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**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

**REPORT OF THE JOINT MEETING OF THE RID COMMITTEE OF  
EXPERTS AND THE WORKING PARTY ON THE TRANSPORT OF  
DANGEROUS GOODS ON ITS SESSION\***

**Held in Geneva from 15 to 18 September 2008**

**Addendum**

**Annex I**

**REPORT OF THE WORKING GROUP ON TANKS**

The secretariat has received from the Intergovernmental Organisation for International Carriage by Rail (OTIF) the French translation of the report of the working group on tanks, prepared in German and partially in English by the representative of Germany in the course of the session (informal document INF.32). The report is reproduced below.

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\* Circulated by the Intergovernmental Organisation for International Carriage by Rail (OTIF) under the symbol OTIF/RID/RC/2008-B/Add.1.

## REPORT OF THE WORKING GROUP ON TANKS

1. The working group on tanks met on 15 and 16 September 2008, concurrently with the RID/ADR/ADN Joint Meeting, which had entrusted it with the relevant mandate. The documents were presented in plenary.
2. The working group considered the following official and informal (INF.) documents:  
  
ECE/TRANS/WP.15/AC.1/2008/15 (UIP), ECE/TRANS/WP.15/AC.1/2008/20 (Sweden), INF.3 (AEGPL), INF.5 (Germany), INF.7 (Germany), INF.13 (CEN), INF.25 (UIP).
3. The working group was made up of 25 experts from 14 countries and 5 international non-governmental organizations (NGOs).
4. The order of discussion of the documents was determined by the requirements and presence of the experts.

**Item 1: Document ECE/TRANS/WP.15/AC.1/2008/15 (UIP) and informal document INF.25 (UIP) - Amendment of the limit values for calculating equivalent wall thicknesses under 6.8.2.1.18**

5. This subject had already been addressed during the autumn 2007 session of the Joint Meeting, on the basis of informal document INF.22, from UIP. At the time it had been noted that it would not be easy to reach a decision on broadening the definition of “mild steel”, as the limit values for minimum tensile strength were the same in the definition of mild steel applicable to UN portable tanks (chapter 6.7) and in the definition applicable to RID/ADR tanks (chapter 6.8). At that time, the proposal to tolerate steels considered as mild steels under the EN standards had been rejected as well, and it had been suggested that a proposal to extend the values in the definition of “mild steel” should be submitted to the United Nations Sub-Committee. The discussion had concluded that it would be possible in an official document to propose an amendment exclusively for RID/ADR tanks.
6. Such a proposal was put forward by UIP, in document ECE/TRANS/WP.15/AC.1/2008/15 and informal document INF.25, submitted during the session.
7. After the proposal was submitted, the original arguments were repeated once again during the discussion.
8. The adoption of the proposal contained in document ECE/TRANS/WP.15/AC.1/2008/15 was said to be justified by the fact that the current 6.8.2.1.18 favoured steels meeting the RID/ADR definition of “mild steel”, rather than the mild steels of the EN standards, which:
  - (a) Had better strength values;
  - (b) Furthermore, were of equal or higher quality;
  - (c) Did not, however, meet the requirements of the definition of “mild steel” set out in the UN Model Regulations.

9. On the other hand, the representative of UIP noted (INF.25) that such a proposal could be problematic, as it would make it possible to use fine-grained steels with elongation at fracture inferior to the one called for in 6.8.2.1.12.

10. The approach described in informal document INF.25 was considered to be appropriate, and following a discussion and some editorial changes, it was adopted as follows:

**6.8.2.1.18** Add the following sentence to footnote 2 (RID)/3 (ADR):

“Mild steel” in this case also covers a steel referred to in European material standards as “mild steel” with a minimum tensile strength of 360 N/mm<sup>2</sup> to 490 N/mm<sup>2</sup> and a minimum elongation at fracture conforming to 6.8.2.1.12.

**Item 2: Document ECE/TRANS/WP.15/AC.1/2008/20 (Sweden) - Flame arrester requirements**

11. The document mainly addressed how to equip tanks with a tank code containing the letter “F”, and whose venting systems must be fitted with flame arresters if the tanks are not explosion-pressure proof.

12. Neither chapter 4.3 nor chapter 6.8 currently defined flame arresters in terms of actual technical or operational requirements, and there were no provisions concerning their positioning.

13. The requirements in that regard were established by each country, and it was thus necessary to harmonize them.

14. As indicated in paragraph 7 of document ECE/TRANS/WP.15/AC.1/2008/20, from Sweden, European standard EN 12874 set out performance requirements, test methods and limits for use.

15. After the discussion it was concluded that it would be impossible to clarify the application of the standard in the various States. The majority of the working group was of the opinion that the flame arresters mentioned in the standard were unnecessary, and that normal flame traps, i.e., filtering screens, provided sufficient protection against the entry of flames into the tank. For clarity’s sake, the Chairperson suggested that a document should be drawn up on the subject by Germany, for the next session. In that context, it was also necessary to clarify the concept of “immediate passage of flame into the tank”, referred to in 6.8.2.2.3.

16. Regarding the positioning of the flame arresters, it was noted that only alternative (b), cited in paragraph 11 of document ECE/TRANS/WP.15/AC.1/2008/20, met the requirements of RID/ADR.

17. In that context, the following was noted:

(a) For (non-explosion-pressure proof) tanks intended for the transport of class 3 substances, the immediate passage of flame into the tank through the tank openings should be prevented by a suitable flame trap;

(b) For multicompartment tanks, each compartment should be protected separately;

(c) The protection device, with a suitable flame trap, should be positioned as close as possible to the shell or the shell compartment.

18. Those points could be incorporated directly into the regulations as prevention objectives.

**Item 3: Informal document INF.3 (AEGPL), INF.13 (CEN) - Instant-closing internal safety device**

19. The issue of the design of devices for filling and discharging tanks used for gases covered by 6.8.3.2.3 had already been discussed on several occasions by the working group. Having noted problems in the application of the text as modified by the amendments entering into force on 1 January 2009, the working group had decided to assign consideration of the text to an informal working group for clarification (see ECE/TRANS/WP.15/AC.1/110, para. 8).

20. The informal working group drew up a proposal in informal document INF.3. Alternative wordings and some slightly modified proposals are given in the annex to INF.3.

21. The proposals contained in informal document INF.3 and its annex were discussed at length, along with informal document INF.13, from CEN. CEN/TC 286 WG 5 considered that the requirement of ensuring a hermetic seal only with a non-return valve was not necessary. Informal document INF.3 would permit the use of metal-to-metal seats. It was noted that the difference between an internal stop valve and an internal non-return valve was thus, that the latter was less hermetic, which would have repercussions if the external valves were destroyed in an accident. In normal service, a hermetic seal was ensured by the external valve (the second stop valve).

22. The following text was ultimately adopted, with the third sentence applicable to ADR only, as that type of filling related exclusively to tank-vehicles:

**6.8.3.2.3** To read as follows:

**6.8.3.2.3** The internal stop valve for all filling and all discharge openings of tanks

| with a capacity greater than 1 m<sup>3</sup>

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.

(ADR only, left-hand column:)

“However, on tanks used for the carriage of liquefied non-toxic flammable gases, the internal stop valve with remote control may be

replaced by a non-return valve for filling openings into the vapour phase of the tank, only. The non-return valve shall be positioned internally in the tank, be spring-loaded so that the valve is closed if the pressure in the filling line is equal to or lower than the pressure in the tank, and be equipped with an appropriate sealing.\*

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\* The use of metal-to-metal sealing is not allowed.

23. The following transitional measure should be applicable to existing tanks:

(ADR only:)

**1.6.3** Add the following new transitional measure:

**“1.6.3.36** Fixed tanks (tank-vehicles) intended for the carriage of liquefied non-toxic flammable gases, constructed before 1 July 2011 and equipped with non-return valves instead of internal stop valves, and which do not meet the requirements of 6.8.3.2.3 may still be used.”

24. Lastly, the working group considered that AEGPL could naturally submit a new proposal demonstrating how the same safety level could be ensured with the use of metal-to-metal sealing.

**Item 4: Informal document INF.5 (Germany) - Interpretation of 6.8.2.2.3**

25. The Chairperson summarized the previous discussions on this item.

26. In document ECE/TRANS/WP.15/AC.1/2007/36, Belgium had suggested that the requirement in 6.8.2.2.3 for the shell to be capable of withstanding an explosion resulting from the passage of the flame into the tank should be clarified. That safety technique was an alternative to the use of flame arresters for tanks with tank-codes containing the letters F, N or H. For letter F, the requirement applied to tanks with venting systems (4.3.4.1.1); for letters N and H it applied to tanks with vacuum valves or self-operating ventilation valves (6.8.2.2.3). In that context, the representative of Belgium referred to standard EN 14460.

27. In informal document INF.23 of September 2007, Germany had proposed a solution and undertaken to present it. The proposal was contained in the annex to informal document INF.5.

28. The working group once again took up the question of the applicability of standard EN 14460 in the case of transport tanks and alternative methods, for example the approach used in Germany, using directive TRT 006.

29. After a lengthy discussion on how to proceed in the future, it was pointed out that the reference values and approach described in points 3 and 4 of informal document INF.23 of September 2007 (TRT 006) could serve as a basis for further work. However, the content as a whole appeared to be too extensive to be taken up in RID/ADR.

30. Germany should prepare a document indicating the way forward with a view either to a judicious apportionment of the provisions between the regulations and tank standard EN 14025, or to the preparation of a new directive. It would be advisable to set out the protection objective in the regulation and introduce implementation requirements in the standard or the new directive.

**Item 5: Informal document INF.7 (Germany) - Use of materials for the construction of shells in connection with standards**

31. In informal document INF.7, Germany noted that, under RID/ADR 2009 6.8.2.1.4, shells must be designed and constructed in accordance with the standards set out in 6.8.2.6, or in accordance with a technical code recognized by the competent authority, as set out in 6.8.2.7.

32. For example, for pressure tanks, standard EN 14025 was applicable. Regarding the materials that could be used, EN 14025 referred to European standard EN 13445-2 for unfired pressure vessels. EN 13445-2 in turn referred to the EN 10028 materials standard for (flat products made of steels for pressure purposes (part 3) weldable fine grain steels, normalized).

33. Standard EN 10025, "Hot rolled products of structural steels", was not cited in either EN 14025 standard or EN 13445.

34. Until the introduction of standard EN 14025, such steels had been authorized - in Germany's case under the AD-Regelwerk technical code, applicable in accordance with RID/ADR 6.8.2.1.4 and up to a certain pressure threshold, provided that certain mechanical requirements were met.

35. According to Germany, after the introduction of EN 14025, under EN 13445-2, section 4.3.3, if steels not listed in the relevant standards were used for shells, an individual certificate was required.

36. The working group concurred with that position. It was once again emphasized that, regardless of the existence of materials standards or individual certificates, the requirements of RID and ADR must always be met. That might mean that a material deemed appropriate under the cited standards could not be used because one or more requirements of RID/ADR were not met. The requirements of both RID/ADR and the standards had to be fulfilled. In the case of an individual certificate, the relevant mechanical characteristics of the material standard should serve as the base.

37. The working group considered that the succession of references to other standards for the choice of materials created confusion in the application of the regulations. The issue should be addressed during the next review of EN 14025.

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