



Secretariat

Distr.
GENERAL

ST/SG/AC.10/C.3/66/Add.1
14 August 2008

ENGLISH
Original: ENGLISH AND FRENCH

**COMMITTEE OF EXPERTS ON THE TRANSPORT
OF DANGEROUS GOODS AND ON THE GLOBALLY
HARMONIZED SYSTEM OF CLASSIFICATION
AND LABELLING OF CHEMICALS**

Sub-Committee of Experts on the
Transport of Dangerous Goods

**REPORT OF THE SUB-COMMITTEE OF EXPERTS
ON ITS THIRTY-THIRD SESSION
(Geneva, 30 June - 9 July 2008)**

Addendum

Annexes I and II

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Annex I

DRAFT AMENDMENTS TO THE UN RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS, MODEL REGULATIONS (15th revised edition)

Part 1

Chapter 1.2

1.2.1 In the definition of "*Repaired IBC*", in the second sentence, replace "manufacturer's specification" with "design type from the same manufacturer".

Add the following new definitions:

"*Open cryogenic receptacle* means a transportable thermally insulated receptacle for refrigerated liquefied gases maintained at atmospheric pressure by continuous venting of the refrigerated liquefied gas;"

"*Remanufactured large packaging* means a metal or rigid plastics large packaging that:

- (a) is produced as a UN type from a non-UN type; or
- (b) is converted from one UN design type to another UN design type.

Remanufactured large packagings are subject to the same requirements of these Regulations that apply to new large packagings of the same type (see also design type definition in 6.6.5.1.2);"

"*Reused large packaging* means a large packaging to be refilled which has been examined and found free of defects affecting the ability to withstand the performance tests: the term includes those which are refilled with the same or similar compatible contents and are transported within distribution chains controlled by the consignor of the product;"

Chapter 1.3

1.3.3 Amend to read as follows:

"1.3.3 Records of training received according to this Chapter shall be kept by the employer and made available to the employee or competent authority, upon request. Records shall be kept by the employer for a period of time established by the competent authority."

Chapter 1.4

1.4.2.4 Amend to read as follows:

"1.4.2.4 Records of all security training received shall be kept by the employer and made available to the employee or competent authority, upon request. Records shall be kept by the employer for a period of time established by the competent authority."

Part 2

Chapter 2.1

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

"(d) *Phlegmatized* means that a substance (or "phlegmatizer") has been added to an explosive to enhance its safety in handling and transport. The phlegmatizer renders the explosive insensitive, or less sensitive, to the following actions: heat, shock, impact, percussion or friction. Typical phlegmatizing agents include, but are not limited to: wax, paper, water, polymers (such as chlorofluoropolymers), alcohol and oils (such as petroleum jelly and paraffin)."

Chapter 2.2

2.2.1.1 Delete the Note.

Add a new 2.2.2.4 to read as follows:

"2.2.2.4 Gases of Division 2.2 are not subject to these Regulations when contained in the following:

- Foodstuffs, including carbonated beverages (except UN 1950);
- Balls intended for use in sports;
- Tyres (except for air transport); or
- Light bulbs provided they are packaged so that the projectile effects of any rupture of the bulb will be contained within the package."

Chapter 2.8

2.8.2.4 In the draft amendments to the UN Recommendations on the Transport of Dangerous Goods, Model Regulations (15th revised edition) adopted at the 32nd session (ST/SG/AC.10/C.3/64, annex 1), delete the square brackets.

Part 3**Dangerous goods list**

[For UN Nos. 0323, 0366, 0441, 0445, 0455, 0456, 0460 and 0500, add "347" in column (6).]

For UN Nos. 1143, 1695, 1752, 1809, 2337, 2646 and 3023, replace "P001" with "P602" in column (8).

For UN Nos. 1950 and 2037, add "344" in column (6).

For UN Nos. 3480 and 3481, add "348" in column (6).

UN 1040 Add "342" in column (6).

UN 1977 Add "345 346" in column (6).

UN 3166 In column (2), amend the proper shipping name to read "ENGINE, INTERNAL COMBUSTION or VEHICLE, FLAMMABLE GAS POWERED or VEHICLE, FLAMMABLE LIQUID POWERED or FUEL CELL ENGINE or VEHICLE, FUEL CELL POWERED WITH FLAMMABLE GAS or VEHICLE, FUEL CELL POWERED WITH FLAMMABLE LIQUID". Amend the alphabetical index accordingly.

UN 3359 In column (2), amend the proper shipping name to read "FUMIGATED CARGO TRANSPORT UNIT". Amend the alphabetical index accordingly.

UN 3474 In column (2), amend the name and description to read "1-HYDROXYBENZOTRIAZOLE MONOHYDRATE" and in column (6), delete "28". Amend the alphabetical index accordingly.

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

(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
1471	LITHIUM HYPOCHLORITE, DRY or LITHIUM HYPOCHLORITE MIXTURE	5.1		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3482	ALKALI METAL DISPERSION, FLAMMABLE or ALKALINE EARTH METAL DISPERSION, FLAMMABLE	4.3	3	I	182 183	0	E0	P402			
3483	MOTOR FUEL ANTI-KNOCK MIXTURE, FLAMMABLE	6.1	3	I		0	E5	P602		T14	TP2 TP13
3484	HYDRAZINE AQUEOUS SOLUTION, FLAMMABLE, with more than 37% hydrazine, by mass	8	3 6.1	I		0	E0	P001		T10	TP2 TP13

(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
3485	CALCIUM HYPOCHLORITE, DRY, CORROSIVE or CALCIUM HYPOCHLORITE MIXTURE, DRY, CORROSIVE with more than 39% available chlorine (8.8% available oxygen)	5.1	8	II	314	1 kg	E2	P002 IBC08	PP85 B2, B4, B13		
3486	CALCIUM HYPOCHLORITE MIXTURE, DRY, CORROSIVE with more than 10% but not more than 39% available chlorine	5.1	8	III	314	5 kg	E1	P002 IBC08 LP02	PP85 B3, B13		
3487	CALCIUM HYPOCHLORITE, HYDRATED, CORROSIVE or CALCIUM HYPOCHLORITE, HYDRATED MIXTURE, CORROSIVE, with not less than 5.5% but not more than 16% water	5.1	8	II	314 322	1 kg	E2	P002 IBC08	PP85 B2, B4, B13		
3487	CALCIUM HYPOCHLORITE, HYDRATED, CORROSIVE or CALCIUM HYPOCHLORITE, HYDRATED MIXTURE, CORROSIVE, with not less than 5.5% but not more than 16% water	5.1	8	III	223 314	5 kg	E1	P002 IBC08	PP85 B4		
3488	TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀	6.1	3 8	I	274	0	E5	P601		T22	TP2 TP13
3489	TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀	6.1	3 8	I	274	0	E5	P602		T20	TP2 TP13
3490	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀	6.1	4.3 3	I	274	0	E5	P601		T22	TP2 TP13
3491	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀	6.1	4.3 3	I	274	0	E5	P602		T20	TP2 TP13

(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
3492	TOXIC BY INHALATION LIQUID, CORROSIVE, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m ³ and saturated vapour concentration greater than or equal to 500 LC ₅₀	6.1	8 3	I	274	0	E5	P601		T22	TP2 TP13
3493	TOXIC BY INHALATION LIQUID, CORROSIVE, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m ³ and saturated vapour concentration greater than or equal to 10 LC ₅₀	6.1	8 3	I	274	0	E5	P602		T20	TP2 TP13
3494	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	3	6.1	I	343	0	E0	P001		T14	TP2 TP13
3494	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	3	6.1	II	343	1 L	E2	P001 IBC02		T7	TP2
3494	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	3	6.1	III	343	5 L	E1	P001 IBC03		T4	TP1
3495	PETROLEUM SOUR CRUDE OIL, TOXIC, FLAMMABLE	6.1	3	I	343	0	E5	P001		T14	TP2 TP13
3495	PETROLEUM SOUR CRUDE OIL, TOXIC, FLAMMABLE	6.1	3	II	343	100 ml	E4	P001 IBC02		T7	TP2
3496	IODINE	8	6.1	III	279	5 kg	E1	P002 IBC08	B3	T1	TP33

(Replaces the new entries 3482 to 3494 in ST/SG/AC.10/C.3/64, annex 1)

Chapter 3.3

3.3.1 **SP240** Insert the following new sentence at the end: "Vehicles which contain a fuel cell shall be consigned under the entries UN 3166 VEHICLE, FUEL CELL POWERED WITH FLAMMABLE GAS or UN 3166 VEHICLE, FUEL CELL POWERED WITH FLAMMABLE LIQUID, as appropriate."

SP302 Amend to read as follows:

"302 Fumigated cargo transport units containing no other dangerous goods are only subject to the provisions of 5.5.2."

SP304 Add the following new paragraph at the end:

"Nevertheless, in the case of application of this exemption to sea transport of nickel-metal hydride batteries, other than button cells, the following requirements apply:

- (a) The consignment shall be accompanied by a document describing the batteries as "nickel-metal hydride batteries" including a declaration signed by the consignor that the batteries are securely packed and protected against short-circuits and that stowage away from sources of heat is required;

- (b) Unit loads and cargo transport units shall be marked "STOW AWAY FROM SOURCES OF HEAT" in capital letters not less than 65 mm high."

SP312 Insert a new second paragraph to read as follows:

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

Add the following new special provisions:

- "342** Glass inner receptacles (such as ampoules or capsules) intended only for use in sterilization devices, when containing less than 30 ml of ethylene oxide per inner packaging with not more than 300 ml per outer packaging, may be transported in accordance with the provisions in Chapter 3.5, irrespective of the indication of E0 in column 7b of the Dangerous Goods List provided that:
- (a) After filling, each glass inner receptacle has been determined to be leak-tight by placing the glass inner receptacle in a hot water bath at a temperature, and for a period of time, sufficient to ensure that an internal pressure equal to the vapour pressure of ethylene oxide at 55 °C is achieved. Any glass inner receptacle showing evidence of leakage, distortion or other defect under this test shall not be transported under the terms of this special provision;
 - (b) In addition to the packaging required by 3.5.2, each glass inner receptacle is placed in a sealed plastics bag compatible with ethylene oxide and capable of containing the contents in the event of breakage or leakage of the glass inner receptacle; and
 - (c) Each glass inner receptacle is protected by a means of preventing puncture (e.g. sleeves or cushioning) of the plastics bag in the event of damage to the packaging (e.g. by crushing).
- 343** This entry applies to crude oil containing hydrogen sulphide in sufficient concentration that vapours evolved from the crude oil can present an inhalation hazard.
- 344** The provisions of 6.2.4 shall be met.

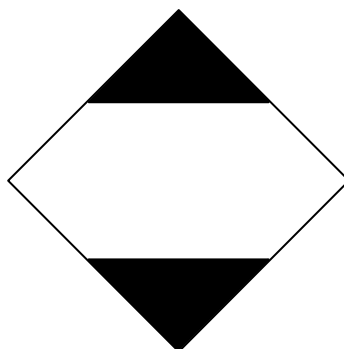
- 345** This gas contained in open cryogenic receptacles with a maximum capacity of 1 litre constructed with glass double walls having the space between the inner and outer wall evacuated (vacuum insulated) is not subject to these Regulations provided each receptacle is transported in an outer packaging with suitable cushioning or absorbent materials to protect it from impact damage.
- 346** Open cryogenic receptacles conforming to the requirements of P203 and containing no dangerous goods except for UN 1977, nitrogen, refrigerated liquid which is fully absorbed in a porous material are not subject to any other requirements of these Regulations.
- 347** This designation shall only be used if the results of Test series 6 (d) of Part I of the Manual of Tests and Criteria have demonstrated that any hazardous effects arising from functioning are confined within the package.
- 348** Batteries manufactured after 31 December 2011 shall be marked with the Watt-hour rating on the outside case."

Chapter 3.4

3.4.7 Delete.

3.4.8 and 3.4.9 Amend to read as follows:

"3.4.8 Packages containing dangerous goods in limited quantities need not be marked with the proper shipping name or UN number of the contents, but shall bear the marking shown in Figure 3.4.1 below. The marking shall be readily visible, legible and able to withstand open weather exposure without a substantial reduction in effectiveness. Additional information as required by the ICAO's Technical Instructions for the Safe Transport of Dangerous Goods by Air may appear in the centre portion of the marking provided that the package conforms to the requirements of the ICAO's Technical Instructions.

Figure 3.4.1

Marking for packages containing limited quantities

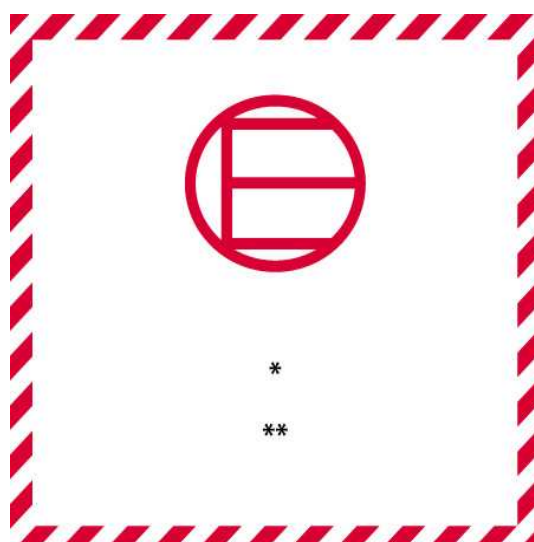
Top and bottom portions and line must be black, centre area white or suitable contrasting background. Minimum dimensions: 100 mm x 100 mm. Minimum width of line forming diamond: 2 mm.

[If the size of the package so requires, the dimension may be reduced, to be not less than 50 mm x 50 mm provided the marking remains clearly visible.]

3.4.9 The documentation provisions of 5.4.1 need not apply to dangerous goods packed in limited quantities. However, mode specific requirements for documentation for dangerous goods packed in limited quantities may be applicable for sea and air transport and in these cases, the words “limited quantity” or “LTD QTY” [may] be included after the description of the dangerous goods packed in limited quantities (see 5.4.1.5.2).”.

Chapter 3.5

Figure 3.5.1 Amend the mark to read as follows:



Part 4

Chapter 4.1

4.1.1.1 At the end, replace "or reused" with ", reused or remanufactured".

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

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

4.1.4.1 **P200** (4) In special packing provision "k", amend the first sentence to read as follows: "Valve outlets shall be fitted with pressure retaining gas-tight plugs or caps having threads that match those of the valves outlets.". Amend the seventh paragraph ("Each valve shall have a taper threaded connection...") to read as follows:

"Each valve shall be capable of withstanding the test pressure of the pressure receptacle and be connected directly to the pressure receptacle by either a taper thread or other means which meets the requirements of ISO 10692-2:2001."

In special packing provision "q", in the first sentence, at the beginning, replace "The valves" with "Valve outlets". In the second sentence, at the end, replace "manifold outlet valve" with "outlet of the manifold valve" and add "pressure retaining" before "gas-tight plugs". Add a new third sentence to read as follows: "Gas-tight plugs or caps shall have threads that match those of the valves outlets."

P203 Amend to read as follows:

P203	PACKING INSTRUCTION	P203
This instruction applies to Class 2 refrigerated liquefied gases.		
Requirements for closed cryogenic receptacles:		
(1) The general requirements of 4.1.6.1 shall be met.		
(2) The requirements of Chapter 6.2 shall be met.		
(3) The closed cryogenic receptacles shall be so insulated that they do not become coated with frost.		
(4) Test pressure		
Refrigerated liquids shall be filled in closed cryogenic receptacles with the following minimum test pressures:		
(a) For closed cryogenic receptacles with vacuum insulation, the test pressure shall not be less than 1.3 times the sum of the maximum internal pressure of the filled receptacle, including during filling and discharge, plus 100 kPa (1 bar);		
(b) For other closed cryogenic receptacles, the test pressure shall be not less than 1.3 times the maximum internal pressure of the filled receptacle, taking into account the pressure developed during filling and discharge.		

P203	PACKING INSTRUCTION	P203
(5)	<p>Degree of filling</p> <p>For non-flammable, non-toxic refrigerated liquefied gases the volume of liquid phase at the filling temperature and at a pressure of 100 kPa (1 bar) shall not exceed 98% of the water capacity of the pressure receptacle.</p> <p>For flammable refrigerated liquefied gases the degree of filling shall remain below the level at which, if the contents were raised to the temperature at which the vapour pressure equalled the opening pressure of the relief valve, the volume of the liquid phase would reach 98% of the water capacity at that temperature.</p>	
(6)	<p>Pressure-relief devices</p> <p>Closed cryogenic receptacles shall be fitted with at least one pressure-relief device.</p>	
(7)	<p>Compatibility</p> <p>Materials used to ensure the leakproofness of the joints or for the maintenance of the closures shall be compatible with the contents. In the case of receptacles intended for the transport of oxidizing gases, (i.e. with a subsidiary risk of 5.1) these materials shall not react with these gases in a dangerous manner.</p>	
<p>Requirements for open cryogenic receptacles:</p> <p>Only the following non oxidizing refrigerated liquefied gases of Division 2.2 may be transported in open cryogenic receptacles: UN 1913; UN 1951; UN 1963; UN 1970; UN 1977; UN 2591; UN 3136; UN 3158.</p> <p>Open cryogenic receptacles shall be constructed to meet the following requirements:</p> <ol style="list-style-type: none"> (1) The receptacles shall be designed, manufactured, tested and equipped in such a way as to withstand all conditions, including fatigue, to which they will be subjected during their normal use and during normal conditions of transport. (2) The capacity shall be not more than [450 litres]. (3) The receptacle shall have a double wall construction with the space between the inner and outer wall being evacuated (vacuum insulation). The insulation shall prevent the formation of hoar frost on the exterior of the receptacle. (4) The materials of construction shall have suitable mechanical properties at the service temperature. (5) Materials which are in direct contact with the dangerous goods shall not be affected or weakened by the dangerous goods intended to be transported and shall not cause a dangerous effect, e.g. catalysing a reaction or reacting with the dangerous goods. (6) Receptacles of glass double wall construction shall have an outer packaging with suitable cushioning or absorbent materials which withstand the pressures and impacts liable to occur under normal conditions of transport. (7) The receptacle shall be designed to remain in an upright position during transport, e.g. have a base whose smaller horizontal dimension is greater than the height of the centre of gravity when filled to capacity or be mounted on gimbals. (8) The openings of the receptacles shall be fitted with devices allowing gases to escape, preventing any splashing out of liquid, and so configured that they remain in place during transport. (9) Open cryogenic receptacles shall bear the following marks permanently affixed e.g. by stamping, engraving or etching: <ul style="list-style-type: none"> - The manufacturer's name and address; - The model number or name; - The serial or batch number; - The UN number and proper shipping name of gases for which the receptacle is intended; - The capacity of the receptacle in litres. 		

4.1.4.2 **IBC04** Replace ", 21N, 31A, 31B and 31N" with "and 21N".

IBC05 In (1), replace ", 21N, 31A, 31B and 31N" with "and 21N".
In (2), replace ", 21H2, 31H1 and 31H2" with "and 21H2".
In (3), replace ", 21HZ1 and 31HZ1" with "and 21HZ1".

IBC06, IBC07 and IBC08

In (1), replace ", 21N, 31A, 31B and 31N" with "and 21N".
In (2), replace ", 21H2, 31H1 and 31H2" with "and 21H2".
In (3), replace ", 21HZ2, 31HZ1 and 31HZ2" with "and 21HZ2".

IBC06 Amend the additional requirement to read as follows:

"Additional requirement:
Where the solid may become liquid during transport see 4.1.3.4.".

IBC07 Amend the additional requirement to read as follows:

"Additional requirements:
1. Where the solid may become liquid during transport see 4.1.3.4.
2. Liners of wooden IBCs shall be sift proof.".

IBC08 Add the following new additional requirement:

"Additional requirement:
Where the solid may become liquid during transport see 4.1.3.4.".

Chapter 4.2

Add a new section 4.2.6 to read as follows:

"4.2.6 Transitional measures

Portable tanks and MEGCs manufactured before 1 January 2012, that conform to the marking requirements of 6.7.2.20.1, 6.7.3.16.1, 6.7.4.15.1 or 6.7.5.13.1 of the Model Regulations on the Transport of Dangerous Goods annexed to the 15th revised edition of the Recommendations on the Transport of Dangerous Goods, as relevant, may continue to be used if they comply with all other relevant requirements of the current edition of the Model Regulations including, when applicable, the requirement of 6.7.2.20.1 (g) for marking the symbol "S" on the plate when the shell or the compartment is divided by surge plates into sections of not more than 7500 litres capacity. When the shell, or the compartment, was already divided by surge plates into sections of not more than 7500 litres capacity before 1 January 2012, the capacity of the shell, or respectively of the compartment, need not be supplemented with the symbol "S" until the next periodic inspection or test according to 6.7.2.19.5 is performed.".

Part 5

Chapter 5.4

5.4.1.5.1 At the end, add the following new Note:

"NOTE: The number, type and capacity of each inner packaging within the outer packaging of a combination packaging is not required to be indicated."

Chapter 5.5

Amend to read as follows:

"CHAPTER 5.5

SPECIAL PROVISIONS

5.5.1 *Deleted.*

5.5.2 **Special provisions applicable to fumigated cargo transport units (UN 3359)**

5.5.2.1 *General*

5.5.2.1.1 Fumigated cargo transport units (UN 3359) containing no other dangerous goods are not subject to any provisions of these Regulations other than those of this section.

5.5.2.1.2 When the fumigated cargo transport unit is loaded with dangerous goods in addition to the fumigant, any provision of these Regulations relevant to these goods (including placarding, marking and documentation) applies in addition to the provisions of this section.

5.5.2.1.3 Only cargo transport units that can be closed in such a way that the escape of gas is reduced to a minimum shall be used for the transport of cargo under fumigation.

5.5.2.2 *Training*

Persons engaged in the handling of fumigated cargo transport units shall be trained commensurate with their responsibilities.

5.5.2.3 *Marking and placarding*

5.5.2.3.1 A fumigated cargo transport unit shall be marked with a warning mark, as specified in 5.5.2.3.2, 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 fumigated cargo transport unit has been ventilated to remove harmful concentrations of fumigant gas; and
- (b) The fumigated goods or materials have been unloaded.

5.5.2.3.2 The fumigation warning mark shall be rectangular and shall not be less than 300 mm wide and 250 mm high. The markings shall be in black print on a white background with lettering not less than 25 mm high. An illustration of this mark is given in Figure 5.5.1

Figure 5.5.1: Fumigation warning sign

(Unchanged)

5.5.2.3.3 If the fumigated cargo transport unit has been completely ventilated either by opening the doors of the unit or by mechanical ventilation after fumigation, the date of ventilation shall be marked on the fumigation warning mark.

5.5.2.3.4 When the fumigated cargo transport unit has been ventilated and unloaded, the fumigation warning mark shall be removed.

5.5.2.3.5 Class 9 placards (placard No. 9, see 5.2.2.2.2) shall not be affixed to a fumigated cargo transport unit except as required for other class 9 substances or articles packed therein.

5.5.2.4 Documentation

5.5.2.4.1 Documents associated with the transport of cargo transport units that have been fumigated and have not been completely ventilated before transport shall include the following information:

- UN 3359, fumigated cargo transport unit, 9, or UN 3359, fumigated cargo transport unit, class 9;
- the date and time of fumigation; and
- the type and amount of the fumigant used.

5.5.2.4.2 The transport document may be in any form, provided it contains the information required in 5.5.2.4.1. This information shall be easy to identify, legible and durable.

5.5.2.4.3 The document associated with the transport of a cargo transport unit that has been fumigated (and has not been ventilated before transport) shall show the date and time of fumigation and the type and amount of the fumigant used. In addition, instructions for disposal of any residual fumigant including fumigation devices (if used) shall be provided.

5.5.2.4.4 A document is not required when the fumigated cargo transport unit has been completely ventilated and the date of ventilation has been marked on the warning mark (see 5.5.2.3.3 and 5.5.2.3.4).".

Part 6

Chapter 6.1

6.1.4 Add a new sub-section 6.1.4.0 to read as follows:

"6.1.4.0 *General requirements*

Any permeation of the substance contained in the packaging shall not constitute a danger under normal conditions of transport."

Chapter 6.2

After the heading of the Chapter, add the following new Note:

"NOTE: *Aerosol dispensers, small receptacles containing gas (gas cartridges) and fuel cell cartridges containing liquefied flammable gas are not subject to the requirements of 6.2.1 to 6.2.3."*

6.2.1 Delete the note after the heading.

6.2.1.6.1 (d) In the draft amendments to the UN Recommendations on the Transport of Dangerous Goods, Model Regulations (15th revised edition) adopted at the 32nd session (ST/SG/AC.10/C.3/64, annex 1), delete the square brackets and delete the last sentence in Note 3.

6.2.4.3 Amend to read as follows:

"6.2.4.3 With the approval of the competent authority, aerosols and receptacles, small, are not subject to 6.2.4.1 and 6.2.4.2, if they are required to be sterile but may be adversely affected by water bath testing, provided:

- (a) They contain a non-flammable gas and either
 - (i) contain other substances that are constituent parts of pharmaceutical products for medical, veterinary or similar purposes;
 - (ii) contain other substances used in the production process for pharmaceutical products; or
 - (iii) are used in medical, veterinary or similar applications;

- (b) An equivalent level of safety is achieved by the manufacturer's use of alternative methods for leak detection and pressure resistance, such as helium detection and water bathing a statistical sample of at least 1 in 2000 from each production batch; and
- (c) For pharmaceutical products according to (a) (i) and (iii) above, they are manufactured under the authority of a national health administration. If required by the competent authority, the principles of Good Manufacturing Practice (GMP) established by the World Health Organization (WHO)² shall be followed."

Chapter 6.5

6.5.2.2.4 Amend to read as follows:

"6.5.2.2.4 The inner receptacle of composite IBCs manufactured after 1 January 2011 shall bear the markings indicated in 6.5.2.1.1 (b), (c), (d) where this date is that of the manufacture of the plastics inner receptacle, (e) and (f). The UN packaging symbol shall not be applied. The marking shall be applied in the sequence shown in 6.5.2.1.1. It shall be durable, legible and placed in a location so as to be readily visible when the inner receptacle is placed in the outer casing."

Add the following new paragraph 6.5.2.4:

"6.5.2.4 *Marking of remanufactured composite IBCs (31HZ1)*

The marking specified in 6.5.2.1.1 and 6.5.2.2 shall be removed from the original IBC or made permanently illegible and new markings shall be applied to an IBC remanufactured in accordance with these Regulations."

6.5.4.1 At the beginning, add ", remanufactured, repaired" after "manufactured". At the end, add ", remanufactured or repaired" after "manufactured".

Chapter 6.6

6.6.1.2 Replace "and tested" with ", tested and remanufactured" and, at the end, insert "or remanufactured large" after "each manufactured".

Chapter 6.7

6.7.2.6.2 (a) Amend to read as follows:

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

- "(a) An external stop-valve, fitted as close to the shell as reasonably practicable, and so designed as to prevent any unintended opening through impact or other inadvertent act; and".


6.7.2.8.4 At the end, add the following sentence: "In addition, fusible elements conforming to 6.7.2.10.1 may also be fitted."

6.7.2.10.1 In the second sentence, replace "in no case shall they" with "when used for transport safety purposes, they shall not".

(Replaces the amendment to the second sentence of 6.7.2.10.1 in ST/SG/AC.10/C.3/64, annex 1)

6.7.2.20.1 Amend to read as follows:

"6.7.2.20.1 Every portable tank shall be fitted with a corrosion resistant metal plate permanently attached to the portable tank in a conspicuous place readily accessible for inspection. When for reasons of portable tank arrangements the plate cannot be permanently attached to the shell, the shell shall be marked with at least the information required by the pressure vessel code. As a minimum, at least the following information shall be marked on the plate by stamping or by any other similar method:

- (a) Owner information
 - (i) The owner's registration number;
- (b) Manufacturing information
 - (i) The country of manufacture;
 - (ii) The year of manufacture;
 - (iii) The manufacturer's name or mark;
 - (iv) The manufacturer's serial number;
- (c) Approval information
 - (i) The United Nations packaging symbol  .

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


- (ii) The approval country;
- (iii) The authorized body for the design approval;
- (iv) The design approval number;
- (v) The letters 'AA', if the design was approved under alternative arrangements (see 6.7.1.2);
- (vi) The pressure vessel code to which the shell is designed;

- (d) Pressures
 - (i) The MAWP (in bar gauge or kPa gauge)²;
 - (ii) The test pressure (in bar gauge or kPa gauge)²;
 - (iii) The initial pressure test date (month and year);
 - (iv) The identification mark of the initial pressure test witness;
 - (v) The external design pressure³ (in bar gauge or kPa gauge)²;
 - (vi) The MAWP for heating/cooling system (in bar gauge or kPa gauge)² (when applicable);
- (e) Temperatures
 - (i) The design temperature range (in °C)²;
- (f) Materials
 - (i) The shell material(s) and material standard reference(s);
 - (ii) The equivalent thickness in reference steel (in mm)²;
 - (iii) The lining material (when applicable);
- (g) Capacity
 - (i) The tank water capacity at 20 °C (in litres)²;
This indication is to be followed by the symbol "S" when the tank is divided by surge plates into sections of not more than 7500 litres capacity;
 - (ii) The water capacity of each compartment at 20 °C (in litres)² (when applicable, for multi-compartment tanks).
This indication is to be followed by the symbol "S" when the compartment is divided by surge plates into sections of not more than 7500 litres capacity;
- (h) Periodic inspections and tests
 - (i) The type of the most recent periodic test (2.5-year, 5-year or exceptional);
 - (ii) The date of the most recent periodic test (month and year);
 - (iii) The test pressure (in bar gauge or kPa gauge)² of the most recent periodic test (if applicable);
 - (iv) The identification mark of the authorized body who performed or witnessed the most recent test.

² *The unit used shall be indicated.*

³ *See 6.7.2.2.10.*


Figure 6.7.2.20.1: Example of identification plate marking

Owner's registration number							
MANUFACTURING INFORMATION							
Country of manufacture							
Year of manufacture							
Manufacturer							
Manufacturer's serial number							
APPROVAL INFORMATION							
	Approval country						
	Authorized body for design approval						
	Design approval number		'AA' (if applicable)				
Shell design code (pressure vessel code)							
PRESSURES							
MAWP		bar or kPa					
Test pressure		bar or kPa					
Initial pressure test date:	(mm/yyyy)	Witness stamp:					
External design pressure		bar or kPa					
MAWP for heating/cooling system (if applicable)		bar or kPa					
TEMPERATURES							
Design temperature range		°C to °C					
MATERIALS							
Shell material(s) and material standard reference(s)							
Equivalent thickness in reference steel		mm					
Lining material (when applicable)							
CAPACITY							
Tank water capacity at 20 °C		litres	'S' (if applicable)				
Water capacity of compartment ___ at 20 °C (as applicable, for multi-compartment tanks)		litres	'S' (if applicable)				
PERIODIC INSPECTIONS / TESTS							
Test type	Test date	Witness stamp and test pressure ^a		Test type	Test date	Witness stamp and test pressure ^a	
	(mm/yyyy)	bar or kPa			(mm/yyyy)	bar or kPa	

^a Test pressure if applicable."

6.7.3.16.1 Amend to read as follows:

"6.7.3.16.1 Every portable tank shall be fitted with a corrosion resistant metal plate permanently attached to the portable tank in a conspicuous place readily accessible for inspection. When for reasons of portable tank arrangements the plate cannot be permanently attached to the shell, the shell shall be marked with at least the information required by the pressure vessel code. As a minimum, at least the following information shall be marked on the plate by stamping or by any other similar method:

- (a) Owner information
 - (i) The owner's registration number;
- (b) Manufacturing information
 - (i) The country of manufacture;
 - (ii) The year of manufacture;
 - (iii) The manufacturer's name or mark;
 - (iv) The manufacturer's serial number;
- (c) Approval information
 - (i) The United Nations packaging symbol  .

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

- (ii) The approval country;
- (iii) The authorized body for the design approval;
- (iv) The design approval number;
- (v) The letters 'AA', if the design was approved under alternative arrangements (see 6.7.1.2);
- (vi) The pressure vessel code to which the shell is designed;
- (d) Pressures
 - (i) The MAWP (in bar gauge or kPa gauge)²;
 - (ii) The test pressure (in bar gauge or kPa gauge)²;
 - (iii) The initial pressure test date (month and year);
 - (iv) The identification mark of the initial pressure test witness;
 - (v) The external design pressure³ (in bar gauge or kPa gauge)²;
- (e) Temperatures
 - (i) The design temperature range (in °C)²;
 - (ii) The design reference temperature (in °C)²;
- (f) Materials
 - (i) The shell material(s) and material standard reference(s);
 - (ii) The equivalent thickness in reference steel (in mm)²;
- (g) Capacity
 - (i) The tank water capacity at 20 °C (in litres)²;

² *The unit used shall be indicated.*

³ *See 6.7.3.2.8.*

- (h) Periodic inspections and tests
- (i) The type of the most recent periodic test (2.5-year, 5-year or exceptional);
 - (ii) The date of the most recent periodic test (month and year);
 - (iii) The test pressure (in bar gauge or kPa gauge)² of the most recent periodic test (if applicable);
 - (iv) The identification mark of the authorized body who performed or witnessed the most recent test.

Figure 6.7.3.16.1: Example of identification plate marking


Owner's registration number							
MANUFACTURING INFORMATION							
Country of manufacture							
Year of manufacture							
Manufacturer							
Manufacturer's serial number							
APPROVAL INFORMATION							
	Approval country						
	Authorized body for design approval						
	Design approval number					'AA' (if applicable)	
Shell design code (pressure vessel code)							
PRESSURES							
MAWP bar or kPa							
Test pressure bar or kPa							
Initial pressure test date:		(mm/yyyy)		Witness stamp:			
External design pressure bar or kPa							
TEMPERATURES							
Design temperature range °C to °C							
Design reference temperature °C							
MATERIALS							
Shell material(s) and material standard reference(s)							
Equivalent thickness in reference steel mm							
CAPACITY							
Tank water capacity at 20 °C litres							
PERIODIC INSPECTIONS / TESTS							
Test type	Test date	Witness stamp and test pressure ^a		Test type	Test date	Witness stamp and test pressure ^a	
	(mm/yyyy)	bar or kPa			(mm/yyyy)	bar or kPa	

^a Test pressure if applicable."

² The unit used shall be indicated.

6.7.4.15.1 Amend to read as follows:

"6.7.4.15.1 Every portable tank shall be fitted with a corrosion resistant metal plate permanently attached to the portable tank in a conspicuous place readily accessible for inspection. When for reasons of portable tank arrangements the plate cannot be permanently attached to the shell, the shell shall be marked with at least the information required by the pressure vessel code. As a minimum, at least the following information shall be marked on the plate by stamping or by any other similar method:

- (a) Owner information
 - (i) The owner's registration number;
- (b) Manufacturing information
 - (i) The country of manufacture;
 - (ii) The year of manufacture;
 - (iii) The manufacturer's name or mark;
 - (iv) The manufacturer's serial number;
- (c) Approval information
 - (i) The United Nations packaging symbol  .


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

 - (ii) The approval country;
 - (iii) The authorized body for the design approval;
 - (iv) The design approval number;
 - (v) The letters 'AA', if the design was approved under alternative arrangements (see 6.7.1.2);
 - (vi) The pressure vessel code to which the shell is designed;
- (d) Pressures
 - (i) The MAWP (in bar gauge or kPa gauge)²;
 - (ii) The test pressure (in bar gauge or kPa gauge)²;
 - (iii) The initial pressure test date (month and year);
 - (iv) The identification mark of the initial pressure test witness;
- (e) Temperatures
 - (i) The minimum design temperature (in °C)²;

² The unit used shall be indicated.

- (f) Materials
- (i) The shell material(s) and material standard reference(s);
 - (ii) The equivalent thickness in reference steel (in mm)²;
- (g) Capacity
- (i) The tank water capacity at 20 °C (in litres)²;
- (h) Insulation
- (i) Either “Thermally insulated” or “Vacuum insulated” (as applicable);
 - (ii) The effectiveness of the insulation system (heat influx) (in Watts)²;
- (i) Hold times – For each refrigerated liquefied gas permitted to be transported in the portable tank:
- (i) The name, in full, of the refrigerated liquefied gas;
 - (ii) The reference holding time (in days or hours)²;
 - (iii) The initial pressure (in bar gauge or kPa gauge)²;
 - (iv) The degree of filling (in kg)²;
- (j) Periodic inspections and tests
- (i) The type of the most recent periodic test (2.5-year, 5-year or exceptional);
 - (ii) The date of the most recent periodic test (month and year);
 - (iii) The identification mark of the authorized body who performed or witnessed the most recent test.

Figure 6.7.4.15.1: Example of identification plate marking

Owner's registration number			
MANUFACTURING INFORMATION			
Country of manufacture			
Year of manufacture			
Manufacturer			
Manufacturer's serial number			
APPROVAL INFORMATION			
	Approval country		
	Authorized body for design approval		
	Design approval number		'AA' (if applicable)
Shell design code (pressure vessel code)			
PRESSURES			
MAWP		bar or kPa	
Test pressure		bar or kPa	
Initial pressure test date:	(mm/yyyy)	Witness stamp:	

² The unit used shall be indicated.

TEMPERATURES					
Minimum design temperature		°C			
MATERIALS					
Shell material(s) and material standard reference(s)					
Equivalent thickness in reference steel		mm			
CAPACITY					
Tank water capacity at 20 °C		litres			
INSULATION					
'Thermally insulated' or 'Vacuum insulated' (<i>as applicable</i>)					
Heat influx		Watts			
HOLD TIMES					
Refrigerated liquefied gas(es) permitted	Reference hold time	Initial pressure	Degree of filling		
	days <i>or</i> hours	bar <i>or</i> kPa	kg		
PERIODIC INSPECTIONS / TESTS					
Test type	Test date	Witness stamp	Test type	Test date	Witness stamp
	(<i>mm/yyyy</i>)			(<i>mm/yyyy</i>)	

".

6.7.5.13.1 Amend to read as follows:

"6.7.5.13.1 Every MEGC shall be fitted with a corrosion resistant metal plate permanently attached to the MEGC in a conspicuous place readily accessible for inspection. The metal plate shall not be affixed to the elements. The elements shall be marked in accordance with Chapter 6.2. As a minimum, at least the following information shall be marked on the plate by stamping or by any other similar method:

- (a) Owner information
 - (i) The owner's registration number;
- (b) Manufacturing information
 - (i) The country of manufacture;
 - (ii) The year of manufacture;
 - (iii) The manufacturer's name or mark;
 - (iv) The manufacturer's serial number;

(c) Approval information

- (i) The United Nations packaging symbol



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

- (ii) The approval country;
- (iii) The authorized body for the design approval;
- (iv) The design approval number;
- (v) The letters 'AA', if the design was approved under alternative arrangements (see 6.7.1.2);

(d) Pressures

- (i) The test pressure (in bar gauge)²;
- (ii) The initial pressure test date (month and year);
- (iii) The identification mark of the initial pressure test witness;

(e) Temperatures

- (i) The design temperature range (in °C)²;

(f) Elements / Capacity

- (i) The number of elements;
- (ii) The total water capacity (in litres)²;


(h) Periodic inspections and tests

- (i) The type of the most recent periodic test (5-year or exceptional);
- (ii) The date of the most recent periodic test (month and year);
- (iv) The identification mark of the authorized body who performed or witnessed the most recent test.

NOTE: *No metal plate may be fixed to the elements.*

² *The unit used shall be indicated.*

Figure 6.7.5.13.1: Example of identification plate marking

Owner's registration number					
MANUFACTURING INFORMATION					
Country of manufacture					
Year of manufacture					
Manufacturer					
Manufacturer's serial number					
APPROVAL INFORMATION					
	Approval country				
	Authorized body for design approval				
	Design approval number				'AA' (if applicable)
PRESSURES					
Test pressure					bar
Initial pressure test date:		(mm/yyyy)	Witness stamp:		
TEMPERATURES					
Design temperature range			°C	to	°C
ELEMENTS / CAPACITY					
Number of elements					
Total water capacity					litres
PERIODIC INSPECTIONS / TESTS					
Test type	Test date	Witness stamp	Test type	Test date	Witness stamp
	(mm/yyyy)			(mm/yyyy)	

".

6.7.5.4.1 Amend the last sentence to read as follows: "If so required by the competent authority of the country of use, MEGCs for other gases shall be fitted with pressure relief devices as specified by that competent authority."

Annex II

**DRAFT AMENDMENTS TO THE UN RECOMMENDATIONS ON THE TRANSPORT
OF DANGEROUS GOODS, MANUAL OF TESTS AND CRITERIA
(4th revised edition, as amended)**

Section 10

10.4.2.3 In the first paragraph, replace "three types" with "four types" (twice).

At the end of the description of Type 6 (b), delete "and". At the end of the description of Type 6 (c), replace the full stop with "; and". Add a new paragraph at the end to read as follows:

"Type 6 (d): a test on an unconfined package of explosive articles to which special provision 347 of Chapter 3.3 of the Model Regulations applies, to determine if there are hazardous effects outside the package arising from accidental ignition or initiation of the contents."

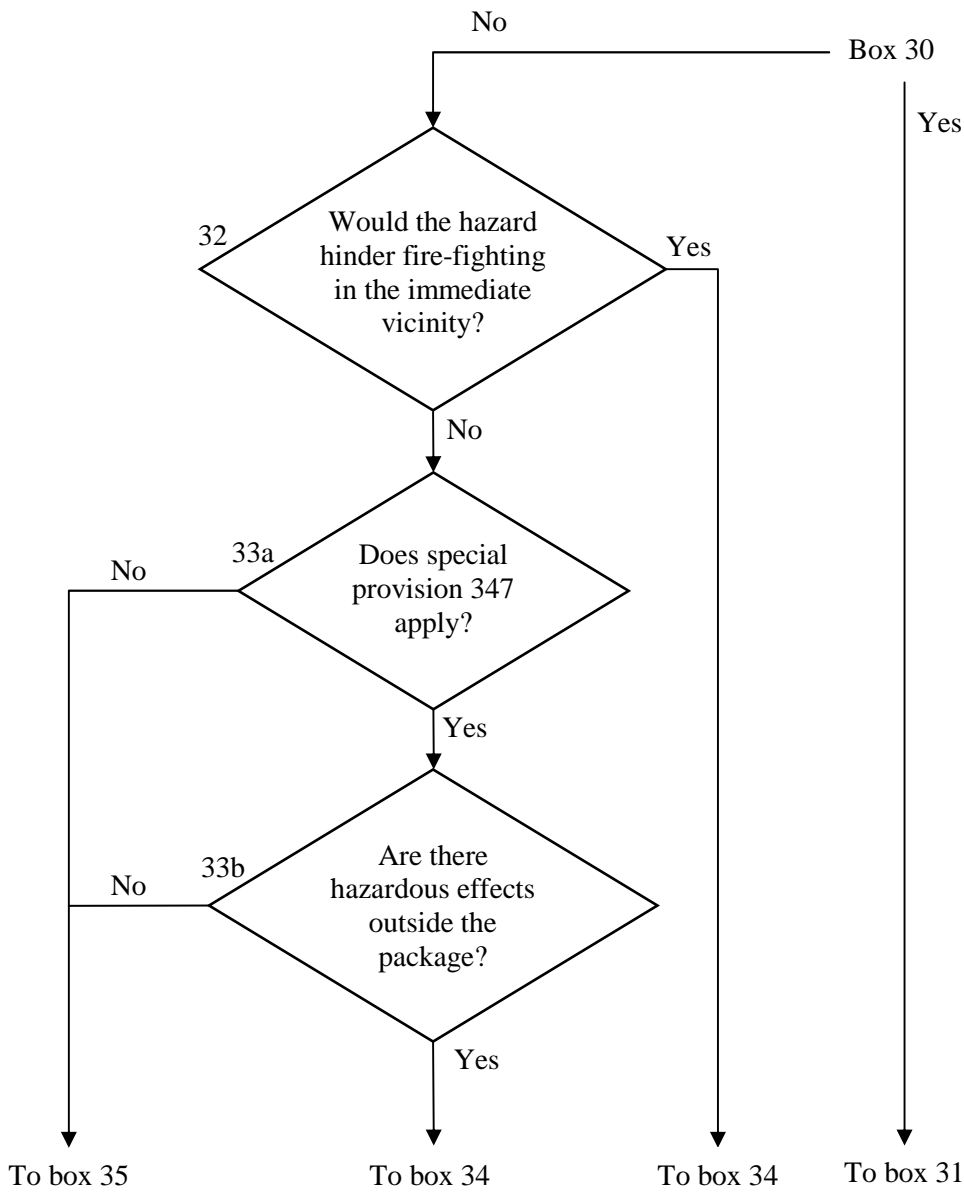
10.4.3.4 In the first sentence, replace "and 6 (c)" with ", 6 (c) and 6 (d)". In the second sentence, replace "three types" with "four types". At the end, add:

"Test type 6 (d) is a test used to determine whether a 1.4S classification is appropriate and is only used if:

- (a) The results of test series 6 (a), 6 (b) or 6 (c) indicate that a 1.4S classification may be applicable; and
- (b) The functioning of the product as intended would be expected to produce effects more severe than those obtained in the 6 (c) test type.

The results of test series 6 (c) and 6 (d) indicate if 1.4S is appropriate, otherwise the classification is 1.4 other than S."

Figures 10.3 and 10.8: Amend boxes 32 and 33 to read as follows:



Section 16

16.1.1 In the first paragraph, replace "three types" with "four types" (twice).

At the end of the description of Type 6 (b), delete "and". At the end of the description of Type 6 (c), replace the full stop with "; and". Add a new paragraph at the end to read as follows:

"Type 6 (d): a test on an unconfined package of explosive articles to which special provision 347 of Chapter 3.3 of the Model Regulations applies, to determine if there are hazardous effects outside the package arising from accidental ignition or initiation of the contents."

(Replaces the amendment to 16.1.1 in ST/SG/AC.10/C.3/62/Add.1, annex 2)

Table 16.1 Amend to read as follows:

Test code	Name of Test	Section
6 (a)	Single package test ^a	16.4.1
6 (b)	Stack test ^a	16.5.1
6 (c)	External fire (bonfire) test ^a	16.6.1
6 (d)	Unconfined package test ^a	16.7.1

^a *Recommended test.*

(Replaces the amendment to Table 16.1 in ST/SG/AC.10/C.3/62/Add.1, annex 2)

16.2.2 In the first sentence, replace "and 6 (c)" with ", 6 (c) and 6 (d)". At the end, add:

"Test type 6 (d) is a test used to determine whether a 1.4S classification is appropriate and is only used if:

- (a) The results of test series 6 (a), 6 (b) or 6 (c) indicate that a 1.4S classification may be applicable; and
- (b) The functioning of the product as intended would be expected to produce effects more severe than those obtained in the 6 (c) test type.

The results of test series 6 (c) and 6 (d) indicate if 1.4S is appropriate, otherwise the classification is 1.4 other than S."

(Replaces the amendment to 16.2.2 in ST/SG/AC.10/C.3/62/Add.1, annex 2)

16.6.1.3.2 In the last sentence, replace "wood" with "wooden laths" and add "horizontal" before "direction".

16.6.1.4.6 Add "and if hazardous effects are confined within the package," after "immediate vicinity".

Insert the following new sub-section 16.7:

"16.7 Series 6 type (d) test prescription

16.7.1 Test 6 (d): Unconfined package test

16.7.1.1 *Introduction*

This is a test on a single package to determine if there are hazardous effects outside the package arising from accidental ignition or initiation of the contents.

16.7.1.2 *Apparatus and materials*

The following items are required:

- (a) A detonator to initiate the article; or
- (b) An igniter just sufficient to ensure ignition of the article; and
- (c) A sheet of 3.0 mm thick mild steel to act as a witness plate.

Video equipment may be used.

16.7.1.3 *Procedure*

16.7.1.3.1 The test is applied to packages of explosive articles in the condition and form in which they are offered for transport. Where explosive articles are to be carried without packaging, the tests should be applied to the non-packaged articles. The decision to use either an initiating stimulus or an igniting stimulus is based on the following considerations.

16.7.1.3.2 For packaged articles:

- (a) Articles provided with their own means of initiation or ignition:

The functioning of an article near the centre of the package is stimulated by the article's own means of initiation or ignition. Where this is impracticable, the article's own means of initiation or ignition is replaced by another form of stimulus having the required effect;

- (b) Articles not provided with their own means of initiation or ignition:

- (i) An article near the centre of the package is caused to function in the designed mode; or
- (ii) An article near the centre of the package is replaced by another article which can be caused to function with the same effect.

16.7.1.3.3 The package is placed on a steel witness plate on the ground without confinement.

16.7.1.3.4 [The article should be initiated and observations made on the following: denting or perforation of the witness plate beneath the package, a flash or flame capable of igniting an adjacent material, disruption of the package causing projection of the explosives contents; or full perforation of the packaging by a projection.] A safe waiting period, prescribed by the test agency, should be observed after initiation. The test should be performed three times, in different orientations, unless a decisive result is observed earlier. If the results of the recommended number of tests do not enable unambiguous interpretation of the results, the number of tests should be increased.

16.7.1.4 *Test criteria and method of assessing results*

Inclusion in Compatibility Group S requires that any hazardous effects arising from functioning of the articles in this test are confined within the package. Evidence of a hazardous effect outside the package includes:

- (a) Denting or perforation of the witness plate beneath the package;
- (b) A flash or flame capable of igniting [an adjacent material];
- (c) Disruption of the package causing projection of the explosives contents; or
- (d) [Full perforation] of the packaging by a projection;

The competent authority may wish to take into account the expected effect of the initiator when assessing the results of the test, if these are expected to be significant when compared to the articles being tested. If there are hazardous effects outside the package, then the product is excluded from Compatibility Group S.

[16.7.1.5 *Examples of results*

To be developed].

(Replaces the new sub-section 16.7 in ST/SG/AC.10/C.3/62/Add.1, annex 2)

Section 38

38.3.3 In (b), delete sub-paragraphs (ii), (iv) and (vi) and renumber the other sub-paragraphs accordingly.

In (c) (iii), delete "and five cells after 50 cycles ending in fully discharged states".

In (c) (iv), delete "and five cells after 50 cycles ending in fully discharged states".

In (c), in the first sentence after indent (iv), delete "for each of the states of charge being tested".
