Brightling Equipment Ltd.

Transportation of Dangerous Goods

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1 Definitions

Consignor (Shipper)	the person who offers the shipment for transport
Carrier	a *person* who, whether or not for hire or reward, has possession of *dangerous goods* while they are *in transport.*
Consignee (Receiver)	is the person who is intended to receive the shipment.
CANUTEC	the Canadian Transport Emergency Centre of the Department of Transport
49 CFR	Parts 171-180 of Title 49 of the "Code of Federal Regulations" of the United States, 2000.
Class	when the word "class" is followed by: a) One digit, the class of *Dangerous Goods* listed in the schedule to the *Act*; and *b)* Two digits separated by a point, the class of *Dangerous Goods* listed in the schedule to the *Act* and its division. For example: Class 6.1 is Division 1 of Class 6. *Not all classes have divisions*
Classification	for *Dangerous Goods,* as applicable, the *shipping name,* the *primary class,* the *compatibility group,* the *subsidiary class,* the *UN number,* the *packing group,* and the *risk group*
Compatibility Group	one of the thirteen groups of explosives described in Appendix 2 of Part 2, Classification. *The compatibility group for each explosive listed in schedule 1 is shown in column 3 of that schedule beside the primary class of that explosive.*
Dangerous Goods	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*. Class 1 Explosives, *including explosives within the meaning of the "Explosives Act"*
Dangerous Goods Safety Marks	a label, placard, orange panel, sign, mark, letter, word, number or abbreviation that is used to identify *Dangerous Goods* and to show the nature of the danger posed by them
Emergency	an immediate danger to public safety; a) Requiring the use of *Dangerous Goods* to advert or mitigate the danger; or b) Arising directly or indirectly from *Dangerous Goods.*
Emergency Response Plan (ERP)	a special plan filed with the government, stating the consignor has made arrangements to respond to any emergency involving the *Dangerous Goods*, wherever it occurs. These plans are normally only required for very hazardous materials and usually only when they are shipped in large amounts.
Handling	loading, unloading, packing or unpacking *Dangerous Goods* in a *means of containment* for the purpose of, in the course of or following transportation and includes storing them in the course of transportation.
Import	to import into Canada, and includes transporting goods that originate from outside Canada and pass through Canada to a destination outside Canada, except when the goods are being transported on a ship or aircraft *not* registered in Canada
Inspector	a person designated as an inspector under subsection 10(1) of the *Act.*

In Transport	indicates that a person has possession of *Dangerous Goods* for the purpose of transportation or for the purpose of storing them in the course of transportation.
Means of Transport	any road or railway vehicle, aircraft, ship, pipeline or any other contrivance that is or may be used to transport persons or goods.
Offer for Transport	for *Dangerous Goods* not in transport, to select or allow the selection of a carrier to transport the *Dangerous Goods,* to prepare or allow the preparation of the *Dangerous Goods* so that a carrier can take possession of them for transport or to allow a carrier to take possession of the *Dangerous Goods* for transport.
Packing Group	a group in which *Dangerous Goods* are included based on the inherent danger of the *Dangerous Goods*; Packing Group I indicates Great Danger, Packing Group II indicates Medium Danger and Packing Group III indicates Minor Danger.
Permit for Equivalent Level of Safety	an authorization issued under Section 31 of the *Act* to conduct an activity in compliance with the conditions of that authorization instead of with the requirements of these regulations.
Primary Class	the first class shown in column 3 of Schedule 1.
Shipping Document	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, relating to the goods but does not include an electronic record
Shipping Name	an entry in upper case letters (CAPITALS) in column 2 of Schedule 1, but does not include any lower case descriptive test except for the purpose of determining the classification of *Dangerous Goods.*
Shipping Record	a record that relates to *Dangerous Goods* being handled, offered for transport or transported and that describes or contains information relating to the goods, and includes electronic records of information
Special Provision	an item of Schedule 2 referred to in column 5 of Schedule 1.
Subsidiary Class	a class shown in parentheses () in column 3 of Schedule 1
UN Number	an entry in column 1 of Schedule 1
NRCAN	signifies Natural Resources Canada, an arm of the government of which Explosives Regulation is one division
NEQ	net Explosives Quantity.

2 Objectives

- Provide you with the information needed to safely handle and transport dangerous goods.
- Provide an understanding of the *Act and Regulations* so that you will be able to meet the requirements of the act when shipping, transporting or receiving dangerous goods.
- Enable you to recognize potential hazards if you were to encounter an accident scene while traveling on a highway.

What is the Purpose of the TDG Act?

1. To protect the public from an accidental spill or leak.
2. To provide information to everyone who comes in contact with the dangerous goods including the emergency responders if something goes wrong.

How do the regulations accomplish this task?

- The shipping documents describe the dangerous goods.
- Safe packaging helps prevent spills and leaks.
- Labels and placards provide visual clues about the hazards of the dangerous goods.
- Emergency actions protect people and the environment in case of a spill or leak.

Where does the TDG Act apply?

- The TDG Act applies to the transportation of dangerous goods by all modes of transport:
    a) Roads (any public or private road that has unrestricted public access)
    b) Rail
    c) Marine
    d) Air

Why do you need TDG training?

- To enable you to prepare, handle and transport dangerous goods safely.
- To understand the hazards of each class of dangerous goods.
- To be able to recognize the hazards shown by labels and placards.
- To show you the need to handle dangerous goods carefully to prevent a spill or leak.
- To allow you to be able to take action in the event of a spill or leak.

3 Enforcement

The Transportation of Dangerous Goods regulations are enforced by government trained inspectors.

They will have a "Certificate of Designation" showing the extent of their training and authorization

- Police Officers (R.C.M.P, Provincial or Municipal)
- Transport Canada Inspectors or their Designate
- Provincial transportation inspectors
- Inspectors from other branches of government

These inspectors have the authority to:

- Search shipments or vehicles
- Seize and hold goods
- Take samples
- Make copies of documents
- Refuse entry into Canada of shipments or vehicles

The inspector may check for the following:

- Your training certificate is current and valid
- The shipping document is complete and correct
- Dangerous goods are labeled and marked correctly
- Vehicles are placarded where necessary
- The dangerous goods are loaded, secured and transported safely

Explosives ~ Special Conditions

- The transportation of explosives is regulated by both Transport Canada (TDG Act) and Natural Resources Canada (Explosives Act).
- Maximum speed when transporting explosives is 90kms.
- Vehicles transporting explosives must stop at all uncontrolled railway crossings.
- Unauthorized passengers (anyone who is not an employee of the company) are not permitted in vehicles which are transporting explosives.
- Vehicles transporting explosives must follow specific routes around urban areas, indicated by sign with a black diamond inside a green circle.

Offences and Punishment

"Every Person" who fails to comply with the act is guilty of an offence, and is liable to:

- **On Summary Conviction,** Fines of up to fifty thousand dollars for the first offence and up to one hundred thousand dollars on any subsequent offence.
- **On conviction by indictment,** prison for up to two years

As well, the person may be:

- Prohibited from shipping dangerous goods
- Required to help repair any damage
- Charged up to one million dollars to pay for damages and costs of cleanup

Note: Most enforcement takes place on the highways, but that is where mistakes made by the shipper are caught as well.

4 Individual Responsibilities

Consignor (Shipper)

This could be an employee in the office, warehouse or the drive; anyone who prepares the shipment.

- Finds and records the proper classification and description of the dangerous goods on the shipping document
- Provides placards and assures they are properly affixed to the transport vehicle as required
- Labels and marks the packaging correctly where necessary
- Completes a proper shipping document that meets regulations

For “Explosives Only” the following:

1. Notifies the Carrier or Handling Facility of the following
    a) Shipping name of the explosive
    b) Product identification # (UN#)
    c) Quantity (NEQ & Gross)
    d) Name and address of consignee
2. Notifies the Consignee of the following:
    a. When the shipment will arrive at the destination and how it is being shipped.
    b) Ensures the packaging meets regulation
    c) Makes sure the product is loaded/ unloaded safely and that the product is segregated.
    d) Reports any dangerous occurrences
    e) Makes sure everyone in our organization handling the product has TDG Training

Carrier

This could be an employee or an external carrier; any person who has possession of the dangerous goods while in transport.

- Makes sure the markings and labeling are correct
- Ensures that placards are available and affixed to transport container as required
- Makes sure documentation is available and correct
- Notifies the receiver of the goods in regards to time and place of delivery and updates the consignee if there are changes
- Ensures packaging meets standards
- Makes sure the product is loaded/ unloaded safely, segregated and secured
- When transporting explosives observes 90kms speed limit as per Explosives Act
- Stops at all uncontrolled railway crossings and travels only on designated TDG routes in urban areas
- Reports dangerous occurrences to the appropriate authority
- Has proper TDG Training for the product being transported

Consignee (Receiver)

This could be an employee or the end user.

- Ensures documentation is correct
- Makes sure the product is unloaded safely and if reloaded for transport to end destination, is loaded/ unloaded, segregated and transported legally
- Reports any dangerous occurrences to the proper authority
- Has proper TDG Training for the product being received

Note: The shipping of dangerous goods and the various responsibilities involved could be compared to a chain. The various roles, shipper (consignor) - Carrier- Receiver (Consignee) - Emergency Responder, could be the links. If all are properly trained and do their job correctly any risk involved will be greatly reduced.

What should a shipper, handler or driver do if confronted with a situation that does not meet government regulations and/ or company policy?

- Ensure your supervisor is aware of the situation IMMEDIATELY!
- Absolutely refuse to handle or ship any product unless all regulations are met

You cannot bury your head in the sand and ignore what happens down the chain, Even if you are doing everything right but are aware that regulations are being ignored further down the line, YOU ARE STILL RESPONSIBLE.

Summary of Responsibilities

Responsibility	Shipper	Carrier	Consignee
Classification	✓	✗	✗
Labeling and Marking	✓	✓	✗
Placarding	✓	✓	✗
Documentation	✓	✓	✓
Notification for Explosives	✓	✓	✗
Packaging	✓	✓	✗
Loading/ Unloading and Segregation	✓	✓	✓
Reporting Dangerous Occurrences	✓	✓	✓
Training	✓	✓	✓

5 Product Classification

Responsibility of the Shipper

- Look product up in the list of dangerous goods found in the TDG Regulations. (Schedule 1)
- Check previous shipping documents
- Check Material Safety Data Sheets (MSDS)
- Contact the manufacturer

*Note: Explosive products imported from other countries must be on the **"Authorized list of Explosives".** This is a list of products that are approved for importation by NRCAN. If the imported products are not on the list then they cannot legally be sold in Canada. The list can be accessed on the internet at www.nrcan.gc.ca **If in Doubt - Check!***

Classes of Dangerous Goods

There are nine (9) classes of dangerous goods; each one represents a different type of hazard.

1. Explosives
2. Gases
3. Flammable Liquids
4. Flammable Substances
5. Oxidizers/ Organic Peroxides
6. Toxic Infections Substances
7. Radioactive
8. Corrosive
9. Miscellaneous

Divisions

- Some classes of dangerous goods are separated into divisions that identify the type of hazard more clearly.
- If a product has more than one kind of hazard, it may belong to more than one class.
- The primary class is shown first with the subsidiary class (es) in brackets.
- This information is important in case of a spill or leak. A trained emergency responder will attach the biggest threat first.

Compatibility Groups

- Explosives have special requirements regarding loading; particularly with respect to different types of explosives in the same shipment.
- Compatibility groups are used to determine which explosives may be transported together. When loading explosives, segregate different compatibility groups.

Class 1 Explosives Classification and Characteristics

Example

1 .1 D

Class Number	All explosive products are TDG Class 1
Division Number	Explosive products are divided into 6 divisions
Compatibility Group Letter	Explosive products are further broken down into compatibility groups using letters of the alphabet

Class 1 Explosives Divisions

Division	Description	Example
1	Mass explosion hazard	TNT, Detonators, dynamites, boosters and cap sensitive emulsions and slurries
2	Projection hazard but not mass explosion hazard	Military mines and grenades
3	Fire with minor blast or projection hazard	Fireworks
4	No significant hazard	Safety cartridges and some oil well perforating products
5	Very insensitive explosives	AN/FO, bulk emulsions, Amex and booster sensitive cartridge products
6	Articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation	

Description of Compatibility Groups ~ Class 1 Explosives

Compatibility Group	Description
A	Primary explosive substance
B	Article containing a primary explosive substance and not containing two or more protective features. Some articles (such as detonators for blasting, detonator assemblies for blasting and primers, cap-type) are included in this group even though they do not contain primary explosives.
C	Propellant explosive substance or other deflagrating explosive substance or article containing such an explosive substance.
D	Secondary detonating explosive substance or black powder or article containing a secondary detonating explosive substance, in each case without means of initiation and without a propelling charge or article containing a primary explosive substance and containing two or more effective protective features.
E	Article containing a secondary detonating explosive substance, without means of initiation, with a propelling charge (other than one containing a flammable liquid, flammable gel or hypergolic liquids)
F	Article containing a secondary detonating explosive substance with its own means of initiation, with a propelling charge (other than one containing a flammable liquid, flammable gel or hypergolic liquids) or without a propelling charge.
G	Pyrotechnic substance, an article containing a pyrotechnic substance or an article containing an explosive substance and an illuminating, incendiary, tear or smoke producing substance (other than a water activated article or one containing white phosphorous, phosphides, a pyrophoric substance, a flammable liquid, flammable gel or hypergolic liquids)
H	Article containing an explosive substance and white phosphorous
J	Article containing an explosive substance and a flammable liquid or flammable gel
K	Article containing an explosive substance and a toxic substance
L	Explosive substance or article containing and explosive substance and presenting a special risk (e.g. that is due to water activation or to the presence of hypergolic liquids, phosphides or a pyrophoric substance) that needs isolation of each type
N	Articles containing only extremely insensitive detonating substances
S	Substance or material packed or designed so that any hazardous effects arising from accidental functioning are confined within the means of containment unless the means of containment has been degraded by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder or prevent firefighting or other emergency response efforts in the immediate vicinity of the means of containment

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Notes:

- Don't let the previous chart overwhelm you as we are only concerned with four (4) major compatibility groups. ***(B,D,S&G)***

- Products from compatibility group ***D*** (e.g. perforating charges, boosters, cord, geogel, magnagel, magnafrac etc.) and compatibility group ***B*** (detonators) cannot be shipped on the same transport unit with any other explosives products we handle. The only *exceptions* are:

1. Detonators (group **B**) may be shipped with products in group **D** if the detonators are contained in a schedule IV container or separated by a barrier laminate partition and the quantity does not exceed 5000.

2. Products in group **S** (e.g. some signal devices) may be shipped with product in group **D.**

Packing Groups

Packing Groups are used to indicate the degree of danger of materials, relative to other materials in the same class or division. They are shown in Roman numerals:

I. Great Danger

II. Moderate Danger

III. Minor Danger

All materials in Class 1: Explosives are assigned to Packing Group II.

6 Safety Marks

Safety Marks refer to labels, placards and other marks or symbols which are placed on the goods to provide information about their identities and hazards.

Special Note Regarding Explosives: Our explosive suppliers print their own explosives packaging, including all standard safety marks under TDG and the Explosives Act. You are only required to add marks which cannot be preprinted, such as the magazine number in the "ladder" section. *It is vital that you put each explosive inside the correct packaging and only use the original packaging.*

1. Dangerous Goods safety marks are often the first warning to someone that the product is hazardous. The person who needs the information may be a loader, driver or emergency responder.
2. These safety marks are put on at least one side of each small container or on top if nothing else is likely to be stacked on it at any time.
3. Only when the UN Number is printed on the label is the prefix UN not included.
4. Each package should be marked with:
    1) Hazard Label(s)
    2) Shipping Name
    3) UN Number (product Identification Number)
    4) Orientation Labels (on liquids in outer packaging)
    5) Mandatory packaging standards number for explosives boxes: E.G. CAN/CGSB43.151.

The Explosives packaging requires other markings in French and English under the Explosives Act:

1) The word "**EXPLOSIVE**"
2) The trade name of the explosive
3) The number of the class and the division to which the explosives belong; according to the Explosives Act.
4) The name of the manufacturer or sender of the explosive
5) If the explosives are a Nitro-Compound or Chlorate mixture the date of manufacture is added. The date is added to all explosive perforating products as well.

Do not package other goods inside explosives packaging.

- Hazard labels are small diamond shaped marks used on boxes, crates, cylinders, barrels and other packages or small containers. They are designed to give a quick visual identification of the main hazards of the material inside, by use of symbols, colors and numbers indicating class.

Placards

Placards are for identification of dangerous goods to emergency responders and are required for any quantity of:

1) Poisonous gases (Class 2.3)
2) Corrosive Gases (Class 2.4)
3) Water- reactive Substances (Class 4.3)
4) Organic Peroxides (Class 5.2)
5) Radioactive Materials (Class 7)
6) Wastes
7) Explosives in Divisions 1.1, 1.2, 1.3 and 1.5. *This is company policy. There are quantity exemptions but we do not recognize them.*

Placards are required for:

- More than 1000 kg net explosives in Division 1.4 (except Compatibility Group **S**)
- More than 500kg (1100lb) gross quantity (total mass) of other classes of dangerous goods
- Dangerous goods carried **in bulk** or **by rail**
- Large containers which have been "emptied", but **still contain harmful residues**

Placards are a vital part of the TDG system. Making sure the transport unit is correctly marked with placards is a crucial part of your job. This includes units you load at your shop for common carriers or customers as well as your own transport unit. You are still responsible and could be held liable. We will therefore review the major points.

1) Placards must be applied before a transport unit is loaded and then, taken off immediately after the unit is unloaded. The reason for this is to ensure the unit is not incorrectly marked in case an emergency response is required in the area.
2) Placards must be applied to the front, back and both sides of the unit.
3) When shipping product on another carrier you must provide this carrier with the proper placards and under the TDG Act the shipper is also responsible for making sure the carrier attaches the placards to the unit.
4) For our purposes we will mainly be concerned with three (3) different placards: 1.1D, 1.1B, & 1.5D and to a lesser extent two (2) others: 5.1 (AN prill) and 3.2 (Diesel Fuel). The 1.1D placard takes precedence over the 1.5D placard which in turn takes precedence over the 1.1B placard. The following section will go into more detail on the individual placards.
5) Even though as a general rule explosive products with different compatibility groups cannot be shipped together, there is a special provision to allow shipment of detonators (1.1B) and explosives (1.1D) together on the same unit when the detonators are contained in a barrier laminate container or separated from the explosives by a barrier laminate partition. In this case the placard would be for the biggest hazard which is 1.1D.

   Please note: When shipping via common carrier or customer, you cannot ship these same products together unless the above conditions apply.

At one time or another you may have to determine what is the correct placard to apply to a unit. This information can be obtained from:

- the bill of lading or shipping document
- the labels on the product packaging
- the list of products you may be carrying with you or;
- by contacting your dispatcher, ***if in any doubt always contact your dispatcher***

As an example we will use a scenario where you are at a customer location and the customer asks you to take two cases of explosives and one case of detonators back with you, bearing in mind your unit is equipped with a schedule IV container or a barrier laminate partition. How will you determine which placard to apply?

1) You can get this information from the class and group you enter on the bill of lading for the return that you have to fill out.
2) In order to get the information for the return bill of lading you can
    a. Check the markings on the cases
    b. Check your products list if you have one
    c. Check previous bills of lading if available
    d. Contact your dispatcher; ***if in any doubt contact your dispatcher or the branch manager.***
3) Make sure all of the products you are hauling are compatible.
4) Since your unit is equipped with placards you can then choose the correct ones and display them.

Class 1 Explosives

- Products in Class 1 are designed to explode
- Always have an orange back ground
- A bursting bomb symbol is used for 1.1, 1.2, and 1.3 (greater risk)
- In general product with different compatibility groups (indicated by letter near bottom of placard) should not be shipped together.

Explosives Class 1.1D

Cap sensitive packaged products

- Boosters (primers)
- Detonating Cord
- Most Cartridge Products
- Some shaped and linear charges

Explosives Class 1.5D

Booster sensitive packaged or bulk products

- AMEX series explosives
- AN/FO and AI AN/FO
- Super AN series explosives
- Magnafrac series explosives (packaged or bulk)

Explosives Class 1.1B

Detonators

Class 2 Compressed Gases

2.1 Flammable Gas

e.g. Propane, Natural Gas

Can ignite easily, so the symbol is a flame

2.2 Non Flammable Gas

e.g. Compressed Air, Nitrogen

Hazard due to gases being compressed. Indicated by cylinder on green background

2.3 Poison Gas

e.g. Hydrogen Cyanide, Methyl Bromide

Toxic gas is poisonous or corrosive and very dangerous as shown by the skull and crossbones.

Class 3 Flammable Liquids

Materials in Class 3 are dangerous because liquid can move quickly and spread over large areas. Their vapors can ignite and cause an explosion or fire.

Class 4 Flammable Solids

4.1 Flammable Solids

e.g. Safety Matches, Aluminum Powder

Some flammable solids catch fire easily and others could cause a fire through friction. Once they start to burn they are difficult to extinguish. Identified by a red and white striped background.

4.2 Spontaneously Combustible Materials

e.g. Phosphorous

Under certain conditions these materials could ignite without warning.

4.3 Dangerous When Wet

e.g. Sodium Metal, Lithium Batteries

Could react with water to give off flammable gases or could burst into flames on contact with water. The blue background indicates the danger of water.

Class 5 Oxidizing Substance

Class 5 Materials can provide oxygen to increase the intensity of a fire. Symbol is a flame supported by an “O” for oxygen on a yellow background.

5.1 Oxidizing Substances

e.g. Ammonium Nitrate, Bromine Trifluoride, Zinc Nitrate

These substances contain large quantities of readily available oxygen that will feed a fire.

5.2 Organic Peroxides

e.g. Dibenzol Peroxide

These substances are unstable and reactive. When combined with other materials they can burst into flames

Class 6- Poisonous (Toxic) and Infectious Substances

Class 6 products or substances harm people by poisoning or i8nfecting them.

6.1 Poisonous (Toxic) Substances

e.g. Sodium Cyanide

May cause injury or death if you are exposed to them. Poisons can be swallowed, inhaled or absorbed through the skin. Poisons that are corrosive can severely burn your eyes/ skin / lungs. Indicated by skull and crossbones.

6.2 Infectious Substances

e.g. Rabies Samples

Infectious substances are known or suspected to cause disease. The label and placard show a “biomedical” symbol

Class 7 Radioactive

Radioactive materials give off a form of energy that can break down atoms and molecules. Exposure to radiation can damage tissue and bones. It can cause cancer and genetic mutation. The "trefoil" symbol indicates the presence of radioactive material.

e.g. Uranium, Plutonium

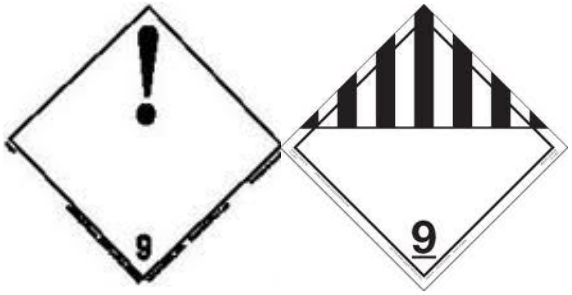
Class 8 Corrosive

Corrosives can damage skin, metal or other materials. Even the vapors can be hazardous.

e.g. Sulphuric Acid, Sodium Hydroxide

Class 9 Miscellaneous Substances

These are dangerous goods that are not covered by any of the other eight (8) classes, but are still dangerous if they spill or leak



9.1 Miscellaneous Dangerous Goods

e.g. Asbestos, Dry Ice

9.2 Environmentally Hazardous Substances

e.g. Formaldehyde, Ammonium Bicarbonate

9.3 Miscellaneous Dangerous Wastes

e.g. Leachable Toxic Waste, Waste from Lead Smelting

Danger Placard

Used for mixed loads of packaged dangerous goods.

"Danger Placards ***CANNOT*** be used for the following

- Explosives (Class 1)
- Poison Gases (Class 2.3)
- Corrosive Gases (Class 2.4)
- Dangerous When Wet Flammable Solids (Class 4.3)
- Organic Peroxides (Class 5.2)

7 Shipping Documents

General Information for *all* Dangerous Goods

1) This document does not have to be a special form just for shipping dangerous goods. It **can** be a waybill, trip ticket, manifest, or pro-bill and might include information for other purposes.
2) Dangerous Goods can be listed together with non- dangerous goods on the same shipping document as long as the information about the dangerous goods stands out.

   It can be:

   - Listed first under the heading "Dangerous Goods"
   - Written or highlighted in a contrasting color
   - Indicated by an "X" in a column headed "DG"
3) The shipping document must be retained for two (2) years and must show:
   - Document number, date and signature
   - Consignors' name and address
   - Carriers' name
   - Consignees' name and address
   - Shipping name
   - Classification
   - Compatibility Group
   - UN Number
   - Packing Group
   - Total quantity of dangerous goods
   - Number of packages
   - 24 hour emergency telephone number
4) When the driver is out of the vehicle, the shipping documents ***MUST*** be either on the drivers' seat or in the drivers' door pocket. If the driver leaves the truck in a supervised area, a copy of the shipping document must be left with the person in charge.
5) If the trailer is detached from the tractor or the dangerous goods are unloaded and left in a supervised area the shipping document must be placed in an accessible, identifiable and water proof receptacle. ***Note***: This does not apply to explosives, see additional requirements for explosives.
6) When the driver transfers the shipment, the next carrier must be given a copy of the shipping document.
7) When the driver delivers the shipment, the receiver must be given a document that identifies the dangerous goods. This does not have to be a complete shipping document. It could be a delivery ticket, waybill, electronic notification, etc.
8) Shippers and carriers must keep a copy of each dangerous goods shipping document for two years. This could be an electronic copy.

Additional Requirements for Explosives Only

1) The driver must have a second copy of the shipping document in their possession when out of the vehicle.
2) The driver must be able to produce a valid registration certificate and a certificate (letter of authorization) signed by the owner authorizing the driver to carry explosives.
3) Explosives ***CANNOT*** be left unattended at any time unless they are in a licensed magazine.
4) The NEQ must be on the shipping document.
5) The magazine license number of the shipper and the consignee must be on the document.
6) Name and address of the consignee.

8 Shipping Descriptions

The shipping description is intended to give a relatively complete identification of a particular type of dangerous goods and the dangers of which you should be aware.

The shipping description is composed of four items:

I. Shipping Name
II. UN Number
III. Classification
IV. Packing Group

Shipping Descriptions are obtained from a part of the regulations called Schedule 1. In most cases you should not use shipping descriptions which are not on this list. Explosives are listed on the first part of the schedule and all other dangerous goods on the second part. Descriptions on Schedule 1 are arranged by consecutively larger UN numbers and try to adhere to an alphabetical sequence.

Schedule 1 Legend

Col. 1 UN Number: This column gives the UN numbers for the shipping names of dangerous goods. An alphabetic index of the shipping names is provided in Schedule 3.

Col. 2 Shipping Name and Description: This column gives the shipping names for dangerous goods. Each shipping name is written in upper case letters (capitals) and any descriptive text is written in lower case letters. The word "or" between shipping names indicates that there is more than one shipping name for the dangerous goods and that each shipping name given is correct. Any one of the shipping names may be used, for example, to complete a shipping document. *See paragraph 1.3(2)(d) of Part 1 for additional information about shipping names and how they may be written to complete, for example, a shipping document.*

Col. 3 Class: This column gives the primary class for dangerous goods. Any subsidiary class, or classes, is shown in parentheses under the primary class. There is no priority between or among subsidiary classes.

The word "Forbidden" in this column means that the dangerous goods must not be transported. Schedule 3 includes dangerous goods that are forbidden for transport but that do not have a UN number. *A person may apply for a permit for equivalent level of safety to transport these dangerous goods (see Part 14, Permit for Equivalent Level of Safety).*

Col. 4 Packing Group/Category: This column gives the packing group or category for dangerous goods. *Class2, Gases, does not have packing groups. Class 6.2, Infectious Substances, has two categories rather than packing groups.* ***SOR/2008-34***

Col. 5 Special Provisions: This column gives the special provisions that apply to dangerous goods. Special Provisions are in Schedule 2.

Col. 6 Explosive Limit and Limited Quantity Index: This column gives the quantity of dangerous goods at or below which the dangerous goods may be offered for transport or transported in accordance with section 1.17 of Part 1, Coming into Force, Repeal, Interpretation, General Provisions and Special Cases, for dangerous goods included in any of Classes 2 to 9 or, in accordance with section 1.31 of Part 1, Coming into Force, Repeal, Interpretation, General Provisions and Special Cases, for dangerous goods included in Class 1, Explosives. ***SOR/2008-34***

Col. 7 ERAP Index: This column gives the ERAP (emergency response assistance plan) quantity limit above which there must be an ERAP for the dangerous goods in accordance with section 7.1 of Part 7, Emergency Response Assistance Plan. The quantity limit is expressed in kilograms for solids, litres for liquids and for gases as the capacity of the means of containment of the gases. For Class 1, Explosives, the quantity is expressed in kilograms of net explosives quantity or, for those explosives subject to special provision 85 or 86, the number of articles. For Class 3, Flammable Liquids, with a UN number of UN1202, UN1203 or UN1863, see subsection 7.1(5) of Part 7, Emergency Response Assistance Plan, which sets out ERAP requirements for those dangerous goods. For Class 6.2, Infectious Substances, see subsection 7.1(6) of Part 7, Emergency Response Assistance Plan, which sets out the ERAP requirements for certain infectious substances.

The ERAP quantity limit applies to the row in this Schedule on which it appears so that, for example, UN1986 may require an ERAP for Packing Group I but not for Packing Group II or III.

If no index number is shown, an ERAP is not required except for those dangerous goods subject to special provision 82 or 84 *(see subsection 7.1(4) of Part 7, Emergency Response Assistance Plan)*. *In Col. 7 of the schedule, "SP" means special provision.* ***SOR/2008-34***

Col. 8 Passenger Carrying Ship Index: This column gives the quantity limits for dangerous goods above which the dangerous goods must not be transported on board a passenger carrying ship *(see section 1.6 of Part 1, Coming into Force, Repeal, Interpretation, General Provisions and Special Cases)*. The quantity limit is expressed in kilograms for solids, litres for liquids and for gases as the capacity of the means of containment of the gases. For Class 1, Explosives, the quantity is expressed in kilograms of net explosives quantity or, for those explosives subject to special provision 85 or 86, the number of articles. There may be special stowage requirements or restrictions for some of these dangerous goods and the consignor should contact the marine carrier for more information.

The word "Forbidden" in this column means that the dangerous goods must not be transported in any quantity on board a passenger carrying ship. *A person may apply for a permit for the equivalent level of safety to transport these dangerous goods (see Part 14, Permit for Equivalent Level of Safety).* If no index number is shown, there is no quantity limit. ***SOR/2008-34***

Col. 9 Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index: This column gives the quantity limits for dangerous goods above which the dangerous goods must not be transported on a passenger carrying road vehicle or a passenger carrying railway vehicle *(see section 1.6 of Part 1, Coming into Force, Repeal, Interpretation, General Provisions and Special Cases)*. The quantity limit is expressed in kilograms for solids, litres for liquids and for gases as the capacity of the means of containment of the gases. For Class 1, Explosives, the quantity is expressed in kilograms of net explosives quantity or, for those explosives subject to special provision 85 or 86, as the number of articles.

The word "Forbidden" in this column means that the dangerous goods must not be transported in any quantity on board a passenger carrying road vehicle or a passenger carrying railway vehicle. *A person may apply for a permit for equivalent level of safety to transport these dangerous goods (see Part 14, Permit for Equivalent Level of Safety).* If no index number is shown, there is no quantity limit. ***SOR/2008-34***

Col. 10 Marine Pollutant: This column indicates the dangerous goods that are marine pollutants. The letter "P" indicates a marine pollutant. The letters "PP" indicate a severe marine pollutant. The symbol "•" indicates a potential marine pollutant. *See section 2.7, Marine Pollutants, and section 2.43, Class 9, Miscellaneous Products, Substances or Organisms, of Part 2, Classification, for classifying marine pollutants.*

Sample of Schedule 1

Col.1 **UN number**	Col.2 **Shipping Name and Description**	Col.3 **Class**	Col.4 **Packing Group/ Category**	Col.5 **Special Provisions**	Col.6 Explosive **Limit and Limited Quantity Index**	Col.7 **ERAP Index**	Col.8 **Passenger Carrying Ship Index**	Col.9 **Passenger Carrying Road or Rail Index**	Col.10 **Marine Pollutant**
UN0030	DETONATORS, ELECTRIC for blasting	1.1B	II	6,75	0	75	10	Forbidden	
UN0042	BOOSTERS without detonator	1.1D	II	4	0	75	10	Forbidden	
UN0059	CHARGES, SHAPED without detonator	1.1D	II	4	25	75	10	Forbidden	
UN0065	CORD, DETONATING, flexible	1.1D	II	4	25	75	10	Forbidden	
UN0081	EXPLOSIVE, BLASTING, TYPE A	1.1D	II	2,4	25	75	10	Forbidden	
UN0241	EXPLOSIVE, BLASTING, TYPE E	1.1D	II	4	25	75	10	Forbidden	
UN0331	EXPLOSIVE, BLASTING, TYPE B	1.5D	II	4	25	1000	10	Forbidden	
UN0332	EXPLOSIVE, BLASTING, TYPE E	1.5D	II	4	25	1000	10	Forbidden	
UN0360	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting	1.1B	II	6,75	0	75	10	Forbidden	
UN0440	CHARGES, SHAPED, without detonator	1.4D	II		25		10	3	
UN0456	DETONATORS, ELECTRIC, for blasting	1.4S	II	75	0				

Notes

1. United Nations Number (UN) e.g. UN0030 a four digit number used around the world to identify dangerous goods
2. Shipping Name e.g. DETONATOR,ELECTRIC
   a) Does not have to be in capital letters
   b) Can be singular or plural
   c) Word order can be changed as long as it still makes sense
3. Hazard Class e.g. 1 for explosives
   a) Can also have a division, the two numbers being separated by a period as with explosives e.g. 1.1
   b) Explosives are further identified by compatibility groups that use capital letters e.g. 1.1D
4. Packing Group e.g. II for packaged explosives
   a) Designated by roman numerals I, II, III or IV

9 Notification for Explosives

The consignor must notify

- Carriers, and
- Operators

Of the following

- Shipping name of the explosive
- Product Identification Number of the explosive
- Quantity to be shipped
- Name and address of the consignee

10 Packaging and Handling Requirements

No person shall offer for transport dangerous goods that are contained in a package or small container unless the package or small container is designed, constructed, filled and closed so that, under normal conditions of handling and transport, there will be no discharge, emission or escape of the dangerous goods from the package or small container that could constitute a danger to life, health, property, or the environment.

1) Ensure the vehicle can safely hold the goods
2) Secure the load properly
3) Separate dangerous goods and food
4) Load, unload and handle dangerous goods safely
5) Package materials so they will not spill or leak
6) Be careful not to overfill packages
7) Follow any mandatory packaging standards e.g. National Standards of Canada CAN/CGSB 43.151-M90, Packaging of Explosives, Class 1, for Transportation

11 Dangerous Occurrences

A dangerous occurrence is an accident which falls into one of these categories:

1) Any release of radioactive material
2) Unintentional fire or explosion involving dangerous goods
3) Damage to a bulk container of dangerous goods
4) A release, leak, spill or emission that;
    a. Meets or exceeds the amounts set out in Table I, Part IX; or
    b. Presents a danger to life, health, property or the environment

Dangerous Occurrence Quantities

Classification	Amount	
1	Any quantity that (a) could pose a danger to public safety or is greater than 50 kg; or (b) is included in Class 1.1, 1.2, 1.3 or 1.5 and is (i) not subject to special provision 85 or 86 but exceeds 10 kg net explosives quantity, or (ii) subject to special provision 85 or 86 and the number of articles exceeds 1000. ***SOR/2008-34***	
2.1	More than 100 litres Any quantity that could pose a danger to public safety or any sustained release of 10 minutes or more	
2.2	More than 100 litres	
2.3	Any Quantity	
2.4	Any Quantity	
3	More than 200 litres	
4	More than 25kg	
5.1	More than 50kg or 50 litres	
5.2	More than 1kg or 1 litre	
6.1	More than 5kg or 5 litres	
6.2	Any Quantity ***SOR/2008-34***	
7	Any discharge of radioactive material that could pose a danger to public safety	An emission level greater than the emission level established in section 20 of the "Packaging and Transport of Nuclear Substances Regulations"
8	More than 5kg or 5 litres	
9.1	More than 25 kg or 25 L	
9.2	More than 1kg	
9.3	More than 5kg or 5 litres	

12 Reporting Dangerous Occurrences

The person in charge of the dangerous goods at the time of the dangerous occurrence must call:

- Employer
- Local Police
- Special Authorities e.g. CANUTEC
- Owner of the truck
- Owner or Consignor of the dangerous goods

In case of lost or stolen explosives, the local police and the Explosives Regulatory Division of Natural Resources Canada must be informed

13 Training Requirements

No person shall handle, offer for transport or transport dangerous goods or direct another person to handle, offer for transport or transport dangerous goods unless he or she:

a) Is a trained person; or

b) Is performing those activities under the direct supervision of a trained person. If you are asked to supervise someone who has not received dangerous goods training, **you are responsible for their actions.** You have to be with them whenever they handle dangerous goods.

c) The dangerous goods training certificate is issued by your employer and is good for three (3) years. It is not valid unless it is signed by both your employer and yourself.

d) The certificate must contain the following:

   i. The employers name, address and signature

   ii. Your name and signature

   iii. "expires on" date

   iv. Description of training received

e) The certificate is not transferable between employers

f) You must ***keep your certificate with you*** as you will have to produce it at the request of an inspector

Example of Certificate

Scormac Oilfield Bits Inc.

Certificate of Dangerous Goods Training

Employee Name _____

Employer Name _____

Employer Address _____

_____

This certifies that the above-named employee has received training in accordance with Part 6 of the TDG Regulations as indicated on the reverse.

Expires On _____

Employee Signature _____

Employer Signature _____

☐ Classification	☐ Class 1, Explosives
☐ Shipping Names	☐ Class 2, Gases
☐ Schedules 1,2 &3	☐ Class 3, Flammable Liquids
☐ Documentation	☐ Class 4, Flammable Solids, etc.
☐ Certification Safety Marks	☐ Class 5, Oxidizers, etc.
☐ Dangerous Goods Safety Marks	☐ Class 6.1,Toxic Substances
☐ ERAP	☐ Class 6.2, Infectious Substances
☐ Reporting Requirements	☐ Class 7, Radioactive Materials
☐ Proper use of equipment	☐ Class 8, Corrosives
☐ Emergency Measures	☐ Class 9, Miscellaneous Substances, etc.
☐ Handling	☐ Specific dangerous goods as listed below:
☐ Transporting	_____

14 Exemptions

The following items are exempt from all or part of the Regulations

- Dangerous goods necessary for the operation of the vehicle they are in
- Dangerous goods transported within a facility
- Limited Quantities Consumer Commodities Dangerous Goods purchased at a retail outlet(road only)
- Explosives for testing(road only)

15 Shipments to/from Other Countries

Shipments are regulated by the following:

- Domestic (all modes) - TDG Regulations
- International (sea and air) - IMO, ICAO, IATA
- Trans border (USA, Ground) - TDG/ 49 CFR

16 Transportation Emergency Response

It is a requirement that all persons involved in the shipping, transporting or receiving of dangerous goods be trained in emergency procedures.

- Due to the importance of this element of training, a separate training package has been developed WCOS TP-226 TER (Canada)

TDG Training Quiz

1. The purpose of the TDG Act is to protect the public from an accidental spill or leak and provide information to the Carrier/ Driver? (circle one)

   True or False

2. Inspectors have the authority to: (Circle all that apply)

   a) Search shipments or vehicles
   b) Seize and hold goods
   c) Take samples
   d) Make copies of documents
   e) Refuse entry into Canada of shipments or vehicles

3. What is the maximum fine that the courts can impose?

   a) $100
   b) $1,000
   c) $10,000
   d) $100,000

4. Whose responsibility is it to ensure that placards are available and affixed to transport container?

   a) Carrier & Weigh Scale Operator
   b) Consignor (Shipper)& Carrier
   c) Carrier & Consignee
   d) Consignor & Consignee

5. Explosive products imported from other countries must be on the **"_____".**

6. Within Class 1 Explosives how many divisions are there?

   a) 5
   b) 7
   c) 3
   d) 6

7. Packing Group I indicates Great Danger?

   True or False

8. Dangerous Goods safety marks are not the first warning to someone that the product is hazardous.

   True or False

9. Placards are required for:

   More than _____net explosives in Division 1.4 (except Compatibility Group **S**)

   More than _____gross quantity (total mass) of other classes of dangerous goods

   Dangerous goods carried _____ or _____.

   Large containers which have been "emptied", but _____.

10. Products in Class 1 are designed to explode?

    True or False

11. The background color of the "Dangerous When Wet" placard is?

    a) White
    b) Black
    c) Green
    d) Blue

12. The "Danger" placard can be used for?

    a) Explosives (Class 1)
    b) Poison Gases (Class 2.3)
    c) Mixed loads of packaged dangerous goods
    d) Corrosive Gases (Class 2.4)

13. The shipping document is a special form just for shipping dangerous goods that must be retained for three (3) years.

    True or False

14. When the driver leaves the truck, the dangerous goods shipping document must be left in the glove compartment

    True or False

15. The shipping description is composed of four (4) components, what are they and in what order do they go?

    a) _____
    b) _____
    c) _____
    d) _____

16. Which column is the "Packing Group" located in Schedule 1?

    a) 9
    b) 5
    c) 4
    d) 1

17. The person in charge of the Dangerous Goods at the time of a dangerous occurrence must call? (Circle all that apply)
    a) Home
    b) Employer
    c) Local police
    d) Owner of Dangerous Goods

18. Your Certificate of Training is valid for _____years.

19. Dangerous goods necessary for the operation of the vehicle they are in are exempt from all or part of the Regulations?

    True or False

20. It is a requirement that all persons involved in the shipping, transporting or receiving of dangerous goods be trained in emergency procedures.

    True or False

All incorrect answers have been reviewed

_____
Initial

Management has explained all topics to me and has answered all questions pertaining to this information.

_____
Initial

I understand and accept my responsibilities as presented in this New Hire Orientation.

_____
Initial

Please print your name and sign that you have read all the above information and indicated sections of the TDG Training Manual, and that management has answered any questions you may have had.

_____	_____	_____
Employee Name	Signature	(MM/DD/YYYY)
_____	_____	_____
Reviewed By	Signature	(MM/DD/YYYY)