GATX Rail Europe

Operating Manual

for Chemical Tank Cars

Type 5465

LEADING RAILCAR SOLUTIONS

GATX Rail Germany GmbH
Valentinskamp 70
20355 Hamburg
Germany

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Issue 1, V 1.0

The technical information and notes contained in these operating instructions correspond to the current status of the tank car.

Date	Version	Remarks
2021-11-19	1.0	BA 5465 Approval version

1 Introduction

1.1 Owner and ECM: GATX Rail Europe

GATX Rail Europe (GRE) was founded in 2006 and encompasses GATX Rail Austria, GATX Rail Germany, GATX Rail France and GATX Rail Poland. We are part of the American GATX Corporation, one of the world's largest owners of private freight cars, which was founded in 1898. Since this time, GRE's core business has been the leasing of tank wagons to industrial users, freight forwarders and railway undertakings.

GRE has a diversified and high-performance fleet of over 26,000 wagons, one of the largest fleets of privately owned wagons in Europe. This fleet is constantly modernised through new constructions and conversions. The wagons are tailored to the needs and requirements of shippers, meet the standardisation regulations and comply with national and international legislation.

Our long-term success is the result of the committed and efficient deployment of our employees and material. GRE employees offer a wealth of experience and extensive specialist knowledge of the private freight wagon business. At the same time, they are highly motivated and are thus a crucial factor of our success. GRE's organisational structure guarantees fast and short decision paths plus flexible solutions.

The GATX fleet includes chemical tank cars with a capacity of 20 to 95 m³ for transporting chemical products. They are equipped with various types of loading and unloading facilities. This diversified wagon group's tanks are manufactured from stainless steel, aluminium and carbon steel. The interior of the tanks can be optionally equipped with various types of coating.

The tank wagons meet all legal and standardisation requirements for transporting HAZMAT (hazardous materials) and running on all standard gauge European railway lines. The tank wagons are manufactured according to the most stringent standards of quality and safety.

GRE is certified according to ISO 9001 and ECM.

1.2 About this operating manual

These instructions are aimed at fillers and unloaders, and describe how to operate the tank wagon safely and efficiently. Adherence to all safety information and handling instructions is a prerequisite for safe work and proper handling.

The manual is included in the delivery. Appropriately instructed staff must carefully read and ensure they understand this manual before beginning any work.

The local accident prevention regulations and general safety provisions applicable at the location of use of the wagon must also be observed.

1.3 Presentation conventions

The various presentation conventions used in this operating manual are explained below.

1.3.1 Presentation of safety information

Safety information is marked by a symbol and a signal word. Hazards are classified into four levels.

All safety information is structured according to the same four-level pattern.

⚠DANGER

Hazard source

Consequences if disregarded.

– Measures for eliminating hazard.

The safety information DANGER designates an immediate danger.

If it is not avoided, fatal or severe injuries will result.

⚠WARNING

Hazard source

Consequences if disregarded.

– Measures for eliminating hazard.

The safety information 'WARNING' indicates a potentially hazardous situation.

If the situation is not avoided, serious injury or death may occur.

⚠CAUTION

Hazard source

Consequences if disregarded.

– Measures for eliminating hazard.

The safety information 'CAUTION' indicates a potentially hazardous situation.

If the situation is not avoided, minor or moderate injury may result.

NOTICE

Hazard source

Consequences if disregarded.

– Measures for eliminating hazard.

The safety information NOTICE! indicates a potentially harmful situation.

If the situation is not avoided, material damage to the wagon, the filling material or the surroundings could occur.

1.3.2 Presentation of special information

Special information is marked by the following symbol in this operating manual.

🛈Information

Tips for use and important supplementary information.

1.3.3 Presentation of handling instructions and lists

Handling instructions prompt you to do something.

The conditions that must be met before you can begin an action are given under '**Prerequisites**'.

Handling instructions which must be followed in a specific order are numbered:

1. Action 1
2. Action 2
3. Action 3

Handling instructions which can be followed in any order are marked by dashes:

– Action
– Action
– Action

List items are marked by bullets:

- Part 1
- Part 2
- Part 3

1.4 Definitions

1.4.1 Abbreviations

GCU

The General Contract for Use of Wagons (GCU) is a multilateral contract based on railway law which regulates the use of freight wagons in the network of the member railways.
It entered into force on 1 July 2006 as the successor to the RIV.

ECM

Entity in Charge of Maintenance as per the current EU directive.

EN standards

The European standards (EN) are standard engineering practices which have been ratified by the EU.

RID

The 'Regulations concerning the international carriage of dangerous goods by rail' regulates the transport of dangerous goods by rail.

The latest version of the RID can be found at: www.otif.org.

TSI-WAG

The technical specifications for interoperability (TSIs) are technical regulations with a legal nature defined by the European Commission for interoperable rail transport across Europe.

UN number

The UN number is an identification number for unique identification of dangerous goods according to RID.

2 Safety

2.1 Intended use

This tank wagon complies with the stipulations of the WAG TSI, valid UIC leaflets, the stipulations of the treaty on the exchange and use of freight cars in international traffic GCU plus the applicable EN standards.

The vehicle is unreservedly intended for operation on all standard gauge European railway lines.

This freight car is a GATX type 5465 chemical tank car. The tank is approved for tank code S1,5AV. The transport of products as per tank code S1,5AV is only permissible in the event of compatibility with the materials of the tank lining and the fittings including the seals. Only loads approved by GATX for this chemical tank car may be transported.

At most, the chemical tank car may be filled with the maximum permissible weights specified in the load table and to the maximum permissible filling degree arising from the RID.

Refer to the separately provided documents for the technical data and specific equipment of the wagons.

Proper use includes the observance of these and all other operating instructions provided as well as adherence to all specified inspection and maintenance intervals.

All other uses of the chemical tank car are improper.

2.2 Cleaning the wagon

Cleaning of the tank interior and the fittings may only be carried out by an authorised cleaning company.

2.3 Obligations according to RID

All of the safety obligations listed under point 1.4 of the "Regulations concerning the International Carriage of Dangerous Goods by Rail" (RID) must be adhered to by the parties concerned.

Information

The filler and unloader must ensure the proper functioning of the closures and the leaktightness of all locking facilities before and after filling and discharge.

Recommendations and guidelines in the form of checklists are available at www.otif.org.

2.4 Basic safety information

⚠WARNING

Risk of fire and explosion due to static charging

The tank may become electro-statically charged during filling, discharge and cleaning; this may trigger explosions or fires.

– During filling, discharge and cleaning, establish a highly conductive connection between the tank's earthing plate and the station.

⚠WARNING

Risk of sustaining a fatal injury when entering the tank

Entering the tank may result in death or severe injury.

The atmosphere in the tank may be toxic or asphyxiating (for example, nitrogen/N_2 or other asphyxiating gases and atmospheres).

Operators are prohibited from entering the tank.

Only authorised personnel may enter the tank. Bear the following in mind:

– Adhere to the operating safety regulations.
– Wear personal safety equipment corresponding to the product-specific safety regulations.
– Before entering: test the atmosphere in the tank.
– Only enter the tank if a second person situated outside the tank maintains contact with you.
– In the event of respiratory problems, exit the tank as quickly as possible.

⚠WARNING

Risk of injury when filling or discharge of pressurised tanks

The escape of pressurised product can cause severe injuries.

– Operate the tank wagon as per the local safety and operating instructions.
– Connect the product hose before pressurising.
– Always connect the hose connections carefully.
– Secure the hose connections with the catches provided.
– Do not release hose connections during filling or discharge.

2.5 Product-specific safety information

⚠WARNING

Risk of injury due to product

Product can cause severe injuries on direct contact.

– Avoid direct contact with the product.
– Wear personal safety equipment.
– Observe the product-specific safety regulations.
– Adhere to the operating safety regulations.

NOTICE

Material damage due to overflowing filling material

Overflowing filling material can cause damage to the wagon and the environment.

– Observe the level in the tank when filling.
– Properly remove any overflowed product on completion of filling or discharge.

NOTICE

Material damage due to overfilling

Overfilling can damage the tank or the wagon.

The load capacity is determined from the load limits written on the tank minus the remaining load in the tank.

– Before filling, determine the weight or volume of the remaining load.

2.6 What to do in an emergency

Preventive measures

- Comply with these operating instructions and adhere to the applicable safety information.
- Observe all applicable product-specific safety regulations.
- Comply with the operating safety regulations.
- Wear personal safety equipment corresponding to the product-specific safety regulations.
- Keep first aid equipment (first aid box, blankets, etc.) and fire extinguishers plus further necessary equipment as per the product-specific safety regulations ready to hand.
- Familiarise yourself with the location and use of safety, accident reporting, first aid and rescue equipment.

2.6.1 Measures in the event of personal injury

In an emergency

Comply with all applicable local emergency regulations. Immediately implement all necessary steps and necessary first aid measures as per the applicable regulations and laws, especially:

1. Cease filling, discharge or cleaning.
2. Rescue persons from the danger zone.
3. Implement first aid measures.
4. Alarm a physician and the fire brigade.
5. Keep access routes free for emergency vehicles.
6. Inform the person responsible at the operating site.

First aid measures

- On contact with product: see product-specific safety regulations. Implement all suitable measures based on the applicable regulations.
- Immediately decontaminate skin and clothing. Remove any soaked clothing.
- In the event of product release and fire: see product-specific safety regulations. Implement all suitable measures based on the applicable regulations.

2.6.2 Measures in the event of product overflow

If the product overflows during filling or discharge, comply with all local, applicable emergency regulations. Immediately implement all necessary steps/first aid measures as per the applicable regulations and laws, especially:

1. Cease filling or discharge.
2. Inform the person responsible at the operating site.
3. Remove or neutralise overflowed product according to the product-specific safety regulations and valid law.
4. Discharge overfilled tanks to the permissible filling level.
5. Check non-rubberised surfaces that have been in contact with the filling material for damage. If necessary, arrange for repairs.

Irrespective of the measures described in Chapter 2.5, each operator bears full responsibility for his actions in each situation and for assessing the situation and implementing suitable measures as per the regulations and valid laws. He is therefore responsible for damage arising from failure to comply with these measures, regulations and laws.

2.7 Safety devices

The chemical tank car must only be used with complete and functional safety devices.

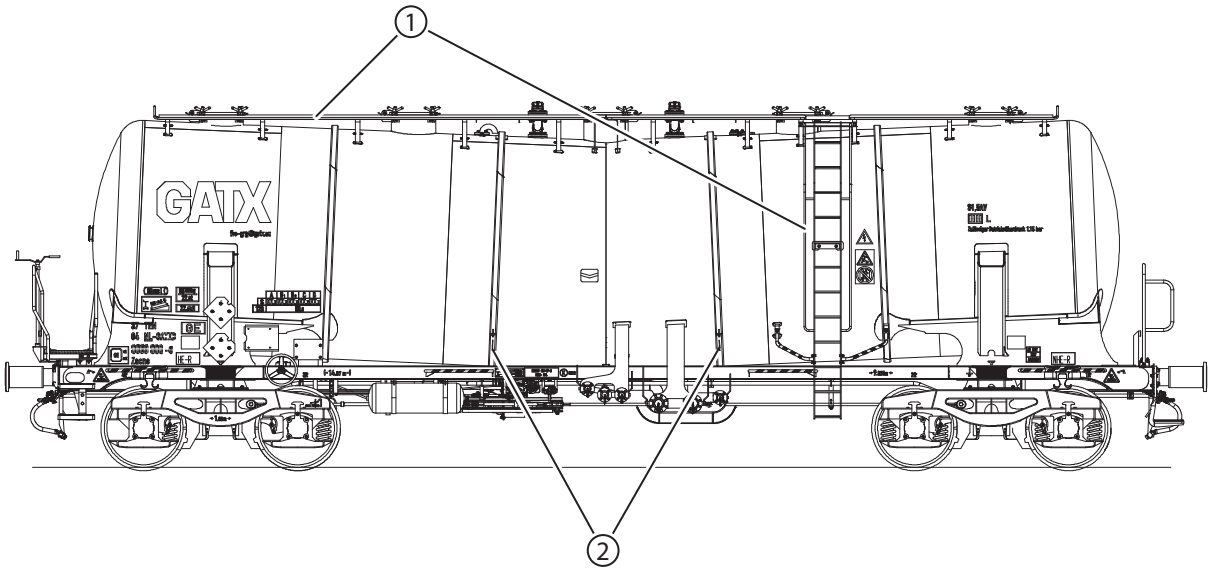


Fig 2.1: Safety devices on the chemical tank car

Item	Safety device	Protective function
1	Lashing point for PSA to prevent falling	A low railing running around the upper tank operating platform serves as a lashing point for personal safety equipment (PSA) to prevent falling.
2	Earthing plate	Prevents static charging during filling and discharge when connected to an earthing cable. The position on the wagon is marked by the symbol "earthing".

2.8 Warning and notice plates

2.8.1 Identification plate (tank plate)

The identification plate is located on the front side of the tank. Data important for operating the chemical tank car are embossed on the identification plate.

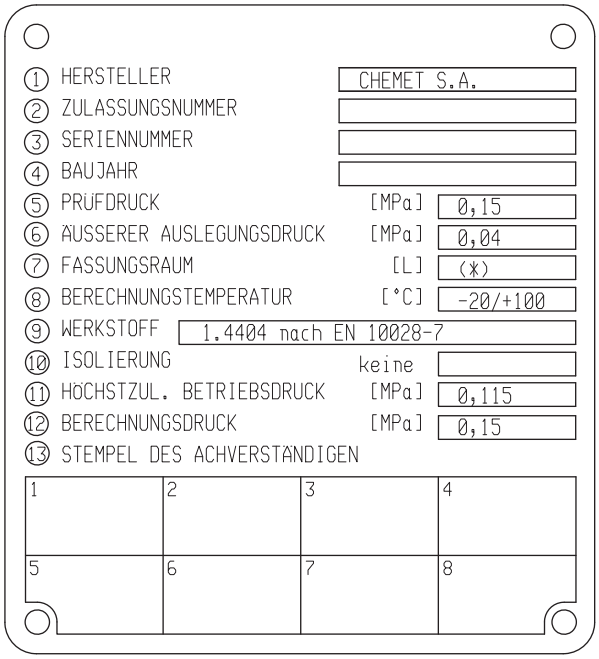


Fig 2.2: Identification plate

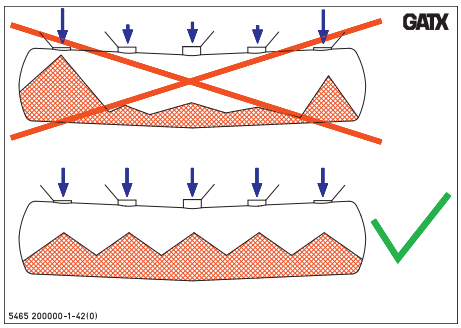
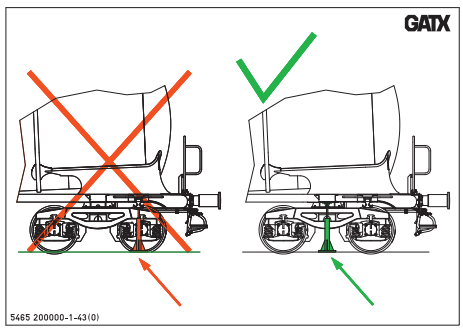
1	Tank manufacturer
2	Type approval number, type approval
3	Production number, serial number of the tank
4	Manufactured
5	Test pressure [MPa]
6	External design pressure [MPa]
7	Capacity [L], volume of the tank in litres
8	Calculation temperature [°C], permissible temperature range
9	Material of the tank and applicable EN standard
10	Protective lining, material
11	Allowable operating pressure [MPa]
12	Calculation pressure (fictitious) [MPa]
13	Expert's stamp: Fields 1–8 for stamps with test date (month, year)

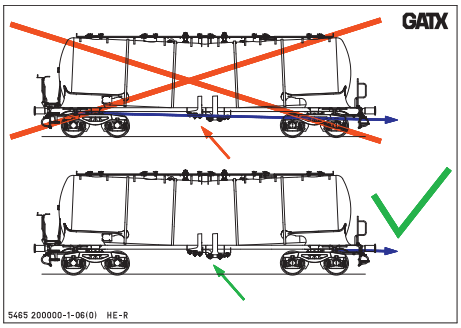
2.8.2 Warning labels

The following warning labels are located next to the ladder on the tank.

	**Electrical voltage, lethal hazard** Fatal or severe injury due to electric shock. – Do not touch live lines. – Maintain a sufficient safety distance.
	**High voltage at catenary, lethal hazard** Fatal or severe injury due to electric shock on direct contact or due to arcs.
	**Climbing onto the wagon is prohibited for unauthorised persons**

The following warning labels are located on the tank.

	**Uneven loading** Material damage or personal injury due to uneven filling of the tank. – Fill the tank evenly at all five manlids.
	**Improper support** Material damage or personal injury due to improper placement of the supports. – Only place the supports on level ground. – Only place the supports at the positions marked on the wagon.

	**Tension cable attachment in wrong position** Property damage or personal injury due to incorrect attachment of a tension cable. The side fittings may be damaged. – Only use the nearest cable hooks.

2.8.3 Labels and inscriptions

Connections on the wagon

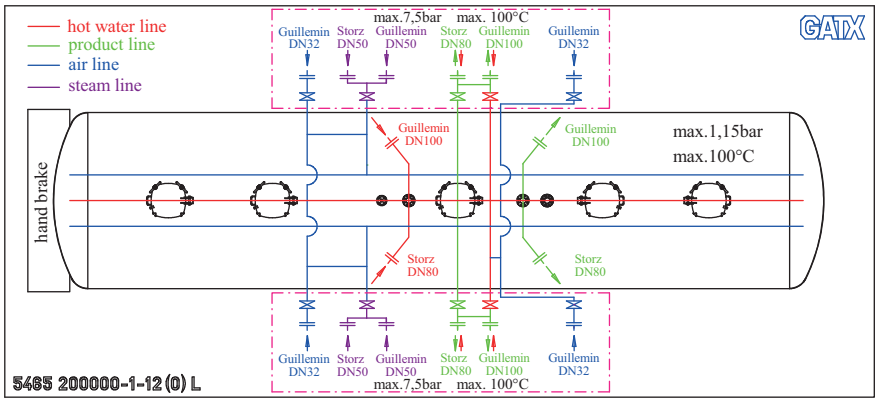


Fig 2.3: Label: Connections on the wagon

The label is located in the area of the connections.

2.8.4 Other labels

Earthing

Fig 2.4: Label: Earthing

The label is located at the earthing points on the tank near the conductors.

Support

Fig 2.5: Label: Support

The label shows the position at which supports can be attached to the wagon.

Residual quantity drainage

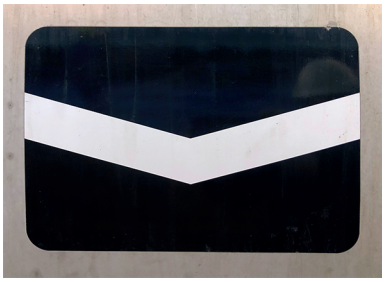


Fig 2.6: Label: Residual quantity drainage

The label indicates that the residual quantity is discharged from the tank.

Load table

	A	B_1	B_2	C	D
S	43.0	49.0	51.0	61.0	69.0
120	00.0				

Fig 2.7: Inscription: Load table for GATX type 5465

Depending on the line category and speed, freight cars may only travel with a specific maximum load weight. The maximum load weight is entered in the internationally valid load limit table.

The number at the intersection of the line category (column) and speed (row) specifies the payload in tonnes. The speed is specified as a symbol or as a number in km/h. "S" stands for 100 km/h.

Tank code, Tank test, Tank pressure

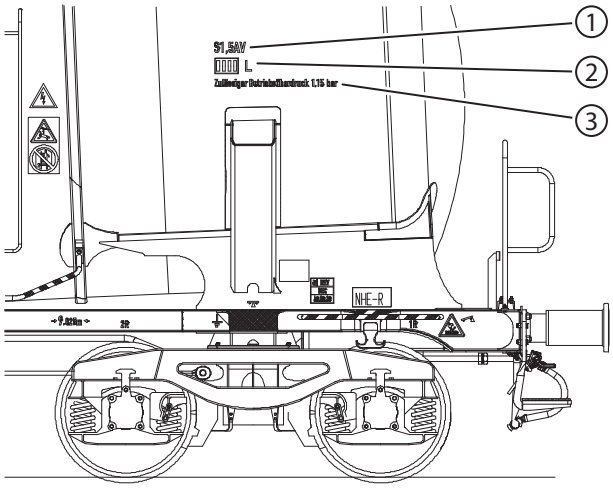


Fig 2.8: Inscriptions: Tank code, tank test, operating pressure for GATX type 5465

1	Next tank test and type of test
2	Tank code
3	Permissible operating pressure [bar]

The chemical tank car tank is identified with the following tank coding as per RID: S1,5AV

Tank code	Meaning
S	Tank type: Tank for substances in solid (powder or granular) state.
1.5	Minimum calculation pressure: 1.5 bar
A	Tank with floor opening with 2 closures for filling or discharge
V	Safety device: Tank with ventilation device without flame arrester or non-explosion pressure shock resistant tank

3 Design and function

3.1 Design

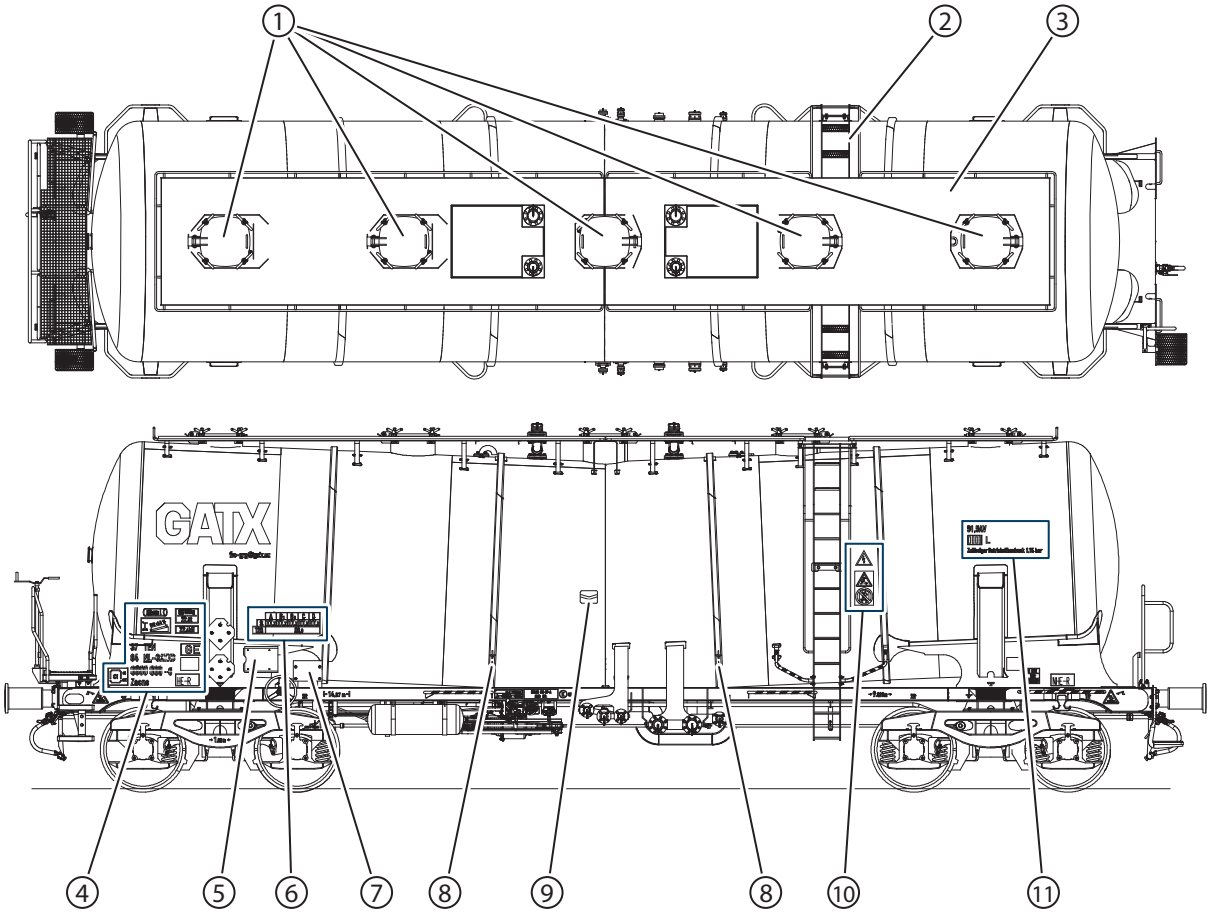


Fig 3.1: Chemical tank car: top view, side view

1	Manhole with 4 tommy screw hinged cover lids
2	Ladder for climbing onto the tank operating platform
3	Tank operating platform
4	Inscriptions for: – Keeper address – Handbrake parameters – Tank capacity as per RID – Clearance gauge G1 Optional: home station
5	Box for accompanying documents
6	Load table
7	Mounting frame for UN number
8	Earthing plates
9	Label: Residual quantity drainage
10	Warning labels
11	Tank labels: tank code, tank test, operating pressure

3.2 Description of assemblies

The following assemblies, connections and labels occur on both sides of the wagon:

- earthing plates,
- tank inscriptions,
- Labels.

3.2.1 Tank

The tank of the tank wagon can be filled from the top. The tank is first discharged from the top and then from the bottom.

The tank material is stainless steel. The precise type designation of the steel type is listed on the identification plate (tank plate).

3.2.2 Upper filling and discharge devices

All upper filling and discharge devices can be operated from the walk-on tank platform.

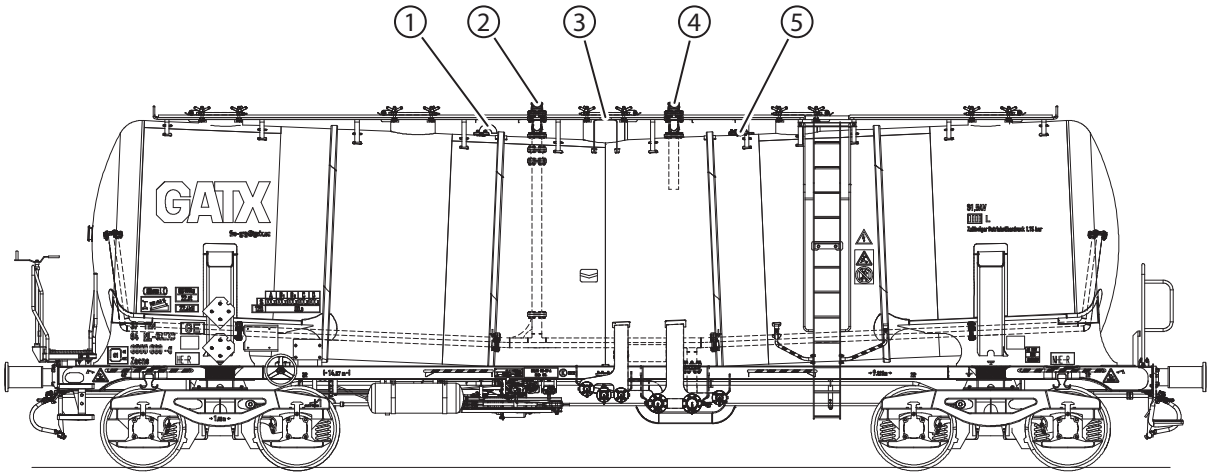


Fig 3.2: Upper filling and discharge devices

1	Air vent
2	Connection for water
3	Manhole
4	Riser port with riser
5	Special port

Connection standard sizes and identification on the tank:

Connection	Size, DN	Fitting
Air vent	50	with 180° pipe bend
Connection for water	100	with pipe connection 2" and 3"
Manhole	500	with hinged lid and four tommy screws
Riser port	100	with pipe connection 2" and 3"
Special port	100	with blind flange and moulded edge

Connection for water

The water line connection is used to fill the tank with water from the top.

Manhole

The tank is filled via the manhole.

During filling and discharging, pressure compensation takes place via the manhole.

The manhole serves as an access for entry as well as for maintenance and cleaning.

The manhole is sealed with a hinged lid and four tommy screws.

Riser port

At the riser port, a riser runs vertically into the tank and ends 600 mm below the top of the tank.

When discharging via the riser port, the filling material is pumped out of the tank via the riser.

3.2.3 Distances between the upper connections

The following illustration shows the distances between the upper connections. The distances each refer to the centre of the connection.

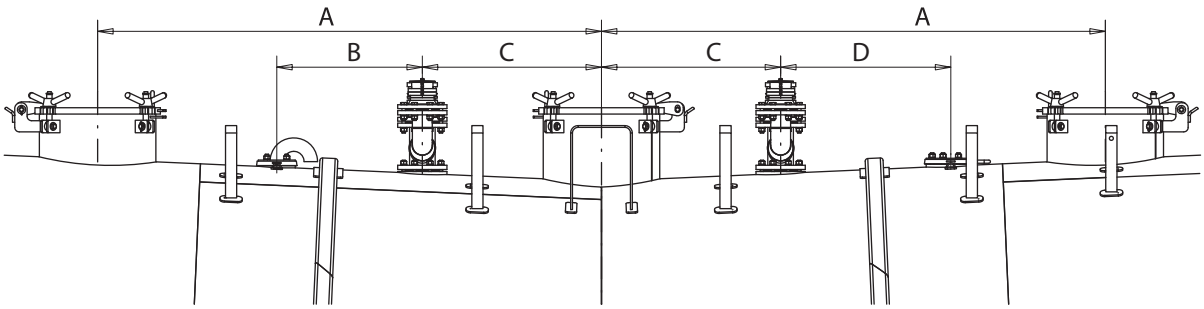


Fig 3.3: Distances between the upper connections

Connection	Designation	Distance in mm
Manhole – Manhole	A	2250
Air vent – Connection for water	B	650
Connection for water – Middle manhole	C	800
Riser port – Riser port	D	760

3.2.4 Lower filling and discharge devices

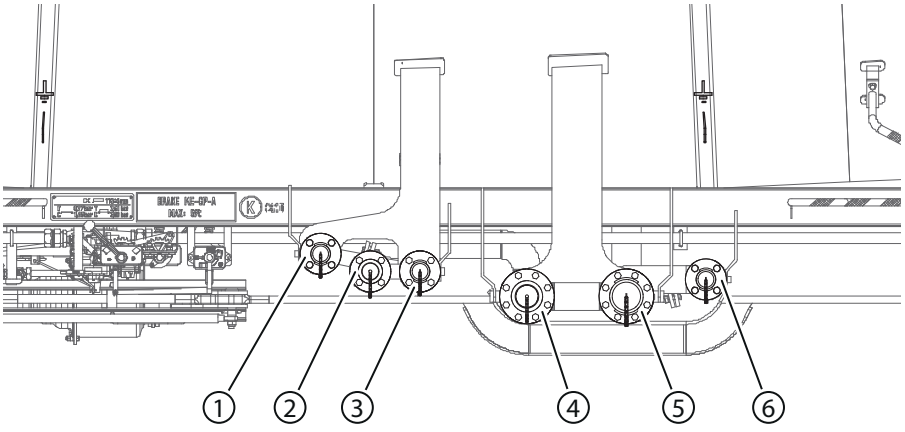


Fig 3.4: Lower filling and discharge devices

1	Connection for compressed air
2	Connection for steam
3	Connection for steam
4	Connection for product discharge
5	Connection for water
6	Connection for compressed air

3.2.5 Distances between the lower connections

The following illustration shows the distances between the lower connections. The distances each refer to the centre of the connection.

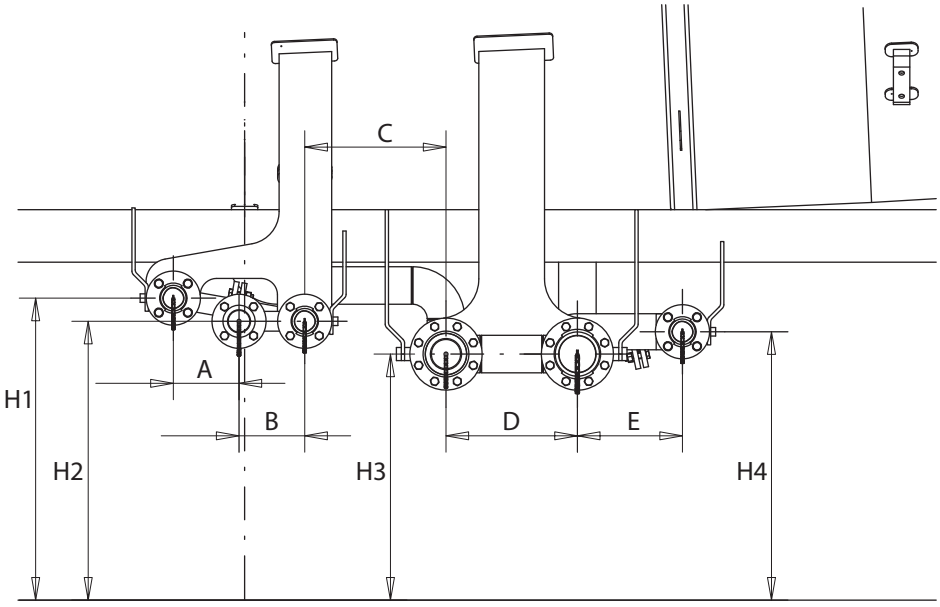


Fig 3.5: Distances between the lower connections and to the ground

Connection	Size	Distance in mm
Compressed air (1) – Compressed air (2)	A	200
Steam (2) – Steam (3)	B	200
Steam (3) – Product discharge	C	430
Product discharge – Water	D	400
Water – Compressed air (6)	E	320
Compressed air (1) – Ground	H1	921
Steam – Ground	H2	850
Product discharge – Ground Water – Ground	H3	750
Compressed air (6) – Ground	H4	818

Lower connection standard sizes and identification:

Connection for	Size, DN	Fitting
Compressed air	50	with ball valve and 1 1/4" pipe connection
Steam	50	with ball valve and 2" pipe connection
Product	100	with ball valve and 3" pipe connection
Water	100	with ball valve and 3" pipe connection

3.3 Support for the wagon

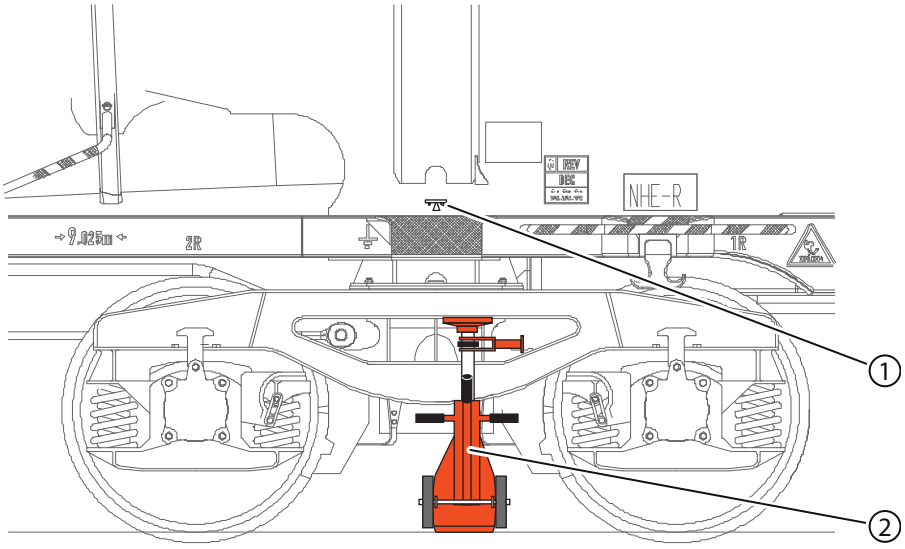


Fig 3.6: Position the supports on the wagon

1	Identification by means of a label
2	Support

The wagon must be supported before it is filled with water.

To do this, you need to place supports at all four corners of the wagon. The exact positions are marked on the wagon. The use of aids such as shims is not permitted.

Before setting up and until the supports are removed, make sure that the following conditions are met:

- horizontal track level,
- level, consistently solid subsurface (concrete floor),
- the wagon is immobile.

4 Controls

4.1 Operating the fittings

The operation of the fittings on the tank is described in Chapter 5 „Filling the tank" and Chapter 6 „Discharging the tank".

5 Filling the tank

Prior to filling ensure that the tank use corresponds to the intended use given in Chapter 2.1 „Intended use". The obligations according to RID in Chapter 2.3 must be complied with.

5.1 Safety information

⚠WARNING

Risk of fire and explosion due to static charging

The tank may become electro-statically charged during filling, discharge and cleaning; this may trigger explosions or fires.

– During filling, discharge and cleaning, establish a highly conductive connection between the tank's earthing plate and the station.

⚠WARNING

Risk of injury due to product

Product can cause severe injuries on direct contact.

– Avoid direct contact with the product.
– Wear personal safety equipment.
– Observe the product-specific safety regulations.
– Adhere to the operating safety regulations.

⚠WARNING

Risk of injury when filling or discharge of pressurised tanks

The escape of pressurised product can cause severe injuries.

– Operate the tank wagon as per the local safety and operating instructions.
– Connect the product hose before pressurising.
– Always connect the hose connections carefully.
– Secure the hose connections with the catches provided.
– Do not release hose connections during filling or discharge.

⚠CAUTION

Risk of injury from pneumatic hoses

Hose ends whipping around freely can cause injuries.

– Only pressurise compressed air hoses once both ends have been connected.

NOTICE

Tank damage due to overpressure or vacuum

Tank deformation possible.

– Adhere to the maximum operating pressures and the permissible temperature range of the tank. The information can be found on the tank and on the tank wagon data sheet.

NOTICE

Material damage due to foreign objects in the tank

Damage to seals and valves possible due to foreign bodies in the tank.

– Make sure that no foreign bodies such as bolts or lead seals fall into the tank.

NOTICE

Material damage due to overflowing filling material

Damage to the wagon and environmental pollution possible due to overflowing product.

– Observe the level in the tank when filling.

– Properly remove any overflowed product on completion of filling or discharge.

5.2 Filling the tank

Prerequisites

- The tank and all fittings are in technically flawless condition and suitable for filling.
- The wagon is secured against rolling away.
- The filling facility and the tank are conductively connected via the earthing plate.
- All valves are closed.

NOTICE

Material damage due to uneven loading or overloading

Damage to the wagon possible.

– Always load the tank evenly via all five manholes.

– Never exceed the maximum total mass of the wagon of 90 t.

5.2.1 Filling the tank via the manhole

Connecting and filling

1. Loosen the two tommy screws next to the hinges and allow any overpressure to escape.
2. Remove all tommy screws from the manlid.
3. Open the manlid.
4. Mount the filling facility.
5. Fill the tank.

   The air displaced during filling is discharged via the manhole and via the tank ventilation.

Disconnecting and locking

NOTICE

Material damage due to improper tightening of tommy screws

Improper tightening of the tommy screws can lead to leaks or damage the tommy screws themselves.

– Always tighten the tommy screws on the manlid in a crosswise manner.

1. Stop product feed.
2. Remove the filling facility.
3. Close the manlid.
4. Tighten the tommy screws on the manlid in a crosswise manner.
5. Finish filling, see Chapter 5.2.2 „Finishing filling".

5.2.2 Finishing filling

1. Disconnect earthing.
2. Update lettering/labelling.
3. Remove the safety device to prevent it from rolling away.

5.3 Protective measures

5.3.1 Checking the wagon condition

After filling, check whether any dangerous product residue adheres to the outside of the wagon.

Remove product residue properly before dispatching the chemical tank car.

Ensure the tightness of all valves and closures (RID Article 1.4).

5.3.2 Sealing

Fit a lead seal on the filling and discharge device at the seal eyelets or seal holes if necessary.

5.3.3 Pre-departure inspection

Before departure, check the following in particular:

- Is the level in the tank not higher than the maximum allowable level? Cf. RID Article 1.4.
- Is there any visible exterior damage to the tank, the filling and discharge devices, the bogie, the ladders or the platform?
- Are there defect notices from the railway company on the chemical tank car?
- Are there any areas covered with filling material?
- Have all valves and closures been correctly closed and secured?
- Are all attaching parts present and secured?
- Are all shut-off devices leaktight?
- Are the accompanying documents complete and correctly affixed to the tank?
- Are all labels and inscriptions legible and correctly affixed to the tank?

6 Discharging the tank

Before the first steps in the chapter you must ensure that the wagon is equipped with four supports, see Chapter 3.3 "Support for the wagon".

6.1 Safety information

⚠WARNING

Risk of fire and explosion due to static charging

The tank may become electro-statically charged during filling, discharge and cleaning; this may trigger explosions or fires.

– During filling, discharge and cleaning, establish a highly conductive connection between the tank's earthing plate and the station.

⚠WARNING

Risk of injury due to product

Product can cause severe injuries on direct contact.

– Avoid direct contact with the product.
– Wear personal safety equipment.
– Observe the product-specific safety regulations.
– Adhere to the operating safety regulations.

⚠WARNING

Risk of injury when filling or discharge of pressurised tanks

The escape of pressurised product can cause severe injuries.

– Operate the tank wagon as per the local safety and operating instructions.
– Connect the product hose before pressurising.
– Always connect the hose connections carefully.
– Secure the hose connections with the catches provided.
– Do not release hose connections during filling or discharge.

⚠CAUTION

Risk of injury from pneumatic hoses

Hose ends whipping around freely can cause injuries.

– Only pressurise compressed air hoses once both ends have been connected.

NOTICE

Tank damage due to overpressure or vacuum

Tank deformation possible.

– Adhere to the maximum operating pressures and the permissible temperature range of the tank. The information can be found on the tank and on the tank wagon data sheet.
– When discharging by means of a pump, observe the permissible vacuum.

NOTICE

Material damage due to foreign objects in the tank

Damage to seals and valves possible due to foreign bodies in the tank.

– Make sure that no foreign bodies such as bolts or lead seals fall into the tank.

NOTICE

Material damage due to overflowing filling material

Damage to the wagon and environmental pollution possible due to overflowing product.

– Observe the level in the tank when filling.
– Properly remove any overflowed product on completion of filling or discharge.

NOTICE

Material damage due to insufficient support

The required supply of water or steam during discharge can result in an overload of the wagon structure. This can result in considerable material damage.

– Discharge the wagon only with proper support.
– Only place the four supports in the positions indicated for this purpose.

6.2 Dissolving the filling material

The filling material is discharged by pumping it out from the top and from the bottom of the tank. In each instance, the filling material is first dissolved with water, compressed air and steam.

Prerequisites

- The wagon is supported with four supports at the indicated points, see Chapter 3.3 „Support for the wagon".
- The operator has extensive knowledge of Chapter 7 "Using the pressure, steam and water lines".

Procedure

1. Supply 5 tonnes of hot water via the connection for water.
2. Mix tank filling with compressed air and steam.
3. Pump solution out of the tank from above via the riser port, see Chapter 6.3.1 "Discharge via the riser port".
4. Supply hot water via the connection for water.
5. Mix the tank filling again with compressed air and steam.
6. Pump solution from the bottom of the tank, see Chapter 6.3.2 "Discharge via the lower connection".

6.3 Discharging the tank

Prerequisites

- The wagon is supported with four supports at the indicated points.
- The tank and all fittings are in technically flawless condition and suitable for discharge.
- The wagon is secured against rolling away.
- The filling facility and the tank are conductively connected via the earthing plate.
- All valves are closed.
- A pump is connected to the product hose on the system side.

6.3.1 Discharge via the riser port

Connecting and discharge

1. Loosen the tommy screws next to the manlid hinges.
2. Allow any overpressure to be relieved.
3. Remove all tommy screws from the manlid.
4. Open the manlid.
5. Unscrew the sealing cap and connect the product line on the system side to the riser.

Information

With this type of discharge, the manhole serves to aerate the tank.

6. Switch on the pump.
   The pump pumps the product upwards through the riser.
7. Partially discharge the tank.

Disconnecting and locking

1. Switch off the pump.
2. Detach the product hose on the system side from the riser port and screw on the cap.
3. Close the manlid.
4. Tighten the tommy screws in a crosswise manner.
5. Finish discharge, see Chapter 6.3.3 „Finishing discharge".

6.3.2 Discharge via the lower connection

Connecting and discharge

1. Loosen the tommy screws next to the manlid hinges.
2. Allow any overpressure to be relieved.
3. Remove all tommy screws from the manlid.
4. Open the manlid.
5. Unscrew the cap and connect the product hose on the system side.
6. Open the shut-off valve.
7. Switch on the pump.The pump conveys the filling material out of the tank through the distributor pipe.
8. Discharge the tank.

Isolating and securing

1. Switch off the pump.
2. Close the shut-off valve.
3. Detach the product hose on the system side from the distributor pipe and screw on the cap.
4. After discharge, rinse the tank with clean water and dry it.
5. Close the manlid.
6. Tighten the tommy screws in a crosswise manner.
7. Finish discharge, see Chapter 6.3.3 „Finishing discharge".

6.3.3 Finishing discharge

1. Disconnect earthing.
2. Remove the supports on the wagon.
3. Update lettering/labelling.
4. Remove the safety device to prevent it from rolling away.

6.4 Protective measures

6.4.1 Checking the wagon condition

After discharge, check whether any dangerous product residue adheres to the outside of the wagon.

Remove product residue properly before dispatching the chemical tank car.

6.4.2 Pre-departure inspection

Before departure, check the following in particular:

- Is the level in the tank not higher than the maximum allowable level? Cf. RID Article 1.4.
- Is there any visible exterior damage to the tank, the filling and discharge devices, the bogie, the ladders or the platform?
- Are there defect notices from the railway company on the chemical tank car?
- Are there any areas covered with filling material?
- Have all supports been removed?
- Have all valves and closures been correctly closed and secured?
- Are all add-on parts (hand wheels) present and secured?
- Are all shut-off devices leaktight?
- Are the accompanying documents complete and correctly affixed to the tank?
- Are all labels and inscriptions legible and correctly affixed to the tank?

7 Using the pressure, steam and water lines

7.1 Using the pressure and steam lines

Safety information

⚠CAUTION

Risk of burns from touching parts conducting steam

Parts conducting steam may become hot during operation and cause burns.

– Wear safety gloves when touching parts conducting steam.

⚠CAUTION

Danger of scalding due to hot steam

Hot steam can cause scalding.

– Avoid contact with hot steam.

– Wear safety gloves and safety goggles.

Prerequisites

The wagon is supported, see Chapter 3.3 „Support for the wagon".

Connecting and supplying

1. Connect the hose for compressed air or steam to the lower connection for steam or compressed air.
2. Open the shut-off valves.
3. Start the compressed air or steam supply.

Ending supply

1. As soon as the product is ready to be unloaded: Stop the supply of compressed air or steam.
2. Close the shut-off valves.
3. Remove the hose.
4. Cover the connection with the cap.

7.2 Using the water line

Safety information

⚠CAUTION

Risk of burns from hot components

Water lines may become hot during operation and cause burns.

– Wear safety gloves.

NOTICE

Material damage due to insufficient support

The required supply of water or steam during discharge can result in an overload of the wagon structure. This can result in considerable material damage.

– Discharge the wagon only with proper support.

– Only place the four supports in the positions indicated for this purpose.

Prerequisites

- The wagon is supported, see Chapter 3.3 „Support for the wagon".

Connecting and supplying

1. Connect the water hose to the tank.
2. Open the shut-off valve.
3. Begin water supply.

Ending supply

1. As soon as the product is ready to be discharged: Stop the water supply.
2. Close the shut-off valves.
3. Release hoses.
4. Cover the connection with the cap.

8 Cleaning

Cleaning inside the tank and the valves may only be performed by an authorised cleaning company.

8.1 Safety information

⚠WARNING

Risk of fire and explosion due to static charging

The tank may become electro-statically charged during filling, discharge and cleaning; this may trigger explosions or fires.

– During filling, discharge and cleaning, establish a highly conductive connection between the tank's earthing plate and the station.

⚠WARNING

Risk of injury due to product

Product can cause severe injuries on direct contact.

– Avoid direct contact with the product.
– Wear personal safety equipment.
– Observe the product-specific safety regulations.
– Adhere to the operating safety regulations.

⚠WARNING

Danger of fatality on climbing onto the tank

Fatal or severe injuries due to hazardous vapours and the tank atmosphere (e.g. nitrogen or other asphyxiating gases/atmospheres) are possible on entering the tank.

– Adhere to the operating safety regulations.
– Wear personal safety equipment corresponding to the product-specific safety regulations.
– Before entering: test the atmosphere in the tank.
– Only enter the tank if a second person remains in contact with you outside of the tank.
– In the event of respiratory problems, exit the tank as quickly as possible.

NOTICE

Material damage

Incompatible cleaning agents can attack and destroy the tank, the tank lining and the seals.

– Only use cleaning agents which are compatible with the tank and sealing materials.
– Contact GATX Rail Europe directly in the event of questions.

NOTICE

Corrosion damage from water

Contact corrosion on valves due to trapped moisture.

– All fittings must be free from cleaning agents.
– Only close cleaned cocks, flaps and valves once they are completely dry.

8.2 Transferring wagon to an authorised cleaning station

Prerequisites

- The tank has been completely discharged.
- There is no product residue in the fittings or the connections.

8.3 Concluding actions

After cleaning, check the condition of the wagon, especially:

- Have all cleaning agent residues been removed?
- Have all parts that were removed been completely and correctly installed again?
- Are all seals intact?
- Are all seals seated correctly?
- Have all loosened screw joints been tightened correctly?

9 Long-term non-use

9.1 Preventive measures to be taken in the event of long-term non-use

If the chemical tank car is not used for a long time, we recommend the following protective measures to avoid material damage:

- Clean and dry the tank, connections and lines if necessary,
- Clean the wagon from the outside,
- flush the tank with nitrogen/N_2 before parking for a longer period of time,
- Close the fittings and seal if necessary.

9.2 Actions to be taken prior to reuse

Before re-commissioning, check the following components are in technically flawless condition:

- Check the leaktightness and function of all closures,
- tank, fittings and bogie for corrosion damage,
- Check the completeness and function of the equipment,
- Adherence to statutory inspection intervals.
- Adherence to the general commercial terms.

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