

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on the Transport of Dangerous Goods

Joint Meeting of the RID Committee of Experts and the
Working Party on the Transport of Dangerous Goods

Geneva, 11-21 September 2007
Item 2 of the provisional agenda

PROPOSALS FOR AMENDMENTS TO RID/ADR/ADN

Tanks divided by partitions or surge plates, intended for liquefied gases

Transmitted by the European Liquefied Petroleum Gas Association (AEGPL)

SUMMARY

Executive summary: At the last Joint Meeting, the Working Group on Tanks adapted in square brackets a proposal on surge plates for tanks used for the carriage of liquefied gases, with a tank section capacity (7 500 liter). In the respect of standard EN 12493, the LPG tankers have in some cases another limitation (4 meter spacing). The satisfactory service of 9 000 LPG tankers in EU-25, for many years, confirms the equivalence of the 2 limitations.

Action to be taken: Amend the RID/ADR requirements in line with standard EN 12493.

Related documents: ECE/TRANS/WP.15/AC.1/106/Add.1 (Item 1, Paragraph. 5 to 7).

Introduction

At the last meeting of the Working Group on Tanks (Documents ECE/TRANS/WP.15/AC.1/2007/8 and INF.34), it was proposed to extend to tanks used for the carriage of liquefied gases the requirement for surge plates that was already applicable to certain tanks used for the transport of liquids.

At that meeting, the following proposal was adopted in square brackets, with the tank section capacity (7 500 litres) still to be determined:

[“Shells intended for the carriage of substances in the liquid state or liquefied gases or refrigerated liquefied gases, which are not divided by partitions or surge plates into sections of not more than 7,500 litres capacity, shall be filled to not less than 80% or not more than 20% of their capacity.

This provision is not applicable to:

- *Liquids with a kinematic viscosity at 20° C of at least 2,680 mm²/s;*
- *Molten substances with a kinematic viscosity at the temperature of filling of at least 2,680 mm²/s; and*
- *UN No. 1963 HELIUM, REFRIGERATED, LIQUID and UN No. 1966 HYDROGEN, REFRIGERATED, LIQUID”]*

AEGPL supported the proposal in principle, but nevertheless proposed submitting a new proposal amending the text by referring to the existing standard EN 12493.

Comments

The LPG tankers have been built originally according to the national technical codes and more recently according to the Standard EN 12493 (“LPG equipment and accessories - Welded steel tanks for liquefied petroleum gas (LPG) - Road tankers - Design and manufacture”). This Standard EN 12493 meets the current ADR requirements and is referenced in sub-section 6.8.2.6.

According to this standard, the newly built tankers are currently fitted with surge plates. The technical requirements for the tank configuration are taking into consideration the specific physical characteristics of LPG (particularly its low density of 0.51 to 0.58 kilo per liter) and the volume to be transported:

“Tanks longer than 4 m shall be fitted with transverse surge plates at a maximum spacing of 4 m, and shall be designed to permit full internal inspection of the tank.

The area of each plate shall be at least 70 % of the cross-sectional area of the tank in which the plates are fitted. Surge plates shall be able to withstand the load imposed by a full capacity liquid content of the section between the plates in either direction. Surge plates shall be at least 2 mm thick. Provision shall be made for communication and drainage between sections.

For tanks over 1.8 m diameter, having a wall thickness less than 6 mm and for tanks up to 1.8 m diameter, having a wall thickness less than 5 mm, the surge plates shall

have the same thickness as the shell and the volume between any two plates shall not exceed 7 500 litre” (Ch 5.2 of Standard EN 12493).

As a result in the case of LPG, the suggested limitation of 7 500 litre capacity appears not being the only rule, due to the inherent strength of LPG tankers and to the low density of the LPG products which directly determine the kinetic energy: a limitation of 4 meter may also be used in some cases when specific construction requirements are satisfied.

The satisfactory service of 9 000 LPG tankers in EU-25, for many years, confirms the equivalence of the 2 limitations.

Proposal

AEGPL supports the proposal made by the Working Group on Tanks and proposes to add the following text (new text is indicated in bold):

“Shells intended for the carriage of substances in the liquid state or liquefied gases or refrigerated liquefied gases, which are not divided by partitions or surge plates into sections of not more than 7 500 litre capacity, shall be filled to not less than 80% or not more than 20% of their capacity.

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For UN No 1011 BUTANE, UN No 1965 HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. and UN No 1978 PROPANE, the limitation of 7 500 liter capacity may be replaced by a limitation of 4 meter spacing in some cases defined in the standard EN 12493 (“LPG equipment and accessories - Welded steel tanks for liquefied petroleum gas (LPG) - Road tankers - Design and manufacture”).

Nota: this added text does not alter the marking regarding surge plates as recommended by the Government of Belgium in document ECE/TRANS/WP.15/AC.1/2007/29.
