

OTIF



ORGANISATION INTERGOUVERNEMENTALE POUR
LES TRANSPORTS INTERNATIONAUX FERROVIAIRES

ZWISCHENSTAATLICHE ORGANISATION FÜR DEN
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RID: 2nd Session of the RID Committee of Experts' standing working group
(Copenhagen, 18 to 22 November 2013)

Subject: Crash buffers for further tank-wagons intended for the carriage of dangerous goods

Proposal transmitted by the Netherlands

SUMMARY

Executive summary: Extend the requirement for "crash buffers" according to special provision TE 22 to wagons with other groups of dangerous goods.

Action to be taken: Amendment of RID.

Related documents:

- OTIF/RID/CE/GTP/2012/8 (Netherlands) – report of rail accident near Zwijndrecht
- OTIF/RID/CE/GTP/2012-A, paras. 96-100 – report of the 1st session of the RID Committee of Experts' standing working group (Riga, 12 - 15 November 2012)

Related relevant documents 2002-2003 on introduction of TE 22 (energy absorbing elements):

- Report of the 1st meeting of the Working Group on Tank and Vehicle Technology (Bonn, 17 – 19 April 2002): document A 81-03/505.2002, paras. 17-18;
- Report of the 2nd meeting of the Working Group on Tank and Vehicle Technology (Bonn, 5 and 6 September 2002): document A 81-03/508.2002, paras. 5-16;
- Report of the 39th session of the RID Committee of Experts (Berne, 18 – 21 November 2002): document A 81-03/501.2003, paras. 32-38;
- Report of the 3rd meeting of the Working Group on Tank and Vehicle Technology (Bonn, 20 and 21 February 2003): document A 81-03/504.2003, paras. 22-25;
- Report of the 40th session of the RID Committee of Experts (Sinaia, 17 – 21 November 2003): document A 81-03/501.2004, paras. 5-11.

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Introduction

Reason for this document

1. In the RID Committee of Experts' standing working group in November 2012 the representative of the Netherlands was asked to submit a proposal specifying the groups of products to which special provision TE 22 (energy absorbing crash elements) should also apply and to take account of the aspect of retrofitting existing wagons with crash buffers. This was the outcome of a discussion on a report of a rail accident that occurred near Zwijndrecht in January 2011.
2. The crash resistance of tank-wagons is open to improvement in order to mitigate the consequences (leakage, fire) of accidental impacts at speeds over 12 km/h.

Benefits and costs

3. Crash buffers mitigate the consequences (leakage, fire) of accidental impacts at speeds over 12 km/h.
4. In a discussion on several accident reports notified to OTIF the usefulness of crash buffers has been indicated, for example:
 - report of the 9th meeting of the Working Group on Tank and Vehicle Technology (Berne, 14 and 15 May 2008) OTIF/RID/CE/GT/2008-A, paras. 20-24 on a chlorine accident in Ledsgård;
 - report of the 11th meeting of the Working Group on Tank and Vehicle Technology (Berne, 18 and 19 May 2010) OTIF/RID/CE/GT/2010-A, paras. 29-32 on an accident in Barendrecht;
 - report of the 1st session of the RID Committee of Experts' standing working group (Riga, 12 – 15 November 2012) OTIF/RID/CE/GTP/2012-A, paras. 96-100 on an accident near Zwijndrecht.
5. As many/most collisions happen at a wagon speed of less than 40 km/h these devices are quite effective as well.
6. The average extra costs of having crash buffers on a wagon, compared to other buffers, are quite low (4 x ca. 1000 € extra costs per wagon).

Existing crash buffer requirements for tank-wagons

7. In RID crash buffers according to special provision TE 22 are already required for:
 - (a) tank-wagons and battery-wagons constructed from 1 January 2005 for the carriage of toxic gases of Class 2;
 - (b) tank-wagons constructed from 1 January 2005 for the carriage of substances of classes 3 to 8 carried in the liquid state, assigned to tank code L15CH, L15DH or L21DH (liquids of packing group I);
 - (c) tank-wagons and battery-wagons constructed from 1 January 2007 for the carriage of flammable gases of Class 2;
 - (d) tank-wagons wagons constructed from 1 January 2007 for the carriage of substances of classes 3 to 8 carried in the liquid state, assigned to tank code L10BH, L10CH or L10DH (liquids of packing group I).

Note: Tank-wagons and battery-wagons constructed before 1 January 2005, for substances mentioned under (a) and (b) had to be refitted with less energy absorbing crash elements (i.e. each end of wagon capable of absorbing at least 500 kJ instead of 800 kJ of energy) at the latest on 31 December 2012.

Next step

8. In the view of the Netherlands it is worth considering the obligation to have crash buffers on more categories of tank-wagons intended for the carriage of dangerous goods, and not only on those mentioned under 7, in order to mitigate the consequences (leakage, fire) of accidental impacts at speeds over 12 km/h.
9. On 1 January 2005 special provision TE 22 was introduced for tank-wagons for more hazardous dangerous goods to start with, to get more experience in practice. On 1 January 2007 more categories of dangerous goods were included. Furthermore it was recognised that existing wagons could also be equipped with (less) energy absorbing crash elements.
10. To avoid/mitigate the negative consequences of accidental impacts at rather low speed and bearing in mind that in general, the tanks of tank-wagons intended for less dangerous goods are weaker than tanks of tank-wagons intended for more dangerous goods, we believe that other categories of tank-wagons for liquids and liquefied gases should be protected by crash buffers as well.
11. This extension of special provision TE 22 to other categories of tank-wagons could be done by the step-by-step approach mentioned under 9. Based on this approach the Netherlands has prepared the following proposals:
 - Proposal 1 means that tank-wagons and battery-wagons constructed before 1 January 2007, for substances mentioned under 7 (c) and (d), must be refitted with energy absorbing crash elements. The text of proposal 1 is structured in a similar way as has been done for tank-wagons and battery-wagons constructed before 1 January 2005, for substances mentioned under 7 (a) and (b).
 - The aim of proposal 2 is to protect tanks of tank-wagons intended for substances other than those mentioned under 7. The text of proposal 2 is structured in a similar way as has already been done in RID in the past for other types of tank-wagons.

Proposal 1

12. At the end of 1.6.3.27 (b), insert the following sentences:

"However, by no later than 31 December [2018], they shall be fitted with the devices defined in special provision TE 22, which shall however be capable of absorbing at least 500 kJ of energy at each end of the wagon.

However, for tank-wagons and battery-wagons to be submitted to a periodic inspection in accordance with 6.8.2.4.2 or 6.8.3.4.6 between 1 January [2019] and 31 December [2021], this retrofitting may be carried out not later than 31 December [2021]."

Proposal 2

13. In column (13) of Table A of Chapter 3.2, insert "TE22" against:
 - gases of Class 2 with classification codes containing the letter A or O and authorised for carriage in tanks and
 - substances of classes 3 to 9 carried in the liquid state and to which tank code LGAV,

LGBV, LGBF, L1.5BN, L4BN, L4BH or L4DH is assigned in column (12) of Table A of Chapter 3.2.

14. In 1.6.3.27, insert a new subparagraph (c) to read as follows:

"(c) For tank-wagons and battery-wagons

- for gases of Class 2 with classification codes containing the letter A or O and
- substances of classes 3 to 9 carried in the liquid state and to which tank code LGAV, LGBV, LGBF, L1.5BN, L4BN, L4BH or L4DH is assigned in column (12) of Table A of Chapter 3.2,

constructed before 1 January 2015 and which do not conform to the applicable requirements of special provision TE 22 of 6.8.4 in force from 1 January 2015, may still be used. However, by no later than 31 December [2018], they shall be fitted with the devices defined in special provision TE 22, which shall however be capable of absorbing at least 500 kJ of energy at each end of the wagon.

However, for tank-wagons and battery-wagons to be submitted to a periodic inspection in accordance with 6.8.2.4.2 or 6.8.3.4.6 between 1 January [2019] and 31 December [2021], this retrofitting may be carried out not later than 31 December [2021]."

Note by the Secretariat of OTIF:

Bearing in mind the substances to which special provision TE 22 is already assigned, and those substances concerned by this proposal, the following, to which special provision TE 22 does not need to be applied, even in future, remains:

- substances of classes 3 to 9 carried in the liquid state and to which tank code L2.65CN, L4BV, L4DN, L4DV or L10BN is assigned in column (12) of Table A of Chapter 3.2.

The proposal does not say why crash buffers should not be prescribed for these substances, but this is presumably just an oversight.

Justification

Safety

15. Crash buffers are quite helpful in mitigating the consequences (leakage, fire) of accidental impacts at speeds over 12 km/h. As many/most collisions happen at a wagon speed of less than 40km/h, these devices are quite effective as well.

Feasibility

16. In Europe several thousand tank-wagons and battery-wagons are concerned A transitional measure would make it possible to introduce the crash buffers in several stages. Discussion in the past has shown that old wagons can be provided with crash buffers with a somewhat reduced level of crash resistance compared to new wagons. The extra costs of having crash buffers on a wagon, compared to other buffers, are quite low.

Enforceability

17. The substances carried, the tank codes and crash buffers are recognisable during carriage. In this way the proposed provision is enforceable, as has been shown in the past for the existing requirements.