

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, 17-27 September 2013

Item 2 of the provisional agenda

Tanks

23 September 2013

Holding times for the carriage of refrigerated liquefied gases

Transmitted by the European Industrial Gases Association

Introduction

In the annex of the Report of the Joint Meeting of the RID Committee of Experts and the Working Party on the Transport of Dangerous Goods on its spring 2013 session.

Annex I

Report of the Working Group on Tanks

Item 10: Informal document INF.4 (EIGA) – Holding times for the carriage of refrigerated liquefied gases

22. The Working Group referred to the discussion on documents 2012/1 (UIC) and INF.32 (EIGA) at the March 2012 session. The causes of premature activation of safety valves in the carriage of refrigerated liquefied gasses were subdivided into operational issues and construction and inspection issues.

For this reason a two-tier approach was proposed by the Working Group:

- A general requirement for operational measures to avoid premature activation of the pressure relief device should be included in the regulations, which could make reference to guidance documentation developed by the industry.

This document [EIGA XXXX Methods to prevent the premature activation of relief devices on tanks.] has been produced as a draft and is attached for information; this will be published by EIGA and may be referenced in the transport regulations.

- An evaluation of the calculation methods should be carried out and an adequate method should be mentioned in the regulations as a means of fulfilling the requirements for determining the actual holding time.

As agreed EIGA has reviewed the two standards that are available EN 12213:1999 Cryogenic vessels Methods for performance evaluation of thermal insulation and ISO 21014:2006 Cryogenic vessels — Cryogenic insulation performance, the calculation methods are identical.

Recommendations for RID/ADR

ISO 21014:2006 Cryogenic vessels — Cryogenic insulation performance should be recognised as a standard that allows the actual holding time to be calculated and a note to this effect added after 4.2.3.7.2 of RID/ADR.

Add a new bullet (g) to 4.2.3.8 Unless the pressure is steady and has been lowered to a level such that the actual holding time may be achieved¹.

Add a new foot note 1.

1 See for example EIGA XXXX Methods to prevent the premature activation of relief devices on tanks.

4.2.3.7 Actual holding time

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 carried (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).

4.2.3.7.2 The actual holding time shall be marked either on the portable tank itself or on a metal plate firmly secured to the portable tank, in accordance with 6.7.4.15.2

Add a new note.

NOTE: ISO 21014:2006 Cryogenic vessels — Cryogenic insulation performance provides a method by which actual holding time may be calculated.

4.2.3.8 Portable tanks 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 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 carried 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 carriage, after taking into consideration any delays which might be encountered, does not exceed the actual holding time.

Add a new bullet.

(g) Unless the pressure is steady and has been lowered to a level such that the actual holding time may be achieved¹.

Add footnote at the bottom of the page.

1 See for example EIGA XXXX Methods to prevent the premature activation of relief devices on tanks

Recommendations for RID

Add a new

4.3.3.4.4 Control measures before carriage.

Unless the pressure is steady and has been lowered to a level such that the actual holding time may be achieved¹

Add footnote at the bottom of the page.

1 See for example EIGA XXXX Methods to prevent the premature activation of relief devices on tanks.

Draft EIGA Document

“Methods to prevent premature operation of relief devices on Tanks used for the carriage of Class 2 products.”

In this document the word Tank is applied to Tank Wagons, UN Portable Tanks and Tank Containers that are presented for carriage using various modes of transport.

Background.

There have been a number of incidents where the relief valves have operated on tanks during the journey which have caused issues either for the transport companies or has caused the involvement of competent authorities. The operation of the relief devices themselves is not a safety issue as they are designed to operate in the event of the pressure in the tank exceeding a set value.

However if there is venting of product during transport, which in itself produces noise and a vapour cloud, may in the event of a rail journey cause the train to be stopped. The journey will only continue after the pressure in the tank has been lowered, typically an engineer is called to attend and lower the pressure. This results in a delay to the transport and a possible fine for the shipper.

For UN Portable tanks in a port area the tank is usually put in a ‘safe’ area until the pressure can be lowered, once again with a delay in the transport.

This is not an issue when the tank is accompanied i.e. during road transport as the pressure can be controlled by the driver the issue is during transport by rail or sea.

Having drawn on the experience of experts what is important to achieve the maximum holding time for any tank, is to ensure it is cooled down correctly prior to filling (if the tank is warm) and that the pressure is reduced in the tank to as low as possible as close to the point of travel as possible. To this end EIGA has developed a basic check list that can be used for any tank prior to shipping, companies however may use their own documents and procedures.

