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Joint Meeting of the RID Committee of Experts and the
Working Party on the Transport of Dangerous Goods
(Bern, 15 - 19 March 2021)

Agenda item 2: Tanks

RID 6.8.2.1.2 and 6.7.2.2.12: Strength of extra-large tank-containers – discussion on the introduction of a new class for tank-containers that can be hump shunted

Information submitted by Germany and the International Union of Wagon Keepers (UIP)

Introduction

1. Since the end of 2017, the RID Committee of Experts' standing working group has been dealing with the issue of "extra-large tank-containers", which have been put on the market under the name "BTC" by BSAF.
2. Besides the rail-specific matters that are already being dealt with in separate discussions, a question regarding the general operation of tank-containers has arisen.
3. Generally, for the carriage of tank-containers in multimodal operation, the occurring and bearable longitudinal acceleration is limited to 2g. RID/ADR 6.8.2.1.2 and 6.7.2.2.12, too, specify an assumed longitudinal acceleration of not more than 2g.
4. This requirement results from the general requirements in tank-container transport but also from a certain limitation of the acceleration values in waterborne and road transport. In rail transport, contrary to the general construction requirements for freight wagons, a special class (F2 in accordance with standard EN 12663 Part 2) was established, for which the strength requirements were reduced in comparison with general freight wagons. Here, however, limitations were introduced (no hump shunting, no loose shunting) in order to limit the acceleration values, which may reach 5 to 7g in general rail transport, to 2g.

5. According to the ideas of the operators, extra-large tank-containers, which are comparable to the tanks of tank-wagons in terms of volume, are to be used in the future not only in block train traffic but also operationally like tank-wagons in wagonload traffic and, in this context, it is to be possible for them to be shunted without limitations (e.g. also over hump shunting facilities).
6. According to measurements taken by the operator, the hump shunting facilities with automatic retarders used so far result in accelerations of up to 3g, for which the operator has specifically designed the wagons and tank-containers. Additionally, the operator has laid down company rules for the wagons to be checked after every hump run by specially trained wagon technicians.
7. The corresponding excerpts from the final reports of the 18th session of the RID Committee of Experts' working group on tank and vehicle technology (video-conference, 6 and 7 October 2020) and the RID Committee of Experts' standing working group (video-conference, 24 to 26 November 2020) are set out in the Annex for information.

Questions regarding the next steps

8. As a result of the previous discussions in the RID Committee of Experts' working group on tank and vehicle technology and the RID Committee of Experts' standing working group, extra-large tank-containers that, during rail transport,
 - are to move over hump shunting facilities with automatic retarders would have to be designed for acceleration values of 3g;
 - are to move over hump shunting facilities without automatic retarders would have to be designed for acceleration values of 5g.
9. For this purpose, a new tank-container class for such tank-containers with corresponding requirements (e.g. 3g/5g) for hump runs would have to be defined and inserted accordingly into the provisions in 6.7.2.2.12 and 6.8.2.1.2 of RID/ADR.

The issue of suitability for hump shunting concerns in particular extra-large tank-containers (of more than 40,000 litres) in rail transport.

But also the container provisions of the CSC and IRS would have to be reviewed [Note: portable tanks in accordance with Chapter 6.7 have to pass an 4g impact test if they fall under the definition of the CSC (also new ISO containers)].

It might also be necessary to give some thought to a separate marking for tank-containers designed for such use.
10. For the further discussion it would be helpful if the Joint Meeting's working group on tanks could address these questions and make recommendations for the next steps.

Annex

1. At the 18th session of the RID Committee of Experts' working group on tank and vehicle technology (video conference, 6 and 7 October 2020), the strength of extra-large tank-container was discussed, cf. paragraphs 43 to 47 of the final report.
 - “43. The chairman explained that tank-containers according to 6.8.2.1.2 and portable tanks according to 6.7.2.2.12 must be designed for acceleration values of 2g. These acceleration values are also prescribed by the International Convention for Safe Containers (CSC) and the UIC's International Railway Solutions (IRS). The extra-large tank containers were designed for acceleration values of 3g so that they can be moved over hump shunting facilities with automatic retarders. If the intention was also for these extra-large tank-containers to be hump shunted at facilities with no automatic retarders, they would have to be designed for 5g.
 44. The representative of CEFIC said that in the long term tests and simulation, no acceleration values of 5g had been detected.
 45. The chairman replied that in the tests, no hump shunting without automatic retarders had been carried out.
 46. The working group agreed that tank-containers designed for acceleration values of 3g would also have to be covered in the container provisions of the CSC and IRS and in chapters 6.7 and 6.8 of RID/ADR. It might also be necessary to give some thought to a separate marking for containers designed for 3g. The RID Committee of Experts' standing working group should assess whether a new class for tank-containers that can be hump shunted should be defined in RID.
 47. The representative of UIC was asked to provide clarification for IRS 50592, if possible.”
 2. Subsequently, at its last meeting (video-conference, 24 to 26 November 2020), the RID Committee of Experts' standing working group discussed the issue, cf. paragraph 52 of the report:
 - “52. With regard to paragraphs 43 to 47 of the report of the working group on tank and vehicle technology, it was agreed that the acceleration values set out in 6.8.2.1.2 and 6.7.2.2.12 were not sufficient for extra-large tank containers. The representatives of Germany and UIP said that they were prepared to submit a corresponding proposal to the next RID/ADR/ADN Joint Meeting.”
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