

Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

12 September 2024

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

Geneva, 10–13 September 2024

Item 2 of the provisional agenda:

Tanks

Report of the Working Group on Tanks

1. The Working Group on Tanks met 9 to 11 September 2024 in Geneva based on the mandate from the RID/ADR/ADN Joint Meeting, under the chairmanship of Mr. Arne Bale (United Kingdom), with Mr. Kees de Putter (Netherlands) as secretary. The relevant documents were submitted to the Working Group for consideration.

2. For the Working Group on Tanks, 29 experts from 14 countries and 6 non-governmental organizations participated. They dealt with the following official and informal documents:

Documents: ECE/TRANS/WP.15/AC.1/2024/33 (EIGA)
ECE/TRANS/WP.15/AC.1/2024/34 (UIP)
ECE/TRANS/WP.15/AC.1/2024/39 (France)
ECE/TRANS/WP.15/AC.1/2024/40 (Germany)
ECE/TRANS/WP.15/AC.1/2024/45 (France)

Informal documents: INF.7 (Netherlands)
INF.9 (ITCO)
INF.10 (ITCO)
INF. 20 (EIGA)
INF. 22 (France)
INF. 24 (ITCO)
INF. 26 (United Kingdom)

Item 1: Test periods for battery-wagons/battery-vehicles filled in accordance with packing instruction P200.

Document: ECE/TRANS/WP.15/AC.1/2024/33 (EIGA)

3. Based on the earlier allowance for cylinders to extend the validity of test periods to 15 years in packing instruction P200 it is proposed to extend this allowance to seamless steel tubes, and tubes and cylinders used in battery-wagons/battery-vehicles for carriage of (UN 1046) Helium compressed and (UN 1049) Hydrogen compressed. Elements of battery-wagons/battery-vehicles are in general more exposed to weather conditions and may be prone to corrosion, where they are mounted on the frame. Since 2015 EIGA has investigated the rejection rate at periodic inspections and the presented results were favourable.

4. Following detailed discussion, although one expert objected, most taking the floor had no objection in principle to the extended test periods.

5. There was a preference expressed by some delegates that if P 15 Y is granted to said receptacles mounted on battery-wagons/battery-vehicles, the extension should only be granted from the next periodic inspection of the receptacles.

6. It is understood that the standard 5-year test sequence in 6.8.3.4.12 for battery-wagons/battery-vehicles would not change by the extended validity of the tubes and cylinders. The requirements of the inspection and tests at the periodicity of the receptacles vary from these 5-year inspections for the

wagon/vehicle. The tubes or cylinders are demounted from the frame for inspection when the test according to P200 is due (see also 6.8.3.4.15). Questions were raised about the need for exceptional inspections in case of a replacement of service equipment and elements.

7. The choice for a new special packing instruction “vb” in P200, was supported. It was felt that special packing instruction “v” was specific for hydrocarbon gases for which certain use provisions applied, and should not be changed. Also the provisions of “va” could not be applied to the elements of battery-wagons/battery-vehicles given that Residual Pressure Valves cannot be used due to flow restrictions. Concerns were expressed on the wording of the conditions in (a) and (b) of the new packing instruction “vb”.

8. For (a) it was said that battery-wagons/battery-vehicles are used in international carriage, in comparison to the more local use of cylinders granted the 15-year validity. It was also felt that agreement in the countries of carriage would be against the principle of RID/ADR allowing the unrestricted use on the territory of contracting parties.

9. For (b) some felt it would be preferable that referenced standards should be available to allow a harmonized application between contracting parties.

10. The proposed amendments in 4.3.3.2.5 and 6.8.3.1.4, besides those concerning residual pressure, were felt to be in general applicable to all battery-wagons/battery-vehicles.

11. Concerning the proposed new 6.8.3.4.15 and 6.8.3.4.16 the experts agreed that these were requirements for use that belong to 4.3. It was questioned how to deal with cases where contamination in use is proven and how the operator could identify an approved filling site. It was also said that hydrogen and helium carried are typically of a high level of purity, which is necessary for the use in some industries and in fuel cell applications. No decision was taken in anticipation of further discussion on packing instruction P200 in plenary and the proposal requiring further development.

12. EIGA agreed to prepare a working document for the 2025 spring meeting based on the discussions in the Working Group on Tanks and the plenary.

Item 2: Changes to the type approval and, in particular, the replacement of pieces of equipment in the context of maintenance.

Document: ECE/TRANS/WP.15/AC.1/2024/34 (UIP)

13. In case service equipment needs to be replaced, and an identical type is not available, another type with similar technical specifications may need to be fitted. UIP interpreted that because of the clause 4.2.1 last indent of EN 12972:2018 that it was possible to change a piece of service equipment by an equivalent product without involvement of an approval body.

14. It was pointed out that this sentence had to be read in the context of the delivery of a type approval certificate defining variations. Therefore in case of a replacement of service equipment by equivalent products the inspection body has to check the existing type approval, and if the replacement equipment is not included in the type approval, has to assess the conformity of this modification and the owner has to seek for modification approval according to 6.8.2.3.4. During the discussion it appears that the existing text of 6.8.2.3.3 does not clearly list variations for service equipment.

15. The proposal in document 2024/34 was amended to improve alignment with clause 4.2.1 last indent of EN 12972:2018.

Proposal 1: amend 6.8.2.3.3 second paragraph to read (deleted wording stricken through, new wording underlined):

"A type approval may however serve for the approval of tanks with limited variations of the design that either reduce the loads and stresses on the tanks (e.g. reduced pressure, reduced mass, reduced volume) ~~or~~ increase the safety of the structure (e.g. increased shell thickness, more surge-plates, decreased diameter of openings) or with alternative service equipment with an equivalent technical specification. The limited variations shall be clearly described in the type approval certificate. "

Item 3: Amendment to 6.8.3.2.9.2 on bursting disc pressure requirements for tanks for the carriage of gas.

Document: ECE/TRANS/WP.15/AC.1/2024/39 (France)

16. Bursting discs with burst pressure within 1.0 to 1.1 times the test pressure, tolerances included, are not available. It is therefore proposed to increase the value of 1.1 to 1.15 in the second indent of 6.8.3.2.9.2 (b). In addition the introduction of a standard for bursting discs is proposed.

17. Several experts that took the floor expressed support for the amendment of 1.1 to 1.15. It was questioned if the resulting burst pressure would be too high, especially in relation to the prevention of a BLEVE. It was said that in case of a fire and a temperature increase, the bursting pressure would drop. It was confirmed that 6.8.2.10 needed no amendment in line with 6.8.3.2.9.2 (b).

18. The inclusion of standard EN ISO 4126-6:2014 was not supported as it was not a design standard. Some experts expressed the need to include design standards for pressure relief devices in the future.

Proposal 2: Amend 6.8.3.2.9.2(b) to read:

“(b) The maximum burst pressure at 20 °C, tolerances included, shall be less than or equal to 1.15 times the test pressure; and”.

Item 4: Heating equipment on tanks.

Document: ECE/TRANS/WP.15/AC.1/2024/40 (Germany)

19. Heating systems are part of the tank’s service equipment. However, except for a number of special (tank) provisions, no general provisions are included in 6.8 for heating systems. It is proposed to include the provisions that already exist in 6.7.2.5.12 to 6.7.2.5.15 into 6.8.

20. Experts that took the floor expressed support for the principle of including provisions for heating systems. It was said that in EN 12972:2018 already test requirements were included, in particular for pressure testing heating systems attached to the shell working on steam or a heated liquid.

21. Although the proposed wording is a copy from 6.7, the first two subsections were considered to be requirements for use. Inspection bodies cannot control specific use and may be forced to limit the substances allowed to be carried, which was felt to be unwanted. It was therefore suggested to place these in 4.3. Some ambiguity was felt to exist in the proposed 6.8.2.2.14 where the heating system was installed “in the tank”. With installed “in the tank” would this be inside the shell or for example in the insulation of the tank. It was confirmed by experts that heating systems inside the shell exist.

22. Although, it was not possible to adopt the proposal as submitted, Germany was invited to take the comments on the document into account and submit an amended proposal for a future session.

Item 5: Clarification of the provisions in 1.8.7.2.1.2 (d) and 1.8.7.3.2 (d).

Document: ECE/TRANS/WP.15/AC.1/2024/45 (France) + INF 20 (EIGA) and INF 24 (ITCO).

23. The wording of 1.8.7.2.1.2 (d) and 1.8.7.3.2 (d) for the qualification of welding procedures and persons performing welding and non-destructive testing, is thought to require clarification. The word “or” between qualified or approved, and “approved” presents differences in interpretation between the English and French version. INF 20 and INF 24 and experts in the room expressed concerns over the proposed amendments.

24. It was explained that the proposed changes would pose problems for accepting qualifications for welding procedures and personnel performing welding and non-destructive testing. On the other hand, it was said that the inspection body should check the contents of the qualification as for tanks requiring a welding test plate. According to 6.8.5 the requirements for the test plate are more stringent than in the general standards for the qualification of welding procedures.

25. After discussion the wording of the proposal was amended as reproduced below. However, due to the significant changes of the amendments it was agreed not to adopt the revised wording for the time being. The wording below was drafted for further consideration by the working group on tanks.

1.8.7.2.1.2 (d) (draft):

“(d) As applicable, grant or verify the suitability of:

- (i) the qualification of the procedures for the permanent joining of parts.*
- (ii) the qualification of the personnel undertaking the permanent joining of parts.*
- (iii) the qualification of personnel undertaking the non-destructive tests.”*

1.8.7.3.2 (d) (draft)

“(d) As applicable, verify the validity of:

- (i) the qualification of the personnel undertaking the permanent joining of parts.*
- (ii) the qualification of the personnel undertaking the non-destructive tests.”*

Item 6: Application issues with the “SV” mark in 6.8.3.2.9.6

Document: ECE/TRANS/WP.15/AC.1/INF 7 (Netherlands)

26. This document advises that the position in 6.8.3.2 for the display of the SV marking results in misunderstanding. To clarify the correct interpretation it is proposed to have an interpretation on the UNECE website. This would give more certainty than a reflection in the report. In addition, proposals are made to relocate the requirement for the SV marking and including additional headings to help the reader.

27. The meaning that the display of the SV marking does not apply to tanks for the carriage of refrigerated liquefied gases is confirmed. With some editorial amendments the first proposal was adopted and extended to be places on the OTIF website as it is also applicable to RID.

Proposal 3: Include the following interpretation on the UNECE and OTIF websites:

“Display of the SV marking in 6.8.3.2.9.6

The display of the “SV” mark required by 6.8.3.2.9.6 applies only to tanks intended for the carriage of compressed, liquefied and dissolved gases fitted with safety valves. Tanks intended for the carriage of refrigerated liquefied gases, MEGCs and battery-wagons/battery-vehicles, the elements of which are pressure receptacles, shall not display the “SV” mark.”

28. The proposal for relocation and consequential amendments for the provisions of the “SV marking” were not supported. It was argued that other markings are in 5.3 and not only in 6.8.3.5.

29. Concerning the headings it was felt that it still would not solve all problems. A re-structuring of 6.8.3.2 would be more effective. An initial draft was shared among the experts of the working group in splitting up 6.8.3.2 in sections for compressed, liquefied and dissolved gases, refrigerated liquefied gases, and battery-wagons/battery-vehicles and MEGCs. Encouragement was expressed to the Netherlands to continue this work.

Item 7: Issues and consequences which may arise if dual certification of intermodal tanks should no longer be permitted. “Report from the Working Group on Tanks intersessional meetings held on 9 and 30 July 2024”

Document: ECE/TRANS/WP.15/AC.1/INF.9 (ITCO)

30. The document contains the report of the two meetings of the intersessional group chaired by ITCO. The aim of the meetings was to identify the issues and consequences that may arise from such a complex change.

31. It was unfortunate that ITCO was not present but The Working Group on Tanks considered the document to be valuable and took note of its findings. After a long discussion, France offered to develop a working document for the next session to put forward options for addressing the points raised.

Item 8: Enforcement of RID, ADR and ADN with respect to tanks dual approved as both UN portable tanks and RID/ADR tank-containers.

Document: ECE/TRANS/WP.15/AC.1/INF.10 (ITCO)

32. To limit confusion under which provisions carriage takes place, Portable tank (4.2/6.7) or Tank-container (4.3/6.8), a proposal is made to add a declaration in the transport document.

33. Although some experts expressed support, others did not support as it was felt too early and should be considered with the issues raised in INF 9.

Item 9: Carriage of tanks and MEGCs in the event of a leak.

Document: ECE/TRANS/WP.15/AC.1/INF.22 (France)

34. It was proposed to include a new 4.3.2.3.8 to prevent leaking tanks, battery-wagons/battery-vehicles and MEGCs, being offered for carriage. Such provisions are in Chapter 4.2 but not in Chapter 4.3.

35. It was confirmed that a complete listing of similar provisions of 4.2.4.6 was already in 4.3.3.6 but that this was limited to tank-containers for gases. It was discussed if this could be extended to MEGCs, battery-wagons/battery-vehicles and for the (a) to (d) also to the left part of the page for tank-wagons/tank-vehicles. It was also checked if 1.4.3.3 (f) could cover the issue. However, 1.4.3.3 (f) only covered tanks.

36. Principle support was given but it was felt that the proposal should be given more consideration. France was invited to forward a revised proposal for a future session that covers all substances and other issues that may affect containment integrity.

Item 10: Update on the LPG road tanker safety valve test programme.

Document: ECE/TRANS/WP.15/AC.1/INF.26 (United Kingdom)

37. In 2019 a test programme started in the UK to monitor the performance of safety valves on tanks carrying LPG.

38. It is required that the service equipment is checked at intermediate inspections for proper functioning. This means that the safety valves need to be removed for checking if the discharge and reseal pressures are still within the limits. Removing the valve(s) of a tank requires de-gassing before removal and gassing in (removal of air/oxygen) before being put into service again. This is a time consuming and expensive operation that may take several days. In this time the tank cannot be used.

39. The study of the function of the valve since 2019 revealed only one valve of a population of 404 valves failed to open so as to protect the tank as intended. The expert from the UK said that the study is expected to test more samples before the 30th of October 2025, when the study is expected to end.

40. More details were requested on the spread of valve manufacturers and the type of valves. It was also mentioned by another expert that recently a failure occurred of a safety valve of a particular brand/type.

41. The Working Group on Tanks thanked the UK and expressed interest in being informed on the final conclusions.
