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ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on the Transport of Dangerous Goods

Joint Meeting of Experts on the Regulations annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)*

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS (ADN)

Draft amendments to the Regulations annexed to the ADN**

Note by the secretariat

The present document contains the consolidated list of amendments adopted by the Joint Meeting of Experts for submission to the Administrative Committee of the ADN and for entry into force on 28 February 2009 (see ECE/TRANS/WP.15/AC.2/25, para. 39).

PART 1

Chapter 1.1

1.1.3.1 (a) Add a new second sentence to read as follows:

"When these goods are flammable liquids carried in refillable receptacles filled by, or for, a private individual, the total quantity shall not exceed 60 litres per receptacle and 240 litres per transport unit.".

* Meeting organized jointly by the Economic Commission for Europe and the Central Commission for the Navigation of the Rhine (CCNR).

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In the Note, replace “2.2.7.1.2” with “1.7.1.4”.

1.1.3.2 (c) Amend the first sentence to read as follows: “gases of Groups A and O (according to 2.2.2.1), if the pressure of the gas in the receptacle or tank at a temperature of 20 °C does not exceed 200 kPa (2 bar) and if the gas is not a liquefied or a refrigerated liquefied gas .”.

1.1.3.4 In the heading, replace “in limited quantities” with “in limited or excepted quantities”.

In the Note after the heading, replace “2.2.7.1.2” with “1.7.1.4”.

1.1.3.4.2 Delete "packed in limited quantities".

1.1.3.4.3 Insert a new paragraph 1.1.3.4.3 to read as follows:

“1.1.3.4.3 Certain dangerous goods may be subject to exemptions provided that the conditions of Chapter 3.5 are met.”.

Add a new section 1.1.3.7 to read as follows:

"**1.1.3.7** ***Exemptions related to the carriage of lithium batteries***

The provisions laid down in ADN do not apply to:

(a) Lithium batteries installed in a means of transport, performing a transport operation and destined for its propulsion or for the operation of any of its equipment;

(b) Lithium batteries contained in an equipment for the operation of this equipment used or intended for the use during transport carriage (e.g. a laptop computer).".

Chapter 1.2

1.2.1 In the definition for "aerosol or aerosol dispenser", replace "6.2.4" with: "6.2.6".

Amend the definition for “Breathing apparatus (ambient air-dependent)" to read as follows:

“Breathing apparatus (ambient air-dependent filter apparatus) means an apparatus which protects the person wearing it when working in a dangerous atmosphere by means of a suitable filter. For such apparatuses, see for example European standard EN 136:1999. For the filters used, see for example European standard EN 371:1992 or EN 372:1992;”

In the definition of *Bulkhead (watertight),* invert the indents as follows:

"– In a dry cargo vessel: a bulkhead constructed so that it can withstand water pressure with a head of 1.00 metre above the deck but at least to the top of the hatchway coaming;

– In a tank vessel: a bulkhead constructed to withstand a water pressure of 1.00 metre above the deck;"

The amendment to the definition of CEVNI applies to the French text only.

In the definition of "*Container*":

Add a new fifth indent to read as follows:

"– having an internal volume of not less than 1 m^3, except for containers for the carriage of radioactive material.".

Before "A swap body", delete "(see also "Closed container", "Large container", "Open container", "Sheeted container" and *"Small container"*)" and add a new paragraph to read "In addition:" followed by the existing definitions of "*Small container*", "*Large container*", "*Closed container*", "*Open container*" and "*Sheeted container*".

At the places where the definitions of "*Open container*", "*Closed container*", "*Large container*", "*Sheeted container*" and "*Small container*" currently appear, add a reference to the definition of "*Container*" as follows:

"*Open container*"/"*Closed container*"/"*Large container*"/"*Sheeted container*"/"*Small container*", see "*Container*".

In the Note after the definition add "Nevertheless, a container may be used as a packaging for the carriage of radioactive material."

In the definition of "*Large container*", delete the Note and amend (a) to read as follows:

"(a) a container which does not meet the definition of a small container;".

Amend the definition of "*Small container*" to read as follows:

"Small container means a container which has either any overall outer dimension (length, width or height) less than 1.5 m, or an internal volume of not more than 3 m^3" and delete the Note after the definition.

The amendment to the definition of *Critical temperature* applies to the French text only.

In the definition of *"Composite IBC with plastics inner receptacle"*, in the Note, insert "*material*" after "*Plastics*" and delete ", etc".

Delete the definition of “Damage stability plan”.

In the definition of “*Escape device (suitable)”,* add the following new sentence at the end: "For such devices, see for example European standard EN 400:1993, EN 401:1993, EN 402:1993, EN 403:1993 or EN 1146:1997;".

In the note after the definition of “*Full load*”, delete “, see 2.2.7.2”.

In the definition of "*GHS*", replace "first" with "second" and "ST/SG/AC.10/30/Rev.1" with "ST/SG/AC.10/30/Rev.2".

In the definition of "*Manual of Tests and Criteria*", replace "document ST/SG/AC.10/11/Rev.4/Amend.1" with "documents ST/SG/AC.10/11/Rev.4/Amend.1 and ST/SG/AC.10/11/Rev.4/Amend.2".

In the definition of *“Opening pressure”,* add “in Chapter 3.2, Table C” after “substances”.

In the definition of “*Package*”, at the beginning of the last sentence, replace "The" with "Except for the carriage of radioactive material, the". In the Note, add ", 4.1.9.1.1 and Chapter 6.4 of ADR" after "2.2.7.2".

In the definition of “*Packaging*”, delete the Note and amend the text before the parenthesis to read as follows:

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

In the definition of “*Receptacle”* delete the NOTE.

In the definition of *“Safety valve*” insert “*High velocity vent valve*” before “*Pressure-relief device*”.

The amendment to the definition of “Slops” *applies to the French text only.*

Delete the first definition of *“Transport unit”.*

Delete the definition of “Transport unit (inland waterways)”.

In the definition of "*UN Model Regulations*", replace "fourteenth" with "fifteenth" and "(ST/SG/AC.10/1/Rev.14)" with "(ST/SG/AC.10/1/Rev.15)".

In the definition of “vehicle”, delete “or wagon in RID”.

Insert the following new definitions in alphabetical order:

"*Animal material* means animal carcasses, animal body parts, or animal foodstuffs;"

"*Approval*

Multilateral approval, for the carriage of Class 7 material, means approval by the relevant competent authority of the country of origin of the design or shipment, as applicable, and by the competent authority of each country through or into which the consignment is to be carried. The term "through or into" specifically excludes "over", i.e. the approval and notification requirements shall not apply to a country over which radioactive material is carried in an aircraft, provided that there is no scheduled stop in that country;

Unilateral approval, for the carriage of Class 7 material, means an approval of a design which is required to be given by the competent authority of the country of origin of the design only. If the country of origin is not a Contracting Party to ADN, the approval shall require validation by the competent authority of the first Contracting Party to ADN reached by the consignment (see 6.4.22.6 of ADR);"

"Breathing apparatus (self-contained) means an apparatus which supplies the person wearing it when working in a dangerous atmosphere with breathing air by means of pressurized air carried with him or by means of an external supply via a tube. For such apparatuses, see for example European standard EN 137:1993 or EN 138:1994;"

"*Cargo transport unit* means a vehicle according to article 1 (a) of ADR, a wagon, a container, a tank-container, a portable tank or an MEGC;".

"*Confinement system,* for the carriage of Class 7 material, means the assembly of fissile material and packaging components specified by the designer and agreed to by the competent authority as intended to preserve criticality safety;"

"*Containment system,* for the carriage of Class 7 material, means the assembly of components of the packaging specified by the designer as intended to retain the radioactive material during carriage;"

"*Criticality safety index (CSI) assigned to a package, overpack or container containing fissile material,* for the carriage of Class 7 material, means a number which is used to provide control over the accumulation of packages, overpacks or containers containing fissile material;"

"*Design,* for the carriage of Class 7 material, means the description of special form radioactive material, low dispersible radioactive material, package or packaging which enables such an item to be fully identified. The description may include specifications, engineering drawings, reports demonstrating compliance with regulatory requirements, and other relevant documentation;"

"*Exclusive use,* for the carriage of Class 7 material, means the sole use, by a single consignor, of a conveyance or of a large container, in respect of which all initial, intermediate and final loading and unloading is carried out in accordance with the directions of the consignor or consignee;"

"Explosion danger areas means areas in which an explosive atmosphere may occur of such a scale that special protection measures are necessary to ensure the safety and health of the persons affected (see Directive 1999/92/EC)."

"Explosive atmosphere means a mixture of air with gases, vapours or mists flammable in atmospheric conditions, in which the combustion process spreads after ignition to the entire unconsumed mixture (see EN 1127-1:1997);"

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

"*IBC Code*" means the International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk, published by the International Maritime Organization (IMO);"

"Inspection body means an independent monitoring and verification body certified by the competent authority;"

"Mass density shall be expressed in kg/m^3. In the event of repetition, the number alone shall be used;"

"*Maximum normal operating pressure,* for the carriage of Class 7 material, means the maximum pressure above atmospheric pressure at mean sea-level that would develop in the containment system in a period of one year under the conditions of temperature and solar radiation corresponding to environmental conditions in the absence of venting, external cooling by an ancillary system, or operational controls during carriage;"

"OTIF means Intergovernmental Organisation for International Carriage by Rail (OTIF, Gryphenhübeliweg 30, CH-3006 Bern);"

"Possibility of cargo heating means a cargo heating installation in the cargo tanks using a heat insulator. The heat insulator may be heated by means of a boiler on board the tank vessel (cargo heating system in accordance with 9.3.2.42 or 9.3.3.42) or from shore;"

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

"Protective gloves means gloves which protect the wearer's hands during work in a danger area. The choice of appropriate gloves shall correspond to the dangers likely to arise. For protective gloves, see for example European standard EN 374-1:1994, 374-2:1994 or 374-3:1994;"

"Protective goggles, protective masks means goggles or face protection which protects the wearer's eyes or face during work in a danger area. The choice of appropriate goggles or masks shall correspond to the dangers likely to arise. For protective goggles or masks, see for example European standard EN 166:2001;"

"Protective shoes (or protective boots) means shoes or boots which protect the wearer's feet during work in a danger area. The choice of appropriate protective shoes or boots shall correspond to the dangers likely to arise. For protective shoes or boots, see for example European standard EN 346:1997;"

"Protective suit means a suit which protects the wearer's body during work in a danger area. The choice of appropriate suit shall correspond to the dangers likely to arise. For protective suits, see for example European standard EN 340:1993;"

"*Radiation level,* for the carriage of Class 7 material, means the corresponding dose rate expressed in millisieverts per hour;"

"*Radioactive contents,* for the carriage of Class 7 material, mean the radioactive material together with any contaminated or activated solids, liquids, and gases within the packaging;"

"Safety adviser means a person who, in an undertaking the activities of which include the carriage, or the related packing, loading, filling or unloading, of dangerous goods by inland waterways, is responsible for helping to prevent the risks inherent in the carriage of dangerous goods;"

"*Transport index (TI) assigned to a package, overpack or container, or to unpackaged LSA-I or SCO-I*, for the carriage of Class 7 material, means a number which is used to provide control over radiation exposure;".

Chapter 1.3

1.3.1 Add the following new Notes:

"***NOTE 3:*** *For training with regard to Class 7, see also 1.7.2.5.*".

"***NOTE 4****: The training shall be effected before taking on responsibilities concerning the carriage of dangerous goods.*".

1.3.2.4 Delete.

1.4.3.3 The amendment applies to the French version only.

1.5.2.1.3 Replace “established by the Administrative Committee” with “contained in subsection 3.2.4.1”.

1.5.2.2.1 Amend the first sentence of the second paragraph to read as follows: “The application shall conform to the model contained in subsection 3.2.4.1”.

1.5.2.2.2 In the second sentence, replace “established by the Administrative Committee” with “contained in subsection 3.2.4.3”.

Chapter 1.6

1.6.1.1 Replace "2007" with "2009" and "2006" with "2008".

Add the following new transitional measures:

“1.6.1.11-12 *(Reserved)*.

1.6.1.13 Plates in accordance with the provisions of 5.3.2.2.1 and 5.3.2.2.2 applicable until 31 December 2008 may be used until 31 December 2009.

1.6.1.15 IBCs manufactured, remanufactured or repaired before 1 January 2011 need not be marked with the maximum permitted stacking load in accordance with 6.5.2.2.2 of ADR. Such IBCs, not marked in accordance with 6.5.2.2.2 of ADR, may still be used after 31 December 2010 but must be marked in accordance with 6.5.2.2.2 of ADR if they are remanufactured or repaired after that date.

1.6.1.16 Animal material affected by pathogens included in Category B, other than those which would be assigned to Category A if they were in culture (see 2.2.62.1.12.2), may be carried in accordance with provisions determined by the competent authority until 31 December 2014.[1]

1.6.1.17 For carriage in packages, substances of classes 1 to 9 other than those assigned to UN Nos. 3077 or 3082 to which the classification criteria of 2.2.9.1.10 have not been applied and which are not marked in accordance with 5.2.1.8 and 5.3.6 may still be carried until 31 December 2010 without application of the provisions concerning the carriage of environmentally hazardous substances.

1.6.1.18 The provisions of sections 3.4.8 to 3.4.12 need only be applied as from 1 January 2011.".

1.6.2 Amend the heading to read: “Pressure receptacles and receptacles for class 2”.

1.6.7.2.1.1 and 1.6.7.2.3.1 Table of transitional provisions

[1] *Regulations for dead infected animals are contained e.g. in Regulation (EC) No. 1774/2002 of the European Parliament and of the Council of 3 October 2002 laying down health rules concerning animal by-products not intended for human consumption (Official Journal of the European Communities, No. L 273 of 10.10.2002, p. 1).*

- 9.1.0.35, in the right-hand column, replace "52°" with "UN No. 3175" and "4° (c)" with "UN No. 2211";
- 9.3.1.31.4 The amendment applies to the French version only.
- 9.3.2.31.4 The amendment applies to the French version only.
- 9.3.3.31.4 The amendment applies to the French version only.

1.6.7.2.3.1 (Table of general transitional provisions for tank vessels) Amend the entries for paragraphs 9.3.3.11.7 and 9.3.3.15 to read as follows:

Table of transitional provisions		
Paragraphs	Subject	Time limit and comments
9.3.3.11.7	Distance between the cargo tanks and the outer wall of the vessel	N.R.M. after 01-01-2001 Renewal of certificate of approval after 31-12-2038
	Width of double hull	N.R.M. after 01-01-2007 Renewal of certificate of approval after 31-12-2038
	Distance between the suction well and the bottom spaces	N.R.M. after 01-01-2003 Renewal of certificate of approval after 01-01-2038
9.3.3.15	Stability (damaged condition)	N.R.M. after 01-01-2007 Renewal of certificate of approval after 01-01-2038

1.6.7.3.2 Add a paragraph to read as follows:

"1.6.7.3.2 *Transitional provisions: vessels*

Single-hull tank vessels in service on 1 January 2009 with a dead weight on 1 January 2007 of less than 1,000 tonnes may continue to transport the substances they were authorized to carry on 31 December 2008 until 31 December 2018.

Supply vessels and oil separator vessels in service on 1 January 2009 with a dead weight on 1 January 2007 of less than 300 tonnes may continue to transport the substances they were authorized to carry on 31 December 2008 until 31 December 2038.".

1.6.7.4 Add a subsection to read as follows:

"1.6.7.4 *Transitional provisions concerning the transport of substances hazardous to the environment or to health*

Transitional periods applicable to substances

By way of derogation from Part 3, Table C, the substances listed below may be transported in accordance with the requirements referred to in the following tables until the date specified.".

Until 31.12.2012

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1145	CYCLOHEXANE	3	F1	II	3+N1	N	2	2		10	97	0.78	3	yes	T3	II A	yes	PP, EX, A	1	6: +11 ºC; 17
1146	CYCLOPENTANE	3	F1	II	3+N2	N	2	2		10	97	0.75	3	yes	T2	II A	yes	PP, EX, A	1	
1157	DIISOBUTYL KETONE	3	F1	III	3+N3+F	N	3	2			97	0.81	3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	
1159	DIISOPROPYL ETHER	3	F1	II	3+N2	N	2	2		10	97	0.72	3	yes	T2	II A	yes	PP, EX, A	1	
1171	ETHYLENE GLYCOL MONOETHYL ETHER	3	F1	III	3+CMR	N	3	2			97	0.93	3	yes	T3	II B	yes	PP, EX, A	0	
1172	ETHYLENE GLYCOL MONOETHYL ETHER ACETATE	3	F1	III	3+N3+CMR	N	3	2			97	0.98	3	yes	T2	II A	yes	PP, EX, A	0	
1188	ETHYLENE GLYCOL MONOMETHYL ETHER	3	F1	III	3+CMR	N	3	2			97	0.97	3	yes	T3	II B	yes	PP, EX, A	0	
1191	OCTYL ALDEHYDES (2- ETHYLOCTALDEHYDE)	3	F1	III	3+N3+F	N	3	2			97	0.82	3	yes	T3	II B[4)]	yes	PP, EX, A	0	
1206	HEPTANES (n- HEPTANE)	3	F1	II	3+N1	N	2	2		10	97	0.68	3	yes	T3	II A	yes	PP, EX, A	1	
1208	HEXANES (n- HEXANE)	3	F1	II	3+N1	N	2	2		10	97	0.66	3	yes	T3	II A	yes	PP, EX, A	1	
1216	ISOOCTENE	3	F1	II	3+N2	N	2	2		10	97	0.73	3	yes	T3	II B[4)]	yes	PP, EX, A	1	
1224	KETONES, LIQUID, N.O.S. 110 kPa < vp50 ≦ 175 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		50	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1224	KETONES, LIQUID, N.O.S. 110 kPa < vp50 ≦ 175 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2	3	10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1224	KETONES, LIQUID, N.O.S. vp50 ≤ 110 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1224	KETONES, LIQUID, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	N	3	2			97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27
1262	OCTANES (n-OCTANE)	3	F1	II	3+N1	N	2	2		10	97	0.7	3	yes	T3	II A	yes	PP, EX, A	1	
1265	PENTANES, liquid (n-PENTANE)	3	F1	II	3+N2	N	2	2		50	97	0.63	3	yes	T3	II A	yes	PP, EX, A	1	
1265	PENTANES, liquid (n-PENTANE)	3	F1	II	3+N2	N	2	2	3	10	97	0.63	3	yes	T3	II A	yes	PP, EX, A	1	
1267	PETROLEUM CRUDE OIL vp50 > 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	1	1			97		1	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 29
1267	PETROLEUM CRUDE OIL vp50 > 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2	1	50	97		2	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 29
1267	PETROLEUM CRUDE OIL 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		50	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 29
1267	PETROLEUM CRUDE OIL 110 kPa < vp50 ≤ 150 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2	3	10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 29
1267	PETROLEUM CRUDE OIL vp50 ≤ 110 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 29

(Until 31.12.2012)

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1267	PETROLEUM CRUDE OIL vp50 ≤ 110 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97		3	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	14; 29
1267	PETROLEUM CRUDE OIL	3	F1	III	3+(N1, N2, N3, CMR, F or S)	N	3	2			97		3	yes	T4 [3]	II B[4]	yes	PP, EX, A	0	14
1307	XYLENES (o-XYLENE)	3	F1	III	3+N2	N	3	2			97	0.88	3	yes	T1	II A	yes	PP, EX, A	0	
1307	XYLENES (m-XYLENE)	3	F1	III	3+N2	N	3	2			97	0.86	3	yes	T1	II A	yes	PP, EX, A	0	
1307	XYLENES (p-XYLENE)	3	F1	III	3+N2	N	3	2	2		97	0.86	3	yes	T1	II A	yes	PP, EX, A	0	6: +17 ºC; 17
1307	XYLENES (mixture with boiling point ≤ 0° C)	3	F1	II	3+N2	N	3	2			97		3	yes	T1	II A	yes	PP, EX, A	1	
1307	XYLENES (mixture with boiling point ≤ 0° C)	3	F1	III	3+N2	N	3	2			97		3	yes	T1	II A	yes	PP, EX, A	0	
1307	XYLENES (mixture with 0° C < boiling point < 13° C)	3	F1	I	3+N2	N	3	2	2		97		3	yes	T1	II A	yes	PP, EX, A	0	6: +17 ºC; 17
1719	CAUSTIC ALKALI LIQUID, N.O.S.	8	C5	II	8+(N1, N2, N3, CMR, F or S)	N	4	2			97		3	yes			no	PP, EP	0	27; 30; 34
1719	CAUSTIC ALKALI LIQUID, N.O.S.	8	C5	III	8+(N1, N2, N3, CMR, F or S)	N	4	2			97		3	yes			no	PP, EP	0	27; 30; 34
1760	CORROSIVE LIQUID, N.O.S.	8	C9	I	8+(N1, N2, N3, CMR, F or S)	N	2	3		10	97		3	yes			no	PP, EP	0	27; 34
1760	CORROSIVE LIQUID, N.O.S.	8	C9	II	8+(N1, N2, N3, CMR, F or S)	N	2	3		10	97		3	yes			no	PP, EP	0	27; 34

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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)
1760	CORROSIVE LIQUID, N.O.S.	8	C9	III	8+(N1, N2, N3, CMR, F or S)	N	4	3			97		3	yes			no	PP, EP	0	27; 34
1760	CORROSIVE LIQUID, N.O.S. (SODIUM MERCAPTO-BENZOTHIAZOLE, 50 % AQUEOUS SOLUTION)	8	C9	II	8+N1+S	N	4	2			97	1.25	3	yes			no	PP, EP	0	34
1760	CORROSIVE LIQUID, N.O.S. (FATTY ALCOHOL, C_{12}-C_{14})	8	C9	III	8+F	N	4	2			97	0.89	3	yes			no	PP, EP	0	34
1764	DICHLOROACETIC ACID	8	C3	II	8+N1	N	3	3			97	1.56	3	yes	T1	II A	yes	PP, EP, EX, A	0	17; 34
1918	ISOPROPYLBENZENE (cumene)	3	F1	III	3+N2	N	3	2			97	0.86	3	yes	T2	II A[8)]	yes	PP, EX, A	0	
1920	NONANES	3	F1	III	3+N2+F	N	3	2			97	0,70 - 0,75	3	yes	T3	II A	yes	PP, EX, A	0	
1987	ALCOHOLS, N.O.S. 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		50	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1987	ALCOHOLS, N.O.S. 110 kPa < vp50 ≤ 150 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2	3	10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1987	ALCOHOLS, N.O.S. vp50 ≤ 110 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1987	ALCOHOLS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	N	3	2			97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1987	ALCOHOLS, N.O.S. (CYCLOHEXANOL)	3	F1	III	3+N3+F	N	3	2	2		95	0.95	3	yes	T3	II A	yes	PP, EX, A	0	7; 17
1989	ALDEHYDES, N.O.S. 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		50	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1989	ALDEHYDES, N.O.S. 110 kPa < vp50 ≤ 150 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2	3	10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27; 29
1989	ALDEHYDES, N.O.S. 110 kPa < vp50	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27; 29
1989	ALDEHYDES, N.O.S. 110 kPa < vp50 ≤ 175 kPa	3	F1	III	3+(N1, N2, N3, CMR, F or S)	N	3	2			97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27
1993	FLAMMABLE LIQUID, N.O.S. vp50 >175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	1	1			97		1	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1993	FLAMMABLE LIQUID, N.O.S. vp50 >175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2	1	50	97		2	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1993	FLAMMABLE LIQUID, N.O.S. 110 kPa < vp50 ≤ 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2		50	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1993	FLAMMABLE LIQUID, N.O.S. 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		50	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29

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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)
1993	FLAMMABLE LIQUID, N.O.S. 110 kPa < vp50 ≤ 150 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2	3	10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1993	FLAMMABLE LIQUID, N.O.S. 110 kPa < vp50 ≤ 150 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2	3	10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1993	FLAMMABLE LIQUID, N.O.S. vp50 ≤ 110 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1993	FLAMMABLE LIQUID, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	N	3	2			97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27
1993	FLAMMABLE LIQUID, N.O.S. (CYCLOHEXANONE/ CYCLOHEXANOL MIXTURE)	3	F1	III	3+F	N	3	2			97	0.95	3	yes	T3	II A	yes	PP, EX, A	0	
1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs	3	F1	III	3+S	N	4	2	2		97		3	yes	T3	II A[7)]	yes	PP, EX, A	0	
2046	CYMENES	3	F1	III	3+N2+F	N	3	2			97	0.88	3	yes	T2	II A	yes	PP, EX, A	0	
2048	DICYCLOPENTADIENE	3	F1	III	3+N2+F	N	3	2	2		95	0.94	3	yes	T1	II B[4)]	yes	PP, EX, A	0	7; 17
2050	DIISOBUTYLENE, ISOMERIC COMPOUNDS	3	F1	II	3+N2+F	N	2	2		10	97	0.72	3	yes	T3[2)]	II A[7)]	yes	PP, EX, A	1	
2241	CYCLOHEPTANE	3	F1	II	3+N2	N	2	2		10	97	0.81	3	yes	T4 [3)]	II A	yes	PP, EX, A	1	
2247	n-DECANE	3	F1	III	3+F	N	3	2			97	0.73	3	yes	T4	II A	yes	PP, EX, A	0	
2259	TRIETHYLENETETRAMINE	8	C7	II	8+N2	N	3	2			97	0.98	3	yes	T2	II B[4)]	yes	PP, EP, EX, A	1	34

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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)
2264	N,N-DIMETHYLCYCLO-HEXYLAMINE	8	CF1	II	8+3+N2	N	3	2			97	0.85	3	yes	T3	II B[4)]	yes	PP, EP, EX, A	1	34
2265	N,N-DIMETHYL-FORMAMIDE	3	F1	III	3+CMR	N	3	2			97	0.95	3	yes	T2	II A	yes	PP, EX, A	0	
2286	PENTAMETHYLHEPTANE	3	F1	III	3+F	N	3	2			97	0.75	3	yes	T2	II A[7)]	yes	PP, EX, A	0	
2289	ISOPHORONEDIAMINE	8	C7	III	8+N2	N	3	2			97	0.92	3	yes	T2	II A	yes	PP, EP, EX, A	0	17; 34
2303	ISOPROPENYLBENZENE	3	F1	III	3+N2+F	N	3	2			97	0.91	3	yes	T2	II B	yes	PP, EX, A	0	
2309	OCTADIENE (1,7- OCTADIENE)	3	F1	II	3+N2	N	2	2		10	97	0.75	3	yes	T3	II B[4)]	yes	PP, EX, A	1	
2320	TETRAETHYLENE-PENTAMINE	8	C7	III	8+N2	N	4	2			97	1	3	yes			no	PP, EP	0	34
2324	TRIISOBUTYLENE	3	F1	III	3+N1+F	N	3	2			97	0.76	3	yes	T2	II B[4)]	yes	PP, EX, A	0	
2325	1,3,5-TRIMETHYLBENZENE	3	F1	III	3+N1	N	3	2			97	0.87	3	yes	T1	II A	yes	PP, EX, A	0	
2414	THIOPHENE	3	F1	II	3+N3+S	N	2	2		10	97	1.06	3	yes	T2	II A	yes	PP, EX, A	1	
2430	ALKYLPHENOLS, SOLID, N.O.S. (nonylphenol, isomeric mixture, molten)	8	C4	II	8+N1+F	N	3	3	2		95	0.95	3	yes	T2	II A[7)]	yes	PP, EP, EX, A	0	7; 17; 34
2564	TRICHLOROACETIC ACID SOLUTION	8	C3	II	8+N1	N	3	3	2		95	1,62[11)]	3	yes	T1	II A[7)]	yes	PP, EP, EX, A	0	7; 17; 22; 34
2564	TRICHLOROACETIC ACID SOLUTION	8	C3	III	8+N1	N	4	3			97	1,62[11)]	3	yes	T1	II A[7)]	yes	PP, EP, EX, A	0	22; 34

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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)
2672	AMMONIA SOLUTION (relative density between 0.880 and 0.957 at 15 °C in water, with more than 10 % but not more than 35 % ammonia)	8	C5	III	8+N1	N	2	2		10	97	0,88[10] - 0,96[10]	3	yes			no	PP, EP	0	34
2709	BUTYLBENZENES	3	F1	III	3+N1+F	N	3	2			97	0.87	3	yes	T2	II A	yes	PP, EX, A	0	
2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.	8	C7	I	8+(N1, N2, N3, CMR, F or S)	N	4	2			97		3	yes			no	PP, EP	0	27; 34
2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.	8	C7	II	8+(N1, N2, N3, CMR, F or S)	N	4	2			97		3	yes			no	PP, EP	0	27; 34
2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.	8	C7	III	8+(N1, N2, N3, CMR, F or S)	N	4	2			97		3	yes			no	PP, EP	0	27; 34
2815	N-AMINOETHYL-PIPERAZINE	8	C7	III	8+N2	N	4	2			97	0.98	3	yes			no	PP, EP	0	34
2850	PROPYLENE TETRAMER	3	F1	III	3+N1+F	N	4	2			97	0.76	3	yes			no	PP	0	
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	FC	III	3+8+(N1, N2, N3, CMR, F or S)	N	3	2			97		3	yes	T4 [3]	II B[4]	yes	PP, EP, EX, A	0	27; 34
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point	3	F2	III	3+8+(N1, N2, N3, CMR, F or S)	N	3	2	2		95		3	yes	T4 [3]	II B[4]	yes	PP, EX, A	0	7; 27

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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)
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (CARBON BLACK REEDSTOCK) (PYROLYSIS OIL)	3	F2	III	3+F	N	3	2	2		95		3	yes	T 1	II B	yes	PP, EX, A	0	7
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (PYROLYSIS OIL A)	3	F2	III	3+F	N	3	2	2		95		3	yes	T 1	II B	yes	PP, EX, A	0	7
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (RESIDUAL OIL)	3	F2	III	3+F	N	3	2	2		95		3	yes	T 1	II B	yes	PP, EX, A	0	7
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (MIXTURE OF CRUDE NAPHTHALINE)	3	F2	III	3+F	N	3	2	2		95		3	yes	T 1	II B	yes	PP, EX, A	0	7
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (CREOSOTE OIL)	3	F2	III	3+N2+ CMR+5	N	3	2	2		95		3	yes	T 2	II B	yes	PP, EX, A	0	7

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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)
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	8	C1	I	8+(N1, N2, N3, CMR, F or S)	N	2	3		10	97		3	yes			no	PP, EP	0	27; 34
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	8	C1	II	8+(N1, N2, N3, CMR, F or S)	N	2	3		10	97		3	yes			no	PP, EP	0	27; 34
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	8	C1	III	8+(N1, N2, N3, CMR, F or S)	N	4	3			97		3	yes			no	PP, EP	0	27; 34
3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	8	C3	I	8+(N1, N2, N3, CMR, F or S)	N	2	3		10	97		3	yes			no	PP, EP	0	27; 34
3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	8	C3	II	8+(N1, N2, N3, CMR, F or S)	N	2	3		10	97		3	yes			no	PP, EP	0	27; 34
3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	8	C3	III	8+(N1, N2, N3, CMR, F or S)	N	4	3			97		3	yes			no	PP, EP	0	27; 34
3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	8	C5	I	8+(N1, N2, N3, CMR, F or S)	N	4	2			97		3	yes			no	PP, EP	0	27; 34
3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	8	C5	II	8+(N1, N2, N3, CMR, F or S)	N	4	2			97		3	yes			no	PP, EP	0	27; 34
3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	8	C5	III	8+(N1, N2, N3, CMR, F or S)	N	4	2			97		3	yes			no	PP, EP	0	27; 34

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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)
3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	8	C7	I	8+(N1, N2, N3, CMR, F or S)	N	4	2			97		3	yes			no	PP, EP	0	27; 34
3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	8	C7	II	8+(N1, N2, N3, CMR, F or S)	N	4	2			97		3	yes			no	PP, EP	0	27; 34
3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	8	C7	III	8+(N1, N2, N3, CMR, F or S)	N	4	2			97		3	yes			no	PP, EP	0	27; 34
3271	ETHERS, N.O.S. vp50 ≤ 110 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97		3	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	14, 27; 29
3271	ETHERS, N.O.S. (tert-AMYLMETHYL ETHER)	3	F1	II	3+N1	N	2	2		10	97	0.77	3	yes	T2	II B [4]	yes	PP, EX, A	1	
3271	ETHERS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	N	3	2			97		3	yes	T4 [3]	II B [4]	yes	PP, EX, A	0	14, 27
3272	ESTERS, N.O.S. vp50 ≤ 110 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97	0.77	3	yes	T2	II B [4]	yes	PP, EX, A	1	14, 27; 29
3272	ESTERS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	N	3	2			97		3	yes	T4 [3]	II B [4]	yes	PP, EX, A	0	14, 27

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UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
9001	SUBSTANCES WITH A FLASH-POINT ABOVE 60 °C handed over for carriage or carried at a TEMPERATURE WITHIN A RANGE OF 15 K BELOW THEIR FLASH-POINT or SUBSTANCES WITH A FLASH-POINT > 60 °C, HEATED TO LESS THAN 15 K FROM THE FLASH-POINT	3	F3		3+ (N1, N2, N3, CMR, F or S)	N	3	2			97		3	yes	T4 [3]	II B[4]	yes	PP, EX, A	0	27
9003	SUBSTANCES WITH A FLASH-POINT ABOVE 60 °C BUT NOT MORE THAN 100 °C or SUBSTANCES WHERE 61° C < FLASH-POINT ≤ 100° C, which are not affected to another class	9			9+(N3+F)	N	4	2			97		3	yes			no	PP	0	27
9003	SUBSTANCES WITH A FLASH-POINT ABOVE 60 °C BUT NOT MORE THAN 100 °C or SUBSTANCES WHERE 61° C <°FLASH-POINT ≤ 100 °C, which are not affected to another class (ETHYLENE GLYCOL MONOBUTYL ETHER)	9			9+(N3+F)	N	4	2			97	0.9	3	yes			no	PP	0	

(Until 31.12.2012)

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
9003	SUBSTANCES WITH A FLASH-POINT ABOVE 60 °C BUT NOT MORE THAN 100 °C or SUBSTANCES WHERE 61° C <°FLASH-POINT ≤ 100 °C, which are not affected to another class (2-ETHYL-HEXYLACRYLATE)	9			9+(N3+F)	N	4	2			97	0.89	3	yes			no	PP	0	3; 5; 16
9005	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, MOLTEN	9			9+(N1, N2, N3, CMR, F or S)	free														
9006	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	9			9+(N1, N2, N3, CMR, F or S)	free														

2. Until 31.12.2015

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1203	MOTOR SPIRIT or GASOLINE or PETROL	3	F1	II	3+N2+ CMR+F	N	2	2		10	97	0,68 - 0,72 10)	3	yes	T3	II A	yes	PP, EX, A	1	14
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. vp50 > 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	1	1			97		1	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. vp50 > 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2	1	50	97		2	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. 110 kPa < vp50 ≤ 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2		50	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. 110 kPa < vp50 ≤ 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2	3	10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		50	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. 110 kPa < vp50 ≤ 150 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2	3	10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. vp50 ≤ 110 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. vp50 ≤ 110 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	N	3	2			97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27
1268	PETROLEUM DISTILLATES; N.O.S or PETROLEUM PRODUCTS, N.O.S. (naphtha) 110 kPa < vp50 ≤ 150 kPa	3	F1	II	3+N2+ CMR+F	N	2	2		50	97	0.735	3	yes	T3	II A	yes	PP, EX, A	1	14; 27; 29
1268	PETROLEUM DISTILLATES; N.O.S or PETROLEUM PRODUCTS, N.O.S. (naphtha) 110 kPa < vp50 ≤ 150 kPa	3	F1	II	3+N2+ CMR+F	N	2	2	3	10	97	0.735	3	yes	T3	II A	yes	PP, EX, A	1	14; 29

(Until 31.12.2015)

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1268	PETROLEUM DISTILLATES, N.O.S or PETROLEUM PRODUCTS, N.O.S. (naphtha) vp50 ≤ 110 kPa	3	F1	II	3+N2+ CMR+F	N	2	2		10	97	0.735	3	yes	T3	II A	yes	PP, EX, A	1	14; 29
1268	PETROLEUM DISTILLATES, N.O.S, or PETROLEUM PRODUCTS, N.O.S. (benzene heart cut) vp50 ≤ 110 kPa	3	F1	II	3+N2+ CMR+F	N	2	2		10	97	0.765	3	yes	T3	II A	yes	PP, EX, A	1	14; 29
1987	ALCOHOLS, N.O.S. (CYCLOHEXANOL)	3	F1	III	3+N3+F	N	3	2	4		95	0.95	3	yes			no	PP	0	7; 17; 20: +46 ºC
2430	ALKYLPHENOLS, SOLID, N.O.S. (nonylphenol, isomeric mixture, molten)	8	C4	II	8+N1+F	N	3	1	4		95	0.95	3	yes			no	PP, EP	0	7; 17; 20: +125 ºC; 34
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (Low QI Pitch)	3	F2	III	3+ (N2 or N3) +F	N	3	1	4		95	1,1-1,3	3	yes	T2	II B	yes	PP, EX, A	0	7
3257	ELEVATED TEMPERATURE LIQUID, N.O.S. at or above 100 °C and below its flash-point (including molten metals, molten salts, etc.)	9	M9	III	9+(N1, N2, N3, CMR, F or S)	N	4	1	4		95		3	yes			no	PP	0	7; 20:+115 ºC; 22; 24; 25; 27

(Until 31.12.2015)

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
3257	ELEVATED TEMPERATURE LIQUID, N.O.S. at or above 100 °C and below its flash-point (including molten metals, molten salts, etc.)	9	M9	III	9+(N1, N2, N3, CMR, F or S)	N	4	1	4		95		3	yes			no	PP	0	7; 20:+225 ºC; 22; 24; 27
3295	HYDROCARBONS, LIQUID, N.O.S. vp50 > 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	1	1			97		1	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. vp50 > 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2	1	50	97		1	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. 110 kPa < vp50 < 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2		50	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. 110 kPa < vp50 < 150 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2	3	10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. 110 kPa < vp50 < 175 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		50	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. 110 kPa < vp50 < 150 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2	3	10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. vp50 ≤ 110 kPa	3	F1	I	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29

(Until 31.12.2015)

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
3295	HYDROCARBONS, LIQUID, N.O.S. vp50 ≤ 110 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	N	2	2		10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29
3295	HYDROCARBONS, LIQUID, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	N	3	2			97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27
3295	HYDROCARBONS, LIQUID, N.O.S. (1- octen)	3	F1	II	3+N2+F	N	2	2		10	97	0.71	3	yes	T3	II B[4)]	yes	PP, EX, A	1	14
3295	HYDROCARBONS, LIQUID, N.O.S. (polycyclic aromatic hydrocarbons mixture)	3	F1	III	3+CMR+F	N	3	2			97	1.08	3	yes	T1	II A	yes	PP, EX, A	0	14

(Until 31.12.2015)

3. Until 31.12.2018

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1202	GAS OIL or DIESEL FUEL or HEATING OIL (LIGHT) (flash-point not more than 60 °C)	3	F1	III	3+(N1, N2, N3, CMR, F)	N	4	2			97	< 0,85	3	yes			non	PP	0	
1202	GAS OIL complying with standard EN 590: 2004 or DIESEL FUEL or HEATING OIL (LIGHT) with flash-point as specified in EN 590:2004	3	F1	III	3+N2+F	N	4	2			97	0,82 - 0,85	3	yes			non	PP	0	
1202	GAS OIL or DIESEL FUEL or HEATING OIL (LIGHT) (flash-point more than 60 °C but not more than 100 °C)	3	F1	III	3+(N1, N2, N3, CMR, F or S)	N	4	2			97	< 1,1	3	yes			non	PP	0	
1223	KEROSENE	3	F1	III	3+N2+F	N	3	2			97	≤ 0,83	3	yes	T3	II A	yes	PP, EX, A	0	14
1300	TURPENTINE SUBSTITUTE	3	F1	III	3+N2+F	N	3	2			97	0.78	3	yes	T3	II B[4)]	yes	PP, EX, A	0	
1863	FUEL, AVIATION, TURBINE ENGINE vp50 > 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F)	N	1	1			97		1	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 29
1863	FUEL, AVIATION, TURBINE ENGINE vp50 > 175 kPa	3	F1	I	3+(N1, N2, N3, CMR, F)	N	2	2	1	50	97		2	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 29
1863	FUEL, AVIATION, TURBINE ENGINE 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+(N1, N2, N3, CMR, F)	N	2	2		50	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 29
1863	FUEL, AVIATION, TURBINE ENGINE 110 kPa < vp50 ≤ 150 kPa	3	F1	II	3+(N1, N2, N3, CMR, F)	N	2	2	3	10	97		3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 29

(Until 31.12.2018)

(Until 31.12.2018)

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck Permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1863	FUEL, AVIATION, TURBINE ENGINE vp50 ≤ 110 kPa	3	F1	II	3+(N1, N2, N3, CMR, F)	N	2	2		10	97		3	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	14; 29
1863	FUEL, AVIATION, TURBINE ENGINE	3	F1	III	3+(N1, N2, N3, CMR, F)	N	3	2			97		3	yes	T4 [3]	II B[4]	yes	PP, EX, A	0	14

Chapter 1.7

In the heading of the Chapter, replace "REQUIREMENTS" with "PROVISIONS".

Amend the heading of 1.7.1 to read as follows: "**1.7.1 Scope and application**" and add the following new notes after the heading:

"*Note 1:* *In the event of accidents or incidents during the carriage of radioactive material, emergency provisions, as established by relevant national and/or international organizations, shall be observed to protect persons, property and the environment. Appropriate guidelines for such provisions are contained in "Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material", Safety Standard Series No. TS-G-1.2 (ST-3), IAEA, Vienna (2002).*

Note 2: *Emergency procedures shall take into account the formation of other dangerous substances that may result from the reaction between the contents of a consignment and the environment in the event of an accident.*".

1.7.1.4 Insert a new sub-section 1.7.1.4 to read as follows:

"1.7.1.4 The provisions laid down in ADN do not apply to the carriage of:

(a) Radioactive material that is an integral part of the means of transport;

(b) Radioactive material moved within an establishment which is subject to appropriate safety regulations in force in the establishment and where the movement does not involve public roads or railways;

(c) Radioactive material implanted or incorporated into a person or live animal for diagnosis or treatment;

(d) Radioactive material in consumer products which have received regulatory approval, following their sale to the end user;

(e) Natural material and ores containing naturally occurring radionuclides which are either in their natural state, or have only been processed for purposes other than for extraction of the radionuclides, and which are not intended to be processed for use of these radionuclides provided the activity concentration of the material does not exceed 10 times the values specified in 2.2.7.2.2.1 (b), or calculated in accordance with 2.2.7.2.2.2 to 2.2.7.2.2.6;

(f) Non-radioactive solid objects with radioactive substances present on any surfaces in quantities not in excess of the limit set out in the definition for "contamination" in 2.2.7.1.2.".

Insert a new sub-section 1.7.1.5 to read as follows:

"**1.7.1.5** ***Specific provisions for the carriage of excepted packages***

Excepted packages 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 requirements in 5.1.2, 5.1.3.2, 5.1.4, 5.2.1.2, 5.2.1.7.1 to 5.2.1.7.3, 5.2.1.9, 5.4.1.1.1 (a), (g) and (h) and 7.1.4.14.7.5.2;

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

(c) If the excepted package contains fissile material, one of the fissile exceptions provided by 2.2.7.2.3.5 shall apply and the requirement of 6.4.7.2 of ADR shall be met.

Excepted packages are subject to the relevant provisions of all other parts of ADN.".

1.7.2.2 Amend to read as follows:

"1.7.2.2 Doses to persons shall be below the relevant dose limits. Protection and safety shall be optimized in order that the magnitude of individual doses, the number of persons exposed, and the likelihood of incurring exposure shall be kept as low as reasonably achievable, economic and social factors being taken into account within the restriction that the doses to individuals be subject to dose constraints. A structured and systematic approach shall be adopted and shall include consideration of the interfaces between carriage and other activities.".

1.7.2.3 Amend to read as follows:

"1.7.2.3 The nature and extent of the measures to be employed in the programme shall be related to the magnitude and likelihood of radiation exposures. The programme shall incorporate the requirements in 1.7.2.2, 1.7.2.4 to 1.7.2.7. Programme documents shall be available, on request, for inspection by the relevant competent authority.".

1.7.2.4 Add the following new note at the end *(Remainder unchanged)*:

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

1.7.2.5 Add a new sub-section to read as follows:

"1.7.2.5 Workers **(see 7.1.4.14.7, NOTE 3)** shall receive appropriate training concerning radiation protection including the precautions to be observed in order to restrict their occupational exposure and the exposure of other persons who might be affected by their actions."

1.7.4.1 Delete “of radioactive material” after “consignments” and replace “the applicable requirements of ADN” with “the requirements of ADN applicable to radioactive material”.

Chapter 1.8

1.8.3.2 (a) Amend to read as follows:

“(a) the activities of which concern:

(i) The carriage of dangerous goods fully or partially exempted according to the provisions of 1.7.1.4 or of chapters 3.3, 3.4 or 3.5;

(ii) Quantities per transport unit, wagon or container smaller than those referred to in 1.1.3.6 of ADR;

(iii) When (ii) above is not relevant, quantities per vessel smaller than those referred to in 1.1.3.6 of these Regulations.”.

1.8.3.3 The amendment applies to the French version only.

1.8.5.3 Amend the NOTE to read as follows:

“NOTE: See the provisions of 7.1.4.14.7.7 for undeliverable consignments.”.

Chapter 1.10

Table 1.10.5 In the table, for Class 3, in the entry for “Desensitized explosives”, in the fourth column (Tank or cargo tank (litres)), replace “a” with “0”.

In the heading row, add a reference to a footnote “c” after “Tank or cargo tank (litres)”. The footnote “c” reads as follows: “*A value indicated in this column is applicable only if carriage in tanks is authorized according to chapter 3.2, table A, column 10 or 12 of ADR or RID or if letter “T” is indicated in chapter 3.2, table A, column 8 of ADN. For substances which are not authorized for carriage in tanks, the instruction in this column is not relevant.*”.

In the heading row, add a reference to a footnote “d” after “Bulk (kg)”. The footnote “d” reads as follows: “A value indicated in this column is applicable only if carriage in bulk is authorized according to chapter 3.2, table A, column 10 or 17 of ADR or RID, or if letter “B” is indicated in chapter 3.2, table A, column 8 of

ADN. For substances which are not authorized for carriage in bulk, the instruction in this column is not relevant.".

Table 1.10.5 Add a new fourth row for Class 1, Division 1.4, to read as follows:

Class	Division	Substance or article	Quantity		
			Tank or cargo tank (litres) c/	Bulk* (kg) d/	Goods in packages (kg)
1	1.4	Explosives of UN Nos. 0104, 0237, 0255, 0267, 0289, 0361, 0365, 0366, 0440, 0441, 0455, 0456 and 0500	[a]	[a]	0

Class 5.1, amend the second entry in the third column to read as follows:

"Perchlorates, ammonium nitrate, ammonium nitrate fertilisers and ammonium nitrate emulsions or suspensions or gels".

PART 2

Chapter 2.1

2.1.3.5.5 Add a new paragraph 2.1.3.5.5 as follows:

"2.1.3.5.5 If the substance to be carried is a waste, with a composition that is not precisely known, its assignment to a UN number and packing group in accordance with 2.1.3.5.2 may be based on the consignor's knowledge of the waste, including all available technical and safety data as requested by safety and environmental legislation in force*.

In case of doubt, the highest danger level shall be taken.

If however, on the basis of the knowledge of the composition of the waste and the physical and chemical properties of the identified components, it is possible to demonstrate that the properties of the waste do not correspond to the properties of the packing group I level, the waste may be classified by default in the most appropriate n.o.s. entry of packing group II.

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* *Such legislation is for instance the Commission Decision 2000/532/EC of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste (replaced by the Directive of the European Parliament and of the Council 2006/12/EC (Official Journal of the European Communities No. L 114 of 27 April 2006, page 9) and Council Decision 94/904/EC establishing a list of hazardous wastes pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous wastes (Official Journal of the European Communities No. L 226 of 6 September 2000, page 3).*

This procedure may not be used for wastes containing substances mentioned in 2.1.3.5.3, substances of Class 4.3, substances of the case mentioned in 2.1.3.7 or substances which are not accepted for carriage in accordance with 2.2.x.2.".

2.1.3.8 Amend to read as follows:

"Substances of Classes 1 to 9, other than UN Nos. 3077 and 3082, meeting the criteria of 2.2.9.1.10 shall, additionally to their hazards of Classes 1 to 9, be considered to be environmentally hazardous substances. Other substances meeting the criteria of 2.2.9.1.10.1 or 2.2.9.1.10.2 shall be assigned to UN Nos. 3077 or 3082 or to identification Nos. 9005 or 9006, as appropriate.".

Chapter 2.2

2.2.1.1.7.5 In the table, against "Shell, spherical or cylindrical / preloaded mortar, shell in mortar", insert new third entry as follows:

Specification	**Classification**
Colour shell: > 25% flash composition as loose powder and/or report effects	1.1G

Amend Note 2 to read as follows:

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

2.2.1.1.8 For "SIGNALS, SMOKE", add ", 0507" at the end.
For "SIGNALS, DISTRESS, ship", add ", 0505, 0506" at the end.

2.2.2.3 In the table for Other articles containing gas under pressure, for Classification code 6F, add the following new entries:

"3478 FUEL CELL CARTRIDGES, containing liquefied flammable gas or
3478 FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT, containing liquefied flammable gas or
3478 FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing liquefied flammable gas
3479 FUEL CELL CARTRIDGES, containing hydrogen in metal hydride or
3479 FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT, containing hydrogen in metal hydride or
3479 FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing hydrogen in metal hydride".

2.2.3.1.5 At the beginning, replace “and non-corrosive” with “, non-corrosive and non-environmentally hazardous”.

2.2.41.1.15 Replace “transport unit” by “cargo transport unit and per transport unit”.

2.2.41.1.18 Replace “and 3380” with “, 3380 and 3474”.

2.2.41.3 Under “Solid desensitized explosive”, classification code D, for UN 3344, insert “(PENTAERYTHRITOL TETRANITRATE, PETN)” after “PENTAERYTHRITE TETRANITRATE”.

2.2.42.1.5 In Note 3, replace “2.3.6” with “2.3.5”.

2.2.43.1.5 In the Note, replace “2.3.6” with “2.3.5”.

2.2.43.2 Delete “solids, flammable, assigned to UN No. 3132, water-reactive” and “and water-reactive solids, self-heating, assigned to UN No. 3135”.

2.2.43.3 WF2 UN 3132 Delete “(not allowed, see 2.2.43.2)”.
WS UN 3135 Delete “(not allowed, see 2.2.43.2)”.

2.2.52.1.9 In the second indent, replace “transport unit” by “cargo transport unit”.

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

Organic peroxide		**Column**	**Amendment**
tert-AMYLPEROXY-3,5,5-TRIMETHYLHEXANOATE		Packing method	Replace “OP5” with “OP7”
		Number	Replace “3101” with “3105”
DICUMYL PEROXIDE *(Concentration > 52-100)*	(1st row)	Inert solid	Delete “≤ 57”
DI-(2-ETHYLHEXYL) PEROXYDICARBONATE *(Concentration ≤ 62 as a stable dispersion in water)*	(3rd row)	Number	Replace “3117” with “3119”
DI-(2-ETHYLHEXYL) PEROXYDICARBONATE *(Concentration ≤ 52 as a stable dispersion in water)*	(4th row)	Delete	

Insert the following new entries:

Organic peroxide	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**
tert-AMYL PEROXYNEODECANOATE	≤ 47	≥ 53				(ADR:) OP8	0	+ 10	3119	
tert-BUTYL PEROXY 3,5,5-TRIMETHYLHEXANOATE	≤ 42			≥ 58		OP7			3106	
CUMYL PEROXYNEO-DECANOATE	≤ 87	≥ 13				(ADR:) OP7	- 10	0	3115	
2,2-DI-(tert-AMYLPEROXY)-BUTANE	≤ 57	≥ 43				OP7			3105	

Organic peroxide	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1,1-DI-(tert-BUTYLPEROXY)-CYCLOHEXANE	≤ 72		≥ 28			OP5			3103	30)
1,1-DI-(tert-BUTYLPEROXY)-CYCLOHEXANE + tert-BUTYL PEROXY-2-ETHYLHEXANOATE	≤ 43 + ≤ 16	≥ 41				OP 7			3105	
1,1-DI-(tert-BUTYLPEROXY)-3,3,5-TRIMETHYLCYCLOHEXANE	≤ 90		≥ 10			OP5			3103	30)
DI-2,4-DICHLOROBENZOYL PEROXIDE	≤ 52 as a paste					(ADR:) OP8	+ 20	+ 25	3118	
3-HYDROXY-1,1-DIMETHYLBUTYL PEROXYNEODECANOATE	≤ 77	≥ 23				(ADR:) OP 7	- 5	+ 5	3115	
3-HYDROXY-1,1-DIMETHYLBUTYL PEROXYNEODECANOATE	≤ 52 as a stable dispersion in water					(ADR:) OP 8	- 5	+ 5	3119	
3-HYDROXY-1,1-DIMETHYLBUTYL PEROXYNEODECANOATE	≤ 52	≥ 48				(ADR:) OP 8	- 5	+ 5	3117	
METHYL ISOPROPYL KETONE PEROXIDE(S)	See remark 31)	≥ 70				OP8			3109	31)
3,3,5,7,7-PENTAMETHYL-1,2,4-TRIOXEPANE	≤ 100					OP8			3107	

After the table, add the following new notes:

"30) Diluent type B with boiling point > 130 °C.
31) Active oxygen ≤ 6.7%.".

2.2.61.3 In footnote I, replace "container or transport unit" by "or cargo transport unit".

2.2.62.1.5.6 Renumber existing NOTE as NOTE 1.

In NOTE 1 (existing NOTE), add "*in the absence of any concern for infection (e.g. evaluation of vaccine induced immunity, diagnosis of autoimmune disease, etc.)*" after "*antibody detection in humans or animals*".

Add a new NOTE 2 to read as follows:

"***NOTE 2:*** *For air transport, packagings for specimens exempted under this paragraph shall meet the conditions in (a) to (c).*".

2.2.62.1.11.2 Add at the end, before the Notes: "For the assignment, international, regional or national waste catalogues may be taken into account.".

2.2.62.1.12.2 Amend the first sentence to read as follows:

"Animal material affected by pathogens of Category A or by pathogens which would be assigned to Category A in cultures only, shall be assigned to UN 2814 or UN 2900 as appropriate. Animal material affected by pathogens of Category B, other than those which would be assigned to Category A if they were in cultures, shall be assigned to UN 3373.".

Delete the second sentence.

Amend Section 2.2.7 to read as follows and amend all references to renumbered paragraphs of section 2.2.7, as appropriate:

"**2.2.7 Class 7 Radioactive material**

2.2.7.1 *Definitions*

2.2.7.1.1 *Radioactive material* means any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values specified in 2.2.7.2.2.1 to 2.2.7.2.2.6.

2.2.7.1.2 *Contamination*

Contamination means the presence of a radioactive substance on a surface in quantities in excess of 0.4 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters, or 0.04 Bq/cm^2 for all other alpha emitters.

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

Fixed contamination means contamination other than non-fixed contamination.

2.2.7.1.3 *Definitions of specific terms*

A_1 and A_2

A_1 means the activity value of special form radioactive material which is listed in the Table in 2.2.7.2.2.1 or derived in 2.2.7.2.2.2 and is used to determine the activity limits for the requirements of ADN.

A_2 means the activity value of radioactive material, other than special form radioactive material, which is listed in the Table in 2.2.7.2.2.1 or derived in 2.2.7.2.2.2 and is used to determine the activity limits for the requirements of ADN.

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

(a) Natural uranium or depleted uranium which is unirradiated; and

(b) Natural uranium or depleted uranium which has been irradiated in thermal reactors only.

Low dispersible radioactive material means either a solid radioactive material or a solid radioactive material in a sealed capsule, that has limited dispersibility and is not in powder form.

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

Low toxicity alpha emitters are: natural uranium; depleted uranium; natural thorium; uranium-235 or uranium-238; thorium-232; thorium-228 and thorium-230 when contained in ores or physical and chemical concentrates; or alpha emitters with a half-life of less than 10 days.

Specific activity of a radionuclide means the activity per unit mass of that nuclide. The specific activity of a material shall mean the activity per unit mass of the material in which the radionuclides are essentially uniformly distributed.

Special form radioactive material means either:

(a) An indispersible solid radioactive material; or

(b) A sealed capsule containing radioactive material.

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

Unirradiated thorium means thorium containing not more than 10^{-7} g of uranium-233 per gram of thorium-232.

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

Uranium - natural, depleted, enriched means the following:

Natural uranium means uranium (which may be chemically separated) containing the naturally occurring distribution of uranium isotopes (approximately 99.28% uranium-238, and 0.72% uranium-235 by mass).

Depleted uranium means uranium containing a lesser mass percentage of uranium-235 than in natural uranium.

Enriched uranium means uranium containing a greater mass percentage of uranium-235 than 0.72%.

In all cases, a very small mass percentage of uranium-234 is present.

2.2.7.2 *Classification*

2.2.7.2.1 *General provisions*

2.2.7.2.1.1 Radioactive material shall be assigned to one of the UN number specified in Table 2.2.7.2.1.1 depending on the activity level of the radionuclides contained in a package, the fissile or non-fissile properties of these radionuclides, the type of package to be presented for carriage, and the nature or form of the contents of the package, or special arrangements governing the carriage operation, in accordance with the provisions laid down in 2.2.7.2.2 to 2.2.7.2.5.

Table 2.2.7.2.1.1 Assignment of UN numbers

Excepted packages (1.7.1.5)	
UN 2908	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - EMPTY PACKAGING
UN 2909	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM
UN 2910	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL
UN 2911	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - INSTRUMENTS or ARTICLES
Low specific activity radioactive material (2.2.7.2.3.1)	
UN 2912	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non-fissile or fissile-excepted
UN 3321	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), non fissile or fissile-excepted
UN 3322	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-III), non fissile or fissile-excepted
UN 3324	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), FISSILE
UN 3325	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY, (LSA-III), FISSILE
Surface contaminated objects (2.2.7.2.3.2)	
UN 2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non-fissile or fissile-excepted
UN 3326	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), FISSILE

Type A packages (2.2.7.2.4.4)	
UN 2915	RADIOACTIVE MATERIAL, TYPE A PACKAGE, non-special form, non-fissile or fissile-excepted
UN 3327	RADIOACTIVE MATERIAL, TYPE A PACKAGE, FISSILE, non-special form
UN 3332	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, non fissile or fissile-excepted
UN 3333	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, FISSILE
Type B(U) packages (2.2.7.2.4.6)	
UN 2916	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, non-fissile or fissile-excepted
UN 3328	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, FISSILE
Type B(M) packages (2.2.7.2.4.6)	
UN 2917	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, non-fissile or fissile-excepted
UN 3329	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, FISSILE
Type C packages (2.2.7.2.4.6)	
UN 3323	RADIOACTIVE MATERIAL, TYPE C PACKAGE, non fissile or fissile-excepted
UN 3330	RADIOACTIVE MATERIAL, TYPE C PACKAGE, FISSILE
Special arrangement (2.2.7.2.5)	
UN 2919	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, non-fissile or fissile-excepted
UN 3331	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, FISSILE
Uranium hexafluoride (2.2.7.2.4.5)	
UN 2977	RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE
UN 2978	RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non-fissile or fissile-excepted

2.2.7.2.2 *Determination of activity level*

2.2.7.2.2.1 The following basic values for individual radionuclides are given in Table 2.2.7.2.2.1:

(a) A_1 and A_2 in TBq;

(b) Activity concentration for exempt material in Bq/g; and

(c) Activity limits for exempt consignments in Bq.

Table 2.2.7.2.2.1: Basic radionuclides values for individual radionuclides

Insert here the Table of existing 2.2.7.7.2.1 with its footnotes (a) – (g).

2.2.7.2.2.2 For individual radionuclides 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. 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.

Table 2.2.7.2.2.2: Basic radionuclide values for unknown radionuclides or mixtures

Radioactive contents	A_1 (TBq)	A_2 (TBq)	Activity concentration for exempt material (Bq/g)	Activity limit for exempt consignments (Bq)
Only beta or gamma emitting nuclides are known to be present	0.1	0.02	1×10^{1}	1×10^{4}
Alpha emitting nuclides but no neutron emitters are known to be present	0.2	9×10^{-5}	1×10^{-1}	1×10^{3}
Neutron emitting nuclides are known to be present or no relevant data are available	0.001	9×10^{-5}	1×10^{-1}	1×10^{3}

2.2.7.2.2.3 In the calculations of A_1 and A_2 for a radionuclide not in Table 2.2.7.2.2.1, a single radioactive decay chain in which the radionuclides are present in their naturally occurring proportions, and in which no daughter nuclide has a half-life either longer than 10 days or longer than that of the parent nuclide, shall be considered as a single radionuclide; and the activity to be taken into account and the A_1 or A_2 value to be applied shall be those corresponding to the parent nuclide of that chain. In the case of radioactive decay chains in which any daughter nuclide has a half-life either longer than 10 days or greater than that of the parent nuclide, the parent and such daughter nuclides shall be considered as mixtures of different nuclides.

2.2.7.2.2.4 For mixtures of radionuclides, the determination of the basic radionuclide values referred to in 2.2.7.2.2.1 may be determined as follows:

$$X_m = \frac{1}{\Sigma_i \frac{f(i)}{X(i)}}$$

where,

f(i) is the fraction of activity or activity concentration of radionuclide i in the mixture;

X(i) is the appropriate value of A_1 or A_2, or the activity concentration for exempt material or the activity limit for an exempt consignment as appropriate for the radionuclide i; and

X_m is the derived value of A_1 or A_2, or the activity concentration for exempt material or the activity limit for an exempt consignment in the case of a mixture.

2.2.7.2.2.5 When the identity of each radionuclide is known but the individual activities of some of the radionuclides are not known, the radionuclides may be grouped and the lowest radionuclide value, as appropriate, for the radionuclides in each group may be used in applying the formulas in 2.2.7.2.2.4 and 2.2.7.2.4.4. Groups may be based on the total alpha activity and the total beta/gamma activity when these are known, using the lowest radionuclide values for the alpha emitters or beta/gamma emitters, respectively.

2.2.7.2.2.6 For individual radionuclides or for mixtures of radionuclides for which relevant data are not available, the values shown in Table 2.2.7.2.2.2 shall be used.

2.2.7.2.3 *Determination of other material characteristics*

2.2.7.2.3.1 Low specific activity (LSA) material

2.2.7.2.3.1.1 (*Reserved*)

2.2.7.2.3.1.2 LSA material shall be in one of three groups:

(a) LSA-I

(i) uranium and thorium ores and concentrates of such ores, and other ores containing naturally occurring radionuclides which are intended to be processed for the use of these radionuclides;

(ii) natural uranium, depleted uranium, natural thorium or their compounds or mixtures, providing they are unirradiated and in solid or liquid form;

(iii) radioactive material for which the A_2 value is unlimited, excluding material classified as fissile according to 2.2.7.2.3.5; or

(iv) other radioactive material in which the activity is distributed throughout and the estimated average specific activity does not exceed 30 times the values for activity concentration specified in 2.2.7.2.2.1 to 2.2.7.2.2.6, excluding material classified as fissile according to 2.2.7.2.3.5;

(b) LSA-II

(i) water with tritium concentration up to 0.8 TBq/l; or

(ii) other material in which the activity is distributed throughout and the estimated average specific activity does not exceed 10^{-4} A_2/g for solids and gases, and 10^{-5} A_2/g for liquids;

(c) LSA-III - Solids (e.g. consolidated wastes, activated materials), excluding powders, in which:

(i) the radioactive material is distributed throughout a solid or a collection of solid objects, or is essentially uniformly distributed in a solid compact binding agent (such as concrete, bitumen, ceramic, etc.);

(ii) the radioactive material is relatively insoluble, or it is intrinsically contained in a relatively insoluble matrix, so that, even under loss of packaging, the loss of radioactive material per package by leaching when placed in water for seven days would not exceed 0.1 A_2; and

(iii) the estimated average specific activity of the solid, excluding any shielding material, does not exceed 2×10^{-3} A_2/g.

2.2.7.2.3.1.3 LSA-III material shall be a solid of such a nature that if the entire contents of a package were subjected to the test specified in 2.2.7.2.3.1.4 the activity in the water would not exceed 0.1 A_2.

2.2.7.2.3.1.4 LSA-III material shall be tested as follows:

A solid material sample representing the entire contents of the package shall be immersed for 7 days in water at ambient temperature. The volume of water to be used in the test shall be sufficient to ensure that at the end of the 7 day test period the free volume of the unabsorbed and unreacted water remaining shall be at least 10% of the volume of the solid test sample itself. The water shall have an initial pH of 6-8 and a maximum conductivity of 1 mS/m at 20 °C. The total activity of the free volume of water shall be measured following the 7 day immersion of the test sample.

2.2.7.2.3.1.5 Demonstration of compliance with the performance standards in 2.2.7.2.3.1.4 shall be in accordance with 6.4.12.1 and 6.4.12.2 of ADR.

2.2.7.2.3.2 Surface contaminated object (SCO)

SCO is classified in one of two groups:

(a) SCO-I: A solid object on which:

(i) the non-fixed contamination on the accessible surface averaged over 300 cm^2 (or the area of the surface if less than 300 cm^2) does not exceed 4 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters, or 0.4 Bq/cm^2 for all other alpha emitters; and

(ii) the fixed contamination on the accessible surface averaged over 300 cm^2 (or the area of the surface if less than 300 cm^2) does not exceed 4×10^4 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters, or 4×10^3 Bq/cm^2 for all other alpha emitters; and

(iii) the non-fixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm^2 (or the area of the surface if less than 300 cm^2) does not exceed 4×10^4 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters, or 4×10^3 Bq/cm^2 for all other alpha emitters;

(b) SCO-II: A solid object on which either the fixed or non-fixed contamination on the surface exceeds the applicable limits specified for SCO-I in (a) above and on which:

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

(ii) the fixed contamination on the accessible surface, averaged over 300 cm^2 (or the area of the surface if less than 300 cm^2) does not exceed 8×10^5 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters, or 8×10^4 Bq/cm^2 for all other alpha emitters; and

(iii) the non-fixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm^2 (or the area of the surface if less than 300 cm^2) does not exceed 8×10^5 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters, or 8×10^4 Bq/cm^2 for all other alpha emitters.

2.2.7.2.3.3 Special form radioactive material

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

2.2.7.2.3.3.2 Special form radioactive material shall be of such a nature or shall be so designed that if it is subjected to the tests specified in 2.2.7.2.3.3.4 to 2.2.7.2.3.3.8, it shall meet the following requirements:

(a) It would not break or shatter under the impact, percussion and bending tests 2.2.7.2.3.3.5 (a), (b), (c), 2.2.7.2.3.3.6 (a) as applicable;

(b) It would not melt or disperse in the applicable heat test 2.2.7.2.3.3.5 (d) or 2.2.7.2.3.3.6 (b) as applicable; and

(c) The activity in the water from the leaching tests specified in 2.2.7.2.3.3.7 and 2.2.7.2.3.3.8 would not exceed 2 kBq; or alternatively for sealed sources, the leakage rate for the volumetric leakage assessment test specified in ISO 9978:1992 "Radiation Protection - Sealed Radioactive Sources - Leakage Test Methods", would not exceed the applicable acceptance threshold acceptable to the competent authority.

2.2.7.2.3.3.3 Demonstration of compliance with the performance standards in 2.2.7.2.3.3.2 shall be in accordance with 6.4.12.1 and 6.4.12.2 of ADR.

2.2.7.2.3.3.4 Specimens that comprise or simulate special form radioactive material shall be subjected to the impact test, the percussion test, the bending test, and the heat test specified in 2.2.7.2.3.3.5 or alternative tests as authorized in 2.2.7.2.3.3.6. A different specimen may be used for each of the tests. Following each test, a leaching assessment or volumetric leakage test shall be performed on the specimen by a method no less sensitive than the methods given in 2.2.7.2.3.3.7 for indispersible solid material or 2.2.7.2.3.3.8 for encapsulated material.

2.2.7.2.3.3.5 The relevant test methods are:

(a) Impact test: The specimen shall drop onto the target from a height of 9 m. The target shall be as defined in 6.4.14 of ADR;

(b) Percussion test: The specimen shall be placed on a sheet of lead which is supported by a smooth solid surface and struck by the flat face of a mild steel bar so as to cause an impact equivalent to that resulting from a free drop of 1.4 kg through 1 m. The lower part of the bar shall be 25 mm in diameter with the edges rounded off to a radius of (3.0 ± 0.3) mm. The lead, of hardness number 3.5 to 4.5 on the Vickers scale and not more than 25 mm thick, shall cover an area greater than that covered by the specimen. A fresh surface of lead shall be used for each impact. The bar shall strike the specimen so as to cause maximum damage;

(c) Bending test: The test shall apply only to long, slender sources with both a minimum length of 10 cm and a length to minimum width ratio of not less than 10. The specimen shall be rigidly clamped in a horizontal position so that one half of its length protrudes from the face of the clamp. The orientation of the specimen shall be such that the specimen will suffer maximum damage when its free end is struck by the flat face of a steel bar. The bar shall strike the specimen so as to cause an impact equivalent to that

resulting from a free vertical drop of 1.4 kg through 1 m. The lower part of the bar shall be 25 mm in diameter with the edges rounded off to a radius of (3.0 ± 0.3) mm;

(d) Heat test: The specimen shall be heated in air to a temperature of 800 °C and held at that temperature for a period of 10 minutes and shall then be allowed to cool.

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

(a) The tests prescribed in 2.2.7.2.3.3.5 (a) and (b) provided the mass of the special form radioactive material:

(i) is less than 200 g and they are alternatively subjected to the Class 4 impact test prescribed in ISO 2919:1999 “Radiation protection - Sealed radioactive sources - General requirements and classification”; or

(ii) is less than 500 g and they are alternatively subjected to the Class 5 impact test prescribed in ISO 2919:1999 “Radiation protection - Sealed radioactive sources - General requirements and classification”; and

(b) The test prescribed in 2.2.7.2.3.3.5 (d) provided they are alternatively subjected to the Class 6 temperature test specified in ISO 2919:1999 “Radiation protection - Sealed radioactive sources - General requirements and classification”.

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

(a) The specimen shall be immersed for 7 days in water at ambient temperature. The volume of water to be used in the test shall be sufficient to ensure that at the end of the 7 day test period the free volume of the unabsorbed and unreacted water remaining shall be at least 10% of the volume of the solid test sample itself. The water shall have an initial pH of 6-8 and a maximum conductivity of 1 mS/m at 20 °C;

(b) The water with specimen shall then be heated to a temperature of (50 ± 5) °C and maintained at this temperature for 4 hours;

(c) The activity of the water shall then be determined;

(d) The specimen shall then be kept for at least 7 days in still air at not less than 30 °C and relative humidity not less than 90%;

(e) The specimen shall then be immersed in water of the same specification as in (a) above and the water with the specimen heated to (50 ± 5) °C and maintained at this temperature for 4 hours;

(f) The activity of the water shall then be determined.

2.2.7.2.3.3.8 For specimens which comprise or simulate radioactive material enclosed in a sealed capsule, either a leaching assessment or a volumetric leakage assessment shall be performed as follows:

(a) The leaching assessment shall consist of the following steps:

(i) the specimen shall be immersed in water at ambient temperature. The water shall have an initial pH of 6-8 with a maximum conductivity of 1 mS/m at 20 °C;

(ii) the water and specimen shall be heated to a temperature of (50 ± 5) °C and maintained at this temperature for 4 hours;

(iii) the activity of the water shall then be determined;

(iv) the specimen shall then be kept for at least 7 days in still air at not less than 30 °C and relative humidity of not less than 90%;

(v) the process in (i), (ii) and (iii) shall be repeated;

(b) The alternative volumetric leakage assessment shall comprise any of the tests prescribed in ISO 9978:1992 “Radiation Protection - Sealed radioactive sources - Leakage test methods”, which are acceptable to the competent authority.

2.2.7.2.3.4 Low dispersible radioactive material

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

(a) The radiation level at 3 m from the unshielded radioactive material does not exceed 10 mSv/h;

(b) If subjected to the tests specified in 6.4.20.3 and 6.4.20.4 of ADR, the airborne release in gaseous and particulate forms of up to 100 μm aerodynamic equivalent diameter would not exceed 100 A_2. A separate specimen may be used for each test; and

(c) If subjected to the test specified in 2.2.7.2.3.1.4 the activity in the water would not exceed 100 A_2. In the application of this test, the damaging effects of the tests specified in (b) above shall be taken into account.

2.2.7.2.3.4.2 Low dispersible radioactive material shall be tested as follows:

A specimen that comprises or simulates low dispersible radioactive material shall be subjected to the enhanced thermal test specified in 6.4.20.3 of ADR and the impact test specified in 6.4.20.4 of ADR. A different specimen may be used for each of the tests. Following each test, the specimen shall be subjected to the leach test specified in 2.2.7.2.3.1.4. After each test it shall be determined if the applicable requirements of 2.2.7.2.3.4.1 have been met.

2.2.7.2.3.4.3 Demonstration of compliance with the performance standards in 2.2.7.2.3.4.1 and 2.2.7.2.3.4.2 shall be in accordance with 6.4.12.1 and 6.4.12.2 of ADR.

2.2.7.2.3.5 Applicable to French text only.

Fissile material

Packages containing fissile radionuclides shall be classified under the relevant entry of table 2.2.7.2.1.1 for fissile material unless one of the conditions (a) to (d) of this paragraph is met. Only one type of exception is allowed per consignment.

(a) A mass limit per consignment such that:

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

where X and Y are the mass limits defined in Table 2.2.7.2.3.5, provided that the smallest external dimension of each package is not less than 10 cm and that either:

(i) each individual package contains not more than 15 g of fissile material; for unpackaged material, this quantity limitation shall apply to the consignment being carried in or on the wagon/vehicle/conveyance; or

(ii) the fissile material is a homogeneous hydrogenous solution or mixture where the ratio of fissile nuclides to hydrogen is less than 5% by mass; or

(iii) there are not more than 5 g of fissile material in any 10 litre volume of material.

Neither beryllium nor deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table 2.2.7.2.3.5, except for deuterium in natural concentration in hydrogen;

(b) Uranium enriched in uranium-235 to a maximum of 1% by mass, and with a total plutonium and uranium-233 content not exceeding 1% of the mass of uranium-235, provided that the fissile material is distributed essentially homogeneously throughout the material. In addition, if uranium-235 is present in metallic, oxide or carbide forms, it shall not form a lattice arrangement;

(c) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of 2% by mass, with a total plutonium and uranium-233 content not exceeding 0.002% of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of 2;

(d) Packages containing, individually, a total plutonium mass not more than 1 kg, of which not more than 20% by mass may consist of plutonium-239, plutonium-241 or any combination of those radionuclides.

Table 2.2.7.2.3.5: Consignment mass limits for exceptions from the requirements for packages containing fissile material

Fissile material	Fissile material mass (g) mixed with substances having an average hydrogen density less than or equal to water	Fissile material mass (g) mixed with substances having an average hydrogen density greater than water
Uranium-235 (X)	400	290
Other fissile material (Y)	250	180

2.2.7.2.4 *Classification of packages or unpacked material*

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

2.2.7.2.4.1 Classification as excepted package

2.2.7.2.4.1.1 Packages may be classified as excepted packages if:

(a) They are empty packagings having contained radioactive material;

(b) They contain instruments or articles in limited quantities;

(c) They contain articles manufactured of natural uranium, depleted uranium or natural thorium; or

(d) They contain radioactive material in limited quantities.

2.2.7.2.4.1.2 A package containing radioactive material may be classified as an excepted package provided that the radiation level at any point on its external surface does not exceed 5 μSv/h.

Table 2.2.7.2.4.1.2: Activity limits for excepted packages

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

[a] *For mixtures of radionuclides, see 2.2.7.2.2.4 to 2.2.7.2.2.6.*

2.2.7.2.4.1.3 Radioactive material which is enclosed in or is included as a component part of an instrument or other manufactured article may be classified under UN No. 2911 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - INSTRUMENTS or ARTICLES provided that:

(a) The radiation level at 10 cm from any point on the external surface of any unpackaged instrument or article is not greater than 0.1 mSv/h; and

(b) Each instrument or manufactured article bears the marking "RADIOACTIVE" except:

(i) radioluminescent time-pieces or devices;

(ii) consumer products that either have received regulatory approval according to 1.7.1.4 (d) 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 carried in a package that bears the marking "RADIOACTIVE" on an internal surface in such a manner that warning of the presence of radioactive material is visible on opening the package; and

(c) The active material is completely enclosed by non-active components (a device performing the sole function of containing radioactive material shall not be considered to be an instrument or manufactured article); and

(d) The limits specified in columns 2 and 3 of Table 2.2.7.2.4.1.2 are met for each individual item and each package, respectively.

2.2.7.2.4.1.4 Radioactive material with an activity not exceeding the limit specified in column 4 of Table 2.2.7.2.4.1.2, may be classified under UN No. 2910 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL provided that:

(a) The package retains its radioactive contents under routine conditions of carriage; and

(b) The package bears the marking "RADIOACTIVE" on an internal surface in such a manner that a warning of the presence of radioactive material is visible on opening the package.

2.2.7.2.4.1.5 An empty packaging which had previously contained radioactive material with an activity not exceeding the limit specified in column 4 of Table 2.2.7.2.4.1.2 may be classified under UN No. 2908 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - EMPTY PACKAGING, provided that:

(a) It is in a well-maintained condition and securely closed;

(b) The outer surface of any uranium or thorium in its structure is covered with an inactive sheath made of metal or some other substantial material;

(c) The level of internal non-fixed contamination, when averaged over any 300 cm^2, does not exceed:

(i) 400 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters; and

(ii) 40 Bq/cm^2 for all other alpha emitters; and

(d) Any labels which may have been displayed on it in conformity with 5.2.2.1.11.1 are no longer visible.

2.2.7.2.4.1.6 Articles manufactured of natural uranium, depleted uranium or natural thorium and articles in which the sole radioactive material is unirradiated natural uranium, unirradiated depleted uranium or unirradiated natural thorium may be classified under UN No. 2909 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM, provided that the outer surface of the uranium or thorium is enclosed in an inactive sheath made of metal or some other substantial material.

2.2.7.2.4.2 Classification as Low specific activity (LSA) material

Radioactive material may only be classified as LSA material if the conditions of 2.2.7.2.3.1 and 4.1.9.2 of ADR are met.

2.2.7.2.4.3 Classification as Surface contaminated object (SCO)

Radioactive material may be classified as SCO if the conditions of 2.2.7.2.3.2.1 and 4.1.9.2 of ADR are met.

2.2.7.2.4.4 Classification as Type A package

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

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

(a) For special form radioactive material - A_1; or

(b) For all other radioactive material - A_2.

For mixtures of radionuclides whose identities and respective activities are known, the following condition shall apply to the radioactive contents of a Type A package:

$$\Sigma_i \frac{B(i)}{A_1(i)} + \Sigma_j \frac{C(j)}{A_2(j)} \leq 1$$

where B(i) is the activity of radionuclide i as special form radioactive material;

$A_1(i)$ is the A_1 value for radionuclide i;

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

A_2 (j) is the A_2 value for radionuclide j.

2.2.7.2.4.5 Classification of Uranium hexafluoride

Uranium hexafluoride shall only be assigned to UN Nos. 2977 RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE, or 2978 RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non-fissile or fissile-excepted.

2.2.7.2.4.5.1 Packages containing uranium hexafluoride shall not contain:

(a) A mass of uranium hexafluoride different from that authorized for the package design;

(b) A mass of uranium hexafluoride greater than a value that would lead to an ullage smaller than 5% at the maximum temperature of the package as specified for the plant systems where the package shall be used; or

(c) Uranium hexafluoride other than in solid form or at an internal pressure above atmospheric pressure when presented for carriage.

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

2.2.7.2.4.6.1 Packages not otherwise classified in 2.2.7.2.4 (2.2.7.2.4.1 to 2.2.7.2.4.5) shall be classified in accordance with the competent authority approval certificate for the package issued by the country of origin of design.

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

(a) Activities greater than those authorized for the package design;

(b) Radionuclides different from those authorized for the package design; or

(c) Contents in a form, or a physical or chemical state different from those authorized for the package design;

as specified in the certificate of approval.

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

(a) Activities greater than those authorized for the package design;

(b) Radionuclides different from those authorized for the package design; or

(c) Contents in a form, or a physical or chemical state different from those authorized for the package design;

as specified in the certificate of approval.

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

(a) Activities greater than those authorized for the package design;

(b) Radionuclides different from those authorized for the package design; or

(c) Contents in a form, or physical or chemical state different from those authorized for the package design;

as specified in the certificate of approval.

2.2.7.2.5 *Special arrangements*

Radioactive material shall be classified as transported under special arrangement when it is intended to be carried in accordance with 1.7.4.".

2.2.8.1.6 (c) In the first sentence of the second indent, replace "corrosion rate on steel" with "corrosion rate on either steel" and insert "when tested on both materials" at the end.

Add a new Note at the end to read as follows:

"***NOTE:*** *Where an initial test on either steel or aluminium indicates the substance being tested is corrosive the follow up test on the other metal is not required.*".

2.2.8.3 In footnote a, replace "container or transport unit" by "or cargo transport unit".

2.2.9.1.7 Insert the following new first sentence: "The term "lithium battery" covers all cells and batteries containing lithium in any form.".

At the beginning of the new second sentence, replace "Lithium cells and batteries" with "They".

2.2.9.1.9 Amend to read as follows:

"2.2.9.1.9 *(Reserved)*".

2.2.9.1.10 Amend to read as follows:

"2.2.9.1.10.1 For carriage in packages, substances, solutions and mixtures meeting the criteria for Acute 1, Chronic 1 or Chronic 2 in Chapter 2.4 (see also 2.1.3.8) shall be considered to be environmentally hazardous (aquatic environment). Substances which cannot be assigned to other classes in ADN or to other Class 9 entries and which meet these criteria shall be assigned to UN Nos. 3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., or 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, and to packing group III.

2.2.9.1.10.2 For carriage in tank vessels, the substances, solutions and mixtures referred to in 2.2.9.1.10.1 and those meeting the criteria for Acute 2, Acute 3 or Chronic 3 in Chapter 2.4 shall be considered to be environmentally hazardous.

Substances classified as environmentally hazardous which meet the criteria for Acute or Chronic Category 1 shall be assigned to group 'N1'.

Substances classified as environmentally hazardous which meet the criteria for Chronic Categories 2 or 3 shall be assigned to group 'N2'.

Substances classified as environmentally hazardous which meet the criteria for Acute Categories 2 or 3 shall be assigned to group 'N3'.

Substances which meet the criteria of 2.2.9.1.10 shall be assigned to UN Nos. 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, or 3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., MOLTEN. Those that meet the additional criteria in this paragraph shall be assigned to identification Nos. 9005, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, MOLTEN, or 9006, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

2.2.9.1.10.3 Notwithstanding the provisions of 2.2.9.1.10.1,

(a) Substances which cannot be assigned to entries other than UN Nos. 3077 and 3082 in Class 9 or to other entries in Classes 1 to 8, but which are identified in Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances,[*] as amended, as substances to which letter N 'Environmentally hazardous' (R50; R50/53; R51/53) has been allocated; and

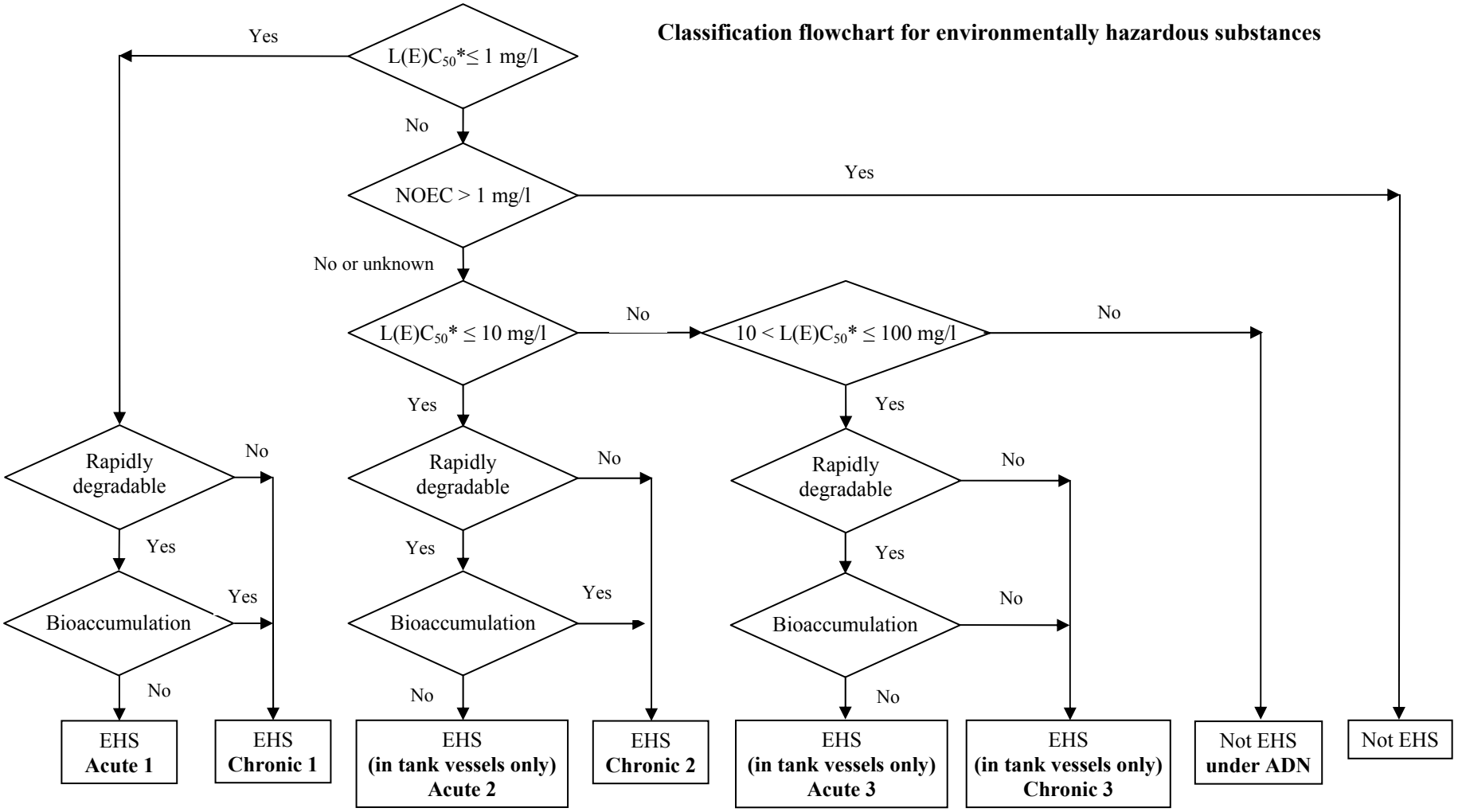
(b) Solutions and mixtures (such as preparations and wastes) of substances to which letter N 'Environmentally hazardous' (R50; R50/53; R51/53) has been allocated in Directive 67/548/EEC, as amended, and which, according to Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations,[*] as amended, are also allocated letter N 'Environmentally hazardous' (R50; R50/53; R51/53) and which cannot be assigned to entries other than UN Nos. 3077 and 3082 in Class 9 or to other entries in Classes 1 to 8;

Shall be assigned to UN Nos. 3077 and 3082, as appropriate.".

2.2.9.1.10.4 Insert the following flowchart:

[*] Official Journal of the European Communities No. 196, of 16 August 1967, pp. 1-5.
[*] Official Journal of the European Communities No. L 200, of 30 July 1999, pp. 1-68.

Classification flowchart for environmentally hazardous substances



EHS = Environmentally hazardous substance

(Not subject to ADN in packages)

2.2.9.1.14 Add the following two entries at the end:

"− Identification No. 9005, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, MOLTEN, which cannot be assigned to UN No. 3077;

− Identification No. 9006, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., which cannot be assigned to UN No. 3082.".

2.2.9.1.15 Amend to read as follows:

"2.2.9.1.15 When indicated in column 4 of Table A of Chapter 3.2, substances and articles of Class 9 are assigned to one of the following packing groups according to their degree of danger:

Packing group II: substances presenting medium danger;
Packing group III: substances presenting low danger.".

2.2.9.3 Under "Lithium batteries", classification code M4:

At the end of the three existing entries, add "(including lithium alloy batteries)" and add the following new entries:

"3480 LITHIUM ION BATTERIES (including lithium ion polymer batteries)
3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT (including lithium ion polymer batteries) or
3481 LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)".

Chapter 2.3

2.3.5 Delete.

2.3.6 Renumber 2.3.6 as 2.3.5 and replace "Figure 2.3.6" by "Figure 2.3.5" (twice).

Chapter 2.4

2.4 Add a new chapter 2.4 to read as follows:

"2.4 CRITERIA FOR SUBSTANCES HAZARDOUS TO THE AQUATIC ENVIRONMENT

2.4.1 General definitions

2.4.1.1 Environmentally hazardous substances include, inter alia, liquid or solid substances pollutant to the aquatic environment and solutions and mixtures of such

substances (such as preparations and wastes). For the purposes of this Chapter, 'substance' means chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

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

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

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

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

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

[*] See annex 10 of GHS.

2.4.2 Definitions and data requirements

2.4.2.1 The basic elements for classification of environmentally hazardous substances (aquatic environment) are as follows:

– Acute aquatic toxicity;

– Potential for or actual bioaccumulation;

– Degradation (biotic or abiotic) for organic chemicals; and

– Chronic aquatic toxicity.

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

2.4.2.3 **Acute aquatic toxicity** shall normally be determined using a fish 96-hour LC_{50} (OECD Test Guideline 203 or equivalent), a crustacea species 48-hour EC_{50} (OECD Test Guideline 202 or equivalent) and/or an algal species 72- or 96-hour EC_{50} (OECD Test Guideline 201 or equivalent). These species are considered as surrogate for all aquatic organisms, and data on other species such as Lemna may also be considered if the test methodology is suitable.

2.4.2.4 **Bioaccumulation** means net result of uptake, transformation and elimination of a substance in an organism due to all routes of exposure (i.e. air, water, sediment/soil and food).

The **potential for bioaccumulation** shall normally be determined by using the octanol/water partition coefficient, usually reported as a log K_{ow} determined by OECD Test Guideline 107 or 117. While this represents a potential to bioaccumulate, an experimentally determined Bioconcentration Factor (BCF) provides a better measure and should be used in preference when available. A BCF should be determined according to OECD Test Guideline 305.

2.4.2.5 **Environmental degradation** may be biotic or abiotic (e.g. hydrolysis) and the criteria reflect this fact. Ready biodegradation can most easily be defined using the OECD biodegradability tests, OECD Test Guideline 301 (A - F). A pass level in these tests can be considered as indicative of rapid degradation in most environments. These are freshwater tests and thus the use of the results from OECD Test Guideline 306, which is more suitable for marine environments, has also been included. Where such data are not available, a BOD_5 (5 days)/COD ratio ≥ 0.5 is considered as indicative of rapid degradation. Abiotic degradation such as hydrolysis, primary degradation, both abiotic and biotic, degradation in non-aquatic media and proven rapid degradation in the environment may all be considered in defining rapid degradability.*

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* Special guidance on data interpretation is provided in Chapter 4.1 and Annex 9 to GHS.

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

(a) In 28-day ready biodegradation studies, the following levels of degradation are achieved:

(i) Tests based on dissolved organic carbon: 70%;

(ii) Tests based on oxygen depletion or carbon dioxide generation: 60% of theoretical maxima;

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

(b) In those cases where only BOD and COD data are available, when the ratio of BOD_5/COD is ≥ 0.5; or

(c) If other convincing scientific evidence is available to demonstrate that the substance or mixture can be degraded (biotically and/or abiotically) in the aquatic environment to a level above 70% within a 28-day period.

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

2.4.3 Classification categories and criteria for substances

NOTE: *Chronic Category 4 of Chapter 4.1 of GHS is reproduced in this section for information, although it is not relevant in the context of ADN.*

2.4.3.1 The following substances shall be considered to be environmentally hazardous (aquatic environment):

(a) For carriage in packages, substances which meet the criteria for Acute 1, Chronic 1 or Chronic 2, according to the tables below; and

(b) For carriage in tank vessels, substances which meet the criteria for Acute 1, Acute 2 or Acute 3, or Chronic 1, Chronic 2 or Chronic 3, according to the tables below.

Acute toxicity

Category: Acute 1	
96 hr LC_{50} (for fish)	≤1 mg/l and/or
48 hr EC_{50} (for crustacea)	≤1 mg/l and/or
72 or 96 hr ErC_{50} (for algae or other aquatic plants)	≤1 mg/l

Category: Acute 2	
96 hr LC_{50} (for fish)	>1 - ≤10 mg/l and/or
48 hr EC_{50} (for crustacea)	>1 - ≤10 mg/l and/or
72 or 96 hr ErC_{50} (for algae or other aquatic plants)	>1 - ≤10 mg/l

Category: Acute 3	
96 hr LC_{50} (for fish)	>10 - ≤100 mg/l and/or
48 hr EC_{50} (for crustacea)	>10 - ≤100 mg/l and/or
72 or 96 hr ErC_{50} (for algae or other aquatic plants)	>10 - ≤100 mg/l

Chronic toxicity

Category: Chronic 1	
96 hr LC_{50} (for fish)	≤ 1 mg/l and/or
48 hr EC_{50} (for crustacea)	≤ 1 mg/l and/or
72 or 96 hr ErC_{50} (for algae or other aquatic plants)	≤ 1 mg/l
and the substance is not rapidly degradable and/or the log K_{ow} ≥ 4 (unless the experimentally determined BCF <500).	

Category: Chronic 2	
96 hr LC_{50} (for fish)	> 1 to ≤ 10 mg/l and/or
48 hr EC_{50} (for crustacea)	> 1 to ≤ 10 mg/l and/or
72 or 96 hr ErC_{50} (for algae or other aquatic plants)	> 1 to ≤ 10 mg/l
and the substance is not rapidly degradable and/or the log K_{ow} ≥ 4 (unless the experimentally determined BCF <500), unless the chronic toxicity NOECs are > 1 mg/l.	

Category: Chronic 3	
96 hr LC_{50} (for fish)	> 10 to ≤ 100 mg/l and/or
48 hr EC_{50} (for crustacea)	> 10 to ≤ 100 mg/l and/or
72 or 96 hr ErC_{50} (for algae or other aquatic plants)	≥ 10 to ≤ 100 mg/l
and the substance is not rapidly degradable and/or the log K_{ow} ≥ 4 (unless the experimentally determined BCF <500), unless the chronic toxicity NOECs are > 1 mg/l.	

Category: Chronic 4

Poorly soluble substances for which no acute toxicity is recorded at levels up to the water solubility, and which are not rapidly degradable and have a log $K_{ow} \geq 4$, indicating a potential to bioaccumulate, will be classified in this category unless other scientific evidence exists showing classification to be unnecessary. Such evidence would include an experimentally determined BCF < 500, or chronic toxicity NOECs > 1 mg/l, or evidence of rapid degradation in the environment.

Substances which come under Chronic Category 4 alone are not considered to be environmentally hazardous in the sense of ADN.

2.4.4 Classification categories and criteria for mixtures

NOTA: *Chronic Category 4 of Chapter 4.1 of GHS is reproduced in this section for information, although it is not relevant in the context of ADN.*

2.4.4.1 The classification system for mixtures covers all classification categories which are used for substances, meaning Acute Categories 1 to 3 and Chronic Categories 1 to 4. In order to make use of all available data for purposes of classifying the aquatic environmental hazards of the mixture, the following assumption has been made and is applied where appropriate.

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

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

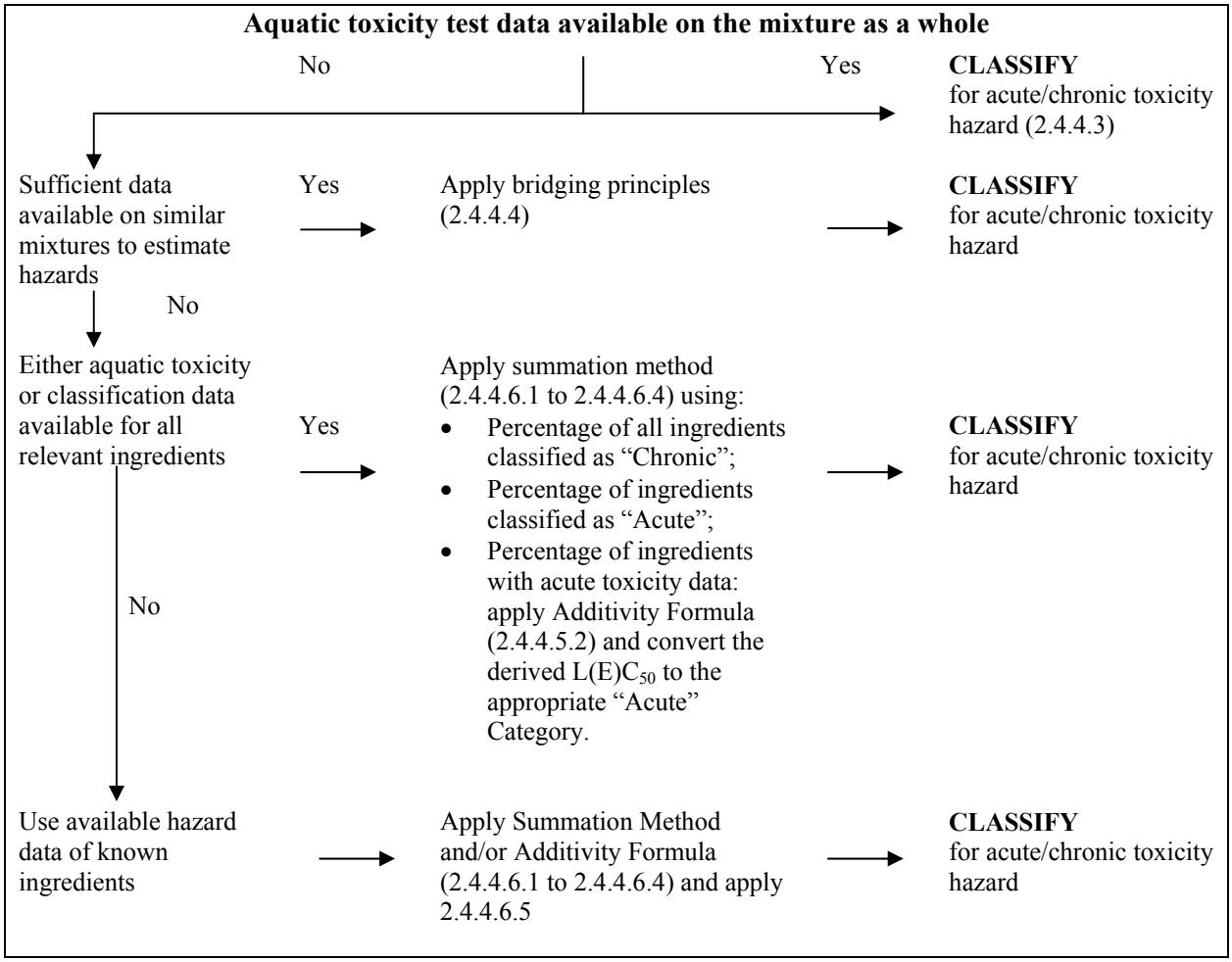
(a) Classification based on tested mixtures;

(b) Classification based on bridging principles,

(c) Use of 'summation of classified ingredients' and/or an 'additivity formula'.

Figure 2.4.4.2 outlines the process to be followed.

Figure 2.4.4.2: Tiered approach to classification of mixtures for acute and chronic environmental hazards



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

2.4.4.3.1 When the mixture as a whole has been tested to determine its aquatic toxicity, it can be classified according to the criteria that have been agreed for substances, but only for acute toxicity. The classification shall be based on the data for fish, crustacea, algae and plants. Classification of mixtures by using LC_{50} or EC_{50} data for the mixture as a whole is not possible for chronic categories since both toxicity data and environmental fate data are needed, and there are no degradability and bioaccumulation data for mixtures as a whole. It is not possible to apply the criteria for chronic classification because the data from degradability and bioaccumulation tests of mixtures cannot be interpreted; they are meaningful only for single substances.

2.4.4.3.2 When there are acute toxicity test data (LC_{50} or EC_{50}) available for the mixture as a whole, these data as well as information with respect to the classification of ingredients for chronic toxicity shall be used to complete the classification for

tested mixtures as follows. When chronic (long-term) toxicity data (NOEC) are also available, these should be used as well.

(a) $L(E)C_{50}$ (LC_{50} or EC_{50}) of the tested mixture $\leq$ 100 mg/l and NOEC of the tested mixture $\leq$ 1.0 mg/l or unknown:

(i) Classify mixture as Category Acute 1, 2 or 3;

(ii) Apply summation of classified ingredients approach (see 2.4.4.6) for chronic classification (Chronic 1 to 4 or no need for chronic classification);

(b) $L(E)C_{50}$ of the tested mixture $\leq$ 100 mg/l and NOEC of the tested mixture > 1.0 mg/l:

(i) Classify mixture as Category Acute 1, 2 or 3;

(ii) Apply summation of classified ingredients approach (see 2.4.4.6) for classification as Category Chronic 1. If the mixture is not classified as Category Chronic 1, then there is no need for chronic classification;

(c) $L(E)C_{50}$ of the tested mixture > 100 mg/l, or above the water solubility, and NOEC of the tested mixture $\leq$ 1.0 mg/l or unknown:

(i) No need to classify for acute toxicity hazard;

(ii) Apply summation of classified ingredients approach (see 2.4.4.6) for chronic classification (Chronic 4 or no need for chronic classification);

(d) $L(E)C_{50}$ of the tested mixture >100 mg/l, or above the water solubility, and NOEC of the tested mixture > 1.0 mg/l:

− No need to classify for acute or chronic toxicity hazard.

2.4.4.4 *Classification of mixtures when data are not available for the complete mixture: bridging principles*

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

2.4.4.4.2 *Dilution*

2.4.4.4.2.1 If a mixture is formed by diluting another classified mixture or a substance with a diluent which has an equivalent or lower aquatic hazard classification than the least toxic original ingredient and which is not expected to affect the aquatic

hazards of other ingredients, then the mixture will be classified as equivalent to the original mixture or substance.

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

2.4.4.4.3 *Batching*

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

2.4.4.4.4 *Concentration of mixtures which are classified with the most severe classification categories (Chronic 1 and Acute 1)*

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

2.4.4.4.5 *Interpolation within one toxicity category*

If mixtures A and B are in the same classification category and mixture C is made in which the toxicologically active ingredients have concentrations intermediate to those in mixtures A and B, then mixture C shall be in the same category as A and B. Note that the identity of the ingredients is the same in all three mixtures.

2.4.4.4.6 *Substantially similar mixtures*

Given the following:

(a) Two mixtures:

(i) A + B;

(ii) C + B;

(b) The concentration of ingredient B is the same in both mixtures;

(c) The concentration of ingredient A in mixture (i) equals that of ingredient C in mixture (ii);

(d) Classifications for A and C are available and are the same, i.e. they are in the same hazard category and are not expected to affect the aquatic toxicity of B.

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

2.4.4.5 ***Classification of mixtures when data are available for all ingredients or only for some ingredients of the mixture***

2.4.4.5.1 The classification of a mixture is based on summation of the concentrations of its classified ingredients. The percentage of ingredients classified as 'Acute' or 'Chronic' will feed straight into the summation method. Details of the summation method are described in 2.4.4.6.1 to 2.4.4.6.4.

2.4.4.5.2 Mixtures can be made of a combination of both ingredients that are classified (as Acute 1 to 3 and/or Chronic 1 to 4) and those for which adequate test data are available. When adequate toxicity data are available for more than one ingredient in the mixture, the combined toxicity of those ingredients may be calculated using the following additivity formula, and the calculated toxicity may be used to assign that portion of the mixture an acute hazard category, which is then subsequently used in applying the summation method.

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

where:

Ci = concentration of ingredient i (weight percentage)

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

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

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

2.4.4.5.3 When applying the additivity formula for part of the mixture, it is preferable to calculate the toxicity of this part of the mixture using for each substance toxicity values that relate to the same species (i.e. fish, daphnia or algae) and then to use the highest toxicity (lowest value) obtained (i.e. use the most sensitive of the three species). However, when toxicity data for each ingredient are not available in the same species, the toxicity value of each ingredient shall be selected in the same manner that toxicity values are selected for the classification of substances, i.e. the highest toxicity (from the most sensitive test organism) is used. The calculated acute toxicity may then be used to classify this part of the mixture as Acute 1, 2 or 3 using the same criteria described for substances.

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

2.4.4.6 *Summation method*

2.4.4.6.1 *Classification procedures*

In general, a more severe classification for mixtures overrides a less severe classification, e.g. a classification with Chronic 1 overrides a classification with Chronic 2. As a consequence, the classification procedure is already completed if the result of the classification is Chronic 1. A more severe classification than Chronic 1 is not possible; therefore, it is not necessary to pursue the classification procedure further.

2.4.4.6.2 *Classification for Acute Categories 1, 2 and 3*

2.4.4.6.2.1 First, all ingredients classified as Acute 1 shall be considered. If the sum of these ingredients is ≥ 25%, the whole mixture is classified as Acute 1. If the result of the calculation is a classification of the mixture as Acute 1, the classification process is completed.

2.4.4.6.2.2 In cases where the mixture is not classified as Acute 1, classification of the mixture as Acute 2 shall be considered. A mixture is classified as Acute 2 if 10 times the sum of all ingredients classified as Acute 1 plus the sum of all ingredients classified as Acute 2 is ≥ 25%. If the result of the calculation is classification of the mixture as Acute 2, the classification process is completed.

2.4.4.6.2.3 In cases where the mixture is not classified either as Acute 1 or Acute 2, classification of the mixture as Acute 3 shall be considered. A mixture is classified as Acute 3 if 100 times the sum of all ingredients classified as Acute 1 plus 10 times the sum of all ingredients classified as Acute 2 plus the sum of all ingredients classified as Acute 3 is ≥ 25%.

2.4.4.6.2.4 The classification of mixtures for acute hazards based on this summation of classified ingredients is summarized in Table 2.4.4.6.2.4.

Table 2.4.4.6.2.4: Classification of a mixture for acute hazards based on summation of classified ingredients

Sum of ingredients classified as:	Mixture is classified as:
Acute 1 × M* ≥ 25%	Acute 1
(M ×10 x Acute 1) + Acute 2 ≥ 25%	Acute 2
(M × 100 × Acute 1) + (10 × Acute 2) + Acute 3 ≥ 25%	Acute 3

* For explanation of the M factor, see 2.4.4.6.4.

2.4.4.6.3 *Classification for Chronic Categories 1, 2, 3 and 4*

2.4.4.6.3.1 First, all ingredients classified as Chronic 1 are considered. If the sum of these ingredients is ≥ 25%, the mixture shall be classified as Chronic 1. If the result of the calculation is a classification of the mixture as Chronic 1, the classification procedure is completed.

2.4.4.6.3.2 In cases where the mixture is not classified as Chronic 1, classification of the mixture as Chronic 2 shall be considered. A mixture is classified as Chronic 2 if 10 times the sum of all ingredients classified as Chronic 1 plus the sum of all ingredients classified as Chronic 2 is ≥ 25%. If the result of the calculation is classification of the mixture as Chronic 2, the classification process is completed.

2.4.4.6.3.3 In cases where the mixture is not classified either as Chronic 1 or Chronic 2, classification of the mixture as Chronic 3 shall be considered. A mixture is classified as Chronic 3 if 100 times the sum of all ingredients classified as Chronic 1 plus 10 times the sum of all ingredients classified as Chronic 2 plus the sum of all ingredients classified as Chronic 3 is ≥ 25%.

2.4.4.6.3.4 If the mixture is still not classified in Category Chronic 1, 2 or 3, classification of the mixture as Chronic 4 need not be considered for the purposes of ADN. A mixture is classified as Chronic 4 if the sum of the percentages of ingredients classified as Chronic 1, 2, 3 and 4 is ≥ 25%.

2.4.4.6.3.5 The classification of mixtures for chronic hazards based on this summation of classified ingredients is summarized in Table 2.4.4.6.3.4.

Table 2.4.4.6.3.4: Classification of a mixture for chronic hazards based on summation of classified ingredients

Sum of ingredients classified as:	Mixture is classified as:
Chronic 1 × M* ≥ 25%	Chronic 1
(M × 10 × Chronic 1) + Chronic 2 ≥ 25%	Chronic 2
(M × 100 × Chronic 1) + (10 × Chronic 2) + Chronic 3 ≥ 25%	Chronic 3
Chronic 1 + Chronic 2 + Chronic 3 + Chronic 4 ≥ 25 %	Chronic 4

* For explanation of the M factor, see 2.4.4.6.4.

2.4.4.6.4 *Mixtures with highly toxic ingredients*

Acute Category 1 ingredients with toxicities well below 1 mg/l may influence the toxicity of the mixture and shall be given increased weight in applying the summation method. When a mixture contains ingredients classified as Acute or Chronic 1, the tiered approach described in 2.4.4.6.2 and 2.4.4.6.3 shall be applied using a weighted sum by multiplying the concentrations of Acute 1 ingredients by a factor, instead of merely adding up the percentages. This means that the concentration of “Acute 1” in the left column of Table 2.4.4.6.2.4 and the

concentration of "Chronic 1" in the left column of Table 2.4.4.6.3.4 are multiplied by the appropriate multiplying factor. The multiplying factors to be applied to these ingredients are defined using the toxicity value, as summarized in Table 2.4.4.6.4 below. Therefore, in order to classify a mixture containing Acute/Chronic 1 ingredients, the classifier needs to be informed of the value of the M factor in order to apply the summation method. Alternatively, the additivity formula (see 2.4.4.5.2) may be used when toxicity data are available for all highly toxic ingredients in the mixture and there is convincing evidence that all other ingredients, including those for which specific acute toxicity data are not available, are of low or no toxicity and do not significantly contribute to the environmental hazard of the mixture.

Table 2.4.4.6.4 Multiplying factors for highly toxic ingredients of mixtures

$L(E)C_{50}$ value	Multiplying factor (M)
$0.1 < L(E)C_{50} \leq 1$	1
$0.01 < L(E)C_{50} \leq 0.1$	10
$0.001 < L(E)C_{50} \leq 0.01$	100
$0.0001 < L(E)C_{50} \leq 0.001$	1 000
$0.00001 < L(E)C_{50} \leq 0.0001$	10 000
(continue in factor 10 intervals)	

2.4.4.6.5 *Classification of mixtures with ingredients without any useable information*

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

PART 3

Amend the heading to read as follows:

"PART 3 Dangerous goods list, special provisions and exemptions related to limited and excepted quantities".

Chapter 3.2

3.2.1 In the explanatory text for Column (5), replace "2.2.7.8.4" with "5.1.5.3.4".

Amend the explanatory text for Column 7 to read as follows:

"Column (7a) "Limited Quantities"

Contains an alphanumeric code with the following meaning:

- "LQ0" signifies that no exemption from the provisions of ADN exists for the dangerous goods packed in limited quantities;

- All the other alphanumeric codes starting with the letters "LQ" signify that the provisions of ADN are not applicable if the conditions indicated in Chapter 3.4 are fulfilled.

Column (7b) "Excepted Quantities"

Contains an alphanumeric code with the following meaning:

- "E0" signifies that no exemption from the provisions of ADN exists for the dangerous goods packed in excepted quantities;

- All the other alphanumerical codes starting with the letter "E" signify that the provisions of ADN are not applicable if the conditions indicated in Chapter 3.5 are fulfilled.".

Table A

Renumber column (7) as (7a) and insert a new column (7b). Insert a common heading for both columns (7a) and (7b) as follows:

Limited and excepted quantities 3.4.6 / 3.5.1.2	
(7a)	(7b)

Allocate codes E0 to E5 in column (7b) as indicated below, except for goods not subject to ADN and for goods the carriage of which is prohibited in ADN.

Add E0 in column (7b) for:

- All goods of Classes 1, 5.2, 6.2 and 7;

- All goods of Class 2 for which only label 2.1 has been assigned in column (5);

- All goods of Class 2 for which label 2.3 (with or without other label) has been assigned in column (5);

- All goods of Class 2, for which labels 2.2+5.1 have been assigned in column (5) and UN Nos. 1044, 1950, 2037, 2857 and 3164;
- UN Nos. 1204, 2059, 3064, 3256, 3269, 3343, 3357, 3379 and 3473 in Class 3;
- All goods of Class 3, packing group I, for which labels 3+6.1, 3+8 or 3+6.1+8 have been assigned in column (5);
- All goods of Class 4.1, packing group I, and UN Nos. 2304, 2448, 2555, 2556, 2557, 2907, 3176 (packing groups II and III), 3221 to 3240, 3319 and 3344;
- All goods of Class 4.2, packing group I;
- All goods of Class 4.3, packing group I, and UN 3292;
- All goods of Class 5.1, packing group I, and UN Nos. 2426 and 3356;
- UN Nos. 1600, 1700, 2016, 2017, 2312 and 3250 of Class 6.1;
- All goods of Class 8, packing group I, and UN Nos. 1774, 2028, 2215 (MOLTEN), 2576, 2794, 2795, 2800, 2803, 2809 and 3028;
- UN Nos. 2990, 3072, 3090, 3091, 3245, 3257, 3258, 3268 and 3316 of Class 9.

Add E1 in column (7b) for:

- All goods for which only label 2.2 has been assigned in column (5) except for UN Nos.1043, 1044, 1950, 2037, 2857 and 3164;
- All goods of Class 3, packing group III, for which only label No 3 has been assigned in column (5), except for UN Nos. 2059, 3256 and 3269;
- All goods of Class 3, packing group III, for which labels 3+6.1 or 3+8 have been assigned in column (5);
- All goods of Class 4.1, packing group III, except for UN Nos. 2304, 2448 and 3176;
- All goods of Class 4.2, packing group III;
- All goods of Class 4.3, packing group III;
- All goods of Class 5.1, packing group III;
- All goods of Class 6.1, packing group III;
- All goods of Class 8, packing group III, except for UN Nos. 2215 (MOLTEN), 2803 and 2809;
- All goods of Class 9, packing group III, except for UN Nos. 3257, 3258, 3268 and 3316.

Add E2 in column (7b) for:

- All goods of Class 3, packing group II, for which only label No 3 has been assigned in column (5), except for UN Nos. 1204, 2059, 3064, 3269 and 3357;

- All goods of Class 3, packing group II, for which labels 3+6.1, 3+6.1+8 or 3+8 have been assigned in column (5);

- All goods of Class 4.1, packing group II, except for UN Nos. 2555, 2556, 2557, 2907, 3176, 3319 and 3344;

- All goods of Class 4.2, packing group II;

- All goods of Class 4.3, packing group II, except for UN 3292;

- All goods of Class 5.1, packing group II, except for UN 3356;

- All goods of Class 8, packing group II, except for UN Nos. 1774, 2028 and 2576;

- All goods of Class 9, packing group II, except for UN Nos. 3090, 3091 and 3316.

Add E3 in column (7b) for all goods of Class 3, packing group I, for which only label No 3 has been assigned in column (5), except for UN Nos. 2059 and 3379.

Add E4 in column (7b) for all goods of Class 6.1, packing group II, except for UN Nos. 1600, 1700, 2016, 2017, 2312 and 3250.

Add E5 in column (7b) for all goods of Class 6.1, packing group I.

Add special provision "274" wherever special provision “61” is mentioned in column (6), except for UN No. 3048.

This modification concerns all packing groups for the following UN Nos.: 2588, 2757-2764, 2771, 2772, 2775-2784, 2786, 2787, 2902, 2903, 2991-2998, 3005, 3006, 3009-3021, 3024-3027, 3345-3352.

For UN 1057, add in column (6): “654”.

For UN Nos. 1170, 1987 and 1993, all packing groups, delete “330” in column (6).

For UN Nos. 1250 and 1305, replace “I” with “II” in column (4) and replace “LQ3” with “LQ4” in column (7a).

For UN Nos. 2913, 3321, 3322, 3324, 3325 and 3326, insert “336” in column (6).

For UN Nos. 2916, 2917, 3328 and 3329 insert “337” in column (6).

For UN Nos. 3077 and 3082, add “335” in column (6).

For UN Nos. 3269 (twice) and 3316 (twice), add “340” in column (6).

For UN 3357, replace “LQ4” with “LQ0” in column (7a).

UN 0411 The amendment does not apply to the English version..

UN 1017 In column (5), add “+5.1”. In column (3b), replace “2TC” with “2TOC”.

UN 1170 The amendment applies to the French text only.

UN 1204 Insert "601" in column (6).

UN 1344 In column (2), add “(PICRIC ACID)” after “TRINITROPHENOL”.

UN 1474 In column (6), add “332”.

UN 1818 Replace “LQ22” with “LQ0” in column (7a),

UN 2031 For packing group II, in column (2), add “at least 65%, but” after “with”, and in column (5), add “+5.1”.

UN 2814 For the third entry, replace “(animal carcasses only)” with “(animal material only)” in column (2).

UN 2900 For the third entry, replace “(animal carcasses and wastes only)” with “(animal material only)” in column (2).

UN 3048 Delete “61” in column (6).

UN 3090 In column (2), amend the name and description to read: “LITHIUM METAL BATTERIES (including lithium alloy batteries)”.

UN 3091 In column (2), insert “METAL” after “LITHIUM” (twice) and “(including lithium alloy batteries)” after “WITH EQUIPMENT”.

UN 3344 In column (2), add “(PENTAERYTHRITOL TETRANITRATE; PETN)” after “TETRANITRATE”.

UN 3468 In column (2), add at the end: “or HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM CONTAINED IN EQUIPMENT or HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM PACKED WITH EQUIPMENT”.

UN 3473 In column (2), replace “FUEL CELL CARTRIDGES” with “FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT”.

Delete the existing entries for UN Nos. 3132 and 3135

Add the following new entries:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)	(12)	(13)
0505	SIGNALS, DISTRESS, ship	1	1.4G		1.4		LQ0	E0		PP		LO01 HA01 HA03 HA04 HA05 HA06	1	
0506	SIGNALS, DISTRESS, ship	1	1.4S		1.4		LQ0	E0		PP		LO01 HA01 HA03 HA04 HA05 HA06	0	
0507	SIGNALS, SMOKE	1	1.4S		1.4		LQ0	E0		PP		LO01 HA01 HA03 HA04 HA05 HA06	0	
0508	1-HYDROXY-BENZOTRIAZOLE, ANHYDROUS, dry or wetted with less than 20% water, by mass	1	1.3C		1		LQ0	E0		PP		LO01 HA01 HA03 HA04 HA05 HA06	3	
2031	NITRIC ACID, other than red fuming, with less than 65% nitric acid	8	C1	II	8		LQ22	E2	T	PP,EP			0	
3132	WATER-REACTIVE SOLID, FLAMMABLE, N.O.S.	4.3	WF2	I	4.3 + 4.1	274	LQ0	E0		PP,EX,A	VE01		1	
3132	WATER-REACTIVE SOLID, FLAMMABLE, N.O.S.	4.3	WF2	II	4.3 + 4.1	274	LQ11	E2		PP,EX,A	VE01		1	
3132	WATER-REACTIVE SOLID, FLAMMABLE, N.O.S.	4.3	WF2	III	4.3 + 4.1	274	LQ12	E1		PP,EX,A	VE01		0	
3135	WATER-REACTIVE SOLID, SELF-HEATING, N.O.S.	4.3	WS	I	4.3 + 4.2	274	LQ0	E0		PP,EX,A	VE01		0	
3135	WATER-REACTIVE SOLID, SELF-HEATING, N.O.S.	4.3	WS	II	4.3 + 4.2	274	LQ11	E2		PP,EX,A	VE01		0	
3135	WATER-REACTIVE SOLID, SELF-HEATING, N.O.S.	4.3	WS	III	4.3 + 4.2	274	LQ12	E1		PP,EX,A	VE01		0	

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)	(12)	(13)
3373	BIOLOGICAL SUBSTANCE, CATEGORY B (animal material only)	6.2	I4		6.2	319	LQ0	E0		PP			0	
3474	1-HYDROXY-BENZOTRIAZOLE, ANHYDROUS, WETTED with not less than 20% water, by mass	4.1	D	I	4.1		LQ0	E0		PP			1	
3475	ETHANOL AND GASOLINE MIXTURE or ETHANOL AND MOTOR SPIRIT MIXTURE or ETHANOL AND PETROL MIXTURE, with more than 10% ethanol	3	F1	II	3	333	LQ4	E2	T	PP,EX, A	VE01		1	
3476	FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing water-reactive substances	4.3	W3		4.3	328 334	LQ10 LQ11	E0		PP,EX, A	VE01	HA08	0	
3477	FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing corrosive substances	8	C11		8	328 334	LQ12 LQ13	E0		PP,EX, A			0	
3478	FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing liquefied flammable gas	2	6F		2.1	328 338	LQ1	E0		PP,EX, A	VE01			
3479	FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing hydrogen in metal hydride	2	6F		2.1	328 339	LQ1	E0		PP,EX, A	VE01		1	

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)	(12)	(13)
3480	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	9	M4	II	9	188 230 310 636	LQ0	E0		PP			0	
3481	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)	9	M4	II	9	188 230 636	LQ0	E0		PP			0	
9005	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., MOLTEN	9			none				T	PP			0	Dangerous only when carried in tank vessels
9006	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	9			none				T	PP			0	Dangerous only when carried in tank vessels

3.2.3 Amend the explanatory text for Column 5 to read as follows:
"Column (5) "Danger"

"This column contains information concerning the hazards inherent in the dangerous substance. These hazards are included on the basis of the danger labels of Table A, column (5).
In the case of a chemically unstable substance, the code 'unst.' is added to the information.

In the case of a substance or mixture hazardous to the aquatic environment, the code 'N1', 'N2' or 'N3' is added to the information.

In the case of a substance or mixture with CMR properties, the code 'CMR' is added to the information.

In the case of a substance or mixture that floats on the water surface, does not evaporate and is not readily soluble in water or that sinks to the bottom of the water and is not readily soluble, the code 'F' (standing for 'Floater') or 'S' (standing for 'Sinker'), respectively, is added to the information.".

Table C Replace with the following table:

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1005	AMMONIA, ANHYDROUS	2	2TC		2.3+8+2.1	G	1	1	3		91		1	yes	T1	II A	yes	PP, EP, EX, TOX, A	2	1; 31
1010	1,2-BUTADIENE, STABILIZED	2	2F		2.1+unst.	G	1	1			91		1	yes	T2	II B[4)]	yes	PP, EX, A	1	2; 3; 31
1010	1,3-BUTADIENE, STABILIZED	2	2F		2.1+unst.+ CMR	G	1	1			91		1	yes	T2	II B	yes	PP, EX, A	1	2; 3; 31
1010	BUTADIENE STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, having a vapour pressure at 70 °C not exceeding 1.1 MPa (11 bar) and a density at 50 °C not lower than 0.525 kg/l	2	2F		2.1+unst.	G	1	1			91		1	yes	T2	II B	yes	PP, EX, A	1	2; 3; 31
1011	BUTANE	2	2F		2.1+CMR	G	1	1			91		1	yes	T2	II A	yes	PP, EX, A	1	31; 99
1012	1-BUTYLENE	2	2F		2.1	G	1	1			91		1	yes	T2	II A	yes	PP, EX, A	1	31
1020	CHLOROPENTAFLUORO-ETHANE (REFRIGERANT GAS R 115)	2	2A		2.2	G	1	1			91		1	yes			no	PP	0	31
1030	1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)	2	2F		2.1	G	1	1			91		1	yes	T1	II A	yes	PP, EX, A	1	31
1033	DIMETHYL ETHER	2	2F		2.1	G	1	1			91		1	yes	T3	II B	yes	PP, EX, A	1	31
1038	ETHYLENE, REFRIGERATED LIQUID	2	3F		2.1	G	1	1	1		95		1	no	T1	II B	yes	PP, EX, A	1	31
1040	ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1 MPa (10 bar) at 50 °C	2	2TF		2.3+2.1	G	1	1			91		1	yes	T2	II B	yes	PP, EP, EX, TOX, A	2	2: 3; 11; 31
1055	ISOBUTYLENE	2	2F		2.1	G	1	1			91		1	yes	T2 [1)]	II A	yes	PP, EX, A	1	31

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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)
1063	METHYL CHLORIDE (REFRIGERANT GAS R 40)	2	2F		2.1	G	1	1			91		1	yes	T1	II A	yes	PP, EX, A	1	31
1077	PROPYLENE	2	2F		2.1	G	1	1			91		1	yes	T1	II A	yes	PP, EX, A	1	31
1083	TRIMETHYLAMINE, ANHYDROUS	2	2F		2.1	G	1	1			91		1	yes	T4	II A	yes	PP, EX, A	1	31
1086	VINYL CHLORIDE, STABILIZED	2	2F		2.1+unst.	G	1	1			91		1	yes	T2	II A	yes	PP, EX, A	1	2; 3; 13; 31
1088	ACETAL	3	F1	II	3	N	2	2		10	97	0.83	3	yes	T3	II B[4)]	yes	PP, EX, A	1	
1089	ACETALDEHYDE (ethanal)	3	F1	I	3+N3	C	1	1			95	0.78	1	yes	T4	II A	yes	PP, EX, A	1	
1090	ACETONE	3	F1	II	3	N	2	2		10	97	0.79	3	yes	T1	II A	yes	PP, EX, A	1	
1092	ACROLEINE, STABILIZED	6.1	TF1	I	6.1+3+unst.+ N1	C	2	2	3	50	95	0.84	1	no	T3 [2)]	II B	yes	PP, EP, EX, TOX, A	2	2; 3; 5; 23
1093	ACRYLONITRILE, STABILIZED	3	FT1	I	3+6.1+unst.+ N2+CMR	C	2	2	3	50	95	0.8	1	no	T1	II B	yes	PP, EP, EX, TOX, A	2	3; 5; 23
1098	ALLYL ALCOHOL	6.1	TF1	I	6.1+3+N1	C	2	2		40	95	0.85	1	no	T2	II B	yes	PP, EP, EX, TOX, A	2	
1100	ALLYL CHLORIDE	3	FT1	I	3+6.1+N1	C	2	2	3	50	95	0.94	1	no	T2	II A	yes	PP, EP, EX, TOX, A	2	23
1105	PENTANOLS (n- PENTANOL)	3	F1	III	3	N	3	2			97	0.81	3	yes	T2	II A	yes	PP, EX, A	0	
1106	AMYLAMINE (n-AMYLAMINE)	3	FC	II	3+8	C	2	2		40	95	0.76	2	yes	T4 [3)]	II A [7)]	yes	PP, EP, EX, A	1	
1107	AMYL CHLORIDES (l-CHLOROPENTANE)	3	F1	II	3	C	2	2		40	95	0.88	2	yes	T3	II A	yes	PP, EX, A	1	
1107	AMYL CHLORIDES (1-CHLORO-3-METHYLBUTANE)	3	F1	II	3	C	2	2		45	95	0.89	2	yes	T3	II A	yes	PP, EX, A	1	

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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)
1107	AMYL CHLORIDES (2-CHLORO-2-METHYLBUTANE)	3	F1	II	3	C	2	2		50	95	0.87	2	yes	T2	II A	yes	PP, EX, A	1	
1107	AMYL CHLORIDES (1-CHLORO-2,2-DIMETHYL-PROPANE)	3	F1	II	3	C	2	2		50	95	0.87	2	yes	T3 [2)]	II A	yes	PP, EX, A	1	
1107	AMYL CHLORIDES	3	F1	II	3	C	1	1			95	0.9	1	yes	T3 [2)]	II A	yes	PP, EX, A	1	27
1108	1-PENTENE (n-AMYLENE)	3	F1	I	3+N3	N	1	1			97	0.64	1	yes	T3	II B [4)]	yes	PP, EX, A	1	
1114	BENZENE	3	F1	II	3+N3+CMR	C	2	2	3	50	95	0.88	2	yes	T1	II A	yes	PP, EP, EX, TOX, A	1	6; +10 °C; 17; 23
1120	BUTANOLS (tert- BUTYLALCOHOL)	3	F1	II	3	N	2	2	2	10	97	0.79	3	yes	T1	II A [7)]	yes	PP, EX, A	1	7; 17
1120	BUTANOLS (sec-BUTYLALCOHOL)	3	F1	III	3	N	3	2			97	0.81	3	yes	T2	II B [7)]	yes	PP, EX, A	0	
1120	BUTANOLS (n- BUTYL ALCOHOL)	3	F1	III	3	N	3	2			97	0.81	3	yes	T2	II B	yes	PP, EX, A	0	
1123	BUTYL ACETATES (sec-BUTYLACETATE)	3	F1	II	3	N	2	2		10	97	0.86	3	yes	T2	II A [7)]	yes	PP, EX, A	1	
1123	BUTYL ACETATES (n-BUTYL ACETATE)	3	F1	III	3+N3	N	3	2			97	0.86	3	yes	T2	II A	yes	PP, EX, A	0	
1125	n-BUTYLAMINE	3	FC	II	3+8+N3	C	2	2	3	50	95	0.75	2	yes	T2	II A	yes	PP, EP, EX, A	1	23
1127	CHLOROBUTANES (1-CHLOROBUTANE)	3	F1	II	3	C	2	2	3	50	95	0.89	2	yes	T3	II A	yes	PP, EX, A	1	23
1127	CHLOROBUTANES (2-CHLOROBUTANE)	3	F1	II	3	C	2	2	3	50	95	0.87	2	yes	T4 [3)]	II A	yes	PP, EX, A	1	23

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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)
1127	CHLOROBUTANES (1-CHLORO-2-METHYLPROPANE)	3	F1	II	3	C	2	2	3	50	95	0.88	2	yes	T4 [3)]	II A	yes	PP, EX, A	1	23
1127	CHLOROBUTANES (2-CHLORO-2-METHYL-PROPANE)	3	F1	II	3	C	2	2	3	50	95	0.84	2	yes	T1	II A	yes	PP, EX, A	1	23
1127	CHLOROBUTANES	3	F1	II	3	C	1	1			95	0.89	1	yes	T4 [3)]	II A	yes	PP, EX, A	1	27
1129	BUTYRALDEHYDE (n-BUTYRALDEHYDE)	3	F1	II	3+N3	C	2	2	3	50	95	0.8	2	yes	T4	II A	yes	PP, EX, A	1	15; 23
1131	CARBON DISULPHIDE	3	FT1	I	3+6.1+N2	C	2	2	3	50	95	1.26	1	no	T6	II C	yes	PP, EP, EX, TOX, A	2	2; 9; 23
1134	CHLOROBENZENE (phenyl chloride)	3	F1	III	3+N2+S	C	2	2		30	95	1.11	2	yes	T1	II A [8)]	yes	PP, EX, A	0	
1135	ETHYLENE CHLOROHYDRIN (2-CHLOROETHANOL)	6.1	TF1	I	6.1+3	C	2	2		30	95	1.21	1	no	T2	II A [8)]	yes	PP, EP, EX, TOX, A	2	
1143	CROTONALDEHYDE, STABILIZED	6.1	TF1	I	6.1+3+unst.+ N1	C	2	2		40	95	0.85	1	no	T3	II B	yes	PP, EP, EX, TOX, A	2	3; 5; 15
1145	CYCLOHEXANE	3	F1	II	3+N1	C	2	2	3	50	95	0.78	2	yes	T3	II A	yes	PP, EX, A	1	6: +11 ºC; 17
1146	CYCLOPENTANE	3	F1	II	3+N2	N	2	3		10	97	0.75	3	yes	T2	II A	yes	PP, EX, A	1	
1150	1,2-DICHLOROETHYLENE (cis-1,2-DICHLOROETHYLENE)	3	F1	II	3+N2	C	2	2	3	50	95	1.28	2	yes	T2 [1)]	II A	yes	PP, EX, A	1	23
1150	1,2-DICHLOROETHYLENE (trans-1,2-DICHLOROETHYLENE)	3	F1	II	3+N2	C	2	2	3	50	95	1.26	2	yes	T2	II A	yes	PP, EX, A	1	23
1153	ETHYLENE GLYCOL DIETHYL ETHER	3	F1	III	3	N	3	2			97	0.84	3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	
1154	DIETHYLAMINE	3	FC	II	3+8+N3	C	2	2	3	50	95	0.7	2	yes	T2	II A	yes	PP, EP, EX, A	1	23

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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)
1155	DIETHYL ETHER	3	F1	I	3	C	1	1			95	0.71	1	yes	T4	II B	yes	PP, EX, A	1	
1157	DIISOBUTYL KETONE	3	F1	III	3+N3+F	N	3	3			97	0.81	3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	
1159	DIISOPROPYL ETHER	3	F1	II	3+N2	C	2	2	3	50	95	0.72	2	yes	T2	II A	yes	PP, EX, A	1	
1160	DIMETHYLAMINE AQUEOUS SOLUTION	3	FC	II	3+8	C	2	2	3	50	95	0.82	2	yes	T2	II B[4)]	yes	PP, EP, EX, A	1	23
1163	DIMETHYLHYDRAZINE, UNSYMMETRICAL	6.1	TFC	I	6.1+3+8+ N2+CMR	C	2	2	3	50	95	0.78	1	no	T3	II B[4)]	yes	PP, EP, EX, TOX, A	2	23
1165	DIOXANE	3	F1	II	3	N	2	2		10	97	1.03	3	yes	T2	II B	yes	PP, EX, A	1	6: +14 ºC; 17
1167	DIVINYL ETHER, STABILIZED	3	F1	I	3+unst.	C	1	1			95	0.77	1	yes	T2	II B[7)]	yes	PP, EX, A	1	2; 3
1170	ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), aqueous solution with more than 70 % alcohol by volume	3	F1	II	3	N	2	2		10	97	0,79 - 0,87	3	yes	T2	II B	yes	PP, EX, A	1	
1170	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), aqueous solution with more than 24 % and not more than 70 % alcohol by volume	3	F1	III	3	N	3	2			97	0,87 - 0,96	3	yes	T2	II B	yes	PP, EX, A	0	
1171	ETHYLENE GLYCOL MONOETHYL ETHER	3	F1	III	3+CMR	N	2	3	3	10	97	0.93	3	yes	T3	II B	yes	PP, EX, A	0	
1172	ETHYLENE GLYCOL MONOETHYL ETHER ACETATE	3	F1	III	3+N3+ CMR	N	2	3	3	10	97	0.98	3	yes	T2	II A	yes	PP, EX, A	0	
1173	ETHYL ACETATE	3	F1	II	3	N	2	2		10	97	0.9	3	yes	T1	II A	yes	PP, EX, A	1	
1175	ETHYLBENZENE	3	F1	II	3+N3	N	2	2		10	97	0.87	3	yes	T2	II B	yes	PP, EX, A	1	
1177	2-ETHYLBUTYL ACETATE	3	F1	III	3	N	3	2			97	0.88	3	yes	T3	II A	yes	PP, EX, A	0	

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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)
1179	ETHYL BUTYL ETHER (ETHYL tert-BUTYL ETHER)	3	F1	II	3+N3	N	2	2		10	97	0.74	3	yes	T2	II B	yes	PP, EX, A	1	
1184	ETHYLENE DICHLORIDE (1,2-dichloroethane)	3	FT1	II	3+6.1+ CMR	C	2	2		50	95	1.25	2	no	T2	II A	yes	PP, EP, EX, TOX, A	2	
1188	ETHYLENE GLYCOL MONOMETHYL ETHER	3	F1	III	3+CMR	N	2	3	3	10	97	0.97	3	yes	T3	II B	yes	PP, EX, A	0	
1191	OCTYL ALDEHYDES (2-ETHYLCAPRONALDEHYDE)	3	F1	III	3+F	C	2	2		30	95	0.82	2	yes	T4	II A	yes	PP, EX, A	0	
1191	OCTYL ALDEHYDES (n-OCTALDEHYDE)	3	F1	III	3+N3+F	N	3	3			97	0.82	3	yes	T3	II B[4)]	yes	PP, EX, A	0	
1193	ETHYL METHYL KETONE (METHYL ETHYL KETONE)	3	F1	II	3	N	2	2		10	97	0.8	3	yes	T1	II A	yes	PP, EX, A	1	
1198	FORMALDEHYDE SOLUTION, FLAMMABLE	3	FC	III	3+8+N3	N	3	2			97	1.09	3	yes	T2	II B	yes	PP, EP, EX, A	0	34
1199	FURALDEHYDES (a-FURALDEHYDE) or FURFURALDEHYDES (a-FURFURYLALDEHYDE)	6.1	TF1	II	6.1+3	C	2	2		25	95	1.16	2	no	T3 [2)]	II B	yes	PP, EP, EX, TOX, A	2	15
1202	GAS OIL or DIESEL FUEL or HEATING OIL (LIGHT) (flash-point not more than 60 °C)	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*	< 0,85	*	yes			no	PP	0	*see flowchart
1202	GAS OIL complying with standard EN 590: 2004 or DIESEL FUEL or HEATING OIL (LIGHT) with flash-point as specified in EN 590:2004	3	F1	III	3+N2+F	N	4	3			97	0,82 - 0,85	3	yes			no	PP	0	
1202	GAS OIL or DIESEL FUEL or HEATING OIL (LIGHT) (flash-point more than 60 °C but not more than 100 °C)	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*	< 1,1	*	yes			no	PP	0	*see flowchart

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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)
1203	MOTOR SPIRIT or GASOLINE or PETROL	3	F1	II	3+N2+CMR+F	N	2	3	3	10	97	0,68 - 0,72 [10)]	3	yes	T3	II A	yes	PP, EX, A	1	
1203	MOTOR SPIRIT or GASOLINE or PETROL, WITH MORE THAN 10 % BENZENE BOILING POINT ≤ 60 °C	3	F1	II	3+CMR+F	C	1	1			95		1	yes	T3	II A	yes	PP, EX, A	1	29
1203	MOTOR SPIRIT or GASOLINE or PETROL WITH MORE THAN 10 % BENZENE 60 °C < BOILING POINT ≤ 85 °C	3	F1	II	3+CMR+F	C	2	2	3	50	95		2	yes	T3	II A	yes	PP, EX, A	1	23; 29
1203	MOTOR SPIRIT or GASOLINE or PETROL WITH MORE THAN 10 % BENZENE 85 °C < BOILING POINT ≤ 115 °C	3	F1	II	3+CMR+F	C	2	2		50	95		2	yes	T3	II A	yes	PP, EX, A	1	29
1203	MOTOR SPIRIT or GASOLINE or PETROL WITH MORE THAN 10 % BENZENE BOILING POINT > 115 °C	3	F1	II	3+CMR+F	C	2	2		35	95		2	yes	T3	II A	yes	PP, EX, A	1	29
1206	HEPTANES (n-HEPTANE)	3	F1	II	3+N1	C	2	2	3	50	95	0.68	2	yes	T3	II A	yes	PP, EX, A	1	
1208	HEXANES (n- HEXANE)	3	F1	II	3+N1	C	2	2	3	50	95	0.66	2	yes	T3	II A	yes	PP, EX, A	1	
1212	ISOBUTANOL or ISOBUTYL ALCOHOL	3	F1	III	3	N	3	2			97	0.8	3	yes	T2	II A	yes	PP, EX, A	0	
1213	ISOBUTYLACETATE	3	F1	II	3+N3	N	2	2		10	97	0.87	3	yes	T2	II A [7)]	yes	PP, EX, A	1	
1214	ISOBUTYLAMINE	3	FC	II	3+8	C	2	2	3	50	95	0.73	2	yes	T2	II A	yes	PP, EP, EX, A	1	23
1216	ISOOCTENES	3	F1	II	3+N2	N	2	3		10	97	0.73	3	yes	T3	II B [4)]	yes	PP, EX, A	1	
1218	ISOPRENE, STABILIZED	3	F1	I	3+unst.+N2+CMR	N	1	1			95	0.68	1	yes	T3	II B	yes	PP, EX, A	1	2; 3; 5;16

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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)
1219	ISOPROPANOL or ISOPROPYL ALCOHOL	3	F1	II	3	N	2	2		10	97	0.78	3	yes	T2	II A	yes	PP, EX, A	1	
1220	ISOPROPYLE ACETATE	3	F1	II	3	N	2	2		10	97	0.88	3	yes	T2	II A	yes	PP, EX, A	1	
1221	ISOPROPYLAMINE	3	FC	I	3+8+N3	C	1	1			95	0.69	1	yes	T2	II A[7)]	yes	PP, EP, EX, A	1	
1223	KEROSENE	3	F1	III	3+N2+F	N	3	3			97	≤ 0,83	3	yes	T3	II A	yes	PP, EX, A	0	14
1224	KETONES, LIQUID, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29 *see flowchart
1224	KETONES, LIQUID, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27 *see flowchart
1229	MESITYL OXYDE	3	F1	III	3	N	3	2			97	0.85	3	yes	T2	II B[4)]	yes	PP, EX, A	0	
1230	METHANOL	3	FT1	II	3+6.1	N	2	2	3	50	95	0.79	2	yes	T2	II A	yes	PP, EP, EX, TOX, A	1	23
1231	METHYL ACETATE	3	F1	II	3	N	2	2		10	97	0.93	3	yes	T1	II A	yes	PP, EX, A	1	
1235	METHYLAMINE, AQUEOUS SOLUTION	3	FC	II	3+8	C	2	2		50	95		2	yes	T2	II A	yes	PP, EP, EX, A	1	
1243	METHYL FORMATE	3	F1	I	3	C	1	1			95	0.97	1	yes	T2	II A	yes	PP, EX, A	1	
1244	METHYLHYDRAZINE	6.1	TFC	I	6.1+3+8	C	2	2		45	95	0.88	1	no	T4	II C[5)]	yes	PP, EP, EX, TOX, A	2	
1245	METHYL ISOBUTYL KETONE	3	F1	II	3	N	2	2		10	97	0.8	3	yes	T1	II A	yes	PP, EX, A	1	
1247	METHYL METHACRYLATE MONOMER, STABILIZED	3	F1	II	3+unst.	C	2	2		40	95	0.94	1	yes	T2	II A	yes	PP, EX, A	1	3; 5; 16
1262	OCTANES (n-OCTANE)	3	F1	II	3+N1	C	2	2		45	95	0.7	2	yes	T3	II A	yes	PP, EX, A	1	
1264	PARALDEHYDE	3	F1	III	3	N	3	2			97	0.99	3	yes	T3	II A[7)]	yes	PP, EX, A	0	6: +16 ºC; 17

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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 (2- METHYLBUTANE)	3	F1	I	3+N2	N	1	1			97	0.62	1	yes	T2	II A	yes	PP, EX, A	1	
1265	PENTANES, liquid (n-PENTANE)	3	F1	II	3+N2	N	2	3		50	97	0.63	3	yes	T3	II A	yes	PP, EX, A	1	
1265	PENTANES, liquid (n-PENTANE)	3	F1	II	3+N2	N	2	3	3	10	97	0.63	3	yes	T3	II A	yes	PP, EX, A	1	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10 % BENZENE vp50 > 175 kPa	3	F1	I	3+CMR+F	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	29
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10 % BENZENE 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+CMR+F	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	29
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60 °C	3	F1	I	3+CMR+F	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	29
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60 °C	3	F1	I	3+CMR+F	C	2	2	3	50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	23; 29
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60 °C	3	F1	II	3+CMR+F	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	29
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60 °C	3	F1	II	3+CMR+F	C	2	2	3	50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	23; 29; 38

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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)
1267	PETROLEUM CRUDE OILWITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa 60 °C < BOILING POINT ≤ 85 °C	3	F1	II	3+CMR+F	C	2	2	3	50	95		2	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	23; 29
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa 85 °C < BOILING POINT ≤ 115 °C	3	F1	II	3+CMR+F	C	2	2		50	95		2	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	29
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT > 115 °C	3	F1	II	3+CMR+F	C	2	2		35	95		2	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	29
1267	PETROLEUM CRUDE OIL	3	F1	I	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	14; 29; *see flowchart
1267	PETROLEUM CRUDE OIL	3	F1	II	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	14; 29; *see flowchart
1267	PETROLEUM CRUDE OIL	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 [3]	II B[4]	yes	PP, EX, A	0	14; *see flowchart
1268	PETROLEUM DISTILLATES, N.O.S. WITH MORE THAN 10 % BENZENE or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10 % BENZENE vp50 > 175 kPa	3	F1	I	3+CMR+F	C	1	1			95		1	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	27; 29

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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)
1268	PETROLEUM DISTILLATES, N.O.S. WITH MORE THAN 10 % BENZENE or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10 % BENZENE 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+CMR+F	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
1268	PETROLEUM DISTILLATES, N.O.S. WITH MORE THAN 10 % BENZENE or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60°C	3	F1	I	3+CMR+F	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
1268	PETROLEUM DISTILLATES, N.O.S. WITH MORE THAN 10 % BENZENE or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60°C	3	F1	I	3+CMR+F	C	2	2	3	50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	23; 27; 29
1268	PETROLEUM DISTILLATES, N.O.S. WITH MORE THAN 10 % BENZENE or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60°C	3	F1	II	3+CMR+F	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
1268	PETROLEUM DISTILLATES, N.O.S. WITH MORE THAN 10 % BENZENE or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60°C	3	F1	II	3+CMR+F	C	2	2	3	50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	23; 27; 29; 38

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1268	PETROLEUM DISTILLATES, N.O.S. WITH MORE THAN 10 % BENZENE or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60°C	3	F1	II	3+CMR+F	C	2	2	3	50	95	0.765	2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	23; 27; 29
1268	PETROLEUM DISTILLATES, N.O.S. WITH MORE THAN 10 % BENZENE or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa 60°C < BOILING POINT ≤ 85 °C	3	F1	II	3+CMR+F	C	2	2	3	50	95		2	yes	T 3	II A	yes	PP, EX, A	1	23; 27; 29
1268	PETROLEUM DISTILLATES, N.O.S. WITH MORE THAN 10 % BENZENE or PETROLEUM PRODUCTS, N.O.S, WITH MORE THAN 10 % BENZENE, vp50 ≤ 110 kPa 85 °C < BOILING POINT ≤ 115 °C	3	F1	II	3+CMR+F	C	2	2		50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
1268	PETROLEUM DISTILLATES, N.O.S. WITH MORE THAN 10 % BENZENE or PETROLEUM PRODUCTS, N.O.S, WITH MORE THAN 10 % BENZENE, vp50 ≤ 110 kPa BOILING POINT > 115 °C	3	F1	II	3+CMR+F	C	2	2		35	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
1268	PETROLEUM DISTILLATES, N.O.S or PETROLEUM PRODUCTS, N.O.S. (NAPHTHA) 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+N2+CMR+F	N	2	3	3	10	97	0.735	3	yes	T3	II A	yes	PP, EX, A	1	14; 27; 29

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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)
1268	PETROLEUM DISTILLATES; N.O.S or PETROLEUM PRODUCTS, N.O.S. (NAPHTHA) 110 kPa < vp50 ≤ 150 kPa	3	F1	II	3+N2+CMR+F	N	2	3	3	10	97	0.735	3	yes	T3	II A	yes	PP, EX, A	1	14; 29
1268	PETROLEUM DISTILLATES, N.O.S or PETROLEUM PRODUCTS, N.O.S. (NAPHTHA) vp50 ≤ 110 kPa	3	F1	II	3+N2+CMR+F	N	2	3		10	97	0.735	3	yes	T3	II A	yes	PP, EX, A	1	14; 29
1268	PETROLEUM DISTILLATES, N.O.S, or PETROLEUM PRODUCTS, N.O.S. (BENZENE HEART CUT) vp50 ≤ 110 kPa	3	F1	II	3+N2+ CMR+F	N	2	3		10	97	0.765	3	yes	T3	II A	yes	PP, EX, A	1	14; 29
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	I	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	14; 27; 29 *see flowchart
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	14; 27; 29 *see flowchart
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 [3]	II B[4]	yes	PP, EX, A	0	14; 27 *see flowchart
1274	n-PROPANOL or PROPYL ALCOHOL, NORMAL	3	F1	II	3	N	2	2		10	97	0.8	3	yes	T2	II B	yes	PP, EX, A	1	
1274	n-PROPANOL or PROPYL ALCOHOL, NORMAL	3	F1	III	3	N	3	2			97	0.8	3	yes	T2	II B	yes	PP, EX, A	0	
1275	PROPIONALDEHYDE	3	F1	II	3+N3	C	2	2	3	50	95	0.81	2	yes	T4	II B	yes	PP, EX, A	1	15; 23
1276	n-PROPYL ACETATE	3	F1	II	3+N3	N	2	2		10	97	0.88	3	yes	T1	II A	yes	PP, EX, A	1	

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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)
1277	PROPYLAMINE (1-aminopropane)	3	FC	II	3+8	C	2	2	3	50	95	0.72	2	yes	T3 [2)]	II A	yes	PP, EP, EX, A	1	23
1278	1-CHLOROPROPANE (propyl chloride)	3	F1	II	3	C	2	2	3	50	95	0.89	2	yes	T1	II A	yes	PP, EX, A	1	23
1279	1,2-DICHLOROPROPANE or PROPYL DICHLORIDE	3	F1	II	3+N2	C	2	2		45	95	1.16	2	yes	T1	II A [8)]	yes	PP, EX, A	1	
1280	PROPYLENE OXIDE	3	F1	I	3+unst.+N3+ CMR	C	1	1			95	0.83	1	yes	T2	II B	yes	PP, EX, A	1	2; 12; 31
1282	PYRIDINE	3	F1	II	3+N3	N	2	2		10	97	0.98	3	yes	T1	II A [8)]	yes	PP, EX, A	1	
1289	SODIUM METHYLATE SOLUTION in alcohol	3	FC	III	3+8	N	3	2			97	0.969	3	yes	T2	II A	yes	PP, EP, EX, A	0	34
1294	TOLUENE	3	F1	II	3+N3	N	2	2		10	97	0.87	3	yes	T1	II A [8)]	yes	PP, EX, A	1	
1296	TRIETHYLAMINE	3	FC	II	3+8+N3	C	2	2		50	95	0.73	2	yes	T3	II A [8)]	yes	PP, EP, EX, A	1	
1300	TURPENTINE SUBSTITUTE	3	F1	III	3+N2+F	N	3	3			97	0.78	3	yes	T3	II B [4)]	yes	PP, EX, A	0	
1301	VINYL ACETATE, STABILIZED	3	F1	II	3+unst.+N3	N	2	2		10	97	0.93	2	yes	T2	II A	yes	PP, EX, A	1	3; 5; 16
1307	XYLENES (o- XYLENE)	3	F1	III	3+N2	N	3	3			97	0.88	3	yes	T1	II A	yes	PP, EX, A	0	
1307	XYLENES (m- XYLENE)	3	F1	III	3+N2	N	3	3			97	0.86	3	yes	T1	II A	yes	PP, EX, A	0	
1307	XYLENES (p- XYLENE)	3	F1	III	3+N2	N	3	3	2		97	0.86	3	yes	T1	II A	yes	PP, EX, A	0	6: +17 ºC; 17
1307	XYLENES (mixture with melting point ≤ 0° C)	3	F1	II	3+N2	N	3	3			97		3	yes	T1	II A	yes	PP, EX, A	1	
1307	XYLENES (mixture with melting point ≤ 0° C)	3	F1	III	3+N2	N	3	3			97		3	yes	T1	II A	yes	PP, EX, A	0	
1307	XYLENES (mixture with 0° C < melting point < 13° C)	3	F1	III	3+N2	N	3	3	2		97		3	yes	T1	II A	yes	PP, EX, A	0	6: +17 ºC; 17

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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)
1541	ACETONE CYANOHYDRIN, STABILIZED	6.1	T1	I	6.1+unst. +N1	C	2	2		50	95	0.932	1	no			no	PP, EP, TOX, A	2	3
1545	ALLYL ISOTHIOCYANATE, STABILIZED	6.1	TF1	II	6.1+3+unst.	C	2	2		30	95	1.02	1	no	T4 [3]	II B [4]	yes	PP, EP, EX, TOX, A	2	2; 3
1547	ANILINE	6.1	T1	II	6.1+N1	C	2	2		25	95	1.02	2	no			no	PP, EP, TOX, A	2	
1578	CHLORONITROBENZENES, SOLID, MOLTEN (p-CHLORONITROBENZENE)	6.1	T2	II	6.1+N2+S	C	2	1	2	25	95	1.37	2	no	T4 [3]	II B [4]	yes	PP, EP, EX, TOX, A	2	7; 17; 26
1578	CHLORONITROBENZENES, SOLID, MOLTEN (p-CHLORONITROBENZENE)	6.1	T2	II	6.1+N2+S	C	2	1	4	25	95	1.37	2	no			no	PP, EP, TOX, A	2	7; 17; 20: +112 °C; 26
1591	o-DICHLOROBENZENE	6.1	T1	III	6.1+N1+S	C	2	2		25	95	1.32	2	no			no	PP, EP, TOX, A	0	
1593	DICHLOROMETHANE (methyl chloride)	6.1	T1	III	6.1	C	2	2	3	50	95	1.33	2	no			no	PP, EP, TOX, A	0	23
1594	DIETHYL SULPHATE	6.1	T1	II	6.1+N2 +CMR	C	2	2		25	95	1.18	2	no			no	PP, EP, TOX, A	2	
1595	DIMETHYL SULPHATE	6.1	TC1	I	6.1+8+N3+ CMR	C	2	2		25	95	1.33	2	no			no	PP, EP, TOX, A	2	
1604	ETHYLENEDIAMINE	8	CF1	II	8+3+N3	N	3	2			97	0.9	3	yes	T2	II A	yes	PP, EP, EX, A	1	6: +12 °C; 17; 34
1605	ETHYLENE DIBROMIDE	6.1	T1	I	6.1+N2 +CMR	C	2	2		30	95	2.18	1	no			no	PP, EP, TOX, A	2	6: +14 °C; 17
1648	ACETONITRILE (methyl cyanide)	3	F1	II	3	N	2	2		10	97	0.78	3	yes	T1	II A	yes	PP, EX, A	1	
1662	NITROBENZENE	6.1	T1	II	6.1+N2	C	2	2	2	25	95	1.21	2	no	T1	II B	yes	PP, EP, EX, TOX, A	2	6: +10°C; 17

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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)
1663	NITROPHENOLS	6.1	T2	III	6.1+N3+S	C	2	2	2	25	95		2	no	T1	II B[4)]	yes	PP, EP, EX, TOX, A	0	7; 17
1663	NITROPHENOLS	6.1	T2	III	6.1+N3+S	C	2	2	4	25	95		2	no			no	PP, EP, TOX, A	0	7; 17; 20: +65 ºC
1664	NITROTOLUENES, LIQUID (o-NITROTOLUENE)	6.1	T1	II	6.1+N2 +CMR+S	C	2	2		25	95	1.16	2	no			no	PP, EP, TOX, A	2	17
1708	TOLUIDINES, LIQUID (o-TOLUIDINE)	6.1	T1	II	6.1+N1	C	2	2		25	95	1	2	no			no	PP, EP, TOX, A	2	
1708	TOLUIDINES, LIQUID (m-TOLUIDINE)	6.1	T1	II	6.1+N1 +CMR	C	2	2		25	95	1.03	2	no			no	PP, EP, TOX, A	2	
1710	TRICHLOROETHYLENE	6.1	T1	III	6.1+N2 +CMR	C	2	2		50	95	1.46	2	no			no	PP, EP, TOX, A	0	15
1715	ACETIC ANHYDRIDE	8	CF1	II	8+3	N	2	3		10	97	1.08	3	yes	T2	II A	yes	PP, EP, EX, A	1	34
1717	ACETYL CHLORIDE	3	FC	II	3+8	C	2	2	3	50	95	1.1	2	yes	T2	II A [8)]	yes	PP, EP, EX, A	1	23
1718	BUTYL ACIDE PHOSPHATE	8	C3	III	8+N3	N	4	3			97	0.98	3	yes			no	PP, EP	0	34
1719	CAUSTIC ALKALI LIQUID, N.O.S.	8	C5	II	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 30; 34 *see flowchart
1719	CAUSTIC ALKALI LIQUID, N.O.S.	8	C5	III	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 30; 34 *see flowchart
1738	BENZYL CHLORIDE	6.1	TC1	II	6.1+8+3+N3+ CMR+S	C	2	2		25	95	1.1	2	no	T1	II A [8)]	yes	PP, EP, EX, TOX, A	2	
1742	BORON TRIFLUORIDE ACETIC ACID COMPLEX, LIQUID	8	C3	II	8	N	4	2			97	1.35	3	yes			no	PP, EP	0	34
1750	CHLORACETIC ACID SOLUTION	6.1	TC1	II	6.1+8+N1	C	2	2	2	25	95	1.58	2	no	T1	II A	yes	PP, EP, EX, TOX, A	2	7; 17

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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)
1750	CHLORACETIC ACID SOLUTION	6.1	TC1	II	6.1+8+N1	C	2	1	4	25	95	1.58	2	no			no	PP, EP, TOX, A	2	7; 17; 20: +111 ºC; 26
1760	CORROSIVE LIQUID, N.O.S.	8	C9	I	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
1760	CORROSIVE LIQUID, N.O.S.	8	C9	II	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
1760	CORROSIVE LIQUID, N.O.S.	8	C9	III	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
1760	CORROSIVE LIQUID, N.O.S. (SODIUM MERCAPTOBENZOTHIAZOLE, 50 % AQUEOUS SOLUTION)	8	C9	II	8+N1+F	C	2	2		40	95	1.25	2	yes			no	PP, EP	0	
1760	CORROSIVE LIQUID, N.O.S. (FATTY ALCOHOL, C_{12}-C_{14})	8	C9	III	8+F	N	4	3			97	0.89	3	yes			no	PP, EP	0	34
1760	CORROSIVE LIQUID, N.O.S. (ETHYLENEDIAMINE-TETRAACETIC ACID, TETRASODIUM SALT, 40 % AQUEOUS SOLUTION)	8	C9	III	8+N2	N	4	3			97	1.28	3	yes			no	PP, EP	0	34
1764	DICHLOROACETIC ACID	8	C3	II	8+N1	C	2	2		35	95	1.56	2	yes	T1	II A	yes	PP, EP, EX, A	0	17
1778	FLUOROSILICIC ACID	8	C1	II	8+N3	N	2	3		10	97		3	yes			no	PP, EP	0	34
1779	FORMIC ACID with more than 85% acid by mass	8	CF1	II	8+3+N3	N	2	3		10	97	1.22	3	yes	T1	II A	yes	PP, EP, EX, A	1	6: +12 ºC; 17; 34
1780	FUMARYL CHLORIDE	8	C3	II	8+N3	N	2	3		10	97	1.41	3	yes			no	PP, EP	0	8; 34

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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)
1783	HEXAMETHYLENEDIAMINE SOLUTION	8	C7	II	8+N3	N	3	2	2		97		3	yes	T4 [3]	II B[4]	yes	PP, EP, EX, A	0	7; 17; 34
1783	HEXAMETHYLENEDIAMINE SOLUTION	8	C7	III	8+N3	N	3	2	2		97		3	yes	T3	II B[4]	yes	PP, EP, EX, A	0	7; 17; 34
1789	HYDROCHLORIC ACID	8	C1	II	8	N	2	3		10	97		3	yes			no	PP, EP	0	34
1789	HYDROCHLORIC ACID	8	C1	III	8	N	4	3			97		3	yes			no	PP, EP	0	34
1805	PHOSPHORIC ACID, SOLUTION, WITH MORE THAN 80% (VOLUME) ACID	8	C1	III	8	N	4	3	2		95	> 1,6	3	yes			no	PP, EP	0	7; 17; 22; 34
1805	PHOSPHORIC ACID, SOLUTION, WITH 80% (VOLUME) ACID, OR LESS	8	C1	III	8	N	4	3			97	1,00 - 1,6	3	yes			no	PP, EP	0	22; 34
1814	POTASSIUM HYDROXIDE SOLUTION	8	C5	II	8+N3	N	4	2			97		3	yes			no	PP, EP	0	30; 34
1814	POTASSIUM HYDROXIDE SOLUTION	8	C5	III	8+N3	N	4	2			97		3	yes			no	PP, EP	0	30; 34
1823	SODIUM HYDROXIDE, SOLID, MOLTEN	8	C6	II	8+N3	N	4	1	4		95	2.13	3	yes			no	PP, EP	0	7; 17; 34
1824	SODIUM HYDROXIDE SOLUTION	8	C5	II	8+N3	N	4	2			97		3	yes			no	PP, EP	0	30; 34
1824	SODIUM HYDROXIDE SOLUTION	8	C5	III	8+N3	N	4	2			97		3	yes			no	PP, EP	0	30; 34
1830	SULPHURIC ACID with more than 51% acid	8	C1	II	8+N3	N	4	3			97	1,4 - 1,84	3	yes			no	PP, EP	0	8; 22; 30; 34
1831	SULPHURIC ACID, FUMING	8	CT1	I	8+6.1	C	2	2		50	95	1.94	1	no			no	PP, EP, TOX, A	2	8
1832	SULPHURIC ACID, SPENT	8	C1	II	8	N	4	3			97		3	yes			no	PP, EP	0	8; 30; 34

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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)
1846	CARBON TETRACHLORIDE	6.1	T1	II	6.1+N2+S	C	2	2	3	50	95	1.59	2	no			no	PP, EP, TOX, A	2	23
1848	PROPIONIC ACID with not less than 10% and less than 90% acid by mass	8	C3	III	8+N3	N	3	3			97	0.99	3	yes	T1	II A[7)]	yes	PP, EP, EX, A	0	34
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10 % BENZENE vp50 > 175 kPa	3	F1	I	3+CMR+F	C	1	1			95		1	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	29
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10 % BENZENE 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+CMR+F	C	1	1			95		1	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	29
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60 °C	3	F1	II	3+CMR+F	C	1	1			95		1	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	29
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa 60 °C < BOILING POINT ≤ 85 °C	3	F1	II	3+CMR+F	C	2	2	3	50	95		2	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	23; 29
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa 85 °C < BOILING POINT ≤ 115 °C	3	F1	II	3+CMR+F	C	2	2		50	95		2	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	29
1863	FUEL, AVIATION, TURBINE ENGINE WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT > 115 °C	3	F1	II	3+CMR+F	C	2	2		35	95		2	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	29
1863	FUEL, AVIATION, TURBINE ENGINE	3	F1	I	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 29 *see flowchart

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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)
1863	FUEL, AVIATION, TURBINE ENGINE	3	F1	II	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	14; 29 *see flowchart
1863	FUEL, AVIATION, TURBINE ENGINE	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*		*	yes	T4 [3]	II B[4]	yes	PP, EX, A	0	14 *see flowchart
1888	CHLOROFORM	6.1	T1	III	6.1+N2+CMR	C	2	2	3	50	95	1.48	2	no			no	PP, EP, TOX, A	0	23
1897	TETRACHLOROETHYLENE	6.1	T1	III	6.1+N2+S	C	2	2		50	95	1.62	2	no			no	PP, EP, TOX, A	0	
1912	METHYL CHLORIDE AND METHYLENE CHLORIDE MIXTURE	2	2F		2.1	G	1	1			91		1	yes	T1	II A[8]	yes	PP, EX, A	1	31
1915	CYCLOHEXANONE	3	F1	III	3	N	3	2			97	0.95	3	yes	T2	II A	yes	PP, EX, A	0	
1917	ETHYL ACRYLATE, STABILIZED	3	F1	II	3+unst.+N3	C	2	2		40	95	0.92	1	yes	T2	II B	yes	PP, EX, A	1	3; 5
1918	ISOPROPYLBENZENE (cumene)	3	F1	III	3+N2	N	3	3			97	0.86	3	yes	T2	II A[8]	yes	PP, EX, A	0	
1919	METHYL ACRYLATE, STABILIZED	3	F1	II	3+unst.+N3	C	2	2	3	50	95	0.95	1	yes	T2	II B	yes	PP, EX, A	1	3; 5; 23
1920	NONANES	3	F1	III	3+N2+F	N	3	3			97	0,70 - 0,75	3	yes	T3	II A	yes	PP, EX, A	0	
1922	PYRROLIDINE	3	FC	II	3+8	C	2	2		50	95	0.86	2	yes	T2	II A	yes	PP, EP, EX, A	1	
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S., (MIXTURE A)	2	2F		2.1	G	1	1			91		1	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	31
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S., (MIXTURE A0)	2	2F		2.1	G	1	1			91		1	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	31

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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)
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S., (MIXTURE A01)	2	2F		2.1	G	1	1			91		1	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	31
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S., (MIXTURE A02)	2	2F		2.1	G	1	1			91		1	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	31
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S., (MIXTURE A1)	2	2F		2.1	G	1	1			91		1	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	31
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S., (MIXTURE B)	2	2F		2.1	G	1	1			91		1	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	31
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S., (MIXTURE B1)	2	2F		2.1	G	1	1			91		1	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	31
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S., (MIXTURE B2)	2	2F		2.1	G	1	1			91		1	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	31
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S., (MIXTURE C)	2	2F		2.1	G	1	1			91		1	yes	T4 [3]	II B[4]	yes	PP, EX, A	1	31
1969	ISOBUTANE	2	2F		2.1	G	1	1			91		1	yes	T2 [1]	II A	yes	PP, EX, A	1	31; 99
1978	PROPANE	2	2F		2.1	G	1	1			91		1	yes	T1	II A	yes	PP, EX, A	1	31
1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	FT1	I	3+6.1+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no	T4 [3]	II B[4]	yes	PP, EP, EX, TOX, A	2	27; 29; *see flowchart
1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	FT1	II	3+6.1+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no	T4 [3]	II B[4]	yes	PP, EP, EX, TOX, A	2	27; 29; *see flowchart

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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)
1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	FT1	III	3+6.1+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no	T4 [3)]	II B[4)]	yes	PP, EP, EX, TOX, A	0	27; 29; *see flowchart
1987	ALCOHOLS, N.O.S. (tert-BUTANOL 90 % (MASS)/METHANOL 10 % (MASS) MIXTURE)	3	F1	II	3	N	2	2		10	97		3	yes	T1	II A	yes	PP, EX, A	1	
1987	ALCOHOLS, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29 *see flowchart
1987	ALCOHOLS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27 *see flowchart
1987	ALCOHOLS, N.O.S. (CYCLOHEXANOL)	3	F1	III	3+N3+F	N	3	3	2		95	0.95	3	yes	T3	II A	yes	PP, EX, A	0	7; 17
1987	ALCOHOLS, N.O.S. (CYCLOHEXANOL)	3	F1	III	3+N3+F	N	3	3	4		95	0.95	3	yes			no	PP	0	7; 17; 20: +46 ºC
1989	ALDEHYDES, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29 *see flowchart
1989	ALDEHYDES, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27 *see flowchart
1991	CHLOROPRENE, STABILIZED	3	FT1	I	3+6.1+unst.+CMR	C	2	2	3	50	95	0.96	1	no	T2	II B[4)]	yes	PP, EP, EX, TOX, A	2	3; 5; 23
1992	FLAMMABLE LIQUID, TOXIC, N.O.S	3	FT1	I	3+6.1+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no	T4 [3)]	II B[4)]	yes	PP, EP, EX, TOX, A	2	27; 29 *see flowchart

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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)
1992	FLAMMABLE LIQUID, TOXIC, N.O.S	3	FT1	II	3+6.1+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no	T4 [3]	II B [4]	yes	PP, EP, EX, TOX, A	2	27; 29 *see flowchart
1992	FLAMMABLE LIQUID, TOXIC, N.O.S	3	FT1	III	3+6.1+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no	T4 [3]	II B [4]	yes	PP, EP, EX, TOX, A	0	27; 29 *see flowchart
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 >175 kPa	3	F1	I	3+CMR	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE 110 kPa < vp50 ≤ 175 kPa	3	F1	I	3+CMR	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60 °C	3	F1	II	3+CMR	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa 60 °C < BOILING POINT ≤ 85 °C	3	F1	II	3+CMR	C	2	2	3	50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	23; 27; 29
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa 85 °C < BOILING POINT ≤ 115 °C	3	F1	II	3+CMR	C	2	2		50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT > 115 °C	3	F1	II	3+CMR	C	2	2		35	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29

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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)
1993	FLAMMABLE LIQUID, N.O.S.	3	F1	I	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29 *see flowchart
1993	FLAMMABLE LIQUID, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	14; 27; 29 *see flowchart
1993	FLAMMABLE LIQUID, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	14; 27 *see flowchart
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE 60 °C < BOILING POINT ≤ 85 °C	3	F1	III	3+CMR	C	2	2	3	50	95		2	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	23; 27; 29
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE 85 °C < BOILING POINT ≤ 115 °C	3	F1	III	3+CMR	C	2	2		50	95		2	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	27; 29
1993	FLAMMABLE LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE BOILING POINT > 115 °C	3	F1	III	3+CMR	C	2	2		35	95		2	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	27; 29
1993	FLAMMABLE LIQUID, N.O.S. (CYCLOHEXANONE/ CYCLOHEXANOL MIXTURE)	3	F1	III	3+F	N	3	3			97	0.95	3	yes	T3	II A	yes	PP, EX, A	0	
1999	TARS, LIQUID, including road asphalt and oils, bitumen and cut backs	3	F1	III	3+S	N	4	3	2		97		3	yes	T3	II A[7)]	yes	PP, EX, A	0	

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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)
2014	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20 % but not more than 60 % hydrogen peroxide (stabilized as necessary)	5.1	OC1	II	5.1+8+unst.	C	2	2		35	95	1.2	2	yes			no	PP, EP	0	3; 33
2021	CHLOROPHENOLS, LIQUID (2-CHLOROPHENOL)	6.1	T1	III	6.1+N2	C	2	2		25	95	1.23	2	no	T1	II A[7)]	yes	PP, EP, EX, TOX, A	0	6: +10 °C; 17
2022	CRESYLIC ACID	6.1	TC1	II	6.1+8+3+S	C	2	2		25	95	1.03	2	no	T1	II A	yes	PP, EP, EX, TOX, A	2	6: +16 °C; 17
2023	EPICHLORHYDRINE	6.1	TF1	II	6.1+3+N3	C	2	2		35	95	1.18	2	no	T2	II B	yes	PP, EP, EX, TOX, A	2	5
2031	NITRIC ACID, other than red fuming, with more than 70 % acid	8	CO1	I	8+5.1+N3	N	2	3		10	97	1,41-1,48	3	yes			no	PP, EP	0	34
2031	NITRIC ACID, other than red fuming with at least 65 % but not more than 70 % acid	8	CO1	II	8+5.1+N3	N	2	3		10	97	1,39-1,41	3	yes			no	PP, EP	0	34
2031	NITRIC ACID, other than red fuming, with less than 65 % acid	8	CO1	II	8+N3	N	2	3		10	97	1,02-1,39	3	yes			no	PP, EP	0	34
2032	NITRIC ACID, RED FUMING	8	COT	I	8+5.1+6.1+N3	C	2	2		50	95	1,48-1.51	1	no			no	PP, EP, TOX, A	2	
2045	ISOBUTYRALDEHYDE (ISOBUTYL ALDEHYDE)	3	F1	II	3+N3	C	2	2	3	50	95	0.79	2	yes	T4	II A[7)]	yes	PP, EX, A	1	15; 23
2046	CYMENES	3	F1	III	3+N2+F	N	3	3			97	0.88	3	yes	T2	II A	yes	PP, EX, A	0	
2047	DICHLOROPROPENES (2,3-DICHLOROPROP-1-ENE)	3	F1	II	3+N2+CMR	C	2	2		45	95	1.2	2	yes	T1	II A	yes	PP, EX, A	1	

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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)
2047	DICHLOROPROPENES (MIXTURES of 2,3-DICHLOROPROP-1-ENE and 1,3-DICHLOROPROPENE)	3	F1	II	3+N2+CMR	C	2	2		45	95	1.23	2	yes	T2[1)]	II A	yes	PP, EX, A	1	
2047	DICHLOROPROPENES (MIXTURES of 2,3-DICHLOROPROP-1-ENE and 1,3-DICHLOROPROPENE)	3	F1	III	3+N2+CMR	C	2	2		45	95	1.23	2	yes	T2[1)]	II A	yes	PP, EX, A	0	
2047	DICHLOROPROPENES (1,3-DICHLOROPROPENE)	3	F1	III	3+N2+CMR	C	2	2		40	95	1.23	2	yes	T2[1)]	II A[7)]	yes	PP, EX, A	0	
2048	DICYCLOPENTADIENE	3	F1	III	3+N2+F	N	3	3	2		95	0.94	3	yes	T1	II B[4)]	yes	PP, EX, A	0	7; 17
2050	DIISOBUTYLENE, ISOMERIC COMPOUNDS	3	F1	II	3+N2+F	N	2	3		10	97	0.72	3	yes	T3[2)]	II A[7)]	yes	PP, EX, A	1	
2051	2-DIMETHYLAMINO ETHANOL	8	CF1	II	8+3+N3	N	3	2			97	0.89	3	yes	T3	II A	yes	PP, EP, EX, A	1	34
2053	METHYL ISOBUTYL CARBINOL	3	F1	III	3	N	3	2			97	0.81	3	yes	T2	II B[4)]	yes	PP, EX, A	0	
2054	MORPHOLINE	8	CF1	I	8+3+N3	N	3	2			97	1	3	yes	T3	II A	yes	PP, EP, EX, A	1	34
2055	STYRENE MONOMER, STABILIZED	3	F1	III	3+unst.+N3	N	3	2			97	0.91	3	yes	T1	II A	yes	PP, EX, A	0	3; 5; 16
2056	TETRAHYDROFURAN	3	F1	II	3	N	2	2		10	97	0.89	3	yes	T3	II B	yes	PP, EX, A	1	
2057	TRIPROPYLÈNE	3	F1	II	3	N	2	2		10	97	0.744	3	yes	T3	II B[4)]	yes	PP, EX, A	1	
2057	TRIPROPYLENE	3	F1	III	3	N	3	2			97	0.73	3	yes	T3	II B[4)]	yes	PP, EX, A	0	
2078	TOLUENE DIISOCYANATE (and isomeric mixtures) (2,4- TOLUENE DIISOCYANATE)	6.1	T1	II	6.1+N2+S	C	2	2	2	25	95	1.22	2	no	T1	II B[4)]	yes	PP, EP, EX, TOX, A	2	2; 7; 8; 17
2078	TOLUENE DIISOCYANATE (and isomeric mixtures) (2,4- TOLUENE DIISOCYANATE)	6.1	T1	II	6.1+N2+S	C	2	1	4	25	95	1.22	2	no			no	PP, EP, TOX, A	2	2; 7; 8; 17; 20: +112 ºC; 26

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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)
2079	DIETHYLENETRIAMINE	8	C7	II	8+N3	N	4	2			97	0.96	3	yes			no	PP, EP	0	34
2205	ADIPONITRILE	6.1	T1	III	6.1	C	2	2		25	95	0.96	2	no	T4 [3)]	II B[4)]	yes	PP, EP, EX, TOX, A	0	17
2206	ISOCYANATES, TOXIC, N.O.S. (4-CHLOROPHENYL ISOCYANATE)	6.1	T1	II	6.1+S	C	2	2	4	25	95	1.25	2	no			no	PP, EP, TOX, A	2	7; 17
2209	FORMALDEHYDE SOLUTION with not less than 25 % formaldehyde	8	C9	III	8+N3	N	4	2			97	1.09	3	yes			no	PP, EP	0	15; 34
2215	MALEIC ANHYDRIDE, MOLTEN	8	C3	III	8+N3	N	3	3	2		95	0.93	3	yes	T2	II B[4)]	yes	PP, EP, EX, A	0	7; 17; 25; 34
2215	MALEIC ANHYDRIDE, MOLTEN	8	C3	III	8+N3	N	3	1	4		95	0.93	3	yes			no	PP, EP	0	7; 17; 20: +88 ºC; 25; 34
2218	ACRYLIC ACID, STABILIZED	8	CF1	II	8+3+unst.+N1	C	2	2	4	30	95	1.05	1	yes	T2	II A[7)]	yes	PP, EP, EX, A	1	3; 4; 5; 17
2227	n-BUTYL METHACRYLATE, STABILIZED	3	F1	III	3+unst.	C	2	2		25	95	0.9	1	yes	T3	II A	yes	PP, EX, A	0	3; 5
2238	CHLOROTOLUENES (m-CHLOROTOLUENE)	3	F1	III	3+N2+S	C	2	2		30	95	1.08	2	yes	T1	II A[7)]	yes	PP, EX, A	0	
2238	CHLOROTOLUENES (o-CHLOROTOLUENE)	3	F1	III	3+S	C	2	2		30	95	1.08	2	yes	T1	II A[7)]	yes	PP, EX, A	0	
2238	CHLOROTOLUENES (p-CHLOROTOLUENE)	3	F1	III	3+S	C	2	2		30	95	1.07	2	yes	T1	II A[7)]	yes	PP, EX, A	0	6: +11 ºC; 17
2241	CYCLOHEPTANE	3	F1	II	3+N2	N	2	3		10	97	0.81	3	yes	T4 [3)]	II A	yes	PP, EX, A	1	
2247	n-DECANE	3	F1	III	3+F	C	2	2		30	95	0.73	2	yes	T4	II A	yes	PP, EX, A	0	
2248	DI-n-BUTYLAMINE	8	CF1	II	8+3+N3	N	3	2				0.76	3	yes	T3	II A[7)]	yes	PP, EP, EX, A	1	34

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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)
2259	TRIETHYLENETETRAMINE	8	C7	II	8+N2	N	3	3			97	0.98	3	yes	T2	II B[4)]	yes	PP, EP, EX, A	0	34
2263	DIMETHYLCYCLOHEXANES (cis-1,4- DIMETHYL-CYCLOHEXANE)	3	F1	II	3	C	2	2		35	95	0.78	2	yes	T4 [3)]	II A[7)]	yes	PP, EX, A	1	
2263	DIMETHYLCYCLOHEXANES (trans-1,4- DIMETHYL-CYCLOHEXANE)	3	F1	II	3	C	2	2		35	95	0.76	2	yes	T4 [3)]	II A[7)]	yes	PP, EX, A	1	
2264	N,N-DIMETHYL-CYCLOHEXYLAMINE	8	CF1	II	8+3+N2	N	3	3			97	0.85	3	yes	T3	II B[4)]	yes	PP, EP, EX, A	1	34
2265	N,N-DIMETHYLFORMAMIDE	3	F1	III	3+CMR	N	2	3	3	10	97	0.95	3	yes	T2	II A	yes	PP, EX, A	0	
2266	DIMETHYL-N-PROPYLAMINE	3	FC	II	3+8	C	2	2	3	50	95	0.72	2	yes	T4	II A	yes	PP, EP, EX, A	1	23
2276	2-ETHYLHEXYLAMINE	3	FC	III	3+8+N3	N	3	2			97	0.79	3	yes	T3	II A[7)]	yes	PP, EP, EX, A	0	34
2278	n-HEPTENE	3	F1	II	3+N3	N	2	2		10	97	0.7	3	yes	T3	II B[4)]	yes	PP, EX, A	1	
2280	HEXAMETHYLENEDIAMINE, SOLID, MOLTEN	8	C8	III	8+N3	N	3	3	2		95	0.83	3	yes	T3	II B[4)]	yes	PP, EP, EX, A	0	7; 17; 34
2280	HEXAMETHYLENEDIAMINE, SOLID, MOLTEN	8	C8	III	8+N3	N	3	3	4		95	0.83	3	yes			no	PP, EP	0	7; 17; 20: +66 °C; 34
2282	HEXANOLS	3	F1	III	3+N3	N	3	2			97	0.83	3	yes	T3	II A	yes	PP, EX, A	0	
2286	PENTAMETHYLHEPTANE	3	F1	III	3+F	N	3	3			97	0.75	3	yes	T2	II A[7)]	yes	PP, EX, A	0	
2288	ISOHEXENES	3	F1	II	3+unst.	C	2	2	3	50	95	0.735	2	yes	T2	II B[4)]	yes	PP, EX, A	1	3; 23
2289	ISOPHORONEDIAMINE	8	C7	III	8+N2	N	3	3			97	0.92	3	yes	T2	II A	yes	PP, EP, EX, A	0	17; 34
2302	5-METHYLHEXAN-2-ONE	3	F1	III	3	N	3	2			97	0.81	3	yes	T1	II A	yes	PP, EX, A	0	
2303	ISOPROPENYLBENZENE	3	F1	III	3+N2+F	N	3	3			97	0.91	3	yes	T2	II B	yes	PP, EX, A	0	
2309	OCTADIENE (1,7-OCTADIENE)	3	F1	II	3+N2	N	2	3		10	97	0.75	3	yes	T3	II B[4)]	yes	PP, EX, A	1	

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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)
2311	PHENETIDINES	6.1	T1	III	6.1	C	2	2		25	95	1.07	2	no			no	PP, EP, TOX, A	0	6: +7 ºC; 17
2312	PHENOL, MOLTEN	6.1	T1	II	6.1+N3+S	C	2	2	4	25	95	1.07	2	no	T1	II A[8)]	yes	PP, EP, EX, TOX, A	2	7; 17
2312	PHENOL, MOLTEN	6.1	T1	II	6.1+N3+S	C	2	2	4	25	95	1.07	2	no			no	PP, EP, TOX, A	2	7; 17; 20: +67 ºC
2320	TETRAETHYLENEPENTAMINE	8	C7	III	8+N2	N	4	3			97	1	3	yes			no	PP, EP	0	34
2321	TRICHLOROBENZENES, LIQUID (1,2,4-TRICHLOROBENZENE)	6.1	T1	III	6.1+N1+S	C	2	2	2	25	95	1.45	2	no	T1	II A	yes	PP, EP, EX, TOX, A	0	7; 17
2321	TRICHLOROBENZENES, LIQUID (1,2,4-TRICHLOROBENZENE)	6.1	T1	III	6.1+N1+S	C	2	1	4	25	95	1.45	2	no			no	PP, EP, TOX, A	0	7; 17; 20: +95 ºC; 26
2323	TRIETHYL PHOSPHITE	3	F1	III	3	N	3	2			97	0.8	3	yes	T3	II B[4)]	yes	PP, EX, A	0	
2324	TRIISOBUTYLENE	3	F1	III	3+N1+F	C	2	2		35	95	0.76	2	yes	T2	II B[4)]	yes	PP, EX, A	0	
2325	1,3,5-TRIMETHYLBENZENE	3	F1	III	3+N1	C	2	2		35	95	0.87	2	yes	T1	II A	yes	PP, EX, A	0	
2333	ALLYL ACETATE	3	FT1	II	3+6.1	C	2	2		40	95	0.93	2	no	T2	II A[7)]	yes	PP, EP, EX, TOX, A	2	
2348	BUTYL ACRYLATES, STABILIZED (n- BUTYL ACRYLATE, STABILIZED)	3	F1	III	3+unst.+N3	C	2	2		30	95	0.9	1	yes	T3	II B	yes	PP, EX, A	0	3; 5
2350	BUTYL METHYL ETHER	3	F1	II	3	N	2	2		10	97	0.74	3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	
2356	2-CHLOROPROPANE	3	F1	I	3	C	2	2	3	50	95	0.86	2	yes	T1	II A	yes	PP, EX, A	1	23
2357	CYCLOHEXYLAMINE	8	CF1	II	8+3+N3	N	3	2			97	0.86	3	yes	T3	II A[8)]	yes	PP, EP, EX, A	1	34
2362	1,1-DICHLOROETHANE	3	F1	II	3+N2	C	2	2	3	50	95	1.17	2	yes	T2	II A	yes	PP, EX, A	1	23
2370	1-HEXENE	3	F1	II	3+N3	N	2	2		10	97	0.67	3	yes	T3	II B[4)]	yes	PP, EX, A	1	
2381	DIMÉTHYL DISULPHIDE	3	F1	II	3	C	2	2		40	95	1.063	2	yes	T2	IIB	yes	PP, EX, A	1	

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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)
2382	DIMETHYLHYDRAZINE, SYMMETRICAL	6.1	TF1	I	6.1+3+CMR	C	2	2		50	95	0.83	1	yes	T4 [3)]	II C	yes	PP, EP, EX, TOX, A	2	
2383	DIPROPYLAMINE	3	FC	II	3+8	C	2	2		35	95	0.74	2	no	T3	II A	yes	PP, EP, EX, A	1	
2397	3-METHYLBUTAN-2-ONE	3	F1	II	3	N	2	2		10	97	0.81	3	yes	T1	II A	yes	PP, EX, A	1	
2398	METHYL tert-BUTYL ETHER	3	F1	II	3	N	2	2		10	97	0.74	3	yes	T1	II A	yes	PP, EX, A	1	
2404	PROPIONITRILE	3	FT1	II	3+6.1	C	2	2		45	95	0.78	2	no	T1[9)]	II A	yes	PP, EP, EX, TOX, A	2	
2414	THIOPHENE	3	F1	II	3+N3+S	N	2	3		10	97	1.06	3	yes	T2	II A	yes	PP, EX, A	1	
2430	ALKYLPHENOLS, SOLID, N.O.S. (NONYLPHENOL, ISOMERIC MIXTURE, MOLTEN)	8	C4	II	8+N1+F	C	2	1	2	25	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	C	2	2	4	25	95	0.95	2	yes			no	PP, EP	0	7; 17; 20: +125 ºC
2432	N,N-DIETHYLANILINE	6.1	T1	III	6.1+N2	C	2	2		25	95	0.93	2	no			no	PP, EP, TOX, A	0	
2448	SULPHUR, MOLTEN	4.1	F3	III	4.1+S	N	4	1	4		95	2.07	3	yes			no	PP, EP, TOX*, A	0	* Toximeter for H2S; 7; 20: +150 ºC; 28; 32
2458	HEXADIENES	3	F1	II	3+N3	N	2	2		10	97	0.72	3	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	1	
2477	METHYL ISOTHIOCYANATE	6.1	TF1	I	6.1+3+N1	C	2	2	2	35	95	1,07[11)]	2	no	T4 [3)]	II B[4)]	yes	PP, EP, EX, TOX, A	2	7; 17
2485	n-BUTYL ISOCYANATE	6.1	TF1	I	6.1+3	C	2	2		35	95	0.89	1	no	T2	II B[4)]	yes	PP, EP, EX, TOX, A	2	
2486	ISOBUTYL ISOCYANATE	3	FT1	II	3+6.1	C	2	2		40	95		2	no	T4 [3)]	II B[4)]	yes	PP, EP, EX, TOX, A	2	

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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)
2487	PHENYL ISOCYANATE	6.1	TF1	I	6.1+3	C	2	2		25	95	1.1	1	no	T1	II A	yes	PP, EP, EX, TOX, A	2	
2490	DICHLOROISOPROPYL ETHER	6.1	T1	II	6.1	C	2	2		25	95	1.11	2	no			no	PP, EP, TOX, A	2	
2491	ETHANOLAMINE or ETHANOLAMINE SOLUTION	8	C7	III	8+N3	N	3	2			97	1.02	3	yes	T2	II B[4)]	yes	PP, EP, EX, A	0	17; 34
2493	HEXAMETHYLENEIMINE	3	FC	II	3+8+N3	N	3	2			97	0.88	3	yes	T3 [2)]	II A	yes	PP, EP, EX, A	1	34
2496	PROPIONIC ANHYDRIDE	8	C3	III	8+N3	N	4	3			97	1.02	3	yes			no	PP, EP	0	34
2518	1,5,9-CYCLODODECATRIENE	6.1	T1	III	6.1+F	C	2	2		25	95	0.9	2	no			no	PP, EP, TOX, A	0	
2527	ISOBUTYL ACRYLATE, STABILIZED	3	F1	III	3+unst.	C	2	2		30	95	0.89	1	yes	T2	II B[9)]	yes	PP, EX, A	0	3; 5
2528	ISOBUTYL ISOBUTYRATE	3	F1	III	3+N3	N	3	2			97	0.86	3	yes	T2	II A	yes	PP, EX, A	0	
2531	METHACRYLIC ACID, STABILIZED	8	C3	II	8+unst.+N3	C	2	2	4	25	95	1.02	1	yes	T2	II B[4)]	yes	PP, EP, EX, A	0	3; 4; 5; 17
2564	TRICHLOROACETIC ACID SOLUTION	8	C3	II	8+N1	C	2	2	2	25	95	1,62[11)]	2	yes	T1	II A[7)]	yes	PP, EP, EX, A	0	7; 17; 22
2564	TRICHLOROACETIC ACID SOLUTION	8	C3	III	8+N1	C	2	2		25	95	1,62[11)]	2	yes	T1	II A[7)]	yes	PP, EP, EX, A	0	22
2574	TRICRESYL PHOSPHATE with more than 3% ortho isomer	6.1	T1	II	6.1+S	C	2	2		25	95	1.18	2	no			no	PP, EP, TOX, A	2	
2579	PIPERAZINE, MOLTEN	8	C8	III	8+N2	N	3	3	2		95	0.9	3	yes			no	PP, EP	0	7; 17; 34
2582	FERRIC CHLORIDE SOLUTION	8	C1	III	8	N	4	3			97	1.45	3	yes			no	PP, EP	0	22; 30; 34
2586	ALKYLSULPHONIC ACIDS, LIQUID or ARYLSULPHONIC ACIDS, LIQUID with not more than 5% free sulphuric acid	8	C3	III	8	N	4	3			97		3	yes			no	PP, EP	0	34

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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)
2608	NITROPROPANES	3	F1	III	3	N	3	2			97	1	3	yes	T2	II B[7)]	yes	PP, EX, A	0	
2615	ETHYL PROPYL ETHER	3	F1	II	3	N	2	2		10	97	0.73	3	yes	T4 [3)]	II A[7)]	yes	PP, EX, A	1	
2618	VINYLTOLUENES, STABILIZED	3	F1	III	3+unst.+F	C	2	2		25	95	0.92	1	yes	T1	II B[4)]	yes	PP, EX, A	0	3; 5
2651	4,4'-DIAMINO-DIPHENYLMETHANE	6.1	T2	III	6.1+N2+ CMR+S	C	2	2	2	25	95	1	2	no			no	PP, EP, TOX, A	0	7; 17
2672	AMMONIA SOLUTION (relative density between 0.880 and 0.957 at 15 °C in water, with more than 10% but not more than 35 % ammonia)	8	C5	III	8+N1	C	2	2		50	95	0,88[10)] - 0,96[10)]	2	yes			no	PP, EP	0	
2683	AMMONIUM SULPHIDE SOLUTION	8	CFT	II	8+3+6.1	C	2	2		50	95		2	no	T4 [3)]	II B[4)]	yes	PP, EP, EX, TOX, A	2	15; 16
2693	BISULPHITES, AQUEOUS SOLUTION, N.O.S.	8	C1	III	8	N	4	3			97		3	yes			no	PP, EP	0	27; 34
2709	BUTYLBENZENES	3	F1	III	3+N1+F	C	2	2		35	95	0.87	2	yes	T2	II A	yes	PP, EX, A	0	
2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. or POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S. (2-AMINOBUTANE)	3	FC	II	3+8	C	2	2	3	50	95	0.72	2	yes	T4 [3)]	II A	yes	PP, EP, EX, A	1	23
2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.	8	C7	I	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.	8	C7	II	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.	8	C7	III	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart

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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)
2754	N-ETHYLTOLUIDINES (N-ETHYL-o-TOLUIDINE)	6.1	T1	II	6.1+F	C	2	2		25	95	0.94	2	no			no	PP, EP, TOX, A	2	
2754	N-ETHYLTOLUIDINES (N-ETHYL-m-TOLUIDINE)	6.1	T1	II	6.1+F	C	2	2		25	95	0.94	2	no			no	PP, EP, TOX, A	2	
2754	N-ETHYLTOLUIDINES (N-ETHYL-o-TOLUIDINE and N-ETHYL-m-TOLUIDINE MIXTURES)	6.1	T1	II	6.1+F	C	2	2		25	95	0.94	2	no			no	PP, EP, TOX, A	2	
2754	N-ETHYLTOLUIDINES (N-ETHYL-p-TOLUIDINE)	6.1	T1	II	6.1+F	C	2	2	2	25	95	0.94	2	no			no	PP, EP, TOX, A	2	7; 17
2785	4-THIAPENTANAL (3-MÉTHYLMERCAPTO-PROPIONALDÉHYDE)	6.1	T1	III	6.1	C	2	2		25	95	1.04	2	no			no	PP, EP, TOX, A	0	
2789	ACETIC ACID, GLACIAL or ACETIC ACID SOLUTION, more than 80 % acid, by mass	8	CF1	II	8+3	N	2	3	2	10	95	1,05 with 100% acid	3	yes	T1	II A	yes	PP, EP, EX, A	1	7; 17; 34
2790	ACETIC ACID SOLUTION, not less than 50 % but not more than 80 % acid, by mass	8	C3	II	8	N	2	3		10	95		3	yes			no	PP, EP	0	34
2790	ACETIC ACID SOLUTION, more than 10 % and less than 50 % acid, by mass	8	C3	III	8	N	2	3		10	95		3	yes			no	PP, EP	0	34
2796	BATTERY FLUID, ACID	8	C1	II	8+N3	N	4	3			97	1,00 - 1,84	3	yes			no	PP, EP	0	8; 22; 30; 34
2796	SULPHURIC ACID with not more than 51 % acid	8	C1	II	8+N3	N	4	3			97	1,00 - 1,41	3	yes			no	PP, EP	0	8; 22; 30; 34
2797	BATTERY FLUID, ALKALI	8	C5	II	8+N3	N	4	3			97	1,00 - 2,13	3	yes			no	PP, EP	0	22; 30; 34

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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)
2810	TOXIC LIQUID, ORGANIC, N.O.S.	6.1	T1	I	6.1+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no			no	PP, EP, TOX, A	2	27; 29 *see flowchart
2810	TOXIC LIQUID, ORGANIC, N.O.S.	6.1	T1	II	6.1+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no			no	PP, EP, TOX, A	2	27; 29 *see flowchart
2810	TOXIC LIQUID, ORGANIC, N.O.S.	6.1	T1	III	6.1+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no			no	PP, EP, TOX, A	0	27; 29 *see flowchart
2811	TOXIC SOLID, ORGANIC, N.O.S. (1,2,3-TRICHLOROBENZENE, MOLTEN)	6.1	T2	III	6.1+S	C	2	2	2	25	95		2	no	T4 [3]	II B[4]	yes	PP, EP, EX, TOX, A	0	7; 17; 22
2811	TOXIC SOLID, ORGANIC, N.O.S. (1,2,3-TRICHLOROBENZENE, MOLTEN)	6.1	T2	III	6.1+S	C	2	1	4	25	95		2	no			no	PP, EP, TOX, A	0	7; 17; 20: +92 ºC; 22; 26
2811	TOXIC SOLID, ORGANIC, N.O.S. (1,3,5-TRICHLOROBENZENE, MOLTEN)	6.1	T2	III	6.1+S	C	2	2	2	25	95		2	no	T4 [3]	II B[4]	yes	PP, EP, EX, TOX, A	0	7; 17; 22
2811	TOXIC SOLID, ORGANIC, N.O.S. (1,3,5-TRICHLOROBENZENE, MOLTEN)	6.1	T2	III	6.1+S	C	2	1	4	25	95		2	no			no	PP, EP, TOX, A	0	7; 17; 20: +92 ºC; 22; 26
2815	N-AMINOETHYL PIPERAZINE	8	C7	III	8+N2	N	4	3			97	0.98	3	yes			no	PP, EP	0	34
2820	BUTYRIC ACID	8	C3	III	8+N3	N	2	3		10	97	0.96	3	yes			no	PP, EP	0	34
2829	CAPROIC ACID	8	C3	III	8+N3	N	4	3			97	0.92	3	yes			no	PP, EP	0	34
2831	1,1,1-TRICHLOROETHANE	6.1	T1	III	6.1+N2	C	2	2	3	50	95	1.34	2	no			no	PP, EP, TOX, A	0	23
2850	PROPYLENE TETRAMER	3	F1	III	3+N1+F	C	2	2		35	95	0.76	2	yes			no	PP	0	

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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)
2874	FURFURYL ALCOHOL	6.1	T1	III	6.1+N3	C	2	2		25	95	1.13	2	no			no	PP, EP, TOX, A	0	
2904	PHENOLATES, LIQUID	8	C9	III	8	N	4	2			97	1,13-1,18	3	yes			no	PP, EP	0	34
2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (2- PROPANOL AND DIDECYLDIMETHYL-AMMONIUM CHLORIDE, AQUEOUS SOLUTION)	8	CF1	II	8+3+F	N	3	3			95	0.95	3	yes	T3	II A	yes	PP, EP, EX, A	1	34;
2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (AQUEOUS SOLUTION OF HEXADECYLTRIMETHYL-AMMONIUM CHLORIDE (50 %) AND ETHANOL (35 %))	8	CF1	II	8+3+F	N	2	3		10	95	0.9	3	yes	T2	II B	yes	PP, EP, EX, A	1	6: +7 ºC; 17; 34;
2922	CORROSIVE LIQUID, TOXIC, N.O.S.	8	CT1	I	8+6.1+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no			no	PP, EP, TOX, A	2	27; 29 *see flowchart
2922	CORROSIVE LIQUID, TOXIC, N.O.S.	8	CT1	II	8+6.1+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no			no	PP, EP, TOX, A	2	27; 29 *see flowchart
2922	CORROSIVE LIQUID, TOXIC, N.O.S.	8	CT1	III	8+6.1+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no			no	PP, EP, TOX, A	0	27; 29 *see flowchart
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	FC	I	3+8+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	yes	T4 [3)]	II B[4)]	yes	PP, EP, EX, A	1	27; 29 *see flowchart
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	FC	II	3+8+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	yes	T4 [3)]	II B[4)]	yes	PP, EP, EX, A	1	27; 29 *see flowchart

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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)
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	FC	III	3+8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3]	II B[4]	yes	PP, EP, EX, A	0	27; 34 *see flowchart
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (AQUEOUS SOLUTION OF DIALKYL-(C_8-C_{18})-DIMETHYLAMMONIUM CHLORIDE AND 2-PROPANOL)	3	FC	II	3+8+F	C	2	2		50	95	0.88	2	yes	T2	II A	yes	PP, EP, EX, A	1	
2927	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.	6.1	TC1	I	6.1+8+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no			no	PP, EP, TOX, A	2	27; 29 *see flowchart
2927	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.	6.1	TC1	II	6.1+8+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no			no	PP, EP, TOX, A	2	27; 29 *see flowchart
2929	TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.	6.1	TF1	I	6.1+3+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no	T4 [3]	II B[4]	yes	PP, EP, EX, TOX, A	2	27; 29 *see flowchart
2929	TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.	6.1	TF1	II	6.1+3+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no	T4 [3]	II B[4]	yes	PP, EP, EX, TOX, A	2	27; 29 *see flowchart
2935	ETHYL-2-CHLORO-PROPIONATE	3	F1	III	3	C	2	2		30	95	1.08	2	yes	T4 [3]	II A	yes	PP, EX, A	0	
2947	ISOPROPYL CHLOROACETATE	3	F1	III	3	C	2	2		30	95	1.09	2	yes	T4 [3]	II A	yes	PP, EX, A	0	
2966	THIOGLYCOL	6.1	T1	II	6.1	C	2	2		25	95	1.12	2	no			no	PP, EP, TOX, A	2	
2983	ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE, with not more than 30% ethylene oxide	3	FT1	I	3+6.1+unst.	C	1	1	3		95	0.85	1	no	T2	II B	yes	PP, EP, EX, TOX, A	2	2; 3; 12; 31

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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)
2984	HYDROGEN PEROXIDE AQUEOUS SOLUTION with not less than 8%, but less than 20% hydrogen peroxide (stabilized as necessary)	5.1	O1	III	5.1+unst.	C	2	2		35	95	1.06	2	yes			no	PP	0	3; 33
3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., MOLTEN, (ALKYLAMINE (C_{12} to C_{18}))	9	M7	III	9+F	N	4	3	2		95	0.79	3	yes			no	PP	0	7; 17
3079	METHACRYLONITRILE, STABILIZED	3	FT1	I	3+6.1+unst.+ N3	C	2	2		45	95	0.8	1	no	T1	II B[4)]	yes	PP, EP, EX, TOX, A	2	3; 5
3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	9	M6	III	9+(N1, N2, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP	0	22; 27 * see flowchart
3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BILGE WATER)	9	M6	III	9+N2+F	N	4	3			97		3	yes			no	PP	0	
3092	1-METHOXY-2-PROPANOL	3	F1	III	3	N	3	2			97	0.92	3	yes	T3	II B	yes	PP, EX, A	0	
3145	ALKYLPHENOLS, LIQUID, N.O.S. (including C_2-C_{12} homologues)	8	C3	II	8+N3	N	4	3			97	0.95	3	yes			no	PP, EP	0	34
3145	ALKYLPHENOLS, LIQUID, N.O.S. (including C_2-C_{12} homologues)	8	C3	III	8+N3	N	4	3			97	0.95	3	yes			no	PP, EP	0	34
3175	SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S., MOLTEN, having a flash-point up to 60 °C (2- PROPANOL AND DIALKYL-(C_{12} to C_{18})-DIMETHYLAMMONIUM CHLORIDE)	4.1	F1	II	4.1	N	3	3	4		95	0.86	3	yes	T2	II A	yes	PP, EX, A	1	7; 17

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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)
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point	3	F2	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	95		*	yes	T4 [3]	II B[4]	yes	PP, EX, A	0	7; 27 *see flowchart
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (CARBON BLACK REEDSTOCK) (PYROLYSIS OIL)	3	F2	III	3+F	N	3	3	2		95		3	yes	T 1	II B	yes	PP, EX, A	0	7
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (PYROLYSIS OIL A)	3	F2	III	3+F	N	3	3	2		95		3	yes	T 1	II B	yes	PP, EX, A	0	7
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (RESIDUAL OIL)	3	F2	III	3+F	N	3	3	2		95		3	yes	T 1	II B	yes	PP, EX, A	0	7
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (MIXTURE OF CRUDE NAPHTHALINE)	3	F2	III	3+F	N	3	3	2		95		3	yes	T 1	II B	yes	PP, EX, A	0	7
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (CREOSOTE OIL)	3	F2	III	3+N1+F	C	2	2	2	10	95		2	yes	T 2	II B	yes	PP, EX, A	0	7

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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)
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (Low QI Pitch)	3	F2	III	3(???+F)	N	3	1	4		95	1,1-1,3	3	yes	T2	II B	yes	PP, EX, A	0	7
3257	ELEVATED TEMPERATURE LIQUID, N.O.S. at or above 100 °C and below its flash-point (including molten metals, molten salts, etc.)	9	M9	III	9+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	95		*	yes			no	PP	0	7; 20:+115 ºC; 22; 24; 25; 27 *see flowchart
3257	ELEVATED TEMPERATURE LIQUID, N.O.S. at or above 100 °C and below its flash-point (including molten metals, molten salts, etc.)	9	M9	III	9+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	95		*	yes			no	PP	0	7; 20:+225 ºC; 22; 24; 27 *see flowchart
3259	AMINES, SOLID, CORROSIVE, N.O.S. (MONOALKYL-(C_{12} to C_{18})-AMINE ACETATE, MOLTEN)	8	C8	III	8	N	4	3	2		95	0.87	3	yes			no	PP, EP	0	7; 17; 34
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	8	C1	I	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	8	C1	II	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	8	C1	III	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart

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(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)		(20)
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (AQUEOUS SOLUTION OF PHOSPHORIC ACID AND CITRIC ACID)	8	C1	I	8	N	2	3		10	97		3	yes			no	PP, EP	0	34
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (AQUEOUS SOLUTION OF PHOSPHORIC ACID AND CITRIC ACID)	8	C1	II	8	N	4	3			97		3	yes			no	PP, EP	0	34
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (AQUEOUS SOLUTION OF PHOSPHORIC ACID AND CITRIC ACID)	8	C1	III	8	N	4	3			97		3	yes			no	PP, EP	0	34
3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	8	C3	I	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	8	C3	II	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	8	C3	III	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	8	C5	I	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	8	C5	II	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	8	C5	III	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart

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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)
3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	8	C7	I	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	8	C7	II	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	8	C7	III	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP, EP	0	27; 34 *see flowchart
3271	ETHERS, N.O.S. vp50 ≤ 110 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	14, 27; 29 *see flowchart
3271	ETHERS, N.O.S. (tert- AMYL-METHYL ETHER)	3	F1	II	3+N1	C	2	2	3	50	95	0.77	2	yes	T2	II B [4]	yes	PP, EX, A	1	
3271	ETHERS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3]	II B [4]	yes	PP, EX, A	0	14, 27 *see flowchart
3272	ESTERS, N.O.S. vp50 ≤ 110 kPa	3	F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T2	II B [4]	yes	PP, EX, A	1	14, 27; 29 *see flowchart
3272	ESTERS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3]	II B [4]	yes	PP, EX, A	0	14, 27 *see flowchart
3276	NITRILES, TOXIC, LIQUID, N.O.S. (2-METHYLGLUTARONITRILE)	6.1	T1	II	6.1	C	2	2		10	95	0.95	2	no			no	PP, EP, TOX, A	2	

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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)
3286	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.	3	FTC	I	3+6.1+8+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no	T4 [3]	II B [4]	yes	PP, EP, EX, TOX, A	2	27; 29 *see flowchart
3286	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.	3	FTC	II	3+6.1+8+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no	T4 [3]	II B [4]	yes	PP, EP, EX, TOX, A	2	27; 29 *see flowchart
3287	TOXIC LIQUID, INORGANIC, N.O.S.	6.1	T4	I	6.1+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		1	no			no	PP, EP, TOX, A	2	27; 29 *see flowchart
3287	TOXIC LIQUID, INORGANIC, N.O.S.	6.1	T4	II	6.1+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no			no	PP, EP, TOX, A	2	27; 29 *see flowchart
3287	TOXIC LIQUID, INORGANIC, N.O.S.	6.1	T4	III	6.1+(N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no			no	PP, EP, TOX, A	0	27; 29 *see flowchart
3287	TOXIC LIQUID, INORGANIC, N.O.S. (SODIUM DICHROMATE SOLUTION)	6.1	T4	III	6.1+CMR	C	2	2		30	95	1.68	2	no			no	PP, EP, TOX, A	0	
3289	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S. BOILING POINT > 115 °C	6.1	TC3	I	6.1+8+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no			no	PP, EP, TOX, A	2	27; 29 *see flowchart
3289	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S. BOILING POINT > 115 °C	6.1	TC3	II	6.1+8+ (N1, N2, N3, CMR, F or S)	C	2	2	*	*	95		2	no			no	PP, EP, TOX, A	2	27; 29 *see flowchart
3295	HYDROCARBONS, LIQUID, N.O.S.	3	F1	I	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	14, 27; 29 *see flowchart

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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)
3295	HYDROCARBONS, LIQUID, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	14, 27; 29 *see flowchart
3295	HYDROCARBONS, LIQUID, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3]	II B [4]	yes	PP, EX, A	0	14, 27 *see flowchart
3295	HYDROCARBONS, LIQUID, N.O.S. (1-OCTEN)	3	F1	II	3+N2+F	N	2	3		10	97	0.71	3	yes	T3	II B [4]	yes	PP, EX, A	1	14
3295	HYDROCARBONS, LIQUID, N.O.S. (POLYCYCLIC AROMATIC HYDROCARBONS MIXTURE)	3	F1	III	3+CMR+F	N	2	3	3	10	97	1.08	3	yes	T1	II A	yes	PP, EX, A	0	14
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 > 175 kPa	3	F1	I	3+CMR	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE 110 kPa < vp50 ≤ 175 kPa	3	F1	I	3+CMR	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60 °C	3	F1	I	3+CMR	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60 °C	3	F1	I	3+CMR	C	2	2	3	50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	23; 27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+CMR	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60 °C	3	F1	II	3+CMR	C	1	1			95		1	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT ≤ 60 °C	3	F1	II	3+CMR	C	2	2	3	50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	23; 27; 29; 38
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa 60 °C < BOILING POINT ≤ 85 °C	3	F1	II	3+CMR	C	2	2	3	50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	23; 27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa 85 °C < BOILING POINT ≤ 115 °C	3	F1	II	3+CMR	C	2	2		50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT > 115 °C	3	F1	II	3+CMR	C	2	2		35	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	1	27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa 60 °C < BOILING POINT ≤ 85 °C	3	F1	III	3+CMR	C	2	2	3	50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	0	23; 27; 29
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa 85 °C < BOILING POINT ≤ 115 °C	3	F1	III	3+CMR	C	2	2		50	95		2	yes	T4 [3]	II B [4]	yes	PP, EX, A	0	27; 29

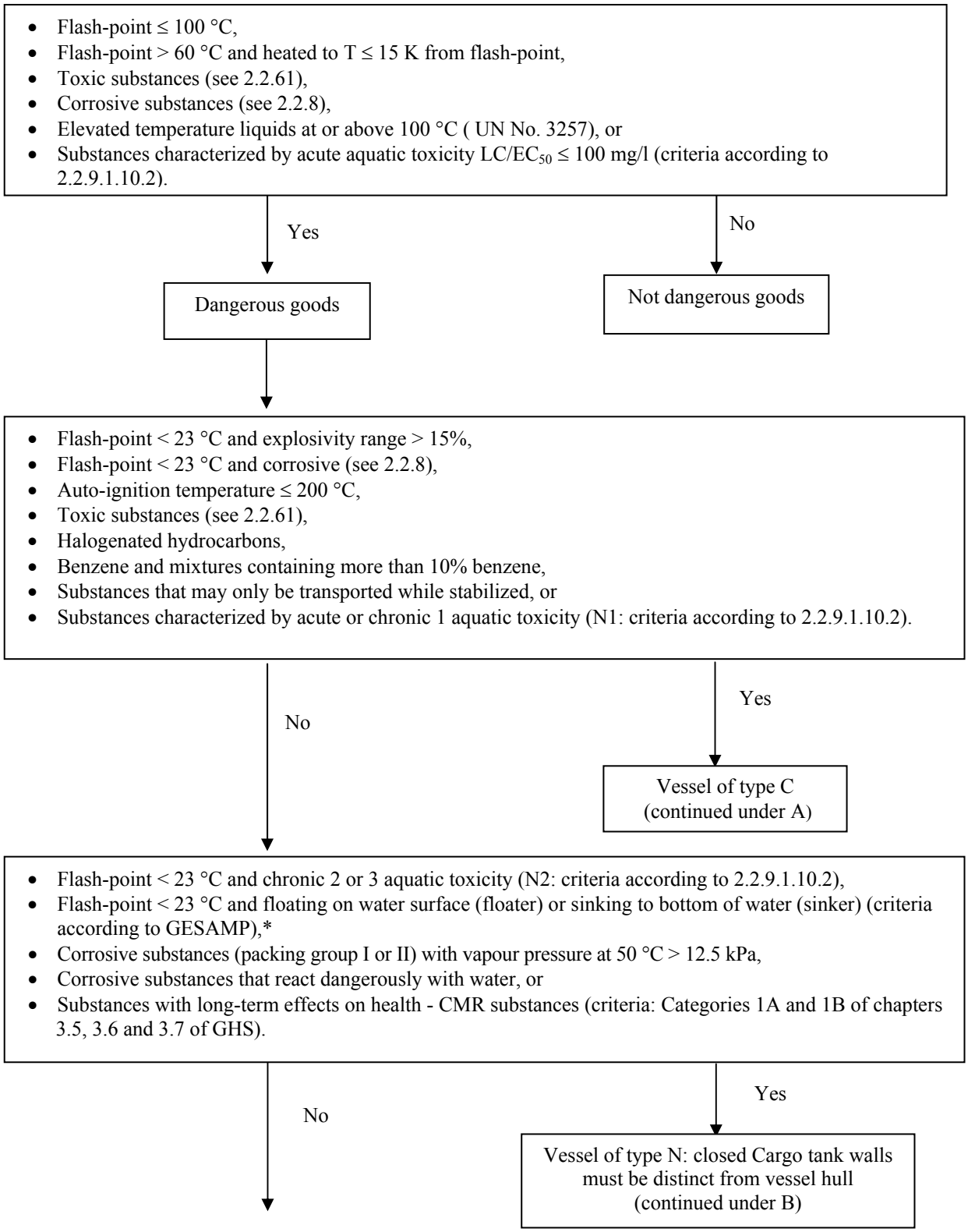
UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
3295	HYDROCARBONS, LIQUID, N.O.S. WITH MORE THAN 10 % BENZENE vp50 ≤ 110 kPa BOILING POINT > 115 °C	3	F1	III	3+CMR	C	2	2		35	95		2	yes	T4 [3)]	II B[4)]	yes	PP, EX, A	0	27; 29
3412	FORMIC ACID with not less than 10% but not more than 85% acid by mass	8	C3	II	8+N3	N	2	3		10	97	1.22	3	yes	T1	II A	yes	PP, EP, EX, A	0	6: +12 °C; 17; 34
3412	FORMIC ACID with not less than 5% but less than 10% acid by mass	8	C3	III	8	N	2	3		10	97	1.22	3	yes	T1	II A	yes	PP, EP, EX, A	0	6: +12 °C; 17; 34
3426	ACRYLAMIDE, SOLUTION	6.1	T1	III	6.1	C	2	2		30	95	1.03	2	no			no	PP, EP, TOX, A	0	3; 5; 16
3429	CHLOROTOLUIDINES, LIQUID	6.1	T1	III	6.1+S	C	2	2		25	95	1.15	2	no	T1	II A[7)]	yes	PP, EP, EX, TOX, A	0	6: +6 ºC; 17;
3446	NITROTOLUENES, SOLID, MOLTEN (p-NITROTOLUENE)	6.1	T2	II	6.1+S	C	2	2	2	25	95	1.16	2	no	T2	II B[4)]	yes	PP, EP, EX, TOX, A	2	7; 17
3446	NITROTOLUENES, SOLID, MOLTEN (p-NITROTOLUENE)	6.1	T2	II	6.1+S	C	2	1	4	25	95	1.16	2	no			no	PP, EP, TOX, A	2	7; 17; 20: +88 ºc; 26
3451	TOLUIDINES, SOLID, MOLTEN (p-TOLUIDINE)	6.1	T2	II	6.1	C	2	2	2	25	95	1.05	2	no	T1	II A[8)]	yes	PP, EP, EX, TOX, A	2	7; 17
3451	TOLUIDINES, SOLID, MOLTEN (p-TOLUIDINE)	6.1	T2	II	6.1	C	2	2	4	25	95	1.05	2	no			no	PP, EP, TOX, A	2	7; 17; 20: +60 ºC
3455	CRESOLS, SOLID, MOLTEN	6.1	TC2	II	6.1+8	C	2	2	2	25	95	1,03 - 1,05	2	no	T1	II A[8)]	yes	PP, EP, EX, TOX, A	2	7; 17
3455	CRESOLS, SOLID, MOLTEN	6.1	TC2	II	6.1+8	C	2	2	4	25	95	1,03 - 1,05	2	no			no	PP, EP, TOX, A	2	7; 17; 20: +66 ºC
3463	PROPIONIC ACID with not less than 90% acid by mass	8	CF1	II	8+3+N3	N	3	3			97	0.99	3	yes	T1	II A[7)]	yes	PP, EP, EX, A	1	34

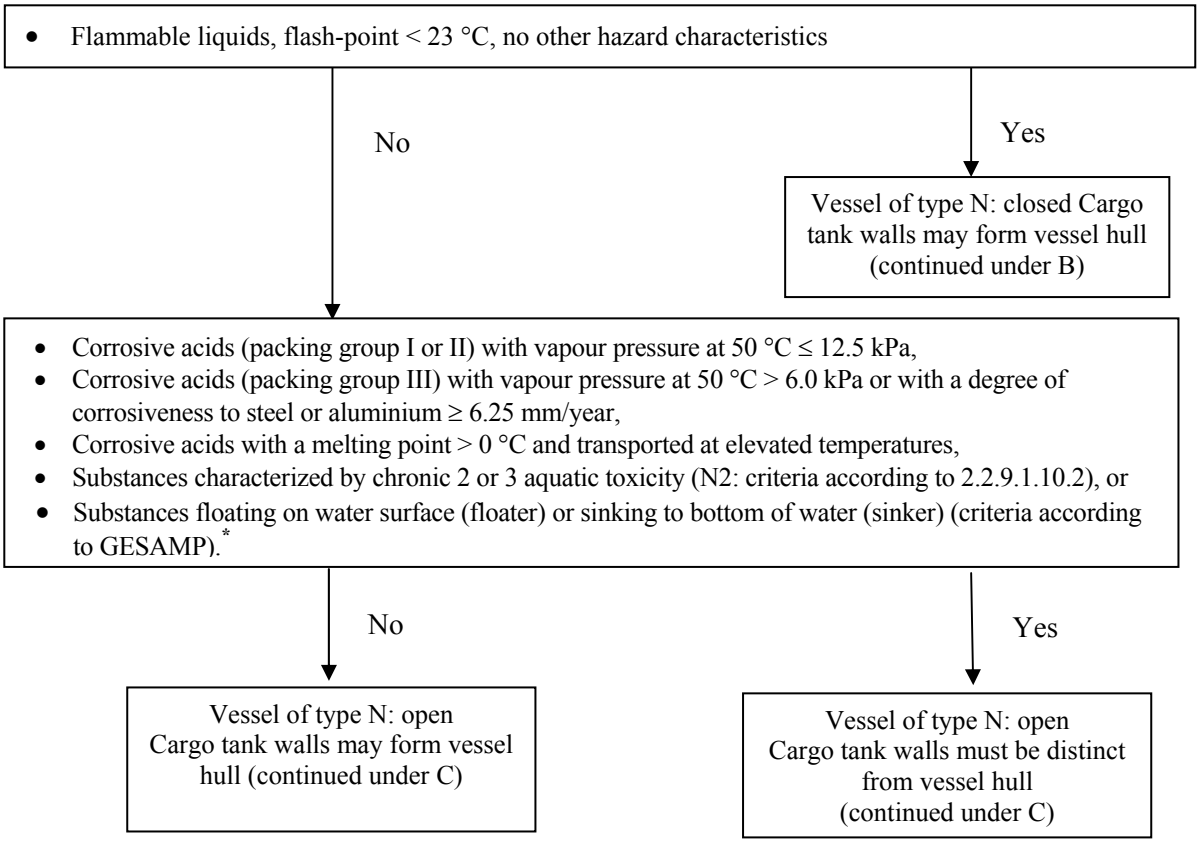
UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
9000	AMMONIA, ANHYDROUS, DEEPLY REFRIGERATED	2	3TC		2.1+2.3+8+N1	G	1	1	1; 3		95		1	yes	T1	II A	yes	PP, EP, EX, TOX, A	2	1; 31
9001	SUBSTANCES WITH A FLASH-POINT ABOVE 60 °C handed over for carriage or carried at a TEMPERATURE WITHIN A RANGE OF 15K BELOW THE IR FLASH-POINT OF SUBSTANCES WITH A FLASH-POINT > 60 °C, HEATED TO LESS THAN 15 K FROM THE FLASH-POINT	3	F 3		3+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes	T4 [3]	II B[4]	yes	PP, EX, A	0	27 *see flowchart
9002	SUBSTANCES HAVING A SELF-IGNITION TEMPERATURE ≤ 200 °C and not otherwise mentioned	3	F4		3+(N1, N2, N3, CMR, F or S)	C	1	1	*	*	95		1	yes	T4	II B[4]	yes	PP, EX, A	0	*see flowchart
9003	SUBSTANCES WITH A FLASH-POINT ABOVE 60 °C BUT NOT MORE THAN 100 °C or SUBSTANCES WHERE 60° C < flash‑point ≤ 100° C, which are not affected to another class	9			9+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*		*	yes			no	PP	0	27 *see flowchart
9003	SUBSTANCES WITH A FLASH-POINT ABOVE 60 °C BUT NOT MORE THAN 100 °C or SUBSTANCES WHERE 60° C < flash‑point ≤ 100 °C, which are not affected to another class (ETHYLENE GLYCOL MONOBUTYL ETHER)	9			9+N3+F	N	4	3			97	0.9	3	yes			no	PP	0	

UN No. or substance identification No.	Name and description	Class	Classification code	Packing group	Dangers	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Opening pressure of the high-velocity vent valve in kPa	Maximum degree of filling in %	Relative density at 20 °C	Type of sampling device	Pump room below deck permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights	Additional requirements/Remarks
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
9003	SUBSTANCES WITH A FLASH-POINT ABOVE 60 °C BUT NOT MORE THAN 100 °C or SUBSTANCES WHERE 60° C < flash-point ≤ 100 °C, which are not affected to another class (2-ETHYLHEXYLACRYLATE)	9			9+N3+F	N	4	3			97	0.89	3	yes			no	PP	0	3; 5; 16;
9004	DIPHENYLMETHANE-4.4'-DIISOCYANATE	9			S	N	2	3	4	10	95	1,21[11)]	3	yes			no	PP	0	7; 8; 17; 19
9005	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, MOLTEN	9			9+(N3, CMR, F or S	*	*	*	*	*	97		*	yes			no	PP	0	*see flowchart
9006	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	9			9+(N3, CMR, F or S	*	*	*	*	*	97		*	yes			no	PP	0	*see flowchart

Add the following flowchart after Table C:

Flowchart for classification of liquids of Classes 3, 6.1, 8 and 9 for carriage in tanks in inland navigation





Elevated temperature substances

Irrespective of the above classifications, for substances that must be transported at elevated temperatures, the type of cargo tank shall be determined on the basis of the transport temperature, using the following table:

Maximum transport temperature T in °C	Type N	Type C
T ≤ 80	Integral cargo tank	Integral cargo tank
80 < T ≤ 115	Independent cargo tank, remark 25	Independent cargo tank, remark 26
T > 115	Independent cargo tank	Independent cargo tank

Scheme A: Criteria for cargo tank equipment in vessels of type C

Cargo tank equipment	Vapour pressure at liquid temperature of 30 °C and gaseous phase temperature of 37.8 °C > 50 kPa	Vapour pressure at liquid temperature of 30 °C and gaseous phase temperature of 37.8 °C > 50 kPa	Vapour pressure unknown, owing to absence of certain data
With refrigeration (No. 1 in column (9))	Refrigerated		
Pressure tank (400 kPa)	Non-refrigerated	Vapour pressure at 50 °C > 50 kPa without water spraying	Boiling point ≤ 60°C
High-velocity vent valve opening pressure: 50 kPa, with water-spraying system (No. 3 in column (9))		Vapour pressure at 50 °C > 50 kPa with water spraying	60 °C < boiling point ≤ 85°C
High-velocity vent valve opening pressure as calculated, but at least 10 kPa		Vapour pressure at 50 °C ≤ 50 kPa	
High-velocity vent valve opening pressure: 50 kPa			85 °C < boiling point ≤ 115°C
High-velocity vent valve opening pressure: 35 kPa			Boiling point > 115°C

Scheme B: Criteria for equipment of vessels of type N with closed cargo tanks

Cargo tank equipment	Class 3, boiling point < 23°C				Corrosive substances	CMR substances
Pressure tank (400 kPa)	175 kPa ≤ $P_{d\,50}$ < 300 kPa without refrigeration					
High-velocity vent valve opening pressure: 50 kPa	175 kPa ≤ $P_{d\,50}$ < 300 kPa, with refrigeration (No. 1 in column (9))	110 kPa ≤ $P_{d\,50}$ < 175 kPa without water spraying				
High-velocity vent valve opening pressure: 10 kPa			110 kPa ≤ $P_{d\,50}$ < 150 kPa with water spraying (No. 3 in column (9))	$P_{d\,50}$ < 110 kPa	Packing group I or II with $P_{d\,50}$ > 12.5 kPa or reacting dangerously with water	High-velocity vent valve opening pressure: 10 kPa; with water spraying when vapour pressure > 10 kPa (calculation of the vapour pressure according to the formula for column 10, except that Va = 0.03)

Scheme C: Criteria for equipment of vessels of type N with open cargo tanks

Cargo tank equipment	Classes 3 and 9	Flammable substances	Corrosive substances
With flame-arrester	60 °C < flash-point ≤ 100 °C or elevated temperature substances of Class 9	Flash-point > 60 °C transported while heated to ≤ 15 K below flash-point or at or above their flash-point	Flammable substances or acids, transported while heated
Without flame-arrester			Non-flammable substances

Column 9: Cargo tank equipment for substances transported in a molten state

- **Possibility of heating the cargo (number 2 in column (9))**

  A possibility of heating the cargo shall be required on board:

  - When the melting point of the substance to be transported is + 15 °C or greater,

    or

  - When the melting point of the substance to be transported is greater than 0 °C but less than + 15 °C and the outside temperature is no more than 4 K above the melting point. In column (20), reference shall be made to remark 6 with the temperature derived as follows: melting point + 4 K

- **Heating system on board (number 4 in column (9))**

  A cargo heating system shall be required on board:

  - For substances that must not be allowed to solidify owing to the possibility of dangerous reactions on reheating, and

  - For substances that must be maintained at a guaranteed temperature not less than 15 K below their flash-point

Column (10): Determination of opening pressure of high-velocity vent valve in kPa

For vessels of type C, the opening pressure of the high-velocity vent valve shall be determined on the basis of the internal pressure of the tanks, rounded up to the nearest 5 kPa

To calculate the internal pressure, the following formula shall be used:

$$P_{\max} = P_{Ob\max} + \frac{k \cdot v_a \left(P_0 - P_{Da}\right)}{v_a - \alpha \cdot \delta_t + \alpha \cdot \delta_t \cdot v_a} - P_0$$

$$k = \frac{T_{D\max}}{T_a}$$

In this formula:

P_{max}	:	Maximum internal pressure in kPa
P_{Obmax}	:	Maximum absolute vapour pressure at liquid surface temperature in kPa
P_{Da}	:	Absolute vapour pressure at filling temperature in kPa
P_0	:	Atmospheric pressure in kPa
v_a	:	Free relative volume at filling temperature compared with cargo tank volume

α : Cubic expansion coefficient in K^{-1}

δ_t : Average liquid temperature increase through reheating in K

T_{Dmax} : Maximum gaseous phase temperature in K

T_a : Filling temperature in K

k : Temperature correction factor

t_{Ob} : Maximum liquid surface temperature in °C

In the formula, the following basic data are used:

P_{Obmax} : At 50 °C and 30 °C

P_{Da} : At 15 °C

P_0 : 101.3 kPa

v_a : 5% = 0.05

δ_t : 5 K

T_{Dmax} : 323 K and 310.8 K

T_a : 288 K

t_{Ob} : 50 °C and 30 °C

Column (11): Determination of maximum degree of filling of cargo tanks

If, in accordance with the provisions under A above:

- Type G is required: 91%; however, in the case of deeply refrigerated substances: 95%
- Type C is required: 95%
- Type N is required: 97%; however, in the case of substances in a molten state and of flammable liquids with 175 kPa $\leq P_{v50} <$ 300 kPa: 95%

Column (12): Density of substance at 20 °C

These data are provided for information only.

Column (13): Determination of type of sampling connection

1 = *closed*:
- Substances to be transported in pressure cargo tanks
- Substances with T in column (3b) and assigned to packing group I
- Stabilized substances to be transported under inert gas

2 = *partly closed*:
- All other substances for which type C is required

3 = *open:*
- All other substances

Column (14): Determination of whether a pump-room is permitted below deck

No − All substances with T in column (3b) with the exception of substances of Class 2

Yes − All other substances

Column (15): Determination of temperature class

Flammable substances shall be assigned to a temperature class on the basis of their auto-ignition point:

Temperature class	Auto-ignition temperature T of flammable liquids and gases in °C
T1	T > 450
T2	300 < T ≤ 450
T3	200 < T ≤ 300
T4	135 < T ≤ 200
T5	100 < T ≤ 135
T6	85 < T ≤ 100

When anti-explosion protection is required and the auto-ignition temperature is not known, reference shall be made to temperature class T4, considered safe

Column (16): Determination of explosion group

Flammable substances shall be assigned to an explosion group on the basis of their maximum experimental safe gaps. The maximum experimental safe gaps shall be determined in accordance with the standard contained in IEC Publication No. 79-1A

The different explosion groups are as follows:

Explosion group	Maximum experimental safe gap in mm
II A	> 0.9
II B	≥ 0.5 to ≤ 0.9
II C	< 0.5

When anti-explosion protection is required and the relevant data are not provided, reference shall be made to explosion group II B, considered safe

Column (17): Determination of whether anti-explosion protection is required for electrical equipment and systems

Yes
- Substances with a flash-point ≤ 60 °C
- Substances that must be transported while heated to a temperature less than 15 K from their flash-point
- Flammable gases

No − All other substances

Column (18): Determination of whether personal protective equipment, escape devices, portable flammable gas detectors, portable toximeters or ambient-air-dependent breathing apparatus is required

- PP: For all substances of Classes 1 to 9;
- EP: For all substances
  - of Class 2 with letter T or letter C in the classification code indicated in column (3b),
  - of Class 3 with letter T or letter C in the classification code indicated in column (3b),
  - of Class 4.1,
  - of Class 6.1, and
  - of Class 8,
  - CMR substances of Category 1A or 1B according to GHS;
- EX: For all substances for which anti-explosion protection is required;
- TOX: For all substances of Class 6.1,
  For all substances of other classes with T in column (3b),
  For CMR substances of Category 1A or 1B according to GHS;
- A: For all substances for which EX or TOX is required

Column (19): Determination of the number of cones or blue lights

For all substances of Class 2 with letter F in the classification code indicated in column (3b):	1 cone/light
For all substances of Classes 3 to 9 with letter F in the classification code indicated in column (3b) and assigned to packing group I or II:	1 cone/light
For all substances of Class 2 with letter T in the classification code indicated in column (3b)	2 cones/lights
For all substances of Classes 3 to 9 with letter T in the classification code indicated in column (3b) and assigned to packing group I or II:	2 cones/lights

Column (20): Determination of additional requirements and remarks

***Remark 1*:** Reference shall be made in column (20) to remark 1 for transport of UN No. 1005 AMMONIA, ANHYDROUS.

***Remark 2*:** Reference shall be made in column (20) to remark 2 for stabilized substances that react with oxygen.

***Remark 3*:** Reference shall be made in column (20) to remark 3 for substances that must be stabilized.

***Remark 4*:** Reference shall be made in column (20) to remark 4 for substances that must not be allowed to solidify owing to the possibility of dangerous reactions on reheating.

***Remark 5*:** Reference shall be made in column (20) to remark 5 for substances liable to polymerization.

***Remark 6*:** Reference shall be made in column (20) to remark 6 for substances liable to crystallization and for substances for which a heating system or possibility of heating is required and the vapour pressure of which at 20 ºC is greater than 0.1 kPa.

***Remark 7*:** Reference shall be made in column (20) to remark 7 for substances with a flash-point of + 15 ºC or greater.

***Remark 8*:** Reference shall be made in column (20) to remark 8 for substances that react dangerously with water.

***Remark 9*:** Reference shall be made in column (20) to remark 9 for transport of UN No. 1131 CARBON DISULPHIDE.

***Remark 10*:** *No longer used*.

***Remark 11*:** Reference shall be made in column (20) to remark 11 for transport of UN No. 1040 ETHYLENE OXIDE WITH NITROGEN.

***Remark 12*:** Reference shall be made in column (20) to remark 12 for transport of UN No. 1280 PROPYLENE OXIDE and UN No. 2983 ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE.

***Remark 13*:** Reference shall be made in column (20) to remark 13 for transport of UN No. 1086 VINYL CHLORIDE, STABILIZED.

***Remark 14*:** Reference shall be made in column (20) to remark 14 for mixtures or N.O.S. entries which are not clearly defined and for which type N is stipulated under the classification criteria.

***Remark 15*:** Reference shall be made in column (20) to remark 15 for substances that react dangerously with alkalis or acids such as sodium hydroxide or sulphuric acid.

***Remark 16*:** Reference shall be made in column (20) to remark 16 for substances that may react dangerously to local overheating.

***Remark 17*:** Reference shall be made in column (20) to remark 17 when reference is made to remark 6 or 7.

***Remark 18*:** *No longer used*.

***Remark 19*:** Reference shall be made in column (20) to remark 19 for substances that must under no circumstances come into contact with water.

***Remark 20*:** Reference shall be made in column (20) to remark 20 for substances the transport temperature of which must not exceed a maximum temperature in combination with the cargo tank materials. Reference shall be made to this maximum permitted temperature immediately after the number 20.

***Remark 21*:** *No longer used*.

***Remark 22*:** Reference shall be made in column (20) to remark 22 for substances for which a range of values or no value is indicated in column (11).

***Remark 23*:** Reference shall be made in column (20) to remark 23 for substances the internal pressure of which at 30 ºC is less than 50 kPa and which are transported with water spraying.

***Remark 24*:** Reference shall be made in column (20) to remark 24 for transport of UN No. 3257 ELEVATED TEMPERATURE LIQUID, N.O.S.

***Remark 25*:** Reference shall be made in column (20) to remark 25 for substances that must be transported while heated in a type 3 cargo tank.

***Remark 26*:** Reference shall be made in column (20) to remark 26 for substances that must be transported while heated in a type 2 cargo tank.

***Remark 27*:** Reference shall be made in column (20) to remark 27 for substances for which the reference N.O.S. or a generic reference is made in column (2).

***Remark 28*:** Reference shall be made in column (20) to remark 28 for transport of UN No. 2448 SULPHUR, MOLTEN.

***Remark 29*:** Reference shall be made in column (20) to remark 29 for substances for which the vapour pressure or boiling point is indicated in column (2).

***Remark 30*:** Reference shall be made in column (20) to remark 30 for transport of UN Nos. 1719, 1794, 1814, 1819, 1824, 1829, 1830, 1832, 1833, 1906, 2240, 2308, 2583, 2584, 2677, 2679, 2681, 2796, 2797, 2837 and 3320 under the entries for which open type N is required.

***Remark 31*:** Reference shall be made in column (20) to remark 31 for transport of substances of Class 2 and UN Nos. 1280 PROPYLENE OXIDE and 2983 ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE of Class 3.

***Remark 32*:** Reference shall be made in column (20) to remark 32 for transport of UN No. 2448 SULPHUR, MOLTEN, of Class 4.1.

***Remark 33*:** Reference shall be made in column (20) to remark 33 for transport of UN Nos. 2014 and 2984 HYDROGEN PEROXIDE, AQUEOUS SOLUTION, of Class 5.1.

***Remark 34*:** Reference shall be made in column (20) to remark 34 for transport of substances for which hazard 8 is mentioned in column (5) and type N in column (6).

***Remark 35*:** Reference shall be made in column (20) to remark 35 for substances that must not have a direct system for the refrigeration system.

***Remark 36*:** Reference shall be made in column (20) to remark 36 for substances that must have an indirect system for the refrigeration system.

***Remark 37*:** Reference shall be made in column (20) to remark 37 for substances for which the cargo storage system must be capable of resisting the full vapour pressure of the cargo at the upper limits of the ambient design temperatures, whatever the system adopted for the boil-off gas.

***Remark 38*:** Reference must be made in column (20) to remark 38 for mixtures with an initial melting point above 60 ºC in accordance with ASTMD 86-01.

3.2.4 Add a section 3.2.4 to read as follows:

"**3.2.4 Modalities for the application of section 1.5.2 on special authorizations concerning transport in tank vessels**

3.2.4.1 Model special authorization under section 1.5.2

Special authorization
under 1.5.2 of ADN

Under 1.5.2 of ADN, the transport in tank vessels of the substance specified in the annex to this special authorization shall be authorized in the conditions referred to therein.

Before transporting the substance, the carrier shall be required to have it added to the list referred to in 1.16.1.2.5 of ADN by a recognized classification society.

This special authorization shall be valid .....
(places and/or routes of validity)

It shall be valid for two years from the date of signature, unless it is repealed at an earlier date.

Issuing State: .....

Competent authority: .....

Date: .....

Signature: .....

3.2.4.2 Application form for special authorizations under section 1.5.2

For applications for special authorizations, please answer the following questions and points.* Data are used for administrative purposes only and are treated confidentially.

Applicant

.....
(Name)
(Company)

.....

( ) .....

.....
(Address)

Summary of the application

Authorization for transport in tank vessels of ..... as a substance of Class .....

Annexes
(with brief description)

Application made:

At: .....

Date: .....

Signature: .....
(of the person responsible for the data)

1. General data on the dangerous substance

1.1 Is it a pure substance □, a mixture □, a solution □ ?

1.2 Technical name (if possible ADN nomenclature or possibly the IBC Code).

1.3 Synonym.

1.4 Trade name.

* For questions not relevant to the subject of the application, write “not applicable”.

1.5 Structure formula and, for mixtures, composition and/or concentration.

1.6 Hazard class and, where applicable classification code, packing group.

1.7 UN No. or substance identification number (if known).

2. Physico-chemical properties

2.1 State during transport (e.g. gas, liquid, molten, ...).

2.2 Density of liquid at 20 º C or at the transport temperature if the substance is to be heated or refrigerated during transport.

2.3 Transport temperature (for substances heated or refrigerated during transport).

2.4 Melting point or range ..... º C.

2.5 Boiling point or range ..... º C.

2.6 Vapour pressure at 15 º C ....., 20 º C ....., 30 º C ....., 37.8 º C ....., 50 º C ....., (for liquefied gases, vapour pressure at 70 º C .....), (for permanent gases, filling pressure at 15 º C .....).

2.7 Cubic expansion coefficient ….. K^{-1}

2.8 Solubility in water at 20 º C
Saturation concentration …… mg/l

or

Miscibility with water at 15 º C

□ Complete □ partial □ none
(If possible, in the case of solutions and mixtures, indicate concentration)

2.9 Colour.

2.10 Odour.

2.11 Viscosity ….. mm^2/s.

2.12 Flow time (ISO 2431-1996) .....s.

2.13 Solvent separation test ..... .

2.14 pH of the substance or aqueous solution (indicate concentration).

2.15 Other information.

3. Technical safety properties

3.1 Auto-ignition temperature in accordance with IEC 60079-4 (corresponds to DIN 51 794) ..... º C; where applicable, indicate the temperature class in accordance with EN 50 014: 1994.

3.2 Flash-point

For flash-points up to 175 º C

Closed-cup test methods - non-equilibrium procedure

ABEL method: EN ISO 13736:1997

ABEL-PENSKY method: DIN 51755-1:1974 and DIN 51755-2:1978 or AFNOR method: M07-019

PENSKY-MARTENS method: EN ISO 2719:2004
LUCHAIRE apparatus: French standard AFNOR T 60-103:1968

TAG method: ASTM D 56-02

Closed-cup test methods - equilibrium procedure

Rapid equilibrium procedure: EN ISO 3679:2004; ASTM D 3278-96:2004

Closed-cup equilibrium procedure: EN ISO 1523:2002; ASTM D 3941-90:2001

For flash-points above 175 º C

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

CLEVELAND method: EN ISO 2592:2002; ASTM D 92-02b

3.3 Explosion limits:

Determination of upper and lower explosion limits in accordance with EN 1839:2004.

3.4 Maximum safe gap in accordance with IEC 60079-1:2003 .....

3.5 Is the substance stabilized during transport? If so, provide data on the stabilizer:

.....

3.6 Decomposition products in the event of combustion on contact with air or under the influence of an external fire:

3.7 Is the substance fire intensifying?

3.8 Abrasion (corrosion) ..... mm/year.

3.9 Does the substance react with water or moist air by releasing flammable or toxic gases? Yes/no. Gases released: .....

3.10 Does the substance react dangerously in any other way?

3.11 Does the substance react dangerously when reheated?
Yes/no

4. Physiological hazards

4.1 LD_{50} and/or LC_{50} value. Necrosis value (where applicable, other toxicity criteria in accordance with 2.2.61.1 of ADN).

CMR properties according to Categories 1A and 1B of chapters 3.5, 3.6 and 3.7 of GHS

4.2 Does decomposition or reaction produce substances posing physiological hazards? (Indicate which substances where known)

4.3 Environmental properties (see 2.4.2.1 of ADN)

Acute toxicity:

LC_{50} 96 hr for fish ..... mg/l

EC_{50} 48 hr for crustacea ..... mg/l

E_rC_{50} 72 hr for algae ..... mg/l

Chronic toxicity:

NOEC ..... mg/l

BCF ..... mg/l or log K_{ow} .....

Easily biodegradable ..... yes/no

5. Data on hazard potential

5.1 What specific damage is to be expected if the hazard characteristics produce their effect?

 Combustion

- Injury
- Corrosion
- Intoxication in the event of dermal absorption
- Intoxication in the event of absorption by inhalation
- Mechanical damage
- Destruction
- Fire
- Abrasion (corrosion to metals)
- Environmental pollution

6. Data on the transport equipment

6.1 Are particular loading requirements envisaged/necessary (what are they)?

7. Transport of dangerous substances in tanks

7.1 With which materials is the substance to be carried compatible?

8. Technical safety requirements

8.1 Taking into account the current state of science and technology, what safety measures are necessary in the light of the hazards posed by the substance or liable to arise in the course of the transport process as a whole?

8.2 Additional safety measures

- Use of stationary or mobile techniques to measure flammable gases and flammable liquid vapours
- Use of stationary or mobile techniques (toximeters) to measure concentrations of toxic substances

3.2.4.3 Criteria for assignment of substances

A. Columns (6), (7) and (8): Determination of the type of tank vessel

1. Gases (criteria according to 2.2.2 of ADN)

–	Without refrigeration:	type G	pressure
–	With refrigeration:	type G	refrigerated

2. Halogenated hydrocarbons

Substances that may only be transported in a stabilized state

Toxic substances (see 2.2.61.1 of ADN)

Flammable (flash-point < 23 ºC) or corrosive substances (see 2.2.8 of ADN)

Substances with an auto-ignition temperature ≤ 200 ºC

Substances with a flash-point < 23 ºC and an explosivity range > 15 % at 20 ºC

Benzene and mixtures of non-toxic and non-corrosive substances containing more than 10% benzene

Environmentally hazardous substances, Acute or Chronic Category 1 (group N1 in accordance with 2.2.9.1.10.2)

–	Cargo tank internal pressure > 50 kPa at the following temperatures: liquid 30 ºC, gaseous phase 37.8 ºC		
	● Without refrigeration:	type C	pressure (400 kPa)
	● With refrigeration:	type C	refrigerated
–	Cargo tank internal pressure ≤ 50 kPa at the following temperatures: liquid 30 ºC, gaseous phase 37.8 ºC but with cargo tank internal pressure > 50 kPa at 50 ºC		
	● Without water spraying:	type C	pressure (400 kPa)
	● With water spraying:	type C	with high-velocity vent valve opening pressure of 50 kPa
–	Cargo tank internal pressure ≤ 50 kPa at the following temperatures: liquid 30ºC, gaseous phase 37.8 ºC with cargo tank internal pressure ≤ 50 kPa at 50ºC		
		type C	with high-velocity vent valve opening pressure as

2.1 Mixtures for which type C is required in accordance with the criteria referred to in 2 above but for which certain data are lacking

In cases where the internal pressurization of the tank cannot be calculated owing to a lack of data, the following criteria may be used

– Initial boiling point ≤ 60 ºC	type C	(400 kPa)
– 60 ºC < initial boiling point ≤ 85 ºC	type C	with high-velocity vent valve opening pressure of 50 kPa and with water spraying
– 85 ºC < initial boiling point ≤ 115 ºC	type C	with high-velocity vent valve opening pressure of 50 kPa
– 115 ºC < initial boiling point	type C	with high-velocity vent valve opening pressure of 35 kPa

3. Substances which are flammable only (see 2.2.3 of ADN)

– Flash-point < 23 ºC with 175 kPa ≤ Pv 50 < 300 kPa		
• Without refrigeration:	closed type N	pressure (400 kPa)
• With refrigeration:	closed type N	refrigerated with high-velocity vent valve opening pressure of 50 kPa
– Flash-point < 23 ºC with 150 kPa ≤ Pv 50 < 175 kPa:	closed type N	with eductor opening pressure of 50 kPa
– Flash-point < 23 ºC with 110 kPa ≤ Pv 50 < 150 kPa		
• Without water spraying:	closed type N	with high-velocity vent valve opening pressure of Pa
• Without water spraying:	closed type N	with high-velocity vent valve opening pressure of 10 kPa
– Flash-point < 23 ºC with Pv 50 < 110 kPa:	closed type N	with high-velocity vent valve opening pressure of 10 kPa
– Flash-point ≥ 23 ºC but ≤ 60 ºC:	open type N	with flame-arrester
– Substances with a flash-point > 60 ºC heated to less than 15 K from the flash-point, N.O.S. (...):	open type N	with flame-arrester
– Substances with a flash-point > 60 ºC heated to or less than the flash-point, N.O.S. (...):	open type N	with flame-arrester

4. Corrosive substances (see 2.2.8.1 of ADN)

− **Corrosive substances liable to produce corrosive vapours**		
● Substances assigned to packing group I or II in the list of substances and having a vapour pressure[1] greater than 12.5 kPa valve (125 mbar) at 50 ºC or	closed type N	cargo tank walls must be distinct from vessel hull; high-velocity vent valve/safety opening pressure of 10 kPa
● Substances liable to react dangerously with water (for example acid chlorides)		
● Substances containing gases in solution		
− **Corrosive acids:**		
● Substances assigned to packing group I or II in the list of substances and having a vapour pressure* of 12.5 kPa (125 mbar) or less at 50 ºC or	open type N	cargo tank walls must be distinct from vessel hull
● Substances assigned to packing group III in the list of substances and having a vapour pressure* of 6.0 kPa (60 mbar) or greater at 50 ºC or	open type N	cargo tank walls must be distinct from vessel hull
● Substances assigned to packing group III in the list of substances because of their degree of corrosiveness to steel or aluminium or	open type N	cargo tank walls must be distinct from vessel hull
● Substances with a melting point greater than 0 ºC and transported at elevated temperatures	open type N	cargo tank walls must be distinct from vessel hull
● Flammable substances	open type N	with flame-arresters
● Elevated temperature substances	open type N	with flame-arresters
● Non-flammable substances	open type N	without flame-arresters
− **All other corrosive substances:**		
● Flammable substance	open type N	with flame-arresters
● Non-flammable substances	open type N	without flame-arresters

5. Environmentally hazardous substances (see 2.2.9.1 of ADN)

● Chronic 2 and (group N2 in accordance with 2.2.9.1.10.2)	open type N	cargo tank walls must be distinct from vessel hull
● Acute 2 and 3 (group N3 in accordance with 2.2.9.1.10.2)	open type N	_____

[1] If the data are available, the sum of the partial pressures of the dangerous substances may be used in place of the vapour pressure.

6. **Substances of Class 9, UN No. 3257** open type N independent cargo tanks

7. **Substances of Class 9, Identification No. 9003** open type N _____

Flash-point > 60 ºC and ≤ 100 ºC: open type N _____

8. **Substances that must be transported at elevated temperatures**

For substances that must be transported at elevated temperatures, the type of cargo tank shall be determined on the basis of the transport temperature, using the following table:

Maximum transport temperature T in °C	Type N	Type C
T ≤ 80	2	2
80 < T ≤ 115	1 + remark 25	1 + remark 26
T > 115	1	1

1 = cargo tank type: independent tank

2 = cargo tank type: integral tank

Remark 25 = remark No. 25 in column (20) of the list of substances contained in Chapter 3.2, Table C.

Remark 26 = remark No. 26 in column (20) of the list of substances contained in Chapter 3.2, Table C.

9. **Substances with long-term effects on health - CMR substances (Categories 1A and 1B in accordance with the criteria of Chapters 3.5, 3.6 and 3.7 of GHS[1]), provided that they are already assigned to Classes 2 to 9 by virtue of other criteria**

C carcinogenic

M mutagenic

R toxic to reproduction

closed type N cargo tank walls must be distinct from vessel hull; high-velocity vent valve opening pressure of at least 10 kPa, with water-spray system, if the internal pressurization of the tank is more than 10 kPa (calculation of the vapour pressure according to the formula for column 10, except that Va = 0,03)

[1] Since there is no official international list of CMR substances of Categories 1A and 1B, pending the availability of such a list, the list of CMR substances of Categories 1 and 2 in Directives 67/548/EEC and 88/379/EEC of the Council of the European Union, as amended, shall apply.

10. Substances that float on the water surface ('floaters') or sink to the bottom of the water ('sinkers') (criteria in accordance with GESAMP),[1] provided that they are already assigned to Classes 3 to 9 and that type N is required on that basis

closed type N	cargo tank walls must be distinct from vessel hull

B. Column (9): Determination of state of cargo tank

(1) Refrigeration system

Determined in accordance with A.

(2) Possibility of heating the cargo

A possibility of heating the cargo shall be required:

- When the melting point of the substance to be transported is + 15 ºC or greater, or
- When the melting point of the substance to be transported is greater than 0 °C but less than + 15 °C and the outside temperature is no more than 4 K above the melting point. In column (20), reference shall be made to remark 6 with the temperature derived as follows: melting point + 4 K.

(3) Water-spray system

Determined in accordance with A.

(4) Cargo heating system on board

- For substances that must not be allowed to solidify owing to the possibility of dangerous reactions on reheating, and
- For substances that must be maintained at a guaranteed temperature of not less than 15 K below their flash-point.

C. Column (10): Determination of opening pressure of high-velocity vent valve in kPa

For vessels of type C, the opening pressure of the high-velocity vent valve shall be determined on the basis of the internal pressure of the tanks, rounded up to the nearest 5 kPa.

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[1] IMO publication: "The Revised GESAMP Hazard Evaluation Procedure for Chemical Substances Carried by Ships", GESAMP Reports and Studies No. 64, IMO, London, 2002.

To calculate the internal pressure, the following formula shall be used:

$$P_{\max} = P_{Ob\max} + \frac{k\ V_a\ (P_0 - P_{Da})}{v_a - \alpha\ \delta_t + \alpha\ \delta_t\ v_a} - P_0$$

$$k = \frac{T_{D\max}}{T_a}$$

In this formula:

P_{max} : Maximum internal pressure in kPa

P_{Obmax} : Vapour pressure at maximum absolute liquid surface temperature in kPa

P_{Da} : Vapour pressure at absolute filling temperature in kPa

P_0 : Atmospheric pressure in kPa

v_a : Free relative volume at filling temperature compared with cargo tank volume

α : Cubic expansion coefficient in K^{-1}

δ_t : Average liquid temperature increase through reheating in K

T_{Dmax} : Maximum absolute vapour pressure in K

T_a : Filling temperature in K

k : Temperature correction factor

t_{Ob} : Maximum liquid surface temperature in °C

In the formula, the following basic data are used:

P_{Obmax} : At 50 °C and 30 °C

P_{Da} : At 15 °C

P_0 : 101.3 kPa

v_a : 5% = 0.05

δ_t : 5 K

T_{Dmax} : 323 K and 310.8 K

T_a : 288 K

t_{Ob} : 50 °C and 30 °C

D. Column (11): Determination of maximum degree of filling of cargo tanks

If, in accordance with the provisions under A above:

−	Type G is required:	91%	however, in the case of deeply refrigerated substances: 95%
−	Type C is required:	95%	
−	Type N is required:	97%	however, in the case of substances in a molten state and of flammable liquids with 5 kPa $\leq P_{v50} <$ 300 kPa: 95%.

E. Column (13): Determination of type of sampling connection

1 = *closed*:	-	Substances to be transported in pressure cargo tanks
	-	Substances with T in column (3b) and assigned to packing group I
	-	Stabilized substances to be transported under inert gas.
2 = *partly closed*:	-	All other substances for which type C is required
3 = *open*:	-	All other substances

(F) Column (14): Determination of whether a pump-room is permitted below deck

No	-	All substances with letter T in the classification code indicated in column (3b) with the exception of substances of Class 2.
Yes	-	All other substances

(G) Column (15): Determination of temperature class

Flammable substances shall be assigned to a temperature class on the basis of their auto-ignition point:

Temperature class	Auto-ignition temperature T of flammable liquids and gases in °C
T1	T > 450
T2	300 < T ≤ 450
T3	200 < T ≤ 300
T4	135 < T ≤ 200
T5	100 < T ≤ 135
T6	85 < T ≤ 100

When anti-explosion protection is required and the auto-ignition temperature is not known, reference shall be made to temperature class T4, considered safe.

(H) Column (16): Determination of explosion group

Flammable substances shall be assigned to an explosion group on the basis of their maximum experimental safe gaps. The maximum experimental safe gaps shall be determined in accordance with the standard contained in IEC Publication No. 79-1A.

The different explosion groups are as follows:

Explosion group	Maximum experimental safe gap in mm
II A	> 0.9
II B	≥ 0.5 to ≤ 0.9
II C	< 0.5

When anti-explosion protection is required and the relevant data are not provided, reference shall be made to explosion group II B, considered safe.

(I) Column (17): Determination of whether anti-explosion protection is required for electrical equipment and systems

Yes
- Substances with a flash-point ≤ 60 °C.
- Substances that must be transported while heated to a temperature less than 15 K from their flash-point.
- Flammable gases

No
- All other substances

(J) Column (18): Determination of whether personal protective equipment, escape devices, portable flammable gas detectors, portable toximeters or ambient-air-dependent breathing apparatus is required

- PP: For all substances of Classes 1 to 9;
- EP: For all substances
  - of Class 2 with letter T or letter C in the classification code indicate in column (3b),
  - of Class 3 with letter T or letter C in the classification code indicated in column (3b),
  - of Class 4.1,
  - of Class 6.1, and
  - of Class 8,
  - CMR substances of Category 1A or 1B according to chapters 3.5, 3.6 and 3.7 of GHS;
- EX: For all substances for which anti-explosion protection is required;
- TOX: For all substances of Class 6.1,
  For all substances of other classes with T in column (3b),
  For CMR substances of Category 1A or 1B according to chapters 3.5, 3.6 and 3.7 of GHS;
- A: For all substances for which EX or TOX is required.

(K) Column (19): Determination of the number of cones or blue lights

For all substances of Class 2 with letter F in the classification code indicated in column (3b):	1 cone/light
For all substances of Classes 3 to 9 with letter F in the classification code indicated in column (3b) and assigned to packing group I or II:	1 cone/light
For all substances of Class 2 with letter T in the classification code indicated in column (3b)	2 cones/lights
For all substances of Classes 3 to 9 with letter T in the classification code indicated in column (3b) and assigned to packing group I or II:	2 cones/lights

(L) Column (20): Determination of additional requirements and remarks

***Remark 1*:** Reference shall be made in column (20) to remark 1 for transport of UN No. 1005 AMMONIA, ANHYDROUS.

***Remark 2*:** Reference shall be made in column (20) to remark 2 for stabilized substances that react with oxygen.

***Remark 3*:** Reference shall be made in column (20) to remark 3 for substances that must be stabilized.

***Remark 4*:** Reference shall be made in column (20) to remark 4 for substances that must not be allowed to solidify owing to the possibility of dangerous reactions on reheating.

***Remark 5*:** Reference shall be made in column (20) to remark 5 for substances liable to polymerization.

***Remark 6*:** Reference shall be made in column (20) to remark 6 for substances liable to crystallization and for substances for which a heating system or possibility of heating is required and the vapour pressure of which at 20 ºC is greater than 0.1 kPa.

***Remark 7*:** Reference shall be made in column (20) to remark 7 for substances with a flash-point of + 15 ºC or greater.

***Remark 8*:** Reference shall be made in column (20) to remark 8 for substances that react dangerously with water.

***Remark 9*:** Reference shall be made in column (20) to remark 9 for transport of UN No. 1131 CARBON DISULPHIDE.

***Remark 10*:** *No longer used*.

***Remark 11*:** Reference shall be made in column (20) to remark 11 for transport of UN No. 1040 ETHYLENE OXIDE WITH NITROGEN.

***Remark 12*:** Reference shall be made in column (20) to remark 12 for transport of UN No. 1280 PROPYLENE OXIDE and UN No. 2983 ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE.

***Remark 13*:** Reference shall be made in column (20) to remark 13 for transport of UN No. 1086 VINYL CHLORIDE, STABILIZED.

***Remark 14*:** Reference shall be made in column (20) to remark 14 for mixtures or N.O.S. entries which are not clearly defined and for which type N is stipulated under the classification criteria.

***Remark 15*:** Reference shall be made in column (20) to remark 15 for substances that react dangerously with alkalis or acids such as sodium hydroxide or sulphuric acid.

***Remark 16*:** Reference shall be made in column (20) to remark 16 for substances that may react dangerously to local overheating.

***Remark 17*:** Reference shall be made in column (20) to remark 17 when reference is made to remark 6 or 7.

***Remark 18*:** *No longer used*.

***Remark 19*:** Reference shall be made in column (20) to remark 19 for substances that must under no circumstances come into contact with water.

***Remark 20*:** Reference shall be made in column (20) to remark 20 for substances the transport temperature of which must not exceed a maximum temperature in combination with the cargo tank materials. Reference shall be made to this maximum permitted temperature immediately after the number 20.

***Remark 21*:** *No longer used*.

***Remark 22*:** Reference shall be made in column (20) to remark 22 for substances for which a range of values or no value is indicated in column (11).

***Remark 23*:** Reference shall be made in column (20) to remark 23 for substances the internal pressure of which at 30 ºC is less than 50 kPa and which are transported with water spraying.

***Remark 24*:** Reference shall be made in column (20) to remark 24 for transport of UN No. 3257 ELEVATED TEMPERATURE LIQUID, N.O.S.

***Remark 25*:** Reference shall be made in column (20) to remark 25 for substances that must be transported while heated in a type 3 cargo tank.

***Remark 26*:** Reference shall be made in column (20) to remark 26 for substances that must be transported while heated in a type 2 cargo tank.

***Remark 27*:** Reference shall be made in column (20) to remark 27 for substances for which the reference N.O.S. or a generic reference is made in column (2).

***Remark 28*:** Reference shall be made in column (20) to remark 28 for transport of UN No. 2448 SULPHUR, MOLTEN.

***Remark 29*:** Reference shall be made in column (20) to remark 29 for substances for which the vapour pressure or boiling point is indicated in column (2).

***Remark 30*:** Reference shall be made in column (20) to remark 30 for transport of UN Nos. 1719, 1794, 1814, 1819, 1824, 1829, 1830, 1832, 1833, 1906, 2240, 2308, 2583, 2584, 2677, 2679, 2681, 2796, 2797, 2837 and 3320 under the entries for which open type N is required.

***Remark 31*:** Reference shall be made in column (20) to remark 31 for transport of substances of Class 2 and UN Nos. 1280 PROPYLENE OXIDE and 2983 ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE of Class 3.

***Remark 32*:** Reference shall be made in column (20) to remark 32 for transport of UN No. 2448 SULPHUR, MOLTEN, of Class 4.1.

***Remark 33*:** Reference shall be made in column (20) to remark 33 for transport of UN Nos. 2014 and 2984 HYDROGEN PEROXIDE, AQUEOUS SOLUTION, of Class 5.1.

***Remark 34*:** Reference shall be made in column (20) to remark 34 for transport of substances for which hazard 8 is mentioned in column (5) and type N in column (6).

***Remark 35*:** Reference shall be made in column (20) to remark 35 for substances that must not have a direct system for the refrigeration system.

***Remark 36*:** Reference shall be made in column (20) to remark 36 for substances that must have an indirect system for the refrigeration system.

***Remark 37*:** Reference shall be made in column (20) to remark 37 for substances for which the cargo storage system must be capable of resisting the full vapour pressure of the cargo at the upper limits of the ambient design temperatures, whatever the system adopted for the boil-off gas.

***Remark 38*:** Reference must be made in column (20) to remark 38 for mixtures with an initial melting point above 60 ºC in accordance with ASTMD 86-01.”.

Chapter 3.3

3.3.1 **SP188** At the beginning, replace “Lithium cells” with “Cells”.

In (a), replace “lithium equivalent content is not more than 1.5 g” with “Watt-hour rating is not more than 20 Wh”.

In (b), replace “aggregate lithium-equivalent content is not more than 8 g;” with “Watt-hour rating is not more than 100 Wh. Lithium ion batteries subject to this provision shall be marked with the Watt-hour rating on the outside case;”.

Replace (d) and (e) with the following new sub-paragraphs (d) to (i):

"(d) Cells and batteries, except when installed in equipment, shall be packed in inner packagings that completely enclose the cell or battery. Cells and batteries shall be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit. The inner packagings shall be packed in strong outer packagings which conform to the provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.5 of ADR;

(e) Cells and batteries when installed in equipment shall be protected from damage and short circuit, and the equipment shall be equipped with an effective means of preventing accidental activation. When batteries are installed in equipment, the equipment shall be packed in strong outer packagings constructed of suitable material of adequate strength and design in relation to the packaging's capacity and its intended use unless the battery is afforded equivalent protection by the equipment in which it is contained;

(f) Except for packages containing no more than four cells installed in equipment or no more than two batteries installed in equipment, each package shall be marked with the following:

(i) an indication that the package contains "lithium metal" or "lithium ion" cells or batteries, as appropriate;

(ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;

(iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and

(iv) a telephone number for additional information;

(g) Each consignment of one or more packages marked in accordance with paragraph (f) shall be accompanied with a document including the following:

(i) an indication that the package contains "lithium metal" or "lithium ion" cells or batteries, as appropriate;

(ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;

(iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and

(iv) a telephone number for additional information;

(h) Except when batteries are installed in equipment, each package shall be capable of withstanding a 1.2 m drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (or cell to cell) contact and without release of contents; and

(i) Except when batteries are installed in or packed with equipment, packages shall not exceed 30 kg gross mass.".

In the last sentence, delete ", except in the case of a lithium ion cell the "lithium-equivalent content" in grams is calculated to be 0.3 times the rated capacity in ampere hours".

Insert a new last paragraph to read as follows:

"Separate entries exist for lithium metal batteries and lithium ion batteries to facilitate the carriage of these batteries for specific modes of carriage and to enable the application of different emergency response actions.".

SP198 Replace "and 3066" with ", 3066, 3469 and 3470".

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

SP201 Add the following Note:

"*NOTE: For waste lighters collected separately see Chapter 3.3, special provision 654.*".

SP236 In the last sentence, replace "Column (7)" with "Column (7a)".

SP251 In the first paragraph, replace "Column (7)" with "Column (7a)"

In the last paragraph, insert "for limited quantities" after "quantity limits" and replace "7" with "7a".

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

SP290 Replace "2.2.7.9.1" with "1.7.1.5".

SP307 In (b) Insert "and/or mineral calcium sulphate" after "dolomite".

SP310 In the first sentence, replace "lithium cells" with "cells" (twice).

SP328 Amend to read as follows:

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

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

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

SP330 Amend to read as follows:

"**330** (*Deleted*)".

SP636 Amend to read as follows:

"**636** (a) Cells contained in equipment shall not be capable of being discharged during carriage to the extent that the open circuit voltage falls below 2 volts or two thirds of the voltage of the undischarged cell, whichever is the lower.

(b) Used lithium cells and batteries with a gross mass of not more than 500 g each collected and presented for carriage for disposal between the consumer collecting point and the intermediate processing facility, together with other non-lithium cells or batteries, are not subject to the other provisions of ADN if they meet the following conditions:

(i) The provisions of packing instruction P903b of ADR are complied with;

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

(iii) Packages shall bear the inscription: "USED LITHIUM CELLS"."

Add the following new special provisions:

"**332** Magnesium nitrate hexahydrate is not subject to the requirements of ADN.

333 Ethanol and gasoline, motor spirit or petrol mixtures for use in spark-ignition engines (e.g. in automobiles, stationary engines and other engines) shall be assigned to this entry regardless of variations in volatility.

334 A fuel cell cartridge may contain an activator provided it is fitted with two independent means of preventing unintended mixing with the fuel during carriage.

335 Mixtures of solids which are not subject to the requirements of ADN and environmentally hazardous liquids or solids shall be classified as UN 3077 and may be carried under this entry provided there is no free liquid visible at the time the substance is loaded or at the time the packaging or vehicle or container is closed. Each vehicle or container shall be leakproof when used for carriage in bulk. If free liquid is visible at the time the mixture is loaded or at the time the packaging or vehicle or container is closed, the mixture shall be classified as UN 3082. Sealed packets and articles containing less than 10 ml of an environmentally hazardous liquid, absorbed into a solid material but with no free liquid in the packet or article, or containing less than 10 g of an environmentally hazardous solid, are not subject to the requirements of ADN.

336 A single package of non-combustible solid LSA-II or LSA-III material, if carried by air, shall not contain an activity greater than 3 000 A_2.

337 Type B(U) and Type B(M) packages, if carried by air, shall not contain activities greater than the following:

(a) For low dispersible radioactive material: as authorized for the package design as specified in the certificate of approval;

(b) For special form radioactive material: 3 000 A_1 or 100 000 A_2, whichever is the lower; or

(c) For all other radioactive material: 3 000 A_2.

338 Each fuel cell cartridge carried under this entry and designed to contain a liquefied flammable gas shall:

(a) Be capable of withstanding, without leakage or bursting, a pressure of at least two times the equilibrium pressure of the contents at 55 ºC;

(b) Not contain more than 200 ml of liquefied flammable gas with a vapour pressure not exceeding 1 000 kPa at 55 °C; and

(c) Pass the hot water bath test prescribed in 6.2.6.3.1 of ADR.

339 Fuel cell cartridges containing hydrogen in a metal hydride carried under this entry shall have a water capacity less than or equal to 120 ml.

The pressure in the fuel cell cartridge shall not exceed 5 MPa at 55 °C. The design type shall withstand, without leaking or bursting, a pressure of twice the design pressure of the cartridge at 55 °C or 200 kPa more than the design pressure of the cartridge at 55 °C, whichever is greater. The pressure at which this test is conducted is referred to in the drop test and the hydrogen cycling test as the "minimum shell burst pressure".

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

(a) Inspection procedures to be carried out before initial filling and before refilling of the fuel cell cartridge;

(b) Safety precautions and potential hazards to be aware of;

(c) Method for determining when the rated capacity has been achieved;

(d) Minimum and maximum pressure range;

(e) Minimum and maximum temperature range; and

(f) Any other requirements to be met for initial filling and refilling including the type of equipment to be used for initial filling and refilling.

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

Drop test

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

(a) Vertically, on the end containing the shut-off valve assembly;

(b) Vertically, on the end opposite to the shut-off valve assembly;

(c) Horizontally, onto a steel apex with a diameter of 38 mm, with the steel apex in the upward position; and

(d) At a 45° angle on the end containing the shut-off valve assembly.

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

Fire test

A fuel cell cartridge filled to rated capacity with hydrogen shall be subjected to a fire engulfment test. The cartridge design, which may include a vent feature integral to it, is deemed to have passed the fire test if :

(a) The internal pressure vents to zero gauge pressure without rupture of the cartridge; or

(b) The cartridge withstands the fire for a minimum of 20 minutes without rupture.

Hydrogen cycling test

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

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

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

Production leak test

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

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

(a) The rated charging pressure in MPa;

(b) The manufacturer's serial number of the fuel cell cartridges or unique identification number; and

(c) The date of expiry based on the maximum service life (year in four digits; month in two digits).

340 Chemical kits, first aid kits and polyester resin kits containing dangerous substances in inner packagings which do not exceed the quantity limits for excepted quantities applicable to individual substances as specified in column 7b of Table A of Chapter 3.2, may be carried in accordance with Chapter 3.5. Class 5.2 substances, although not individually authorized as excepted quantities in column 7b of Table A of Chapter 3.2, are authorized in such kits and are assigned Code E2 (see 3.5.1.2).

341-499 **(***Reserved)*

654 Waste lighters collected separately and consigned in accordance with 5.4.1.1.3 may be carried under this entry for the purposes of disposal. They need not be protected against inadvertent discharge provided that measures are taken to prevent the dangerous build up of pressure and dangerous atmospheres.

Waste lighters, other than those leaking or severely deformed, shall be packed in accordance with packing instruction P003 of ADR. In addition the following provisions shall apply:

– only rigid packagings of a maximum capacity of 60 litres shall be used;

– the packagings shall be filled with water or any other appropriate protection material to avoid any ignition;

– under normal conditions of carriage all ignition devices of the lighters shall fully be covered by the protection material;

– the packagings shall be adequately vented to prevent the creation of flammable atmosphere and the build up of pressure;

– the packages shall only be carried in ventilated or open wagons/vehicles or containers.

Leaking or severely deformed lighters shall be carried in salvage packagings, provided appropriate measures are taken to ensure there is no dangerous build up of pressure.

***NOTE**: Special provision 201 and special packing provisions PP84 and RR5 of packing instruction P002 in 4.1.4.1 of ADR do not apply to waste lighters.*

Chapter 3.4

Amend the heading of Chapter 3.4 to read as follows:

"CHAPTER 3.4 DANGEROUS GOODS PACKED IN LIMITED QUANTITIES".

3.4.2, 3.4.3, 3.4.4, 3.4.5 Replace "Column (7)" with "Column (7a)".

3.4.3 (b) Replace "6.2.1.2 and 6.2.4.1 to 6.2.4.3" with: "6.2.5.1 and 6.2.6.1 to 6.2.6.3".

Add the following new sections 3.4.8 to 3.4.13:

"3.4.8 The requirements

(a) of 5.2.1.9 on the placement of orientation arrows on packages;

(b) of 5.1.2.1 (b) on the placement of orientation arrows on overpacks; and

(c) of 7.5.1.5 of ADR on the orientation of packages

shall be applicable also to packages and overpacks carried in accordance with this chapter."

3.4.9 Consignors of dangerous goods packed in limited quantities shall inform the carrier of the total gross mass of such goods to be consigned, in advance of carriage not involving maritime transport.

3.4.10 (a) Transport units with a maximum mass exceeding 12 tonnes carrying packages with dangerous goods in limited quantities shall be marked in accordance with 3.4.12 at the front and at the rear except when orange-coloured plate marking is displayed in accordance with 5.3.2.

(b) Wagons carrying packages with dangerous goods in limited quantities shall be marked in accordance with 3.4.12 on both sides except when placards in accordance with Chapter 5.3 are already affixed.

(c) Containers carrying packages with dangerous goods in limited quantities shall be marked in accordance with 3.4.12 on all four sides except.

- when placards in accordance with Chapter 5.3 are already affixed;
- for small containers loaded on a wagon;
- for containers loaded on a transport unit with a maximum mass less than or equal to 12 tonnes.

If the containers are loaded on a transport unit or wagon, the carrying transport unit or wagon need not be marked, except when the marking affixed to the containers is not visible from the outside of this carrying transport unit or wagon. In this latter case, the same marking shall also be affixed at the front and the rear of the carrying transport unit, or on both sides of the carrying wagon.

3.4.11 Markings specified in 3.4.10 may be dispensed with, if the total gross mass of the packages containing dangerous goods packed in limited quantities carried does not exceed 8 tonnes per transport unit, wagon or container.

3.4.12 The marking shall consist of "LTD QTY"[2] in black letters not less than 65 mm high on a white background.

3.4.13 Markings according to chapter 3.4 of the IMDG Code are also acceptable for carriage in a transport chain including maritime carriage."

[2)] *The letters "LTD QTY" are an abbreviation of the English words "Limited Quantity"."*

Chapter 3.5

Add a new Chapter 3.5 to read as follows:

"**CHAPTER 3.5**
DANGEROUS GOODS
PACKED IN EXCEPTED QUANTITIES

3.5.1 Excepted quantities

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

(a) The training requirements in Chapter 1.3;

(b) The classification procedures and packing group criteria in Part 2;

(c) The packaging requirements of 4.1.1.1, 4.1.1.2, 4.1.1.4 and 4.1.1.6 of ADR.

NOTE: *In the case of radioactive material, the requirements for radioactive material in excepted packages in 1.7.1.5 apply.*

3.5.1.2 Dangerous goods which may be carried as excepted quantities in accordance with the provisions of this Chapter are shown in column 7b of Table A of Chapter 3.2 list by means of an alphanumeric code as follows:

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

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

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

3.5.2 Packagings

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

(a) There shall be an inner packaging and each inner packaging shall be constructed of plastic (with a minimum thickness of 0.2 mm when used for liquids), or of glass, porcelain, stoneware, earthenware or metal (see also 4.1.1.2 of ADR) and the closure of each inner packaging shall be held securely in place with wire, tape or other positive means; any receptacle having a neck with moulded screw threads shall have a leak proof threaded type cap. The closure shall be resistant to the contents;

(b) Each inner packaging shall be securely packed in an intermediate packaging with cushioning material in such a way that, under normal conditions of carriage, they cannot break, be punctured or leak their contents. The intermediate packaging shall completely contain the contents in case of breakage or leakage, regardless of package orientation. For liquids, the intermediate packaging shall contain sufficient absorbent material to absorb the entire contents of the inner packaging. In such cases, the absorbent material may be the cushioning material. Dangerous goods shall not react dangerously with cushioning, absorbent material and packaging material or reduce the integrity or function of the materials;

(c) The intermediate packaging shall be securely packed in a strong, rigid outer packaging (wooden, fibreboard or other equally strong material);

(d) Each package type shall be in compliance with the provisions in 3.5.3;

(e) Each package shall be of such a size that there is adequate space to apply all necessary markings; and

(f) Overpacks may be used and may also contain packages of dangerous goods or goods not subject to the requirements of ADN.

3.5.3 Tests for packages

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

(a) Drops onto a rigid, non-resilient flat and horizontal surface from a height of 1.8 m:

(i) Where the sample is in the shape of a box, it shall be dropped in each of the following orientations:

- flat on the base;
- flat on the top;
- flat on the longest side;
- flat on the shortest side;
- on a corner;

(ii) Where the sample is in the shape of a drum, it shall be dropped in each of the following orientations:

- diagonally on the top chime, with the centre of gravity directly above the point of impact;
- diagonally on the base chime;
- flat on the side;

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

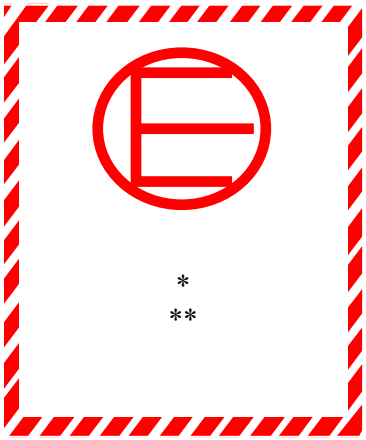
(b) A force applied to the top surface for a duration of 24 hours, equivalent to the total weight of identical packages if stacked to a height of 3 m (including the sample).

3.5.3.2 For the purposes of testing, the substances to be carried in the packaging may be replaced by other substances except where this would invalidate the results of the tests. For solids, when another substance is used, it must have the same physical characteristics (mass, grain size, etc.) as the substance to be carried. In the drop tests for liquids, when another substance is used, its relative density (specific gravity) and viscosity should be similar to those of the substance to be carried.

3.5.4 Marking of packages

3.5.4.1 Packages containing excepted quantities of dangerous goods prepared in accordance with this Chapter shall be durably and legibly marked with the mark shown in 3.5.4.2. The first or only label number indicated in column (5) of Table A of Chapter 3.2 for each of the dangerous goods contained in the package shall be shown in the mark. Where the name of the consignor or consignee is not shown elsewhere on the package this information shall be included within the mark.

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



Excepted quantities mark

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

* 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.

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

3.5.5 Maximum number of packages in any vehicle, wagon or container

The number of packages in any vehicle, wagon or container shall not exceed 1 000.

3.5.6 Documentation

If a document or documents (such as a bill of lading, air waybill or CMR/CIM consignment note) accompanies(y) dangerous goods in excepted quantities, at least one of these documents shall include the statement “Dangerous Goods in Excepted Quantities” and indicate the number of packages.

PART 4

In the heading, replace "transport units" by "cargo transports units".

PART 5

Chapter 5.1

5.1.2.1 (a) Amend the text after (ii) to read as follows: "unless the UN numbers and the labels representative of all dangerous goods contained in the overpack are visible, except as required in 5.2.2.1.11. If the same UN number or the same label… *(remainder unchanged)*".

5.1.3.2 Replace "Tanks and IBCs" with "Packagings, including IBCs, and tanks".

5.1.5.1 Delete. Renumber subsequent paragraphs 5.1.5.2 to 5.1.5.3.3 accordingly and, in Section 5.1.5, amend all references to renumbered paragraphs, as appropriate.

5.1.5.2.2 (current 5.1.5.3.2) Delete the second sentence.

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

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

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

(a) Determine the maximum radiation level in units of millisieverts per hour (mSv/h) at a distance of 1 m from the external surfaces of the package, overpack, container, or unpackaged LSA-I and SCO-I. The value determined shall be multiplied by 100 and the resulting number is the transport index. For uranium and thorium ores and their concentrates, the maximum radiation level at any point 1 m from the external surface of the load may be taken as:

0.4 mSv/h	for ores and physical concentrates of uranium and thorium;
0.3 mSv/h	for chemical concentrates of thorium;
0.02 mSv/h	for chemical concentrates of uranium, other than uranium hexafluoride;

(b) For tanks, containers and unpackaged LSA-I and SCO-I, the value determined in step (a) above shall be multiplied by the appropriate factor from Table 5.1.5.3.1;

(c) The value obtained in steps (a) and (b) above shall be rounded up to the first decimal place (e.g. 1.13 becomes 1.2), except that a value of 0.05 or less may be considered as zero.

Table 5.1.5.3.1: Multiplication factors for tanks, containers and unpackaged LSA-I and SCO-I

Size of load [a]	Multiplication factor
size of load ≤ 1 m^2	1
1 m^2 < size of load ≤ 5 m^2	2
5 m^2 < size of load ≤ 20 m^2	3
20 m^2 < size of load	10

[a] *Largest cross-sectional area of the load being measured.*

5.1.5.3.2 The transport index for each overpack, container or conveyance shall be determined as either the sum of the TIs of all the packages contained, or by direct measurement of radiation level, except in the case of non-rigid overpacks for which the transport index shall be determined only as the sum of the TIs of all the packages.

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

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

(a) For a package or overpack, both the transport index and the surface radiation level conditions shall be taken into account in determining which is the appropriate category. Where the transport index satisfies the condition for one category but the surface radiation level satisfies the condition for a different category, the package or overpack shall be assigned to the higher category. For this purpose, category I-WHITE shall be regarded as the lowest category;

(b) The transport index shall be determined following the procedures specified in 5.1.5.3.1 and 5.1.5.3.2;

(c) If the surface radiation level is greater than 2 mSv/h, the package or overpack shall be carried under exclusive use and under the provisions of 7.1.4.14.7.1.3 and 7.1.4.14.7.3.5 (a) as appropriate;

(d) A package carried under a special arrangement shall be assigned to category III-YELLOW except when otherwise specified in the competent authority approval certificate of the country of origin of design (see 2.2.7.2.4.6);

(e) An overpack which contains packages carried under special arrangement shall be assigned to category III-YELLOW except when otherwise specified in the competent authority approval certificate of the country of origin of design (see 2.2.7.2.4.6).

Table 5.1.5.3.4: Categories of packages and overpacks

Conditions		
Transport index	**Maximum radiation level at any point on external surface**	**Category**
0[a]	Not more than 0.005 mSv/h	I-WHITE
More than 0 but not more than 1[a]	More than 0.005 mSv/h but not more than 0.5 mSv/h	II-YELLOW
More than 1 but not more than 10	More than 0.5 mSv/h but not more than 2 mSv/h	III-YELLOW
More than 10	More than 2 mSv/h but not more than 10 mSv/h	III-YELLOW [b]

[a] *If the measured TI is not greater than 0.05, the value quoted may be zero in accordance with 5.1.5.3.1(c).*

[b] *Shall also be carried under exclusive use.*".

5.1.5.4 In NOTE 1, replace "(see 5.1.5.2.4 (a))" with "(see 5.1.5.1.4 (a))".

In NOTE 2, replace "(see 5.1.5.2.4 (b))" with "(see 5.1.5.1.4 (b))".

In NOTE 3, replace "(see 5.1.5.2)" with "(see 5.1.5.1)".

In the last column of the table:

replace "5.1.5.2.4 (b)" with "5.1.5.1.4 (b)" (five times), "5.1.5.3.1 (a)" with "5.1.5.2.1 (a)" (nine times) and "5.1.5.2.2" with "5.1.5.1.2" (three times).

Chapter 5.2

5.2.1.6 In Note 1, replace "6.2.1.7" with "6.2.2.7".
In Note 2, replace "6.2.1.8" with "6.2.2.8".

5.2.1.8 Add the following new sub-section:

"5.2.1.8 Special marking provisions for environmentally hazardous substances

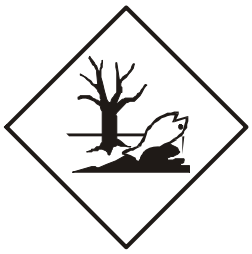
5.2.1.8.1 Packages containing environmentally hazardous substances meeting the criteria of 2.2.9.1.10.1 shall be durably marked with the environmentally hazardous substance mark shown in 5.2.1.8.3, with the exception of single packagings and combination packagings containing inner packagings with:

- contents of 5 l or less for liquids, or

- contents of 5 kg or less for solids."

5.2.1.8.2 The environmentally hazardous substance mark shall be located adjacent to the markings required by 5.2.1.1. The requirements of 5.2.1.2 and 5.2.1.4 shall be met.

5.2.1.8.3 The environmentally hazardous substance mark shall be as shown below. The dimensions shall be 100 mm × 100 mm, except in the case of packages of such dimensions that they can only bear smaller marks.



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

5.2.1.9.2 (a) Delete “closed”.

5.2.2.1.11.1 In the first sentence, replace “Except as provided for large containers and tanks in accordance with 5.3.1.1.3” with “Except when enlarged labels are used in accordance with 5.3.1.1.3” and replace “(see 2.2.7.8.4)” with “(see 5.1.5.3.4)”.

5.2.2.1.11.2 (a) (i) Replace “2.2.7.7.2.1” with “2.2.7.2.2.1”.

5.2.2.1.11.2(d) Replace “See 2.2.7.6.1.1 and 2.2.7.6.1.2” with “The number determined in accordance with 5.1.5.3.1 and 5.1.5.3.2”.

5.2.2.2.1 Add the following new second sentence:

"Corresponding models required for other modes of transport, with minor variations which do not affect the obvious meaning of the label, are also acceptable.".

5.2.2.2.1.1 Replace “They have a line of the same colour as the symbol, 5 mm inside the edge and running parallel with it.” with “They shall have a line 5 mm inside the edge and running parallel with it. In the upper half of a label the line shall have the same colour as the symbol and in the lower half it shall have the same colour as the figure in the bottom corner.”.

5.2.2.2.1.2 Replace “ISO 7225:1994” with “ISO 7225:2005” and “ISO 7225” with “ISO 7225:2005”.

5.2.2.2.1.3 Amend to read as follows:

"5.2.2.2.1.3 With the exception of labels for Divisions 1.4, 1.5 and 1.6 of Class 1, the upper half of the label shall contain the pictorial symbol and the lower half shall contain:

(a) For Classes 1, 2, 3, 5.1, 5.2, 7, 8 and 9, the class number;

(b) For Classes 4.1, 4.2 and 4.3, the figure "4";

(c) For Classes 6.1 and 6.2, the figure "6".

The label may include text such as the UN number or words describing the hazard (e.g. “flammable”) in accordance with 5.2.2.2.1.5 provided the text does not obscure or detract from the other required label elements.".

5.2.2.2.1.4 Amend to read as follows:

"5.2.2.2.1.4 In addition, except for Divisions 1.4, 1.5 and 1.6, labels for Class 1 shall show in the lower half, above the class number, the division number and the compatibility group letter for the substance or article. Labels for Divisions 1.4, 1.5 and 1.6 shall show in the upper half the division number, and in the lower half the class number and the compatibility group letter.".

5.2.2.2.1.6 Insert a new-sub paragraph (c) to read as follows:

“(c) the Class 5.2 label, where the symbol may be shown in white; and”.

5.2.2.2.1.6 (b) Delete “and”.

5.2.2.2.1.6 (c) Renumber as (d).

5.2.2.2.2 Under labels No. 2.1, replace “5.2.2.2.1.6 (c)” with “5.2.2.2.1.6 (d)”.

Chapter 5.3

After the heading, delete Note 2 and replace “NOTE 1” by “NOTE”

5.3.1.1.6 Add a new 5.3.1.1.6 to read as follows:

“5.3.1.1.6 When the placarding is affixed to folding panels, they shall be designed and secured so that they cannot unfold or come loose from the holder during carriage (especially as a result of impacts or unintentional actions).”.

5.3.1.7.1 (a) Amend to read as follows:

“(a) Be not less than 250 mm by 250 mm and have a line 12.5 mm inside the edge and running parallel with it. In the upper half the line shall have the same colour as the symbol and in the lower half it shall have the same colour as the figure in the bottom corner;”.

5.3.2.1.4 In the first sentence, replace “dangerous solid substances in bulk” with “unpackaged solids or articles”.

5.3.2.1.5 Add a new Note to read as follows:

"***NOTE**: This paragraph needs not be applied to the marking with orange coloured plates of closed and sheeted wagons or vehicles, carrying tanks with a maximum capacity of 3 000 litres.*".

5.3.2.1.6 At the beginning, replace "one substance" with "one dangerous substance and no non-dangerous substance". At the end, insert "for that substance" after "UN number".

5.3.2.2.1 In the first paragraph, after “15 minutes' engulfment in fire.”, add the following new fourth sentence “It shall remain affixed irrespective of the orientation of the wagon or vehicle.”.

5.3.2.2.1 The last sentence of the first paragraph (“If the size…black border.”) becomes the new second paragraph. Add the following new sentence at the end of this new paragraph: “In that case, 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.”.

5.3.2.2.2 Add the following text at the end:
"Interchangeable numbers and letters on plates presenting the hazard identification number and the UN number shall remain in place during carriage and irrespective of the orientation of the wagon or vehicle.".

5.3.2.2.5 Add a new 5.3.2.2.5 to read as follows:

“5.3.2.2.5 When the orange-coloured plate is affixed to folding panels, they shall be designed and secured so that they cannot unfold or come loose from the holder during carriage (especially as a result of impacts or unintentional actions).”.

5.3.2.3.2 For identification number 423, add at the end of the description of the meaning: “, or flammable solid which reacts with water, emitting flammable gases or self-heating solid which reacts with water, emitting flammable gases”.

For identification number X423, amend the description of the meaning to read as follows: “solid which reacts dangerously with water, emitting flammable gases, or flammable solid which reacts dangerously with water, emitting flammable gases, or self-heating solid which reacts dangerously with water, emitting flammable gases [1]”.

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[1] *Water not to be used except by approval of experts.*

5.3.2.3.2 Insert after the heading “43”:

“X432 spontaneously flammable (pyrophoric) solid which reacts dangerously with water, emitting flammable gases[1]”.

5.3.4.1 b) In the first indent, replace “transport unit” by “cargo transport unit”.

5.3.4.3 Replace “transport units” by “cargo transport units”.

5.3.5 to 5.3.6 Add the following new sections to read as follows:

"**5.3.5** ***(Reserved)***

5.3.6 Environmentally hazardous substance mark

When a placard is required to be displayed in accordance with the provisions of section 5.3.1, containers, MEGCs, tank-containers, portable tanks, vehicles and wagons containing environmentally hazardous substances meeting the criteria of 2.2.9.1.10 shall be marked with the environmentally hazardous substance mark shown in 5.2.1.8.3. The provisions of section 5.3.1 concerning placards shall apply mutatis mutandis to the mark.".

Chapter 5.4

5.4.1.1.1 (f) The existing Note becomes "Note 1". Add a new "Note 2" to read as follows:

"***NOTE 2****: For dangerous goods in machinery and or equipment specified in this Annex, the quantity indicated shall be the total quantity of dangerous goods contained therein in kilograms or litres as appropriate).*"

5.4.1.1.3 Add the following sentence at the end:

"If the provision for waste as set out in 2.1.3.5.5 is applied, the following shall be added to the proper shipping name:

"WASTE IN ACCORDANCE WITH 2.1.3.5.5" (e.g. "UN 3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., 8, II, E, WASTE IN ACCORDANCE WITH 2.1.3.5.5").

The technical name, as prescribed in Chapter 3.3, special provision 274, need not be added.".

5.4.1.1.6.4 Insert a new paragraph to read as follows:

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[1] *Water not to be used except by approval of experts.*

"5.4.1.1.6.4 For the carriage of tank wagons, fixed tanks (tank vehicles), wagons with removable tanks, vehicles with demountable tanks, battery-wagons, battery-vehicles, tank-containers and MEGCs under the conditions of 4.3.2.4.4 of ADR or RID, the following entry shall be included in the transport document: 'Carriage in accordance with 4.3.2.4.4 of ADR' or "Carriage in accordance with 4.3.2.4.4 of RID" as appropriate.".

Renumber existing 5.4.1.1.6.4 as 5.4.1.1.6.5.

5.4.1.1.10 to 5.4.1.1.10.2 Amend to read as follows: "5.4.1.1.10 *(Deleted)*".

5.4.1.1.11 Amend to read as follows:

"5.4.1.1.11 *Special provisions for the carriage of IBCs or portable tanks after the date of expiry of the last periodic test or inspection*

For carriage in accordance with 4.1.2.2 (b), 6.7.2.19.6 (b), 6.7.3.15.6 (b) or 6.7.4.14.6 (b) of ADR or RID, a statement to this effect shall be included in the transport document, as follows: "Carriage in accordance with 4.1.2.2 (b) of ADR or RID", "Carriage in accordance with 6.7.2.19.6 (b) of ADR or RID", "Carriage in accordance with 6.7.3.15.6 (b) of ADR or RID" or "Carriage in accordance with 6.7.4.14.6 (b) of ADR or RID" as appropriate.".

5.4.1.1.19 Add a new paragraph to read as follows:

"5.4.1.1.19 For the carriage of portable tanks under the conditions of 6.7.2.19.6 (b), 6.7.3.15.6 (b) or 6.7.4.14.6 (b) of ADR or RID, reference to this exemption shall be mentioned in the transport document.".

5.4.1.4.2 Amend footnote 2 to read as follows:

"[2] *If used, the relevant recommendations of the UNECE United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) may be consulted, in particular Recommendation No. 1 (United Nations Layout Key for Trade Documents) (ECE/TRADE/137, edition 81.3), UN Layout Key for Trade Documents - Guidelines for Applications (ECE/TRADE/270, edition 2002), Recommendation No. 11 (Documentary Aspects of the International Transport of Dangerous Goods) (ECE/TRADE/204, edition 96.1 – currently under revision) and Recommendation No. 22 (Layout Key for Standard Consignment Instructions) (ECE/TRADE/168, edition 1989). Refer also to the UN/CEFACT Summary of Trade Facilitation Recommendations (ECE/TRADE/346, edition 2006) and the United Nations Trade Data Elements Directory (UNTDED) (ECE/TRADE/362, edition 2005).*"

5.4.2 In footnote 4, add the following new sentence at the end: "*Facsimile signatures are acceptable where applicable laws and regulations recognize the legal validity of facsimile signatures*." and add:

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

Chapter 5.5

5.5.2.2 Add "The warning sign, as required by this sub-section, shall remain on the wagon, vehicle, container or tank until the following provisions are met:

(a) The fumigated wagon, vehicle, container or tank has been ventilated to remove harmful concentrations of fumigant gas; and

(b) The fumigated goods or materials have been unloaded.".

5.5.2.3 In the Fumigation warning sign, insert "VENTILATED ON (date *)" before "DO NOT ENTER".

PART 6

In the heading, replace "transport units" by "cargo transports units".

PART 7

7.1.1.16 Replace "prior to loading" with "during loading, carriage, unloading and handling of cargo".

7.1.1.18 The amendment applies to the French text only.

7.1.4.1.1 Class 1, Note 3, insert "Not more than 100,000 kg per hold" at the beginning
Class 7, add "2916" after "2915"
Class 8, replace "the table" with "Table A".

7.1.4.14.7.3.3 (a) The amendment applies to the French text only.

7.1.4.15.3 Replace "transport unit" by "cargo transport unit" (twice).

7.1.4.41 After "1.6" add "of Class 1"

7.1.4.51 After "1.6" add "of Class 1"

7.1.5.0.1 Add "in column (12)" after "prescribed"

7.1.6.12 In “VE04”, after “327”, add “of Part 3”

7.2.3.7.1 Amend to read as follows:

“7.2.3.7.1 Empty or unloaded cargo tanks having previously contained dangerous substances of Class 2 or Class 3, with a classification code including the letter “T” in column (3b) of Table C of Chapter 3.2, Class 6.1 or packing group I of Class 8, may only be gas-freed by either competent persons according to sub-section 8.2.1.2 or companies approved by the competent authority for that purpose. Gas-freeing may be carried out only at the locations approved by the competent authority.”.

7.2.4 The amendment applies to the French text only.

7.2.4.1.1 In the first indent, amend the second sentence to read as follows:

“These intermediate bulk containers, tank-containers or portable tanks shall meet the requirements of international regulations applicable to the substance concerned. They shall be properly secured in the cargo area and comply with the provisions of 9.3.2.26.4 or 9.3.3.26.4 for the reception of residual cargo, cargo residues or slops;”

In the second indent, after “Part 4”, add “of ADR”

7.2.4.15.3 Amend to read as follows:

“7.2.4.15.3 After additional stripping, cargo tanks and pipes for loading and unloading shall, if necessary, e. g. before carrying out repair or maintenance work, be cleaned and gas-freed by persons or companies approved by the competent authority. Gas-freeing may be carried out only at the locations approved by the competent authority.”

7.2.4.18.1 First indent, after “prescribed”, add “in column (20) of Table C of chapter 3.2”

7.2.4.28.1 Amend to read as follows:

If a gas or vapour water-spray system is required in column (9) of Table C of Chapter 3.2, it shall be kept ready for operation during loading, unloading and transport operations. If a water-spray system is required to cool the tank-deck, it shall be kept ready for operation during the voyage.

PART 8

8.1.2.3 (a) Delete the square brackets and footnote 1.

(c) Change the text in brackets to read as follows: “(see 9.3.1.15, 9.3.2.15 or 9.3.3.15)”.

8.1.5.2 Replace “consignor” with “loader” and “consignor or by the filler of cargo tanks or holds” with “loader”

8.2.1.4 to 8.2.1.7

8.2.1.4 becomes 8.2.1.5
8.2.1.5 becomes 8.2.1.7
8.2.1.6 becomes 8.2.1.4
8.2.1.7 becomes 8.2.1.6

8.2.2.7.1.1 Delete “including practical exercises,”.
Replace “training courses” with “training”.
At the end, replace “courses” with “training”.

8.2.2.7.2.1 Delete footnote 1.

8.2.2.7.2.5 Replace “Administrative Committee” with “competent authority”.

8.3.1.2 Replace “8.3.1 (b)” with “8.3.1.1 (b)”

8.6.1.3 and 8.6.1.4 In the tables on page 3 of the Model certificate, in the “opening pressure of the high-velocity vent valve” cell, add “in kPa” at the end.

8.6.1.4 On page 1 of the model, under No. 10., after m^3/h, add “or see loading instructions”.

8.6.2 In the heading, replace “according to 8.2.1.2, 8.2.1.4 or 8.2.1.5” with “according to 8.2.1.3, 8.2.1.5 or 8.2.1.7”

Replace “8.2.1.2 (dry cargo vessels)*
8.2.1.2 (tank vessels)*
8.2.1.4*
8.2.1.5*”

with “8.2.1.3 (dry cargo vessels)*
8.2.1.3 (tank vessels)*
8.2.1.5*
8.2.1.7*”

8.6.4.3 In the model, under No. 11., add “m” after “...” (twice).

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