

Module 10: Transportation of Dangerous Goods



MODULE CONTENTS



Module 10 aims to provide carriers with information about the safe transportation of dangerous goods. The contents of this module are as follows.

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This is a guide only and is not meant to be a substitute for the actual legislation.

INTRODUCTION TO DANGEROUS GOODS

A carrier must be aware of dangerous goods laws that may apply to their operations. If a carrier transports dangerous goods incorrectly, they put everyone at risk.



Dangerous goods may cause harm to people, property, or the environment. In Canada, the federal government and each of the provinces and territories created laws to regulate the transportation of dangerous goods.

These laws set safety standards and shipping requirements for thousands of different types of dangerous goods.

Relevant Laws

- The *Transportation of Dangerous Goods Regulations* (SOR/2012-245)
- The *Alberta Dangerous Goods Transportation and Handling Act*
- The *Alberta Dangerous Goods Transportation and Handling Regulation* (AR157/1997)
- The *Transportation of Dangerous Goods Act* (S.C. 1992)

WHAT ARE DANGEROUS GOODS?

Many products pose some danger while being transported. Anything may happen because of things such as improper securement, containment, or any other combination of factors.

Dangerous goods are solids, liquids or gases that can harm people, other living organisms, property or the environment. Carriers must be cautious in the transportation and handling of such materials to ensure the safety of their employees and the public.



The Transportation of Dangerous Goods (TDG) in Alberta is regulated to:

- Protect the public and the environment;
- Promote the safe transport of dangerous goods;
- Provide information to first responders;
- Provide a standard for the Transportation of Dangerous Goods (TDG) in the province.

Transportation of Dangerous Goods Act



“dangerous goods” means a product, substance or organism included by its nature or by the regulations in any of the classes listed in the Schedule;

The schedule in the *Transportation of Dangerous Goods Act* (S.C. 1992) identifies 9 classes of dangerous goods. These classes provide information about how to handle certain items. Some classes are further divided into divisions due to the nature and characteristics of the substances. Dangerous goods may not be transported if they are not classified.

More information about dangerous goods is available online at:

www.transportation.alberta.ca/519.htm

DANGEROUS GOODS TRAINING

Before transporting dangerous goods, a carrier must ensure all employees have knowledge of what they are working with. No person may handle, offer for transport or transport dangerous goods unless they are trained in or under the direct supervision of someone who is trained.

Each carrier is responsible for making sure employees have the proper training necessary to work safely with dangerous goods. Carriers may provide their own trainings or they may choose to hire a consulting company to do the training for them. The better informed a carrier's employees the less likely an incident is to occur.



In all cases, the *employer* must sign a certificate of training. By doing this, they confirm that an employee has the required knowledge and skills required to work with dangerous goods. A certificate is valid for a maximum of three years. Every driver who transports dangerous goods is required by law to produce a certificate of training when requested by a peace officer. A copy of this certificate must also be in the driver's file along with any other proof of training documents.

A sample Certificate of Training for the Transportation of Dangerous Goods is on the next page.

Training Contents



Dangerous goods training must include information that is relevant to an employee's job responsibilities. This may include:

- Transportation of dangerous goods laws
- Classification of dangerous goods
- Safety marks and how to use them
- Safe handling and transportation of dangerous goods
- Proper use of equipment
- Incident reporting
- Emergency response measures
- Documentation and Reporting Requirements
- The use of Schedules 1, 2 and 3
- Means of containment

CERTIFICATE OF TRAINING

Name of Employee

has completed training related to the handling/offering for transport / transporting of dangerous goods as indicated on the reverse. This training is in accordance with the requirements of the Transportation of Dangerous Goods Regulations

Name of Employer

Address

City

Province

Expires on: _____

Date of Issue: _____

Employer's Signature

Class and Division	Training Received	
		Classification
		Shipping names
		Use of Schedules 1, 2 and 3
		Shipping document & train consist
		Safety marks requirements
		Certification safety marks requirements, Safety requirements and safety standards
		Emergency Response Assistance Plan Requirements
		Accidental release reporting requirements
		Safe handling and transportation practices
		Proper equipment use
		Emergency action requirements
		Air transport
		Marine transport
Employee's Signature		

CLASSES OF DANGEROUS GOODS

Class	Application	Description
1	Explosives	Includes explosives as included in the <i>Explosives Act</i>
2	Gases	Compressed, deeply refrigerated, liquefied or dissolved
3	Flammable Liquids	All flammable liquids
4	Flammable Solids	Flammable solids, substances liable to spontaneous combustion and substances that emit flammable gases on contact with water
5	Oxidizing Substances and Organic Peroxides	Substances that may, generally by yielding oxygen, cause or enhance the combustion of other materials
6	Toxic and Infectious Substances	Substances that have been known to provide a hazard to health during transportation or are presumed to be toxic to humans. May contain pathogenic microorganisms.
7	Radioactive Materials	Nuclear substances, within the meaning of the <i>Nuclear Safety and Control Act</i> , which are radioactive.
8	Corrosives	A substance that will destroy and/or damage other substances with which it comes into contact.
9	Miscellaneous Products, Substances or Organisms	Miscellaneous products, substances or organisms considered by the Governor-in-Council to be dangerous to life, health, property or the environment when handled, offered for transport or transported.



IDENTIFICATION OF DANGEROUS GOODS

Safety marks and documentation are used to inform people of how to properly handle dangerous goods. Markings and documentation also assist people to quickly and safely respond to spills and incidents.

According to Section 2 of the *Transportation of Dangerous Goods Act* (S.C. 1992), a “dangerous goods mark” is:



“dangerous goods mark”

« indication de marchandises dangereuses »

“dangerous goods mark” means a symbol, device, sign, label, placard, letter, word, number or abbreviation, or any combination of those things, that is to be displayed to indicate the presence or nature of danger on dangerous goods, or on a means of containment or means of transport used in importing, offering for transport, handling or transporting dangerous goods;

Smaller means of containment (with a capacity less than or equal to 450 litres) must be labeled. Large means of containment (with a capacity greater than 450 litres) require placards. Transport units that are used to transport dangerous goods must display placards that show the classification of goods they are carrying.

Placards



Placards are a clear way of telling people that a large container or transport unit contains larger amounts of dangerous goods. When a collision or spill occurs, these placards alert responders to the presence and nature of the dangerous goods. This allows them to take the correct actions.



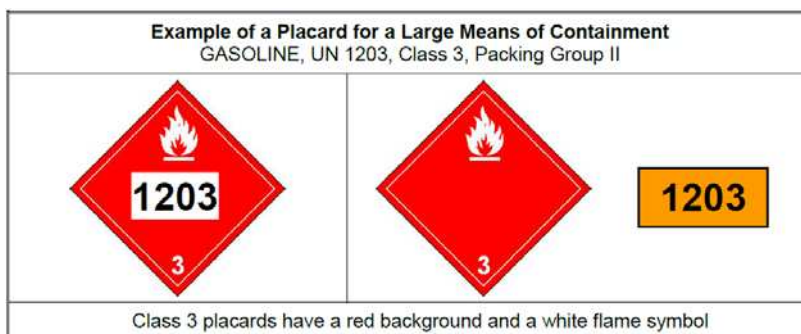
It is a carrier's responsibility to make sure a vehicle has all the proper placards on it **before** it is loaded. Drivers must place the placards on each side and each end of the vehicle so anyone looking at the vehicle from any angle will be able to see the signs.

In some cases, a carrier may be required to display a UN Number along with the placard according to the TDG Regulations. A placard and UN number must be displayed for a large means of containment if the dangerous goods:

- Are in a quantity or concentration for which an Emergency Response Assistance Plan is required;
- Are included in Class 7, Radioactive Materials, for which a Category III Yellow Label is required;

- Are a liquid or gas in direct contact with a large means of containment;
- Have a total gross mass greater than 500 kg; or
- Are included in Class 1.1, 1.2, 1.3 or 1.5 and:
 - Are not subject to special provisions and exceed 10 kilogram net explosive quantity, or
 - Are not subject to special provisions and the number of articles exceeds 1000.

The example below shows how a placard and UN number may be displayed.



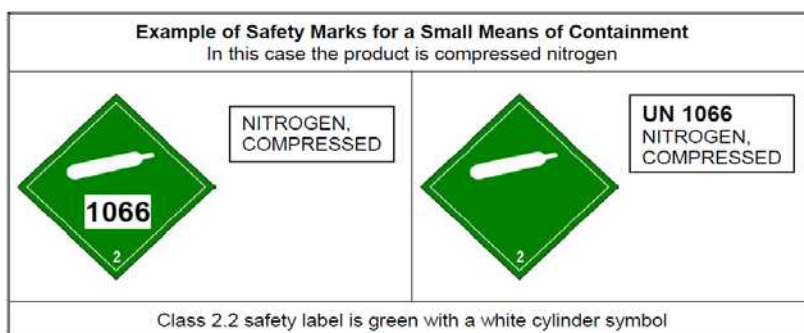
Labels



























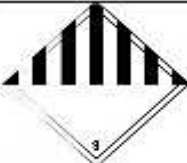

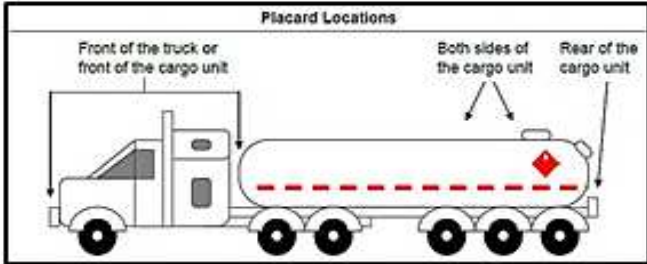
Labels are a clear way of telling people that a smaller container holds dangerous goods. There is a specific set of labels representing the different hazards defined by the TDG Regulations. The labels may be displayed on any side of the outer surface of a means of containment except for the side on which it is intended to rest or be stacked during transport. The label must also be placed on the shoulder of a cylinder.

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

The small means of containment must also display the shipping name of the dangerous goods and the UN Number. The example below shows how a label and UN Number may be displayed.



DANGEROUS GOODS LABELS AND PLACARDS

					
Classes 1.1, 1.2, 1.3 Explosives	Class 1.4 Explosives	Class 1.5 Explosives	Class 1.6 Explosives	Class 2.1 Flammable Gases	Class 2.2 Non Flammable and Non-Toxic Gases
					
Class 2.3 Toxic Gases	Class 2.3 Anhydrous Ammonia	Oxidizing Gases	Class 3 Flammable Liquids	Class 4.1 Flammable Solids	Class 4.2 Substances Liable to Spontaneous Combustion
					
Class 4.3 Water Reactive Substances	Class 5.1 Oxidizing Substances	Class 5.2 Organic Peroxides	Class 6.1 Toxic Substances	Class 6.2 Infectious Substances	Class 6.2 Infectious Substances
					
*Class 7 Cat. 1 Radioactive	*Class 7 Cat. 2 Radioactive	*Class 7 Cat.3 Radioactive	**Class 7 Radioactive Materials	***Class 7 Radioactive Materials	Class 8 Corrosives
		• Label and optional placard ** Label only *** Placard only		 <p>Placard Locations</p> <p>Front of the truck or front of the cargo unit</p> <p>Both sides of the cargo unit</p> <p>Rear of the cargo unit</p>	
Class 9 Misc. Products, Substances or Organisms	Danger Placard				

Documentation



When a driver transports dangerous goods, they must also carry a shipping document, waste manifest or any other required documents. These documents must be within reach of the driver or in a pocket mounted on the driver's door. When the driver is not in the cab, the documents must either be on the driver's seat or in the pocket of their door.

All information on a shipping document must be easy to identify and legible.

If a driver is making more than one delivery of dangerous goods, they must show the change in quantity of dangerous goods on the shipping document. These changes must be shown after each delivery.

It is the carrier's responsibility to ensure their drivers are keeping the proper documentation when transporting dangerous goods.

DANGEROUS GOODS SHIPPING DOCUMENT FOR ROAD TRANSPORT						
DESTINATION (City-Town)			CONSIGNOR			
Name:			Name:			
Address:			Address:			
Name of Carrier	Prepaid <input type="checkbox"/>	Collect <input type="checkbox"/>	Transport Unit Number			
Point of Origin			Shipping Date		Shipper's No.	
REGULATED DANGEROUS GOODS			24-Hour Number:			
			ERAP Reference _____ and Telephone Number _____			
Shipping Name	Primary Class	Subsidiary Class	UN Number	Packing Group	Quantity	Packages Requiring Labels
This is to certify that the above named articles are properly classified, described, packaged, marked and labelled and are in proper condition for transportation according to the Transportation of Dangerous Goods Regulations.						
Special Instructions						
NON-REGULATED GOODS						
Packages	Description of Articles				Weight	
Received in apparent good order			Consignee Signature		Shipper's Signature	
Received in Apparent Good Order			Driver's Signature		Driver's No.	

Please note that this sample shipping document contains some information that is not required in the TDG Regulations. The additional information reflects current industry practices.



EMERGENCY RESPONSE ASSISTANCE PLANS

An Emergency Response Assistance Plan (ERAP) is a plan that describes what is to be done in the event of a transportation incident involving certain higher risk dangerous goods. The ERAP is required for dangerous goods that require special skills and equipment to respond to an incident.

A shipper must have an approved Emergency Response Assistance Plan in place before they offer to transport certain quantities of dangerous goods as specified in [Column 7 of Schedule 1](#) of the *Transportation of Dangerous Goods (TDG) Regulations*. The plan must describe the procedures and equipment that will be used to support a response to incidents involving high risk dangerous goods. The plan must also address emergency preparedness, employee training, response exercises and equipment maintenance.

Where multiple shippers use one carrier, the carrier must make sure that the quantities of dangerous goods being transported do not exceed ERAP quantity limits.

For more information about ERAP limits and the application process, call 1-800-272-9600 or go to: www.tc.gc.ca/eng/tdg/erap-menu-72.htm.

Reporting an Incident



In case of an accidental release or an imminent accidental release of dangerous goods, the person who is transporting the dangerous goods must immediately report the incident.

An “accidental release” means an unplanned or accidental:

- Discharge, emission, explosion, outgassing or other escape of dangerous goods, or any component or compound evolving from dangerous goods.

An “imminent accidental release” means, for dangerous goods in transport in a large means of containment, that there has been an incident and:

- There is likely a need to remove or transfer all or a portion of the dangerous goods to another large means of containment;
- There is damage to the means of containment which could result in an accidental release of dangerous goods.



When one of the above occurs, the person in possession of the dangerous goods must report to:

1. The local police; and
2. The provincial authority at: 1-800-272-9600 (Alberta – see Appendix 1 of this module for other provincial authorities);
3. The owner or lessee of the vehicle being operated;
4. Their employer;
5. The person or company who owns the consignment of the dangerous goods.

Carriers must send a written follow-up report within 30 days of a release to the Director General, Transport Dangerous Goods Directorate, Transport Canada, if they were required to make an immediate report of an accidental release of dangerous goods.



COORDINATION AND INFORMATION CENTRE

The Coordination and Information Centre (CIC) operates 24 hours a day, 7 days a week to provide information to the general public and industries on dangerous goods compliance. The CIC is also an emergency response centre for all transportation of dangerous goods (TDG) incidents.

The Coordination and Information Centre:

- Provides compliance information related to the federal and provincial dangerous goods legislation;
- Provides federal and international requirements for the shipment of dangerous goods by air, road, rail or marine modes of transportation;
- Provides interpretive information for the on-highway enforcement process as well as awareness material for inspectors, industry and the general public.

Emergency Reporting



The CIC serves as Alberta's provincial reporting authority and:

- Manages all TDG emergency calls and assess the severity of dangerous goods incidents.
- Provides assistance to emergency response personnel attending the scene of an incident in which dangerous goods are involved, or may become a matter for concern.
- Communicates openly with related departments in the event of an emergency or safety-related incident.

For more information call the Coordination and Information Centre at:



Note: The CIC is responsible only for provincial road shipments of dangerous goods. The Canadian Transport Emergency Centre (CANUTEC) is responsible for federal road, rail, air, and marine shipments. For more information about CANUTEC, call 613-996-6666 or go to:

www.tc.gc.ca/eng/canutec/menu.htm.

PERMITS

Dangerous goods permits allow the handling, offering for transport or transporting of dangerous goods in a way that is not necessarily in compliance with the TDG Regulations. Although a permit may exempt a carrier from meeting all of the requirements in the TDG Regulations, it still ensures the carrier is operating at a level of safety equivalent to that required by law. Permits are only issued if the risks to health, safety and the environment are reasonably addressed.

A carrier does not need to obtain a permit to handle, offer for transport or transport dangerous goods if they follow all of the requirements in the *Transportation of Dangerous Goods Act*.

Permits issued by the Dangerous Goods and Rail Safety Section are valid only for road transportation within the province of Alberta. More information about obtaining dangerous goods permits in Alberta is available online at: www.transportation.alberta.ca/753.htm.

Transport Canada issues permits that are valid for the transportation of dangerous goods between provinces. More information about obtaining dangerous goods permits for use in other parts of Canada is available online at: <http://wwwapps.tc.gc.ca/saf-sec-sur/3/tdgcert-tmdcert/certificatesmenu.aspx>.



Dangerous Goods, Vehicle & Rail Safety
4999 98 Avenue, Twin Atria Bldg
Edmonton, AB T6B 2X3
P: 780-422-9600 | F: 780-427-1044
E: DangerousGoods@gov.ab.ca

Application for Exemption by Permit Equivalent Level of Safety in Alberta

Dangerous Goods Transportation and Handling Act, Section 5(1)

Section A: Stakeholder Information

Name of Applicant:

RESOURCES FOR CARRIERS

For more information on the Transportation of Dangerous Goods, carriers are strongly encouraged to consult with the following resources.

Resource	Web Link
<i>Transportation of Dangerous Goods Act, 1992 (S.C. 1992)</i>	http://laws-lois.justice.gc.ca/eng/acts/T-19.01/index.html
<i>Transportation of Dangerous Goods Regulations (SOR/2012-245)</i>	www.tc.gc.ca/eng/tdg/clear-tofc-211.htm
<i>The Alberta Dangerous Goods Transportation and Handling Act</i>	www.qp.alberta.ca/1266.cfm?page=d04.cfm&leg_type=Acts&isbncln=9780779748730
Transport Canada – TDG Training Criteria	www.tc.gc.ca/eng/tdg/training-menu-266.htm
Organizations Providing Dangerous Goods Training – Search Engine for TDG Training Agencies	http://wwwapps.tc.gc.ca/saf-sec-sur/3/train-form/search-eng.aspx
Transportation of Dangerous Goods Guide	www.transportation.alberta.ca/Content/docType272/Production/guide.pdf
Transport Canada – Emergency Response Assistance Plans	www.tc.gc.ca/eng/tdg/erap-menu-72.htm
Canadian Transport Emergency Centre (CANUTEC)	www.tc.gc.ca/eng/canutec/menu.htm

TEST YOUR UNDERSTANDING: MODULE 10

1. Dangerous Goods legislation directs that no one shall handle, offer for transport or transport dangerous goods unless they are trained or are in the presence and under the direct supervision of someone who is trained.
 - a. True
 - b. False
2. Only the federal government has legislation to regulate the transportation of dangerous goods.
 - a. True
 - b. False
3. How many classes of dangerous goods exist?
 - a. 5
 - b. 8
 - c. 9
 - d. 12
4. What is a dangerous goods “safety mark”?
 - a. The mark dangerous goods leave after an incident occurs
 - b. A symbol, placard or sign that is displayed to show the presence or nature of danger on dangerous goods
 - c. The mark an employee receives for completing a dangerous goods training course
 - d. None of the above.
5. An employee working in association with dangerous goods must renew their TDG Training Certificate at least every _____ years.
 - a. 5
 - b. 4
 - c. 3
 - d. 2

6. When a carrier transports dangerous goods, it is their responsibility to make sure the vehicle has all the proper safety marks and placards on it **before** it is loaded.
- a. True
 - b. False
7. When the driver is not in the cab of a vehicle, dangerous goods documents must either be left on the driver's seat or in the pocket of the driver's door of the vehicle.
- a. True
 - b. False
8. Before having the ability to transport or handle dangerous goods, a carrier must always have an Emergency Response Assistance Plan in place.
- a. True
 - b. False
9. Carriers must send a written follow-up report within _____ days of a dangerous goods incident to the Director General, Transport Dangerous Goods Directorate, Transport Canada, if they were required to make an immediate report of an accidental release of dangerous goods. (not mentioned in module)
- a. 10
 - b. 20
 - c. 30
 - d. 40
10. A carrier does not need to obtain a permit to handle, offer for transport or transport dangerous goods if they follow all of the requirements in the *Transportation of Dangerous Goods Act*.
- a. True
 - b. False

ANSWER KEY: MODULE 10

1. A. True.
2. B. False. Provincial and territorial governments also have TDG legislation.
3. C. 9 classes of dangerous goods exist.
4. B. A symbol, placard or sign that is displayed to show the presence of nature of danger on dangerous goods.
5. C. An employee working in association with dangerous goods must renew their TDG Training Certificate every 3 years.
6. A. True.
7. A. True.
8. B. False. Carriers are not required to have an ERAP.
9. C. Carriers must send a written follow-up report within 30 days.
10. A. True.

MODULE 10 APPENDICES



Appendix 1	Incident Reporting: Provincial Authority Contact Numbers
Appendix 2	Sample Dangerous Goods Shipping Document

APPENDIX 1: PROVINCIAL AUTHORITIES

Province	Authority Contact
Alberta	<ul style="list-style-type: none"> • The local police; and • Co-ordination and Information Centre at: 800-272-9600; • Edmonton area: 780-422-9600.
British Columbia	<ul style="list-style-type: none"> • The local police; and • Provincial Emergency Program at: 800-663-3456.
Manitoba	<ul style="list-style-type: none"> • The local police; and • Department of Conservation at: 204-945-4888.
New Brunswick	<ul style="list-style-type: none"> • The local police; or • The appropriate authorities at: 800-565-1633.
Newfoundland	<ul style="list-style-type: none"> • The local police; and • Canadian Coast Guard (if applicable) at: 709-772-2083.
Northwest Territories	<ul style="list-style-type: none"> • The appropriate authorities at: 867-920-8130.
Nova Scotia	<ul style="list-style-type: none"> • The local police; or • The appropriate authorities at: 800-565-1633 or 902-426-6030.
Nunavut Territory	<ul style="list-style-type: none"> • The local police; and • Nunavut Emergency Services at: 800-693-1666.
Ontario	<ul style="list-style-type: none"> • The local police.
Prince Edward Island	<ul style="list-style-type: none"> • The local police; or • 800-565-1633.
Quebec	<ul style="list-style-type: none"> • The local police.

Saskatchewan

- The local police; or
- The appropriate authorities at: 1-800-667-7525.

Yukon Territory

- The appropriate authorities at: 867-667-7244.

*Note: When a report is made directly to the local police, it is expected that they will inform the local fire department.

APPENDIX 2: SAMPLE SHIPPING DOCUMENT

Dangerous Goods Shipping Document for Road Transport on Canadian shipments

DESTINATION (City-Town) Name: Address:		CONSIGNOR Name: Address:				
Name of Carrier		Prepaid <input type="checkbox"/>		Collect <input type="checkbox"/>		Transport Unit Number
Point of Origin		Shipping Date		Shipper's No.		
REGULATED DANGEROUS GOODS		24-Hour Number: ERAP Reference _____ and Telephone Number _____				
Shipping Name	Primary Class	Subsidiary Class	UN Number	Packing Group	Quantity	Packages Requiring Labels
This is to certify that the above named articles are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the <i>Transportation of Dangerous Goods Regulations</i> .						
Special Instructions						
NON-REGULATED GOODS						
Packages	Description of Articles			Weight		
Received in apparent good order				_____		
_____				_____		
Consignee Signature				Shipper's Signature		
Received in Apparent Good Order	Driver's Signature			Driver's No.		

Please note that this sample shipping document contains some information that is not required in the TDG Regulations. The additional information reflects current industry practices.