



Secretariat

Distr.  
GENERAL

ST/SG/AC.10/C.3/2008/31  
9 April 2008

Original: ENGLISH

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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-third session  
Geneva, 30 June-9 July (a.m.) 2008  
Item 7 of the provisional agenda

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

Bottom closing devices for portable tanks for Packing Group I solids

Transmitted by the expert from Australia \*

**Background**

1. As a result of recommendations made by the expert from the United States of America in ST/SG/AC.10/C.3/2007/24, changes have been adopted allowing bottom discharges on tanks carrying PGI solids. The expert from Australia welcomes this change as it resolves long standing issues with packages used for the carriage of UN3396 (Organometallic substance, solid, water-reactive, flammable) where the design of the tank was driven by the means of discharge.
2. The Australian Maritime Safety Authority has issued exemptions permitting the use of bottom openings on T9 tanks. These exemptions recognised US approvals originally issued in

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\* In accordance with the programme of work of the Sub-Committee for 2007-2008 approved by the Committee at its third session (refer to ST/SG/AC.10/C.3/60, para. 100 and ST/SG/AC.10/34, para. 14) (Provisions for the transport of dangerous goods in open cryogenic receptacles).

respect of these packages but included additional conditions in respect of the valve. Under the Australian exemption, the portable tank was fitted with two means of closure, as required by section 6.7.2.6.2 of the UN Model Regulations, but also required that the valve be fitted with a safety device to prevent inadvertent operation of the valve.

3. Given the nature of the products in question, the expert from Australia considers that the valve fitted to tanks under the new note 'b' to section 4.2.5.2.6 should require a similar level of protection for the valve. For example, if the valve was in the open position before discharge of the product, and subsequently closed, it remains likely that some of the contents will have collected between the valve and the second closure.

4. The Model Regulations need to have measures in place to prevent any foreseeable release of dangerous goods. Given some of the products that are carried in these tanks will react with air and moisture, resulting in spontaneous combustion, the evolution of flammable and/or toxic gas or a combination of these outcomes, allowing bottoms openings for solids without providing adequate protection against a foreseeable risk appears inappropriate. The current wording of 6.7.2.6.2 requires no such protection.

5. Australian experience has shown that this issue is not difficult or expensive to address and simply requires a positive locking system to be fitted to the valve that prevents the valve rotating without the locking device first being operated. These can be single handed in operation and provide effective protection from impact or other events. The expert from Australia has an example of the type of arrangement used. This is significantly better than 'compliant' valves that are used, namely a lever operated ball valve with no locking device (see photograph below). With valves of this type, the handle can easily catch and a rudimentary test, conducted by fitting the valve to a pipe and dropping the pipe in a vertical orientation, can result in opening of the valve. Valves have been fitted in this manner on a number of tanks seen to date.



*Figure 1: lever operated ball valve*

6. The expert from Australia proposes that section 6.7.2.6.2 be amended to address all situations where bottom opening valves are used for the carriage of solid dangerous goods in tanks.

### **Proposal**

7. Section 6.7.2.6.2. (a) be amended to read:

*“(a) an external stop-valve, fitted as close to the shell as reasonably practical, and so designed as to prevent any unintended opening through impact or other inadvertent act; and”*

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