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**ECONOMIC COMMISSION FOR EUROPE**

**INLAND TRANSPORT COMMITTEE**

Working Party on the Transport of Dangerous Goods

Joint Meeting of the RID Safety Committee and the  
Working Party on the Transport of Dangerous Goods  
(Geneva, 13-23 September 2005)

**HARMONIZATION WITH THE UN RECOMMENDATIONS  
ON THE TRANSPORT OF DANGEROUS GOODS**

**Report of the Ad hoc Working Group on the Harmonization of RID/ADR/ADN with the UN  
Recommendations on the Transport of Dangerous Goods**

**Addendum 1\***

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\* Circulated by the Central Office for International Carriage by Rail (OCTI) under the symbol OCTI/RID/GT-III/2005/42/Add.1.

Wherever they appear in RID/ADR replace the words "porous mass" with "porous material".  
(apply to 4.1.4.1 P200 (10)(p) (twice) and P200 (11), 4.1.6.2, 6.2.1.1.2 (twice), 6.2.1.5.1 (j), 6.2.1.6.2, 6.2.1.7.2 (f), (j) and (k), 6.2.5.2.3 and 6.2.5.8.2 (g), (k) and (l)).

## **PART 1**

### **Chapter 1.1**

[1.1.3.2 Add a new paragraph (h) to read as follows:

"(h) gases of Groups A and O (according to 2.2.2.1), other than refrigerated liquefied gases, if they are carried at a pressure less than 280 kPa (2.8 bar) at 20 °C.".]

### **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).*

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

"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);"

(RID only) "OTIF means the Intergovernmental Organization for International Carriage by Rail (OTIF, Gryphenhübeliweg 30, CH - 3006 Bern);"

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

*Consequential amendments:*

*(ADR) In 7.1.3, delete footnote 1).*

*(RID) In footnote 5) to 1.4.2.2.1, delete the second sentence. In footnote 14) to Chapter 1.11, delete the second sentence. In 7.1.3, delete footnote 2).*

"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 RID/ADR 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)).*

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)".

### **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 1.6**

1.6.1.2 Existing 1.6.1.2 (as amended according to TRANS/WP.15/AC.1/98/Add.2) becomes new 1.6.1.2 (a). 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.”

1.6.6.2.2 In the first sentence, delete "until 31 December 2003" and insert "the multilateral approval of package design;" before "the mandatory programme of quality assurance".

Delete the sentence: "After this date use may continue subject, additionally, to multilateral approval of package design.".

### **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 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.

1.7.4.2 Delete "international", in the last sentence.

### **Chapter 1.10**

Table 1.10.5 For Division 6.2 insert "(UN Nos. 2814 and 2900)" after "Category A".  
Delete NOTE.

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 hazard divisions*

2.2.1.1.7.1 Fireworks shall normally be assigned to hazard 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 hazard 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 Nos. 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 Hazard Division to firework types and/or sub-divisions by the specification in column 4 of the table in 2.2.1.1.7.5 to hazard 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 hazard division are packed in the same package they shall be classified on the basis of the highest hazard 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*<sup>1</sup>

**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).*

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<sup>1</sup> 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).

**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 refers 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.*

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: $\geq 180$ 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: $\leq 50$ mm, or $\leq 60$ 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: $\geq 180$ mm	1.1G
			Colour shell: $> 50$ mm and $< 180$ mm	1.2G
			Colour shell: $\leq 50$ 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
			<p>Perchlorate based sparklers: = 5 g per item and = 10 items per pack;</p> <p>Nitrate based sparklers: = 30 g per item</p>	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
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

Type	Includes: / Synonym:	Definition	Specification	Classification
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	
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 = 140 mg of flash composition or = 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
			≤ 2 g flash composition per item and = 10 g per inner packaging	1.3G
			≤ 1 g flash composition per item and = 10 g per inner packaging or = 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".*

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

*Consequential amendments:*

*(ADR) The same change applies to 2.2.3.1.2 (twice), 2.2.3.1.3, 2.2.3.3, 2.2.61.3 note k, [2.2.9.1.14,] 2.3.3.1.7, 2.3.3.1.8, Figure 2.3.6, Table A and alphabetical list (UN Nos. 1202, 3175, 3256), Table 4.1.1.19.6 (28 times), 4.1.2.1, 5.3.2.3.2 (13 times), 6.1.5.7, 6.8.2.1.26, 6.8.2.1.27 (twice), 6.8.2.2.9, 6.8.4 Note 1, 6.9.2.14 (twice), 7.5.10, Chapter 8.5 (Additional requirement S2), 9.1.1.2 (Definition of FL vehicle).*

*(RID) The same change applies to 1.6.3.7, 1.6.4.4, 2.2.3.1.2 (twice), 2.2.3.1.3, 2.2.3.3, 2.2.61.3 note k, [2.2.9.1.14,] 2.3.3.1.7, 2.3.3.1.8, Figure 2.3.6, Table A and alphabetical list (UN Nos. 1202, 3175, 3256), Table 4.1.1.19.6 (28 times), 4.1.2.1, 5.3.2.3.2 (13 times), 6.1.5.7, 6.8.2.1.26, 6.8.2.1.27 (twice), 6.8.2.2.9, 6.8.4 Note 1, 6.9.2.14 (twice).*

*(ADN) 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 <sub>50</sub> (mg/kg)	Dermal toxicity LD <sub>50</sub> (mg/kg)	Inhalation toxicity by dusts and mists LC <sub>50</sub> (mg/l)
I	≤ 5.0	≤ 50	≤ 0.2
II	> 5.0 and ≤ 50	> 50 and ≤ 200	> 0.2 and ≤ 2.0
III <sup>a</sup>	> 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, secreta, 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.

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 RID/ADR/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 RID/ADR/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 RID/ADR/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 (Option 2): 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 RID/ADR/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 shall meet the following conditions:

(a) The packaging shall consist 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 shall 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 shall be 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."*

2.2.62.1.5.6 (Option 3): 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 RID/ADR/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.

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 amendment:*

*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 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 2919:1990 "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 2919:1990 "Sealed Radioactive Sources – Classification"; and".

2.2.7.7.1.7 Amend the beginning of the first sentence to read: "Unless excepted by 6.4.11.2, packages containing...".

2.2.7.7.1.8 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 " $1 \times 10^6$ " instead of " $1 \times 10^5$ ".

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-108mAg-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*).

## **PART 3**

### **Chapter 3.2**

#### **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, 4.1.4.1 (P404), 4.1.4.4 (PR1) and 6.8.5.1.1 (a).*

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. 1263 and 3066, add "TP27", "TP28" and "TP29" in column (11) for packing groups I, II and III, respectively.

For UN Nos. 2758, 2760, 2762, 2764, 2772, 2776, 2778, 2780, 2782, 2784, 2787, 3021, 3024 and 3346, add "61" 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).

UN 1143 Amend the name in column (2) to read as follows: "CROTONALDEHYDE or CROTONALDEHYDE, STABILIZED" and add "324" in column (6).

UN 1170 Delete "PP2" from column (9) (twice).

UN 1463 Insert respectively "+6.1" before "+8" in column (5). Replace respectively "OC2" with "OTC" in Column (3b) and "58" with "568" in Column (20).  
(ADR) Add "V11 V12" in Column (16) and insert "CV28" after "CV24" in Column (18).  
(RID) Add "W11 W12" in Column (16) and insert "CW28" after "CW24" in Column (18).

UN 1733 Add "T3" in column (10) and "TP33" in column (11).

UN 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 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 respectively "C3" with "CF1" in Column (3b), "AT" with "FL" in Column (14) and "80" with "83" in Column (20).  
Add "S2" in Column (19).

*Consequential amendment: In 4.1.1.19.6, in column (2b) of the table, amend the name of UN 1779 accordingly.*

UN 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".

*Consequential amendment: In 4.1.1.19.6, in column (2b) of the table, amend the name of UN 1848 accordingly.*

UN 1950 Add "327" in column (6), replace "P204" with "P003 LP02" in column (8), and add "PP17 PP87 RR6 L2" in column (9a).

UN 1956 Insert "292" in column (6).

UN 2015 Replace "T10" with "T9" in column (10).

UN 2030 In column (10), replace "T20" with "T10" for packing group I and "T15" with "T7" for packing group II, and in column (11), replace "TP2" with "TP1" for packing group III.

UN 2037 Replace "P204" with "P003" in Column (8), and add "PP17 RR6" in column (9a)

UN 2662 Delete this entry.

UN 2823 Amend the name in column (2) to read: "CROTONIC ACID, SOLID".

UN 2880 For packing group II: insert "322" in column (6);  
For packing group III: replace "316" with "223", "313" and "314";

UN 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 3291 Add "BK2" in Column (10).

UN 3373 Amend the proper shipping name in column (2) to read: "BIOLOGICAL SUBSTANCE, CATEGORY B" and add "6.2", "T1" and "TP1" in columns (5), (10) and (11), respectively.

*Consequential amendments: In 2.2.62.3 under I4, in 4.1.8.5 and in 4.1.10.4 MP5, amend the name of "3373" accordingly.*

UN 3435 Delete this entry.

Add the following new entries:

(1)	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
2814	INFECTIOUS SUBSTANCE, AFFECTING HUMANS (animal carcasses only)	6.2	II		6.2	318 634	LQ0	P620		MP 5	BK1 BK2					0			(ADR) CV13 CV25 CV26 CV28  (RID) CW13 CW18 CW26 CW28	S3 S9 S15/ CE14	(RI D) 606
3412	FORMIC ACID with not less than 10% but not more than 85% acid by mass	8	C3	II	8		LQ22	P001 IBC02		MP 15	T7	TP2	L4BN		AT	2				(RID) CE6	80
	FORMIC ACID with not less than 5% but less than 10% acid by mass	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP 15	T4	TP1	L4BN		AT	3				(RID) CE8	80
3463	PROPIONIC ACID with not less than 90% acid by mass	8	CF1	II	8 +3		LQ22	P001 IBC02		MP 15	T7	TP2	L4BN		FL	2				S2/ CE6	83

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	P001		MP 7 MP 17	T11	TP2 TP27	L10CH	(ADR) TU14 TE21 (RID) TU38 TE22	FL	1				S2 S20	338
		3	FC	II	3 +8	163	LQ4	P001 IBC02		MP 19	T7	TP2 TP8 TP28	L4BH	TE15	FL	2				S2/ CE7	338
		3	FC	III	3 +8	163 223	LQ7	P001 IBC03 R001		MP 19	T4	TP1 TP29	L4BN		FL	3				S2/ CE4	38
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	P001 IBC02		MP 15	T7	TP2 TP8 TP28	L4BN		FL	2				S2/ CE6	83

3471	HYDROGEN DIFLUORIDE SOLUTION, N.O.S.	8	CT 1	II	8 +6.1		LQ22	P001 IBC02		MP 15	T7	TP2	[L4DH L4BN]	[(ADR) TU14 TE21 (RID) TE17 TT4]	AT	2			CV/ CW13 CV/ CW28	(RID) CE6	86
		8	CT 1	III	8 +6.1	223	LQ19	P001 IBC03 R001		MP 15	T4	TP1	[L4DH L4BN]	[(ADR) TU14 TE21 (RID) TE17 TT4]	AT	3			CV/ CW13 CV/ CW28	(RID) CE8	86
3472	CROTONIC ACID, LIQUID	8	C3	III	8		LQ19	P001 IBC03 LP01 R001		MP 15	T4	TP1	L4BN		AT	3				(RID) CE8	80
3473	FUEL CELL CARTRIDGES containing flammable liquids	3	F1		3	328	LQ13	P003	PP88							3			S2/ CE7	(RI D) 30	



*Consequential amendment:*

*Insert the new entries accordingly in 2.2.3.3, 2.2.62.3 and 2.2.8.3.*

## **Table B: Alphabetic index of substances and articles of ADR**

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

### **Chapter 3.3**

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

**SP204** Insert "(see 5.2.2.2.2)" after "model No. 8".

**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, 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".

**SP289** Amend as follows:

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

*[Consequential amendment: In 1.2.1, add a new definition as follows:*

*"Conveyance:*

*(a) For carriage by road or rail: any vehicle;*

*(b) For carriage by water: any vessel, or any hold, compartment, or defined deck area of a vessel; and;*

*(c) For carriage by air: any aircraft".]*

**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.".

**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** Delete.

**SP634** Insert "(see 5.2.2.2.2)" after "model No. 2.2".

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 and special provision PP87, or packing instruction LP02 and special packing provision L2. 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.

## PART 4

### Chapter 4.1

Renumber all references to renumbered paragraphs of Chapters 6.1, 6.5 and 6.6, as appropriate.

- 4.1.1.5 Insert the following new second sentence:

"Inner packagings containing liquids shall be packed with their closures upward and placed within outer packagings consistent with the orientation markings prescribed in 5.2.1.9."

- 4.1.1.5.1 Insert a new paragraph 4.1.1.5.1 with the same text as in existing 6.1.5.1.6 with the insertion of the words "or a large packaging" after "combination packaging" and the words "or large packaging" after "outer packaging" in the first sentence.

- 4.1.1.8 Amend to read as follows:

"4.1.1.8 Where pressure may develop in a package by the emission of gas from the contents (as a result of temperature increase or other causes), the packaging or IBC may be fitted with a vent provided that the gas emitted will not cause danger on account of its toxicity, its flammability or the quantity released, for example.

A venting device shall be fitted if dangerous overpressure may develop due to normal decomposition of substances. The vent shall be so designed that, when the packaging or IBC is in the attitude in which it is intended to be carried, leakages of liquid and the penetration of foreign substances are prevented under normal conditions of carriage.

**NOTE:** *Venting of the package is not permitted for air carriage.*

4.1.1.8.1 Liquids may only be filled into inner packagings which have an appropriate resistance to internal pressure that may be developed under normal conditions of carriage."

- 4.1.1.12 In the first sentence, replace ", including IBCs," with "as specified in Chapter 6.1" and delete ", or 6.5.4.7 for the various types of IBCs".

Delete (c).

In the last paragraph, delete ", or IBC," in the first sentence and "or IBC" in the second sentence.

4.1.1.18.3 Add a new paragraph to read as follows:

"4.1.1.18.3 Appropriate measures shall be taken to ensure that there is no dangerous build up of pressure."

*Consequential amendment: In 4.1.1.18.1, add at the end "and 4.1.1.18.3".*

4.1.2.2 Replace the first sentence with the following paragraph:

"Every metal, rigid plastics and composite IBC, shall be inspected and tested, as relevant, in accordance with 6.5.1.6.4 or 6.5.1.6.5:

- (a) before it is put into service;
- (b) thereafter at intervals not exceeding two and a half and five years, as appropriate;
- (c) after the repair or remanufacture, before it is re-used for carriage."

Amend the end of the second sentence (starting with "An IBC shall not be filled...") to read as follows: "... expiry of the last periodic test or inspection."

4.1.3.6 Amend to read as follows:

"4.1.3.6 Pressure receptacles for liquids and solids

4.1.3.6.1 Unless otherwise indicated in RID/ADR, pressure receptacles conforming to:

- (a) the applicable requirements of Chapter 6.2 or
- (b) the national or international standards on the design, construction, testing, manufacturing and inspection, as applied by the country in which the pressure receptacles are manufactured, provided that the provisions of 4.1.3.6 [and 6.2.3.3] are met,

are authorized for the carriage of any liquid or solid substance other than explosives, thermally unstable substances, organic peroxides, self-reactive substances, substances where significant pressure may develop by evolution of chemical reaction and radioactive material (unless permitted in 4.1.9).

This sub-section is not applicable to the substances mentioned in 4.1.4.1, packing instruction P200, table 3 [and in 4.1.4.4].

4.1.3.6.2 Every design type of pressure receptacle shall be approved by the competent authority of the country of manufacture or as indicated in Chapter 6.2.

4.1.3.6.3 Unless otherwise indicated, pressure receptacles having a minimum test pressure of 0.6 MPa shall be used.

4.1.3.6.4 Unless otherwise indicated, pressure receptacles may be provided with an emergency pressure relief device designed to avoid bursting in case of overfill or fire accidents.

Pressure receptacle valves shall be designed and constructed in such a way that they are inherently able to withstand damage without release of the contents or shall be protected from damage which could cause inadvertent release of the contents of the pressure receptacle, by one of the methods as given in 4.1.6.8 (a) to (f).

4.1.3.6.5 The level of filling shall not exceed 95% of the capacity of the pressure receptacle at 50 °C. Sufficient ullage (outage) shall be left to ensure that the pressure receptacle will not be liquid full at a temperature of 55 °C.

4.1.3.6.6 Unless otherwise indicated pressure receptacles shall be subjected to a periodic inspection and test every 5 years. The periodic inspection shall include an external examination, an internal examination or alternative method as approved by the competent authority, a pressure test or equivalent effective non-destructive testing with the agreement of the competent authority including an inspection of all accessories (e.g. tightness of valves, emergency relief valves or fusible elements). Pressure receptacles shall not be filled after they become due for periodic inspection and test but may be carried after the expiry of the time limit. Pressure receptacle repairs shall meet the requirements of 4.1.6.11.

4.1.3.6.7 Prior to filling, the packer shall perform an inspection of the pressure receptacle and ensure that the pressure receptacle is authorized for the substances to be carried and that the requirements of RID/ADR have been met. Shut-off valves shall be closed after filling and remain closed during carriage. The consignor shall verify that the closures and equipment are not leaking.

4.1.3.6.8 Refillable pressure receptacles shall not be filled with a substance different from that previously contained unless the necessary operations for change of service have been performed.

4.1.3.6.9 Marking of pressure receptacles for liquids and solids according to 4.1.3.6 (not conforming to the requirements of Chapter 6.2) shall be in accordance with the requirements of the competent authority of the country of manufacturing."

4.1.4.1 **P001** Insert a new row after "Composite packagings" to read as follows:  
"Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met."

Amend special packing provision PP2, to read as follows:

"**PP2** For UN 3065, wooden barrels with a maximum capacity of 250 litres and which do not meet the provisions of Chapter 6.1 may be used."

**P002** Insert a new row after "Composite packagings" to read as follows:  
"Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met."

In special packing provision **PP37**, amend the second sentence to read as follows:  
"All bags of any type shall be carried in closed wagons/vehicles or containers or be placed in closed rigid overpacks."

**P003** Add the following new special packing provisions PP17, PP87 and PP88:

"**PP17** For UN 1950 and 2037, packagings shall not exceed 55 kg net mass for fibreboard or 125 kg net mass for other packagings.

**PP87** For UN 1950 waste aerosols carried in accordance with special provision 327, the packagings shall have a means of retaining any free liquid that might escape during carriage, e.g. absorbent material. The packaging shall be adequately ventilated to prevent the creation of flammable atmosphere and the build-up of pressure.

**PP88** For UN 3473 when fuel cell cartridges are packed with equipment, they shall be packed in inner packagings or placed in the outer packaging with cushioning material so that the cartridges are protected against damage that may be caused by the movement or placement of the equipment and the cartridges within the outer packaging."

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

**"Special packing provision specific to RID and ADR:**

**RR6** For UN 1950 and 2037 in the case of carriage by full load, metal articles may also be packed as follows: the articles shall be grouped together in units on trays and held in position with an appropriate plastics cover; these units shall be stacked and suitably secured on pallets."

**P200** In paragraph (5)(b), in the sentence preceding the first equation, replace "gases for which data are not provided in the table" with "gases and gas mixtures for which relevant data are not available".

In paragraph (5)(c), in the sentence before the equation, replace "gases for which filling data are not provided in the table" with "gases and gas mixtures for which relevant data are not available".

In paragraph (10), amend special provisions "k", "l", "n" and "z" as follows:

Special provision "k": Add the following text before the third paragraph:

["Bundles containing UN 1045 Fluorine, compressed, may be constructed with isolation valves on assemblies (groups) of cylinders not exceeding 150 litres total water capacity instead of isolation valves on every cylinder.]

Cylinders and individual cylinders in a bundle shall have a test pressure greater than or equal to 200 bar and a minimum wall thickness of 3.5 mm for aluminium alloy or 2 mm for steel. Individual cylinders not complying with this requirement shall be carried in a rigid outer packaging that will adequately protect the cylinder and its fittings and meeting the packing group I performance level. Pressure drums shall have a minimum wall thickness as specified by the competent authority."

Special provision "l": In the last sentence, replace "total quantity" with "maximum net mass".

Special provision "n": Amend to read as follows:

[For UN 2190, oxygen difluoride, compressed, individual cylinders and assemblies of cylinders within a bundle shall contain not more than 5kg of the gas;

For UN 1045 fluorine, compressed, individual cylinders and assemblies of cylinders within a bundle shall contain not more than 5 kg of the gas. Bundles containing this gas may be divided in assemblies (groups) of cylinders not exceeding 150 litres total water capacity.]

Special provision "z": Amend the third paragraph to read as follows:

"Toxic substances with an  $LC_{50}$  less than or equal to 200 ml/m<sup>3</sup> shall not be carried in tubes, pressure drums or MEGCs and shall meet the requirements of special packing provision "k". However, UN 1975 Nitric oxide and dinitrogen tetroxide mixture may be carried in pressure drums."

In Tables 1 and 2, delete the entries for the following UN Nos.: 1014, 1015, 1979, 1980, 1981 and 2600.

In Table 1, in the heading of column 11, replace "Working pressure, bar" with "Maximum working pressure, bar"

In Table 2:

- For UN Nos. 2192 and 2199, add "q" (twice for UN No. 2199) in the column under the heading "Special packing provisions".
- For UN 2451, delete "300" and "0.75" in the columns for "Test pressure" and "Filling ratio", respectively.

**P400 (1)** Amend to read as follows:

"Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met. They shall be made of steel and shall be subjected to an initial test and periodic tests every 10 years at a pressure of not less than 1 MPa (10 bar, gauge pressure). During carriage, the liquid shall be under a layer of inert gas with a gauge pressure of not less than 20 kPa (0.2 bar)."

**P401 (1) and P402 (1)** Amend to read as follows:

"Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met. They shall be made of steel and subjected to an initial test and periodic tests every 10 years at a pressure of not less than 0.6 MPa (6 bar, gauge pressure). During carriage, the liquid shall be under a layer of inert gas with a gauge pressure of not less than 20 kPa (0.2 bar)."

**P403, P404 and P410** Insert a new row after "Composite packagings" to read as follows:

"Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met."

**P520** Under "Additional requirements" in "4.", insert "(model No.1, see 5.2.2.2.2)" after "risk label".

**P601 and P602** Amend paragraph (1) to read as follows:

- "(1) Combination packagings with a maximum gross mass of 15 kg, consisting of
- one or more glass inner packaging(s) with a maximum capacity of 1 litre each and filled to not more than 90% of their capacity; the closure(s) of which shall be physically held in place by any means capable of preventing back-off or loosening by impact or vibration during carriage, individually placed in
  - metal receptacles together with cushioning and absorbent material sufficient to absorb the entire contents of the glass inner packaging(s), further packed in
  - 1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings."

Amend paragraph (4) to read as follows:

"(4) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met. They shall be subjected to an initial test and periodic tests every 10 years at a pressure of not less than 1 MPa (10 bar) (gauge pressure). Pressure receptacles may not be equipped with any pressure relief device. Each pressure receptacle containing a toxic by inhalation liquid with an  $LC_{50}$  less than or equal to 200 ml/m<sup>3</sup> (ppm) shall be closed with a plug or valve conforming to the following:

- (a) Each plug or valve shall have a taper-threaded connection directly to the pressure receptacle and be capable of withstanding the test pressure of the pressure receptacle without damage or leakage;
- (b) Each valve shall be of the packless type with non-perforated diaphragm, except that, for corrosive substances, a valve may be of the packed type with an assembly made gas-tight by means of a seal cap with gasket joint attached to the valve body or the pressure receptacle to prevent loss of substance through or past the packing;
- (c) Each valve outlet shall be sealed by a threaded cap or threaded solid plug and inert gasket material;
- (d) The materials of construction for the pressure receptacle, valves, plugs, outlet caps, luting and gaskets shall be compatible with each other and with the contents.

Each pressure receptacle with a wall thickness at any point of less than 2.0 mm and each pressure receptacle which does not have fitted valve protection shall be carried in an outer packaging. Pressure receptacles shall not be manifolded or interconnected."

**[P650]** Amend paragraph (2) to read as follows:

"(2) The packaging shall consist of at least three components:

- (a) A primary receptacle;
- (b) A secondary packaging; and
- (c) An outer packaging

of which either the secondary or the outer packaging shall be rigid."

In paragraph (4):

Amend the second sentence to read as follows: "The mark shall be in the form of a square set at an angle of 45° (diamond-shaped) with minimum dimensions of 50 mm by 50 mm; the width of the line shall be at least 2 mm and the letters and numbers shall be at least 6 mm high."

Add the following new third sentence: "The proper shipping name "BIOLOGICAL SUBSTANCE, CATEGORY B" in letters at least 6 mm high shall be marked on the outer package adjacent to the diamond-shaped mark."

Insert a new paragraph (5) to read as follows and renumber subsequent paragraphs accordingly:

"(5) At least one surface of the outer packaging shall have a minimum dimension of 100 mm × 100 mm."



Amend current paragraph (5) (renumbered (6)) to read as follows:

"(6) The completed package shall be capable of successfully passing the drop test in 6.3.2.5 as specified in 6.3.2.2 to 6.3.2.4 at a height of 1.2 m. Following the appropriate drop sequence, there shall be no leakage from the primary receptacle(s) which shall remain protected by absorbent material, when required, in the secondary packaging."

In (7) (renumbered (8)), add a new sub-paragraph (d) to read as follows:

"(d) If there is any doubt as to whether or not residual liquid may be present in the primary receptacle during carriage then a packaging suitable for liquids, including absorbent materials, shall be used."

Insert a new paragraph (10) to read as follows:

"(10) When packages are placed in an overpack, the package markings required by this packing instruction shall either be clearly visible or be reproduced on the outside of the overpack."

Current paragraphs (9) and (10) become (11) and (12).

Add a new paragraph (13) to read as follows:

"(13) Other dangerous goods shall not be packed in the same packaging as Class 6.2 infectious substances unless they are necessary for maintaining the viability, stabilizing or preventing degradation or neutralizing the hazards of the infectious substances. A quantity of 30 ml or less of dangerous goods included in Classes 3, 8 or 9 may be packed in each primary receptacle containing infectious substances. When these small quantities of dangerous goods are packed with infectious substances in accordance with this packing instruction no other requirements of RID/ADR need be met."

Current paragraph (11) becomes (14).]

**P800** Amend paragraph (1) to read as follows:

"(1) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met."

In paragraph (2), replace "2.5 l" with "3 l".

**P802** In paragraph (4), delete "Austenitic".

Amend paragraph (5) to read as follows:

"(5) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met."

4.1.4.3 **LP02** Add a new special packing provision "L2" to read as follows:

"**L2** For UN 1950 aerosols, the large packaging shall meet the Packing Group III performance level. Large packagings for waste aerosols carried in accordance with special provision 327 shall have in addition a means of retaining any free liquid that might escape during carriage e.g. absorbent material.".

[4.1.4.4 Delete?]

4.1.9.1.3 Amend to read:

"A package shall not contain any items other than those that are necessary for the use of the radioactive material. The interaction between these items and the package under the conditions of carriage applicable to the design, shall not reduce the safety of the package.".

4.1.9.2.2 Amend to read: "For LSA material and SCO which is or contains fissile material the applicable requirements of 6.4.11.1 and 7.5.11 CW/CV33 (4.1) and (4.2) shall be met.".

## Chapter 4.2

4.2.1.15 Add a new 4.2.1.15 to read as follows:

"4.2.1.15 *Additional provisions applicable to the carriage of Class 6.2 substances in portable tanks*

(Reserved).".

Renumber subsequent paragraphs accordingly.

*Consequential amendments:*

*In 4.2.5.3 TP4 replace "4.2.1.15.2" with "4.2.1.16.2".*

*In 4.2.5.3 TP33 replace "4.2.1.18" with "4.2.1.19".*

4.2.5.1.1 Add a note at the end of the paragraph to read as follows:

"**NOTE:** The gases authorized for carriage in MEGCs are indicated with the letter "(M)" in Column (10) of Table A of Chapter 3.2.".

## PART 5

### Chapter 5.1

5.1.2.3 Add a new paragraph to read as follows:

"5.1.2.3 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 [(ADN only) or in a single conveyance] exceeds 50; and".

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)".**

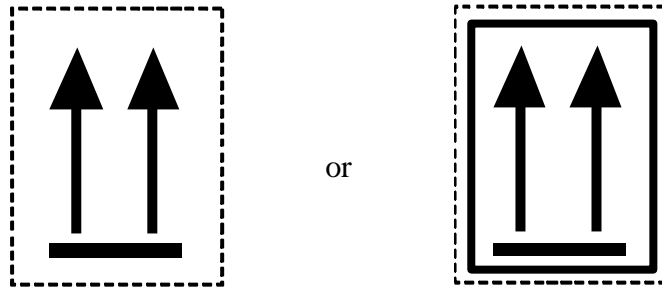
5.2.1.9 Add the following new paragraphs:

**"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
- open 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;
- (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 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 authorities 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."*

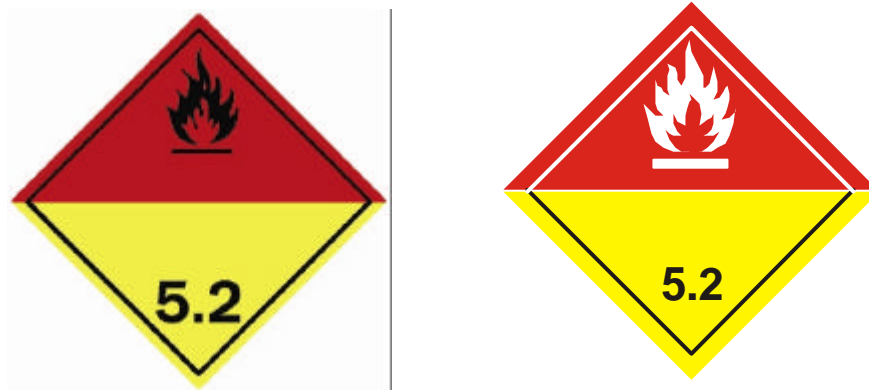
5.2.2.2.1.1 Add the following sentence after the second sentence: "Labels shall be displayed on a background of contrasting colour, or shall have either a dotted or solid outer boundary line."

5.2.2.2.2 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."

## Chapter 5.4

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

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)".

In the paragraph (e), 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)).".

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"

5.4.1.2.5.1 (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 authorities 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 6

### Chapter 6.1

6.1.2.5 Under 2., replace "wooden barrel" with "(Reserved)".

6.1.2.7 In the table, replace the text in the row for "Wooden barrels" with "(Reserved)".

6.1.4.6 Amend to read: "6.1.4.6 (*Deleted*)".

6.1.5.1.6 Replace current text with the following:

"6.1.5.1.6 (Reserved)

***NOTE:*** *For the conditions for assembling different inner packagings in an outer packaging and permissible variations in inner packagings, see 4.1.1.5.1.*"

6.1.5.2.4 Replace with "(Reserved)".

6.1.5.3.1 In the table, delete "wooden barrels" under "Packaging".

### Chapter 6.2

6.2.1.3.3.5.4 Amend footnote 1 to read as follows:

<sup>1</sup> See for example CGA Publications S-1.2-2003 "Pressure Relief Device Standards - Part 2 - Cargo and Portable Tanks for Compressed Gases" and S-1.1-2003 "Pressure Relief Device Standards - Part 1 - Cylinders for Compressed Gases".

6.2.1.6.1 Amend subparagraph (c) to read as follows:

"(c) Checking of the threads if there is evidence of corrosion or if the fittings are removed;"

Amend the end of Note 2 under subparagraph (d) to read as follows:

"... based on acoustic emission testing, ultrasonic examination or a combination of acoustic emission testing and ultrasonic examination."

6.2.5.2.1 Insert the following new entry at the end of the table:

ISO 11119-3:2002	Gas cylinders of composite construction - Specification and test methods - Part 3: Fully wrapped fibre reinforced composite gas cylinders with non-load-sharing metallic or non-metallic liners
------------------	---

6.2.5.2.3 In the table, under "For the cylinder shell:", delete the reference to ISO 7866:1999.

6.2.5.2.4 Add a new paragraph to read as follows:

"6.2.5.2.4 The following standard applies for the design, construction and initial inspection and test of UN cryogenic receptacles, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.5.6:

ISO 21029-1:2004	Cryogenic vessels – Transportable vacuum insulated vessels of not more than 1000 l volume – Part 1: Design, fabrication, inspection and tests
------------------	---

6.2.5.6.3.1 In (a), insert "of personnel" after "responsibilities" and delete ", and power of the management".

In (b), replace "systematic actions" with "procedures".

Delete the commas before "and" in (c) and (d).

6.2.5.6.4.10 Amend to read as follows:

"6.2.5.6.4.10 Modifications to approved design types

The manufacturer shall either:

- (a) inform the issuing competent authority of modifications to the approved design type, where such modifications do not constitute a new design, as specified in the pressure receptacle standard; or
- (b) request a subsequent design type approval where such modifications constitute a new design according to the relevant pressure receptacle standard. This additional approval shall be given in the form of an amendment to the original design type approval certificate."

6.2.5.8.2 In (g) add the following new last sentence at the end of the existing text:

"In the case of pressure receptacles for UN 1001 acetylene, dissolved and UN 3374 acetylene, solvent free, at least one decimal shall be shown after the decimal point and two digits for pressure receptacles of less than 1 kg;"

In (k) and (l): Insert ", any coating," after "during filling" and replace "two" with "three" in the first sentence. Insert the following two new last sentences at the end of the existing text:

"At least one decimal shall be shown after the decimal point. For pressure receptacles of less than 1 kg, the mass shall be expressed to two significant figures rounded down to the last digit;"

*Consequential amendment: The same changes apply to 6.2.1.7.2 (f), (j) and (k).*

6.2.5.8.7 Add the following new paragraph:

"6.2.5.8.7 For acetylene cylinders, with the agreement of the competent authority, the date of the most recent periodic inspection and the stamp of the body performing the periodic inspection and test may be engraved on a ring held on the cylinder by the valve. The ring shall be configured so that it can only be removed by disconnecting the valve from the cylinder."

6.2.4 Renumber current paragraphs 6.2.4.3.1, 6.2.4.3.2 and 6.2.4.3.3 as 6.2.4.3.1.1, 6.2.4.3.1.2 and 6.2.4.3.1.3 respectively and insert a new 6.2.4.3.1 to read as follows:  
**"6.2.4.3.1 Small receptacles containing gas (gas cartridges)"**

In current 6.2.4.3.1 (renumbered 6.2.4.3.1.1), replace "Each aerosol dispenser and small receptacle containing gas (gas cartridges)" with "Each receptacle".

Add the following new paragraphs:

**"6.2.4.3.2 Aerosol dispensers**

Each filled aerosol dispenser shall be subjected to a test performed in a hot water bath or an approved water bath alternative.

**6.2.4.3.2.1 Hot water bath test**

6.2.4.3.2.1.1 The temperature of the water bath and the duration of the test shall be such that the internal pressure reaches that which would be reached at 55 °C (50 °C if the liquid phase does not exceed 95% of the capacity of the aerosol dispenser at 50 °C). If the contents are sensitive to heat or if the aerosol dispensers are made of plastics material which softens at this test temperature, the temperature of the bath shall be set at between 20 °C and 30 °C but, in addition, one aerosol dispenser in 2000 shall be tested at the higher temperature.

6.2.4.3.2.1.2 No leakage or permanent deformation of an aerosol dispenser may occur, except that a plastic aerosol dispenser may be deformed through softening provided that it does not leak.



#### 6.2.4.3.2.2 *Alternative methods*

With the approval of the competent authority alternative methods which provide an equivalent level of safety may be used provided that the requirements of 6.2.4.3.2.2.1, 6.2.4.3.2.2.2 and 6.2.4.3.2.2.3 are met.

##### 6.2.4.3.2.2.1 Quality system

Aerosol dispenser fillers and component manufacturers shall have a quality system. The quality system shall implement procedures to ensure that all aerosol dispensers that leak or that are deformed are rejected and not offered for carriage.

The quality system shall include:

- (a) a description of the organizational structure and responsibilities;
- (b) the relevant inspection and test, quality control, quality assurance, and process operation instructions that will be used;
- (c) quality records, such as inspection reports, test data, calibration data and certificates;
- (d) management reviews to ensure the effective operation of the quality system;
- (e) a process for control of documents and their revision;
- (f) a means for control of non-conforming aerosol dispensers;
- (g) training programmes and qualification procedures for relevant personnel; and
- (h) procedures to ensure that there is no damage to the final product.

An initial audit and periodic audits shall be conducted to the satisfaction of the competent authority. These audits shall ensure the approved system is and remains adequate and efficient. Any proposed changes to the approved system shall be notified to the competent authority in advance.

##### 6.2.4.3.2.2.2 Pressure and leak testing of aerosol dispensers before filling

Every empty aerosol dispenser shall be subjected to a pressure equal to or in excess of the maximum expected in the filled aerosol dispensers at 55 °C (50 °C if the liquid phase does not exceed 95% of the capacity of the receptacle at 50 °C). This shall be at least two-thirds of the design pressure of the aerosol dispenser. If any aerosol dispenser shows evidence of leakage at a rate equal to or greater than  $3.3 \times 10^{-2}$  mbar.l.s<sup>-1</sup> at the test pressure, distortion or other defect, it shall be rejected.

##### 6.2.4.3.2.2.3 Testing of the aerosol dispensers after filling

Prior to filling the filler shall ensure that the crimping equipment is set appropriately and the specified propellant is used.

Each filled aerosol dispenser shall be weighed and leak tested. The leak detection equipment shall be sufficiently sensitive to detect at least a leak rate of  $2.0 \times 10^{-3}$  mbar.l.s<sup>-1</sup> at 20 °C.

Any filled aerosol dispenser which shows evidence of leakage, deformation or excessive weight shall be rejected."

6.2.4.3.3 Add a new paragraph to read as follows:

"6.2.4.3.3 With the approval of the competent authority, aerosols and receptacles, small, containing pharmaceutical products and non flammable gases which are required to be sterile, but may be adversely affected by water bath testing, are not subject to 6.2.4.3.1 and 6.2.4.3.2 if:

- (a) They are manufactured under the authority of a national health administration and, if required by the competent authority, follow the principles of Good Manufacturing Practice (GMP) established by the World Health Organization (WHO)<sup>2</sup>; and
- (b) An equivalent level of safety is achieved by the manufacturer's use of alternative methods for leak detection and pressure resistance, such as helium detection and water bathing a statistical sample of at least 1 in 2000 from each production batch."

## Chapter 6.4

6.4.5.2 (b) Amend to read as follows:

"(b) more than a 20% increase in the maximum radiation level at any external surface of the package."

*Consequential changes in 6.4.5.4.1(c)(ii), 6.4.5.4.2(c), 6.4.5.4.4(c)(ii), 6.4.5.4.5(b)(ii) and 6.4.7.14(b).*

6.4.7.16 In the first sentence, replace "liquids" with "liquid radioactive material".

6.4.8.3 In the first sentence, replace "6.4.8.4," with "6.4.8.5 and in the absence of insolation,".

6.4.8.4 The text of current 6.4.8.13 becomes new 6.4.8.4, with the following amendments:

In the first sentence, insert "under exclusive use" before "shall not exceed 85 °C" and replace "6.4.8.4" with "6.4.8.5". Delete the second sentence: ("The package shall... exceeds 50 °C.").

6.4.8.4 to 6.4.8.12 Renumber as 6.4.8.5 to 6.4.8.13. Amend all cross-references accordingly (applies to 5.1.5.1.2 (e), 6.4.8.2, 6.4.8.6 (current 6.4.8.5), 6.4.9.1, 6.4.10.1, 6.4.10.2, 6.4.17.2, 6.4.17.3, 6.4.23.5, 6.4.23.12 (p), 6.4.23.14 (n) and (q) (renumbered 6.4.23.14 (o) and (s))).

6.4.11.2 (a) Amend the end of the sentence after the formula to read: "provided that the smallest external dimension of each package is not less than 10 cm and that either:".

Amend (iii) and the following paragraph to read as follows:

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<sup>2</sup> WHO Publication: "Quality assurance of pharmaceuticals. A compendium of guidelines and related materials. Volume 2: Good manufacturing practices and inspection".

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

Neither beryllium nor deuterium shall be present in quantities exceeding 1% of the applicable consignment mass limits provided in Table 6.4.11.2, except for deuterium in natural concentration in hydrogen."

6.4.11.7 (b) Amend the first sentence to read as follows: "For packages containing uranium hexafluoride only, with maximum enrichment of 5 mass percent uranium-235:".

6.4.22.1 (b) Amend to read as follows:

"(b) Each design that meets the requirement of 6.4.6.1 to 6.4.6.3 shall require unilateral approval by the competent authority of the country of origin of the design, unless multilateral approval is otherwise required by RID/ADR."

6.4.23.3 (a) Replace "the consignment" with "the shipment".

6.4.23.12 (e) Replace "routing" with "routeing".

6.4.23.14 Insert a new paragraph (m) to read as follows:  
"(m) A description of the containment system;"  
Rename current sub-paragraphs (m) and (n) accordingly.

Under (n), insert a new sub-paragraph (ii) to read as follows:  
"(ii) A description of the confinement system;"  
Rename current sub-paragraphs (ii) to (vi) accordingly.

Insert a new sub-paragraph (p) to read as follows:  
"(p) For packages containing more than 0.1 kg of uranium hexafluoride, a statement specifying those prescriptions of 6.4.6.4 which apply if any and any amplifying information which may be useful to other competent authorities;"  
Rename current sub-paragraphs (o) to (u) accordingly.

6.4.23.15 Delete the last sentence.

## Chapter 6.5

6.5.1 Amend the title to read "**General requirements**".

6.5.1.5 Delete.

6.5.1.5.9 Delete.

Section 6.5.3 Insert a new section 6.5.3 as follows:

6.5.3 and 6.5.3.1 Insert two new lines to read as follows:

**"6.5.3 Construction requirements**

**6.5.3.1 General requirements"**

6.5.3.1.1 to 6.5.3.1.8: Existing 6.5.1.5.1 to 6.5.1.5.8 become new paragraphs 6.5.3.1.1 to 6.5.3.1.8.

Section 6.5.4 The existing 6.5.1.6 becomes new sub-section 6.5.4, with appropriate renumbering of paragraphs, sub-paragraphs and references to paragraphs numbers and with modifications, as follows:

6.5.4 Heading of existing 6.5.1.6.

6.5.4.1 Text of existing 6.5.1.6.1.

6.5.4.2 Text of existing 6.5.1.6.2 with the following modifications:  
Replace "periodic tests" with "periodic inspections and tests" and "6.5.4.14" with "6.5.4.4" respectively.

6.5.4.3 Text of existing 6.5.1.6.3.

6.5.4.4 Text of existing 6.5.1.6.4 with the following modifications:

In the first paragraph, replace "Inspection:" with the heading "Inspection and testing" and add a new NOTE after the heading to read as follows:

***"NOTE: See also 6.5.4.5 for tests and inspections on repaired IBCs."***

The text beginning with "every metal, rigid plastics..." and sub-paragraphs (a) and (b) become new 6.5.4.4.1 with the following modifications:

In (a), insert "(including after remanufactured)" after "put into service".

Insert a new sentence, after the last sentence of sub-paragraph (b) (ii) ("Thermal insulation, ... body of the IBC."), to read as follows: "Each IBC shall correspond in all respects to its design type."

Insert a new paragraph 6.5.4.4.2 as follows:

"6.5.4.4.2 Every metal, rigid plastics and composite IBC for liquids, or for solids which are filled or discharged under pressure, shall undergo a suitable leakproofness test and be capable of meeting the test level indicated in 6.5.6.7.3:

(a) before it is first used for carriage;

(b) at intervals of not more than two and a half years.

For this test the IBC need not have its closures fitted. The inner receptacle of a composite IBC may be tested without the outer casing, provided that the test results are not affected."

The last paragraph of existing 6.5.1.6.4 ("A report of each inspection ... requirements in 6.5.2.2.1.") becomes new 6.5.4.4.3 with the following modifications:

In the first sentence, add "and test" after "each inspection" and "or test" after "next inspection" respectively.

In the second sentence, add "and test" after "inspection" twice.

6.5.4.5 Title of existing 6.5.1.6.6.

6.5.4.5.1 Text of existing 6.5.1.6.5.

6.5.4.5.2 Text of existing 6.5.1.6.6.1. Replace "6.5.4.14.3 and 6.5.1.6.5 (a)" with "6.5.4.4".

6.5.4.5.3 Text of existing 6.5.1.6.6.2.

6.5.4.5.4 Text of existing 6.5.1.6.6.3. Replace "6.5.1.6.6.1" with "6.5.4.5.2".

6.5.4.5.5 Text of existing 6.5.1.6.7.

Renumber existing sections 6.5.3 and 6.5.4 as 6.5.5 and 6.5.6 respectively, and renumber accordingly subsequent paragraphs and references thereto (Applies to 1.2.1 (definition of "remanufactured IBC"), 4.1.1.3, 4.1.1.9, 4.1.1.12, 4.1.1.19.1, 4.1.1.19.2, 4.1.1.19.3 (c) and (d), 4.1.2.2, 4.1.5.5, 6.1.6, 6.5.1.4.3, 6.5.1.4.4, 6.5.1.6.2, 6.5.1.6.6.1).

6.5.6.1.3 (current 6.5.4.1.3) Delete.

6.5.6.5.2 (current 6.5.4.5.2) Replace the last sentence of this paragraph with the following text:

"Flexible IBCs shall be filled with a representative material and then shall be loaded to six times their maximum permissible gross mass, the load being evenly distributed."

6.5.6.5.5 (b) (current 6.5.4.5.5 (b)): Add at the end: "and no loss of contents."

6.5.6.9.2 (current 6.5.4.9.2) In subparagraph (a), amend the first sentence to read:

"Metal IBCs: the IBC shall be filled to not less than 95% of its maximum capacity for solids or 98% of its maximum capacity for liquids."

Amend subparagraph (b) to read as follows: "Flexible IBCs: the IBC shall be filled to the maximum permissible gross mass, the contents being evenly distributed."

In subparagraph (c), amend the first sentence to read: "Rigid plastics and composite IBCs: the IBC shall be filled to not less than 95% of its maximum capacity for solids or 98% of its maximum capacity for liquids."

In subparagraph (d), insert "maximum" before "capacity" and delete "in accordance with the design type".

6.5.6.9.4 (current 6.5.4.9.4) Amend to read as follows:

"6.5.6.9.4 *Drop height*

For solids and liquids, if the test is performed with the solid or liquid to be carried or with another substance having essentially the same physical characteristics:

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

For liquids if the test is performed with water:

(a) Where the substances to be carried have a relative density not exceeding 1.2:

Packing group II	Packing group III
1.2 m	0.8 m

- (b) Where the substances to be carried have a relative density exceeding 1.2, the drop heights shall be calculated on the basis of the relative density (d) of the substance to be carried rounded up to the first decimal as follows:

Packing group II	Packing group III
$d \times 1.0 \text{ m}$	$d \times 0.67 \text{ m}$

6.5.6.14 to 6.5.6.14.4 (current 6.5.4.14 to 6.5.4.14.4) Delete.

## Chapter 6.6

6.6.5.1.6 Amend to read as follows:

"6.6.5.1.6 (Reserved)

***NOTE:** For the conditions for assembling different inner packagings in a large packaging and permissible variations in inner packagings, see 4.1.1.5.1."*

6.6.5.2.2 Insert a new 6.6.5.2.2 with the same text as existing 6.5.4.1.3, replacing the reference to 6.5.4.9.4 by a reference to 6.6.5.3.4.4 in sub-paragraph (a).

Renumber accordingly existing 6.6.5.2.2 to 6.6.5.2.4 and consequential amendments in 6.6.5.1.3 and 6.6.5.2.3 (current 6.6.5.2.2).

6.6.5.3.2.4 Amend by replacing the existing text with that of 6.5.4.5.5 (renumbered 6.5.6.5.5), but with the following modifications:

In (a), replace "Metal, rigid plastics and composite IBCs" with "Metal and rigid plastics large packagings" and "the IBC" with "the large packaging".

In (b), replace "Flexible IBCs" with "Flexible large packagings" and "IBC" with "large packaging" (twice).

6.6.5.3.3.5 Amend by replacing the existing text with that of 6.5.4.6.5 (renumbered 6.5.6.6.5), but replacing the word "IBCs" by "large packagings".

## Chapter 6.7

6.7.2.19.1, 6.7.3.15.1

and 6.7.4.14.1 Replace the existing text and list of standards with the following text:

"Portable tanks meeting the definition of container in the International Convention for Safe Containers (CSC), 1972, as amended, shall not be used unless they are successfully qualified by subjecting a representative prototype of each design to the Dynamic, Longitudinal Impact Test prescribed in the Manual of Tests and Criteria, Part IV, Section 41."

6.7.3.8.1.1 and

6.7.4.7.4 In footnotes 4 and 6 respectively, replace "CGA S-1.2-1995" and "CGA Pamphlet S-1.2-1995" with "CGA S-1.2-2003 "Pressure Relief Device Standards-Part 2-Cargo and Portable Tanks for Compressed Gases"."

6.7.5.4.1 Replace the first sentence with the following two sentences:

"The elements of MEGCs used for the carriage of UN No. 1013 carbon dioxide and UN No. 1070 nitrous oxide shall be isolated by a valve into assemblies of not more than 3000 litres. Each assembly shall be fitted with one or more pressure relief devices."

*(Current final sentence remains unchanged).*

6.7.5.5.1 and 6.7.5.5.2 Replace "CGA S1.2-1995" with "CGA S1.2-2003 "Pressure Relief Device Standards, Part 2, Cargo and Portable Tanks for Compressed Gases"".

Replace "CGA S-1.1-1994" with "CGA S-1.1-2003 "Pressure Relief Device Standards, Part 1, Cylinders for Compressed Gases"".

6.7.5.6.1 Amend to read as follows:

"6.7.5.6.1 Pressure relief devices shall be clearly and permanently marked with the following:

- (a) the manufacturer's name and relevant catalogue number;
- (b) the set pressure and/or the set temperature;
- (c) the date of the last test."

6.7.5.6.2 Delete this paragraph and renumber subsequent paragraph accordingly.

6.7.5.8.1 In the third sentence, replace "and oxidizing" with ", pyrophoric and oxidizing".

6.7.5.12.1 Replace the existing text and list of standards with the following text:

"MEGCs meeting the definition of container in the International Convention for Safe Containers (CSC), 1972, as amended, shall not be used unless they are successfully qualified by subjecting a representative prototype of each design to the Dynamic, Longitudinal Impact Test prescribed in the Manual of Tests and Criteria, Part IV, Section 41."

## **PART 7**

### **Chapter 7.2**

7.2.4 Insert a new V14/W14 as follows:

"V14/W14 Aerosols carried for the purposes of reprocessing or disposal under special provision 327 shall only be carried in ventilated or open wagons/vehicles or containers."

*Consequential amendment:*

*Table A UN 1950 Add "V14/W14" in column (16).*

**Chapter 7.3**

7.3.1.1 Replace the words "vehicles/wagons or containers" with "bulk containers, containers or vehicles/wagons".

7.3.1.3 to

7.3.1.13 Wherever it appears replace the word "container" with "bulk container, container" and "containers" with "bulk containers, containers".

Section 7.3.2 Wherever they appear replace the words "container or vehicle/wagon" with "bulk container", "container used or the body of the vehicle" with "bulk container used" (*applies to 7.3.2.2*), and "containers or vehicles/wagons" with "bulk containers", respectively.

7.3.2.6 Existing paragraph 7.3.2.6 becomes new 7.3.2.6.1. Add a new 7.3.2.6 to read as follows: **"7.3.2.6 Wastes of Class 6.2"**.

7.3.2.6.1 Amend the title to read as follows: "Wastes of Class 6.2 (UN Nos. 2814 (animal carcasses only) and 2900)"

*Consequential amendment:*

*Replace "UN No. 2900" with "UN Nos. 2814 and 2900" in current sub-paragraphs (a), (c), (d) and (e).*

7.3.2.6.2 Add a new paragraph 7.3.2.6.2 to read as follows:

"7.3.2.6.2 Wastes of Class 6.2 (UN 3291)

- (a) (Reserved);
- (b) Closed bulk containers and their openings shall be leakproof by design. These bulk containers shall have non porous interior surfaces and shall be free from cracks or other features which could damage packagings inside, impede disinfection or permit inadvertent release;
- (c) Wastes of UN No. 3291 shall be contained within the closed bulk container in UN type tested and approved sealed leakproof plastics bags tested for solids of packing group II and marked in accordance with 6.1.3.1. Such plastics bags shall be capable of passing the tests for tear and impact resistance 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 ISO 6383-2:1983 "Plastics - Film and sheeting - Determination of tear resistance. Part 2: Elmendorf method". Each bag shall have an impact resistance of at least 165 g and a tear resistance of at least 480 g in both parallel and perpendicular planes with respect to the length of the bag. The maximum net mass of each plastics bag shall be 30 kg;
- (d) Single articles exceeding 30 kg such as soiled mattresses may be carried without the need for a plastics bag when authorized by the competent authority;
- (e) Wastes of UN No. 3291 which contain liquids shall only be carried in plastics bags containing sufficient absorbent material to absorb the entire amount of liquid without it spilling in the bulk container;



- (f) Wastes of UN No. 3291 containing sharp objects shall only be carried in UN type tested and approved rigid packagings meeting the provisions of packing instructions P621, IBC620 or LP621;
- (g) Rigid packagings specified in packing instructions P621, IBC620 or LP621 may also be used. They shall be properly secured to prevent damage during normal conditions of carriage. Wastes carried in rigid packagings and plastics bags together in the same closed bulk container shall be adequately segregated from each other, e.g. by suitable rigid barriers or dividers, mesh nets or otherwise securing, such that they prevent damage to the packagings during normal conditions of carriage;
- (h) Wastes of UN No. 3291 in plastics bags shall not be compressed in a closed bulk container in such a way that bags may be rendered no longer leakproof;
- (i) The closed bulk container shall be inspected for leakage or spillage after each journey. If any wastes of UN No. 3291 have leaked or been spilled in the closed bulk container, it shall not be re-used until after it has been thoroughly cleaned and, if necessary, disinfected or decontaminated with an appropriate agent. No other goods shall be carried together with UN No. 3291 other than medical or veterinary wastes. Any such other wastes carried in the same closed bulk container shall be inspected for possible contamination."

## Chapter 7.5

7.5.1.3 Add at the end: "The interior and exterior of a wagon/vehicle or container shall be inspected prior to loading to ensure that there is no damage that could affect its integrity or that of the packages to be loaded in it."

7.5.1.5 Add a new sub-section 7.5.1.5 to read as follows:  
"7.5.1.5 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."*

7.5.7.1 Amend current 7.5.7.1 to read as follows:  
"Where appropriate the wagon/vehicle or container shall be fitted with devices to facilitate securing and handling of the dangerous goods. 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 the wagon/vehicle or container 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 in the wagons/vehicles or containers 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."

7.5.7.2 and 7.5.7.3 Add two new paragraphs to read as follows and renumber current 7.5.7.2 and 7.5.7.3 as 7.5.7.4 and 7.5.7.5 respectively:

“7.5.7.2 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.

7.5.7.3 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 wagon/vehicle or container 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.”.*

[7.5.11 CV33/CW33 (1) (1.1) Amend to read as follows:

"Packages, overpacks, containers and tanks containing 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 7.5.2.”.

(Table A unchanged.)]

[7.5.11 CV 33/CW33 (1) (1.4) Delete. Move Table B to come after Table A (1.1)]

*Consequential amendment: In 1.7.2.2, delete “and (1.4)”.*

[7.5.11 CV 33/CW33 (3) (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.]

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