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**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**

Bern, 14 – 18 March 2022

Item 2 of the provisional agenda

**Tanks****Instant/automatic closing stop-valves on connections to the  
vapour phase on cryogenic tanks carrying flammable gases****Transmitted by the Government of the Netherlands\*, \*\*, \*\*\****Summary*

- Executive summary:** It should be possible to stop uncontrolled outflow of gases due to unintended events during the handling of tanks. To stop the outflow the openings in gas tanks, used during handling, should be supplied with instant/automatic closing stop-valves. These stop-valves are provided on most tanks but new tank designs for the carriage of refrigerated liquefied gases like Liquefied Natural Gas (LNG) come into the market that are not so equipped.
- Action to be taken:** Prevent the approval of new tanks that do not comply with the basic safety philosophy and introduce appropriate transitional measures for existing tanks.
- Related document:** Informal document INF.13 (Autumn 2020 session of the Joint Meeting), document ECE/TRANS/WP.15/AC.1/2021/11, informal document INF.32 (Autumn 2021 session of the Joint Meeting).

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\* A/76/6 (Sect.20), para. 20.76.

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## Introduction

1. Based on findings by safety advisors involved in handling tanks with LNG the Netherlands was made aware of the issue that new designs were no longer provided with automatic closing valves on the opening that is used to regulate the pressure in the tank during filling and discharge. After investigations this was based on a possible interpretation of the provisions whether this opening/line was considered or not as a filling or discharge line.

2. The ability to stop the outflow of gases in an unintended event, like rupture of pipework or hoses, or a fire, is an essential safety aspect in particular for flammable and toxic gases. The carriage of flammable refrigerated liquefied gases is not new, but the amount increases due to the demand for natural gas and similar challenges probably also occur in the future for liquefied hydrogen.

3. The initial discussion started with informal document INF.13 at the autumn 2020 session of the Joint Meeting. Although the principle was supported it was proposed that a re-organization of 6.8.3.2 would improve the readability and solve the issue. During the discussion on the resulting document ECE/TRANS/WP.15/AC.1/2021/11 it was felt it would be beneficial to develop further the proposal in particular on the issue of the carriage of refrigerated liquefied hydrogen, appropriate transitional measures and also portable tanks according to 6.7. It was decided to establish an Ad-hoc working group but due to various reasons did not materialize up to the deadline for submission of official documents to the March 2022 session of the Joint Meeting.

4. The Netherlands is of the opinion that this issue is of such importance that it cannot await the outcome of further discussions and re-organization of 6.8.3.2, but should be resolved in RID/ADR 2023 edition, at least for Chapter 6.8. The following amendments are proposed.

## Proposals

In 6.8.4 (b) Items of equipment (TE), insert a new special provision TE to read as follows:

"TE<sub>xy</sub>: Connections of the tank in the vapour phase that are intended for the handling (filling/discharge) of flammable refrigerated liquefied gases shall be equipped with an instant closing automatic stop-valve (see 6.8.3.2.3) as close as possible to the tank."

In Table A of Chapter 3.2, introduce "TE<sub>xy</sub>" in column 13 for UN Nos. 1961, 1966, 1972 and 3312.

In Chapter 1.6 insert a new transitional measure 1.6.3.x/1.6.4.y to read as follows:

"1.6.3.x Tank-wagons/Fixed tanks (tank-vehicles) and demountable tanks constructed before 1 July 2023 in accordance with the requirements in force up to 31 December 2022, but which do not, however, meet the requirements of special provision TE<sub>xy</sub> of 6.8.4 (b) applicable as from 1 January 2023 may continue to be used for UN 1966 and may continue to be used for UN Nos. 1961, 1972 and 3312 until the first periodic inspection after 1 January 2025 according to 6.8.3.4.6 is performed."

"1.6.4.y Tank-containers constructed before 1 July 2023 in accordance with the requirements in force up to 31 December 2022, but which do not, however, meet the requirements of special provision TE<sub>xy</sub> of 6.8.4 (b) applicable as from 1 January 2023 may continue to be used for UN 1966 and may continue to be used for UN Nos. 1961, 1972 and 3312 until the first periodic inspection after 1 January 2025 according to 6.8.3.4.6 is performed."

## Justification

5. The fitting of an instant/automatic closing stop-valve is essential. However, several additional details need to be further discussed and decided upon. To allow for this discussion the date for which existing tanks need to be modified is set at 1 January 2025.

6. Cryogenic tanks (vacuum insulated) have due to the design and functioning valves not on the shell itself but outside the vacuum jacket. Low temperatures and limited space, in particular for refrigerated liquefied hydrogen, may require a different approach. For that reason, and the limited number of tanks in circulation for UN 1966, these tanks are excluded from a modification for now.

7. During the discussion of the informal working group on tanks, that met virtually on 14 December 2021, it was recognized that also UN 1961 Ethane, refrigerated liquid and UN 3312 Gas, refrigerated liquid, flammable, n.o.s. would be affected as well.

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