



**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****Fortieth session**

Geneva, 28 November – 7 December 2011

Item 4 (a) of the provisional agenda

**Miscellaneous proposals of amendments to the Model Regulations
on the Transport of Dangerous Goods: packagings****References to ISO Standards – Section 6.2.2****Submitted by the International Organization for Standardisation¹****Introduction**

1. The primary motivation for submitting this paper is to introduce four new standards for the construction of pressure receptacles into the Model Regulations. However, three of these standards are revisions of standards already referenced paragraph 6.2.2.1 and there is therefore a need to introduce suitable transitional arrangements, since it would be unreasonable to expect industry to change over from one standard to another instantaneously as one edition of the regulations superseded another.

2. In addition to the three revised standards proposed below, a total of eight standards currently listed in section 6.2.2 are being revised, some of which will be published in 2012. Consequently, the issue of transitional arrangements for revised standards should be decided during this biennium.

3. In the proposal an additional column has been added to the tables in which the standards are listed. This shows the final date on which a standard superseded by a revision can be used for new manufacture. Where a revised standards replaces a previously referenced standard, six years overlap has been given to allow industry to adapt and to take account of the time needed to transfer the Model Regulations into actual regulations. The revised version of a standards very rarely offers a step change in safety; usually it is a change in technology and practice which allows the accepted safety levels to be reached

¹ In accordance with the programme of work of the Sub-Committee for 2011-2012 approved by the Committee at its fifth session (refer to ST/SG/AC.10/C.3/76 para. 111 and ST/SG/AC.10/36, para. 16)

more economically. Therefore, Experts are asked to allow a fairly long transition period during which either the old or new version can be used. If a revised standard does bring a significantly enhanced level of safety to the regulations, a shorter period could be specified.

4. The standards for service equipment are also used for manufacture so the provisions for transition are also applicable to sub section 6.2.2.3. Therefore, in making this change it has been possible to bring back the reference to ISO 10297:1999 which was superseded in the Model Regulations by ISO 10297:2006 in 2009, without any transition period. This restoration of a previous listing would remove doubt as to whether valves made to the older standard are still applicable for use.

5. The new standards that are proposed for reference in Chapter 6.2 are:

ISO 9809-1:2010 Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 1: Quenched and tempered steel cylinders with tensile strength less than 1 100 MPa;

ISO 9809-2:2010 Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 2: Quenched and tempered steel cylinders with tensile strength greater than or equal to 1 100 MPa;

ISO 9809-3:2010 Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 3: Normalized steel cylinders; and

ISO 10961:2010 Gas cylinders – Cylinder bundles – Design, manufacture, testing and inspection

Only the last one does not replace an earlier standard.

6. The principal new features of the ISO 9809 series are listed in the Foreword of each of the standards. A note concerning the F factor in the standard accompanied the listing of the old version of ISO 9809-1. This note is not required for the new version.

7. The requirements for bundles in the regulations are quite limited. ISO 10961 provides additional requirements, such as provisions for markings which are absent from the Model Regulations. Additionally the standard gives type approval tests which, by means of drop testing, demonstrate compliance with the following requirements in 6.2.1.1.6.

“Pressure receptacles shall be secured in a manner that prevents movement in relation to the structural assembly and movement that would result in the concentration of harmful local stresses. Manifold assemblies (e.g. manifold, valves, and pressure gauges) shall be designed and constructed such that they are protected from impact damage and forces normally encountered in transport.”

Proposal

8. Amend section 6.2.2 by inserting the new text which is shown underlined.

6.2.2 Requirements for UN pressure receptacles

In addition to the general requirements of section 6.2.1, UN pressure receptacles shall comply with the requirements of this section, including the standards as applicable. Manufacture of new pressure receptacles or service equipment according to any particular standard in 6.2.2.1 and 6.2.2.3 is not permitted after the date shown (if any) in the right hand column of the tables.

NOTE 1: With the agreement of the competent authority, more recently published versions of the standards, if available, may be used.

NOTE 2: Pressure receptacles and service equipment conforming to standards for which manufacture is no longer permitted may continue to be used.

6.2.2.1 Design, construction and initial inspection and test

6.2.2.1.1 The following standards apply for the design, construction, and initial inspection and test of UN cylinders, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.2.5:

Reference	Title	Applicable for manufacture
ISO 9809-1:1999	Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 1: Quenched and tempered steel cylinders with tensile strength less than 1 100 MPa <i>NOTE: The note concerning the F factor in section 7.3 of this standard shall not be applied for UN cylinders.</i>	<u>Until 31 December 2018</u>
<u>ISO 9809-1:2010</u>	<u>Gas cylinders -- Refillable seamless steel gas cylinders -- Design, construction and testing -- Part 1: Quenched and tempered steel cylinders with tensile strength less than 1 100 MPa</u>	<u>Until further notice</u>
ISO 9809-2:2000	Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 2: Quenched and tempered steel cylinders with tensile strength greater than or equal to 1 100 MPa	<u>Until 31 December 2018</u>
<u>ISO 9809-2:2010</u>	<u>Gas cylinders -- Refillable seamless steel gas cylinders -- Design, construction and testing -- Part 2: Quenched and tempered steel cylinders with tensile strength greater than or equal to 1 100 MPa</u>	<u>Until further notice</u>
ISO 9809-3:2000	Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 3: Normalized steel cylinders	<u>Until 31 December 2018</u>
<u>ISO 9809-3:2010</u>	<u>Gas cylinders -- Refillable seamless steel gas cylinders -- Design, construction and testing -- Part 3: Normalized steel cylinders</u>	<u>Until further notice</u>
ISO 7866:1999	Gas cylinders – Refillable seamless aluminium alloy gas cylinders – Design, construction and testing <i>NOTE: The note concerning the F factor in section 7.2 of this standard shall not be applied for UN cylinders. Aluminium alloy 6351A – T6 or equivalent shall not be authorised.</i>	<u>Until further notice</u>
ISO 4706:2008	Gas cylinders – Refillable welded steel cylinders – Test pressure 60 bar and below	<u>Until further notice</u>
ISO 18172-1:2007	Gas cylinders – Refillable welded stainless steel cylinders – Part 1: Test pressure 6 MPa and below	<u>Until further notice</u>
ISO 20703:2006	Gas cylinders – Refillable welded aluminium-alloy cylinders – Design, construction and testing	<u>Until further notice</u>
ISO 11118:1999	Gas cylinders – Non-refillable metallic gas cylinders – Specification and test methods	<u>Until further notice</u>
ISO 11119-1:2002	Gas cylinders of composite construction – Specification and test methods – Part 1: Hoop wrapped composite gas cylinders	<u>Until further notice</u>
ISO 11119-2:2002	Gas cylinders of composite construction – Specification and test methods – Part 2: Fully wrapped fibre reinforced composite gas cylinders with load-sharing metal liners	<u>Until further notice</u>
ISO 11119-3:2002	Gas cylinders of composite construction – Specification and test methods – Part 3: Fully wrapped fibre reinforced composite gas cylinders with non-load-sharing metallic or non-metallic liners	<u>Until further notice</u>

NOTE 1: In the above referenced standards composite cylinders shall be designed for unlimited service life.

NOTE 2: After the first 15 years of service, composite cylinders manufactured according to these standards, may be approved for extended service by the competent authority which was responsible for the original approval of the cylinders and which will base its decision on the test information supplied by the manufacturer or owner or user.

6.2.2.1.2 The following standard apply for the design, construction, and initial inspection and test of UN tubes, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.2.5:

Reference	Title	Applicable for manufacture
ISO 11120 :1999	Gas cylinders – Refillable seamless steel tubes for compressed gas transport, of water capacity between 150 l and 3 000 l – Design, construction and testing <i>NOTE: The note concerning the F factor in section 7.1 of this standard shall not be applied for UN tubes.</i>	<u>Until further notice</u>

6.2.2.1.3 The following standards apply for the design, construction and initial inspection and test of UN acetylene cylinders, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.2.5:

For the cylinder shell:

Reference	Title	Applicable for manufacture
ISO 9809-1:1999	Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 1: Quenched and tempered steel cylinders with tensile strength less than 1 100 MPa <i>NOTE: The note concerning the F factor in section 7.3 of this standard shall not be applied for UN cylinders.</i>	<u>Until 31 December 2018</u>
<u>ISO 9809-1:2010</u>	<u>Gas cylinders -- Refillable seamless steel gas cylinders -- Design, construction and testing -- Part 1: Quenched and tempered steel cylinders with tensile strength less than 1 100 MPa</u>	<u>Until further notice</u>
ISO 9809-3:2000	Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 3: Normalized steel cylinders	<u>Until 31 December 2018</u>
<u>ISO 9809-3:2010</u>	<u>Gas cylinders -- Refillable seamless steel gas cylinders -- Design, construction and testing -- Part 3: Normalized steel cylinders</u>	<u>Until further notice</u>

For the porous material in the cylinder:

Reference	Title	Applicable for manufacture
ISO 3807-1:2000	Cylinders for acetylene – Basic requirements – Part 1: Cylinders without fusible plugs	<u>Until further notice</u>
ISO 3807-2:2000	Cylinders for acetylene – Basic requirements – Part 2: Cylinders with fusible plugs	<u>Until further notice</u>

6.2.2.1.4 The following standards apply for the design, construction, and initial inspection and test of UN cryogenic receptacles, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.2.5:

Reference	Title	Applicable for manufacture
ISO 21029-1:2004	Cryogenic vessels – Transportable vacuum insulated vessels of not more than 1 000 l volume – Part 1: Design, fabrication, inspection and tests	<i>Until further notice</i>

6.2.2.1.5 The following standards apply for the design, construction, and initial inspection and test of UN metal hydride storage systems, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.2.5:

Reference	Title	Applicable for manufacture
ISO 16111:2008	Transportable gas storage devices – Hydrogen absorbed in reversible metal hydride	<i>Until further notice</i>

6.2.2.1.6 The following standards apply for the design, construction, and initial inspection and test of UN bundles of cylinders, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.2.5:

Reference	Title	Applicable for manufacture
<u>ISO 10961:2010</u>	<u>Gas cylinders – Cylinder bundles – Design, manufacture, testing and inspection</u>	<i>Until further notice</i>

6.2.2.3 Service equipment

The following standards apply to closures and their protection:

Reference	Title	Applicable for manufacture
ISO 11117:1998	Gas cylinders – Valve protection caps and valve guards for industrial and medical gas cylinders – Design, construction and tests	<i>Until 31 December 2014</i>
ISO 11117:2008 + Cor 1:2009	Gas cylinders – Valve protection caps and valve guards – Design, construction and tests	<i>Until further notice</i>
<u>ISO 10297:1999</u>	<u>Gas cylinders – Refillable gas cylinder valves – Specification and type testing</u>	<i>Until 31 December 2008</i>
ISO 10297:2006	Gas cylinders – Refillable gas cylinder valves – Specification and type testing	<i>Until further notice</i>
ISO 13340:2001	Transportable gas cylinders – Cylinders valves for non-refillable cylinders – Specification and prototype testing	<i>Until further notice</i>