

Transportation of Dangerous Goods (TDG)

Transportation of Dangerous Goods (TDG) - Dangerous Goods Safety Marks (Road)

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What are dangerous goods safety marks?

Dangerous goods safety marks are the first line of communication about the hazard(s) of the dangerous good. This communication is accomplished by the:

- colour used for the safety mark (e.g., orange, red, blue),
- symbol (e.g., explosion, flames, corrosion, etc.),

- code or number for a particular hazard (e.g., 1- Explosive, 2 - Gases, 3 - Flammables)
- words (e.g., inhalation hazard, etc.)

These dangerous goods safety marks can be:

- labels
- placards
- other marks such as:
 - identification numbers
 - shipping names
 - orange panel
 - sign
 - handling marks
 - letters, words, etc.

Note that the difference between labels and placards is their size. A label is used for a small “means of containment” whose capacity is 450 L or less. A placard is used for a large “means of containment” whose capacity is more than 450 L.

The marks for safety for each TDG class are shown in the OSH Answers document [Transportation of Dangerous Goods \(TDG\) - 9 Classes](#). Other safety marks are shown in Table 2 in this document (below).

Note: The information below is provided as guidance only. Always check with Transport Canada and the [TDG Act and Regulations](#) to ensure compliance.

Please also see the following documents in this series:

- TDG - Overview
- [TDG - Training](#)
- [TDG - Classification](#)
- [TDG – Nine Classes](#)
- [TDG – “Special Case” and “Special Provision” Exemptions](#)
- [TDG - Reporting Requirements](#)
- [TDG – Emergency Response](#)

What is the purpose of dangerous goods safety marks?

The purpose of dangerous goods safety marks is to:

- Provide quick identification of the dangerous goods in an emergency (e.g., release of dangerous goods during an incident)
 - Communicate the nature and degree of the danger
 - Quickly determine if dangerous goods in a mixed load are incompatible
-

When are dangerous goods safety marks required?

Dangerous goods safety marks are required when the good that is being transported:

- is determined to be a “dangerous good” under the TDG Regulations, and
 - the shipment is **not** exempt by the TDG Regulations from displaying a safety mark.
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What are the general requirements for all dangerous goods safety marks?

The TDG Regulations ([Part 4](#)) specify that all safety marks must be:

- displayed in the appropriate colour
 - visible and legible
 - displayed against a background of contrasting colour
 - made of durable, weather-resistant material that will resist coming detached or fade
 - the required size
-

Who has responsibilities for dangerous goods safety marks?

Responsibilities for dangerous goods safety marks depend on whether the handler of the dangerous goods is the:

- consignor (shipper), or importer
- carrier (transporter)
- consignee (receiver)

Consignor (shipper) or Importer

Before the goods are loaded on the means of transport (i.e., vehicle, truck), the consignor or importer must:

- Select the correct label(s) for each small means of containment (e.g., drum, package, overpack)
- Make sure that each small means of containment (e.g., package or container) of dangerous goods is properly labelled and marked
- Select the correct placards and other safety marks for each large means of containment (e.g., tanker)
- Display the placards and other safety marks, or provide the appropriate placards to the carrier (when the means of containment or means of transport belongs to the carrier)

Carrier (transporter)

- Confirm that the safety marks are correct
- Make sure the safety marks are displayed and remain displayed during transport
- Replace safety marks when during transport they are stolen, lost, or defaced
- Provide and display appropriate safety marks when the contents of the shipment change (e.g., new consignments are loaded on the means of transport)
- Remove or cover safety marks when the dangerous good is no longer present

Consignee (receiver)

- Leave the safety marks on a large means of containment until the means of containment is cleaned or purged.
- Make sure the appropriate labels (TDG or Workplace Hazardous Materials Information System (WHMIS) are used in the workplace as required.

What are “misleading safety marks”?

“Misleading safety marks” are dangerous goods safety marks that might be deceptive, ambiguous, or provide false information about the presence or nature of any dangers. For example:

- **Misleading about the “presence of danger”** occurs when safety marks are displayed even though those dangerous goods are not being transported. Once a shipment has been fully unloaded, any display of dangerous goods safety marks on the means of transport (e.g., truck) will be considered “misleading safety marks”.
- **Misleading about the “nature of danger”** occurs when a safety mark that does not represent the class of dangerous goods is being displayed. For example, if a shipment is carrying Class 2.2 (non-flammable and non-toxic) compressed gases, but it displays Class 2.1 (flammable gas) safety mark. The Class 2.1 safety mark is a “misleading safety mark” because it implies that the compressed gas that is being transported is flammable when it is not.

What are the requirements for dangerous goods safety marks when displayed on the means of containment

Which labels or placard that must be displayed depend on the classification of the dangerous good. The requirements for the display of the dangerous goods safety marks also depend on:

- size of the means of containment (e.g., small vs. large).
 - The size (i.e., capacity) of the means of containment itself also determines whether a label or placard is required. Note that the **amount** of the good inside a means of containment is not relevant.
- type of containers
- classification (primary and subsidiary hazard classes)
- whether or not they are shipped under a TDG exemption
- type of safety mark

Labels and placards are diamond shaped (also referred to as “square on point”) and must be displayed as illustrated below.



What safety marks are required on a small means of containment (capacity 450L or less)?

Depending on the classification of the dangerous good, one or more of the following safety marks may be required on a small means of containment:

- Label for the primary hazard class for each dangerous good in the package
- Label for the subsidiary hazard class (if any) for each dangerous good in the package
- Shipping name and technical name when required in Special Provision 16 in Schedule 2 of the TDG Regulations
- Identification number - UN Number must be displayed within a white rectangle located on the primary class label itself or next to the primary class. When tags are used, the UN number must be displayed on the primary class label or on the tag next to the primary class label. The letters “UN” must not be included with the number when the UN number is displayed on the primary class label.
- “Inhalation Hazard” words for Class 6.1 and Class 2.3 dangerous goods
- Category B Mark for UN3373 dangerous goods
- Package certification marks (if required)

See Figure 2 for an example of dangerous goods safety marks on a small means of containment such as a package.

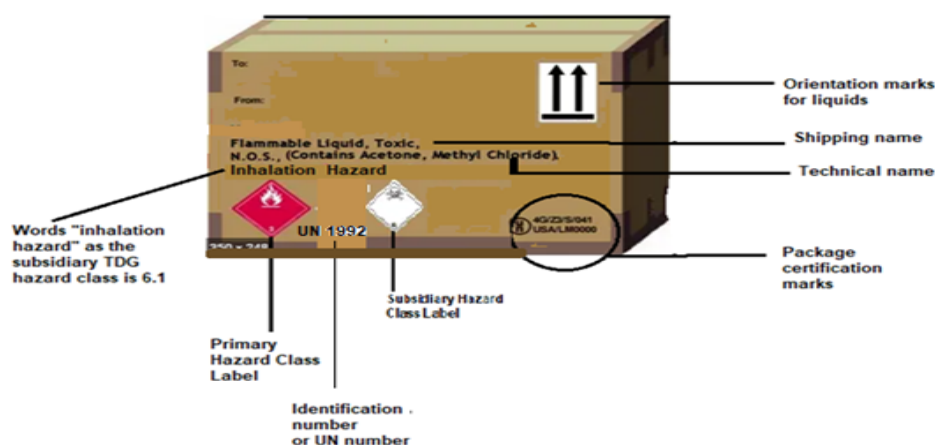


Figure 2: Safety marks on a small means of containment such as a package

Note 1: The orientation marks for liquids are optional for road transport, but mandatory for air transport.

Note 2: Package certification safety marks are specified in the standard that the package or container is compliant with. This requirement is outlined in Part 5 of the TDG Regulations.

Note 3: The containers inside the package not required to bear TDG safety marks.

Note 4: As the dangerous good is not identified with UN3373, the Category B mark is not required.

Are there other requirements for labels on a small means of containment?

Yes. The labels must be displayed on any side of the outer surface of a means of containment other than the side on which it is intended to rest or be stacked during transport. For a cylinder containing dangerous goods, the label must be displayed on or near the shoulder of the cylinder as shown below [Subsection 4.10(3)].



Figure 3: Labels on cylinders. Image from Alberta EDGE (Environmental and Dangerous Goods Emergencies), Alberta Transportation

If a small means of containment is placed inside another, and the outer container is not opened during loading, transport or unloading, the label is required only on the outer small means of containment.

Generally, if the shipment includes dangerous goods in Class 7, Radioactive Materials, then two labels are required on the small means of containment. The labels must be displayed on two opposite sides of the outer surface of a small means of containment. See Section 4.10(5) in the TDG Regulations for circumstances when labels are not required and the "Packaging and Transport of Nuclear Substances Regulations" for specific marking requirements.

What safety marks are required on a large means of containment (capacity 450L or more)?

Depending on the classification for a dangerous good, one or more of the following safety marks may be required on a large means of containment:

- Placard for the primary hazard class on each side and each end (total of four) for each dangerous good
- Placard for the subsidiary hazard class (if any) next to the primary hazard class placard on each side and each end (total of four) for:
 - Each dangerous good that must have an ERAP, **and**
 - Has a subsidiary classification of Class 1 (1.1, 1.2, 1.3 above the exemption limits), Class 4.3, Class 6.1 (Packing Group I), Class 8 (applies only to UN numbers N2977 and UN2978).
- Identification number - UN Number either within the center of the placard or on an orange panel safety mark (see the table for “other safety marks) when required in Sections 4.15.2 of Part 4 in the TDG Regulation. Except for Class 1, Explosives; UN numbers are only required for:
 - those dangerous goods that must have an ERAP dangerous goods that are liquid or gas in direct contact with the large means of containment
- “Inhalation Hazard” words on two opposite sides of the containment for dangerous goods:
 - as listed in Special provision 23 in Schedule 2 of the TDG Regulations,
 - classified in Class 6.1, Toxic substances because the dangerous good meets the inhalation toxicity criteria and Class 2.3, Toxic Gases
- Elevated temperature sign (if applicable)
- Fumigation sign (if applicable)
- Container certification or compliance marks as required by the standard that the container is compliant with

NOTE: Generally speaking, a placard must be displayed for each of the dangerous goods transported in a large means of containment regardless of the quantity. Also, regardless of the quantity of dangerous goods on board, the primary class placard for each of the dangerous goods in a large means of containment must be displayed on each side and on each end of the “large means of containment” or “means of transport”. If two or more dangerous goods have different UN numbers but are identified by the same placard or placards, the placard is required to be displayed only once on each side and on each end of a large means of containment regardless of how many products in the large means of containment have that class (primary or subsidiary) [See Section 4.15 in the TDG Regulations].

See the images below for examples of how to place the dangerous goods placards on large means of containments such as a highway tank (Figure 3), and compartmentalized means of containment (Figure 4).

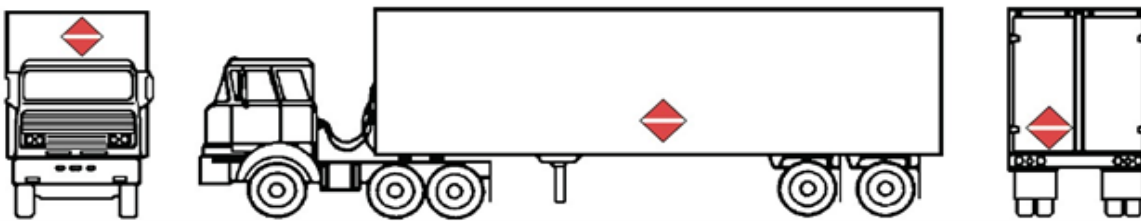


Figure 3: Placard requirement and placement for a single dangerous good transported in a highway tank Image from Transport Canada.

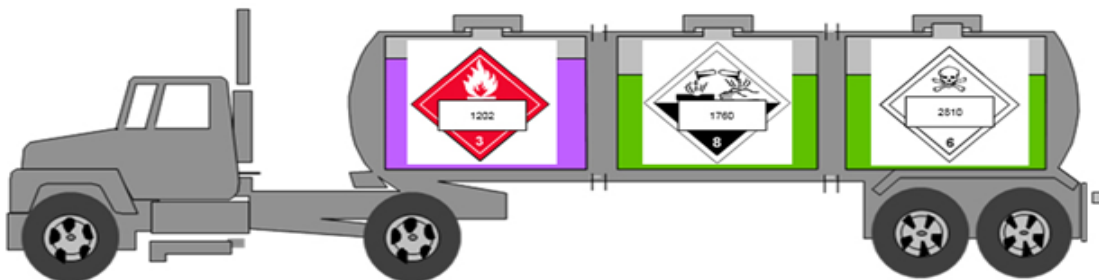


Figure 4: Placard requirements and placement for compartmentalized means of containment. Image from Transport Canada.

How many placards are required on a large means of containment?

The number of placards depends on the type of large means of containment, classification of the dangerous good, and the type safety mark that is required.

Generally, a large means of containment must have four placards (one on each side, one on the front and one in back). However, the safety mark requirements for large means of containment with a capacity of greater than 450 L but less than or equal to 3000 L (i.e., an intermediate bulk container) are:

- a placard and UN number may be displayed on two opposite sides of the intermediate bulk container, or
 - a label for each primary and subsidiary class as well as a UN number and a shipping name may be displayed on two opposite sides of the intermediate bulk container
-

Are safety marks required on overpacks?

Placards are not required for overpacks as the definition and description for an “overpack” does not include “large means of containment”.

The labelling requirements for an overpack depend on whether the labels can be seen through the overpack. The required markings for overpacks include:

- when all of the dangerous good safety marks can be seen through the overpack for each class of dangerous goods that is inside it, no additional labels or safety marks are required.
 - When the dangerous goods safety marks are **not** visible through the overpack:
 - primary class label and each subsidiary class label for each of the dangerous goods, as well as the shipping name and UN number, must be displayed on the overpack
 - the word “overpack” is required on at least one side for overpacks with capacity less than 1.8 m³ (64 cubic feet)
 - the words “overpack” on at least two opposite for overpacks with of 1.8 m³ (64 cubic feet) or more
-

Are safety marks required on consolidation bins?

Placards are not required for consolidation bins as the definition and description for a “consolidation bin” does not include “large means of containment”.

When a consolidation bin is used, the class of each dangerous good contained in the bin must be marked on a tag or on a fixed display device that is attached to the bin. It can be either a tag or a fixed display device (white board or a piece of paper) that will be updated every time a dangerous good is removed or added (Section 4.10.2 in the TDG Regulations).

Are there any exemptions for placards? And how does one select a placard for different loads?

Placards are not required or are optional for some dangerous goods when the gross quantity of the dangerous goods is 500 kg or less. See table 1 below for placard requirements.

NOTE: The table below is for guidance purposes only. Other requirements may be listed in other sections, regulations, Codes, or Acts that are not listed in this table. For more details, consult the legislation directly. Always consult the legislation that applies in your situation.

TABLE 1: Placard requirements

ROAD SHIPMENT OF:	Placard requirement for ROAD SHIPMENT
<p>Dangerous good: gross mass is 500 kg or less</p>	<p>Hazard class placards are required when the dangerous goods are:</p> <ul style="list-style-type: none"> • required to have an ERAP • required to display subsidiary hazard class placard • are classified in the Class 1 hazard class. NOTE: See further below in the table for placard requirement when the hazard class is 1.1, 1.2, 1.3, 1.4 or 1.5 are above a certain threshold of gross mass/number of articles. • classified in Class 2.3, Toxic Gases hazard class • classified in Class 4.3, Water-reactive Substances hazard class and all packing groups • classified in Class 5.2, Organic Peroxides (Type B, liquid or solid, that require control temperature.) hazard class • classified in Class 6.1, Toxic substances that are listed in Special Provision 23 • classified in Class 7, Radioactive materials that require a Cat III – Yellow label
<p>Dangerous good: gross mass is 500 kg or less</p>	<p>Hazard class placards are not required or are optional when only the following dangerous goods (one or more) are present in the shipment:</p> <ul style="list-style-type: none"> • Class 1.1, 1.2, 1.3 or 1.5 explosives that are: • not subject to Special Provision 85 or 86 and the quantity is less than or equal to 10 kg, or • subject to Special Provision SP 85 or 86 and the quantity is less than or equal to 1000 articles (note: this is number of articles, not mass) • Class 1.4 (except Class 1.4S) is 1000 kg or less • Class 1.4S, any amount


	<ul style="list-style-type: none"> • Class 2.1 or 2.2 hazard class • Class 3 hazard class • Class 4.1 or 4.2 hazard class • Class 5.1 hazard class • Class 6.1 and are not required to comply with Special Provision 23 • Class 8 hazard class • Class 9 hazard class <p>Examples are available from the TDG Directorate's FAQ on Part 4 under the question "Can you explain the current placarding requirements?".</p>
<p>Mixed Loads: dangerous good whose gross mass is 1000 kg or less, and there are at least two different dangerous goods, and the dangerous goods are contained in at least two small means of containment inside a large means of containment</p>	<p>Danger placard (instead of the individual hazard class placards) may be displayed when only the following dangerous goods are present in the shipment are classified in:</p> <ul style="list-style-type: none"> • Class 2.1 or 2.2 • Class 3 • Class 4.1 or 4.2 • Class 5.1 • Class 6.1 but are not an inhalation hazard and are not listed in Special Provision 23 • Class 8 • Class 9
<p>Class 2 gases shipment in combination of two or more cylinders that have a combined capacity exceeding 450 L such that:</p> <ul style="list-style-type: none"> • capacity of each cylinder is greater than 225 L, 	<p>The combination of cylinders may be placarded as one large means of containment.</p>




<ul style="list-style-type: none"> • are interconnected through a piping arrangement, and • are permanently mounted on a structural frame for transport 	
Gross quantity of Class 1.4 (except Class 1.4S) is 1000 kg or less	Placards are not required
Any amount of Class 1.4S by road	Placards are not required
Class 1.1, 1.2, 1.3 or 1.5 explosives that are not subject to Special provision 85 or 86 in Schedule 2 of the TDG Regulations and the quantity is less than or equal to 10 kg	Placards are not required
Class 1.1, 1.2, 1.3 or 1.5 explosives that are subject to Special provision 85 or 86 in Schedule 2 of the TDG Regulations and the quantity is less than or equal to 1000 articles	Placards are not required





What types of other dangerous goods safety marks may be required?



Other dangerous goods safety marks that may be required for a shipment of dangerous goods are summarized in Table 2 below.

Table 2: Other safety marks

Safety Mark	When required
<p data-bbox="217 241 481 277">Danger Placard</p>  <p data-bbox="316 573 386 595">Placard</p>	<p data-bbox="644 226 1043 257">Mixed loads 1000 kg or less</p> <p data-bbox="644 293 1369 461">This placard is not mandatory, but it is permitted on a large means of containment (greater than 450 L) instead of any other placard when the containment has:</p> <ul data-bbox="644 479 1302 741" style="list-style-type: none"> - one or more dangerous goods that require different hazard class placards, - the dangerous goods are contained in two or more small means of containment, AND - the shipment consists of only the following dangerous goods classified in: <ul data-bbox="692 777 1331 1294" style="list-style-type: none"> • Class 2.1 or 2.2 • Class 3 • Class 4.1 or 4.2 • Class 5.1 • Class 6.1 for exposure to other routes (not an inhalation hazard) and are not listed in Special Provision 23 • Class 8 • Class 9 <p data-bbox="644 1352 1358 1520">NOTE: The TDG Regulations has specified circumstances when this placard is not allowed to be used. See Section 4.16(2) of Part 4 in the TDG Regulations.</p>
<p data-bbox="145 1574 411 1606">Inhalation Hazard</p>	<p data-bbox="644 1574 1291 1742">These words must be displayed on a small or large means of containment when dangerous goods are shipped or imported for the hazard classes:</p> <ul data-bbox="692 1783 1294 2036" style="list-style-type: none"> • Class 6.1, Toxic Substances due to inhalation toxicity • Class 2.3, Toxic Gases • Are dangerous goods subject to Special Provision 23

	<p>Small means of containment: These words must be displayed next to the shipping name.</p> <p>Large means of containment: These words must be displayed on two opposite sides of the large means of containment in addition to any other safety marks that are required under the TDG Regulations.</p> <p>NOTE: The size of the “Inhalation hazard” letters vary for different types of means of containment. See Section 4.23 of Part 4 in the TDG Regulations</p>
<p>Excepted Quantities Mark</p> 	<p>This mark is required when shipments meet the excepted quantity exemption. This mark must be displayed on one side of a means of containment.</p> <p>See Section 1.17.1 in the TDG Regulations.</p> <p>Dangerous goods that can be shipped under this exemption will have an excepted quantity code of E1, E2, E3, E4, or E5 in Column 6(b) of Schedule 1 of the TDG Regulations.</p>
<p>Limited Quantity Mark</p> 	<p>This mark is required when shipments meet the limited quantity exemption, and must be displayed on one side of a means of containment.</p> <p>See Section 1.17 in the TDG Regulations.</p> <p>Dangerous goods that can be shipped under this exemption will have a limited quantity index greater than 0 in Column 6(a) of Schedule 1 of the TDG Regulations.</p>
<p>Elevated Temperature Sign</p> 	<p>Dangerous goods in large means of containment (greater than 450 L) that are transported at:</p> <ul style="list-style-type: none"> • 100 deg C or more for liquids • 240 deg C or more for solids

	<p>This sign must be displayed on each side and on each end of the large means of containment (i.e., total of 4 signs) next to each primary class placard for the dangerous goods or, if there is a subsidiary class placard, next to the subsidiary class placard.</p>
<p style="text-align: center;">Fumigation Sign</p> 	<p>This sign must be displayed at or next to each entry way of the large means of containment (greater than 450 L) when the containment is fumigated with a dangerous good.</p>
<p style="text-align: center;">Marine Pollutant Mark</p> 	<p>Not required to be displayed on road vehicles. Only required when a marine pollutant is being transported in a means of containment on a vessel.</p>
<p style="text-align: center;">Category B Mark</p> 	<p>This mark is displayed on small means of containment filled with infectious substances that are assigned to "UN3373, Biological Substance Category B".</p> <p>NOTE: This category B mark must be displayed instead of the Class 6.2 label.</p>
<p style="text-align: center;">Lithium Battery Mark</p> 	<p>The Class 9, lithium battery label, must be displayed on a small means of containment for the following dangerous goods:</p> <ul style="list-style-type: none"> • UN3090 Lithium metal cell batteries, • UN3480 Lithium ion cell batteries, and

	<ul style="list-style-type: none"> • UN3091 or UN3481, as appropriate for lithium cells or batteries that are contained in, or packed with equipment. <p>When a shipment consists of batteries with different UN numbers, all applicable UN numbers must be indicated on one lithium battery or the UN number can be included on separate lithium marks.</p> <p>See Special Provision 34 in Schedule 2 of the TDG Regulations.</p>
<p>Orange Panel</p>  <p>The “*” is replaced with the UN number.</p>	<p>Used to display the UN number on a large means of containment (greater than 450 L) when the UN number is not included in the hazard class placard.</p> <p>Note: The letters “UN” are not displayed, and the black numerals must not be less than 65 mm high. See the example below.</p> 

Images from [Transport Canada](https://www.transportcanada.gc.ca)

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