

Appendix 1

Design and Construction of Rail Tank Wagons (RTC'S)

3. Equipment

3.1. Manholes

For inspection purposes the tank must be fitted with at least one manhole of not less than 460 mm diameter, which shall be located away from any main seam in the tank shell. Man lids should be of the flat bolted type.

3.2. Pressure/vacuum relief

3.2.1. The national rail regulations of some European countries prohibit passage through tunnels of RTC's carrying toxic substances when fitted with pressure relief valves. Hence pressure relief valves are not normally fitted.

3.2.2 Vacuum relief valves should not be fitted.

It is recommended to design the tank to withstand full vacuum conditions. If not, the tanks should at least be designed for partial vacuum (0,5 bar a)

3.3. Filling/discharge and vapour return fittings

3.3.1. All openings in the tank shell must be above the surface level of the liquid. No pipes or pipe connections should pass through the walls of the shell below the surface level of the liquid.

3.3.2. The filling/discharge and vapour return connections must be on top of the tank and should incorporate an isolating valve. A ball valve is preferred. The handle of the ball valve should incorporate a locking pin/device to avoid product release by accidentally moving the valve handle. The connections shall be closed by a blanked flange. Material of these connections should be similar to that of the tank shell.

For environmental and operational reasons, "DRY DISCONNECT COUPLINGS" for loading and unloading can be used.

For current information on the recommended type of "DRY DISCONNECT COUPLING", contact the Secretariat of the CEFIC Acrylonitrile Technical Working Group.

The recommended dimensions of the top connections are:

Liquid phase (dip tube): DN 80

Vapour return: DN 50

These connections must be marked with colour codes:

Red for liquid

Blue for vapour

In addition, the names 'dip tube' and vapour return (or 'pressure connection') should be marked in German/French or English.