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Transportation of Dangerous Goods (TDG) Directorate

Dangerous Goods Fundamentals

Presentation to the CIPMM National Workshop

June 2017





Outline

- Classification
- Dangerous Goods Safety Marks & Means of Containment (MOC)
- Documentation
- Emergency Response Assistance Plan (ERAP)
- Training
- Reporting Requirements
- Exemptions
- Equivalency Certificates
- TDG Contacts



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Classification

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Introduction - Definition

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 to the Act.



9 Classes of Dangerous Goods

Class 1 – Explosives

Class 2 – Gases

Class 3 – Flammable Liquids

**Class 4 – Flammable Solids, Spontaneously Combustible
Materials, and Water Reactive Materials**

Class 5 – Oxidizing Substances and Organic Peroxides

Class 6 – Toxic and Infectious Substances

Class 7 – Radioactive

Class 8 – Corrosives

Class 9 – Miscellaneous

Class 1, Explosives

Class 1.1



Class 1.2



Class 1.3



Class 1.4



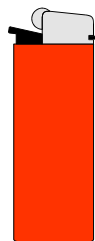
Class 1.5



Class 1.6 – UN0486
Not found in Canada

Class 2, Gases

Class 2.1 Flammable



Class 2.2 Non-Flammable, Non-Toxic



Class 2.3 Toxic





Class 3, Flammable Liquids

Gasoline

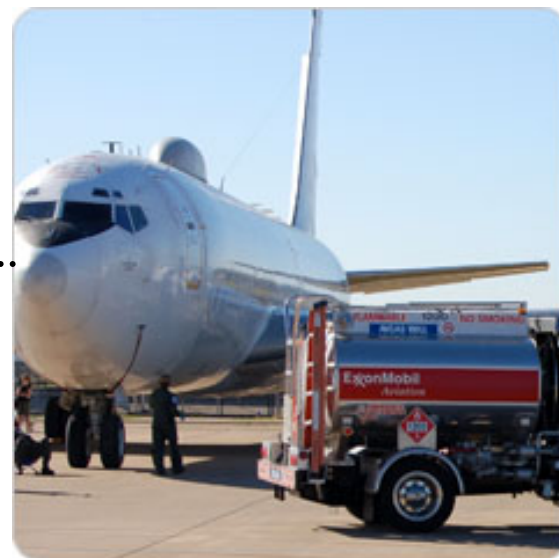


**Diesel
Fuel**



**Paint, oil
based**

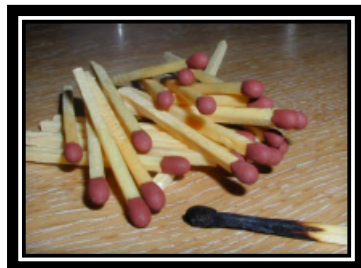
Jet fuel



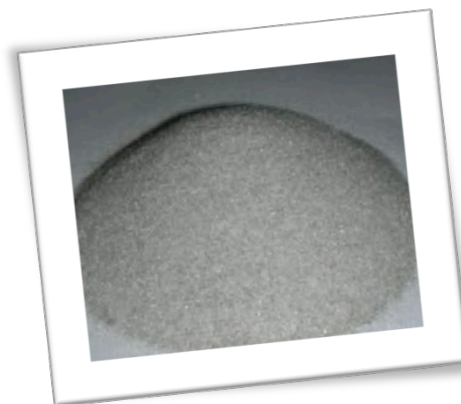


Class 4, Flammable Solids, Spontaneously Combustible Substances, and Water Reactive Substances

Class 4.1 – Flint and Matches



Class 4.2 Titanium Powder



Class 4.3 – Lithium





Class 5, Oxidizing Substances and Organic Peroxides

Class 5.1

Ammonium nitrate, Calcium Hypochlorite



Class 5.1

Oxygen Generator



Class 5.2

Hydrogen peroxide





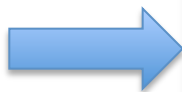
Class 6.1, Toxic Substances

Class 6.1

- Cyanide (Poison)
- Certain Medicine

Toxic by:

- Inhalation (LC 50)
- Dermal (LD 50)
- Oral (LD 50)



LD 50 = Lethal Dose

LC 50 = Lethal Concentration



Class 6.2 - Infectious Substances

Class 6.2, Infectious Substances

- Category A: Great danger
- Category B: Minor danger



Examples:

- Rabies virus
- Ebola virus
- Human Immunodeficiency virus (**HIV**)



Class 7, Radioactive Materials

Smoke Detectors



Radiopharmaceuticals



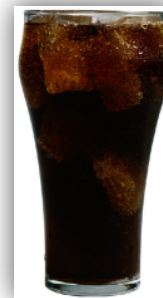
Radiography devices for testing welds in pipelines



Class 8, Corrosives



Phosphoric Acid
(Found in Coca-Cola)



Batteries



Sodium hydroxide
(used in drain cleaner)





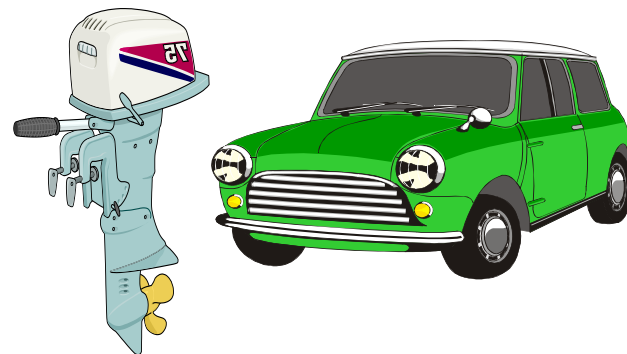
Class 9, Miscellaneous Products, Substances or Organisms



PCBs



Engines, vehicles



Dry Ice



**Lithium cells/
batteries**





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Dangerous Goods Safety Marks and MOC

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Definitions

Means of containment: means a container or packaging, or any part of a means of transport that is or may be used to contain goods.

Small means of containment: means a means of containment with a capacity **less than or equal to 450 L.**

Large means of containment: means a means of containment with a capacity **greater than 450 L.**



Dangerous Goods Safety Marks

Safety marks include:

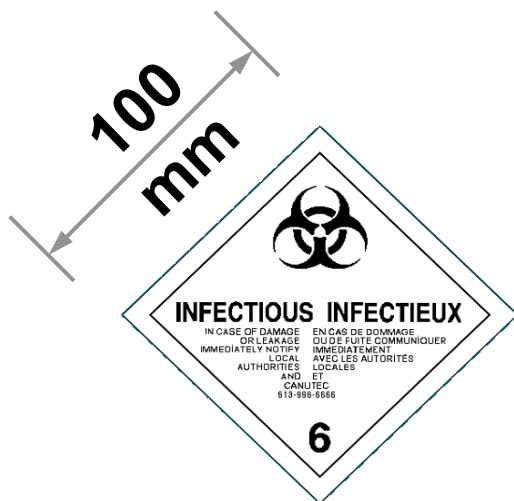
- Labels;
- Placards;
- Marks;
- Orange panels;
- Signs;
- Letters;
- Abbreviations; and
- Words.





Labels and Placards

Small MOC



Labels

Large MOC



Placards



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Available on TDG's Webpage: <https://www.tc.gc.ca/eng/tdg/marks-safety-1225.html>



Means of Containment - Standards

MOCs may include:

- Tank trucks;
- Rail tank cars;
- Cylinders; and
- Boxes.





MOC – Standardized vs Non-Standardized

Standardized



Non-Standardized





Examples of means of containment





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Documentation

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Shipping Document - Definition

Shipping Document: means a document that relates to dangerous goods that are being handled, offered for transport or transported and that contains the information required by Part 3 (Documentation) of the TDG Regulations relating to the goods **but does not include an electronic record.**



The shipping document must always be in a **paper copy form.**



Shipping Document - Requirements

Purpose of the shipping document

- Identify the dangerous goods being transported.

When is it required?

- Always required unless an exemption applies.

Must it be on a specific form?

- No, but it must list the required information.



Shipping Document - Requirements

The information must be:

- Easy to identify;
- Legible and in indelible print; and
- In French or English.



Transport Canada provides two samples of shipping documents on its website.

EXAMPLE OF SHIPPING DOCUMENT

Destination:City-Town

Cornwall Plastics Inc 1011 Boundary Road Cornwall, (ON) K6H 1M9 Att: Sandrine Holly	Consignor : MCP Chemicals 4444, Willowspring Parkway Ottawa, (ON) K1A 0N5
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Name of carrier Brennan Transport	Point of origin Ottawa, ON	Date May 16, 2013	Shipper's no. 3156
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UN Number	Shipping Name	Primary Class	Subsidiary Class	Packing Group	Toxic by inhalation	Quantity	Packages requiring labels
UN 3104	Organic peroxides, type C, solid, (Di-n-octanoyl peroxide)	5.2		II		50 kg	2
UN 1075	Liquefied petroleum gases not odourized	2.1				150 L	3
UN 0224	Barium azide	1.1A	(6.1)	II		2 kg	1
UN 2692	Boron tribromide	8		I	X	50 L	4
UN 0044	Primers, Cap Type	1.4S		II		2 000 art.	20

24 HOUR NUMBER : 613-996-6666



Shipping Documents

- For more information on the shipping documents requirements, consult Part 3 of the TDG Regulations.
- You will find information such as:
 - What information must be on the shipping document;
 - Where it must be kept; and
 - For how long it must be kept.





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Emergency Response Assistance Plan

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Emergency Response Assistance Plan

WHAT IS AN ERAP?

- A recommendation from the Grange report written after the 1979 Mississauga derailment;
- Requirement of TDG Act;
- Plans are approved by Transport Canada for high risk products (e.g., propane, chlorine, anhydrous ammonia, explosives, flammable solids);
- Provides specialized assistance to first responders.





Emergency Response Assistance Plan

WHO NEEDS AN ERAP?

- Person who offers for transport (shipper) dangerous goods as defined in Part 7 of the TDG Regulations;
- Importer of dangerous goods; and
- Carrier of products that transit through Canada.





Emergency Response Assistance Plan

THE ERAPS APPLY TO?

- Certain dangerous goods, and
- Specific quantities of dangerous goods.

Consult Part 7 of the
TDG Regulations for more information.





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Training

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Training

- **An individual must not handle, offer for transport, or transport (HOT) dangerous goods (DG) unless he/she is:**
 - Adequately trained and holds a valid training certificate; or
 - Under direct supervision of a person who is adequately trained.
- **Employers must:**
 - Ensure employees are adequately trained or supervised;
 - Not direct or allow employees to HOT DG unless they are adequately trained and hold a valid training certificate.
- **Expiry of training certificate:**
 - Road, Rail, Marine: 36 months.
 - Air: 24 months.
- **Keeping proof of training:**
 - 2 years after the date the training certificate expires.



Reporting Requirements

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Reporting Requirements

Part 8 of the TDG Regulations

- **Emergency Report** – Advise local authority responsible for emergency response
- **Release or Anticipated Release Report** – Advise CANUTEC, the consignor, and if applicable the Canadian Nuclear Safety Commission (CNSC) or a Vessel Traffic Services Centre or the Canadian Coast Guard (a 30-day Follow-up Report will be required)
- **Accident or Incident Report** – Advise CANUTEC, and if applicable CNSC (a 30-day Follow-up Report will be required)
- **Undeclared or Misdeclared Report** – Advise CANUTEC
- **Loss or Theft Report** – Advise CANUTEC, and if applicable CNSC or Natural Resources Canada
- **Unlawful Interference Report** – Advise CANUTEC, and if applicable CNSC or Natural Resources Canada.

<http://www.tc.gc.ca/eng/tdg/part-8-reporting-requirements.html>



Exemptions

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Exemptions

Part 1 of the TDG Regulations

- May provide exemption to certain or all parts of the TDG Regulations.
- Some exemptions apply to certain modes only.
- Must follow all requirements of the Exemption or must follow the entire TDG Regulations.



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Equivalency Certificates

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Equivalency Certificates

Part 14 of the TDG Regulations

- If a person wishes to carry on an activity related to TDG in a way that is not in compliance with TDG Regulations.
- Must show that the way in which the activity will be carried on will provide a level of safety equivalent to complying with the Regulations.
- Must follow all requirements in the Equivalency Certificates or must follow the TDG Regulations.



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TDG Contacts

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TDG Safety Awareness Materials

- Information available on:
 - ✓ Emergency preparedness and response;
 - ✓ Protective Direction No. 36;
 - ✓ Safety Advisories (e.g., lithium batteries);
 - ✓ TDG Bulletins;
 - ✓ CANUTEC;
 - ✓ And much more!
- Updated regularly and available online at:
<http://www.tc.gc.ca/eng/tdg/awareness-materials-and-faq-1159.html>.



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TDG Contacts

For general TDG information: TDG-TMD@tc.gc.ca

For emergencies, dial **1-888-CANUTEC**, **(613) 996-6666** or
***666** on a mobile phone (in Canada only).
Available 24 hours a day, 7 days a week.

Websites: www.tc.gc.ca/tdg
www.tc.gc.ca/canutec



TDG Contacts

TDG Regional Offices		
Region	Telephone Number	Email address
Atlantic	1-866-814-1477	TDG-TMDAtlantic@tc.gc.ca
Quebec	1-514-283-5722	TMD-TDG.Quebec@tc.gc.ca
Ontario	1-416-973-1868	TDG-TMDOntario@tc.gc.ca
Prairie & Northern	1-888-463-0521	TDG-TMDPNR@tc.gc.ca
Pacific	1-604-666-2955	TDGPacific-TMDPacifique@tc.gc.ca