

Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

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Item 6 (a) of the provisional agenda

**Proposals for amendments to annexes A and B of ADR:
construction and approval of vehicles**

Continued use of fixed tanks (tank-vehicles), demountable tanks and battery-vehicles in accordance with the transitional provisions of ADR 1.6.3.1, 1.6.3.2 and 1.6.3.3

Transmitted by the European Industrial Gases Association (EIGA)

Introduction

Germany has submitted ECE/TRANS/WP.15/2014/14. This is essentially the same paper that was submitted by Germany as ECE/TRANS/WP.15/AC.1/2014/1. In response to ECE/TRANS/WP.15/AC.1/2014/1 EIGA submitted Inf 35 to the Joint Meeting in March 2014. Within INF 35, EIGA raised a number of concerns and questions and these have not been answered by ECE/TRANS/WP.15/2014/14.

EIGA welcomes the work carried concerning the continued use of gas tank-wagons which are intended for the carriage of gases of Class 2. This original work has been extrapolated to fixed tanks (tank-vehicles), demountable tanks and battery-vehicles from rail wagons. One of the significant differences between rail and road carriage is that road vehicles are not subjected to the loadings encountered in rail transport. Additionally, in road carriage equipment is accompanied.

EIGA requested to review the evidence that the Germany has carried out that supports the proposal that these fixed tanks (tank-vehicles), demountable tanks and battery vehicles are not as safe as those built at a later date. To date we have not been given the opportunity to review this work which we anticipate has been focused on carriage by rail.

At the time of ECE/TRANS/WP.15/AC.1/2014/1 EIGA canvassed their members and they could not find any evidence that fixed tanks (tank-vehicles), demountable tanks and battery vehicles constructed prior to 1 October 1978 are any less safe than those that were constructed at a subsequent date. This was based on accidents and incidents reported to EIGA by their members, and this data covers over thirty years of operation.

The typical method of construction for a fixed tanks (tank-vehicles) or demountable tanks used for refrigerated liquefied gases is to have an inner vessel constructed from stainless steel or aluminium, with a metallic outer jacket. The space between inner vessel and outer jacket is filled with insulation. This 'sandwich' construction provides a robust construction that can absorb damage in the event of an impact. The products carried do not give rise to erosion or corrosion of the pressure bearing components. Additionally due to the low pressures and the limited number of pressure cycles then fatigue is not a failure mechanism.

Within ECE/TRANS/WP.15/2014/14 a number of statements are made that have not been supported. Of particular concern is the repeated comment about minimum wall thickness. An important point to consider is that wall thickness is not the overall governing factor. Total stress analysis should be the primary design factor..

EIGA is not clear why battery vehicles have been included. This is because the elements of a battery vehicle are made up of cylinders and tubes, and these are not time limited in their use. It should be noted that a battery vehicles are rebuilt with new vehicle chassis, new fittings, but retaining the original elements. Battery vehicles operated by EIGA members are used for conveying compressed gases at pressures of 200 bar or higher so the wall thickness is great that fracture as a result of an accident is very unlikely.

As stated in paper ECE/TRANS/WP.15/AC.1/2014/1 and now ECE/TRANS/WP.15/AC.1/2014/14 the proposal is to allow service life to be continued until 2021 it must be considered that there is not a safety issue that requires immediate attention.

It is the contention of EIGA that even if the tank wall thickness does not meet the requirements of chapter 6.8 they are still safe to continue in service. Additionally, high pressure elements of battery vehicles prior manufactured to 1978 are more likely to have thicker walls than modern designs since the standards in the current version 6.2.3 provide the benefit of more accurate stress calculations and cleaner, higher strength steels.

EIGA offers to review the codes identified where there are concerns and compare those to ADR to see where specific restrictions need to be added.
