

## Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

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### Sub-Committee of Experts on the Transport of Dangerous Goods

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Transport of gases: miscellaneous

## Comments on ST/SG/AC.10/C.3/2018/8 (Canada): Shells for UN acetylene cylinders

Transmitted by the International Organisation for Standardisation  
(ISO)

### Introduction

1. ISO supports the intention of paper 2018/8 to allow cylinder shells for UN acetylene cylinders to be constructed in accordance with the standards ISO 4706 for welded steel cylinders and ISO 7866 for seamless aluminium cylinders. However, because of the way these standards are referenced in ISO 3807 the proposal given in paper 2018/8 allows other unspecified standards to be used. This paper proposes an amendment which achieves the Canada's intention by specifying the required standards directly.

2. The entire text concerning cylinder shell construction in ISO 3807:2013 is reproduced as follows.

#### “4.1 Cylinder shell

The acetylene cylinder shell shall conform to the requirements of the relevant International Standard for design and construction of the cylinders, e.g.

- for seamless steel, ISO 9809-1, ISO 9809-3;
- for welded steel, ISO 4706;
- for seamless aluminium alloy, ISO 7866.

NOTE Other standards for the design and construction of cylinders are in preparation and appropriate standards should be conformed to when published.

The minimum test pressure for acetylene cylinders without fusible plugs shall be 60 bar.

The minimum test pressure for acetylene cylinders with fusible plugs shall be 52 bar.”

3. It can be seen that the two standards ISO 4706 and ISO 7866 are only given as examples and the note explains that other standards can be used. The use of these two standards is not a requirement of conformity to ISO 3807, so specifying this standard in 6.2.2.1.3, does not definitively require the use of the standards which paper 2018/8 is

requesting. Although the authors of the standard may have intended by using the words “International Standard” that only ISO standards were to be used, readers may well understand that any standard used in more than one country would be suitable. If only published ISO standards are taken into consideration, there are already cylinder standards for seamless stainless steel, welded stainless steel and welded aluminium which could possibly be used.

4. It is ISO’s opinion that the intention of section 6.2.2 is to require all aspects of pressure receptacle construction to be fully specified so that the maximum transparency and harmonisation is achieved. Therefore, direct referencing of the standards should be used.

5. A second disadvantage of the referencing of ISO 3807 in a table devoted to the construction of cylinder shells is that it is a potential cause of confusion. This standard, as we have seen, has minimal requirements for cylinder construction; it is a standard about the installation and testing of the porous material.

## Proposal

6. Direct referencing of ISO 4706 and ISO 7866 is proposed by amending the first table in 6.2.2.1.3 as shown. New text is underlined.

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<br><br><i>NOTE: The note concerning the F factor in section 7.3 of this standard shall not be applied for UN cylinders.</i> | Until 31 December 2018      |
| 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  | Until further notice        |
| ISO 9809-3:2000                   | Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing Part 3: Normalized steel cylinders   | Until 31 December 2018      |
| ISO 9809-3:2010                   | Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 3: Normalized steel cylinders   | Until further notice        |
| <u>ISO 4706:2008</u>              | <u>Gas cylinders – Refillable welded steel cylinders – Test pressure 60 bar and below</u>   | <u>Until further notice</u> |
| <u>ISO 7866:2012 + Cor 1:2014</u> | <u>Gas cylinders – Refillable seamless aluminum alloy gas cylinders – Design, construction and testing</u><br><i>NOTE: Aluminum alloy 6351A or equivalent shall not be used</i>   | <u>Until further notice</u> |

7. The remainder of 6.2.2.1.3 is unchanged.