



OTIF/RID/CE/GTP/2016/5

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RID: 6th Session of the RID Committee of Experts' standing working group
(Berne, 23 and 24 May 2016)

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

Proposal transmitted by Italy

Reference documents

- (a) OTIF/RID/CE/GTP/2013/7 (UIC) + informal document INF.10 of the 2nd session of the RID Committee of Experts' standing working group (Copenhagen, 18-22 November 2013);
- (b) 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;
- (c) 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);
- (d) OTIF/RID/CE/GTP/2014/23 (Italy) of the 4th Session of the RID Committee of Experts' standing working group (Madrid, 17-20 November 2014);
- (e) OTIF/RID/CE/GTP/2014-B (final report of the 4th session of the RID Committee of Experts' standing working group (Madrid, 17-20 November 2014), paragraphs 12 to 14;
- (f) INF.8 "Information from Italy concerning the ongoing work on the checklists for the filling and emptying of liquefied gas tank-wagons" of the 5th session of the RID Committee of Experts' standing working group (Zagreb, 23-27 November 2015)

Introduction

1. At the 4th session of the RID Committee of Experts' standing working group (Madrid, 17-20 November 2014) Italy submitted document OTIF/RID/CE/GTP/2014/23 for discussion.

2. As reported in OTIF/RID/CE/GTP/2014-B (final report of the 4th session of the RID Committee of Experts' standing working group (Madrid, 17-20 November 2014), paragraphs 12 to 14), the working group agreed to ask an informal working group to examine this proposal.
3. In informal document INF.8 submitted to the 5th Session of the RID Committee of Experts' standing working group (Zagreb, 23-27 November 2015) Italy provided information on ongoing activities and again requested all representatives to transmit all available data.
4. As no significant data have been received, as announced in informal document INF.8 Italy has decided to submit the following proposal, which supersedes the previous one (OTIF/RID/CE/GTP/2014/23), to be put to a vote at the 6th session of the RID Committee of Experts' standing working group.
5. In view of the fact that
 - (a) as reported in paragraph 13 (a) of document OTIF/RID/CE/GTP/2014-B (final report of the 4th session of the RID Committee of Experts' standing working group (Madrid, 17-20 November 2014)) the German Federal Office for Railways (EBA) stated that the failure rate for compressed gas tank-wagons was twice as high as for tank-wagons for other dangerous goods;
 - (b) the absence of data could be considered as indirect proof of the fact that the control measures specified in 4.3.3.4 enable participants to act safely;
 - (c) the carrier has to carry out the checks listed in 1.4.2.2 each time before dangerous goods are accepted for carriage and not on the basis of samples;
 - (d) as agreed at the 4th session of the RID Committee of Experts' standing working group and reported in paragraph 14 of document OTIF/RID/CE/GTP/2014-B (final report of the 4th session of the RID Committee of Experts' standing working group (Madrid, 17-20 November 2014)), acceptance for carriage means that the carrier has ascertained that the checks have been carried out successfully;
 - (e) EIGA Doc 184, "Methods to prevent the premature activation of relief devices on transport tanks", which will be referenced in the 2017 edition of ADR, provides help and assists EIGA members to ensure that transport operations are not disrupted, but also and in particular that appendix A, "Example of a Tank Wagon/Portable Tank/Tank Container inspection sheet" is intended to provide a simple check list on what should be done according to current legislation;
 - (f) standard EN 14841 on "LPG equipment and accessories – Discharge procedures for LPG rail tankers" provides check lists that are adequate to achieve the safety target of this document and applying it exempts users from the requirements of the annex to this document;
 - (g) 5.4.4.1 and 5.4.4.2 only assign the consignor and carrier the obligation to "retain a copy of the dangerous goods transport document and additional information and documentation as specified in RID, for a minimum period of three months" and that if "the documents are kept electronically or in a computer system, the consignor and the carrier shall be able to reproduce them in a printed form";
 - (h) Italy's aim is to achieve a good level of safety (fixing a minimum level of checks to be performed by the main participants) and an acceptable level of traceability of the whole process (by establishing a way to assume responsibility) in the carriage of

dangerous goods by rail. From Italy's point of view, the current text of RID has two failings:

1. The CEFIC guidelines mentioned in the Notes to paragraphs 1.4.3.3 (filler) and 1.4.3.7.1 (unloader) refer to liquids and do not cover gases of Class 2;
 2. The current version of paragraph 1.4.2 gives each participant specific obligations but does not state clearly how they have to be accomplished.
6. In accordance with the above, Italy submits the following two proposals which together supersede both previous proposals in documents OTIF/RID/CE/GTP/2014/15 and OTIF/RID/CE/GTP/2014/23.

Proposal 1

7. In order to provide the filler and unloader with a standard tool similar to the one that already exists in RID for liquids.

Part 1 – Chapter 1.4 Safety obligations of the participants

Add further references to the Notes to 1.4.3.3 and 1.4.3.7, as follows:

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) [see Annex].**

(...)

- (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) [see Annex].**

(...)

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:

(...)

- (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) [see Annex].**

(...)

- (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) [see Annex].**

(...)

Justification

8. The introduction of a common standard reference, as has already been done for liquids by reference to CEFIC guidelines:
 1. provides a standardised and common tool;
 2. defines a common minimum level of checks;
 3. avoids the proliferation of different lists for each kind of gas.

Proposal 2

9. In order to ensure traceability and the proper allocation of responsibilities, add a new sentence to 1.4.1.1, as follows:

1.4.1 General safety measures

- 1.4.1.1 The participants in the carriage of dangerous goods shall take appropriate measures according to the nature and the extent of foreseeable dangers, so as to avoid damage or injury and, if necessary, to minimize their effects. They shall, in all events, comply with the requirements of RID in their respective fields.

The participants in the carriage of dangerous goods shall retain for a minimum period of three months or for a longer period of time established by the competent authority a copy of the document certifying compliance with the obligations under this chapter. Documents should be made available to the competent authority upon request, and when the documents are kept electronically or in a computer system, the participants shall be able to reproduce them in a printed form.

Justification

10. The addition of this sentence would enable participants to divide the activities concerned and to keep the assignment of responsibilities between different actors clear. It does not add any additional obligations, and at the same time, enables all processes to be managed in a traceable manner, even when some of the activities are subcontracted.

Filling and discharging of rail tank-wagons

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

This procedure and the proposed checklists for bottom filling and discharge are applicable to all gases to which the letter "B" is assigned in column (12) of Table A of Chapter 3.2 to RID in the third part of the tank code (see RID 4.3.3.1.1).

For the following gases with UN number:

- UN 1017 CHLORINE, 2TOC,
- UN 1053 HYDROGEN SULFIDE, 2TF,
- UN 1079 SULPHUR DIOXIDE, 2TC,

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

The same procedure (filling and discharging from the top) can be used for other classes of substances in RID to which a tank code including the letter "C" or "D" in its third part is assigned in column (12) of Table A of Chapter 3.2 (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 MEGCs the elements of which are composed of receptacles"; for this gas, filling and discharge must take place in accordance with the service directives 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 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 gas 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 to RID with the letter "B" in the third part of the code tank (see 4.3.3.1.1 of RID), be filled from the bottom 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); and
- be 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 filled from the top 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 substances covered by these procedures, and filling and top discharge for gases with the letter "D" in the third part of the tank code, as prescribed by RID.

The checklists set out a chronological sequence of the steps necessary for the filling and discharge of tank-wagons. Using them as an aid, users can 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 foreseen by RID Chapter 1.4 from their respective obligations assigned to them by RID.

March 2016

**Points relevant to leaktightness for filling rail tank-wagons (bottom filling) for gases of Class 2 in RID (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 has 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/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 dangerous goods are authorised for carriage in this tank.	This verification includes the congruence 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	Verify safety devices if 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 substance being filled has been observed.	
2.2	Supervise filling procedure.		

3. After filling			
	Check	Explanation	ok
3.1	Verify if the maximum mass for the substance being filled has been respected.		
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 instrumentation.	
3.8	Outside of tank free of dangerous residues.		
3.9	Closing device is leaktight 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. One very important component of a final check is to ensure	

		that there are no leaks at all, i.e. there must be no drips on the valves and outlets. If drips are found, further suitable measures are necessary.	
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 liquefied 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 in RID (for inclusion in checklists) – 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 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 has 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/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 (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	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 instrumentation.	
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 in RID (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 has 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/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 dangerous substance is authorised for carriage in this tank.	This verification includes the congruence 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 instrumentation.	
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 blind 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 substance being filled has been observed.	
2.2	Supervise filling procedure.	During the filling respect the service directives of the tank wagon.	

3. After filling			
	Check	Explanation	ok
3.1	Verify if the maximum mass for the substance 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, blind flange mounted. Then check closing device, blind flange, with no visible leaks (visual inspection).	To close blind 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 cover to the dome.	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 instrumentation.	
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 of Class 2 in RID (for inclusion in checklists) – 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 blind 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 has 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/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 blind 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 (valves the liquid phase and valve the gas phase).	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 blind 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 cover of the dome, 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 instrumentation.	
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 1.2 to 1.4 may also be carried out upon arrival at the facilities (arrival check) rather than directly before filling.