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**Economic Commission for Europe**

**Administrative Committee of 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 ADN\***

At its twenty-fourth session (31 January 2020), the ADN Administrative Committee requested the secretariat to prepare a consolidated list of all the amendments it had adopted for entry into force on 1 January 2021 so that they could be made the subject of an official proposal in accordance with the procedure set out in article 20 of ADN. The notification would have to be issued no later than 1 July 2020, with a reference to 1 January 2021 as the scheduled date of entry into force (see ECE/ADN/53, paragraph 22).

The present document contains the requested consolidated list of amendments adopted by the Administrative Committee at its twenty-fourth session on the basis of those proposed by the Safety Committee at its thirty-sixth session (see ECE/ADN/53, paragraph 21 and ECE/TRANS/WP.15/AC.2/74, Annex I under cover of ECE/TRANS/WP.15/AC.2/74/Add.1). These amendments have been prepared by the Safety Committee at its thirty-third, thirty-fourth, thirty-fifth and thirty-sixth sessions (see ECE/TRANS/WP.15/AC.2/68, annex I, ECE/TRANS/WP.15/AC.2/70, annex I, ECE/TRANS/WP.15/AC.2/72, annex I and ECE/TRANS/WP.15/AC.2/74, annex I).

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## Chapter 1.1

1.1.3.6.1 Amend to read as follows:

“1.1.3.6.1 In the event of the carriage of dangerous goods in packages, the provisions of ADN other than those of 1.1.3.6.2 are not applicable when the gross mass of all the dangerous goods carried does not exceed 3,000 kg and for the individual classes does not exceed the quantity that is indicated in the Table below:

<i>Class</i>	<i>Substances or articles in packages</i>	<i>Exempted quantities in kg:</i>
<b>all</b>	<b>Carriage in tanks, of any Class</b>	<b>0</b>
<b>1</b>	Substances and articles of Class 1	0
<b>2</b>	Substances and articles of Class 2, groups T, TF, TC, TO, TFC or TOC, according to 2.2.2.1.3 and  Aerosols of groups C, CO, FC, T, TF, TC, TO, TFC and TOC according to 2.2.2.1.6;	0
	Substances and articles of Class 2 of group F in accordance with 2.2.2.1.3 or; Aerosols of group F according to 2.2.2.1.6;	300
	Any other substances of Class 2	3000
<b>3</b>	Substances and articles of Class 3, Packing Group I	300
	Any other substances of Class 3	3000
<b>4.1</b>	Substances and articles of Class 4.1 for which a danger label of model No. 1 is required in column (5) of Table A of Chapter 3.2;	0
	Any other substances and articles of Class 4.1, Packing Group I	300
	Any other substances and articles of Class 4.1	3000
<b>4.2</b>	Substances and articles of Class 4.2, Packing Group I	300
	Any other substances and articles of Class 4.2	3000
<b>4.3</b>	Substances and articles of Class 4.3, Packing Group I	300
	Any other substances and articles of Class 4.3	3000
<b>5.1</b>	Substances and articles of Class 5.1, Packing Group I	300
	Any other substances and articles of Class 5.1	3000
<b>5.2</b>	Substances and articles of Class 5.2 for which a danger label of model No. 1 is required in column (5) of Table A of Chapter 3.2;	0
	Any other substances and articles of Class 5.2	3000
<b>6.1</b>	Substances and articles of Class 6.1, Packing Group I	0
	Any other substances and articles of Class 6.1	3000
<b>6.2</b>	Substances and articles of class 6.2, Category A	0
	Any other substances and articles of Class 6.2	3000

<i>Class</i>	<i>Substances or articles in packages</i>	<i>Exempted quantities in kg:</i>
<b>7</b>	Substances and articles of Class 7 under UN Nos. 2908, 2909, 2910 and 2911	3000
	Any other substances and articles of Class 7	0
<b>8</b>	Substances and articles of Class 8, Packing Group I	300
	Any other substances and articles of Class 8	3000
<b>9</b>	All substances and articles of Class 9	3000

”.

1.1.3.6.2 Amend as follows:

Insert a new subparagraph (b), to read as follows:

“(b) The requirements of sections 1.10.1, 1.10.2 and 1.10.3 apply to packages bearing UN Nos. 2910 and 2911 of Class 7 if the activity level (per package) exceeds the A<sub>2</sub> value;”.

Renumber existing paragraphs accordingly.

In subparagraph (g) (former (f)) Replace “under (d) and (e)” by “under (e) and (f)”.

1.1.3.6 Insert “1.1.3.6.3 and 1.1.3.6.4 (*Reserved*)”.

1.1.3.6 Insert a new 1.1.3.6.5 to read as follows:

“1.1.3.6.5 For the purposes of this sub-section, dangerous goods exempted in accordance with 1.1.3.1 (a), (b) and (d) to (f), 1.1.3.2 to 1.1.3.5, 1.1.3.7, 1.1.3.9 and 1.1.3.10 shall not be taken into account.”.

## Chapter 1.2

1.2.1 Amend the definition of ADR to read as follows:

“*ADR* means the Agreement concerning the International Carriage of Dangerous Goods by Road;”.

1.2.1 Amend the definition of *Cargo tank type* as follows:

Insert a new subparagraph (d) to read as follows:

“(d) *Membrane tank* means a cargo tank which consists of a thin liquid-tight and gastight layer (membrane) and insulation supported by the adjacent inner hull and inner bottom structure of a double hull vessel.”.

At the end of (c) replace “.” by “;”.

1.2.1 In the definition of *Classification of zones*, amend the fifth indent of the paragraph “**Zone 1** comprises” to read as follows:

“Every opening in zone 0 except the high velocity vent valves/safety valves of pressurized cargo tanks shall be surrounded by a cylindrical ring whose inner radius is that of the opening, the outer radius is equal to that of the opening plus 2.50 m and the height is 2.50 m above the deck and 1.50 m above the piping.

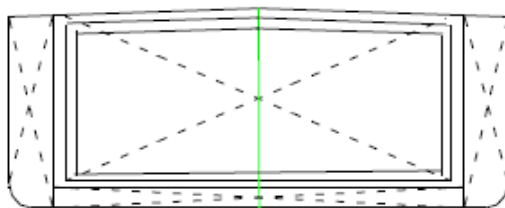
For openings with a diameter of less than 0.026 m (1”), the distance to the outer cofferdam bulkhead may be reduced to 0.50 m, provided it is ensured that such an opening is not opened to the atmosphere within this distance;”

1.2.1 In the definition of *Closed-type sampling device*, delete the last sentence.

1.2.1 Delete the definition of *Connection for a sampling device*.

- 1.2.1 Amend the definition of *Explosion group* to read as follows:  
“*Explosion group/subgroup* means a grouping of flammable gases and vapours according to their maximum experimental safe gaps (standard gap width, determined in accordance with specified conditions) and minimum ignition currents, and of electrical apparatus intended to be used in a potentially explosive atmosphere (see EN IEC 60079-0:2012), installations, equipment and self-contained protection systems. For self-contained protection systems, the explosion group II B is subdivided into subgroups;”.
- 1.2.1 In the definition of *GHS*, replace “seventh” by “eighth” and replace “ST/SG/AC.10/30/Rev.7” by “ST/SG/AC.10/30/Rev.8”.
- 1.2.1 In the definition of *Manual of Tests and Criteria*, replace “sixth” by “seventh”, delete “*Recommendations on the Transport of Dangerous Goods*,” and replace “ST/SG/AC.10/11/Rev.6 and Amend.1” by “ST/SG/AC.10/11/Rev.7”.
- 1.2.1 In the definition for *Partly closed-type sampling device*, delete the last sentence.
- 1.2.1 Delete the definition of *Radiation level*.
- 1.2.1 Amend the definition of *Self-accelerating decomposition temperature* to read as follows:  
“*Self-accelerating decomposition temperature (SADT)* means the lowest temperature at which self-accelerating decomposition may occur in a substance in the packaging, IBC or tank as offered for carriage. The SADT shall be determined in accordance with the test procedures given in Part II, Section 28 of the *Manual of Tests and Criteria*;”.
- 1.2.1 In the definition of *Self-accelerating polymerization temperature (SAPT)*, in the first sentence, insert “self-accelerating” between “which” and “polymerization”.
- 1.2.1 Amend the definition of *Slops* to read as follows:  
“*Slops* means a mixture of cargo residues with washing water, rust or sludge which may or may not be suitable for pumping;”.
- 1.2.1 Replace the definition of *Tank-container/portable tank operator* by:  
“*Tank-container or portable tank operator* means any enterprise in whose name the tank-container or portable tank is operated;”.
- 1.2.1 Amend the definition of *Transport index* to read:  
“*Transport index (TI) assigned to a package, overpack or container, or to unpackaged LSA-I or SCO-I or SCO-III, for the carriage of radioactive material*, means a number which is used to provide control over radiation exposure;”.
- 1.2.1 Amend the definition of *Type of vessel* as follows:  
Amend the entry for “Type G” to read as follows:  
“Type G: means a tank vessel intended for the carriage of pressurized or refrigerated gases.”.  
In the Sketches section, add the following Type G sketch:

“



Type G Cargo tanks design 2

Type of cargo tank 4”.

- 1.2.1 In the definition of *UN Model Regulations*, replace “twentieth” by “twenty-first” and replace “(ST/SG/AC.10/1/Rev.20)” by “(ST/SG/AC.10/1/Rev.21)”.
- 1.2.1 In the definition for “*Vapour return piping (on shore)*” delete the last sentence.
- 1.2.1 Insert the following new definitions, in alphabetical order:

“*Dose rate* means the ambient dose equivalent or the directional dose equivalent, as appropriate, per unit time, measured at the point of interest;”

“*IAEA Regulations for the Safe Transport of Radioactive Material* means one of the editions of those Regulations, as follows:

- (a) For the 1985 and 1985 (as amended 1990) editions: IAEA Safety Series No. 6;
- (b) For the 1996 edition: IAEA Safety Series No. ST-1;
- (c) For the 1996 (revised) edition: IAEA Safety Series No. TS-R-1 (ST-1, Revised);
- (d) For the 1996 (as amended 2003), 2005 and 2009 editions: IAEA Safety Standards Series No. TS-R-1;
- (e) For the 2012 edition: IAEA Safety Standards Series No. SSR-6;
- (f) For the 2018 edition: IAEA Safety Standards Series No. SSR-6 (Rev.1);”

“*Oil sludge* means residual hydrocarbons from the normal operation of seagoing ships, e.g. residues from the treatment of fuel or lubricating oils for main or auxiliary machinery, waste oil obtained by separation from oil filtering installations, oily residues collected in pits and residues of hydraulic and lubricating oils;

**NOTE:** *In ADN, the definition of MARPOL also includes residues resulting from the treatment of bilge water on board sea-going vessels.”.*

## Chapter 1.4

- 1.4.3.3 (e) Delete “maximum” (twice).

## Chapter 1.6

- 1.6.1.1 Replace “2019” with “2021” and “2018” with “2020”.
- 1.6.1.30 Delete and add “1.6.1.30 (*Deleted*)”.
- 1.6.1.47 Delete and add “1.6.1.47 (*Deleted*)”.

1.6.7.2.1.1 Delete the following transitional provision:

1.16.1.4 and 1.16.2.5	Annex to certificate of approval and provisional certificate of approval	Renewal of the certificate of approval after 31 December 2014
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1.6.7.2.1.3 Delete and insert “1.6.7.2.1.3 (Deleted)”.

1.6.7.2.2.2 Delete the following transitional provisions:

1.16.1.4 and 1.16.2.5	Annex to certificate of approval and provisional certificate of approval	Renewal of the certificate of approval after 31 December 2014
7.2.2.6	Approved gas detection system	N.R.M. Renewal of the certificate of approval after 31 December 2010

1.6.7.2.2.2 Amend the transitional provisions for 7.2.2.19.3 and 7.2.2.19.4 to read as follows:

7.2.2.19.3	Vessels used for propulsion Adaptation to new provisions Provisions of 9.3.3.12.4, 9.3.3.51 and 9.3.3.52.1 to 9.3.3.52.8	N.R.M. from 1 January 2019 Renewal of certificate of approval after 31 December 2034  Until that date, the following requirements apply to vessels in service:  Vessels moving a pushed convoy or a side-by-side formation shall comply with the requirements of the following sections, subsections and paragraphs: 1.16.1.1, 1.16.1.2, 1.16.1.3, 7.2.2.5, 8.1.4, 8.1.5, 8.1.6.1, 8.1.6.3, 8.1.7, 9.3.3.0.1, 9.3.3.0.3.1, 9.3.3.0.5, 9.3.3.10.1, 9.3.3.10.4, 9.3.3.12.4 (a) except the wheelhouse, 9.3.3.12.4 (b) except for the t90 response time, 9.3.3.12.4 (c), 9.3.3.12.6, 9.3.3.16, 9.3.3.17.1 to 9.3.3.17.4, 9.3.3.31.1 to 9.3.3.31.5, 9.3.3.32.2, 9.3.3.34.1, 9.3.3.34.2, 9.3.3.40.1 (although a single fire or ballast pump is sufficient), 9.3.3.40.2, 9.3.3.41, 9.3.3.50.1 (c), 9.3.3.50.2, 9.3.3.51, 9.3.3.52.6, 9.3.3.52.7, 9.3.3.52.8, 9.3.3.56.5, 9.3.3.71 and 9.3.3.74, when at least one vessel of the convoy or side-by-side formation is carrying dangerous goods.  The requirement of 9.3.3.10.4 may be met by fitting vertical protection walls not less than 0.50 m in height.  Vessels moving only type N open tank vessels do not have to meet the requirements of paragraphs 9.3.3.10.1, 9.3.3.10.4 and 9.3.3.12.6. These derogations shall be specified in the certificate of approval or the provisional certificate of approval as follows: “Permitted derogations”: “Derogation from 9.3.3.10.1, 9.3.3.10.4 and 9.3.3.12.6; the vessel may only move type N open tank vessels.”.
7.2.2.19.4	Vessels of the formation for which explosion protection is required	N.R.M. from 1 January 2019 Renewal of the certificate of approval after 31 December 2034

1.6.7.2.2.2 Delete transitional provision for 7.2.3.20.1: Fitting of ballast tanks and compartments with level indicators.

1.6.7.2.2.2 Delete transitional provision for 8.1.6.2: Hose assemblies.

1.6.7.2.2.2 Delete the transitional provision for 9.3.1.8.4, 9.3.2.8.4, 9.3.3.8.4.

1.6.7.2.2.2 Delete transitional provision for 9.3.1.21.5 (b), 9.3.2.21.5 (b), 9.3.3.21.5 (d): Installation of on-board pump switch-off from the shore.

1.6.7.2.2.2 Delete transitional provision for 9.3.1.41.2, 9.3.2.41.2, 9.3.3.41.2, in conjunction with 7.2.3.41: Heating, cooking and refrigerating appliances.

1.6.7.2.2.2 Amend the third column of the following transitional provisions to read as follows:

<i>Paragraphs</i>	<i>Subject</i>	<i>Time limit and comments</i>
9.3.2.20.4 9.3.3.20.4	Explosion group/subgroup	N.R.M. From 1 January 2019 Renewal of the certificate of approval after 31 December 2020
9.3.2.21.1 (g) 9.3.3.21.1 (g)	Explosion group/subgroup	N.R.M. From 1 January 2019 Renewal of the certificate of approval after 31 December 2020
9.3.2.22.4 (e) 9.3.3.22.4 (d)	Explosion group/subgroup	N.R.M. From 1 January 2019 Renewal of the certificate of approval after 31 December 2020
9.3.2.26.2 9.3.3.26.2 (b)	Explosion group/subgroup	N.R.M. From 1 January 2019 Renewal of the certificate of approval after 31 December 2020

1.6.7.2.2.2 Delete transitional provision for 9.3.2.21.5 (c): Device for rapid shutting off of refuelling.

1.6.7.2.2.2 Add the following additional transitional provision:

“

1.2.1	Vacuum valve	N.R.M. from 1 January 2019
	Deflagration safety	Renewal of certificate of approval after 31 December 2034
	Test according to standard EN ISO 16852:2016	The deflagration safety shall be tested according to EN 12874:2001 including the manufacturer's confirmation under Directive 94/9/EC or equivalent on board vessels built or modified from 1 January 2001 or if the vacuum valve has been replaced since 1 January 2001.
	Proof of conformity with applicable requirements	In other cases, they shall be of a type approved by the competent authority for the use prescribed.

”

1.6.7.2.2.3.1 Delete and insert “1.6.7.2.2.3.1 (Deleted)”.

1.6.7.5 Amend to read as follows:

“1.6.7.5 Transitional provisions concerning the modification of tank vessels

1.6.7.5.1 For vessels for which a modification of the cargo area, in order to achieve a Type N double-hull vessel, has been accomplished before 31 December 2018, the following conditions apply:

- (a) The modified or new cargo area shall comply with the provisions of these regulations. Transitional provisions under 1.6.7.2.2 may not be applied for the cargo area;
- (b) The vessel parts outside of the cargo area shall comply with the provisions of these regulations. However, transitional provisions under 1.6.7.2.2 for 1.2.1, 9.3.3.0.3 (d), 9.3.3.51.3, 9.3.3.52.4 last sentence, applicable until 31 December 2018, may be applied;

- (c) If goods which require explosion protection are entered in the list of substances on the vessel according to 1.16.1.2.5, accommodation and wheelhouses shall be equipped with a fire alarm system according to 9.3.3.40.2.3;
  - (d) The application of this sub-section shall be entered in the certificate of approval under No. 13 (Additional observations).
- 1.6.7.5.2 Modified vessels may continue to be operated beyond 31 December 2018. The time limits stipulated in the transitional provisions under 1.6.7.2.2 for 1.2.1, 9.3.3.0.3 (d), 9.3.3.51.3, 9.3.3.52.4 last sentence, applicable until 31 December 2018, shall be observed.”.
- 1.6.9.1 Delete and insert “1.6.9.1 (*Deleted*)”.

## Chapter 1.7

- 1.7.1, Note 1 In the first sentence, replace “In the event of accidents or incidents” by “In the event of a nuclear or radiological emergency” and “, emergency provisions, as established” by “, provisions as established”.

Amend the second sentence to read as follows: “This includes arrangements for preparedness and response established in accordance with the national and/or international requirements and in a consistent and coordinated manner with the national and/or international emergency arrangements.”.

- 1.7.1, Note 2 Amend to read as follows:

**“NOTE 2:** The arrangements for preparedness and response shall be based on the graded approach and take into consideration the identified hazards and their potential consequences, including 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 a nuclear or radiological emergency. Guidance for the establishment of such arrangements is contained in “Preparedness and Response for a Nuclear or Radiological Emergency”, IAEA Safety Standards Series No. GSR Part 7, IAEA, Vienna (2015); “Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency”, IAEA Safety Standards Series No. GSG-2, IAEA, Vienna (2011); “Arrangements for Preparedness for a Nuclear or Radiological Emergency”, IAEA Safety Standards Series No. GS-G-2.1, IAEA, Vienna (2007), and “Arrangements for the Termination of a Nuclear or Radiological Emergency”, IAEA Safety Standards Series No. GSG-11, IAEA, Vienna (2018).”

- 1.7.1.1 In the first sentence, replace “to persons” by “to people”. Amend the second and third sentences to read “These standards are based on the 2018 edition of the IAEA Regulations for the Safe Transport of Radioactive Material. Explanatory material can be found in “Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2018 Edition)”, Safety Standard Series No. SSG-26 (Rev.1), IAEA, Vienna (2019).”.
- 1.7.1.2 In the first sentence, replace “persons” by “people” and replace “from the effects of radiation in the carriage” by “from harmful effects of ionizing radiation during the carriage”.
- In (b), replace “radiation levels” by “dose rate”.
- In the last sentence, replace “Finally” by “Thirdly” and add the following new sentence at the end: “Finally, further protection is provided by making arrangements for planning and preparing emergency response to protect people, property and the environment.”.
- 1.7.1.5.1 (a) After “5.2.1.10,” add “5.4.1.2.5.1 (f) (i) and (ii), 5.4.1.2.5.1 (i),” and after “7.1.4.14.7.3.1” add “, 7.1.4.14.7.4.3”.



- 1.7.1.5.2 Delete the second sentence.
- 1.7.2.4 In the last sentence replace “individual monitoring or work place monitoring” by “workplace monitoring or individual monitoring”.
- 1.7.4.2 In the second sentence, replace “through alternative means” by “through means alternative to the other provisions of ADN,” and replace “for single or a planned series of multiple consignments” by “for a single consignment or a planned series of multiple consignments”. In the third sentence, at the end, after “applicable requirements” add “of ADN”.
- 1.7.6.1 Amend as follows:  
 In the introductory sentence, replace “radiation level” by “dose rate”.  
 In (a), replace “consignor, consignee, carrier,” by “consignor, carrier, consignee”.  
 In (b), at the beginning, replace “carrier, consignor or consignee” by “consignor, carrier, or consignee”. In (b) (iii), replace “similar circumstances” by “the causes and circumstances similar to those”. In (b) (iv), replace “on corrective or preventive actions” by “the corrective or preventive actions”.

## Chapter 1.8

- 1.8.1.2 Add a new paragraph 1.8.1.2.4 to read as follows:  
 “1.8.1.2.4 Checklists used by the authorities of Contracting Parties shall be drawn up at least in the language of the issuing country and also, if that language is not French, English or German, in French, English or German<sup>1</sup>.”.

<sup>1</sup> *The checklist is not included in the documents to be kept on board according to 8.1.2.1.*

- 1.8.3.17 Renumber existing footnotes 1 and 2 as 2 and 3 respectively.
- 1.8.5.1 After “carrier” add “, unloader”.
- 1.8.5.3 In sub-paragraph (b) after “In occurrences involving radioactive material, the criteria for loss of product are:”, replace “Schedule II of IAEA Safety Series No. 115 – “International Basic Safety Standards for Protection against Ionizing Radiation and for the safety of Radiation Sources”” by ““Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards”, IAEA Safety Standards Series No. GSR Part 3, IAEA, Vienna (2014)”.

## Chapter 1.10

Table 1.10.3.1.2

Amend as follows:

For Class 1, Division 1.4, in column “Substance or article”, replace “and 0500” by “, 0500, 0512 and 0513”.

Add the following new row after “Class 1, Division 1.5”:

Class	Division	Substance or article	Quantity		
			Tank (l) <sup>c</sup>	Bulk (kg) <sup>d</sup>	Packages (kg)
1	1.6	Explosives	a	a	0

- 1.10.4 Amend the beginning of the first sentence to read as follows: “Except for radioactive material bearing UN Nos. 2910 and 2911, if the activity level (per package) exceeds the A<sub>2</sub> value, the requirements of 1.10.1, 1.10.2 and 1.10.3 do not apply...”. Remainder unchanged.

- 1.10.5 Replace “The Physical Protection of Nuclear Material and Nuclear Facilities” by “Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities”. In footnote 2, replace “IAEACIRC/225/Rev.4 (corrected), IAEA Vienna (1999)” by “INFCIRC/225/Rev.5, IAEA, Vienna (2011)”.

## Chapter 1.16

- 1.16.1.3.2 In last sentence, replace “item 12” with “item 13”.

## Chapter 2.1

- 2.1.3.4 Add the following new paragraph:
- “2.1.3.4.3 Used articles, e.g. transformers and condensers, containing a solution or mixture mentioned in 2.1.3.4.2 shall always be classified under the same entry of Class 9, provided:
- (a) they do not contain any additional dangerous components, other than polyhalogenated dibenzodioxins and dibenzofurans of Class 6.1 or components of packing group III of Class 3, 4.1, 4.2, 4.3, 5.1, 6.1 or 8, and
  - (b) they do not have the hazard characteristics as indicated in 2.1.3.5.3 (a) to (g) and (i).”.
- 2.1.3.8 In the second sentence, after “Other substances meeting the criteria of no other class”, add “or of no other substance of Class 9”.
- 2.1.5 Amend the Note under the heading to read as follows:
- “NOTE: For articles which do not have a proper shipping name and which contain only dangerous goods within the permitted limited quantity amounts specified in Column (7a) of Table A of Chapter 3.2, UN No. 3363 and special provisions 301 and 672 of Chapter 3.3 may be applied.”*
- 2.1.5.4 At the end, add the following new sentence “However, this section applies to articles containing explosives which are excluded from Class 1 in accordance with 2.2.1.1.8.2.”.

## Chapter 2.2

- 2.2.1.1.7.2 In the first sentence, replace “or 0336” by “or 0336, and assignment of articles to UN No. 0431 for those used for theatrical effects meeting the definition for article type and the 1.4 G specification in the default fireworks classification table in 2.2.1.1.7.5”.
- 2.2.1.1.8.2 (b) In the Note, delete “, such as described in ISO 12097-3” and add the following new second sentence: “*One such method is described in ISO 14451-2 using a heating rate of 80 K/min.*”.
- 2.2.1.4 For “ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES, EEI)”, replace “Articles that contain only extremely insensitive substances” by “Articles that predominantly contain extremely insensitive substances”.
- 2.2.1.4 After the definition for “DETONATORS, ELECTRIC for blasting”, add the following new definition:
- “DETONATORS, ELECTRONIC programmable for blasting: UN Nos. 0511, 0512, 0513

- Detonators with enhanced safety and security features, utilizing electronic components to transmit a firing signal with validated commands and secure communications. Detonators of this type cannot be initiated by other means.”.
- 2.2.2.1.5 For “Flammable gases” and for “Oxidizing gases”, replace “ISO 10156:2010” by “ISO 10156:2017”.
- 2.2.2.3 In the table for “Liquefied gases” for classification code 2F amend the name and description of UN No. 1010 to read as follows:  
 “BUTADIENES, STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, containing more than 40% butadienes”.  
 Delete the Note.
- 2.2.2.3 In the table for “Other articles containing gas under pressure”, for classification code “6F”, insert the following entry after UN No. 3150:  
 “3358 REFRIGERATING MACHINES containing flammable, non-toxic, liquefied gas”.
- 2.2.41.1.4 Replace “Part III, sub-section 33.2.1” by “Part III, sub-section 33.2”, twice.
- 2.2.41.1.5 Replace “Part III, sub-section 33.2.1” by “Part III, sub-section 33.2”.
- 2.2.41.1.6 Replace “Part III, Section 33.2.1” by “Part III, sub-section 33.2”.
- 2.2.41.1.8 Replace “Part III, sub-section 33.2.1” by “Part III, sub-section 33.2”.
- 2.2.41.1.10 Replace “aromatic sulphohydrazides” by “aromatic sulphonylhydrazides”.
- 2.2.41.2.3 At the end, delete: “Barium azide with a water content less than 50 % (mass)”.
- 2.2.42.1.4 Replace “Part III, Section 33.3” by “Part III, sub-section 33.4”, twice.
- 2.2.42.1.5 Replace “Part III, section 33.3” by “Part III, sub-section 33.4”.
- 2.2.42.1.7 Replace “Part III, section 33.3” by “Part III, sub-section 33.4”.
- 2.2.42.1.8 Replace “Part III, section 33.3” by “Part III, sub-section 33.4”.
- 2.2.43.1.4 Replace “Part III, Section 33.4” by “Part III, sub-section 33.5”.
- 2.2.43.1.5 Replace “Part III, Section 33.4” by “Part III, sub-section 33.5”.
- 2.2.43.1.7 Replace “Part III, Section 33.4” by “Part III, sub-section 33.5”.
- 2.2.43.1.8 Replace “Part III, section 33.4” by “Part III, sub-section 33.5”.
- 2.2.52.4 In the table, for “DI-(4-tert-BUTYLCYCLOHEXYL) PEROXYDICARBONATE”, for concentration “≤ 42 as a paste”, in column “Packing Method”, replace “OP7” by “OP8” and in column “Number (Generic entry)”, replace “3116” by “3118”.
- 2.2.61.1.14 Amendment to footnote 3 does not apply to the English text.
- 2.2.62.1.1 In the third sentence, delete “, rickettsiae”.
- 2.2.62.1.3 Amend the definition of “Medical or clinical wastes” to read as follows:  
 “*Medical or clinical wastes* are wastes derived from the veterinary treatment of animals, the medical treatment of humans or from bio-research;”
- 2.2.62.1.4 Replace “or 3373” by “, 3373 or 3549”.
- 2.2.62.1.4.1 In Note 3, delete “, mycoplasmas, rickettsia”.
- 2.2.62.1.5.9 (a)  
 In the parenthesis, replace “UN No. 3291” by “UN Nos. 3291 and 3549”.
- 2.2.62.1.11.4 Delete and insert “2.2.62.1.11.4 (*Deleted*)”.

- 2.2.62.3 In the list of collective entries, for I3, add the following new entries:  
 “3549 MEDICAL WASTE, CATEGORY A, AFFECTING HUMANS, solid  
 or  
 3549 MEDICAL WASTE, CATEGORY A, AFFECTING ANIMALS only,  
 solid”.

## Table 2.2.7.2.1.1

For UN 2913, in the “Proper shipping name and description” column, replace  
 “SCO-I or SCO-II” by “SCO-I, SCO-II or SCO-III”.

## Table 2.2.7.2.2.1

Add the following rows in proper order

Ba-135m	$2 \times 10^1$	$6 \times 10^{-1}$	$1 \times 10^2$	$1 \times 10^6$
Ge-69	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Ir-193m	$4 \times 10^1$	$4 \times 10^0$	$1 \times 10^4$	$1 \times 10^7$
Ni-57	$6 \times 10^{-1}$	$6 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Sr-83	$1 \times 10^0$	$1 \times 10^0$	$1 \times 10^1$	$1 \times 10^6$
Tb-149	$8 \times 10^{-1}$	$8 \times 10^{-1}$	$1 \times 10^1$	$1 \times 10^6$
Tb-161	$3 \times 10^1$	$7 \times 10^{-1}$	$1 \times 10^3$	$1 \times 10^6$

## Table 2.2.7.2.2.1

In table note (b), at the end of the introductory sentence, add “(the activity to be taken into account is that of the parent nuclide only)”. After “Th-nat” and “U-nat”, insert a reference to footnote 5. The footnote reads: “<sup>5</sup> *In the case of Th-natural, the parent nuclide is Th-232, in the case of U-natural the parent nuclide is U-238.*”.

## Table 2.2.7.2.2.1

In table note (c), replace “radiation level” by “dose rate”.

- 2.2.7.2.2.2 In (a), replace “the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, Safety Series No.115, IAEA, Vienna (1996)” by ““Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards”, IAEA Safety Standards Series No. GSR Part 3, IAEA, Vienna (2014)”.

In (b), at the end, replace “the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, Safety Series No.115, IAEA, Vienna (1996)” by “GSR Part 3”.

- 2.2.7.2.2.3 Replace “daughter nuclide” by “progeny nuclide” (twice). At the end, replace “daughter nuclides” by “progeny nuclides”.

## 2.2.7.2.3.1.2 (c)

Delete “that meet the requirements of 2.2.7.2.3.1.3.”. Delete sub-paragraph (ii) and renumber sub-paragraph (iii) as (ii).

- 2.2.7.2.3.1.3 Delete and add “2.2.7.2.3.1.3 (Deleted)”.

- 2.2.7.2.3.2 In the introductory sentence before (a), replace “two” by “three”. Add the following new sub-paragraph (c):

“(c) SCO-III: A large solid object which, because of its size, cannot be carried in a type of package described in ADN and for which:

- (i) all openings are sealed to prevent release of radioactive material during conditions defined in 4.1.9.2.4 (e) of ADR;
- (ii) the inside of the object is as dry as practicable;

- (iii) the non-fixed contamination on the external surfaces does not exceed the limits specified in 4.1.9.1.2 of ADR; and
- (iv) the non-fixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm<sup>2</sup> does not exceed  $8 \times 10^5$  Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters, or  $8 \times 10^4$  Bq/cm<sup>2</sup> for all other alpha emitters.”.

## 2.2.7.2.3.3.5 (b)

After “a free drop of 1.4 kg”, replace “through 1 m” by “from a height of 1 m”.

## 2.2.7.2.3.3.5 (c)

After “a free vertical drop of 1.4 kg”, replace “through 1 m” by “from a height of 1 m”.

2.2.7.2.3.3.7 In sub-paragraph (b), replace “with specimen” by “and the specimen”. In sub-paragraph (e), replace “with the specimen” by “and the specimen”.

## 2.2.7.2.3.3.8 (a) (ii)

Replace “shall be heated” by “shall then be heated”.

## 2.2.7.2.3.4.1 (a)

Replace “radiation level” by “dose rate”.

## 2.2.7.2.3.5 (e)

Replace “limits provided in” by “the requirements of”.

2.2.7.2.3.6 At the beginning, replace “A fissile material” by “Fissile material”.

2.2.7.2.4.1.2 Replace “radiation level” by “dose rate”.

2.2.7.2.4.1.3 In (a), replace “radiation level” by “dose rate”. At the end of (c), delete “and”. At the end of (d), replace the full stop by a semicolon. Add additional sub-paragraphs (e) and (f) as follows:

“(e) *(Reserved)*;

(f) If the package contains fissile material, one of the provisions of 2.2.7.2.3.5 (a) to (f) applies.”

2.2.7.2.4.1.4 At the end of sub-paragraph (a), delete “and”. At the end of existing (b) (ii), replace “.” by “; and”. Add additional sub-paragraph (c):

“(c) If the package contains fissile material, one of the provisions of 2.2.7.2.3.5 (a) to (f) applies.”

2.2.7.2.4.1.7 At the end of (c) (ii), delete “and”. At the end of (d), replace “.” by “; and”. Add additional sub-paragraph (e):

“(e) If the packaging has contained fissile material, one of the provisions of 2.2.7.2.3.5 (a) to (f) or one of the provisions for exclusion in 2.2.7.1.3 applies.”.

2.2.8, Note The amendment does not apply to the English text.

2.2.8.1.1 The amendment does not apply to the English text.

2.2.8.1.5.2 In the second sentence, replace “the assignment” by “classification” and replace “OECD Test Guideline 404<sup>5</sup> or 435<sup>6</sup>” by “OECD Test Guidelines<sup>6,7,8,9</sup>”.

In the third sentence replace “OECD Test Guideline 430<sup>7</sup> or 431<sup>8</sup>” by “OECD Test Guidelines<sup>6,7,8,9</sup>”.

Renumber existing footnotes 5 and 6 as 6 and 7. Renumber the current footnote 7 as 9. In the renumbered footnote, add “*Method*” between “*Test*” and “(*TER*)”.

Modify footnote 8 to read as follows: “<sup>8</sup> *OECD Guideline for the testing of chemicals No. 431 “In vitro skin corrosion: reconstructed human epidermis (RHE) test method” 2016.*”.

At the end of the paragraph, add the following new sentence: “If the *in vitro* test results indicate that the substance or mixture is corrosive and not assigned to packing group I, but the test method does not allow discrimination between packing groups II and III, it shall be considered to be packing group II.”.

2.2.8.1.6.3.3 At the end, add the following new sentence: “For this calculation method, generic concentration limits apply where 1% is used in the first step for the assessment of the packing group I substances, and where 5% is used for the other steps respectively.”.

2.2.8.1.6.3.4 Delete the last sentence.

2.2.9.1.2 At the end insert: “M12 Other substances and articles presenting a danger during carriage in tank vessels, but not meeting the definitions of another class”.

2.2.9 Renumber footnotes 9 to 11 as footnotes 10 to 12.

2.2.9.1.10.3 Amendment to footnote 3 does not apply to the English text.

2.2.9.1.14, Note In footnote 12 (former footnote 11), remove “used as a coolant”.

2.2.9.3 In classification code M6, delete the entries for substance numbers 9005 and 9006.

2.2.9.3 List of entries

In subdivision “M11”, add the following entries: “2216 FISH MEAL, STABILISED” and “2216 FISH SCRAP, STABILISED”.

2.2.9.3 For M11, “Other substances and articles presenting a danger during carriage...”, after “3359 FUMIGATED CARGO TRANSPORT UNIT”, add “3363 DANGEROUS GOODS IN ARTICLES or”.

2.2.9.3 List of entries: Insert the following new entry at the end:

	Only substances and articles listed in Table A of Chapter 3.2 are subject to the provisions for Class 9 under this classification code, as follows:
<b>Other substances and articles presenting a danger during carriage in tank vessels, but not meeting the definitions of another class</b>	<b>M12</b>
	9003 SUBSTANCES WITH A FLASH-POINT ABOVE 60 °C AND NOT MORE THAN 100 °C, which do not belong to another class
	9004 DIPHENYLMETHANE-4, 4'-DIISOCYANATE
	9005 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., MOLTEN
	9006 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

## Chapter 2.3

- 2.3.2 In the heading, amend “Class 4.1” to read “Class 1 and Class 4.1”.
- 2.3.2.1 Amend to read as follows:
- “2.3.2.1 In order to determine the criteria of the nitrocellulose, the Bergmann-Junk test or the methyl violet paper test in the Manual of Tests and Criteria Appendix 10 shall be performed (see Chapter 3.3, special provisions 393 and 394). If there is doubt that the ignition temperature of the nitrocellulose is considerably higher than 132 °C in the case of the Bergmann-Junk test or higher than 134.5 °C in the case of the methyl violet paper test, the ignition temperature test described in 2.3.2.5 should be carried out before these tests are performed. If the ignition temperature of nitrocellulose mixtures is higher than 180 °C or the ignition temperature of plasticized nitrocellulose is higher than 170 °C, the Bergmann-Junk test or the methyl violet paper test can be carried out safely.”.
- 2.3.2.2 Delete.
- 2.3.2.3 Delete.
- 2.3.2.4 Delete.
- 2.3.2.5 Delete.
- 2.3.2.6 2.3.2.6 becomes 2.3.2.2. In the text, amend “2.3.2.9 and 2.3.2.10” to read “2.3.2.5”.
- 2.3.2.7 2.3.2.7 becomes 2.3.2.3. Replace “Before being dried as prescribed in 2.3.2.6 above, substances conforming to 2.3.2.2 shall” by “Before being dried as prescribed in 2.3.2.2 above, plasticized nitrocellulose shall”.
- 2.3.2.8 2.3.2.8 becomes 2.3.2.4. Replace “Weakly nitrated nitrocellulose conforming to 2.3.2.1 shall first undergo preliminary drying as prescribed in 2.3.2.7 above;” by “Weakly nitrated nitrocellulose shall first undergo preliminary drying as prescribed in 2.3.2.3 above”.
- 2.3.2.9 Delete.
- 2.3.2.10 2.3.2.10 becomes 2.3.2.5. In the title delete “and 2.3.2.2”

## Chapter 3.1

- 3.1.2.8.1 Add the following new paragraph 3.1.2.8.1.4:
- “3.1.2.8.1.4 For UN Nos. 3077 and 3082 only, the technical name may be a name shown in capital letters in column 2 of Table A of Chapter 3.2, provided that this name does not include “N.O.S.” and that special provision 274 is not assigned. The name which most appropriately describes the substance or mixture shall be used, e.g.:
- UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PAINT)
- UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PERFUMERY PRODUCTS).”.
- 3.1.2.8.1 Renumber existing 3.1.2.8.1.4 as 3.1.2.8.1.5.
- 3.1.2.8.1.5 (former 3.1.2.8.1.4)
- Delete and insert “3.1.2.8.1.5 (*Deleted*)”.

## Chapter 3.2, Table A

For UN Nos. 0340, 0341, 0342 and 0343, insert “393” in column (6).

For UN Nos. 1002, 1006, 1013, 1046, 1056, 1058, 1065, 1066, 1080, 1952, 1956, 2036, 3070, 3163, 3297, 3298 and 3299, in column (6), delete “660” and add “392”.

For UN No. 1010 Amend the name and description in column (2) to read as follows: “BUTADIENES, STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, containing more than 40% butadienes”.

For UN No. 2037 (all entries) In column (6) insert “327”.

For UN Nos. 1153, packing group II, 2074 and 3468, in column (8) delete “T”.

For UN Nos. 2211 and 3314, in column (6), insert “675”.

For UN No. 2216, amendment not applicable to English.

For UN Nos. 2288, 2582, 2785, 2984 and 3429, in column (8) insert “T”.

For UN No. 2383, in column (6), delete “386”.

For UN No. 2522, in column (2), add “, STABILIZED” at the end and in column (6) add “386”.

For UN Nos. 2555, 2556, 2557 and 3380, insert “394” in column (6).

For UN No. 2785, amendment does not apply to the English text.

For UN No. 2913, in column (2), replace “(SCO-I or SCO-II)” by “(SCO-I, SCO-II or SCO-III)”.

For UN Nos. 3091 and 3481, insert “390” in column (6).

For UN No. 3291, in column (4), delete “II” (both entries).

For UN No. 3325, delete the comma before “(LSA-III)” in column (2).

For UN No. 3363, in column (2), at the beginning of the description, add “DANGEROUS GOODS IN ARTICLES or”.

For UN No. 3456 in column (8) delete “T3”.

For UN Nos. 3537 to 3548 In column (6) delete “667”.

For substance number 9001, amend column (2) to read as follows: “SUBSTANCE WITH A FLASHPOINT ABOVE 60° C, HEATED within a range of 15 K below the flashpoint”.

For substance numbers 9003, 9004, 9005 and 9006, in column 3(b) insert “M12”.

### Chapter 3.2, 3.2.3

3.2.3.1 In the explanatory text for column (3b), in the penultimate indent, delete “, 8”. Add a new indent right after to read as follows:

“- For dangerous substances or articles of Class 8, the codes are explained in 2.2.8.1.4.1;”.

3.2.3.1 In *Explanations concerning Table C*, column (8), add a new entry to read: “4. Membrane tank”.

3.2.3.1, column (20) Delete remark 29 and insert “(Deleted)”.

3.2.3.1 In “Explanations concerning Table C”, for column (20) “Additional requirements/Remarks”, amend the end of remark 44 to read as follows:

“...or equivalent that allows for an assignment to subgroups II B3, II B2 or II B1 of explosion group II B or explosion group II A.”.



3.2.3.1 In *Explanations concerning Table C*, column (20), add a new remark 45 to read as follows:

“45. When this substance is received from seagoing vessels as waste related to the operation of the vessel, appropriate measures shall be taken on board the vessels to avoid or minimize, to the extent possible, the exposure of personnel on board to gas/air mixtures escaping from the cargo tanks of the receiving vessel during loading and to ensure the protection of personnel on board during such activities. Appropriate personal protective equipment shall be made available to the employees in question and shall be worn for the duration of the increased exposure.”.

### Chapter 3.2, Table C

In the heading, add a new second row to read as follows:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	<b>3.1.2</b>	<b>2.2</b>	<b>2.2</b>	<b>2.1.1.3</b>	<b>5.2.2 / 3.2.3.1</b>	<b>1.2.1 / 7.2.2.0.1</b>	<b>3.2.3.1 / 1.2.1</b>	<b>3.2.3.1 / 1.2.1</b>	<b>3.2.3.1 / 1.2.1</b>	<b>3.2.3.1 / 1.2.1</b>

(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
<b>7.2.4.21</b>	<b>3.2.3.1</b>	<b>3.2.3.1 / 1.2.1</b>	<b>3.2.3.1 / 1.2.1</b>	<b>1.2.1</b>	<b>1.2.1 / 3.2.3.3</b>	<b>1.2.1 / 3.2.3.3</b>	<b>8.1.5</b>	<b>7.2.5</b>	<b>3.2.3.1</b>

Amendment to the description of column 3 (b) does not apply to the English text.

3.2.3.2 For all applicable entries, in column (20) delete “29”.

For UN No. 1010, 1,2-BUTADIENE, STABILIZED, amend column (2) to read as follows: “BUTADIENES (1,2-BUTADIENE), STABILIZED”.

For UN No. 1010, 1,3-BUTADIENE, STABILIZED, amend column (2) to read as follows: “BUTADIENES (1,3-BUTADIENE), STABILIZED”.

For UN No. 1020, amend column (2) to read as follows: “CHLOROPENTAFLUOROETHANE (refrigerant gas R 115)”.

For UN No. 1108, amend column (2) to read as follows: “1-PENTENE (n-amylene)”.

Amendment to UN No. 1177 does not apply to the English text.

For UN No. 1179, amend column (16) to read “II A”.

For UN No. 1193, amend column (2) to read as follows: “ETHYL METHYL KETONE (methyl ethyl ketone)”.

For UN No. 1212, amend column (2) to read as follows: “ISOBUTANOL (isobutyl alcohol)”.

For UN No. 1216, amend column (16) to read “II B (II B1)”.

For UN No. 1219, amend column (2) to read as follows: “ISOPROPANOL (isopropyl alcohol)”.

For UN No. 1268, (16 entries with more than 10 % Benzene), in column (20) delete “27”.

For UN No. 1274 (all entries), amend column (2) to read as follows: “n-PROPANOL (propyl alcohol, normal)”.

For UN No. 1823, amend column (2) to read as follows: “SODIUM HYDROXIDE, SOLID”.

For UN Nos. 1993 (first 6 entries), 3145 (all entries), 3295 (first 6 entries), 9002 (all entries), 9005 and 9006, in column (20) add “27”.

For UN No. 2057, packing groups II and III, amend column (10) to read “35” and column (11) to read “95”.

For UN No. 2785, in column (2) replace “(3-MÉTHYLMERCAPTO-PROPIONALDÉHYDE)” by “(3-METHYLMERCAPTO- PROPIONALDEHYDE)”.

For UN No. 3082, second entry, amend column (2) to read as follows: “ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BILGE WATER, FREE OF SLUDGE)”.

For UN No. 3256, “ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60 °C, at or above its flash-point (Low QI Pitch)” amend column (16) to read “II B (II B2)”.

For UN No. 3295, HYDROCARBONS, LIQUID, N.O.S. CONTAINING ISOPRENE AND PENTADIENE, STABILIZED (all entries), in column (20) delete “27”.

For UN No. 3494 (all entries), in column (20) delete “27”.

For substance number 9000, in column (2) delete “ANHYDROUS”.

For substance number 9001, all entries, amend column (2) to read as follows: “SUBSTANCE WITH A FLASHPOINT ABOVE 60 °C, HEATED within a range of 15 K below the flashpoint”.

For substance numbers 9003, 9004, 9005 and 9006, in column 3(b) insert “M12”.

For substance number 9003 (all entries), in column (2) delete “or SUBSTANCES WHERE 60 °C < flash-point ≤ 100 °C”.

3.2.3.2 Insert the following new entries:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1010	1,2-BUTADIENE, STABILIZED, REFRIGERATED	2	3F		2.1+unst.	G	2	4	1; 3		95		1	no	T2 <sup>12)</sup>	II B <sup>4)</sup>	yes	PP, EX, A	1	2; 3; 31
1010	1,3-BUTADIENE, STABILIZED, REFRIGERATED	2	3F		2.1+unst. + CMR	G	2	4	1; 3		95		1	no	T2 <sup>12)</sup>	II B (II B2 <sup>4)</sup> )	yes	PP, EP, EX, TOX, A	1	2; 3; 31
1010	BUTADIENES STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, REFRIGERATED, 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 (contains less than 0.1% 1.3-butadiene)	2	3F		2.1+unst.	G	2	4	1; 3		95		1	no	T2 <sup>12)</sup>	II B <sup>4)</sup> (II B2 <sup>4)</sup> )	yes	PP, EX, A	1	2; 3; 31
1010	BUTADIENES, STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, REFRIGERATED, having a vapour pressure at 70° C not exceeding 1.1 MPa (11 bar) and a density at 50° C not lower than 0.525 kg/l, (with 0.1% or more 1.3-butadiene)	2	3F		2.1+unst. + CMR	G	2	4	1; 3		95		1	no	T2 <sup>12)</sup>	II B <sup>4)</sup> (II B2 <sup>4)</sup> )	yes	PP, EP, EX, TOX, A	1	2; 3; 31
1011	BUTANE, REFRIGERATED, (contains less than 0.1% 1.3-butadiene)	2	3F		2.1	G	2	4	1; 3		95		1	no	T2 <sup>12)</sup>	II A	yes	PP, EX, A	1	2; 31

1011	BUTANE, REFRIGERATED, (with 0.1% or more 1.3-butadiene)	2	3F		2.1+CM R	G	2	4	1; 3		95		1	no	T2 <sup>12)</sup>	II A	yes	PP, EP, EX, TOX, A	1	2; 31
1012	1-BUTYLENE, REFRIGERATED	2	3F		2.1	G	2	4	1; 3		95		1	no	T2 <sup>12)</sup>	II A	yes	PP, EX, A	1	2; 31
1020	CHLOROPENTAFLUORO- ETHANE, REFRIGERATED, (REFRIGERANT GAS R 115)	2	3A		2.2	G	2	4	1; 3		95		1	no			no	PP	0	31
1030	1,1-DIFLUOROETHANE, REFRIGERATED, (REFRIGERANT GAS R 152a)	2	3F		2.1	G	2	4	1; 3		95		1	no	T1 <sup>12)</sup>	II A	yes	PP, EX, A	1	2; 31
1033	DIMETHYL ETHER, REFRIGERATED	2	3F		2.1	G	2	4	1; 3		95		1	no	T3	II B (II B2)	yes	PP, EX, A	1	2; 31
1038	ETHYLENE, REFRIGERATED LIQUID	2	3F		2.1	G	2	4	1; 3		95		1	no	T1 <sup>12)</sup>	II B (II B3)	yes	PP, EX, A	1	2; 31; 42
1055	ISOBUTYLENE, REFRIGERATED	2	3F		2.1	G	2	4	1; 3		95		1	no	T2 <sup>1), 12)</sup>	II A	yes	PP, EX, A	1	2; 31
1063	METHYL CHLORIDE, REFRIGERATED, (REFRIGERANT GAS R 40)	2	3F		2.1	G	2	4	1; 3		95		1	no	T1 <sup>12)</sup>	II A	yes	PP, EX, A	1	2; 31
1077	PROPYLENE, REFRIGERATED	2	3F		2.1	G	2	4	1; 3		95		1	no	T1 <sup>12)</sup>	II A	yes	PP, EX, A	1	2; 31
1086	VINYL CHLORIDE, STABILIZED, REFRIGERATED	2	3F		2.1+unst.	G	2	4	1; 3		95		1	no	T2 <sup>12)</sup>	II A	yes	PP, EX, A	1	2; 3; 13; 31
1965	HYDROCARBON GAS MIXTURE, REFRIGERATED, N.O.S.	2	3F		2.1 + CMR	G	2	4	1; 3		95		1	no	T4 <sup>3)</sup>	II B <sup>4)</sup>	yes	PP, EX, A, EP, TOX	1	2; 31

1965	HYDROCARBON GAS MIXTURE, REFRIGERATED, N.O.S., (MIXTURE A)	2	3F		2.1	G	2	4	1; 3		95		1	no	T4 <sup>3)</sup>	II B <sup>4)</sup>	yes	PP, EX, A	1	2; 31
1965	HYDROCARBON GAS MIXTURE, REFRIGERATED, N.O.S., (MIXTURE A0)	2	3F		2.1	G	2	4	1; 3		95		1	no	T4 <sup>3)</sup>	II B <sup>4)</sup>	yes	PP, EX, A	1	2; 31
1965	HYDROCARBON GAS MIXTURE, REFRIGERATED, N.O.S., (MIXTURE A01)	2	3F		2.1	G	2	4	1; 3		95		1	no	T4 <sup>3)</sup>	II B <sup>4)</sup>	yes	PP, EX, A	1	2; 31
1965	HYDROCARBON GAS MIXTURE, REFRIGERATED, N.O.S., (MIXTURE A02)	2	3F		2.1	G	2	4	1; 3		95		1	no	T4 <sup>3)</sup>	II B <sup>4)</sup>	yes	PP, EX, A	1	2; 31
1965	HYDROCARBON GAS MIXTURE, REFRIGERATED, N.O.S., (MIXTURE A1)	2	3F		2.1	G	2	4	1; 3		95		1	no	T4 <sup>3)</sup>	II B <sup>4)</sup>	yes	PP, EX, A	1	2; 31
1965	HYDROCARBON GAS MIXTURE, REFRIGERATED, N.O.S., (MIXTURE B)	2	3F		2.1	G	2	4	1; 3		95		1	no	T4 <sup>3)</sup>	II B <sup>4)</sup>	yes	PP, EX, A	1	2; 31
1965	HYDROCARBON GAS MIXTURE, REFRIGERATED, N.O.S., (MIXTURE B1)	2	3F		2.1	G	2	4	1; 3		95		1	no	T4 <sup>3)</sup>	II B <sup>4)</sup>	yes	PP, EX, A	1	2; 31
1965	HYDROCARBON GAS MIXTURE, REFRIGERATED, N.O.S., (MIXTURE B2)	2	3F		2.1	G	2	4	1; 3		95		1	no	T4 <sup>3)</sup>	II B <sup>4)</sup>	yes	PP, EX, A	1	2; 31
1965	HYDROCARBON GAS MIXTURE, REFRIGERATED, N.O.S., (MIXTURE C)	2	3F		2.1	G	2	4	1; 3		95		1	no	T4 <sup>3)</sup>	II B <sup>4)</sup>	yes	PP, EX, A	1	2; 31
1972	METHANE, REFRIGERATED or NATURAL GAS, REFRIGERATED, with high methane content	2	3F		2.1	G	2	4	1; 3		95		1	no	T1 <sup>12)</sup>	IIA	yes	PP, EX, A	1	2; 31; 42

1978	PROPANE, REFRIGERATED	2	3F		2.1	G	2	4	1; 3		95		1	no	T1 <sup>12)</sup>	II A	yes	PP, EX, A	1	2; 31
3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BILGE WATER, CONTAINS SLUDGE)	9	M6	III	9+CMR+ N1	N	2	3		10	97		3	yes			no	PP, EP TOX, A	0	45
3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (OIL SLUDGE)	9	M6	III	9+CMR+ N1	N	2	3		10	97		3	yes			No	PP, EP, TOX, A	0	45
9000	AMMONIA, ANHYDROUS, DEEPLY REFRIGERATED	2	3TC		2.1+2.3+ 8+N1	G	2	4	1; 3		95		1	no	T1 <sup>12)</sup>	II A	yes	PP, EP, EX, TOX, A	2	1; 2; 31

3.2.3.3 and 3.2.4.3, column (20) Delete remark 29 and insert “Remark 29. *No longer in use.*”.

3.2.3.3 Amend scheme A to read as follows:

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

Ascertain which substance/cargo tank characteristics in the first three columns are relevant. Select the applicable row in the relevant column. The cargo tank equipment requirements for C-vessels are then described in this row in the fourth column.

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

”

3.2.3.3 Amend scheme C to read as follows:

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

As certain which substance/characteristics in the first three columns are relevant. Select the applicable row in the relevant column. The cargo tank equipment requirements for N-vessels with open cargo tanks are then described in this row in the fourth column.

Substance characteristics			Requirements arising
Classes 3 and 9	Flammable substances	Corrosive substances	Cargo tank equipment
$23^{\circ}\text{C} \leq \text{flash-point} \leq 60^{\circ}\text{C}$	Flash-point $> 60^{\circ}\text{C}$ carried while heated to $\leq 15\text{ K}$ below flash-point or Flash-point $> 60^{\circ}\text{C}$ , at or above their flash-point	Acids, transported while heated or flammable substances	With flame-arrester
$60^{\circ}\text{C} < \text{flash-point} \leq 100^{\circ}\text{C}$ or elevated temperature substances of Class 9		Non-flammable substances	Without flame-arrester

”



3.2.3.3, column (16) and 3.2.4.3 H, column (16) Amend to read as follows:

“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 standard IEC 60079-20-1.

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

Where self-contained protection systems are in place, the different subgroups for explosion group II B are as follows:

Explosion group/subgroup	Maximum experimental safe gap in mm
II B1	> 0.85 to ≤ 0.9
II B2	> 0.75 to ≤ 0.85
II B3	> 0.65 to ≤ 0.75
II B	≥ 0.5 to ≤ 0.65

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

3.2.3.3, column (20) and 3.2.4.3, column (20) Amend remark 27 to read as follows:

“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) and for which the proper shipping names are not already supplemented with the technical name of the goods or additional information concerning the benzene content.”.

### Chapter 3.3

Special provision (SP) 188 In paragraphs (g) and (h), replace “when batteries” by “when cells or batteries”.

SP 237 Replace “Part III, sub-section 33.2.1” by “Part III, sub-section 33.2”.

SP 241 Amend as follows:

Replace “Part III, sub-section 33.2.1.4” by “Part III, sub-section 33.2.4”.

Replace “in accordance with Test N. 1” by “in accordance with Test N.1”.

SP 301 In the first sentence, replace “applies to machinery or apparatus” by “applies to articles such as machinery, apparatus or devices”. In the first, second, third, fourth and fifth sentences, replace “machinery or apparatus” or “machinery and apparatus” by “articles”. In the fifth sentence, replace “contains” by “contain”.

SP 301 Delete the Note.

SP 309 In the last paragraph, replace “satisfactorily pass Tests 8(a), (b) and (c)” by “satisfy the criteria for classification as an ammonium nitrate emulsion, suspension or gel, intermediate for blasting explosives (ANE)”.

SP 310 In the third paragraph, delete “and packaged in accordance with P908 of 4.1.4.1 or LP904 of 4.1.4.3 of ADR, as applicable”.

- SP 327 In the first sentence, replace “Waste aerosols consigned” by “Waste aerosols and waste gas cartridges consigned” and “carried under this entry for” by “carried under UN Nos. 1950 or 2037, as appropriate, for”.
- After the third sentence insert the following new sentence: “Waste gas cartridges, other than those leaking or severely deformed, shall be packed in accordance with packing instruction P003 and special packing provisions PP17 and PP96 of ADR, or packing instruction LP200 and special packing provision L2 of ADR.”.
- In the next sentence, replace “aerosols shall be carried in salvage packagings” by “aerosols and gas cartridges shall be carried in salvage pressure receptacles or salvage packagings”.
- In the Note replace “waste aerosols shall not” by “waste aerosols and waste gas cartridges shall not”.
- Add the following new paragraph after the Note:
- “Waste gas cartridges that were filled with non-flammable, non-toxic gases of Class 2, group A or O and have been pierced are not subject to ADN.”
- SP 356 After “in vehicles, wagons, vessels” add “, machinery, engines”.
- SP 360 Replace “classified under” by “assigned to” and add the following sentence at the end:
- “Lithium batteries installed in cargo transport units, designed only to provide power external to the transport unit shall be assigned to entry UN 3536 LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT lithium ion batteries or lithium metal batteries.”.
- SP 370 Amend the introductory sentence to read as follows: “This entry only applies to ammonium nitrate that meets one of the following criteria:” and at the end of the first indent, replace “and” by “or”.
- Number the first indent as (a) and the second indent as (b).
- Add the following new paragraph at the end, after the indents:
- “This entry shall not be used for ammonium nitrate for which a proper shipping name already exists in Table A of Chapter 3.2 including ammonium nitrate mixed with fuel oil (ANFO) or any of the commercial grades of ammonium nitrate.”.
- SP 376 Amend the Note to read as follows:
- “NOTE: In assessing a cell or battery as damaged or defective, an assessment or evaluation shall be performed based on safety criteria from the cell, battery or product manufacturer or by a technical expert with knowledge of the cell’s or battery’s safety features. An assessment or evaluation may include, but is not limited to, the following criteria:*
- (a) *Acute hazard, such as gas, fire, or electrolyte leaking;*
  - (b) *The use or misuse of the cell or battery;*
  - (c) *Signs of physical damage, such as deformation to cell or battery casing, or colours on the casing;*
  - (d) *External and internal short circuit protection, such as voltage or isolation measures;*
  - (e) *The condition of the cell or battery safety features; or*
  - (f) *Damage to any internal safety components, such as the battery management system.”.*
- SP 377 In the last paragraph, delete “and packaged in accordance with P908 of 4.1.4.1 or LP904 of 4.1.4.3 of ADR, as applicable”.

- SP 379 (d) (i) Replace “ISO 11114-1:2012” by “ISO 11114-1:2012 + A1:2017”.
- SP 386 In the first sentence, replace "2.2.41.1.17" by "2.2.41.1.21".
- SP 388 At the end of the seventh paragraph, add the following sentence:  
 “Lithium ion batteries or lithium metal batteries installed in a cargo transport unit and designed only to provide power external to the cargo transport unit shall be assigned to the entry UN 3536 LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT lithium ion batteries or lithium metal batteries.”.
- Amend “393-499 (*Reserved*)” to read as “396-499 (*Reserved*)”
- SP 556 Delete and add “556 (*Deleted*)”.
- SP 653 In the first indent, replace “for construction and testing” by “for construction, testing and filling”.
- SP 660 Delete and insert “660 (*Deleted*)”.
- SP 667 In paragraphs (a), (b) and (b) (ii), replace “engine, machinery or article” by “engine or machinery”.  
 In paragraph (b) (i), replace “engines, machinery or article” by “engines or machinery”.  
 In paragraph (c), replace “engines, machinery or articles” by “engines or machinery”.
- SP 671 At the end, add the following new paragraph:  
 “Kits containing only dangerous goods to which no packing group is assigned shall be allocated to transport category 2 for completion of transport documents and the exemption related to quantities carried per vessel (see 1.1.3.6).”.
- Add the following new special provisions:
- “390 When a package contains a combination of lithium batteries contained in equipment and lithium batteries packed with equipment, the following requirements apply for the purposes of package marking and documentation:  
 (a) the package shall be marked “UN 3091” or “UN 3481”, as appropriate. If a package contains both lithium ion batteries and lithium metal batteries packed with and contained in equipment, the package shall be marked as required for both battery types. However, button cell batteries installed in equipment (including circuit boards) need not be considered;  
 (b) the transport document shall indicate “UN 3091 LITHIUM METAL BATTERIES PACKED WITH EQUIPMENT” or “UN 3481 LITHIUM ION BATTERIES PACKED WITH EQUIPMENT”, as appropriate. If a package contains both lithium metal batteries and lithium ion batteries packed with and contained in equipment, then the transport document shall indicate both “UN 3091 LITHIUM METAL BATTERIES PACKED WITH EQUIPMENT” and “UN 3481 LITHIUM ION BATTERIES PACKED WITH EQUIPMENT”.”.
- “393 The nitrocellulose shall meet the criteria of the Bergmann-Junk test or methyl violet paper test in the Manual of Tests and Criteria Appendix 10. Tests of type 3 (c) need not be applied.”.
- “394 The nitrocellulose shall meet the criteria of the Bergmann-Junk test or methyl violet paper test in the Manual of Tests and Criteria Appendix 10.”.
- “395 This entry shall only be used for solid medical waste of Category A carried for disposal.”.

- “675 For packages containing these dangerous goods, mixed loading with substances and articles of Class 1, with the exception of 1.4S, shall be prohibited.”.

## Chapter 5.1

- 5.1.5.1.2 At the end of sub-paragraph (d) add "and".

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

“(e) the shipment of SCO-III.”.

- 5.1.5.1.4 (b) At the end, replace “in the hands” by “in the possession”.

- 5.1.5.3.1 In the introductory sentence, replace “or SCO-I” by “, SCO-I or SCO-III”. In (a), replace “radiation level” by “dose rate” (twice) and replace “and SCO-I” by “, SCO-I or SCO-III”. In (a), in the second sentence, delete “and the resulting number is the transport index”. In (b) replace “and SCO-I” by “, SCO-I and SCO-III”. At the end of (c), add “and the resulting number is the TI value.”

### Table 5.1.5.3.1

In the title replace “and SCO-I” by “, SCO-I and SCO-III”.

- 5.1.5.3.2 Amend to read as follows:

- “5.1.5.3.2 The TI for each overpack, vessel or cargo transport unit shall be determined as the sum of the TIs of all the packages contained therein. For a shipment from a single consignor, the consignor may determine the TI by direct measurement of dose rate.

The TI for a non-rigid overpack shall be determined only as the sum of the TIs of all the packages within the overpack.”.

- 5.1.5.3.4 (a) Replace “radiation level” by “dose rate” (twice).

- 5.1.5.3.4 (b) Replace “transport index” by “TI”.

- 5.1.5.3.4 (c) Replace “radiation level” by “dose rate”.

### Table 5.1.5.3.4

Replace “radiation level” by “dose rate”.

## Chapter 5.2

- 5.2.1.1 Amend the second sentence to read as follows: “The UN number and the letters "UN" shall be at least 12 mm high, except for packages of 30 l capacity or less or of 30 kg maximum net mass and for cylinders of 60 l water capacity or less when they shall be at least 6 mm in height and except for packages of 5 l capacity or less or of 5 kg maximum net mass when they shall be of an appropriate size”.

- 5.2.1.7.6 Add the following sentence at the end, below the figure:

“Any mark on the package made in accordance with the requirements of 5.2.1.7.4 (a) and (b) and 5.2.1.7.5 (c) relating to the package type that does not relate to the UN number and proper shipping name assigned to the consignment shall be removed or covered.”

- 5.2.1.9.1 After “special provision 188”, add “of Chapter 3.3”.

- 5.2.1.9.2 In Figure 5.2.1.9.2, replace “120 mm” by “100 mm” and “110 mm” by “100 mm”.

In the last paragraph:

First sentence: replace “a rectangle” by “a rectangle or a square”.

Second sentence: replace “120 wide x 110 m high” by “100 mm wide × 100 mm high”.

Fifth sentence: delete “/line thickness” and replace “105 mm wide x 74 mm high” by “100 mm wide x 70 mm high”.

5.2.2.1.11.2 In (d), replace “(no transport index entry is required for category I-WHITE)” by “(except for category I-WHITE)”.

5.2.2.1.12.1 The amendment does not apply to the English text.

### Chapter 5.3

5.3.2.3.2 After the entry for “X83”, insert the following new entry:

“836 Corrosive or slightly corrosive substance, flammable (flash-point between 23°C and 60°C, inclusive) and toxic”.

### Chapter 5.4

5.4.1.1.1 (f) The amendment does not apply to the English text.

5.4.1.2.5.1 Amend sub-paragraphs (d) and (e) to read:

“(d) The category of the package, overpack or container, as assigned per 5.1.5.3.4, i.e. I-WHITE, II-YELLOW, III-YELLOW;

(e) The TI as determined per 5.1.5.3.1 and 5.1.5.3.2 (except for category I-WHITE);”.

5.4.1.2.5.1 In (j), replace “SCO-I and SCO-II” by “SCO-I, SCO-II and SCO-III”.

5.4.2 In the second paragraph, at the end of the first sentence, delete “one to the other”.

5.4.2, footnote 6

At the beginning, replace “(Amendment 38-16)” by “(Amendment 39-18)”.

5.4.3.2 Amend to read as follows:

“5.4.3.2 These instructions shall be provided by the carrier to the master in the language(s) that the master and the expert can read and understand before loading. The master shall ensure that each member of the crew and any other person on board concerned understands and is capable of carrying out the instructions properly.”.

### Chapter 5.5

5.5.3 In the title, after “applicable to”, add “the carriage of dry ice (UN 1845) and to”.

At the end, in the text in parentheses, after “(UN 1951)”, add “or nitrogen”.

Add the following new Note after the heading of 5.5.3:

**“NOTE:** *In the context of this section the term “conditioning” may be used in a broader scope and includes protection.”.*

5.5.3.2.1 After “containers”, add “in which dry ice (UN 1845) is carried or”.

5.5.3.2.4 After “containers”, add “in which dry ice (UN 1845) is carried or”.

5.5.3.3 In the title, after “Packages containing”, add “dry ice (UN 1845) or”.

5.5.3.3.3 After “Packages containing”, add “dry ice (UN 1845) or”.

- 5.5.3.4 In the title, after “Packages containing”, add “dry ice (UN 1845) or”.
- 5.5.3.4.1 At the beginning of the first sentence, replace “Packages” by “Packages containing dry ice (UN 1845) as a consignment shall be marked "CARBON DIOXIDE, SOLID" or "DRY ICE"; packages”.
- 5.5.3.6.1 After “containers containing”, add “dry ice (UN 1845) or”.
- 5.5.3.6.1 (a) After “harmful concentrations of”, add “dry ice (UN 1845) or”.
- 5.5.3.6.1 (b) Replace “The cooled” by “The dry ice (UN 1845) or cooled”.
- 5.5.3.6.2 In Figure 5.5.3.6.2, amend the title to read “Asphyxiation warning mark for vehicles, wagons and containers”. Delete the reference to note \*\* and the corresponding note. In note \*, at the beginning, replace “of the coolant/conditioner” by “or the name of the asphyxiant gas used as the coolant/conditioner”. At the end of note \* add “Additional information such as “AS COOLANT” or “AS CONDITIONER” may be added.”.
- 5.5.3.7.1 After “having contained”, add “dry ice (UN 1845) or”.
- 5.5.3.7.1 (b) After “Chapter 3.2 followed”, add “, where appropriate”. After “AS CONDITIONER””, remove “as appropriate”.

## Chapter 7.1

- 7.1.2.0.1 Replace “7.1.4.1.1” by “7.1.4.1.4” and “7.1.4.1.2” by “7.1.4.1.1.2 or 7.1.4.1.1.3”.
- 7.1.2.0.2 Replace “7.1.4.1.1 and 7.1.4.1.2” by “7.1.4.1.1.2, 7.1.4.1.1.3 and 7.1.4.1.4”.
- 7.1.2.19.2 Replace “7.1.4.1.1 and 7.1.4.1.2” by “7.1.4.1.1.2, 7.1.4.1.1.3 and 7.1.4.1.4”.
- 7.1.4.1 Amend to read as follows:
- “7.1.4.1 *Limitation of the quantities carried***
- 7.1.4.1.1 Single-hull vessels may carry goods of Classes 1, 2, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 7, 8 and 9 only in the limited quantities set out in 7.1.4.1.4. This provision also applies to pushed barges and double-hull vessels which do not meet the additional rules of construction in 9.1.0.88 to 9.1.0.95 or 9.2.0.88 to 9.2.0.95.
- 7.1.4.1.1.1 Where substances and articles of different divisions of Class 1 are loaded in a single vessel in conformity with the provisions for prohibition of mixed loading of 7.1.4.3.3 or 7.1.4.3.4, the entire load shall not exceed the smallest maximum mass given in 7.1.4.1.4 below for the goods of the most dangerous division loaded, the order of precedence being 1.1, 1.5, 1.2, 1.3, 1.6, 1.4.
- 7.1.4.1.1.2 For pushed convoys and side-by-side formations, the quantity limitations specified in 7.1.4.1.4 apply to each unit. A maximum of 1,100,000 kg is permitted for each unit.
- 7.1.4.1.1.3 When a vessel is carrying several types of dangerous goods, the total quantity shall not exceed 1,100,000 kg.
- 7.1.4.1.2 Double-hull vessels meeting the additional construction rules in 9.1.0.88 to 9.1.0.95 or 9.2.0.88 to 9.2.0.95 may carry goods without limitation of the quantity carried, except for:
- goods of Class 1, and
  - goods of classes 2, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 7, 8 and 9 for which a danger label of model No. 1 is required in column (5) of Table A of Chapter 3.2, for which the limitations set in 7.1.4.1.1 and 7.1.4.1.1.1 to 7.1.4.1.1.3 apply.
- 7.1.4.1.3 For activity limits, transport index (TI) limits and criticality safety indices (CSI) in the case of the carriage of radioactive material, see 7.1.4.14.7.

7.1.4.1.4 Quantity limitations

<i>Class</i>	<i>Description</i>	0 kg	90 kg	15,000 kg	50,000 kg	120,000 kg	300,000 kg	1,100,000 kg
1	All substances and articles of Division 1.1, compatibility group A <sup>(1)</sup>		X					
	All substances and articles of Division 1.1, compatibility groups B, C, D, E, F, G, J or L <sup>(2)</sup>			X				
	All substances and articles of Division 1.2, compatibility groups B, C, D, E, F, G, H, J or L				X			
	All substances and articles of Division 1.3, compatibility groups C, G, H, J or L <sup>(3)</sup>						X	
	All substances and articles of Division 1.4, compatibility groups B, C, D, E, F, G or S							X
	All substances of Division 1.5, compatibility group D <sup>(2)</sup>			X				
	All substances and articles of Division 1.6, compatibility group N <sup>(3)</sup>						X	
	Empty packaging, uncleaned							X
	<i>Note:</i>							
	<sup>(1)</sup> In not less than three batches of a maximum of 30 kg each, distance between batches not less than 10.00 m.							
	<sup>(2)</sup> In not less than three batches of a maximum of 5,000 kg each, distance between batches not less than 10.00 m.							
	<sup>(3)</sup> Not more than 100,000 kg per hold. A wooden partition is permitted for subdividing a hold.							
2	All goods for which label No. 2.1 is required in column (5) of Table A of Chapter 3.2: total						X	
	All goods for which label No. 2.3 is required in column (5) of Table A of Chapter 3.2: total					X		
	Other goods							X
3	All goods of packing groups I or II for which, in addition to a label of model No. 3, a label of model No. 6.1 is required in column (5) of Table A of Chapter 3.2: total					X		
	Other goods						X	
4.1	UN Nos. 3221, 3222, 3231 and 3232: total			X				
	All goods of packing group I;							
	All goods of packing group II for which, in addition to a label of model No. 4.1, a label of model No. 6.1 is required in column (5) of Table A of Chapter 3.2;							

<i>Class</i>	<i>Description</i>	0 kg	90 kg	15,000 kg	50,000 kg	120,000 kg	300,000 kg	1,100,000 kg
	Self-reactive substances of types C, D, E and F (UN Nos. 3223 to 3230 and 3233 to 3240); All other substances of classification code SR1 or SR2 (UN Nos. 2956, 3241, 3242 and 3251); and desensitized explosive substances of packing group II (UN Nos. 2907, 3319 and 3344): total					X		
	Other goods							X
4.2	All goods of packing groups I or II for which, in addition to a label of model No. 4.2, a label of model No. 6.1 is required in column (5) of Table A of Chapter 3.2: total						X	
	Other goods							X
4.3	All goods of packing groups I or II for which, in addition to a label of model No. 4.3, a label of model No. 3, 4.1 or 6.1 is required in column (5) of Table A of Chapter 3.2: total						X	
	Other goods							X
5.1	All goods of packing groups I or II for which, in addition to a label of model No. 5.1, a label of model No. 6.1 is required in column (5) of Table A of Chapter 3.2: total						X	
	Other goods							X
5.2	UN Nos. 3101, 3102, 3111 and 3112: total			X				
	Other goods					X		
6.1	All goods of packing group I: total					X		
	All goods of packing group II: total						X	
	All goods carried in bulk	X						
	Other goods							X
7	UN Nos. 2912, 2913, 2915, 2916, 2917, 2919, 2977, 2978 and 3321 to 3333	X						
	Other goods							X



<i>Class</i>	<i>Description</i>	<i>0 kg</i>	<i>90 kg</i>	<i>15,000 kg</i>	<i>50,000 kg</i>	<i>120,000 kg</i>	<i>300,000 kg</i>	<i>1,100,000 kg</i>
8	All goods of packing group I; All goods of packing group II for which, in addition to a label of model No. 8, a label of model No. 3 or 6.1 is required in column (5) of Table A of Chapter 3.2: total Other goods						X	X
9	All goods of packing group II: total UN No. 3077, goods carried in bulk and classified as hazardous to the aquatic environment, categories Acute 1 or Chronic 1, in accordance with 2.4.3 Other goods	X					X	X

”

- 7.1.4.14.7.2 At the end of the first sentence replace “.” by “.”.
- 7.1.4.14.7.2 Add the following new sentence after the first sentence: “For SCO-III, the limits in Table C below may be exceeded provided that the transport plan contains precautions which are to be employed during carriage to obtain an overall level of safety at least equivalent to that which would be provided if the limits had been applied.”
- 7.1.4.14.7.3.3 Amend sub-paragraph (b) to read as follows:
- “(b) The dose rate under routine conditions of carriage shall not exceed 2 mSv/h at any point on the external surface of vehicles, wagons or containers and 0.1 mSv/h at 2 m from the external surface of vehicles, wagons or containers, except for consignments carried under exclusive use for which the dose rate limits around the vehicles or wagons are set forth in 7.1.4.14.7.3.5 (b) and (c);”.
- 7.1.4.14.7.3.5  
Replace “radiation level” by “dose rate”.
- 7.1.4.14.7.3.6  
Replace “radiation level” by “dose rate”.
- 7.1.4.14.7.5.1  
Replace “radiation level” by “dose rate”. In the last sentence, replace “persons” by “people”.
- 7.1.4.14.7.5.4  
Replace “radiation level” by “dose rate”.
- 7.1.4.14.7.5.4 (b)  
Replace “radiation level” by “dose rate”.

## Chapter 7.2

- 7.2.2.19.3 In the second paragraph, replace “9.3.3.0.3 (d)” by “9.3.3.0.3.1”.
- 7.2.2.19.3 In the second paragraph, replace “9.3.3.10.2” by “9.3.3.10.4”.
- 7.2.2.19.3 In the second paragraph, delete “9.3.3.10.5”.
- 7.2.2.19.3 In the last paragraph, replace “9.3.3.10.5” by “9.3.3.10.4”. (twice).
- 7.2.3.7 Delete 7.2.3.7.3 to 7.2.3.7.6 and insert “7.2.3.7.3 to 7.2.3.7.6 (*Deleted*)”.
- 7.2.3.28 Amend to read as follows:
- “7.2.3.28 *Instruction on maximum loading temperature*
- For the carriage of refrigerated substances, an instruction shall be on board mentioning the permissible maximum loading temperature, in relation to the insulation design of the cargo tanks and, if on board, the capacity of the refrigeration system.”.
- 7.2.4.2.1 Amend to read as follows:
- “7.2.4.2.1 The reception from inland navigation vessels of unpackaged liquid oily and greasy wastes resulting from the operation of vessels shall be ensured by suction; the reception from seagoing vessels may also be ensured by pressurization provided that:
- the quantity to be transferred and the maximum loading rate is determined and agreed between the seagoing vessel and the inland navigation vessel;

- if feasible, the pressure pump on the seagoing vessel can be switched off from the receiving inland navigation vessel;
  - there is permanent and continuous supervision on the operation from both vessels; and
  - communication between both vessels is ensured at all times during the operation.”.
- 7.2.4.16.4 Delete and insert “7.2.4.16.4 (Deleted)”.
- 7.2.4.16.11 Amend to read as follows:
- “7.2.4.16.11 The shut-off device referred to in 9.3.1.21.1 (g), 9.3.2.21.1 (g) or 9.3.3.21.1 (g) shall be opened only after a gastight connection for a sampling device has been made to the closed or partly closed sampling device.”.
- 7.2.4.17.3 Add a new last sentence to read as follows: “The provision of 7.2.4.17.1 and 7.2.4.17.2 however, shall apply to the handing over of liquefied natural gas (LNG) for the operation of vessels.”.
- 7.2.4.25.5, second indent At the end, replace “, the results of these measurements shall be recorded in writing.” by “. If these conditions are not met and the vapour return piping is not used, the measured concentrations shall be recorded in writing.”,

## Chapter 8.1

- 8.1.2.1 (b) After “for all dangerous goods” insert “carried as cargo”.
- 8.1.2.1 Add a new subparagraph (k) to read as follows:
- “8.1.2.1 (k) For vessels which carry hose assemblies used for loading, unloading or delivering liquefied natural gas for the operation of the vessel, the inspection certificate and the documentation of the calculated maximum load stress prescribed in 8.1.6.2.”.
- 8.1.2.2 Amend the last sentence to read as follows: “The documents listed in paragraphs (e) to (h) shall bear the stamp of the competent authority issuing the certificate of approval.”.
- 8.1.2.3 Amend subparagraph (f) to read as follows:
- “(f) The certificates concerning the inspection of the gas detection systems and the oxygen measuring system prescribed in 8.1.6.3;”
- 8.1.6.2 Amend the beginning of the paragraph to read “Hose assemblies used for loading, unloading or delivering products for the operation of the vessel (other than liquefied natural gas) and residual cargo...”. Remainder unchanged.
- 8.1.6.2 Add a new second paragraph to read as follows:
- “Hose assemblies used for loading, unloading or delivering liquefied natural gas for the operation of the vessel shall comply with part 5.5.2 of ISO 20519:2017 (Ships and marine technology – Specification for bunkering of liquefied natural gas fuelled vessels) and shall be checked and inspected at least once a year according to the manufacturer’s instructions. A certificate concerning this inspection and the documentation of the calculated maximum load stress shall be carried on board.”.
- 8.1.7.2 Amend the end of the first paragraph to read as follows:
- “...within the third year from the date of issue of the certificate of approval, by the classification society that classified the vessel or by a person authorized for this purpose by the competent authority. A certificate concerning this inspection shall be carried on board.”.

## Chapter 8.2

- 8.2.1.4 In the last sentence, replace “after two times” by “after it is retaken two times”.
- 8.2.2.3.1 Under “Basic course on transport by tank vessels”:  
Replace “Knowledge: ADN in general, except Chapter 3.2, Tables A and B, Chapters 7.1, 9.1, 9.2 and sections 9.3.1 and 9.3.2” by “Knowledge: ADN in general, except Chapter 3.2, Table A, Chapters 7.1, 9.1 and 9.2”.
- 8.2.2.3.1 Under “Basic course – combination of transport of dry cargo and transport in tank vessels”:  
Replace “Knowledge: ADN in general, except sections 9.3.1 and 9.3.2” by “Knowledge: ADN in general”.
- 8.2.2.3.2 Under “Refresher training course on transport in tank vessels”:  
Replace “Knowledge: ADN in general, except Chapter 3.2, Tables A and B, Chapters 7.1, 9.1, 9.2 and sections 9.3.1 and 9.3.2” by “Knowledge: ADN in general, except Chapter 3.2, Table A, Chapters 7.1, 9.1 and 9.2”.
- 8.2.2.3.2 Under “Basic course – combination of transport of dry cargo and transport in tank vessels”:  
Replace “Knowledge: ADN in general, including sections 9.3.1 and 9.3.2” by “Knowledge: ADN in general”.
- 8.2.2.8.7 Replace to read as follows:
- “8.2.2.8.7 Contracting Parties shall provide the UNECE secretariat with an example of the national model for any certificate intended for issue in accordance with this section. Contracting Parties shall also provide explanatory notes to enable the verification of conformity of certificates with the examples provided. The secretariat shall make this information available on its website.”

## Chapter 8.6

- 8.6.1.3 and 8.6.1.4 Not applicable to English.
- 8.6.1.3 and 8.6.1.4 In “6. Types of cargo tanks”, amend point 3 to read as follows: “3. Cargo tank with walls distinct from the outer hull<sup>1, 2</sup>”.
- 8.6.1.3 and 8.6.1.4 In Item 6 add a new entry 4 to read as follows: “4. Membrane tanks<sup>1, 2</sup>”.
- 8.6.1.3 and 8.6.1.4 Not applicable to English.
- 8.6.1.3 Not applicable to English.

8.6.1.3 Replace the table at the end by the following:

3

If the cargo tanks of the vessel are not all of the same type or the same design or the equipment is not the same, their type, their design and their equipment shall be indicated below:

1	Cargo tank number	1	2	3	4	5	6	7	8	9	10	11	12
2	Pressure cargo tank												
3	Closed cargo tank												
4	Open cargo tank with flame arrester												
5	Open cargo tank												
6	Independent cargo tank												
7	Integral cargo tank												
8	Cargo tank with walls distinct from the outer hull												
9	Membrane tank												
10	Opening pressure of the pressure relief device/high velocity vent valve/safety valve in kPa												
11	Connection for a sampling device												
12	Sampling opening												
13	Water-spray system												
14	Internal pressure alarm 40 kPa .....												
15	Possibility of cargo heating from shore												
16	Cargo heating installation on board												
17	Cargo refrigeration installation												
18	Inerting facilities												
19	Venting piping and heated installation												
20	Conforms to the rules of construction resulting from the remark(s) ..... of column (20) of Table C of Chapter 3.2												

8.6.1.4 Replace the table at the end by the following:

<b>3</b>													
If the cargo tanks of the vessel are not all of the same type or the same design or the equipment is not the same, their type, their design and their equipment shall be indicated below:													
1	Cargo tank number	1	2	3	4	5	6	7	8	9	10	11	12
2	Pressure cargo tank												
3	Closed cargo tank												
4	Open cargo tank with flame arrester												
5	Open cargo tank												
6	Independent cargo tank												
7	Integral cargo tank												
8	Cargo tank with walls distinct from the outer hull												
9	Membrane tank												
10	Opening pressure of the pressure relief device/high velocity vent valve/safety valve in kPa												
11	Connection for a sampling device												
12	Sampling opening												
13	Water-spray system												
14	Internal pressure alarm 40 kPa .....												
15	Possibility of cargo heating from shore												
16	Cargo heating installation on board												
17	Cargo refrigeration installation												
18	Inerting facilities												
19	Venting piping and heated installation												
20	Conforms to the rules of construction resulting from the remark(s) ..... of column (20) of Table C of Chapter 3.2												

8.6.3, ADN Checklist Amend the Table on page 3 as follows:

Item 8 Renumber existing text as 8.1. Add a new 8.2 to read as follows:

8.2	Is a water film as mentioned in 9.3.1.21.11 activated?	O	O
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Add a new Item 20 to read as follows:

20	Is the loading temperature within the range of the maximum permissible temperature as prescribed in 7.2.3.28?	O**	O**
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**Chapter 9.1**

9.1.0.80 Replace “7.1.4.1.1” by “7.1.4.1.4”.

9.1.0.88.1 Replace “7.1.4.1.1” by “7.1.4.1.4”.

## Chapter 9.2

9.2.0.80 Replace “7.1.4.1.1” by “7.1.4.1.4”.

9.2.0.88.1 Replace “7.1.4.1” by “7.1.4.1.4”.

## Chapter 9.3

9.3.1.0.1 (a) Amend to read as follows:

“9.3.1.0.1 (a) The vessel’s hull and cargo tanks shall be constructed of shipbuilding steel or other at least equivalent metal.

Independent cargo tanks and membrane tanks may also be constructed of other materials, provided these have at least equivalent mechanical strength and resistance against the effects of temperature and fire.

For membrane tanks the equivalence for resistance against the effect of temperature and fire is deemed to be proven where the materials of the membrane tanks fulfil the following requirements:

- They withstand the range between the maximum temperature in service and 5 °C below the minimum design temperature, but not lower than -196 °C; and
- They are fire-resistant or protected by a suitable system such as a permanent inert gas environment or provided with a fire-retardant barrier.”.

9.3.x.0.5 In the first paragraph, delete the second sentence.

9.3.1.8.4, 9.3.2.8.4, 9.3.3.8.4 Delete and insert “(Deleted)”.

9.3.1.18 Amend as follows:

Amend the title to read “Inerting facilities”.

Re-number existing text as 9.3.1.18.1. Modify the first sentence of the second paragraph to read “The system shall be capable of keeping permanently a minimum pressure of 7 kPa (0.07 bar) in the spaces to be inerted.”.

Add a new 9.3.1.18.2 to read as follows:

“9.3.1.18.2 Vessels equipped with membrane tanks shall have an inerting system capable of inerting all insulation spaces of the tanks.

The system shall be capable of keeping permanently a minimum pressure above atmospheric pressure in the spaces to be inerted.

The inert gas shall be produced on board or carried in a quantity that is sufficient for the entire holding time as determined in accordance with 7.2.4.16.16 and 7.2.4.16.17. The circulation of inert gas throughout the spaces to be inerted shall be sufficient to allow for effective means of gas detection.

The spaces to be inerted shall be equipped with connections for introducing the inert gas and monitoring systems so as to ensure the required atmosphere on a permanent basis.

When the pressure, the temperature or the concentration of the inert gas falls below a given value, this monitoring system shall activate an audible and visible alarm in the wheelhouse. When the wheelhouse is unoccupied, the alarm shall also be perceptible in a location occupied by a crew member.”.

9.3.x.21.1 (g) Add a new second sentence to read as follows: “The connection shall be fitted with a shut-off device resistant to the internal pressure at the connection.”.

9.3.2.22.4 (b) Amend to read as follows:

“(b) When the list of substances on the vessel according to 1.16.1.2.5 is going to include substances for which explosion protection is required in column (17) of Table C of Chapter 3.2:

- At the connection to each cargo tank, the venting piping and the vacuum valve shall be equipped with a flame arrester capable of withstanding a detonation; and
- The device for the safe depressurization of cargo tanks shall be deflagration safe and capable of withstanding steady burning;”.

9.3.2.22.4 (e) Amend the first paragraph to read as follows:

“The autonomous protection systems mentioned in (b) and (c) shall be chosen according to the explosion groups/subgroups of the substances foreseen for inclusion in the list of substances on the vessel (see column (16) of Table C of Chapter 3.2). The outlets of the high-velocity vent valves shall be located not less than 2.00 m above the deck and at a distance of not less than 6.00 m from the openings of the accommodations, the wheelhouse and the service spaces outside the cargo area. This height may be reduced to 1.00 m when there is no drive unit within a radius of 1.00 m around the pressure relief valve outlet. This area shall be marked as a danger zone;”.

9.3.2.42.4 Replace “9.3.2.52.3” by “9.3.2.52.1”, twice.

9.3.3.0.3.1 Number the paragraph after the Table, that begins with “All permanently fitted materials in the accommodation or wheelhouse...” as 9.3.3.0.3.1.

9.3.3.42.4 Replace “9.3.3.52.3” by “9.3.3.52.1”, twice.

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