

**CIRCULAR NO. DG-02**

**Instructions for the Transfer of Dangerous Goods in Bulk on Railway Property**

1. **GENERAL**

These instructions apply to the Loading, unloading or transfer of dangerous good from railway vehicles to trucks, trucks to railway vehicles, and railway vehicles to railway vehicles including tank cars and/or tank trailers.

**The various classes and designators referred to are as identified in the Transportation of Dangerous Goods Regulations.**

1. **EXCEPTIONS**

Class 1 materials are to be handled in accordance with the “Handling of Carloads of Explosives on Railway Trackage Regulations” and railway and/or Local police are to be advised of such activity.

*This circular does not apply to emergency transfers due to overloading, leaking or damaged Freight Cars.*

1. **SITE SELECTION RESPONSIBILITY**

An appropriately trained Railway Officer is responsible for the selection of tracks to be used for the Loading, unloading and/or transferring of dangerous goods. When this has been done, an appropriate Transport Canada Transportation of Dangerous Goods Officer and the Local Fire Department are to be advised accordingly.

If the screening distances as stated in Part 4 cannot be respected, additional safety measures as appropriate are to be applied

1. **PRIMARY SELECTION CRITERIA**

A dangerous goods transfer track should be Located at Least at the following distances from commercial establishment, residences and other places of assembly such as schools, hospitals or recreation centers:



**5. ADDITIONAL SELECTION CRITERIA**

 Where practicable, a dangerous goods Loading/unloading or transfer track, shall also be:

* Located away or protected from busy highways,
* Not located under a bridge or an overhead highway or commuter rail structure,
* Located away from power lines, transformers, underground gas lines or other sources of ignition,
* Located away from sensitive areas of the environment such as a sensitive marine and inland waters, including sewer openings,
* Located away from fueling or repair facilities,
* Located adjacent to a roadway in order to provide easy access for inspections and emergency response,
* Located near an emergency water source,
* Equipped with spill trays or other containment devices that will collect any product that may Leak during connecting or disconnecting of Loading or unloading hoses.
* Located on a site that offers natural containment to negate spill runoff, and

Any product that is spilled is to be properly packaged and removed from the site for proper disposal.

The movement of rail cars on immediately adjacent tracks must be of a speed consistent with safety.

**6. MAINTENANCE OF TRANSFER TRACKS**

Railway infrastructures at the site must be in suitable condition.

**7. INSPECTION**

Occasional inspections are to be made of the site by railway personnel during operation to ensure operators, consignors, or their representatives are complying with these recommendations. The inspections may be performed by any person who is trained under the Transportations of Dangerous Goods Regulations and is familiar with these recommendations.

Railways must provide or make arrangements to provide a visual walk around inspection every 48 hours after the *fifth day* ***(120 hrs)***of cars that have been held to ensure they are not leaking. The inspection may be performed by any person who is trained under the Transportation of Dangerous Goods Regulations, knows where to look for leaks and if leaks are found, knows who to contact for immediate remedial action, if necessary.

Written records must be made of all inspections and retained for a period of two years after the cars are released from holding.

**8. TRAINING**

Any person using the site for loading, unloading or transferring of dangerous goods shall be trained under Transportation of Dangerous Goods Regulations and be experienced and knowledgeable of safety requirements for the specific loading, unloading or transfer operation being performed.

This is to include knowledge of tank cars and their fittings and of the product or products being loaded or unloaded as well as the requirements for marking, labeling and/or placarding.

**9. DOCUMENTATION**

Any persons, consignors, or their representatives, are to ensure correct documentation for loaded, partially loaded or residue cars is provided to the carrier and arrangements are made for copies of the documents are made available at the site. If requested, emergency response information for the dangerous goods is to be provided to local emergency response personnel.

**10. NOTIFICATION**

**CANUTEC** and the appropriate Railway Officer must be advised immediately of any incident, accident or leakage involving dangerous goods.

In the event of an emergency involving dangerous goods,

call **CANUTEC** at **1-888-CAN-UTEC** (**226-8832**), **613-996-6666** or **\*666** on a cellular phone.

**11. REGULATORY REQURIMENTS**

**5.4 Loading and Securing Part 5 TDG Regulations**

A person must load and secure dangerous goods in a means of containment and must load and secure the means of containment on a means of transport in such a way as to prevent, under normal conditions of transport, damage to the means of containment or to the means of transport that could lead to an accidental release of the dangerous goods.

The TP 14877 standard is referenced by TDG Regulations and as such the requirements in this standard must be complied with when loading / unloading dangerous goods.

The TP 14877 standard sets out the requirements for the handling, offering for transport, and transporting of dangerous goods by rail in Canada. It includes requirements for the:

* construction and modification of tank cars and ton containers
* qualification and maintenance of tank cars and ton containers
* selection, use, and handling of ton containers, TC portable tanks, tank cars, hopper cars, and other large containers or transport units used in the handling, offering for transport, or transporting of Class 2, 3, 4, 5, 6.1, 8 and 9 dangerous goods by rail
* movement of non-compliant containers.

**TP 14877: 10.6 Loading and Unloading Railway Vehicles**

**10.6.1 Prohibition Against Movement**

 During the period of time when dangerous goods are being loaded into or onto a railway vehicle or unloaded from a railway vehicle, that railway vehicle and any railway vehicle to which it is attached must not be moved.

**10.6.2 General Loading / Unloading Conditions**

Dangerous goods must not be loaded into or onto a railway vehicle or unloaded from a railway vehicle unless the following requirements are met. Except for paragraphs b, c and d, the following requirements do not apply to a railway vehicle that is a boxcar, flatcar or hopper car:

1. Dangerous goods with a primary or subsidiary classification of Class 3, 4, 5 or Division 2.1 must take fire safety measures to prevent the ignition of the dangerous goods, including grounding and bonding the tank cars, before any loading or unloading related activities have begun and must remain until all loading or unloading activities have concluded.
2. Ensure that the railway vehicle or coupled string of railway vehicles are immobilized by using hand brakes and by blocking the wheels. As a minimum, the hand brakes must be applied and at least one wheel must be blocked in both directions on at least:
3. one car for a one or two car coupled string; or
4. two cars for a three to nine car coupled string plus one additional car for every block and any fraction of block of ten cars in excess of the first nine cars in the coupled string, including the first and last cars of the string;
5. Ensure that the section of track is protected by locked switches, locked derails, bumper blocks or other such equipment controlled by the loading or unloading facility.
6. Caution signs are displayed to warn approaching railway vehicle operators. Caution signs must be manufactured of metal or other durable metal having dimensions equal to or greater than 300 mm x 380 mm (12 in x 15 in) and bear the words “STOP” or “ARRÊT” in white capital letters equal to or greater than 100 mm (4 in) in height on a blue background.
7. The immediate vicinity of the railway vehicle is kept free of combustible materials or other dangerous goods not compatible with the commodity being loaded or unloaded.
8. In the case of a tank car, precautions are taken to prevent the release of dangerous goods while the tank car is being loaded or unloaded. When the loading or unloading is completed, all closures are secured, and the connections made between the tank car service equipment and the loading or unloading components are disconnected.
9. If loading or unloading is discontinued, the loading or unloading connections may remain attached provided that the shutoff valves and the facility’s first fixed isolation valve, when so equipped, are closed and secured in the closed position and all other conditions of clause 10.6.2 are met, including 10.6.2.h.
10. The loading / unloading operations are directly, remotely or automatically monitored to ensure safety and prompt response in the event of an emergency.
11. If applicable, measures are taken to minimize the release of dangerous goods when interconnecting pipes are used.
12. Measures are taken to control the pressure inside the tank car during loading and unloading operations, including avoiding an excessive vacuum condition.
13. Hoses, and their connectors, used to temporarily connect to the railway vehicle to load or unload dangerous goods must be visually inspected prior to each use. Loading and unloading hoses and their connectors must be tested periodically in accordance with the manufacturer’s recommendations. A test report must be generated and kept until the next report is produced
14. When it is safe to do so, the interior pressure is relieved before the removal of the manhole cover or valve outlet cap.

**TP 14877: 10.7 Loading of Containers**

**10.7.1 Before Loading**

A container must not be loaded with dangerous goods if:

1. The container does not conform to the requirements for selection and use set out in this standard.
2. The required dangerous goods safety marks are not in place.
3. The container is past due for qualification.
4. The container is manufactured from a material, or has a lining or coating, that is not compatible with the dangerous goods being loaded.
5. The container already contains dangerous goods or other substances that could react with the dangerous goods to be loaded.
6. The dangerous goods are at a temperature outside the design temperature range of the container or outside the service temperature range of the lining or coating.
7. Before loading through a bottom outlet valve, ensure that:
	1. The valves, hoses, pipes and couplers are properly designed and rated for loading the lading;
	2. Mechanisms are in place to safely deal with hazards such as overloads, overpressures, leaks and fires; and
	3. Mechanisms are in place to safely evacuate the lading from the valves, hoses, pipes and couplers to avoid causing a dangerous goods release.

**10.7.2 During Loading**

During the period of time that a tank car is being loaded, tank cars equipped with bottom discharge outlets require that the caps and plugs of the outlets and secondary valves be removed.

**10.8 After Loading**

After loading a dangerous goods container, a person must conduct an external visual inspection that includes:

a. Except where insulation or a thermal protection system precludes an inspection, an examination of the tank shell and heads for abrasion, corrosion, cracks, dents, distortions, defects in welds, damage or any other condition that makes the tank car unsafe for transportation.

b. Inspecting the piping, valves, fittings and gaskets for corrosion, damage, or any other condition that makes the tank car unsafe for transportation.

 c. Ensuring that there are no missing or loose bolts, nuts or elements that make the tank car unsafe for transportation.

d. Ensuring that all closures of openings, as well as the fasteners securing them on the container, are in good condition and secured to achieve conformance with clause 4.10.2.

e. Except on tank cars used in the handling, offering for transport, or transporting of Class 2 gases or tank cars being returned after unloading, inspecting pressure-relief devices, including the removal and inspection of rupture discs on safety vents, for any condition that could alter the intended operation of the device or endanger public safety, including corrosion or damage.

The rupture disc is not required to be removed prior to visual inspection if the tank car contains only residual quantities of a Class 8, packing group II or III material with no subsidiary hazard or Class 9 elevated temperature material.

f. For a combination pressure-relief device incorporating a rupture disc, inspecting and opening each detection device including a needle valve, trycock or telltale indicator to ensure the integrity of the rupture disc.

 g. Inspecting the thermal protection system, tank-head puncture-resistance system, coupler vertical restraint system, and bottom discontinuity protection for any condition that make the tank car unsafe for transportation.

 h. Inspecting for spillage of dangerous goods on the exterior surface of the container and ensuring that it is removed, except for dried molten sulphur residue as described in the Sulphur Institute’s “Molten Sulphur Rail Tank Car Guidance” document.

1. Inspecting the compliance markings for legibility and correctness.

j. Inspecting the external surface of ceramic type filters on tank cars equipped with a venting device and transporting hydrogen peroxide, aqueous solution with more than 40% hydrogen peroxide, stabilized, except on tank cars being returned after unloading.

 k. Inspecting the periodic inspection date markings to ensure that they are within the prescribed intervals.

**10.9 Before Transporting**

Before transporting a container containing dangerous goods, the person who will be transporting the container must conduct an external visual inspection of the container, to the extent practicable, from the ground level to ensure that:

1. The required dangerous goods safety marks are in place and in conformance with the TDG Regulations.
2. Closures of openings are in good condition and properly secured.

**Link to TP 14877:** <https://www.tc.gc.ca/media/documents/tdg-eng/tp14877_en.pdf>