

2006
revised
edition

Transportation
of **Dangerous**
Substances
Guide

Produced by the Direction de la sécurité en transport et du camionnage, and published by the Direction des communications.

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Legal deposit – Bibliothèque nationale du Québec 2006
ISBN 2-550-44740-9

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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 2005, is not a legal interpretation of the Regulation and in no way releases 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 and operators 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* 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 and transportation of dangerous substances on Québec roads 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 substances 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 US Regulation CFR 49 governing the transportation of dangerous substances. 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, he must check whether the shipping name of the substance in question is included on the list of products in Schedule 1 of the TDSR.

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 TDSR 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 they have not been classified, or if an error is noticed, the carrier should notify 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

The UN number does not need to be displayed on large means of containment in the case of explosives.

* 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 respecting the Act respecting explosives* must obtain an authorization from the Sûreté du Québec. Moreover, an explosives vehicle certificate (EVC) issued by Transport Canada may be required for certain materials if the quantity makes it necessary.

CLASS 2 GASES

2.1



Flammable gases,
e.g. propane

2.2



Non-inflammable, non-toxic compressed gases,
e.g. nitrogen

2.3



Gases toxic by inhalation,
e.g. carbon monoxide



This placard (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 (UN1073)
- compressed gas, oxidizing, N.O.S.* (UN3156)
- liquefied gas, oxidizing, N.O.S. (UN3157)

* *not otherwise specified*

CLASS 3 FLAMMABLE LIQUIDS



Liquids having a flash point equal to or lesser than 60.5°C,
e.g. gasoline and diesel fuel

CLASS 4

**FLAMMABLE SOLIDS;
SPONTANEOUSLY COMBUSTIBLE MATERIALS;
AND DANGEROUS WHEN WET MATERIALS**

4.1



Flammable solids,
e.g. safety matches

4.2



Spontaneously combustible materials,
e.g. activated carbon

4.3



Dangerous when wet materials,
e.g. sodium

CLASS 5

**OXIDIZERS
AND ORGANIC PEROXIDES**

5.1



Oxidizers,
e.g. ammonium nitrate

5.2



Organic peroxides,
e.g. benzoyl peroxide

CLASS 6

TOXIC MATERIALS AND INFECTIOUS SUBSTANCES



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



(Placard)

Infectious substances,
e.g. rabies virus



(Label)

CLASS 7

RADIOACTIVE MATERIALS



(Placard)

Radioactive materials under the *Atomic Energy Control Act* whose activity is greater than 70 kBq/kg,
e.g. uranium hexafluoride



(Label or placard)
Category I – White



(Label or placard)
Category II – Yellow



(Label or placard)
Category III – Yellow

CLASS 8

CORROSIVE MATERIALS



Corrosive materials,
e.g. sulphuric acid

CLASS 9

MISCELLANEOUS DANGEROUS GOODS



Miscellaneous dangerous goods,
e.g. PCBs

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 handwritten or printed-paper shipping document. At the time of transport, the carrier must have in his 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 must appear in front of the regulatory name);
 - the packing group, as the case may be;
- the number of the risk group in the case of infectious substances;
- 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;
- mention of 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 CANUETC number may not be used with 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;
- any additional information required, as the case may be.

When the carrier takes charge of a shipment of dangerous substances, he must ensure that he has the necessary shipping document. He must give the shipping document or a photocopy of it to the person to whom he entrusts 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 shipper 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 or risk group (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						
In the case of the following dangerous substances: <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 his representative		Name in block letters		Function or capacity	Address:	

Legend

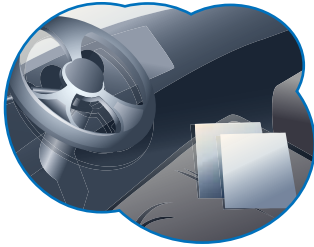
- Information required pursuant to the *Transportation of Dangerous Substances Regulation* (TDSR).
- Information required pursuant to the *Regulation respecting the requirements applicable to shipping documents, leasing contracts and contracts for services*.
- Information required pursuant to both of 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 the ministère du Revenu du 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.

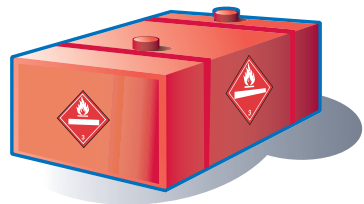
Small means of containment

A small means of containment has a water capacity of less than 450 L, e.g. cylinders, jerry cans, pails, barrels or bottles.



Large means of containment

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

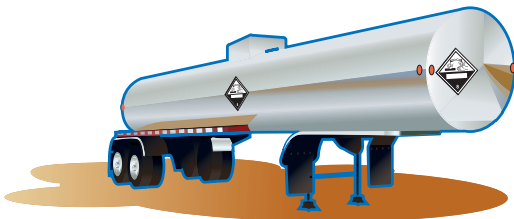


Large bulk containers (LBC) are containers with a capacity of more than 450 litres and less than 3,000 litres that are manufactured in compliance with standard CNGC-43.146.

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

Portable tanks manufactured prior to 2003 in accordance with the ULC/ORDC142.13 standard may be used until 2010.

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 of tank trucks according to the dangerous substances transported.

Please note that, effective August 15, 2006, all tank-trucks that carry hazardous substances must be equipped with:

- a device for monitoring the driver's behaviour that records substantial changes in speed and pertinent details, including date, time, and speed;

OR

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

In the case of a highway motor vehicle that is part of a tank truck, and that is assembled prior to August 15, 2006, the equipment described above may be replaced by a speed limiter set to 100 km/h.

Contaminated soil

Contaminated soil is classified according to criteria set in the *Soil Protection and Contaminated Sites Rehabilitation Policy* of the ministère du Développement durable, de l'Environnement et des Parcs du Québec. It must be transported in a closed means of containment in accordance with the following provisions.

Level of contamination falling within the B and C criteria: in a closed means of containment or in a dump vehicle with a waterproof tarpaulin retaining the load inside the vehicle.

Level of contamination equal to or higher than the C criterion: in a closed means of containment or in a dump vehicle with a waterproof tarpaulin completely covering the top of the body and the load. The tarpaulin must be installed in such a manner as to prevent rain and snow from reaching the load or causing contaminant leakage.

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



Petroleum products



AVIATION FUEL	UN1863
GASOLINE, MOTOR SPIRIT AND PETROL	UN1203
DIESEL FUEL, FUEL OIL AND LIGHT HEATING OIL	UN1202
PETROLEUM PRODUCTS, N.O.S., AND PETROLEUM DISTILLATES, N.O.S.	UN1268

The Class 3 petroleum products in the above-mentioned table must be handled and transported according to the following rules.

Rules governing tank trucks

- The tank truck must be built according to the CSA B620 standard (TC-406 or the equivalent).
- The capacity of the compartments of a compartmentalized tank truck used to transport gasoline or aviation fuel must not exceed 16 000 L.
- The compartments of a tank truck must be separated by free space.
- 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 chock blocks on board;
 - near each tank, one or two dry chemical extinguishers with a rating of at least 20 BC*;
 - in the cab or attached to the outside of it, one extinguisher with a rating of at least 5 BC.
- It is prohibited to discharge two or more petroleum products with different UN numbers by pumping unless a separate unloading system is used for each product.



* Effective August 15, 2006, the mandatory extinguishing power will become 40 BC.

Rules governing the driver of a tank truck

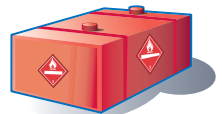
Tank-truck drivers must:

- engage the parking, emergency, or work brake in order to immobilize the vehicle while unloading petroleum products;
- if the tank-truck is parked on a slope, chock two wheels before unloading;
- leave closed at all times shutoff valves and gravity discharge valves, except during delivery. Moreover, the driver must take the necessary steps to ensure that no one can operate the discharge valve when the tank-truck is unattended.

It is prohibited to fill from a tank truck a means of containment or the tank of a road vehicle on or beside a public road. However, this prohibition does not apply to the delivery of heating oil for buildings.

Special rule governing vehicles transporting the means of containment of petroleum products

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.



Liquefied petroleum gases



Shipping name	UN number
BUTANE	UN1011
BUTYLENE	UN1012
ISOBUTANE	UN1969
ISOBUTYLENE	UN1055
PROPANE	UN1978
PROPYLENE	UN1077

The following prescriptions apply to the handling and transportation of the above-mentioned liquefied petroleum gases.

Rules governing tank trucks

The tank-truck must be equipped with:

- two chocks;
- near each tank, one or two dry chemical extinguishers with a total extinguishing power of at least 20 BC*.



* Effective August 15, 2006, the required extinguishing power will become 40 BC.

Rules for tank-truck drivers

Tank-truck drivers must:

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

Rules for transporting gas cartridges

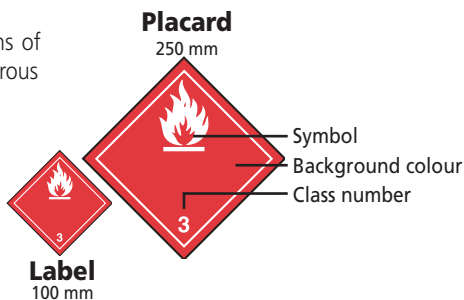
- Carrying gas cartridges inside a vehicle is prohibited except in an area with exterior ventilation.
- Gas cartridges installed outside at the rear of the vehicle must be protected by extending the bumper beyond the cartridge using material whose resistance is at least equivalent to that of the bumper.
- A cartridge 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.



Safety marks

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

- labels;
- placards;
- signs and marks.



Labels must be displayed on means of containment with a capacity equal to or less than 450 L and placards must be displayed on means of containment of 450 L or more.

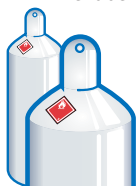
Safety marks must remain on a means of containment until its contents have been neutralized or the means of containment has been unloaded, emptied, cleaned or drained so that none of the dangerous substance remains in the means of containment and the latter no longer poses a threat.

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 containing dangerous substances.

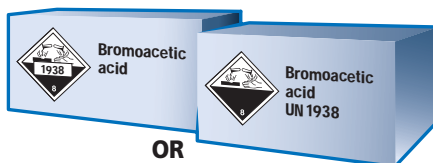
The carrier must ensure that the labels remain in place during the trip.

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 of a small means of containment;
- on or near the shoulder of a gas cylinder.

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 triangle.



Placards

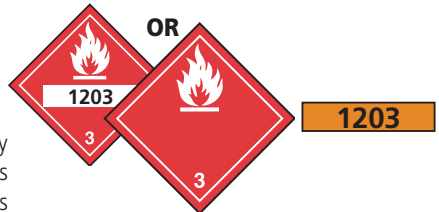
The **consignor** must provide the carrier with the placards that are displayed on each side and at each end of a large means of containment containing dangerous substances, unless the necessary placards are already in place.

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.



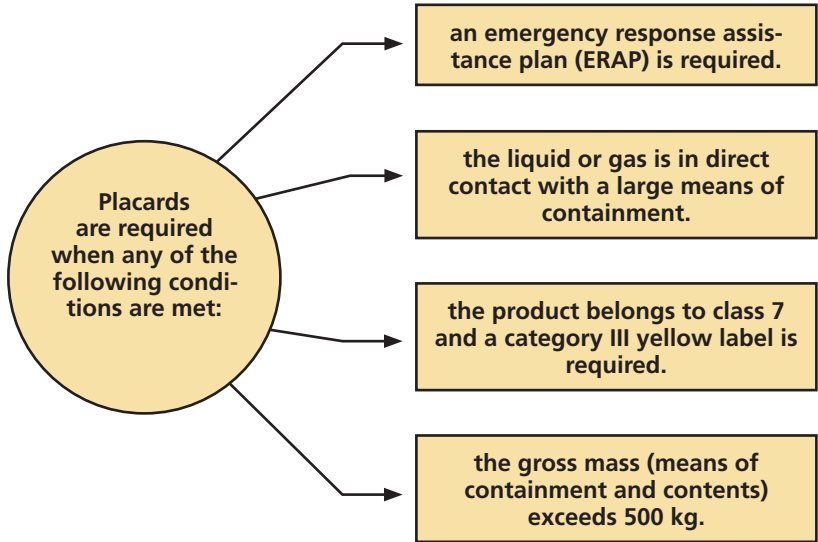
The UN number may be displayed either:

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



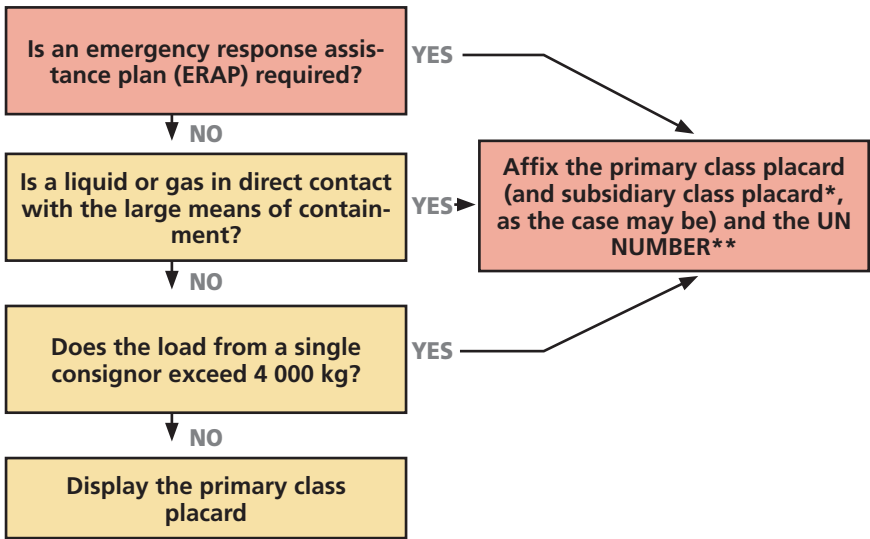
The "DANGER" placard may be used in certain situations to identify loads of various dangerous substances. The diagram on page 22 concerning a mixed load makes it possible to ascertain whether the "DANGER" placard may be affixed.

When is it necessary to display placards?

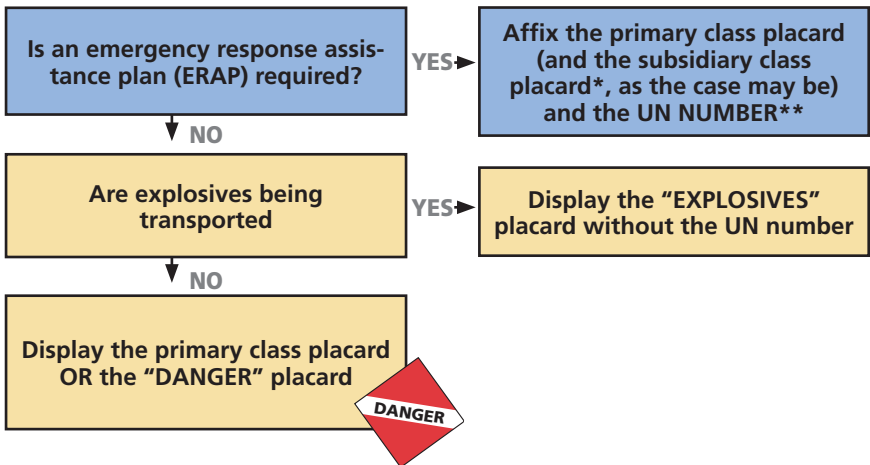


The diagrams and examples on pages 22, 23 and 24 make it possible to determine which placards must be displayed on a large means of containment and whether or not a UN number is also required as well as indicating how to place the placards.

SINGLE LOAD



MIXED LOAD *(repeat the process for each substance)*



* The subsidiary class placard is displayed when the ERAP is required and the dangerous substances belong to one of the following subsidiary classes: 1, 4.3, 6.1 (packing group I, because of inhalation toxicity) or 8 (UN2977 and UN2978). The number of the class must not appear in the lower part of the subsidiary placard.

** The UN number need not be displayed in respect of explosives.

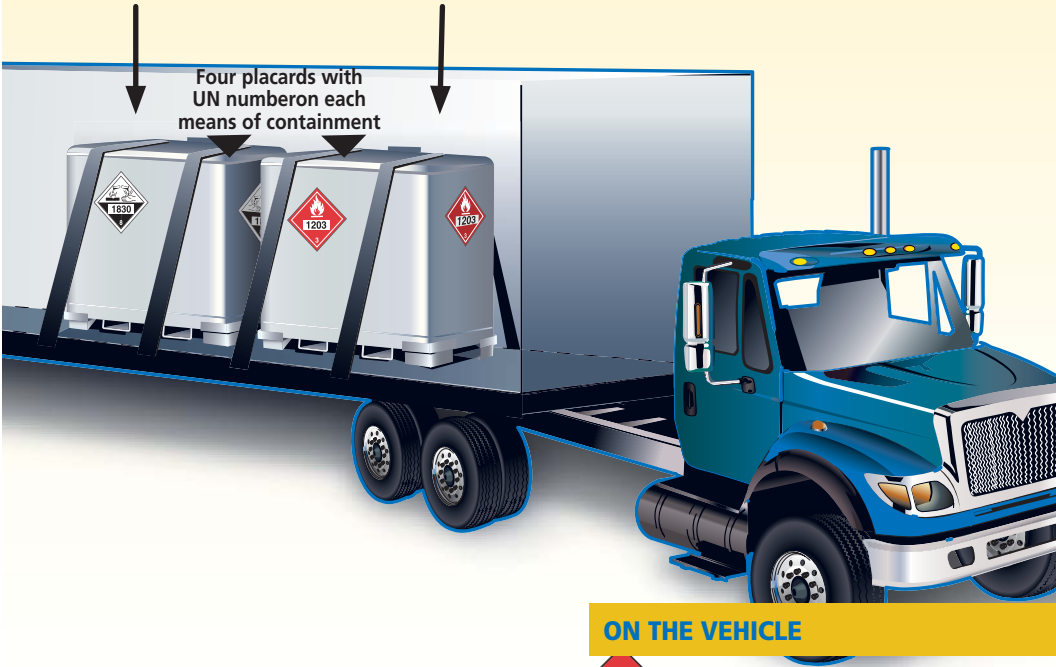
EXAMPLES OF DISPLAYING PLACARDS AND UN NUMBERS

Example 1: Placards to be displayed on a closed vehicle

Sulphuric acid
UN1830
Class 8, PG II
Quantity: 1 100 L
ERAP Index: 3 000 L

Gasoline
UN1203
Class 3, PG II
Quantity: 900 L
ERAP Index: no ERAP

Four placards with
UN number on each
means of containment



AND



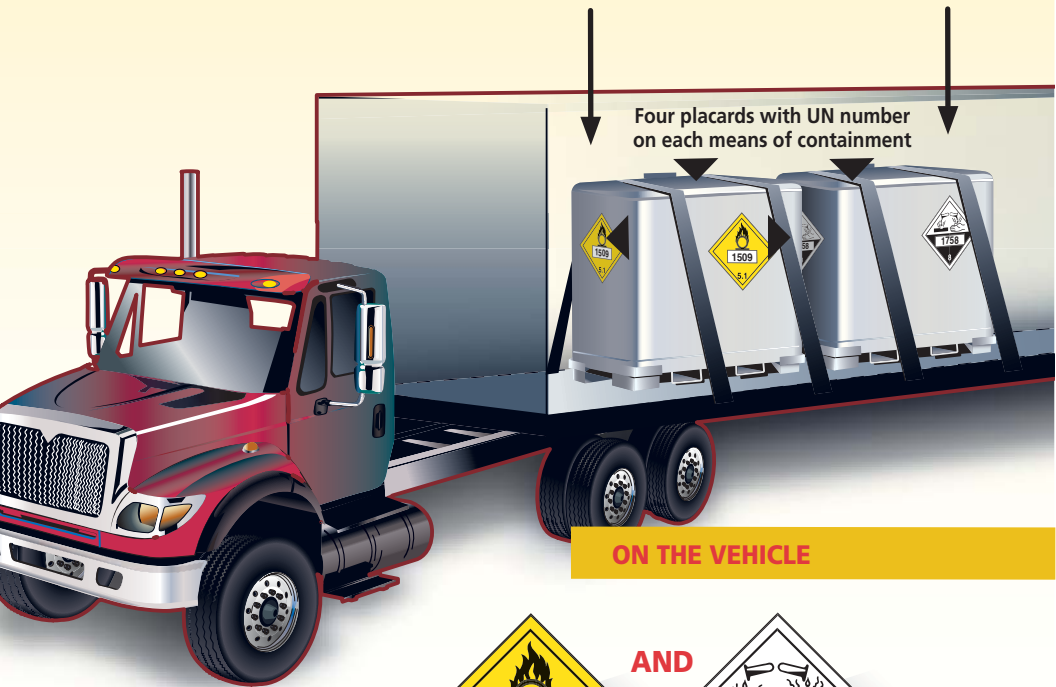
OR



Example 2: Placards and UN number to be displayed on a closed vehicle

Strontium peroxide
UN1509
Class 5.1, PG II
Quantity: 1200 kg
ERAP Index: 1000 kg

Chromium oxychloride
UN1758
Class 8, PG I
Quantity: 1300 L
ERAP Index: 1000 L



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 _____		De puis le _____
Date _____		Date _____
Time _____		Heure _____
DO NOT ENTER		DÉFENSE D'ENTRER

MARINE POLLUTANT MARK



Training

Requirements

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

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

An employer is responsible for issuing the training certificate to an employee who handles, transports or offers dangerous substances for transport. The certificate expires 36 months after the date of issuance.

A self-employed person who has received the appropriate training must issue to himself and sign the training certificate.

An employer or a self-employed person must keep a record of training or a statement of experience, as well as a copy of the training certificate, beginning on the date the training certificate is issued and until two years after the date it expires.

The training must be directly related to the operations that the employee is asked to perform (see the example next page).

EXAMPLE OF A TRAINING CERTIFICATE

Recto

Certificat de formation
Transport de matières dangereuses

Nom de l'employeur
Adresse de l'établissement de l'employeur

Nom de l'employé

Le présent certificat atteste que l'employé susmentionné a suivi la formation décrite au verso, en conformité avec les exigences du Règlement sur le transport des marchandises dangereuses.

Date d'expiration Signature de l'employeur Signature de l'employé

Verso

Cochez le ou les case(s) appropriée(s).

Formation en :

Manutention Offre de transport Transport

concernant le ou les sujet(s) suivant(s) :

Classification

Appellations réglementaires

Utilisation des annexes 1, 2 et 3

Documentation

Indications de danger

Contenants

Plan d'intervention d'urgence

Exigences requises pour rédiger un rapport lors d'un rejet accidentel et en cas de rejet accidentel imminent

Pratiques de transport et maniement sécuritaire, ainsi que caractéristiques des matières dangereuses

Utilisation appropriée de l'équipement servant à traiter ou à transporter des matières dangereuses

Mesures d'urgence à observer pour réduire ou éliminer tout risque pour la sécurité publique

Transport aérien des matières dangereuses (OACI)

Transport maritime des matières dangereuses (IMDG)

Accidental discharge

In the event of an accidental release of dangerous substances from a means of containment 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 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**.

Quantities beyond which immediate notice is compulsory	
Class	Quantity
1	Any quantity that could pose a danger to public safety or 50 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 that could pose a danger to public safety or exceeding 1 kg or 1 L
7	Any quantity that could pose a danger to public safety*
8	5 kg or 5 L
9	25 kg or 25 L

* *An emission level greater than the emission level established in section 20 of the Packaging and Transport of Nuclear Substances Regulations.*

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

Tunnels

Requirements applying to the use of tunnels



The driver of a road vehicle is strictly prohibited from travelling in the Louis-Hippolyte-Lafontaine tunnel, the Ville-Marie and Viger tunnels in Montréal, the Joseph-Samson tunnel in Québec City, and the part of the approach to the Melocheville tunnel (controlled by traffic lights and hold lanes), when:

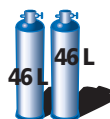
- the quantity of dangerous substances he is transporting requires that placards be displayed, unless the vehicle is carrying only Class 9 dangerous substances;



- he is carrying Class 3 flammable liquid and the total capacity of the set of containers does not exceed 30 litres.



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



- he is transporting equipment that produces a naked flame.



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;



- when the fuel is used for the air conditioning of the vehicle or the load space and is contained in a tank 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 whose tank capacity does not exceed 75 L and the flammable liquid is contained in a tank designed for that purpose by the vehicle or equipment manufacturer;
- to emergency vehicles within the meaning of section 4 of the *Highway Safety Code*;
- to cranes equipped with a second diesel fuel tank installed by the crane manufacturer;
- to maintenance vehicles used inside tunnels or at the entrances to and exits from the tunnels.



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 Substances 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 discharges.

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.

Total exemption for personal use

A person transporting dangerous substances intended for personal use is not subject to regulatory provisions if the dangerous substances are:

- transported between:
 - a retail outlet and the residence of the purchaser;
 - a retail outlet and the purchaser's place of use;
 - the residence of the purchaser and a place of use;
 - two residences;
- contained in one or more means of containment each of which has a gross mass less than or equal to 30 kg AND the gross mass of the consignment is less than or equal to 150 kg;
- not for resale or for commercial or industrial use;
- not an explosive (the Regulation nonetheless makes provision for certain exceptions, such as bullets and shotgun cartridges);
- not radioactive material covered by a permit issued by the Canadian Nuclear Safety Commission.



Examples: chlorine (hypochloride solution) for swimming pools and propane for BBQs. It should be noted, in the case of propane, that the space in which the cylinder is transported must be ventilated.

Partial exemption for a gross mass less than or equal to 500 kg

The standardized means of containment (except for Class 2, Gases) 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 means of containment each of which has a gross mass less than or equal to 30 kg (except for Class 2, Gases);
- the safety marks or 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 shipping 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.

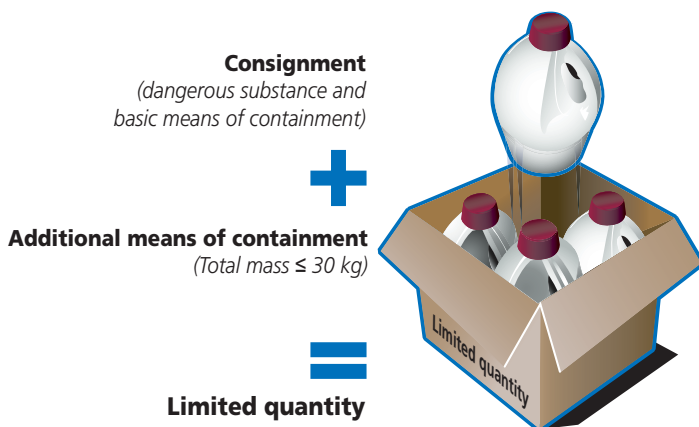
The 500 kg exemption does not apply to dangerous substances that:

- are forbidden for transport in Schedule 1 or Schedule 3 of the TDGR;
- require a control or emergency temperature;
- have a primary class or subsidiary class of Class 1, except for Class 1.4S;
- are included in Class 2.1 and are in a cylinder that has a water capacity greater than 46 L;
- are included in Class 2.3;
- are included in Class 4 and Packing Group I;
- are included in Class 5.2 unless they are limited quantities in accordance with section 1.17;
- are liquids included in Class 6.1 and Packing Group I;
- are included in Class 6.2;
- are included in Class 7 and are required to be licensed by the Canadian Nuclear Safety Commission.

Total or partial exemptions for limited quantities

A consignment of dangerous substances (other than explosives), i.e. the dangerous substance and its basic means of containment, is a limited quantity if:

- the consignment is contained in an additional safe means of containment that is designed, constructed, filled, closed, secured and maintained to avoid any accidental release of the dangerous substances;
- the total gross mass of the consignment and the additional means of containment is less than or equal to 30 kg;
- 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 TDSR.



TOTAL EXEMPTION: The regulatory provisions do not apply to a consignment in limited quantity provided that any of the following indications appears on one side of the additional means of containment:

- "Quantité limitée"
- "Limited Quantity"
- "Quant. Itée"
- "Ltd. Qty."
- "Bien de consommation"
- "Consumer Commodity"

PARTIAL EXEMPTION: Only a summary shipping 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 consignor must give to the carrier a document that includes the words:
 - "Quantité Limitée"
 - "Limited Quantity"
 - "Quant. Itée"
 - "Ltd. Qty."
 - "Bien de consommation"
 - "Consumer Commodity"

– Partial Exemption

Regulatory provisions, except for those applicable to petroleum product containers, do not apply to dangerous substances in a quantity less than or equal to 1 500 kg gross mass in transport on a road vehicle licensed as a farm vehicle bearing one of the licence plates indicated below.



A vehicle registered with a **C** licence plate is subject to **restricted travel**. This is especially true of a tire-equipped farm tractor designed to pull farm equipment and used for any purpose when it is the property of a farmer* or exclusively for personal use when it is the property of a natural person other than a farmer.



A motor vehicle with a net mass equal to or less than 3 000 kg may be deemed a farm vehicle and be registered with an **F** licence plate (**commercial vehicles**) provided that it belongs to a farmer* and is used primarily to transport agro-output or the material necessary to produce agro-output.



A vehicle is deemed to be a farm truck when it belongs to a farmer* and is used primarily to transport agro-output or the material necessary to produce agro-output. In this instance, it is registered with an **L** licence plate (**truck transport**).



To be deemed a farm trailer, the trailer must have a net mass less than or equal to 2 300 kg and belong to a farmer.* The trailer, registered with an **R** (**trailer**) licence plate, must be used primarily to transport agro-output or the material necessary to produce agro-output. It should be noted that farm trailers registered prior to January 1, 1989 may preserve the category **U** licence plate.

* A **farmer** is deemed to be a person possessing the farm registration card issued by the ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec or a person who is a member of an association recognized pursuant to the **Farm Producers Act**.

The partial exemption for dangerous substances in a quantity less than or equal to 1 500 kg on a road vehicle licensed as a farm vehicle applies only if :

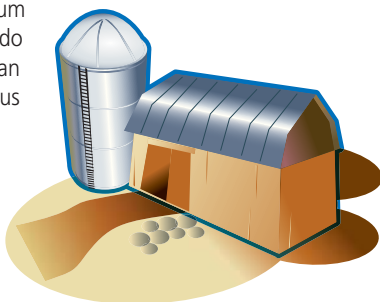
- the dangerous substances are transported solely on land for a distance less than or equal to 100 km;
- the dangerous substances are to be or have been used for agricultural purposes;
- the dangerous substances do not belong to Class 1 (except Class 1.4S), 2.3, 6.2 and 7;
- Class 2.1, Flammable Gases, are contained in a cylinder that has a water capacity greater than 46 L.

Note: As of August 15, 2004, means of containment of over 450 L and at least 3 000 L used to transport petroleum products must be standardized.

Agriculture: 3 000 kg Retail Partial Exemption

With the exception of those governing petroleum product containers, the regulatory provisions do not apply to the transport of a quantity less than or equal to 3 000 kg gross mass of dangerous substances sold retail for agricultural use if:

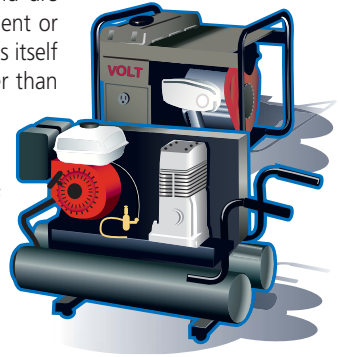
- the dangerous substances are transported solely on land between a retail outlet and the residence of the purchaser or the place of use, for a distance less than or equal to 100 km;
- the dangerous substances are to be or have been used for agricultural purposes;
- the dangerous substances are in a safe means of containment that is properly secured;
- the dangerous substances do not belong to Class 1 (except Class 1.4S), 2.3, 6.2 and 7;
- Class 2.1, Flammable Gases, are contained in a cylinder that has a water capacity greater than 46 L.
- containers larger than 450 litres used to transport petroleum products meet standards.



Dangerous Goods in an Instrument or in Equipment

No regulatory provision applies to the transport of dangerous substances in an instrument or in equipment if:

- the dangerous substances are contained in, and are not intended to be discharged from, an instrument or a piece of equipment that is not dangerous goods itself and that 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.



Example: a generator or compressor equipped with a gas tank with a capacity less than or equal to 30 L.

Class 3, Flammable Liquids: General Exemption

No regulatory provision applies to the transport of Class 3, Flammable Liquids if the dangerous substances:

- have no subsidiary class;
- are included in Packing Group III (limited danger) and have a flash point greater than 37.8°C;
- are contained in a safe small means of containment (with a capacity less than or equal to 450 L).

Example: diesel, kerosene

Exemption Class 3, Flammable Liquids: UN1202, DIESEL FUEL, or UN1203, GASOLINE Exemption

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 water 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 : In order to take advantage of this exemption, a carrier wishing to transport one or more large containers with an individual capacity greater than 450 L must use a single unit vehicle.

Partial exemption for certain types of gases

The shipping document and the training certificate are not required when the following dangerous substances are transported: acetylene (UN1001), compressed air (UN1002), argon (UN1006), methylacetylene and propadiene mixture (UN1060), 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.



Miscellaneous exemptions

Provision has also been made for the following exemptions:

- **Medical Device or Article**
- **Samples**
- **National Defence**
- **Agriculture: Pesticide Exemption**
- **Agriculture: Anhydrous Ammonia Exemption**
- **Transportation within a Facility**
- **Emergency Response**
- **Operation of a Means of Transport**
- **Transportation between Two Properties**
- **Marine**
- **Class 1, Explosives**
- **Class 3, Flammable Liquids**
 - Flash point between 60.5°C and 93°C
 - Alcoholic beverages
 - Alcohol
 - Polyester resin kit
- **Class 6.2, Infectious Substances**
 - Risk Group 2
 - Risk Group 3
- **Biological Products**
- **Substances Believed Not to Contain Infectious Substances**
- **Class 7, Radioactive Materials**
- **Dangerous Goods in a Drum**
- **Fumigation of Means of Containment**
- **Miscellaneous Special Cases**

Standards and safety rules

- Transporting dangerous substances in a double tank-truck other than a B-train is prohibited.
- It is prohibited to transport dangerous substances in a type A or C road train over 25 m long.



Load-securing

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 on or in front of a motor vehicle's front bumper.



Transport to the United States

Carriers of the dangerous substances described below destined for the United States must register each year with the United States Department of Transport (USDOT).

The dangerous substances covered have the following characteristics:



Any quantity of **Class 7 radioactive materials**



Over 25 kg of Class 1.1, 1.2 or 1.3 explosives



Over 1 litre of products that are toxic through inhalation

They require the **displaying of placards**

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.

Safety measures

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

Prior to departure, the driver must:

- have in his possession his training certificate in the transportation of dangerous substances;
- have rested for at least eight hours;
- carefully inspect the vehicle or vehicles;
- check the securing of the load;
- have in his possession the shipping documents;
- ensure that the dangerous substances safety marks are properly in place;
- know what to do in the event of an accident;
- ensure that the load complies with the appropriate load and dimension standards.

During transportation, the driver must:

- comply with speed limits;
- comply with braking distances;
- adapt his driving to road conditions;
- regularly check the securing of the load and the condition of the tires;
- observe driving and working hours;
- not consume alcohol or drugs;
- not smoke when he is transporting Class 2.1, 3 and 4 flammable substances;
- drive more cautiously when operating tank trucks.

Suggestions aimed at enhancing safety when dangerous substances are handled and transported

Before hiring staff, check:

- to ensure the individual's true identity;
- whether or not applicants have a criminal record;
- whether or not the applicant was implicated in incidents in previous jobs;
- long gaps between jobs and the explanation for them;
- the reliability of personal references.

Storage site

- Ensure that the storage site is:
 - properly lit;
 - protected by a fence, barrier or other means of 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 safety measures adopted are adequate;
- ensure that staff who handle and transport dangerous substances have received the appropriate training and keep their knowledge up to date;
- check the integrity and legitimacy of customers and carriers;
- accept shipments of dangerous substances only when the consignor is known.

During transportation

- Recommend to drivers that, as much as possible, they use roads that allow them to avoid major 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.

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 safety measures pertaining to dangerous substances;
- maintain a sound information exchange network with other industry stakeholders.

Constant vigilance is the best way to counteract threats from terrorist groups.

Appendices

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)	35 (13)	2
	5	11 (4,5)	79 (31)	3,4
Acetylene	25	22 (9)	91 (36)	32
	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
Sulphuric Acid	1,83

Miscellaneous conversions

METRIC SYSTEM	IMPERIAL, AMERICAN OR METRIC EQUIVALENT
0,4536 kilogram	1 pound
1 kilogram	2,205 pound
30 kilograms	66 pound
500 kilograms	1102 pound
4000 kilograms	8818 pound
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	1000 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 number: 1 800 668-5284

Fax: 613 995-5086

E-mail: info@cnscccsn.gc.ca

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

CNSC – Eastern Regional Office

1575 Chomedey Blvd, Room 221

Laval, Québec

H7V 2X2

Téléphone: 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:

Telephone: 613 948-5200

Fax: 613 948-5195

E-mail: canmet-crd@rncan.gc.ca

Québec Region

P.O. Box 100

2050 Girouard West

Saint-Hyacinthe, Québec

J2S 7B2

Telephone: 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

Telephone: 514 598-4584

Fax: 514 596-3571

To obtain an explosives vehicle certificate* (EVC)

Transport Canada

Place de Ville, Tower C
Transport of Dangerous Goods Directorate
330 Sparks Street
Ottawa, Ontario
K1A 0N5

Telephone: 613 998-6541

* The explosives vehicle certificate is issued pursuant to the requirements governing an explosive transportation permit under the *Explosives Regulations* (CRC, c. 599 of the *Statutes and Regulations of Canada*).

Registration with CANUTEC and emergency numbers in case of accidental discharges

CANUTEC

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

Telephone: 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 phone: * 666 (Canada only)

Canadian Standards Association (CSA) standards governing gas tanks and gas cylinders

Canadian Standards Association

Québec Region
865, rue Ellingham
Pointe-Claire, Québec
H9R 5E8

Telephone: 514 428-2418
Toll-free number: 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

Telephone: 819 956-0425
Toll-free line: 1 800 665-2472
Fax: 819 956-5644
E-mail: ncr.cgsb-ongc@pwgsc.gc.ca

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

Québec City

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

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

