

## Economic Commission for Europe

### Inland Transport Committee

#### Working Party on the Transport of Dangerous Goods

##### Joint Meeting of the RID Committee of Experts and the Working Party on the Transport of Dangerous Goods

Bern, 15–19 March 2021

12 March 2021

Item 3 of the provisional agenda:

Standards

### **RID/ADR 4.1.6.8 and 4.1.6.15 – Requirements for valve protection (replaces ECE/TRANS/WP.15/AC.1/2021/12)**

**Transmitted by the European Industrial Gases Association (EIGA)**

#### *Summary*

- |                            |   |
|----------------------------|---|
| <b>Executive summary:</b>  | This proposal is intended to clarify the requirements for valve protection for pressure receptacles of Class 2. |
| <b>Action to be taken:</b> | Supplement RID/ADR 4.1.6.8 and 4.1.6.15.  |

## **Introduction**

1. Based on feedback received from the Standards Working Group, the original proposal in document ECE/TRANS/WP.15/AC.1/2021/12 was amended, and this paper replaces ECE/TRANS/WP.15/AC.1/2021/12. This paper now includes the old standard EN 12205:2001 for non-refillable cylinders and the new standard ISO 16111:2018 for metal hydride storage systems. In addition, some editorial changes were applied. The changes only affect Table 1 and are summarized under Table 1.
2. Valve protection caps and valve guards have to meet the requirements of the appropriate edition of EN ISO 11117 "Transportable gas cylinders — Valve protection caps and valve guards — Design, construction and tests". Therefore, with regard to the applicable standards, valve guards have to be handled together with valve protection caps.
3. Requirements for shrouds (integral part of a welded cylinder or pressure drum for valve protection during transport, handling and storage) are part of the relevant design standard for the pressure receptacle (shell). EN ISO 11117 explicitly excludes protection devices which are integral part of the pressure receptacle (shell). Therefore, with regard to the applicable standards, shrouds have to be handled separately.
4. Permanent protection attachments (integral part of the cylinder design permanently affixed to composite cylinders [type 2 to 5] covering part of or the entire surface of the cylinder, providing additional functions during handling, transport and use), also intended to serve as valve protection, are not yet included but have to be handled together with shrouds.
5. Until now, requirements for valves with inherent protection used for non-refillable pressure receptacles are not yet included.

## **Proposal**

6. The amended text for 4.1.6.8 and 4.1.6.15 is shown below, new text is underlined and in italics and deleted text is ~~struck through~~. The changes agreed for 4.1.6.15 at the September 2020 Joint Meeting based on documents ECE/TRANS/WP.15/AC.1/2020/46 as amended

and informal document INF.53/Rev.2 (see ECE/TRANS/WP.15/AC.1/158) are already taken into account. Editorial corrections of ECE/TRANS/WP.15/AC.1/158 are given in **bold and underlined**.

“4.1.6.8 Valves and other components which are to remain connected to the valve during carriage (e.g. handling devices or adaptors) shall be designed and constructed in such a way that they are inherently able to withstand damage without release of the contents or shall be protected from damage which could cause inadvertent release of the contents of the pressure receptacle, by one of the following methods (see also table of standards at the end of this section):

- (a) Valves are placed inside the neck of the pressure receptacle and protected by a threaded plug or cap;
- (b) Valves are protected by caps *or guards*. Caps shall possess vent-holes of sufficient cross-sectional area to evacuate the gas if leakage occurs at the valves;
- (c) Valves are protected by shrouds or *permanent protection attachments* ~~guards~~;
- (d) and (e) remain unchanged.”

“4.1.6.15 For UN pressure receptacles, the ISO standards and EN ISO standards listed in Table 1, except EN ISO 14245 and EN ISO 15995, shall be applied. For information on which standard shall be used at the time of manufacturing the equipment, see 6.2.2.3.

For other pressure receptacles, the requirements of section 4.1.6 are considered to have been complied with if the standards in Table 1, as relevant, are applied. For information on which standards shall be used for the manufacture of valves with inherent protection, see 6.2.4.1. For information on the applicability of standards for manufacturing valve protection caps and valve guards, see Table 2.

Table 1: Standards for UN and non-UN pressure receptacles

Applicable paragraphs	Reference	Title of document
4.1.6.2	EN ISO 11114-1:2020	Gas cylinders – Compatibility of cylinder and valve materials with gas contents – Part 1: Metallic <u>m</u> aterials
	EN ISO 11114-2:2013	Gas cylinders – Compatibility of cylinder and valve materials with gas contents – Part 2: Non-metallic <u>m</u> aterials
4.1.6.4	ISO 11621:1997 or EN ISO 11621:2005	Gas cylinders – Procedures for change of gas service
4.1.6.8 Valves with inherent protection	Clause 4.6.2 of EN ISO 10297:2006 or clause 5.5.2 of EN ISO 10297:2014 or clause 5.5.2 of EN ISO 10297:2014 + A1:2017	Gas cylinders – Cylinder valves – Specification and type testing
	Clause 5.3.8 of EN 13152:2001 + A1:2003	Testing and specifications of LPG cylinder valves – Self-closing
	Clause 5.3.7 of EN 13153:2001 + A1:2003	Specifications and testing of LPG cylinder valves – Manually operated
	Clause 5.9 of EN ISO 14245:2010 or clause 5.9 of EN ISO 14245:2019	Gas cylinders – Specifications and testing of LPG cylinder valves – Self-closing
	Clause 5.10 of EN ISO	Gas cylinders – Specifications and testing of LPG cylinder valves – Manually operated

	15995:2010 or clause 5.10 of EN ISO 15995:2019	
	Clause 5.4.2 of EN ISO 17879:2017	Gas cylinders – Self-closing cylinder valves – Specification and type testing
	<i>Clause 7.4 of EN 12205:2001 or clause 9.2.5 of EN ISO 11118:2015 or clause 9.2.5 of EN ISO 11118:2015 + A1:2020</i>	<i>Gas cylinders – Non-refillable metallic gas cylinders – Specification and test methods</i>
4.1.6.8 (b)	<i>ISO 11117:1998 or EN ISO 11117:2008 + Cor 1:2009 or EN ISO 11117:2019</i>	<i>Transportable gas cylinders – Valve protection caps and valve guards for industrial and medical gas cylinders – Design, construction and tests</i>
	<i>EN962:1996 + A2:2000</i>	<i>Transportable gas cylinders – Valve protection caps and valve guards for industrial and medical gas cylinders – Design, construction and tests</i>
4.1.6.8 (c)	<i>Requirements for shrouds and permanent protection attachments used as valve protection under 4.1.6.8 (c), are given in the relevant pressure receptacle shell design standards, see 6.2.2.3 for UN pressure receptacles and 6.2.4.1 for non-UN pressure receptacles.</i>	
4.1.6.8 (b) and (c)	<i>ISO 11117:1998 or EN ISO 11117:2008 + Cor 1:2009 or ISO 11117:2019</i>	<i>Transportable gas Cylinders – Valve protection caps and valve guards for industrial and medical gas cylinders – Design, construction and tests</i>
	<i>EN962:1996 + A2:2000</i>	<i>Transportable gas cylinders – Valve protection caps and valve guards for industrial and medical gas cylinders – Design, construction and tests</i>
	<i>ISO 16111:2008 or ISO 16111:2018</i>	<i>Transportable gas storage devices – Hydrogen absorbed in reversible metal hydride</i>

Changes to Table 1 from ECE/TRANS/WP.15/AC.1/2021/12:

Amend 4.1.6.8 last box “Clause 9.2.5 of EN ISO 11118 ...” to include “Clause 7.4 of EN 12205:2001”.

Amend 4.1.6.8 (c) Editorial improvements.

Amend 4.1.6.8 (b) and (c) to include ISO 16111:2018

Table 2 of ECE/TRANS/WP.15/AC.1/158 remains unchanged.

## Justification

7. The proposal seeks to clarify the requirements for valve protection and does not add any additional requirements to the regulation.