

2012
revised
edition

Transportation of Dangerous Substances

Guide



This publication was created by the Direction du transport routier des marchandises and edited by the Direction des communications of the ministère des Transports du Québec.

The content of this publication can be found on the Ministère's website: www.mtq.gouv.qc.ca.

For more information:

- Dial **511**
- Visit the website at www.mtq.gouv.qc.ca
- Write a letter to:

Direction des communications
Ministère des Transports

700, boul. René-Lévesque Est, 27^e étage
Québec (Québec) G1R 5H1

Concerned with protecting the environment, the ministère des Transports encourages the use of paper produced from recycled fibre for the production of its printed materials and recommends that this publication be downloaded.

Printed on Rolland Enviro100 paper containing 100% post-consumer fibre, certified EcoLogo, processed chlorine free, FSC recycled and manufactured using biogas energy.



© Gouvernement du Québec, ministère des Transports du Québec, 2012

ISBN 978-2-550-66109-2 (Print version)

ISBN 978-2-550-66111-5 (PDF)

Legal deposit – 2012

Bibliothèque et Archives nationales du Québec

Library and Archives Canada

All rights reserved. Translation of any part of this document and reproduction by electronic or mechanical means, including microfilming, is prohibited without the written permission of Publications du Québec.

Table of contents

Notice	5
Introduction	5
Classification	6
Class 1 – Explosives	7
Class 2 – Gases.....	8
Class 3 – Flammable liquids	8
Class 4 – Flammable solids, spontaneously combustible materials and water-reactive substances.....	9
Class 5 – Oxidizers and organic peroxides.....	9
Class 6 – Toxic materials and infectious substances.....	10
Class 7 – Radioactive materials.....	10
Class 8 – Corrosive materials.....	10
Class 9 – Miscellaneous products, substances or organisms	10
Shipping documents	11
Example of a shipping document.....	12
Storage and location of the shipping document during transport.....	13
Means of containment	14
Small means of containment.....	14
Large means of containment.....	14
Large bulk containers	14
Tank trucks.....	15
Contaminated soil	16
Petroleum products	16
Rules governing tank trucks.....	17
Rules governing the driver of a tank truck.....	18
Special rules governing the means of containment of petroleum products	19
Liquefied petroleum gases	20
Rules governing tank trucks.....	20
Rules governing the driver of a tank truck.....	21
Special rules governing the means of containment of liquefied petroleum gases.....	21
Safety marks	22
Small means of containment.....	22
Large means of containment.....	23
Signs and marks.....	27
Training	27
Requirements.....	27
Example of a training certificate	29
Accidental release	30
Tunnels	31
Requirements applying to the use of tunnels.....	31
Level crossings	33

Exemptions	34
Exemption for a gross mass of 150 kg or less	34
Exemption for a gross mass of 500 kg or less	35
Exemption for limited quantities	37
Exemption for a medical device or item	38
Exemption for a gross mass of 1,500 kg or less transported on board a farm vehicle	39
Exemption for dangerous substances with a gross mass of 3,000 kg or less sold retail for agricultural use	40
Exemption for a means of transportation reserved for emergency response	41
Exemption for dangerous substances used to operate a means of transportation or maintain the interior environmental conditions of a means of containment	41
Exemption for dangerous substances in an instrument or in equipment	42
Exemption for gasoline (UN1203) used to operate an instrument or equipment	42
Exemption for certain types of gases	43
Exemption for Class 3, Flammable liquids	43
Exemption for alcoholic solutions	44
Exemption for diesel fuel (UN1202) and gasoline (UN1203)	45
Exemption for Class 6.2, Infectious substances, Category B	45
Exemption for biological products	46
Exemption for human or animal specimens	46
Exemption for tissues or organs for transplant	46
Exemption for blood and blood components	47
Miscellaneous exemptions	47
Standards and safety rules	48
Cargo securement	48
Double train tank truck	49
Road train	49
Tank truck containing flammable substances	49
Cross-border transport	50
Transport to the United States	50
Transport from the United States	51
Intermodal transport	52
Reshipping dangerous substances in Canada	52
Safety and security measures	53
Prior to departure	53
During transportation	53
Suggestions aimed at enhancing security	54
Appendix	56
Conversion tables	56
Useful telephone numbers	58

Notice

This publication presents information on the ministère des Transports du Québec's *Transportation of Dangerous Substances Regulation*. The information, which covers the regulatory changes that were introduced in 2011, is not a legal interpretation of the Regulation and in no way releases drivers, consignors, carriers and vehicle owners from the obligation of knowing and complying with standards governing their transportation operations. It should be noted that the term "carrier" used in this guide also encompasses the notion of an operator as defined in the *Act respecting owners, operators and drivers of heavy vehicles* (R.S.Q., c. P-30.3).

Introduction

The provisions in the ministère des Transports du Québec's *Transportation of Dangerous Substances Regulation* are now harmonized pursuant to Québec's powers and jurisdiction in respect of road transportation with provisions in the *Transportation of Dangerous Goods Regulations* (TDGR) adopted by the federal Department of Transport. The federal regulation stems from close collaboration between the provincial and federal governments and representatives of the industry concerned.

The Québec Regulation applies to the handling of dangerous substances and **is aimed at all users** of Québec public roads who transport dangerous substances from the place of manufacture or distribution to the place of delivery or unloading. In some instances, it provides for exemptions depending on the type or quantity of dangerous substance in question.

The transportation of dangerous substances may be subject to the regulations of the International Maritime Organization (IMO), the International Civil Aviation Organization (ICAO), or the US regulation governing the transportation of dangerous substances, Title 49 of the *Code of Federal Regulations* (CFR). In the case of intermodal or cross-border transport, the carrier must ascertain whether the goods being transported are regulated and, if so, to what extent.

It is essential to comply with safety rules respecting the transportation by road of goods when dangerous substances are transported.

Classification

Dangerous substances are divided into **nine classes**, according to the type of risk they pose to public safety. Most of the classes are subdivided according to the characteristics of a given substance.

The consignor is bound to determine the classification of a dangerous substance before allowing a carrier to take possession of it. To this end, the consignor must check whether the shipping name of the substance in question is included on the list of products in Schedule 1 of the TDGR.

This list indicates not only the shipping name but also the primary class, explosives compatibility group, the subsidiary group, as the case may be, the product identification number attributed in accordance with standards established by the United Nations (UN number), the packing group, the applicable transport requirements and specific measures to be taken.

If the dangerous substance in question is not included on the list of products in the TDGR and tests have made it possible to determine that it does not correspond to the criteria respecting a given class, it is not, consequently, subject to the *Transportation of Dangerous Substances Regulation*.

The consignor may use the classification established by the Chief Inspector of Explosives, Natural Resources Canada, for Class 1 (Explosives), by the Director of the Biosafety Division, Health Canada, for Class 6.2 (Infectious substances), or by the manufacturer or a previous consignor. The consignor may also use the classification of the International Civil Aviation Organization (ICAO), the classification in the *International Maritime Dangerous Goods Code* (IMDG Code), or the *United Nations Recommendations*.

It is strongly recommended that carriers ensure that the shipper has classified dangerous substances before accepting them. If the substances have not been classified, or if an error is noticed, the carrier notifies the shipper.

The nine classes, their divisions and the corresponding pictograms are indicated below.

CLASS 1

Explosives

1.1



Explosives with a mass explosion hazard,
e.g. TNT

1.2



Explosives with a projection hazard, but without a mass explosion hazard, *e.g. military shells*

1.3



Explosives with predominantly a fire hazard with a slight blast or projection hazard or both, but without a mass explosion hazard, *e.g. fireworks*

1.4



Explosives with no significant blast hazard outside their packing in the case of ignition or initiation during transport, *e.g. safety fuses and firearm bullets*

Placards not required for Class 1.4:

- if the quantity of **Class 1.4** explosives is equal to or less than 1,000 kg;
- regardless of the quantity of the **Class 1.4S** product.

1.5



Very insensitive explosives with a mass explosion hazard, *e.g. blasting agents*

1.6



Extremely insensitive detonating articles with no mass explosion hazard, *e.g. articles containing very insensitive explosive material*

** Location of the letter indicating the compatibility group.*

Additional requirements for the transport of explosives

In Québec, all drivers of a road vehicle carrying explosives listed in the *Regulation under the Act respecting explosives* must obtain an authorization from the Sûreté du Québec.

CLASS 2

Gases

2.1



Flammable gases,
e.g. propane

2.2



Non-flammable, non-toxic gases,
e.g. nitrogen

This pictogram (and not that for primary class 2.2) must be displayed in the case of the following four oxidizing gases:



- oxygen, compressed (UN1072)
- oxygen, refrigerated liquid (UN1073)
- compressed gas, oxidizing, N.O.S.* (UN3156)
- liquefied gas, oxidizing, N.O.S. (UN3157)

** not otherwise specified*

2.3



Toxic gases,
e.g. carbon monoxide

CLASS 3

Flammable liquids



Liquids having a flash point equal to or lesser than 60°C,
e.g. gasoline and diesel fuel

CLASS 4

Flammable solids, spontaneously combustible materials and water-reactive substances

4.1



Flammable solids,
e.g. safety matches

4.2



Spontaneously combustible materials,
e.g. activated carbon

4.3



Water-reactive substances,
e.g. sodium

CLASS 5

Oxidizers and organic peroxides

5.1



Oxidizers,
e.g. ammonium nitrate

5.2



OR



Organic peroxides,
e.g. dibenzoyl peroxide

CLASS 6

Toxic materials and infectious substances



6.1 Toxic materials,
e.g. arsenic, lead cyanide



(Placard)

6.2 Infectious substances,
e.g. rabies virus



(Label)

CLASS 7

Radioactive materials



(Placard)

Radioactive materials identified in the *Packaging and Transport of Nuclear Substances Regulations*,
e.g. uranium hexafluoride



(Label or placard)
Category I – White



(Label or placard)
Category II – Yellow



(Label or placard)
Category III – Yellow



(Label)

CLASS 8

Corrosive materials



Corrosive materials,
e.g. sulphuric acid

CLASS 9

Miscellaneous products, substances or organisms



Miscellaneous products, substances or organisms,
e.g. PCBs and asbestos

Shipping documents

Before authorizing the carrier to take possession of dangerous substances to be transported, the consignor must fill out and give to the carrier a shipping document. At the time of transport, carriers must have in their possession a handwritten or printed-paper shipping document.

The shipping document must contain the following information:

- the name and address of the consignor's establishment in Canada;
- the date on which the document was filled out or submitted;
- a description of each dangerous substance, in the order indicated:
 - the shipping name;
 - the primary class;
 - the letter of the explosives compatibility group, as the case may be;
 - the subsidiary class or classes, as the case may be (this indication must be recorded in parentheses);
 - the UN number (this number can appear in front of the shipping name);
 - the packing group, as the case may be;
- the quantity of each substance and the unit of measurement used to express the quantity. It should be noted that shipping documents prepared in Canada must specify the quantities according to the International System of Units (SI);
- the number of small means of containment for each dangerous substance, as the case may be;
- the "24-hour number" at which the consignor can be reached or the telephone number of a person other than the consignor who can provide technical information (the CANUTEC number may not be used without the organization's written permission);
- the nature of a change in the quantity of dangerous substances or the number of means of containment during transport;
- the emergency response assistance plan (ERAP) reference number issued by Transport Canada, where applicable;
- any additional information required, as the case may be.

When carriers take charge of a shipment of dangerous substances, they must ensure that they have the necessary shipping document. They must give the shipping document or a photocopy of it to the person to whom they entrust the dangerous substances.

A person may simultaneously be the consignor and the carrier of a given shipment, e.g. a manufacturer that transports the dangerous substances that it produces.

The consignor and the carrier must preserve a copy of the shipping document in one form or another for at least two years.

The Regulation does not prescribe the use of any particular form to draft the shipping document. All of the information required must be included in French or in English and be written legibly and indelibly.

Example of a shipping document

CONSIGNOR: Name Address					DATE:	
OPERATOR: Name RIN: R-00000000					CONSIGNEE: Name	
REFERENCE NUMBER:						
Shipping name	Primary class (explosives compatibility group)	Subsidiary class (as the case may be)	UN number	Packing (as the case may be)	Quantity	Number of means of containment
Indicate any change in the quantity of dangerous substances or the number of means of containment during transport						
"24-hour number" at which the consignor can be reached or CANUTEC number, with the organization's authorization						
Emergency response assistance plan reference number, as the case may be						
Telephone number to immediately implement the ERAP						
<p>In the case of the following dangerous substances:</p> <ul style="list-style-type: none"> • Class 4.1 (flammable solids) and Class 5.2 (organic peroxides) <ul style="list-style-type: none"> - regulation temperature and critical temperature • Class 7 (radioactive materials) <ul style="list-style-type: none"> - any additional information required pursuant to the Packaging and Transport of Nuclear Substances Regulations 						
INTERMEDIARY: Name RIN:				Have several operators transported the dangerous substances? Yes <input type="checkbox"/> No <input type="checkbox"/>		
Signature of the operator or representative		Name in block letters		Function or capacity	Address:	

Legend

- Information required pursuant to the *Transportation of Dangerous Substances Regulation*.
- Information required pursuant to the *Regulation respecting the requirements applicable to shipping documents, leasing contracts and contracts for services*.
- Information required pursuant to both of the aforementioned regulations.

Note: In the case of bulk fuel shipping (except for propane and natural gas), the carrier must be sure to have in hand all of the information required by Revenu Québec.

Storage and location of the shipping document during transport

When the driver is in the vehicle, the shipping papers must be stored in a pocket attached to the driver's door, or must remain within reach.



When the driver is not in the vehicle, the papers may be kept in a pocket attached to the driver's door or placed under the driver's seat, or kept within view of anyone who might have to climb aboard on the driver's side.

Means of containment

Dangerous substances must be transported in standardized means of containment, unless they are exempt from this requirement, in order to avoid possible discharges. The Regulation refers to various provisions concerning the manufacture, selection and use of means of containment intended to transport dangerous substances.

All standardized means of containment must bear certification safety marks pertaining to their manufacture. To continue to comply with the standards, certain means of containment must be inspected, tested and marked at precise intervals.

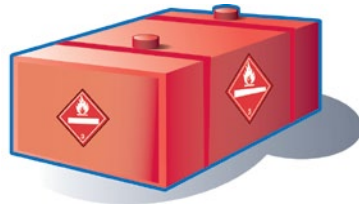
Small means of containment

Small means of containment have a capacity of 450 L or less, e.g. cylinders, jerry cans, pails, barrels or bottles.



Large means of containment

Large means of containment have a capacity greater than 450 L, e.g. tank trucks, large bulk containers or portable tanks.



Large bulk containers

Large bulk containers (LBC) are containers with a capacity of more than 450 litres and less than 3,000 litres that must be manufactured in compliance with standard CNGC-43.146.

Note: Large containers for transporting petroleum products on a vehicle used for agricultural purposes must also meet standards.

Tank trucks



- A maker's name plate must be displayed on tank trucks showing that the trucks have been built according to the CSA B620 standard by a manufacturer duly recognized by Transport Canada.
- Tank trucks must be tested periodically to ascertain whether they continue to comply with the CSA B620 standard. The intervals between tests vary by type of tank truck. Marking showing that an establishment duly recognized by Transport Canada has conducted the tests must be displayed on the tank.
- The CSA B621 and CSA B622 standards include provisions governing the selection and use of tank trucks according to the dangerous substances transported.



All tank trucks assembled after August 14, 2006, that carry dangerous substances must be equipped with:

- a device for monitoring the driver's behaviour that records significant speed variations and relevant data on the date, time, and speed;

OR

- an electronic stability control system that assists the driver in the case of critical handling.

Upon request by a peace officer, a document attesting that one of these two devices has been installed must be presented.

Contaminated soil

Contaminated soil is classified according to the limit values prescribed in Schedules I and II of the *Land Protection and Rehabilitation Regulation* (LPRR) of the ministère du Développement durable, de l'Environnement, de la Faune et des Parcs du Québec.

Contaminated soil must be transported in a closed means of containment or in a dump vehicle. When contaminated soils are transported in a dump vehicle, an impermeable tarpaulin must:



- cover the top of the dump body so that rain or snow cannot get in and contaminants cannot escape, when the contaminant concentration is equal to or higher than the limit values prescribed in Schedule II of the LPRR;
- keep the contaminated soil inside the vehicle in all other cases.

To the extent that liquids may be released from such soil, the container or body must be watertight.

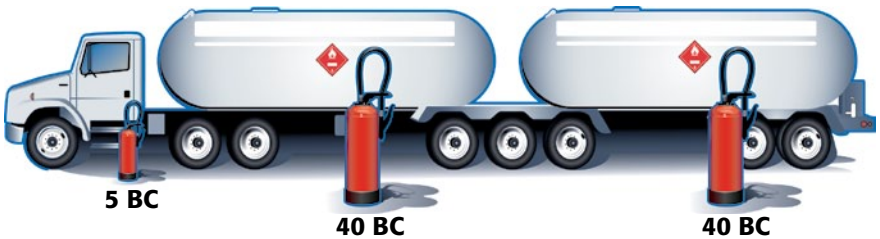
Petroleum products



SHIPPING NAME	UN NUMBER	PACKING GROUP
FUEL, AVIATION, TURBINE ENGINE	UN 1863	I, II OR III
GASOLINE; MOTOR SPIRIT; or PETROL	UN 1203	II
DIESEL FUEL; FUEL OIL; GAS OIL; or HEATING OIL, LIGHT	UN 1202	III
KEROSENE	UN 1223	III
ETHANOL AND GASOLINE/MOTOR SPIRIT/PETROL MIXTURE (with more than 10% ethanol)	UN 3475	II
PETROLEUM CRUDE OIL	UN 1267	I, II OR III
PETROLEUM DISTILLATES, N.O.S.; or PETROLEUM PRODUCTS, N.O.S.	UN 1268	I, II OR III

Rules governing tank trucks

- The capacity of the compartments of a compartmentalized tank truck used to transport gasoline or aviation fuel must not exceed 17,000 L.
- The electrical wiring of a tank truck must be covered with a polymer so that it is permanently insulated.
- Precautions must be taken to avoid static electricity.
- Switches must be impervious to petroleum products and their fumes.
- The tank truck must be equipped with:
 - two wheel chocks;
 - near each tank, one or two dry chemical extinguishers with an effective total rating of at least 40 BC. The extinguishers must be easily accessible;
 - in the cab or attached on the outside of it, one extinguisher with a rating of at least 5 BC. The extinguisher must be easily accessible.



Rules governing the driver of a tank truck

Tank truck drivers must:

- engage the parking, emergency, or service brake in order to immobilize the vehicle during the unloading of petroleum products;
- if the tank truck is parked on a slope, chock two wheels before the unloading;
- ensure that all valves of the tank truck that are connected to the means of containment are closed, except during unloading. Only drivers with a training certificate in dangerous substance transportation may open valves.



No person may fill a means of containment or a fuel tank with the contents of a tank truck. However, this restriction does not apply to the delivery of fuel oil for buildings.



Special rules governing the means of containment of petroleum products

Small means of containment

Despite the requirement to transport petroleum products in means of containment that comply with the CGSB-43.150 standard, the petroleum products referred to may also be transported in means of containment that comply with one of the following standards:

- CSA B376;
- NFPA 30;
- ULC/ORD-C142.13-1997.



Large means of containment

All vehicles that transport large containers of petroleum products must be equipped with a fire extinguisher with a rating of at least 5 BC in the cab or attached to the outside of it. The extinguisher must be easily accessible.



Capacity of more than
450 litres

Liquefied petroleum gases



SHIPPING NAME	UN NUMBER
BUTANE	UN1011
BUTYLENE	UN1012
ISOBUTANE	UN1969
ISOBUTYLENE	UN1055
LIQUEFIED PETROLEUM GASES	UN1075
PROPANE	UN1978
PROPYLENE	UN1077

Rules governing tank trucks

The tank truck must be equipped with:

- two wheel chocks;
- near each tank, one or two dry chemical extinguishers with an effective total rating of at least 40 BC. The extinguishers must be easily accessible;
- in the cab or attached on the outside of it, one extinguisher with a rating of at least 5 BC. The extinguisher must be easily accessible.



Rules for tank truck drivers

Tank truck drivers must:

- engage the parking, emergency, or service brake in order to immobilize the vehicle during the unloading of liquefied petroleum gas;
- if the tank truck is parked on a slope, chock two wheels before unloading;

No person may fill a gas cylinder with a capacity of 46 litres or less or a liquefied petroleum gas tank with the contents of a tank truck.

Special rules governing the means of containment of liquefied petroleum gases

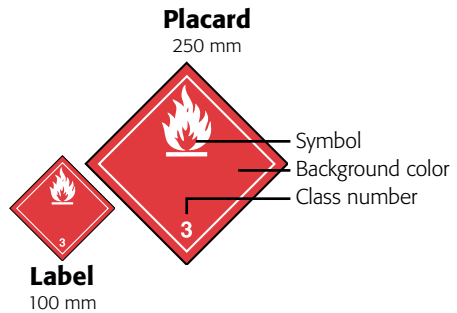
- Carrying gas cylinders inside a vehicle is prohibited except in an area with exterior ventilation.
- Gas cylinders installed outside, at the rear of the vehicle, must be protected by extending the bumper beyond the cylinder using material whose resistance is at least equivalent to that of the bumper.
- A gas cylinder must never:
 - be carried on the roof or attached to a door;
 - be mounted in front of a motor vehicle's front axle;
 - extend beyond either side of the vehicle.
- All vehicles transporting liquefied petroleum gases in a large means of containment must be equipped with one extinguisher of at least 5 BC, installed in the cab or attached outside the cab. The extinguisher must be easily accessible.

Safety marks

Safety marks must be displayed on means of containment used to transport dangerous substances, namely:

- labels;
- placards;
- signs and marks.

When the conditions governing the display of safety marks are changed, it must be determined whether safety marks will have to be changed or removed as a result.



Small means of containment

Labels

The **consignor** is responsible for displaying or having displayed the primary class label and the subsidiary class label (as the case may be) on each small means of containment with a capacity of 450 litres or less containing dangerous substances.

The **carrier** must ensure that the labels remain in place during the trip.

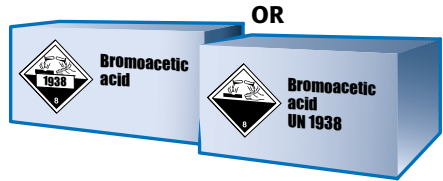
The label must be displayed:

- on any side of the outer surface of a small means of containment other than the side on which it is intended to rest or to be stacked during transport. In the case of radioactive materials, the label must be displayed on two opposite sides of the outer surface;
- on or near the shoulder of a gas cylinder.

Shipping name, technical name and UN number

The shipping name, the technical name (as the case may be), and the UN number of dangerous substances must be displayed on small means of containment in the following manner: the shipping name, beside the label, followed by the technical name in parentheses; the UN number, beside the primary class label or in the centre of the label inside a white rectangle.

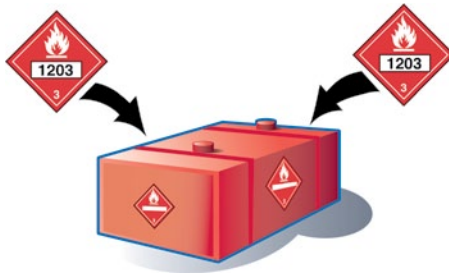
Once all safety marks have been placed on each small means of containment, refer to the diagram on page 25 to verify whether placards or UN numbers are required on the vehicle in which all the means of containment (small and large) will be placed.



Large means of containment

Placards and UN number

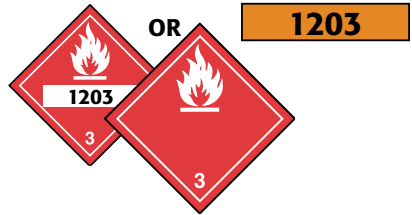
The **consignor** is responsible for displaying the placards or having them displayed, along with the UN number, where required, on each side and at each end of every large means of containment with a capacity over 450 litres that contains dangerous substances. The consignor must also, where required, provide the carrier with the placards to be displayed on the container or vehicle (truck, semi-trailer or trailer).



The **carrier** must affix or remove the placards when the quantities or type of dangerous substances change during transport. The carrier must also ensure that the appropriate placards remain in place during transport.

The UN number may be displayed either:

- inside a white rectangle on the placard;
- on an orange panel right beside the placard.



UN numbers must be displayed on every large means of containment where the dangerous substances fall into one of the following categories:

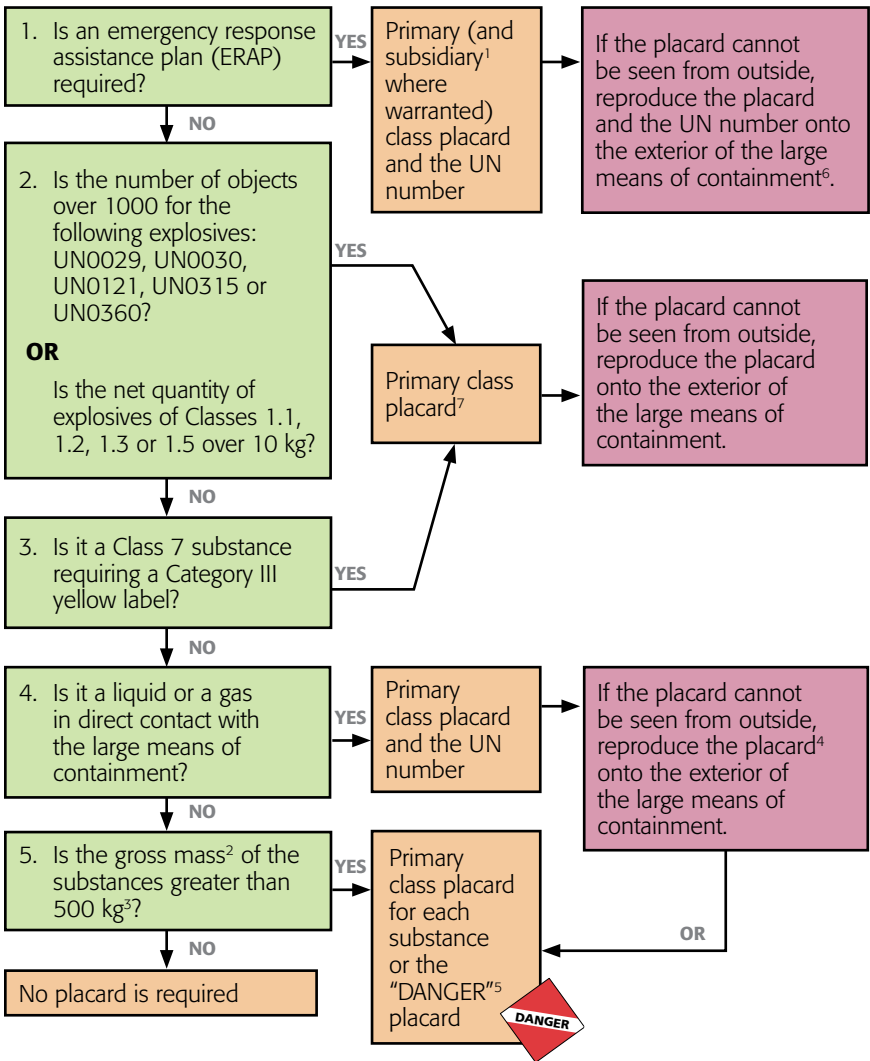
- the dangerous substances are a liquid or gas that is in direct contact with the large means of containment;
- the dangerous substances are in a quantity or concentration that requires an emergency response assistance plan (ERAP).



The “DANGER” placard may be used in certain situations to identify loads of various dangerous substances. The diagram on page 25 makes it possible to ascertain whether the “DANGER” placard may be affixed.

The diagram on page 25 makes it possible to determine which placards must be displayed on a large means of containment or on the vehicle in which all means of containment (small and large) will be placed, and whether or not a UN number is required.

Display of safety marks on a large means of containment (or on a vehicle)



1. Display a subsidiary placard when an ERAP is required and the substance belongs to any of these subsidiary classes: 1, 4.3, 6.1 (Packing Group I) and 8 (UN 2977 or UN2978).

2. Mass of the container and of its content.

3. Add together the gross mass of each substance (except those covered by questions 1, 2 and 3).

4. The UN number may also be reproduced.

5. The DANGER placard must be displayed where there are at least two different primary class placards shown.

6. Example: Tractor-van trailer

7. The UN number does not have to be displayed for Class 1 explosives.

Example:
Placards and UN number to be displayed on a closed vehicle

Strontium peroxide

UN1509
Class 5.1, PG II
Quantity: 1,200 kg
ERAP Index: 1,000 kg

Chromium oxychloride

UN1758
Class 8, PG I
Quantity: 1,300 L
ERAP Index: 1,000 L



ON THE VEHICLE



AND



Signs and marks



Elevated temperature sign

In addition to the primary class placard, the elevated temperature sign must be displayed on the following dangerous substances transported in a large means of containment:

- UN3256, elevated temperature liquid, flammable, N.O.S., Class 3;
- UN3257, elevated temperature liquid, N.O.S., Class 9;
- UN3258, elevated temperature solid, N.O.S., Class 9.



Fumigation sign

	DANGER	
This unit is under fumigation with _____		Cette unité est sous fumigation au _____
Name of fumigant _____		Nom du fumigant _____
Applied on _____		Depuis le _____
Date _____		Date _____
Time _____		Heure _____
DO NOT ENTER		DÉFENSE D'ENTRER

Marine pollutant mark



Training

Requirements

Any person who handles, transports dangerous substances or offers dangerous substances for transport must, as the case might be:

- be adequately trained and possess a training certificate;

or

- perform these operations in the presence and under the direct supervision of a person who is adequately trained and who possesses a training certificate.

Drivers must have the original or a copy of their training certificate on hand.

Consignors must:

- ensure that the person they entrust with handling the dangerous substances (handler) or with the offer of transport:
 - has been adequately trained and possesses a training certificate; or
 - performs these operations in the presence and under the direct supervision of a person who is adequately trained and who possesses a training certificate.

Carriers must:

- ensure that the person they entrust with the dangerous substances for transport (driver):
 - has been adequately trained and possesses a training certificate; or
 - performs these operations in the presence and under the direct supervision of a person who is adequately trained and who possesses a training certificate.

The consignors and the carriers must keep a record of training or a statement of experience, as well as a copy of the employee's¹ training certificate, from its date of issuance to two years after its date of expiry. Where the person is not their employee, the consignors and the carriers must have access to these documents.

Employers are responsible for issuing a training certificate to an employee who handles or transports dangerous substances or offers them for transport.

Self-employed persons who have received the appropriate training must issue themselves a training certificate and sign it.

Employers and self-employed persons must keep a record of training or a statement of experience, as well as a copy of the training certificate, from its date of issuance to two years after its date of expiry.

Training must be directly related to the operations that the employee is asked to perform. Topics are listed in the following example.

The certificate expires 36 months after the date of issuance.

1. Person who carries out the handling or the offer for transport at the request of a consignor or who drives a vehicle at the request of a carrier.

Example of a training certificate

Recto

Training Certificate
Transportation of Dangerous Substances

Name of employer
Address of employer's place of business

Name of employee

This certificate attests that the abovementioned employee has received the training described on the back, in accordance with the requirements of the *Transportation of Dangerous Substances Regulation*.

Expiration dateEmployer's signatureEmployee's signature

Verso

Check of the appropriate box(es).

Training in:

Handling Offer of transport Transport

concerning the following topic(s):

- Classification
- Shipping names
- Use of Schedules 1, 2 and 3
- Shipping documents
- Safety marks
- Means of containment
- Emergency response assistance plan
- Requirements regarding the initiation of a report at the time of an accidental release or imminent accidental release
- Safe handling and transportation practices for dangerous substances, including the characteristics of the dangerous substances
- Proper use of the equipment used to handle or transport dangerous substances
- Reasonable emergency measures to be taken to reduce or eliminate any danger to public safety
- Transport of dangerous substances by aircraft (ICAO)
- Transport of dangerous substances by ship (IMDG)

Accidental release

In the event of an accidental release of a quantity of dangerous substances or an emission of radiation that is greater than the quantity or emission level set out in the following table, the person who has possession of **the dangerous goods must immediately notify**:

- the local police;
- his or her employer;
- the consignor of the dangerous substances;
- the owner, lessee or charterer of the vehicle;
- for infectious substances, **CANUTEC at 613 996-6666**;
- for an accidental release from a cylinder that has suffered a catastrophic failure, **CANUTEC at 613 996-6666**.

Threshold above which an immediate report is required in the accidental release of dangerous substances. The threshold varies depending on the class and quantity of substances released.

Class	Quantity
1*	Any quantity: a) that could pose a danger to public safety or is over 50 kg; b) where the number of objects exceeds 1,000 for the following explosives: UN0029, UN0030, UN0121, UN0315 or UN0360; c) where the net quantity of explosives of Classes 1.1, 1.2, 1.3 or 1.5 is over 10 kg.
2	Any quantity that could pose a danger to public safety or any sustained release of 10 minutes or more.
3	200 L
4	25 kg
5.1	50 kg or 50 L
5.2	1 kg or 1 L
6.1	5 kg or 5 L
6.2	Any quantity
7	Any quantity that could pose a danger to public safety. A risk is present when the ionizing radiation level is above that established in section 20 of the <i>Packaging and Transport of Nuclear Substances Regulations</i> .
8	5 kg or 5 L
9	25 kg or 25 L

* Under the Regulation under the Act respecting explosives, the driver must also immediately notify the nearest Sûreté du Québec station and the owner of the vehicle.

The **employer** of the person who had possession of the dangerous substances at the time of the accidental release must, within 30 days of the incident, write a report and submit it to Transport Canada.

The *Environment Quality Act* states that whoever is responsible for the accidental presence in the environment of a contaminant must advise the ministère du Développement durable, de l'Environnement, de la Faune et des Parcs without delay, regardless of the quantity. **Urgence-Environnement: 1 866 694-5454**

It is also recommended to notify the local police of any theft or loss of dangerous substances.

Tunnels

Requirements applying to the use of tunnels

Drivers of a road vehicle or combination of road vehicles are strictly prohibited from travelling in the tunnel section of pont-tunnel Louis-Hippolyte-Lafontaine, tunnels Ville-Marie and Viger in Montréal, pont-tunnel Joseph-Samson in Québec, and in the access lane to tunnel de Melocheville (controlled by traffic lights and hold lanes), when:



- the quantity of dangerous substances they are transporting requires that placards be displayed, unless the vehicle is carrying only Class 9 dangerous substances;



- transporting Class 3 flammable liquid and the total capacity of the set of containers exceeds 30 L;



- transporting Class 2.1, 2.2 (5.1), 2.3 (2.1) and 2.3 (5.1) gases in more than two cylinders or the water capacity of a cylinder exceeds 46 L;



- the vehicle is equipped with an equipment that generates naked flame or contains incandescent solid fuel.



These prohibitions do not apply:

- when the fuel is used for the propulsion of the vehicle and is contained in one or more tanks designed for that purpose by the vehicle manufacturer or is compliant with the *Regulation respecting safety standards for road vehicles*;
- when the flammable liquid is used for the air conditioning of the vehicle or the load space and is contained in a single tank, whose capacity is 450 litres or less, designed for that purpose by the air conditioning manufacturer;
- when the flammable liquid is intended for the operation of equipment that is permanently screwed or bolted to the vehicle and whose total tank capacity does not exceed 75 L;
- to emergency vehicles within the meaning of section 4 of the *Highway Safety Code*;

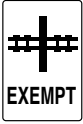


- to cranes equipped with a second diesel fuel tank whose capacity is 450 litres or less, which was installed by the crane manufacturer;
- to road vehicles or equipment used in tunnel maintenance;
- to means of containment not exceeding 1,000 litres that carry flammable liquid intended to refuel a road vehicle or equipment used in tunnel maintenance.

Level crossings



The driver of a road vehicle that contains dangerous substances requiring the displaying of placards must stop the vehicle at a level crossing.



However, a driver is exempted from this obligation when a road sign indicates the exemption.

In order to alert other road users that a road vehicle stops at level crossings, it would be preferable to install a panel at the back of the vehicle, such as:

THIS VEHICLE STOPS AT LEVEL CROSSINGS

OR



Exemptions

The *Transportation of Dangerous Goods Regulation* contains provisions that partially or fully exempt a carrier from satisfying certain requirements. However, to take advantage of the exemptions, the carrier must meet the attendant conditions and take the necessary steps to prevent accidental releases.

This guide indicates some of the most common exemptions. It is essential for the carrier to perform all of the necessary verifications to ensure that a specific transportation operation is indeed subject to an exemption.

It should be noted that restrictions on travel in tunnels and rules for transporting petroleum products or liquefied natural gas apply at all times to all carriers and to any vehicle carrying dangerous substances, including those benefiting from an exemption.

Exemption for a gross mass of 150 kg or less

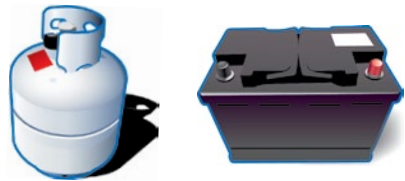
Shipping documents, safety marks, standardized means of containment (except for gases), training and accidental release or imminent accidental release reports are not required when transporting dangerous substances, provided that:

- the substances are in one or more small means of containment that are safe and appropriate (i.e., designed, constructed, closed, secured and maintained to prevent any accidental release), each with an individual gross mass of 30 kg or less (except for substances in Class 2, Gases, whose means of containment must be standardized);
- the gross mass of all dangerous substances is 150 kg or less;
- the dangerous substances are in a quantity or concentration available to the general public and are transported either:
 - by the user or purchaser of dangerous substances;
 - by a retailer to or from a user or purchaser of dangerous substances;
- the means of containment are all securely fastened or immobilized;
- the space that propane cylinders are transported in have exterior ventilation;
- automobile battery terminals (UN2794 and UN2795) are protected from short-circuits, and the battery is in a means of containment.

This exemption does not apply to dangerous substances that:

- require an emergency response assistance plan (ERAP);
- require the maintenance of control or emergency temperatures;
- are included in Class 1, Explosives (except for certain exceptions);
- are included in Class 2.1 and are contained in a gas cylinder with a capacity of more than 46 litres (e.g. acetylene or propane);
- are included in Class 2.3;
- are included in Class 4 of Packing Group I;
- are included in Class 5.2, except when transported under the TDGR section 1.17 exemption (limited quantities);
- are included in Class 6.1 of Packing Group I and are in liquid form;
- are included in Class 6.2;
- are included in Class 7 and require a licence issued by the Canadian Nuclear Safety Commission.

Examples: Propane
and automobile battery



Exemption for a gross mass less than or equal to 500 kg

The standardized means of containment (except for Class 2 gases and drums) and the complete shipping document are not required to transport dangerous substances whose gross mass is less than or equal to 500 kg, provided that:

- the load is divided into one or more means of containment that are safe and appropriate (i.e., designed, constructed, closed, secured and maintained to prevent any accidental release), each with an individual gross mass of 30 kg or less (except for Class 2 gases and drums);
- if the substance is a gas, all safety marks are displayed on the means of containment;
- for substances other than gases, all safety marks or the shipping name and certain marks required pursuant to the legislation and regulations mentioned in the TDGR are displayed on one side of the means of containment;

- the complete shipping document or any other document accompanying the dangerous substances includes the following information:
 - primary class(es);
 - total number of means of containment;
- the person transporting the dangerous substances has received the requisite training.

The 500 kg or less exemption does not apply to dangerous substances that:

- require an emergency response assistance plan (ERAP);
- require a control or emergency temperature;
- are Class 1 explosives with the exception of:
 - Class 1.4S explosives;
 - explosives with the following UN numbers: UN0191, UN0197, UN0276, UN0312, UN0336, UN0403, UN0431, UN0453 and UN0493;
- are included in Class 2.1 and are in a cylinder that has a capacity greater than 46 L (e.g. acetylene or propane);
- are included in Class 2.3;
- are included in Class 4 and Packing Group I;
- are included in Class 5.2, unless they are transported under the TDGR section 1.17 exemption (limited quantities);
- are included in Class 6.1 of Packing Group I and are in liquid form;
- are included in Class 6.2;
- are included in Class 7 and are required to be licensed by the Canadian Nuclear Safety Commission.

Exemption for limited quantities

1. A quantity of dangerous substances (other than Class 1 explosives), is a limited quantity if:
 - the substances are in one or more means of containment that are safe and appropriate (i.e., designed, constructed, closed, secured and maintained to prevent any accidental release);
 - each means of containment has an individual gross mass of 30 kg or less;
 - the mass (in the case of a solid), the volume (in the case of a liquid) or the capacity of the means of containment (in the case of a gas) of the dangerous substance is less than or equal to the number shown for them in column 6 of Schedule 1 of the TDGR.
2. Shipping documents, safety marks, standardized means of containment (except for gases), training, emergency response assistance plans and accidental release or imminent accidental release reports are not required provided that:
 - each means of containment has one of the following indications visibly displayed on one of its sides (other than the side on which it is intended to rest or be stacked), printed legibly and in a contrasting colour to the background:
 - "Limited Quantity" or "Quantité limitée";
 - "Ltd. Qty." or "Quant. Itée";
 - "Consumer Commodity" or "Bien de consommation".
3. When a means of containment holding a limited quantity of dangerous substances is itself in a means of containment, marking the inner means of containment is not required if:
 - the gross mass of the outer means of containment is 30 kg or less; and
 - the outer means of containment is not intended to be opened during transportation and one of the following indications is visibly displayed, printed legibly and in a contrasting colour to the background:
 - "Limited Quantity" or "Quantité limitée";
 - "Ltd. Qty." or "Quant. Itée";
 - "Consumer Commodity" or "Bien de consommation".



4. Rather than indicating "Limited Quantity," the UN number (in black and at least 6 mm in height) of every limited quantity substance can be displayed within a diamond-shaped frame. The letters "UN" must precede the UN numbers.



5. A summary document is required to transport an accumulation of dangerous substances in limited quantities provided that the following conditions are satisfied:
- the gross mass of an accumulation of limited quantities offered for transport by one consignor to one destination is greater than 500 kg;
 - the document accompanying the grouped limited quantities includes one of the following indications:
 - "Limited Quantity" or "Quantité Limitée";
 - "Ltd. Qty." or "Quant. Itée";
 - "Consumer Commodity" or "Bien de consommation".

Exemption for a medical device or item

No regulatory provisions apply to the transportation of the following items:

- medical devices or items, wheelchairs or gas cylinders for medical use, where:
 - the medical device is implanted in or worn by an individual (or animal);
 - the wheelchair or medical item is for an individual's personal use;
- radioactive pharmaceutical products injected into or swallowed by an individual (or animal).



Exemption for a gross mass of 1,500 kg or less transported on board a farm vehicle

Shipping documents, safety marks, standardized means of containment (except for Class 2 gases) and training are not required to transport 1,500 kg or less (gross mass) of dangerous substances on board a registered farm vehicle, provided that:

- the substances are in one or more means of containment that are safe and appropriate (i.e., designed, filled, closed, secured and maintained to prevent any accidental release);
- the dangerous substances are transported over no more than 100 km of public highways;
- the substances were or will be used by a farmer* for farming-related needs;
- standardized means of containment are used to transport petroleum products when they have a capacity of more than 450 litres;
- the substances do not belong to Classes 1 (other than 1.4S), 2.3, 6.2 or 7;
- all Class 2.1 flammable gases are contained in a cylinder with a capacity of 46 litres or less;
- where an emergency response assistance plan (ERAP) is required, the dangerous substances referred to in the ERAP are accompanied by a shipping document.



* A farmer is a natural person who is a member of an association certified under the Farm Producers Act (chapter P-28), a person who is the owner or the lessee of a farm and whose principal activity is agriculture, or an agricultural cooperative governed by the Cooperatives Act (chapter C-67.2) whose object is the use of agricultural equipment by its members.

Exemption for dangerous substances with a gross mass of 3,000 kg or less sold retail for agricultural use

Shipping documents, safety marks and standardized means of containment (except for gases) are not required to transport 3,000 kg or less (gross mass) of dangerous substances on board a road vehicle, provided that:

- the substances are in one or more means of containment that are safe and appropriate (i.e., designed, filled, closed, secured and maintained to prevent any accidental release);
- the dangerous substances are transported over no more than 100 km of public highways between their place of retail purchase and their destination;
- the substances were or will be used by a farmer* for farming-related needs;
- standardized means of containment are used to transport petroleum products when they have a capacity of more than 450 litres;
- the substances do not belong to Classes 1 (other than 1.4S), 2.3, 6.2 or 7;
- all Class 2.1 flammable gases are contained in a cylinder with a capacity of 46 litres or less;
- where an emergency response assistance plan (ERAP) is required, the dangerous substances referred to in the ERAP are accompanied by a shipping document;
- the person possesses a training certificate.



* *A farmer is a natural person who is a member of an association certified under the Farm Producers Act (chapter P-28), a person who is the owner or the lessee of a farm and whose principal activity is agriculture, or an agricultural cooperative governed by the Cooperatives Act (chapter C-67.2) whose object is the use of agricultural equipment by its members.*

Exemption for a means of transportation reserved for emergency response

The Regulation does not apply to dangerous substances that are a public safety risk but will be used in an emergency response when transported on board a means of transportation **reserved** for emergency response.



This exemption does not apply to the dangerous substances whose transport is forbidden by Schedules 1 and 3 of the TDGR.

Exemption for dangerous substances used to operate a means of transportation or maintain the interior environmental conditions of a means of containment

The Regulation does not apply to the transportation of dangerous substances on board a means of transportation when they are required:

- to fuel the means of transportation (the substance is contained in a tank that is permanently fixed in position according to the manufacturer's instructions);
Example: automobile
- for the operation or safety of the means of transportation or the safety of people (including dangerous substances that are or will be used for transportation-related purposes);

Examples: air bags (if installed in vehicles or in completed vehicle components), road flares and extinguishers



- for ventilation, refrigeration or heating devices needed to maintain the environmental conditions within a means of containment being transported.



Exemption for dangerous goods in an instrument or in equipment

The shipping document, safety marks and the standardized means of containment are not required to transport dangerous substances in an instrument or in equipment, provided that:

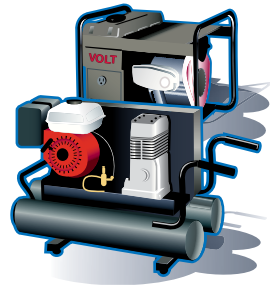
- the instrument or piece of equipment is not dangerous goods itself and is designed to perform a function other than solely to contain dangerous goods;
- the mass (for solids), the net explosives quantity, the volume (for liquids), or the capacity of the means of containment (for gases) of the dangerous substance is less than or equal to the number shown for them in column 6 of Schedule 1 of the TDGR.
- the person possesses a training certificate.

Exemption for gasoline (UN1203) used to operate an instrument or equipment

The shipping document, safety marks, the standardized means of containment and training are not required to transport gasoline used to operate an instrument or equipment, provided that:

- the tank has a capacity of 200 litres or less;
- the tank is permanently fixed to the instrument or equipment.

Examples: generator and compressor



Exemption for certain types of gases

The shipping document and the training certificate are not required when the following dangerous substances are transported: dissolved acetylene (UN1001), compressed air (UN1002), compressed argon (UN1006), carbon dioxide (UN1013), methylacetylene and propadiene mixture (UN1060), compressed nitrogen (UN1066), compressed oxygen (UN1072) and propane (UN1978), if:

- there are not more than five cylinders (small means of containment);
- the gross mass is equal to or less than 500 kg;
- labels are visible outside the vehicle;
- the cylinders are properly secured;
- the gas cylinders comply with a standard prescribed by regulation.



Exemption for Class 3, Flammable liquids

The shipping document, safety marks, the standardized means of containment, training and the emergency response assistance plan (ERAP) are not required to transport Class 3 dangerous substances (Flammable liquids), provided that:

- the substances do not have a subsidiary class;
- the substances are included in Packing Group III (minor danger) and have a flashpoint greater than 37.8 °C;
- the substances are in small means of containment that are safe and appropriate (i.e., designed, filled, closed, secured and maintained to prevent any accidental release) and have a capacity of 450 litres or less;
- the local police are notified in the case of an accidental release of more than 200 litres.

Examples: diesel, kerosene and some aviation fuels



Exemptions for alcoholic solutions

The shipping document, safety marks, the standardized means of containment, training, the emergency response assistance plan (ERAP) and accidental release or imminent accidental release reports are not required to transport the following alcoholic solutions, provided that:

For alcoholic beverages

- the substance has an alcohol by volume of 24% or lower; or
- the substance is included in Packing Group (PG) II and is in a means of containment with a capacity of 5 litres or less; or
- the substance is included in PG III and is in a means of containment with a capacity of 250 litres or less.



For aqueous solutions of alcohol

- the solution has a flashpoint above 23 °C;
- the solution has an alcohol by volume of 50% or lower;
- less than 50% of the solution, by volume, is not a dangerous substance; and
- the solution is packaged in a small means of containment.

Example: windshield washer fluid



Exemption for diesel fuel (UN1202), or gasoline (UN1203)

The shipping document, displaying of the UN number and the training certificate are not required when diesel fuel or gasoline are transported, if:

- the dangerous substances are in one or more means of containment, each of which is visible from outside the vehicle;
- each means of containment is properly secured to the vehicle;
- the means of containment has displayed on it the necessary label or placards, although it is not necessary to display the placard on a side or end of the means of containment that is not visible from outside the vehicle;
- the total capacity of all the means of containment is less than or equal to 2,000 L;
- the means of containment complies with a standard prescribed by regulation.

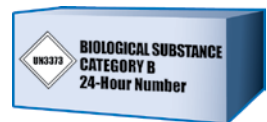


Note : This exemption does not apply if the large means of containment, with a capacity of more than 450 litres, is carried in a trailer or semi-trailer of a combination of vehicles.

Exemption for Class 6.2, Infectious substances, Category B

Shipping documents and emergency response assistance plans (ERAPs) are not required to transport infectious substances included in Category B, provided that:

- the substances are in a standardized means of containment with one flat surface that measures at least 100 mm x 100 mm;
- the mark for Category B infectious substances is displayed on the means of containment;
- the shipping name is displayed in print at least 6 mm high, on a contrasting background near the required mark;
- the 24-hour number is displayed near the shipping name.



Exemption for biological products

Biological products are derived from living organisms and are used to prevent, treat or diagnose disease in humans or animals or for experimentation and research. They include finished or unfinished products, live vaccines and attenuated live viruses.

Shipping documents, safety marks, standardized means of containment, training, emergency response assistance plans (ERAPs) and accidental release or imminent accidental release reports are not required to transport biological products, provided that:

- the products were prepared in compliance with the *Food and Drugs Act*;
- the products are in a Type 1B or otherwise safe and appropriate means of containment (i.e., designed, constructed, closed, secured and maintained to prevent any accidental release);
- the words “Biological Product” or “Produit biologique” are printed on the means of containment in black letters at least 6 mm high, on a contrasting background.

Exemption for human or animal specimens

The shipping document, safety marks, the standardized means of containment, training, the emergency response assistance plan (ERAP) and accidental release or imminent accidental release reports are not required to transport human or animal specimens believed not to contain infectious substances, provided that:

- the specimens are in a Type 1B, Type 1C or otherwise safe and appropriate means of containment (i.e., designed, filled, closed, secured and maintained to prevent any accidental release);
- the words “Exempt Human Specimen” or “Spécimen humain exempté” are printed on the means of containment.

Examples of specimens:

- blood or urine to monitor cholesterol, hormone and blood sugar levels, etc.;
- pregnancy tests;
- biopsies to detect cancer;
- specimens to detect the presence of drugs or alcohol.

Exemption for tissues or organs for transplant

The Regulation does not apply to the transportation of tissues or organs for transplant.

Exemption for blood and blood components

The shipping document, safety marks, the standardized means of containment, training, the emergency response assistance plan (ERAP) and accidental release or imminent accidental release reports are not required to transport blood or blood components believed not to contain infectious substances, provided that:

- the blood or blood components will be used in transfusion or to prepare blood products;
- the product is in a Type 1B, Type 1C or otherwise safe and appropriate means of containment (i.e., designed, filled, closed, secured and maintained to prevent any accidental release).



Miscellaneous exemptions

Provision has also been made for the following exemptions:

- Samples
- National Defence
- Pesticide exemption
- Anhydrous ammonia exemption
- Transportation within a facility
- Transportation between two properties
- Short-run ferry transportation
- Class 2 gases contained in refrigerating machines
- Class 3 flammable liquids with a flashpoint between 60 °C and 93 °C
- Class 1, Explosives
- Polyester resin kit
- Class 7, Radioactive materials
- Marine pollutants
- Dangerous substances residues in a drum
- Fumigation of means of containment
- Miscellaneous special cases

Standards and safety rules

Cargo securement

All containers used to transport dangerous substances and all other objects must be fastened or immobilized by means of structures of sufficient capacity, blocking devices, reinforcement, dunnage material or sacks, struts, fastening devices, or a combination of the above.

No containers used to transport dangerous substances may be installed:

- for a motorized road vehicle with bumpers:
 - on or in front of the front bumper;



- for a motorized road vehicle without bumpers:
 - on the outer front extremity, in the bucket or on any other part of a tool vehicle.



Double train tank truck

No person may transport dangerous substances in a double train tank truck other than a Type B double train, as defined in the *Vehicle Load and Size Limits Regulation*.



Road train

No person may transport dangerous substances in a road train more than 25 m long when the quantity of dangerous substances requires that placards be displayed.



Tank truck containing flammable substances



The driver of a tank truck that contains flammable substances must ensure that no one smokes or lights a flame inside the truck cab at any time or within 8 metres of the truck during loading or unloading.

Cross-border transport

Transport to the United States





Carriers of dangerous substances headed to the United States must be issued a permit by the Federal Motor Carrier Safety Administration (www.fmcsa.dot.gov) of the United States Department of Transportation (USDOT) and must have a copy of this permit on board the vehicle.

All drivers of vehicles transporting dangerous substances must have a membership card for FAST, the commercial clearance program designed to ensure safety and security while expediting legitimate trade across the Canada–U.S. border (www.cbsa-asfc.gc.ca).

Shipping dangerous substances to the United States must be done in compliance with Canada's federal *Transportation of Dangerous Goods Regulations* (TDGR). Consignors and carriers may also need to meet the additional requirements in Parts 171.12, 171.22 and 171.23 of Title 49 of the United States *Code of Federal Regulation* (<http://ecfr.gpoaccess.gov>).

All carriers of dangerous substances destined for the United States must be able to prove that all of their employees have received adequate training in the transportation of dangerous substances and that they do not have a police record.

Transport from the United States

Origin	Transit	Destination
	—	
		Outside of Canada

The transportation of dangerous substances in one of the above situations is permitted, provided that:

For the shipping document:

- the information is legible, in indelible print and in French or English;
- it includes the name and address of the consignor in Canada, who is:
 - the consignee (importer) when the dangerous substances are transported to Canada; or
 - the carrier when the dangerous substances are transported through Canada from outside of Canada;
- the emergency response assistance plan (ERAP) reference number and the phone number to call to activate the plan are shown;
- the conditions of sections 3.2 (carrier responsibilities), 3.7 (location of document) and 3.10 (location of document during storage) are met.

For safety marks:

The following labels and placards must be displayed for dangerous substances included in Class 2.3 or Class 6.1:



However, these provisions do not apply if the dangerous substances:

- are forbidden for transport by the *Transportation of Dangerous Goods Regulations* (TDGR); or
- are not regulated by Title 49 of the *Code of Federal Regulation* (CFR) but are regulated by the TDGR; or
- are transported under an exemption issued in accordance with Part 107 of Title 49 of the CFR; or
- are given dangerous goods safety mark or packaging exceptions in Title 49 of the CFR that are not permitted by the TDGR.

Intermodal transport

The transportation of a road vehicle to or from an aircraft or vessel is permitted, provided that:

For the shipping document:

- the information is legible, in indelible print and in French or English;
- the emergency response assistance plan (ERAP) reference number and the phone number to call to activate the plan are shown;
- the conditions of sections 3.2 (carrier responsibilities), 3.5 (24-hour number), 3.7 (location of document) and 3.10 (location of document during storage) are met.

However, these provisions do not apply if the dangerous substances are forbidden for transport by the TDGR or if they are exempt from the ICAO Technical Instructions (aircraft) or the International Maritime Dangerous Goods Code (IMDG) (vessel) but are subject to the TDGR.

For safety marks:

The placards required by Part 4 of the TDGR must be displayed on the road vehicle or on any means of containment visible from the outside of this vehicle.

Reshipping dangerous substances in Canada

Dangerous substances from outside of Canada that comply with Title 49 of the CFR, the ICAO Technical Instructions and the IMDG Code may be reshipped within Canada, provided that:

- the placards displayed on large means of containment (vehicles) comply with Part 4 of the TDGR, where required;
- the shipping document indicates that the safety marks on the means of containment comply with Title 49 of the CFR, the ICAO Technical Instructions or the IMDG Code when the safety marks differ from those prescribed by Part 4 of the TDGR.

Safety and security measures

More than any other type of transportation, the transportation of dangerous substances requires numerous precautions.

Prior to departure

Drivers must:

- have in their possession their training certificate in the transportation of dangerous substances;
- have the shipping documents on hand;
- verify that safety marks for the dangerous substances have been correctly displayed;
- be aware of safety procedures in the event of an accident;
- have rested for at least eight hours;
- perform a visual and auditory inspection of certain accessible parts of the vehicle or combination of vehicles before every departure;
- check the securement of the cargo;
- ensure that the load complies with the appropriate load and dimension standards.

During transportation

Drivers must:

- refrain from smoking entirely while transporting flammable substances;
- drive with extra caution when driving a tank truck;
- adapt their driving to the road conditions;
- comply with speed limits;
- comply with braking distances;
- regularly check the securement of the cargo and the condition of the tires;
- observe driving and working hours;
- not consume alcohol or drugs.

Suggestions aimed at enhancing security

Security risk assessment and security plan

- Perform a security risk assessment within the transport company to determine and prioritize the actions to implement, in order to strengthen the safety and security of operations, staff, the public, road users and property in case of terrorism, crime, public disorder, etc.
- After performing a security risk assessment, transport companies should develop a security plan to improve prevention of security-related incidents. The plan should include the following:
 - the roles and responsibilities of all staff members with regard to security;
 - a procedure to communicate with partners, emergency responders and the public;
 - training and awareness programs for staff on security;
 - procedures and documents to report suspicious incidents.

Before hiring staff

- Verify the individual's true identity.
- Check whether the applicant has a criminal record.
- Check whether the applicant was involved in incidents in previous jobs.
- See if there were long gaps between jobs and if so, be sure the applicant can explain why.
- Verify reliability of personal references.
- Offer training and awareness programs on security.

Storage site

- Ensure that the storage site is:
 - properly lit;
 - protected by a fence, barrier or other means restricting access to it;
 - equipped with an alarm system;
 - accessible only to employees with an ID card;
- record in a register the arrival and departure of dangerous substances;
- regularly check whether the security measures adopted are adequate;
- ensure that staff who handle and transport dangerous substances have received the appropriate safety and security training;
- check the integrity and legitimacy of customers and carriers;
- accept shipments of dangerous substances only when the consignor is known;
- do not handle or move any suspicious packages or means of containment.

During transportation

- Recommend to drivers that, as much as possible, they use roads that allow them to avoid major urban centres;
- remind drivers to comply with traffic rules in tunnels and recommend that they only use bridges when it is absolutely necessary to do so;
- demand that drivers lock their vehicles when they stop, e.g. to buy gas and during meals;
- encourage drivers to promptly call 911 when a suspicious event occurs;
- teach drivers to detect whether their vehicle has been vandalized or tampered with and what to do in the case of a suspicious vehicle.

Communication

- Maintain a reliable communication system that makes it possible to reach at all times staff who transport and handle dangerous substances;
- give employees press releases and newsletters dealing with security measures pertaining to dangerous substances;
- encourage traceability by placing a GPS device on the vehicles or means of containment;
- consider installing a panic button inside the vehicles so that drivers can signal the transport company's dispatch centre directly if they are in distress;
- maintain a sound information exchange network with other industry stakeholders.

Constant vigilance is the best way to counteract all deliberate acts and terrorist attacks.

Appendix

Conversion tables

The following data are provided for information purposes to help users of this guide.

Dimensions of gas cylinders

PRODUCT	WATER CAPACITY (litres)	DIAMETER centimetres (inches)	HEIGHT centimetres (inches)	TARE kilograms
Compressed air Nitrogen Helium Hydrogen Oxygen, and so on	18	18 (7)	94 (37)	21
	44	23 (9)	147 (58)	53
	50	23 (9)	152 (60)	63
Medical oxygen	1	8 (3)	30 (12)	1
	5	11 (4,5)	79 (31)	3,4
Acetylene	25	22 (9)	91 (36)	32
	44	23 (9)	130 (51)	50
	53	30 (12)	97 (38)	64
	69	31 (12)	119 (47)	82

Propane

CYLINDERS pounds	WATER CAPACITY (litres)	DIAMETER centimetres (inches)	HEIGHT centimetres (inches)	TARE kilograms	FILLED WEIGHT kilograms
5	6	20 (8)	22 (9)	5	7
20	22	30 (12)	35 (14)	8	17
30	32	30 (12)	49 (20)	12	25
40	43	30 (12)	65 (26)	14	32
100	108	38 (15)	104 (41)	32	78
420	455	76 (30)	116 (46)	131	250

Mass density of the most commonly transported dangerous substances

SUBSTANCE	APPROXIMATE MASS DENSITY kilograms/litre
Gasoline	0.73
Diesel fuel	0.83
Nitric Acid	1.50
Sulfuric Acid	1.83

Miscellaneous conversions

METRIC SYSTEM	IMPERIAL, AMERICAN OR METRIC EQUIVALENT
0.4536 kilogram	1 pound
1 kilogram	2.205 pounds
30 kilograms	66 pounds
500 kilograms	1,102 pounds
4,000 kilograms	8,818 pounds
204.574 litres	45 imperial gallons
450.063 litres	99 imperial gallons
4.546 litres	1 imperial gallons
3.785 litres	1 US gallon
1 m ³	1,000 litres
1 litre	35.194 imperial fluid ounces
1 litre	33.814 US fluid ounces
1 kilogram	35.274 ounces - weight

Useful telephone numbers

Classification of radioactive materials

Canadian Nuclear Safety Commission

Headquarters

280 Slater Street

C.P. 1046, station B

Ottawa, Ontario K1P 5S9

Toll-free line: 1-800-668-5284

Fax: 613-995-5086

E-mail: info@cnsccsn.gc.ca

To report a nuclear accident ONLY,
please call the round-the-clock duty officer.
Phone: 613-995-0479

CNSC – Eastern Regional Office

1575, boul. Chomedey, pièce 221

Laval (Québec) H7V 2X2

Phone: 450-973-5766

Fax: 450-973-5779

Classification of explosives

Natural Resources Canada

Explosives Regulatory Division

1431 Merivale Road

Ottawa, Ontario K1A 0G1

General information:

Phone: 613-948-5200

Fax: 613-948-5195

E-mail: canmet-dre@nrcan.gc.ca

Québec Region

P.O. Box 100

2050, rue Girouard Ouest

Saint-Hyacinthe (Québec) J2S 7B2

Phone: 450-773-3431

Fax: 450-773-6226

Transportation of explosives

Sûreté du Québec

Division des lois provinciales

Édifice Wilfrid-Derome

1701, rue Parthenais

Montréal (Québec) H2K 3S7

Phone: 514-598-4584

Fax: 514-596-3571

Registration with CANUTEC and emergency numbers in case of accidental releases

Canutec

Place de Ville, Tower C
330 Sparks Street, Suite 1415
Ottawa, Ontario K1A 0N5

Phone: 613-992-4624
(collect calls accepted)
Fax: 613-954-5101
E-mail: canutec@tc.gc.ca

24-hour number

Emergencies: 613-996-6666 (collect calls accepted)
Cell: *666 (Canada only)

Canadian Standards Association (CSA) standards governing means of containment

Canadian Standards Association

Québec Region
865, avenue Ellingham
Pointe-Claire (Québec) H9R 5E8

Phone: 514-482-2418
Toll-free line: 1-800-463-6727
Fax: 514-694-5001

Canadian General Standards Board (CGSB) standards governing means of containment

Canadian General Standards Board

Place du Portage III, 6B1
11, rue Laurier
Gatineau (Québec) K1A 1G6

Phone: 819-956-0425
Toll-free line: 1-800-665-2472
Fax: 819-956-5740
E-mail: ncr.cgsb-ongc@pwgsc.gc.ca

Registration of heavy vehicle owners and operators with the Commission des transports du Québec (CTQ)

Québec

200, chemin Sainte-Foy, 7^e étage
Québec (Québec) G1R 5V5

Toll-free line: 1 888 461-2433
Fax: 418-644-8034
E-mail: courrier@ctq.gouv.qc.ca

Montréal

545, boulevard Crémazie Est
10^e étage, bureau 1000
Montréal (Québec) H2M 2V1

Toll-free line: 1 888 461-2433
Fax: 514-873-4720
E-mail: courrier@ctq.gouv.qc.ca

Urgence-Environnement

1 866 694-5454

QUESTIONS CONCERNING TRUCKING?

Information available on the website of the ministère des Transports du Québec at www.mtq.gouv.qc.ca

- Bulk Trucking
- Cargo Securement
- Dangerous Substances
- Heavy Vehicles (Act)
- Information Bulletin
- International Trucking
- Shipping Document/Bill of Lading
- Special Permits
- Speed Limiters
- Trucking Network
- Vehicle Load and Size

Information available on the Québec 511 website at quebec511.info

- Hindrances Related to Load and Size
- Vertical Bridge Clearances
- New Roadwork Sites
- Load Limits on Bridges and Overpasses