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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 autumn 2020 session\***

held in Bern, 10–11 September and Geneva, 14–18 September 2020

**Addendum\*\*****Annex I****Report of the Working Group on Tanks**

1. The Working Group on Tanks met remotely from 10 to 11 and from 14 to 16 September 2020 on the mandate from the RID/ADR/ADN Joint Meeting, under the chairmanship of Mr. Arne Bale (United Kingdom) and Mr. Kees de Putter (Netherlands) as secretary. The relevant documents were submitted to the plenary session and transferred to the Working Group for consideration.

2. For the Working Group on Tanks forty-seven experts registered for participation from sixteen countries and five non-governmental organizations. They dealt with the following official and informal documents:

*Documents:*

- ECE/TRANS/WP.15/AC.1/2020/1 (EIGA)
- ECE/TRANS/WP.15/AC.1/2020/6 (OTIF)
- ECE/TRANS/WP.15/AC.1/2020/7 (France)
- ECE/TRANS/WP.15/AC.1/2020/12 (UIP/UIC)
- ECE/TRANS/WP.15/AC.1/2020/16 (France)
- ECE/TRANS/WP.15/AC.1/2020/17 (France)
- ECE/TRANS/WP.15/AC.1/2020/18 (France)
- ECE/TRANS/WP.15/AC.1/2020/19 (United Kingdom)

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\* Circulated by the Intergovernmental Organisation for International Carriage by Rail (OTIF) under the symbol OTIF/RID/RC/2020-A. Unless otherwise indicated, the other documents referred to in this report under the symbol ECE/TRANS/WP.15/AC.1/ followed by the year and a serial number were circulated by OTIF under the symbol OTIF/RID/RC/ followed by the year and the same serial number.

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ECE/TRANS/WP.15/AC.1/2020/20 (United Kingdom)  
ECE/TRANS/WP.15/AC.1/2020/26 (Poland)  
ECE/TRANS/WP.15/AC.1/2020/31 (Russian Federation)  
ECE/TRANS/WP.15/AC.1/2020/32 (Russian Federation)  
ECE/TRANS/WP.15/AC.1/2020/33 (Russian Federation)  
ECE/TRANS/WP.15/AC.1/2020/34 (Russian Federation)  
ECE/TRANS/WP.15/AC.1/2020/35 (Russian Federation)  
ECE/TRANS/WP.15/AC.1/2020/45 (UIP)  
ECE/TRANS/WP.15/AC.1/2020/47 (Ireland)  
ECE/TRANS/WP.15/AC.1/2020/48 (United Kingdom)  
ECE/TRANS/WP.15/AC.1/2020/49 (United Kingdom)

*Informal documents:* INF.6 Rev.1 (United Kingdom)  
INF.9 (OTIF Secretariat)  
INF.13 (Netherlands)  
INF.15 (Belgium)  
INF.17 (EIGA)  
INF.31 (Germany)  
INF.32 (Germany)  
INF.33 (UIP)  
INF.43 (Belgium)  
INF.44 (Belgium)  
INF.45 (ITCO)  
INF.46 (Germany)  
INF.54 (United Kingdom)  
INF.56 (Poland)  
INF.57 (United Kingdom)  
INF.63 (United Kingdom)

## **I. Section I: Outcome of discussions requiring endorsement by the Joint Meeting**

### **Item 1: ECE/TRANS/WP.15/AC.1/2020/6 (OTIF) – Extra-large tank-containers and INF.45 (ITCO)**

3. The document contained two issues. On the issue of fixing of welded elements to the shell there was consensus among the experts that provisions should express the purpose and not be design restrictive. A more general new wording was introduced that would be suitable for tank-containers as well as tank-vehicles. It was remarked that the text for tank-wagons in the French language version could be improved by lining the wording up with that of the English version.

#### **Proposal 1: in 6.8.2.2.1 RID after the first sentence, right-hand side introduce new text to read (new text in *Italic script*):**

To prevent tearing of the shell due to accidental stresses, welded elements shall be fixed to the tank as follows:

- Underframe connection: securing by means of a pad ensuring distribution of dynamic loads;
- Supports for upper gangway, access ladder, drainage pipes, valve control mechanisms and other load transmission brackets: securing by means of weld-on reinforcement plate;
- Appropriate dimensioning or other protective measures (e.g. designated breaking point).

*Welded elements shall be attached to the shell in such a way that tearing of the shell is prevented.*

**Proposal 2: Introduce new text after the first sentence in 6.8.2.2.1 of ADR to read (new wording in italic script):**

*“Welded elements shall be attached to the shell in such a way that tearing of the shell is prevented.”*

4. For 6.8.2.2.4 no consensus could be reached on the mandatory fitment of 4 bar man-lids on tank-containers. In particular, for tank-containers for powdery substances with a “G” in the tank code, this would not be justified due to surge. A suggestion to limit the proposed requirement to tank-containers with a capacity of more than 40,000 litres was not carried. It was suggested that the proposal should be reconsidered at the next RID Standing Working Group in November 2020, together with a possible transitional measure.

**Item 2: ECE/TRANS/WP.15/AC.1/2020/1 (EIGA) – Periodic and intermediate inspections of tanks intended for the carriage of refrigerated liquefied gases, and ECE/TRANS/WP.15/AC.1/2020/7 (France)**

5. Although several experts were of the opinion that 6.8.3.4.6 only provided a derogation with regard to the periodicity of the intermediate inspection between periodic inspections, and not between the initial and first periodic inspection, it was said that this was not interpreted this way in practice. Refrigerated liquefied gases are non-corrosive and non-toxic and this would justify the longer inspection periods. The experts were not aware of any unwanted effects or dangerous situations due to not performing an intermediate inspection after the initial inspection. There was consensus that the requirements for tank-containers should be amended and that tank-containers should be treated in a similar way as tank-wagons and tank-vehicles.

**Proposal 3: Amend 6.8.3.4.6 (RID and ADR) to read:**

“6.8.3.4.6 For tanks intended for the carriage of refrigerated liquefied gases:

(a) By derogation from the requirements of 6.8.2.4.2, the periodic inspections shall take place:

(RID) at least after eight years		at least after eight years
(ADR) at least after six years		

of service and thereafter at least every 12 years.

(b) By derogation from the requirements of 6.8.2.4.3, the intermediate inspections shall take place at least six years after each periodic inspection.”

**Proposal 4: introduce a new transitional measure in 1.6.4.xy to read:**

“1.6.4.xy Tank-containers which do not comply with the requirements of 6.8.3.4.6 applicable from 1 January 2023, may continue to be used if an intermediate inspection takes place at least 6 years after each periodic inspection performed after 1 July 2023.”

**Item 3: ECE/TRANS/WP.15/AC.1/2020/26 (Poland) – Proposal of amendment to 4.3.3.3.2 of RID/ADR**

6. As the relevant information is already contained in the transport documents and orange plates, there was consensus to delete 4.3.3.3.2 for tank-vehicles and tank-containers. However, reservations were expressed regarding the so-called foldable panels on tank-wagons covered in EN standard 15877-1:2012 and described in 4.3.3.4.1 (a) and 6.8.3.5.7. It was suggested that the deletion should also apply to tank-wagons, but that it should remain in square brackets for the time being until the RID standing working group confirmed the deletion.

**Proposal 5: 4.3.3.3.2 RID place the existing text in square brackets in the left-hand column in order to make the text applicable only to tank-wagons and battery-wagons (new words in italic script, deleted words crossed out):**

[When tank-wagons or battery-wagons ~~or MEGC's~~ are handed over for carriage, only the particulars specified in 6.8.3.5.6 applicable to the gas loaded or just discharged shall be visible; all particulars concerning other gases shall be covered up (see standard EN 15877-1:2012 Railway applications – Marking on railway vehicles. Part 1: Freight wagons).]

**Proposal 6: 4.3.3.3.2 ADR, delete the current text in 4.3.3.3.2 and amend to read:**

**4.3.3.3.2**      *(Deleted)*

**Item 4: ECE/TRANS/WP.15/AC.1/2020/31 (Russian Federation) – Thermal insulation of tanks (special provision TE14 in 6.8.4) and INF.9 (OTIF)**

7. It was explained that in some cases the heating system was attached to the outside of the shell and that in such places the outermost surface of the heating element should be insulated with suitable insulating material.

8. The working group agreed with the principle of the proposal, but further editorial changes were made. In particular, the use of “and/or” was subject to discussion, because in English and French, “or”/“ou” would be preferable, while in German, “or” would result in “one or the other”. Finally, it was decided to keep “and/or”, as this appears in several places in the regulations.

**Proposal 7: amend Special Provision TE 14 of 6.8.4 to read:**

“TE 14 Tanks shall be equipped with thermal insulation. The thermal insulation directly in contact with the shell and/or components of the heating system shall have an ignition temperature at least 50 °C higher than the maximum temperature for which the tank was designed.”

**Item 5: ECE/TRANS/WP.15/AC.1/2020/32 (Russian Federation) – Method of heat treatment of materials for welded shells (6.8.2.1.10, 6.8.2.1.11 and 6.8.2.6.1) and INF.9 (OTIF)**

9. It was questioned whether water-quenched steel should be used for manufacturing welded steel shells. This provision is only included in 6.8.2.1.10, second paragraph of RID, which is applicable both to tank-wagons and tank-containers.

10. There was agreement that in principle, water-quenched steels could be used if they demonstrated sufficient ductility and good weldability. To guarantee this, the ratio of 0.85 between Re/Rm in the first sentence of 6.8.2.1.11 is essential. The question of where the ratio 0.85 Re/Rm originated from could not be answered. However, it was pointed out that this ratio was present in all the technical codes for transport tanks and in chapter 6.7. It was suggested that this issue be addressed to the UN Sub-Committee of Experts on the Transport of Dangerous Goods.

**Proposal 8: RID only, delete the first sentence of the second paragraph of 6.8.2.1.10 (deleted wording crossed out):**

~~“Water quenched steel may not be used for welded steel shells.”~~

**Item 6: ECE/TRANS/WP.15/AC.1/2020/34 (Russian Federation) – Material used in vessels carrying UN No. 2031, concentrated nitric acid with more than 70% nitric acid) (special provision TC6 of section 6.8.4) and INF.9 (OTIF)**

11. The proposal was to include aluminium alloys in the scope of special provision TC6. Part of the justification was alignment with the use of these materials for the packagings referred to in 6.1.4.2.1. It was pointed out that as a result of technical developments and tests,

other alternatives were available in addition to aluminium 99.5 % pure, which would reduce the weight of the tank.

12. As compatibility of the shell material in general is governed by 4.3.2.1.5 and 6.8.2.1.9, it was confirmed that special provision TC6 essentially contained an exemption to limit wall thickness to 15 mm, regardless of whether the pressure and material properties in the calculation resulted in greater thicknesses. As the suitable aluminium alloys were considered to have better mechanical properties than pure aluminium, resulting in a stronger tank, there was no reason not to grant the same exemption.

**Proposal 9: amend TC6 of 6.8.4 to read:**

“TC6 The wall thickness of tanks made of aluminium not less than 99% pure or aluminium alloy need not exceed 15 mm even where calculation in accordance with 6.8.2.1.17 gives a higher value.”

## **II. Section 2: Informal working group on the inspection and certification of tanks (the London Working Group)**

**Item 7: ECE/TRANS/WP.15/AC.1/2020/19 (United Kingdom) – Report of the thirteenth session of the informal working group on the inspection and certification of tanks, ECE/TRANS/WP.15/AC.1/2020/20 (United Kingdom), ECE/TRANS/WP.15/AC.1/2020/47 (Ireland), ECE/TRANS/WP.15/AC.1/2020/49 (United Kingdom), INF.6 Rev.1 (United Kingdom), INF.15 (Belgium), INF.17 (EIGA), INF.31 (Germany), INF.32 (Germany), INF.33 (UIP), INF.43 (Belgium), INF.44 (Belgium), INF.46 (Germany), INF.57 (United Kingdom) and INF.63 (United Kingdom)**

13. The plenary instructed the working group on tanks to deal with the following three tasks in light of the concluding remarks by the Chair of the Joint Meeting.

(a) To develop a survey for the contracting parties to clarify the direction of the work concerning the application of national systems for the approval of inspection bodies. On this matter, the Chair of the London group offered to prepare an informal document setting out the survey questions for the working group on tanks to be considered by the Joint Meeting. After some discussion, the group agreed on a set of five different scenarios, including the scenario proposed in INF.6/Rev.1, with each successive scenario limiting further the activities of inspection bodies approved according to a national system. On this basis, the contracting parties to RID/ADR are invited by way of the survey to indicate their preferred scenario for RID/ADR 2023. As the Joint Meeting may have questions and require clarification before responding to the survey, it is expected that the survey will be discussed during the spring session of the Joint Meeting in March 2021.

(b) To advise the Joint Meeting on how to proceed with the Entry into Service Verification (EISV). On this matter, there was consensus in the group that the intention is for the EISV to be a market surveillance or market intelligence led activity which takes place on an occasional rather than on a systematic basis. It was therefore concluded that more appropriate wording should be developed by the informal working group on the inspection and certification of tanks during the session planned for 16 and 17 December 2020, taking into account the discussions of the RID standing working group.

(c) To advise on the use of Type C accredited inspection bodies. It was felt by many in the working group that regardless of accreditation to ISO/IEC 17020, the independence of Type C inspection bodies was nevertheless questionable. It was proposed that Ireland and the United Kingdom would prepare a joint proposal which would reflect the direction already given by the Chair of the Joint Meeting. This proposal would take into account the comments and observations from the Joint Meeting and the Tanks Working Group, given the limitations and controls that would be needed in light of the non-independence of Type C inspection bodies.

### **III. Section 3: Results of discussions on documents that do not require endorsement of the outcome**

#### **Item 8: ECE/TRANS/WP.15/AC.1/2020/12 (UIP/UIC) – Clarification on using tanks after the deadline specified for the next test or inspection and INF.56 (Poland)**

14. Subsection 4.3.2.3.7, which was introduced in RID/ADR 2017, governs the use of tanks after the deadline for the next test or inspection has expired. However, 4.3.2.3.7 does not apply to intermediate inspections because of the flexibility already built in to 6.8.2.4.3. In 6.8.2.4.3, the intermediate inspection is to be performed three months before or after the due date. In earlier discussions, this three month grace period has led to different interpretations in terms of whether the tank could be filled and carried during this period. The proposal was to clarify the situation by limiting use of the tank during these three months to finishing a transport operation or returning dangerous goods for disposal or recycling, in the spirit of what was already in 4.3.2.3.7 for periodic inspections.

15. Most experts who spoke were of the opinion that 6.8.2.4.3 was written in such a way that the tank could be used without restriction, including filling, in the three months after expiry of the due date of the intermediate inspection. It was stated that passing the due date of the intermediate inspection would not mean that the tanks would suddenly become unsafe. However, it was noted that this unrestricted use was compromised by the obligations of the filler in 1.4.3.3 (b). As the tank could not be used unrestricted during the three month period, it was suggested that the three months past the due date referred to 6.8.2.4.3 be deleted and that the same rules as for periodic inspections already in 4.3.2.3.7 be applied, or that they should be applied in combination with the proposed new paragraph (c).

16. It was agreed that there should be a common understanding and interpretation of the text in 6.8.2.4.3, but after discussion no consensus could be reached. However, UIP was invited to submit a new document.

#### **Item 9: ECE/TRANS/WP.15/AC.1/2020/16 (France) – Vacuum-insulated double-wall tanks**

17. This document from France requested interpretation of the requirements for protecting the rear of the tank of tank-vehicles. In ADR 9.7.6, the distance from the rear of the bumper to the tank is described. However, in some cases the distance to the shell is used, as this is the part to be protected. In particular, for vacuum-insulated tanks, the outer insulating jacket is of rather thin material, and when damaged in an accident, this may result in the loss of vacuum and subsequent warming up of the tank and possible loss of the product being carried.

18. Several experts confirmed the interpretation that if “tank” is described, the distance to be considered is that of the rear of the bumper to the rear outermost parts of the insulation system. However, it was pointed out that this provision went back to the original ADR and that at that time, “shell” and “tank” were not so strictly defined, which allowed some room for interpretation at that time. It was said that it was not clear what “the rear of the bumper” referred to, and this should be clarified. It was noted that a document concerning this topic had also been submitted to the Working Party on the Transport of Dangerous Goods (WP.15).

#### **Item 10: ECE/TRANS/WP.15/AC.1/2020/17 (France) – Use of the table in 6.8.2.6.1 referencing the standards on the design and construction of tanks and their equipment**

19. This document sought the opinion of the experts on whether type approvals of tanks need to be updated or renewed when new standards for equipment are introduced. For example, must the still valid type approval of a tank issued before certain standards for valves were referenced in RID/ADR be updated after the valve standards have been introduced?

20. General type approvals must be checked each time a new version of RID/ADR is published, as described in 6.8.2.3.3, second paragraph. If a new, mandatory standard is referenced, this must be taken into account as well. However, it was stressed that if a new version of such an equipment standard were published and there is no end date in column 5, it would not be necessary to update the type approval of the tank. The opinion was also expressed that the text of 6.8.2.3.3 would not allow the type approval to be updated, as the type approval should be withdrawn by the competent authority or the body designated by that authority, resulting in a new type approval. It was felt that the holder should be given the

choice of whether to update or withdraw the type approval. The discussion should be continued, taking into account 6.8.2.3.3 and the equivalent provision in 1.8.7.

**Item 11: ECE/TRANS/WP.15/AC.1/2020/18 (France) – Inspections of tanks whose deadlines for intermediate inspections have expired, ECE/TRANS/WP.15/AC.1/2020/45 (UIP) and ECE/TRANS/WP.15/AC.1/2020/48 (United Kingdom)**

21. When an intermediate inspection is overdue by more than three months, as allowed by 6.8.2.4.3, what inspection would then be appropriate? In line with recent amendments for 6.7, this document proposed that this would be a periodic inspection. In document ECE/TRANS/WP.15/AC.1/2020/48, this was extended further to overdue periodic inspections and tanks that had been out of service for a considerable time.

22. Most experts who spoke were of the opinion that the normal due inspection should be performed and from experience over many years, saw no additional safety benefits in performing more stringent inspections. Document ECE/TRANS/WP.15/AC.1/2020/45 mentioned that consequential cleaning for the periodic test would lead to high costs and pressure on the environment. More hydraulic pressure tests could introduce moisture into the tank, thus leading to corrosion. The obligation of the filler in 1.4.3.3 (b) to check that the date of the inspection had not expired would stop these tanks being used before they were filled.

23. It was said that the regulations did not currently provide sufficient guidance for inspection bodies on how to act in case of overdue inspections.

24. It was therefore decided to take the comments on board and the expert from UIP volunteered to submit a new proposal at a future session.

**Item 12: ECE/TRANS/WP.15/AC.1/2020/33 (Russian Federation) – Calculation of the minimum shell thickness (6.8.2.1.13, 6.8.2.1.16, 6.8.2.1.16, 6.8.2.1.17, 6.8.2.4.1)**

25. The document questioned the consistency between the subsections of the regulations referred to, and in particular 6.8.2.1.16. and 6.8.2.1.13.

26. On 6.8.2.1.16, the document explained that there was some uncertainty as to whether the limitations concerning permissible stress ( $\Sigma$ ) related to the calculation of the wall thickness based on the test pressure only, or whether they also related to the calculation pressure. As this is explained in the key to the formulas in 6.8.2.1.17, it was clear that the limitations to  $\Sigma$  apply to both calculation and test pressure determination of minimum wall thickness. However, no consensus could be reached on whether the words “test pressure” in the first sentence of 6.8.2.1.16 should be deleted so as to apply to both situations or whether “calculation pressure” should be added to achieve the same effect. It was decided that this matter requires further careful consideration, as it concerns the basics of the tank requirements.

27. On 6.8.2.1.13, the problem appeared to be the following wording: “The pressure on which the shell thickness is based shall not be less than the calculation pressure.” The meaning of this is that the wall thickness based on the calculation pressure is the minimum; other situations may result in higher wall thicknesses based on 6.8.2.1.4 or 6.8.2.1.17 to 6.8.2.1.21, with greater values which overrule the wall thickness based on calculation pressure. It was not felt that this required further amendment.

28. It was proposed to keep the document on the table for consideration at a future session.

**Item 13: ECE/TRANS/WP.15/AC.1/2020/35 (Russian Federation) – External stress values for the internal stop-valve and its seating (para 6.8.2.2.2)**

29. It was said that based on the current wording, the stresses that would act on the stop-valve and its seating were not understood. It was therefore proposed that the wording be amended to clarify the stresses being referred to in particular are those that occur in emergencies.

30. However, the proposal was not carried by the majority of the working group. It was felt that the current wording was more general and addressed all sorts of incidents, from torque due to overtightening a cap at the end of the pipe, stresses relating to the weight of adjacent equipment or forgetting to disconnect a hose, to an impact by a foreign object, such as a road vehicle.

31. Reference was made to standard EN 14433:2014, which specifies a breakaway test (in paragraph 7.6) for the external valve casing of the foot valve (internal stop valve) that has to be passed for design approval. After the test, the sealing capability of the valve should not be affected.

32. The proposed amendment was not carried as it was felt that the current wording was sufficient and had proven itself over many decades.

**Item 14: INF.13 (Netherlands) – Interpretation of subsection 6.8.3.2.3 in ADR**

33. The Netherlands asked the working group to confirm whether the vapour recovery line of tanks for flammable refrigerated liquefied gases (e.g. LNG/H<sub>2</sub>) should be provided with 3 closures in series, of which the closest to the tank should be provided with the automatic closing safety function required by 6.8.3.2.3. The wording in 6.8.3.2.3 and 6.8.3.2.7 was felt to be open to interpretation. Reference was made to EN 14564:2019, in which an explanatory drawing showing 3 closures was included in Annex F.

34. There was general consensus that the position of the Netherlands could be confirmed, although it could not be guaranteed that all tanks in service have the automatic closing safety function. It was said that the texts of 6.8.3.2 and the standards for tanks for refrigerated liquefied gases were not easy to understand and that the text of 6.8.3.2 may benefit from a review. The Netherlands was invited to submit an official document for a future session.

**Item 15: INF.54 (United Kingdom) - Tanks: Marking of serial number on tank shells**

35. It was proposed to introduce a requirement for the manufacturer's serial number to be stamped on the shell to ensure identification if the tank plate was lost or removed.

36. It was noted that stamping the serial number on the shell is already included in the type approval requirements of EN 12972:2018 and will be a mandatory requirement from 1 January 2022 (6.8.2.6.1). The working group did not consider it necessary to include it in the regulation itself.

37. With regard to applying this to existing tanks, the group also felt that there was no justification for this. The proposal was not therefore adopted.

**Item 16: Any other business**

38. The members of the Tanks Working Group thanked Mr. Ernst Winkler for his contributions and cooperation over the many years he had been active in the group and wished him well in his future work.

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