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

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

Held in Geneva on 10 December 2010

**Addendum**

**Annex I**

**Amendments to the sixteenth revised edition of the Recommendations  
on the Transport of Dangerous Goods, Model Regulations  
(ST/SG/AC.10/1/Rev.16)**

## Chapter 1.1

Insert new sub-sections 1.1.1.7 and 1.1.1.8 to read as follows:

**"1.1.1.7      *Application of standards***

Where the application of a standard is required and there is any conflict between the standard and these Regulations, the Regulations take precedence."

**"1.1.1.8      *Transport of dangerous goods used as a coolant or conditioner***

Dangerous goods, that are only asphyxiant (which dilute or replace the oxygen normally in the atmosphere), when used in cargo transport units for cooling or conditioning purposes are only subject to the provisions of section 5.5.3."

## Chapter 1.2

1.2.1 At the end of the definition for "Bulk container", add ", flexible bulk containers (FBCs)".

1.2.1 In the definition for "Pressure receptacle", replace "and bundles of cylinders" with ", bundles of cylinders and salvage pressure receptacles".

1.2.1 Add the following new definitions:

"*Net explosive mass (NEM)* means the total mass of the explosive substances, without the packagings, casings, etc. (*Net explosive quantity (NEQ)*, *net explosive contents (NEC)*, or *net explosive weight (NEW)* are often used to convey the same meaning.);".

"*Salvage pressure receptacle* means a pressure receptacle with a water capacity not exceeding 1 000 litres into which are placed damaged, defective, leaking or non-conforming pressure receptacle(s) for the purpose of transport e.g. for recovery or disposal;".

## Chapter 1.4

1.4.1 Add a new paragraph 1.4.1.4 to read as follows:

"1.4.1.4 The provisions of this Chapter do not apply to:

- (a) UN 2908 and UN 2909 excepted packages;
- (b) UN 2910 and UN 2911 excepted packages with an activity level not exceeding the A<sub>2</sub> value; and
- (c) UN 2912 LSA-I and UN 2913 SCO-I."

1.4.3 Amend to read as follows:

**"1.4.3      *Provisions for high consequence dangerous goods***

**1.4.3.1      *Definition of high consequence dangerous goods***

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

1.4.3.1.2 An indicative list of high consequence dangerous goods in classes and divisions other than Class 7 is given in Table 1.4.1 below.

[Existing Table 1.4.1, with the existing NOTE, but without the introductory text and without the entry for Class 7.]

1.4.3.1.3 For dangerous goods of Class 7, high consequence radioactive material is that with an activity equal to or greater than a transport security threshold of 3 000 A<sub>2</sub> per single package (see also 2.7.2.2.1) except for the following radionuclides where the transport security threshold is given in Table 1.4.2 below.

Table 1.4.2  
**Transport security thresholds for specific radionuclides**

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

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

This calculation can be made with the formula:

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

Where:

A<sub>i</sub> = activity of radionuclide *i* that is present in a package (TBq)

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

1.4.3.1.5 When radioactive material possess subsidiary risks of other classes or divisions, the criteria of table 1.4.1 shall also be taken into account (see also 1.5.5.1).

**1.4.3.2 Specific security provisions for high consequence dangerous goods**

1.4.3.2.1 [Existing 1.4.3.1, without the last sentence]

1.4.3.2.2 Security plans

1.4.3.2.2.1 Carriers, consignors and others (including infrastructure managers) engaged in the transport of high consequence dangerous goods (see 1.4.3.1) shall adopt, implement and comply with a security plan that addresses at least the elements specified in 1.4.3.2.2.2.

1.4.3.2.2.2 [Existing 1.4.3.2.2]

1.4.3.2.3 [Existing 1.4.3.2.3 with the following modifications: in footnote 1, replace "IAEACIRC" with "INFCIRC". In footnote 2, replace "IAEACIRC" with "INFCIRC" and delete the last sentence]."

## Chapter 2.0

2.0.2.5 In the first sentence, add "meeting the classification criteria of these Regulations" after "A mixture or solution".

2.0.2.9 Add "meeting the classification criteria of these Regulations" after "A mixture or solution".

## Chapter 2.1

2.1.1.1 (b) At the end, add "(see 2.1.3.6)" after "loud noise".

2.1.1.4 (f) Delete "detonating".

2.1.2.1.1 In the table, in the description for compatibility group N, delete "detonating".

2.1.3.6 Add a new 2.1.3.6.4 to read as follows:

"2.1.3.6.4 An article may be excluded from Class 1 when three unpackaged articles, each individually activated by its own means of initiation or ignition or external means to function in the designed mode, meet the following test criteria:

(a) No external surface shall have a temperature of more than 65° C. A momentary spike in temperature up to 200 °C is acceptable;

(b) No rupture or fragmentation of the external casing or movement of the article or detached parts thereof of more than one metre in any direction;

**NOTE:** Where the integrity of the article may be affected in the event of an external fire these criteria shall be examined by a fire test, such as described in ISO 12097-3.

(c) No audible report exceeding 135 dB(C) peak at a distance of one metre;

(d) No flash or flame capable of igniting a material such as a sheet of 80 ± 10 g/m<sup>2</sup> paper in contact with the article; and

(e) No production of smoke, fumes or dust in such quantities that the visibility in a one cubic metre chamber equipped with appropriately sized blow out panels

is reduced more than 50% as measured by a calibrated light (lux) meter or radiometer located one metre from a constant light source located at the midpoint on opposite walls . The general guidance on Optical Density Testing in ISO 5659-1 and the general guidance on the Photometric System described in Section 7.5 in ISO 5659-2 may be used or similar optical density measurement methods designed to accomplish the same purpose may also be employed. A suitable hood cover surrounding the back and sides of the light meter shall be used to minimize effects of scattered or leaking light not emitted directly from the source.

**NOTE 1:** *If during the tests addressing criteria (a), (b), (c) and (d) no or very little smoke is observed the test described in (e) may be waived.*

**NOTE 2:** *The competent authority may require testing in packaged form if it is determined that, as packaged for transport, the article may pose a greater risk."*

## Chapter 2.2

2.2.2.1 (a) (ii) and 2.2.3 (a) and (d) Replace "ISO 10156:1996" with "ISO 10156:2010".

2.2.2.1 (b) In the note, replace "ISO 10156:1996 or 10156-2:2005" with "ISO 10156:2010".

2.2.3 (d) Delete "and ISO 10156-2:2005".

## Chapter 2.5

2.5.3.2.4 In the table, amend the entries listed below as follows:

<i>Organic peroxide</i>		<i>Column</i>	<i>Amendment</i>
DIISOPROPYL PEROXYDICARBONATE	(last row)	Concentration	Replace " $\leq 28$ " with " $\leq 32$ "
DIISOPROPYL PEROXYDICARBONATE	(last row)	Diluent type A	Replace " $\geq 72$ " with " $\geq 68$ "

2.5.3.2.4 Insert the following new entries:

<i>Organic peroxide</i>	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
([3R-(3R,5aS,6S,8aS,9R,10R,12S,12aR**)]-DECAHYDRO-10-METHOXY-3,6,9-TRIMETHYL-3,12-EPOXY-12H-PYRANO[4,3-j]-1,2-BENZODIOXEPIN)	$\leq 100$					OP7			3106	
3,6,9-TRIETHYL-3,6,9-TRIMETHYL-1,4,7-TRIPEROXONANE	$\leq 17$	$\geq 18$		$\geq 65$		OP8			3110	

## Chapter 2.6

2.6.3.2.3.3 Add the following new Note at the end:

**"NOTE:** *Medical equipment which has been drained of free liquid and meets the requirements of this paragraph is not subject to these Regulations."*

Add a new paragraph 2.6.3.2.3.7 to read as follows:

"2.6.3.2.3.7 Except for:

- (a) Medical waste (UN 3291);
- (b) Medical devices or equipment contaminated with or containing infectious substances in Category A (UN 2814 or UN 2900); and
- (c) Medical devices or equipment contaminated with or containing other dangerous goods that meet the definition of another hazard class,

medical devices or equipment potentially contaminated with or containing infectious substances which are being transported for disinfection, cleaning, sterilization, repair, or equipment evaluation are not subject to the provisions of these Regulations if packed in packagings designed and constructed in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents. Packagings shall be designed to meet the construction requirements listed in 6.1.4 or 6.6.5.

These packagings shall meet the general packing requirements of 4.1.1.1 and 4.1.1.2 and be capable of retaining the medical devices and equipment when dropped from a height of 1.2 m. For air transport, additional requirements may apply.

The packagings shall be marked "USED MEDICAL DEVICE" or "USED MEDICAL EQUIPMENT". When using overpacks, these shall be marked in the same way, except when the inscription remains visible."

## Chapter 2.8

2.8.2.5 Add the following table at the end:

"Table 2.8.2.5  
**Table summarizing the criteria in 2.8.2.5**

<i>Packing Group</i>	<i>Exposure Time</i>	<i>Observation Period</i>	<i>Effect</i>
<b>I</b>	≤ 3 min	≤ 60 min	Full thickness destruction of intact skin
<b>II</b>	> 3 min ≤ 1 h	≤ 14 d	Full thickness destruction of intact skin
<b>III</b>	> 1 h ≤ 4 h	≤ 14 d	Full thickness destruction of intact skin
<b>III</b>	-	-	Corrosion rate on either steel or aluminium surfaces exceeding 6.25 mm a year at a test temperature of 55 °C when tested on both materials

".

## Chapter 2.9

2.9.2 At the end of the subdivision reading "Lithium batteries", add the following new note:

"**NOTE:** See 2.9.4."

After the subdivision reading "Lithium batteries", add the following new subdivision:

**"Electric double layer capacitors**

3499 CAPACITOR, electric double layer (with an energy storage capacity greater than 0.3 Wh)".

Add a new sub-section 2.9.4 to read as follows:

#### **"2.9.4 Lithium batteries**

Cells and batteries, cells and batteries contained in equipment, or cells and batteries packed with equipment, containing lithium in any form shall be assigned to UN Nos. 3090, 3091, 3480 or 3481 as appropriate. They may be transported under these entries if they meet the following provisions:

- (a) Each cell or battery is of the type proved to meet the requirements of each test of the *Manual of Tests and Criteria*, Part III, sub-section 38.3;
- (b) Each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under conditions normally incident to transport;
- (c) Each cell and battery is equipped with an effective means of preventing external short circuits;
- (d) Each battery containing cells or series of cells connected in parallel is equipped with effective means as necessary to prevent dangerous reverse current flow (e.g., diodes, fuses, etc.);
- (e) Cells and batteries shall be manufactured under a quality management programme that includes:
  - (i) A description of the organizational structure and responsibilities of personnel with regard to design and product quality;
  - (ii) The relevant inspection and test, quality control, quality assurance, and process operation instructions that will be used;
  - (iii) Process controls that should include relevant activities to prevent and detect internal short circuit failure during manufacture of cells;
  - (iv) Quality records, such as inspection reports, test data, calibration data and certificates. Test data shall be kept and made available to the competent authority upon request;
  - (v) Management reviews to ensure the effective operation of the quality management programme;
  - (vi) A process for control of documents and their revision;
  - (vii) A means for control of cells or batteries that are not conforming to the type tested as mentioned in (a) above;
  - (viii) Training programmes and qualification procedures for relevant personnel; and
  - (ix) Procedures to ensure that there is no damage to the final product.

*NOTE: In house quality management programmes may be accepted. Third party certification is not required, but the procedures listed in (i) to (ix) above shall be properly recorded and traceable. A copy of the quality management programme shall be made available to the competent authority upon request."*

### **Chapter 3.1**

3.1.3.2 In the first sentence, add "meeting the classification criteria of these Regulations" after "A mixture or solution".

3.1.3.3 Add "meeting the classification criteria of these Regulations" after "A mixture or solution".

## Chapter 3.2

### 3.2.1 Dangerous Goods List

UN Nos. 0012, 0014 and 0055: Insert "364" in column (6) and replace "0" with "5 kg" in column (7a).

UN No. 0014: In column (2), after "CARTRIDGES, SMALL ARMS, BLANK", insert "or CARTRIDGES FOR TOOLS, BLANK" and amend the alphabetical index accordingly.

UN No. 0144: Insert "358" in column (6).

UN Nos. 1162, 1196, 1250, 1298, 1305, 1724, 1728, 1747, 1753, 1762, 1763, 1766, 1767, 1769, 1771, 1781, 1784, 1799, 1800, 1801, 1804, 1816, 1818, 2434, 2435, 2437, 2985, 2986, 2987, 3361 and 3362: Amend the code to read "E0" in column (7b).

UN Nos. 1202, 1203, 1223, 1268, 1863 and 3475: Insert "363" in column (6).

UN Nos. 1334, 1350, 1454, 1474, 1486, 1498, 1499, 1942, 2067, 2213, 3077, 3377 and 3378, entries of Packing Group III: Add "BK3" in column (10).

UN No. 1707: Insert "274" in column (6).

UN No. 1792: Add ", SOLID" at the end of the name in column (2) and amend the alphabetical index accordingly.

UN No. 1845: Delete "297" in column (6).

UN No. 1950: Replace "P003" with "P207" in column (8) and delete "PP17" in column (9).

UN Nos. 2208 and 3486: Add "L3" against "LP02" in column (9).

UN No. 2381: Insert "6.1" in column (4) and "354" in column (6). Replace "T4" with "T7" in column (10) and replace "TP1" with "TP2 TP13 TP39" in column (11).

UN No. 2571: Delete "274" in column (6).

UN No. 2809: Insert "6.1" in column (4) and "365" in column (6).

UN No. 2965 and UN No. 3129, Packing Group I: Insert "TP13" in column (11).

UN No. 3064: Insert "359" in column (6).

UN Nos. 3091 and 3481: Insert "360" in column (6).

UN No. 3129, Packing Group II, and UN No. 3148, Packing Group II: Insert "TP7" in column (11).

UN No. 3129, Packing Group III, and UN No. 3148, Packing Group III: Replace "TP1" with "TP2 TP7" in column (11).

UN No. 3148, Packing Group I: Replace "T9" with "T13" in column (10) and insert "TP38" in column (11).

UN Nos. 3166 and 3171: Replace "106" with "123" in column (6).

UN Nos. 3334 and 3335: Replace "E0" with "E1" in column (7b).

UN Nos. 3381 to 3390 and 3488 to 3491: Replace "with an inhalation toxicity" with "with an LC<sub>50</sub>" in column (2) and amend appendix A and the alphabetical index accordingly.



UN Nos. 3492 and 3493: Delete these entries and amend appendix A and the alphabetical index accordingly.

For the following entries, amend the name and description in column (2) as indicated below and amend appendix A and the alphabetical index accordingly:

<i>UN No.</i>	<i>Name and description</i>
3276	NITRILES, LIQUID, TOXIC, N.O.S.
3278	ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.
3282	ORGANOMETALLIC COMPOUND, LIQUID, TOXIC, N.O.S.
3439	NITRILES, SOLID, TOXIC, N.O.S.
3464	ORGANOPHOSPHORUS COMPOUND, SOLID, TOXIC, N.O.S.
3467	ORGANOMETALLIC COMPOUND, SOLID, TOXIC, N.O.S.

Add the following new entries and amend appendix A and the alphabetical index accordingly:

(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
3496	BATTERIES, NICKEL-METAL HYDRIDE	9			117	0	E0	N/A			
3497	KRILL MEAL	4.2		II	300	0	E2	P410 IBC06	B2	T3	TP33
3497	KRILL MEAL	4.2		III	223	0	E1	P002 IBC08 LP02	B3	T1	TP33
3498	IODINE MONOCHLORIDE, LIQUID	8		II		1 L	E2	P001 IBC02		T7	TP2
3499	CAPACITOR, electric double layer (with an energy storage capacity greater than 0.3 Wh)	9			361	0	E0	P003			
3500	CHEMICAL UNDER PRESSURE, N.O.S.	2.2			274 362	0	E0	P206	PP89	T50	TP4 TP40
3501	CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S.	2.1			274 362	0	E0	P206	PP89	T50	TP4 TP40
3502	CHEMICAL UNDER PRESSURE, TOXIC, N.O.S.	2.2	6.1		274 362	0	E0	P206	PP89	T50	TP4 TP40
3503	CHEMICAL UNDER PRESSURE, CORROSIVE, N.O.S.	2.2	8		274 362	0	E0	P206	PP89	T50	TP4 TP40
3504	CHEMICAL UNDER PRESSURE, FLAMMABLE, TOXIC, N.O.S.	2.1	6.1		274 362	0	E0	P206	PP89	T50	TP4 TP40
3505	CHEMICAL UNDER PRESSURE, FLAMMABLE, CORROSIVE, N.O.S.	2.1	8		274 362	0	E0	P206	PP89	T50	TP4 TP40
3506	MERCURY CONTAINED IN MANUFACTURED ARTICLES	8	6.1	III	366	5 kg	E0	P003	PP90		

## Chapter 3.3

### 3.3.1

**SP188 (b)** At the end, delete "which may be transported in accordance with this special provision and without this marking until 31 December 2010".

**SP188 (c)** Amend to read as follows:

"(c) Each cell or battery meets the provisions of 2.9.4 (a) and (e);".

**SP188 (e)** Insert the following new second sentence: "This requirement does not apply to devices which are intentionally active in transport (radio frequency identification (RFID) transmitters, watches, sensors, etc.) and which are not capable of generating a dangerous evolution of heat.".

**SP230** Amend to read as follows:

**"230** Lithium cells and batteries may be transported under this entry if they meet the provisions of 2.9.4.".

**SP239** In the first sentence, replace, "sodium, sulphur and/or polysulphides" with "sodium, sulphur or sodium compounds (e.g. sodium polysulphides and sodium tetrachloroaluminate)".

**SP240** Amend to read as follows:

**"240** This entry only applies to vehicles powered by wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries and equipment powered by wet batteries or sodium batteries transported with these batteries installed.

For the purpose of this special provision, vehicles are self-propelled apparatus designed to carry one or more persons or goods. Examples of such vehicles are electrically-powered cars, motorcycles, scooters, three- and four-wheeled vehicles or motorcycles, e-bikes, wheel-chairs, lawn tractors, boats and aircraft.

Examples of equipment are lawnmowers, cleaning machines or model boats and model aircraft. Equipment powered by lithium metal batteries or lithium ion batteries shall be consigned under the entries UN 3091 LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT or UN 3091 LITHIUM METAL BATTERIES PACKED WITH EQUIPMENT or UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or UN 3481 LITHIUM ION BATTERIES PACKED WITH EQUIPMENT, as appropriate.

Hybrid electric vehicles powered by both an internal combustion engine and wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries, transported with the battery(ies) installed shall be consigned under the entries UN 3166 VEHICLE, FLAMMABLE GAS POWERED or UN 3166 VEHICLE, FLAMMABLE LIQUID POWERED, as appropriate. Vehicles which contain a fuel cell shall be consigned under the entries UN 3166 VEHICLE, FUEL CELL, FLAMMABLE GAS POWERED or UN 3166 VEHICLE, FUEL CELL, FLAMMABLE LIQUID POWERED, as appropriate.".

**SP272** In the text in parentheses, at the end, add "or UN 0150 as appropriate".

**SP289** Replace "installed in conveyances or in completed conveyance components" with "installed in vehicles, vessels or aircrafts or in completed components".

**SP296 (c)** Insert "or liquefied" after "compressed".

**SP296** Add the following new paragraph at the end:

"Life-saving appliances packed in strong rigid outer packagings with a total maximum gross mass of 40 kg, containing no dangerous goods other than Division 2.2 compressed or liquefied gases with no subsidiary risk in receptacles with a capacity not

exceeding 120 ml, installed solely for the purpose of the activation of the appliance, are not subject to these Regulations."

**SP297** Amend to read as follows: "297 (*Deleted*)".

**SP300** Replace "Fish meal or fish scrap" with "Fish meal, fish scrap and krill meal".

**SP301** In the last sentence, at the end, add ", except where special provision 363 applies".

**SP304** Amend to read as follows:

**"304** This entry may only be used for the transport of non-activated batteries which contain dry potassium hydroxide and which are intended to be activated prior to use by the addition of an appropriate amount of water to the individual cells."

**SP312** Replace "or lithium batteries" with ", lithium metal batteries or lithium ion batteries" (twice).

**SP327** In the third sentence, replace "P003" with "P207".

**SP328** Add the following new paragraph at the end:

"When lithium metal or lithium ion batteries are contained in the fuel cell system, the consignment shall be consigned under this entry and under the appropriate entries for UN 3091 LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT or UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT."

**SP338** Amend paragraph (b) to read as follows:

"(b) Not contain more than 200 ml liquefied flammable gas, the vapour pressure of which shall not exceed 1 000 kPa at 55 °C; and".

**SP356** Amend the first sentence to read as follows: "Metal hydride storage systems installed in vehicles, vessels or aircrafts or in completed components or intended to be installed in vehicles, vessels or aircrafts shall be approved by the competent authority before acceptance for transport."

3.3.1 Add the following new special provisions:

**"123** Subject to these Regulations only when transported by air or by sea."

**"358** Nitroglycerin solution in alcohol with more than 1% but not more than 5% nitroglycerin may be classified in Class 3 and assigned to UN 3064 provided all the requirements of packing instruction P300 are complied with."

**"359** Nitroglycerin solution in alcohol with more than 1% but not more than 5% nitroglycerin shall be classified in Class 1 and assigned to UN 0144 if not all the requirements of packing instruction P300 are complied with."

**"360** Vehicles only powered by lithium metal batteries or lithium ion batteries shall be consigned under the entry UN 3171 BATTERY-POWERED VEHICLE."

**"361** This entry applies to electric double layer capacitors with an energy storage capacity greater than 0.3 Wh. Capacitors with an energy storage capacity of 0.3 Wh or less are not subject to these Regulations. Energy storage capacity means the energy held by a capacitor, as calculated using the nominal voltage and capacitance. All capacitors to which this entry applies, including capacitors containing an electrolyte that does not meet the classification criteria of any class or division of dangerous goods, shall meet the following conditions:

- (a) Capacitors not installed in equipment shall be transported in an uncharged state. Capacitors installed in equipment shall be transported either in an uncharged state or protected against short circuit;
- (b) Each capacitor shall be protected against a potential short circuit hazard in transport as follows:
  - (i) When a capacitor's energy storage capacity is less than or equal to 10Wh or when the energy storage capacity of each capacitor in a module is less than or equal to 10 Wh , the capacitor or module shall be protected against short circuit or be fitted with a metal strap connecting the terminals; and
  - (ii) When the energy storage capacity of a capacitor or a capacitor in a module is more than 10 Wh, the capacitor or module shall be fitted with a metal strap connecting the terminals;
- (c) Capacitors containing dangerous goods shall be designed to withstand a 95 kPa pressure differential;
- (d) Capacitors shall be designed and constructed to safely relieve pressure that may build up in use, through a vent or a weak point in the capacitor casing. Any liquid which is released upon venting shall be contained by packaging or by equipment in which a capacitor is installed; and
- (e) Capacitors shall be marked with the energy storage capacity in Wh.

Capacitors containing an electrolyte not meeting the classification criteria of any class or division of dangerous goods, including when installed in equipment, are not subject to other provisions of these Regulations.

Capacitors containing an electrolyte meeting the classification criteria of any class or division of dangerous goods, with an energy storage capacity of 10 Wh or less are not subject to other provisions of these Regulations when they are capable of withstanding a 1.2 metre drop test unpackaged on an unyielding surface without loss of contents.

Capacitors containing an electrolyte meeting the classification criteria of any class or division of dangerous goods that are not installed in equipment and with an energy storage capacity of more than 10 Wh are subject to these Regulations.

Capacitors installed in equipment and containing an electrolyte meeting the classification criteria of any class or division of dangerous goods, are not subject to other provisions of these Regulations provided the equipment is packaged in a strong outer packaging constructed of suitable material and of adequate strength and design, in relation to the packaging's intended use and in such a manner as to prevent accidental functioning of capacitors during transport. Large robust equipment containing capacitors may be offered for transport unpackaged or on pallets when capacitors are afforded equivalent protection by the equipment in which they are contained.

*NOTE: Capacitors which by design maintain a terminal voltage (e.g. asymmetrical capacitors) do not belong to this entry."*

**"362** This entry applies to liquids, pastes or powders, pressurized with a propellant which meets the definition of a gas in 2.2.1.1 and 2.2.1.2 (a) or (b).

*NOTE: A chemical under pressure in an aerosol dispenser shall be transported under UN 1950.*

The following provisions shall apply:

(a) The chemical under pressure shall be classified based on the hazard characteristics of the components in the different states:

- The propellant;
- The liquid; or
- The solid.

If one of these components, which can be a pure substance or a mixture, needs to be classified as flammable, the chemical under pressure shall be classified as flammable in Division 2.1. Flammable components are flammable liquids and liquid mixtures, flammable solids and solid mixtures or flammable gases and gas mixtures meeting the following criteria:

- (i) A flammable liquid is a liquid having a flashpoint of not more than 93 °C;
- (ii) A flammable solid is a solid which meets the criteria in 2.4.2.2 of these Regulations;
- (iii) A flammable gas is a gas which meets the criteria in 2.2.2.1 of these Regulations;

(b) Gases of Division 2.3 and gases with a subsidiary risk of 5.1 shall not be used as a propellant in a chemical under pressure;

(c) Where the liquid or solid components are classified as dangerous goods of Division 6.1, packing groups II or III, or Class 8, packing groups II or III, the chemical under pressure shall be assigned a subsidiary risk of Division 6.1 or Class 8 and the appropriate UN number shall be assigned. Components classified in Division 6.1, packing group I, or Class 8, packing group I, shall not be used for transport under this proper shipping name;

(d) In addition, chemicals under pressure with components meeting the properties of : Class 1, explosives; Class 3, liquid desensitized explosives; Division 4.1, self-reactive substances and solid desensitized explosives; Division 4.2, substances liable to spontaneous combustion; Division 4.3, substances which, in contact with water, emit flammable gases; Division 5.1 oxidizing substances; Division 5.2, organic peroxides; Division 6.2, Infectious substances or Class 7, Radioactive material, shall not be used for transport under this proper shipping name;

(e) Substances to which PP86 or TP7 are assigned in Column 9 and Column 11 of the Dangerous Goods List in Chapter 3.2 and therefore require air to be eliminated from the vapour space, shall not be used for transport under this UN number but shall be transported under their respective UN numbers as listed in the Dangerous Goods List of Chapter 3.2. "

"**363** This entry also applies to dangerous goods above the quantity specified in Column 7a of the Dangerous Goods List of Chapter 3.2 in means of containment (other than vehicles or means of containment defined in Part 6 of these Regulations subject to special provision 301) integral to equipment or machinery (e.g. generators, compressors, heating units, etc) as part of their original design type. They shall meet the following requirements:

(a) The means of containment shall be in compliance with the construction requirements of the competent authority;

(b) Any valves or openings (e.g. venting devices) in the means of containment containing dangerous goods shall be closed during transport;

(c) The machinery or equipment shall be loaded in an orientation to prevent inadvertent leakage of dangerous goods and secured by means capable of restraining the machinery or equipment to prevent any movement during transport which would change the orientation or cause it to be damaged;

(d) Where the means of containment has a capacity of not more than 450 litres, the labelling requirements of 5.2.2 shall apply and where the capacity is greater than 450 litres but not more than 1 500 litres the machinery or equipment shall be labelled on all four external sides in accordance with 5.2.2;

(e) Where the means of containment has a capacity greater than 1500 litres, the machinery or equipment shall be placarded on all four external sides in accordance with 5.3.1.1.2; and

(f) The requirement of 5.4.1 shall apply.

No other provisions of these Regulations shall apply. "

"**364** This article may only be transported under the provisions of Chapter 3.4 if, as presented for transport, the package is capable of passing the test in accordance with Test Series 6(d) of Part I of the *Manual of Tests and Criteria* as determined by the competent authority."

"**365** For manufactured instruments and articles containing mercury, see UN 3506."

"**366** For land and sea transport, manufactured instruments and articles containing not more than 1 kg of mercury are not subject to these Regulations. For air transport, articles containing not more than 15 g of mercury are not subject to these Regulations."

## Chapter 3.4

Amend Chapter 3.4 to read as follows:

### "Chapter 3.4

#### **Dangerous goods packed in limited quantities**

3.4.1 This Chapter provides the provisions applicable to the transport of dangerous goods of certain classes packed in limited quantities. The applicable quantity limit for the inner packaging or article is specified for each substance in Column 7a of the Dangerous Goods List of Chapter 3.2. In addition, the quantity "0" has been indicated in this column for each entry not permitted to be transported in accordance with this Chapter.

Limited quantities of dangerous goods packed in such limited quantities, meeting the provisions of this Chapter, are not subject to any other provisions of these Regulations except the relevant provisions of:

- (a) Part 1, Chapters 1.1, 1.2 and 1.3;
- (b) Part 2;
- (c) Part 3, Chapters 3.1, 3.2, 3.3;
- (d) Part 4, paragraphs 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8;

**NOTE:** For air transport, additional provisions apply; refer to Part 3, Chapter 4 of the *ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air*.

- (e) Part 5:
  - (i) For air transport: chapters 5.1, 5.2 and 5.4;

- (ii) For sea transport: 5.1.1.2, 5.1.2.3, 5.2.1.7 and chapter 5.4;
- (iii) For transport by road, rail or inland waterway: 5.1.1.2, 5.1.2.3, 5.2.1.7 and section 5.4.2.
- (f) Part 6, construction requirements of 6.1.4, paragraph 6.2.1.2 and section 6.2.4;
- (g) Part 7, section 7.1.1 except first sentence of 7.1.1.7, paragraph 7.1.3.1.4 and sub-section 7.1.3.2.

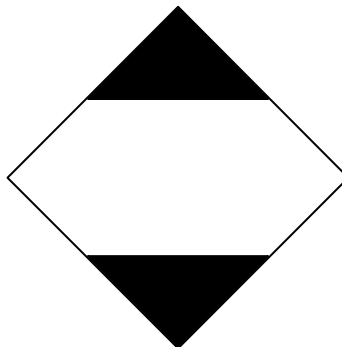
3.4.2 Dangerous goods shall be packed only in inner packagings placed in suitable outer packagings. Intermediate packagings may be used. In addition, for articles of Division 1.4, Compatibility Group S, the provisions of section 4.1.5 shall be fully complied with. The use of inner packagings is not necessary for the transport of articles such as aerosols or "receptacles, small, containing gas". The total gross mass of the package shall not exceed 30 kg.

3.4.3 Except for articles of Division 1.4, Compatibility Group S, shrink-wrapped or stretch-wrapped trays meeting the conditions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 are acceptable as outer packagings for articles or inner packagings containing dangerous goods transported in accordance with this Chapter. Inner packagings that are liable to break or be easily punctured, such as those made of glass, porcelain, stoneware or certain plastics, shall be placed in suitable intermediate packagings meeting the provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8, and be so designed that they meet the construction requirements of 6.1.4. The total gross mass of the package shall not exceed 20 kg.

3.4.4 Liquid goods of Class 8, packing group II in glass, porcelain or stoneware inner packagings shall be enclosed in a compatible and rigid intermediate packaging.

3.4.5 and 3.4.6 *(Deleted)*

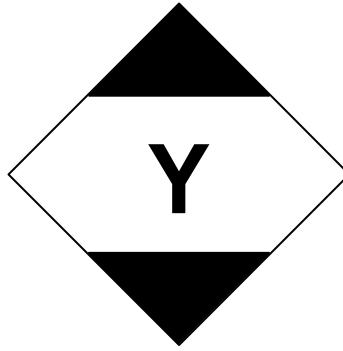
3.4.7 Except for air transport, packages containing dangerous goods in limited quantities shall bear the marking shown below:



The marking shall be readily visible, legible and able to withstand open weather exposure without a substantial reduction in effectiveness.

The top and bottom portions and the surrounding line shall be black. The centre area shall be white or a suitable contrasting background. The minimum dimensions shall be 100 mm × 100 mm and the minimum width of line forming the diamond shall be 2 mm. If the size of the package so requires, the dimension may be reduced, to be not less than 50 mm × 50 mm provided the marking remains clearly visible.

3.4.8 Packages containing dangerous goods consigned for air transport in conformity with the provisions of Part 3, Chapter 4 of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air shall bear the marking shown below:



The marking shall be readily visible, legible and able to withstand open weather exposure without a substantial reduction in effectiveness. The top and bottom portions and the surrounding line shall be black. The centre area shall be white or a suitable contrasting background. The minimum dimensions shall be 100 mm × 100 mm. The minimum width of line forming diamond shall be 2 mm. The symbol "Y" shall be placed in the centre of the mark and shall be clearly visible. If the size of the package so requires, the dimension may be reduced, to be not less than 50 mm × 50 mm provided the marking remains clearly visible.

3.4.9 Packages containing dangerous goods bearing the marking shown in 3.4.8 shall be deemed to meet the provisions of sections 3.4.1 to 3.4.4 of this Chapter and need not bear the marking shown in 3.4.7.

3.4.10 (*Deleted*)

3.4.11 When packages containing dangerous goods in limited quantities are placed in an overpack, the overpack shall be marked with the word "OVERPACK" and the marking required by this Chapter unless the markings representative of all dangerous goods in the overpack are visible. Except for air transport, the other provisions of 5.1.2.1 apply only if other dangerous goods which are not packed in limited quantities are contained in the overpack and only in relation to these other dangerous goods."

## **Chapter 3.5**

3.5.1 Insert a new sub-section 3.5.1.4 to read as follows:

"3.5.1.4 Excepted quantities of dangerous goods assigned to codes E1, E2, E4 and E5 are not subject to these Regulations provided that:

(a) The maximum net quantity of material per inner packaging is limited to 1 ml for liquids and gases and 1 g for solids;

(b) The provisions of 3.5.2 are met, except that an intermediate packaging is not required if the inner packagings are securely packed in an outer packaging with cushioning material in such a way that, under normal conditions of transport, they cannot break, be punctured, or leak their contents; and for liquid dangerous goods, the outer packaging contains sufficient absorbent material to absorb the entire contents of the inner packagings;

(c) The provisions of 3.5.3 are complied with; and

(d) The maximum net quantity of dangerous goods per outer packaging does not exceed 100 g for solids or 100 ml for liquids and gases."



## Appendix B

In the definition for "ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES, EEI)", delete "detonating".

In the definition for "Cartridges, blank", insert "tools," after "starter pistols,".

Replace the definition for "EXPLOSIVE, EXTREMELY INSENSITIVE DETONATING SUBSTANCE (EIDS)" with the following definition:

"EXPLOSIVE, EXTREMELY INSENSITIVE SUBSTANCE (EIS)

A substance which has demonstrated through tests that it is so insensitive that there is very little probability of accidental initiation."

Insert the following new definition:

"AUXILIARY EXPLOSIVE COMPONENT, isolated

An "isolated auxiliary explosive component" is a small device that explosively performs an operation related to the article's functioning, other than its main explosive loads' performance. Functioning of the component does not cause any reaction of the main explosive loads contained within the article."

## Chapter 4.1

Insert a new 4.1.1.16 to read as follows:

"4.1.1.16 Where ice is used as a coolant it shall not affect the integrity of the packaging."

Renumber existing 4.1.1.16 and 4.1.1.17 accordingly.

Insert a new 4.1.1.19 to read as follows:

### "4.1.1.19 *Use of salvage pressure receptacles*

4.1.1.19.1 In the case of damaged, defective, leaking or non-conforming pressure receptacles, salvage pressure receptacles according to 6.2.3 may be used.

*NOTE: A salvage pressure receptacle may be used as an overpack in accordance with 5.1.2. When used as an overpack, markings shall be in accordance with 5.1.2.1 instead of 5.2.1.3.*

4.1.1.19.2 Pressure receptacles shall be placed in salvage pressure receptacles of suitable size. More than one pressure receptacle may be placed in the same salvage pressure receptacle only if the contents are known and do not react dangerously with each other (see 4.1.1.6). Measures shall be taken to prevent movement of the pressure receptacles within the salvage pressure receptacle e.g. by partitioning, securing or cushioning.

4.1.1.19.3 A pressure receptacle may only be placed in a salvage pressure receptacle if:

(a) The salvage pressure receptacle is in accordance with 6.2.3.5 and a copy of the approval certificate is available;

(b) Parts of the salvage pressure receptacle which are, or are likely to be in direct contact with the dangerous goods will not be affected or weakened by those dangerous goods and will not cause a dangerous effect (e.g. catalyzing reaction or reacting with the dangerous goods); and

(c) The contents of the contained pressure receptacle(s) is limited in pressure and volume so that if totally discharged into the salvage pressure receptacle, the

pressure in the salvage pressure receptacle at 65 °C will not exceed the test pressure of the salvage pressure receptacle (for gases, see packing instruction in P200 (3) 4.1.4.1). The reduction of the useable water capacity of the salvage pressure receptacle, e.g. by any contained equipment and cushioning, shall be taken into account.

4.1.1.19.4 The proper shipping name, the UN Number preceded by the letters "UN" and label(s) as required for packages in Chapter 5.2 applicable to the dangerous goods inside the contained pressure receptacle(s) shall be applied to the salvage pressure receptacle for transport.

4.1.1.19.5 Salvage pressure receptacles shall be cleaned, purged and visually inspected internally and externally after each use. They shall be periodically inspected and tested in accordance with 6.2.1.6 at least once every five years."

#### 4.1.4.1

**P001** For "Combination packagings", under "Outer packagings", amend the entries for "Drums" to read as follows (the values for Maximum capacity/Net mass remain unchanged):

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plastics (1H1, 1H2)
plywood (1D)
fibre (1G)

**P001** For "Combination packagings", under "Outer packagings", "Boxes", after "aluminium (4B)", insert the following row:

other metal (4N)	250 kg	400 kg	400 kg
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**P001** For "Combination packagings", under "Outer packagings", amend the entries for "Jerricans" to read as follows (the values for Maximum capacity/Net mass remain unchanged):

steel (3A1, 3A2)
aluminium (3B1, 3B2)
plastics (3H1, 3H2)

**P002** For "Combination packagings", under "Outer packagings", amend the entries for "Drums" to read as follows (the values for Maximum net mass remain unchanged):

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plastics (1H1, 1H2)
plywood (1D)
fibre (1G)

**P002** For "Combination packagings", "Outer packagings", "Boxes", after "aluminium (4B)", insert the following row:

other metal (4N)	400 kg	400 kg	400 kg
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**P002** For "Combination packagings", under "Outer packagings", amend the entries for "Jerricans" to read as follows (the values for Maximum net mass remain unchanged):

steel (3A1, 3A2)
aluminium (3B1, 3B2)
plastics (3H1, 3H2)

**P002** For "Single packagings", "Boxes", after "aluminium (4B)<sup>e</sup>", insert the following row:

other metal (4N) <sup>e</sup>	Not allowed	400 kg	400 kg
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**P002** In special packing provision PP85, at the end, add the following sentence: "For transport by sea, bags are not allowed as single packagings."

**P003** In special packing provision PP17, delete "Nos. 1950 and". Delete special packing provision PP87. Insert the following new special packing provision PP90:

"PP90 For UN 3506, sealed inner liners or bags of strong leak-proof and puncture resistant material impervious to mercury which will prevent escape of the substance from the package irrespective of the position of the package shall be used. For air transport additional requirements may apply."

**P004** Amend to read as follows:

<b>P004</b>	<b>PACKING INSTRUCTION</b>	<b>P004</b>
This instruction applies to UN Nos. 3473, 3476, 3477, 3478 and 3479		
The following packagings are authorized:		
(1)	For fuel cell cartridges, provided that the general provisions of <b>4.1.1.1, 4.1.1.2, 4.1.1.3, 4.1.1.6</b> and <b>4.1.3</b> are met: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2). Packagings shall conform to the packing group II performance level.	
(2)	For fuel cell cartridges packed with equipment: strong outer packagings which meet the general provisions of <b>4.1.1.1, 4.1.1.2, 4.1.1.6</b> and <b>4.1.3</b> . When fuel cell cartridges are packed with equipment, they shall be packed in inner packagings or placed in the outer packaging with cushioning material or divider(s) so that the fuel cell cartridges are protected against damage that may be caused by the movement or placement of the contents within the outer packaging. The equipment shall be secured against movement within the outer packaging. For the purpose of this packing instruction, "equipment" means apparatus requiring the fuel cell cartridges with which it is packed for its operation.	
(3)	For fuel cell cartridges contained in equipment: strong outer packagings which meet the general provisions of <b>4.1.1.1, 4.1.1.2, 4.1.1.6</b> and <b>4.1.3</b> . Large robust equipment (see 4.1.3.8) containing fuel cell cartridges may be transported unpackaged. For fuel cell cartridges contained in equipment, the entire system shall be protected against short circuit and inadvertent operation.	

**P010** For "Combination packagings", under "Outer packagings":

- Under "Drums", for "steel", insert "1A1," before "1A2";
- Under "Drums", for "plastics", insert "1H1," before "1H2";

**P010** At the end, add the following new row:

**Steel pressure receptacles**, provided that the general provisions of 4.1.3.6 are met.

**P110(a)** For "Inner packagings", insert two new rows to read:

**"Receptacles**  
wood".

**P110(a)** For "Intermediate packagings", "Receptacles", insert a new row to read:  
"wood".

**P110(a)** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)  
metal, other than steel or aluminium (1N1, 1N2)  
plastics (1H1, 1H2)

**P111** For "Inner packagings", insert two new rows to read:

**"Receptacles**  
wood".

**P111** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read:  
"other metal (4N)".

**P111** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)  
aluminium (1B1, 1B2)  
other metal (1N1, 1N2)  
plywood (1D)  
fibre (1G)  
plastics (1H1, 1H2)

**P112(a)** For "Inner packagings", "Receptacles", insert a new line to read: "wood".

**P112(a)** For "Intermediate packagings", "Receptacles", insert a new row to read:  
"wood".

**P112(a)** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P112(a)** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)  
aluminium (1B1, 1B2)  
other metal (1N1, 1N2)  
plywood (1D)  
fibre (1G)  
plastics (1H1, 1H2)

**P112(b)** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

For "Outer packagings", "Drums", after "aluminium, removable head (1B2)", insert "other metal, removable head (1N2)".

**P112(b)** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)

**P112(c)** For "Intermediate packagings", "Receptacles", insert a new row to read: "wood".

**P112(c)** For "Outer packagings", "Boxes", after "steel (4A)", insert a new row to read: "metal, other than steel or aluminium (4N)".

**P112(c)** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)

**P113** For "Outer packagings", "Boxes", after "steel (4A)", insert a new row to read: "metal, other than steel or aluminium (4N)".

**P113** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)

**P114(a)** For "Inner packagings", "Receptacles", insert a new line to read: "wood".

**P114(a)** For "Intermediate packagings", insert two new lines to read:

**"Dividing partitions**

wood".

**P114(a)** For "Outer packagings", "Boxes", after "steel (4A)", insert a new row to read: "metal, other than steel or aluminium (4N)".

**P114(a)** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) fibre (1G) plastics (1H1, 1H2)
---

**P114(a)** In special packing provisions PP43, replace "1A2 or 1B2" with "1A2, 1B2 or 1N2".

**P114(b)** For "Inner packagings", "Receptacles", insert a new line to read: "wood".

**P114(b)** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
---

**P114(b)** In special packing provisions PP52, replace "1A2 or 1B2" with "1A2, 1B2 or 1N2".

**P115** For "Inner packagings", "Receptacles", insert a new line to read: "wood".

**P115** For "Intermediate packagings", insert two new rows to read:

**"Receptacles**  
wood".

**P115** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
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**P115** In special packing provisions PP60, after "aluminium drums, removable head (1B2)", insert "and metal, other than steel or aluminium, drums, removable head (1N2)".

**P116** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P116** Amend the entries under "Outer packagings", "Drums" and "Jerricans" to read:

**Drums**

steel (1A1, 1A2)  
 aluminium (1B1, 1B2)  
 other metal (1N1, 1N2)  
 fibre (1G)  
 plastics (1H1, 1H2)  
 plywood (1D)

**Jerricans**

steel (3A1, 3A2)  
 plastics (3H1, 3H2)

**P130** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P130** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)  
 aluminium (1B1, 1B2)  
 other metal (1N1, 1N2)  
 plywood (1D)  
 fibre (1G)  
 plastics (1H1, 1H2)

**P131** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P131** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)  
 aluminium (1B1, 1B2)  
 other metal (1N1, 1N2)  
 plywood (1D)  
 fibre (1G)  
 plastics (1H1, 1H2)

**P132(a)** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P132(b)** For "Inner packagings", "Receptacles", insert a new line to read: "wood".

**P132(b)** For "Outer packagings", "Boxes", after "aluminium (4B)", insert "other metal (4N)".

**P133** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P134** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P134** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)  
aluminium (1B1, 1B2)  
other metal (1N1, 1N2)  
plywood (1D)  
fibre (1G)  
plastics (1H1, 1H2)

**P135** For "Outer packagings", "Boxes", after "aluminium (4B)", insert "other metal (4N)".

**P135** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)  
aluminium (1B1, 1B2)  
other metal (1N1, 1N2)  
plywood (1D)  
fibre (1G)  
plastics (1H1, 1H2)

**P136** For "Outer packagings", "Boxes", after "aluminium (4B)", insert "other metal (4N)".

**P136** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)  
aluminium (1B1, 1B2)  
other metal (1N1, 1N2)  
plywood (1D)  
fibre (1G)  
plastics (1H1, 1H2)

**P137** For "Inner packagings", "Boxes", insert a new row to read: "wood".

**P137** For "Outer packagings", "Boxes", after "aluminium (4B)", insert "other metal (4N)".

**P137** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)  
aluminium (1B1, 1B2)  
other metal (1N1, 1N2)  
plywood (1D)  
fibre (1G)  
plastics (1H1, 1H2)

**P138** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P138** Amend the entries under "Outer packagings", "Drums" to read:



steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)

**P139** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P139** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)

**P140** For "Inner packagings", insert two new rows to read:

**"Receptacles**  
wood".

**P140** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P140** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)

**P141** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P141** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)

**P142** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read: "other metal (4N)".

**P142** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
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**P143** For "Inner packagings", "Receptacles", insert a new line to read: "wood".

**P143** For "Outer packagings", "Boxes", after "aluminium (4B)", insert "other metal (4N)".

**P143** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
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**P144** For "Inner packagings", "Receptacles", insert a new line to read: "wood".

**P144** For "Outer packagings", "Boxes", after "aluminium (4B)", insert a new row to read "other metal (4N)".

**P144** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plastics (1H1, 1H2)
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**P200**, Paragraph (4): Amend the first line reading "Keys for the column "Special packing provisions"" to read "Special packing provisions".

**P200**, Paragraph (4): Amend the first heading reading "Material compatibility (for gases see ISO 11114-1:1997 and ISO 11114-2:2000" to read "Material compatibility".

**P200**, Paragraph (4): Amend sub-paragraph a to read:

"a: Aluminium alloy pressure receptacles shall not be used."

**P200**, Paragraph (4): Amend sub-paragraph d to read:

"d: When steel pressure receptacles are used, only those bearing the "H" mark in accordance with 6.2.2.7.4 (p) are permitted."

**P200**, Table 2: For UN Nos. 1008, 1076, 1741, 1859, 2189 and 2418, insert "a" in column "Special packing provisions".

**P200**, Table 3: For UN No. 1052, insert "a" in column "Special packing provisions".

**P201** Amend to read as follows:

P201	PACKING INSTRUCTION	P201
This instruction applies to UN Nos. 3167, 3168 and 3169.		
The following packagings are authorized:		
(1) Compressed gas cylinders and gas receptacles conforming to the construction, testing and filling requirements approved by the competent authority.		
(2) The following combination packagings provided that the general provisions of <b>4.1.1</b> and <b>4.1.3</b> are met:		
Outer packagings:		
Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);		
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);		
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).		
Inner packagings:		
(a) For non-toxic gases, hermetically sealed inner packagings of glass or metal with a maximum capacity of 5 litres per package;		
(b) For toxic gases, hermetically sealed inner packagings of glass or metal with a maximum capacity of 1 litre per package.		
Packagings shall conform to the packing group III performance level.		

**P203** Under "Requirements for closed cryogenic receptacles", add a new paragraph (8) to read as follows:

"(8) Periodic inspection

The periodic inspection and test frequencies of pressure relief valves in accordance with 6.2.1.6.3 shall not exceed five years."

**P302** Amend to read as follows:

P302	PACKING INSTRUCTION	P302
This instruction applies to UN No. 3269.		
The following combination packagings are authorized, provided that the general provisions of <b>4.1.1</b> and <b>4.1.3</b> are met:		
Outer packagings:		
Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);		
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2)		
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2);		
Inner packagings:		
The activator (organic peroxide) shall have a maximum quantity of 125 ml per inner packaging if liquid, and 500 g per inner packaging if solid.		
The base material and the activator shall be each separately packed in inner packagings.		
The components may be placed in the same outer packaging provided that they will not interact dangerously in the event of a leakage.		
Packagings shall conform to the packing group II or III performance level according to the criteria for Class 3 applied to the base material.		

**P400 (2)** In the first sentence, insert ", 4N" after "4B" and replace "drums (1A2, 1B2, 1N2, 1D or 1G) or jerricans (3A2 or 3B2)" with "drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1D or 1G) or jerricans (3A1, 3A2, 3B1 or 3B2)".

**P400 (3)** In the first sentence, replace "4A or 4B" with "4A, 4B or 4N" and replace "Steel, aluminium or metal drums (1A2, 1B2 or 1N2), jerricans (3A2 or 3B2)" with "Steel,

aluminium or metal drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2), jerricans (3A1, 3A2, 3B1 or 3B2)".

**P401** Amend paragraph (2) to read as follows:

"(2) Combination packagings:

Outer packagings:

- Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);
- Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1,4H2);
- Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).

Inner packagings:

Glass, metal or plastics which have threaded closures with a maximum capacity of 1 litre. Each inner packaging shall be surrounded by inert cushioning and absorbent material in a quantity sufficient to absorb the entire contents. The maximum net mass per outer packaging shall not exceed 30 kg."

**P402** Amend paragraph (2) to read as follows:

"(2) Combination packagings:

Outer packagings:

- Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);
- Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1,4 H2);
- Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).

Inner packagings with a maximum net mass as follows:

- Glass 10 kg
- Metal or plastics 15 kg

Each inner packaging shall be fitted with threaded closures. Each inner packaging shall be surrounded by inert cushioning and absorbent material in a quantity sufficient to absorb the entire contents. The maximum net mass per outer packaging shall not exceed 125 kg."

**P403** For "Combination packagings", under "Outer packagings", amend the entries for "Drums" to read as follows (the values for Maximum net mass remain unchanged):

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plastics (1H1, 1H2)
plywood (1D)
fibre (1G)

**P403** For "Combination packagings", "Outer packagings", "Boxes", after "aluminium (4B)", insert the following row:

other metal (4N)	400 kg
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**P403** For "Combination packagings", under "Outer packagings", amend the entries for "Jerricans" to read as follows (the values for Maximum net mass remain unchanged):

steel (3A1, 3A2) aluminium (3B1, 3B2) plastics (3H1, 3H2)
---

**P404 (1)** Amend the text in parentheses for "Outer packagings" to read "(1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F or 4H2)".

**P405 (1)(a)** Insert ", 4N" after "4B".

**P406 (1)** For "Outer packagings" replace "1H2 or 3H2" with "1H1, 1H2, 3H1 or 3H2".

**P406 (2)** Insert ", 4N" after "4B".

**P407** Amend to read as follows:

<b>P407</b>	<b>PACKING INSTRUCTION</b>	<b>P407</b>
This instruction applies to UN Nos. 1331, 1944, 1945 and 2254.		
The following packagings are authorized, provided that the general provisions of <b>4.1.1</b> and <b>4.1.3</b> are met:		
Outer packagings:		
Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);		
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);		
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).		
Inner packagings:		
Matches shall be tightly packed in securely closed inner packagings to prevent accidental ignition under normal conditions of transport.		
The maximum gross mass of the package shall not exceed 45 kg except for fibreboard boxes which shall not exceed 30 kg.		
Packagings shall conform to the packing group III performance level.		
<b>Special packing provision:</b>		
<b>PP27</b> [Unchanged]		

**P408** Amend to read as follows:

<b>P408</b>	<b>PACKING INSTRUCTION</b>	<b>P408</b>
This instruction applies to UN No. 3292.		
The following packagings are authorized, provided that the general provisions of <b>4.1.1</b> and <b>4.1.3</b> are met:		
(1) For cells:		
Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);		
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);		
Jerricans (3A2, 3B2, 3H2).		
There shall be sufficient cushioning material to prevent contact between cells and between cells and the internal surfaces of the outer packaging and to ensure that no dangerous movement of the cells within the outer packaging occurs in transport.		
Packagings shall conform to the packing group II performance level.		
(2) Batteries may be transported unpacked or in protective enclosures (e.g. fully enclosed or wooden slatted crates). The terminals shall not support the weight of other batteries or materials packed with the batteries.		
Packagings need not meet the requirements of 4.1.1.3.		

P408	PACKING INSTRUCTION	P408
<b>Additional requirement:</b>		
Cells and batteries shall be protected against short circuit and shall be isolated in such a manner as to prevent short circuits.		

**P410** For "Combination packagings", under "Outer packagings", amend the entries for "Drums" to read as follows (the values for Maximum net mass remain unchanged):

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plastics (1H1, 1H2)
plywood (1D)
fibre (1G)

**P410** For "Combination packagings", "Outer packagings", "Boxes", after "aluminium (4B)", insert the following row:

other metal (4N)	400 kg	400 kg
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**P410** For "Combination packagings", under "Outer packagings", amend the entries for "Jerricans" to read as follows (the values for Maximum net mass remain unchanged):

steel (3A1, 3A2)
aluminium (3B1, 3B2)
plastics (3H1, 3H2)

**P410** For "Single packagings", "Boxes", after "aluminium (4B)<sup>c</sup>", insert the following row:

other metal (4N) <sup>c</sup>	400 kg	400 kg
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**P411** Amend to read as follows:

P411	PACKING INSTRUCTION	P411
This instruction applies to UN No. 3270.		
The following packagings are authorized, provided that the general provisions of <b>4.1.1</b> and <b>4.1.3</b> are met:		
Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);		
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);		
Jerricans (3A2, 3B2, 3H2);		
provided that explosion is not possible by reason of increased internal pressure.		
The maximum net mass shall not exceed 30 kg.		

**P500** Amend to read as follows:

P500	PACKING INSTRUCTION	P500
This instruction applies to UN No. 3356.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
<ul style="list-style-type: none"> <li>Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);</li> <li>Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);</li> <li>Jerricans (3A2, 3B2, 3H2).</li> </ul>		
Packagings shall conform to the packing group II performance level.		
The generator(s) shall be transported in a package which meets the following requirements when one generator in the package is actuated:		
<ul style="list-style-type: none"> <li>(a) Other generators in the package will not be actuated;</li> <li>(b) Packaging material will not ignite; and</li> <li>(c) The outside surface temperature of the completed package shall not exceed 100 °C.</li> </ul>		

**P501** In the text for "Combination packagings", (1), insert ", 4N" after "4B" and replace "drums (1A2, 1B2, 1N2, 1H2, 1D) or jerricans (3A2, 3B2, 3H2)" with "drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D) or jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2)".

**P502** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)

**P502** For "Combination packagings", "Boxes", after "aluminium (4B)", insert the following row:

other metal (4N)	125 kg
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**P503** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)

**P503** For "Combination packagings", "Boxes", after "aluminium (4B)", insert the following row:

other metal (4N)	125 kg
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**P504** In the text for "Combination packagings", (1) and (2), amend the text in parentheses to read "(1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2)".

**P504** In the text for "Combination packagings", (4), amend the text in parentheses to read "(1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 4A, 4B, 4N, 4C1, 4C2, 4D, 4H2)".

**P520 (1)** Insert ", 4N" after "4B" and replace "drums (1A2, 1B2, 1G, 1H2 and 1D) jerricans (3A2, 3B2 and 3H2)" with "drums (1A1, 1A2, 1B1, 1B2, 1G, 1H1, 1H2 and 1D), jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2)".

**P600** Amend the text in parentheses after "Outer packagings:" to read "(1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2)".

**P601 (1), last indent** Replace "1A2, 1B2, 1N2, 1H2" with "1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2" and insert ", 4N" after "4B".

**P601 (2)** Replace "1A2, 1B2, 1N2, 1H2" with "1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2" and insert ", 4N" after "4B".

**P601 (3)** After "Outer packagings:", replace "Steel or plastics drums, removable head (1A2 or 1H2)," with "Steel or plastics drums (1A1, 1A2, 1H1 or 1H2),".

**P602 (1), last indent** Replace "1A2, 1B2, 1N2, 1H2" with "1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2" and insert ", 4N" after "4B".

**P602 (2)** Replace "1A2, 1B2, 1N2, 1H2" with "1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2" and insert ", 4N" after "4B".

**P620** Amend the first sub-paragraph (b) — before the additional requirements — to read as follows:

"(b) A rigid outer packaging:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).

The smallest external dimension shall be not less than 100 mm."



**P621** Amend to read as follows:

<b>P621</b>	<b>PACKING INSTRUCTION</b>	<b>P621</b>
This instruction applies to UN No. 3291.		
The following packagings are authorized provided that the general provisions of <b>4.1.1</b> except 4.1.1.15 and <b>4.1.3</b> are met:		
(1) Provided that there is sufficient absorbent material to absorb the entire amount of liquid present and the packaging is capable of retaining liquids: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2). Packagings shall conform to the packing group II performance level for solids.		
(2) For packages containing larger quantities of liquid: Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G); Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2); Composites (6HA1, 6HB1, 6HG1, 6HH1, 6HD1, 6HA2, 6HB2, 6HC, 6HD2, 6HG2, 6HH2, 6PA1, 6PB1, 6PG1, 6PD1, 6PH1, 6PH2, 6PA2, 6PB2, 6PC, 6PG2 or 6PD2). Packagings shall conform to the packing group II performance level for liquids.		
<b>Additional requirement:</b> Packagings intended to contain sharp objects such as broken glass and needles shall be resistant to puncture and retain liquids under the performance test conditions in Chapter 6.1.		

**P650** Amend paragraph (9) (a) to read as follows:

"(a) When dry ice or liquid nitrogen is used as a coolant, the requirements of 5.5.3 shall apply. When used, ice shall be placed outside the secondary packagings or in the outer packaging or an overpack. Interior supports shall be provided to secure the secondary packagings in the original position. If ice is used, the outside packaging or overpack shall be leakproof."

**P800** Amend the entries under "Outer packagings", "Drums" to read:

steel (1A1, 1A2)
metal, other than steel or aluminium (1N1, 1N2)
plastics (1H1, 1H2)
plywood (1D)
fibre (1G)

**P800** In paragraph (3) (d), for "Boxes", after "steel (4A)", insert the following row:

metal, other than steel or aluminium (4N)	400 kg
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**P802 (1)** Replace "1A2, 1B2, 1N2, 1H2, 1D, 4A, 4B, 4C1, 4C2, 4D, 4F, or 4H2" with "1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2".

**P802 (2)** Replace "1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2" with "1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2".

**P803 (2)** Insert ", 4N" after "4B".

**P804 (1), last indent** Replace "1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2" with "1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2".

**P804 (2)** Replace "1A2, 1B2, 1N2, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2" with "1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2".

**P804 (3)** After "Outer packagings:", replace "Steel or plastics drums, removable head (1A2 or 1H2)" with "Steel or plastics drums (1A1, 1A2, 1H1 or 1H2)".

**P901** Amend to read as follows:

<b>P901</b>	<b>PACKING INSTRUCTION</b>	<b>P901</b>
This instruction applies to UN No. 3316.		
The following combination packagings are authorized provided the general provisions of <b>4.1.1</b> and <b>4.1.3</b> are met: Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2). Packagings shall conform to the performance level consistent with the packing group assigned to the kit as a whole (see 3.3.1, special provision 251). Maximum quantity of dangerous goods per outer packaging: 10 kg excluding the mass of any carbon dioxide, solid (dry ice) used as a refrigerant.		
<b>Additional requirement:</b> Dangerous goods in kits shall be packed in inner packagings which shall not exceed either 250 ml or 250 g and shall be protected from other materials in the kit.		

**P902** Amend to read as follows:

<b>P902</b>	<b>PACKING INSTRUCTION</b>	<b>P902</b>
This instruction applies to UN No. 3268.		
<b>Packaged articles:</b> The following packagings are authorized provided the general provisions of <b>4.1.1</b> and <b>4.1.3</b> are met: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2). Packagings shall conform to the packing group III performance level. The packagings shall be designed and constructed so as to prevent movement of the articles and inadvertent operation during normal conditions of transport.		
<b>Unpackaged articles:</b> The articles may also be transported unpackaged in dedicated handling devices, vehicles or containers when moved from where they are manufactured to an assembly plant.		
<b>Additional requirement:</b> Any pressure vessel shall be in accordance with the requirements of the competent authority for the substance(s) contained therein.		

**P903** Amend to read as follows:

P903	PACKING INSTRUCTION	P903
This instruction applies to UN Nos. 3090, 3091, 3480 and 3481.		
The following packagings are authorized provided that the general provisions of 4.1.1 and 4.1.3 are met:		
<p>(1) For cells and batteries:</p> <p style="padding-left: 40px;">Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);</p> <p style="padding-left: 40px;">Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);</p> <p style="padding-left: 40px;">Jerricans (3A2, 3B2, 3H2).</p> <p>Cells or batteries shall be packed in packagings so that the cells or batteries are protected against damage that may be caused by the movement or placement of the cells or batteries within the packaging.</p> <p>Packagings shall conform to the packing group II performance level.</p>		
<p>(2) In addition for cells or batteries with a gross mass of 12 kg or more employing a strong, impact resistant outer casing, and assemblies of such cells or batteries:</p> <p>(a) Strong outer packagings, in protective enclosures (e.g., in fully enclosed or wooden slatted crates); or</p> <p>(b) Pallets or other handling devices.</p> <p>Cells or batteries shall be secured to prevent inadvertent movement, and the terminals shall not support the weight of other superimposed elements.</p> <p>Packagings need not meet the requirements of 4.1.1.3.</p>		
<p>(3) For cells or batteries packed with equipment:</p> <p>Packagings conforming to the requirements in paragraph (1) of this packing instruction, then placed with the equipment in an outer packaging; or</p> <p>Packagings that completely enclose the cells or batteries, then placed with equipment in a packaging conforming to the requirements in paragraph (1) of this packing instruction.</p> <p>The equipment shall be secured against movement within the outer packaging.</p> <p>For the purpose of this packing instruction, "equipment" means apparatus requiring the lithium metal or lithium ion cells or batteries with which it is packed for its operation.</p>		
<p>(4) For cells or batteries contained in equipment:</p> <p>Strong outer packagings constructed of suitable material of adequate strength and design, in relation to the packaging capacity and its intended use. They shall be constructed in such a manner as to prevent accidental operation during transport. Packagings need not meet the requirements of 4.1.1.3.</p> <p>Large equipment can be offered for transport unpackaged or on pallets when the cells or batteries are afforded equivalent protection by the equipment in which they are contained.</p> <p>Devices such as radio frequency identification (RFID) tags, watches and temperature loggers, which are not capable of generating a dangerous evolution of heat, may be transported when intentionally active in strong outer packagings. When active, these devices shall meet defined standards for electromagnetic radiation to ensure that the operation of the device does not interfere with aircraft systems.</p>		
<b>Additional requirement:</b>		
Cells or batteries shall be protected against short circuit.		

**P904** Amend the additional requirement to read as follows:

**"Additional requirement:**

Ice, dry ice and liquid nitrogen

When dry ice or liquid nitrogen is used as a coolant, the requirements of 5.5.3 shall apply.

When used, ice shall be placed outside the secondary packagings or in the outer packaging

or an overpack. Interior supports shall be provided to secure the secondary packaging in the original position. If ice is used, the outside packaging or overpack shall be leakproof."

4.1.4.1 Add the following new packing instructions:

P206	PACKING INSTRUCTION	P206
This instruction applies to UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505.		
Unless otherwise indicated in these Regulations, cylinders and pressure drums conforming to the applicable requirements of Chapter 6.2 are authorized.		
<p>(1) The general packing requirements of <b>4.1.6.1</b> shall be met.</p> <p>(2) The maximum test period for periodic inspection shall be 5 years.</p> <p>(3) Cylinders and pressure drums shall be so filled that at 50 °C the non-gaseous phase does not exceed 95% of their water capacity and they are not completely filled at 60 °C. When filled, the internal pressure at 65 °C shall not exceed the test pressure of the cylinders and pressure drums. The vapour pressures and volumetric expansion of all substances in the cylinders and pressure drums shall be taken into account.</p> <p>(4) The minimum test pressure shall be in accordance with P200 for the propellant but shall not be less than 20 bar.</p>		
<b>Additional requirement:</b>		
Cylinders and pressure drums shall not be offered for transport when connected with spray application equipment such as a hose and wand assembly.		
<b>Special packing provisions:</b>		
<b>PP89</b> For UN 3500, 3501, 3502, 3503, 3504 and 3505, notwithstanding 4.1.6.1.9 (b), non-refillable cylinders used may have a water capacity in litres not exceeding 1 000 litres divided by the test pressure expressed in bars provided capacity and pressure restrictions of the construction standard comply with ISO 11118:1999, which limits the maximum capacity to 50 litres.		

P207	PACKING INSTRUCTION	P207				
This instruction applies to UN No. 1950.						
The following packagings are authorized, provided that the general provisions of <b>4.1.1</b> and <b>4.1.3</b> are met:						
<p>(a) Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2). Packagings shall conform to the packing group II performance level.</p> <p>(b) Rigid outer packagings with a maximum net mass as follows:</p> <table style="margin-left: 20px;"> <tr> <td>Fibreboard</td> <td>55 kg</td> </tr> <tr> <td>Other than fibreboard</td> <td>125 kg</td> </tr> </table> <p>The provisions of 4.1.1.3 need not be met.</p>			Fibreboard	55 kg	Other than fibreboard	125 kg
Fibreboard	55 kg					
Other than fibreboard	125 kg					
The packagings shall be designed and constructed to prevent movement of the aerosols and inadvertent discharge during normal conditions of transport.						
<b>Special packing provision:</b>						
<b>PP87</b> For UN 1950 waste aerosols transported in accordance with special provision 327, the packagings shall have a means of retaining any free liquid that might escape during transport, e.g. absorbent material. The packaging shall be adequately ventilated to prevent the creation of flammable atmosphere and the build-up of pressure.						

## 4.1.4.2

**IBC520** For UN 3119, in the entry for "Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 38% in diluent type A", in column "Organic peroxide", replace "38%" with "52%".

For UN 3119, in the entry for "1,1,3,3-Tetramethylbutyl peroxyneodecanoate, not more than 52%, stable dispersion, in water", insert the following new row:

<i>Type of IBC</i>	<i>Maximum quantity (litres)</i>	<i>Control temperature</i>	<i>Emergency temperature</i>
31HA1	1 000	-5 °C	+5 °C

Insert the following new entries:

<i>UN No</i>	<i>Organic peroxide</i>	<i>Type of IBC</i>	<i>Maximum quantity (litres)</i>	<i>Control temperature</i>	<i>Emergency temperature</i>
3119	Diisobutyl peroxide, not more than 28% as a stable dispersion in water	31HA1	1 000	-20 °C	-10 °C
		31A	1 250	-20 °C	-10 °C
3119	Diisobutyl peroxide, not more than 42% as a stable dispersion in water	31HA1	1 000	-25 °C	-15 °C
		31A	1 250	-25 °C	-15 °C

## 4.1.4.3

**LP02** Add a new special packing provision L3 to read as follows:

**L3** For UN Nos. 2208 and 3486, transport by sea in large packagings is prohibited."

**LP902** Before "The following large packagings are authorized...", insert a new heading to read "**Packaged articles:**" and before "The articles may also...", insert a paragraph break and a new heading to read "**Unpackaged articles:**".

4.1.6.1.5 In the first sentence, add "and, in case of a chemical under pressure, for the propellant" after "authorized for the gas".

4.1.6.1.8 In the paragraph following sub-paragraph (e), replace "ISO 11117:1998" with "either ISO 11117:1998 or ISO 11117:2008 + Cor 1:2009".

4.1.6.1.10 In the first sentence, replace "or P205" with ", P205 or P206".

Add a new second sentence to read as follows: "Pressure relief valves for closed cryogenic receptacles shall be subject to periodic inspections and tests according to the provisions of 6.2.1.6.3 and packing instruction P203."

## Chapter 4.2

4.2.2 In the heading, add "and chemicals under pressure" at the end.

4.2.2.1 At the end, add "and chemicals under pressure".

4.2.2.2 In the second sentence, insert "and chemicals under pressure" after "Non-refrigerated liquefied gases".

4.2.2.7.1 In the first sentence, insert "or the propellant of the chemical under pressure" after "for the non-refrigerated liquefied gas" and insert ", or with chemicals under pressure"

after "loaded with non-refrigerated liquefied gases". In the second sentence, insert "or propellant of chemicals under pressure" after "the temperature of the non-refrigerated liquefied gas".

## 4.2.5.2.6

**T50** In the second heading row, amend the first sentence to read as follows "This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505)".

**T50** For UN 3220, in the last column (Maximum filling ratio), replace "0.95" with "0.87".

**T50** Add the following new entries:

<i>UN No</i>	<i>Non-refrigerated liquefied gases</i>	<i>Max. allowable working pressure (bar)</i>	<i>Openings below liquid level</i>	<i>Pressure-relief requirements (see 6.7.3.7)</i>	<i>Maximum filling ratio</i>
3500	Chemical under pressure, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4 <sup>c</sup>
3501	Chemical under pressure, flammable, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4 <sup>c</sup>
3502	Chemical under pressure, toxic, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4 <sup>c</sup>
3503	Chemical under pressure, corrosive, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4 <sup>c</sup>
3504	Chemical under pressure, flammable, toxic, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4 <sup>c</sup>
3505	Chemical under pressure, flammable, corrosive, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4 <sup>c</sup>

4.2.5.3 **TP37** Amend to read as follows:

"TP37 Portable tank instruction T14 may continue to be applied until 31 December 2016 except that until that date:

- (a) For UN Nos. 1810, 2474 and 2668, T7 may be applied;
- (b) For UN No. 2486, T8 may be applied; and
- (c) For UN No. 1838, T10 may be applied."

<sup>c</sup> For UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505, the degree of filling shall be considered instead of the maximum filling ratio.

Insert new portable tank special provisions TP38, TP39 and TP40 to read as follows:

"TP38 The portable tank instruction T9 prescribed in the Model Regulations annexed to the sixteenth revised edition of the Recommendations on the Transport of Dangerous Goods may continue to be applied until 31 December 2018."

"TP39 The portable tank instruction T4 prescribed in the Model Regulations annexed to the sixteenth revised edition of the Recommendations on the Transport of Dangerous Goods may continue to be applied until 31 December 2018."

"TP40 Portable tanks shall not be transported when connected with spray application equipment."

4.2.6 At the end, add the following new paragraph:

"Portable tanks and MEGCs manufactured before 1 January 2014 need not comply with the requirements of 6.7.2.13.1 (f), 6.7.3.9.1 (e), 6.7.4.8.1 (e) and 6.7.5.6.1 (d) concerning the marking of the pressure relief devices."

### Chapter 4.3

4.3.1.1 After the description of the meaning of BK1 and BK2, insert:

"BK3: the transport in flexible bulk containers is permitted".

Add a new 4.3.1.16 to read as follows:

"4.3.1.16 Before a flexible bulk container is filled it shall be visually examined to ensure it is structurally serviceable, its textile slings, load-bearing structure straps, body fabric, lock device parts including metal and textile parts are free from protrusions or damages and that inner liners are free from rips, tears or any damage.

4.3.1.16.1 For flexible bulk containers, the period of use permitted for the transport of dangerous goods shall be two years from the date of manufacture of the flexible bulk container.

4.3.1.16.2 A venting device shall be fitted if a dangerous accumulation of gases may develop within the flexible bulk container. The vent shall be so designed that the penetration of foreign substances is prevented under normal conditions of transport.

4.3.2.2 Insert "and flexible bulk containers (code BK3)" after "(code BK2)". At the end, replace "watertight" with "waterproof".

### Chapter 5.2

5.2.1.1 Insert the following new second sentence: "The UN number and the letters "UN" shall be at least 12 mm high, except for packagings of 30 litres or 30 kg capacity or less, when they shall be at least 6 mm in height and for packagings of 5 litres or 5 kg or less when they shall be of an appropriate size."

At the end, add the following new note:

*"NOTE: The size requirements for the UN number marking shall apply as from 1 January 2014."*

5.2.1.3 Insert "and salvage pressure receptacles" after "salvage packagings".

5.2.1.6.3 Add the following new note at the end:

*"NOTE: The labelling provisions of 5.2.2 apply in addition to any requirement for packages to bear the environmentally hazardous substance mark."*

5.2.1.7.2 Amend to read as follows:

"5.2.1.7.2 Orientation arrows are not required on:

(a) Outer packagings containing pressure receptacles except cryogenic receptacles;

(b) Outer packagings containing dangerous goods in inner packagings each containing not more than 120 ml, with sufficient absorbent material between the inner and outer packagings to completely absorb the liquid contents;

(c) Outer packagings containing Division 6.2 infectious substances in primary receptacles each containing not more than 50 ml;

(d) Type IP-2, type IP-3, type A, type B(U), type B(M) or type C packages containing Class 7 radioactive material;

(e) Outer packagings containing articles which are leak-tight in all orientations (e.g. alcohol or mercury in thermometers, aerosols, etc.); or

(f) Outer packagings containing dangerous goods in hermetically sealed inner packagings each containing not more than 500 ml."

### Chapter 5.3

5.3.1.1.2 (a) Delete ", dangerous goods packed in limited quantities, or excepted packages of radioactive material (Class 7)".

### Chapter 5.4

5.4.1.5.3 Amend to read as follows:

"5.4.1.5.3 *Salvage packagings and salvage pressure receptacles*

For dangerous goods transported in salvage packagings or salvage pressure receptacles, the words "**SALVAGE PACKAGING**" or "**SALVAGE PRESSURE RECEPTACLE**" shall be included."

Add a new 5.4.1.5.10 to read as follows:

"5.4.1.5.10 *Firework classification reference*

When fireworks of UN Nos. 0333, 0334, 0335, 0336 and 0337 are transported, the dangerous goods transport document shall include a classification reference(s) issued by the competent authority.

The classification reference(s) shall consist of the competent authority's state, indicated by the distinguishing sign for motor vehicles in international traffic, the competent authority identification and a unique serial reference. Examples of such classification references are:

GB/HSE123456

D/BAM1234

USA EX20091234."



## Chapter 5.5

Add the following new section:

**"5.5.3 Special provisions applicable to packages and cargo transport units containing substances presenting a risk of asphyxiation when used for cooling or conditioning purposes (such as dry ice (UN 1845) or nitrogen, refrigerated liquid (UN 1977) or argon, refrigerated liquid (UN 1951))**

### **5.5.3.1 Scope**

5.5.3.1.1 This section is not applicable to substances which may be used for cooling or conditioning purposes when transported as a consignment of dangerous goods. When they are transported as a consignment, these substances shall be transported under the relevant entry of the Dangerous Goods List in Chapter 3.2 in accordance with the associated conditions of transport.

5.5.3.1.2 This section is not applicable to gases in cooling cycles.

5.5.3.1.3 Dangerous goods used for cooling or conditioning portable tanks during transport are not subject to this section.

### **5.5.3.2 General**

5.5.3.2.1 Cargo transport units containing substances used for cooling or conditioning purposes (other than fumigation) during transport are not subject to any provisions of these Regulations other than those of this section.

5.5.3.2.2 When dangerous goods are loaded in cooled or conditioned cargo transport units any provisions of these Regulations relevant to these dangerous goods apply in addition to the provisions of this section.

5.5.3.2.3 For air transport, arrangements between consignor and operator shall be made for each consignment, to ensure that ventilation safety procedures are followed.

5.5.3.2.4 Persons engaged in the handling or transport of cooled or conditioned cargo transport units shall be trained commensurate with their responsibilities.

### **5.5.3.3 Packages containing a coolant or conditioner**

5.5.3.3.1 Packaged dangerous goods requiring cooling or conditioning assigned to packing instructions P203, P620, P650, P800, P901 or P904 of 4.1.4.1 shall meet the appropriate requirements of that packing instruction.

5.5.3.3.2 For packaged dangerous goods requiring cooling or conditioning assigned to other packing instructions, the packages shall be capable of withstanding very low temperatures and shall not be affected or significantly weakened by the coolant or conditioner. Packages shall be designed and constructed to permit the release of gas to prevent a build-up of pressure that could rupture the packaging. The dangerous goods shall be packed in such a way to prevent movement after the dissipation of any coolant or conditioner.

5.5.3.3.3 Packages containing a coolant or conditioner shall be transported in well ventilated cargo transport units.

### **5.5.3.4 Marking of packages containing a coolant or conditioner**

5.5.3.4.1 Packages containing dangerous goods used for cooling or conditioning shall be marked with the proper shipping name of these dangerous goods followed by the words "AS COOLANT" or "AS CONDITIONER" as appropriate.

5.5.3.4.2 The markings shall be durable, legible and placed in such a location and of such a size relative to the packaging as to be readily visible.

**5.5.3.5 *Cargo transport units containing unpackaged dry ice***

5.5.3.5.1 If dry ice in unpackaged form is used, it shall not come into direct contact with the metal structure of a cargo transport unit to avoid embrittlement of the metal. Measures shall be taken to provide adequate insulation between the dry ice and the cargo transport unit by providing a minimum of 30 mm separation (e.g. by using suitable low heat conducting materials such as timber planks, pallets etc).

5.5.3.5.2 Where dry ice is placed around packages, measures shall be taken to ensure that packages remain in the original position during transport after the dry ice has dissipated.

**5.5.3.6 *Marking of cargo transport units***

5.5.3.6.1 Cargo transport units containing dangerous goods used for cooling or conditioning shall be marked with a warning mark, as specified in 5.5.3.6.2 affixed at each access point in a location where it will be easily seen by persons opening or entering the cargo transport unit. This mark shall remain on the cargo transport unit until the following provisions are met:

- (a) The cargo transport unit has been ventilated to remove harmful concentrations of coolant or conditioner; and
- (b) The cooled or conditioned goods have been unloaded.

5.5.3.6.2 The warning mark shall be rectangular and shall not be less than 150 mm wide and 250 mm high. The warning mark shall include:

- (a) The word "WARNING" in red or white with lettering not less than 25 mm high; and
- (b) The proper shipping name followed by the words "AS COOLANT" or "AS CONDITIONER" as appropriate, shown below the symbol in black letters on a white background with lettering not less than 25 mm high.

For example: CARBON DIOXIDE, SOLID, AS COOLANT.

An illustration of this mark is given in Figure 5.5.2

Figure 5.5.2



\* insert the proper shipping name followed by the words "AS COOLANT" or "AS CONDITIONER" as appropriate.

#### 5.5.3.7 Documentation

5.5.3.7.1 Documents (such as a bill of lading or cargo manifest) associated with the transport of cargo transport units that have been cooled or conditioned and have not been completely ventilated before transport shall include the following information:

- (a) The UN number preceded by the letters "UN"; and
- (b) The proper shipping name followed by the words "AS COOLANT" or "AS CONDITIONER" as appropriate.

For example: UN 1845, CARBON DIOXIDE, SOLID, AS COOLANT".

5.5.3.7.2 The transport document may be in any form, provided it contains the information required in 5.5.3.7.1. This information shall be easy to identify, legible and durable."

## Chapter 6.1

6.1.2.7 In the table, under "4. Boxes", after the entries for "H. Plastics", insert the following row:

N. Metal, other than steel or aluminium	4N	6.1.4.14
---	----	----------

6.1.4.14 Amend to read as follows:

**"6.1.4.14 Steel, aluminium or other metal boxes**

4A steel boxes

4B aluminium boxes

4N metal, other than steel or aluminium, boxes"

## Chapter 6.2

6.2.1.1.5 Amend the first sentence to read as follows: "The test pressure of cylinders, tubes, pressure drums and bundles of cylinders shall be in accordance with packing instruction P200, or, for a chemical under pressure, with packing instruction P206."

6.2.1.6.1 At the end, amend the Note to read as follows:

*"NOTE: For the periodic inspection and test frequencies, see packing instruction P200 or, for a chemical under pressure, packing instruction P206 of 4.1.4.1."*

Add a new paragraph 6.2.1.6.3 to read as follows:

"6.2.1.6.3 Pressure relief valves for closed cryogenic receptacles shall be subject to periodic inspections and tests."

6.2.2.3 In the first table, amend the row for ISO 11117:1998 to read as follows:

ISO 11117:2008 + Cor 1:2009	Gas cylinders – Valve protection caps and valve guards – Design, construction and tests <i>NOTE: Construction according to ISO 11117:1998 may continue until 31 December 2014.</i>
--------------------------------	---

At the end of the first table, add a new row to read as follows:

ISO 13340:2001	Transportable gas cylinders – Cylinders valves for non-refillable cylinders – Specification and prototype testing
----------------	---

6.2.2.4 Insert the following new row in the table:

ISO 10460:2005	Gas cylinders – Welded carbon-steel gas cylinders – Periodic inspection and testing <i>NOTE: The repair of welds described in clause 12.1 of this standard shall not be permitted. Repairs described in clause 12.2 require the approval of the competent authority which approved the periodic inspection and test body in accordance with 6.2.2.6.</i>
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6.2.3.3 Replace "and bundles of cylinders" with ", bundles of cylinders and salvage pressure receptacles".

Add a new 6.2.3.5 to read as follows:

**"6.2.3.5 Salvage pressure receptacles**

To permit the safe handling and disposal of the pressure receptacles transported within the salvage pressure receptacle, the design may include equipment not otherwise used for cylinders or pressure drums such as flat heads, quick opening devices and openings in the cylindrical part.

Instructions on the safe handling and use of the salvage pressure receptacle shall be clearly shown in the documentation for the application to the competent authority and shall form part of the approval certificate. In the approval certificate, the pressure receptacles authorized to be transported in a salvage pressure receptacle shall be indicated. A list of the materials of construction of all parts likely to be in contact with the dangerous goods shall also be included.

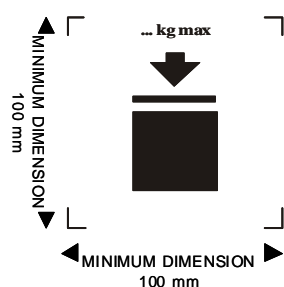
A copy of the approval certificate shall be delivered by the manufacturer to the owner of a salvage pressure receptacle.

The marking of salvage pressure receptacles according to 6.2.3 shall be determined by the competent authority in taking into account suitable marking provisions of 6.2.2.7 as appropriate. The marking shall include the water capacity and test pressure of the salvage pressure receptacle.

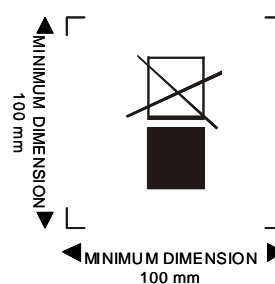
**NOTE:** *These provisions for salvage pressure receptacles may be applied for new salvage pressure receptacles as from 1 January 2013, unless otherwise authorized, and shall be applied for all new salvage pressure receptacles as from 1 January 2014. Salvage pressure receptacles approved in accordance with national regulations may be used with the approval of the competent authorities of the countries of use."*

## Chapter 6.5

6.5.2.2.2 Amend the symbols to read as follows:



IBCs capable of being stacked



IBCs NOT capable of being stacked

6.5.6.2.1 Replace "6.5.6.5" with "6.5.6.4".

## Chapter 6.6

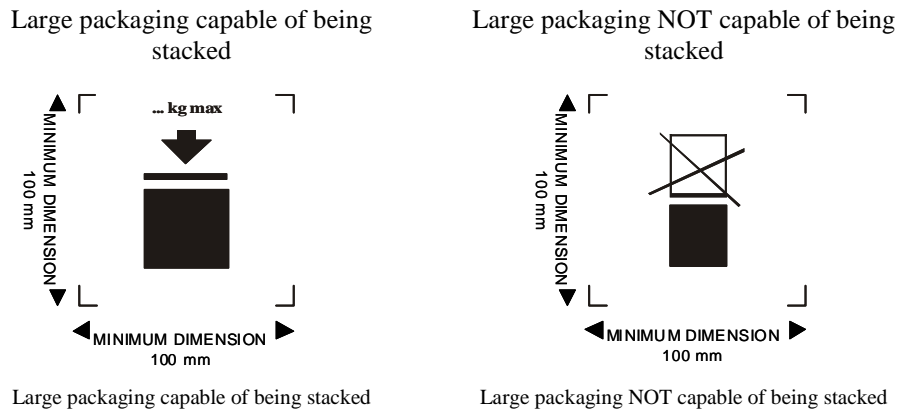
6.6.3.1 In the first paragraph, replace "durable and legible markings showing:" with "markings which are durable, legible and placed in a location so as to be readily visible. Letters, numerals and symbols shall be at least 12 mm high and shall show:"

At the end, add the following new note:

**NOTE:** *The size requirement for the primary marking shall apply for large packagings manufactured as from 1 January 2014."*

Add a new 6.6.3.3 to read as follows:

6.6.3.3 The maximum permitted stacking load applicable when the large packaging is in use shall be displayed on a symbol as follows:



The symbol shall be not less than 100 mm × 100 mm, be durable and clearly visible. The letters and numbers indicating the mass shall be at least 12 mm high.

The mass marked above the symbol shall not exceed the load imposed during the design type test (see 6.6.5.3.3.4) divided by 1.8.

**NOTE:** *The provisions of 6.6.3.3 shall apply to all large packagings manufactured, repaired or remanufactured as from 1 January 2015."*

## Chapter 6.7

6.7.2.13.1 After sub-paragraph (e), add the following new sub-paragraph (f):

"(f) The cross sectional flow areas of the spring loaded pressure-relief devices, frangible discs and fusible elements in mm<sup>2</sup>."

Re-number existing sub-paragraph (f) as sub-paragraph (g).

6.7.2.13.2, 6.7.3.9.2, 6.7.4.8.2 and 6.7.5.6.2 Replace "ISO 4126-1:1991" with "ISO 4126-1:2004 and ISO 4126-7:2004".

6.7.3 After the heading, insert the following new Note:

**NOTE:** *These requirements also apply to portable tanks intended for the transport of chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505)."*

6.7.3.1 In the definition of *Design reference temperature*, in the second sentence, insert "or liquefied gas propellants of chemicals under pressure" after "non-refrigerated liquefied gas".

6.7.3.1 In sub-paragraph (b) of the definition of *Maximum allowable working pressure*, add a new sub-paragraph (iii) to read as follows:

"(iii) for chemicals under pressure, the MAWP (in bar) given in T50 portable tank instruction for the liquefied gas portion of the propellants listed in T50 in 4.2.5.2.6;"

6.7.3.5.4 In the first sentence, insert "or chemicals under pressure" after "non-refrigerated liquefied gases".

6.7.3.9.1 and 6.7.4.8.1 After sub-paragraph (d), add the following new sub-paragraph (e):

"(e) The cross sectional flow areas of the spring loaded pressure-relief devices and frangible discs in mm<sup>2</sup>."

Re-number existing sub-paragraph (e) as sub-paragraph (f).

6.7.5.6.1 After sub-paragraph (c), add the following new sub-paragraph (d):

"(d) The cross sectional flow areas of the spring loaded pressure-relief devices and frangible discs in mm<sup>2</sup>".

## Chapter 6.8

6.8.1 Add the following new definition:

"*Flexible bulk container* means a flexible container with a capacity not exceeding 15 m<sup>3</sup> and includes liners and attached handling devices and service equipment."

6.8.2.3 In the table add the following new row:

Flexible bulk container	BK3
-------------------------	-----

6.8.3 In the heading, insert "BK1 or BK2" before "bulk containers".

6.8.4 In the heading, insert "BK1 and BK2" before "bulk containers".

Add a new section 6.8.5 to read as follows:

### **6.8.5 Requirements for the design, construction, inspection and testing of flexible bulk containers BK3**

#### **6.8.5.1 *Design and construction requirements***

6.8.5.1.1 Flexible bulk containers shall be sift-proof.

6.8.5.1.2 Flexible bulk containers shall be completely closed to prevent the release of contents.

6.8.5.1.3 Flexible bulk containers shall be waterproof.

6.8.5.1.4 Parts of the flexible bulk container which are in direct contact with dangerous goods:

(a) Shall not be affected or significantly weakened by those dangerous goods.

(b) Shall not cause a dangerous effect e.g. catalysing a reaction or reacting with the dangerous goods;

(c) Shall not allow permeation of the dangerous goods that could constitute a danger under normal conditions of transport.

#### **6.8.5.2 *Service equipment and handling devices***

6.8.5.2.1 Filling and discharge devices shall be so constructed as to be protected against damage during transport and handling. The filling and discharge devices shall be capable of being secured against unintended opening.

6.8.5.2.2 Slings of the flexible bulk container, if fitted, shall withstand pressure and dynamic forces which can appear in normal conditions of handling and transport.

6.8.5.2.3 The handling devices shall be strong enough to withstand repeated use.

#### **6.8.5.3 *Inspection and testing***

6.8.5.3.1 Each flexible bulk container design type shall successfully pass the tests prescribed in this Chapter before being used.

6.8.5.3.2 Tests shall also be repeated after each modification of design type which alters the design, material or manner of construction of a flexible bulk container.

6.8.5.3.3 Tests shall be carried out on flexible bulk containers prepared as for transport. Flexible bulk containers shall be filled to the maximum mass at which they may be used and the contents shall be evenly distributed. The substances to be transported in the flexible bulk container may be replaced by other substances except where this would invalidate the results of the tests. When another substance is used it shall have the same physical characteristics (mass, grain size, etc.) as the substance to be transported. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass, so long as they are placed so that the test results are not affected.

6.8.5.3.4 Flexible bulk containers shall be manufactured and tested under a quality assurance programme which satisfies the competent authority, in order to ensure that each manufactured flexible bulk container meets the requirements of this Chapter.

6.8.5.3.5 *Drop test*

6.8.5.3.5.1 Applicability

For all types of flexible bulk containers, as a design type test.

6.8.5.3.5.2 Preparation for testing

The flexible bulk container shall be filled to its maximum permissible gross mass.

6.8.5.3.5.3 The flexible bulk container shall be dropped onto a target surface that is non-resilient and horizontal. The target surface shall be:

- (a) Integral and massive enough to be immovable;
- (b) Flat with a surface kept free from local defects capable of influencing the test results;
- (c) Rigid enough to be non-deformable under test conditions and not liable to become damaged by the tests; and
- (d) Sufficiently large to ensure that the test flexible bulk container falls entirely upon the surface.

Following the drop, the flexible bulk container shall be restored to the upright position for observation.

6.8.5.3.5.4 Drop height shall be:

Packing group III: 0.8 m

6.8.5.3.5.5 Criteria for passing the test:

(a) There shall be no loss of contents. A slight discharge, e.g. from closures or stitch holes, upon impact shall not be considered to be a failure of the flexible bulk container provided that no further leakage occurs after the container has been restored to the upright position;

(b) There shall be no damage which renders the flexible bulk container unsafe to be transported for salvage or for disposal.

6.8.5.3.6 *Top lift test*

6.8.5.3.6.1 Applicability

For all types of flexible bulk containers as a design type test.



6.8.5.3.6.2 Preparation for testing

Flexible bulk containers shall be filled to six times the maximum net mass, the load being evenly distributed.

6.8.5.3.6.3 A flexible bulk container shall be lifted in the manner for which it is designed until clear of the floor and maintained in that position for a period of five minutes.

6.8.5.3.6.4 Criteria for passing the test: there shall be no damage to the flexible bulk container or its lifting devices which renders the flexible bulk container unsafe for transport or handling, and no loss of contents.

6.8.5.3.7 *Topple test*

6.8.5.3.7.1 Applicability

For all types of flexible bulk containers as a design type test.

6.8.5.3.7.2 Preparation for testing

The flexible bulk container shall be filled to its maximum permissible gross mass.

6.8.5.3.7.3 Flexible bulk container shall be toppled onto any part of its top by lifting the side furthest from the drop edge upon a target surface that is non-resilient and horizontal. The target surface shall be:

- (a) Integral and massive enough to be immovable;
- (b) Flat with a surface kept free from local defects capable of influencing the test results;
- (c) Rigid enough to be non-deformable under test conditions and not liable to become damaged by the tests; and
- (d) Sufficiently large to ensure that the test flexible bulk container falls entirely upon the surface.

6.8.5.3.7.4 For all flexible bulk containers, the topple height is specified as follows:

Packing group III: 0.8 m

6.8.5.3.7.5 Criterion for passing the test: there shall be no loss of contents. A slight discharge, e.g., from closures or stitch holes, upon impact shall not be considered to be a failure of the flexible bulk container provided that no further leakage occurs.

6.8.5.3.8 *Righting test*

6.8.5.3.8.1 Applicability

For all types of flexible bulk containers designed to be lifted from the top or side, as a design type test.

6.8.5.3.8.2 Preparation for testing

The flexible bulk container shall be filled to not less than 95% of its capacity and to its maximum permissible gross mass.

6.8.5.3.8.3 The flexible bulk container, lying on its side, shall be lifted at a speed of at least 0.1 m/s to an upright position, clear of the floor, by no more than half of the lifting devices.

6.8.5.3.8.4 Criterion for passing the test: there shall be no damage to the flexible bulk container or its lifting devices which renders the flexible bulk container unsafe for transport or handling.

6.8.5.3.9 *Tear test*

6.8.5.3.9.1 Applicability

For all types of flexible bulk containers as a design type test.

6.8.5.3.9.2 Preparation for testing

The flexible bulk container shall be filled to its maximum permissible gross mass.

6.8.5.3.9.3 With the flexible bulk container placed on the ground, a 300 mm cut shall be made, completely penetrating all layers of the flexible bulk container on a wall of a wide face. The cut shall be made at a 45° angle to the principal axis of the flexible bulk container, halfway between the bottom surface and the top level of the contents. The flexible bulk container shall then be subjected to a uniformly distributed superimposed load equivalent to twice the maximum gross mass of the package. The load must be applied for at least fifteen minutes. A flexible bulk container which is designed to be lifted from the top or the side shall, after removal of the superimposed load, be lifted clear of the floor and maintained in that position for a period of fifteen minutes.

6.8.5.3.9.4 Criterion for passing the test: the cut shall not propagate more than 25% of its original length.

6.8.5.3.10 *Stacking test*

6.8.5.3.10.1 Applicability

For all types of flexible bulk containers as a design type test.

6.8.5.3.10.2 Preparation for testing

The flexible bulk container shall be filled to its maximum permissible gross mass.

6.8.5.3.10.3 The flexible bulk container shall be subjected to a force applied to its top surface that is four times the design load-carrying capacity for 24 hours.

6.8.5.3.10.4 Criterion for passing the test: there shall be no loss of contents during the test or after removal of the load.

**6.8.5.4 *Test report***

6.8.5.4.1 A test report containing at least the following particulars shall be drawn up and shall be available to the users of the flexible bulk container:

1. Name and address of the test facility;
2. Name and address of applicant (where appropriate);
3. Unique test report identification;
4. Date of the test report;
5. Manufacturer of the flexible bulk container;
6. Description of the flexible bulk container design type (e.g. dimensions, materials, closures, thickness, etc) and/or photograph(s);
7. Maximum capacity/maximum permissible gross mass;
8. Characteristics of test contents, e.g. particle size for solids;
9. Test descriptions and results;

10. The test report shall be signed with the name and status of the signatory.

6.8.5.4.2 The test report shall contain statements that the flexible bulk container prepared as for transport was tested in accordance with the appropriate provisions of this Chapter and that the use of other packaging methods or components may render it invalid. A copy of the test report shall be available to the competent authority.

#### 6.8.5.5 **Marking**

6.8.5.5.1 Each flexible bulk container manufactured and intended for use according to these Regulations shall bear markings that are durable, legible and placed in a location so as to be readily visible. Letters, numerals and symbols shall be at least 24 mm high and shall show:

- (a) The United Nations packaging symbol



This symbol shall not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6, 6.7 or 6.8 ;

- (b) The code BK3;

(c) A capital letter designating the packing group(s) for which the design type has been approved:

Z for packing group III only;

- (d) The month and year (last two digits) of manufacture;

(e) The character(s) identifying the country authorizing the allocation of the mark; as indicated by the distinguishing sign for motor vehicles in international traffic;

(f) The name or symbol of the manufacturer and other identification of the FBC as specified by the competent authority;

- (g) The stacking test load in kg;

- (h) The maximum permissible gross mass in kg.

Marking shall be applied in the sequence shown in (a) to (h); each element of the marking, required in these subparagraphs, shall be clearly separated, e.g. by a slash or space and presented in a way that ensures that all of the parts of the mark are easily identified.

#### 6.8.5.5.2 *Example of marking*



BK3/Z/11 09  
RUS/NTT/MK-14-10  
56000/14000".

#### *Consequential amendment:*

6.1.3.1 (a), 6.2.2.7.2 (a), 6.2.2.9.2 (a), 6.3.4.2 (a), 6.5.2.1.1 (a), 6.6.3.1 (a), 6.7.2.20.1 (c) (i), 6.7.3.16.1 (c) (i), 6.7.4.15.1 (c) (i), 6.7.5.13.1 (c) (i) Amend the second sentence to read as follows: "This symbol shall not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6, 6.7 or 6.8.".

## Chapter 7.1

Add a new sub-section 7.1.1.11 to read as follows:

"7.1.1.11 Flexible bulk containers shall be transported within a conveyance with rigid sides and ends that extend at least two-thirds of the height of the flexible bulk container.

*NOTE:* When loading flexible bulk containers in a freight container as defined in 5.4.2 particular attention shall be paid to the guidance on the packing of cargo transport units referred to in 7.1.1.10, Note 2 and notably to the IMO/ILO/UNECE Guidelines for Packing Cargo Transport Units (CTUs) contained in the supplement to the International Maritime Dangerous Goods Code.

7.1.1.11.1 Flexible bulk containers shall be secured by suitable means capable of restraining the container in the conveyance in a manner that will prevent any movement during transport which would change the orientation of the container or cause the container to be damaged. Movement of the containers 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 to the flexible bulk containers.

7.1.1.11.2 Flexible bulk containers shall not be stacked for road or rail transport."

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