

**Committee of Experts on the Transport of Dangerous Goods
and on the Globally Harmonized System of Classification
and Labelling of Chemicals**

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Sub-Committee of Experts on the Transport of Dangerous Goods

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Item 6 (c) of the provisional agenda

**Miscellaneous proposals for amendments to the Model Regulations
on the Transport of Dangerous Goods:**

Portable tanks

**Clarification of the provisions on the holding time for the
transport of portable tanks with refrigerated liquefied gases,
especially when these are empty, not cleaned**

Submitted by the International Union of Railways (UIC)

I. Introduction

1. This proposal concerns tank wagons used in rail transport and tank containers and portable tanks used in combined transport with rail.
2. At its autumn 2023 session, the RID/ADR/ADN Joint Meeting discussed the proposal submitted by UIC: “Clarification of the provisions on the holding time for the carriage of tanks with refrigerated liquefied gases” (ECE/TRANS/WP.15/AC.1/2023/26).
3. In this document, UIC proposed:
 - (a) To add clarifications for tanks/tank-containers to RID/ADR/ADN 4.3.3.6;
 - (b) To submit corresponding clarifications for portable tanks in the *Model Regulations* 4.2.3.8; and
 - (c) To make explicit what is regarded as the responsibility of the consignor namely, to determine the holding time and to dispatch portable tanks which are empty not cleaned with the pressure lowered to such an extent that the pressure limiting device(s) will not activate during transport by rail.
4. Based on the proposal and the expert discussion, the Informal Working Group on Tanks of the Joint Meeting concluded the following¹:

“Item 3: Clarification of the provisions on the holding time for the carriage of tanks with refrigerated liquefied gases.”

Document: ECE/TRANS/WP.15/AC.1/2023/26 (UIC)
5. There was general support for the principle. It was agreed that the consignor is responsible for offering the empty uncleaned tank-wagons and tank-containers in a condition that the pressure relief devices are not activated during carriage.
6. It was discussed that wording along the same lines as reproduced below could be used to amend chapter 4.2.
7. The following proposal was adopted after a modification of the proposed wording and it was agreed that wording along these lines could be used in RID/ADR/ADN for portable tanks:

¹ Quoted from item3 of INF.46 on the [report of the Working Group on Tanks](#).

Proposal 4

Amend 4.3.3.5 by adding a new sentence at the end to read:

“The requirements of 4.3.3.5 need not be complied with for empty, uncleaned tanks/tank-containers.”

Proposal 5

Amend 4.3.3.6 to read (new wording underlined):

4.3.3.6 Tanks/Tank-containers shall not be offered for carriage:

- (a) In an ullage condition liable to produce an unacceptable hydraulic force due to surge within the shell;
- (b) When leaking;
- (c) When damaged to such an extent that the integrity of the tank-container or its lifting or securing arrangements may be affected;
- (d) Unless the service equipment has been examined and found to be in good working order;

and for refrigerated liquefied gases:

- (e) Unless the actual holding time for the refrigerated liquefied gas being carried has been determined;
- (f) Unless the duration of carriage, after taking into consideration any delays which might be encountered, does not exceed the actual holding time;
- (g) Unless the pressure is steady and has been lowered to a level such that the actual holding time may be achieved⁴;

(h) When empty, uncleaned, unless the pressure has been reduced to a level that ensures that the pressure relief devices will not activate during carriage⁴.”

Footnote “4” in 4.3.3.6 refers to “Guidance is provided in the European Industrial Gases Association (EIGA) document “Methods to prevent the premature activation of relief devices on tanks” available at <https://www.eiga.eu/>.” This document is also referenced in RID/ADR 4.2.3.8 concerning portable tanks, but not in the *Model Regulations*.

8. The above amendments to RID/ADR/ADN 4.3.3.5 and 4.3.3.6 were approved by the Joint Meeting. They will be submitted for formal approval for the 2025 edition of RID/ADR/ADN to the OTIF RID Committee of Experts and to the UNECE Working Party on the Transport of Dangerous Goods (WP.15) respectively.

II. Proposal

9. To obtain a simultaneous amendment of the corresponding provisions in the *Model Regulations* applicable to portable tanks, UIC submits to the Sub-Committee of Experts on the Transport of Dangerous Goods the following proposal (new text in *italics, underscored*, and text to be deleted in ~~strike through~~):

4.2.3.7.1 The actual holding time shall be calculated for each journey in accordance with a procedure recognized by the competent authority, on the basis of the following:

- (a) The reference holding time for the refrigerated liquefied gas to be transported (see 6.7.4.2.8.1) (as indicated on the plate referred to in 6.7.4.15.1);
- (b) The actual filling density;
- (c) The actual filling pressure;
- (d) The lowest set pressure of the pressure limiting device(s).

These requirements need not be complied with for empty portable tanks not uncleaned.

4.2.3.8 Portable tanks shall not be offered for transport:

- (a) In an ullage condition liable to produce an unacceptable hydraulic force due to surge within the shell;
- (b) When leaking;
- (c) When damaged to such an extent that the integrity of the portable tank or its lifting or securing arrangements may be affected;
- (d) Unless the service equipment has been examined and found to be in good working order;
- (e) Unless the actual holding time for the refrigerated liquefied gas being transported has been determined in accordance with 4.2.3.7 and the portable tank is marked in accordance with 6.7.4.15.2; ~~and~~
- (f) Unless the duration of transport, after taking into consideration any delays which might be encountered, does not exceed the actual holding time; and
- (g) When empty not cleaned, unless the pressure has been reduced to a level that guarantees that the pressure limiting device(s) will not activate during transport.

10. The addition "and for refrigerated liquefied gases:" as done in RID/ADR 4.3.3.6 is not necessary for 4.2.3.8, because this paragraph falls under 4.2.3, which is exclusively for refrigerated liquefied gases. Therefore, only the addition of (g) is required for the paragraph to be aligned with RID/ADR 4.3.3.5 and 4.3.3.6.

III. Justification

11. In transport of tanks, tank-containers or portable tanks for refrigerated liquefied gases that are empty not cleaned, it occurs on a regular basis that during transport the pressure relieve device(s) are activated.

12. Although experts are well aware that the activation of pressure limiting device(s) by residual refrigerated liquefied gases does not pose a hazard, transport is not accompanied by these experts. It therefore occurs that vigilant non-experts (for example railway personnel or citizens near the track side, such as in railway stations) notice the activated pressure limiting device(s) and sound the alarm. As a consequence, railway operations are usually severely affected due to track closures and fire brigade deployments.

13. UIC and the European Industrial Gases Association (EIGA) are in agreement that this is a problem, especially with the transport of refrigerated liquefied gas residues and that this is mostly due to residual pressure in tanks not being sufficiently lowered for empty runs.

14. In railway transport, the following refrigerated liquefied gases are the most affected by the problem: UN 1951 ARGON, REFRIGERATED, LIQUID, UN 1977 NITROGEN, REFRIGERATED, LIQUID and UN 2187 CARBON DIOXIDE, REFRIGERATED, LIQUID.

15. In road transport (or during the road-based part of a combined rail-road transport) this problem does not occur, as the driver can take the necessary measures to reduce the pressure.

16. To reduce these occurrences, additional provisions have been included in the EIGA guidance document "Methods to prevent the premature activation of relief devices on transport tanks". For example, Appendix A "Example of a Tank Wagon/Portable Tank/Tank Container inspection sheet" was introduced, which lists, among other items, product-related residual pressures for the transport of empty tanks.

17. In addition to the problem of premature activation of pressure relive device(s), it is not always clear either to competent authorities or employees that return the empty refrigerated liquefied gases tanks/tank-containers/portable tanks from the unloading site, that

the holding time only has to be determined when these are filled². With the amendment of RID/ADR 4.3.3.5 , the Joint Meeting has clarified that for tanks/tank-containers.

18. With the amendments to RID/ADR 4.3.3.6, UIC sought to clarify what action shall be taken before transport of tanks/tank-containers that are empty not cleaned, to prevent the premature activation of the pressure limiting device(s).

19. As the described problems also apply to portable tanks for refrigerated liquefied gases used in multi-modal transport, UIC proposes the above corresponding amendments to the *Model Regulations*.

20. The requested amendments to the *Model Regulations*:

- (a) Will minimise the risk of the undesirable opening of pressure limiting devices during transport of empty not cleaned portable tanks;
- (b) Clarify when the holding time shall be determined and when not, while keeping the changes simple and to a minimum.

² See paragraph 12 in the report of the working group on tanks ECE/TRANS/WP.15/AC.1/164/Add.1.