

## 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

Twenty-eighth session  
Geneva, 28 November – 7 December 2005  
Item 2 of the provisional agenda

### TRANSPORT OF GASES

#### Comments to ST/SG/AC.10/C.3/2005/25 Proposals to amend Chapter 6.2

#### Transmitted by the expert from the United States of America

#### **Background**

1. The expert from the United States has reviewed the proposal from the EIGA regarding amendments to 6.2.1.1.6 for protection of the manifold on a bundle assembly. We support the objective of this proposal to enhance the safe transport of pressure receptacles assembled in bundles. However, the United States suggests that Proposal 2 from 2005/25 can be improved by encompassing the entire manifold assembly under the elements of the unit that requires protection, rather than only adding the term “master valve”. In addition to adding the protection provision for manifold assemblies, we question why the current requirement in the last sentence of 6.2.1.1.6 is limited to toxic liquefied gases. The United States proposes that this requirement should apply to all toxic gases, whether liquefied or compressed (permanent). Proposal 1 of this paper is for consideration by this session of the Sub-Committee.
2. During our review of the issues raised in 2005/25, the United States notes that requirements related to the ability of the bundle frame to withstand impacts normally incident in transport seems to be lacking. We have recently proposed text in our national rulemaking efforts to incorporate UN cylinders into U.S. regulations. To address the capability of a bundle frame to protect the assembly, we have proposed requirements based on text from EN 13769 *Transportable gas cylinders - Cylinder bundles – Design, manufacture, identification and testing*. In Proposal 2 we are providing recommended text for addition to Chapter 6.2 and request comments from the Sub-Committee in order for us to finalize a proposal on this issue for the next session of the Sub-Committee.

#### **Proposal 1:**

3. Amend 6.2.1.1.6 by adding the underlined text and deleting the strike-through text as follows:

“6.2.1.1.6 Pressure receptacles assembled in bundles shall be structurally supported and held together as a unit. 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. ~~Manifolds shall be designed such that they are protected from impact.~~ 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. Manifolds shall have at least the same test pressure as the cylinders. For toxic liquefied gases, ~~means shall be~~

~~provided~~ each pressure receptacle shall have an isolation valve to ensure that each pressure receptacle can be filled separately and that no interchange of pressure receptacle contents can occur during transport.

### Proposal 2:

4. Add to 6.2.1.1.6 new text (draft numbering dependent on renumbering current 6.2.1.1.6 to 6.2.1.1.6(a)) as follows:

“6.2.1.1.6(a) Pressure receptacles assembled in bundles shall be structurally supported and held together as a unit. 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. ~~Manifolds shall be designed such that they are protected from impact. Manifold assemblies (e.g. manifold, valves, and pressure gauges) shall be designed and constructed as described in sections 6.2.1.1.6 (b), (c) and (d) in order to protect manifold assemblies from impact damage and forces normally encountered in transport. Manifolds shall have at least the same test pressure as the cylinders.~~ For toxic liquefied gases, ~~means shall be provided~~ each pressure receptacle shall have an isolation valve to ensure that each pressure receptacle can be filled separately and that no interchange of pressure receptacle contents can occur during transport.”

6.2.1.1.6 (b) The frame design shall ensure stability under normal operating conditions. The frame shall securely retain all the components of the bundle and shall protect them from damage during conditions normally encountered during transport. The method of pressure receptacle restraint shall prevent any vertical or horizontal movement or rotation of the pressure receptacle that could cause undue strain on the manifold. The total assembly must be able to withstand rough handling, including being dropped or overturned.

6.2.1.1.6(c) The frame shall include features designed for the handling and transport of the bundle. The lifting rings shall be designed to withstand a design load of 2 times the maximum gross weight. Bundles with more than one lifting ring shall be designed such that a minimum sling angle of 45 degrees to the horizontal can be achieved during lifting using the lifting rings. If four lifting rings are used, their design must be strong enough to allow the bundle to be lifted by two rings. Where two or four lifting rings are used, diametrically opposite lifting rings shall be aligned with each other to allow for correct lifting using shackle pins. If the bundle is filled with forklift pockets, it shall contain two forklift pockets on each side from which it is to be lifted. The forklift pockets shall be positioned symmetrically consistent with the bundle center of gravity.

6.2.1.1.6(d) The frame structural members shall be designed for a vertical load of 2 times the maximum gross weight of the bundle. Design stress levels shall not exceed 0.9 times the yield strength of the material.”

---