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ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on the Transport
of Dangerous Goods

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

REPORT OF THE JOINT MEETING OF EXPERTS ON ITS TENTH SESSION*
(23-25 January 2006)

**Consolidated text of the amendments to the 2005 version of the Regulations
annexed to ADN adopted by the Joint Meeting of Experts**

The secretariat reproduces below the consolidated text of the amendments to the 2005 version of the Regulations annexed to ADN adopted by the Joint Meeting of Experts at its ninth and tenth sessions. (see TRANS/WP.15AC.2/19, TRANS/WP.15AC.2/19/Add.1 and TRANS/WP.15AC.2/21).

* *This meeting is organized jointly by the Economic Commission for Europe and the Central Commission for the Navigation of the Rhine.*

PART 1

Chapter 1.1

1.1.3.1 (d) Amend as follows:

"(d) the carriage undertaken by or under the supervision of the emergency services, insofar as such carriage is necessary in relation to the emergency response, in particular carriage undertaken to contain and recover the dangerous goods involved in an incident or accident and move them to a safe place;"

1.1.3.1 (e) Replace at the end “.” with “;”.

1.1.3.1 Add a new sub paragraph (f) to read:

"(f) the carriage of uncleaned empty static or storage vessels and tanks which have contained gases of Class 2, groups A, O or F, substances of Class 3 or Class 9 belonging to packing group II or III or pesticides of Class 6.1 belonging to packing group II or III, subject to the following conditions:

- All openings with the exception of pressure relief devices (when fitted) are hermetically closed;
- Measures have been taken to prevent any leakage of contents in normal conditions of carriage; and
- The load is fixed in cradles or crates or other handling devices or to the vehicle, container or vessel in such a way that they will not become loose or shift during normal conditions of carriage.

This exemption does not apply to static or storage vessels and tanks which have contained desensitized explosives or substances the carriage of which is prohibited by ADN."

1.1.3.2 (d) Amend as follows:

"(d) gases contained in the equipment used for the operation of the vessel;"

1.1.3.2 (f) Delete. Current (g) becomes (f).

1.1.3.6 Amend to read:

“1.1.3.6 *Exemptions related to quantities carried on board vessels.*

1.1.3.6.1 (a) In the event of the carriage of dangerous goods in packages, the provisions of ADN other than those of 1.1.3.6.2 are not applicable when the gross mass of all the dangerous goods carried does not exceed 3,000 kg.

This provision does not apply to the carriage of:

(i) to (vii) (unchanged)

- (b) In the event of the carriage of dangerous goods in packages other than tanks (tank-containers, tank vehicles, etc.), the provisions of ADN other than those of 1.1.3.6.2 are not applicable to the carriage of:
- substances of Class 2 of group F in accordance with 2.2.2.1.3 or aerosols of group F according to 2.2.2.1.6; or
 - substances assigned to Packing Group I, except substances of Class 6.1 when the gross mass of these goods does not exceed 300 kg.

1.1.3.6.2 The carriage of exempted quantities according to 1.1.3.6.1 is, however, subject to the following conditions:

- (a) The obligation to report in accordance with 1.8.5 remains applicable;
- (b) Packages, except vehicles and containers (including swap bodies), shall comply with the requirements for packagings referred to in Parts 4 and 6 of ADR or RID; the provisions of 5.2 concerning marking and labelling are applicable;
- (c) The following documents shall be on board:
- the transport documents (see 5.4.1.1);
 - the transport documents shall concern all the dangerous goods carried on board;
 - the stowage plan (see 7.1.4.11.1);
- (d) The goods shall be stowed in the holds.
This provision does not apply to goods loaded in:
- containers with complete spray-proof walls;
 - vehicles with complete spray-proof walls;
- (e) Goods of different class shall be separated by a minimum horizontal distance of 3 m. They shall not be stowed on top of each other.
This provision does not apply to:
- containers with complete metal walls;
 - vehicles with complete metal walls;
- (f) For seagoing and inland navigation vessels, where the latter carry only containers, the above requirements under (d) and (e) shall be considered to have been met if the provisions of the IMDG Code regarding stowage and separation are met and if this particular is recorded in the transport document.”

1.1.4.2.1 In the last sentence replace "classes 1 to 8" with "classes 1 to 9".

Chapter 1.2

1.2.1 Add the following definitions in alphabetical order:

"*ASTM* means the American Society for Testing and Materials (ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959, United States of America);"

Consequential amendment:

In Chapter 3.3, SP 649, delete the address in footnote (2).

"*Capacity of shell or shell compartment*", for tanks, means the total inner volume of the shell or shell compartment expressed in litres or cubic metres. When it is impossible to completely fill the shell or the shell compartment because of its shape or construction, this reduced capacity shall be used for the determination of the degree of filling and for the marking of the tank."

"*CGA* means the Compressed Gas Association (CGA, 4221 Walney Road, 5th Floor, Chantilly VA 20151-2923, United States of America);"

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

"*Construction pressure*": delete the second sentence. Replace "*Construction pressure*" with "*Design pressure*".

Consequential amendment:

"9.3.3.23.2 Replace "construction pressure" with "design pressure"."

"*Filling ratio (cargo tank)*", read as follows:

"Where a filling ratio is given for a cargo tank, it refers to the percentage of the volume of the cargo tank which may be filled with liquid during loading;"

"*ICAO* means the International Civil Aviation Organization (ICAO, 999 University Street, Montreal, Quebec H3C 5H7, Canada);"

"*IMO* means the International Maritime Organization (IMO, 4 Albert Embankment, London SE1 7SR, United Kingdom);"

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

"*Sampling openings* means opening with a diameter of not more than 0.30 m fitted with a flame arrester plate stack, capable of withstanding steady burning and so designed that the opening period will be as short as possible and that the flame arrester plate stack cannot remain open without external intervention. The flame arrester plate stack shall be of a type approved by the competent authority for this purpose."

"*Tank record*" means a file containing all the important technical information concerning a tank, a battery-vehicle or a MEGC, such as certificates referred to in 6.8.2.3, 6.8.2.4 and 6.8.3.4 of ADR. "

"UIC means the International Union of Railways (UIC, 16 rue Jean Rey, F-75015 Paris, France);"

"UNECE means the United Nations Economic Commission for Europe (UNECE, Palais des Nations, 8-14 avenue de la Paix, CH-1211 Geneva 10, Switzerland);"

Consequential amendment:

Wherever they appear in ADN replace the words "UN/ECE" and "UN-ECE" with "UNECE". (Apply to 5.4.1.4.2 footnote 2) and to section 5.4.2 footnote 3)).

"Vacuum design pressure means the vacuum pressure on the basis of which the cargo tank or the residual cargo tank has been designed and built;"

In the definition of "UN Model Regulations", replace "thirteenth" with "fourteenth" and "(ST/SG/AC.10/1/Rev.13)" with "(ST/SG/AC.10/1/Rev.14)".

In the definition of "Manual of Tests and Criteria", replace "(ST/SG/AC.10/11/Rev.4)" with "(ST/SG/AC.10/11/Rev.4 as amended by document ST/SG/AC.10/11/Rev.4/Amend.1)".

In the definition of "Aerosol or aerosol dispenser", insert "under pressure" after "liquefied or dissolved".

In the definition of "Hermetically closed tank", the second and fourth indents, replace "as allowed by special provision TE15 of 6.8.4 of ADR" with "in accordance with the requirements of 6.8.2.2.3 of ADR" at the end.

In the definition of "Overpack", replace "by a single consignor" with "(by a single consignor in the case of Class 7)".

In sub-paragraph (a), replace "plastic" with "plastics".

Chapter 1.3

1.3.2.4 Replace "the radiation hazards involved and" with "radiation protection including".

Replace "to ensure restriction of their exposure and that" with "to restrict their occupational exposure and the exposure".

Chapter 1.4

1.4.2.2.5 Add a new paragraph to read:

"1.4.2.2.5 (Reserved)".

1.4.3.3 Add a new subparagraph (k) to read as follows:

"he shall, when filling vehicles or containers with dangerous goods in bulk, ascertain that the relevant provisions of Chapter 7.3 of RID or ADR are complied with."

Consequential amendment: "ReNUMBER following sub-paragraphs accordingly".

Chapter 1.5

- 1.5.1.1 In the first sentence, delete "for the purpose of adapting the requirements of the annexed Regulations to technological and industrial developments,".

Chapter 1.6

- 1.6.1.1 Replace "2005" with "2007" and "2004" with "2006".

- 1.6.1.2 Amend to read as follows:

- "1.6.1.2 (a) The danger labels and placards which until 31 December 2004 conformed to models No. 7A, 7B, 7C, 7D or 7E prescribed up to that date may be used until 31 December 2010."

Insert a new 1.6.1.2 (b) to read as follows:

- "1.6.1.2 (b) The danger labels and placards which until 31 December 2006 conformed to model No. 5.2 prescribed up to that date may be used until 31 December 2010."

- 1.6.7.2.3.1 Correct and add to 1.6.7.2.3.1 as follows:

1.6.7.2.3.1 Table of general transitional provisions - Tank vessels		
Paragraphs	Subject	Time limit and comments
8.1.6.2	Compliance of hoses and hose assemblies with standards EN 12115:1999, EN 13765:2003, EN ISO 10380:2003	Hoses and hose assemblies on board at 1 January 2007 which do not comply with the applicable standards may be used up to 31 December 2009 at the latest
9.3.1.10.3 9.3.2.10.3 9.3.3.10.3	Height of sills of hatches and openings above the deck	N.R.M.
9.3.1.17.6 9.3.3.17.6	Pump-room below deck	N.R.M. The following requirements apply on board vessels in service: Pump-rooms below deck shall - meet the requirements for service spaces: for type G vessels: 9.3.1.12.3; for type N vessels: 9.3.3.12.3; - be equipped with a gas detection system referred to in 9.3.1.17.6 or 9.3.3.17.6.
9.3.x.21.5 becomes 9.3.x.21.5 (a)		
9.3.1.21.5 (b) 9.3.2.21.5 (b) 9.3.3.21.5 (c)	Installation of on-board pump switch-off from the shore	Renewal of the certificate of approval after 1 January 2007
9.3.1.22.1 (b)	Distance of cargo tank openings above the deck	N.R.M.

1.6.7.2.3.1 Table of general transitional provisions - Tank vessels		
Paragraphs	Subject	Time limit and comments
9.3.2.14.2	Stability (intact)	N.R.M.
9.3.3.11.4	Distance of piping in relation to the bottom	N.R.M.
9.3.3.11.7	Hold spaces	N.R.M. after 1 January 2007 The following requirements are applicable to vessels with a certificate of approval valid prior to 1 January 2007: Where a vessel is constructed with hold spaces containing cargo tanks which are independent of the structure of the vessel, the space between the wall of the hold space and the wall of the cargo tanks shall be not less than 0.60 m. The space between the bottom of the hold space and the bottom of the cargo tanks shall be not less than 0.50 m. The space may be reduced to 0.40 m under the pump sumps. The space between the suction well and the bottom structures shall be not less than 0.10 m. If the above-mentioned spaces are not feasible, it shall be possible to remove the cargo tanks easily for inspections.
9.3.3.13.3 paragraph 2	Stability (general)	N.R.M. after 1 January 2007
9.3.3.14.2 (b) and (c)	Stability (intact)	N.R.M. after 1 January 2007
9.3.3.15	Stability (damaged condition)	N.R.M. after 1 January 2007
9.3.3.21.1 (b)	Liquid level gauge for type N open with flame-arrester and type N open	N.R.M. On board vessels in service fitted with gauging openings, such openings shall: - be arranged so that the degree of filling can be measured using a sounding rod; - be fitted with an automatically-closing cover.

Chapter 1.7

1.7.2.3 Insert the following new first sentence "Doses to persons shall be below the relevant dose limits."

At the end of the current first sentence (new second sentence), replace: "and doses to persons shall be below the relevant dose limits", with "within the restriction that the doses to individuals be subject to dose constraints".

1.7.2.4 In the French version, replace "dose effective" with "dose efficace".

Delete indent (a) and renumber (b) and (c) as (a) and (b).

1.7.4.1 Insert "of radioactive material" after "which consignments" and "applicable" after "satisfy all the".

Delete "applicable to radioactive material" at the end.

Chapter 1.8

1.8.1.1.1 End, read: "... Chapter, and including the requirements of 1.10.1.5."

1.8.3.10 Add a new second sentence to read as follows: "The examining body shall not be a training provider."

Amend sub-section 1.8.3.12 to read as follows:

"1.8.3.12 Examinations

1.8.3.12.1 The examination shall consist of a written test which may be supplemented by an oral examination.

1.8.3.12.2 The use in the written test of documentation other than international or national regulations is not permitted.

1.8.3.12.3 Electronic media may be used only if provided by the examining body. There shall be no means of a candidate introducing further data to the electronic media provided; the candidate may only answer to the questions posed.

1.8.3.12.4 Second sentence of current 1.8.3.12 followed by sub-paragraphs (a) and (b) with the following amendment: At the beginning of this second sentence, replace "written examination" by "written test" .".

Consequential amendment:

In 1.8.3.16.2, replace "1.8.3.12 (b)" with "1.8.3.12.4 (b)" at the end.

1.8.5.1 Amend to read as follows:

"If a serious accident or incident takes place during loading, filling, carriage or unloading of dangerous goods on the territory of a Contracting Party, the loader, filler, carrier or consignee, respectively, shall ascertain that a report is made to the competent authority of the Contracting Party concerned."

Chapter 1.10

1.10.1.3 Read: "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."

Bring the Russian version of the proposed amendment into line with the other versions.

Add:

"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 Insert: "Safety checks in accordance with 1.8.1 shall also concern the implementation of security measures."
- 1.10.1.6 Replace "... training certificates for experts stipulated in 8.2.1 ..." by "... certificates for experts stipulated in 8.2.1 ...".
- 1.10.3.1 The definition of "high consequence dangerous goods" is put in a Note to precede 1.10.3.1.
- 1.10.3.2.2 (d) Last indent, delete "security".
- 1.10.3.3 Replace the first sentence by:

"Operational or technical measures shall be taken on vessels carrying high consequence dangerous goods referred to in 1.10.5 in order to prevent the improper use of the vessel and of the dangerous goods."
- 1.10.5 Table: Third column, second entry for Class 2, replace "including letters T," by "including letter(s) T,";

Fourth column, second line, replace "**Tank (I)**" by "**Tank or cargo tank (litres)**";

Fifth column, second line, add a footnote for "Bulk" to read:

"** Bulk means bulk in the vessel, or bulk in a vehicle or a container*";

Sixth column, second line, replace "**Packages (kg)**" by "**Goods in packages (kg)**".

Bring the Russian version of the proposed amendment into line with the other versions (column identification).

For Class 6.2 insert "(UN Nos. 2814 and 2900)" after "Category A".
Delete NOTE.
For Class 6.2, in Column "Bulk", replace letter "a" by "0".
- 1.10.6 Add a new paragraph after Table 1.10.5 to read as follows:

"1.10.6 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 and of IAEA INFCIRC/225 (Rev.4) are applied."

PART 2

Chapter 2.2

- 2.2.1.1.7 Current 2.2.1.1.7 becomes new 2.2.1.1.8. Insert the following new paragraphs:

"2.2.1.1.7 *Assignment of fireworks to divisions*

2.2.1.1.7.1 Fireworks shall normally be assigned to divisions 1.1, 1.2, 1.3, and 1.4 on the basis of test data derived from Test Series 6 of the Manual of Tests and Criteria. However, since the range of such articles is very extensive and the availability of test facilities may be limited, assignment to divisions may also be made in accordance with the procedure in 2.2.1.1.7.2.

2.2.1.1.7.2 Assignment of fireworks to UN No. 0333, 0334, 0335 or 0336 may be made on the basis of analogy, without the need for Test Series 6 testing, in accordance with the default fireworks classification table in 2.2.1.1.7.5. Such assignment shall be made with the agreement of the competent authority. Items not specified in the table shall be classified on the basis of test data derived from Test Series 6.

NOTE 1: *The addition of other types of fireworks to column 1 of the table in 2.2.1.1.7.5 shall only be made on the basis of full test data submitted to the UN Sub-Committee of Experts on the Transport of Dangerous Goods for consideration.*

NOTE 2: *Test data derived by competent authorities which validates, or contradicts the assignment of fireworks specified in column 4 of the table in 2.2.1.1.7.5 to divisions in column 5 should be submitted to the UN Sub-Committee of Experts on the Transport of Dangerous Goods for information.*

2.2.1.1.7.3 Where fireworks of more than one division are packed in the same package they shall be classified on the basis of the highest division unless test data derived from Test Series 6 indicate otherwise.

2.2.1.1.7.4 The classification shown in the table in 2.2.1.1.7.5 applies only for articles packed in fibreboard boxes (4G).

2.2.1.1.7.5 *Default fireworks classification table*¹

NOTE 1: *References to percentages in the table, unless otherwise stated, are to the mass of all pyrotechnic composition (e.g. rocket motors, lifting charge, bursting charge and effect charge).*

NOTE 2: *"Flash composition" in this table refers to pyrotechnic compositions containing an oxidizing substance, or black powder, and a metal powder fuel that are used to produce an aural report effect or used as a bursting charge in fireworks devices.*

NOTE 3: *Dimensions in mm refer to:*

- *for spherical and peanut shells the diameter of the sphere of the shell;*
- *for cylinder shells the length of the shell;*
- *for a shell in mortar, Roman candle, shot tube firework or mine the inside diameter of the tube comprising or containing the firework;*
- *for a bag mine or cylinder mine, the inside diameter of the mortar intended to contain the mine.*

¹ *This table contains a list of firework classifications which may be used in the absence of Test Series 6 data (see 2.2.1.1.7.2).*

Type	Includes: / Synonym:	Definition	Specification	Classification
Shell, spherical or cylindrical	Spherical display shell: aerial shell, colour shell, dye shell, multi-break shell, multi-effect shell, nautical shell, parachute shell, smoke shell, star shell; report shell: maroon, salute, sound shell, thunderclap, aerial shell kit	Device with or without propellant charge, with delay fuse and bursting charge, pyrotechnic unit(s) or loose pyrotechnic composition and designed to be projected from a mortar	All report shells	1.1G
			Colour shell: ≥ 180 mm	1.1G
			Colour shell: < 180 mm with $> 25\%$ flash composition, as loose powder and/ or report effects	1.1G
			Colour shell: < 180 mm with $\leq 25\%$ flash composition, as loose powder and/ or report effects	1.3G
			Colour shell: ≤ 50 mm, or ≤ 60 g pyrotechnic composition, with $\leq 2\%$ flash composition as loose powder and/ or report effects	1.4G
	Peanut shell	Device with two or more spherical aerial shells in a common wrapper propelled by the same propellant charge with separate external delay fuses	The most hazardous spherical aerial shell determines the classification	
	Preloaded mortar, shell in mortar	Assembly comprising a spherical or cylindrical shell inside a mortar from which the shell is designed to be projected	All report shells	1.1G
			Colour shell: ≥ 180 mm	1.1G
			Colour shell: > 50 mm and < 180 mm	1.2G
			Colour shell: ≤ 50 mm, or < 60 g pyrotechnic composition, with $\leq 25\%$ flash composition as loose powder and/ or report effects	1.3G

Type	Includes: / Synonym:	Definition	Specification	Classification
Shell, spherical or cylindrical (<i>cont'd</i>)	Shell of shells (spherical) (Reference to percentages for shell of shells are to the gross mass of the fireworks article)	Device without propellant charge, with delay fuse and bursting charge, containing report shells and inert materials and designed to be projected from a mortar	> 120 mm	1.1G
		Device without propellant charge, with delay fuse and bursting charge, containing report shells ≤ 25g flash composition per report unit, with ≤ 33% flash composition and ≥ 60% inert materials and designed to be projected from a mortar	≤ 120 mm	1.3G
		Device without propellant charge, with delay fuse and bursting charge, containing colour shells and/or pyrotechnic units and designed to be projected from a mortar	> 300 mm	1.1G
		Device without propellant charge, with delay fuse and bursting charge, containing colour shells ≤ 70mm and/or pyrotechnic units, with ≤ 25% flash composition and ≤ 60% pyrotechnic composition and designed to be projected from a mortar	> 200 mm and ≤ 300 mm	1.3G
		Device with propellant charge, with delay fuse and bursting charge, containing colour shells ≤ 70 mm and/or pyrotechnic units, with ≤ 25% flash composition and ≤ 60% pyrotechnic composition and designed to be projected from a mortar	≤ 200 mm	1.3G
Battery/ combination	Barrage, bombardos, cakes, finale box, flowerbed, hybrid, multiple tubes, shell cakes, banger batteries, flash banger batteries	Assembly including several elements either containing the same type or several types each corresponding to one of the types of fireworks listed in this table, with one or two points of ignition	The most hazardous firework type determines the classification	

Type	Includes: / Synonym:	Definition	Specification	Classification
Roman candle	Exhibition candle, candle, bombettes	Tube containing a series of pyrotechnic units consisting of alternate pyrotechnic composition, propellant charge, and transmitting fuse	≥ 50 mm inner diameter, containing flash composition, or <50 mm with >25% flash composition	1.1G
			≥ 50 mm inner diameter, containing no flash composition	1.2G
			< 50 mm inner diameter and ≤ 25% flash composition	1.3G
			≤ 30 mm inner diameter, each pyrotechnic unit ≤ 25 g and ≤ 5% flash composition	1.4G
Shot tube	Single shot Roman candle, small preloaded mortar	Tube containing a pyrotechnic unit consisting of pyrotechnic composition, propellant charge with or without transmitting fuse	≤ 30 mm inner diameter and pyrotechnic unit > 25 g, or > 5% and ≤ 25% flash composition	1.3G
			≤ 30 mm inner diameter, pyrotechnic unit ≤ 25 g and ≤ 5% flash composition	1.4G
Rocket	Avalanche rocket, signal rocket, whistling rocket, bottle rocket, sky rocket, missile type rocket, table rocket	Tube containing pyrotechnic composition and/or pyrotechnic units, equipped with stick(s) or other means for stabilization of flight, and designed to be propelled into the air	Flash composition effects only	1.1G
			Flash composition > 25% of the pyrotechnic composition	1.1G
			> 20 g pyrotechnic composition and flash composition ≤ 25 %	1.3G
			≤ 20 g pyrotechnic composition, black powder bursting charge and ≤ 0.13 g flash composition per report and ≤ 1 g in total	1.4G

Type	Includes: / Synonym:	Definition	Specification	Classification
Mine	Pot-a-feu, ground mine, bag mine, cylinder mine	<p>Tube containing propellant charge and pyrotechnic units and designed to be placed on the ground or to be fixed in the ground. The principal effect is ejection of all the pyrotechnic units in a single burst producing a widely dispersed visual and/or aural effect in the air or:</p> <p>Cloth or paper bag or cloth or paper cylinder containing propellant charge and pyrotechnic units, designed to be placed in a mortar and to function as a mine</p>	> 25% flash composition, as loose powder and/ or report effects	1.1G
			≥ 180 mm and ≤ 25% flash composition, as loose powder and/ or report effects	1.1G
			< 180 mm and ≤ 25% flash composition, as loose powder and/ or report effects	1.3G
			≤ 150 g pyrotechnic composition, containing ≤ 5% flash composition as loose powder and/ or report effects. Each pyrotechnic unit ≤ 25 g, each report effect < 2g ; each whistle, if any, ≤ 3 g	1.4G
Fountain	Volcanos, gerbs, showers, lances, Bengal fire, flitter sparkle, cylindrical fountains, cone fountains, illuminating torch	Non-metallic case containing pressed or consolidated pyrotechnic composition producing sparks and flame	≥ 1 kg pyrotechnic composition	1.3G
			< 1 kg pyrotechnic composition	1.4G
Sparkler	Handheld sparklers, non-handheld sparklers, wire sparklers	Rigid wire partially coated (along one end) with slow burning pyrotechnic composition with or without an ignition tip	Perchlorate based sparklers: > 5 g per item or > 10 items per pack	1.3G
			Perchlorate based sparklers: ≤ 5 g per item and ≤ 10 items per pack; Nitrate based sparklers: ≤ 30 g per item	1.4G

Type	Includes: / Synonym:	Definition	Specification	Classification
Bengal stick	Dipped stick	Non-metallic stick partially coated (along one end) with slow-burning pyrotechnic composition and designed to be held in the hand	Perchlorate based items: > 5 g per item or > 10 items per pack	1.3 G
			Perchlorate based items: ≤ 5 g per item and ≤ 10 items per pack; nitrate based items: ≤ 30 g per item	1.4G
Low hazard fireworks and novelties	Table bombs, throwdowns, crackling granules, smokes, fog, snakes, glow worm, serpents, snaps, party poppers	Device designed to produce very limited visible and/or audible effect which contains small amounts of pyrotechnic and/ or explosive composition.	Throwdowns and snaps may contain up to 1.6 mg of silver fulminate; snaps and party poppers may contain up to 16 mg of potassium chlorate/ red phosphorous mixture; other articles may contain up to 5 g of pyrotechnic composition, but no flash composition	1.4G
Spinner	Aerial spinner, helicopter, chaser, ground spinner	Non-metallic tube or tubes containing gas- or spark-producing pyrotechnic composition, with or without noise producing composition, with or without aerofoils attached	Pyrotechnic composition per item > 20 g, containing ≤ 3% flash composition as report effects, or whistle composition ≤ 5 g	1.3G
			Pyrotechnic composition per item ≤ 20 g, containing ≤ 3% flash composition as report effects, or whistle composition ≤ 5 g	1.4G

Type	Includes: / Synonym:	Definition	Specification	Classification
Wheels	Catherine wheels, Saxon	Assembly including drivers containing pyrotechnic composition and provided with a means of attaching it to a support so that it can rotate	≥ 1 kg total pyrotechnic composition, no report effect, each whistle (if any) ≤ 25 g and ≤ 50 g whistle composition per wheel	1.3G
			< 1 kg total pyrotechnic composition, no report effect, each whistle (if any) ≤ 5 g and ≤ 10 g whistle composition per wheel	1.4G
Aerial wheel	Flying Saxon, UFO's, rising crown	Tubes containing propellant charges and sparks-flame- and/ or noise producing pyrotechnic compositions, the tubes being fixed to a supporting ring	> 200 g total pyrotechnic composition or > 60 g pyrotechnic composition per driver, ≤ 3% flash composition as report effects, each whistle (if any) ≤ 25 g and ≤ 50 g whistle composition per wheel	1.3G
			≤ 200 g total pyrotechnic composition and ≤ 60 g pyrotechnic composition per driver, ≤ 3% flash composition as report effects, each whistle (if any) ≤ 5 g and ≤ 10 g whistle composition per wheel	1.4G
Selection pack	Display selection box, display selection pack, garden selection box, indoor selection box; assortment	A pack of more than one type each corresponding to one of the types of fireworks listed in this table	The most hazardous firework type determines the classification	

Type	Includes: / Synonym:	Definition	Specification	Classification
Firecracker	Celebration cracker, celebration roll, string cracker	Assembly of tubes (paper or cardboard) linked by a pyrotechnic fuse, each tube intended to produce an aural effect	Each tube \leq 140 mg of flash composition or \leq 1 g black powder	1.4G
Banger	Salute, flash banger, lady cracker	Non-metallic tube containing report composition intended to produce an aural effect	$>$ 2 g flash composition per item	1.1G
			\leq 2 g flash composition per item and \leq 10 g per inner packaging	1.3G
			\leq 1 g flash composition per item and \leq 10 g per inner packaging or \leq 10 g black powder per item	1.4G

Consequential amendment:

In 2.2.1.1.3, replace "2.2.1.1.7" with "2.2.1.1.8".

2.2.2.1.5 Under the heading "Oxidizing gases", replace "see ISO 10156:1996" with "see ISO 10156:1996 and ISO 10156-2:2005".

2.2.3.1.1 Replace "61 °C" with "60 °C" (three times).

Consequential amendments:

The same change applies to 1.6.7.2.1.2 (UN 3175), Table C (Description of column (20), Additional requirement 24 and UN Nos. 1999, 3175 and 3256 and Identification Nos. 9001 and 9003), 2.2.3.1.1 (5 times), 2.2.3.1.2 (3 times), 2.2.3.1.3, 2.2.3.3 (twice), 2.2.61.3 (Note k), 2.2.9.1.13, 2.2.9.1.14, 2.2.9.1.14 (Identification No. 9003), 2.3.3.1.7, 2.3.3.1.8, Figure 2.3.6, Table A and Index (UN Nos. 1202, 3175, 3256 and Identification Nos. 9001 and 9003), 5.3.2.3.2 (13 times), 7.2.3.42.4, 9.3.2.42.4, 9.3.3.42.4.

2.2.41.1.9 Amend (b) to read as follows:

"(b) they are oxidizing substances according to the classification procedure for Class 5.1 (see 2.2.51.1) except that mixtures of oxidizing substances which contain 5.0% or more of combustible organic substances shall be subjected to the classification procedure defined in Note 2;"

Add a new NOTE 2 to read as follows and renumber the following Notes accordingly:

"NOTE 2: *Mixtures of oxidizing substances meeting the criteria of Class 5.1 which contain 5.0% or more of combustible organic substances, which do not meet the criteria mentioned in (a), (c), (d) or (e) above, shall be subjected to the self-reactive substance classification procedure.*

A mixture showing the properties of a self-reactive substance, type B to F, shall be classified as a self-reactive substance of Class 4.1.

A mixture showing the properties of a self-reactive substance, type G, according to the principle given in 20.4.3 (g) of Part II of the Manual of Tests and Criteria shall be considered for classification as a substance of Class 5.1 (see 2.2.51.1)."

2.2.41.4 Add the following new entry to the table:

SELF-REACTIVE SUBSTANCE	Concentration (%)	Packing method	Control temperature (°C)	Emergency temperature (°C)	UN generic entry	Remarks
ACETONE-PYROGALLOL COPOLYMER 2-DIAZO-1-NAPHTHOL-5-SULPHONATE	100	OP8			3228	

2.2.61.1.7 Amend the table to read as follows:

Packing group	Oral toxicity LD ₅₀ (mg/kg)	Dermal toxicity LD ₅₀ (mg/kg)	Inhalation toxicity by dusts and mists LC ₅₀ (mg/l)
I	≤ 5.0	≤ 50	≤ 0.2
II	> 5.0 and ≤ 50	> 50 and ≤ 200	> 0.2 and ≤ 2.0
III ^a	> 50 and ≤ 300	> 200 and ≤ 1000	> 2.0 and ≤ 4.0

2.2.62.1.3 Amend the definition of *cultures* to read as follows:

"*Cultures* are the result of a process by which pathogens are intentionally propagated. This definition does not include human or animal patient specimens as defined in this paragraph;"

Add a new definition to read as follows:

"*Patient specimens* are human or animal materials, collected directly from humans or animals, including, but not limited to, excreta, secretions, blood and its components, tissue and tissue fluid swabs, and body parts being carried for purposes such as research, diagnosis, investigational activities, disease treatment and prevention."

2.2.62.1.4 Insert ", UN 3291" after "UN 2900".

2.2.62.1.4.1 In the first sentence, replace "disease to humans or animals" with "disease in otherwise healthy humans or animals".

In the Table with the indicative examples:

Under UN 2814:

- Replace "Hantaviruses causing hantavirus pulmonary syndrome" with "Hantavirus causing haemorrhagic fever with renal syndrome".

Consequential amendments:

Replace "hemorrhagic" with "haemorrhagic" in the table (twice).

- Add "(cultures only)" after "Rabies virus", "Rift Valley fever virus" and "Venezuelan equine encephalitis virus".

Under UN 2900:

- Delete "African horse sickness virus" and "Bluetongue virus";
- Insert "Velogenic" before "Newcastle disease virus";
- Add "(cultures only)" after each microorganism in the list.

In the table "Indicative examples of infectious substances", insert an asterisk * after the following entries:

- *Escherichia coli* (verotoxigenic) (cultures only);
- *Mycobacterium tuberculosis* (cultures only);
- *Shigella dysenteriae* type I (cultures only).

Insert a new Note after the table to read as follows:

"* Nevertheless, when the cultures are intended for diagnostic or clinical purposes, they may be classified as infectious substances of Category B."

2.2.62.1.4.2 Delete "except that cultures, as defined in 2.2.62.1.3, shall be assigned to UN 2814 or UN 2900 as appropriate".

In the Note amend the proper shipping name to read: "*BIOLOGICAL SUBSTANCE, CATEGORY B*".

2.2.62.1.5 Renumber current 2.2.62.1.5 as 2.2.62.1.5.1 and add a new 2.2.62.1.5 to read as follows:

"2.2.62.1.5 *Exemptions*".

Insert the following new sub-paragraphs:

"2.2.62.1.5.2 Substances containing microorganisms which are non-pathogenic to humans or animals are not subject to ADN unless they meet the criteria for inclusion in another class.

2.2.62.1.5.3 Substances in a form that any present pathogens have been neutralized or inactivated such that they no longer pose a health risk are not subject to ADN unless they meet the criteria for inclusion in another class.

2.2.62.1.5.4 Substances where the concentration of pathogens is at a level naturally encountered (including foodstuff and water samples) and which are not considered to pose a significant risk of infection are not subject to ADN unless they meet the criteria for inclusion in another class."

2.2.62.1.5.5 Text of current 2.2.62.1.6. Amend the beginning of the paragraph to read as follows: "Dried blood spots, collected by applying a drop of blood onto absorbent material, or faecal occult blood screening tests and blood or blood components..."

2.2.62.1.5.6: Add a new paragraph to read as follows:

"2.2.62.1.5.6 Human or animal specimens for which there is minimal likelihood that pathogens are present are not subject to ADN if the specimen is carried in a packaging which will prevent any leakage and which is marked with the words "Exempt human specimen" or "Exempt animal specimen", as appropriate.

The packaging is deemed to comply with the above requirements if it meets the following conditions:

- (a) The packaging consists of three components:
 - (i) a leak-proof primary receptacle(s);
 - (ii) a leak-proof secondary packaging; and
 - (iii) an outer packaging of adequate strength for its capacity, mass and intended use, and with at least one surface having minimum dimensions of 100 mm × 100 mm;
- (b) For liquids, absorbent material in sufficient quantity to absorb the entire contents is to be placed between the primary receptacle(s) and the secondary packaging so that, during carriage, any release or leak of a liquid substance will not reach the outer packaging and will not compromise the integrity of the cushioning material;
- (c) When multiple fragile primary receptacles are placed in a single secondary packaging, they are either individually wrapped or separated to prevent contact between them.

***NOTE:** An element of professional judgment is required to determine if a substance is exempt under this paragraph. That judgment should be based on the known medical history, symptoms and individual circumstances of the source, human or animal, and endemic local conditions. Examples of specimens which may be carried under this paragraph include the blood or urine tests to monitor cholesterol levels, blood glucose levels, hormone levels, or prostate specific antibodies (PSA); those required to monitor organ function such as heart, liver or kidney function for humans or animals with non-infectious diseases, or for therapeutic drug monitoring; those conducted for insurance or employment purposes and are intended to determine the presence of drugs or alcohol; pregnancy test; biopsies to detect cancer; and antibody detection in humans or animals.*

2.2.62.1.6 and

2.2.62.1.7 Replace current text with "(Reserved)".

2.2.62.1.11.1 Delete "or containing Category B infectious substances in cultures" in the first sentence and ", other than in cultures, " in the last sentence.

Add the following Note at the end:

***NOTE:** Medical or clinical wastes assigned to number 18 01 03 (Wastes from human or animal health care and/or related research – wastes from natal care, diagnosis, treatment or prevention of disease in humans – wastes whose collection and disposal is subject to special requirement in order to prevent infection) or 18 02 02 (Wastes from human or animal health care and/or related research – wastes from research, diagnosis, treatment or prevention of disease involving animals – wastes whose collection and disposal is subject to special requirements in order to prevent infection) according to the*

list of wastes annexed to the Commission Decision 2000/532/EC⁵ as amended, shall be classified according to the provisions set out in this paragraph, based on the medical or veterinary diagnosis concerning the patient or the animal."

2.2.62.1.11.2 Existing NOTE becomes NOTE 1. Add a new NOTE 2 to read as follows:

"NOTE 2: Notwithstanding the classification criteria set out above, medical or clinical wastes assigned to number 18 01 04 (Wastes from human or animal health care and/or related research – wastes from natal care, diagnosis, treatment or prevention of disease in humans – wastes whose collection and disposal is not subject to special requirements in order to prevent infection) or 18 02 03 (Wastes from human or animal health care and/or related research – wastes from research, diagnosis, treatment or prevention of disease involving animals – wastes whose collection and disposal is not subject to special requirements in order to prevent infection) according to the list of wastes annexed to the Commission Decision 2000/532/EC⁵ as amended, are not subject to the provisions of ADN."

2.2.62.1.12 Add the following new title:

"2.2.62.1.12 Infected animals"

2.2.62.1.12.1 Current 2.2.62.1.8 becomes new 2.2.62.1.12.1. In new 2.2.62.1.12.1 add the following new first sentence: "Unless an infectious substance cannot be consigned by any other means, live animals shall not be used to consign such a substance."

Consequential amendments:

In 2.2.62.1.8 replace current text with "(Reserved)".

In 2.2.62.2 replace "2.2.62.1.8" with "2.2.62.1.12.1".

2.2.62.1.12.2 Add a new 2.2.62.1.12.2 to read as follows:

"2.2.62.1.12.2 Animal carcasses affected by pathogens of Category A or which would be assigned to Category A in cultures only, shall be assigned to UN 2814 or UN 2900 as appropriate.

Other animal carcasses affected by pathogens included in Category B shall be carried in accordance with provisions determined by the competent authority."

2.2.7.1.2 (e) Replace "the values specified in 2.2.7.7.2" with "the values specified in 2.2.7.7.2.1 (b), or calculated in accordance with 2.2.7.7.2.2 to 2.2.7.7.2.6".

2.2.7.2 In the definition of "*Multilateral approval*", amend the first sentence to read as follows:

Multilateral approval means approval by the relevant competent authority of the country of origin of the design or shipment, as applicable and also, where the consignment is to

⁵ *Commission Decision 2000/532/EC of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste (Official Journal of the European Communities No. L 226 of 6.9.2000, page 3).*

be carried through or into any other country, approval by the competent authority of that country."

In the definition of "*Specific activity of a radionuclide*", delete: "or volume".

In the definition of "*Natural Uranium*" (under "Uranium-natural, depleted, enriched") replace "chemically separated uranium" with "uranium (which may be chemically separated)".

2.2.7.3.2 (a)(ii) Amend to read:

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

2.2.7.4.6 (a) Amend to read:

"(a) The tests prescribed in 2.2.7.4.5 (a) and (b) provided the mass of the special form radioactive material:

- (i) is less than 200 g and they are alternatively subjected to the Class 4 impact test prescribed in ISO 2919:1999 "Radiation protection - Sealed radioactive sources - General requirements and classification"; or
- (ii) is less than 500 g and they are alternatively subjected to the Class 5 impact test prescribed in ISO 2919:1999 "Radiation protection - Sealed Radioactive Sources – General requirements and Classification"; and".

2.2.7.4.6 (b) Insert the following amendment: "Replace "1980" with "1999".

2.2.7.7.1.7 Under the title, amend the beginning of the first sentence to read:

"Unless excepted by 6.4.11.2 of ADR, packages containing..."

2.2.7.7.1.8 Under the title, amend to read as follows:

"Packages containing uranium hexafluoride shall not contain:

- (a) a mass of uranium hexafluoride different from that authorized for the package design;
- (b) a mass of uranium hexafluoride greater than a value that would lead to an ullage smaller than 5 % at the maximum temperature of the package as specified for the plant systems where the package shall be used; or
- (c) uranium hexafluoride other than in solid form or at an internal pressure above atmospheric pressure when presented for carriage."

2.2.7.7.2.1 In the table, amend the value in the last column for Te-121m to read " 1×10^6 " instead of " 1×10^5 ".

Amend (a) and (b) after the table as follows:

"(a) A_1 and/or A_2 values for these parent radionuclides include contributions from daughter radionuclides with half-lives less than 10 days, as listed in the following:

Mg-28	Al-28
Ar-42	K-42
Ca-47	Sc-47
Ti-44	Sc-44
Fe-52	Mn-52m
Fe-60	Co-60m
Zn-69m	Zn-69
Ge-68	Ga-68
Rb-83	Kr-83m
Sr-82	Rb-82
Sr-90	Y-90
Sr-91	Y-91m
Sr-92	Y-92
Y-87	Sr-87m
Zr-95	Nb-95m
Zr-97	Nb-97m, Nb-97
Mo-99	Tc-99m
Tc-95m	Tc-95
Tc-96m	Tc-96
Ru-103	Rh-103m
Ru-106	Rh-106
Pd-103	Rh-103m
Ag-108m	Ag-108
Ag-110m	Ag-110
Cd-115	In-115m
In-114m	In-114
Sn-113	In-113m
Sn-121m	Sn-121
Sn-126	Sb-126m
Te-118	Sb-118
Te-127m	Te-127
Te-129m	Te-129
Te-131m	Te-131
Te-132	I-132
I-135	Xe-135m
Xe-122	I-122
Cs-137	Ba-137m
Ba-131	Cs-131
Ba-140	La-140
Ce-144	Pr-144m, Pr-144
Pm-148m	Pm-148
Gd-146	Eu-146
Dy-166	Ho-166
Hf-172	Lu-172
W-178	Ta-178
W-188	Re-188
Re-189	Os-189m
Os-194	Ir-194

Ir-189	Os-189m
Pt-188	Ir-188
Hg-194	Au-194
Hg-195m	Hg-195
Pb-210	Bi-210
Pb-212	Bi-212, Tl-208, Po-212
Bi-210m	Tl-206
Bi-212	Tl-208, Po-212
At-211	Po-211
Rn-222	Po-218, Pb-214, At-218, Bi-214, Po-214
Ra-223	Rn-219, Po-215, Pb-211, Bi-211, Po-211, Tl-207
Ra-224	Rn-220, Po-216, Pb-212, Bi-212, Tl-208, Po-212
Ra-225	Ac-225, Fr-221, At-217, Bi-213, Tl-209, Po-213, Pb-209
Ra-226	Rn-222, Po-218, Pb-214, At-218, Bi-214, Po-214
Ra-228	Ac-228
Ac-225	Fr-221, At-217, Bi-213, Tl-209, Po-213, Pb-209
Ac-227	Fr-223
Th-228	Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208, Po-212
Th-234	Pa-234m, Pa-234
Pa-230	Ac-226, Th-226, Fr-222, Ra-222, Rn-218, Po-214
U-230	Th-226, Ra-222, Rn-218, Po-214
U-235	Th-231
Pu-241	U-237
Pu-244	U-240, Np-240m
Am-242m	Am-242, Np-238
Am-243	Np-239
Cm-247	Pu-243
Bk-249	Am-245
Cf-253	Cm-249"

(b) Insert "Ag-108m Ag-108" after: "Ru-106 Rh-106".

Delete the entries for: "Ce-134, La-134"; "Rn-220, Po-216"; "Th-226, Ra-222, Rn-218, Po-214"; and "U-240, Np-240m".

2.2.7.7.2.2 In the first sentence, delete "competent authority approval, or for international carriage," and amend the beginning of the second sentence to read as follows: "It is permissible to use an A_2 value calculated using a dose coefficient for the appropriate lung absorption type as recommended by the International Commission on Radiological Protection, if the chemical forms of each radionuclide under both normal...".

In the table:

- Amend the second entry in the first column to read: "Alpha emitting nuclides but no neutron emitters are known to be present";
- Amend the third entry in the first column to read: "Neutron emitting nuclides are known to be present or no relevant data are available".

2.2.7.8.4 (d) and (e) Add at the end: "except under the provisions of 2.2.7.8.5".

2.2.7.8.5 Add a new 2.2.7.8.5 to read:

"2.2.7.8.5 In case of international carriage of packages requiring competent authority design or shipment approval, for which different approval types apply in the different countries concerned by the shipment, assignment to the category as required in 2.2.7.8.4 shall be in accordance with the certificate of the country of origin of design."

2.2.7.9.7 Insert "Chapter 1.10" in the list of provisions which do not apply.

2.2.8.1.6 Amend the beginning of the first sentence of the second paragraph to read as follows: "Liquids, and solids which may become liquid during carriage, which are judged not to cause..." (*remainder of the sentence unchanged*).

2.2.9.2 Amend the second indent to read as follows:

"- Uncleaned empty containment vessels for apparatus such as transformers, condensers and hydraulic apparatus containing substances assigned to UN Nos. 2315, 3151, 3152 or 3432."

PART 3

Chapter 3.1

3.1.2.1 Replace the last two sentences with the following:

"An alternative proper shipping name may be shown in brackets following the main proper shipping name. In Table A, it is shown in upper case characters (e.g., ETHANOL (ETHYL ALCOHOL)). In Table C, it is shown in lower case characters (e.g. ACETONITRILE (methyl cyanide)). Portions of an entry appearing in lower case need not be considered as part of the proper shipping name unless otherwise stated above."

Chapter 3.2

3.2.1

Insert the following amendment: "In the explanatory note for column (5), delete the second indent and replace ";" with "."."

Table A Delete the entries for the following UN Nos.: 1366, 1370, 2005, 2445, 3051, 3052, 3053, 3076, 3433, 3461.

Consequential amendments:

Delete the entries accordingly in 2.2.42.3.

Delete the entries for the following UN Nos.: 1014, 1015, 1979, 1980, 1981 and 2600.

For UN Nos. 1170, 1987 and 1993, insert "330" in column (6).

For UN Nos. 2912, 2915, 3321 and 3322, add "325" in column (6).

For UN Nos. 3324, 3325 and 3327, add "326" in column (6).

For UN Nos. 3364, 3365, 3366, 3367, 3368 and 3370, replace "wetted" with "WETTED" in column (2).

UN No 1013 Insert "653" in column (6).

UN No 1143 Amend the name in column (2) to read as follows: "CROTONALDEHYDE or CROTONALDEHYDE, STABILIZED" and add "324" in column (6).

UN No 1202 In column (2) of the second entry, replace "EN 590:1993" with "EN 590:2004" (twice).

UN No 1463 In column (3b), replace "OC2" with "OTC".
Insert respectively "+6.1" before "+8" in column (5).

UN No 1740 Amend the name in column (2) to read: "HYDROGENDIFLUORIDES, SOLID, N.O.S."

Consequential amendment:

In 2.2.8.3 under C2, amend the name of "1740" accordingly.

UN No 1779 Amend the name in column (2), to read as follows: "FORMIC ACID with more than 85% acid by mass".

Insert "+3" after "8" in column (5).

Replace "C3" with "CF1" in column (3b).

Insert "EX, A" in column (9).

UN No 1848 Amend the name in column (2) to read as follows: "PROPIONIC ACID with not less than 10% and less than 90% acid by mass".

UN No 1950 Add "327" in column (6).

UN No 1956 Insert "292" in column (6).

UN No 2662 Delete this entry.

UN No 2823 Amend the name in column (2) to read: "CROTONIC ACID, SOLID".

UN No 2880 For packing group II: insert "322" in column (6);
For packing group III: replace "316" with "223", "313" and "314";

UN No 3245 Amend the proper shipping name in column (2) to read as follows:

"GENETICALLY MODIFIED MICROORGANISMS or
GENETICALLY MODIFIED ORGANISMS".

Consequential amendment:

In 2.2.9.3 under M8, amend the name of "3245" accordingly.

UN No 3373 Amend the proper shipping name in column (2) to read:

"BIOLOGICAL SUBSTANCE, CATEGORY B" and add "6.2" in column (5).

Consequential amendments:

In 2.2.62.1.2 and 2.2.62.3 under I4, amend the name of "3373" accordingly.

UN No 3435 Delete this entry.

Modify also Table A as follows:

UN No.	Column	Modification
0015, 0016 and 0303	(6)	Delete "204"
1169 (PG II/III), 1170 (PG II/III), 1197 (PG II/III), 1219 (PG II/III), 1293 (PG II/III), 1987 (PG II/III), 1993 (PG II/III), 3077 (PG III), 3082 (PG III), 3272 (PG II/III)	(6)	Insert "601"
1133, 1139, 1169, 1197, 1210, 1263, 1266, 1267, 1268, 1286, 1287, 1308, 1863, 1866, 1989, 1993, 2059 and 3295	(6)	Delete "640A" for each entry that is assigned 640A.
1267, 1268 and 3295	Delete the entries for which 640P is assigned in column (6)	
1267, 1268 and 3295	(6)	Add "649" for each entry that is assigned 640A.
1391	(2) (6)	Add, at the end, "having a flash-point above 60 °C " Delete "282"
1649	(2) (6)	Add, at the end, "having a flash-point above 60 °C " Delete "162"
2030	(2) (6)	Add, at the end, "having a flash-point above 60 °C " Delete "298"
2057 (first entry)	(8)	Insert: "T"
2078	(8)	Delete: "T"
2078 (new entry like 2078 above but:)	(2) (8)	"TOLUENE DIISOCYANATE (2,4-TOLUENE DIISOCYANATE)" Insert: "T"
2302	(8)	Insert: "T"
2904	(8) (13)	Insert: "T" Insert: "* applies only to phenolates but not to chlorophenolates"
2814, 2900, 3245 and 3291	(6)	Delete "634"

UN No.	Column	Modification
1133, 1139, 1169, 1197, 1210, 1263, 1266, 1267, 1268, 1286, 1287, 1308, 1863, 1866, 1989, 1993, 2059 and 3295	(2)	Delete "(vapour pressure at 50° C more than 175 kPa)" for each entry that is assigned "640A" in column (6)
1133, 1139, 1169, 1197, 1210, 1263, 1266, 1267, 1268, 1286, 1287, 1308, 1863, 1866, 1989, 1993, 2059 and 3295		Delete the entries for which "640B" is assigned in column (6)
1133, 1139, 1169, 1197, 1210, 1224, 1263, 1266, 1267, 1268, 1286, 1287, 1306, 1308, 1863, 1866, 1987, 1989, 1993, 1999, 3295 and 3336	(2)	Delete "but not more than 175 kPa" for each entry that is assigned "640C" in column (6)
1133, 1139, 1169, 1197, 1210, 1263, 1266, 1286, 1287, 1306, 1866, 1993 and 1999	(2)	For each entry that is assigned "640F" in column (6) replace "vapour pressure at 50° C more than 175 kPa" with "boiling point not more than 35° C"
	(2)	For each entry that is assigned "640G" in column (6) replace "but not more than 175 kPa" with ", boiling point of more than 35° C"
3175	(8)	<i>Insert: "T"</i>
3175 (new entry like 3175 above but:)	(2)	To read: "SOLIDS CONTAINING FLAMMABLE LIQUID, MOLTEN, having a flash-point up to 60°C (DIALKYL-(C ₁₂ -C ₁₈)-DIMETHYL-AMMONIUM and 2-PROPANOL)".
	(8)	<i>Delete: "T"</i>
3463 PG I and III	(9)	Insert ", EX, A" after "EP".

Replace the code "LQ19" with "LQ7" wherever it is listed in column (7), except in the case of UN 2809.

(applies to UN Nos. 1556, 1583, 1591, 1593, 1597, 1599, 1602, 1656, 1658, 1686, 1710, 1718, 1719, 1731, 1755, 1757, 1760, 1761, 1783, 1787, 1788, 1789, 1791, 1793, 1805, 1814, 1819, 1824, 1835, 1840, 1848, 1851, 1887, 1888, 1897, 1902, 1903, 1908, 1935, 1938, 2021, 2024, 2030, 2205, 2206, 2209, 2225, 2235, 2269, 2272, 2273, 2274, 2279, 2289, 2290, 2294, 2299, 2300, 2311, 2320, 2321, 2326, 2327, 2328, 2431, 2432, 2433, 2470, 2491, 2496, 2501, 2504, 2511, 2515, 2518, 2525, 2533, 2564, 2565, 2580, 2581, 2582, 2586, 2609, 2656, 2661, 2664, 2667, 2669, 2672, 2677, 2679, 2681, 2688, 2689, 2693, 2730, 2732, 2735, 2739, 2747, 2753, 2785, 2788, 2790, 2801, 2810, 2815, 2817, 2818, 2819, 2820, 2821, 2829, 2831, 2837, 2849, 2872, 2873, 2874, 2902, 2903, 2904, 2922, 2937, 2941, 2942, 2946, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 3005, 3006, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3025, 3026, 3055, 3066, 3140, 3141, 3142, 3144, 3145, 3172, 3264, 3265, 3266, 3267, 3276, 3278, 3280, 3281, 3282, 3287, 3293, 3320, 3347, 3348, 3351, 3352, 3410, 3411, 3413, 3414, 3415, 3418, 3421, 3422, 3424, 3426, 3429, 3434 and 3440)

Add the following new entries:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)			(12)	(13)
0015	<u>AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge, containing corrosive substances</u>	1	1.2G		1 +8		LQ0		PP		LO01	HA01, HA03, HA04, HA05, HA06		3	
0016	<u>AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge, containing corrosive substances</u>	1	1.3G		1 +8		LQ0		PP		LO01	HA01, HA03, HA04, HA05, HA06		3	
0303	<u>AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge, containing corrosive substances</u>	1	1.4G		1.4 +8		LQ0		PP		LO01	HA01, HA03, HA04, HA05, HA06		1	
1391	<u>ALKALI METAL DISPERSION OR ALKALINE EARTH METAL DISPERSION having a flash-point of not more than 60 °C</u>	4.3	WF1	I	4.3 +3	182 183 274 506	LQ0		PP, EX, A	VE01		HA08		0	
1649	MOTOR FUEL ANTI-KNOCK MIXTURE having a flash-point of not more than 60 °C	6.1	TF1	I	6.1 +3	802	<u>LQ0</u>		PP, EP, EX, TOX, A	VE01, VE02				2	
2030	HYDRAZINE AQUEOUS SOLUTION, with more than 37% hydrazine by mass having a flash-point of not more than 60 °C	8	CFT	I	8 +3 +6.1	530 802	LQ0		PP, EP, EX, TOX, A	VE01, VE02				2	
2814	INFECTIOUS SUBSTANCE, AFFECTING HUMANS, in refrigerated liquid nitrogen	6.2	11		6.2 +2.2	318 802	LQ0		PP					0	

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)			(12)	(13)
2814	INFECTIOUS SUBSTANCE, AFFECTING HUMANS (animal carcasses only)	6.2	I1		6.2	318 802	LQ0		PP					0	
2900	INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only, in refrigerated liquid nitrogen	6.2	I2		6.2 +2.2	318 802	LQ0		PP					0	
2900	INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only (animal carcasses and wastes only)	6.2	I2		6.2	318 802	LQ0		PP					0	
3245	GENETICALLY MODIFIED MICRO-ORGANISMS or GENETICALLY MODIFIED ORGANISMS, in refrigerated liquid nitrogen	9	M8		9 +2.2	219 637 802	LQ0		PP					0	
3291	CLINICAL WASTE, UNSPECIFIED, N.O.S. or (BIO) MEDICAL WASTE, N.O.S. or REGULATED MEDICAL WASTE, N.O.S., in refrigerated liquid nitrogen	6.2	I3	II	6.2 +2.2	565 802	LQ0		PP					0	
3412	FORMIC ACID with not less than 10% but not more than 85% acid by mass	8	C3	II	8		LQ22	T	PP, EP					0	
	FORMIC ACID with not less than 5% but less than 10% acid by mass	8	C3	III	8		LQ7	T	PP, EP					0	
3463	PROPICNIC ACID with not less than 90% acid by mass	8	CF1	II	8 +3		LQ22	T	PP, EP, EX, A					0	

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)			(12)	(13)
3469	PAINT, FLAMMABLE, CORROSIVE (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL, FLAMMABLE, CORROSIVE (including paint thinning or reducing compound)	3	FC	I	3 +8	163	LQ3		PP, EX, A	VE01				1	
		3	FC	II	3 +8	163	LQ4		PP, EX, A	VE01				1	
		3	FC	III	3 +8	163	LQ7		PP, EX, A	VE01				0	
3470	PAINT, CORROSIVE, FLAMMABLE (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL CORROSIVE, FLAMMABLE (including paint thinning or reducing compound)	8	CF1	II	8 +3	163	LQ22		PP, EP, EX, A	VE01				0	
3471	HYDROGEN DIFLUORIDE SOLUTION, N.O.S.	8	CT1	II	8 +6.1		LQ22		PP, EP					0	
		8	CT1	III	8 +6.1		LQ7		PP, EP					0	
3472	CROTONIC ACID, LIQUID	8	C3	III	8		LQ7		PP, EP					0	
3473	FUEL CELL CARTRIDGES containing flammable liquids	3	F1		3	328	LQ13								

Consequential amendment:

Insert the new entries accordingly in 2.2.3.3, 2.2.8.3 and 2.2.9.3.

Tables B and C

Amend Tables B and C in accordance with the amendments to Table A in Chapter 3.2.

3.2.3 Amend as follows:

Column (9)

Amend as follows:

- “1. (no change)
2. Possibility of heating the cargo
3. (no change)
4. Cargo heating system on board”

Column (20)

Remark 6:

Replace the first two paragraphs by the following:

- “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.” *(remainder unchanged)*

Remark 34:

Beginning, amend to read:

- “34. For type N carriage, the flanges ...” *(remainder unchanged)*

Add the following new remarks:

- “35. A direct system for the cargo refrigerating system is not permitted for this substance.
36. Only an indirect system for the cargo refrigerating system is permitted for this substance.
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 adopted for the boil-off gas.
38. When the initial melting point of these mixtures in accordance with standard ASTM D86-01 is above 60° C, the transport requirements for packing group II are applicable.”

Table C (See ECE/TRANS/WP.15/AC.2/21/Add.2).

Chapter 3.3

3.3.1 **SP162** *(Deleted)*.

SP181 Insert "(see 5.2.2.2.2)" after "model No.1".

SP204 Replace current text with: "*(Deleted)*".

SP216 In the last sentence, insert "and articles" before "containing" and amend the end to read: "... free liquid in the packet or article.".

SP247 Amend the end of the first paragraph to read:

"...may be carried in wooden barrels with a capacity of more than 250 litres and not more than 500 litres meeting the general requirements of 4.1.1 of ADR, as appropriate, on the following conditions:...".

Replace the word "casks" with "wooden barrels" (5 times).

SP251 In the first sentence, add "for example" before "for medical," add "or repair" before "purposes".

SP282 *(Deleted)*.

SP289 Amend as follows:

Replace "vehicles" and "vehicle" with "conveyances" and "conveyance", respectively.

SP292 Amend to read as follows:

"Mixtures containing not more than 23.5% oxygen by volume may be carried under this entry when no other oxidizing gases are present. A label conforming to model 5.1 is not required for any concentrations within this limit.".

SP298 *(Deleted)*.

SP303 Amend to read as follows:

"Receptacles shall be assigned to the classification code of the gas or mixture of gases contained therein determined in accordance with the provisions of section 2.2.2.".

SP309 Amend to read as follows:

"This entry applies to non sensitized emulsions, suspensions and gels consisting primarily of a mixture of ammonium nitrate and fuel, intended to produce a Type E blasting explosive only after further processing prior to use.

The mixture for emulsions typically has the following composition: 60-85% ammonium nitrate, 5-30% water, 2-8% fuel, 0.5-4% emulsifier agent, 0-10% soluble flame suppressants, and trace additives. Other inorganic nitrate salts may replace part of the ammonium nitrate.

The mixture for suspensions and gels typically has the following composition: 60-85% ammonium nitrate, 0-5% sodium or potassium perchlorate, 0-17% hexamine nitrate or monomethylamine nitrate, 5-30% water, 2-15% fuel, 0.5-4% thickening agent, 0-10% soluble flame suppressants, and trace additives. Other inorganic nitrate salts may replace part of the ammonium nitrate.

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

SP316 Delete "or hydrated".

SP319 Delete the first sentence.

SP320 *(Deleted)*.

SP601 Amend special provision **601** to read as follows:

“601 Pharmaceutical products (medicines) ready for use, which are substances manufactured and packaged for retail sale or distribution for personal or household consumption are not subject to the requirements of ADN.”

SP617 In special provision 617, delete “and shall be specified in the transport document”.

SP634 Replace current text with: "*(Deleted)*".

SP645 Add the following new sentence at the end:

"When assignment to a division is made in accordance with the procedure in 2.2.1.1.7.2, the competent authority may require the default classification to be verified on the basis of test data derived from Test Series 6 of the Manual of Tests and Criteria."

Add the following new special provisions:

"322 When carried in non-friable tablet form, these goods are assigned to packing group III.

323 *(Reserved)*.

324 This substance needs to be stabilized when in concentrations of not more than 99%.

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

326 In the case of fissile uranium hexafluoride, the material shall be classified under UN No 2977.

327 Waste aerosols consigned in accordance with 5.4.1.1.3 may be carried under this entry for the purposes of reprocessing or disposal. They need not be protected against inadvertent discharge provided that measures to prevent dangerous build up of pressure and dangerous atmospheres are addressed. Waste aerosols, other than those leaking or severely deformed, shall be packed in accordance with packing instruction P003 of ADR and special provision PP87 of ADR, or packing instruction LP02 of ADR and special packing provision L2 of ADR. Leaking or severely deformed aerosols shall be carried in salvage packagings provided appropriate measures are taken to ensure there is no dangerous build up of pressure.

NOTE: For maritime carriage, waste aerosols shall not be carried in closed containers.

328 This entry applies to fuel cell cartridges containing flammable liquids including methanol or methanol/water solutions. Fuel cell cartridge means a container that stores fuel for discharge into fuel cell powered equipment through a valve(s) that controls the discharge of fuel into such equipment and is free of electric charge generating components. The cartridge shall be designed and constructed to prevent the fuel from leaking during normal conditions of carriage. This entry applies to fuel cell cartridge design types shown without their packaging to pass an internal pressure test at a pressure of 100 kPa (gauge).

329 *(Reserved).*

330 Alcohols containing petroleum products (e.g. gasoline) up to 5% shall be carried under the entry UN 1987 ALCOHOLS, N.O.S.

653 The carriage of this gas in cylinders with a maximum capacity of 0.5 litres, is not subject to the other provisions of ADN if the following conditions are met:

- The provisions for construction and testing of cylinders are observed;
- The cylinders are contained in outer packagings which at least meet the requirements of Part 4 for combination packagings. The general provisions of packing of 4.1.1.1, 4.1.1.2 and 4.1.1.5 to 4.1.1.7 of ADR shall be observed;
- The cylinders are not packed together with other dangerous goods;
- The total gross mass of a package does not exceed 30 kg; and
- Each package is clearly and durably marked with "UN 1013". This marking is displayed within a diamond-shaped area surrounded by a line that measures at least 100 mm by 100 mm."

Chapter 3.4

3.4.6 In the first column of table 3.4.6 replace "LQ4" and "LQ5" with "LQ4^c" and "LQ5^c" respectively.

In the table, for LQ19, replace respectively "3 l" and "1 l" with "5 kg".

PART 5

Chapter 5.1

5.1.2.1 (a) Re-arrange the text to read as follows:

"An overpack shall be:

- (i) marked with the word "OVERPACK"; and
- (ii) marked with the UN number preceded by the letters "UN", and labelled as required for packages in 5.2.2, for each item of dangerous goods contained in the overpack,

unless the markings and the labels representative of all dangerous goods contained in the overpack are visible. If the same marking or the same label is required for different packages, it only needs to be applied once."

Insert the following new sentence at the end:

"The marking of the word "OVERPACK", which shall be readily visible and legible, shall be in an official language of the country of origin and also, if that language is not English, French or German, in English, French or German, unless agreements, if any, concluded between the countries concerned in the transport operation provide otherwise."

5.1.2.2 Delete the second sentence ("The "overpack" marking is an indication of compliance with this requirement.").

5.1.2.4 Add a new paragraph to read as follows:

"5.1.2.4 Each package bearing package orientation markings as prescribed in 5.2.1.9 and which is overpacked or placed in a large packaging shall be oriented in accordance with such markings."

5.1.5.1.2 (c) Amend to read:

"For each package requiring competent authority approval, it shall be ensured that all the requirements specified in the approval certificates have been satisfied;"

5.1.5.2.2 (c) Amend to read:

"The shipment of packages containing fissile materials if the sum of the criticality safety indexes of the packages in a single wagon/vehicle or container or in a single conveyance exceeds 50;"

5.1.5.2.4 (d) In (v), insert "symbol" after "SI prefix".

Chapter 5.2

5.2.1.4 and 5.2.2.1.7 Add "and large packagings" after "capacity".

5.2.1.7.4 (c) Amend the end of the sentence to read as follows:

"...origin of design and either the name of the manufacturer or other identification of the packaging specified by the competent authority of the country of origin of design."

5.2.1.7.8 Add the following new paragraph:

"5.2.1.7.8 In case of international carriage of packages requiring competent authority design or shipment approval, for which different approval types apply in the different countries concerned, marking shall be in accordance with the certificate of the country of origin of the design."

5.2.1.8 Add a new 5.2.1.8 to read as follows:

"5.2.1.8 (*Reserved*)".

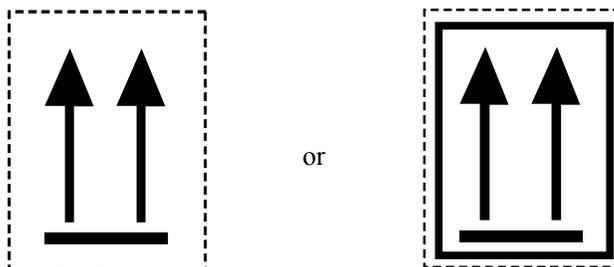
5.2.1.9 Add the following new paragraphs:

"5.2.1.9 *Orientation arrows*

5.2.1.9.1 Except as provided in 5.2.1.9.2:

- combination packagings having inner packagings containing liquids;
- single packagings fitted with vents; and
- cryogenic receptacles intended for the carriage of refrigerated liquefied gases,

shall be legibly marked with package orientation arrows which are similar to the illustration shown below or with those meeting the specifications of ISO 780:1985. The orientation arrows shall appear on two opposite vertical sides of the package with the arrows pointing in the correct upright direction. They shall be rectangular and of a size that is clearly visible commensurate with the size of the package. Depicting a rectangular border around the arrows is optional.



Two black or red arrows on white or suitable contrasting background.
The rectangular border is optional.

- 5.2.1.9.2 Orientation arrows are not required on packages containing:
- (a) pressure receptacles except for closed cryogenic receptacles;
 - (b) dangerous goods in inner packagings of not more than 120 ml which are prepared with sufficient absorbent material between the inner and outer packagings to completely absorb the liquid contents;
 - (c) Class 6.2 infectious substances in primary receptacles of not more than 50 ml;
 - (d) Class 7 radioactive material in Type IP-2, IP-3, A, B(U), B(M) or C packages; or
 - (e) articles which are leak-tight in all orientations (e.g. alcohol or mercury in thermometers, aerosols, etc.).
- 5.2.1.9.3 Arrows for purposes other than indicating proper package orientation shall not be displayed on a package marked in accordance with this sub-section."
- 5.2.2.1.11.2 (b) Insert "symbol" after "SI prefix".
- 5.2.2.1.11.5 Add the following new paragraph:
- "5.2.2.1.11.5 In case of international carriage of packages requiring competent authority design or shipment approval, for which different approval types apply in the different countries concerned, labelling shall be in accordance with the certificate of the country of origin of design."
- 5.2.2.1.12 Delete.

Consequential amendments:

3.2.1 In the explanatory note for column (5), delete the second indent.

5.1.2.1 (b) Amend to read as follows:

"Orientation arrows illustrated in 5.2.1.9 shall be displayed on two opposite sides of the following overpacks:

- overpacks containing packages which shall be marked in accordance with 5.2.1.9.1, unless the marking remains visible, and
- overpacks containing liquids in packages which need not be marked in accordance with 5.2.1.9.2, unless the closures remain visible."

5.2.2.2.1.1 *In the first sentence, delete ", except label conforming to model No. 11,".*

Delete the third sentence ("Label conforming to model No. 11 ...").

5.2.2.2.1.3 *In the first sentence, delete ", except label conforming to model No. 11,".*

5.2.2.2.2 *Delete label No. 11 and the text under this label.*

5.2.2.2.1 Add the following note at the end of the existing text:

"NOTE: *Where appropriate, labels in 5.2.2.2.2 are shown with a dotted outer boundary as provided for in 5.2.2.2.1.1. This is not required when the label is applied on a background of contrasting colour."*

5.2.2.2.1.1 Add the following sentence after the second sentence: "Labels shall be displayed on a background of contrasting colour, or shall have either a dotted or solid outer boundary line."

5.2.2.2.1.2 Insert the following new paragraph at the end.

"Empty uncleaned pressure receptacles for gases of Class 2 may be carried with obsolete or damaged labels for the purposes of refilling or inspection as appropriate and the application of a new label in conformity with current regulations or for the disposal of the pressure receptacle."

5.2.2.2.2 In the labels for Classes 5.1 and 5.2:

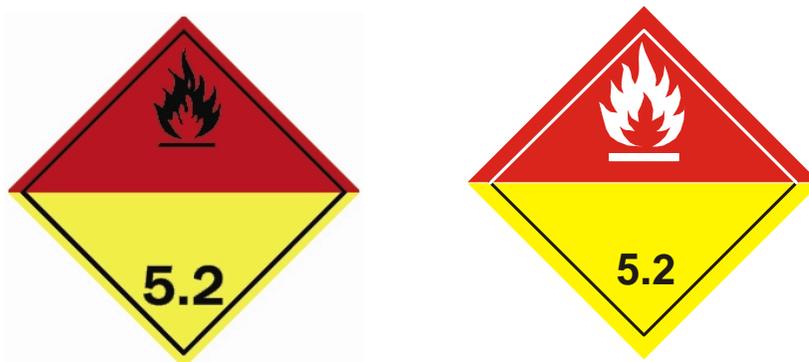
Replace the text under label No. 5.1 with the following:

"(No. 5.1)

Symbol (flame over circle): black; Background: yellow

Figure "5.1" in bottom corner"

Replace label No. 5.2 and the text under the label with the following:



"(No. 5.2)

Symbol (flame): black or white;

Background: upper half red; lower half yellow;

Figure "5.2" in bottom corner".

Chapter 5.3

- 5.3.1.1.1 Add the following sentence at the end:
"Placards shall be displayed on a background of contrasting colour, or shall have either a dotted or solid outer boundary line."
- 5.3.1.1.2 Add the following subparagraph at the end:
"Placards are not required for the carriage of explosives of Division 1.4, Compatibility Group S."
- 5.3.1.5.1 Amend to read as follows:
"5.3.1.5.1 For vehicles carrying packages containing substances or articles of Class 1 (other than of Division 1.4, Compatibility Group S), placards shall be affixed to both sides and at the rear of the vehicle."
- 5.3.2 Amend as follows:
- 5.3.2.1.1 Delete "reflectorized".
- 5.3.2.1.5 Amend to read as follows:
"If the orange-coloured plates prescribed in 5.3.2.1.2 and 5.3.2.1.4 affixed to the containers, tank-containers, MEGCs or portable tanks are not clearly visible from outside the carrying vehicle or wagon, the same plates shall also be affixed to both sides of the vehicle or wagon."
- 5.3.2.1.6 Replace "5.3.2.1.2 and 5.3.2.1.4" with "5.3.2.1.2, 5.3.2.1.4 and 5.3.2.1.5".
- 5.3.2.1.7 Amend to read as follows:
"5.3.2.1.7 The requirements of 5.3.2.1.1 to 5.3.2.1.5 are also applicable to empty fixed or demountable tanks, battery-vehicles, tank-containers, portable tanks, MEGCs, tank-wagons, battery-wagons and wagons with demountable tanks, uncleaned, not degassed or not decontaminated as well as to empty vehicles, wagons and containers for carriage in bulk, uncleaned or not decontaminated."
- 5.3.2.1.8 Amend the first sentence to read as follows:
"Orange-coloured marking which does not relate to dangerous goods carried, or residues thereof, shall be removed or covered."
- 5.3.2.2.1 In the first sentence, replace "The reflectorized orange-coloured plates" with "The orange-coloured plates shall be reflectorized and". Insert the following new text after "black border 15 mm wide.": "The material used shall be weather-resistant and ensure durable marking. The plate shall not become detached from its mount in the event of a 15 minutes' engulfment in fire."
- Insert the following new paragraph, at the end, before the NOTE:

"For containers carrying dangerous solid substances in bulk and for tank-containers, MEGCs and portable tanks, the plates prescribed in 5.3.2.1.2, 5.3.2.1.4 and 5.3.2.1.5 may be replaced by a self-adhesive sheet, by paint or by any other equivalent process. This alternative marking shall conform to the specifications set in this sub-section except for the provisions concerning resistance to fire mentioned in 5.3.2.2.1 and 5.3.2.2.2."

(Remainder of the text unchanged.)

Chapter 5.4

5.4.1.1.1 (b) In the paragraph (b), insert "in brackets" after "technical name".

(c) In the paragraph (c), 2nd indent: Add a Note to read as follows:

"NOTE: For radioactive material with a subsidiary risk, see also special provision 172."

3rd indent: Add, at the end of the first sentence, "or applicable according to a special provision referred to in Column (6)".

(e) In the paragraph (e), add the words "when applicable" after "the packages" and insert at the end: "UN packaging codes may only be used to supplement the description of the kind of package (e.g. one box (4G))."

(f) In the paragraph (f), delete the words "with the exception of empty means of containment, uncleaned,".

In the paragraph after (i) replace "(a), (b), (c) and (d) shall be shown... or in sequence (b), (c), (a), (d)" with "(a), (b), (c) and (d) shall be shown in the order listed above (i.e. (a), (b), (c), (d))".

Replace the second example with:

"UN1098, ALLYL ALCOHOL, 6.1 (3), PG I".

5.4.1.1.2 Amend as follows:

(b) Delete: "(see 3.1.2.8.1.1)".

(c) Read:

"(c) the data contained in column (5) of Table C of Chapter 3.2. If several data are given, those following the first bracket should be included;"

(d) "where assigned, the packing group for the substance which may be preceded by the letters 'PG' (e.g. 'PG II'), or the initials corresponding to the words 'Packing Group' in the languages used according to 5.4.1.4.1";

Paragraphs (f) to (h) become (e) to (g).

In the paragraph after (g), add :

“The location and order in which the elements of information required appear in the transport document is left optional, except that (a), (b), (c) and (d) shall be shown in the order listed above (i.e. (a), (b), (c), (d)) with no information interspersed, except as provided in ADN.

Examples of such permitted dangerous goods descriptions are:

“UN 1230 METHANOL, 3 (6.1), II”, or
“UN 1230 METHANOL, 3 (6.1), PG II”.

5.4.1.1.3 Replace the second example with:

“WASTE, UN 1230 METHANOL, 3 (6.1), PG II”.

Replace the fourth example with:

“WASTE, UN 1993 FLAMMABLE LIQUID, N.O.S. (toluene and ethyl alcohol), 3, PG II”.

5.4.1.1.6 Amend as follows:

5.4.1.1.6 *Special provisions for empty means of containment and for empty cargo tanks of tank vessels*

5.4.1.1.6.1 For empty means of containment, uncleaned, which contain the residue of dangerous goods of classes other than Class 7, the words "EMPTY, UNCLEANED" or "RESIDUE, LAST CONTAINED" shall be indicated before or after the proper shipping name required in 5.4.1.1.1 (b). Moreover, 5.4.1.1.1 (f) does not apply.

5.4.1.1.6.2 The special provision of 5.4.1.1.6.1 may be replaced with the provisions of 5.4.1.1.6.2.1, 5.4.1.1.6.2.2 or 5.4.1.1.6.2.3, as appropriate.

5.4.1.1.6.2.1 For empty packagings, uncleaned, which contain the residue of dangerous goods of classes other than Class 7, including empty uncleaned receptacles for gases with a capacity of not more than 1000 litres, the particulars according to 5.4.1.1.1 (a), (b), (c), (d), (e) and (f) are replaced with "EMPTY PACKAGING", "EMPTY RECEPTACLE", "EMPTY IBC" or "EMPTY LARGE PACKAGING", as appropriate, followed by the information of the goods last loaded, as described in 5.4.1.1.1 (c).

Example:

"EMPTY PACKAGING, 6.1 (3)".

In addition, in such a case, if the dangerous goods last loaded are goods of Class 2, the information prescribed in 5.4.1.1.1 (c) may be replaced by the number of the class "2".

5.4.1.1.6.2.2 For empty means of containment other than packagings, uncleaned, which contain the residue of dangerous goods of classes other than Class 7 and for empty uncleaned receptacles for gases with a capacity of more than 1000 litres, the particulars according to

5.4.1.1.1 (a) to (d) are preceded by "EMPTY TANK-WAGON", "EMPTY TANK-VEHICLE", "EMPTY DEMOUNTABLE TANK", "EMPTY TANK-CONTAINER", "EMPTY PORTABLE TANK", "EMPTY BATTERY-WAGON", "EMPTY BATTERY-VEHICLE", "EMPTY MEGC", "EMPTY WAGON", "EMPTY VEHICLE", "EMPTY CONTAINER" or "EMPTY RECEPTACLE", as appropriate, followed by the words "LAST LOAD:". Moreover, paragraph 5.4.1.1.1 (f) does not apply.

See example as follows:

"EMPTY TANK-CONTAINER, LAST LOAD: UN 1098 ALLYL ALCOHOL, 6.1 (3), I" or

" EMPTY TANK-CONTAINER, LAST LOAD: UN 1098 ALLYL ALCOHOL, 6.1 (3), PG I".

5.4.1.1.6.2.3 When empty means of containment, uncleaned, which contain the residue of dangerous goods of classes other than Class 7, are returned to the consignor, the transport documents prepared for the full-capacity carriage of these goods may also be used. In such cases, the indication of the quantity is to be eliminated (by effacing it, striking it out or any other means) and replaced by the words "EMPTY, UNCLEARED RETURN".

5.4.1.1.6.3 *Unchanged.*

5.4.1.1.6.4 *Unchanged.*

5.4.1.2.5.1 (c) Insert "symbol" after "SI prefix".

5.4.1.2.5.3 Insert the following new paragraph:

"5.4.1.2.5.3 In case of international carriage of packages requiring competent authority design or shipment approval, for which different approval types apply in the different countries concerned, the UN number and proper shipping name required in 5.4.1.1.1 shall be in accordance with the certificate of the country of origin of design."

Renumber existing 5.4.1.2.5.3 as 5.4.1.2.5.4.

PART 7

Chapter 7.1

7.1.3.8 Replace the text by: "(Reserved)".

7.1.4.8.2 After "5.2" insert:
" , for which marking with three blue cones or three blue lights is prescribed in column (12) of Table A of Chapter 3.2,".

7.1.4.14.1 Add to read as follows:

"7.1.4.14.1.1 Packages containing dangerous substances and unpackaged dangerous articles shall be secured by suitable means capable of restraining the goods (such as fastening straps, sliding slatboards, adjustable brackets) in a manner that will prevent any movement during carriage which would change the orientation of the packages or cause them to be

damaged. When dangerous goods are carried with other goods (e.g. heavy machinery or crates), all goods shall be securely fixed or packed so as to prevent the release of dangerous goods. Movement of packages may also be prevented by filling any voids by the use of dunnage or by blocking and bracing. Where restraints such as banding or straps are used, these shall not be over-tightened to cause damage or deformation of the package.

7.1.4.14.1.2 Packages shall not be stacked unless designed for that purpose. Where different design types of packages that have been designed for stacking are to be loaded together, consideration shall be given to their compatibility for stacking with each other. Where necessary, stacked packages shall be prevented from damaging the package below by the use of load-bearing devices.

7.1.4.14.1.3 During loading and unloading, packages containing dangerous goods shall be protected from being damaged.

NOTE: *Particular attention shall be paid to the handling of packages during their preparation for carriage, the type of vessel on which they are to be carried and to the method of loading or unloading, so that accidental damage is not caused through dragging or mishandling the packages.”.*

7.1.4.14.1.4 Add a new paragraph under 7.1.4.14.1.4 to read as follows:

"When orientation arrows are required, packages shall be oriented in accordance with such markings.

NOTE: *Liquid dangerous goods shall be loaded below dry dangerous goods whenever practicable."*

7.1.4.14.7.1.1 Amend to read as follows:

"Packages, overpacks, containers, tanks and vehicles containing radioactive material and unpackaged radioactive material shall be segregated during carriage:

- (a) from workers in regularly occupied working areas;
 - (i) in accordance with Table A below; or
 - (ii) by distances calculated using a dose criterion of 5 mSv in a year and conservative model parameters;

NOTE: *Workers subject to individual monitoring for the purposes of radiation protection shall not be considered for the purposes of segregation.*

- (b) from members of the critical group of the public, in areas where the public has regular access;
 - (i) in accordance with Table A below; or
 - (ii) by distances calculated using a dose criterion of 1 mSv in a year and conservative model parameters;

- (c) from undeveloped photographic film and mailbags;
 - (i) in accordance with Table B below; or
 - (ii) by distances calculated using a radiation exposure criterion for undeveloped photographic film due to the transport of radioactive material for 0.1 mSv per consignment of such film; and

NOTE: Mailbags shall be assumed to contain undeveloped film and plates and therefore be separated from radioactive material in the same way.

- (d) from other dangerous goods in accordance with 7.1.4.3."
(Table A unchanged.)

7.1.4.14.7.1.4 Delete. Move Table B to come after Table A (7.1.4.14.7.1.1)

Consequential amendment:

In 1.7.2.2, replace “, CV33(1.1) and (1.4)” with “and CV33 (1.1)”.

7.1.4.14.7.3.3 In (a), amend the beginning of the first sentence to read as follows: "Except under the condition of exclusive use, and for consignments of LSA-I material, the total number of packages, ..." and delete the last sentence.

Delete sub-paragraph (b). Rename (c) and (d) accordingly.

7.1.6.12 Insert a new VE04 as follows:

"VE04 When aerosols are carried for the purposes of reprocessing or disposal under special provision 327, provisions of VE01 and VE02 are applied."

Consequential amendment:

Table A UN 1950 (all entries) Add " VE04" in column (10).

Chapter 7.2

7.2.3.7 Insert under the heading:

"7.2.3.7.0 Gas-freeing of empty or unloaded cargo tanks is permitted under the conditions below but only if it is not prohibited on the basis of international or domestic legal requirements."

7.2.3.7.5 Replace "10%" with "20%".

7.2.3.15 End, add the following new paragraph:

"During the carriage of goods for which a type C vessel is prescribed in column (6) of Table C of Chapter 3.2 and cargo tank type 1 in column (7), an expert holding the certificate referred to in 8.2.1.5 for carriage in type G vessels is sufficient."

7.2.3.25.3 Second indent, second sentence, insert before "hold spaces": "double-hull and double bottom spaces and".

- 7.2.3.28 Add the following:
- “7.2.3.28 *Refrigeration system*
- For the carriage of refrigerated substances, an instruction shall be on board mentioning the permissible maximum loading temperature in relation to the capacity of the refrigeration system and the insulation design of the cargo tanks.”
- 7.2.3.71 Delete.
- 7.2.3.52-
7.2.3.99 (*Reserved*).
- 7.2.4.11 In the footnote delete ‘from the 1st January 2003’.
- 7.2.4.12 Add the following:
- “7.2.4.12 *Registration during the voyage*
- The following particulars shall immediately be entered in the register referred to in 8.1.11:
- Loading: Place of loading and loading berth, date and time, UN number or identification number of the substance, including the class and packing group if it exists;
- Unloading: Place of unloading and unloading berth, date and time;
- Gas-freeing of UN No. 1203 petrol: Gas-freeing place and facility or sector, date and time.
- These particulars shall be provided for each cargo tank.”
- 7.2.4.13.1 End, add the following sentence as a new paragraph:
- “If the vessel is equipped with piping for loading and unloading below the deck passing through the cargo tanks, the mixed loading or carriage of substances likely to react dangerously with each other is prohibited.”
- 7.2.4.16.8 Insert “PP” before “equipment referred to in 8.1.5” (twice).
- Add the following sentence at the end:
- “They shall also wear protective equipment A if a toximeter (TOX) is prescribed in column (18) of Table C of Chapter 3.2.”
- 7.2.4.18.2 Delete.
- 7.2.4.18.3 Becomes 7.2.4.18.2.
- 7.2.4.18.4 Becomes 7.2.4.18.3.

Add the following new 7.2.4.18.4:

“7.2.4.18.4 Inerting or blanketing of flammable cargoes shall be carried out in such a way as to reduce the electrostatic charge as far as possible when the inerting agent is added.”

7.2.4.51.1 Add the following sentence:

“All other electrical equipment marked in red shall be switched off.”

Add the following new 7.2.4.51.3:

“7.2.4.51.3 Equipment for electric corrosion protection against external currents shall be disconnected before berthing and may not be re-connected until after the departure of the vessel, at earliest.”

7.2.5.0.1 Add the following second sentence:

“When because of the cargo carried no marking with blue cones or blue lights is prescribed but the concentration of flammable gases in the cargo tanks is 20% higher than the lower explosion limit, the number of blue cones or blue lights to be carried is determined by the last cargo for which this marking was required.”

PART 8

Chapter 8.1

8.1.2.1 Add the following letters:

“(j) the checklist or a certificate showing the result of the check drawn up by the competent authority which carried it out, referred to in 1.8.12. This list or certificate shall be kept on board;

(k) for the carriage of refrigerated substances, the instruction required in 7.2.3.28;

(l) the certificate concerning the refrigeration system, prescribed in 9.3.1.27.10.”

8.1.2.3 (a) In the footnote delete ‘from the 1st January 2003’.

(b) Read:

“(b) The ADN specialized knowledge certificate prescribed in 7.2.3.15;”

(j) In the footnote delete ‘from the 1st January 2003’.

Add the following new (m):

“(m) The registration document referred to in 8.1.11.”

8.1.5.2 Read:

“8.1.5.2 Materials and special additional protective equipment specified by the consignor in the instructions in writing shall be provided by the consignor or by the filler of cargo tanks or holds.

This requirement is not applicable when, in a transport chain the instructions in writing for carriage by road or the corresponding copies of the IMDG Code EmS safety data sheets are used in accordance with 1.1.4.2.2 and the materials and additional protective equipment expressly refer to a transport mode other than inland navigation.”

8.1.6.2 Read:

“Hoses and hose assemblies used for loading, unloading or delivering products shall comply with European standard EN 12115:1999 (Rubber and thermoplastics hoses and hose assemblies) or EN 13765:2003 (Thermoplastic multilayer (non-vulcanized) hoses and hose assemblies) or EN ISO 10380:2003 (Corrugated metal hoses and hose assemblies). They shall be checked and inspected in accordance with table 6 of standard EN 12115:1999 or table K.1 of standard EN 13765:2003 or paragraph 7 of standard EN ISO 10380:2003 at least once a year, according to the manufacturer’s instructions, by persons authorized for this purpose by the competent authority. A certificate concerning this inspection shall be carried on board.”

8.1.6.5 Read the references as follows: “...prescribed in 9.3.1.22, 9.3.2.22, 9.3.2.26.4, 9.3.3.22 and 9.3.3.26.4”.

8.1.7 First sentence, after “certified safe type electrical equipment”, insert: “and the conformity of the documents required in 9.3.1.50.1, 9.3.2.50.1 or 9.3.3.50.1 with the circumstances on board”.

8.1.10 In the footnote delete ‘from the 1st January 2003’.

Add the following new 8.1.11:

“8.1.11 Register of operations relating to the carriage of UN 1203

Tank vessels accepted for the carriage of UN No. 1203 petrol shall have on board a register of operations during the voyage. This register may consist of other documents containing the information required. This register or these other documents shall be kept on board for not less than three months and cover at least the last three cargoes.”

Chapter 8.2

8.2.2.3.1 *Basic course*
and
8.2.2.3.2 *Refresher and advanced training courses*

“Authorization for”, read as follows:

For “*Basic course on the transport of dry cargo*”:

“Authorization for: dry cargo vessel”.

For “*Basic course on transport by tank vessels*”:

“Authorization for: tank vessels for the transport of substances for which a type N tank vessel is prescribed”.

For “*Combined basic course on dry cargo and transport in tank vessels*”:

“Authorization for: dry cargo vessels and tank vessels for the transport of substances for which a type N tank vessel is prescribed”.

8.2.2.3.3 “Authorization for”, read as follows:

Specialization course on gases

“Authorization for: tank vessels for the transport of substances for which a type G tank vessel is required and transport in type G of substances for which a type C is required in cargo tank type 1 in column (7) of Table C of Chapter 3.2”.

Specialization course on chemicals

“Authorization for: tank vessels for the transport of substances for which a type C tank vessel is required”.

8.2.2.3.4 Read:

“8.2.2.3.4 *Refresher and advanced training courses*

Refresher and advanced training course on gases

Prior training: valid ADN ‘gases’ and ‘tank vessels’ certificate or combined ‘dry cargo and tank vessels’ certificate;

Knowledge: ADN, in particular, loading, transport, unloading and handling of gases;

Authorization for: tank vessels for the transport of substances for which a type G tank vessel is required and transport in type G of substances for which a type C is required in cargo tank type 1 in column (7) of Table C of Chapter 3.2”;

Training: gases 8.2.2.3.3.1.

Refresher and advanced training course on chemicals

Prior training: valid ADN “chemicals” and “tank vessels” certificate or combined “dry cargo and tank vessels” certificate;

Knowledge: ADN, in particular, loading, transport, unloading and handling of gases;

Authorization for: tank vessels for the transport of substances for which a type C tank vessel is required;

Training: chemicals 8.2.2.3.3.2.

8.2.2.5 Second last paragraph, delete.

8.2.2.6.7 Replace “organizer of the training course” by “training body”.

8.2.2.7.1.3 (does not concern the English text).

8.2.2.7.2.3 (does not concern the English text).

8.2.3 Delete.

Chapter 8.3

Add a new 8.3.1.3 to read:

“8.3.1.3 When the vessel is required to carry two blue cones or two blue lights in accordance with column (19) of Table C of Chapter 3.2, persons under 14 years of age are not permitted on board.”

8.3.5 Read:

“8.3.5 Danger caused by work on board

No repair or maintenance work requiring the use of an open flame or electric current or liable to cause sparks may be carried out

- on board dry cargo vessels in the protected area or on the deck less than 3m forward or aft of that area;
- on board tank vessels.

This requirement does not apply:

- when dry cargo vessels are furnished with an authorization from the competent local authority or a certificate attesting to the totally gas-free condition of the protected area;
- when tank vessels are furnished with an authorization from the competent local authority or a certificate attesting to the totally gas-free condition of the vessel;
- to berthing operations.

Such work on board tank vessels may be undertaken without permission in the service spaces outside the cargo area, provided the doors and openings are closed and the vessel is not being loaded, unloaded or gas-freed.

The use of chromium vanadium steel screwdrivers and wrenches or screwdrivers and wrenches of equivalent material from the point of view of spark formation is permitted.”

Chapter 8.6

8.6.1.1 Point 9 of the model, replace “equivalences” by “equivalence”.

8.6.1.3 Point 16 of the model, replace “equivalences” by “equivalence”.

PART 9

Chapter 9.1

9.1.0.12.1 Second subparagraph, delete the first sentence.

9.1.0.40.1 First indent, amend the last sentence to read:

“These pumps and their means of propulsion and electrical equipment shall not be installed in the same space;”.

9.1.0.52.1 First indent, beginning, read: “- in the holds it is ...”.

Second indent, insert “on the deck” before “it is”.

9.1.0.52.3 First sentence, amend to read:

“Sockets for the connection of signal lights and gangway lighting shall be solidly fitted to the vessel close to the signal mast or the gangway.”

Replace in the second sentence “and hold ventilators” by “, hold ventilators and containers”.

Add:

“9.1.0.52.4 Accumulators shall be located outside the protected area.”

9.1.0.56.3 Second sentence, delete “accidental”.

9.1.0.71 Replace “7.1.3.71” by “8.3.3”.

9.1.0.74.1 Replace “7.1.3.74” by “8.3.4”.

Chapter 9.3

9.3.1.10.2 Beginning of the first paragraph, amend to read:

9.3.2.10.2

9.3.3.10.2 “Outside the cargo area, the lower edges of door-openings ...”.

9.3.1.10.3 Add the following:

9.3.2.10.3

9.3.3.10.3

“9.3.X.10.3 In the cargo area, the lower edges of door-openings in the sidewalls of superstructures shall have a height of not less than 0.50 m above the deck and the sills of hatches and ventilation openings of premises located under the deck shall have a height of not less than 0.50 m above the deck. This requirement does not apply to access openings to double-hull and double bottom spaces.”

9.3.1.10.3 The existing paragraph becomes 9.3.X.10.4.

9.3.2.10.3

9.3.3.10.3

9.3.1.11.4 *Read:*

“The bulkheads bounding the hold spaces shall be watertight. The cargo tanks and the bulkheads bounding the cargo area shall have no openings or penetrations below deck. The bulkhead between the engine room and the service spaces within the cargo area or between the engine room and a hold space may be fitted with penetrations provided that they conform to the requirements of 9.3.1.17.5.”

9.3.2.11.4 Amend the first indent to read:

9.3.3.11.4

“The bulkheads bounding the cargo tanks, cofferdams and hold spaces shall be watertight. The cargo tanks and the bulkheads bounding the cargo area shall have no openings or penetrations below deck.”

9.3.1.12.3 First paragraph, last sentence, delete.

9.3.2.12.3

9.3.3.12.3

9.3.1.12.5 Replace “for gas-freeing of tanks” by “in the cargo area”.

9.3.2.12.5

9.3.3.12.5

9.3.x.17.5 (f) *Read:*

“(f) Notwithstanding 9.3.x.11.4, pipes from the engine room may pass through the service space in the cargo area or a cofferdam or a hold space or a double-hull space to the outside provided that within the service space or cofferdam or hold space or double-hull space they are of the thick-walled type and have no flanges or openings.”

9.3.1.18 Add:

9.3.2.18

9.3.3.18

“9.3.X.18 *Inerting facility*

In cases in which inerting or blanketing of the cargo is prescribed, the vessel shall be equipped with an inerting system.

This system shall be capable of maintaining a permanent minimum pressure of 7 kPa (0.07 bar) in the spaces to be inerted. In addition, the inerting system shall not increase the pressure in the cargo tank to a pressure greater than that at which the pressure valve is regulated. The set pressure of the vacuum-relief valve shall be 3.5 kPa.

A sufficient quantity of inert gas for loading or unloading shall be carried or produced on board if it is not possible to obtain it on shore. In addition, a sufficient quantity of inert gas to offset normal losses occurring during carriage shall be on board.

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

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

9.3.1.21.1 (g) Amend to read:

“(g) a connection for a closed sampling device;”

(h) Delete: “(h) (*Reserved*)”

9.3.1.21.3 End, add:

9.3.2.21.3

9.3.3.21.3

“The permissible maximum filling level of the cargo tank shall be marked on each level gauge.

Permanent reading of the overpressure and vacuum shall be possible from a location from which loading or unloading operations may be interrupted. The permissible maximum overpressure and vacuum shall be marked on each level gauge.

Readings shall be possible in all weather conditions.”

9.3.x.21.5 The existing text becomes (a)

Add a new (b) to 9.3.1.21.5 and to 9.3.2.21.5 and (d) to 9.3.3.21.5 to read:

“(b) or (d) During discharging by means of the on-board pump, it shall be possible for the shore facility to switch it off. For this purpose, an independent intrinsically safe power line, fed by the vessel, shall be switched off by the shore facility by means of an electrical contact.

It shall be possible for the binary signal of the shore facility to be transmitted via a watertight two-pole socket or a connector device in accordance with standard EN 60309-2:1999, for direct current of 40 to 50 volts, identification colour white, position of the nose 10 h.

This socket shall be permanently fitted to the vessel close to the shore connections of the unloading pipes.”

Consequential amendment:

“9.3.1.21.5, 9.3.2.21.5 and 9.3.3.21.5 Replace “IEC Publication No. 309 (1992)” with “standard EN 60309-2:1999”

9.3.1.21.7 Last two paragraphs, delete.

9.3.2.21.7

9.3.3.21.7

9.3.1.21.8 First sentence, amend to read:

9.3.2.21.8

- 9.3.3.21.8 “Where the control elements of the shut-off devices of the cargo tanks are located in a control room, it shall be possible to stop the loading pumps and read the level gauges in the control room, and the visual and audible warning given by the level alarm device, the high level sensor referred to in 9.3.X.21.1 (d) and the instruments for measuring the pressure and temperature of the cargo shall be noticeable in the control room and on deck.”
- 9.3.1.21.9 Delete.
- 9.3.1.21.10 Becomes 9.3.1.21.9.
- 9.3.1.21.10 Add:
- “9.3.1.21.10 When refrigerated substances are carried the opening pressure of the safety system shall be determined by the design of the cargo tanks. In the event of the transport of substances that must be carried in a refrigerated state the opening pressure of the safety system shall be not less than 25 kPa greater than the maximum pressure calculated according to 9.3.1.27.”
- 9.3.1.22.1 The existing text becomes (a). Add:
- “(b) Cargo tank openings with a cross-section greater than 0.10 m² shall be located not less than 0.50 m above the deck.”
- 9.3.1.22.5 Add:
- “9.3.1.22.5 Each tank in which refrigerated substances are carried shall be equipped with a safety system to prevent unauthorized vacuum or overpressure.”
- 9.3.1.23.1 Second paragraph, delete.
- 9.3.1.24 Add:
- “9.3.1.24 *Regulation of cargo pressure and temperature*
- 9.3.1.24.1 Unless the entire cargo system is designed to resist the full effective vapour pressure of the cargo at the upper limits of the ambient design temperatures, the pressure of the tanks shall be kept below the permissible maximum set pressure of the safety valves, by one or more of the following means:
- (a) a system for the regulation of cargo tank pressure using mechanical refrigeration;
 - (b) a system ensuring safety in the event of the heating or increase in pressure of the cargo. The insulation or the design pressure of the cargo tank, or the combination of these two elements, shall be such as to leave an adequate margin for the operating period and the temperatures expected; in each case the system shall be deemed acceptable by a recognized classification society;
 - (c) other systems deemed acceptable by a recognized classification society.

9.3.1.24.2 The systems prescribed in 9.3.1.24.1 shall be constructed, installed and tested to the satisfaction of the recognized classification society. The materials used in their construction shall be compatible with the cargoes to be carried. For normal service, the upper ambient design temperature limits shall be:

air: +30° C;

water: +20° C.

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

9.3.1.25.7 End of first sentence, read:

“... at the inlet and outlet of the pump.”

Second sentence, delete.

End, add:

“Readings shall be possible in all weather conditions.”

9.3.1.27 Amend to read:

“9.3.1.27 *Refrigeration system*

9.3.1.27.1 The refrigeration system referred to in 9.3.1.24.1 (a) shall be composed of one or more units capable of keeping the pressure and temperature of the cargo at the upper limits of the ambient design temperatures at the prescribed level. Unless another means of regulating cargo pressure and temperature deemed satisfactory by a recognized classification society is provided, provision shall be made for one or more stand-by units with an output at least equal to that of the largest prescribed unit. A stand-by unit shall include a compressor, its engine, its control system and all necessary accessories to enable it to operate independently of the units normally used. Provision shall be made for a stand-by heat-exchanger unless the system’s normal heat-exchanger has a surplus capacity equal to at least 25% of the largest prescribed capacity. It is not necessary to make provision for separate piping.

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

9.3.1.27.2 The security devices and the connecting lines from the refrigeration system ... (remainder unchanged).

9.3.1.27.3 When several refrigerated cargoes with a potentially dangerous chemical reaction are carried simultaneously, particular care shall be given to the refrigeration systems so as to prevent any mixing of the cargoes. For the carriage of such cargoes, separate refrigeration systems, each including the full stand-by unit referred to in 9.3.1.27.1, shall

be provided for each cargo. When, however, refrigeration is ensured by an indirect or combined system and no leak in the heat exchangers can under any foreseeable circumstances lead to the mixing of cargoes, no provision need be made for separate refrigeration units for the different cargoes.

- 9.3.1.27.4 When two or more refrigerated cargoes are not soluble in each other under conditions of carriage such that their vapour pressures are added together in the event of mixing, particular care shall be given to the refrigeration systems to prevent any mixing of the cargoes.
- 9.3.1.27.5 When the refrigeration systems require water for cooling, a sufficient quantity shall be supplied by a pump or pumps used exclusively for the purpose. This pump or pumps shall have at least two suction pipes, if possible leading from two water intakes, one to port, the other to starboard. Provision shall be made for a stand-by pump with a satisfactory flow; this may be a pump used for other purposes provided that its use for supplying water for cooling does not impair any other essential service.
- 9.3.1.27.5 (*Russian text only*).
- 9.3.1.27.6 The refrigeration system may take one of the following forms:
- (a) Direct system: the cargo vapours are compressed, condensed and returned to the cargo tanks. This system shall not be used for certain cargoes specified in column (20) of Table C of Chapter 3.2. This requirement is indicated by remark 35 in column (20) of Table C of Chapter 3.2;
 - (b) Indirect system: the cargo or the cargo vapours are cooled or condensed by means of a coolant without being compressed;
 - (c) Combined system: the cargo vapours are compressed and condensed in a cargo/coolant heat-exchanger and returned to the cargo tanks. This system shall not be used for certain cargoes specified in Table C of Chapter 3.2. This requirement is indicated by remark 36 in column (20) of Table C of Chapter 3.2.
- 9.3.1.27.7 All primary and secondary coolant fluids shall be compatible with each other and with the cargo with which they may come into contact. Heat exchange may take place either at a distance from the cargo tank, or by using cooling coils attached to the inside or the outside of the cargo tank.
- 9.3.1.27.8 When the refrigeration system is installed in a separate service space, this service space shall meet the requirements of 9.3.1.17.6.
- 9.3.1.27.9 Text of the existing 9.3.1.27.4.
- 9.3.1.27.10 Text of the existing 9.3.1.27.5 adapting the reference to the requirements as follows: "... stating that 9.3.1.24.1 to 9.3.1.24.3, 9.2.1.27.1 and 9.3.1.27.9 above ..." (remainder unchanged).
- 9.3.1.40.1 First indent, amend the last sentence to read:
9.3.2.40.1

9.3.3.40.1 “- These pumps and their means of propulsion and electrical equipment shall not be installed in the same space.”

9.3.1.51.1 Insert the following first indent:

9.3.2.51.1

9.3.3.51.1

“- electric corrosion protection against external currents;”

9.3.1.52.3 (b) Insert the following third indent:

9.3.2.52.3

9.3.3.52.3

“(iii) mobile and fixed telephone installations in the accommodation or the wheelhouse;”

The existing indent (iii) becomes (iv).

9.3.1.56.5 Replace “245 IEC 66” by “IEC publication 60 245-4 (1994)”.

9.3.2.56.5

9.3.3.56.5

9.3.1.56.6

“9.3.2.56.6

Add 9.3.x.56.6 to read:

“The cables required for the electrical equipment referred to in 9.3.1.52.1 (b) and (c)/9.3.2.51.1 (b) and (c) are accepted in cofferdams, double-hull spaces, double bottoms, hold spaces and service spaces below deck.”

9.3.2.11.4

Third paragraph, replace the second and third sentences as follows:

“The bulkheads between the cargo tanks may be fitted with passages provided that the unloading pipes are fitted with shut-off devices in the cargo tank from which they come.”

9.3.2.12.7

Replace “9.3.2.16.3” by “9.3.2.26.4”.

9.3.2.12.7

Delete: “9.3.2.21.11” and “9.3.3.21.11”, respectively.

9.3.3.12.7

9.3.2.14.2

Read:

“For vessels with cargo tanks of more than 0.70 B in width, proof shall be furnished that the following stability requirements have been complied with:

- (a) In the positive area of the righting lever curve up to immersion of the first non-watertight opening there shall be a righting lever (GZ) of not less than 0.10 m;
- (b) The surface of the positive area of the righting lever curve up to immersion of the first non-watertight opening and in any event up to an angle of heel $\leq 27^\circ$ shall not be less than 0.024 m.rad;
- (c) The metacentric height (GM) shall be not less than 0.10 m.

These conditions shall be met bearing in mind the influence of all free surfaces in tanks for all stages of loading and unloading.”

9.3.2.20.1

Amend to read:

- “9.3.2.20.1 Cofferdams or cofferdam compartments remaining once a service space has been arranged in accordance with 9.3.2.11.6 shall be accessible through an access hatch. If, however, the cofferdam is connected to a double-hull space, it is sufficient for it to be accessible from that space. For openings giving access to double-hull spaces on deck the last sentence of 9.3.2.10.3 remains applicable. In this case an arrangement shall be made for possible monitoring in order to ascertain from the deck whether the cofferdam is empty.”
- 9.3.2.21.1 (g) Amend to read:
- “(g) a connection for a sampling device, closed or partially closed, and/or at least one sampling opening as required in column (13) of Table C of Chapter 3.2;”.
- 9.3.2.21.7
9.3.3.21.7 Paragraph 3, amend to read:
- First sentence, replace:* “or a vacuum pressure of 1.1 times the opening pressure of the vacuum valve” *by* “or a vacuum pressure equal to the construction vacuum pressure but not exceeding 5 kPa.
- 9.3.2.21.9 to
9.3.2.21.11 Delete.
- 9.3.2.21.12 Becomes 9.3.2.21.9.
- 9.3.2.25.7
9.3.3.25.7 Read:
- “The permissible maximum overpressure or vacuum value shall be indicated on each installation. Readings shall be possible in all weather conditions.”
- 9.3.2.25.9
9.3.3.25.9 At the end of the second paragraph, replace:
- “vacuum pressure: 110% of the opening pressure of the vacuum valve but not more than 3.85 kPa (0.0385 bar)” *by*
- “vacuum pressure: not more than the construction vacuum pressure but not exceeding 5 kPa (0.05 bar).”
- 9.3.2.35.1 Beginning of the second indent, amend to read:
- “- cofferdams, hold spaces and double bottoms ...”.
- 9.3.3.10.4 The existing paragraph becomes 9.3.3.10.5 and replace the reference to 9.3.3.10.3 by a reference to 9.3.3.10.4.
- 9.3.3.11.4 Third paragraph, replace the second and third sentences to read:
- “The bulkheads between the cargo tanks may be fitted with passages provided that the unloading pipes are fitted with shut-off devices in the cargo tank from which they come.”
- 9.3.3.11.7 *Read:*

“For double-hull construction with the tanks integrated in the vessel’s structure or where hold spaces contain cargo tanks which are independent of the structure of the vessel, or where independent cargo tanks are used, or for double-hull construction where the cargo tanks are integrated in vessel’s structure, the space between the wall of the vessel and wall of the cargo tanks shall be not less than 0.60 m.

The space between the bottom of the vessel and the bottom of the cargo tanks shall be not less than 0.50 m. The space may be reduced to 0.40 m under the pump sumps.

The vertical space between the suction well of a cargo tank and the bottom structures shall be not less than 0.10 m.

When a hull is constructed in the cargo area as a double hull with independent cargo tanks located in hold spaces, the above values are applicable to the double hull. If in this case the minimum values for inspections of independent tanks referred to in 9.3.3.11.9 are not feasible, it must be possible to remove the cargo tanks easily for inspection.

9.3.3.11.9 Second-last sentence of the first paragraph, read:

“In these spaces the free penetration width shall not be less than 0.50 m in the sector intended for the penetration.”

9.3.3.12.7 Replace “9.3.3.26.3” by “9.3.3.26.4”.

9.3.3.13.3 *Add a paragraph 2, to read:*

“For vessels with independent cargo tanks and for double-hull constructions with cargo tanks integrated in the frames of the vessel, floatability after damage shall be proved for the most unfavourable loading condition. For this purpose, calculated proof of sufficient stability shall be established for critical intermediate stages of flooding and for the final stage of flooding. Negative values of stability in intermediate stages of flooding may be accepted only if the continued range of curve of the righting lever in damaged condition indicates adequate positive values of stability.”

9.3.3.14 Amend to read:

“9.3.3.14 Stability (intact)

9.3.3.14.1 For vessels with independent cargo tanks and for double-hull constructions with cargo tanks integrated in the frames of the vessel, the requirements for intact stability resulting from the damage stability calculation shall be fully complied with.”

9.3.3.14.2 “For vessels with cargo tanks of more than 0.70 B in width, proof shall be furnished that the following stability requirements have been complied with:

(a) In the positive area of the righting lever curve up to immersion of the first non-watertight opening there shall be a righting lever (GZ) of not less than 0.10 m;

(b) The surface of the positive area of the righting lever curve up to immersion of the first non-watertight opening and in any event up to an angle of heel $\leq 27^\circ$ shall not be less than 0.024 m.rad;

(c) The metacentric height (GM) shall be not less than 0.10 m.

These conditions shall be met bearing in mind the influence of all free surfaces in tanks for all stages of loading and unloading.”

9.3.3.15 *Read:*

“9.3.3.15 Stability (damaged condition)

9.3.3.15.1 For vessels with independent cargo tanks and for double-hull constructions with cargo tanks integrated in the frames of the vessel, the following assumptions shall be taken into consideration for the damaged condition:

(a) The extent of side damage is as follows:

longitudinal extent: at least 0.10 L, but not less than 5.00 m;
transverse extent: 0.59 m;
vertical extent: from the base line upwards without limit.

(b) The extent of bottom damage is as follows:

longitudinal extent: at least 0.10 L, but not less than 5.00 m;
transverse extent: 3.00 m;
vertical extent: from the base 0.49 m upwards, the sump excepted.

(c) Any bulkheads within the damaged area shall be assumed damaged, which means that the location of bulkheads shall be chosen so as to ensure that the vessel remains afloat after the flooding of two or more adjacent compartments in the longitudinal direction.

The following provisions are applicable:

- For bottom damage, adjacent athwartship compartments shall also be assumed as flooded;
- The lower edge of any non-watertight openings (e.g. doors, windows, access hatchways) shall, at the final stage of flooding, be not less than 0.10 m above the damage waterline;
- In general, permeability shall be assumed to be 95%. Where an average permeability of less than 95% is calculated for any compartment, this calculated value obtained may be used.

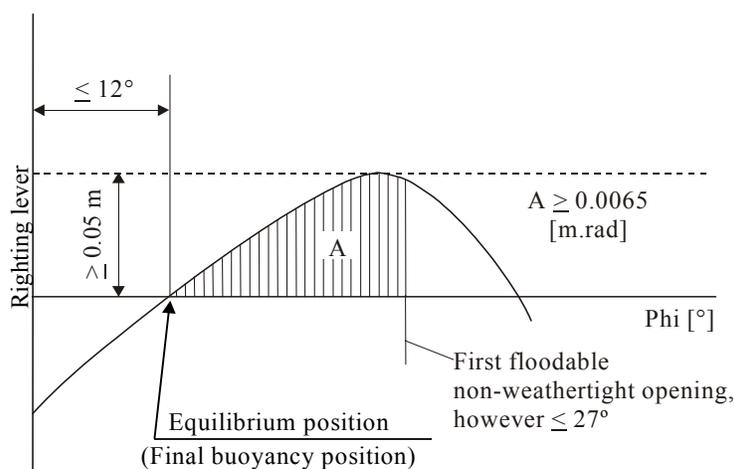
However, the following minimum values shall be used:

- engine rooms: 85%;
- accommodation: 95%;
- double bottoms, oil fuel tanks, ballast tanks, etc., depending on whether, according to their function, they have to be assumed as full or empty for the vessel floating at the maximum permissible draught: 0% or 95%.

For the main engine room only the one-compartment standard need be taken into account, i.e. the end bulkheads of the engine room shall be assumed as not damaged.

9.3.3.15.2 At the stage of equilibrium (final stage of flooding), the angle of heel shall not exceed 12°. Non-watertight openings shall not be flooded before reaching the stage of equilibrium. If such openings are immersed before that stage, the corresponding spaces shall be considered as flooded for the purpose of the stability calculation.

The positive range of the righting lever curve beyond the stage of equilibrium shall have a righting lever of ≥ 0.05 m in association with an area under the curve of ≥ 0.0065 m.rad. The minimum values of stability shall be satisfied up to immersion of the first non-watertight opening and in any event up to an angle of heel $\leq 27^\circ$. If non-watertight openings are immersed before that stage, the corresponding spaces shall be considered as flooded for the purposes of stability calculation.



9.3.3.15.3 If openings through which undamaged compartments may additionally become flooded are capable of being closed watertight, the closing appliances shall be marked accordingly.

9.3.3.15.4 Where cross- or down-flooding openings are provided for reduction of unsymmetrical flooding, the time for equalization shall not exceed 15 minutes, if during the intermediate stages of flooding sufficient stability has been proved.

9.3.3.20.1 Amend to read:

“9.3.3.20.1 Cofferdams or cofferdam compartments remaining once a service space has been arranged in accordance with 9.3.3.11.6 shall be accessible through an access hatch. If, however, the cofferdam is connected to a double-hull space, it is sufficient for it to be accessible from that space. For openings giving access to double-hull spaces on deck the last sentence of 9.3.2.10.3 remains applicable. In this case an arrangement shall be made for possible monitoring in order to ascertain from the deck whether the cofferdam is empty.”

9.3.3.21.1 (g) Amend to read:

“(g) a connection for a sampling device, closed or partially closed, and/or at least one sampling opening as required in column (13) of Table C of Chapter 3.2;”.

- (h) Delete.
- 9.3.3.21.5 (c) Amend to read:
- “(c) Supply vessels and other vessels which may be delivering products required for operation shall be equipped with a transshipment facility compatible with European standard EN 12 827:1996 and a rapid closing device enabling refuelling to be interrupted. It shall be possible to actuate this rapid closing device by means of an electrical signal from the overflow prevention system. The electrical circuits actuating the rapid closing device shall be secured according to the quiescent current principle or other appropriate error detection measures. The state of operation of electrical circuits which cannot be controlled using the quiescent current principle shall be capable of being easily checked. It shall be possible to actuate the rapid closing device independently of the electrical signal.
The rapid closing device shall actuate a visual and an audible alarm on board.”
- 9.3.3.21.9 to 9.3.3.21.12 Delete.
- 9.3.3.21.13 Becomes 9.3.3.21.9; amend to read:
- “9.3.3.21.9 9.3.3.21.1 (e), 9.3.3.21.7 as regards measuring the pressure, do not apply to open type N with flame-arrester and to open type N.
- 9.3.3.21.1 (b), (c) and (g), 9.3.3.21.3 and 9.3.3.21.4 do not apply to oil separator and supply vessels.
- Screens in sampling openings are not required on board open type N tank vessels.
- 9.3.3.21.1 (f) and 9.3.3.21.7 do not apply to supply vessels.
- 9.3.3.21.5 (a) does not apply to oil separator vessels.”
- 9.3.3.25.12 First line, after “9.3.3.25.2” insert “(a), last sentence and”.
- 9.3.3.35.1 First indent [does not concern the English text].
- Second indent, after “cofferdams” insert: “, double-hull, double bottom”.
- 9.3.3.56.6 Add 9.3.3.56.6 to read:
- “The cables required for the electrical equipment referred to in 9.3.3.52.1 (b) and (c) are accepted in cofferdams, double-hull spaces, double bottoms, hold spaces and service spaces below deck. When the vessel is only authorized to carry substances for which no anti-explosion protection is required in column (17) of Table C in Chapter 3.2, cable penetration is permitted in the hold spaces.”
- 9.3.3.92 On board of tank vessels referred to in 9.3.3.11.7, spaces the entrances or exits of which are likely to become partly or completely immersed in the damaged condition shall have

an emergency exit which is situated not less than 0.10 m above the damage waterline.
This requirement does not apply to forepeak and afterpeak.
