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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

Thirtieth session
Geneva, 4-12 (a.m.) December 2006
Item 2(a) of the provisional agenda

**PROPOSALS OF AMENDMENTS TO THE RECOMMENDATIONS
ON THE TRANSPORT OF DANGEROUS GOODS**

Transport of gases
Proposals to amend Chapter 6.2

Transmitted by the expert from Germany

1. Introduction

In document ST/SG/AC.10/C.3/2006/26 the expert from Germany proposed several amendments for Chapter 6.2. Some of these proposals were adopted during the last meeting of the Sub-Committee; however, some were not accepted because a more detailed justification or proposal was asked for (see report of the last meeting, paras. 24-26 of ST/SG/AC.10/C.3/58.).

This document presents revised proposals for two aspects for the transport of gases, especially with regard to acetylene cylinders which were not agreed during the 29th Session. .

2. Periodic inspection of acetylene cylinders (section 4 of ST/SG/AC.10/C.3/2006/26)

The periodic inspection of gas cylinders in general is described in 6.2.1.5.1. There, four items (namely points (a) to (d)) to be inspected are listed.

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The periodic inspection of acetylene cylinders is described in the following paragraph. 6.2.1.5.2 states that only the external condition and the condition of the porous material are to be inspected. The word “only” is probably included in order to make clear that the items (a) to (d) of 6.2.1.5.1 are not referred to. However, two of these four items are also part of the periodic inspection of acetylene cylinders. These items are point (a) on the check of the external condition and point (c) on the check of the threads. Therefore the wording of 6.1.1.5.2 should be amended in a way that a reference to 6.2.1.5.1 (a) and (c) is made.

In addition, acetylene cylinders have to be checked for the condition of the porous material. This is the only inspection item which is really unique to acetylene cylinders. In 6.2.1.5.2 this item is detailed by adding "loosening, settlement" in brackets. Since these two are only examples and are not an exhaustive list, this should be made clear by adding "e.g.".

Furthermore, the relevance of these examples should be considered. Checking for cracks and the top clearance should be added to the information in brackets, because these are also very important inspection items regarding the porous material of acetylene cylinders.

In addition valves, other accessories and pressure-relief devices, if to be reintroduced into service, have to be checked. This should be mentioned as well, not only in 6.2.1.5.2 but also in 6.2.1.5.1.

Proposal 1

The following amendments are proposed:

6.2.1.5.1: Add a new paragraph (e) at the end to read as follows:

“(e) Check of the valves, other accessories and pressure-relief devices, if to be reintroduced into service.”

6.2.1.5.2: Amend to read as follows:

“6.2.1.5.2 Pressure receptacles intended for the transport of UN 1001 acetylene, dissolved and UN 3374 acetylene, solvent free, shall be examined only as specified in 6.2.1.5.1 (a), (c) and (e). In addition the condition of the porous material (e.g. cracks, top clearance, loosening, settlement) shall be examined.”

3. Responsibility for initial inspection and test (section 3 of ST/SG/AC.10/C.3/2006/26)

The responsibility for the approval of pressure receptacles according to paragraph 6.2.1.6 is clearly regulated and also the responsibility for their periodic inspection according to paragraph 6.2.1.5 is regulated (in both cases this responsibility is mentioned in the first sentence of the respective chapter).

Since there is no such information in paragraph 6.2.1.4 on the initial inspection, the expert from Germany proposed to amend 6.2.1 during the last meeting. The Sub-Committee did not adopt

that proposal "because the definition of competent authority was already quite clear on that subject." (see para. 25 of the report).

However, this document intends to have a new discussion on this item. Though the definition of a competent authority itself is clear, no body or authority is mentioned in connection with the initial inspection (also not in any other clause of chapter 6.2). If, however, the Sub-Committee meant that the responsibility for the initial inspection inherently is the same as for the approval (without that it is explicitly mentioned), this might be clarified to avoid any wrong interpretation. Therefore, the expert of Germany still would appreciate if information on the responsibility for the initial inspection and testing was included in 6.2.1.4.

One possibility would be to put the paragraphs 6.2.1.4 to 6.2.1.6 in their actual chronological sequence (first approval, then initial inspection, then periodic inspection). As the initial inspection currently is mentioned first (before the approval), the reader and user of the UN Recommendations might not consider the connection to the responsibility which is given in a subsequent paragraph (the approval paragraph).

Proposal 2

It is proposed to amend 6.2.1.4 to 6.2.1.6 as follows:

6.2.1.4 ~~6.2.1.6~~ *Approval of pressure receptacles*

~~6.2.1.4.1~~ ~~6.2.1.6.1~~ The conformity of pressure receptacles shall be assessed at time of manufacture as required by the competent authority. Pressure receptacles shall be inspected, tested and approved by an inspection body. The technical documentation shall include full specifications on design and construction, and full documentation on the manufacturing and testing.

~~6.2.1.4.2~~ ~~6.2.1.6.2~~ Quality assurance systems shall conform to the requirements of the competent authority.

6.2.1.5 ~~6.2.1.4~~ *Initial inspection and test*

~~6.2.1.5.1~~ ~~6.2.1.4.1~~ New pressure receptacles, other than closed cryogenic receptacles, shall be subjected to testing and inspection during and after manufacture by an inspection body in accordance with the applicable design standards including the following:

On an adequate sample of pressure receptacles:

- (a) Testing of the mechanical characteristics of the material of construction;
- (b) Verification of the minimum wall thickness;
- (c) Verification of the homogeneity of the material for each manufacturing batch;
- (d) Inspection of the external and internal conditions of the pressure receptacles;
- (e) Inspection of the neck threads;
- (f) Verification of the conformance with the design standard;

For all pressure receptacles:

- (g) A hydraulic pressure test. Pressure receptacles shall withstand the test pressure without expansion greater than that allowed in the design specification;

NOTE: With the agreement of the competent authority, the hydraulic pressure test may be replaced by a test using a gas, where such an operation does not entail any danger.

- (h) Inspection and assessment of manufacturing defects and either repairing them or rendering the pressure receptacles unserviceable. In the case of welded pressure receptacles, particular attention shall be paid to the quality of the welds;
- (i) An inspection of the markings on the pressure receptacles;
- (j) In addition, pressure receptacles intended for the transport of UN 1001 acetylene, dissolved, and UN 3374 acetylene, solvent free, shall be inspected to ensure proper installation and condition of the porous material and, if applicable, the quantity of solvent.

6.2.1.5.2 ~~6.2.1.4.2~~ On an adequate sample of closed cryogenic receptacles, the inspections and tests specified in 6.2.1.5.1 ~~6.2.1.4.1~~ (a), (b), (d), and (f) shall be performed. In addition, welds shall be inspected by radiographic, ultrasonic or another suitable non-destructive test method on a sample of closed cryogenic receptacles according to the applicable design and construction standard. This weld inspection does not apply to the jacket.

Additionally, all closed cryogenic receptacles shall undergo the initial inspections and tests specified in 6.2.1.5.1 (g), (h), and (i), as well as a leakproofness test and a test of the satisfactory operation of the service equipment after assembly.

6.2.1.6 ~~6.2.1.5~~ Periodic inspection and test

6.2.1.6.1 ~~6.2.1.5.1~~ Refillable pressure receptacles, other than cryogenic receptacles, shall be subjected to periodic inspections and tests by a body authorized by the competent authority, in accordance with the following:

- (a) Check of the external conditions of the pressure receptacle and verification of the equipment and the external markings;
- (b) Check of the internal conditions of the pressure receptacle (e.g. internal inspection, verification of minimum wall thickness);
- (c) Checking of the threads if there is evidence of corrosion or if the fittings are removed;
- (d) A hydraulic pressure test and, if necessary, verification of the characteristics of the material by suitable tests.

NOTE 1: With the agreement of the competent authority, the hydraulic pressure test may be replaced by a test using a gas, where such an operation does not entail any danger.

***NOTE 2:** With the agreement of the competent authority, the hydraulic pressure test of cylinders or tubes may be replaced by an equivalent method based on acoustic emission testing, ultrasonic examination or a combination of acoustic emission testing and ultrasonic examination.*

6.2.1.6.2 ~~6.2.1.5.2~~ For pressure receptacles intended for the transport of UN 1001 acetylene, dissolved and UN 3374 acetylene, solvent free, only the external condition (corrosion, deformation) and the condition of the porous material (loosening, settlement) shall be required to be examined.¹”

¹ *If this proposal is accepted, care should be taken that also the possible changes due to section 2 of this document are included.*