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Joint Coordinating Group of Experts
(Berne, 6 - 8 February 2019)

Agenda item 4: Definition and prioritisation of the list of items

Topics proposed by the RID Committee of Experts' working group on tank and vehicle technology and standing working group for the list of items to be dealt with

Information from the Secretariat of OTIF

The conclusions of the RID/ATMF working group were submitted to the 8th session of the RID Committee of Experts' standing working group in document OTIF/RID/CE/GTP/2017/6. Annexes 1 and 2 of that document contain topics that should be dealt with by the Joint Coordinating Group of Experts.

Since then, further topics have arisen in discussions at the RID Committee of Experts' standing working group and working group on tank and vehicle technology that should be dealt with by the Joint Coordinating Group of Experts and included in the list of items to be dealt with.

These points concern:

– Extra-large tank-containers, which a German chemical company has recently started using for the carriage of dangerous goods, and the carrying wagons on which they are placed,

– Obligations of the notified bodies according to TSI/UTP in the RID approval procedure,

– Minimum energy absorption of the energy absorption elements for tank-wagons with an automatic coupling device.

The relevant extracts from the reports of the RID Committee of Experts' standing working group and working group on tank and vehicle technology are reproduced below.

Consideration should also be given to which of these points should be dealt with as a priority. For example, priority could be given to dealing with the subject of "extra-large tank-containers" on the grounds that this is new technology for which there is a great deal of interest in the market. Consequently, legal certainty should be established as soon as possible.

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A. Extra-large tank-containers

Extracts from the report of the 15th session of the RID Committee of Experts' working group on tank and vehicle technology (Hamburg, 30 and 31 January 2018):

(…)

Acceleration tests

8. For tank-wagons and carrying wagons, standard EN 12663-2:2010 prescribes acceleration values of 5g in the direction of travel, whereas for tank-containers with a maximum permissible mass of 36 tonnes, UIC leaflet 592 prescribes 2g[1].

9. The representative of van Hool confirmed that the extra-large tank-containers had been tested at an acceleration value of 3g. During the dynamic longitudinal impact tests higher acceleration values were achieved (see annex of informal document INF.21) to compensate for the reduced maximum gross weight of the tank-container during the tests.

10. The representative of UIP explained that the carrying wagons used for extra-large tank-containers were fitted with fixing pins made of high-strength materials which, at an impact speed of 12 km/h and maximum permissible load, achieved a maximum acceleration value of 2.7g. The carrying wagons were approved in accordance with the TSI Wagon.

11. The representative of CEFIC added that the carrying wagons were equipped with long-stroke buffers. BASF used new carrying wagons to carry the extra-large tank-containers, although in principle, existing carrying wagons could also be used, provided they were also fitted with strengthened fixing pins.

12. The working group agreed that special markings should be provided for carrying wagons. These markings should indicate whether the wagons are fitted with strengthened fixing pins. This would have to be taken into account in the relevant EN standards, UIC leaflets and TSIs. An addition to the classification code could simplify the planning arrangements for such wagons. The wagon marking should also indicate whether it is suitable for hump shunting when laden or only when unladen.

(…)

Minimum distance between the headstock plane and the shell

20. For tank-wagons, 6.8.2.1.29 specifies that the minimum distance between the headstock plane and the most protruding point at the shell extremity must be 300 mm. There is no equivalent provision for carrying wagons for tank-containers. In contrast, the provision of 4.3.2.3.2 applies, according to which, during carriage, tank-containers must be loaded on the wagon in such a way as to be adequately protected by the fittings of the wagon or of the tank-container itself against lateral and longitudinal impact and against overturning. In the case of the carrying wagons built for the extra-large tank-containers, it should be remembered that they were fitted with long stroke buffers, which compensated for part of the required minimum distance.

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[1] TSI WAG refers to standard EN 12663-2:2010. According to this standard, the acceleration of 5g in the direction of travel only applies to the connection between the wagon body and the bogie and to the equipment fixings. As the shell is part of the wagon body, the proof load case of 5g does not apply to the shell.

For container carrying wagons, the fixing pins are to be considered as items of equipment to which the proof load case of 5g in the direction of travel applies in terms of their attachment to the wagon body. However, for the interface between the fixing pins and the container placed onto them, a proof load case of 2g in the direction of travel applies. In addition, under certain conditions (prohibition of pushing off and hump-shunting), for carrying wagons the speed in a jolting impact can be reduced to 7 km/h when loaded (still 12 km/h when unloaded).

21. It was pointed out that the discharge devices on all tank-containers are fitted to the ends. In the event of the buffers overriding, they are therefore directly in the danger zone.

22. It was not clear to what extent the measures provided for in 4.3.2.3.2 had been taken into account for the extra-large tank-containers and whether all the existing tank-containers complied with this provision. The representative of CEFIC was of the view that this was not a construction requirement, but an obligation on the part of the operator in order to prevent, for example, the tank-container's being positioned on the wagon in such a way that it protruded over the load surface of the carrying wagon into the buffer area.

(…)

Energy absorption elements and protection against overriding

35. Special provisions TE 22 and TE 25 gave rise to a lengthy discussion. For tank-wagons for the carriage of certain dangerous liquids and gases, they prescribe the use of energy absorption elements and devices to protect against the overriding of buffers or to limit the damage caused by the overriding of buffers.

36. If these provisions were carried over for carrying wagons for extra-large tank-containers, this would mean that carrying wagons in container transport could no longer be deployed flexibly for all transport operations, thus making planning more difficult. If, on the other hand, the flexible use of carrying wagons was also to be ensured in future, stricter requirements would have to be made for the tank-containers in order to achieve an equivalent level of safety.

37. It was also pointed out that there were technical difficulties concerning crash-buffers. The activation value of these buffers was approximately equivalent to a collision test at an acceleration of more than 6 g. At such an acceleration, it was not certain that tank-containers would remain on the carrying wagons, as the fixing pins for all tank-containers were only designed for 3g.

38. The representative of CEFIC did not dispute the need for these substance-specific technical requirements for the vehicle, but pointed out that they would also have to be prescribed for carrying wagons for conventional 20' or 26' tank-containers, as the quantity of dangerous goods being carried per carrying wagon was comparable.

39. The working group agreed that for carrying wagons for extra-large tank-containers, measures that were at least equivalent would have to be implemented. The new Joint Coordinating Group of Experts in the carriage of dangerous goods and railway technology, whose task would be to reformulate as protective aims the technical vehicle requirements currently contained in RID, should take into account the problems for carrying wagons in its work. The working group assumed that the European Commission and the Secretariat of OTIF would organise the first session of the coordinating group and place these topics on the agenda.

40. It was pointed out that this Coordinating Group would have the task of ascertaining whether it would be better to implement measures to achieve the defined protective aim on the tank or on the vehicle, in order also to ensure that rail transport is not placed at a disadvantage. As tank-containers are, in principle, multimodal transport units, additional requirements for tank-containers are limited. This meant that measures that were ruled out because of the multimodal deployment of tank-containers would have to be taken into account in the requirements for carrying wagons.

(…)

ITEM 5 Analysis of the risks resulting from the increased use of extra-large tank-containers

46. In view of the fact that the use of extra-large tank-containers imposes particular requirements on the carrying wagons, the representative of ERA pointed out that this could be considered as a significant change within the meaning of the Common Safety Method on Risk Evaluation and Assessment (CSM). Based on the CSM, it could be ascertained whether this was a significant change.

47. The representative of CEFIC emphasised that the extra-large tank-containers and carrying wagons had valid approvals and had been used successfully for more than two years. BASF said it was prepared to share the operational experience it had already gained and which was increasing as a result of the many ongoing transport operations, and hence to produce a voluntary risk analysis in the framework of the CSM. In the process, the extra-large tank-containers would be compared with intermodal transport and conventional tank-wagon transport. In addition, information could be obtained using the finite element method. If it proved necessary, BASF could also consider trials in the analysis, if need be.

48. The representative of CEFIC asked that the delegations send him as soon as possible any particular requests in relation to the risk analysis he had offered to carry out. He asked delegates to understand that he could not guarantee at present that the risk analysis would be submitted in time for the 9th session of the standing working group. He offered to host the working group on tank and vehicle technology at a possible future meeting in Ludwigshafen and to present the system that had been developed in practice and to show delegates the combi-terminal in Ludwigshafen, one of the largest intermodal terminals.

49. The representative of ERA recommended that when the risk analysis was being prepared, the work of the ERA workshop on guidelines for risk analyses should be taken into account (see also OTIF/RID/CE/GTP/2017-A, paragraph 89).

50. The working group underlined the importance of this risk analysis for the further work and to avoid local transport prohibitions (see also paragraph 17).

Extracts from the report of the 16th session of the RID Committee of Experts' working group on tank and vehicle technology (Krakow, 19 and 20 November 2018):

(…)

ITEM 6: Vehicle technology issues

Design of spigots and marking of carrying wagons fitted with reinforced spigots (see report OTIF/RID/CE/GTT/2018-A, paragraphs 10 to 12)

27. With regard to the marking of carrying wagons fitted with reinforced spigots, the representative of CEFIC offered to draft possibilities for the marking, together with UIC, and to return to this issue with a proposal at a later stage.

Minimum distance between the headstock plane and the shell (see report OTIF/RID/CE/GTT/2018-A, paragraphs 20 to 22)

28. With regard to the minimum distance between the headstock plane and the shell, which was currently only prescribed for tank-wagons, the representative of CEFIC referred to the tests which compared the carriage of a 45' tank-container on a 45' carrying wagon and on a 52' carrying wagon. Further findings might emerge from these tests.

29. The representative of the United Kingdom asked what stresses the protective bars on the front of the extra-large tank-containers have to withstand and the representative of CEFIC replied that they were only used as protection against impacts when lifting the tank-container on and off. They were not designed as protection against collisions. However, the tests would examine how this protective bar behaves when the buffers override.

30. In reply to the concluding question from the Chairman as to whether there were any suggestions to improve the test programme being envisaged, the representative of ERA emphasised that the risk assessment, in general, would have to satisfy the requirements of the Common Safety Method on Risk Evaluation and Assessment (CSM).

(…)

B. Obligations of the notified bodies according to TSI/UTP in the RID approval procedure

Extracts from the report of the 16th session of the RID Committee of Experts' working group on tank and vehicle technology (Krakow, 19 and 20 November 2018):

(…)

ITEM 7: Any other business

Informal documents: INF.1 (UIP)
INF.3 (UIP)

31. In his informal document INF.1, the representative of UIP returned to a discussion that had taken place at the 2nd session of the RID Committee of Experts' standing working group (Copenhagen, 18 to 22 November 2013). At that meeting, footnote 1 to 6.8.2.1.2 had been amended and it was laid down that in the context of testing and inspecting whether the tank-wagons can withstand the stresses that occur in rail transport under the maximum permissible load, the notified body must evaluate compliance with the provisions of RID in addition to the requirements of the TSI or UTP and must confirm this compliance by a relevant certificate.

32. In the report of the standing working group, it was noted in this respect "that with regard to assessing the strength of the tank-wagon, it must be ensured that the permissible stresses for the tank must be those according to RID (standard EN 14025) and not those according to standard EN 12663 referred to in the TSI".

33. This link between TSI/UTP and RID meant that when assessing the strength of the tank-wagon, the tank must also be taken into account. According to UIP, recalculating the tanks of tank-wagons in accordance with the methods of standard EN 12663, but with the characteristic values reduced by the safety coefficients according to standard EN 14025, would lead to an increase of around 40% in the wall thickness of current types of tank-wagons. None of the UIP undertakings had taken into account the procedure described in the report of the standing working group.

34. In informal document INF.3, the representative of UIP explained that a discussion held in Germany at national level had come to the conclusion that at the standing working group in November 2013, the consequences of this decision had perhaps not been sufficiently discussed. Although footnote 1 to 6.8.2.1.2 could remain as it was, the further specification in paragraph 74 of the report of the 2nd session of the standing working group should be withdrawn. It was also necessary to define the obligations of the notified bodies according to TSI/UTP in the RID approval procedure.

35. Following a lengthy discussion, the working group agreed that in the framework of the national working group referred to in informal document INF.3, Germany would carry out a fundamental analysis of the problem and submit a proposal to resolve the issue of how the approval procedure could be arranged in future. The results of this analysis would be submitted to the next session of the working group on tank and vehicle technology.

36. As the problem concerned the interface between the tank and the vehicle and cooperation between competent authorities according to RID and notified bodies according to TSI/UTP, the results should then be dealt with in the new Joint Coordinating Group of Experts – JCGE. In so doing, the approval provisions for vehicles according to the fourth railway package should also be taken into account.

(…)

C. Minimum energy absorption of the energy absorption elements for tank-wagons with an automatic coupling device

Extracts from the report of the 10th session of the RID Committee of Experts' standing working group (Krakow, 21 to 23 November 2018):

(…)

ITEM 7: Harmonisation of RID and SMGS Annex 2

Document: OTIF/RID/CE/GTP/2018/15 (Secretariat)

Informal document: INF.5 (Russia)

(…)

40. In a presentation, the representative of Russia informed the standing working group of differences between the provisions of RID and the GOST standards for the design, construction, equipment and testing of tank-wagons. He also presented the amendments that had already been adopted for SMGS Annex 2 in relation to 1520 mm gauge tank-wagons and the amendments that would be dealt with in the next biennium.

41. The standing working group noted that in special provision TE 22 of SMGS Annex 2, the value for the minimum energy absorption of the energy absorption elements at each end of the wagon for tank-wagons with an automatic coupling device had been increased from 130 kJ to 140 kJ, and asked the Secretariat to prepare an equivalent amendment to special provision TE 22 in RID, together with a suitable transitional provision, for the next session of the standing working group.

42. In this context, the representative of UIP drew attention to the fact that in Germany and Switzerland, innovative wagons fitted with automatic coupling devices were being tested. In view of the fact that special provision TE 22 prescribed an energy absorption of 800 kJ for each end of conventional tank-wagons, it would have to be checked in future whether the considerably lower value of 140 kJ with automatic coupling devices was suitable. The representative of ERA proposed to deal with this issue in the new Joint Coordinating Group of Experts (JCGE) as well, because the RID/ATMF working group had adopted the principle that in future, only the protective aim would be laid down in RID.

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