

## 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

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### LISTING, CLASSIFICATION AND PACKING

#### Revised proposal on Pressurized Adhesives in gas cylinders (ST/SG/AC.10/C.3/2009/41)

Transmitted by ICCA (International Council of Chemical Associations)

1. As a result of further discussions with industry and competent authorities, ICCA wants to amend its proposal made in ST/SG/AC.10/C.3/2009/41. In the paragraphs 2 to 8 the reasons for amending are listed whereas the consolidated new version can be found under proposal (paragraphs 10 to 18)
2. Definition: a sentence was added to the definition to clearly exclude aerosols and products pressurized to eliminate air during transport (no spray application) (see paragraph 10).
3. In the new Special Provision SPXXX, the limits of flammable contents that lead to a division 2.1 classification have been removed, as the basis for classification are the properties of the contents in their different physical states. The analogy to the classification of aerosols has been removed, because the test methods used for aerosols might not fit for Pressurized Chemicals (see paragraph 11 a) – c)).
4. The classes of dangerous goods not allowed to be part of a pressurized chemical have been refined (see paragraph 11 f)).
5. In the explanation regarding the test methods which have been added in analogy to the SP 63, the reference to pyrophoric, self-heating and water-reactive is deleted, as well as the chemical heat of combustion, as they are not applicable for Pressurized Chemicals (see paragraph 11 g)
6. In the new proposed Packing Instruction, paragraph b), which relates to non UN pressure receptacles, conforming to national or international standards on the design, construction, testing and inspection, has been deleted. Our proposal does not intend to alter the current regulatory framework. The aim of P2YY is to allow Pressurized Chemicals to be carried globally in both UN- and non-UN pressure receptacles (see paragraph 14).

7. For non refillable cylinders there is a volume restriction based on ISO 11118:1999 in the Special packing provision (see paragraph 14). The graph on the pressure x volume function in ISO 11118:1999, used for the Special Packing Instruction PPYY, is shown in the Annex of this document.

8. Portable tanks: Pressurized chemicals containing contents of division 2.3 or 6.1 and/or class 8 are not allowed in portable T50 tanks The pressure relief requirements are specified in a new portable tank special provision TPXX , to ascertain that the pressure relief device is always preceded by a frangible disc, as described in 6.7.3.7.3. This to make sure that the pressure relief device cannot be blocked by any liquid or solid component of the Pressurized Chemical (see paragraphs 15 and 16)

9 The text in paragraphs 10 to 18 reflects all above mentioned changes with respect to document ST/SG/AC.10/C.3/2009/41, highlighted by either by underlining or by striking through. Unless it is specifically mentioned all texts are new to the UN Model Regulations

## Proposal

10. Add a new definition in 1.2.1:

*“Pressurized chemical: any refillable or non-refillable cylinder, tube, or pressure drum meeting the requirements of 6.2.1 and 6.2.2 or 6.2.3, and any portable tanks meeting the requirements of 6.7.3, containing a liquid, paste or powder, pressurized with a compressed or liquefied gas or a mixture thereof, under sufficient pressure to eject the contents. Chemical pressurized for the purpose of eliminating air and aerosols do not fall under this definition.*

***NOTE:** An example of a pressurized chemical is a pressure receptacle containing a mixture of e.g. an adhesive or paint, and a gas or gas-mixture, which is under sufficient pressure to allow spray application or extrusion.”*

11. Create 2 new entries (UN 3XXX, UN 3YYY) in Class 2:

(a) Add 2 new entries to the Dangerous Goods List, as follows:

UN No.	Name and description	Class or division	Subsidiary risk	UN Packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instructions	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
3XXX	PRESSURIZED CHEMICAL , NON FLAMMABLE	2.2			XYZ	0	E0	P2YY	PPYY	T50	<u>TPXX</u>
3YYY	PRESSURIZED CHEMICAL , FLAMMABLE	2.1			XYZ	0	E0	P2YY	PPYY	T50	<u>TPXX</u>

(b) Add a new Special Provision XYZ in Chapter 3.3:

XYZ: The division of Class 2 and the subsidiary risks depend on the nature of the contents of the pressurized chemical. The following provisions shall apply:

- (a) ~~Division 2.1 applies if the contents include 85% by mass or more flammable components and the chemical heat of combustion is 30 kJ/g or more;~~
- (b) ~~Division 2.2 applies if the contents contain 1% by mass or less flammable components and the heat of combustion is less than 20 kJ/g;~~
- (c) The product shall be classified based on the components in the different states: the propellant (gas) or mixtures of the propellant with other gases (based on the criteria laid down for Class 2), the liquid (based on the criteria laid down for Class 3 materials) and/or the solid (based on the criteria laid down for Division 4.1 flammable solid material). If one of these components needs to be classified as flammable the pressurized chemical needs to be classified as flammable in division 2.1;
- (d) Gases of Division 2.3 shall not be used as a propellant in a pressurized chemical;
- (e) Where the contents other than the propellant of the pressurized chemical receptacle to be ejected are classified as Division 6.1 packing groups II or III or Class 8 packing groups II or III, the pressurized chemical shall have a subsidiary risk of Division 6.1 or Class 8;
- (f) Pressurized chemicals with contents meeting the criteria for packing group I for toxicity or corrosivity, 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 6.2 Infectious substances and Class 7 Radioactive material shall be prohibited unless specified in provisions in the above mentioned classes or divisions.  
~~Pressurized chemicals with contents meeting the criteria for packing group I for toxicity or corrosivity, Division 4.1 self reactive substances and solid desensitized explosives, Division 4.3 substances which, in contact with water, emit flammable gases, Division 5.1 oxidizing substances and Division 5.2 organic peroxides shall be prohibited from transport;~~
- (g) The appropriate subsidiary risk labels are required.

Flammable components are flammable liquids, flammable solids or flammable gases and gas mixtures as defined in Notes 1 to 3 of sub-section 31.1.3 of Part III of the *UN Manual of Tests and Criteria*. ~~This designation does not cover pyrophoric, self-heating or water reactive substances. The chemical heat of combustion shall be determined by one of the following methods ASTM D 240, ISO/FDIS 13943: 1999 (E/F) 86.1 to 86.3 or NFPA 30B.~~

12. Amend 4.1.6.1.5 as follows (*no change to document ST/SG/AC.10/C.3/2009/41 – the underlined text refers to an amendment to the UN Model Regulations*):

Prior to filling, the filler shall perform an inspection of the pressure receptacle and ensure that the pressure receptacle is authorized for the gas or pressurized chemical to be transported and that the provisions of these Regulations have been met. Shut-off valves shall be closed after filling and remain closed during transport. The consignor shall verify that the closures and equipment are not leaking.

13. Amend 4.1.6.1.10 as follows (*no change to document ST/SG/AC.10/C.3/2009/41 – the underlined text refers to an amendment to the UN Model Regulations*):

Refillable pressure receptacles, other than cryogenic receptacles, shall be periodically inspected according to the provisions of 6.2.1.6 and packing instruction P200 or packing instruction P2YY as applicable. Pressure receptacles shall not be filled after they become due for periodic inspection but may be transported after the expiry of the time limit.

14. Add a new packing instruction P2YY as follows:

P2YY	PACKING INSTRUCTION	P2YY
This instruction applies to UN 3XXX and UN 3YYY		
<p>For cylinders, pressure drums and tubes, the general packing requirements of <b>4.1.6.1</b> shall be met. Unless otherwise indicated in these Regulations, cylinders, pressure drums and tubes conforming to:</p> <p>(a) The applicable requirements of Chapter 6.2; <del>or</del></p> <p>(b) <del>The national or international standards on the design, construction, testing, manufacturing and inspection, as applied by the country in which the pressure receptacles are manufactured, provided the provisions of 6.2.3 are met;</del> are authorized for the transport of UN 3XXX and UN 3YYY.</p> <p>For UN 3XXX and UN 3YYY packed in refillable gas receptacles, the maximum test period for periodic inspection shall be 10 years.</p> <p>Pressure receptacles used for UN 3XXX and UN 3YYY shall not be offered for transport when connected with spray application equipment such as a hose and wand assembly.</p> <p>The construction materials of the pressure receptacles and their accessories shall be compatible with the contents and shall not react to form harmful or dangerous compounds therewith.</p> <p>Pressure receptacles shall be so filled that at 50°C the non gas phase does not exceed 95% of their water capacity and is not completely filled at 60°C. When filled, the internal pressure at 65°C shall not exceed the test pressure of the pressure receptacle.</p>		
<p><b>Special packing provisions:</b></p> <p><b>PPYY:</b> Notwithstanding 4.1.6.1.9 (b), non-refillable cylinders used for UN3YYY Pressurized chemical, flammable may have a water capacity in litres not exceeding 1000 divided by the test pressure expressed in bars provided capacity and pressure restrictions of the construction standard are also observed (<u>e.g. see ISO 11118:1999. 1. a-c pressure x volume function</u>)</p>		

15. Amend portable tank instruction T50 as follows (*no change to document ST/SG/AC.10/C.3/2009/41 – the underlined text refers to an amendment to the UN Model Regulations*):

This portable tank instruction applies to non-refrigerated liquefied gases and pressurized chemical UN3XXX and UN3YYY.

Add UN3XXX and UN3YYY to the instruction as follows:

UN No	Non-refrigerated liquefied gases	Max. allowable working pressure (bar) ...	Openings below liquid level	Pressure-relief requirements <sup>(1)</sup> (see 6.7.3.7)	Maximum filling ratio
<u>UN3XXX</u>	Pressurized chemical, non flammable	See MAWP definition in 6.7.3.1	Allowed	<b><u>6.7.3.7.3</u></b>	See 4.2.2.7
<u>UN3YYY</u>	Pressurized chemical, flammable	See MAWP definition in 6.7.3.1	Allowed	<b><u>6.7.3.7.3</u></b>	See 4.2.2.7

(1) Pressurized Chemicals meeting Division 2.3 or Division 6.1 and/or class 8 are not allowed in T50

16. Add a new portable tank special provision in 4.2.5.3 as follows:

TPXX      The tank shall be fitted with a special device to prevent excess pressure during normal transport condition. Pressure relief devices are as indicated in 6.7.3.7.3 to prevent crystallization of the product in the pressure relief device.

17. Amend 4.2.2.7.2 as follows:

Add:

“a)” before the existing text

and add a new paragraph:

b) Portable tanks for Pressurized Chemical, non flammable or flammable (UN3XXX, UN3YYY) shall be so filled that at 50°C the non gaseous phase does not exceed 95% of their water capacity and that they are not completely filled at 60°C.

18. Amend the headings of chapters 4.2.2 and 6.7.3 and the relevant paragraphs therein, to include “and pressurized chemicals” in addition to the current wording “non-refrigerated liquefied gas” (*no change to document ST/SG/AC.10/C.3/2009/41 – the underlined text refers to an amendment to the UN Model Regulations*).

4.2.2 General provisions for the use of portable tanks for the transport of non-refrigerated liquefied gases and pressurized chemicals

6.7.3 Requirements for the design, construction, inspection and testing of portable tanks intended for the transport of non-refrigerated gases and pressurized chemicals.

**Annex**

Graph based on the pressure x volume function of ISO 11118:1999, used for the Special Packing Instruction PPYY

