



**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-eighth session**

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Item 4 of the provisional agenda

Listing, classification and packing**Chapter 6.2: Approval of acetylene cylinders****Transmitted by the expert from Germany¹****Background**

1. For acetylene cylinders the following requirements are given in Chapter 6.2 of the Model Regulations on the Transport of Dangerous Goods:

"6.2.1.1.9 Additional requirements for the construction of pressure receptacles for acetylene

Pressure receptacles for UN 1001 acetylene dissolved, and UN 3374 acetylene, solvent free, shall be filled with a porous material, uniformly distributed, of a type that conforms to the requirements and testing specified by the competent authority and which:

- (a) Is compatible with the pressure receptacle and does not form harmful or dangerous compounds either with acetylene or with the solvent in case of UN 1001; and
- (b) Is capable of preventing the spread of decomposition of the acetylene in the material.

In the case of UN 1001, the solvent shall be compatible with the pressure receptacles."

2. Two standards with requirements and tests for the porous material are referenced in 6.2.2.1.3 in the tables listing standards for the design, construction and initial inspection

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 (b) and ST/SG/AC.10/36, para. 14).

and test: ISO 3807-1 and ISO 3807-2. In addition to the basic requirements, these standards give detailed requirements regarding testing. Type tests include the elevated temperature test, the backfire test and for cylinders with fusible plugs the impact stability test and the fire test. Therefore, there is no need for a competent authority to specify requirements and testing for the porous material contained in acetylene cylinders.

3. In the ADR (version 2007) the corresponding wording was:

"6.2.1.1.2 Pressure receptacles for UN No. 1001, acetylene, dissolved, shall be filled entirely with a porous material, uniformly distributed, of a type approved by the competent authority and which:

- (a) Does not attack the pressure receptacles or form harmful or dangerous compounds either with the acetylene or with the solvent;
- (b) Is capable of preventing the spread of decomposition of the acetylene in the porous material.

The solvent shall not attack the pressure receptacles.

The above requirements, excluding those for the solvent, apply equally to pressure receptacles for UN No. 3374 acetylene, solvent free."

4. The wording in the ADR was changed in version 2009 in order to take over the wording of the Model Regulations. With that, the same applies for both: If taken literally, the competent authority is supposed to specify requirements and tests for the porous material in acetylene cylinders but not to actually approve the type. But to lay down requirements and specify tests is not necessary, because the standards ISO 3807-1:2000 and ISO 3807-2:2000 provide for such provisions and are to be applied. What is remaining is a need for the competent authority – as an independent third party – to approve the type of material.

5. It is current practice in most countries (at least those we are aware of) to apply a system in which the competent authority approves the type of the porous material in acetylene cylinders. We therefore think that the current wording is imprecise and not expressing what actually was and is the intention of that paragraph.

Proposal

6. Change the wording in 6.2.1.1.9 as follows (text to be added is underlined, text to be deleted is crossed out):

"6.2.1.1.9 Additional requirements for the construction of pressure receptacles for acetylene

Pressure receptacles for UN 1001 acetylene dissolved, and UN 3374 acetylene, solvent free, shall be filled with a porous material, uniformly distributed, of a type approved ~~that conforms to the requirements and testing specified by the competent authority and~~ which:

- (a) Is compatible with the pressure receptacle and does not form harmful or dangerous compounds either with acetylene or with the solvent in case of UN 1001; and
- (b) Is capable of preventing the spread of decomposition of the acetylene in the material.

In the case of UN 1001, the solvent shall be compatible with the pressure receptacles."
