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

Bern, 16–20 March 2020

Item 2 of the provisional agenda

Tanks

Extra-large tank-containers

Proposal transmitted by the Secretariat of OTIF^{*,**}

Summary

- Executive summary:** In the discussion on safety issues in connection with the carriage of extra-large tank-containers, the RID Committee of Experts' standing working group and the working group on tank and vehicle technology noted that two provisions which currently only concern the construction of tank-wagons should also be included for RID/ADR tank-containers.
- Action to be taken:** Amend 6.8.2.2.1 and 6.8.2.2.4.
- Related documents:** Informal document [INF.19](#) from the Joint Meeting in March 2018; Report of the working group on tanks at the Joint Meeting in March 2018 [ECE/TRANS/WP.15/AC.1/150/Add.1 \(OTIF/RID/RC/2018-A/Add.1\)](#); Report of the 16th session of the working group on tank and vehicle technology [OTIF/RID/CE/GTT/2018-B](#); Report of the 17th session of the working group on tank and vehicle technology [OTIF/RID/CE/GTT/2019-A](#); Report of the 11th session of the RID Committee of Experts' standing working group OTIF/RID/CE/GTP/2019-A¹

* In accordance with the programme of work of the Inland Transport Committee for 2018-2019, (ECE/TRANS/WP.15/237, annex V, (9.2)).

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¹ As this report is currently being coordinated with participants of the 11th session of the standing working group, it has not yet been published on OTIF's website. It can be downloaded from around the middle of January 2020 under www.otif.org > Activities > Dangerous Goods > Standing Working Group > Reports.



Introduction

1. Together with the Belgian tank-container manufacturer van Hool, BASF has developed new 45 and 52 foot tank-containers² on the technical basis of the 20 and 30 foot tank-containers that are already used in combined transport. These tank-containers have a capacity of up to 73,500 litres and a payload of 66 tonnes. The load capacity is therefore equivalent to two conventional tank-containers or one bogie tank-wagon.
2. As these extra-large tank-containers are currently, because of their large mass, carried mainly by rail, questions in relation to their safety in transport have so far been discussed in the RID Committee of Experts' standing working group and the working group on tank and vehicle technology.
3. At its meeting in March 2019, the Joint Meeting's working group on tanks was informed in informal document INF.19 of the discussions in the working group on tank and vehicle technology and was asked to hold discussions in relation to the wall thickness, the pressure resistance of closures, inscribing the date of the next inspection on the tank and general requirements for tank-containers.
4. At its meeting in March 2018, the working group on tanks took a preliminary decision on 6.8.2.1.2, which was included in the 2019 edition of RID/ADR.
5. With regard to the other points, the working group on tanks thought it was more appropriate to deal with the discussion on primarily rail-specific issues in the working group on tank and vehicle technology, with the participation of tank experts (see report ECE/TRANS/WP.15/AC.1/150/Add.1 (OTIF/RID/RC/2018-A/Add.1), paragraphs 27 to 35).
6. In the meantime, the working group on tank and vehicle technology has held two further sessions, the results of which are summarised in reports OTIF/RID/CE/GTT/2018-B and OTIF/RID/CE/GTT/2019-A. Both reports have been submitted to the standing working group.
7. At its 11th session, the standing working group decided that the subjects of the "fixing of welded elements" and the "pressure resistance of closures on the shell" are considered to be concluded and asked the Secretariat to submit to the Joint Meeting corresponding proposals to adapt the provisions applicable to tank-containers (see report OTIF/RID/CE/GTP/2019-A, paragraph 53).

Fixing of welded elements

8. For tank-wagons, the second sub-paragraph of RID 6.8.2.2.1 stipulates the following with regard to the fixing of welded elements:

"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)."
9. At the 15th session of the standing working group, CEFIC and van Hool confirmed that for extra-large tank-containers, elements fitted to the tank wall are avoided. The fittings

² Detailed information is available under: <https://www.basf.com/de/de/company/about-us/sites/ludwigshafen/the-site/news-and-media/news-releases/2017/05/p-17-183.html>.

themselves were recessed into the tank. In addition, no fixed ladders were used, only mounting points (see OTIF/RID/CE/GTT/2018-A, paragraphs 23 and 24).

10. At its last meeting, the standing working group recommended that this requirement also be proposed for tank-containers.

Proposal 1

11. It is proposed to amend 6.8.2.2.1 as follows:

(RID:)

6.8.2.2.1 With the exception of the first indent, extend the text of the second sub-paragraph shown in the left-hand column to the right-hand column, so that it also applies to tank-containers.

(ADR:)

6.8.2.2.1 Add the following second sub-paragraph to the right-hand column:

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

- 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).”

12. If necessary, the working group on tanks could also check whether a similar provision is also required for tank-vehicles.

Pressure resistance of closures

13. The current 6.8.2.2.4 reads as follows:

6.8.2.2.4 The shell or each of its compartments shall be provided with an opening large enough to permit inspection.

(RID only:)

These openings shall be provided with closures designed for a test pressure of at least 0.4 MPa (4 bar). Hinged dome covers for tanks with a test pressure of more than 0.6 MPa (6 bar) shall not be permitted.

14. In report OTIF/RID/CE/GTT/2018-A, the working group on tank and vehicle technology noted the following in this respect:

“Pressure resistance of closures

26. For tank-wagons, 6.8.2.2.4 stipulates a specific pressure resistance for the closures of openings. It was recalled that this provision had been included in order to avoid leaks from the closures as the result of surge movements by the load.

27. The representative of van Hool confirmed that the extra-large tank-containers also complied with this provision.

28. The working group asked the Joint Meeting’s tank working group to check whether the provisions for tank-wagons and tank-containers could be harmonised in this case, as standard EN 14025 also specifies corresponding pressure values for all tanks.”

15. At its meeting in March 2018, the Joint Meeting’s working group on tanks had already established that, because of the greater length of extra-large tank-containers, the pressures resulting from surge movements were also greater compared with conventional tank-

containers. This might justify the application of 6.8.2.2.4 to extra-large tank-containers (see ECE/TRANS/WP.15/AC.1/150/Add.1 (OTIF/RID/RC/2018/Add.1), paragraph 32).

16. After it had again been confirmed at the 17th session of the working group on tank and vehicle technology that the closures on the already existing extra-large tank-containers met this requirement and that conventional tank-containers were also currently built only with a calculation pressure of not less than 4 bar, the working group on tank and vehicle technology recommended proposing to the RID/ADR/ADN Joint Meeting's working group on tanks that this requirement also be included for tank-containers.

Proposal 2

17. It is proposed to amend 6.8.2.2.4, as follows:

(RID:)

6.8.2.2.4 Extend the text of the second sub-paragraph shown in the left-hand column to the right-hand column, so that it also applies to tank-containers.

(ADR:)

6.8.2.2.1 Add the following second sub-paragraph to the right-hand column:

“These openings shall be provided with closures designed for a test pressure of at least 0.4 MPa (4 bar). Hinged dome covers for tanks with a test pressure of more than 0.6 MPa (6 bar) shall not be permitted.”

18. As standard EN 14025 stipulates these pressure values for all tanks, tank-vehicles could also be included for ADR with the layout of 6.8.2.2.1, the same as in RID.
