

Geneva, 15-19 September 2008
Item 2 of the provisional agenda

Tanks

Instant-closing internal safety device on tanks / Reference to EN 12252

Transmitted by CEN

SUMMARY

Executive summary: As an outcome of the revision of EN 12252, CEN/TC 286/WG 5 proposes an amendment to 6.8.3.2.3 of RID / ADR:2009 and full reference of EN 12252 in 6.8.2.6.

Action to be taken: Amendment of 6.8.3.2.3. and the table in 6.8.2.6

Related documents: ECE-TRANS-WP15-AC1-07-BE-inf16e (Belgium)
ECE-TRANS-WP15-AC1-08-BE-inf33e (AEGPL)INF.3

Background

During the revision of EN 12252 CEN/TC 286/WG 5 reflected on the outcome of the discussion of the Joint Meeting in March 2007 to amend 6.8.3.2.3 regarding the use of non-return valves in pipes used for filling and discharging tank-vehicles (ECE-TRANS-WP15-AC1-07-BE-inf16e) and the outcome of the ad-hoc Working Group on this subject (INF.3).

As many existing tank-vehicles do not conform to this new requirement but have nevertheless proven to be safe, CEN/TC 286/WG 5 proposes the full reference to EN 12252 along with an amendment 6.8.3.2.3 of ADR as outlined below.

CEN/TC 286/WG 5 Proposal

The participants of the WG proposed unanimously the following:

1. Amend 6.8.3.2.3 as follows(modification in bold character):

"The internal stop valve of all filling and all discharge openings of tanks with a capacity greater than 1 m³, intended for the carriage of liquefied flammable and/or toxic gases shall be instant-closing and shall close automatically in the event of an unintended movement of the tank or in the event of fire. It shall also be possible to operate the internal stop valve by remote control.

However, on tanks used for the transport of liquefied flammable gases, the internal stop valve may be replaced with an internal spring loaded non return valve in series combination with a shut-off valve for openings leading to the vapour phase of the tank."

2. Remove the exception in the references to EN 12252:2000 and EN 12252:2005+A1:2008 in the table of 6.8.2.6.

Justification

The existing text of 6.8.3.2.3 of ADR was originally written for rail cars (RID), which normally has only one outlet and one vapour connection. The text has then been taken largely unaltered into ADR for application to tank vehicles. LPG tank vehicles commonly have more than two connections and therefore this has caused problems for the LPG industry to meet the requirements of 6.8.3.2.3.

EN 12252 reflects best practice of the European LPG industry. It has adopted the position of 6.8.3.2.3 of ADR:2009 for liquid discharge. However for filling into the vapour space or other vapour connections the industry has followed the requirements as laid out in EN 12252. This has proven itself to ensure a very high standard of safety. This standard reflects the practice as has been carried out in all European countries for many years.

For discharge outlets the requirement is a normally closed internal shut-off valve opened by hydraulic, pneumatic or mechanical power from the tank vehicle. The valve shall be designed for rapid closure on command. The system shall incorporate a thermally sensitive device or other means that will ensure positive closure in the event of a fire and shall incorporate an excess flow valve facility. This fully complies with the requirements of 6.8.3.2.3 of ADR:2009.

For filling to the vapour phase, the tank vehicle filling connection shall be provided with a non return valve or a series of non return valves in combination with a manual shut-off valve, or a normally closed internal shut-off valve opened by hydraulic, pneumatic or mechanical power from the tank vehicle along with an anti-drive-away system/emergency-shut down system. This does not strictly comply with the requirements of 6.8.3.2.3 of ADR:2009; however it should be borne in mind that this arrangement is only used for liquid filling of the tank vehicle into the vapour phase. This outlet is protected by an internal non-return valve that is not exposed to potential mechanical damage (as it is protected by the shell of the vessel), and the connection is further secured by a shut-off valve.

For other liquid or vapour piped connections, EN 12252 requires that tank vehicle shall be provided with an internal excess flow valve or internal non-return valve in series combination with a manual shut-off valve. This also does not strictly comply with the requirements of 6.8.3.2.3 of ADR:2009; however it should be borne in mind that this outlet is also protected by an internal non-return valve that is not exposed to potential mechanical damage (as it is protected by the shell of the vessel), and the connection is further secured by a shut-off valve.

The proposal contained in INF.3 has a footnote that requires non-return valves to have appropriate sealing and does not allow metal-to-metal seats. However it is common practice for such non-return valves to have metal-to-metal seats (which have a maximum residual flow in accordance with EN 13175), and this is further secured by the requirement to have a shut-off valve in line with the non-return valve, thereby ensuring the leak tightness of the system when the connection is not in use.
