

**Code of Practice for the safe supply of
LPG and Crude C4
In rail tank cars**

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1.0 INTRODUCTION

The purpose of this document to detail the INEOS Olefins & Polymers North safety requirements related to the supply of LPG and Crude C4 in rail tank cars (hereafter named "rtc's") for our Cologne site.

2.0 TECHNICAL REQUIREMENTS RAIL TANK CARS

The supplier must ensure that the rtc's offered, comply with all applicable national and international regulations.

The supplier shall:

- Ensure compliance with the requirements for construction, equipment, tests, inspections and marking of the rtc's according to RID
- Ensure that the maintenance of tanks and their equipment is carried out in such a way as to ensure that, under normal operating conditions, the rtc satisfies the requirements of RID until the next inspection
- Have a special check made when the safety of the tank or its equipment is liable to be impaired by a repair, an alteration or an accident.

Detailed Technical Requirements of RTC's: see annex 1

3.0 MAIN RESPONSIBILITIES ACCORDING TO RID

Typical transport classification for the products are the following:

- For LPG: UN 1965 Hydrocarbon Gas Mixture, Liquefied N.O.S. (Mixture A)
- For Crude C4: UN 1010 Butadienes and Hydrocarbon Mixture, Stabilized

These products are High consequence Dangerous Goods according RID 1.10

According to RID, the following obligations apply:

- **The consignor (Supplier)**
 - Ascertain that the dangerous goods are classified and authorized for the carriage in accordance with RID
 - Furnish the carrier with information and data
 - Use rtc's approved for and suited to the carriage of the products and bearing the markings as prescribed by RID
 - Comply with the requirements on the means of dispatch and on forwarding restrictions

- **The carrier (railway company)**
 - Ascertain that the dangerous goods are classified and authorized for the carriage in accordance with RID
 - Ascertain that the required information has been supplied by the consignor
 - Ascertain visually that the rtc's and loads have no obvious defects, leakages, cracks, missing equipment etc..
 - Ascertain that the date of the next test for the rtc's has not expired
 - Ascertain that the rtc's have not been overloaded
 - Ascertain that the placards and labels prescribed for the rtc's have been fitted

- **The filler (Loading site)**
 - Ascertain prior to filling that the tank and the filling equipment are technically in a satisfactory condition
 - Ascertain that the date of the next test of the rtc's has not expired
 - Fill only tanks with the dangerous goods authorized for carriage
 - Observe, during the filling, the permissible degree of filling
 - Check, after the filling, the leakproofness of the closing devices
 - Affix the prescribed orange plates, danger labels, markings and shunting labels on the rtc's in accordance with the requirements.

4.0 INSPECTION AND LOADING RAIL TANK CARS

- All people involved in the loading operations must be adequately trained. The training should also include basic RID requirements (construction, labelling, marking, inspection etc.. of rtc's).
- Each rtc must be inspected before and after loading. This must be done by the loading site by using a checklist. The purpose of this inspection is to ensure that:
 - The rtc is suitable for its intended use.
 - No damages or apparent deficiencies are present.
 - The applicable RID requirements are met (e.g. labelling).

- In case some of the checks cannot be done by the loading site operators then a specialised company (surveyor) must be assigned to do these checks.

If rtc's arrive at INEOS O&P in an unsuitable technical or unsafe condition, then INEOS O&P will, for each subsequent delivery, impose an inspection by a specialised company (surveyor) and, for each rtc, a completed and signed checklist, before arrival of the rtc's in Köln.

- The loading installation must ensure that all the valves of the rtc and the connections/ flanges/ couplings are leak-tight. Also the other side of the rtc must be checked. This can be done by means of a visual inspection / soap test or a vacuum or pressure test of the valves and couplings prior to loading.

- Rtc's must be weighed before and after loading to ensure that the maximum filling weight is not exceeded.

For determining the max filling weight, one must take into account:

- The allowed maximum filling weight of the tank. This is written on the side of the tank.
- Weight restrictions on the route that the rtc is to be transported (loading category). The maximum predetermined loading limit of the railway route is given by the railway transport company. If the maximum filling weight of the railway route is less than the safe maximum filing weight of the rtc, the limit of loading is the lower value.
- The amount of product can be filled also depends on the maximum filling degree according to RID regulations (which takes into account the thermal expansion).
- To prevent overfilling, the filling weight in the rtc is to be continuously monitored during the filling process (e.g. via mass flow meter). The mass flow should be continuously monitored during the filling operation.
- The rtc must be weighed before and after loading on a calibrated weighbridge
- Pressure in the rtc's: According to RID requirements. The partial pressure of inert gas (e.g. nitrogen) may not exceed 2 Bara this is 1 Barg, so the overpressure in the vapour phase may not exceed 1 bar above the normal vapour pressure of the product at the temperature of the liquid. Example: if temperature of the liquid is 20°C and vapour pressure at 20°C is 3 bara (2 barg), the max pressure in the rtc may not exceed 3 barg (2+1).
- The connections must be sealed, preferably with tie-raps, on both sites of the rtc, in order to warn against unauthorized opening.

5.0 EMERGENCY RESPONSE

The supplier must provide to INEOS O&P an emergency telephone number that can be contacted on a 24/7 basis in case of emergencies. Therefore the supplier needs to provide Ineos O&P North with his Emergency telephone Number. Please send nr to SHE Department: SHE.Logistics.North@ineos.com

Annex 1: TECHNICAL REQUIREMENTS RAIL TANK CARS

The customer must ensure that the rtc's offered, comply with all applicable national and international regulations.

The customer shall:

- **Recommendation:** maximum age of rtc's: 30 years
- **Required:** use of rtc's with silent brakes (LL or K brake blocks)
- **Required:** hydraulic operated bottom valves
- Only devices with a ATEX category 2, temperature class T3 corresponding with Directive 2014/34 EU (ATEX), at least ATEX marking Ex II 2 G ex ib IIB T3 Gb or better. The responsible persons required to comply with the ex-protection are operators of the mobile equipment (e.g. railtank cars, containers, carrying wagon). This applies to in particular for any special features listed in the operating instructions conditions with regard to explosive protection (letter "X" behind the ATEX certification number).

Requirements tank atmosphere:

- All rtc's must arrive on site under product atmosphere
- Nitrogen shall not be present in the rtc's
- In case of any deviation from the above, INEOS O&P must be informed in writing before arrival of the rtc's on site.

Requirements outlet connections:

- Flange DN 80/ DN 50
- Or WECO (ACME) DN80/DN50

Distance of connections:

