

Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

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Item 6 of the provisional agenda

Tanks

Tanks: Comments on proposal 2015/51 from the Netherlands

Transmitted by the government of Belgium

Introduction

1. In the first paper from the Netherlands on this topic (INF.30 – September 2013 Joint Meeting), they described an accident where a tank vehicle, with aluminium as shell material and equipped with a protective lining, showed leakage while loaded with hydrochloric acid. The root cause of the leakage was a failure of the lining. In the subsequent paper (2015/10 – March 2015 Joint Meeting) however, the emphasis and expression of concern was focused mainly upon the shell material. From experience with tanks with protective linings used for the carriage of bulk commodity chemicals such as hydrochloric acid or sodium hypochlorite solutions, many carriers have established that, especially due to the continued high presence of active chlorine molecules, the legally prescribed inspection regimes in ADR/RID are insufficient for an adequate follow-up of the behaviour of the lining, which is the principal issue to ensure safety in transport but is not treated as root cause in document 2015/51.

2. As document 2015/51 is only proposed at the level of the Joint Meeting, any proposed measure would be restricted in its applicability to only the tanks under ADR/RID chapter 6.8. This means that no additional measures are proposed for tanks with protective lining approved under chapter 6.7 as UN portable tanks, even though these tanks can equally be used for road or rail transport. Recent developments have even indicated that the use of tank-containers approved under both chapters 6.7 and 6.8 have become more commonplace, meaning additional restrictions in one regime might result in shifting towards the other regime. Multimodal harmonisation in the requirements and restrictions on the use of tanks dictates that such measures also be discussed at the level of the UN Subcommittee of Experts on TDG.

3. One of the principal conclusions in document 2015/51 and the interpretation given in §7 of the document, is that no construction material may be used that might react with or be substantially weakened by the transported substance. In such a case not only aluminium but also many commonly used steels can no longer be used as construction material for a significant number of commodity bulk chemicals which are transported in great volumes. This defeats the overall purpose of protective linings, which should ensure the chemical resistance in the first place. In §9 of the document, the Netherlands consider only a gradual reduction in wall thickness as meeting their interpretation of ADR/RID 6.8.2.1.9. The corrosion mechanism in question however in the presence of active chlorine molecules is more often localised pitting corrosion. This would mean that only the highest grade metals or composites may be used, the first alternative being economically unviable and the

second alternative having a possible negative impact on safety in case of accidents with mechanical impact. Moreover, this would equally affect already existing tanks as document 2015/51 does not contain any transitional measures. Over the last decades, practices in different ADR/RID countries might have differed but initial analysis shows that several hundreds of tanks constructed of aluminium and equipped with a lining are concerned in multiple ADR/RID contracting parties/member states, all of them approved by their respective competent authorities. Excluding in addition many common steels as construction material for tanks with protective lining affects many hundreds of tanks more.

4. The emphasis for enhancement of the safety level of tanks with protective lining should first and foremost focus on the quality of the protective lining itself. Mastery of this quality starts with the quality demands and monitoring of the application of the protective lining, the vulcanisation process or thermofixation, adhesion properties, the homogeneity of the chemical compound, fixation between layers, exclusion of air or vapour bubbles, monitoring of the behaviour of the lining during use, monitoring of application of repairs in the lining,... To some extent this has been more comprehensively covered for UN portable tanks in ADR/RID 6.7.2.2.4, 6.7.2.19.8 f) and for specific substances, e.g. in TT2.

5. For the reasons set out above, the following alternative proposal to the proposal in document 2015/51 should be considered.

Proposal

6. The proposal contains the following elements:

(a) Introduction of quality requirements for the lining and the application of the lining, harmonising with ADR/RID 6.7.2.2.4 and adding quality certification.

(b) Adding the visual inspection of the lining to the intermediate inspection performed by the competent authority or a recognised body as stipulated in ADR/RID 6.8.2.4.3.

(c) Improving the general monitoring of the lining behaviour during use by adding the following inspections during the periodic and intermediate inspections:

(i) Thickness measurement (monitoring reduction in thickness)

(ii) Hardness measurement (monitoring softening and elasticity)

(iii) Possible alternatives approved by the competent authority

These inspections are to be repeated after repair of the protective lining. During the initial inspection, a spark test or alternative approved by the competent authority should be performed to evaluate the initial quality of the applied protective lining.

(d) Additionally, building on the principles of TT2, linings of tanks intended for the transport of substances containing active chlorine are to be inspected by the owner or qualified person on a yearly basis, where the visual examination results, as well as thickness measurements and hardness measurements are to be recorded in a certified quality assurance system (e.g. ISO 9001 series) and kept at the disposal of the competent authority upon request.

7. If the principles of this proposal are agreeable, a detailed textual proposal will be developed for the next session of the Joint Meeting.