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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 Spring 2011  
session**

held in Berne from 21–25 March 2011

**Report of the Working Group on Tanks**

1. The Working Group on Tanks met from 21 to 23 March 2011 in Berne on the basis of an appropriate mandate from the RID/ADR/ADN Joint Meeting. The documents were submitted to the plenary session.
2. The Working Group on Tanks dealt with the following official and informal documents:
  - ECE/TRANS/WP.15/AC.1/2010/49
  - ECE/TRANS/WP.15/AC.1/2011/3 (ECFD)
  - ECE/TRANS/WP.15/AC.1/2011/9 (Sweden)
  - ECE/TRANS/WP.15/AC.1/2011/17 (Sweden)
  - ECE/TRANS/WP.15/AC.1/2011/18 (UIP)
  - ECE/TRANS/WP.15/AC.1/2011/20 (Germany)
  - ECE/TRANS/WP.15/AC.1/2011/23 (UIP)
  - ECE/TRANS/WP.15/AC.1/2011/24 (UIP)
  - INF.7 (UIC)
  - INF.13 (Netherlands)
  - INF.17 (Germany)

- INF.21 (OTIF)
- INF.23 (UIP)
- INF.31 (France)
- INF.32 (Italy)
- INF.33 (Sweden)
- INF.34 (Austria)

3. The Working Group on Tanks was comprised of 13 experts from 10 States and representatives from 8 non-governmental organizations (NGOs).

4. The documents were dealt with in a sequence depending on requirements and the presence of experts.

**Item 1: ECE/TRANS/WP.15/AC.1/2010/49 and INF.32 (Italy) Transport of tetrafluoroethylene, stabilized (UN 1081)**

5. The expert from Italy presented the paper 2010/49, previously presented at the March and September 2010 sessions of the Working Group on Tanks, together with INF.32. The issue put forward was that UN 1081 Tetrafluoroethylene, stabilized, was, according to Table A of Chapter 3.2, only allowed in UN MEGC's and in receptacles according to P200, leading to practical problems for industry since the receptacles are subject to TPED.

6. After discussion, the proposed addition of the tank code PxBN(M) in column (12) of table A was accepted by the working group. Since P200 imposes a 200 bar test pressure, the working group was of the opinion that the use of pressure drums with welded elements were to be avoided and only seamless receptacles were to be allowed.

7. The working group proposed inserting a new TU in section 4.3.5 for this reason, based on the existing and proposed TU17, which reads:

"TU XX: Only to be carried in battery-vehicles or MEGCs, the elements of which are composed of seamless receptacles."

And to add TUXX, TA4 and TT9 in column (13) against UN 1081 in Table A of Chapter 3.2 of ADR. TUXX, TU38, TE22, TA4 and TT9 should be added against UN 1081 of Table A of Chapter 3.2 of RID.

Consequentially, a new line should be added in the table of section 4.3.3.2.5 of Chapter 4.3 reading:

(ADR): "UN 1081/tetrafluoroethylene, stabilized/only in battery-vehicles and MEGC's composed of seamless receptacles"

(RID): "UN 1081/tetrafluoroethylene, stabilized/only in battery-wagons and MEGC's composed of seamless receptacles"

Note 1 of 4.3.3.2.5 should be amended accordingly.

8. Finally, the working group took notice of the question raised by Italy with regard to the provisions for other similar gases for which the letter (M) appears both in columns (10) and (12) of the table (e.g. UN 1860, UN 1959, ...) and decided to ask the Joint Meeting on the appropriate course of action to harmonize the provisions.

**Item 2: Document ECE/TRANS/WP.15/AC.1/2011/3 (ECFD) and INF.34 (Austria) – Additive devices on tanks**

9. The working group discussed at length the proposal in 2011/3, submitted by ECFD after having received comments on the previously submitted ECE/TRANS/WP.15/AC.1/2010/14 and ECE/TRANS/WP.15/AC.1/2010/39, and at the same time took into account the comments set forth by Austria in INF.34. Several conclusions could be drawn or confirmed but a number of outstanding questions remained which needed clarification before proceeding further with the proposal.

10. The details of the conclusions are as follows:

- The provisions for additive devices should be included in a special provision XYZ and not in a TE since this would lead to extra marking necessary for all tanks and is not appropriate for the case of an additive device consisting of a separate receptacle.
- SP XYZ should be added against UN n° 1202, 1203, 1 223 and 1863.
- The allowed additives are UN n° 1202, 1993 and 308 2.
- The definition could read: "additive device means a device for dispensing additives of UN n° 1202, 1993, 3082 or non – dangerous goods into the discharge line of a tank during discharge."
- The sentence "the manufacturer shall technically ensure that there can be no back-flow..." should be deleted in the proposed SP XYZ.
- Additives devices permanently fixed on the outside of the tank should be made of metallic material and the proposed wall thicknesses seemed acceptable to the working group.
- A transitional provision stating that additive devices installed on tanks before 1/7/2013 may continue to be used until 1/7/2019, without a reference to national existing regulations.

11. The following questions require additional clarification or motivation from ECFD:

- It was unclear during the discussion what configurations were envisaged for the additive devices and the tank (what is integral part of? what is permanently fixed? separable or separate from the tank?) This was the main issue to be addressed.
- There was discussion on the individual capacity and the number of receptacles that make up the additive device.
- It was not clear what had to be done for tanks with an additive device transporting other substances than UN No. 1202, 1203, 1223 and 1863 in a separate compartment (e.g. UN 3475, ...).
- The marking requirements and information in the transport document have to be described depending on the nature of the additive device (separate, part of tank, ...).
- If the additive device is permanently fixed to the tank, an inspection regime, test pressure, ... have to be established.

- Provisions about protection against turnover, filling, including the additive device in the tank type approval, ... remained an outstanding issue.
- The issue was raised if a different approach was needed to tackle the issue, starting from a more general framework and keeping into mind that certain amounts of fuels can be transported without any specific requirements in the ADR/RID.

12. ECFD was invited to take the above mentioned conclusions and questions into account and submit a new proposal for the next session of the working group.

**Item 3: ECE/TRANS/WP.15/AC.1/2011/17 and INF. 33 (Sweden) Chapter 6.8 Categorization of austenitic-ferritic stainless steel grades**

13. Sweden presented their documents with the objective of expanding the number of steel groups to include austenitic-ferritic stainless steels and having the same wall thickness as austenitic stainless steel. A presentation was made to illustrate the mechanical properties and behaviour of these steel grades and corrected several values set out in the proposal. During the discussion, views were exchanged about the impact strength at low temperatures, the energy absorption and the elongation after rupture of these steel grades in comparison to austenitic standard steels. In particular, questions remained with regard to the behavior of the welds.

14. Ultimately the working group came to the consensus of accepting a 3 mm wall thickness for shell diameters below or equal to 1.8 meters and 3.5 mm for tanks with a bigger shell diameter for these kinds of steel in 6.8.2.1.19.

15. Sweden was invited to come back with a new document at the next session if further development of the requirements concerning austenitic-ferritic steels is desired.

**Item 4: ECE/TRANS/WP.15/AC.1/2011/9 (Sweden) Proposal to add a footnote in 6.8.2.1.20 in ADR**

16. After the presentation of the document by Sweden, the question raised in plenary about lateral protection provided by the vehicle itself was answered by the working group by confirming that this was included in EN 13094 referenced in 6.8.2.6.

17. After a short discussion, the last sentence as set out in the original proposal was considered to be superfluous and the final text agreed upon by the working group to be added in the footnote of 6.8.2.1.20 reads:

“Equivalent measures means measures given in standards referenced in 6.8.2.6”

**Item 5: ECE/TRANS/WP.15/AC.1/2011/18 (UIP) and INF.23 Determination of a tank code for the carriage of UN 1402 Calcium carbide**

18. Calcium carbide fulfils the criteria of 2.2.43.1.8 (a) of RID/ADR for assignment to packing group I. This means that carriage in existing tanks and in bulk, and hence supplying the steel industry with calcium carbide, is no longer possible. Additionally, for UN 1402 packing group I in column (12) of Table A of Chapter 3.2, no tank code is given and tank instruction T 9 given for portable tanks is not suitable because of the requirement for top discharge. In addition, no tank code is available in the rationalized approach in 4.3.4.1.2 for solids of Class 4.3 and of classification code W 2.

19. For this reason Multilateral Agreement M226 was initiated by Germany since the last session of the working group in September 2010.

20. During the September 2010 session, some members of the Working Group pointed out that there are substances of Class 4.3 and of classification code W 2 which were assigned tank code S10AN with special provisions TU 4, TU 14, TU 22, TU 38 (tank-wagons only), TE 21, TE 22 (tank-wagons only), and TM 2 (e.g. UN 2813 and UN 3395).

21. However, in the presentation of the documents, UIP highlighted the substance specific danger of UN 1402 calcium carbide to develop large quantities of the flammable gas acetylene in contact with water. This could lead to detonation at high pressures after deflagration of the substance. The assignment of a S10AN tank code would in that case lead to dramatic consequences. Additionally it would prohibit the existing aluminium silo-wagons from being used in the future.

This led to the consensus in the working group that a tank code with a lower test pressure is recommended. A test pressure of 2.65 bar was agreed upon since it leads to the same minimum wall thickness as a tank with a test pressure of 4 bar and the current multilateral agreement, as well as current practice, only require 2 bar.

22. After a discussion and evaluation of the risks, the working group came to the following conclusions:

- UN 1402 should receive in column (12) of Table A of Chapter 3.2 a tank code S2,65AN(+)
- UN 1402 should receive in column (13) of Table A of Chapter 3.2 provisions TU4, TU22, TM2 and a new TA5 with the following remarks:
- Revise TU22 in section 4.3.5 as follows:  
"TU22 Tanks shall be filled to not more than 90% of their capacity; for liquids, a space of 5% shall remain empty when the liquid is at an average temperature of 50 °C."
- Add a new TA5 in section 6.8.4 ( c ) as follows:  
"TA5 This substance may be carried only in tanks with the tank code S2.65AN(+); the hierarchy in 4.3.4.1.2 is not applicable."
- A transitional period until 1 July 2015 for the existing tanks is recommended.

23. The Joint Meeting is invited to consider the above mentioned conclusions. The secretariat is invited to propose the proper transitional measure, taking into account the above mentioned transitional period.

**Item 6: 2011/20 (Germany) Terminology in 6.8.2.5.2 (all classes) and 6.8.3.5.6 (Class 2) concerning the marking and INF.13 (Netherlands) Marking of demountable tanks**

24. After the presentation of document 2011/20 by Germany, the working group discussed about the adequate wording to be used in amending 6.8.2.5.2.

25. The final amended text for ADR/RID 6.8.2.5.2 agreed upon by the working group reads:

ADR:

6.8.2.5.2	The following particulars shall be inscribed on the tank-vehicle (on the tank itself or on plates) <sup>12</sup> :		The following particulars shall be inscribed on the tank-container (on the tank itself or on plates) <sup>12</sup> :
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RID:

6.8.2.5.2	The following particulars shall be inscribed on both sides of the tank-wagon (on the tank itself or on plates) <sup>12</sup> :		The following particulars shall be inscribed on the tank-container (on the tank itself or on plates) <sup>12</sup> :
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Consequentially, the same wording should be introduced in 6.8.3.5.6 ADR/RID.

26. The following transitional measure is proposed:

“1.6.3/4.xx “Tanks” constructed before 1 January 2013 in accordance with the requirements in force up to 31 December 2012 but which do not, however, meet marking provisions in accordance with 6.8.2.5.2 and 6.8.2.5.3 applicable as from 1 January 2013 may continue to be marked in accordance with the requirements in force up to 31 December 2012 until the next periodic inspection after 1 January 2013.”

27. The Netherlands presented INF.13 regarding the differences in requirements for the markings between demountable tanks and other tanks. The working group supported the effort of bringing the marking requirements more in line with the requirements for marking of tank-containers.

28. The Netherlands were invited to come with a proposal for the next session of the working group, the members of the working group were invited to supply their comments to the Netherlands in the meantime.

**Item 7: ECE/TRANS/WP.15/AC.1/2011/23 (UIP) Regulations for alterations of tanks, whose type approval has either expired or been withdrawn**

29. At the proposal of UIP, the working group extensively discussed the current provisions set out in 6.8.2.3.1-3 for alterations to existing tanks both with valid as with expired or withdrawn type approvals. There was general support for the principle to add additional text to the regulations

<sup>12</sup> Add the units of measurement after the numerical values.

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dealing with this specific issue. The working group decided that the best way forward was to include a new 6.8.2.3.3 for this purpose:

30. The actual paragraph 6.8.2.3.3 becomes new paragraph 6.8.2.3.4.

Wording for new paragraph 6.8.2.3.3:

"In the case of an alteration to an existing tank, the inspection and the information on the certificate are limited to the altered part of the tank including the equipment. This alteration shall be in conformity with the provisions of RID/ADR applicable at the time of the alteration. For tank and equipment parts that were not altered, the documentation of the initial type approval remains applicable.

In the case of an expired or withdrawn type approval, alterations to existing tanks, may be made, provided that [the] a competent authority or [the] a body designated by this authority [and which has issued the type approval] has given its authorization."

For 1.8.7. similar text is needed.

31. The decision if the competent authority should be the authority which has issued the type approval or any competent authority was left to the discretion of the Joint Meeting.

UIP will come back with official document with the finalized text for the next session, taking into account possible comment from the Joint Meeting.

**Item 8: ECE/TRANS/WP.15/AC.1/2011/24 (UIP) and INF.17 (Germany) Further use of fittings; use of tank equipment according to standards and Application of standards EN 14432 and EN 14433 listed in sub-section 6.8.2.6**

32. A lengthy discussion on documents 2011/24 and INF.17 showed that in spite of the foreseen two year period for industry to develop valves according to EN 14432 and EN 14433, there were few new valves available on the market. Additionally, for tanks built after 1 January 2011 in accordance with old type approvals or tanks built according to new type approvals, only these standardized valves may be equipped.

33. The working group ultimately reached the following conclusions:

- 1.6.3.38 allows valves not in accordance with EN 14432 or EN 14433 to be used to replace the same type of valve on existing tanks built before 1 January 2011, since the original valve type is part of the tank type approval.
- There was no consensus on the time frame for the proposed transitional measure in 2011/24.
- A possible solution for shortage on the market of valves in accordance with EN 14432 or EN 14433 could be the re-evaluation of the existing valves, which are identical from a technical perspective, with respect to the design type test in accordance with the above mentioned standards.

34. The working group unanimously supported the German request to task CEN with the revision of EN 14432 and EN 14433, given the technical problems regarding the valve testing and the lack of certain provisions (e.g. with regard to vacuum-operated waste tanks). The lack of participation in the concerned technical committee was identified as an issue in this effort.

35. Since the two referenced standards are in their scope not applicable nor appropriate for vacuum-operated waste tanks of chapter 6.10, the German interpretation set out in INF.17 was supported by the majority of the working group.

36. ADR/RID 2009 clearly indicated 1 January 2011 as date of application of both standards, which does not allow for the usual transitional period of 6 months until 1 July 2011. The Joint Meeting is invited to decide on the need for an interim Multilateral Agreement.

37. The working group decided that the referenced standards were not mature enough to allow for a separate type approval for tank components.

#### **Item 9: INF.7 (UIC) 5.4.1.2.2 (d) holding time**

38. The document INF.7 reiterated questions raised on the 49<sup>th</sup> session of the RID Committee of Expert (reference document OTIF/RID/CE/2010/49) for the working group. After discussion, the working group decided that the provisions regarding the holding time in RID 5.4.1.2.2 (d) were needed. The working group realized the difficulties to accurately estimate or calculate the guaranteed time before opening of the relief valves and came to no conclusion on the question if a calculation in accordance with 4.2.3.7 and 6.7.4.2.8, as currently required for portable tanks, should be also required for tanks/tank-wagons.

39. The working group noted that the opening of the relief valves at the tank working pressure gives the public impression of a malfunction, where in fact there is no danger from a pressure safety point of view and the vented gas can only constitute a possible hazard in confined spaces (e.g. tunnels, ...).

40. The working group decided to postpone the further evaluation of the issue until national experts have been consulted for more information and invited UIC and other concerned parties to come with an official proposal for the next session.

#### **Item 10: INF.21 (OTIF) – Section 1.6.3: review of transitional measures**

41. The Working Group started the review of transitional measures for tanks during its September 2010 session. In so doing, for some of the transitional measures there were no new texts or only provisional texts. For this work, the Working Group on Tanks needed the notification texts of earlier RID and ADR tank provisions, i.e. the amendments that were adopted and the updated references for the concerned paragraphs. The secretariats were asked to support the Working Group in this respect and the working group welcomed INF.21 from the OTIF secretariat in that regard.

42. The working group identified that the work on this issue has to be continued and decided to address it at its next session and in the meanwhile ask for the feedback from the participants of the working group.

**Item 11: INF.31 (France) Accident reporting concerning a collapsed tank-wagon due to depressurization**

43. France presented the preliminary accident report of a collapsed tank containing residues of butadiene due to cold temperatures (-18°C). The working group identified that at the date of construction of the tank (1968), no requirements were yet in place for tanks to withstand vacuum pressure of minimum 0.4 bar, as currently stipulated in 6.7.3.2.8. France calculated that the tank, not being equipped with stiffening rings, was never able to withstand vacuum pressures of more than 0.2 bar.

44. The working group proposed adding additional measures in line with the provisions of 6.7.3.2.8 for tanks according to Chapter 6.8 and including provisions in chapter 4.3 for the existing tanks to fill with nitrogen after unloading to protect the tank against vacuum pressure.

45. France agreed to come with a proposal for the next session of the working group, taking into account the received feedback from the working group.

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