



Economic Commission for Europe**Inland Transport Committee****Working Party on the Transport of Dangerous Goods****Joint Meeting of the RID Committee of Experts and the
Working Party on the Transport of Dangerous Goods**

Geneva, 21 September – 1 October 2021

Item 2 of the provisional agenda

Tanks**Filling degree of substances carried at and above 50 °C****Transmitted by the Government of the Netherlands* ** ******Summary*

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| Executive summary: | The requirements concerning the filling degree of substances above 50 °C do not represent the practice. |
| Action to be taken: | Amend 4.3.2.2.3 in line with 4.2.1.9.5. |
| Related documents: | Informal document INF.12 of the March 2021 session of the RID/ADR/ADN Joint Meeting and paragraphs 19 to 21 of ECE/TRANS/WP.15/AC.1/160/Add.1. |

Introduction

1. Recently in the Netherlands an incident occurred in which a substance was spilled from a tank due to overfilling. The tank was filled with a molten substance above 50 °C, that solidified during carriage and was liquefied again by heating above the initial filling temperature not far from the intended point of discharge. In the leg of the journey from the point of heating to the point of discharge the spill occurred.

2. It was noted that the wording of 4.3.2.2.3 only regulated a filling degree of 95 % if the tank would be equipped with a heating device. Also, it was noted that it would not be allowed to heat up above the filling temperature, what is not the practice. Based on a discussion on informal document INF.12 at the March 2021 session of the Joint Meeting it

* A/75/6 (Sect.20), para 20.51.

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was suggested to redraft 4.3.2.2.3 in line with 4.2.1.9.5 that is less restrictive and more appropriate.

Proposal

Amend 4.3.2.2.3 to read:

“4.3.2.2.3 The provisions of 4.3.2.2.1 (a) to (d) above shall not apply to tanks carrying liquids at a temperature above 50 °C.

The degree of filling of;

- liquid substances carried at a temperature above 50 °C;
- liquid substances filled below 50 °C but intended to be heated above 50 °C during the carriage operation, and
- solids carried above their melting point, shall at the outset be such that the tank is not more than 95 % full at any time during carriage.

The filling degree at filling shall be determined by the following formula:

$$\text{Degree of filling} = 95 \frac{d_r}{d_f}$$

in which d_f and d_r are the densities of the substance at the mean temperature during filling and the maximum mean bulk temperature during carriage respectively.

Tanks with a heating device shall have the temperature so regulated that the maximum filling degree of 95 % is not exceeded at any time during carriage.”

Justification

3. A practice is that substances are heated at the end of the journey before discharge. This is not always done on the point of discharge but close to the discharge point at a stop with appropriate equipment. In such situations the filling temperature and degree could be exceeded.

4. The outcome of the discussion in the Working Group on Tanks during the March 2021 session of the RID/ADR/ADN Joint Meeting confirmed that 4.3.2.2.3 could benefit of an update along the lines of 4.2.1.9.5 which is less specific that a heating system is fitted or used and does not restrict to higher temperatures than at filling as long as the filling degree is not exceeded.

5. The first sentence of the proposal applies 4.3.2.2.3 to liquids carried above 50 °C and excludes them from 4.3.2.2.1 (a) to (d). As 4.3.2.2.1 does not apply to solids in a molten state they need not be named here.

6. The second paragraph explains to which situations the provisions on 4.3.2.2.3 applies. A new situation was identified where liquids could be filled below 50 °C but were carried or discharged above 50 °C.

7. The third paragraph is mainly a copy of 4.2.1.9.5.1, tailored to fit in with the rest of 4.3.2.2.3.

8. The fourth and final paragraph addresses temperature regulation of tanks fitted with a heating device, copied from the original 4.3.2.2.3 (RID/ADR 2021).