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 **19 September 2018**
Geneva, 17-21 September 2018
Item 3 of the provisional agenda
Tanks

Report of the Working Group on Tanks

1. The Working Group on Tanks met from 17 to 19 September 2018 in Geneva on the basis of the mandate from the RID/ADR/ADN Joint Meeting, under the chairmanship of Mr. Arne Bale (United Kingdom) Mr. K. de Putter (Netherlands) as secretary. The relevant documents were submitted to the plenary session and transferred to the Working Group for consideration.

2. The Working Group on Tanks, consisting of 25 experts from 12 countries, the European Union (European Commission and European Union Agency for Railways) and 4 non-governmental organizations, dealt with the following official and informal documents:

Documents: ECE/TRANS/WP.15/AC.1/2018/27 (France)
ECE/TRANS/WP.15/AC.1/2018/29 (France)
ECE/TRANS/WP.15/AC.1/2018/31 (The Netherlands)

Informal documents: INF. 3 (The Netherlands)
INF. 7 (ITCO)
INF. 9 (United Kingdom)
INF. 11 (Switzerland)
INF. 17 (United Kingdom)
INF. 18 (France)
INF. 20 (Poland)
INF. 23 (European Union)
INF. 25 (Poland)

Item 1: ECE/TRANS/WP.15/AC.1/2018/27 (France) – Certificates of building materials of tanks.

3. The proposal by France seeks to amend 6.8.2.1.8 to include a requirement for a type 3.1 certificate in accordance with standard EN 10204 for the construction material of the shell.

4. It was said that although a reference was included in the tank construction standards, the latest revision of standard EN 14025 no longer contains this reference. The reference is deleted based on recent CEN drafting rules. Consultation with the CEN representative confirmed the new rules and consequential deletion of the reference in the other tank construction standards with future revisions. It was said that it was possible to introduce a reference to the type 3.1 certificate in the standard EN 12972 for inspection and testing of tanks.

5. It was agreed that reference to a type 3.1 certificate would be most appropriate in the test standard rather than including it to 6.8.2.1.8. It was suggested to the Working Group on Standards to introduce in the meantime a note in column 2 of the table in 6.8.2.6.1 for EN 14025:2018 in the 2021 version of RID/ADR to read: "Materials of shells shall at least be attested by a type 3.1 certificate issued in accordance with standard EN 10204."

Item 2: ECE/TRANS/WP.15/AC.1/2018/29 (France) – Amendments to the standards concerning tanks.

6. After a discussion in plenary it was found not to be feasible to introduce a reference to EN 12972:2018 before the 2021 edition of RID/ADR. As the reference to the 2007 edition is no longer in line with changes in the regulations it was suggested to place a guideline on the UNECE and OTIF website to urge competent authorities of the contracting parties to approve the use of EN 12972:2018 according to 6.8.2.7, as soon as possible. The Working Group on Tanks was asked to develop wording for a guideline.

Proposal 1: Introduce a new guideline on the OTIF and UNECE websites to read:

Guideline for the application of EN 12972 (Tanks for transport of dangerous goods - Testing, inspection and marking of metallic tanks) for compliance with RID/ADR.

In order to comply with the requirements of RID/ADR, EN 12972:2007 referenced in RID/ADR 6.8.2.6.2 needs to be applied together with the requirements of RID/ADR in accordance with 1.1.5.

EN 12972:2018 has been published and it has been decided that this standard shall be referenced in the 2021 edition of RID/ADR.

To aid compliance with and consistent application of the 2019 edition of RID/ADR, competent authorities are encouraged to approve the use of EN 12972:2018 for the purpose of testing and inspection of tanks according to RID/ADR 6.8.2.7 as soon as possible but no later than 1 January 2020.

Item 3: ECE/TRANS/WP.15/AC.1/2018/31 (Netherlands) – Fibre reinforced plastic (FRP) tanks, tank coding.

7. Due to design criteria for FRP tanks and selection criteria for the substances permitted in such tanks, substances with a calculation pressure up to 4 bars may be carried in FRP tanks with a lower calculation pressure. RID/ADR 6.9.6 requires the marking of a tank code according to 6.8.2.5.2 for demountable tanks and tank-containers. In the Working Group on Tanks during the autumn 2017 session it was decided that a tank code containing the calculation pressure of the substance to be carried rather than the calculation pressure of the tank would be the best solution to help the filler.

8. Although it was found that only a limited number of countries experienced problems with the different calculation pressures in the tank codes the majority of the experts could support the principles of the proposals. However in particular proposal 2 in the document was found to be superfluous and could be deleted. Proposals 1 and 3, with some editorial amendments, were accepted.

Proposal 2: Introduce a new third indent to 6.9.6.1 to read (new wording in *italic* script):

"6.9.6.1 The requirements of 6.8.2.5 shall apply to the marking of FRP tanks, with the following amendments;

- the tank plate may also be laminated to the shell or be made of suitable plastics materials;
- the design temperature range shall always be marked;
- *the second part of the tank code where a tank code is applicable according to 6.8.2.5.2 shall be that of the highest value of the calculation pressure for substance(s) permitted for carriage in the type approval certificate.".*

Proposal 3: Introduce a new transitional measure in 1.6.4 .yy (RID) and 1.6.3.xx (ADR) to read (new wording in *italic* script):

"*1.6.4.yy/1.6.3.xx FRP tanks constructed before 1 July 2021 in accordance with the requirements in force up to 31 December 2020 but which do not meet the requirements for the marking of the tank code of 6.9.6.1 applicable as from 1 January 2021 may continue to be marked in accordance with the requirements applicable up to 31 December 2020 until the next periodic inspection after 1 July 2021.".*

Item 4: INF 3 (Netherlands) - Presentation of a product to mitigate liquid surge.

9. The presentation explained that kinetic energy present in a liquid in a tank at speed has to be absorbed while the tank-vehicle is slowing down. During deceleration the liquid tends to keep on moving until hitting the front (wall) of the tank or compartment creating a pulse and waves running front to back and vice-versa until internal friction in the substances has absorbed the kinetic energy. Limitations in capacity of the tank sections and volume of the filled substance limits the development of a pulse, and surge plates help to absorb the kinetic energy of the substance while decelerating. Research led to the development of a system with a pressurised bag with a gas on top of the liquid inside the tank, preventing the movement of the substance while the kinetic energy is absorbed by the vehicle brakes as an alternative to limitations in capacity of the tank sections and volume of the filled substances. Elimination of the pulse improves vehicle stability. The system is said to eliminate the pulse by the liquid and prevents sideways sloshing while cornering, lowering the risk of overturning.

10. The presentation was given by Mr. Eenkhoorn who did the research and developed a system of stabilizing bags. Several issues were raised and discussed regarding for example; cleaning, filling degree, permeability and chemical resistance of the material, lifetime of the material, fire conditions, pressure release and inspections. The thesis resulting from the research containing more detailed information was made available to the participants of the working group for further consideration.

11. It was said that this was new innovative technology that presented possibilities for safer transport and had a wider perspective than only the transport of dangerous goods. Besides the possibility for improving safety there were economic and environmental gains to be expected. It was felt that more consideration should be given to the particular issues applicable to the carriage of dangerous goods.

Item 5: INF 7 (ITCO) – Amendment of Section 1.2.1 - Definitions

12. Tank-containers and portable tanks are in many cases owned by investment companies that register the tank. The tanks are rented out or leased to an operator that uses the tank. The definition of tank-container/portable tank operator describes that the operator is any enterprise that registered the tank. However for tank-containers/portable tanks registering is done in most cases by the owner and not the operator. This can cause misunderstanding with the enforcement authorities who are required to address the responsible party.

13. It was expressed that in the regulation no specific obligations were placed upon the owner and that introducing a definition for tank-container/portable tank owner would have no additional value. The amendment of the definition of tank-container/ portable tank operator as proposed was agreed as follows (new wording underlined-deleted wording stricken through):

- *"Tank-container/portable tank operator" means any enterprise in whose name the tank-container/portable tank is <u>used and operated</u> ~~registered~~.*

14. In RID the definition also applies to operators of tank wagons. An amendment in line with that for portable tanks/tank-containers would bring consequential amendments for tank-wagons where also the term "keeper" is used which is defined in COTIF.

15. ITCO was invited to come back with an official document for a future session.

Item 6: INF 9 (United Kingdom) – Report of the eight meeting of the informal and working group on the inspection and certification of tanks, and INF 23 (European Commission).

16. The chair of the informal working group on the inspection and certification of tanks gave an overview of the work done at the eighth meeting in London on 2 to 4 May, and its subgroup dealing with 1.8.6 in Prague. In particular it was recalled that administrative systems were foreseen to allow for a national appointment system of inspection bodies as an alternative to accreditation to EN ISO/IEC 17020. Due to time restraints consequential work on 1.8.7 and 6.8 were deferred to the next session.

17. In document INF 23 the European Commission raised concerns on some of the terminology used that would be inappropriate given the legal texts of the European Union. In particular the use of the term "mutual recognition" and "carriage" were mentioned. Concerning "mutual recognition" the chair of the informal working group said that in UNECE vehicle regulations the term "reciprocal recognition" was used which could overcome any confusion.

18. It was expressed that the current proposals were more appropriate for ADR than RID and that more work was needed to take into account the periodic inspection of tank wagons outside the country of registration. It was recognized that more input was required from RID experts but a decision will be made later as to how best to do so. It was also recognized that the work needed to take into account the 4th railway package.

19. The next meeting of the informal working group is planned for 10 to 12 December in London and the revised 1.8.6 from the sub-group will be reviewed. The plan is to present a definitive text for the spring 2019 session of the Joint Meeting. The working group on tanks supported continuation of the work subject to the endorsement of the Joint Meeting.

Item 7: INF 11 (Switzerland) – Filling of shells having sections of more than 7500 litres capacity.

20. In 1.4.3.3 (e) the filler of a tank, battery vehicle or MEGC is obliged to check that overfilling is prevented. In 4.3.2.2.4 also a minimum degree of filling is prescribed in cases the tank is not divided in sections of 7500 litres capacity or less to limit surge. The proposal is to delete the term " maximum" from the wording in 1.4.3.3 (e) to oblige the filler also to observe the minimum degree of filling when this is applicable.

21. It is recalled that the list of obligations is not exhaustive which can be concluded from the wording "in particular" and that amendment is not essential. However there was general support among the experts to follow the proposal made in the document.

Proposal 4: amend 1.4.3.3 (e) to read (deleted wording stricken through):

(e) He shall, during the filling of the tank, observe the ~~maximum~~ permissible degree of filling or the ~~maximum~~ permissible mass of contents per litre of capacity for the substance being filled;".

Item 8: INF 17 (United Kingdom) – Tanks: Clarification of protection required for fittings and accessories mounted on the upper part of vacuum-operated waste tanks

22. At the Spring session of the Joint Meeting the question was raised in the Working Group on Tanks as to whether 6.8.2.1.28, concerning protection of equipment on top of the tank against damage by overturning, was completed or modified by the requirements of chapter 6.10. During a brief exchange of views it was clear that the opinions varied between experts. As the question raised was not based on a circulated document the United Kingdom submitted INF 17 to facilitate further discussion.

23. It was explained that in the regulations two scenarios are addressed, the first in 6.8.2.1.28 that requires the fittings and accessories on top of the tank to be protected against damage caused by overturning and the second in 6.8.2.2.1 that requires items of equipment to be protected against the risk of being wrenched off or damaged during carriage or handling. In the second case, the requirement can be met by 6.10.3.1 which allows the items of equipment to be placed in a so called "protected area". However, the regulations can be misunderstood. In an earlier discussion in the Working Group on Tanks during the autumn 2011 session the majority of experts were of the opinion that 6.8.2.1.28 and TE 19 applied to vacuum-operated waste tanks.

24. Some experts said it was common practice in their country not to fit roll-over protection as protection was fulfilled by placing the equipment within "protected areas", while other experts said the contrary. It was said that in some cases roll-over bars restricted the movement of suction arms, equipment was felt to be protected by suction arms or the inherent design of the tank-vehicle, the abundance of equipment on top of the tank prevented the fitting of suitable protection, and the stability of the tank-vehicle in operation was considered to be less sensitive to overturning. However other types of vacuum operated waste tanks, such as demountable tanks and tank-containers may lack such protection by the vehicle or are more sensitive to damage by overturning.

25. Taking into account the different views it was decided that further discussion on this topic would benefit from an official document which the United Kingdom agreed to submit for a future session.

Item 9: INF.18 (France) – Inspections and tests of battery-wagons/battery-vehicles and MEGCs and INF 25 (Poland)

26. Battery-wagons/vehicles and MEGCs consisting of tanks need to be periodically inspected. For the periodicity reference is made in 6.8.3.4.12 to 6.8.3.4.6. However 6.8.3.4.6 gives the particular periodicity of inspections for cryogenic tanks. Because refrigerated liquefied gases are not permitted in battery wagons/vehicles and MEGCs the normal periodicity in 6.8.2.4 would apply. The proposed correction including the addition proposed in INF 25, to include also reference to 6.8.2.4.3, were accepted.

Proposal 5: Amend the penultimate sentence of 6.8.3.4.12 to read (new wording underlined and deleted wording stricken through):

Battery wagons/vehicles and MEGCs the elements of which are tanks shall be inspected according to ~~6.8.3.4.6~~ 6.8.2.4.2 and 6.8.2.4.3

Item 10: INF.20 (Poland) – Carriage of tanks, battery wagons/battery-vehicles and MEGCs after the date of expiry of the last intermediate inspections

27. In 4.3.2.3.7 it is stipulated that tanks, battery wagons/vehicles and MEGCs filled before the date of expiry of the last periodic inspection may be carried for a period not to exceed one month. In 6.8.2.4.3 it is allowed that the intermediate inspection can be performed up to three months after the specified date and consequentially may be used. However in 4.3.2.3.7 this is not reflected.

28. It was recalled that the three months for the intermediate inspection was introduced to guarantee an intermediate inspection reasonably timed between the periodic inspections while giving some flexibility for the performance of the intermediate inspection. Several experts were of the opinion that this inconsistency should be resolved. Poland was invited to submit an official document on this issue for a future session.