INEOS Olefins & Polymers Europe

Code of Practice for the safe supply of LPG and Crude C4

In rail tank cars

Issue 7
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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 2

3.0 MAIN RESPONSIBILITIES ACCORDING TO RID

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 or the maximum permissible mass of the contents per litre capacity for the substance being filled
  - 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.
  - Observe, before and after filling, the applicable checking requirements for liquefied gasses according to RID 4.3.3.4 See also Annex 1

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 checks to be done are listed in the checklist in annex 1 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.

Annex 1: CHECKLIST FOR LOADING GAS RAIL TANK CARS

Note L/R means: Left and Right side of rtc

1.Identification		
1.1 Number rtc		
1.2 Number rtc in accordance with loading order.	YES	NO
1.2 Loading ref nr		
1.3 Product **(example LPG)**		
1.5 Danger placards (L/R) present: right numbers and in good condition **(example LPG)**	☐	**23** **1965**
1.6 Danger labels (L/R) present and in good condition	☐	
1.7 Date of next tank inspection,		
1.8 Date of next revision chassis/ underframe		
1.9 Test/ revision dates not expired		
1.10 Tare weight according to Inscription board		
1.11 Tare weight after weighing empty rtc		
1.12 The RTC is authorised to carry the gas to be loaded		

2. BEFORE LOADING	**YES**	**NO**	**N/A**
2.1 Inscription board/ wagon plate is in good condition and inscriptions are readable (L/R)			
2.2 RTC is free of visual damage- general condition is OK			
2.3 Orange band at the sides present			
2.4 Sunshield OK			
2.5 Condition footboard/ steps OK			
2.6 Condition crossing bridge OK			
2.7 Handbrake in good condition and operational			
2.8 Air Brake hose and coupling OK			
2.9 Screw couplings OK			
2.10 Brake system OK (brake shoes not worn out)			
2.11 Buffers OK (crash buffers operational)			
2.12 Axle box housing/ bearing OK – no signs of overheating			
2.13 Springs OK			
2.14 Wheels, wheel flange surface OK (no damages/ no flat wheels)			
2.15 Earthing plate present			
2.16 Railhook cable/ ring present and in good condition			
2.17Earthing lugs between chassis and tank present and in good condition			
2.18 Rtc marked with non conformity note Railways ? If yes:Which model of note …… Which defect/damage …… Action to take: ……			

2.19 Data regarding the gases that are allowed to be carried that are mentioned on the stainless steel plate are in accordance with the data on the inscription panel (RID 4.3.3.4.1)			
2.20 Markings inscription board/chassis and barrel are properly readable (L/R)			
2.21 Right product name marked on wagon (L/R)			
2.22 Last product in rtc has been checked (on the basis of transport document or analysis) (RID 4.3.3.4.1)			
2.23 The mass of residue in the rtc has been determined by weighing and has been taken into account to determine the loading weight (RID 4.3.3.4.1)			
2.24 Max weight to be loaded is in accordance with max weight limits			
2.25 Flange connections: DN 80 for liquid phase and DN 50 for gas phase (L/R)			
2.26 Flange connections marked Liquid/ Gas (L/R)			
2.27 Visual condition of (flange) connections, bottom valve, outlet valve and tank OK (L/R)			
2.28 Bottom valve operating instructions present (L/R)			
2.29 Bottom valve operation mechanism OK (L/R) (RID 4.3.3.4.1) Indicators OK (L/R) emergency screw in right position (cap in place and sealed for mechanical bottom valves, screws present in oil reservoir for hydraulical bottom valves) No signs of leaking hydraulic oil			
2.30 Outlet/discharge valves (gas- and liquid phase) on opposite side of rtc (side not used for loading) closed, secured and sealed			
2.31 Gaskets in blindflanges on opposite side of the rtc (gas and liquid phase) are in good condition and suitable for the purpose and flanges are properly bolted/ tightened (bolt of suitable length in each bolt hole). (RID 4.3.3.4.1)			
2.32 Visually no leaks of valves, flanges, manlid, tank..OK (RID 4.3.3.4.1)			

3. AFTER Loading	**YES**	**NO**	**N/A**
3.1 Closing sequence of valves observed (from inside to outside)			
3.2 Outlet/ discharge valves loading site closed, secured and sealed			
3.3 Bottom valves closed (indicators in ‘closed’ position) , secured and sealed (L/R)			
3.4 Visually no leaks of all valves (L/R), flanges (L/R), manlid, tank.. (RID 4.3.3.4.1)			
3.5 Gaskets blindflanges loading site (gas and liquid phase) replaced by new ones which are suitable for the purpose and blindflanges are properly bolted/ tightened (bolt with suitable length in each bolt hole) (RID 4.3.3.4.1)			
3.6 All bolts in flanges of sufficient length (The length of the bolts in the flanges must protrude at least two threads above the nuts)and properly tightened			
3.7 Right product indication and danger labels in place			
3.8 The partial pressure of inert gas (e.g. nitrogen) does not exceed 2 Bara (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). (RID 4.3.3.4.1)			
3.9 Pressure rtc at departure: bar	…bar		

3. AFTER Loading	YES	NO	N/A
3.10 Weight rtc after loading (RID 4.3.3.4.1)			
3.11 Max filling degree/ weight is OK (RID 4.3.3.4.1)			

4.Remarks:

Annex 2: 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:

- 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.
- Ensure that all valves are operable and leak tight.
- 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.
- Required: use of rtc´s with silent brakes (LL or K brake blocks)
- Required: maximum age of rtc's: 30 years
- Required: hydraulic operated bottom valves are installed (emergency screw (Notentleerungschraube/ Vis de dégivrage) or alternative system)
- 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: