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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**

Sub-Committee of Experts on the
Transport of Dangerous Goods

Thirty-fifth session
Geneva, 22–26 June 2009
Item 5 of the provisional agenda

**MISCELLANEOUS PROPOSALS OF AMENDMENTS TO THE MODEL REGULATIONS
ON THE TRANSPORT OF DANGEROUS GOODS**

References to ISO standards – Section 6.2.2

Transmitted by the International Organization for Standardization (ISO)¹

Introduction

1. The standard ISO 4706:2008 *Gas cylinders – Refillable welded steel cylinders – Test pressure 60 bar and below* was adopted for referencing in paragraph 6.2.2.1.1 in the 34th session. The proposal for its adoption (ST/SG/AC.10/C.3/2008/93) indicated that a follow-up proposal would be made to adopt a standard covering the periodic inspection and testing of these welded steel cylinders. Consequently, this paper proposes the adoption of the standard ISO 10460:2005 *Gas cylinders – Welded carbon-steel gas cylinders – Periodic inspection and testing*. The proposed standard is generic for all welded carbon-steel cylinders as well as those constructed in accordance ISO 4706.

¹ In accordance with the programme of work of the Sub-Committee for 2009-2010 approved by the Committee at its fourth session (refer to ST/SG/AC.10/C.3/68 para. 118(d) and ST/SG/AC.10/36, para. 14)

2. There is, however, one aspect of the standard which the experts are invited to consider in detail. Clauses 12.1, 12.2 and 12.3 of ISO 10460:2005 are reproduced below in paragraph 3 since these deal with repairs some of which are within the scope of the prohibition on repairs in 4.1.6.1.11, particularly the repair of pinhole leaks in welds which is covered specifically by paragraph (c). The text of 4.1.6.1.11 is also reproduced below in paragraph 4.

3. Extract from ISO 10460:2005

12 Repair of cylinders

12.1 Repair of pinholes

If during the pressure test or external visual inspections pinhole leaks are detected in a weld, the cylinder shall be made unserviceable or repaired by welding (see 12.3.1). No other repair to pressure containing welds shall be undertaken.

12.2 Other repairs

Any other major repairs, including removal of dents and replacement of foot-rings and shrouds, can be carried out provided this repair will not impair the integrity of the cylinder. All corrosion product shall be removed prior to repair.

12.3 Requirements for repair

12.3.1 Repairs as defined in 12.1 and 12.2 shall be performed to the original manufacturer's heat treatment procedure by a competent/authorized reconditioner following an approved procedure and taking into account the fabrication and testing requirements of the cylinder design standard. After such repairs, a stress relief/normalizing heat treatment shall be performed. The cylinder shall finally be hydraulically tested in accordance with Clause 11 and inspected as necessary for the intended gas service.

12.3.2 Minor repairs such as reforming damaged shrouds, carrying handles, etc., not involving welding or hot-work on pressure containing parts may be carried out as long as the integrity of the cylinder is not impaired.

12.3.3 Any operation that could result in loss of wall thickness to below minimum guaranteed wall thickness shall be completed before the inspection and testing procedures (see Annex C).

4. Extract from the UN Model Regulations (15th revised edition)

4.1.6.1.11 Repairs shall be consistent with the fabrication and testing requirements of the applicable design and construction standards and are only permitted as indicated in the relevant periodic inspection standards specified in 6.2.2.4. Pressure receptacles, other than the jacket of closed cryogenic receptacles, shall not be subjected to repairs of any of the following:

- (a) Weld cracks or other weld defects;
- (b) Cracks in walls;
- (c) Leaks or defects in the material of the wall, head or bottom.

5. Experts on ISO/TC58/SC4, the committee responsible for this standard, report that they have included the repair of pinhole leaks because such leak repairs are carried out in several countries with the approval of the competent authority. Therefore ISO requests that repairs to pinhole leaks in welds are considered to be not included in the repairs of welds described in 4.1.6.1.11 (a).

6. Also, clause 12.3.1 of the standard requires all repairs described in clauses 12.1 and 12.2 to be undertaken by a “competent/authorized reconditioner following an approved procedure”. Clearly, there is a need to specify in the regulations who it is that authorizes the competent reconditioner and approves the procedure. ISO proposes to solve both these issues by adding a note to the reference to the standard stating that repairs described in clauses 12.1 and 12.2 require the approval of the competent authority.

Proposal

7. In paragraph 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: Repairs described in clauses 12.1 and 12.2 of this standard require the approval of the competent authority.</i>
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