read as follows:

"235 This entry applies to articles which contain Class 1 explosive substances and which may also contain dangerous goods of other classes. These articles are used to enhance safety in vehicles, vessels or aircraft – e.g. air bag inflators, air bag modules, seat-belt pretensioners, and pyromechanical devices."

SP251 Insert the following new third paragraph (after "to any individual substance in the kit."):

"Where the kit contains only dangerous goods to which no packing group is assigned, no packing group need be indicated on the dangerous goods transport document."

SP280 Amend to read as follows:

"280 This entry applies to safety devices for vehicles, vessels or aircraft, e.g. air bag inflators, air bag modules, seat-belt pretensioners, and pyromechanical devices, which contain dangerous goods of Class 1 or of other classes, when carried as component parts and if these articles as presented for carriage have been tested in accordance with Test Series 6(c) of Part 1 of the *Manual of Tests and Criteria*, with no explosion of the device, no fragmentation of device casing or pressure receptacle, and no projection hazard nor thermal effect which would significantly hinder fire-fighting or emergency response efforts in the immediate vicinity. This entry does not apply to life saving appliances described in special provision 296 (UN Nos. 2990 and 3072)."

SP289 Amend to read as follows:

"289 Safety devices, electrically initiated and safety devices, pyrotechnic installed in vehicles, wagons, vessels or aircraft or in completed components such as steering columns, door panels, seats, etc. are not subject to ADN."

SP306 Amend to read as follows:

"306 This entry may only be used for substances that are too insensitive for acceptance into Class 1 when tested in accordance with Test Series 2 (see *Manual of Tests and Criteria*, Part I)."

SP309 Amend the last sentence to read as follows:

"Substances shall satisfactorily pass Tests 8 (a), (b) and (c) of Test Series 8 of the *Manual of Tests and Criteria*, Part I, Section 18 and be approved by the competent authority."

SP363 In subparagraph (c), replace "orientated" by "oriented".

SP580 Delete special provision 580 and replace by "580 (Deleted)".

SP582 Amend to read as follows:

"582 This entry covers, *inter alia*, mixtures of gases indicated by the letter R ..., with the following properties:

<i>Mixture</i>	<i>Maximum vapour pressure at 70 °C (MPa)</i>	<i>Minimum density at 50 °C (kg/l)</i>	<i>Permitted technical name for purposes of 5.4.1.1</i>
F1	1.3	1.30	"Mixture F1"
F2	1.9	1.21	"Mixture F2"
F3	3.0	1.09	"Mixture F3"

NOTE 1: Trichlorofluoromethane (refrigerant R 11), 1,1,2-trichloro-1,2,2-trifluoroethane (refrigerant R 113), 1,1,1-trichloro-2,2,2-trifluoroethane (refrigerant R 113a), 1-chloro-1,2,2-trifluoroethane (refrigerant R 133) and 1-chloro-1,1,2-trifluoroethane (refrigerant R 133 b) are not substances of Class 2. They may, however, enter into the composition of mixtures F 1 to F 3.

NOTE 2: The reference densities correspond to the densities of dichlorofluoromethane (1.30 kg/l), dichlorodifluoromethane (1.21 kg/l) and chlorodifluoromethane (1.09 kg/l)."

SP583 Amend to read as follows:

"583 This entry covers, *inter alia*, mixtures of gases, with the following properties:

<i>Mixture</i>	<i>Maximum vapour pressure at 70 °C (MPa)</i>	<i>Minimum density at 50 °C (kg/l)</i>	<i>Permitted technical name^(a) for purposes of 5.4.1.1</i>
A	1.1	0.525	"Mixture A" or "Butane"
A01	1.6	0.516	"Mixture A01" or "Butane"
A02	1.6	0.505	"Mixture A02" or "Butane"
A0	1.6	0.495	"Mixture A0" or "Butane"
A1	2.1	0.485	"Mixture A1"
B1	2.6	0.474	"Mixture B1"
B2	2.6	0.463	"Mixture B2"
B	2.6	0.450	"Mixture B"
C	3.1	0.440	"Mixture C" or "Propane"

^(a) For carriage in tanks, the trade names "Butane" or "Propane" may be used only as a complement."

SP585 Delete special provision 585 and replace by "585 (*Deleted*)".

SP594 Replace "according to the Regulations of the manufacturing State" by "according to the provisions applied in the country of manufacture". At the end, insert the following new NOTE:

NOTE: "Provisions applied in the country of manufacture" means the provisions applicable in the country of manufacture or those applicable in the country of use."

SP636 (b) Amend to read as follows:

"(b) Up to the intermediate processing facility, lithium cells and batteries with a gross mass of not more than 500 g each or lithium ion cells with a Watt-hour rating of not more than 20 Wh, lithium ion batteries with a Watt-hour rating of not more than 100 Wh, lithium metal cells with a lithium content of not more than 1 g and lithium metal batteries with an aggregate lithium content of not more than 2 g, whether or not contained in equipment, collected and handed over for carriage for disposal or recycling, together with or without other non-lithium cells or batteries, are not subject to the other provisions of ADN including special provision 376 and paragraph 2.2.9.1.7, if they meet the following conditions:

(i) The provisions of packing instruction P909 of 4.1.4.1 of ADR apply except for the additional requirements 1 and 2;

(ii) A quality assurance system is in place to ensure that the total amount of lithium cells or batteries per transport unit does not exceed 333 kg;

NOTE: The total quantity of lithium cells and batteries in the mix may be assessed by means of a statistical method included in the quality assurance system. A copy of the quality assurance records shall be made available to the competent authority upon request.

(iii) Packages are marked "LITHIUM BATTERIES FOR DISPOSAL" or "LITHIUM BATTERIES FOR RECYCLING" as appropriate."

SP660 (g) (v) Replace "nominal capacity" by "water capacity".

SP661 Delete special provision 661 and replace by "661 (*Deleted*)".

Add the following new special provisions:

"66 Cinnabar is not subject to the requirements of ADN."

"367 For the purposes of documentation:

The proper shipping name "Paint related material" may be used for consignments of packages containing "Paint" and "Paint related material" in the same package;

The proper shipping name "Paint related material, corrosive, flammable" may be used for consignments of packages containing "Paint, corrosive, flammable" and "Paint related material, corrosive, flammable" in the same package;

The proper shipping name "Paint related material, flammable, corrosive" may be used for consignments of packages containing "Paint, flammable, corrosive" and "Paint related material, flammable, corrosive" in the same package; and

The proper shipping name "Printing ink related material" may be used for consignments of packages containing "Printing ink" and "Printing ink related material" in the same package."

"368 In the case of non-fissile or fissile-excepted uranium hexafluoride, the material shall be classified under UN No. 3507 or UN No. 2978."

"369 In accordance with 2.1.3.5.3 (a), this radioactive material in an excepted package possessing corrosive properties is classified in Class 8 with a radioactive material subsidiary risk.

Uranium hexafluoride may be classified under this entry only if the conditions of 2.2.7.2.4.1.2, 2.2.7.2.4.1.5, 2.2.7.2.4.5.2 and, for fissile-excepted material, of 2.2.7.2.3.6 are met.

In addition to the provisions applicable to the carriage of Class 8 substances, the provisions of 5.1.3.2, 5.1.5.2.2, 5.1.5.4.1 (b), 7.1.4.14.7.3.1, 7.1.4.14.7.5.1 to 7.1.4.14.7.5.4 and 7.1.4.14.7.7 apply.

No Class 7 label is required to be displayed."

"370 This entry applies to:

- ammonium nitrate with more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any added substance; and
- ammonium nitrate with not more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any added substance, that is not too sensitive for acceptance into Class 1 when tested in accordance with Test Series 2 (see *Manual of Tests and Criteria*, Part I). See also UN No. 1942."

"371 (1) This entry also applies to articles, containing a small pressure receptacle with a release device. Such articles shall comply with the following requirements:

- (a) The water capacity of the pressure receptacle shall not exceed 0.5 litres and the working pressure shall not exceed 25 bar at 15 °C;
- (b) The minimum burst pressure of the pressure receptacle shall be at least four times the pressure of the gas at 15 °C;
- (c) Each article shall be manufactured in such a way that unintentional firing or release is avoided under normal conditions of handling, packing, carriage and use. This may be fulfilled by an additional locking device linked to the activator;
- (d) Each article shall be manufactured in such a way as to prevent hazardous projections of the pressure receptacle or parts of the pressure receptacle;
- (e) Each pressure receptacle shall be manufactured from material which will not fragment upon rupture;

(f) The design type of the article shall be subjected to a fire test. For this test, the provisions of paragraphs 16.6.1.2 except letter g, 16.6.1.3.1 to 16.6.1.3.6, 16.6.1.3.7 (b) and 16.6.1.3.8 of the *Manual of Tests and Criteria* shall be applied. It shall be demonstrated that the article relieves its pressure by means of a fire degradable seal or other pressure relief device, in such a way that the pressure receptacle will not fragment and that the article or fragments of the article do not rocket more than 10 metres;

(g) The design type of the article shall be subjected to the following test. A stimulating mechanism shall be used to initiate one article in the middle of the packaging. There shall be no hazardous effects outside the package such as disruption of the package, metal fragments or a receptacle which passes through the packaging.

(2) The manufacturer shall produce technical documentation of the design type, manufacture as well as the tests and their results. The manufacturer shall apply procedures to ensure that articles produced in series are made of good quality, conform to the design type and are able to meet the requirements in (1). The manufacturer shall provide such information to the competent authority on request."

"372 This entry applies to asymmetric 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 stored in a capacitor, as calculated according to the following equation,

$$Wh = 1/2C_N(U_R^2 - U_L^2) \times (1/3600),$$

using the nominal capacitance (C_N), rated voltage (U_R) and rated lower limit voltage (U_L).

All asymmetric capacitors to which this entry applies shall meet the following conditions:

- (a) Capacitors or modules shall be protected against short circuit;
- (b) 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 packaging or by equipment in which a capacitor is installed;
- (c) Capacitors shall be marked with the energy storage capacity in Wh; and
- (d) Capacitors containing an electrolyte meeting the classification criteria of any class of dangerous goods shall be designed to withstand a 95 kPa pressure differential;

Capacitors containing an electrolyte not meeting the classification criteria of any class of dangerous goods, including when configured in a module or 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 20 Wh or less, including when configured in a module, are not subject to other provisions of ADN when the capacitors 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 20 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 that 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: *Notwithstanding the provisions of this special provision, nickel-carbon asymmetric capacitors containing Class 8 alkaline electrolytes shall be carried as UN 2795 BATTERIES, WET, FILLED WITH ALKALI, electric storage."*

"373 Neutron radiation detectors containing non-pressurized boron trifluoride gas may be carried under this entry provided that the following conditions are met:

- (a) Each radiation detector shall meet the following conditions.
 - (i) The pressure in each detector shall not exceed 105 kPa absolute at 20°C;
 - (ii) The amount of gas shall not exceed 13 g per detector;
 - (iii) Each detector shall be manufactured under a registered quality assurance programme;

NOTE: *ISO 9001:2008 may be used for this purpose.*

- (iv) Each neutron radiation detector shall be of welded metal construction with brazed metal to ceramic feed through assemblies. These detectors shall have a minimum burst pressure of 1800 kPa as demonstrated by design type qualification testing; and

- (v) Each detector shall be tested to a 1×10^{-10} cm³/s leaktightness standard before filling.

- (b) Radiation detectors carried as individual components shall be carried as follows:

- (i) Detectors shall be packed in a sealed intermediate plastics liner with sufficient absorbent material to absorb the entire gas contents;

- (ii) They shall be packed in strong outer packaging. The completed package shall be capable of withstanding a 1.8 m drop test without leakage of gas contents from detectors;

- (iii) The total amount of gas from all detectors per outer packaging shall not exceed 52 g.

- (c) Completed neutron radiation detection systems containing detectors meeting the conditions of paragraph (a) shall be carried as follows:

- (i) The detectors shall be contained in a strong sealed outer casing;

- (ii) The casing shall contain sufficient absorbent material to absorb the entire gas contents;

- (iii) The completed systems shall be packed in strong outer packagings capable of withstanding a 1.8 m drop test without leakage unless a system's outer casing affords equivalent protection.

Packing instruction P200 of 4.1.4.1 of ADR is not applicable.

The transport document shall include the following statement "Carriage in accordance with special provision 373".

Neutron radiation detectors containing not more than 1 g of boron trifluoride, including those with solder glass joints, are not subject to ADN provided they meet the requirements in paragraph (a) and are packed in accordance with paragraph (b). Radiation detection systems containing such detectors are not subject to ADN provided they are packed in accordance with paragraph (c)."

"374 *(Reserved)*".

"375 These substances when carried in single or combination packagings containing a net quantity per single or inner packaging of 5 l or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids, are not subject to any other provisions of ADN provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 of ADR."

"376 Lithium ion cells or batteries and lithium metal cells or batteries identified as being damaged or defective such that they do not conform to the type tested according to the applicable provisions of the Manual of Tests and Criteria shall comply with the requirements of this special provision.

For the purposes of this special provision, these may include, but are not limited to:

- Cells or batteries identified as being defective for safety reasons;
- Cells or batteries that have leaked or vented;
- Cells or batteries that cannot be diagnosed prior to carriage; or
- Cells or batteries that have sustained physical or mechanical damage.

NOTE: *In assessing a battery as damaged or defective, the type of battery and its previous use and misuse shall be taken into account.*

Cells and batteries shall be carried according to the provisions applicable to UN No. 3090, UN No. 3091, UN No. 3480 and No. UN 3481, except special provision 230 and as otherwise stated in this special provision.

Packages shall be marked "DAMAGED/DEFECTIVE LITHIUM-ION BATTERIES" or "DAMAGED/DEFECTIVE LITHIUM METAL BATTERIES", as applicable.

Cells and batteries shall be packed in accordance with packing instructions P908 of 4.1.4.1 or LP904 of 4.1.4.3 of ADR, as applicable.

Cells and batteries liable to rapidly disassemble, dangerously react, produce a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours under normal conditions of carriage shall not be carried except under conditions specified by the competent authority."

"377 Lithium ion and lithium metal cells and batteries and equipment containing such cells and batteries carried for disposal or recycling, either packed together with or packed without non-lithium batteries, may be packaged in accordance with packing instruction P909 of 4.1.4.1 of ADR.

These cells and batteries are not subject to the requirements of 2.2.9.1.7 (a) to (e).

Packages shall be marked "LITHIUM BATTERIES FOR DISPOSAL" or "LITHIUM BATTERIES FOR RECYCLING".

Identified damaged or defective batteries shall be carried in accordance with special provision 376 and packaged in accordance with P908 of 4.1.4.1 or LP904 of 4.1.4.3 of ADR, as applicable."

367-499 *(Reserved)* Replace by "378-499 *(Reserved)*".

"662 Cylinders not conforming to the provisions of Chapter 6.2 which are used exclusively on board a ship or aircraft, may be carried for the purpose of filling or inspection and subsequent return, provided the cylinders are designed and constructed in accordance with a standard recognized by the competent authority of the country of approval and all the other relevant requirements of ADN and other conditions are met including:

- (a) The cylinders shall be carried with valve protection in conformity with 4.1.6.8;
- (b) The cylinders shall be marked and labelled in conformity with 5.2.1 and 5.2.2; and
- (c) All the relevant filling requirements of packing instruction P200 of 4.1.4.1 of ADR are complied with.

The transport document shall include the following statement: "Carriage in accordance with special provision 662".

"663 This entry may only be used for packagings, large packagings or IBCs, or parts thereof, which have contained dangerous goods which are carried for disposal, recycling or recovery of their material, other than reconditioning, repair, routine maintenance, remanufacturing or reuse, and which have been emptied to the extent that only residues of dangerous goods adhering to the packaging parts are present when they are handed over for carriage.

Scope:

Residues present in the packagings, discarded, empty, uncleaned shall only be of dangerous goods of classes 3, 4.1, 5.1, 6.1, 8 or 9. In addition, they shall not be:

- substances assigned to packing group I or that have "0" assigned in Column (7a) of Table A of Chapter 3.2; nor
- substances classified as desensitized explosive substances of Class 3 or Class 4.1; nor
- substances classified as self-reactive substances of Class 4.1; nor
- asbestos (UN Nos. 2212 and 2590), polychlorinated biphenyls (UN Nos. 2315 and 3432) and polyhalogenated biphenyls or polyhalogenated terphenyls (UN Nos. 3151 and 3152).

General provisions:

Packagings, discarded, empty, uncleaned with residues presenting a risk or a subsidiary risk of Class 5.1 shall not be packed together with other packagings, discarded, empty, uncleaned, or loaded together with other packagings, discarded, empty, uncleaned in the same container, wagon, vehicle or bulk container.

Documented sorting procedures shall be implemented on the loading site to ensure compliance with the provisions applicable to this entry.

NOTE: All the other provisions of ADN apply.

"803 Hard coal, coke and anthracite, when carried in bulk, are not subject to the provisions of ADN if:

- (a) The temperature of the cargo is not higher than 60°C before, during or immediately after loading of the hold;
- (b) The estimated duration of carriage is not more than 20 days;

- (c) If the actual duration of carriage is more than 20 days, supervision of the temperature is carried out from the twenty-first day; and
- (d) If the master is given, at the time of loading and in a traceable form, instructions on how to proceed if there is a significant heating of the cargo."

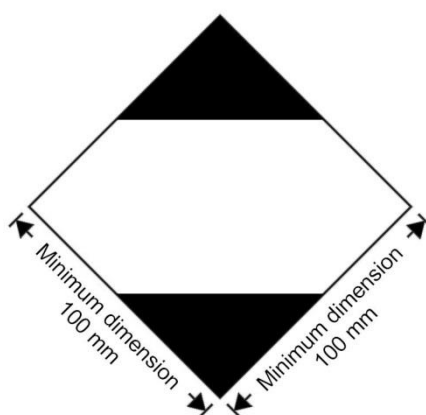
Chapter 3.4

Amend section 3.4.7 and 3.4.8 to read as follows:

"3.4.7 Marking for packages containing limited quantities

3.4.7.1 Except for air transport, packages containing dangerous goods in limited quantities shall bear the marking shown in Figure 3.4.7.1:

Figure 3.4.7.1



Marking for packages containing limited quantities

The marking shall be readily visible, legible and able to withstand open weather exposure without a substantial reduction in effectiveness.

The marking shall be in the form of a square set at an angle of 45° (diamond-shaped). The top and bottom portions and the surrounding line shall be black. The centre area shall be white or a suitable contrasting background. The minimum dimensions shall be 100 mm x 100 mm and the minimum width of the line forming the diamond shall be 2 mm. Where dimensions are not specified, all features shall be in approximate proportion to those shown.

3.4.7.2 If the size of the package so requires, the minimum outer dimensions shown in Figure 3.4.7.1 may be reduced to be not less than 50 mm x 50 mm provided the marking remains clearly visible. The minimum width of the line forming the diamond may be reduced to a minimum of 1 mm.

3.4.8 Marking for packages containing limited quantities conforming to Part 3, Chapter 4 of the ICAO Technical Instructions

3.4.8.1 Packages containing dangerous goods packed in conformity with the provisions of Part 3, Chapter 4 of the ICAO Technical Instructions may bear the marking shown in Figure 3.4.8.1 to certify conformity with these provisions:

Figure 3.4.8.1



Marking for packages containing limited quantities conforming to Part 3, Chapter 4 of the ICAO Technical Instructions

The marking shall be readily visible, legible and able to withstand open weather exposure without a substantial reduction in effectiveness.

The marking shall be in the form of a square set at an angle of 45° (diamond-shaped). The top and bottom portions and the surrounding line shall be black. The centre area shall be white or a suitable contrasting background. The minimum dimensions shall be 100 mm x 100 mm and the minimum width of the line forming the diamond shall be 2 mm. The symbol "Y" shall be placed in the centre of the mark and shall be clearly visible. Where dimensions are not specified, all features shall be in approximate proportion to those shown.

3.4.8.2 If the size of the package so requires, the minimum outer dimensions shown in Figure 3.4.8.1 may be reduced to be not less than 50 mm x 50 mm provided the marking remains clearly visible. The minimum width of the line forming the diamond may be reduced to a minimum of 1 mm. The symbol "Y" shall remain in approximate proportion to that shown in Figure 3.4.8.1."

3.4.9 Amend to read as follows:

"3.4.9 Packages containing dangerous goods bearing the marking shown in 3.4.8 with or without the additional labels and markings for air transport shall be deemed to meet the provisions of section 3.4.1 as appropriate and of sections 3.4.2 to 3.4.4 and need not bear the marking shown in 3.4.7."

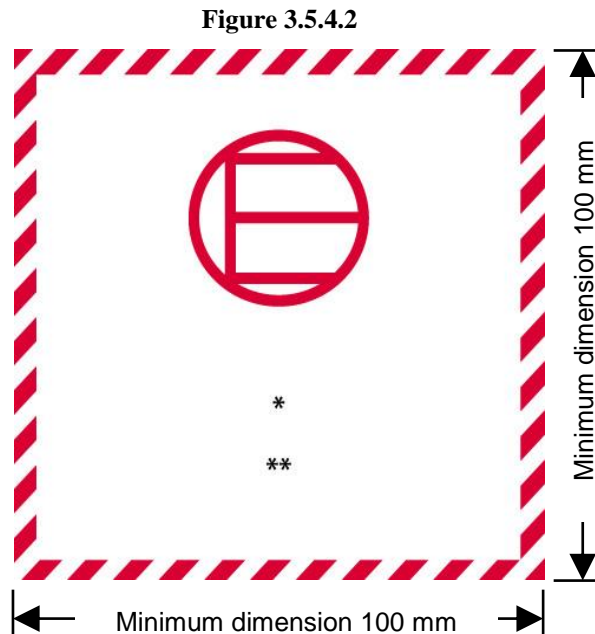
3.4.10 Amend to read as follows:

"3.4.10 Packages containing dangerous goods in limited quantities bearing the marking shown in 3.4.7 and conforming with the provisions of the ICAO Technical Instructions, including all necessary marks and labels specified in Parts 5 and 6, shall be deemed to meet the provisions of section 3.4.1 as appropriate and of sections 3.4.2 to 3.4.4."

Chapter 3.5

3.5.4.2 Amend to read as follows:

"3.5.4.2 *Excepted quantities mark*



Excepted quantities mark

* *The first or only label number indicated in column (5) of Table A of Chapter 3.2 shall be shown in this location.*

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

The marking shall be in the form of a square. The hatching and symbol shall be of the same colour, black or red, on white or suitable contrasting background. The minimum dimensions shall be 100 mm x 100 mm. Where dimensions are not specified, all features shall be in approximate proportion to those shown."

Chapter 5.1

5.1.2.1 (a) Add the following new sentence at the beginning of the last paragraph (before "The marking of the word..."):

"The lettering of the "OVERPACK" marking shall be at least 12 mm high."

5.1.2.1 (b) Amend to read as follows:

"(b) Orientation arrows illustrated in 5.2.1.9 shall be displayed on two opposite sides of overpacks containing packages which shall be marked in accordance with 5.2.1.9.1, unless the marking remains visible."

5.1.3.2 Replace "Packagings, including IBCs and tanks" by "Containers, tanks, IBCs, as well as other packagings and overpacks".

5.1.5.1.1 In the first sentence replace "for package designs" by "of package designs".

5.1.5.1.2 Add a new sub-paragraph (d) to read as follows:

"(d) radiation protection programmes for shipments by special use vessels in accordance with 7.1.4.14.7.3.7;"

5.1.5.1.4 (c) Replace "for shipment approval" by "for approval of shipment (see 6.4.23.2 of ADR)".

5.1.5.2.1 In (a), insert a new sub-paragraph (iii) to read as follows:

"(iii) fissile material excepted under 2.2.7.2.3.5 (f);".

Consequently, current sub-paragraphs (iii) to (vi) become new (iv) to (vii).

5.1.5.2.1 In (v) (former (iv)) delete "all" and "replace "6.4.11.2" by "2.2.7.2.3.5 of the present Regulations or 6.4.11.2 or 6.4.11.3".

5.1.5.2.1 At the end of (c), replace "." by ";"

5.1.5.2.1 Insert new (d) and (e) to read as follows:

"(d) Determination of the basic radionuclide values referred to in 2.2.7.2.2.1 for individual radionuclides which are not listed in Table 2.2.7.2.2.1 (see 2.2.7.2.2.2 (a));

(e) Alternative activity limits for an exempt consignment of instruments or articles (see 2.2.7.2.2.2 (b))."

5.1.5.2.1 Amend the second paragraph after sub-paragraphs (a) to (e) to read as follows:

"The certificates of approval for the package design and the shipment may be combined into a single certificate."

5.1.5.2.3 In the first sentence, amend the beginning of the sentence to read: "For package designs where it is not required that a competent authority issue a certificate of approval, the consignor...".

5.1.5.3.4 In the first sentence, replace "and overpacks" by ", overpacks and containers".

5.1.5.3.4 In (a), replace (twice) "or overpack" by ", overpack or container".

5.1.5.3.4 In (e), insert "or container" after "overpack".

Table 5.1.5.3.4 Replace "and overpacks" by ", overpacks and containers".

In note "b" to the table insert at the end: "except for containers (see Table D in 7.1.4.14.7.3.3)".

5.1.5.3.5 Replace "design or shipment approval" by "approval of design or shipment".

5.1.5.4 Amend the title to read "Specific provisions for excepted packages of radioactive material of Class 7".

5.1.5.4.1 After "Excepted packages", insert "of radioactive material of Class 7".

5.1.5.4.2 Amend to read as follows:

"5.1.5.4.2 The documentation requirements of Chapter 5.4 do not apply to excepted packages of radioactive material of Class 7, except that:

(a) The UN number preceded by the letters "UN" and the name and address of the consignor and the consignee and, if relevant, the identification mark for each competent authority certificate of approval (see 5.4.1.2.5.1 (g)) shall be shown on a transport document such as a bill of lading, air waybill or CMR, CIM or CMNI consignment note;

(b) If relevant, the requirements of 5.4.1.2.5.1 (g), 5.4.1.2.5.3 and 5.4.1.2.5.4 shall apply;

(c) The requirements of 5.4.2 and 5.4.4 shall apply."

5.1.5.4.3 Insert a new paragraph to read as follows:

"5.1.5.4.3 The requirements of 5.2.1.7.8 and 5.2.2.1.11.5 shall apply if relevant."

5.1.5.5 In the last column of the Table, in the row for "Special form radioactive material", replace "1.6.6.3" by "1.6.6.4".

Chapter 5.2

5.2.1.3 Add the following new sentence at the end:

"The lettering of the "SALVAGE" marking shall be at least 12 mm high."

5.2.1.7 Replace "for goods of Class 7" by "for radioactive material".

5.2.1.7.1 Insert the following sentence at the end: "Each overpack shall be legibly and durably marked on the outside of the overpack with an identification of either the consignor or consignee, or both unless these markings of all packages within the overpack are clearly visible."

5.2.1.7.5 Amend the introductory sentence to read as follows:

"Each package which conforms to a design approved under one or more of paragraphs 5.1.5.2.1 of these Regulations, 6.4.22.1 to 6.4.22.4, 6.4.23.4 to 6.4.23.7 and 6.4.24.2 of ADR shall be legibly and durably marked on the outside of the package with the following information:"

5.2.1.7.5 Amend (c) to read as follows:

"(c) "Type B(U)", "Type B(M)" or "Type C", in the case of a Type B(U), Type B(M) or Type C package design."

5.2.1.7.5 Delete (d).

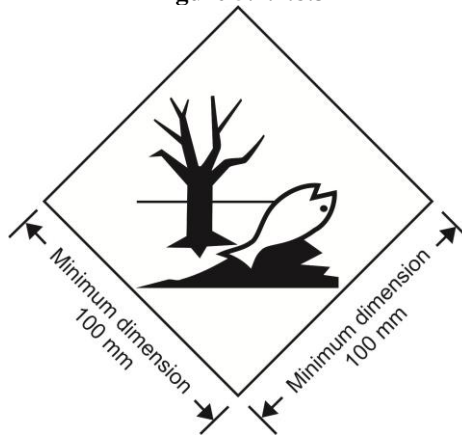
5.2.1.7.7 Replace "4.1.9.2.3" by "4.1.9.2.4".

5.2.1.7.8 Replace "competent authority design or shipment approval" by "competent authority approval of design or shipment".

5.2.1.8.3 Amend 5.2.1.8.3 to read as follows:

"5.2.1.8.3 The environmentally hazardous substance mark shall be as shown in Figure 5.2.1.8.3.

Figure 5.2.1.8.3



Environmentally hazardous substance mark

The marking shall be in the form of a square set at an angle of 45° (diamond-shaped). The symbol (fish and tree) shall be black on white or suitable contrasting background. The minimum dimensions shall be 100 mm x 100 mm and the minimum width of the line forming the diamond shall be 2 mm. If the size of the package so requires, the dimensions/line thickness may be reduced, provided the marking remains clearly visible. Where dimensions are not specified, all features shall be in approximate proportion to those shown.

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

5.2.1.9.1 Number the figures and amend the caption to read as follows:

"Figure 5.2.1.9.1.1

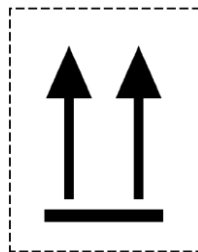
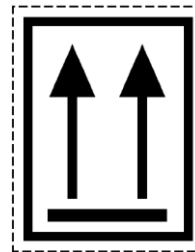


Figure 5.2.1.9.1.2



or

Two black or red arrows on white or suitable contrasting background.

The rectangular border is optional.

All features shall be in approximate proportion to those shown."

5.2.2.1.11.1 Amend the first and second sentences to read as follows:

"Except when enlarged labels are used in accordance with 5.3.1.1.3, each package, overpack and container containing radioactive material shall bear the labels conforming to the applicable models Nos. 7A, 7B or 7C, according to the appropriate category. Labels shall be affixed to two opposite sides on the outside of the package or overpack or on the outside of all four sides of a container or tank."

5.2.2.1.11.1 In the fourth sentence:

For "under 6.4.11.2 of ADR" read "under the provisions of 2.2.7.2.3.5";

Replace "which conform to model" by "conforming to model";

Replace the last phrase of the fourth sentence by the following: "such labels, where applicable, shall be affixed adjacent to the labels conforming to the applicable model Nos. 7A, 7B or 7C."

5.2.2.1.11.2 In the introductory sentence, replace "models numbers 7A, 7B and 7C" by "the applicable model No. 7A, 7B or 7C".

5.2.2.1.11.2 In (b), amend the last sentence to read as follows:

"For fissile material, the total mass of fissile nuclides in units of grams (g), or multiples thereof, may be used in place of activity;"

5.2.2.1.11.3 Amend to read as follows:

"5.2.2.1.11.3 Each label conforming to the model No. 7E shall be completed with the criticality safety index (CSI) as stated in the certificate of approval applicable in the countries through or into which the consignment is carried and issued by the competent authority or as specified in 6.4.11.2 or 6.4.11.3 of ADR."

5.2.2.1.11.4 Amend to read as follows:

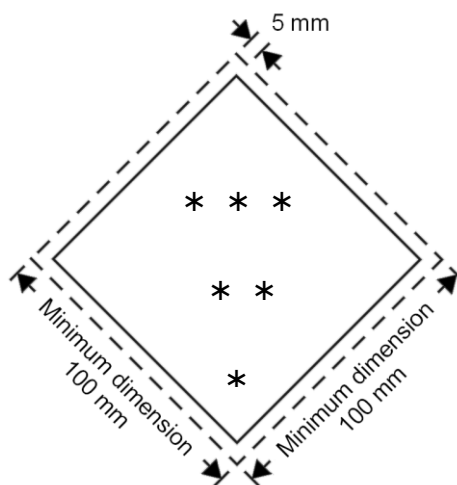
"5.2.2.1.11.4 For overpacks and containers, the label conforming to model No. 7E shall bear the sum of the criticality safety indexes of all the packages contained therein."

5.2.2.1.11.5 Replace "competent authority design or shipment approval" by "competent authority approval of design or shipment".

5.2.2.2.1.1 Amend to read as follows:

"5.2.2.2.1.1 Labels shall be configured as shown in Figure 5.2.2.2.1.1.

Figure 5.2.2.2.1.1



Class/division label

* The class or for Classes 4.1, 4.2 and 4.3, the figure "4" or for Classes 6.1 and 6.2, the figure "6", shall be shown in the bottom corner.

** Additional text/numbers/letters shall (if mandatory) or may (if optional) be shown in this bottom half.

*** The class symbol or, for divisions 1.4, 1.5 and 1.6, the division number and for Model No 7E the word "FISSILE" shall be shown in this top half."

5.2.2.2.1.1.1 Labels shall be displayed on a background of contrasting colour, or shall have either a dotted or solid outer boundary line.

5.2.2.2.1.1.2 The label shall be in the form of a square set at an angle of 45° (diamond-shaped). The minimum dimensions shall be 100 mm x 100 mm and the minimum width of the line inside the edge forming the diamond shall be 2 mm. The line inside the edge shall be parallel and 5 mm from the outside of that line to the edge of the label. The line inside the edge on the upper half of the label shall be the same colour as the symbol and the line inside the edge on the lower half of the label shall be the same colour as the class or division number in the bottom corner. Where dimensions are not specified, all features shall be in approximate proportion to those shown.

5.2.2.2.1.1.3 If the size of the package so requires the dimensions may be reduced, provided the symbols and other elements of the label remain clearly visible. The line inside the edge shall remain 5 mm to the edge of the label. The minimum width of the line inside the edge shall remain 2 mm. Dimensions for cylinders shall comply with 5.2.2.2.1.2."

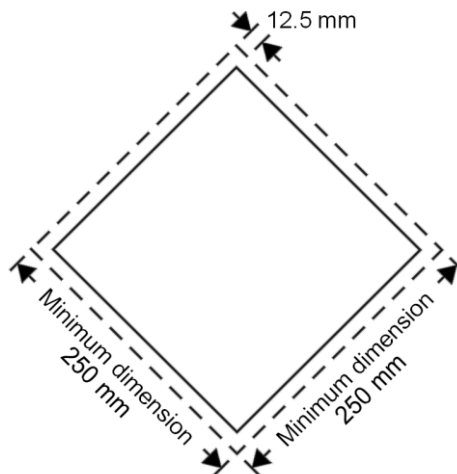
Chapter 5.3

5.3.1.1.3 In the last sentence, replace "the label required" by "the required label of model No. 7A, 7B or 7C". Add the following sentence at the end of the last paragraph: "In that case, the dimensions shall be not less than 250 mm by 250 mm."

5.3.1.7.1 Amend read as follows:

"5.3.1.7.1 Except as provided in 5.3.1.7.2 for the Class 7 placard, and in 5.3.6.2 for the environmentally hazardous substance mark, a placard shall be configured as shown in Figure 5.3.1.7.1.

Figure 5.3.1.7.1



Placard (except for Class 7)

The placard shall be in the form of a square set at an angle of 45° (diamond-shaped). The minimum dimensions shall be 250 mm x 250 mm (to the edge of the placard). The line inside the edge shall be parallel and 12.5 mm from the outside of that line to the edge of the placard. The symbol and line inside the edge shall correspond in colour to the label for the class or division of the dangerous goods in question. The class or division symbol/numeral shall be positioned and sized in proportion to those prescribed in 5.2.2.2 for the corresponding class or division of the dangerous goods in question. The placard shall display the number of the class or division (and for goods in Class 1, the compatibility

group letter) of the dangerous goods in question in the manner prescribed in 5.2.2.2 for the corresponding label, in digits not less than 25 mm high. Where dimensions are not specified, all features shall be in approximate proportion to those shown."

5.3.2.1.1 At the end of the second paragraph, add the following new sentence:

"When tanks are marked in accordance with 5.3.2.1.3, this plate shall correspond to the most hazardous substance carried in the tank."

5.3.2.2.1 Amend the second paragraph to read as follows:

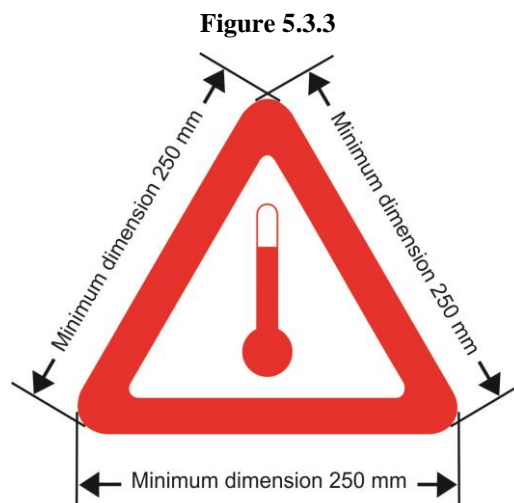
"If the size and construction of the vehicle are such that the available surface area is insufficient to affix these orange-coloured plates, their dimensions may be reduced to a minimum of 300 mm for the base, 120 mm for the height and 10 mm for the black border. In this case, a different set of dimensions within the specified range may be used for the two orange-coloured plates specified in 5.3.2.1.1.

When reduced dimensions of orange-coloured plates are used for a packaged radioactive material carried under exclusive use, only the UN number is required and the size of the digits stipulated in 5.3.2.2.2 may be reduced to 65 mm in height and 10 mm in stroke thickness."

5.3.3 Amend to read as follows:

"5.3.3 Mark for elevated temperature substances

Tank-vehicles, tank-wagons, tank-containers, portable tanks, special vehicles, special wagons or special containers or specially equipped vehicles, specially equipped wagons or specially equipped containers containing a substance that is carried or handed over for carriage in a liquid state at or above 100 °C or in a solid state at or above 240 °C shall bear on both sides for wagons, on both sides and at the rear for vehicles, and on both sides and at each end for containers, tank-containers and portable tanks, the mark shown in Figure 5.3.3.



Mark for carriage at elevated temperature

The marking shall be an equilateral triangle. The colour of the mark shall be red. The minimum dimension of the sides shall be 250 mm. Where dimensions are not specified, all features shall be in approximate proportion to those shown."

5.3.6 Renumber the first paragraph as 5.3.6.1. Delete "The other provisions of section 5.3.1 concerning placards shall apply mutatis mutandis to the mark."

Add a new paragraph 5.3.6.2 as follows:

"5.3.6.2 The environmentally hazardous substance mark for containers, MEGCs, tank-containers, portable tanks, wagons and vehicles shall be as described in 5.2.1.8.3 and Figure 5.2.1.8.3, except that the minimum dimensions shall be 250 mm x 250 mm. The other provisions of section 5.3.1 concerning placards shall apply mutatis mutandis to the mark."

Chapter 5.4

5.4.1.1.1 (d) In the Note after (d) replace "172 (b)" by "172 (d)".

5.4.1.1.3 Amend the third paragraph to read as follows:

"If the provision for waste as set out in 2.1.3.5.5 is applied, the following shall be added to the dangerous goods description required in 5.4.1.1.1 (a) to (d) and (k):"

The example after this paragraph remains unchanged.

5.4.1.1.17 After "(x)", add a reference to a footnote 1 to read as follows:

"¹ (x) shall be replaced with "1" or "2" as appropriate."

Renumber existing footnotes accordingly.

5.4.1.1.19 Renumber existing 5.4.1.1.19 as 5.4.1.1.20 and add a new paragraph to read as follows:

"5.4.1.1.19 *Special provisions for carriage of packagings, discarded, empty, uncleaned (UN No. 3509)*

For packagings, discarded, empty, uncleaned, the proper shipping name specified in 5.4.1.1.1 (b) shall be complemented with the words "(WITH RESIDUES OF [...])" followed by the class(es) and subsidiary risk(s) corresponding to the residues, in the class numbering order. Moreover, 5.4.1.1.1 (f) does not apply.

Example: Packagings, discarded, empty, uncleaned having contained goods of Class 4.1 packed together with packagings, discarded, empty, uncleaned having contained goods of Class 3 with a Class 6.1 subsidiary risk should be referred to in the transport document as:

"UN 3509 PACKAGINGS, DISCARDED, EMPTY, UNCLEARED (WITH RESIDUES OF 3, 4.1, 6.1), 9"".

5.4.1.2.5.1 (b) Replace "see last sentence of special provision 172 of Chapter 3.3" by "see sub-paragraph (c) of special provision 172 of Chapter 3.3".

5.4.1.2.5.1 Amend (f) to read as follows:

"(f) For fissile material:

- (i) Shipped under one exception of 2.2.7.2.3.5 (a) to (f), reference to that paragraph;
- (ii) Shipped under 2.2.7.2.3.5 (c) to (e), the total mass of fissile nuclides;
- (iii) Contained in a package for which one of 6.4.11.2 (a) to (c) or 6.4.11.3 of ADR is applied, reference to that paragraph;
- (iv) The criticality safety index, where applicable;"

5.4.1.2.5.1 In (g), replace "competent authority approval certificate" by "competent authority certificate of approval" and insert "fissile material excepted under 2.2.7.2.3.5 (f)," before "special arrangement".

5.4.1.2.5.3 Replace "competent authorities design or shipment approval" by "competent authority approval of design or shipment".

5.4.2, footnote 5, paragraph .8 of 5.4.2.1 of the IMDG Code Amend to read as follows:

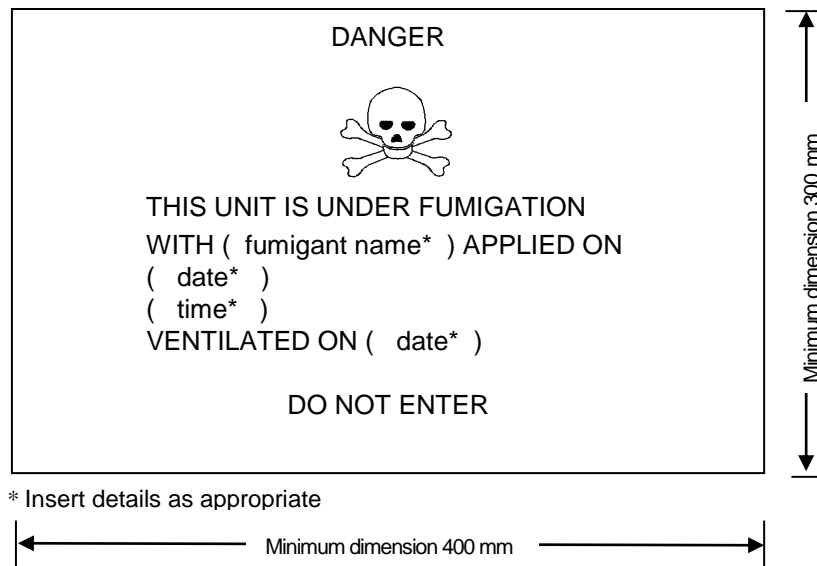
".8 When substances presenting a risk of asphyxiation are used for cooling or conditioning purposes (such as dry ice (UN 1845) or nitrogen, refrigerated liquid (UN 1977) or argon, refrigerated liquid (UN 1951)), the container/vehicle is externally marked in accordance with 5.5.3.6 (of the IMDG Code); and".

Chapter 5.5

Amend 5.5.2.3.2 and the fumigation warning mark to read as follows:

"5.5.2.3.2 The fumigation warning mark shall be as shown in Figure 5.5.2.3.2.

Figure 5.5.2.3.2



Fumigation warning mark

The marking shall be a rectangle. The minimum dimensions shall be 400 mm wide x 300 mm high and the minimum width of the outer line shall be 2 mm. The marking shall be in black print on a white background with lettering not less than 25 mm high. Where dimensions are not specified, all features shall be in approximate proportion to those shown."

5.5.3 Add two new paragraphs 5.5.3.1.4 and 5.5.3.1.5 to read as follows:

"5.5.3.1.4 Vehicles, wagons and containers containing substances used for cooling or conditioning purposes include vehicles, wagons and containers containing substances used for cooling or conditioning purposes inside packages as well as vehicles, wagons and containers with unpackaged substances used for cooling or conditioning purposes."

"5.5.3.1.5 Sub-sections 5.5.3.6 and 5.5.3.7 only apply when there is an actual risk of asphyxiation in the vehicle, wagon or container. It is for the participants concerned to assess this risk, taking into consideration the hazards presented by the substances being used for cooling or conditioning, the amount of substance to be carried, the duration of the

journey and the types of containment to be used. As a rule, it is assumed that packages containing dry ice (UN 1845) as a coolant do not present such a risk."

5.5.3.2.1, 5.5.3.2.2, 5.5.3.5, 5.5.3.6, 5.5.3.6.1, 5.5.3.7.1 Insert ", wagons" after "vehicles".

5.5.3.2.2 Amend to read as follows:

"5.5.3.2.2 When dangerous goods are loaded in vehicles, wagons or containers containing substances used for cooling or conditioning purposes any provisions of ADN relevant to these dangerous goods apply in addition to the provisions of this section."

5.5.3.2.4 Amend to read as follows:

"5.5.3.2.4 Persons engaged in the handling or carriage of vehicles, wagons and containers containing substances used for cooling or conditioning purposes shall be trained commensurate with their responsibilities."

5.5.3.3.3 Amend to read as follows:

"5.5.3.3.3 Packages containing a coolant or conditioner shall be carried in well ventilated vehicles, wagons and containers. This provision does not apply when such packages are carried in insulated, refrigerated or mechanically refrigerated equipment, as defined in the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for such Carriage (ATP)."

5.5.3.6.1 Add "purposes" after "cooling or conditioning" in the first sentence.

5.5.3.6.2 Amend to read as follows:

"5.5.3.6.2 The warning mark shall be as shown in Figure 5.5.3.6.2.

Figure 5.5.3.6.2



Coolant/conditioning warning mark for vehicles and containers

* Insert the name indicated in column (2) of Table A of Chapter 3.2 of the coolant/conditioner. The lettering shall be in capitals, all be on one line and shall be at least 25 mm high. If the length of the proper shipping name is too long to fit in the space provided, the lettering may be reduced to the maximum size possible to fit. For example: "CARBON DIOXIDE, SOLID".

** Insert "AS COOLANT" or "AS CONDITIONER" as appropriate. The lettering shall be in capitals, all be on one line and be at least 25 mm high.

The marking shall be a rectangle. The minimum dimensions shall be 150 mm wide x 250 mm high. The word "WARNING" shall be in red or white and be at least 25 mm high. Where dimensions are not specified, all features shall be in approximate proportion to those shown.

The word "WARNING" and the words "AS COOLANT" or "AS CONDITIONER", as appropriate, shall be in an official language of the country of origin and also, if that language is not English, French or German, in English, French or German, unless agreements concluded between the countries concerned in the transport operation provide otherwise."

5.5.3.7.1 Replace "that have been cooled or conditioned and" by "containing or having contained substances used for cooling or conditioning purposes and that".

Chapter 7.1

7.1.4.1.1 Insert the following text for Class 6.1 after "All goods of packing group II: total 300 000 kg":

"All goods carried in bulk 0 kg"

7.1.4.7.1 Amend to read as follows:

"7.1.4.7.1 The dangerous goods shall be loaded or unloaded only at the places designated or approved for this purpose by the competent authority. In those places the means of evacuation mentioned in subsection 7.1.4.77 should be made available. Otherwise trans-shipment is permitted only with the authorization of the competent authority."

Insert a new 7.1.4.14.7.4.3 to read as follows:

"7.1.4.14.7.4.3 Fissile material meeting one of the provisions (a) to (f) of 2.2.7.2.3.5 shall meet the following requirements:

- (a) Only one of the provisions (a) to (f) of 2.2.7.2.3.5 is allowed per consignment;
- (b) Only one approved fissile material in packages classified in accordance with 2.2.7.2.3.5 (f) is allowed per consignment unless multiple materials are authorized in the certificate of approval;
- (c) Fissile material in packages classified in accordance with 2.2.7.2.3.5 (c) shall be carried in a consignment with no more than 45 g of fissile nuclides;
- (d) Fissile material in packages classified in accordance with 2.2.7.2.3.5 (d) shall be carried in a consignment with no more than 15 g of fissile nuclides;
- (e) Unpackaged or packaged fissile material classified in accordance with 2.2.7.2.3.5 (e) shall be carried under exclusive use on a vehicle with no more than 45 g of fissile nuclides."

7.1.4.14.7.5.4 Amend the end of the paragraph to read as follows:

"... and shall not be re-used unless the following conditions are fulfilled:

- (a) the non-fixed contamination shall not exceed the limits specified in 4.1.9.1.2 of ADR;
- (b) the radiation level resulting from the fixed contamination shall not exceed 5 $\mu\text{Sv/h}$ at the surface."

7.1.4.77 Replace by the following table and text:

7.1.4.77 Possible means of evacuation in case of an emergency

		<i>Dry cargo bulk (vessel and barge)</i>		<i>Container (vessel and barge) and packaged goods</i>
		<i>Class</i>		<i>Class</i>
		<i>4.1, 4.2, 4.3</i>	<i>5.1, 6.1, 7, 8, 9</i>	<i>All classes</i>
1	Two escape routes inside or outside the protected area in opposite directions	•	•	•
2	One escape route outside the protected area and one safe haven outside the vessel including the escape route towards it at the opposite end	•	•	•
3	One escape route outside the protected area and one safe haven on the vessel at the opposite end	•	•	•
4	One escape route outside the protected area and one life boat at the opposite end	•	•	•
5	One escape route outside the protected cargo area and one escape boat at the opposite end	•	•	•
6	One escape route inside the protected area and one escape route outside the cargo area at the opposite end	•	•	•
7	One escape route inside the protected area and one safe haven outside the vessel in the opposite direction	•	•	•
8	One escape route inside the protected area and one safe haven on the vessel in the opposite direction	•	•	•
9	One escape route inside the protected cargo area and one life boat at the opposite end	•	•	•
10	One escape route inside the protected area and one escape boat at the opposite end	•	•	•
11	One escape route inside or outside the protected cargo area and two safe havens on the vessel at opposite ends	•	•	•
12	One escape route inside or outside the protected area and two safe areas on the vessel at opposite ends	•	•	•
13	One escape route outside the protected area	•	•	•
14	One escape route inside the protected area	•	•	•
15	One or more safe havens outside the vessel, including the escape route towards it	•	•	•
16	One or more safe havens on the vessel		•	•
17	One or more escape boats	•	•	•
18	One escape boat and one evacuation boat	•	•	•
19	One or more evacuation boats		•	•

• = Possible option.

Based on local circumstances, competent authorities may prescribe additional requirements for the availability of means of evacuation.

7.1.4.78-7.1.4.99 (*Reserved*)".

7.1.6.14, HA03, last paragraph Delete "local".

Chapter 7.2

7.2.4.1.3 Modify the beginning of the first sentence to read as follows:

"On board supply vessels or other vessels delivering products for the operation of vessels, packages of dangerous goods and non-dangerous goods may be carried...".

7.2.4.10.1 Modify to read as follows:

"Loading or unloading shall start only once a checklist conforming with section 8.6.3 of ADN has been completed for the cargo in question and questions 1 to 19 of the list have been checked off with an "X". Irrelevant questions should be deleted. The list shall be completed, after the pipes intended for the handling are connected and prior to the handling, in duplicate and signed by the master or a person mandated by him and the person responsible for the handling at the shore facilities. If a positive response to all the questions is not possible, loading or unloading is only permitted with the prior consent of the competent authority.

The competent authority may accept that, until 31 December 2016 at the latest, by derogation from 8.6.3 a control list containing question 4 in the version in force until 31 December 2014 be used."

7.2.4.16.8, second paragraph Replace "vapour pipes or gas discharge pipes" by "venting piping".

7.2.4.16.9 Modify to read as follows:

(a) During loading or unloading in a closed tank vessel of substances for which an open type N vessel with a flame arrester is sufficient according to columns (6) and (7) of Table C of Chapter 3.2, the cargo tanks may be opened using the safe pressure-relief device referred to in 9.3.2.22.4 (a) or 9.3.3.22.4 (a).

(b) During loading or unloading in a closed tank vessel of substances for which an open type N vessel is sufficient according to columns (6) and (7) of Table C of Chapter 3.2, the cargo tanks may be opened using the safe pressure-relief device referred to in 9.3.2.22.4 (a) or 9.3.3.22.4 (a) or using another suitable opening in the vapour pipe if any accumulation of water and its penetration into the cargo tanks is prevented and the opening is appropriately closed again after loading or unloading."

7.2.4.16.11 Replace "nozzle" by "connection".

7.2.4.16.12 Replace "vapour pipe or the gas discharge piping" by "venting piping".

7.2.4.16 Insert the following text at the end:

"7.2.4.16.16 Measures to be taken before loading refrigerated liquefied gases

Unless the temperature of the cargo is controlled in accordance with 9.3.1.24.1 (a) or 9.3.1.24.1 (c) guaranteeing the use of the maximal boil-off in any service conditions, the holding time has to be determined by the master or another person on his behalf before loading and validated by the master or another person on his behalf during loading and shall be documented on board.

7.2.4.16.17 Determination of the holding time

A table, approved by the classification society that certified the vessel, giving the relation between holding time and filling conditions, incorporating the parameters below shall be kept on board.

The holding time of the cargo shall be determined on the basis of the following parameters:

- The heat transmission coefficient as defined in 9.3.1.27.9;

- The set pressure of the safety valves;
- The initial filling conditions (temperature of cargo during loading and degree of filling);
- The ambient temperatures as given in 9.3.1.24.2;
- When using the boil-off vapours, the minimum guaranteed use of the boil-off vapours (that is the amount of boil-off vapours used under any service conditions), may be taken into account.

Adequate safety margin

To leave an adequate margin to ensure safety, the holding time is at least three times the expected duration of the journey of the vessel, including the following:

- To ensure safety for short journeys of (as expected) no more than 5 days, the minimum holding time for any vessel with refrigerated liquefied gases is 15 days.
- For long journeys of (as expected) more than 10 days, the minimum holding time shall be 30 days, adding two days for each day the journeys takes more than 10 days.

As soon as it becomes clear that the cargo will not be unloaded within the holding time, the master shall inform the nearest emergency services according to 1.4.1.2."

7.2.4.25.5 Replace "gas recovery or compensation pipe" by "vapour return piping".

7.2.4.29 Replace by the following text:

"7.2.4.29 *Transport of refrigerated liquefied gases*

During loading or unloading the drip tray as mentioned in 9.3.1.21.11 shall be placed under the shore connection of the piping for loading and unloading in use, and a water film as mentioned in 9.3.1.21.11 shall be activated.

7.2.4.30-7.2.4.39 (*Reserved*)".

7.2.4.77 Replace by the following table and text:

7.2.4.77 Possible means of evacuation in case of an emergency

		<i>Tank vessel/tank barge</i>				
		<i>Class</i>				
		<i>2, 3 packing group I, II and rest of III</i>	<i>3 packing group III (UN No. 1202 two entries: second and third), 4.1</i>	<i>5.1, 6.1</i>	<i>8</i>	<i>9</i>
1	Two escape routes inside or outside the cargo area in opposite directions	•	•	•	•	•
2	One escape route outside the cargo area and one safe haven outside the vessel including the escape route towards it from the opposite end	•	•	•	•	•
3	One escape route outside the cargo area and one safe haven on the vessel at the opposite end	•	•	•**	•	•
4	One escape route outside the cargo area and one life boat at the opposite end		•		•	•
5	One escape route outside the cargo area and one escape boat at the opposite end	•	•	•	•	•
6	One escape route inside the cargo area and one escape route outside the cargo area at the opposite end	•	•	•	•	•
7	One escape route inside the cargo area and one safe haven outside the vessel in the opposite direction	•	•	•	•	•
8	One escape route inside the cargo area and one safe haven on the vessel in the opposite direction	•	•	•**	•	•
9	One escape route inside the cargo area and one life boat at the opposite end		•		•	•
10	One escape route inside the cargo area and one escape boat at the opposite end	•	•	•	•	•
11	One escape route inside or outside the cargo area and two safe havens on the vessel at opposite ends	•	•	•**	•	•
12	One escape route inside or outside the cargo area and two safe areas on the vessel at opposite ends	•	•	•**	•	•
13	One escape route outside the cargo area		•		•*	•
14	One escape route inside the cargo area		•		•*	•
15	One or more safe havens outside the vessel, including the escape route towards it	•	•	•	•*	•

• = Possible option.

* = Not accepted in case of classification codes TFC, CF or CFT.

**= Not accepted if there is a risk that oxidizing substances in combination with flammable liquids may cause an explosion.

Based on local circumstances, competent authorities may prescribe additional requirements for the availability of means of evacuation.

7.2.4.78-7.2.4.99 (*Reserved*).

Chapter 8.1

8.1.2.1 Amend indent (a) to read as follows:

"(a) The vessel's certificate of approval referred to in 8.1.8 and the annex referred to in 1.16.1.4;"

8.1.2.1 (f) Amend to read as follows:

"The inspection certificate of the fire extinguishing hoses prescribed in 8.1.6.1."

8.1.2.1 (j) Delete and replace with "*Deleted*".

8.1.2.3 (o) Amend to read:

"The certificate concerning the refrigeration system, prescribed in 9.3.1.27.10, 9.3.2.27.10 or 9.3.3.27.10;"

8.1.2.3 Insert at the end:

"(q) When transporting refrigerated liquefied gases and the temperature is not controlled in accordance with 9.3.1.24.1 (a) and 9.3.1.24.1 (c), the determination of the holding time (7.2.4.16.16, 7.2.4.16.17). The heat transmission coefficient shall be documented and kept on board."

8.1.2.7 Insert the following text at the end of the first paragraph: "A photo-optical copy of the annex referred to in 1.16.1.4 is not required."

8.1.2.7 Amend the second paragraph to read as follows:

"The barge-owner shall thereafter keep the certificate of approval and the annex referred to in 1.16.1.4 in his possession."

8.1.6.1 Amend the last sentence to read as follows:

"A certificate concerning the inspection of fire extinguishing hoses shall be carried on board."

8.1.6.3 Amend to read as follows:

"8.1.6.3 The special equipment referred to in 8.1.5.1 and the gas detection system shall be checked and inspected in accordance with the instructions of the manufacturer by the manufacturer concerned or by persons authorized for this purpose by the competent authority. A certificate concerning this inspection shall be carried on board."

Chapter 8.2

8.2.2.3.3 Does not apply to the English version.

8.2.2.3.3.1, "Practice" Insert the following text at the end:

"- handling refrigerated liquefied gases."

8.2.2.3.3.2, *Practice*, second indent Replace "vapour pipes" by "venting piping".

8.2.2.3.4 Does not apply to the English version.

8.2.2.7.1.3 and 8.2.2.7.2.3 Replace "list of questions" by "catalogue of questions". Delete the reference to footnote "1" after "list of questions" and insert "and a directive on the use of the catalogue of questions¹⁾" at the end of the first sentence.

8.2.2.7.1.3 and 8.2.2.7.2.3 Replace "additional guidance" by "the directive" in the existing footnote.

8.2.2.7.1.4 and 8.2.2.7.2.4 Replace "list of questions" by "directive on the use of the catalogue of questions".

8.2.2.7.3.3 Insert "(outside the provisions of the directive on the use of the catalogue of questions for examining authorities and bodies)" at the end.

Chapter 8.6

8.6.1.3 Does not apply to the English version.

8.6.1.3, paragraph 8 Replace "Gas supply/return line" by "Venting piping".

8.6.1.3, table after paragraph 22 Replace "gas supply/return" by "venting piping".

8.6.1.3, table after paragraph 22 Replace "gas supply line" by "venting piping".

8.6.1.4, item 5 Does not apply to the English version

8.6.1.4, paragraph 8 Replace "Gas supply/return line" by "Venting piping".

8.6.1.4, table after paragraph 15 Replace "gas supply/return line" by "venting piping".

8.6.1.4, table after paragraph 15 Replace "gas supply line" by "venting piping".

8.6.1.5 Add the following annex to the certificate of approval and provisional certificate of approval to read as follows:

"8.6.1.5 Annex to the certificate of approval and provisional certificate of approval according to 1.16.1.3.1 (a)

<p>Annex to the certificate of approval</p> <p>1. Official number</p> <p>2. Type of vessel</p> <p>3. Transitional provisions applicable as from</p>	<p>ADN certificate of approval No.:</p>	<p>Competent authority</p>	<p>Issued on</p>	<p>Valid until</p>	<p>Stamp and signature</p>

ADN certificate of approval No.:					
Competent authority					
Issued on					
Valid until					
Stamp and signature					

8.6.3, ADN Checklist, question (4) Replace by the following text: "Have suitable means in accordance with 7.1.4.77 and 7.2.4.77 been provided for boarding or leaving, including in cases of emergency?"

8.6.3, question (7) Replace "vapour pipe" by "venting piping".

8.6.3, question (12.1) Replace "is the vapour pipe, where required, or of it exists, connected with the shore gas return line?" by "is the venting piping, where required, or of it exists, connected with the vapour return piping?"

8.6.3, question 12.2 Insert at the end "(pressure at connecting point __ kPa)".

8.6.3, question (12.3) Replace "its gas return pipe or pressure compensation pipe" by "its vapour return piping".

8.6.3, question (14) Replace the fifth indent by the following text:

"- Are liquefied gas installations for domestic use cut off using the main stop valve?".

Insert "O" under the vessel column and "-" under the column loading/unloading place.

8.6.3, questions (15.1) and (15.2) Insert at the end "(agreed pressure __ kPa)".

8.6.3, question (17), first indent Delete "(only when loading the vessel)" and insert "□ when loading □ when unloading".

8.6.3 Add the following new question:

"19. When transporting refrigerated liquefied gases, has the holding time been determined according to 7.2.4.16.16, and is known and documented on board?"

Insert "O**" in the two columns (vessel and loading/unloading place) and the following footnote under the table:

"** Only during loading operations."

8.6.3 Explanation of question 4 Replace "(e.g. a lowered dinghy)" by "if required in accordance with 7.1.4.77 and 7.2.4.77."

8.6.3 In the Explanations, insert "Question 17: To prevent backflow from the shore, it is also necessary to activate the overflow prevention device on the vessel under certain circumstances when unloading. It is obligatory during loading and optional during unloading. Delete this item if it is not necessary during unloading."

Chapter 9.1

9.1.0.40.1, second indent Does not apply to the English version.

9.1.0.95.1 (a), transverse extent

Insert the following text after "0.59 m": "inboard from the vessel's side at right angles to the centreline at the level corresponding to the maximum draught".

Chapter 9.2

9.2.0.95.1 (a), transverse extent

Insert the following text after "0.59 m": "inboard from the vessel's side at right angles to the centreline at the level corresponding to the maximum draught".

Chapter 9.3

9.3.1.8.1 In the third sentence, insert the following text before "(classification certificate)":

"and the additionally applicable rules and regulations of the classification society that are relevant for the intended use of the vessel".

9.3.1.11.2 (a), first indent, second paragraph Insert the following text after "refrigerated cargo tanks": "and cargo tanks used for the transport of refrigerated liquefied gases".

9.3.1.11.2 Insert the following text at the end:

"(e) Cargo tanks intended to contain products at a temperature below -10°C shall be suitably insulated to ensure that the temperature of the vessel's structure does not fall below the minimum allowable material design temperature. The insulation material shall be resistant to flame spread. "

9.3.1.11 Insert the following text at the end:

"9.3.1.11.9 In case the vessel has insulated cargo tanks, the hold spaces shall only contain dry air to protect the insulation of the cargo tanks against moisture."

9.3.1.15.1 (a) transverse extent Replace "0.79 m, or when applicable, the distance allowed by section 9.3.4, reduced by 0.01 m" by "0.79 m inboard from the vessel's side at right angles to the centreline at the level corresponding to the maximum draught".

9.3.1.21.1 (g) Amend to read as follows:

"(g) a connection for a closed-type sampling device."

9.3.1.21.3, second sentence Amend to read as follows:

"The permissible maximum filling levels of 91%, 95% and 97%, as given in the list of substances, shall be marked on each level gauge."

9.3.1.21.5 (a) and (b), 9.3.2.21.5 (a) and (b) and 9.3.3.21.5 (a) and (d) Replace "EN 60309-2:1999" by "EN 60309-2:1999 + A1:2007 + A2:2012".

9.3.1.21 Insert the following text at the end:

"9.3.1.21.11 On vessels certified to carry refrigerated liquefied gases the following protective measures shall be provided in the cargo area:

- Drips trays shall be installed under the shore connections of the piping for loading and unloading through which the loading and unloading operation is carried out. They must be made of materials which are able to resist the temperature of the cargo and be insulated from the deck. The drip trays shall have a sufficient volume and an overboard drain;
- A water spray system to cover:
 1. exposed cargo tank domes and exposed parts of cargo tanks;
 2. exposed on-deck storage vessels for flammable or toxic products;
 3. parts of the cargo deck area where a leakage may occur.

The capacity of the water spray system shall be such that when all spray nozzles are in operation, the outflow is of 300 liters per square meter of cargo deck area per hour. The system shall be capable of being put into operation from the wheelhouse and from the deck;

- A water film around the shore connection of the piping for loading and unloading in use to protect the deck and the shipside in the way of the shore connection of the piping for loading and unloading in use during connecting and disconnecting the loading arm or hose. The water film shall have sufficient capacity. The system shall be capable of being put into operation from the wheelhouse and from the deck.

9.3.1.21.12 Vessels carrying refrigerated liquefied gases shall have on board, for the purpose of preventing damage to the cargo tanks during loading and the piping for loading and unloading during loading and unloading, a written instruction for pre-cooling. This instruction shall be applied before the vessel is put into operation and after long-term maintenance."

9.3.1.24.1 Insert a new indent (c) to read as follows:

"(c) For UN No. 1972 only, and when the use of LNG as fuel is authorized according to 1.5.3.2, a system for the regulation of cargo tank pressure whereby the boil-off vapours are utilized as fuel;"

The current (c) becomes (d).

9.3.1.25.2 (d) Replace "vapour pipes" by "venting piping".

9.3.1.25.2 (f) Replace "vapour pipe" by "venting piping".

9.3.1.25.2 (g) Replace "vapour pipes" by "venting piping".

9.3.1.25.2 Insert the following text at the end:

"For transport of refrigerated liquefied gases

(h) The piping for loading and unloading and cargo tanks shall be protected from excessive stresses due to thermal movement and from movements of the tank and hull structure.

(i) Where necessary, piping for loading and unloading shall be thermally insulated from the adjacent hull structure to prevent the temperature of the hull falling below the design temperature of the hull material."

(j) All piping for loading and unloading, which may be closed off at each end when containing liquid (residue), shall be provided with safety valves. These safety valves shall discharge into the cargo tanks and shall be protected against inadvertent closing."

9.3.1.27.9 Replace by the following text:

"For all cargo systems, the heat transmission coefficient as used for the determination of the holding time (7.2.4.16.16 and 7.2.4.16.17) shall be determined by calculation. Upon completion of the vessel, the correctness of the calculation shall be checked by means of a heat balance test. The calculation and test shall be performed under supervision by the recognized classification society which classified the vessel.

The heat transmission coefficient shall be documented and kept on board. The heat transmission coefficient shall be verified at every renewal of the certificate of approval."

In 9.3.1.27.10, replace "9.2.1.27.1" by "9.3.1.27.1".

9.3.1.52.3 (b) (iv) (2), second indent Amend to read as follows:

"directly at the top edge of the sill of the entrance doors of the accommodation and service spaces when the cargo in the gas phase is heavier than air; otherwise sensors shall be fitted close to the ceiling;"

9.3.1.52.3 (b), 9.3.2.52.3 (b) and 9.3.3.52.3 (b) Insert a new (v) to read as follows:

"(v) Inland AIS (automatic identification systems) stations in the accommodation and in the wheelhouse if no part of an aerial for electronic apparatus is situated above the cargo area and if no part of a VHF antenna for AIS stations is situated within 2 m from the cargo area."

9.3.2.0.1 (c) Replace "Vapour pipes and gas discharge pipes" by "Venting piping".

9.3.2.11.2 (a) Insert the following new paragraph at the end:

"Refrigerated cargo tank fastenings shall meet the requirements of a recognised classification society."

9.3.2.15.1 (a) transverse extent, Replace "0.79 m, or when applicable, the distance allowed by section 9.3.4, reduced by 0.01 m" by "0.79 m inboard from the vessel's side at right angles to the centreline at the level corresponding to the maximum draught".

9.3.2.20.1 Amend to read as follows:

"Cofferdams or cofferdam compartments remaining once a service space has been arranged in accordance with 9.3.2.11.6 shall be accessible through an access hatch."

9.3.2.20.4 and 9.3.3.20.4 (ventilation of cofferdams) amend to read as follows:

"When the list of substances on the vessel according to 1.16.1.2.5 contains substances for which protection against explosion is required in column (17) of Table C of Chapter 3.2, the ventilation openings of cofferdams shall be fitted with a flame-arrester withstanding a deflagration."

9.3.2.21.1 (g) Amend to read as follows:

"(g) a connection for a closed-type or partly closed-type sampling device, and/or at least one sampling opening as required in column (13) of Table C of Chapter 3.2."

9.3.2.21.3 and 9.3.3.21.3, second sentence Amend to read as follows::

"The permissible maximum filling levels of 95% and 97%, as given in the list of substances, shall be marked on each level gauge."

9.3.2.21.5 (c) Replace "EN 12827:1996" by "EN 12827:1999".

9.3.2.21 and 9.3.3.21 Insert a new paragraph to read as follows:

"9.3.x.21.10 When refrigerated substances are carried the opening pressure of the safety system shall be determined by the design of the cargo tanks. In the event of the transport of substances that must be carried in a refrigerated state the opening pressure of the safety system shall be not less than 25 kPa (0.25 bar) greater than the maximum pressure calculated according to 9.3.2.27."

9.3.2.22.4 (a) and 9.3.3.22.4 (a) Replace "vapour pipe" by "venting piping".

9.3.2.22.4 (a) last indent and 9.3.3.22.4 (a) last indent for type N closed vessels, amend to read as follows:

"- a device for the safe depressurization of the tanks. When the list of substances on the vessel according to 1.16.1.2.5 contains substances for which protection against explosion is required in column (17) of Table C of Chapter 3.2, this device shall include at least a flame arrester capable of withstanding steady burning and a stop valve which clearly indicates whether it is open or shut."

9.3.2.22.5 (a) Replace "a vapour pipe" by "venting piping".

9.3.2.22.5 (a) (iii) Replace "a flame arrester with a fixed plate stack" by "a flame arrester with a fixed or spring-loaded plate stack".

- 9.3.2.22.5 (a) (v) Delete and replace with: “(Deleted)”
- 9.3.2.22.5 (a), last paragraph Replace "common vapour pipe" by "common venting piping".
- 9.3.2.22.5 (b) Replace "a vapour pipe" by "venting piping" and "a common vapour pipe" by "a common venting piping".
- 9.3.2.22.5 (c) Replace "vapour pipe" by "venting piping".
- 9.3.2.22.5 (d) Replace "a vapour pipe" by "venting piping" and "a common vapour pipe" by "a common venting piping".
- 9.3.2.24 and 9.3.3.24 Replace "(Reserved)" by the following text:

"9.3.x.24 Regulation of cargo pressure and temperature

9.3.x.24.1 Unless the entire cargo system is designed to resist the full effective vapour pressure of the cargo at the upper limits of the ambient design temperatures, the pressure of the tanks shall be kept below the permissible maximum set pressure of the safety valves, by one or more of the following means:

(a) a system for the regulation of cargo tank pressure using mechanical refrigeration;

(b) a system ensuring safety in the event of the heating or increase in pressure of the cargo. The insulation or the design pressure of the cargo tank, or the combination of these two elements, shall be such as to leave an adequate margin for the operating period and the temperatures expected; in each case the system shall be deemed acceptable by a recognised classification society and shall ensure safety for a minimum time of three times the operation period;

(c) other systems deemed acceptable by a recognised classification society.

9.3.x.24.2 The systems prescribed in 9.3.x.24.1 shall be constructed, installed and tested to the satisfaction of the recognised classification society. The materials used in their construction shall be compatible with the cargoes to be carried. For normal service, the upper ambient design temperature limits shall be:

air: +30° C;

water: +20° C.

9.3.x.24.3 The cargo storage system shall be capable of resisting the full vapour pressure of the cargo at the upper limits of the ambient design temperatures, whatever the system adopted to deal with the boil-off gas. This requirement is indicated by remark 37 in column (20) of Table C of Chapter 3.2."

- 9.3.2.25.2 (f) and 9.3.3.25.2 (f) Replace "vapour pipe" by "venting piping".
- 9.3.2.25.2 (i) and 9.3.3.25.2 (h) Replace "vapour pipes" by "venting piping".
- 9.3.2.25.9 and 9.3.3.25.9 Replace "gas return piping or the compensation piping" by "vapour return piping".
- 9.3.2.26.4 and 9.3.3.26.4 Replace "vapour pipe" by "venting piping".
- 9.3.2.27 and 9.3.3.27 Replace "(Reserved)" by the following text:

"9.3.x.27 Refrigeration system

9.3.x.27.1 The refrigeration system referred to in 9.3.x.24.1 (a) shall be composed of one or more units capable of keeping the pressure and temperature of the cargo at the upper limits of the ambient design temperatures at the prescribed level. Unless another means of

regulating cargo pressure and temperature deemed satisfactory by a recognised classification society is provided, provision shall be made for one or more stand-by units with an output at least equal to that of the largest prescribed unit. A stand-by unit shall include a compressor, its engine, its control system and all necessary accessories to enable it to operate independently of the units normally used. Provision shall be made for a stand-by heat-exchanger unless the system's normal heat-exchanger has a surplus capacity equal to at least 25% of the largest prescribed capacity. It is not necessary to make provision for separate piping.

Cargo tanks, piping and accessories shall be insulated so that, in the event of a failure of all cargo refrigeration systems, the entire cargo remains for at least 52 hours in a condition not causing the safety valves to open.

9.3.x.27.2 The security devices and the connecting lines from the refrigeration system shall be connected to the cargo tanks above the liquid phase of the cargo when the tanks are filled to their maximum permissible degree of filling. They shall remain within the gaseous phase, even if the vessel has a list up to 12 degrees.

9.3.x.27.3 When several refrigerated cargoes with a potentially dangerous chemical reaction are carried simultaneously, particular care shall be given to the refrigeration systems so as to prevent any mixing of the cargoes. For the carriage of such cargoes, separate refrigeration systems, each including the full stand-by unit referred to in 9.3.x.27.1, shall be provided for each cargo. When, however, refrigeration is ensured by an indirect or combined system and no leak in the heat exchangers can under any foreseeable circumstances lead to the mixing of cargoes, no provision need be made for separate refrigeration units for the different cargoes.

9.3.x.27.4 When several refrigerated cargoes are not soluble in each other under conditions of carriage such that their vapour pressures are added together in the event of mixing, particular care shall be given to the refrigeration systems to prevent any mixing of the cargoes.

9.3.x.27.5 When the refrigeration systems require water for cooling, a sufficient quantity shall be supplied by a pump or pumps used exclusively for the purpose. This pump or pumps shall have at least two suction pipes, leading from two water intakes, one to port, the other to starboard. Provision shall be made for a stand-by pump with a satisfactory flow; this may be a pump used for other purposes provided that its use for supplying water for cooling does not impair any other essential service.

9.3.x.27.6 The refrigeration system may take one of the following forms:

(a) Direct system: the cargo vapours are compressed, condensed and returned to the cargo tanks. This system shall not be used for certain cargoes specified in Table C of Chapter 3.2. This requirement is indicated by remark 35 in column (20) of Table C of Chapter 3.2;

(b) Indirect system: the cargo or the cargo vapours are cooled or condensed by means of a coolant without being compressed;

(c) Combined system: the cargo vapours are compressed and condensed in a cargo/coolant heat-exchanger and returned to the cargo tanks. This system shall not be used for certain cargoes specified in Table C of Chapter 3.2. This requirement is indicated by remark 36 in column (20) of Table C of Chapter 3.2.

9.3.x.27.7 All primary and secondary coolant fluids shall be compatible with each other and with the cargo with which they may come into contact. Heat exchange may take place either at a distance from the cargo tank, or by using cooling coils attached to the inside or the outside of the cargo tank.

9.3.x.27.8 When the refrigeration system is installed in a separate service space, this service space shall meet the requirements of 9.3.x.17.6.

9.3.x.27.9 For all cargo systems, the heat transmission coefficient as used for the determination of the holding time (7.2.4.16.16 and 7.2.4.16.17) shall be determined by calculation. Upon completion of the vessel, the correctness of the calculation shall be checked by means of a heat balance test. The calculation and test shall be performed under supervision by the recognized classification society which classified the vessel.

The heat transmission coefficient shall be documented and kept on board. The heat transmission coefficient shall be verified at every renewal of the certificate of approval.

9.3.x.27.10 A certificate from a recognised classification society stating that 9.3.x.24.1 to 9.3.x.24.3, 9.3.x.27.1 and 9.3.x.27.4 above have been complied with shall be submitted together with the application for issue or renewal of the certificate of approval."

9.3.3.0.1 (c) Replace "vapour pipes and gas discharge pipes" by "venting piping".

9.3.3.11.2 (a) Insert the following new sentence at the end:

"Refrigerated cargo tank fastenings shall meet the requirements of a recognised classification society."

9.3.3.15.1 (a) , transverse extent Replace "0.59 m, or when applicable, the distance allowed by section 9.3.4, reduced by 0.01 m" by "0.59 m inboard from the vessel's side at right angles to the centreline at the level corresponding to the maximum draught".

9.3.3.20.1 Amend to read as follows:

"Cofferdams or cofferdam compartments remaining once a service space has been arranged in accordance with 9.3.3.11.6 shall be accessible through an access hatch."

9.3.3.21.1 (g) Amend to read as follows:

"(g) a connection for a closed-type or partly closed-type sampling device, and/or at least one sampling opening as required in column (13) of Table C of Chapter 3.2."

9.3.3.21.9, third paragraph Replace "Screens" by "Flame arrester plate stacks".

9.3.3.22.5 (a) Replace "a vapour pipe" by "venting piping".

9.3.3.22.5 (a) (iii) Replace "a flame arrester with a fixed plate stack" by "a flame arrester with a fixed or spring-loaded plate stack".

9.3.3.22.5 (a), last paragraph Replace "common vapour pipe" by "common venting piping".

9.3.3.22.5 (b) Replace "a vapour pipe" by "venting piping" and "a common vapour pipe" by "a common venting piping".

9.3.3.22.5 (c) Replace "vapour pipe" by "venting piping".

9.3.3.22.5 (d) Replace "a vapour pipe" by "venting piping" and "a common vapour pipe" by "a common venting piping".

9.3.4.1.1, first sentence Replace "The maximum permissible capacity" by "The maximum permissible capacity and length".