

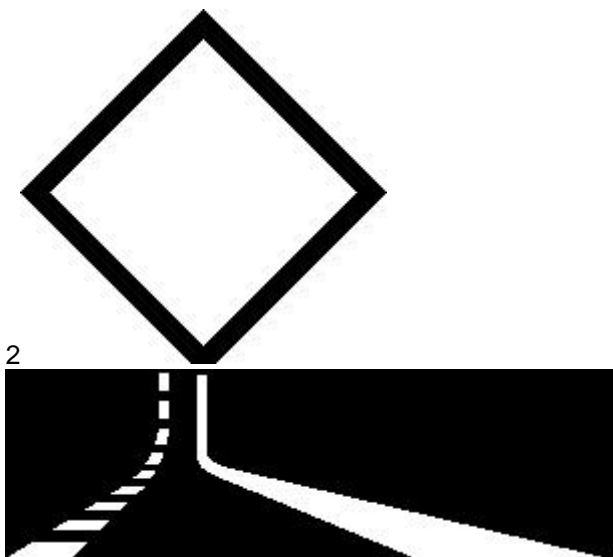
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**A Technical Publication
from the Co-ordination
and Information Centre**

Transportation Requirements for Dry Ice

November 2009

**Dangerous Goods
And Rail Safety**



**Government
of Alberta** ■
Transportation

This material is meant as a guide to certain parts of the Transportation of Dangerous Goods Regulations and is not meant to be a substitute for them. It is the responsibility of handlers, offerers and transporters of dangerous goods to consult the Regulations for the exact requirements. The Coordination and Information Centre of Alberta Transportation can provide accurate information regarding the Regulations 24 hours a day.

Co-ordination and Information Centre

**Alberta Transportation
Dangerous Goods and Rail Safety Branch
Main Floor, Twin Atria Building
4999 – 98 Avenue
Edmonton, Alberta, T6B 2X3**

**Tel. Edmonton: (780) 422 – 9600
Tel. Province-wide: 1 (800) 272 – 9600
Fax: (780) 427 – 1044**

These telephone lines are recorded to assist in responding to the emergency (natural/manmade) and/or inquiry regarding dangerous goods and to ensure that the information is accurate. Direct any questions regarding the recording to the Compliance Officer responding to your call or contact the Manager of the CIC at 780-427-8660. *Legal Authority: Dangerous Goods Transportation and Handling Act, Section 13(1).*

Both the Transportation of Dangerous Goods (TDG) Regulations and the International Air Transport Association (IATA) Dangerous Goods Regulations control the shipment of solid carbon dioxide (dry ice). This document is intended to summarize the important sections of each set of Regulations which deal with this commodity.

TRANSPORT BY ROAD

Classification

Dry ice is a fully specified dangerous good with the following classification information:

Shipping Name	Class	UN Number	Packing Group	Limited Quantity Index	Passenger Carrying Road Vehicle Index
CARBON DIOXIDE, SOLID or DRY ICE	9	UN 1845	III	5 kg	200 kg

Dry Ice as Refrigerant

A small means of containment has a capacity of 450 l or less. The TDG Regulations do not apply to UN 1845, CARBON DIOXIDE, SOLID, or DRY ICE that is transported by a road vehicle, a railway vehicle or a ship on a domestic voyage and that is used as a refrigerant in a small means of containment if

- (a) the consignor includes, on a document that accompanies the small means of containment, the words “*Dry ice as refrigerant*” or “*Neige carbonique comme réfrigérant*”; and
- (b) the small means of containment in which the dry ice is used as a refrigerant is designed and constructed to permit the release of carbon dioxide to prevent the build-up of pressure that could rupture the small means of containment [Schedule 2, Special Provision 18].

Safety Marks

Safety marks are labels, placards, UN numbers and package markings. They are described in Part 4 of the TDG Regulations. The consignor is responsible for displaying safety marks on all means of containment containing dangerous goods [Section 4.4].

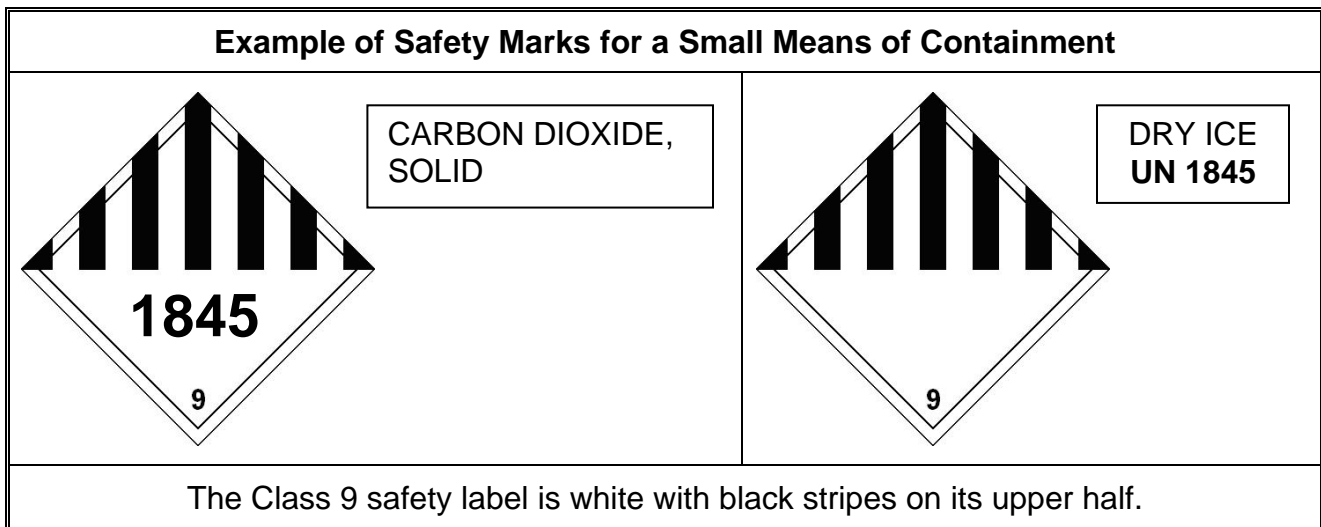
The carrier is responsible for making sure that the safety marks remain displayed during transport. The carrier is also responsible for removing or changing the safety marks if the requirements for dangerous goods safety marks change during transport [Section 4.5].

Small Means of Containment

When dry ice is transported for purposes other than as a refrigerant, the TDG regulations apply. Each small means of containment (450 l or less) must be clearly marked with a Class 9 dangerous goods label, the shipping name and the UN number [Sections 4.10 to 4.12].

The requirements to be a UN container specified under Section 5.12 of the TDG Regulations, does not apply to dry ice if it was handled, offered for transport or transported in a small means of containment designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no accidental release of the dangerous goods that could endanger public safety [Schedule 2, Special Provision 81].

The UN number for a dangerous goods label can be placed inside the label or next to the label as shown below [Section 4.8(1)(b)]. If the UN number is inside the label the letters "UN" must be omitted.

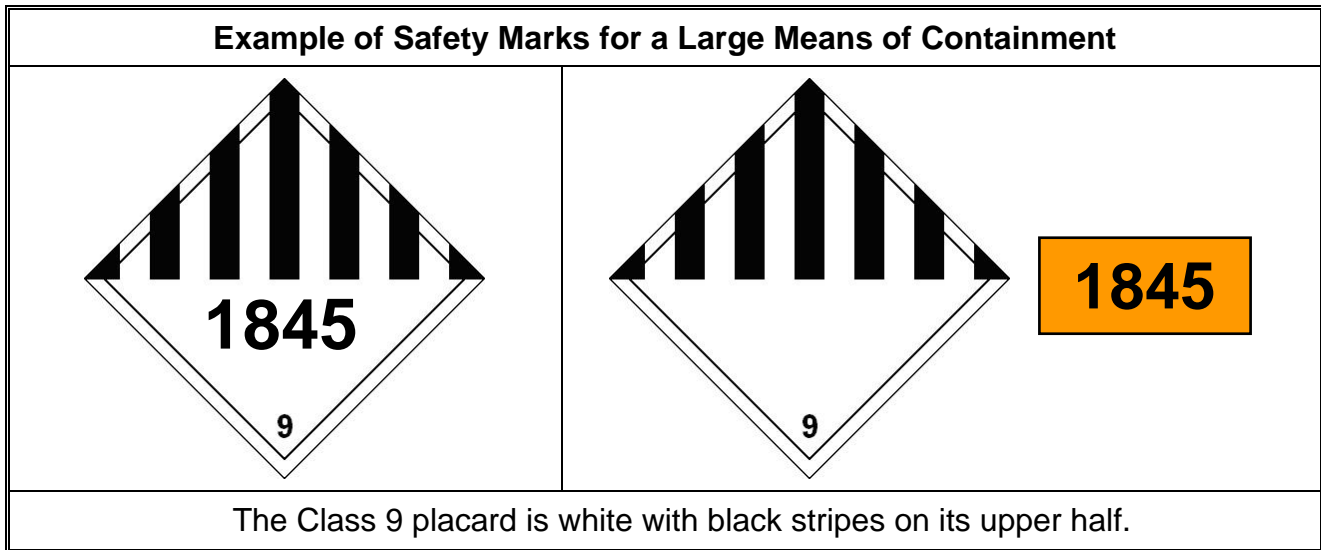


Large Means of Containment

When a transport vehicle is transporting more than 500 kg of Class 9 dangerous goods then placards are required to be displayed on each of the 4 sides of the vehicle.

The UN number of the dangerous goods being transported must be displayed inside the placard or on an orange panel next to the placard [Section 4.15]. The letters "UN" are always omitted [Section 4.8(2)].

Placards must be displayed on all four sides of a large means of containment; one on each side and one on each end. The placard can also be displayed on the frame for the means of transport or any other frame permanently attached to the large means of containment. A placard can also be placed at the front of a truck if the leading end of a cargo tank is obscured by the tractor [Section 4.15(3)].



Documentation

It is the responsibility of the consignor to prepare a proper shipping document when offering dangerous goods for transportation. The document is similar to a standard bill of lading but must contain information needed to describe the dangerous goods. The shipping document is handed over to the initial carrier and must accompany the consignment throughout its journey [Section 3.1]. The consignor and each carrier that transported shall retain a copy of the shipping document for a period of two years [Section 3.11].

The following is the minimum required information which must appear on a shipping document [Section 3.5]:

- Name and address of consignor
- Date
- Description of Dangerous Goods in the following order:

Shipping name:	CARBON DIOXIDE, SOLID or DRY ICE
Primary classification:	9
UN number:	UN 1845
Packing group:	III

- The quantity in the International System of Units (SI) ¹
- The number of containers for dangerous goods in small containers requiring hazard labels ¹
- The words “24-Hour Number” followed by a telephone number where the consignor can be easily reached ²

Note:

1. If the quantity of dangerous goods or the number of small means of containment changes during transport, the carrier must show on the shipping document or on a document attached to the shipping document the change in the quantity of dangerous goods or the number of small containers.
2. A consignor can also use the telephone number of an agency that is competent to give the technical information on the shipment. For example, it is possible to use CANUTEC as a source of technical information provided that the consignor has received permission in writing from CANUTEC.

Training

Unless there is an exemption under the TDG Regulations, anyone who handles, offers for transport or transports dangerous goods must have a valid Dangerous Goods Training Certificate or must be under the direct supervision of a trained person [Section 6.1].

The employer issues a training certificate when he/she has reasonable grounds to believe that an employee possesses adequate training. Self-employed people can issue training certificates for themselves. The employer must keep a record of the training that the employee has received and a copy of his/her training certificate [Section 6.6]. The training certificate must be immediately presented to an inspector who requests for it [Section 6.8].

Reporting Requirements

In case of an accidental release of dangerous goods, the person who has possession of the dangerous goods must report immediately, to the local Police and Alberta Transportation, Dangerous Goods and Rail Safety Branch at 1-800-272-9600. In the case of dry ice, an immediate report is required for any release greater than 25 kg [Table from Section 8.1]. For details on reporting requirements, please consult Part 8 of the TDG Regulations.

TRANSPORTATION BY AIR

Packaging

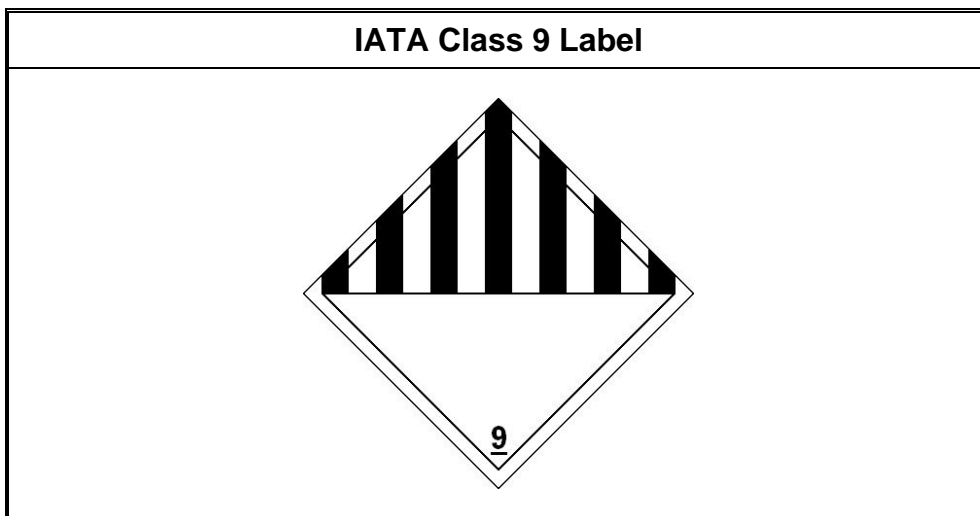
Under Special Provision A48 of the IATA Dangerous Goods Regulations (IATA), packaging for dry ice does not need to be tested. IATA Packing Instruction number 904 must be followed. The package must be designed and constructed to permit the release of carbon dioxide gas and to prevent a build-up of pressure that could rupture the packaging.

Under Special Provision A151 of IATA, when the dry ice is used as a refrigerant for other than dangerous goods loaded in a unit load device or other type of pallet, the quantity limits per package shown in columns J and L on Section 4.2 of IATA for dry ice do not apply. In such case, the unit load device or other type of pallet must be identified to the operator and must allow venting of the carbon dioxide gas to prevent dangerous build up of pressure.

Safety Marks

The shipper must ensure that the following information is shown on the outside of each package:

- Class 9 label,
- shipping name,
- UN number,
- The full name and address of the shipper and the consignee, and
- the net weight of the dry ice in the package.



Documentation

The Regulations allow airlines to forgo the requirement for a "Shipper's Declaration for Dangerous Goods" document and to use instead just an "Air Way Bill". This form must be marked with the words "Dangerous Goods - Shippers Declaration not required" in the "Handling Information" box. Also, the "Nature and Quantity" box on the Way Bill must show in sequence:

- shipping name,
- class,
- UN number,
- number of packages,
- net quantity of dry ice per package, and
- the packing group.

Some air carriers in Canada do not allow this exemption from the Dangerous Goods Declaration. In this situation the consignment of dry ice **MUST** be fully declared on a "Shipper's Declaration For Dangerous Goods" by the shipper.

Notification

Arrangements must be made between the shipper and the air carrier for each shipment of dry ice. The carrier must inform his staff when shipments are being loaded or are on board the aircraft.