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**Committee of Experts on the Transport of Dangerous Goods  
and on the Globally Harmonized System of Classification  
and Labelling of Chemicals**

**Report of the Committee of Experts on the Transport of  
Dangerous Goods and on the Globally Harmonized System of  
Classification and Labelling of Chemicals on its ninth session**

held in Geneva on 7 December 2018

**Addendum**

**Annex I**

**Amendments to the twentieth revised edition of the Recommendations  
on the Transport of Dangerous Goods, Model Regulations  
(ST/SG/AC.10/1/Rev.20)**

## Recommendations on the transport of dangerous goods

In recommendation 18 “TRANSPORT OF RADIOACTIVE MATERIAL”, at the end, replace ““International Basic Safety Standards for Protection against Ionizing Radiation and for the safety of Radiation Sources”, Safety Series No. 115, IAEA, Vienna (1996)” by “Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards”, IAEA Safety Standards Series No. GSR Part 3, IAEA, Vienna (2014)”.

### Chapter 1.1

1.1 The amendment to Note 1 under the heading does not apply to the English version.

1.1.1.2 (a) The amendment to the French version does not apply to the English text.

1.1.1.2 Add a new note 4 as follows:

*“NOTE 4: For dangerous goods in equipment in use or intended for use during transport, see 5.5.4.”*

### Chapter 1.2

1.2.1 Insert the following new definitions, in alphabetical order:

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

*“Self-accelerating decomposition temperature (SADT) means the lowest temperature at which self-accelerating decomposition may occur in a substance in the packaging, IBC or portable tank as offered for transport. The SADT shall be determined in accordance with the test procedures given in Part II, Section 28 of the Manual of Tests and Criteria.”*

Amend the definitions hereafter as follows:

Radiation level: Delete the entry.

Self-accelerating polymerization temperature (SAPT): In the first sentence insert “self-accelerating” between “which” and “polymerization”.

Transport index: In the first sentence after “SCO-I” add “or SCO-III”.

### Chapter 1.4

Table 1.4.1 Add the new entries “0512” and “0513” to read as follows:

“Class 1, Division 1.4 UN Nos. 0104, 0237, 0255, 0267, 0289, 0361, 0365, 0366, 0440, 0441, 0455, 0456, 0500, 0512 and 0513”

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

“Class 1, Division 1.6: explosives”

Amend the entry for “Division 6.2” to read as follows:

“Division 6.2: infectious substances of Category A (UN 2814 and UN 2900) and medical waste of Category A (UN 3549)”.

1.4.3.2.3 Replace “The Physical Protection of Nuclear Material and Nuclear Facilities” by “Nuclear Security Recommendations on Physical Protection of Nuclear Material and

Nuclear Facilities”. In footnote 2, replace “INFCIRC/225/Rev.4 (corrected), IAEA Vienna (1999)” by “INFCIRC/225/Rev.5, IAEA, Vienna (2011)”.

## Chapter 1.5

1.5.1.1 In the first sentence, replace “to persons” by “to people”. Amend the second and third sentences to read “These Regulations are based on the IAEA “Regulations for the Safe Transport of Radioactive material, 2018 Edition”, IAEA Safety Standards Series No. SSR-6 (Rev.1), IAEA, Vienna (2018). Explanatory material can be found in “Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2018 Edition)”, Safety Standard Series No. SSG-26 (Rev.1), IAEA, Vienna (2019).”.

1.5.1.2 In the first sentence, replace “persons” by “people” and replace “from the effects of radiation in the transport” by “from harmful effects of ionizing radiation during the transport”.

In (b), replace “radiation levels” by “dose rate”.

In the last sentence, replace “Finally” by “Thirdly” and add the following new sentence at the end: “Finally, further protection is provided by making arrangements for planning and preparing emergency response to protect people, property and the environment.”.

1.5.1.5.1 (a) After “5.2.1.7,” add “5.4.1.5.7.1 (f) (i) and (ii), 5.4.1.5.7.1 (i), ” and after “7.1.8.3.1” add “, 7.1.8.4.3”.

1.5.1.5.2 Delete the second sentence.

1.5.2.4 In the last sentence replace “individual monitoring or workplace monitoring” by “workplace monitoring or individual monitoring”.

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

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

1.5.2.6 Amend to read as follows:

“1.5.2.6 The arrangements for preparedness and response shall be based on the graded approach and take into consideration the identified hazards and their potential consequences, including the formation of other dangerous substances that may result from the reaction between the contents of a consignment and the environment in the event of a nuclear or radiological emergency. Guidance for the establishment of such arrangements is contained in “Preparedness and Response for a Nuclear or Radiological Emergency”, IAEA Safety Standards Series No. GSR Part 7, IAEA, Vienna (2015); “Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency”, IAEA Safety Standards Series No. GSG-2, IAEA, Vienna (2011); “Arrangements for Preparedness for a Nuclear or Radiological Emergency”, IAEA Safety Standards Series No. GS-G-2.1, IAEA, Vienna (2007), and “Arrangements for the Termination of a Nuclear or Radiological Emergency”, IAEA Safety Standards Series No. GSG-11, IAEA, Vienna (2018).”

1.5.4.2 In the second sentence, replace “through alternative means” by “through means alternative to the other provisions of these Regulations,” and replace “for single or a planned series of multiple consignments” by “for a single consignment or a

planned series of multiple consignments”. In the third sentence, at the end, after “applicable requirements” add “in these Regulations”.

1.5.6.1 In the introductory sentence, replace “radiation level” by “dose rate”. In (b), at the beginning, replace “carrier, consignor or consignee” by “consignor, carrier, or consignee”. In (b) (iii), replace “similar circumstances” by “the causes and circumstances similar to those”. In (b) (iv), replace “on corrective or preventive actions” by “the corrective or preventive actions”.

## Chapter 2.0

2.0.5.4 At the end, add the following new sentence “However, this section applies to articles containing explosives which are excluded from Class 1 in accordance with 2.1.3.6.4.”.

## Chapter 2.1

2.1.3.3.1 In the second sentence delete “(2.1.1.1 (c))”.

2.1.3.5.2 In the first sentence, after “or 0336” insert “, and articles to UN 0431 for those used for theatrical effects meeting the definition for article type and 1.4G specification in the default fireworks classification table in 2.1.3.5.5”.

2.1.3.6.4 (b) In the Note, delete “, such as described in ISO 12097-3” and add the following new second sentence:

*“One such method is described in ISO 14451-2 using a heating rate of 80 K/min.”*

## Chapter 2.2

2.2.1.3 Replace “charged with a gas and aerosols” by “charged with a gas, aerosols and chemicals under pressure”.

2.2.2.1 Amend the note to read as follows:

**“NOTE:** *For UN 1950 AEROSOLS, see also the criteria in special provision 63. For chemicals under pressure of UN Nos. 3500 to 3505, see also special provision 362. For UN 2037 RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) see also special provision 303.”*

In (a) (ii) and in the Note to (b) (iii), replace “ISO 10156:2010” by “ISO 10156:2017”.

2.2.3 In (a) and (d), replace “ISO 10156:2010” by “ISO 10156:2017”.

## Chapter 2.4

2.4.3.2.3.1 In the Note, delete “, except for type G,”.

## Chapter 2.5

2.5.3.2.4 In the table, for “DI-(4-tert-BUTYLCYCLOHEXYL) PEROXYDICARBONATE”, for concentration “≤ 42 as a paste”, in column “Packing Method”, replace “OP7” by “OP8” and in column “Number (Generic entry)”, replace “3116” by “3118”.

## Chapter 2.6

2.6.1 (b) Delete “, rickettsiae”.

2.6.3.1.1 Delete “, rickettsiae”.

2.6.3.1.6 Amend to read as follows:

“*Medical or clinical wastes* are wastes derived from the veterinary treatment of animals, the medical treatment of humans or from bio-research.”

2.6.3.2.1 Replace “or UN 3373” by “, UN 3373 or UN 3549”.

2.6.3.2.2.1 In Note 3, delete “, mycoplasmas, rickettsia”.

2.6.3.2.3.9 (a) In the parenthesis, after “UN 3291” add “and UN 3549”.

2.6.3.5.1 Amend to read as follows:

“2.6.3.5.1 Medical or clinical waste containing:

(a) Category A infectious substances shall be assigned to UN 2814, UN 2900 or UN 3549, as appropriate. Solid medical waste containing Category A infectious substances generated from the medical treatment of humans or veterinary treatment of animals may be assigned to UN 3549. The UN 3549 entry shall not be used for waste from bio-research or liquid waste;

(b) Category B infectious substances shall be assigned to UN 3291.”

## Chapter 2.7

2.7.2.1.1 Replace “2.7.2.4.2” by “2.7.2.4”.

Table 2.7.2.1.1 For UN 2913, in the “Proper shipping name and description” column, replace “SCO-I or SCO-II” by “SCO-I, SCO-II or SCO-III”.

Table 2.7.2.2.1 Add the following rows in proper order

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

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

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

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

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

2.7.2.3.1.2 (c) Delete “that meet the requirements of 2.7.2.3.1.3,”. Delete sub-paragraph (ii) and renumber sub-paragraph (iii) as (ii).

2.7.2.3.1.3 Delete and add “2.7.2.3.1.3 *Deleted*”.

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

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

- (i) All openings are sealed to prevent release of radioactive material during conditions defined in 4.1.9.2.4 (e);
- (ii) The inside of the object is as dry as practicable;
- (iii) The non-fixed contamination on the external surfaces does not exceed the limits specified in 4.1.9.1.2.
- (iv) The non-fixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm<sup>2</sup> does not exceed  $8 \times 10^5$  Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters, or  $8 \times 10^4$  Bq/cm<sup>2</sup> for all other alpha emitters.”

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

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

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

2.7.2.3.3.8 (a) (ii) Replace “shall be heated” by “shall then be heated”.

2.7.2.3.4.1 (a) Replace “radiation level” by “dose rate”.

2.7.2.3.5 (e) Replace “limits provided in” by “the requirements of”.

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

2.7.2.4.1.3 At the end of sub-paragraph (c), delete “and”. At the end of sub-paragraph d), replace the full stop by a semicolon. Add additional sub-paragraphs (e) and (f) as follows:

“(e) *Reserved*;

(f) If the package contains fissile material, one of the provisions of 2.7.2.3.5 (a) to (f) shall apply.”

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

“(c) If the package contains fissile material, one of the provisions of 2.7.2.3.5 (a) to (f) shall apply.”

2.7.2.4.1.7 Add additional sub-paragraph (e):

“(e) If the packaging has contained fissile material, one of the provisions of 2.7.2.3.5 (a) to (f) or one of the provisions for exclusion in 2.7.1.3 shall apply.”

Transfer the “and” from the end of sub-paragraph (c) (ii) to the end of (d).

## Chapter 2.8

2.8.1.1 The amendment to the French version does not apply to the English text.

2.8.3.2 In the second sentence, replace “the assignment” by “classification” and replace “OECD Test Guideline 404<sup>1</sup> or 435<sup>2</sup>” by “OECD Test Guidelines<sup>1,2,3,4</sup>”.

In the third sentence replace “OECD Test Guideline 430<sup>3</sup> or 431<sup>4</sup>” by “OECD Test Guidelines<sup>1,2,3,4</sup>”.

Delete the existing footnote 4 and renumber the current footnote 3 to 4. In the renumbered footnote, add “*Method*” between “*Test*” and “(TER)”. Insert a new footnote 3 as follows: “3 *OECD Guideline for the testing of chemicals No. 431 “In vitro skin corrosion: reconstructed human epidermis (RHE) test method” 2016*”.

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

## Chapter 2.9

2.9.2 Under “Other substances or articles presenting a danger during transport...”, after “3359 FUMIGATED CARGO TRANSPORT UNIT”, add “3363 DANGEROUS GOODS IN ARTICLES or”

2.9.4 (g) After “Manufacturers and subsequent distributors of cells or batteries” add “manufactured after 30 June 2003”.

## Chapter 3.2, dangerous goods list

Add the following new entries in proper order:

(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
0511	DETONATORS, ELECTRONIC programmable for blasting†	1.1B				0	E0	P131			
0512	DETONATORS, ELECTRONIC programmable for blasting†	1.4B				0	E0	P131			
0513	DETONATORS, ELECTRONIC programmable for blasting†	1.4S			347	0	E0	P131			
3549	MEDICAL WASTE, CATEGORY A, AFFECTING HUMANS, solid or MEDICAL WASTE, CATEGORY A, AFFECTING ANIMALS only, solid	6.2			395	0	E0	P622 LP622			

For UN Nos 0005, 0007, 0012, 0014, 0033, 0037, 0136, 0167, 0180, 0238, 0240, 0242, 0279, 0291, 0294, 0295, 0324, 0326, 0327, 0330, 0338, 0339, 0348, 0369, 0371, 0413, 0414, 0417, 0426, 0427, 0453, 0457, 0458, 0459 and 0460, add “LP101” in column (8) under “P130”.

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

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

For UN Nos. 1092, 1098, 1143, 1163, 1238, 1239, 1244, 1595, 1695, 1752, 1809, 2334, 2337, 2646 and 3023, in column (11) delete “TP35”.

For UN Nos. 1135, 1182, 1251, 1541, 1580, 1605, 1670, 1810, 1834, 1838, 1892, 2232, 2382, 2474, 2477, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2521, 2605, 2606, 2644, 2668, 3079 and 3246, in column (11) delete “TP37”.

For UN Nos. 1372, 1387, 1856, 1857 and 3360, in column (6), delete “117” and insert “123”.

UN 2037 In column (6) insert “327”. In column (8) insert “LP200”. In column (9) insert “PP96” against “P003” and insert “L2” against “LP200”.

For UN 2381, in column (11) delete “TP39”.

For UN 2383, in column (6), delete “386”.

For UN 2522, in column (2), add “, STABILIZED” at the end and in column (6) add “386”.

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

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

For UN 3148, in column (11) delete “TP38”.

For UN 3164, in column (9), add “PP32” against “P003”.

For UN 3291, in column (5), delete “II”.

For UN 3363, in column (2), at the beginning of the description, add “DANGEROUS GOODS IN ARTICLES or”.

UN 3500 In column (9) insert “PP97” against “P206”.

For UN 3529, in column (6), add “356”.

### Chapter 3.3

SP 172 (d) Replace “subsidiary class or division” by “class or division of the subsidiary hazard”.

SP 239 Delete the last sentence.

SP 274 At the end, add the following new paragraphs:

“For UN 3077 and UN 3082 only, the technical name may be a name shown in capital letters in column 2 of the Dangerous Goods List, provided that this name does not include “N.O.S.” and that special provision 274 is not assigned. The name which most appropriately describes the substance or mixture shall be used, e.g.:

UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PAINT)

UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PERFUMERY PRODUCTS)”



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

SP 309 In the last paragraph, replace “satisfactorily pass Tests 8(a), (b) and (c)” by “satisfy the criteria for classification as an ANE”.

SP 327 In the first sentence, replace “Waste aerosols consigned” by “Waste aerosols and waste gas cartridges consigned” and “transported under this entry for” by “transported under UN 1950 or UN 2037, as appropriate, for”.

After the third sentence insert the following new sentence: “Waste gas cartridges, other than those leaking or severely deformed, shall be packed in accordance with packing instruction P003 and special packing provisions PP17 and PP96, or packing instruction LP200 and special packing provision L2.”.

In the next sentence, replace “aerosols shall be transported in salvage packagings” by “aerosols and gas cartridges shall be transported in salvage pressure receptacles or salvage packagings”.

In the last sentence, replace “Waste aerosols shall not” by “Waste aerosols and waste gas cartridges shall not”. Add the following new paragraph at the end:

“Waste gas cartridges that were filled with gases of Division 2.2 and have been pierced are not subject to these Regulations.”

SP 356 After “in vehicle, vessels” add “, machinery, engines” (twice). Replace “aircrafts” by “aircraft” (twice).

SP 360 Replace “consigned under” by “assigned to” and add the following sentence at the end:

“Lithium batteries installed in cargo transport units, designed only to provide power external to the transport unit shall be assigned to entry UN 3536 LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT.”

SP 363 (j) In the last paragraph, replace “in accordance with 5.3.1.1.2” by “. Placards shall correspond to the class indicated in Column 3 of the Dangerous Goods List of Chapter 3.2 and shall conform to the specifications given in 5.3.1.2.1;”.

SP 363 (k) In the last paragraph, delete “in accordance with 5.3.1.1.2” and add the following new sentence at the end: “Placards shall correspond to the class indicated in Column 3 of the Dangerous Goods List in Chapter 3.2 and shall conform to the specifications given in 5.3.1.2.1;”.

SP 370 Amend the first sentence to read as follows: “This entry only applies to ammonium nitrate that meets one of the following criteria:” and at the end of the first indent, replace “and” by “or”.

Add the following new paragraph at the end, after the indents:

“This entry shall not be used for ammonium nitrate for which a proper shipping name already exists in the Dangerous Goods List of Chapter 3.2 including ammonium nitrate mixed with fuel oil (ANFO) or any of the commercial grades of ammonium nitrate.”

SP 376 Amend the Note to read as follows:

***NOTE:*** *In assessing a cell or battery as damaged or defective, an assessment or evaluation shall be performed based on safety criteria from the cell, battery or product manufacturer or*

by a technical expert with knowledge of the cell's or battery's safety features. An assessment or evaluation may include, but is not limited to, the following criteria:

- (a) Acute hazard, such as gas, fire, or electrolyte leaking;
- (b) The use or misuse of the cell or battery;
- (c) Signs of physical damage, such as deformation to cell or battery casing, or colours on the casing;
- (d) External and internal short circuit protection, such as voltage or isolation measures;
- (e) The condition of the cell or battery safety features; or
- (f) Damage to any internal safety components, such as the battery management system.”

SP 379 (d) (i) Replace “ISO 11114-1:2012” by “ISO 11114-1:2012 + A1:2017”.

SP 388 At the end of the seventh paragraph, add the following sentence:

“Lithium ion batteries or lithium metal batteries installed in a cargo transport unit and designed only to provide power external to the cargo transport unit shall be assigned to the entry UN 3536 LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT lithium ion batteries or lithium metal batteries.”

Add the following new special provisions:

“390 When a package contains a combination of lithium batteries contained in equipment and lithium batteries packed with equipment, the following requirements apply for the purposes of package marking and documentation:

- (a) the package shall be marked “UN 3091 Lithium metal batteries packed with equipment”, or “UN 3481 Lithium ion batteries packed with equipment”, as appropriate. If a package contains both lithium ion batteries and lithium metal batteries packed with and contained in equipment, the package shall be marked as required for both battery types. However, button cell batteries installed in equipment (including circuit boards) need not be considered.
- (b) the transport document shall indicate “UN 3091 Lithium metal batteries packed with equipment” or “UN 3481 Lithium ion batteries packed with equipment”, as appropriate. If a package contains both lithium metal batteries and lithium ion batteries packed with and contained in equipment, then the transport document shall indicate both “UN 3091 Lithium metal batteries packed with equipment” and “UN 3481 Lithium ion batteries packed with equipment.”

“393 The nitrocellulose shall meet the criteria of the Bergmann-Junk test or methyl violet paper test in the Manual of Tests and Criteria Appendix 10. Tests of type 3 (c) need not be applied.”

“394 The nitrocellulose shall meet the criteria of the Bergmann-Junk test or methyl violet paper test in the Manual of Tests and Criteria Appendix 10.”

“395 This entry shall only be used for solid medical waste of Category A transported for disposal.”

## **Appendix A**

In the table, for Division 6.2, under “Specific entries”, add the following new entries:

6.2		3549	MEDICAL WASTE, CATEGORY A, AFFECTING HUMANS, solid
6.2		3549	MEDICAL WASTE, CATEGORY A, AFFECTING ANIMALS only, solid

## Appendix B

In the definition of “Detonators”, replace “DETONATORS for blasting, both ELECTRIC and NON-ELECTRIC” by “DETONATORS for blasting, ELECTRIC, NON-ELECTRIC, and ELECTRONIC programmable”.

Add the following new definition for “DETONATORS, ELECTRONIC programmable for blasting”:

***“DETONATORS, ELECTRONIC programmable for blasting***

Detonators with enhanced safety and security features, utilizing electronic components to transmit a firing signal with validated commands and secure communications. Detonators of this type cannot be initiated by other means.”

## Alphabetical index

Add the following new entries in alphabetical order:

DANGEROUS GOODS IN ARTICLES	9	3363
MEDICAL WASTE, CATEGORY A, AFFECTING HUMANS, solid	6.2	3549
MEDICAL WASTE, CATEGORY A, AFFECTING ANIMALS only, solid	6.2	3549

For entry “2-DIMETHYLAMINOETHYL-METHACRYLATE”, in column “Name and description”, add at the end “, STABILIZED”.

## Chapter 4.1

4.1.1 In the note, replace “(Division 6.2)” by “(Division 6.2, UN 2814 and UN 2900)”. Amend the end of the sentence to read “(P201, P207 and LP02 for Class 2 and P620, P621, P622, IBC620, LP621 and LP622 for Division 6.2)”.

4.1.1.3 Add a new 4.1.1.3.1 to read as follows:

“4.1.1.3.1 Packagings, including IBCs and large packagings, may conform to one or more than one successfully tested design type and may bear more than one mark”

4.1.4.1, P003 For packing instruction PP32, after “3358”, add “and robust articles consigned under UN 3164”.

4.1.4.1, P003 Add the following new special packing provision:

**“PP96** For UN 2037 waste gas cartridges transported in accordance with special provision 327, the packagings shall be adequately ventilated to prevent the creation of dangerous atmospheres and the build-up of pressure.”

4.1.4.1, P200 In (3)(c), in the first sentence, delete “(filling factor)”.

4.1.4.1, P200 In (4), replace the reference on the last line to “ISO 24431:2006 Gas cylinders – Cylinders for compressed and liquefied gases (excluding acetylene) – Inspection at time of

filling” by “ISO 24431:2016 Gas cylinders – Seamless, welded and composite cylinders for compressed and liquefied gases (excluding acetylene) – Inspection at time of filling”.

4.1.1.4, P200 In table 2, replace the values of column “LC<sub>50</sub> in ml/m<sup>3</sup>” as follows:

- UN 1859 replace “450” by “922”.
- UN 2188 replace “20” by “178”.
- UN 2202 replace “2” by “51”.
- UN 2534 replace “600” by “2810”.
- UN 2676 replace “20” by “178”.

4.1.4.1, P206 In the title of the last row of the packing instruction, replace “Special packing provision” by “Special packing provisions”.

Add the following new special packing provision:

**“PP97** For fire extinguishing agents assigned to UN 3500 the maximum test period for periodic inspection shall be 10 years. They may be transported in tubes of a maximum water capacity of 450 l conforming to the applicable requirements of Chapter 6.2.”

4.1.4.1, P207 In special packing provision PP87, replace “flammable atmosphere” by “dangerous atmospheres”.

4.1.4.1, P301 In the last sentence of (1) and (2) replace “unit” by “primary containment”.

4.1.4.1, P400 In (2) and (3):

- First sentence: delete “threaded”.
- After the first sentence insert the following new sentence: “Inner packagings shall have threaded closures or closures physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transport.”.

4.1.4.1, P404 In the introductory sentence, replace “3391, 3393 and 3461” by “3391 and 3393”.

In (1), under “Inner packagings”:

- First paragraph: delete “and have threaded closures”.
- Second paragraph: delete “threaded”.
- Add the following new third paragraph before the last sentence (“Outer packagings 125 kg”):

“Inner packagings shall have threaded closures or closures physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transport.”.

In (2) insert “, 1B2” between “, 1B1” and “, 1N1”.

## 4.1.4.1 Add the following new packing instruction P622:

<b>P622 PACKING INSTRUCTION P622</b>		
This instruction applies to waste of UN 3549 transported for disposal.		
The following packagings are authorized provided the general provisions of 4.1.1 and 4.1.3 are met:		
<b>Inner packagings</b>	<b>Intermediate packagings</b>	<b>Outer packagings</b>
metal plastics	metal plastics	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) plywood (4D) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A2) aluminium (1B2) other metal (1N2) plywood (1D) fibre (1G) plastics (1H2) <b>Jerricans</b> steel (3A2) aluminium (3B2) plastics (3H2)
The outer packaging shall conform to the packing group I performance level for solids.		
<b>Additional requirements:</b>		
<ol style="list-style-type: none"> <li>1. Fragile articles shall be contained in either a rigid inner packaging or rigid intermediate packaging.</li> <li>2. Inner packagings containing sharp objects such as broken glass and needles shall be rigid and resistant to puncture.</li> <li>3. The inner packaging, the intermediate packaging, and the outer packaging shall be capable of retaining liquids. Outer packagings that are not capable of retaining liquids by design shall be fitted with a liner or suitable measure of retaining liquids.</li> <li>4. The inner packaging and/or the intermediate packaging may be flexible. When flexible packagings are used, they shall be capable of passing the impact resistance test to at least 165 g according to ISO 7765-1:1988 "Plastics film and sheeting – Determination of impact resistance by the free-falling dart method – Part 1: Staircase methods" and the tear resistance test to at least 480 g in both parallel and perpendicular planes with respect to the length of the bag in accordance with ISO 6383-2:1983 "Plastics – Film and sheeting – Determination of tear resistance – Part 2: Elmendorf method". The maximum net mass of each flexible inner packaging shall be 30kg.</li> <li>5. Each flexible intermediate packaging shall contain only one inner packaging.</li> <li>6. Inner packagings containing a small amount of free liquid may be included in intermediate packaging provided that there is sufficient absorbent or solidifying material in the inner or intermediate packaging to absorb or solidify all the liquid content present. Suitable absorbent material which withstands the temperatures and vibrations liable to occur under normal conditions of transport shall be used.</li> <li>7. Intermediate packagings shall be secured in outer packagings with suitable cushioning and/or absorbent material.</li> </ol>		

4.1.4.1, P801 Replace existing packing instruction P801 to read as follows:

P801	PACKING INSTRUCTION	P801
This instruction applies to UN Nos. 2794, 2795 and 3028.		
The following packagings are authorized, provided that the provisions of 4.1.1.1, 4.1.1.2, 4.1.1.6, and 4.1.3 are met:		
(1) Rigid outer packagings, wooden slatted crates or pallets.		
Additionally, the following conditions shall be met:		
(a) Batteries stacks shall be in tiers separated by a layer of electrically non-conductive material;		
(b) Battery terminals shall not support the weight of other superimposed elements;		
(c) Batteries shall be packaged or secured to prevent inadvertent movement;		
(d) Batteries shall not leak under normal conditions of transport or appropriate measures shall be taken to prevent the release of electrolyte from the package (e.g. individually packaging batteries or other equally effective methods); and		
(e) Batteries shall be protected against short circuits.		
(2) Stainless steel or plastics bins may also be used to transport used batteries.		
Additionally, the following conditions shall be met:		
(a) The bins shall be resistant to the electrolyte that was contained in the batteries;		
(b) The bins shall not be filled to a height greater than the height of their sides;		
(c) The outside of the bins shall be free of residues of electrolyte contained in the batteries;		
(d) Under normal conditions of transport, no electrolyte shall leak from the bins;		
(e) Measures shall be taken to ensure that filled bins cannot lose their content; and		
(f) Measures shall be taken to prevent short circuits (e.g. batteries are discharged, individual protection of the battery terminals, etc.).		

4.1.4.1, P903 Add the following new paragraph (5):

“(5) For packagings containing both cells or batteries packed with equipment and contained in equipment:

- (a) For cells and batteries, packagings that completely enclose the cells or batteries, then placed with equipment in a packaging conforming to the requirements in paragraph (1) of this packing instruction; or
- (b) Packagings conforming to the requirements in paragraph (1) of this packing instruction, then placed with the equipment in a strong outer packaging constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use. The outer packaging shall be constructed in such a manner as to prevent accidental operation during transport and need not meet the requirements of 4.1.1.3.

The equipment shall be secured against movement within the outer packaging.

Devices such as radio frequency identification (RFID) tags, watches and temperature loggers, which are not capable of generating a dangerous evolution of heat, may be transported when intentionally active in strong outer packagings. When active, these devices shall meet defined standards for electromagnetic radiation to ensure that the operation of the devices does not interfere with aircraft systems.”.

4.1.4.1, P907 Replace the introductory sentence by: “This packing instruction applies to articles, such as machinery, apparatus or devices of UN No. 3363.”.

In the text after this introductory sentence, in the first sentence, replace “machinery or apparatus” by “article”. In the second sentence, replace “machinery or apparatus” by “an article”. In the fifth sentence, replace “machinery or apparatus” by “article” (twice). In the sixth sentence, replace “machinery or apparatus” by “article”.

4.1.4.2, IBC520 For UN No. 3119, insert the two following new entries in proper order:

	tert-Amyl peroxyvalate, not more than 42% as a stable dispersion in water	31HA1	1 000	0 °C	+10 °C
	tert-Butyl peroxyvalate, not more than 42% in a diluent type A	31HA1 31A	1 000 1 250	+10 °C +10 °C	+15 °C +15 °C

4.1.4.3, LP200 In the introductory sentence, replace “UN No. 1950” by “UN 1950 and UN 2037”.

In the next paragraph, replace “are authorized for aerosols” by “are authorized for aerosols and gas cartridges”.

In the first sentence of special packing provision L2, after “dangerous movement” delete “of the aerosols”. Amend the last sentence to read: “For waste aerosols and waste gas cartridges carried in accordance with special provision 327, the large packagings shall be adequately ventilated to prevent the creation of dangerous atmospheres and the build-up of pressure.”.

## 4.1.4.3 Add the following new packing instruction LP622:

LP622	PACKING INSTRUCTION		LP622
This instruction applies to waste of UN 3549 transported for disposal.			
The following large packagings are authorized provided the general provisions of 4.1.1 and 4.1.3 are met:			
Inner packagings	Intermediate packagings	Outer packagings	
metal plastics	metal plastics	steel (50A) aluminium (50B) metal other than steel or aluminium (50N) plywood (50D) rigid fibreboard (50G) rigid plastics (50H)	
The outer packaging shall conform to the packing group I performance level for solids.			
<b>Additional requirements:</b>			
<ol style="list-style-type: none"> <li>1. Fragile articles shall be contained in either a rigid inner packaging or a rigid intermediate packaging.</li> <li>2. Inner packagings containing sharp objects such as broken glass and needles shall be rigid and resistant to puncture.</li> <li>3. The inner packaging, the intermediate packaging and the outer packaging shall be capable of retaining liquids. Outer packagings that are not capable of retaining liquids by design shall be fitted with a liner or suitable measure of retaining liquids.</li> <li>4. The inner packaging and/or the intermediate packaging may be flexible. When flexible packagings are used, they shall be capable of passing the impact resistance test to at least 165g according to ISO 7765-1:1988 "Plastics film and sheeting – Determination of impact resistance by the free-falling dart method – Part 1: Staircase methods" and the tear resistance test to at least 480g in both parallel and perpendicular planes with respect to the length of the bag in accordance with ISO 6383-2:1983 "Plastics – Film and sheeting – Determination of tear resistance – Part 2: Elmendorf method". The maximum net mass of each flexible inner packaging shall be 30kg.</li> <li>5. Each flexible intermediate packaging shall contain only one inner packaging.</li> <li>6. Inner packagings containing a small amount of free liquid may be included in intermediate packaging provided that there is sufficient absorbent or solidifying material in the inner or intermediate packaging to absorb or solidify all the liquid content present. Suitable absorbent material which withstands the temperatures and vibrations liable to occur under normal conditions of transport shall be used.</li> <li>7. Intermediate packagings shall be secured in outer packagings with suitable cushioning and/or absorbent material.</li> </ol>			

4.1.6.1.2 Replace "ISO 11114-1:2012" by "ISO 11114-1:2012 + A1:2017".

4.1.6.1.8 In the second sentence of the penultimate paragraph replace "annex A of ISO 10297:2006 or annex A of ISO 10297:2014 shall be met." by "annex A of ISO 10297:2006, annex A of ISO 10297:2014 or annex A of ISO 10297 + A1:2017 shall be met. For pressure receptacles with self-closing valves with inherent protection, the requirements of annex A of ISO 17879:2017 shall be met."

4.1.9.1.4 Add at the end the following new sentence: "This requirement does not apply to the internal surfaces of freight containers being used as packagings, either loaded or empty."

4.1.9.1.8 Add additional sub-paragraph (e):

"(e) For packages intended to be used for shipment after storage, it shall be ensured that all packaging components and radioactive contents have been maintained during storage in a manner such that all the requirements specified in the relevant provisions of these Regulations and in the applicable certificates of approval have been fulfilled."



4.1.9.2.4 In the introductory sentence, replace “and SCO-I” by “, SCO-I and SCO-III”. At the end of (d), replace “.” by “; and”. Add the following new sub-paragraph (e):

- “(e) For SCO-III:
- (i) Transport shall be under exclusive use by road, rail, inland waterway or sea.
  - (ii) Stacking shall not be permitted.
  - (iii) All activities associated with the shipment, including radiation protection, emergency response and any special precautions or special administrative or operational controls that are to be employed during transport shall be described in a transport plan. The transport plan shall demonstrate that the overall level of safety in transport is at least equivalent to that which would be provided if the requirements of 6.4.7.14 (only for the test specified in 6.4.15.6, preceded by the tests specified in 6.4.15.2 and 6.4.15.3 had been met.
  - (iv) The requirements of 6.4.5.1 and 6.4.5.2 for a Type IP-2 package shall be satisfied, except that the maximum damage referred to in 6.4.15.4 may be determined based on provisions in the transport plan, and the requirements of 6.4.15.5 are not applicable.
  - (v) The object and any shielding are secured to the conveyance in accordance with 6.4.2.1.
  - (vi) The shipment shall be subject to multilateral approval.”

## Chapter 4.2

Add the following new 4.2.3.7.3:

“4.2.3.7.3 The date at which the actual holding time ends shall be entered in the transport document (see 5.4.1.5.13).”

4.2.5.3, TP19 Amend to read as follows:

“**TP19** At the time of construction, the minimum shell thickness determined according to 6.7.3.4 shall be increased by 3 mm as a corrosion allowance. Shell thickness shall be verified ultrasonically at intervals midway between periodic hydraulic tests and shall never be lower than the minimum shell thickness determined according to 6.7.3.4.”

4.2.5.3 Delete portable tank instructions TP35, TP37, TP38 and TP39 and add “*Deleted*”.

## Chapter 5.1

5.1.5.1.2 Transfer the “and” from the end of sub-paragraph (c) to the end of sub-paragraph (d). Add additional sub-paragraph (e):

“(e) The shipment of SCO-III.”

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

5.1.5.3.1 In the introductory sentence, replace “or SCO-I” by “SCO-I or SCO-III”. In (a), replace “radiation level” by “dose rate” (twice) and replace “and SCO-I” by “, SCO-I or

SCO-III". In (b) replace "and SCO-I" by ", SCO-I and SCO-III". At the end of (c), add "and the resulting number is the *TI* value."

Table 5.1.5.3.1 In the title replace "and SCO-I" by ", SCO-I and SCO-III".

5.1.5.3.2 Amend to read as follows:

"The *TI* for each rigid overpack, freight container or conveyance shall be determined as the sum of the *TIs* of all the packages contained therein. For a shipment from a single consignor, the consignor may determine the *TI* by direct measurement of dose rate.

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

5.1.5.3.4 In (b) replace "transport index" by "*TI*".

## Chapter 5.2

5.2.1.1 Amend the end of the second sentence to read as follows: "...for cylinders of 60 *l* water capacity or less when they shall be at least 6 mm in height and except for packages of 5 *l* capacity or less or of 5 kg maximum net mass when they shall be of an appropriate size".

5.2.1.5.6 Add the following sentence at the end:

"Any mark on the package made in accordance with the requirements of 5.2.1.5.4 (a) and (b) and 5.2.1.5.5 (c) relating to the package type that does not relate to the UN number and proper shipping name assigned to the consignment shall be removed or covered."

5.2.1.9.2 In Figure 5.2.5, replace "120 mm" by "100 mm" and "110 mm" by "100 mm".

In the last paragraph:

- First sentence: replace "a rectangle" by "a rectangle or a square".
- Second sentence: replace "120 wide x 110 m high" by "100 mm wide x 100 mm high".
- Fifth sentence: delete "/line thickness" and replace "105 mm wide x 74 mm high" by "100 mm wide x 70 mm high".

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

5.2.2.2.1.1.2 Amend to read as follows:

"5.2.2.2.1.1.2 The label shall be in the form of a square set at an angle of 45 degrees (diamond-shaped). The minimum dimensions shall be 100 mm x 100 mm. There shall be a line inside the edge forming the diamond which shall be parallel and approximately 5 mm from the outside of that line to the edge of the label."

## Chapter 5.3

5.3.1.1.5.1 After "Large freight containers carrying" add "unpacked LSA-I material or SCO-I or".

5.3.2.1.1 Replace "LSA-1 or SCO-1 material" by "LSA-I material, SCO-I or SCO-III".

## Chapter 5.4

5.4.1.5.1 The amendment to the French version does not apply to the English text.

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

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

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

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

Add the following new 5.4.1.5.13:

“5.4.1.5.13 *Actual holding time*

In the case of portable tanks carrying refrigerated liquefied gases the consignor shall enter in the transport document the date at which the actual holding time ends, in the following format:

“END OF HOLDING TIME: ..... (DD/MM/YYYY)”.

5.4.2.2 At the end of the first sentence, delete “one to the other”.

## Chapter 5.5

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

Add the following new Note at the end:

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

5.5.3.6.2 In Figure 5.5.2, amend the title to read “Asphyxiation warning mark for cargo transport units”. Delete the reference to note \*\* and the corresponding note. In note \*, at the beginning, replace “of the coolant/conditioner” by “or the name of the asphyxiant gas used as the coolant/conditioner”. At the end of note \* add “Additional information such as “AS COOLANT” or “AS CONDITIONER” may be added.”. At the end of 5.5.3.6.2, delete the Note.

5.5.4 Add a new section 5.5.4 to read as follows:

### “5.5.4 **Dangerous goods in equipment in use or intended for use during transport**

5.5.4.1 Dangerous goods (e.g. lithium batteries, fuel cell cartridges) contained in equipment such as data loggers and cargo tracking devices, attached to or placed in packages, overpacks, containers or load compartments are not subject to any provisions of these Regulations other than the following:

- (a) the equipment shall be in use or intended for use during transport;
- (b) the contained dangerous goods (e.g. lithium batteries, fuel cell cartridges) shall meet the applicable construction and test requirements specified in these Regulations; and
- (c) the equipment shall be capable of withstanding the shocks and loadings normally encountered during transport.

5.5.4.2 When such equipment containing dangerous goods is transported as a consignment, the relevant entry of the Dangerous Goods List in Chapter 3.2 shall be used and all applicable provisions of these Regulations shall apply.”

## Chapter 6.1

6.1.1.1 (e) At the end, add “except for UN 3549”.

6.1.3.1 Amend the third sentence to read as follows:

“Letters, numerals and symbols shall be at least 12 mm high, except for packagings of 30 l capacity or less or of 30 kg maximum net mass, when they shall be at least 6 mm in height and except for packagings of 5 l capacity or less or of 5 kg maximum net mass when they shall be of an appropriate size.”

6.1.3.1 (e) In the text of the note explaining the asterisk, after the clock, replace the second sentence with the following:

“In such a case and when the clock is placed adjacent to the UN design type mark, the indication of the year in the mark may be waived. However, when the clock is not placed adjacent to the UN design type mark, the two digits of the year in the mark and in the clock shall be identical.”

Add the following new 6.1.3.13:

“6.1.3.13 Where a packaging conforms to one or more than one tested packaging design type, including one or more than one tested IBC or large packaging design type, the packaging may bear more than one mark to indicate the relevant performance test requirements that have been met. Where more than one mark appears on a packaging, the marks must appear in close proximity to one another and each mark must appear in its entirety.”

Add the following new 6.1.4.2.6:

“6.1.4.2.6 If materials used for body, heads, closures and fittings are not in themselves compatible with the contents to be transported, suitable internal protective coatings or treatments shall be applied. These coatings or treatments shall retain their protective properties under normal conditions of transport.”

Renumber the existing 6.1.4.2.6 and 6.1.4.2.7 as 6.1.4.2.7 and 6.1.4.2.8.

Add the following new 6.1.4.3.6:

“6.1.4.3.6 If materials used for body, heads, closures and fittings are not in themselves compatible with the contents to be transported, suitable internal protective coatings or treatments shall be applied. These coatings or treatments shall retain their protective properties under normal conditions of transport.”

Renumber the existing 6.1.4.3.6 and 6.1.4.3.7 as 6.1.4.3.7 and 6.1.4.3.8.

## Chapter 6.2

6.2.2.1.1 In the table, in the rows for “ISO 11119-3:2002” and “ISO 11119-3:2013” add the following new Note in the second column:

“**NOTE:** This standard shall not be used for linerless cylinders manufactured from two parts joined together.”

6.2.2.1.1 In the table, after “ISO 11119-3:2013”, add the following new row:

ISO 11119-4:2016	Gas cylinders – Refillable composite gas cylinders – Design, construction and testing – Part 4: Fully wrapped fibre reinforced composite gas cylinders up to 150 l with load-sharing welded metallic liners	Until further notice
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6.2.2.1.2 In the table, in the row containing “ISO 11119-3:2013”, add the following new Note in the central column:

“**NOTE:** This standard shall not be used for linerless tubes manufactured from two parts joined together.”

6.2.2.1.3 In the table, under “For the cylinder shell” add the following two new rows at the end:

ISO 4706:2008	Gas cylinders – Refillable welded steel cylinders – Test pressure 60 bar and below	Until further notice
ISO 7866:2012 + Cor 1:2014	Gas cylinders – Refillable seamless aluminum alloy gas cylinders – Design, construction and testing <b>NOTE:</b> <i>Aluminum alloy 6351A or equivalent shall not be used</i>	Until further notice

6.2.2.1.3 Amend the headline of the second table to read as follows:

“For the acetylene cylinder including the porous material”

6.2.2.2 Replace “ISO 11114-1:2012” by “ISO 11114-1:2012 + A1:2017”.

6.2.2.3 In the first table, for ISO 10297:2014, in the column “Applicable for manufacture”, replace “Until further notice” by “Until 31 December 2022”. After the row for ISO 10297:2014 insert the following new row.

ISO 10297:2014 + A1:2017	Gas cylinders – Cylinder valves – Specification and type testing;	Until further notice
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6.2.2.3 In the first table, for ISO 14246:2014 replace “Until further notice” with “Until 31 December 2024”. Insert the following new row after ISO 14246:2014:

ISO 14246:2014 + A1:2017	Gas cylinders – Cylinder valves – Manufacturing tests and examinations	Until further notice
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6.2.2.3 In the first table, insert the following new row:

ISO 17879:2017	Gas cylinders – Self-closing cylinder valves – Specification and type testing <b>NOTE:</b> <i>This standard shall not be applied to self-closing valves in acetylene cylinders.</i>	Until further notice
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6.2.2.4 Delete the row for ISO 10462:2005.

Add a new row at the end of the first table immediately after the row for ISO 22434:2006 as follows.

ISO 20475:2018	Gas cylinders – Cylinder bundles – Periodic inspection and testing	Until further notice
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6.2.2.7.2 (c) Add the following new note:

**“NOTE:** For the purpose of this mark the country of approval means the country of the competent authority that authorized the initial inspection and test of the individual receptacle at the time of manufacture.”

6.2.2.9.2 (c) Add the following new note:

**“NOTE:** For the purpose of this mark the country of approval means the country of the competent authority that authorized the initial inspection and test of the individual system at the time of manufacture.”

### Chapter 6.3

In the title of Chapter 6.3, at the end, add “(UN 2814 and UN 2900)”.

6.3.1.1 At the end, add “, UN 2814 and UN 2900”.

6.3.4.1 Amend the third sentence to read as follows:

“Letters, numerals and symbols shall be at least 12 mm high, except for packagings of 30 l capacity or less or of 30 kg maximum net mass, when they shall be at least 6 mm in height and except for packagings of 5 l capacity or less or of 5 kg maximum net mass when they shall be of an appropriate size.”

6.3.5.2.2 In “*Explanation for use of the table*”, at the end of the first paragraph, delete “five times after conditioning”.

6.3.5.3.1 Add the following new title to this paragraph: “Drop height and target”.

6.3.5.3.2 Add the following new title to this paragraph: “Number of test samples and drop orientation”. Renumber the text under this paragraph as “6.3.5.3.2.1”.

6.3.5.3.3 Renumber as 6.3.5.3.2.2.

Renumber paragraphs 6.3.5.3.4, 6.3.5.3.5, 6.3.5.3.6, 6.3.5.3.6.1, 6.3.5.3.6.2 and 6.3.5.3.6.3 as 6.3.5.3.3, 6.3.5.3.4, 6.3.5.3.5, 6.3.5.3.5.1, 6.3.5.3.5.2 and 6.3.5.3.5.3, respectively. Adapt the cross references accordingly as follows:

In 6.3.5.2.2, in the table and under “*Explanation for the use of the table*”, replace “6.3.5.3.6.1”, “6.3.5.3.6.2” and “6.3.5.3.6.3” by “6.3.5.3.5.1”, “6.3.5.3.5.2” and “6.3.5.3.5.3”, respectively.

In 6.3.5.3.6.3, renumber 6.3.5.3.5.3, replace “6.3.5.3.6.1” and “6.3.5.3.6.2” by “6.3.5.3.5.1” and “6.3.5.3.5.2”, respectively. At the end, replace “in 6.3.5.3.2” by “in 6.3.5.3.2.1 or in 6.3.5.3.2.2, as appropriate;”.

### Chapter 6.4

6.4.2.4 Delete “and finished”.

6.4.2.8 Insert the following new paragraph to read as follows:

“6.4.2.8 The design of the package shall take into account ageing mechanisms.”.

In 6.4.2, renumber subsequent paragraphs accordingly.

6.4.4 Amend the sentence after the heading to read as follows:

“An excepted package shall be designed to meet the requirements specified in 6.4.2.1-6.4.2.12 and, in addition, the requirements of 6.4.7.2 if it contains fissile material allowed by one of the provisions of 2.7.2.3.5 (a) to (f), and the requirements of 6.4.3 if carried by air.”

6.4.5.4.3 Delete “liquids and gases” in first sentence. Replace “Table 4.1.9.2.4” by “Table 4.1.9.2.5”.

6.4.6.2 Replace “it would meet” by “the package would meet” in the introductory sentence.

6.4.7.9 Replace “it shall be capable” by “the containment system shall be capable”.

6.4.7.17 Amend to read as follows:

“A Type A package designed for gases shall prevent loss or dispersal of the radioactive contents if the package were subjected to the tests specified in 6.4.16, except for a Type A package designed for tritium gas or for noble gases.”

6.4.8.2 In subparagraph (b), replace “Lessen the efficiency” by “Lessening of the efficiency”.

6.4.8.8 In the first indent after the sub-paragraphs, replace “radiation level” by “dose rate”. Add “non-fixed” before “contamination limits” in the last sentence.

6.4.9.1 Delete “Notwithstanding,” at the beginning of the second sentence.

6.4.11.2 In sub-paragraph (c) (iv), replace “maximum mass” with “total mass”.

In sub-paragraph (d) replace “their total concentration” by “the total concentration of these materials”.

6.4.11.8 (b) (i) After “between the valve” add “or the plug” and, at the end, after “the valves” add “and the plug”.

6.4.11.11 (b) Amend as follows:

“(b) In the assessment of 6.4.11.10, use of special features as specified in 6.4.11.8 is allowed provided that leakage of water into or out of the void spaces is prevented when the package is submitted to the Type C package tests specified in 6.4.20.1 followed by the water leakage test specified in 6.4.19.3.”

6.4.12.1 (a) At the beginning, delete “LSA-III material, or”.

6.4.13 Amend the introductory sentence to read as follows:

“After each test or group of tests or sequence of the applicable tests, as appropriate, specified in 6.4.15 to 6.4.21:”

6.4.15.4 (a) Replace “of drop” by “of the drop,” and add a comma after “of the target”.

6.4.15.6 (b) Replace “of drop” by “of the drop” and add commas before “measured” and after “of the specimen”.

6.4.17.2 (b) In the third sentence, replace “section” by “cross-section”.

6.4.17.3 (b) Replace “are everywhere decreasing” by “are decreasing in all parts of the specimen”.

6.4.23.2 Add a new paragraph 6.4.23.2.1 to read as follows:

“6.4.23.2.1 An application for approval of SCO-III shipments shall include:

(a) A statement of the respects in which, and of the reasons why, the consignment is considered SCO-III;

- (b) Justification for choosing SCO-III by demonstrating that:
  - (i) No suitable packaging currently exists;
  - (ii) Designing and/or constructing a packaging or segmenting the object is not practically, technically or economically feasible;
  - (iii) No other viable alternative exists;
- (c) A detailed description of the proposed radioactive contents with reference to their physical and chemical states and the nature of the radiation emitted;
- (d) A detailed statement of the design of the SCO-III, including complete engineering drawings and schedules of materials and methods of manufacture;
- (e) All information necessary to satisfy the competent authority that the requirements of 4.1.9.2.4 (e) and the requirements of 7.1.8.2, if applicable, are satisfied;
- (f) A transport plan;
- (g) A specification of the applicable management system as required in 1.5.3.1.”

6.4.23.4 Insert an additional sub-paragraph (f) to read as follows:

“(f) If the package is to be used for shipment after storage, a justification of considerations to ageing mechanisms in the safety analysis and within the proposed operating and maintenance instructions;”

Renumber subsequent sub-paragraphs accordingly.

At the end of new sub-paragraph (i) (current (h)), delete "and". At the end of new sub-paragraph (j) (current (i)), replace "." by "; and".

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

“(k) For packages which are to be used for shipment after storage, a gap analysis programme describing a systematic procedure for a periodic evaluation of changes of Regulations, changes in technical knowledge and changes of the state of the package design during storage.”

6.4.23.8 (c) Replace “calculative methods” by “calculations”.

6.4.23.10 (h) Replace “International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, Safety Series No.115, IAEA, Vienna (1996)” by “Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, IAEA Safety Standards Series No. GSR Part 3, IAEA, Vienna (2014)”.

6.4.23.11 Delete sub-paragraph (d).

6.4.23.12 (a) Replace “6.4.23.11 (a), (b), (c) and (d)” by “6.4.23.11 (a), (b) and (c)” and delete “including, if applicable, the symbol “-96”,”. At the end of the first sentence of (a), replace “identification marks” by “identification mark”.

6.4.23.15 In sub-paragraph (k) (iii), replace “contents” with “package”.

6.4.23.17 In sub-paragraph (n) (iv), replace “contents” with “package”.

Insert a new sub-paragraph (p) after 6.4.23.17 (o) and renumber subsequent sub-paragraphs accordingly:



“(p) For package designs subject to 6.4.24.2, a statement specifying those requirements of the current regulations with which the package does not conform;”

6.4.24 Amend the title over 6.4.24.1 to read “Packages not requiring competent authority approval of design under the 1985, 1985 (as amended 1990), 1996 Edition, 1996 Edition (revised), 1996 (as amended 2003), 2005, 2009 Editions of IAEA Safety Series No. 6 and 2012 Edition of IAEA Safety Standards Series No. SSR-6”.

6.4.24.1 Amend to read as follows:

“Packages not requiring competent authority approval of design (excepted packages, Type IP-1, Type IP-2, Type IP-3 and Type A packages) shall meet these Regulations in full, except that:

(a) Packages that meet the requirements of the 1985 or 1985 (as amended 1990) Editions of IAEA Safety Series No. 6:

- (i) May continue in transport provided that they were prepared for transport prior to 31 December 2003 and are subject to the requirements of 6.4.24.4, if applicable; or
- (ii) May continue to be used, provided that all the following conditions are met:
  - They were not designed to contain uranium hexafluoride;
  - The applicable requirements of 1.5.3.1 of these Regulations are applied;
  - The activity limits and classification in Chapter 2.7 of these Regulations are applied;
  - The requirements and controls for transport in Parts 1, 3, 4, 5 and 7 of these Regulations are applied; and
  - The packaging was not manufactured or modified after 31 December 2003;

(b) Packages that meet the requirements of the 1996, 1996 (revised), 1996 (as amended 2003), 2005 or 2009 Editions of IAEA Safety Series No. 6, or 2012 Edition of IAEA Safety Standards Series No. SSR-6:

- (i) May continue in transport provided that they were prepared for transport prior to 31 December 2025 and are subject to the requirements of 6.4.24.4, if applicable; or
- (ii) May continue to be used, provided that all the following conditions are met:
  - The applicable requirements of 1.5.3.1 of these Regulations are applied;
  - The activity limits and classification in Chapter 2.7 of these Regulations are applied;
  - The requirements and controls for transport in Parts 1, 3, 4, 5 and 7 of these Regulations are applied; and
  - The packaging was not manufactured or modified after 31 December 2025.”

Amend the title over 6.4.24.2 to read: “Package designs approved under the 1985, 1985 (as amended 1990), 1996, 1996 (revised), 1996 (as amended 2003), 2005 and 2009 Editions of IAEA Safety Series No. 6 and 2012 Edition of IAEA Safety Standards Series No. SSR-6”.

6.4.24.2 Amend to read as follows:

“Packages requiring competent authority approval of the design shall meet these Regulations in full except that:

(a) Packagings that were manufactured to a package design approved by the competent authority under the provisions of 1985 or 1985 (as amended 1990) Editions of IAEA Safety Series No. 6 may continue to be used provided that all of the following conditions are met:

- (i) The package design is subject to multilateral approval;
- (ii) The applicable requirements of 1.5.3.1 of these Regulations are applied;
- (iii) The activity limits and classification in Chapter 2.7 of these Regulations are applied;
- (iv) The requirements and controls for transport in Parts 1, 3, 4, 5 and 7 of these Regulations are applied;
- (v) For a package containing fissile material and transported by air, the requirement of 6.4.11.11 is met;

(b) Packagings that were manufactured to a package design approved by the competent authority under the provisions of the 1996, 1996 (revised), 1996 (as amended 2003), 2005 or 2009 Editions of IAEA Safety Series No. 6, or 2012 Edition of IAEA Safety Standards Series No. SSR-6 may continue to be used provided that all of the following conditions are met:

- (i) The package design is subject to multilateral approval after 31 December 2025;
- (ii) The applicable requirements of 1.5.3.1 of these Regulations are applied;
- (iii) The activity limits and material restrictions of Chapter 2.7 of these Regulations are applied;
- (iv) The requirements and controls for transport in Parts 1, 3, 4, 5 and 7 of these Regulations are applied.”

6.4.24.4 Add the following new paragraph to read as follows:

“6.4.24.4 No new manufacture of *packagings* of a *package design* meeting the provisions of the 1996, 1996 (revised), 1996 (as amended 2003), 2005 or 2009 Editions of IAEA Safety Series No. 6, or 2012 Edition of IAEA Safety Standards Series No. SSR-6 shall be permitted to commence after 31 December 2028.”

Renumber current 6.4.24.4 and 6.4.24.5 as 6.4.24.5 and 6.4.24.6.

6.4.24.6 (previously 6.4.24.5) Amend the title to read as follows: “Special form radioactive material approved under the 1985, 1985 (as amended 1990), 1996, 1996 (revised), 1996 (as amended 2003), 2005 or 2009 Editions of IAEA Safety Series No. 6 or 2012 Edition of IAEA Safety Standards Series No. SSR-6”.

6.4.24.6 (previously 6.4.24.5) Amend to read as follows:

“6.4.24.6 Special form radioactive material manufactured to a design that had received unilateral approval by the competent authority under the 1985, 1985 (as amended 1990), 1996, 1996 (revised), 1996 (as amended 2003), 2005 and 2009 Editions of IAEA Safety Series No. 6 and 2012 Edition of IAEA Safety Standards Series No. SSR-6 may continue to be used when in compliance with the mandatory management system in accordance with the applicable requirements of 1.5.3.1. There shall be no new manufacture of special form radioactive material to a design that had received unilateral approval by the competent authority under the 1985 or 1985 (as amended 1990) Editions of IAEA Safety Series No. 6. No new manufacture of special form radioactive material to a design that had received unilateral approval by the competent authority under the 1996, 1996 (revised), 1996 (as amended 2003), 2005 and 2009 Editions of IAEA Safety Series No. 6, and 2012 Edition of IAEA Safety Standards Series No. SSR-6 shall be permitted to commence after 31 December 2025.”

## Chapter 6.5

Add the following new 6.5.2.1.3:

“6.5.2.1.3 Where an IBC conforms to one or more than one tested IBC design type, including one or more than one tested packaging or large packaging design type, the IBC may bear more than one mark to indicate the relevant performance test requirements that have been met. Where more than one mark appears on a packaging, the marks must appear in close proximity to one another and each mark shall appear in its entirety.”

6.5.2.2.1 Delete the last row in the table (Maximum permitted stacking load) and the corresponding footnote b.

6.5.2.2.2 In the first sentence, delete “when the IBC is in use”.

6.5.2.2.4 Amend the last sentence of the first paragraph to read as follows:

“They shall be durable, legible and placed in a location so as to be readily accessible for inspection after assembling the inner receptacle in the outer casing. When the marks on the inner receptacle are not readily accessible for inspection due to the design of the outer casing, a duplicate of the required marks on the inner receptacle shall be placed on the outer casing preceded by the wording “Inner receptacle”. This duplicate shall be durable, legible and placed in a location so as to be readily accessible for inspection.”

In the second paragraph, amend the second sentence to read as follows: “In such a case, the date may be waived from the remainder of the marks.”

6.5.5.1.6 Insert a new introductory sentence as follows:

“Metal IBCs with a capacity of more than 1500 l shall comply with the following minimum wall thickness requirement:”

Amend the table under (a) to read as follows:

Wall thickness (T) in mm			
Types 11A, 11B, 11N		Types 21A, 21B, 21N, 31A, 31B, 31N	
Unprotected	Protected	Unprotected	Protected
$T = C/2000 + 1.5$	$T = C/2000 + 1.0$	$T = C/1000 + 1.0$	$T = C/2000 + 1.5$

## Chapter 6.6

6.6.3.3 In the first sentence, delete “when the large packaging is in use”.

Add the following new 6.6.3.4:

“6.6.3.4 Where a large packaging conforms to one or more than one tested large packaging design type, including one or more than one tested packaging or IBC design type, the large packaging may bear more than one mark to indicate the relevant performance test requirements that have been met. Where more than one mark appears on a large packaging, the marks must appear in close proximity to one another and each mark must appear in its entirety.”

## Chapter 6.7

6.7.2.2 .16 Add “of the Dangerous Goods List” after “Column 11” and delete it after “described in 4.2.5.3”.

6.7.2.4.8 The amendment to the French version does not apply to the English text.

6.7.2.12.2.1 and 6.7.3.8.1.1 Amend the definition of factor “U” to read:

“U = heat transfer coefficient of the insulation, in  $\text{kW} \cdot \text{m}^{-2} \cdot \text{K}^{-1}$ , at 38 °C”.

6.7.2.19.6 Add the following new paragraph:

“6.7.2.19.6.1 Except as provided for in 6.7.2.19.6, portable tanks which have missed the timeframe for their scheduled 5 year or 2.5 year periodic inspection and test may only be filled and offered for transport if a new 5 year periodic inspection and test is performed according to 6.7.2.19.4.”

6.7.3.4.1 After (b), add the following new paragraph:

“In addition, any relevant portable tank special provision indicated in Column 11 of the Dangerous Goods List and described in 4.2.5.3 shall be taken into account.”

6.7.3.4.5 The amendment to the French version does not apply to the English text.

6.7.3.5.5 The amendment to the French version does not apply to the English text.

6.7.3.15.6 Add the following new paragraph:

“6.7.3.15.6.1 Except as provided for in 6.7.3.15.6, portable tanks which have missed the timeframe for their scheduled 5 year or 2.5 year periodic inspection and test may only be filled and offered for transport if a new 5 year periodic inspection and test is performed according to 6.7.3.15.4.”

6.7.4.4.7 The amendment to the French version does not apply to the English text.

6.7.4.14.6 Add the following new paragraph:

“6.7.4.14.6.1 Except as provided for in 6.7.4.14.6, portable tanks which have missed the timeframe for their scheduled 5 year or 2.5 year periodic inspection and test may only be filled and offered for transport if a new 5 year periodic inspection and test is performed according to 6.7.4.14.4.”

6.7.5.2.3 In the first sentence, after “seamless steel” insert “or composite construction”.

6.7.5.2.4 (a) Replace “ISO 11114-1:2012” by “ISO 11114-1:2012 + A1:2017”.

## Chapter 7.1

7.1.8.2 Add the following new sentence after the first sentence:

“For SCO-III, the limits in Table 7.1.8.2 may be exceeded provided that the transport plan contains precautions which are to be employed during transport to obtain an overall level of safety at least equivalent to that which would be provided if the limits had been applied.”

7.1.8.3.3 Amend sub-paragraph (b) to read as follows:

“(b) The dose rate under routine conditions of transport shall not exceed 2 mSv/h at any point on the external surface of the vehicle or freight container, and 0.1 mSv/h at 2 m from the external surface of the vehicle or freight container, except for consignments transported under exclusive use by road or rail for which the radiation limits around the vehicle are set forth in 7.2.3.1.2 (b) and (c).”

7.1.8.5.5 At the beginning, delete “, tank, intermediate bulk container”.

## **Chapter 7.2**

7.2.3.1.1 In the introductory sentence, replace “consignments under exclusive use” by “unpackaged LSA-I material, SCO-I or SCO-III”.

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