

CHAPTER 1.9

TRANSPORT RESTRICTIONS BY THE COMPETENT AUTHORITIES

1.9.1 In accordance with Article 6, paragraph 1 of ADN, the entry of dangerous goods into the territory of Contracting Parties may be subject to regulations or prohibitions imposed for reasons other than safety during carriage. Such regulations or prohibitions shall be published in an appropriate form.

1.9.2 Subject to the provisions of 1.9.3, a Contracting Party may apply to vessels engaged in the international carriage of dangerous goods by inland waterways on its territory certain additional provisions not included in ADN, provided that those provisions do not conflict with Article 4, paragraph 2 of ADN, and are contained in its domestic legislation applying equally to vessels engaged in the domestic carriage of dangerous goods by inland waterways on the territory of that Contracting Party.

1.9.3 Additional provisions falling within the scope of 1.9.2 are as follows:

- (a) Additional safety requirements or restrictions concerning vessels using certain structures such as bridges or tunnels, or vessels entering or leaving ports or other transport terminals;
- (b) Requirements for vessels to follow prescribed routes to avoid commercial or residential areas, environmentally sensitive areas, industrial zones containing hazardous installations or inland waterways presenting severe physical hazards;
- (c) Emergency requirements regarding routing or berthing of vessels carrying dangerous goods resulting from extreme weather conditions, earthquake, accident, industrial action, civil disorder or military hostilities;
- (d) Restrictions on movement of vessels carrying dangerous goods on certain days of the week or year.

1.9.4 The competent authority of the Contracting Party applying on its territory any additional provisions within the scope of 1.9.3 (a) and (d) above shall notify the secretariat of the United Nations Economic Commission for Europe of the additional provisions, which secretariat shall bring them to the attention of the Contracting Parties¹.

¹ Multimodal guidelines (Inland TDG Risk Management Framework) may be consulted on the website of the Directorate General for Mobility and Transport of the European Commission (https://transport.ec.europa.eu/transport-themes/transport-dangerous-goods/risk-management-framework_en)

CHAPTER 1.10

SECURITY PROVISIONS

NOTE: For the purposes of this Chapter, "security" means measures or precautions to be taken to minimise theft or misuse of dangerous goods that may endanger persons, property or the environment.

1.10.1 General provisions

- 1.10.1.1 All persons engaged in the carriage of dangerous goods shall consider the security requirements set out in this Chapter commensurate with their responsibilities.
- 1.10.1.2 Dangerous goods shall only be offered for carriage to carriers that have been appropriately identified.
- 1.10.1.3 Holding areas in trans-shipment zones for dangerous goods shall be secured, well lit and, where possible and appropriate, not accessible to the general public.
- 1.10.1.4 For each crew member of a vessel carrying dangerous goods, means of identification, which includes a photograph, shall be on board during carriage.
- 1.10.1.5 Safety checks in accordance with 1.8.1 shall also concern the implementation of security measures.
- 1.10.1.6 The competent authority shall maintain up-to-date registers of all valid certificates for experts stipulated in 8.2.1 issued by it or by any recognized organization.

1.10.2 Security training

- 1.10.2.1 The training and the refresher training specified in Chapter 1.3 shall also include elements of security awareness. The security refresher training need not be linked to regulatory changes only.
- 1.10.2.2 Security awareness training shall address the nature of security risks, recognising security risks, methods to address and reduce such risks and actions to be taken in the event of a security breach. It shall include awareness of security plans (if appropriate) commensurate with the responsibilities and duties of individuals and their part in implementing security plans.
- 1.10.2.3 Such training shall be provided or verified upon employment in a position involving dangerous goods transport and shall be periodically supplemented with refresher training.
- 1.10.2.4 Records of all security training received shall be kept by the employer and made available to the employee or competent authority, upon request. Records shall be kept by the employer for a period of time established by the competent authority.

1.10.3 Provisions for high consequence dangerous goods

NOTE: In addition to the security provisions of ADN, competent authorities may implement further security provisions for reasons other than safety during carriage (see also Article 6 of the Agreement). In order not to impede international and multimodal carriage by different explosives security marks, it is recommended that such marks be formatted consistent with an internationally harmonized standard (e.g. European Union Commission Directive 2008/43/EC).

1.10.3.1 *Definition of high consequence dangerous goods*

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

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

Table 1.10.3.1.2: List of high consequence dangerous goods

Class	Division	Substance or article	Quantity		
			Tank or cargo tank (litres) ^c	Bulk ^{*/} (kg) ^d	Goods in packages (kg)
1	1.1	Explosives	a	a	0
	1.2	Explosives	a	a	0
	1.3	Compatibility group C explosives	a	a	0
	1.4	Explosives of UN Nos. 0104, 0237, 0255, 0267, 0289, 0361, 0365, 0366, 0440, 0441, 0455, 0456, 0500, 0512 and 0513	a	a	0
	1.5	Explosives	0	a	0
	1.6	Explosives	a	a	0
2		Flammable, non-toxic gases (classification codes including only letters F or FC)	3000	a	b
		Toxic gases (classification codes including letter(s) T, TF, TC, TO, TFC or TOC) excluding aerosols	0	a	0
3		Flammable liquids of packing groups I and II	3000	a	b
		Desensitized explosives	0	a	0
4.1		Desensitized explosives	a	a	0
4.2		Packing group I substances	3000	a	b
4.3		Packing group I substances	3000	a	b
5.1		Oxidizing liquids of packing group I	3000	a	b
		Perchlorates, ammonium nitrate, ammonium nitrate fertilisers and ammonium nitrate emulsions or suspensions or gels	3000	3000	b
6.1		Toxic substances of packing group I	0	a	0
6.2		Infectious substances of Category A (UN Nos. 2814 and 2900, except for animal material) and medical waste of Category A (UN No. 3549)	a	0	0
8		Corrosive substances of packing group I	3000	a	b

*/ Bulk means bulk in the vessel, or bulk in a vehicle or a container.

a Not relevant.

b The provisions of 1.10.3 do not apply, whatever the quantity is.

c 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.

d 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.

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

Table 1.10.3.1.3: Transport security thresholds for specific radionuclides

Element	Radionuclide	Transport security threshold (TBq)
Americium	Am-241	0.6
Gold	Au-198	2
Cadmium	Cd-109	200
Caesium	Cs-137	1
Californium	Cf-252	0.2
Curium	Cm-244	0.5
Cobalt	Co-57	7
Cobalt	Co-60	0.3
Iron	Fe-55	8000
Germanium	Ge-68	7
Gadolinium	Gd-153	10
Iridium	Ir-192	0.8
Nickel	Ni-63	600
Palladium	Pd-103	900
Promethium	Pm-147	400
Polonium	Po-210	0.6
Plutonium	Pu-238	0.6
Plutonium	Pu-239	0.6
Radium	Ra-226	0.4
Ruthenium	Ru-106	3
Selenium	Se-75	2
Strontium	Sr-90	10
Thallium	Tl-204	200
Thulium	Tm-170	200
Ytterbium	Yb-169	3

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

This calculation can be made with the formula:

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

Where:

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

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

1.10.3.1.5 When radioactive material possess subsidiary hazards of other classes, the criteria of Table 1.10.3.1.2 shall also be taken into account (see also 1.7.5).

1.10.3.2 Security plans

1.10.3.2.1 Carriers, consignors and other participants specified in 1.4.2 and 1.4.3 engaged in the carriage of high consequence dangerous goods (see Table 1.10.3.1.2) or high consequence radioactive material (see 1.10.3.1.3) shall adopt, implement and comply with a security plan that addresses at least the elements specified in 1.10.3.2.2.

1.10.3.2.2 The security plan shall comprise at least the following elements:

- (a) specific allocation of responsibilities for security to competent and qualified persons with appropriate authority to carry out their responsibilities;
- (b) records of dangerous goods or types of dangerous goods concerned;
- (c) review of current operations and assessment of security risks, including any stops necessary to the transport operation, the keeping of dangerous goods in the vessel, tank or container before, during and after the journey and the intermediate temporary storage of dangerous goods during the course of intermodal transfer or transshipment between units;
- (d) clear statement of measures that are to be taken to reduce security risks, commensurate with the responsibilities and duties of the participant, including:
 - training;
 - security policies (e.g. response to higher threat conditions, new employee/employment verification, etc.);
 - operating practices (e.g. choice/use of routes where known, access to dangerous goods in intermediate temporary storage (as defined in (c)), proximity to vulnerable infrastructure etc.);
 - equipment and resources that are to be used to reduce risks;
- (e) effective and up to date procedures for reporting and dealing with security threats, breaches of security or security incidents;
- (f) procedures for the evaluation and testing of security plans and procedures for periodic review and update of the plans;
- (g) measures to ensure the physical security of transport information contained in the security plan; and
- (h) measures to ensure that the distribution of information relating to the transport operation contained in the security plan is limited to those who need to have it. Such measures shall not preclude the provision of information required elsewhere in ADN.

NOTE: Carriers, consignors and consignees should co-operate with each other and with competent authorities to exchange threat information, apply appropriate security measures and respond to security incidents.

1.10.3.3 Operational or technical measures shall be taken on vessels carrying high consequence dangerous goods (see Table 1.10.3.1.2) or high consequence radioactive material (see 1.10.3.1.3) in order to prevent the improper use of the vessel and of the dangerous goods. The application of these protective measures shall not jeopardize emergency response.

NOTE: *When appropriate and already fitted, the use of transport telemetry or other tracking methods or devices should be used to monitor the movement of high consequence dangerous goods (see Table 1.10.3.1.2 or 1.10.3.1.3).*

1.10.4 The provisions of this Chapter do not apply to the carriage of UN No. 2912 RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I) and UN No. 2913 RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I).

1.10.5 For radioactive material, the provisions of this Chapter are deemed to be complied with when the provisions of the Convention on Physical Protection of Nuclear Material (INFCIRC/274/Rev.1, IAEA, Vienna (1980)) and the IAEA circular on “Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities” (INFCIRC/225/Rev.5, IAEA, Vienna (2011)) are applied.

CHAPTERS 1.11 to 1.14

(Reserved)

CHAPTER 1.15**RECOGNITION OF CLASSIFICATION SOCIETIES****1.15.1 General**

In the event of the conclusion of an international agreement concerning more general regulations or the navigation of vessels on inland waterways and containing provisions relating to the full range of activities of classification societies and their recognition, any provision of this Chapter in contradiction with any of the provisions of the said international agreement would, in the relations among Parties to this Agreement which had become parties to the international agreement and as from the day of the entry into force of the latter, automatically be deleted and replaced ipso facto by the relevant provision of the international agreement. This Chapter would become null and void once the international agreement came into force if all Parties to this Agreement became Parties to the international agreement.

1.15.2 Procedure for the recognition of classification societies

1.15.2.1 A classification society which wishes to be recommended for recognition under this Agreement shall submit its application for recognition, in accordance with the provisions of this Chapter, to the competent authority of a Contracting Party.

The classification society shall prepare the relevant information in accordance with the provisions of this Chapter. It shall produce it in, at least, an official language of the State where the application is submitted and in English.

The Contracting Party shall forward the application to the Administrative Committee unless in its opinion the conditions and criteria referred to in 1.15.3 have manifestly not been met.

1.15.2.2 The Administrative Committee shall appoint a Committee of Experts and determine its composition and its rules of procedure. This Committee of Experts shall consider the proposal; it shall determine whether the classification society meets the criteria set out in 1.15.3 and shall make a recommendation to the Administrative Committee within a period of six months.

1.15.2.3 The Administrative Committee shall examine the report of the experts. It shall decide in accordance with the procedure set out in Article 17, 7(c), within one year maximum, whether or not to recommend to the Contracting Parties that they should recognize the classification society in question. The Administrative Committee shall establish a list of the classification societies recommended for recognition by the Contracting Parties.

1.15.2.4 Each Contracting Party may or may not decide to recognize the classification societies in question, only on the basis of the list referred to in 1.15.2.3. The Contracting Party shall inform the Administrative Committee and the other Contracting Parties of its decision.

The Administrative Committee shall update the list of recognitions issued by Contracting Parties.

1.15.2.5 If a Contracting Party considers that a classification society no longer meets the conditions and criteria set out in 1.15.3, it may submit a proposal to the Administrative Committee for withdrawal from the list of recommended societies. Such a proposal shall be substantiated by convincing evidence of a failure to meet the conditions and criteria.

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

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

In such a case the society in question shall immediately be so informed. The Administrative Committee shall also inform all the Contracting Parties that the classification society in question no longer meets the requirements to act as a recognized classification society in the context of the Agreement and shall invite them to take the necessary steps in order to remain in conformity with the requirements of the Agreement.

1.15.3 Conditions and criteria for the recognition of a classification society applying for recognition

A classification society applying for recognition under this Agreement shall meet all the following conditions and criteria:

1.15.3.1 A classification society shall be able to demonstrate extensive knowledge of and experience in the assessment of the design and construction of inland navigation vessels. The society should have comprehensive rules and regulations for the design, construction and periodical inspection of vessels. These rules and regulations shall be published and continuously updated and improved through research and development programmes.

1.15.3.2 Registers of the vessels classified by the classification society shall be published annually.

1.15.3.3 The classification society shall not be controlled by shipowners or shipbuilders, or by others engaged commercially in the manufacture, fitting out, repair or operation of ships. The classification society shall not be substantially dependent on a single commercial enterprise for its revenue.

1.15.3.4 The headquarters or a branch of the classification society authorized and entitled to give a ruling and to act in all areas incumbent on it under the regulations governing inland navigation shall be located in one of the Contracting Parties.

1.15.3.5 The classification society and its experts shall have a good reputation in inland navigation; the experts shall be able to provide proof of their professional abilities.

1.15.3.6 The classification society:

- shall have sufficient professional staff and engineers for the technical tasks of monitoring and inspection and for the tasks of management, support and research, in proportion to the tasks and the number of vessels classified and sufficient to keep regulations up to date and develop them in the light of quality requirements;
- shall have experts in at least two Contracting Parties.

1.15.3.7 The classification society shall be governed by a code of ethics.

1.15.3.8 The classification society shall have prepared and implemented and shall maintain an effective system of internal quality based on the relevant aspects of internationally recognized quality standards and conforming to the standards EN ISO/IEC 17020:2012 (except clause 8.1.3) (inspection bodies) and ISO 9001 or EN ISO 9001:2015. The classification society is subject to certification of its quality system by an independent body of auditors recognized by the administration of the State in which it is located.

1.15.4 Obligations of recommended classification societies

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

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

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

CHAPTER 1.16

PROCEDURE FOR THE ISSUE OF THE CERTIFICATE OF APPROVAL

1.16.0 For the purposes of this Chapter, “owner” means “the owner or his designated representative or, if the vessel is chartered by an operator, the operator or his designated representative”.

1.16.1 **Certificate of approval**

1.16.1.1 *General*

1.16.1.1.1 Dry cargo vessels carrying dangerous goods in quantities greater than exempted quantities, the vessels referred to in 7.1.2.19.1, tank vessels carrying dangerous goods and the vessels referred to in 7.2.2.19.3 shall be provided with an appropriate certificate of approval.

1.16.1.1.2 The certificate of approval shall be valid for not more than five years, subject to the provisions of 1.16.11.

1.16.1.2 *Format of the certificate of approval, particulars to be included*

1.16.1.2.1 The certificate of approval shall conform to the model 8.6.1.1 or 8.6.1.3 with regard to content, form and layout and include the required particulars. It shall include the date of expiry of the period of validity.

Its dimensions are 210 mm x 297 mm (A4). Front and back pages may be used.

It shall be drawn up in the language or one of the languages of the issuing country. If this language is not English, French or German, the title of the certificate and each entry under items 5, 9 and 10 in the certificate of approval for dry cargo vessels (8.6.1.1) and under items 12, 16 and 17 in the certificate of approval for tank vessels (8.6.1.3) shall also be provided in English, French or German.

1.16.1.2.2 The certificate of approval shall attest that the vessel has been inspected and that its construction and equipment comply completely with the applicable requirements of this Regulation.

1.16.1.2.3 All particulars for amendments to the certificate of approval provided for in these Regulations and in the other regulations drawn up by mutual agreement by the Contracting Parties may be entered in the certificate by the competent authority.

1.16.1.2.4 The competent authority shall include the following particulars in the certificate of approval of double-hull vessels meeting the additional requirements of 9.1.0.80 to 9.1.0.95 or 9.2.0.80 to 9.2.0.95:

“The vessel meets the additional requirements for double-hull vessels of 9.1.0.80 to 9.1.0.95” or “The vessel meets the additional requirements for double-hull vessels of 9.2.0.80 to 9.2.0.95.”

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

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

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

The entire vessel substance list shall be withdrawn by the recognized classification society within the period referred to in 1.6.1.1 if, due to amendments to these Regulations or due to changes in classification, goods contained in it are no longer permitted to be carried in the vessel.

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

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

1.16.1.2.6 *(Deleted)*

1.16.1.3 *Provisional certificate of approval*

1.16.1.3.1 For a vessel which is not provided with a certificate of approval, a provisional certificate of approval of limited duration may be issued in the following cases, subject to the following conditions:

- (a) The vessel complies with the applicable requirements of these Regulations, but the normal certificate of approval could not be issued in time. The provisional certificate of approval shall be valid for an appropriate period but not exceeding three months;
- (b) The vessel does not comply with every applicable requirement of these Regulations, but the safety of carriage is not impaired according to the appraisal of the competent authority.

The one-off provisional certificate of approval shall be valid for an appropriate period to bring the vessel into compliance with the applicable provisions, but not exceeding three months.

The competent authority may request additional reports in addition to the inspection report and may require additional conditions.

NOTE: For the issuance of the final certificate of approval according to 1.16.1.2 a new inspection report according to 1.16.3.1 shall be prepared, which confirms conformity also with all hitherto unfulfilled requirements of these Regulations.

- (c) The vessel does not comply with every applicable provision of these Regulations after sustaining damage. In this case the provisional certificate of approval shall be valid only for a single specified voyage and for a specified cargo. The competent authority may impose additional conditions.

1.16.1.3.2 The provisional certificate of approval shall conform to the model in 8.6.1.2 or 8.6.1.4 with regard to content, form and layout or a single model certificate combining a provisional certificate of inspection and the provisional certificate of approval provided that the single model certificate contains the same information as the model in 8.6.1.2 or 8.6.1.4 and is approved by the competent authority. Its dimensions are 210 mm x 297 mm (A4). Front and back pages may be used.

It shall be drawn up in the language or one of the languages of the issuing country. If this language is not English, French or German, the title of the certificate and each entry under item 5 in the provisional certificate of approval for dry cargo vessels (8.6.1.2) and under item 13 in the provisional certificate of approval for tank vessels (8.6.1.4) shall also be provided in English, French or German.

1.16.1.3.3 For tank vessels, the relief pressure of the safety valves or of the high-velocity vent valves shall be entered in the certificate of approval.

If a vessel has cargo tanks with different valve opening pressures, the opening pressure of each tank shall be entered in the certificate of approval.

1.16.1.4 *Annex to the certificate of approval*

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

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

- (a) For vessels according to Article 8, paragraph 2 of ADN for which evidence can be provided that they were already approved for the carriage of dangerous goods on the territory of a Contracting Party before 26 May 2000, 26 May 2000;
- (b) For vessels according to Article 8, paragraph 2, of ADN for which evidence cannot be provided that they were already approved for the carriage of dangerous goods on the territory of a Contracting Party before 26 May 2000, the proven date of the first inspection for the issue of an approval for the carriage of dangerous goods on the territory of a Contracting Party or, if this date is not known, the date of issue of the first proven approval for the carriage of dangerous goods on the territory of a Contracting Party;
- (c) For all other vessels, the proven date of the first inspection for the issue of a certificate of approval in the sense of ADN or, if this date is not known, the date of issue of the first certificate of approval in the sense of ADN;
- (d) In derogation to (a) to (c) above, the date of a renewed first inspection according to 1.16.8 if the vessel no longer had a valid certificate of approval as from 31 December 2014 for more than twelve months.
- (e) In a derogation to subparagraphs (a) to (d), the date of presentation for first inspection for obtaining a certificate of approval after the conversion of an existing type of tank vessel, a type of cargo tank or a cargo tank design to another type or design at a higher level.

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

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

1.16.2 Issue and recognition of certificates of approval

1.16.2.1 The certificate of approval referred to in 1.16.1 shall be issued by the competent authority of the Contracting Party where the vessel is registered, or in its absence, of the Contracting Party where it has its home port or, in its absence, of the Contracting Party where the owner is domiciled or in its absence, by the competent authority selected by the owner.

The other Contracting Parties shall recognize such certificates of approval.

The Contracting Parties shall communicate to the secretariat of the United Nations Economic Commission for Europe (UNECE) the contact information of the authorities and bodies designated by them which are competent in accordance with national law for the issuance of certificates of approval.

The UNECE secretariat shall bring them to the attention of the Contracting Parties through its website.

1.16.2.2 The competent authority of any of the Contracting Parties may request the competent authority of any other Contracting Party to issue a certificate of approval in its stead.

1.16.2.3 The competent authority of any of the Contracting Parties may delegate the authority to issue the certificate of approval to an inspection body as defined in 1.16.4.

1.16.2.4 The provisional certificate of approval referred to in 1.16.1.3 shall be issued by the competent authority of one of the Contracting Parties for the cases and under the conditions referred to in these Regulations.

The other Contracting Parties shall recognize such provisional certificates of approval.

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

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

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

1.16.3 Inspection procedure**1.16.3.1**

The competent authority of the Contracting Party shall supervise the inspection of the vessel. Under this procedure, the inspection may be performed by an inspection body designated by the Contracting Party or by a recognized classification society according to Chapter 1.15. The inspection body or the recognized classification society shall issue an inspection report certifying that the vessel conforms partially or completely to the applicable requirements of these Regulations related to the construction and equipment of the vessel.

1.16.3.2

This inspection report shall contain:

- Name and address of the Inspection Body or the recognized classification society that carried out the inspection;
- Applicant of the inspection;
- Date and place of the inspection;
- Type of the inspected vessel;
- Identification of the vessel (name, vessel number, ENI number, etc.);
- Declaration that the vessel conforms partially or completely to the applicable requirements of ADN on the construction and equipment of the vessel (in the version applicable on the date of the inspection or, if later, on the estimated date of issuance of the certificate of approval);
- Indication (list, description and references in ADN) of any non-conformities;
- Used transitional provisions;
- Used equivalents and derogations from the regulations applicable to the vessel with reference to the relevant recommendation of the ADN Administrative Committee;
- Date of issuance of the inspection report;
- Signature and official seal of the inspection body or recognized classification society.

If the inspection report does not ensure that all the applicable requirements referred to in 1.16.3.1 are fulfilled, the competent authority may require any additional information in order to issue a provisional certificate of approval according to 1.16.1.3.1 (b).

The authority which is issuing the certificate of approval may request information about the name of the office and surveyor(s) which carried out the inspection including email and phone number, but this information will not become part of the vessel record.

1.16.3.3

The inspection report shall be drawn up in a language accepted by the competent authority and shall contain all the necessary information to enable the certificate to be drawn up.

1.16.3.4

The provisions of 1.16.3.1, 1.16.3.2 and 1.16.3.3 apply to the first inspection referred to in 1.16.8, to the special inspection referred to in 1.16.9 and to the periodic inspection referred to in 1.16.10.

1.16.3.5

Where the inspection report is issued by a recognized classification society, the inspection report may include the certificate referred to in 9.1.0.88.1, 9.2.0.88.1, 9.3.1.8.1, 9.3.2.8.1 or 9.3.3.8.1.

The presence on board of the certificates issued by the recognized classification society for the purposes of 8.1.2.3 (f) and 8.1.2.3 (o) remains mandatory.

1.16.4 Inspection body

1.16.4.1 Inspection bodies shall be subject to recognition by the Contracting Party administration as expert bodies on the construction and inspection of inland navigation vessels and as expert bodies on the transport of dangerous goods by inland waterway. They shall meet the following criteria:

- Compliance by the body with the requirements of impartiality;
- Existence of a structure and personnel that provide objective evidence of the professional ability and experience of the body;
- Compliance with the material contents of standard EN ISO/IEC 17020:2012 (except clause 8.1.3) supported by detailed inspection procedures.

1.16.4.2 Inspection bodies may be assisted by experts (e.g. an expert in electrical installations) or specialized bodies according to the national provisions applicable (e.g. classification societies).

1.16.4.3 The Administrative Committee shall maintain an up-to-date list of the inspection bodies appointed.

1.16.5 Application for the issue of a certificate of approval

The owner of a vessel shall deposit an application for a certificate of approval with the competent authority referred to in 1.16.2.1. The competent authority shall specify the documents to be submitted to it. In order to obtain a certificate of approval, at least a valid vessel certificate, the inspection report referred to in 1.16.3.1 and the certificate referred to in 9.1.0.88.1, 9.2.0.88.1, 9.3.1.8.1, 9.3.2.8.1 or 9.3.3.8.1 shall accompany the request.

1.16.6 Particulars entered in the certificate of approval and amendments thereto

1.16.6.1 The owner of a vessel shall inform the competent authority of any change in the name of the vessel or change of official number or registration number and shall transmit to it the certificate of approval for amendment.

1.16.6.2 All amendments to the certificate of approval provided for in these Regulations and in the other regulations drawn up by mutual agreement by the Contracting Parties may be entered in the certificate by the competent authority.

1.16.6.3 When the owner of the vessel has the vessel registered in another Contracting Party, he shall request a new certificate of approval from the competent authority of that Contracting Party. The competent authority may issue the new certificate for the remaining period of validity of the existing certificate without making a new inspection of the vessel, provided that the state and the technical specifications of the vessel have not undergone any modification.

1.16.6.4 In cases of the transfer of responsibility to another competent authority according to 1.16.6.3, the competent authority to which the last certificate of approval was returned shall submit on request the annex to the certificate according to 1.16.1.4 to the competent authority that will issue the new certificate of approval.

1.16.7 Presentation of the vessel for inspection

1.16.7.1 The owner shall present the vessel for inspection unladen, cleaned and equipped; he shall be required to provide such assistance as may be necessary for the inspection, such as providing a suitable launch and personnel, and uncovering those parts of the hull or installations which are not directly accessible or visible.

1.16.7.2 In the case of a first, special or periodical inspection, the inspection body or the recognized classification society may require a dry-land inspection.

1.16.8 First inspection

If a vessel does not yet have a certificate of approval or if the validity of the certificate of approval expired more than twelve months ago, the vessel shall undergo a first inspection.

1.16.9 Special inspection

If the vessel's hull or equipment has undergone alterations liable to diminish safety in respect of the carriage of dangerous goods, or has sustained damage affecting such safety, the vessel shall be presented without delay by the owner for further inspection.

1.16.10 Periodic inspection and renewal of the certificate of approval

1.16.10.1 To renew the certificate of approval, the owner of the vessel shall present the vessel for a periodic inspection. The owner of the vessel may request an inspection at any time.

1.16.10.2 If the request for a periodic inspection is made during the last year preceding the expiry of the validity of the certificate of approval, the period of validity of the new certificate shall commence when the validity of the preceding certificate of approval expires.

1.16.10.3 A periodic inspection may also be requested during a period of twelve months after the expiry of the certificate of approval. After this period of time, the vessel shall undergo a first inspection in accordance with 1.16.8.

1.16.10.4 The competent authority shall establish the period of validity of the new certificate of approval on the basis of the results of the periodic inspection.

1.16.11 Extension of the certificate of approval without an inspection

By derogation from 1.16.10, at the substantiated request of the owner, the competent authority that has issued the certificate of approval may grant an extension of the validity of the certificate of approval of not more than one year without an inspection. This extension shall be granted in writing and shall be kept on board the vessel. Such extensions may be granted only once every two validity periods.

1.16.12 Official inspection

1.16.12.1 If the competent authority of a Contracting Party has reason to assume that a vessel which is in its territory may constitute a danger in relation to the transport of dangerous goods, for the persons on board or for shipping or for the environment, it may order an inspection of the vessel in accordance with 1.16.3.

1.16.12.2 When exercising this right to inspect, the authorities will make all possible efforts to avoid unduly detaining or delaying a vessel. Nothing in this Agreement affects rights relating to compensation for undue detention or delay. In any instance of alleged undue detention or delay the burden of proof shall lie with the owner of the vessel.

1.16.13 Withdrawal, withholding and return of the certificate of approval

1.16.13.1 The certificate of approval may be withdrawn if the vessel is not properly maintained or if the vessel's construction or equipment no longer complies with the applicable provisions of these Regulations, or if the vessel's highest class according to 9.2.0.88.1, 9.3.1.8.1, 9.3.2.8.1 or 9.3.3.8.1 is not valid.

1.16.13.2 The certificate of approval may only be withdrawn by the authority by which it has been issued. Nevertheless, in the cases referred to in 1.16.9 and 1.16.13.1 above, the competent authority of the State in which the vessel is staying may prohibit its use for the carriage of those dangerous goods for which the certificate is required. For this purpose it may withdraw the certificate until such time as the vessel again complies with the applicable provisions of these Regulations. In that case it shall notify the competent authority which issued the certificate.

1.16.13.3 Notwithstanding 1.16.2.2 above, any competent authority may amend or withdraw the certificate of approval at the request of the vessel's owner, provided that it so notifies the competent authority which issued the certificate.

1.16.13.4 When an inspection body or a recognized classification society observes, in the course of an inspection, that a vessel or its equipment suffers from serious defects in relation to dangerous goods which might jeopardize the safety of the persons on board or the safety of shipping, or constitute a hazard for the environment, or when the vessel's highest class is not valid, it shall immediately notify the competent authority on behalf of which it acts with a view to a decision to withhold the certificate. If this authority which decided to withdraw the certificate is not the authority which issued the certificate, it shall immediately inform the latter and, where necessary, return the certificate to it if it presumes that the defects cannot be eliminated in the near future.

1.16.13.5 When the inspection body or the recognized classification society referred to in 1.16.13.4 above ascertains, by means of a special inspection according to 1.16.9, that these defects have been remedied, the certificate of approval shall be returned by the competent authority to the owner. This inspection may be made at the request of the owner by another inspection body or another recognized classification society. In this case, the certificate of approval shall be returned through the competent authority to which the inspection body or the recognized classification society answers.

1.16.13.6 When a vessel is finally immobilized or scrapped, the owner shall send the certificate of approval back to the competent authority which issued it.

1.16.14 Duplicate copy

In the event of the loss, theft or destruction of the certificate of approval or when it becomes unusable for other reasons, an application for a duplicate copy, accompanied by appropriate supporting documents, shall be made to the competent authority which issued the certificate.

This authority shall issue a duplicate copy of the certificate of approval, which shall be designated as such.

1.16.15 Register of certificates of approval

1.16.15.1 The competent authorities shall assign a serial number to the certificates of approval which they issue. They shall keep a register of all the certificates issued.

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

PART 2

Classification

(See Volume II)

PART 3

Dangerous goods list, special provisions and exemptions related to limited and excepted quantities

CHAPTER 3.1

GENERAL

(See Volume II)

CHAPTER 3.2**LIST OF DANGEROUS GOODS****3.2.1 Table A: List of dangerous goods in numerical order**

See Volume II

3.2.2 Table B: List of dangerous goods in alphabetical order

See Volume II

3.2.3 Table C: List of dangerous goods accepted for carriage in tank vessels in numerical order**3.2.3.1 Explanations concerning Table C:**

As a rule, each row of Table C of this Chapter deals with the substance(s) covered by a specific UN number or identification number. However, when substances belonging to the same UN number or identification number have different chemical properties, physical properties and/or carriage conditions, several consecutive rows may be used for that UN number or identification number.

Each column of Table C is dedicated to a specific subject as indicated in the explanatory notes below. The intersection of columns and rows (cell) contains information concerning the subject treated in that column, for the substance(s) of that row:

- The first four cells identify the substance(s) belonging to that row;
- The following cells give the applicable special provisions, either in the form of complete information or in coded form. The codes cross-refer to detailed information that is to be found in the numbers indicated in the explanatory notes below. An empty cell means either that there is no special provision and that only the general requirements apply, or that the carriage restriction indicated in the explanatory notes is in force;
- If a cell contains an asterisk, “*”, the applicable requirements should be determined by applying 3.2.3.3. The determination of the applicable requirements by applying 3.2.3.3 should take precedence over using the entries for mixtures for which no sufficient data is available.

The applicable general requirements are not referred to in the corresponding cells.

Explanatory notes for each column:

Column (1) “UN number/identification number”

Contains the UN number or identification number:

- of the dangerous substance if the substance has been assigned its own specific UN number or identification number, or
- of the generic or n.o.s. entry to which the dangerous substances not mentioned by name shall be assigned in accordance with the criteria (“decision trees”) of Part 2.

Column (2)	“Name and description”
	Contains, in upper case characters, the name of the substance, if the substance has been assigned its own specific UN number or identification number or of the generic or n.o.s. entry to which the dangerous substances have been assigned in accordance with the criteria (“decision trees”) of Part 2. This name shall be used as the proper shipping name or, when applicable, as part of the proper shipping name (see 3.1.2 for further details on the proper shipping name).
	A descriptive text in lower case characters is added after the proper shipping name to clarify the scope of the entry if the classification or carriage conditions of the substance may be different under certain conditions.
Column (3a)	“Class”
	Contains the number of the Class, whose heading covers the dangerous substance. This Class number is assigned in accordance with the procedures and criteria of Part 2.
Column (3b)	“Classification code”
	Contains the classification code of the dangerous substance. <ul style="list-style-type: none"> – For dangerous substances of Class 2, the code consists of a number and one or more letters representing the hazardous property group, which are explained in 2.2.2.1.2 and 2.2.2.1.3. – For dangerous substances or articles of Classes 3, 4.1, 6.1 and 9, the codes are explained in 2.2.x.1.2;¹ – For dangerous substances or articles of Class 8, the codes are explained in 2.2.8.1.4.1.
Column (4)	“Packing group”
	Contains the packing group number(s) (I, II or III) assigned to the dangerous substance. These packing group numbers are assigned on the basis of the procedures and criteria of Part 2. Certain substances are not assigned to packing groups.
Column (5)	“Dangers”
	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). <p>In the case of a chemically unstable substance, the code ‘unst.’ is added to the information.</p> <p>In the case of a substance or mixture with CMR properties, the code ‘CMR’ is added to the information.</p>

¹ x = the Class number of the dangerous substance or article, without dividing point if applicable.

CMR is used to indicate substances with long-term effects on health (*carcinogenic, mutagenic or toxic to reproduction*, Categories 1A and 1B in accordance with the criteria of Chapters 3.5, 3.6 and 3.7 of the GHS).

In the case of a substance or mixture hazardous to the aquatic environment, the code 'N1', 'N2' or 'N3' is added to the information. (See 2.2.9.1.10).

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.

Where the information is shown in brackets, only the relevant codes for the substance carried should be used.

Column (6)	“Type of tank vessel”
	Contains the type of tank vessel: G, C or N.
Column (7)	“Cargo tank design”
	Contains information concerning the design of the cargo tank:
	<ol style="list-style-type: none">1 Pressure cargo tank2 Closed cargo tank3 Open cargo tank with flame arrester4 Open cargo tank
Column (8)	“Cargo tank type”
	Contains information concerning the cargo tank type.
	<ol style="list-style-type: none">1 Independent cargo tank2 Integral cargo tank3 Cargo tank with walls distinct from the outer hull4 Membrane tank
Column (9)	“Cargo tank equipment”
	Contains information concerning the cargo tank equipment.
	<ol style="list-style-type: none">1 Refrigeration system2 Possibility of cargo heating3 Water-spray system4 Cargo heating system on board

Column (10)	“Opening pressure of the pressure relief valve/high-velocity vent valve in kPa” Contains information concerning the opening pressure of the pressure relief valve/high-velocity vent valve in kPa.
Column (11)	“Maximum degree of filling of the cargo tank (%)” Contains information concerning the maximum degree of filling of cargo tanks as a percentage.
Column (12)	“Relative density at 20 °C” Contains information concerning the relative density of the substance at 20 °C. Data concerning the density are for information only.
Column (13)	“Type of sampling device” Contains information concerning the prescribed type of sampling device. 1 Closed-type sampling device 2 Partly closed-type sampling device 3 Sampling opening
Column (14)	“Pump room below deck permitted” Contains an indication of whether a pump room is permitted below deck. Yes pump room below deck permitted No pump room below deck not permitted
Column (15)	“Temperature class” Contains the temperature class of the substance.
Column (16)	“Explosion group” Contains the explosion group of the substance. Values between square brackets indicate the explosion group II B subgroups to be used in selecting the relevant autonomous protection systems.

NOTE:

Where autonomous protection systems for explosion group II B are in place, products in explosion group II A or II B, including subgroups II B3, II B2 and II B1, may be transported.

Where autonomous protection systems for explosion group II B3 are in place, products in explosion subgroups II B3, II B2 and II B1, or in explosion group II A, may be transported.

Where autonomous protection systems for explosion group II B2 are in place, products in explosion subgroups II B2 and II B1, or in explosion group II A, may be transported.

Where autonomous protection systems for explosion group II B1 are in place, products in explosion subgroup II B1 or in explosion group II A may be transported.

Column (17)	“Anti-explosion protection required”
	Contains information on protection against explosions.
	Yes anti-explosion protection required
	No anti-explosion protection not required
Column (18)	“Equipment required”
	This column contains the alphanumeric codes for the equipment required for the carriage of the dangerous substance (see 8.1.5).
Column (19)	“Number of cones/blue lights”
	This column contains the number of cones/blue lights which should constitute the marking of the vessel during the carriage of this dangerous substance.
Column (20)	“Additional requirements/Remarks”
	This column contains the additional requirements or remarks applicable to the vessel.
	These additional requirements or remarks are:
	1. Anhydrous ammonia is liable to cause stress crack corrosion in cargo tanks and cooling systems constructed of carbon-manganese steel or nickel steel.
	In order to minimize the risk of stress crack corrosion the following measures shall be taken:
	(a) Where carbon-manganese steel is used, cargo tanks, pressure vessels of cargo refrigeration systems and cargo piping shall be constructed of fine-grained steel having a specified minimum yield stress of not more than 355 N/mm^2 . The actual yield stress shall not exceed 440 N/mm^2 . In addition, one of the following construction or operational measures shall be taken:
	.1 Material with a low tensile strength ($R_m < 410 \text{ N/mm}^2$) shall be used; or
	.2 Cargo tanks, etc., shall undergo a post-weld heat treatment for the purpose of stress relieving; or

.3 The transport temperature shall preferably be maintained close to the evaporation temperature of the cargo of -33°C , but in no case above -20°C ; or

.4 Ammonia shall contain not less than 0.1% water, by mass.

(b) When carbon-manganese steel with yield stress values higher than those referred to in (a) above is used, the completed tanks, pipe sections, etc., shall undergo a post-weld heat treatment for the purpose of stress relieving.

(c) Pressure vessels of the cargo refrigeration systems and the piping systems of the condenser of the cargo refrigeration system constructed of carbon-manganese steel or nickel steel shall undergo a post-weld heat treatment for the purpose of stress relieving.

(d) The yield stress and the tensile strength of welding consumables may exceed only by the smallest value possible the corresponding values of the tank and piping material.

(e) Nickel steels containing more than 5% nickel and carbon-manganese steel which are not in compliance with the requirements of (a) and (b) above may not be used for cargo tanks and piping systems intended for the transport of this substance.

(f) Nickel steels containing not more than 5% nickel may be used if the transport temperature is within the limits referred to in (a) above.

(g) The concentration of oxygen dissolved in the ammonia shall not exceed the values given in the table below:

t in $^{\circ}\text{C}$	O ₂ in %
-30 and below	0.90
-20	0.50
-10	0.28
0	0.16
10	0.10
20	0.05
30	0.03

2. Before loading, air shall be removed and subsequently kept away to a sufficient extent from the cargo tanks and the accessory cargo piping by the means of inert gas (see also 7.2.4.18).

3. Arrangements shall be made to ensure that the cargo is sufficiently stabilized in order to prevent a reaction at any time during carriage. The transport document shall contain the following additional particulars:

- (a) Name and amount of inhibitor added;
- (b) Date on which inhibitor was added and expected duration of effectiveness under normal conditions;
- (c) Any temperature limits having an effect on the inhibitor.

When stabilization is ensured solely by blanketing with an inert gas it is sufficient to mention the name of the inert gas used in the transport document.

When stabilization is ensured by another measurement, e.g. the special purity of the substance, this measurement shall be mentioned in the transport document.

4. The substance shall not be allowed to solidify; the transport temperature shall be maintained above the melting point. In instances where cargo heating installations are required, they must be so designed that polymerisation through heating is not possible in any part of the cargo tank. Where the temperature of steam-heated coils could give rise to overheating, lower-temperature indirect heating systems shall be provided.

5. This substance is liable to clog the venting piping and its fittings or the fittings of cargo tanks. Careful surveillance should be ensured.

If a closed-type tank vessel cargo tank is required for the carriage of this substance and explosion protection is necessary or the substance for which explosion protection is necessary is carried in a closed cargo tank, the cargo tank shall conform to 9.3.2.22.4 or 9.3.3.22.4 or the venting piping shall conform to 9.3.2.22.5 (a) or 9.3.2.22.5 (b) or to 9.3.3.22.5 (a) or 9.3.3.22.5 (b).

This requirement does not apply when the cargo tanks and the corresponding piping are inerted in accordance with 7.2.4.18.

6. When external temperatures are below or equal to that indicated in column (20), the substance may only be carried in tank vessels equipped with a possibility of heating the cargo.

In addition, in the event of carriage in a closed cargo tank, the venting piping, the safety valves and the flame arresters shall be heatable.

The temperature of the venting piping, safety valves and flame arresters shall be kept at least above the melting point of the substance.

7. If a closed cargo tank is required to carry this substance or if the substance is carried in a closed cargo tank, the venting piping, the safety valves and the flame arresters shall be heatable.

The temperature of the venting piping, safety valves and flame arresters shall be kept at least above the melting point of the substance.

8. Double-hull spaces, double bottoms and heating coils shall not contain any water.

9. (a) While the vessel is underway, an inert-gas pad shall be maintained in the ullage space above the liquid level.

- (b) Cargo piping and vent lines shall be independent of the corresponding piping used for other cargoes.

- (c) Safety valves shall be made of stainless steel.

10. *(Reserved)*

11. (a) Stainless steel of type 416 or 442 and cast iron shall not be used for cargo tanks and piping for loading and unloading.

- (b) The cargo may be discharged only by deep-well pumps or pressure inert gas displacement. Each cargo pump shall be arranged to ensure that the substance does not heat significantly if the pressure discharge line from the pump is shut off or otherwise blocked.

- (c) The cargo shall be cooled and maintained at temperatures below 30 °C.

- (d) The safety valves shall be set at a pressure of not less than 550 kPa (5.5 bar) gauge pressure. Special authorization is required for the maximum setting pressure.

- (e) While the vessel is underway, a nitrogen pad shall be maintained in the ullage space above the cargo (see also 7.2.4.18). An automatic nitrogen supply system shall be installed to prevent the pressure from falling below 7 kPa (0.07 bar) gauge within the cargo tank in the event of a cargo temperature fall due to ambient temperature conditions or to some other reason. In order to satisfy the demand of the automatic pressure control a sufficient amount of nitrogen shall be available on board. Nitrogen of a commercially pure quality of 99.9%, by volume, shall be used for padding. A battery of nitrogen cylinders connected to the cargo tanks through a pressure reduction valve satisfies the intention of the expression “automatic” in this context.

The required nitrogen pad shall be such that the nitrogen concentration in the vapour space of the cargo tank is not less than 45% at any time.

- (f) Before loading and while the cargo tank contains this substance in a liquid or gaseous form, it and the corresponding piping shall be inerted with nitrogen.

(g) The water-spray system shall be fitted with remote-control devices which can be operated from the wheelhouse or from the control station, if any.

(h) Transfer arrangements shall be provided for emergency transfer of ethylene oxide in the event of an uncontrollable self-reaction.

12. (a) The substance shall be acetylene free.

(b) Cargo tanks which have not undergone appropriate cleaning shall not be used for the carriage of these substances if one of the previous three cargoes consisted of a substance known to promote polymerisation, such as:

- .1 mineral acids (e.g. sulphuric acid, hydrochloric acid, nitric acid);
- .2 carboxylic acids and anhydrides (e.g. formic acid, acetic acid);
- .3 halogenated carboxylic acids (e.g. chloroacetic acid);
- .4 sulphonic acids (e.g. benzene sulphonic acid);
- .5 caustic alkalis (e.g. sodium hydroxide, potassium hydroxide);
- .6 ammonia and ammonia solutions;
- .7 amines and amine solutions;
- .8 oxidizing substances.

(c) Before loading, cargo tanks and their piping shall be efficiently and thoroughly cleaned so as to eliminate all traces of previous cargoes, except when the last cargo was constituted of propylene oxide or a mixture of ethylene oxide and propylene oxide. Special precautions shall be taken in the case of ammonia in cargo tanks built of steel other than stainless steel.

(d) In all cases the efficiency of the cleaning of cargo tanks and their piping shall be monitored by means of appropriate tests or inspections to check that no trace of acid or alkaline substance remains that could present a danger in the presence of these substances.

(e) The cargo tanks shall be entered and inspected prior to each loading of these substances to ensure freedom from contamination, heavy rust deposits or visible structural defects.

When these cargo tanks are fitted in type C tank vessels, with cargo tank design 1 and cargo tank type 1, and are in continuous service for these substances, such inspections shall be performed at intervals of not more than two and a half years.

When these cargo tanks are fitted in type G tank vessels, with cargo tank design 1 and cargo tank type 1, and are in continuous service for these substances, such inspections shall be performed during the periodic inspection for the renewal of the certificate of approval according to 1.16.10.

- (f) Cargo tanks which have contained these substances may be reused for other cargoes once they and their piping have been thoroughly cleaned by washing and flushing with an inert gas.
- (g) Substances shall be loaded and unloaded in such a way that there is no release of gas into the atmosphere. If gas is returned to the shore installation during loading, the gas return system connected to the tank containing that substance shall be independent from all other cargo tanks.
- (h) During discharge operations, the pressure in the cargo tanks shall be maintained above 7 kPa (0.07 bar) gauge.
- (i) The cargo shall be discharged only by deep-well pumps, hydraulically operated submerged pumps or pressure inert gas displacement. Each cargo pump shall be arranged to ensure that the substance does not heat significantly if the pressure discharge line from the pump is shut off or otherwise blocked.
- (j) Each cargo tank carrying these substances shall be ventilated by a system independent from the ventilation systems of other cargo tanks carrying other substances.
- (k) Hose assemblies for loading and unloading shall be marked as follows:

“To be used only for the transfer of alkylene oxide.”

- (l) *(Reserved)*
- (m) No air shall be allowed to enter the cargo pumps and cargo piping system while these substances are contained within the system.
- (n) Before the shore connections are disconnected, piping containing liquids or gas shall be depressurised at the shore link by means of appropriate devices.
- (o) The piping system for cargo tanks to be loaded with these substances shall be separate from the piping system for all other cargo tanks, including empty cargo tanks. If the piping system for the cargo tanks to be loaded is not independent, separation shall be accomplished by the removal of spool pieces, shut-off valves, other pipe sections and by fitting blank flanges at these locations. The required separation applies to all liquid pipes and vapour vent lines and any other connections which may exist such as common inert gas supply lines.

(p) These substances may be carried only in accordance with cargo handling plans that have been approved by a competent authority.

Each loading arrangement shall be shown on a separate cargo handling plan. Cargo handling plans shall show the entire cargo piping system and the locations for installations of blank flanges needed to meet the above piping separation requirements. A copy of each cargo handling plan shall be kept on board. Reference to the approved cargo handling plans shall be included in the certificate of approval.

(q) Before loading of these substances and before carriage is resumed a qualified person approved by the competent authority shall certify that the prescribed separation of the piping has been effected; this certificate shall be kept on board. Each connection between a blank flange and a shut-off valve in the piping shall be fitted with a sealed wire to prevent the flange from being disassembled inadvertently.

(r) During the voyage, the cargo shall be covered with nitrogen. An automatic nitrogen make-up system shall be installed to prevent the cargo tank pressure from falling below 7 kPa (0.07 bar) gauge in the event of a cargo temperature fall due to ambient temperature conditions or to some other reason. Sufficient nitrogen shall be available on board to satisfy the demand of automatic pressure control. Nitrogen of commercially pure quality of 99.9%, by volume, shall be used for padding. A battery of nitrogen cylinders connected to the cargo tanks through a pressure reduction valve satisfies the intention of the expression “automatic” in this context.

(s) The vapour space of the cargo tanks shall be checked before and after each loading operation to ensure that the oxygen content is 2%, by volume, or less.

(t) Loading flow

The loading flow (L_R) of cargo tank shall not exceed the following value:

$$L_R = 3600 \times U/t \text{ (m}^3/\text{h)}$$

In this formula:

U = the free volume (m^3) during loading for the activation of the overflow prevention system;

T = the time (s) required between the activation of the overflow prevention system and the complete stop of the flow of cargo into the cargo tank;

The time is the sum of the partial times needed for successive operations, e.g. reaction time of the service personnel, the time needed to stop the pumps and the time needed to close the shut-off valves;

The loading flow shall also take account of the design pressure of the piping system.

13. If no stabilizer is supplied or if the supply is inadequate, the oxygen content in the vapour phase shall not exceed 0.1%. Overpressure must be constantly maintained in cargo tanks. This requirement applies also to voyages on ballast or empty with uncleaned cargo tanks between cargo transport operations.
14. The following substances may not be carried in a type N vessel:
 - substances with self-ignition temperatures ≤ 200 °C;
 - substances with a flash point < 23 °C and an explosion range > 15 percentage points;
 - mixtures containing halogenated hydrocarbons;
 - mixtures containing more than 10% benzene;
 - substances and mixtures carried in a stabilized state.
15. Provision shall be made to ensure that alkaline or acidic substances such as sodium hydroxide solution or sulphuric acid do not contaminate this cargo.
16. If there is a possibility of a dangerous reaction such as polymerisation, decomposition, thermal instability or evolution of gases resulting from local overheating of the cargo in either the cargo tank or associated piping system, this cargo shall be loaded and carried adequately segregated from other substances the temperature of which is sufficiently high to initiate such reaction. Heating coils inside cargo tanks carrying this substance shall be blanked off or secured by equivalent means.
17. The melting point of the cargo shall be shown in the transport documents.
18. *(Reserved)*

19. Provision shall be made to ensure that the cargo does not come into contact with water. The following additional requirements apply:

Carriage of the cargo is not permitted in cargo tanks adjacent to slop tanks or cargo tanks containing ballast water, slops or any other cargo containing water. Pumps, piping and vent lines connected to such tanks shall be separated from similar equipment of tanks carrying these substances. Pipes from slop tanks or ballast water pipes shall not pass through cargo tanks containing this cargo unless they are encased in a tunnel.
20. The maximum permitted transport temperature given in column (20) shall not be exceeded.
21. *(Reserved)*
22. The relative density of the cargo shall be shown in the transport document.
23. The instrument for measuring the pressure of the vapour phase in the cargo tank shall activate the alarm when the internal pressure reaches 40 kPa (0.4 bar). The water-spray system shall immediately be activated and remain in operation until the internal pressure drops to 30 kPa (0.3 bar).
24. Substances having a flash-point above 60 °C which are handed over for carriage or which are carried heated within a limiting range of 15 K below their flash-point shall be carried under the conditions of substance number 9001.
25. Type 3 cargo tank may be used for the carriage of this substance provided that the construction of the cargo tank has been accepted by a recognized classification society for the maximum permitted transport temperature.
26. Type 2 cargo tank may be used for the carriage of this substance provided that the construction of the cargo tank has been accepted by a recognized classification society for the maximum permitted transport temperature.
27. The requirements of 3.1.2.8.1 are applicable.
28. (a) When UN 2448 SULPHUR, MOLTEN is carried, the forced ventilation of the cargo tanks shall be brought into service at latest when the concentration of hydrogen sulphide reaches 1.0%, by volume.
(b) When during the carriage of UN 2448 SULPHUR, MOLTEN, the concentration of hydrogen sulphide exceeds 1.85%, the boat master shall immediately notify the nearest competent authority.

When a significant increase in the concentration of hydrogen sulphide in a hold space leads it to be supposed that the sulphur has leaked, the cargo tanks shall be unloaded as rapidly as possible. A new load may only be taken on board once the authority which issued the certificate of approval has carried out a further inspection.

- (c) When UN 2448 SULPHUR, MOLTEN is carried, the concentration of hydrogen sulphide shall be measured in the vapour phase of the cargo tanks and concentrations of sulphur dioxide and hydrogen sulphide in the hold spaces.
- (d) The measurements prescribed in (c) shall be made every eight hours. The results of the measurements shall be recorded in writing.

29. *(Deleted)*

- 30. When these substances are carried, the hold spaces of open type N tank vessels may contain auxiliary equipment.
- 31. When these substances are carried, the vessel shall be equipped with a quick closing valve placed directly on the shore connection.
- 32. In the case of transport of this substance, the following additional requirements are applicable:

- (a) The outside of the cargo tanks shall be equipped with insulation of low flammability. This insulation shall be strong enough to resist shocks and vibration. Above deck, the insulation shall be protected by a covering.

The outside temperature of this covering shall not exceed 70 °C.

- (b) The hold spaces containing the cargo tanks shall be provided with ventilation. Connections for forced ventilation shall be fitted.

- (c) The cargo tanks shall be equipped with forced ventilation installations which, in all transport conditions, will reliably keep the concentration of hydrogen sulphide above the liquid phase below 1.85% by volume.

The ventilation installations shall be fitted in such a way as to prevent the deposit of the goods to be transported.

The exhaust line of the ventilation shall be fitted in such a way as not to present a risk to personnel.

- (d) The cargo tank and the hold spaces shall be fitted with outlets and piping to allow gas sampling.

- (e) The outlets of the cargo tanks shall be situated at a height such that for a trim of 2° and a list of 10°, no sulphur can escape. All the outlets shall be situated above the deck in the open air. Each outlet shall be equipped with a permanently fixed closing mechanism.

One of these mechanisms shall be capable of being opened for slight overpressure within the tank.

- (f) The piping for loading and unloading shall be equipped with adequate insulation. They shall be capable of being heated.
- (g) The heat transfer fluid shall be such that in the event of a leak into a tank, there is no risk of a dangerous reaction with the sulphur.

33. The following provisions are applicable to transport of this substance:

Construction requirements:

- (a) Hydrogen peroxide solutions may be transported only in cargo tanks equipped with deep-well pumps.
- (b) Cargo tanks and their equipment shall be constructed of solid stainless steel of a type appropriate to hydrogen peroxide solutions (for example, 304, 304L, 316, 316L or 316 Ti). None of the non-metallic materials used for the system of cargo tanks shall be attacked by hydrogen peroxide solutions or cause the decomposition of the substance.
- (c) The temperature sensors shall be installed in the cargo tanks directly under the deck and at the bottom. Remote temperature read-outs and monitoring shall be provided for in the wheelhouse.
- (d) Fixed oxygen monitors (or gas-sampling lines) shall be provided in the areas adjacent to the cargo tanks so that leaks in such areas can be detected. Account shall be taken of the increased flammability arising from the increased presence of oxygen. Remote read-outs, continuous monitoring (if the sampling lines are used, intermittent monitoring will suffice) and visible and audible alarms similar to those for the temperature sensors shall also be located in the wheelhouse. The visible and audible alarms shall be activated if the oxygen concentration in these void spaces exceeds 30% by volume. Two additional oxygen monitors shall also be available.
- (e) The cargo tank venting systems which are equipped with filters shall be fitted with pressure/vacuum relief valves appropriate to closed-circuit ventilation and with an extraction installation should cargo tank pressure rise rapidly as a result of an uncontrolled decomposition (see under m). These air supply and extraction systems shall be so designed that water cannot enter the cargo tanks. In designing the emergency extraction installation account shall be taken of the design pressure and the size of the cargo tanks.
- (f) A fixed water-spray system shall be provided for diluting and washing away any hydrogen peroxide solutions spilled onto the deck. The area covered by the jet of water shall include the shore connections and the deck containing the cargo tanks designated for carrying hydrogen peroxide solutions.

The following minimum requirements shall be complied with:

.1 The substance shall be diluted from the original concentration to a 35% concentration within five minutes from the spillage on the deck;

.2 The rate and estimated size of the spill shall be determined in the light of the maximum permissible loading or unloading rates, the time required to halt the spillage in the event of tank overfill or a pipe or hose assembly failure, and the time necessary to begin application of dilution water with actuation of the alarm at the cargo control location or in the wheelhouse.

(g) The outlets of the pressure valves shall be situated at least 2 metres above the walkways if they are less than 4 metres from the walkway.

(h) A temperature sensor shall be installed by each pump to make it possible to monitor the temperature of the cargo during unloading and detect any overheating due to defective operation of the pump.

Servicing requirements:

Carrier

(i) Hydrogen peroxide solutions may only be carried in cargo tanks which have been thoroughly cleaned and passivated, in accordance with the procedure described under (j), of all traces of previous cargoes, their vapours or their ballast waters. A certificate stating that the procedure described under (j) has been duly complied with must be carried on board.

Particular care in this respect is essential to ensure the safe carriage of hydrogen peroxide solutions:

.1 When a hydrogen peroxide solution is being carried, no other cargo may be carried simultaneously;

.2 Tanks which have contained hydrogen peroxide solutions may be reused for other cargoes after they have been cleaned by persons or companies approved for this purpose by the competent authority;

.3 In the design of the cargo tanks, efforts must be made to keep to a minimum any internal tank structure, to ensure free draining, no entrapment and ease of visual inspection.

(j) Procedures for inspection, cleaning, passivation and loading for the transport of hydrogen peroxide solutions with a concentration of 8 to 60 per cent in cargo tanks which have previously carried other cargoes.

Before their reuse for the transport of hydrogen peroxide solutions, cargo tanks which have previously carried cargoes other than hydrogen peroxide must be inspected, cleaned and passivated. The procedures described in paragraphs .1 to .7 below for inspection and cleaning apply to stainless steel cargo tanks. The procedure for passivating stainless steel is described in paragraph 8. Failing any other instructions, all the measures apply to cargo tanks and to all their structures which have been in contact with other cargoes.

- .1 After unloading of the previous cargo, the cargo tank must be made gasfree and inspected for any remaining traces, carbon residues and rust.
- .2 The cargo tanks and their equipment must be washed with clear filtered water. The water used must be at least of the same quality as drinking water and have a low chlorine content.
- .3 Traces of the residues and vapours of the previous cargo must be removed by the steam cleaning of the cargo tanks and their equipment.
- .4 The cargo tanks and their equipment must then be rewashed with clear water of the quality specified in paragraph 2 above and dried in filtered, oil-free air.
- .5 Samples must be taken of the atmosphere in the cargo tanks and these must be analysed for their content of organic gases and oxygen.
- .6 The cargo tank must be reinspected for any traces of the previous cargo, carbon residues or rust or odours of the previous cargo.
- .7 If the inspection and the other measures point to the presence of traces of the previous cargo or of its gases, the measures described in paragraphs .2 to .4 above must be repeated.
- .8 Stainless steel cargo tanks and their structures which have contained cargoes other than hydrogen peroxide solutions and which have been repaired must, regardless of whether or not they have previously been passivated, be cleaned and passivated in accordance with the following procedure:
 - .8.1 The new weld seams and other repaired parts must be cleaned and scrubbed with stainless steel brushes, graving tools, sandpaper and polishers. Rough surfaces must be made smooth and a final polishing must be carried out;

.8.2 Fatty and oily residues must be removed with the use of organic solvents or appropriate cleaning products diluted with water. The use of chlorinated products shall be avoided because these might seriously interfere with the passivation procedure;

.8.3 Any residues that have been removed must be eliminated and the tanks must then be washed.

(k) During the transfer of the hydrogen peroxide solutions, the related piping system must be separated from all other systems. Loading and unloading piping used for the transfer of hydrogen peroxide solutions must be marked as follows:

“For Hydrogen Peroxide
Solution Transfer only”

(l) If the temperature in the cargo tanks rises above 35 °C, visible and audible alarms shall activate in the wheelhouse.

Master

(m) If the temperature rise exceeds 4 °C for 2 hours or if the temperature in the cargo tanks exceeds 40 °C, the master must contact the consignor directly, with a view to taking any action that might be necessary.

Filler

(n) Hydrogen peroxide solutions must be stabilized to prevent decomposition. The manufacturer must provide a stabilization certificate which must be carried on board and must specify:

- .1 The addition date of the stabilizer and the duration of its effectiveness;
- .2 Actions to be taken should the product become unstable during the voyage.

(o) Only those hydrogen peroxide solutions which have a maximum decomposition rate of 1.0 per cent per year at 25 °C may be carried. A certificate from the filler stating that the product meets this standard must be presented to the master and kept on board. An authorized representative of the manufacturer must be on board to monitor the loading operations and to test the stability of the hydrogen peroxide solutions to be transported. He shall certify to the master that the cargo has been loaded in a stable condition.

34. For type N carriage, the flanges and stuffing boxes of the loading and unloading piping must be fitted with a protection device to protect against splashing.
35. Only an indirect system for the cargo refrigerating system is permitted for this substance. Direct or combined systems are not permitted.
36. Merged with remark 35.

37. For this substance, the cargo tank system shall be capable of resisting the vapour pressure of the cargo at higher ambient temperatures whatever the system that has been adopted for treating the boil-off gas.
38. For an initial boiling point above 60 °C and under or equal to 85 °C as determined in accordance with ASTMD 86-01, the applicable conditions of transport are identical to those stipulated for an initial boiling point under or equal to 60 °C.
39.
 - (a) The joints, outlets, closing devices and other technical equipment shall be of such a sort that there cannot be any leakage of refrigerated liquefied gases during normal transport operations (cold, fracturing of materials, freezing of fixtures, run-off outlets etc.).
 - (b) The loading temperature (at the loading station) shall be mentioned in the transport document.
 - (c) An oxygen meter shall be kept on board, together with instructions on its use which can be read by everyone on board. The oxygen meter shall be used as a testing device when entering holds, pump rooms, areas situated at depth and when work is being carried out on board.
 - (d) At the entry of accommodation and in other places where the crew may spend time there shall be a measuring device which lets off an alarm when the oxygen level is too low.
 - (e) The loading temperature (established after loading) and the maximum duration of the journey shall be mentioned in the transport document.

40. *(Deleted)*

41. n-BUTYLBENZENE is assigned to the entry UN No. 2709 BUTYLBENZENES (n-BUTYLBENZENE).
42. Loading of refrigerated liquefied gases shall be carried out in such a manner as to ensure that unsatisfactory temperature gradients do not occur in any cargo tank, piping or other ancillary equipment. When determining the holding time (as described in 7.2.4.16.17), it shall be assured that the degree of filling of the cargo tank does not exceed 98% in order to prevent the safety valves from opening when the tank is in liquid full condition. When refrigerated liquefied gases are carried using a system according to 9.3.1.24.1 (b) or 9.3.1.24.1 (c), a refrigeration system is not required.

In the case of UN No. 2187 'CARBON DIOXIDE, REFRIGERATED LIQUID', this provision applies when the possibility of solidification shall be avoided. To ensure the product remains in the liquid phase, the temperature shall be kept at 15 °C above the solidification temperature at the required pressure during the transport.

The transport document shall contain a notice on the avoidance of solidification of the product.

43. It may be that the mixture has been classified as a floater as a precautionary measure, because some of its components meet the relevant criteria.
44. A substance shall only be assigned to this entry where there is measurement data or verified information in accordance with IEC 60079-20-1 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.
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.
46. Materials of construction and ancillary equipment such as insulation shall be resistant to the effects of high oxygen concentrations caused by condensation and enrichment at the low temperatures attained in parts of the cargo system. Due consideration shall be given to ventilation in areas where condensation might occur, to avoid the stratification of oxygen-enriched atmosphere.
47. The flash-point of the substances carried may vary between 60 °C and 100 °C. This information shall be mentioned in the transport document.

3.2.3.2***Table C***

Name and description		Additional requirements/Remarks																							
UN No. or substance identification No.	Class	(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)			
		3.1,2	2,2	2,1,1,3	5,2,2 / 3,2,3,1	1,2,1 / 7,2,2,0,1	3,2,3,1 / 1,2,1	3,2,3,1 / 1,2,1	3,2,3,1 / 1,2,1	3,2,3,1 / 1,2,1	7,2,4,21	3,2,3,1 / 1,2,1	3,2,3,1 / 1,2,1	1,2,1 / 1,2,1	1,2,1 / 1,2,1	1,2,1 / 1,2,1	1,2,1 / 1,2,1	1,2,1 / 1,2,1	1,2,1 / 1,2,1	1,2,1 / 1,2,1	1,2,1 / 1,2,1	8,1,5	7,2,5	3,2,3,1	
1005	AMMONIA, ANHYDROUS	2	2TC	2,3-8+2, 1+N1	G	1	1	3				91	1	1	no	T1 ¹²	II A	yes	PP, EP, EX, TOX, A	PP, EP, EX, TOX, A	2	1; 2; 31			
1010	BUTADIENES (1,2-BUTADIENE), STABILIZED	2	2F	2,1+unst.	G	1	1					91	1	1	no	T2 ¹²	II B ⁴	yes	PP, EP, EX, TOX, A	PP, EP, EX, TOX, A	1	2; 3; 31			
1010	BUTADIENES (1,3-BUTADIENE), STABILIZED	2	2F	2,1+unst. + CMR	G	1	1					91	1	1	no	T2 ¹²	II B ⁴ (II B2 ⁴)	yes	PP, EP, EX, TOX, A	PP, EP, EX, TOX, A	1	2; 3; 31			
1010	BUTADIENES (1,2-BUTADIENE), STABILIZED, REFRIGERATED	2	3F	2,1+unst.	G	2	4	1; 3				95	1	1	no	T2 ¹²	II B ⁴ (II B2 ⁴)	yes	PP, EP, EX, TOX, A	PP, EP, EX, TOX, A	1	2; 3; 31			
1010	BUTADIENES (1,3-BUTADIENE), STABILIZED, REFRIGERATED	2	3F	2,1+unst. + CMR	G	2	4	1; 3				95	1	1	no	T2 ¹²	II B ⁴ (II B2 ⁴)	yes	PP, EP, EX, TOX, A	PP, EP, EX, TOX, A	1	2; 3; 31			
1010	BUTADIENES, STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, containing more than 40 % butadienes (contains less than 0.1% 1,3-butadiene)	2	2F	2,1+unst.	G	1	1					91	1	1	no	T2 ¹²	II B ⁴ (II B2 ⁴)	yes	PP, EX, A	PP, EX, A	1	2; 3; 31			
1010	BUTADIENES, STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, REFRIGERATED, containing more than 40% butadienes (contains less than 0.1% 1,3-butadiene)	2	3F	2,1+unst.	G	2	4	1; 3				95	1	1	no	T2 ¹²	II B ⁴ (II B2 ⁴)	yes	PP, EX, A	PP, EX, A	1	2; 3; 31			
1010	BUTADIENES, STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, containing more than 40% butadienes (contains 0.1% or more 1,3-butadiene)	2	2F	2,1+unst. + CMR	G	1	1					91	1	1	no	T2 ¹²	II B ⁴ (II B2 ⁴)	yes	PP, EP, EX, TOX, A	PP, EP, EX, TOX, A	1	2; 3; 31			

Additional requirements/Remarks											
Number of cones/blue lights											
Equipment required											
Anti-explosion protection required											
Explosion group											
Temperature class											
Pump room below deck permitted											
Type of sampling device											
Relative density at 20 °C											
Maximum degree of filling of the cargo tank in %											
Opening pressure of the pressure relief valve/high velocity vent valve, in kPa											
Cargo tank equipment											
Cargo tank type											
Cargo tank design											
Type of tank vessel											
Dangers											
Packing group											
Classification code											
Class											
Name and description											
(1)											
(2)											
(3a)											
(3b)											
(4)											
(5)											
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(16)											
(17)											
(18)											
(19)											
(20)											
UN No. or substance identification No.	Additional requirements/Remarks										
1010 BUTADIENES, STABILIZED or BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED, REFRIGERATED, containing more than 40% butadienes (contains 0.1% or more 1,3-butadiene)	2	2.2	2.1,1.3	5,2,2/3,2,3,1	1,2,1/7,2,0,1	3,2,3,1/1,2,1	3,2,3,1/1,2,1	7,2,4,21	3,2,3,1/1,2,1	1,2,1/3,2,3,3	8,1,5
1011 BUTANE, REFRIGERATED, (contains less than 0.1% 1,3-butadiene)	2	3F	2.1	G	2	4	1; 3	95	1	II B ⁴ (II B ²)	yes
1011 BUTANE (with 0.1% or more 1,3-butadiene)	2	2F	2.1+CM _R	G	1	1		91	1	T2 (2)	II A
1011 BUTANE, REFRIGERATED, (with 0.1% or more 1,3-butadiene)	2	3F	2.1+CM _R	G	2	4	1; 3	95	1	T2 (2)	II A
1012 1-BUTYLENE	2	2F	2.1	G	1	1		91	1	T2 (2)	II A
1012 1-BUTYLENE, REFRIGERATED	2	3F	2.1	G	2	4	1; 3	95	1	T2 (2)	II A
1020 CHLOROPENTAFLUORO-ETHANE (refrigerant gas R 115)	2	2A	2.2	G	1	1		91	1	T2 (2)	II A
1020 CHLOROPENTAFLUORO-ETHANE, REFRIGERATED, (REFRIGERANT GAS R 115)	2	3A	2.2	G	2	4	1; 3	95	1	T1 (2)	II A
1030 1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)	2	2F	2.1	G	1	1		91	1	T1 (2)	II A

Name and description		Additional requirements/Remarks											
		Number of cones/blue lights			Equipment required			Anti-explosion protection required			Explosion group		
UN No. or substance identification No.	Classification code	Temperature class			Pump room below deck permitted			Type of sampling device			Relative density at 20 °C		
		(1)	(2)	(3a) (3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		3.1.2	2.2	2.1,1,3	5.2,2/	1.2,1/1	3.2,3,1/	3.2,3,1/	3.2,2,0,1	1.2,1	3.2,3,1/	3.2,3,1/	(13)
		1030	1,1-DIFLUOROETHANE, REFRIGERATED, (REFRIGERANT GAS R 152a)	2	3F	2.1	G	2	4	1;3	95	1	no
		1033	DIMETHYL ETHER	2	2F	2.1	G	1	1		91	1	no
		1033	DIMETHYL ETHER, REFRIGERATED	2	3F	2.1	G	2	4	1;3	95	1	no
		1038	ETHYLENE, REFRIGERATED LIQUID	2	3F	2.1	G	1	1		95	1	no
		1038	ETHYLENE, REFRIGERATED LIQUID	2	3F	2.1	G	2	4	1;3	95	1	no
		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	no
UN No. or substance identification No.	Classification code	1055	ISOBUTYLENE	2	2F	2.1	G	1	1		91	1	no
		1055	ISOBUTYLENE, REFRIGERATED	2	3F	2.1	G	2	4	1;3	95	1	no
		1063	METHYL CHLORIDE (REFRIGERANT GAS R 40)	2	2F	2.1	G	1	1		91	1	no
		1063	METHYL CHLORIDE, REFRIGERATED, (REFRIGERANT GAS R 40)	2	3F	2.1	G	2	4	1;3	95	1	no
		1077	PROPYLENE	2	2F	2.1	G	1	1		91	1	no
		1077	PROPYLENE, REFRIGERATED	2	3F	2.1	G	2	4	1;3	95	1	no
		1083	TRIMETHYLAMINE, ANHYDROUS	2	2F	2.1	G	1	1		91	1	no
											T4	II A	yes
												II A	yes

Name and description		Additional requirements/Remarks												
UN No. or substance identification No.	Class	Dangers	Packing group	Type of tank vessel	Cargo tank design	Cargo tank type	Cargo tank equipment	Relative density at 20 °C	Pump room below deck permitted	Temperature class	Explosion group	Anti-explosion protection required	Equipment required	Number of cones/blue lights
(1)	(2)	(3a) (3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
31,2	2,2	2,1,1,3	5,2,2 / 3,2,3,1	1,2,1 / 7,2,2,0,1	3,2,3,1 / 1,2,1	3,2,3,1 / 1,2,1	3,2,3,1 / 1,2,1	3,2,3,1 / 1,2,1	7,2,4,2,1	3,2,3,1	3,2,3,1 / 1,2,1	1,2,1 / 3,2,3,3	1,2,1 / 3,2,3,3	(16)
1086	VINYL CHLORIDE, STABILIZED REFRIGERATED	2	2F	2.1+unst.	G	1	1			91	1	no	T2 12)	II A
1086	VINYL CHLORIDE, STABILIZED, REFRIGERATED	2	3F	2.1+unst.	G	2	4	1; 3		95	1	no	T2 12)	II A
1088	ACETAL	3	F1	II	3	N	2	2	10	97	0,83	3	yes	T3
1089	ACETALDEHYDE (ethanal)	3	F1	I	3+N3	C	1	1		95	0,78	1	yes	T4
1090	ACETONE	3	F1	II	3	N	2	2	10	97	0,79	3	yes	T1 12)
1092	ACROLEINE, STABILIZED	6,1	TF1	I	6,1+3+un st.+N1	C	2	2	3	50	95	0,84	1	no
1093	ACRYLONITRILE, STABILIZED	3	FT1	I	3+6,1+un st.+ N2+CM R	C	2	2	3	50	95	0,8	1	no
1098	ALLYL ALCOHOL	6,1	TF1	I	6,1+3+N 1	C	2	2	40	95	0,85	1	no	T2 12)
1100	ALLYL CHLORIDE	3	FT1	I	3+6,1+N 1	C	2	2	3	50	95	0,94	1	no
1105	PENTANOLS (n-PENTANOL)	3	F1	III	3	N	3	2		97	0,81	3	yes	T2 12)
1106	AMYLAMINE (n-AMYLAMINE)	3	FC	II	3+8	C	2	2	40	95	0,76	2	yes	T4 3)
1107	AMYL CHLORIDES (1-CHLOROPENTANE)	3	F1	II	3	C	2	2	40	95	0,88	2	yes	T3
														II A
														yes
														PP, EX, A
														1; 3; 13; 31

UN No. or substance identification No.	Name and description	Additional requirements/Remarks											
		Number of cones/blue lights			Equipment required			Anti-explosion protection required			Explosion group		
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
3.1.2	3.1.2	2.2	2.1.1.3	5.2.2 / 3.2.3.1	1.2.1 / 7.2.2.0.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	(14)	(15)
1107	AMYL CHLORIDES (1-CHLORO-3-METHYLBUTANE)	3	F1	II	3	C	2	2	45	95	0.89	2	yes
1107	AMYL CHLORIDES (2-CHLORO-2-METHYLBUTANE)	3	F1	II	3	C	2	2	50	95	0.87	2	yes
1107	AMYL CHLORIDES (1-CHLORO-2,2-DIMETHYL-PROPANE)	3	F1	II	3	C	2	2	50	95	0.87	2	yes
1107	AMYL CHLORIDES (1-PENTENE (n-amyrene))	3	F1	II	3	C	1	1	95	0.9	1	yes	T3 ²⁾
1108	1-PENTENE (n-amyrene)	3	F1	I	3+N3	N	1	1	97	0.64	1	yes	T3 ²⁾
1114	BENZENE	3	F1	II	3+N3+C MR	C	2	2	50	95	0.88	2	yes
1120	BUTANOLS (tert-BUTYLALCOHOL)	3	F1	III	3	N	2	2	10	97	0.79	3	yes
1120	BUTANOLS (sec-BUTYLALCOHOL)	3	F1	III	3	N	3	2	97	0.81	3	yes	T1 ¹²⁾
1120	BUTANOLS (n-BUTYL ALCOHOL)	3	F1	III	3	N	3	2	97	0.81	3	yes	T2 ¹²⁾
1123	BUTYL ACETATES (sec-BUTYLACETATE)	3	F1	II	3	N	2	2	10	97	0.86	3	yes
1123	BUTYL ACETATES (n-BUTYL ACETATE)	3	F1	III	3+N3	N	3	2		97	0.86	3	yes
1125	n-BUTYLAMINE	3	FC	II	3+8+N3	C	2	2	3	50	95	0.75	2
1127	CHLOROBUTANES (1-CHLOROBUTANE)	3	F1	II	3	C	2	2	3	50	95	0.89	2
1127	CHLOROBUTANES (2-CHLOROBUTANE)	3	F1	II	3	C	2	2	3	50	95	0.87	2

Name and description		Additional requirements/Remarks																					
		Equipment required					Anti-explosion protection required																
UN No. or substance identification No.	Dangers	Cargo tank equipment		Cargo tank type		Cargo tank design		Type of tank vessel		Pump room below deck permitted		Type of sampling device		Relative density at 20 °C		Maximum degree of filling of the cargo tank in %		Opening pressure of the pressure relief valve/high velocity vent valve, in kPa					
		2.2	2.1,1.3	5.2,2/ 3.2,3.1	1.2,1/ 7.2,0,1	3.2,3.1/ 1.2,1	3.2,3.1/ 1.2,1	7.2,4,21	3.2,3.1/ 1.2,1	3.2,3.1/ 1.2,1	3.2,3.1/ 1.2,1	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	
		3.1,2	2.2	2.1,1.3	5.2,2/ 3.2,3.1	1.2,1/ 7.2,0,1	3.2,3.1/ 1.2,1	3.2,3.1/ 1.2,1	7.2,4,21	3.2,3.1/ 1.2,1	3.2,3.1/ 1.2,1	3.2,3.1/ 1.2,1	0.88	0.88	2	yes	T3	II A	yes	PP, EX, A	PP, EX, A	7.2,5	3,2,3,1
		1127	CHLOROBUTANES (1-CHLORO-2-METHYLPROPANE)	3	F1	II	3	C	2	2	3	50	95	95	0.88	2	yes	T3	II A	yes	PP, EX, A	1	23
		1127	CHLOROBUTANES (2-CHLORO-2-METHYLPROPANE)	3	F1	II	3	C	2	2	3	50	95	95	0.84	2	yes	T1 12)	II A	yes	PP, EX, A	1	23
		1127	CHLOROBUTANES	3	F1	II	3	C	1	1	1		95	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	95	0.8	2	yes	T4	II A	yes	PP, EX, A	1	15; 23
		1131	CARBON DISULPHIDE	3	FT1	1	3+6,1+N 2	C	2	2	3	50	95	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	95	1.11	2	yes	T1 12)	II A 8)	yes	PP, EX, A	0		
		1135	ETHYLENE CHLOROHYDRIN (2-CHLOROETHANOL)	6.1	TF1	1	6.1+3+N 3	C	2	2	30	95	95	1.21	1	no	T2 12)	II A 8)	yes	PP, EP, EX, TOX, A	2		
		1143	CROTONALDEHYDE, STABILIZED	6.1	TF1	1	6.1+3+un st.+ N1	C	2	2	40	95	95	0.85	1	no	T3	II B (II B2)	yes	PP, EP, EX, TOX, A	2	3; 5; 15	
		1145	CYCLOHEXANE	3	F1	II	3+N1	C	2	2	30	95	95	0.78	2	yes	T3	II A	yes	PP, EX, A	1	6; +11 °C; 17	
		1146	CYCLOPENTANE	3	F1	II	3+N2	N	2	3	50	95	95	0.75	3	yes	T2 12)	II A	yes	PP, EX, A	1		
		1148	DIACETONE ALCOHOL	3	F1	III	3	N	3	2			97	0.93	3	yes	T1 12)	II A	yes	PP, EX, A	0		
		1150	1,2-DICHLOROETHYLENE (cis-1,2-DICHLOROETHYLENE)	3	F1	II	3+N2	C	2	2	3	50	95	1.28	2	yes	T2 1,12)	II A	yes	PP, EX, A	1	23	

Name and description		Additional requirements/Remarks												
UN No. or substance identification No.	Class	Number of cones/blue lights												
		Equipment required												
		Anti-explosion protection required												
		Explosion group												
		Temperature class												
		Pump room below deck permitted												
		Type of sampling device												
		Relative density at 20 °C												
		Maximum degree of filling of the cargo tank in %												
		Opening pressure of the pressure relief valve/high velocity vent valve, in kPa												
		Cargo tank equipment												
		Cargo tank type												
		Cargo tank design												
		Type of tank vessel												
		Dangers												
		Packing group												
		Classification code												
1157	DISOBUTYL KETONE	3	F1	III	3+N3+F	N	3	3	97	0.81	3	yes	T2 ⁽²⁾	
1159	DISOPROPYL ETHER	3	F1	II	3+N2	C	2	3	95	0.72	2	yes	T2 ⁽²⁾	
1160	DIMETHYLAMINE AQUEOUS SOLUTION	3	FC	II	3+N3+N3	C	2	3	95	0.82	2	yes	T2 ⁽²⁾	
1163	DIMETHYLHYDRAZINE, UNSYMMETRICAL	6.1	TFC	1	6.1+3+8+N2+CMR	C	2	3	95	0.78	1	no	T3 (II B1)	
1165	DOXANE	3	F1	II	3	N	2	2	10	97	1.03	3	yes	T2 ⁽²⁾
1167	DIVINYL ETHER, STABILIZED	3	F1	I	3+unst.	C	1	1	95	0.77	1	yes	T2 ⁽²⁾	
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	II B (II B1)
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	II B (II B1 ⁴)

UN No. or substance identification No.	Name and description	Additional requirements/Remarks									
		Number of cones/blue lights									
		Equipment required									
		Anti-explosion protection required									
		Explosion group									
		Temperature class									
		Pump room below deck permitted									
		Type of sampling device									
		Relative density at 20 °C									
		Maximum degree of filling of the cargo tank in %									
1171	ETHYLENE GLYCOL MONOETHYL ETHER	3	F1	III	3+CMR	N	2	3	3	10	97
1172	ETHYLENE GLYCOL MONOETHYL ETHER ACETATE	3	F1	III	3+N3+ CMR	N	2	3	3	10	97
1173	ETHYL ACETATE	3	F1	II	3	N	2	2	2	10	97
1175	ETHYLBENZENE	3	F1	II	3+N3	N	2	2	2	10	97
1177	2-ETHYLBUTYL ACETATE	3	F1	III	3	N	3	2	2	10	97
1179	ETHYL BUTYL ETHER (ETHYL tert-BUTYL ETHER)	3	F1	II	3+N3	N	2	2	2	10	97
1184	ETHYLENE DICHLORIDE (1,2-dichloroethane)	3	FT1	II	3+6.1+ CMR	C	2	2	2	50	95
1188	ETHYLENE GLYCOL MONOMETHYL ETHER	3	F1	III	3+CMR	N	2	3	3	10	97
1191	OCTYL ALDEHYDES (2-ETHYLCAPRONALDEHYDE)	3	F1	III	3+N3+F	C	2	2	2	30	95
1191	OCTYL ALDEHYDES (n-OCTALDEHYDE)	3	F1	III	3+N3+F	N	3	3	3	97	0.82
1193	ETHYL METHYL KETONE (methyl ethyl ketone)	3	F1	II	3	N	2	2	2	10	97
1198	FORMALDEHYDE SOLUTION, FLAMMABLE	3	FC	III	3+8+N3	N	3	2	2	97	1.09

Name and description		Additional requirements/Remarks																				
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)		
	3.1.2	2.2	2.2	2.1.1.3	5.2.2 / 3.2.3.1	1.2.1 / 7.2.2.0.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	7.2.4.21	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	8.1.5	7.2.5	3.2.3.1				
1199	FURALDEHYDES (<i>a</i> -FURALDEHYDE) or FURFURALDEHYDES (<i>a</i> -FURFURYLALDEHYDE)	6.1	TF1	II	6.1+3	C	2	2	25	95	1.16	2	no	T3 ²⁾	II B (II B1)	yes	PP, EP, EX, TOX, A	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+ N2+F	N	4	3								no	*	0	*see 3.2.3.3			
1202	DIESEL FUEL complying with standard EN 590:2013 + A1:2017 or GAS OIL or HEATING OIL, LIGHT with flash-point as specified in EN 590:2013 + A1:2017	3	F1	III	3+ N2+F	N	4	3								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	II	3+ N2+C MR+F	N	2	3	3	10	97	0.82- 0.85	3	yes			no	*	0	*see 3.2.3.3		
1203	MOTOR SPIRIT or GASOLINE or PETROL	3	F1	II	3+ N2+C MR+F	C	*	*	*	*	*	<1.1	*	yes								
1203	MOTOR SPIRIT or GASOLINE or PETROL, WITH MORE THAN 10% BENZENE	3	F1	II	3+ N2+C MR+F	C	1	1								II A	yes	PP, EP, EX, TOX, A	1			
1203	MOTOR SPIRIT or GASOLINE or PETROL, WITH MORE THAN 10% BENZENE BOILING POINT ≤ 60 °C	3	F1	II	3+ N2+C MR+F	C	2	2	3	50	95	2	yes	T3	II A	yes	PP, EP, EX, TOX, A	1	*see 3.2.3.3			
1203	MOTOR SPIRIT or GASOLINE or BENZENE 60 °C < BOILING POINT ≤ 85 °C	3	F1	II	3+ N2+C MR+F	C													23			

Name and description		Additional requirements/Remarks																				
UN No. or substance identification No.	Classification code	Class	Dangers	Cargo tank design	Cargo tank type	Cargo tank equipment	Temperature class	Type of sampling device	Pump room below deck permitted	Anti-explosion protection required	Equipment required	Number of cones/blue lights										
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)		
3.1.2	1203	MOTOR SPIRIT or GASOLINE or PETROL WITH MORE THAN 10% BENZENE 85 °C < BOILING POINT ≤ 115 °C	2.2	2.1.1.3	5.2.2 / 3.2.3.1	1.2.1 / 7.2.2.0.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	7.2.4.21	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	8.1.5	7.2.5	3.2.3.1
1203	MOTOR SPIRIT or GASOLINE or PETROL WITH MORE THAN 10% BENZENE BOILING POINT > 115 °C	3	F1	II	3+N2+HC MR+F	C	2	2	50	95	50	95	2	yes	T3	II A	yes	PP, EP, EX, TOX, A	1			
1206	HEPTANES	3	F1	II	3+N1	C	2	2	3	50	95	0.67– 0.70	2	yes	T3	II A	yes	PP, EP, EX, A	1			
1208	HEXANES	3	F1	II	3+N2	N	2	3	50	97	0.65– 0.70	2	yes	T3	II A	yes	PP, EX, A	1				
1208	HEXANES	3	F1	II	3+N2	N	2	3	3	10	97	0.65– 0.70	2	yes	T3	II A	yes	PP, EX, A	1			
1212	ISOBUTANOL (isobutyl alcohol)	3	F1	III	3	N	3	2		97	0.8	3	yes	T2 (2)	II A	yes	PP, EX, A	1				
1213	ISOBUTYLACETATE	3	F1	II	3+N3	N	2	2	10	97	0.87	3	yes	T2 (2)	II A ⁷	yes	PP, EX, A	1				
1214	ISOBUTYLAMINE	3	FC	II	3+8+N3	C	2	2	3	50	95	0.73	2	yes	T2 (2)	II A ⁷	yes	PP, EP, EX, A	1	23		
1216	ISOCTENES	3	F1	II	3+N2	N	2	3	10	97	0.73	3	yes	T3	II B (II B1)	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 (II B2)	yes	PP, EP, EX, TOX, A	1	2; 3; 5; 16			
1219	ISOPROPANOL (isopropyl alcohol)	3	F1	II	3	N	2	2	10	97	0.78	3	yes	T2 (2)	II A	yes	PP, EX, A	1				
1220	ISOPROPYLE ACETATE	3	F1	II	3	N	2	2	10	97	0.88	3	yes	T2 (2)	II A ⁷	yes	PP, EX, A	1				

Name and description		Additional requirements/Remarks																			
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	
	3.1.2	2.2	2.2	2.1.1.3	5.2.2 / 3.2.3.1	1.2.1 / 7.2.2.0.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	7.2.4.21	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	8.1.5	7.2.5	3.2.3.1
1267	PETROLEUM CRUDE OIL	3	F1	II	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	
1267	PETROLEUM CRUDE OIL	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	0	
1267	PETROLEUM CRUDE OIL	3	F1	I	3+(N1, N2, N3)	*	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	0	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	3	F1	I	3+CMR+ F+ (N1, N2, N3)	*	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR+ F+ (N1, N2, N3)	*	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR+ F+ (N1, N2, N3)	*	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	1	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	3	F1	III	3+CMR+ F+ (N1, N2, N3)	*	*	*	*	*	*	*	*	*	yes	T4 ³⁾	II B ⁴⁾	yes	*	0	

Name and description		Additional requirements/Remarks																			
UN No. or substance identification No.	Class	Number of cones/blue lights																			
		Equipment required																			
Anti-explosion protection required		Explosion group																			
Temperature class		Temperature class																			
Pump room below deck permitted		Pump room below deck permitted																			
Type of sampling device		Type of sampling device																			
Relative density at 20 °C		Relative density at 20 °C																			
Maximum degree of filling of the cargo tank in %		Maximum degree of filling of the cargo tank in %																			
Opening pressure of the pressure relief valve/high velocity vent valve, in kPa		Opening pressure of the pressure relief valve/high velocity vent valve, in kPa																			
Cargo tank equipment		Cargo tank equipment																			
Cargo tank type		Cargo tank type																			
Cargo tank design		Cargo tank design																			
Type of tank vessel		Type of tank vessel																			
Dangers		Dangers																			
Packing group		Packing group																			
Classification code		Classification code																			
(1)	(2)	(3a)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)		
	3.1.2		2.2	2.1.1.3	5.2.2 / 3.2.3.1 / 7.2.2.0.1 / 3.2.3.1	1.2.1 / 1.2.1 / 1.2.1	3.2.3.1 / 1.2.1	7.2.4.21	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE	3	F1	III	3+CMR+ F+ (N1, N2, N3)	C	*	*	*	*	*	*	*	*	yes	II B ⁴⁾ (II B3)	yes	*	0	44	
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	I	3+CMR+ F+ (N1, N2, N3)	C	1	1													
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	1	1													
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	1	1													
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	III	3+CMR+ F+ (N1, N2, N3)	C	1	1													
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	III	3+CMR+ F+ (N1, N2, N3)	C	1	1													
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	III	3+CMR+ F+ (N1, N2, N3)	C	1	1													
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	III	3+CMR+ F+ (N1, N2, N3)	C	1	1													
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	2	2	3	50	95	2	yes	T4 ³⁾	II B ⁴⁾	yes	PP, EP, EX, TOX, A	0	44		
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE 60 °C < INITIAL BOILING POINT ≤ 85 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	2	2	3	50	95	2	yes	T4 ³⁾	II B ⁴⁾ (II B3)	yes	PP, EP, EX, TOX, A	1	23; 38		

Name and description		Additional requirements/Remarks																										
(1)		Number of cones/blue lights												Equipment required														
(2)		Anti-explosion protection required												Explosion group														
(3)		Temperature class												Pump room below deck permitted												Type of sampling device		
(4)		Relative density at 20 °C												Maximum degree of filling of the cargo tank in %												Cargo tank equipment		
(5)		Opening pressure of the pressure relief valve/high velocity vent valve, in kPa												Cargo tank type												Cargo tank design		
(6)		Type of tank vessel												Dangers												Packing group		
(7)		Classification code												Class												UN No. or substance identification No.		
(8)		Name and description												Number of cones/blue lights												Additional requirements/Remarks		
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE 60 °C < INITIAL BOILING POINT ≤ 85 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	2	2	2	2	3	3	50	95	2	2	yes	T4 ^j	II B ⁴⁾	yes	T4 ^j	II B ⁴⁾	yes	P, EP, EX, TOX, A	0	23; 38; 44	0	23; 38; 4	

Additional requirements/Remarks													
Number of cones/blue lights													
Equipment required													
Anti-explosion protection required													
Explosion group													
Temperature class													
Pump room below deck permitted													
Type of sampling device													
Relative density at 20 °C													
Maximum degree of filling of the cargo tank in %													
Opening pressure of the pressure relief valve/high velocity vent valve, in kPa													
Cargo tank equipment													
Cargo tank type													
Cargo tank design													
Type of tank vessel													
Dangers													
Packing group													
Classification code													
Class													
Name and description													
UN No. or substance identification No.													
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
3.1.2	2.2	2.2	2.1,1.3	5.2,2/	1.2,1/	3.2,3.1/	1.2,1/	3.2,3.1/	1.2,1/	3.2,3.1/	1.2,1/	1.2,1/	1.2,1/
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	2	2	35	95	2	yes	T4 ³⁾
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	III	3+CMR+ F+ (N1, N2, N3)	C	2	2	35	95	2	yes	T4 ³⁾
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	III	3+CMR+ F+ (N1, N2, N3)	C	2	2	35	95	2	yes	T4 ³⁾
1267	PETROLEUM CRUDE OIL WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	III	3+CMR+ F+ (N1, N2, N3)	C	2	2	35	95	2	yes	T4 ³⁾
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	I	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	yes	T4 ³⁾
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	I	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	yes	T4 ³⁾
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	yes	T4 ³⁾
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	II	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	yes	T4 ³⁾
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	yes	T4 ³⁾
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	yes	T4 ³⁾

Additional requirements/Remarks													
Name and description													
UN No. or substance identification No.		(1)	(2)	(3a)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dangers		3.1.2	2.2	2.1,1.3	5.2.2 / 3.2.3.1	1.2.1 / 1.2.2 / 2.2.0.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	7.2.4.2.1	3.2.3.1 / 1.2.1	(13)
Packing group	Classification code												(14)
Class													(15)
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.	3	F1	III	3+(N1, N2, N3, CMR, F)	*	*	*	*	*	*	*	(16)
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	I	3+CMR+ F+ (N1, N2, N3)	C	*	*	*	*	*	*	(17)
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	*	*	*	*	*	*	(18)
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	*	*	*	*	*	*	(19)
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	III	3+CMR+ F+ (N1, N2, N3)	C	*	*	*	*	*	*	(20)
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE	3	F1	I	3+CMR+ F+ (N1, N2, N3)	C	1	1	1	1	95	1	PP, EP, EX, TOX, A
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT ≤ 60 °C	3	F1	I	3+CMR+ F+ (N1, N2, N3)	C	1	1	1	1	95	1	PP, EP, EX, TOX, A

Name and description		Additional requirements/Remarks									
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	3.1.2	2.2	2.2	2.1.1.3	5.2.2 / 3.2.3.1	1.2.1 / 7.2.2.0.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	7.2.4.21	3.2.2.3.1 / 1.2.1	(12)
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT \leq 60 °C	3	F1	I	3+CMR+ F+ (N1, N2, N3)	C	1	1	95	1	yes
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT \leq 60 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	1	1	95	1	yes
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT \leq 60 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	1	1	95	1	yes
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT \leq 60 °C \leq 85 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	2	2	3	50	95
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE 60 °C $<$ INITIAL BOILING POINT \leq 85 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	2	2	3	50	95
UN No. or substance identification No.		Number of cones/blue lights									
Equipment required		Number of cones/blue lights									
Anti-explosion protection required		Number of cones/blue lights									
Explosion group		Number of cones/blue lights									
Temperature class		Number of cones/blue lights									
Pump room below deck permitted		Number of cones/blue lights									
Type of sampling device		Number of cones/blue lights									
Relative density at 20 °C		Number of cones/blue lights									
Maximum degree of filling of the cargo tank in %		Number of cones/blue lights									
Opening pressure of the pressure relief valve/high velocity vent valve, in kPa		Number of cones/blue lights									
Cargo tank equipment		Number of cones/blue lights									
Cargo tank type		Number of cones/blue lights									
Cargo tank design		Number of cones/blue lights									
Type of tank vessel		Number of cones/blue lights									
Dangers		Number of cones/blue lights									
Packing group		Number of cones/blue lights									
Classification code		Number of cones/blue lights									
Class		Number of cones/blue lights									
UN No. or substance identification No.		Number of cones/blue lights									
Additional requirements/Remarks		Number of cones/blue lights									
Number of cones/blue lights		Number of cones/blue lights									
Equipment required		Number of cones/blue lights									
Anti-explosion protection required		Number of cones/blue lights									
Explosion group		Number of cones/blue lights									
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Pump room below deck permitted		Number of cones/blue lights									
Type of sampling device		Number of cones/blue lights									
Relative density at 20 °C		Number of cones/blue lights									
Maximum degree of filling of the cargo tank in %		Number of cones/blue lights									
Opening pressure of the pressure relief valve/high velocity vent valve, in kPa		Number of cones/blue lights									
Cargo tank equipment		Number of cones/blue lights									
Cargo tank type		Number of cones/blue lights									
Cargo tank design		Number of cones/blue lights									
Type of tank vessel		Number of cones/blue lights									
Dangers		Number of cones/blue lights									
Packing group		Number of cones/blue lights									
Classification code		Number of cones/blue lights									
Class		Number of cones/blue lights									
UN No. or substance identification No.		Number of cones/blue lights									
Additional requirements/Remarks		Number of cones/blue lights									
Number of cones/blue lights		Number of cones/blue lights									
Equipment required		Number of cones/blue lights									
Anti-explosion protection required		Number of cones/blue lights									
Explosion group		Number of cones/blue lights									
Temperature class		Number of cones/blue lights									
Pump room below deck permitted		Number of cones/blue lights									
Type of sampling device		Number of cones/blue lights									
Relative density at 20 °C		Number of cones/blue lights									
Maximum degree of filling of the cargo tank in %		Number of cones/blue lights									
Opening pressure of the pressure relief valve/high velocity vent valve, in kPa		Number of cones/blue lights									
Cargo tank equipment		Number of cones/blue lights									
Cargo tank type		Number of cones/blue lights									
Cargo tank design		Number of cones/blue lights									
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Dangers		Number of cones/blue lights									
Packing group		Number of cones/blue lights									
Classification code		Number of cones/blue lights									
Class		Number of cones/blue lights									
UN No. or substance identification No.		Number of cones/blue lights									
Additional requirements/Remarks		Number of cones/blue lights									
Number of cones/blue lights		Number of cones/blue lights									
Equipment required		Number of cones/blue lights									
Anti-explosion protection required		Number of cones/blue lights									
Explosion group		Number of cones/blue lights									
Temperature class		Number of cones/blue lights									
Pump room below deck permitted		Number of cones/blue lights									
Type of sampling device		Number of cones/blue lights									
Relative density at 20 °C		Number of cones/blue lights									
Maximum degree of filling of the cargo tank in %		Number of cones/blue lights									
Opening pressure of the pressure relief valve/high velocity vent valve, in kPa		Number of cones/blue lights									
Cargo tank equipment		Number of cones/blue lights									
Cargo tank type		Number of cones/blue lights									
Cargo tank design		Number of cones/blue lights									
Type of tank vessel		Number of cones/blue lights									
Dangers		Number of cones/blue lights									
Packing group		Number of cones/blue lights									
Classification code		Number of cones/blue lights									
Class</td											

UN No. or substance identification No.	Name and description	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	3.1.2	2.2	2.2	2.1.1.3	5.2.2 / 3.2.3.1	1.2.1 / 1.2.2.0.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE 85 °C < INITIAL BOILING POINT ≤ 115 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	2	2	2	2	50	95	2	yes	T4 ³⁾	II B ⁴⁾	yes	II B ⁴⁾								
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE 85 °C < INITIAL BOILING POINT ≤ 115 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	2	2	2	2	50	95	2	yes	T4 ³⁾	II B ⁴⁾	yes	II B ⁴⁾								
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	C	2	2	2	2	35	95	2	yes	T4 ³⁾	II B ⁴⁾	yes	II B ⁴⁾								
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. WITH MORE THAN 10% BENZENE INITIAL BOILING POINT > 115 °C	3	F1	II	3+CMR+ F+ (N1, N2, N3)	N	2	3	2	2	35	95	2	yes	T4 ³⁾	II B ⁴⁾	yes	II B ⁴⁾								
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (NAPHTA) 110 kPa < vp50 ≤ 175 kPa	3	F1	II	3+N2+ CMR+F	N	2	3	50	97	0,735	2	yes	T3	II A	yes	II A	yes	II A	yes	II A	yes	II A	yes	II A	
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (NAPHTA) 110 kPa < vp50 ≤ 150 kPa	3	F1	II	3+N2+ CMR+F	N	2	3	3	10	97	0,735	2	yes	T3	II A	yes	II A								

UN No. or substance identification No.	Name and description	Additional requirements/Remarks																					
		Equipment required			Anti-explosion protection required			Explosion group			Temperature class												
Number of cones/blue lights																							
		(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	
				3.1.2	2.2	2.1,1.3	5.2,2/1.3	1.2,1/1	3.2,3.1/1	3.2,3.1/1	3.2,3.1/1	7.2,4.21	3.2,3.1/1	1.2,1/1	3.2,3.1/1	1.2,1/1	1.2,1/1	1.2,1/1	1.2,1/1	1.2,1/1	1.2,1/1	1.2,1/1	3.2,3.1
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (NAPHTA) vp ₅₀ ≤ 110 kPa	3	F1	II	3+N2+ CMR+F	N	2	3				10	97	0,735	2	yes	T3	II A	yes	PP, EP, EX, TOX, A	1	14	
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (BENZENE HEART CUT) vp ₅₀ ≤ 110 kPa	3	F1	II	3+N2+ CMR+F	N	2	3				10	97	0,765	2	yes	T3	II A	yes	PP, EP, EX, TOX, A	1	14	
1274	n-PROPANOL (propyl alcohol, normal)	3	F1	II	3	N	2	2				10	97	0,8	3	yes	T2 ⁽²⁾	II B	yes	PP, EX, A	1		
1274	n-PROPANOL (propyl alcohol, normal)	3	F1	III	3	N	3	2					97	0,8	3	yes	T2 ⁽²⁾	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 ⁽²⁾	II A	yes	PP, EX, A	1				
1277	PROPYLAMINE (1-aminopropane)	3	FC	II	3+8	C	2	2	3	50	95	0,72	2	yes	T2 ⁽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 ⁽²⁾	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 ⁽²⁾	II B	yes	PP, EP, EX, A	1	2; 12; 31; 35			
1280	PROPYLENE OXIDE	3	F1	I	3+unst.+ N3+ CMR	C	1	1			95	0,83	1	yes	T2 ⁽²⁾	II B	yes	PP, EP, EX, TOX, A	1				
1282	PYRIDINE	3	F1	II	3+N3	N	2	2		10	97	0,98	3	yes	T1 ⁽²⁾	II A ⁽⁸⁾	yes	PP, EX, A	1				
1288	SHALE OIL	3	F1	II	3+N3+ MR	N	2	3	45	97	0,92	2	yes	T3	II B ⁽⁴⁾	yes	PP, EP, EX, TOX, A	1	14; 23				

Name and description		Additional requirements/Remarks																	
UN No. or substance identification No.	Class	Number of cones/blue lights																	
		Equipment required																	
		Anti-explosion protection required																	
		Explosion group																	
		Temperature class																	
		Pump room below deck permitted																	
		Type of sampling device																	
		Relative density at 20 °C																	
		Maximum degree of filling of the cargo tank in %																	
		Opening pressure of the pressure relief valve/high velocity vent valve, in kPa																	
		Cargo tank equipment																	
		Cargo tank type																	
		Cargo tank design																	
		Type of tank vessel																	
		Dangers																	
		Packing group																	
		Classification code																	
(1)	(2)	(3a)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1288	SHALE OIL	3	F1	III	3+N3+C MR	N	2	3	3	45	97	0.92	2	yes	T3	II B ^d)	yes	PP, EP, EX, A	14; 23
1289	SODIUM METHYLATE SOLUTION in alcohol	3	FC	III	3+8	N	3	2			97	0.969	3	yes	T2 ⁽²⁾	II A	yes	PP, EP, EX, A	0
1294	TOLUENE	3	F1	II	3+N3	N	2	2		10	97	0.87	3	yes	T1 ⁽¹²⁾	II A	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 ^d)	yes	PP, EX, A	0
1300	TURPENTINE SUBSTITUTE	3	F1	III	3+N2+F	N	3	3			97	0.78	3	yes	T3	II B ^d)	yes	PP, EX, A	44
1301	VINYL ACETATE, STABILIZED	3	F1	II	3+unst.+ N3	N	2	2		10	97	0.93	2	yes	T2 ⁽²⁾	II A	yes	PP, EX, A	1
1307	XYLEMES (o- XYLENE)	3	F1	III	3+N2	N	3	3			97	0.88	3	yes	T1 ⁽¹²⁾	II A	yes	PP, EX, A	3; 5; 16
1307	XYLEMES (m- XYLENE)	3	F1	III	3+N2	N	3	3			97	0.86	3	yes	T1 ⁽¹²⁾	II A	yes	PP, EX, A	0
1307	XYLEMES (p- XYLENE)	3	F1	III	3+N2	N	3	3	2		97	0.86	3	yes	T1 ⁽¹²⁾	II A	yes	PP, EX, A	0
1307	XYLEMES (mixture with melting point ≤ 0 °C)	3	F1	II	3+N2	N	3	3			97	3	yes	T1 ⁽¹²⁾	II A	yes	PP, EX, A	17	
1307	XYLEMES (mixture with melting point ≤ 0 °C)	3	F1	III	3+N2	N	3	3			97	3	yes	T1 ⁽¹²⁾	II A	yes	PP, EX, A	0	
1307	XYLEMES (mixture with melting point < 13 °C)	3	F1	III	3+N2	N	3	3	2		97	3	yes	T1 ⁽¹²⁾	II A	yes	PP, EX, A	17	
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	3	

Name and description		Additional requirements/Remarks												
UN No. or substance identification No.	Class	Number of cones/blue lights												
		Equipment required												
		Anti-explosion protection required												
		Explosion group												
		Temperature class												
		Pump room below deck permitted												
		Type of sampling device												
		Relative density at 20 °C												
		Maximum degree of filling of the cargo tank in %												
		Opening pressure of the pressure relief valve/high velocity vent valve, in kPa												
		Cargo tank equipment												
		Cargo tank type												
		Cargo tank design												
		Type of tank vessel												
		Dangers												
		Packing group												
		Classification code												
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
1545	ALLYL ISOTHIOCYANATE, STABILIZED	3.1.2	2.2	2.1.1.3	5.2.2 / 3.2.3.1	1.2.1 / 7.2.2.0.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	7.2.4.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	1.2.1 / 3.2.3.3	(20)
1547	ANILINE													3.2.3.1
1578	CHLORONITROBENZENES, SOLID, MOLTEN (p-CHLORONITROBENZENE)													2
1578	CHLORONITROBENZENES, SOLID, MOLTEN (p-CHLORONITROBENZENE)													2
1591	o-DICHLOROBENZENE													2
1593	DICHLOROMETHANE (methyl chloride)													2
1594	DIETHYL SULPHATE													2
1595	DIMETHYL SULPHATE													2
1604	ETHYLENEDIAMINE													2
1605	ETHYLENE DIBROMIDE													2
1648	ACETONITRILE (methyl cyanide)													2
1662	NITROBENZENE													2

Name and description		Additional requirements/Remarks													
		Number of cones/blue lights			Equipment required			Anti-explosion protection required			Explosion group				
Dangers	Classification code	Temperature class			Pump room below deck permitted			Type of sampling device			Relative density at 20 °C				
		(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		
		3112	2.2	2.1,1,3	5,2,2 / 3,2,3,1	1,2,1 / 7,2,2,0,1	3,2,3,1 / 1,2,1	3,2,3,1 / 1,2,1	3,2,3,1 / 1,2,1	3,2,4,21	3,2,3,1 / 1,2,1	(12)	(13)		
		1663	NITROPHENOLE, MOLTEN	6.1	T2	III	6.1+N3+	C	2	2	25	95	(14)	(15)	
		1663	NITROPHENOLE, MOLTEN	6.1	T2	III	6.1+N3+	S	2	4	25	95	(16)	(17)	
		1664	NITROTOLUENES, LIQUID (<i>o</i> -NITROTOLUENE)	6.1	T1	II	6,1+N2 +CMR+S	C	2	2	25	95	1,16	2	
		1708	TOLUIDINES, LIQUID (<i>o</i> -TOLUIDINE)	6.1	T1	II	6,1+N1+ CMR	C	2	2	25	95	1	2	
		1708	TOLUIDINES, LIQUID (<i>m</i> -TOLUIDINE)	6.1	T1	II	6,1+N1	C	2	2	25	95	1,03	2	
		1710	TRICHLOROETHYLENE	6.1	T1	III	6,1+N2 +CMR	C	2	2	50	95	1,46	2	
		1715	ACETIC ANHYDRIDE	8	CF1	II	8+3	N	2	3	10	97	1,08	3	
Class	Packing group	1717	ACETYL CHLORIDE	3	FC	II	3+8	C	2	2	50	95	1,1	2	
		1718	BUTYL ACIDE PHOSPHATE	8	C3	III	8+N3	N	4	3		97	0,98	3	
		1719	CAUSTIC ALKALI LIQUID, N.O.S.	8	C5	II	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*	yes	
		1719	CAUSTIC ALKALI LIQUID, N.O.S.	8	C5	III	8+(N1, N2, N3, CMR, F or S)	*	*	*	*	*	*	yes	
		1738	BENZYL CHLORIDE	6.1	TC1	II	6,1+8+3+ N3+CM R+S	C	2	2	25	95	1,1	2	
														no	
														*	
UN No. or substance identification No.														0	
														27; 30; 34 *see 3.2.3.3	

Name and description		Additional requirements/Remarks																					
		(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	
	3.1.2	2.2	2.2	2.1.1.3	5.2.2 / 3.2.3.1	1.2.1 / 7.2.2.0.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	7.2.4.21	3.2.3.1 / 1.2.1	3.2.3.1 / 1.2.1	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	1.2.1 / 3.2.3.3	8.1.5	7.2.5	3.2.3.1
1742	BORON TRIFLUORIDE ACETIC ACID COMPLEX, LIQUID	8	C3	II	8	N	4	2				97	1.35	3	yes								
1750	CHLORACETIC ACID SOLUTION	6.1	TC1	II	6.1+8+N	C	2	2	2	2	25	95	1.58	2	no	T1 12)	II A	yes	PP, EP, EX, TOX, A	PP, EP, EX, TOX, A	PP, EP, EX, TOX, A	2	7; 17
1750	CHLORACETIC ACID SOLUTION	6.1	TC1	II	6.1+8+N	C	2	1	4	25	95	1.58	2	no					no	PP, EP, EX, TOX, A	PP, EP, EX, TOX, A	2	7; 17; 26
1760	CORROSIVE LIQUID, N.O.S.	8	C9	I	8+N1, N2, N3, CMR, F or S	*	*	*	*	*	*	*	*	*	*	*	yes		no	*	0	27; 34 *see 3.2.3.3	
1760	CORROSIVE LIQUID, N.O.S.	8	C9	II	8+N1, N2, N3, CMR, F or S	*	*	*	*	*	*	*	*	*	*	*	yes		no	*	0	27; 34 *see 3.2.3.3	
1760	CORROSIVE LIQUID, N.O.S.	8	C9	III	8+N1, N2, N3, CMR, F or S	*	*	*	*	*	*	*	*	*	*	*	yes		no	*	0	27; 34 *see 3.2.3.3	
1760	CORROSIVE LIQUID, N.O.S. (SODIUM MERCAPTOBENZOTIAZOLE, 50% AQUEOUS SOLUTION)	8	C9	II	8+N1+F	C	2	2		40	95	1.25	2	yes					no	PP, EP	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	PP, EP	0	
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	PP, EP	0	

UN No. or substance identification No.	Name and description	Additional requirements/Remarks																																
		Number of cones/blue lights			Equipment required			Anti-explosion protection required			Explosion group																							
Dangers		Packing group		Classification code		Class		Type of tank vessel		Cargo tank type		Cargo tank equipment		Maximum degree of filling of the cargo tank in %		Opening pressure of the pressure relief valve/high velocity vent valve, in kPa acid by mass		Relative density at 20 °C		Type of sampling device		Pump room below deck permitted		Temperature class		Anti-explosion protection required			Equipment required			Number of cones/blue lights		
(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)				
1764	DICHLOROACETIC ACID	8	C3	II	8+N1	N	3	3			97	1,56	2	yes	T1 ¹²⁾	II A	yes	P1, EP, EX, A	0	6,+13 °C; 17; 34														
1778	FLUOROSILICIC ACID	8	C1	II	8+N3	N	2	3			10	97	3	yes	T1 ¹²⁾	II A	yes	PP, EP, EX, A	0	PP, EP, EX, A	1	6,+12 °C; 17; 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 ¹²⁾	II A	yes	PP, EP, EX, A	0	PP, EP, EX, A	1	6,+12 °C; 17; 34											
1780	FUMARYL CHLORIDE	8	C3	II	8+N3	N	2	3			10	97	1,41	3	yes	T4 ³⁾	II A	yes	PP, EP, EX, A	0	PP, EP, EX, A	0	8; 34											
1783	HEXAMETHYLENEDIAMINE SOLUTION	8	C7	III	8+N3	N	3	2	2		97	3	yes	T3	II A	yes	PP, EP, EX, A	0	PP, EP, EX, A	0	7; 17; 34													
1783	HEXAMETHYLENEDIAMINE SOLUTION	8	C7	II	8	N	2	3			10	97	3	yes				no	PP, EP, EX, A	0	PP, EP, EX, A	0	7; 17; 34											
1789	HYDROCHLORIC ACID	8	C1	III	8	N	4	3			97	3	yes					no	PP, EP, EX, A	0	PP, EP, EX, A	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, EX, A	0	PP, EP, EX, A	0	7; 17; 22; 34											
1814	POTASSIUM HYDROXIDE SOLUTION	8	C1	III	8	N	4	3			97	1,00 - 1,6	3	yes				no	PP, EP, EX, A	0	PP, EP, EX, A	0	22; 34											
1814	POTASSIUM HYDROXIDE SOLUTION	8	C5	II	8+N3	N	4	2			97	3	yes					no	PP, EP, EX, A	0	PP, EP, EX, A	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, EX, A	0	PP, EP, EX, A	0	7; 17; 34											
1824	SODIUM HYDROXIDE SOLUTION	8	C5	III	8+N3	N	4	2			97	3	yes					no	PP, EP, EX, A	0	PP, EP, EX, A	0	30; 34											