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Item 2 of the provisional agenda

Tanks

Miscellaneous topics on tanks

Transmitted by the Government of the Netherlands^{1, 2}

Summary

- Executive summary:** The three topics presented in this document were elaborated in national procedures for better understanding; these procedures are to be withdrawn. Having an additional safety benefit these topics are presented in this document.
- Action to be taken:** Discuss topics and amend regulation appropriately.
- Related documents:** Informal document INF.12 of the spring 2016 session.

¹ In accordance with the programme of work of the Inland Transport Committee for 2016-2017, (ECE/TRANS/2016/28/Add.1 (9.2)).

² Circulated by the Intergovernmental Organisation for International Carriage by Rail (OTIF) under the symbol OTIF/RID/RC/2016/26.

Introduction

1. The following three topics emerged while evaluating an old national procedure on construction of LPG tanks. It was suggested that these issues were safety related but are not or not sufficiently addressed in RID/ADR. It is suggested to discuss these topics in the working group on tanks.

Topic 1: fire safe design of primary shut of valves on tanks intended for the carriage of under pressure liquefied flammable or toxic gases.

Proposal 1:

2. Introduce new wording in 6.8.3.2.3 to read (new wording in *Italic* script):

“6.8.3.2.3 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 or toxic gases shall be *of fire safe design*, 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.”.

Justification to topic 1:

3. Internal stop-valves or primary shut valves shall close automatically in case of a fire. Also these valves should remain tight under fire conditions. Standard EN ISO 10497 is already available for many years and valves in compliance are on the market. Standard EN 12252, referenced in ADR for LPG road vehicles, mentions this standard but is not specific to which valves it applies.

4. EN 12252 being dedicated to LPG only means that for other tanks for similar gases identical requirements should apply, for this reason it is proposed to be mentioned in RID/ADR. If this topic is favourably received CEN should be informed to further specify the application of EN ISO 10497:2010 to primary shut off valves in EN 12252 and to include EN 10497:2010 in EN 14433 as applicable for bottom valves for gaseous substances. It should also be considered if a transitional measure is needed for existing tanks.

Topic 2: prohibition of gauge glasses.

Proposal 2

5. Introduce a new 6.8.2.2.11 to read:

“6.8.2.2.” *Glass level-gauges and gauges made of other fragile material, which are in direct communication with the contents of the shell, shall not be used.*”.

Proposal 3

6. Delete the first sentence of 6.8.3.2.6 to read (deleted wording ~~stricken~~ through):

“6.8.3.2.6 ~~If the tanks are equipped with gauges in direct contact with the substance carried, the gauges shall not be made of a transparent material.~~ If there are thermometers, they shall not project directly into the gas or liquid through the shell.”.

Proposal 4

7. Amend the first paragraph of 6.10.3.8 (f) to read (new wording in *italic* script, deleted wording ~~stricken~~ through):

“(f) The tank, or in case of compartmented tanks, every compartment, shall be equipped with a level indicating device. *Glass level gauges and gauges of other suitable transparent material* ~~Sight glasses~~ may be used as level indicating devices provided.”.

Justification to topic 2:

8. If a particular device is not allowed this should be clearly included in the part of the regulation that it is prohibited. Sight glasses, transparent gauges and level indicating glass column gauges are not allowed in chapter 6.8. This can be concluded by the modification made in chapter 6.10 for vacuum operated waste tanks, where “sight glasses” are allowed. Another indication is in 6.8.3.2.6 where it is stating that “gauges shall not be made of transparent material”. In chapter 6.7 the use of transparent gauges (see 6.7.2.16.1 and 6.7.3.12.1) is also not allowed.

9. The wording of the proposal is based on the wording of chapter 6.7 and brings 6.8 in line with 6.7. Adoption of the new wording results in two consequential amendments. Because 6.8.3 modifies or completes 6.8.2 for gases there is no need to repeat this in 6.8.3. Also the wording in 6.10.3.8. (f) should use similar wording to prevent confusion.

Topic 3: prevention of water ingress in safety valves.**Proposal 5**

Introduce a new paragraph at the end of 6.8.3.2.9 to read (new wording in *italic* script):

“6.8.3.2.9 Tanks intended ...

formula contained in 6.7.3.8.11.

Safety valves that may collect water, due to rain or spray, that will prevent correct functioning [in the case the water is frozen,] shall be provided with a rain cap. The rain cap shall not appreciably increase the discharge pressure or limit the flow of the discharge.”.

Justification to topic 3:

Some designs of safety valves may collect water in the discharge opening. This is in particular the case on specific types of safety valves used on tanks for liquefied flammable gases such as LPG.