



OTIF/RID/CE/GTP/2014/23

14 October 2014

Original: English

RID: 4th Session of the RID Committee of Experts' standing working group
(Madrid, 17 - 20 November 2014)

Subject: Define a standard reference for checks in tank transport allowing all operators involved to meet RID obligations in a traceable manner – 2nd Proposal

Transmitted by Italy

Reference documents

- OTIF/RID/CE/GTP/2013/7 (UIC) and informal document INF.10 (Italy) of the 2nd session of the RID Committee of Experts' standing working group (Copenhagen, 18 - 22 November 2013);
- OTIF/RID/CE/GTP/2013-A (final report of the 2nd session of the RID Committee of Experts' standing working group (Copenhagen, 18 - 22 November 2013), paragraphs 65 to 71;
- OTIF/RID/CE/GTP/2014/15 (Italy) of the 3rd session of the RID Committee of Experts' standing working group (Berne, 20 - 21 May 2014).

Introduction

1. Italy's aim is to reach a good level of safety (fixing a minimum level of checks to be performed by main participants) and an acceptable level of traceability of the whole process (establishing a way to ensure the assumption of responsibility) in the carriage of dangerous goods by rail. From our point of view the current text of RID has two drawbacks:
 - the CEFIC guidelines mentioned in the notes of 1.4.3.3 (filler) and 1.4.3.7.1 (unloader) do not cover gases of Class 2;

- the current version of 1.4.2.2.1 states that checks must always be carried out by a carrier (at the point of departure), so it is not expected that the carrier should give evidence of when and by whom the required inspections have been made. As described above, the process in our view causes discontinuity in terms of traceability and does not allow, for example, proper monitoring of the process.
2. Both proposals, the first one submitted in document OTIF/RID/CE/GTP/2014/15, and this one, aim to overcome these drawbacks. This proposal must be considered as an alternative to the previous one, described in document OTIF/RID/CE/GTP/2014/15.
 3. Document OTIF/RID/CE/GTP/2014/15 proposes the introduction of common and standardized checklists for all classes and for all the major players (loader, filler, carrier and unloader) and a procedure for reporting any anomalies. This proposal instead proposes an approach similar to the one already adopted for the transport of liquids, by proposing guidelines like those developed by CEFIC for the carriage of substances of classes 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 8 and 9 in the liquid state in tank-wagons, portable tanks, tank-containers or tank swap bodies by rail. Guidelines to be available on OTIF's website are described in the annex to this proposal.

Proposal

4. **1.4.3.3** Amend to read as follows (**additional text in bold and underlined**) (the guidelines referred to in the new text are reproduced in the annex to this document):

"1.4.3.3 Filler

In the context of 1.4.1, the filler has the following obligations, in particular:

- (a) he shall ascertain prior to the filling of tanks that both they and their equipment are technically in a satisfactory condition;

NOTE: The filler shall establish procedures to check the correct functioning of the closures of the tank of a tank-wagon and to ensure the leaktightness of the closing devices before and after filling. Guidelines in the form of checklists for tank-wagons for liquids, issued by the European Chemical Industry Council (CEFIC), are available on the OTIF website (www.otif.org). **Guidelines in the form of checklists for tanks and tank-wagons for gases are available on the OTIF website (www.otif.org).**

- (b) he shall ascertain that the date of the next test for tank-wagons, battery-wagons, wagons with demountable tanks, portable tanks, tank-containers and MEGCs has not expired;
- (c) he shall only fill tanks with the dangerous goods authorized for carriage in those tanks;
- (d) he shall, in filling the tank, comply with the requirements concerning dangerous goods in adjoining compartments;
- (e) he shall, during the filling of the tank, observe the maximum permissible degree of filling or the maximum permissible mass of contents per litre of capacity for the substance being filled;
- (f) he shall, after filling the tank, ensure that all closures are in a closed position and that there is no leakage;

NOTE: The filler shall establish procedures to check the correct functioning of the closures of the tank of a tank-wagon and to ensure the leaktightness of the closing devices before and after filling. Guidelines in the form of checklists for tank-wagons for liquids, issued by the European Chemical Industry Council (CEFIC), are available on the OTIF website (www.otif.org). **Guidelines in the form of checklists for tanks and tank-wagons for gases are available on the OTIF website (www.otif.org).**

- (g) he shall ensure that no dangerous residue of the filling substance adheres to the outside of the tanks filled by him;
- (h) he shall, in preparing the dangerous goods for carriage, ensure that the orange plates, labels or placards, marks for elevated temperature substances and environmentally hazardous substances as well as shunting labels prescribed are affixed on the tanks, on the wagons and on the large and small containers in accordance with the requirements;
- (i) he shall, before and after filling tank-wagons with a liquefied gas, observe the applicable special checking requirements;
- (j) he shall, when filling wagons or containers with dangerous goods in bulk, ascertain that the relevant provisions of Chapter 7.3 are complied with."

5. **1.4.3.7** Amend to read as follows (**additional text in bold and underlined**) (the guidelines referred to in the new text are reproduced in the annex to this document):

"1.4.3.7 Unloader

NOTE: In this sub-section, unloading covers removal, unloading and discharging as indicated in the definition of unloader in 1.2.1.

1.4.3.7.1 In the context of 1.4.1, the unloader shall in particular:

- (a) ascertain that the correct goods are unloaded by comparing the relevant information on the transport document with the information on the package, container, tank, MEGC or wagon;
- (b) before and during unloading, check whether the packagings, the tank, the wagon or container have been damaged to an extent which would endanger the unloading operation. If this is the case, ascertain that unloading is not carried out until appropriate measures have been taken;

NOTE: The unloader shall establish procedures to check the correct functioning of the closures of the tank of a tank-wagon and to ensure the leaktightness of the closing devices before and after unloading. Guidelines in the form of checklists for tank-wagons for liquids, issued by the European Chemical Industry Council (CEFIC), are available on the OTIF website (www.otif.org). **Guidelines in the form of checklists for tanks and tank-wagons for gases are available on the OTIF website (www.otif.org).**

- (c) comply with all relevant requirements concerning unloading;
- (d) immediately following the unloading of the tank, wagon or container:
 - (i) remove any dangerous residues which have adhered to the outside of the tank, wagon or container during the process of unloading; and

- (ii) ensure the closure of valves and inspection openings;

NOTE: The unloader shall establish procedures to check the correct functioning of the closures of the tank of a tank-wagon and to ensure the leaktightness of the closing devices before and after unloading. Guidelines in the form of checklists for tank-wagons for liquids, issued by the European Chemical Industry Council (CEFIC), are available on the OTIF website (www.otif.org). **Guidelines in the form of checklists for tanks and tank-wagons for gases are available on the OTIF website (www.otif.org).**

- (e) ensure that the prescribed cleaning and decontamination of the wagons or containers is carried out; and
- (f) ensure that the wagons and containers once completely unloaded, cleaned, degassed and decontaminated, no longer display placards and orange-coloured plate markings.

1.4.3.7.2 If the unloader makes use of the services of other participants (cleaner, decontamination facility, etc.) he shall take appropriate measures to ensure that the requirements of RID have been complied with."

6. **5.4.1.2** Add a new 5.4.1.2.6 to read as follows:

"5.4.1.2.6 Additional provisions for carriage in tanks

In the case of carriage of gases of Class 2 or substances of classes 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 8 and 9 in the liquid state in tank-wagons, portable tanks, tank-containers or tank swap bodies, the name or the identification code of the responsible person who performed the checks prescribed in 1.4.2.2.1 and the date of the check must be recorded in the transport document. The following or an equivalent statement shall be entered in the transport document:

"CARRIAGE IN ACCORDANCE WITH 1.4.2.2.1. CHECKS PERFORMED ON (DATE) BY (NAME/ID CODE)".

"CARRIAGE IN ACCORDANCE WITH SECTION 5 OF UIC LEAFLET 471-3 O. CHECKS PERFORMED ON (DATE) BY (NAME/ID CODE)".

Justification

7. The introduction of a common standard to be considered as a minimum acceptable level for consignments of dangerous goods of all classes (2, 3, 4.1, 4.2, 4.3, 5.1, 5.2, 6.1, 6.2, 8 and 9) in tank-wagons, portable tanks, tank-containers or tank swap bodies would improve safety. This would enable operators (filler, unloader, carrier) to meet the obligations of RID in a traceable manner.

Filling and discharging of rail tank-wagons

Four checklists to avoid leaks from tanks carrying gases of Class 2

This procedure and the proposed checklists for filling and discharging from the bottom are applicable to all gases that are marked with the letter "B" in the third part of the tank code in column (12) of Table A of Chapter 3.2 to RID (see RID 4.3.3.1.1).

For the following gases:

- UN 1017 chlorine, 2TOC;
- UN 1053 hydrogen sulfide, 2TF;
- UN 1079 sulphur dioxide, 2TC;

which are marked in column (12) of Table A of Chapter 3.2 to RID with the letter "D" in the third part of the tank code (see RID 4.3.3.1.1), filling and emptying must be carried out from the top in accordance with the tank code and service instructions of the tank-wagon.

The same procedure (filling and emptying from the top) can be used for substances of other classes in RID which are marked in column (12) of Table A of Chapter 3.2 by a tank code including the letter "C" or "D" in the third part (see RID 4.3.4.1.1).

With regard to UN 1076 phosgene, 2TC, RID states that transport must take place "only in battery-wagons or MEGC the elements of which are composed of receptacles". For this gas, filling and discharge must take place in accordance with the service instructions of the battery-wagon or MEGC.

According to paragraphs (a) and (f) of RID 1.4.3.3 the filler shall ascertain prior to the filling of tanks that both they and their equipment are technically in a satisfactory condition and shall, after filling the tank, ensure that all closures are in a closed position and that there is no leakage.

According to paragraphs (b) and (d) (ii) of RID 1.4.3.7.1 the unloader shall, before and during unloading, check whether the tank has been damaged to an extent which would endanger the unloading operation and shall, immediately following the unloading of the tank, ensure the closure of valves and inspection openings.

In addition, the filler and the unloader are required to comply with the requirements of paragraphs 4.3.3.3 and 4.3.3.4 – Provisions for the filling of liquid gas tank-wagons and 7.5.1.2 – Provisions concerning loading, unloading and handling.

The filler as well as the unloader shall establish procedures to check the correct functioning of the closures of the tank of a tank-wagon and to ensure the leaktightness of the closing devices before and after filling or unloading.

Introduction

As the most frequent cause of leaks is incorrect filling or discharge processes, the main aim behind standardised checklists is to avoid leaks from tank-wagons for gases by means of correct and professional handling on the part of operating staff working for fillers and unloaders. They include the necessary steps (checkpoints) in the appropriate sequence which normally have to be observed when filling or emptying gases into or from tank-wagons in the procedure to ensure leaktightness. They may need to be supplemented by the user with other specific operational steps/procedures (operating instructions).

Depending on the product and specification of the tank and fittings, tank-wagons may:

- for gases which are marked in column (12) of Table A of Chapter 3.2 of RID with the letter "B" in the third part of the tank code (see RID 4.3.3.1.1), be bottom filled through three mutually independent closures, mounted in series, consisting of the bottom valve in conjunction with the external shut-off device (discharge valve, blank flange or screw cap);
- discharged through the bottom shut-off device (discharge valve, blank flange or screw cap);
- for gases for which the letter "D" appears in the third part of the tank code, such as UN 1017, UN 1053 and UN 1079, be top filled through the dip pipes in combination with other closure devices (triple closure in series, liquid phase valves and gas phase valve with blind flange, mounted on the dome); and
- discharged from the top through the dip pipes in combination with other closing devices (triple closure in series, liquid phase valves and gas phase valve with blind flange, mounted on the dome).

Four checklists have therefore been developed, covering respectively bottom filling and bottom discharge, in accordance with the tank code assigned to the gases covered by these procedures, and top filling and top discharge for gases with the letter "D" in the third part of the tank code, as prescribed by RID.

They set out a chronological sequence of the steps necessary for the filling and discharge of tank-wagons. If they use them as an aid, users can then be sure that they have followed them fully in the correct sequence. If one of the steps cannot be carried out properly, the filling or discharge process is interrupted or stopped until the discrepancy/fault is rectified. This should enable errors and unsafe situations to be recognised in advance and avoided.

The **filler** and **unloader** are the undertakings that fill dangerous goods into tanks (e.g. tank-wagons) or discharge (unload) them. The legal obligations of these entities include:

- ensuring that all closures are in a closed position once the tank has been filled and that there is no leakage (see obligations of filler in RID 1.4.3.3), or
- ensuring after the tank has been discharged that the valves and inspection openings are closed (see obligations of unloader in RID 1.4.3.7.1).

Disclaimer

This document is intended for information only and is provided in good faith. While it is accurate as far as the authors are aware, no representations or warranties are made about its completeness. Therefore no responsibility will be assumed in relation to the contents of this document.

The checklist is a guideline and does not exempt the various participants in accordance with RID Chapter 1.4 from their respective obligations under RID.

Points relevant to leaktightness for filling rail tank-wagons (bottom filling) for gases of Class 2 (for inclusion in checklists) – with explanations/examples

1. Before filling			
	Check	Explanation	ok
1.1 ¹	Tank and equipment in technically faultless condition (visual inspection from the ground).	Before clearance for filling, the tank and its items of equipment must be checked to ensure that they are in conformity with RID. Verification refers to the valves, closing devices, the dome, the substructure of the wagon, thermal insulation, steps, platforms, parapets, etc.	
1.2 ¹	The conformity of the accompanying documents, ascertain that the deadline of the next test for tank-wagons and the expiry date of the maintenance of the wagon have not expired.	Consignment note in accordance with the Contract of Carriage (CIM), wagon note in accordance with the General Contract of Use for Wagons (GCU) or another transport document in accordance with the provisions of section RID 5.4.1, empty document with an indication of the last load; for cleaning certificate, certificates of the latest tests carried out; refusals of/restrictions on transport, etc. If not received yet, acquire last test certificate or verify applied to the metal plate on the tank; acquire last test maintenance certificate or verify on the maintenance inscription on the wagon.	
1.3	If the gas is authorised for carriage in this tank.	This verification includes the consistency of the data shown in the moveable panel, the tank code and special provisions, the UN number on the orange-coloured plates.	
1.4	Discharge valve (external stop-valve) closed (on opposite side also), no leakages visible (visual inspection).	The shut-off devices (valves) must indicate clearly whether the valve position is "open" or "closed". Any safety devices to protect against unintentional opening must be used if available. There must be no leakage, i.e. there must be no drips on the valves. If drips are found, further measures are necessary. This also applies to the closure sequence in accordance with RID when discharging residues.	
1.5	Filling device attached and internal and external stop-valve on the filling side open; closing device on opposite side closed.	The specific operating instructions for filling must be observed.	
1.6	Safety devices present and no leakage.	Check the seal on the safety devices and that there is no leakage.	

2. During filling			
	Check	Explanation	ok
2.1	Degree of filling observed.	Verify if the maximum permissible filling level or the maximum permissible mass of contents per litre of capacity for the gas being filled has been observed.	
2.2	Supervise filling procedure.		
3. After filling			
	Check	Explanation	ok
3.1	If the maximum mass for the substance being filled has been observed.		
3.2	Closing sequence observed (from inside to outside), internal and external shut-off and closing devices closed in accordance with operating instructions.	To close cap and handwheels for the discharge valves, use only a suitable tool, with which the necessary force is generated by means of even leverage and damage to the sealing elements is avoided.	
3.3	Bottom valve (internal stop-valve) closed and secured (visual inspection).	The bottom valve is in a recognisably closed position and secured against unintentional opening.	
3.4	Closing device (e.g. screw thread, blank flange) opened. Discharge valve (external stop-valve) closed and secured, no leakages visible (visual inspection). Then check closing device (e.g. screw thread, blank flange) closed.	External shut-off devices and fittings must be checked manually or with a suitable tool to ensure that they are closed. Any safety devices to protect against unintentional opening must be used if available.	
3.5	Closing device (e.g. screw thread, blank flange) correctly mounted (seals present and checked, completeness of closing devices), closed with suitable tool and leaktight (visual inspection).	There must be no leakage, i.e. there must be no drips on the outlets. If drips are found, further suitable measures are necessary. To close the cap, only a suitable tool may be used, with which the necessary force is generated by means of even leverage and damage to the sealing elements is avoided.	
3.6	Operational openings closed and leaktight (visual inspection).		
3.7 ²	Dome, completeness of the closing devices and the absence of leakages (visual inspection).	Particular attention should be paid to this device since it is a major cause of leakages of gas from the tanks. If deemed necessary check with the appropriate instruments.	
3.8	Outside of tank free of dangerous residues.		

3.9	Closing device is leaktight both sides (visual inspection).	<p>If the closing device was only used on one side, it only needs to be checked on this side if the other (unused) device has been sealed or secured and it can thus be ascertained that it has not been used.</p> <p>One very important component of a final check is to ensure that there are no leaks at all, i.e. there must be no drops on the valves and outlets. If drips are found, further suitable measures are necessary.</p>	
3.10 ³	The pressure in the tank is sufficient to counter the external pressure.	When the external overpressure could be greater than the tank resistance to external pressure adequate measures shall be taken to protect tanks carrying low pressure liquified gases against the risk of deformation, e.g. by filling them with nitrogen or another inert gas in order to maintain sufficient pressure inside the tank.	
3.11	Handover report is signed/clearance.	The proper condition is documented. Effectiveness check is carried out on a random basis and is documented.	

¹ Points 1.1 and 1.2 may also be carried out upon arrival at the facilities (arrival check) rather than directly before filling.

² By derogation from the requirements of RID 6.8.2.2.4 shells intended for the carriage of refrigerated liquefied gases need not have an inspection opening (see RID 6.8.3.2.17).

³ This point shall apply only to tanks carrying liquefied gases at low pressure to avoid the risk of deformation of the tank.

Points relevant to leaktightness for emptying rail tank-wagons (bottom discharge) for gases of Class 2 (for inclusion in check-lists) – with explanations/examples

1. Before unloading			
	Check	Explanation	ok
1.1 ¹	Closing device (e.g. screw thread, blank flange) closed both sides.		
1.2 ¹	Tank and items of equipment closed in such a way that nothing can escape uncontrolled.		
1.3 ¹	No damage to tank and items of equipment (no danger for unloading procedure) ascertained.	Notify damaged tanks and items of equipment/ measures necessary for the transport.	
1.4 ¹	The conformity of the accompanying documents, ascertain that the deadline of the next test for tank-wagons and the expiry date of the maintenance of the wagon, have not expired.	Consignment note in accordance with the Contract of Carriage (CIM), wagon note in accordance with the General Contract of Use for Wagons (GCU) or another transport document in accordance with the provisions of RID 5.4.1, certificates of the latest tests carried out; refusals of/restrictions on transport; etc. If not received yet, acquire last test certificate or verify applied to the metal plate on the tank; acquire last test maintenance certificate or verify on the maintenance inscription on the wagon.	
1.5	Ascertain that the correct goods are unloaded.	Compare relevant information on the transport document (UN number and proper shipping name of the product) with the information on the tank or wagon.	
1.6	Before opening the closing device (e.g. screw thread, blank flange) check that it is leaktight.		
1.7	Closing device (e.g. screw thread, blank flange) opened, discharge device connected.	To open cap and release handwheels for the discharge valves, only use suitable tool, with which the necessary force is generated by means of even leverage and damage to the sealing elements is avoided.	
1.8	Internal and external stop-valves opened.	Opening sequence according to instructions.	
2. During unloading			
	Check	Explanation	ok
2.1	No damage to tank and items of equipment (no danger for unloading procedure) ascertained.	Notify damaged tanks and items of equipment/measures necessary for transport.	
3. After unloading			
	Check	Explanation	ok
3.1	Check whether tank is empty, discharge device empty	Other suitable measures are, e.g. spyholes or level indicating de-	

	(visual inspection or other suitable measure).	vice, weighing, change in pump noise, residual amount of product.	
3.2	Bottom valve (internal stop-valve) closed and secured (visual inspection).	Lever position closed. Closing sequence observed (from inside to outside), internal and external shut-off and closing devices are closed in accordance with the operating instructions. The bottom valve is in a recognisably closed position and secured against unintentional opening.	
3.3	Closing device (e.g. screw thread, blank flange) opened. Discharge valve (external stop-valve) closed and secured, no leakages visible (visual inspection). Then check closing device (e.g. screw thread, blank flange) closed.	Closing sequence observed (from inside to outside), internal and external shut-off and closing devices are closed in accordance with the operating instructions. External shut-off devices and fittings must be checked manually or with a suitable tool to ensure that they are closed. Any safety devices to protect against unintentional opening must be used if available.	
3.4	Closing device (e.g. screw thread, blank flange) correctly mounted (seals present and checked, completeness of closing devices), closed with suitable tool and leaktight on both sides (visual inspection).	If the closing device was only used on one side, it only needs to be checked on this side if the other (unused) device has been sealed or secured and it can thus be ascertained that it has not been used. To close cap or blank flange and release handwheels for the shut-off device, use only a suitable tool (e.g. torque wrench), with which the necessary force is generated by means of even leverage and damage to the sealing elements is avoided. There must be no leakage, i.e. there must be no drips on the outlets. If drips are found, further suitable measures are necessary.	
3.5	Operational openings closed and leaktight (visual inspection).		
3.6	Dome, completeness of the closing devices and the absence of leakages (visual inspection).	Particular attention should be paid to this device since it is a major cause of leakages of gas from the tanks. If deemed necessary check with the appropriate instruments.	
3.7	Outside of tank free of dangerous residues.		
3.8 ²	The residual pressure in the tank is sufficient to counter the external pressure.	When the external overpressure could be greater than the tank resistance to external pressure adequate measures shall be taken to protect tanks carrying low pressure liquified gases against the risk of deformation, e.g. by filling them with nitrogen or another inert gas in order to maintain sufficient pressure inside the tank.	
3.9	Handover report is signed/clearance issued.	The proper condition is documented. Effectiveness check is carried out on a random basis and is documented.	

¹ Points 1.1 to 1.4 may also be carried out upon arrival at the facilities (arrival check) rather than directly before filling.

² This point shall apply only to tanks carrying liquefied gases at low pressure to avoid the risk of deformation of the tank.

Points relevant to leaktightness for filling rail tank-wagons (top filling) for liquefied gases of Class 2 (for inclusion in checklists) – with explanations/examples

1. Before filling			
	Check	Explanation	ok
1.1 ¹	Tank and equipment in technically faultless condition (visual inspection from the ground).	Before clearance for filling, the tank and its items of equipment must be checked to ensure that they are in conformity with RID. Verification refers to the valves, closing devices, the dome, the substructure of the wagon, thermal insulation, steps, platforms, parapets, etc.	
1.2 ¹	The conformity of the accompanying documents, ascertain that the deadline of the next test for tank-wagons and the expiry date of the maintenance of the wagon have not expired.	Consignment note in accordance with the Contract of Carriage (CIM), wagon note in accordance with the General Contract of Use for Wagons (GCU) or another transport document in accordance with the provisions of RID 5.4.1, empty document with an indication of the last load; for cleaning certificate, certificates of the latest tests carried out; refusals of/restrictions on transport; etc. If not received yet, acquire last test certificate or verify applied to the metal plate on the tank; acquire last test maintenance certificate or verify on the maintenance inscription on the wagon.	
1.3 ¹	If the gas is authorised for carriage in this tank.	This verification includes the consistency of the data shown in the moveable panel, the tank code and special provisions, the UN number on the orange-coloured plates.	
1.4	Check and open the guard of the dome, verify that the dome is leaktight, the completeness of the closing devices and the absence of leakages (visual inspection).	Particular attention should be paid to this device since it is a major cause of leakages of gas from the tanks. If deemed necessary check with the appropriate instruments.	
1.5	Liquid phase valves and gas phase valve (mounted on the dome), closed and protected against accidental opening, with no visible leaks (visual inspection).	The shut-off devices (valves) must indicate clearly whether the valve position is "open" or "closed". Any safety devices to protect against unintentional opening must be used if available. There must be no leakage, i.e. there must be no drips on the valves.	
1.6	Closing device, blank flange (seal properly installed) closed and no visible leaks.	There must be no leakage, i.e. there must be no drips on the closures. If drips are found, further measures are necessary.	
1.7	Filling device (valves) connected and the internal and external shutter open; closing device on the opposite side closed.	Follow the specific operating instructions for filling.	

2. During filling			
	Check	Explanation	ok
2.1	Degree of filling observed.	Verify if the maximum permissible filling level or the maximum permissible mass of contents per litre of capacity for the gas being filled has been observed.	
2.2	Supervise filling procedure.	During the filling observe the service instructions for the tank-wagon.	
3. After filling			
	Check	Explanation	ok
3.1	Verify that the maximum mass for the gas being filled has been observed.		
3.2	The liquid phase valves and the gas phase valve, closed and locked, safety devices mounted, no leaks (visual inspection).	The valves must be in a recognisably "closed" position and protected against accidental opening.	
3.3	Closing device, blank flange mounted. Then check closing device, blank flange, with no visible leaks (visual inspection).	To close blank flange use only a suitable tool (e.g. torque wrench), with which the necessary force is generated by means of even leverage and damage to the sealing elements is avoided. There must be no leakage, i.e. there must be no drips on the outlets. If drips are found, further suitable measures are necessary.	
3.4	Dome, completeness of the closing devices and the absence of leakages (visual inspection). Close the dome cover.	Particular attention should be paid to this device since it is a major cause of leakages of gas from the tanks. If deemed necessary check with the appropriate instruments.	
3.5	Outside of tank free of dangerous residues.		
3.6	Handover report is signed/clearance issued.	The proper condition is documented. Effectiveness check is carried out on a random basis and is documented.	

¹ Points 1.1 to 1.3 may also be carried out upon arrival at the facilities (arrival check) rather than directly before filling.

Points relevant to leaktightness for emptying rail tank-wagons (top discharge) for liquefied gases Class 2 (for inclusion in check-lists) – with explanations/examples

1. Before unloading			
	Check	Explanation	ok
1.1	Check and open the protection cover of the dome. Verify the presence of manual actuating devices and remote control of the valves.		
1.2	Closing device, blank flange (seal properly installed) closed and no visible leaks.		
1.3 ¹	Tank and items of equipment closed in such a way that nothing can escape uncontrolled.		
1.4 ¹	No damage to tank and items of equipment (no danger for unloading procedure) ascertained.	Notify damaged tanks and items of equipment/ measures necessary for transport.	
1.5 ¹	The conformity of the accompanying documents, ascertain that the deadline of the next test for tank-wagons and the expiry date of the maintenance of the wagon, have not expired.	Consignment note in accordance with the Contract of Carriage (CIM), wagon note in accordance with the General Contract of Use for Wagons (GCU) or another transport document in accordance with the provisions of RID 5.4.1, certificates of the latest tests carried out; refusals of/restrictions on transport; etc. If not received yet, acquire last test certificate or verify applied to the metal plate on the tank; acquire last test maintenance certificate or verify on the maintenance inscription on the wagon.	
1.6	Ascertain that the correct goods are unloaded.	Compare relevant information on the transport document (UN number and proper shipping name of the product) with the information on the tank or wagon.	
1.7	Before opening the closing device, blank flange, check that it is leaktight.	There must be no leakage, i.e. there must be no drips on the closures. If drips are found, further measures are necessary.	
1.8	Closing device, blank flange, opened, discharge device connected.	To open blank flange use only a suitable tool (e.g. torque wrench), with which the necessary force is generated by means of even leverage and damage to the sealing elements is avoided.	
1.9	Internal and external stop-valves opened (liquid phase valves and gas phase valve).	Opening sequence according to operating instructions.	
2. During unloading			
	Check	Explanation	ok
2.1	No damage to tank and items of equipment (no danger for unloading procedure) ascertained.	Notify damaged tanks and items of equipment/ measures necessary for transport.	

3. After unloading			
	Check	Explanation	ok
3.1	Check whether tank is empty, discharge device empty (visual inspection or other suitable measure).	Other suitable measures are, e.g. spyholes or level indicating device, weighing, change in pump noise, residual amount of product.	
3.2	Operating aperture of the liquid phase valves, gas phase valve, closed and sealed, safety devices mounted, (visual inspection).	Closing sequence observed (from inside to outside), internal and external shut-off and closing devices are closed in accordance with the operating instructions. Outside interception devices and accessories should be checked to ensure that they are closed. Any safety devices to protect against unintentional opening must be used if available.	
3.3	Closing device (blank flange) correctly mounted (seals present and checked, completeness of closing devices), closed with suitable tool and leaktight on both sides (visual inspection).	To close blank flange use only a suitable tool (e.g. torque wrench), with which the necessary force is generated by means of even leverage and damage to the sealing elements is avoided. There must be no leakage, i.e. there must be no drips on the outlets. If drips are found, further suitable measures are necessary.	
3.4	Dome: before closing the dome cover, check the dome, completeness of the closures and no leaks (visual inspection).	Particular attention should be paid to this device since it is a major cause of leakages of gas from the tanks. If deemed necessary check with the appropriate instruments.	
3.5	Outside of tank free of dangerous residues.		
3.6	Handover report is signed/clearance issued.	The proper condition is documented. Effectiveness check is carried out on a random basis and is documented.	

¹ Points 1.3 to 1.5 may also be carried out upon arrival at the facilities (arrival check) rather than directly before filling.