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agenda item 7)

TANKS

Tank codes for certain substances of Class 3

Transmitted by the International Union of Railways*

The secretariat has received from the Central Office for International Carriage by Rail (OCTI) the proposal reproduced below.

SUMMARY

Executive summary:

Flammable liquids of Class 3, packing group I, with a vapour pressure of not more than 1.75 bar at 50° C may be carried in RID/ADR tanks with tank code L1.5BN. In view of the high vapour pressure of these substances, a test and design pressure and a working pressure of the safety valves of 1.5 bar is considered to be very low.

Action to be taken:

For substances of Class 3, packing group I, with a vapour pressure of not more than 1.75 bar at 50° C, tanks with tank code L4BN should be provided.

* Circulated by the Central Office for International Carriage by Rail (OCTI) under the symbol OCTI/RID/GT-III/2004/11.

Proposal

4.3.4.1.2 Include the following amendments under tank code L1.5BN in column 4:

– first entry, read:

“II, vapour pressure at 50° C > 1.1 bar”.

– second entry, read:

“III, flash-point < 23° C, viscous, vapour pressure at 50° C > 1.1 bar, boiling point > 35° C”.

– third entry, read:

“II, vapour pressure at 50° C > 1.1 bar”.

Include the following amendments under tank code L4BN in column 4:

– first entry, read:

“I, III, boiling point > 35° C”

– third entry, delete:

“vapour pressure at 50° C > 1.75 bar”.

Consequential amendments:

6.8.2.1.14 (c) Replace “but not more than 175 kPa (1.75 bar) (absolute pressure)” by “and a boiling point of more than 35° C”.

6.8.2.1.14 (d) Replace “having a vapour pressure of more than 175 kPa (1.75 bar) (absolute pressure)” by:

“having a boiling point of not more than 35° C”.

6.8.2.7.7 Replace “but not exceeding 175 kPa (1.75 bar) (absolute)” by:

“and a boiling point of more than 35° C”.

6.8.2.2.8 Replace “a vapour pressure of more than 175 kPa (1.75 bar) but not exceeding 300 kPa (3 bar) (absolute) at 50° C” by:

“a boiling point of not more than 35° C”.

Chapter 3.2

Table A

Replace tank code “L1.5BN” by “L4BN” in Column (12) for the following entries:

UN Nos. 1155, 1167, 1218, 1280, 1302, 2356, 2363 and 3336 (PG I).

All entries for which special provision 640A or 640B appears in Column (6) may be grouped in a single row and include the following amendments:

- in Column (2), delete “(vapour pressure at 50° C more than 175 kPa)” in the row with special provision 640A;
- in Column (6), delete “640A” in the row with special provision 640A;
- delete completely the row with special provision 640B.

This amendment concerns the following UN numbers:

1133, 1139, 1169, 1197, 1210, 1263, 1266, 1267, 1268, 1286, 1287, 1308, 1863, 1866, 1989, 1993, 2059 and 3295.

- delete “but not more than 175 kPa” in all entries where special provision 640C appears in Column (6).

This amendment concerns the following UN numbers:

1133, 1139, 1169, 1197, 1210, 1224, 1263, 1266, 1267, 1268, 1286, 1287, 1306, 1308, 1863, 1866, 1987, 1989, 1993, 1999, 3295 and 3326.

In Column (2), replace “(vapour pressure at 50° C more than 175 kPa)” by “(boiling point not more than 35° C)” in all entries where special provision 640F appears in Column (6).

This amendment concerns the following UN numbers:

1133, 1139, 1169, 1197, 1210, 1263, 1266, 1286, 1287, 1306, 1866, 1993 and 1999.

In Column (2), replace “but not more than 175 kPa” by “boiling point of more than 35° C” in all entries where special provision 640G appears in Column (6).

This amendment concerns the following UN numbers:

1133, 1139, 1169, 1197, 1210, 1263, 1266, 1286, 1287, 1306, 1866, 1993 and 1999.

Justification

The working group on tank and vehicle technology mandated by the RID Committee of Experts has for years been considering proposals for improving the safety of the carriage of dangerous goods by rail, particularly in tank-wagons. The possibility has also been discussed of

only using tank-wagons with a test and design pressure of not less than 4 bar in the future. The great advantage of a provision of that nature is that not only the tanks but also the equipment, particularly the dome cover, should be designed for 4 bar (see also the addition to 6.8.2.2.4 to enter into force on 1 January 2005 for tank-wagons). Domes with a single loading-arm are therefore ruled out and only domes with three or four attachment points will be concerned.

During the discussion in the working group it was suggested that this condition should only be introduced initially for tanks intended for the carriage of substances with a high vapour pressure. It was therefore proposed that tank code L4BN should be used for all substances of Class 3 with classification codes F1 and D and packing group I; this means that tank code L4BN instead of L1.5BN will also be required for substances of packing group I with a vapour pressure of not more than 175 kPa at 50° C. These are liquids with a low boiling point, such as isoprene (34° C) and propylene oxide (34° C). In practice, these liquids are already currently carried in tank-wagons with a test pressure of 4 bar or even 10 bar. It should also be pointed out that tank instruction T11 (minimum test pressure 6 bar!) is prescribed for the carriage of these substances in portable tanks.

If this principle is adopted, the relevant amendments must be made to the table in 4.3.4.1.2, column 4. The vapour pressure limit of 175 kPa should then be replaced by the boiling point limit of 35° C in 6.8.2.1.14 and 6.8.2.2.7.

The tank code should be amended from “L1.5BN” to “L4BN” for eight pure substances of Class 3.

For the entries for mixtures, to which special provision 640 applies, the two entries for packing group I can be grouped together. Special provisions 640A and 640B thus become superfluous.

For viscous mixtures, to which provisions 640F or 640G apply, it is proposed that the vapour pressure limit of 175 kPa should be replaced by the boiling point limit of 35° C.

Safety: The application of a higher tank code is an efficient means of increasing the safety of carriage of these very volatile and readily combustible substances.

Feasibility and enforceability: Practice has already shown that no problems in fact exist.
