Transportation of Dangerous Goods by Ground and Air

Training Module for Health Care Workers in the Northwest Territories

Relevant Documents

* The material covered in this course is based on materials that are constantly evolving. Please ensure that you refer to the current versions of the following:
  * Transportation of Dangerous Goods Act
  * Transportation of Dangerous Goods Regulations
  * IATA Dangerous Goods Regulations
  * Emergency Response Guidebook

Material to be Covered

1. General Overview
2. Classification of Dangerous Goods
3. Shipping Names
4. Use of Schedules 1, 2 and 3
5. Documentation
6. Dangerous Goods Safety Marks
7. Means of Containment
8. Safe Handling and Transport Practices (Packing Instructions)
9. Emergency Response Assistance Plans
10. Reporting Requirements
11. Proper Use of Equipment for Handling or Transporting Dangerous Goods
12. Emergency Measures

Section 1

General Overview

Introduction

Dangerous goods are necessary for the delivery of quality health care in the Northwest Territories.

Given our location, these goods must travel in and out of the Northwest Territories by air or ground transportation.

These goods have very specific handling requirements to ensure the safety of people, the health care facility, and the environment.

Transport of Dangerous Goods (TDG) Act and Regulations

The Transport of Dangerous Goods Act and Regulations are in place to promote public safety.

Even though they have been in place in Canada for decades, hundreds of TDG related accidents and incidents still happen every year.

Picture of ruptured tank car taken at Lac-Mégantic in July 2013 by the Farmington (Maine) Fire Rescue Department.

International Civil Aviation Organization (ICAO) Technical Instructions and International Air Transport Association (IATA) Dangerous Goods Regulations

ICAO

In Canada, TDG by air must comply with the ICAO Technical Instructions.

This document is part of an ongoing effort being made to harmonize regulations internationally.

IATA

Airlines that are members of IATA (such as Air Canada) use the IATA Dangerous Goods Regulations.

These regulations contain all of the requirements of the ICAO Technical Instructions and have included additional more restrictive requirements.

By following the IATA Dangerous Goods Regulations, we keep all of the shipment options available to us open.

Who Requires Training?

In order to help reduce accidents and incidents, TDG training is **REQUIRED** for everyone that handles packages containing dangerous goods.

If you,

* Load packages
* Unload packages
* Pack or Unpack packages

You **MUST** complete TDG training **or** perform these activities in the presence of and under the direct supervision of someone that has.

Frequency of Training

According to Part 6 of the TDG Regulations, a training certificate expires:

* **24 months** after the date of issuance for transport by aircraft
* **36 months** after the date of issuance for transport by road vehicle

Additional training may be required if regulatory changes applicable to your duties occur before the training certificate expires.

The TDG Regulations are currently under revision and are expected to be published in late 2017 or early 2018.

Training Certificate

Once you have completed your training, take your proof of completion to Staff Education and Development.

They will give you a Dangerous Goods Training Certificate.

You and your Supervisor must then both sign it to make it valid.

Your certificate is only valid for your present employer and the job for which it was given.

REMEMBER:

* Your Supervisor must keep a record of your training as well as a copy of the training certificate from the date it was issued until **2 years** after the date it expires.
* If an inspector requests a copy of your training record in writing, your Supervisor must be able to provide it within **15 days**.
* If an inspector asks you to provide a copy of your training certificate, you must be able to provide it **immediately** upon request.

Offences and Punishment

Every person in violation of any TDG Regulations in Canada:

* May be fined up to **$50,000** for a first offence
* May be fined up to **$100,000** for each additional offence (each day an offence is committed counts as an additional offence)
* May be imprisoned for up to **2 years**
* May be responsible for the **costs** of clean up, damages to personal property and the environment, and funding research to develop and improve safety **up to a maximum of $1,000,000** for each offence.

Due Diligence

* TDG Regulations Part 1.13 states:

  "a person must not be found guilty of an offence if it is established that the person took all reasonable measures to comply with the Act or prevent the commission of the offence"

* This training program is designed to provide you with the knowledge base you need to perform your TDG duties with all reasonable measures to safely handle dangerous goods.

Section 2

Classification of Dangerous Goods

Dangerous Goods

The Transportation of Dangerous Goods Act defines dangerous goods as:

* A product, substance or organism included by its nature or by the regulations in any of the classes indicated in the schedule.

Schedule

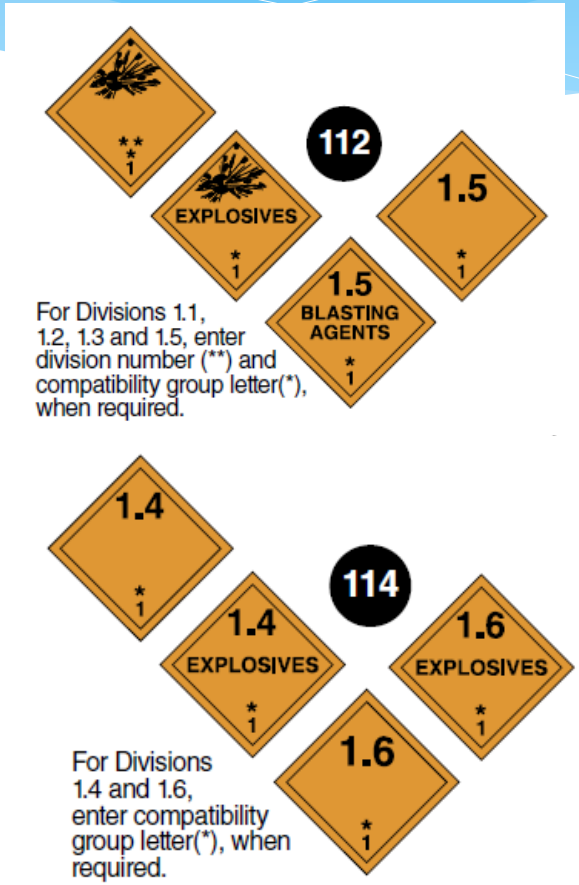
Class	Description
Class 1	Explosives, including explosives within the meaning of the Explosives Act
Class 2	Gases: compressed, deeply refrigerated, liquefied or dissolved under pressure
Class 3	Flammable and combustible liquids
Class 4	Flammable solids; substances liable to spontaneous combustion; substances that on contact with water emit flammable gases
Class 5	Oxidizing substances; organic peroxides
Class 6	Poisonous (toxic) and infectious substances
Class 7	Nuclear substances, within the meaning of the Nuclear Safety and Control Act, that are radioactive
Class 8	Corrosives
Class 9	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 and prescribed to be in this class.

Classes of Dangerous Goods

* Some of the hazard classes are further subdivided into hazard divisions due to the wide scope of the class.
* The nine classes and their subdivisions will be described in the following slides.
* The order in which they appear does not correlate with the level of danger of the goods in that class.
* When a dangerous good can be classified under 2 different classes, the most dangerous class is the Primary Class and the less dangerous class is the Subsidiary Class.

Class 1 - Explosives

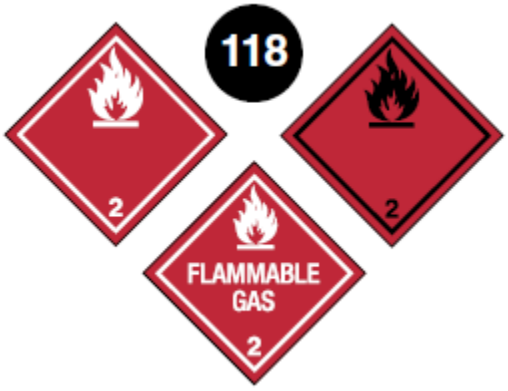
Division	Description
1.1	Mass Explosion hazard
1.2	Projection hazard, but not a mass explosion hazard
1.3	Fire hazard and either a minor blast hazard, or a minor projection hazard, or both, but not a mass explosion hazard
1.4	No significant hazard
1.5	Very insensitive substance with a mass explosion hazard
1.6	Extremely insensitive articles with no mass explosion hazard



It is unlikely that Class 1 Dangerous Goods would be transported in a health care role.

Class 2 - Gases

Division	Description
2.1	Flammable Gas
2.2	Non-flammable, non-toxic gases
2.3	Toxic Gases

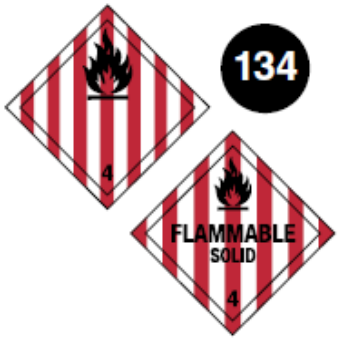


Class 3 – Flammable Liquid

* There are no further divisions in this class.

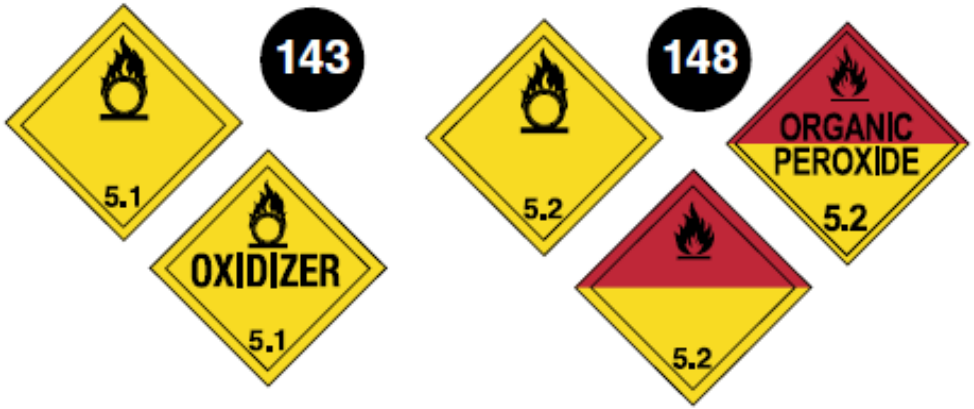
Class 4 – Flammable Solids

Division	Description
4.1	Flammable solids, self-reactive substances and solid desensitized explosives
4.2	Substances liable to spontaneous combustion
4.3	Water-reactive substances



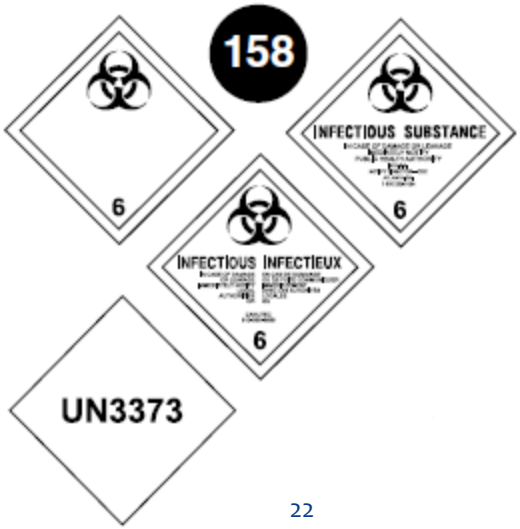
Class 5 – Oxidizing Substances and Organic Peroxides

Division	Description
5.1	Oxidizing substances
5.2	Organic Peroxides



Class 6 – Toxic and Infectious Materials

Division	Description
6.1	Toxic substances
6.2	Infectious substances

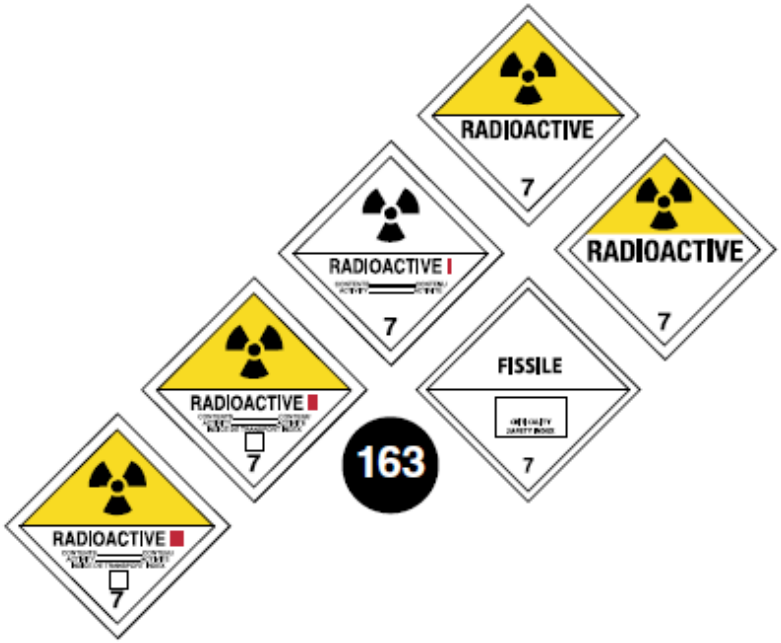


* **Class 6.2 Infectious Substances** will be covered in depth throughout this module as they are the most commonly shipped dangerous goods in health care

Class 7 – Radioactive Material

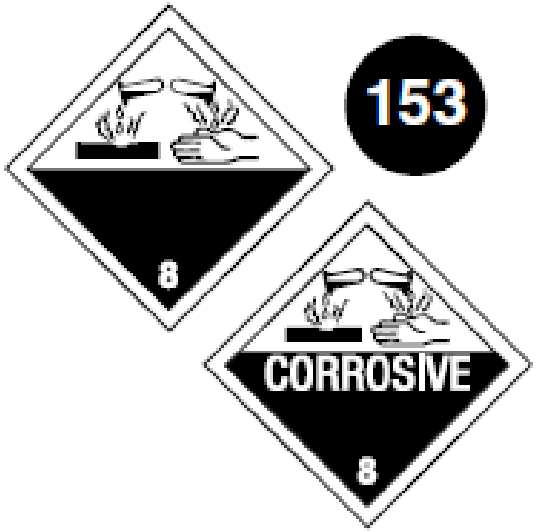
* There are no further divisions in this class.

It is unlikely that Class 7 Dangerous Goods would need to be transported in an NWT health care role.



Class 8 - Corrosives

* There are no further divisions in this class.



Class 9 – Miscellaneous Dangerous Goods

* There are no further divisions in this class.
  * Dry ice is a Class 9 Dangerous Good.
  * Lithium batteries are a Class 9 Dangerous Good.

Shipper's Responsibility

* Both the TDG Regulations and the IATA Dangerous Goods Regulations state that it is the shipper's responsibility to identify and classify all dangerous goods intended for transport.

* In addition, shipper's are responsible for the selecting of proper packaging, appropriately packing the goods, using the correct marks, labels, and documentation and making any other legally required arrangements.

14. Transport information

DOT	
UN-No	UN2789
Proper Shipping Name	Acetic acid, glacial
Hazard Class	8
Subsidiary Hazard Class	3
Packing Group	II
TDG	
UN-No	UN2789
Proper Shipping Name	ACETIC ACID, GLACIAL
Hazard Class	8
Subsidiary Hazard Class	3
Packing Group	II
IATA	
UN-No	UN2789
Proper Shipping Name	ACETIC ACID, GLACIAL
Hazard Class	8
Subsidiary Hazard Class	3
Packing Group	II
IMDG/IMO	
UN-No	UN2789
Proper Shipping Name	ACETIC ACID, GLACIAL
Hazard Class	8
Subsidiary Hazard Class	3
Packing Group	II

Section 14 of a product's SDS is one source of this information.

Section 3

Shipping Names and Special Provisions vs. Special Cases

Proper Shipping Names

Ground Transport

TDG Regulations

* Proper shipping names are shown in upper case letters in column 2 of Schedule 1

Air Transport

IATA Dangerous Goods Regulations

* Proper shipping names are shown in bold type in column B of the List of Dangerous Goods (blue pages)

Every dangerous good can be identified by both the proper shipping name and UN number. The proper shipping name must be spelled **EXACTLY** as it appears in the documents referenced above.

UN Numbers

Ground Transport

TDG Regulations

* UN numbers are shown in column 1 of Schedule 1
* UN prefix has already been added

Air Transport

IATA Dangerous Goods Regulations

* UN numbers are shown in column A of the List of Dangerous Goods (blue pages)
* Add prefix UN to these 4 digit numbers

Every dangerous good can be identified by both the proper shipping name and UN number. The proper shipping name must be spelled **EXACTLY** as it appears in the documents referenced above.

What are Special Provisions?

* Special provisions are used to clarify specific allowances for shipments of some dangerous goods.
* They may:
  * Provide an exemption from certain portions of the regulations, or
  * Prescribe additional requirements

Special Provisions

Ground Transport

TDG Regulations

* The presence of a number in column 5 of Schedule 1 indicates there is a special provision for the dangerous good
* Read and follow the directions provided for the special provision in Schedule 2

Air Transport

IATA Dangerous Goods Regulations

* The presence of a number preceded by the letter A in column M of the List of Dangerous Goods indicates there is a special provision for the dangerous good
* Read and follow the directions provided for the special provision in Section 4.4 (between the blue and yellow pages)

Special Cases

If no Special Provisions apply to the dangerous goods, you may review the Special Cases in Part 1, Sections 1.15 to 1.49 to see if there is an exemption that can be used.

Special Cases will either exempt you from:

* All of the requirements of the TDG Regulations
* Some parts of the Regulations
* Some sections of the Regulations, or
* Give alternative ways of complying with the Regulations

If the conditions for using a Special Case are not strictly met, the entire TDG Regulations apply.

Special Cases Commonly Used in Health Care

* 1.17 Limited Quantities Exemption
* 1.17.1 Excepted Quantities Exemption
* 1.18 Medical Device or Article
* 1.39 Class 6.2, Infectious Substances, UN3373, BIOLOGICAL SUBSTANCE, CATEGORY B Exemption
* 1.42 Human or Animal Specimens Believed Not to Contain Infectious Substances Exemption
* 1.42.2 Blood or Blood Components Exemption
* 1.42.3 Medical or Clinical Waste
* 1.48 Air Ambulance Exemption

1.42.2 Blood or Blood Components Exemption

The following Special Case has been taken directly from the regulations:

1.42.2 Blood or Blood Components Exemption
SOR/2008-34

(1) Part 3 (Documentation), Part 4 (Dangerous Goods Safety Marks), Part 5 (Means of Containment), Part 6 (Training), Part 7 (Emergency Response Assistance Plan) and Part 8 (Reporting Requirements) do not apply to the handling, offering for transport or transporting of blood or blood components that are intended for transfusion or for the preparation of blood products and are reasonably believed not to contain infectious substances.
SOR/2016-95

(2) The blood or blood components referred to in subsection (1) must be in a means of containment

(a) that is a Type 1B means of containment or Type 1C means of containment; or

(b) that is designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no release of the blood or blood components. ***SOR/2008-34***

This is one example of how using Special Cases can facilitate the shipment of materials required for health care.

1.42.3 Medical or Clinical Waste

1.42.3 Medical or Clinical Waste
SOR/2014-306

This exemption does not apply to medical waste containing infectious substances included in Category A.

Part 3 (Documentation), sections 4.7 to 4.12 of Part 4 (Dangerous Goods Safety Marks), Part 5 (Means of Containment), Part 6 (Training), Part 7 (Emergency Response Assistance Plan) and Part 8 (Reporting Requirements) do not apply to the handling, offering for transport or transporting of dangerous goods that are medical waste or clinical waste if
SOR/2016-95

(a) the dangerous goods are UN3291, (BIO) MEDICAL WASTE, N.O.S.;

(b) the dangerous goods are in a means of containment that is in compliance with CGSB-43.125; and

(c) the following information is displayed on the means of containment:

(i) the biohazard symbol; and

(ii) the word "BIOHAZARD" or "BIORISQUE".

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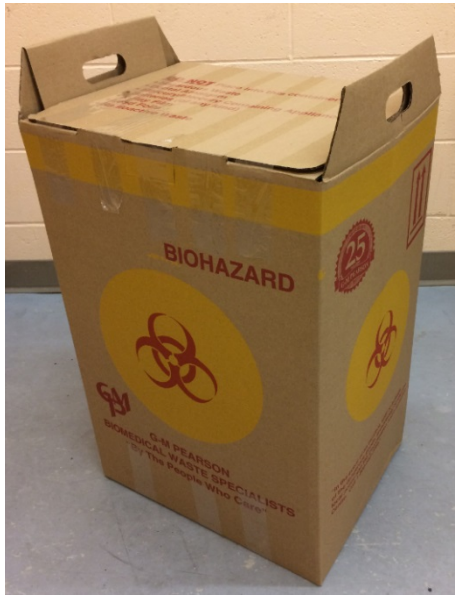


For detailed information on the shipment of Biological and Medical Waste see Appendix 37 of the STHA Biosafety Program Manual (pages 134-136).

Health Care Workers are Special

* This training module is designed to teach you how to use resources to determine how to safely transport Dangerous Goods – not to teach you each scenario individually.
* Familiarize yourself with the Special Cases that apply to the Dangerous Goods that you may need to transport.
* Special Cases are found in **Part 1 of the TDG Regulations**.
* **REMEMBER** – In order to use a Special Case, you must comply with **ALL** the conditions listed. If you can't, then you need to ship your Dangerous Goods fully regulated.

Section 4

Use of Schedules 1, 2 and 3
Use of List of Dangerous Goods

Transport by Ground

* The Transportation of Dangerous Goods by ground is governed by the TDG Clear Language Regulations and TDG Schedules 1, 2 and 3.
* These publications are available on the Transport Canada website and should always be used as your final reference.
* https://www.tc.gc.ca/eng/tdg/clear-tofc-211.htm

Schedules 1, 2 and 3

* **Schedule 1** is the primary source of information you will need to ship goods by ground. It lists the Dangerous Goods in order by UN Number.
* **Schedule 2** provides the special provisions related to the shipment of Dangerous Goods
* **Schedule 3** lists Dangerous Goods in alphabetical order by Proper Shipping Name. It does not provide all of the required shipping information, but may help you determine the UN Number so you can find the appropriate entry in Schedule 1.

Schedule 1 (for training)

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6		Col. 7	Col. 8	Col. 9
					6(a)	6(b)			
UN Number	Shipping Name and Description	Class	Packing Group/ Category	Special Provisions	Explosive Limit and Limited Quantity Index	Excepted Quantities	ERAP Index	Passenger-Carrying Ship Index	Passenger-Carrying Road Vehicle or Passenger-Carrying Railway Vehicle Index
UN1845	CARBON DIOXIDE, SOLID or DRY ICE	9		18	0	E0			200 kg
UN2789	ACETIC ACID, GLACIAL; or ACETIC ACID SOLUTION, more than 80% acid, by mass	8 (3)	II		1 L	E2	3 000		1 L
UN2814	INFECTIOUS SUBSTANCE, AFFECTING HUMANS	6.2	Category A	16, 38, 84	0	E0	See SP84		0.05 kg or 0.05 L
UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	9	III	16, 99	5 L	E1			
UN3291	CLINICAL WASTE, UNSPECIFIED, N.O.S.; (BIO) MEDICAL WASTE, N.O.S.; or REGULATED MEDICAL WASTE, N.O.S.	6.2	II	128, 129	0	E0			
UN3334	AVIATION REGULATED LIQUID, N.O.S.	9		16, 63	0	E1			
UN3373	BIOLOGICAL SUBSTANCE, CATEGORY B	6.2	Category B	38	0	E0			4 kg or 4 L
UN3480	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	9		34, 123, 137, 138	0	E0		5	5 kg

Column 1 in Schedule 1

* Column 1 shows the UN Number for the dangerous goods

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6		Col. 7	Col. 8	Col. 9
					6(a)	6(b)			Passenger-Carrying Road Vehicle or Passenger-Carrying Railway Vehicle Index
UN Number	Shipping Name and Description	Class	Packing Group/ Category	Special Provisions	Explosive Limit and Limited Quantity Index	Excepted Quantities	ERAP Index	Passenger-Carrying Ship Index	
UN1845	CARBON DIOXIDE, SOLID or DRY ICE	9		18	0	E0			200 kg

Column 2 in Schedule 1

* Column 2 shows the Proper Shipping Name (in upper case letters) of the dangerous goods.

* Items may have more than 1 name or descriptions (lower case letters) included.
* The name must appear on your documentation exactly as it is shown in upper case letters in this column.

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6		Col. 7	Col. 8	Col. 9
					6(a)	6(b)			Passenger-Carrying Road Vehicle or Passenger-Carrying Railway Vehicle Index
UN Number	Shipping Name and Description	Class	Packing Group/ Category	Special Provisions	Explosive Limit and Limited Quantity Index	Excepted Quantities	ERAP Index	Passenger-Carrying Ship Index	
UN1845	CARBON DIOXIDE, SOLID or DRY ICE	9		18	0	E0			200 kg
UN2789	ACETIC ACID, GLACIAL; or ACETIC ACID SOLUTION, more than 80% acid, by mass	8 (3)	II		1 L	E2	3 000		1 L

Column 3 in Schedule 1

If the word FORBIDDEN appears in this column, you must NOT transport these goods.

* Column 3 gives the primary class for the dangerous goods.
* Subsidiary classes are listed underneath the primary class in brackets.

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6		Col. 7	Col. 8	Col. 9
					6(a)	6(b)			Passenger-Carrying Road Vehicle or Passenger-Carrying Railway Vehicle Index
UN Number	Shipping Name and Description	Class	Packing Group/ Category	Special Provisions	Explosive Limit and Limited Quantity Index	Excepted Quantities	ERAP Index	Passenger-Carrying Ship Index	
UN1845	CARBON DIOXIDE, SOLID or DRY ICE	9		18	0	E0			200 kg
UN2789	ACETIC ACID, GLACIAL; or ACETIC ACID SOLUTION, more than 80% acid, by mass	8 (3)	II		1 L	E2	3 000		1 L

Column 4 in Schedule 1

* The Packing Groups are shown in this column.
  * Packing Group I – great danger
  * Packing Group II – medium danger
  * Packing Group III – minor danger
* Class 6.2 is assigned Categories instead of Packing Groups
  * Category A or B
* Some items are not assigned a Packing Group or Category

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6		Col. 7	Col. 8	Col. 9
					6(a)	6(b)			Passenger-Carrying Road Vehicle or Passenger-Carrying Railway Vehicle Index
UN Number	Shipping Name and Description	Class	Packing Group/ Category	Special Provisions	Explosive Limit and Limited Quantity Index	Excepted Quantities	ERAP Index	Passenger-Carrying Ship Index	
UN1845	CARBON DIOXIDE, SOLID or DRY ICE	9		18	0	E0			200 kg
UN2789	ACETIC ACID, GLACIAL; or ACETIC ACID SOLUTION, more than 80% acid, by mass	8 (3)	II		1 L	E2	3 000		1 L
UN2814	INFECTIOUS SUBSTANCE, AFFECTING HUMANS	6.2	Category A	16, 38, 84	0	E0	See SP84		0.05 kg or 0.05 L

Column 5 in Schedule 1

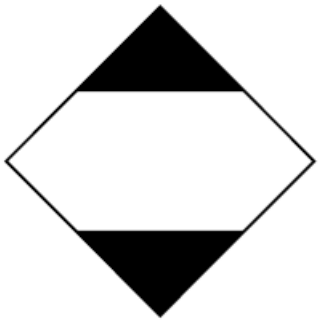
* This Column indicates if there is a Special Provision for this dangerous good.
* UN1845 DRY ICE has a special provision (18).
* Go to Schedule 2 and see how to transport this material.

18 These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to UN1845, CARBON DIOXIDE, SOLID, or DRY ICE that is in a means of containment that is transported by a road vehicle or a railway vehicle if the means of containment is designed and constructed to permit the release of carbon dioxide in order to prevent the build-up of pressure that could rupture the means of containment.
SOR/2014-306

UN1845

Column 6 in Schedule 1

* Column 6(a) shows the Limited Quantity Index. This shows the maximum amount of this item that can be shipped using Special Case 1.17 Limited Quantities Exemption.



* Column 6(b) is the Excepted Quantity Index and is used to determine if Special Case 1.17.1 Excepted Quantities Exemption can be used.

Table
Excepted Quantities

Alphanumeric Code	Column 1 Maximum net quantity per inner means of containment (in g for solids and mL for liquids and gases)	Column 2 Maximum net quantity per outer means of containment (in g for solids and mL for liquids and gases, or sum of g and mL in the case of mixed packing)
E0	Not permitted as Excepted Quantity	
E1	30	1000
E2	30	500
E3	30	300
E4	1	500
E5	1	300

Column 7 in Schedule 1

* This column gives the volume of goods above which an Emergency Response Assistance Plan is required. See Part 7 of the TDG Regulations.
* In column 7, SP means Special Provision. See Schedule 2 for more information.

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6		Col. 7	Col. 8	Col. 9
					6(a)	6(b)			
UN Number	Shipping Name and Description	Class	Packing Group/ Category	Special Provisions	Explosive Limit and Limited Quantity Index	Excepted Quantities	ERAP Index	Passenger-Carrying Ship Index	Passenger-Carrying Road Vehicle or Passenger-Carrying Railway Vehicle Index
UN1845	CARBON DIOXIDE, SOLID or DRY ICE	9		18	0	E0			200 kg
UN2789	ACETIC ACID, GLACIAL; or ACETIC ACID SOLUTION, more than 80% acid, by mass	8 (3)	II		1 L	E2	3 000		1 L
UN2814	INFECTIOUS SUBSTANCE, AFFECTING HUMANS	6.2	Category A	16, 38, 84	0	E0	See SP84		0.05 kg or 0.05 L

Column 8/9 in Schedule 1

* Column 8 indicates the maximum volume that can be transported on a **passenger carrying** ship (per means of containment)
* Transport by ship is not covered in this training.
* Column 9 indicates the maximum volume that can be transported on a **passenger carrying** road or railway vehicle (per means of containment)
* If no index number is shown, there is no quantity limit.

Schedule 2

* This schedule explains the Special Provisions that apply to dangerous goods.
* The numbers of the Special Provisions correspond to the numbers in column 5 of Schedule 1.
* Numbers preceded by SP in column 7 of Schedule 1 also correspond to Special Provisions in Schedule 2.
* Each UN number that has a Special Provision against it is included in italics at the end of each Special Provision.

Schedule 3

* Schedule 3 lists dangerous goods in alphabetical order by proper shipping name.
* If you did not know the UN Number for DRY ICE, you could look it up in Schedule 3 so you could find the information you need in Schedule 1.
* This schedule is also the only place that tells you if a dangerous good is a marine pollutant.

Col. 1A	Col. 1B	Col. 2	Col. 3	Col. 4
Shipping and/or Technical Name	Appellation réglementaire et/ou technique	Primary Class	UN Number	Marine Pollutant
DRY ICE	NEIGE CARBONIQUE	9	UN1845	

Transport by Air

* Instead of using the TDG Regulations to find the information you need, when transporting by air the best resource is the current version of the IATA Dangerous Goods Regulations.

List of Dangerous Goods

* In the IATA Dangerous Goods Regulations, the List of Dangerous Goods (found in the blue pages) provides you with the information you need to appropriately ship dangerous goods by air.

* (Similar to Schedule 1 for Ground Transport)

List of Dangerous Goods (for training)

UN/ID no. A	Proper Shipping Name/Description B	Class or Div. (Sub Risk) C	Hazard Label(s) D	PG E	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P. see 4.4 M	ERG Code N
					EQ see 2.6 F	Ltd Qty		Pkg Inst I	Max Net Qty/Pkg J	Pkg Inst K	Max Net Qty/Pkg L		
						Pkg Inst G	Max Net Qty/Pkg H						
2789	**Acetic acid, glacial**	8 (3)	Corrosive & Flamm. liquid	II	E2	Y840	0.5 L	851	1 L	855	30 L		*8F*
3334	**Aviation regulated liquid, n.o.s. * †**	9	Miscellaneous	III	E1	Y964	30 kg G	964	450 L	964	450 L	A27	*9A*
3373	**Biological substance, Category B**	6.2			E0	Forbidden		See 650	See 650				*11L*
1845	**Carbon dioxide, solid †**	9	Miscellaneous		E0	Forbidden		954	200 kg	954	200 kg	A48 A151 A805	*9L*
3291	**Clinical waste, unspecified, n.o.s**	6.2	Infectious Subst.	II	E0	Forbidden		622	No limit	622	No limit	A117	*11L*
3082	**Environmentally hazardous substance, liquid, n.o.s. ***	9	Miscellaneous	III	E1	Y964	30 kg G	964	450 L	964	450 L	A97 A158 A197	*9L*
2814	**Infectious substance, affecting humans ***	6.2	Infectious Subst.		E0	Forbidden		620	50 mL	620	4 L	A81 A140	*11Y*
3480	**Lithium ion batteries †** (including lithium ion polymer batteries)	9	Miscellaneous		E0	Forbidden		See 965		See 965		A88 A99 A154 A164 A183	*9F*

List of Dangerous Goods Description (Columns similar to Schedule 1)

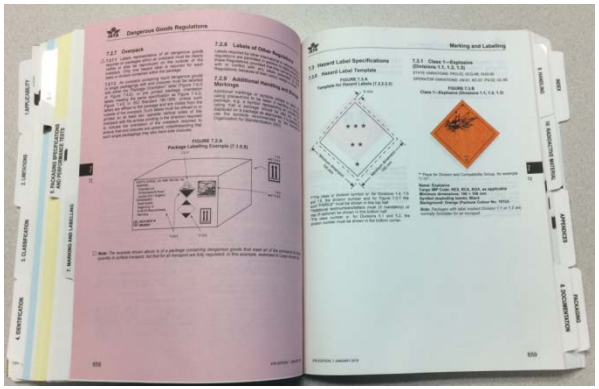
* Only the 4 digit number is shown in column A – you will need to add UN to the front of it when completing documentation.
* The List of Dangerous Goods are in alphabetical order by proper shipping name in column B.
* Proper shipping names are indicated by **bold text** in the list (not UPPER CASE letters as in Schedule 1).
* Columns C, E and F show the class, packing groups and excepted quantity codes discussed earlier.

Column D Hazard Labels

* Column D tells you which Hazard Labels you need to apply to the package.

UN/ID no. A	Proper Shipping Name/Description B	Class or Div. (Sub Risk) C	Hazard Label(s) D	PG E	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P. see 4.4 M	ERG Code N
					EQ see 2.6 F	Ltd Qty		Pkg Inst I	Max Net Qty/Pkg J	Pkg Inst K	Max Net Qty/Pkg L		
						Pkg Inst G	Max Net Qty/Pkg H						
2789	**Acetic acid, glacial**	8 (3)	Corrosive & Flamm. liquid	II	E2	Y840	0.5 L	851	1 L	855	30 L		*8F*

* Section 7 of the IATA Dangerous Goods Regulations explains how to apply the labels (pink pages) and shows pictures of the labels (white pages).



Columns G through L
Packing Instructions and Maximum Quantities

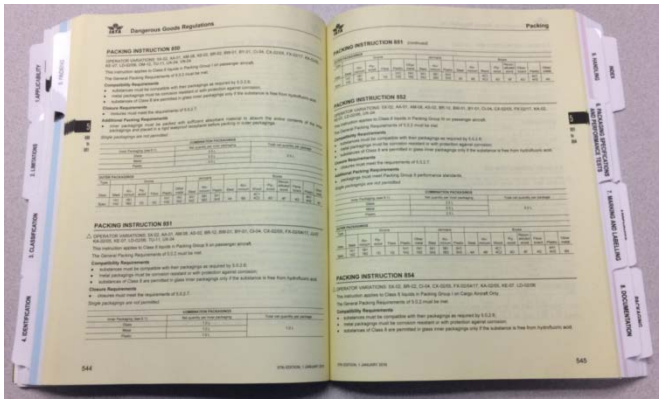
* **Column H** shows the maximum amount per package that can be shipped as a Limited Quantity (on Passenger and Cargo Aircraft). The packing instruction in **Column G** must be followed to ship this as a Limited Quantity.
* **Column J** shows the maximum amount per package that can be shipped fully regulated (on a Passenger and Cargo Aircraft). The packing instruction in **Column I** must be used for this shipment.
* **Column L** shows the maximum amount per package that can be shipped fully regulated (on a Cargo Aircraft Only). The packing instruction in **Column K** must be used for this shipment.

Packing Instructions

If you were shipping 1 L of the material shown by air on a Passenger and Cargo Aircraft, you would need to follow Packing Instruction 851.

UN/ID no. A	Proper Shipping Name/Description B	Class or Div. (Sub Risk) C	Hazard Label(s) D	PG E	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P. see 4.4 M	ERG Code N
					EQ see 2.6 F	Ltd Qty		Pkg Inst I	Max Net Qty/Pkg J	Pkg Inst K	Max Net Qty/Pkg L		
						Pkg Inst G	Max Net Qty/Pkg H						
2789	**Acetic acid, glacial**	8 (3)	Corrosive & Flamm. liquid	II	E2	Y840	0.5 L	851	1 L	855	30 L		*8F*

Find the Packing Instruction in Section 5 Packing (yellow pages) and follow the directions given.



Column M
Special Provisions

If there is a number preceded by A in this column, find it in Section 4.4 (the white pages between the blue and yellow pages).

UN/ID no. A	Proper Shipping Name/Description B	Class or Div. (Sub Risk) C	Hazard Label(s) D	PG E	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P. see 4.4 M	ERG Code N
					EQ see 2.6 F	Ltd Qty							
						Pkg Inst G	Max Net Qty/Pkg H	Pkg Inst I	Max Net Qty/Pkg J	Pkg Inst K	Max Net Qty/Pkg L		
2789	**Acetic acid, glacial**	8 (3)	Corrosive & Flamm. liquid	II	E2	Y840	0.5 L	851	1 L	855	30 L		*8F*
3334	**Aviation regulated liquid, n.o.s. * +**	9	Miscellaneous	III	E1	Y964	30 kg G	964	450 L	964	450 L	A27	*9A*

A27 (276) This includes any substance which is not covered by any of the other classes but which has narcotic, noxious or other properties such that, in the event of spillage or leakage on an aircraft extreme annoyance or discomfort could be caused to crew members so as to prevent the correct performance of assigned duties.

Column N
Emergency Response Drill Code

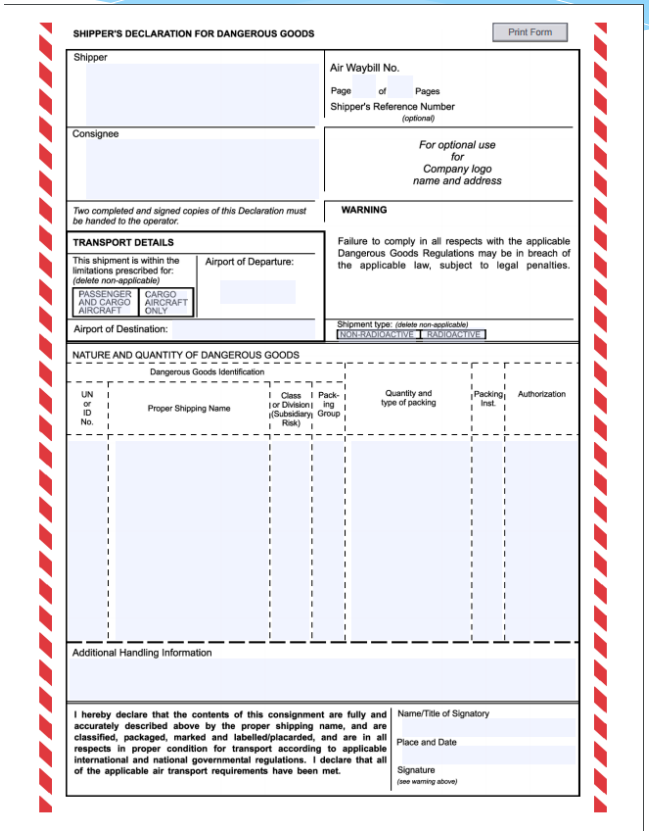
* The Emergency Response Drill Code consists of a combination of letters and numbers, which represents the type of response that is expected to take place in the event of an incident involving this specific dangerous good.
* It is listed here so the airline can include this when they notify the captain of the dangerous goods on board the aircraft.

Section 5

Documentation

Shipping Documents

* A shipping document is a paper document that contains required information about dangerous goods being handled, offered for transport or transported.
* A shipping document is always required unless an exemption (Special Case or Special Provision) states otherwise.
* Shipping documents may take on many forms for ground transport but, when you ship dangerous goods by aircraft, the shipping document must have red hatchings on the left and right margins (as shown).



SHIPPER'S DECLARATION FOR DANGEROUS GOODS

Print Form

Shipper

Air Waybill No.

Page of Pages

Shipper's Reference Number (optional)

Consignee

For optional use for Company logo name and address

Two completed and signed copies of this Declaration must be handed to the operator.

WARNING

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties.

TRANSPORT DETAILS

This shipment is within the limitations prescribed for: *(delete non-applicable)*

PASSENGER AND CARGO AIRCRAFT | CARGO AIRCRAFT ONLY

Airport of Departure:

Airport of Destination:

Shipment type: *(delete non-applicable)*

NON-RADIOACTIVE | RADIOACTIVE

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification						
UN or ID No.	Proper Shipping Name	Class or Division (Subsidiary Risk)	Packing Group	Quantity and type of packing	Packing Inst.	Authorization

Additional Handling Information

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I declare that all of the applicable air transport requirements have been met.

Name/Title of Signatory

Place and Date

Signature (see warning above)

Required Information

As a minimum, the shipping document must contain:

* Shipper's name and address
* Date of shipment
* Description of the dangerous goods in the following order:
  * UN number
  * Proper shipping name
  * Primary class (and subsidiary, if applicable)
  * Packing Group in roman numerals
  * If applicable, the words "toxic by inhalation" or "toxic – inhalation hazard" (See special provision 23)
* The quantity in metric measurement
* The "24 hour number" of an individual who can provide technical information on the dangerous goods
* The consignor's certification

In some cases more information may be required.

The information must be easy to identify, legible, in indelible print and in English or French.

Documentation Responsibilities

Shippers and carriers must be able to produce a copy of any shipping document for **2 years** after the date the document was prepared and provide it to an inspector **within 15 days** of a written request.

Shipper

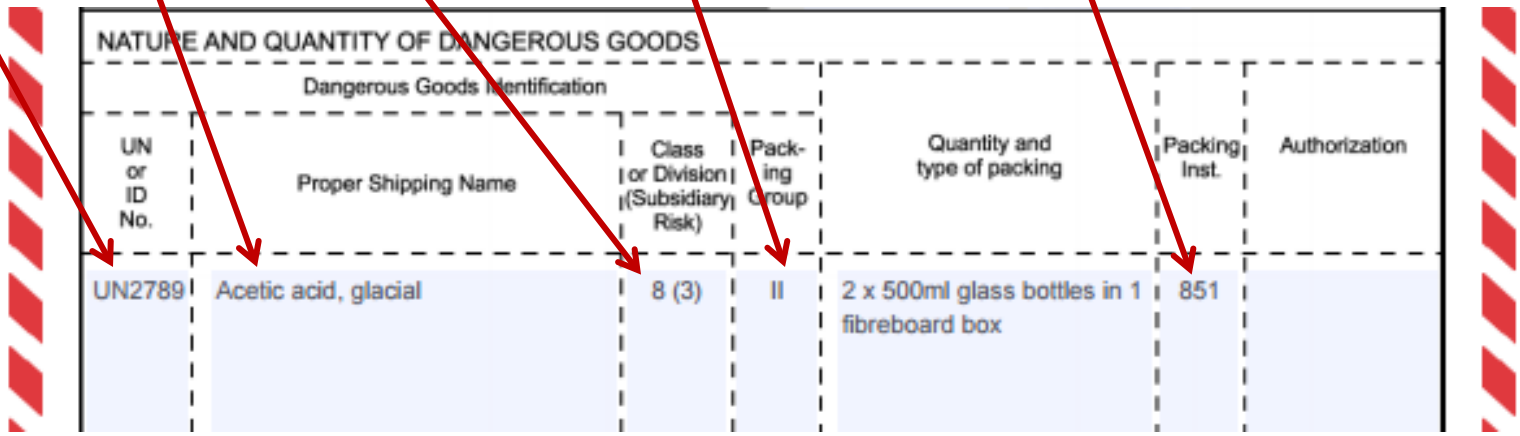
* Correctly classifying the dangerous goods
* Correctly preparing the shipping documentation
* Providing the shipping documentation to the carrier prior to transport
* Provide the carrier with all applicable placards and safety marks

Carrier

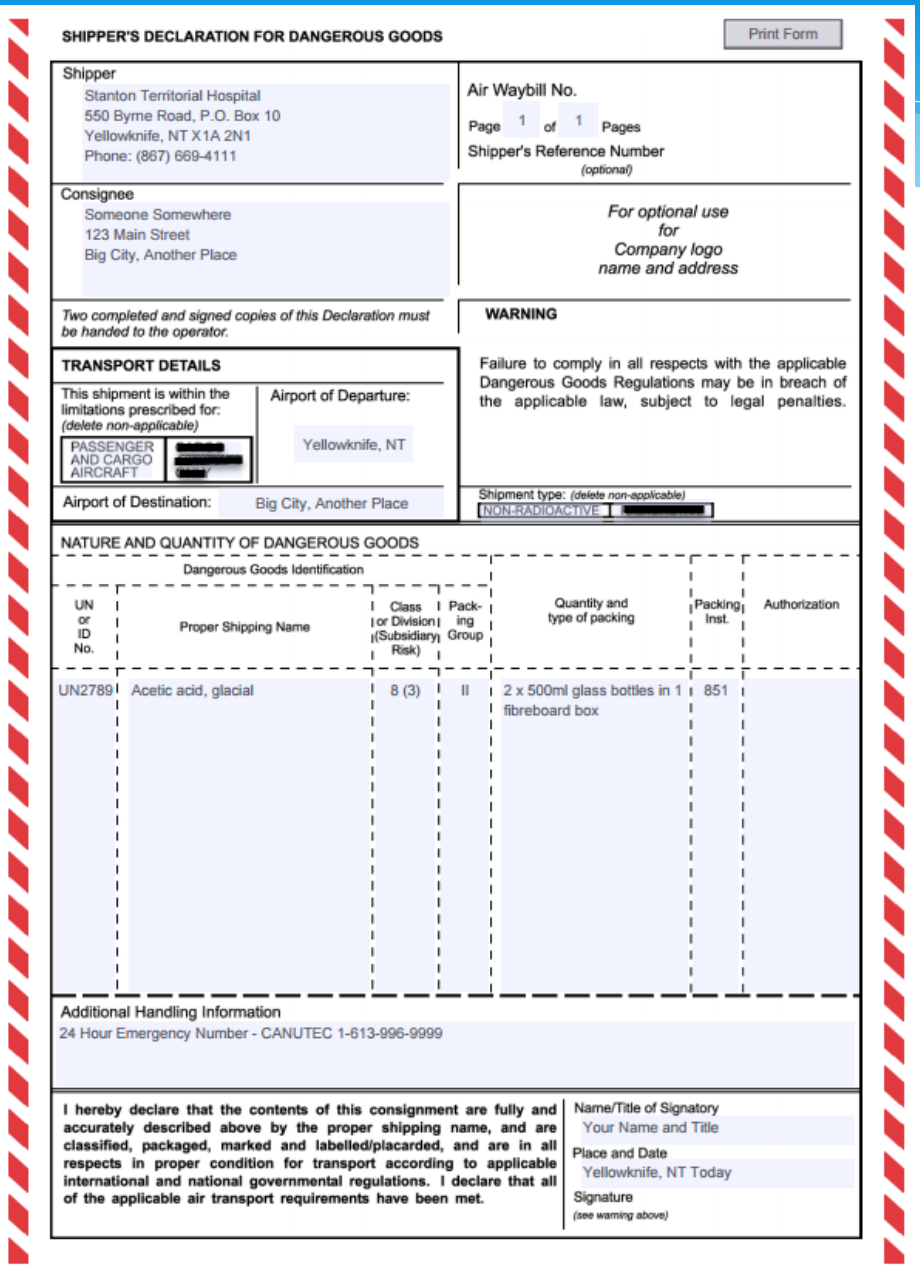
* Checks documentation for accuracy
* Compares safety marks to documents
* Resolves any possible errors
* Accepts documentation before taking possession
* Keeps documentation in a specified location (in a pocket on the driver's door or on the driver's seat if out of the vehicle).
* Each carrier must retain a copy of the documentation.

Example

UN/ID no. A	Proper Shipping Name/Description B	Class or Div. (Sub Risk) C	Hazard Label(s) D	PG E	Passenger and Cargo Aircraft					Cargo Aircraft Only		S.P. see 4.4 M	ERG Code N
					EQ see 2.6 F	Ltd Qty		Pkg Inst I	Max Net Qty/Pkg J	Pkg Inst K	Max Net Qty/Pkg L		
						Pkg Inst G	Max Net Qty/Pkg H						
2789	**Acetic acid, glacial**	8 (3)	Corrosive & Flamm. liquid	II	E2	Y840	0.5 L	851	1 L	855	30 L		*8F*



Fillable forms can be found at:
https://www.iata.org/whatwedo/cargo/dgr/Documents/Shippers-Declaration-Column-Format-Fillable.pdf



SHIPPER'S DECLARATION FOR DANGEROUS GOODS — Print Form

Shipper
Stanton Territorial Hospital
550 Byrne Road, P.O. Box 10
Yellowknife, NT X1A 2N1
Phone: (867) 669-4111

Air Waybill No.
Page 1 of 1 Pages
Shipper's Reference Number *(optional)*

Consignee
Someone Somewhere
123 Main Street
Big City, Another Place

For optional use for Company logo name and address

Two completed and signed copies of this Declaration must be handed to the operator.

WARNING
Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties.

TRANSPORT DETAILS
This shipment is within the limitations prescribed for: *(delete non-applicable)*
PASSENGER AND CARGO AIRCRAFT [redacted]
Airport of Departure: Yellowknife, NT
Airport of Destination: Big City, Another Place
Shipment type: *(delete non-applicable)*
NON-RADIOACTIVE [redacted]

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification						
UN or ID No.	Proper Shipping Name	Class or Division (Subsidiary Risk)	Packing Group	Quantity and type of packing	Packing Inst.	Authorization
UN2789	Acetic acid, glacial	8 (3)	II	2 x 500ml glass bottles in 1 fibreboard box	851	

Additional Handling Information
24 Hour Emergency Number - CANUTEC 1-613-996-9999

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I declare that all of the applicable air transport requirements have been met.

Name/Title of Signatory: Your Name and Title
Place and Date: Yellowknife, NT Today
Signature *(see warning above)*

Here is the completed document (except for signature).

Remember that ALL required fields must be filled in.

Given our location, ensure that **THREE** copies of this document are provided to the carrier. They must have the red borders and original signatures.

A fourth copy MUST be retained for your records.

Exempt Human Specimens

Special Case 1.42 and IATA Exemption 3.6.2.2.3

In order to qualify for this exemption:

* Specimens must be taken directly from a patient. Cultures must be classified as Category A or B.
* Patient must not have any pre-existing infections (such as HIV or Hepatitis B).
* Patient must not be symptomatic for infection (any samples being cultured or for viral testing must be classified as Category A or B).

Examples of specimens that qualify for this exemption:

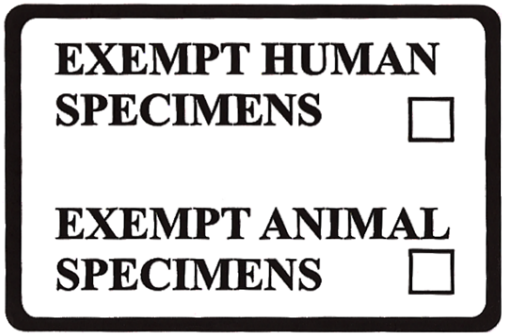
* Pregnancy tests
* Blood glucose tests
* Therapeutic drug monitoring
* Fecal occult blood screening samples
* Dried blood spots

Packaging Exempt Human Specimens

1. Specimen must be in a leak-proof primary container.
2. Primary container must be placed in leak-proof secondary packaging.
3. Absorbent material must be placed between the primary container and secondary packaging.
4. Outer packaging must be of adequate strength for its contents.

Markings for Exempt Human Specimens

* Exempt human specimens do not have a UN number or proper shipping name.
* To claim this exemption, the phrase "Exempt Human Specimens" must appear on both the way bill and the outer package.
* At least one surface of the package must measure at least 100 mm x 100 mm.
* If other dangerous goods (such as dry ice or formalin) are shipped with exempt human specimens, the documentation requirements for the other dangerous goods must be followed.



Section 6

Dangerous Goods Safety Marks

TDG Safety Marks

* Safety Marks provide important information about the goods being shipped.
* Ensure that those transporting dangerous goods understand the hazards that have been identified.

Safety marks include:

* Labels and placards
* Orange panels
* Signs
* UN Numbers
* Letters
* Abbreviations
* Words to identify dangerous goods
* Words to show the nature of the danger

Safety Marks Must Be:

* Made of durable and weather resistant material
* Visible, legible and displayed against a background of contrasting colour
* Of the proper size and colour indicated in the regulations
* The responsibility of the shipper

Misleading Safety Marks

You must not display a safety mark on a means of containment or means of transport if the mark is misleading to the presence or nature of the danger.

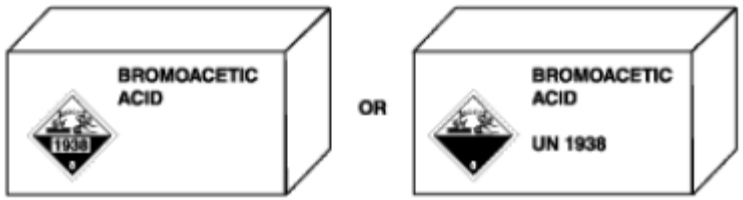
* Do NOT display a safety mark if no dangerous goods are present.
* Do NOT display the wrong safety mark.
* Do NOT display any other mark that may be mistaken for a safety mark.

Other Safety Marks

* The Safety Marks related to the Classes of Dangerous Goods were covered earlier in this module.
* The following slides will cover some of the other safety labels and marks you may need to use.
* More information can be found in:
  * Section 4 of the TDG Regulations (Ground Transport)
  * Section 7 of the IATA Dangerous Goods Regulations (Air Transport)

Labels

* A label must always be displayed on a small means of containment (equal or less than 450 L) containing dangerous goods in transport.
* Labels for primary and subsidiary classes can be displayed on any side (except top or bottom), or on the shoulder of cylinders.
* A small means of containment must also display the shipping name and UN number of the dangerous goods in transport.



Overpack Safety Marks

* Overpacks are used to consolidate fully compliant packages.
* Any package placed in an overpack must be fully compliant with the regulations.
* Any box can be used as an overpack as long as it is strong enough for its use and all items inside are compliant.
* Each package in an overpack must be labeled as if it were being shipped alone. If these labels cannot be seen once placed in the overpack, they must be reproduced on the outside of the overpack along with the word **OVERPACK**.

Category B Mark

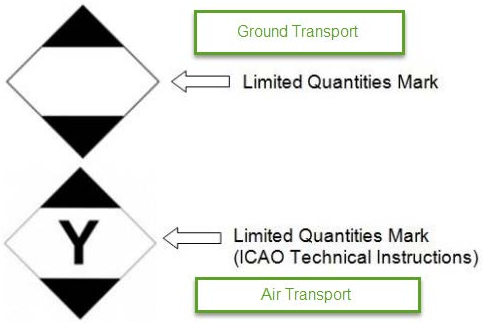
The Category B mark must be displayed on all small means of containment containing

UN3373, BIOLOGICAL SUBSTANCE, CATEGORY B

instead of 6.2, Infectious Substances label.

Limited Quantities Mark

* When complying with the Limited Quantities Exemption (Section 1.17), the limited quantities mark must be displayed on one side of the means of containment.



* Until December 31, 2020, instead of displaying one of these marks, the means of containment may be marked with the words “Limited Quantity”, “Ltd. Qty.”, “Consumer Commodity” or the UN number of each of the limited quantities of the dangerous goods in a square on point.

Excepted Quantities Mark

* When complying with the Excepted Quantities Exemption (Section 1.17.1), the excepted quantities mark must be displayed on one side of the means of containment.

* Place for the primary class
** Place for the name of the consignor or the consignee

Cargo Aircraft Only

* Dangerous Goods that are shipped by air and exceed the maximum quantity allowed on a passenger carrying aircraft MUST have this label affixed to one side of the package.

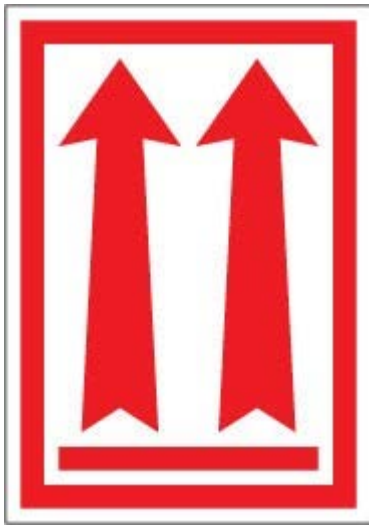
Lithium Battery Label

* This label is required for shipping lithium batteries by aircraft.

* It is FORBIDDEN to ship damaged, defective, recalled or recycled lithium batteries by aircraft. This ban applies whether or not they are contained in equipment.

Orientation Label

* Orientation labels (when required) must be placed on 2 opposing sides of a package.



Section 7

Means of Containment

Means of Containment

* Both the TDG Regulations and IATA Dangerous Goods Regulations require dangerous goods to be contained in a safe means of containment.
* A means of containment is a container or packaging designed to prevent the release of dangerous goods that could constitute a danger to life, health, property or the environment under normal conditions of transport.

Small, Large and Intermediate

Small Means of Containment

* Volume equal or less than 450 L
* May be drums, jerricans, boxes, pails, bags, barrels, cylinders

Large Means of Containment

* Volume greater than 450 L

Intermediate Bulk Container

* Volume greater than 450 L but less than or equal to 3000 L

Compliance Marks

* All standardized means of containment bear compliance marks to indicate that they were manufactured in compliance with a standard.
* All compliance marks must be durable, visible, legible and easily accessible for inspection.
* Most means of containment standards in Canada are based on the United Nations (UN) Recommendations.
* UN standardized means of containment are internationally recognized and can be used anywhere in the world and by any mode of transport.
* Some means of containment standards are specific to Canada and will display a TC marking.

UN Compliance Marks

4G / CLASS 6.2 / 11
CAN / ABC 8-999

Code or symbol	Description
	United Nations packaging symbol.
4G or 4GU	Packaging code (in this example, 4G represents a fiberboard box). The "U" represents that the package was tested with fragile primary receptacles.
CLASS 6.2	The text "CLASS 6.2" means that this type of container is suitable for Class 6.2 infectious substances.
11	The last two digits of the year of manufacture.
CAN	The country authorizing the allocation of the marking.
ABC 8-999	The name or symbol of the manufacturer and other identification of the container as specified by the country authorizing the allocation of the mark (e.g., design registration number).

Mode of Transport

* Refer to Part 5 of the TDG Regulations for more information regarding means of containment for road transport.
* Refer to Part 6 of the IATA Dangerous Goods Regulations for more information regarding means of containment for air transport.

Packaging for Infectious Substances

There are 3 types of packaging that may be used:

* 1A
* 1B
* 1C

The table below summarizes when to use a given type of packaging.

Type of Packaging	UN Number - Category
Type 1A	• UN2814 – Category A • UN2900 – Category A • UN3373 – Category B • UN3291 – Waste
Type 1B	• UN3373 – Category B (including Category A infectious substances that can be shipped as Category B).
Type 1C	• Waste, except for the infectious substances listed in "TABLE 1" of this document or in column 4 of the table under Section 5.16.

TABLE 1

Name of Infectious Substance	UN Number
(a) Crimean-Congo Hemorrhagic fever virus; (b) Ebola virus; (c) Flexal virus; (d) Guanarito virus; (e) Hantaviruses causing hemorrhagic fever with renal syndrome; (f) Hantaviruses causing pulmonary syndrome; (g) Hendra virus; (h) Herpes B virus (Cercopithecine Herpesvirus-1); (i) Junin virus; (j) Kyasanur Forest virus; (k) Lassa virus; (l) Machupo virus; (m) Marburg virus; (n) Monkeypox virus; (o) Nipah virus; (p) Omsk hemorrhagic fever virus; (q) Russian Spring – Summer encephalitis virus; (r) Sabia virus; and (s) Variola (smallpox virus).	UN2814

Type 1A Packaging

* A Type 1A container is a triple packaging system consisting of:
  * Watertight primary receptacle(s)
  * Watertight secondary packaging
  * Absorbent material
  * Outer packaging

Type 1A packaging

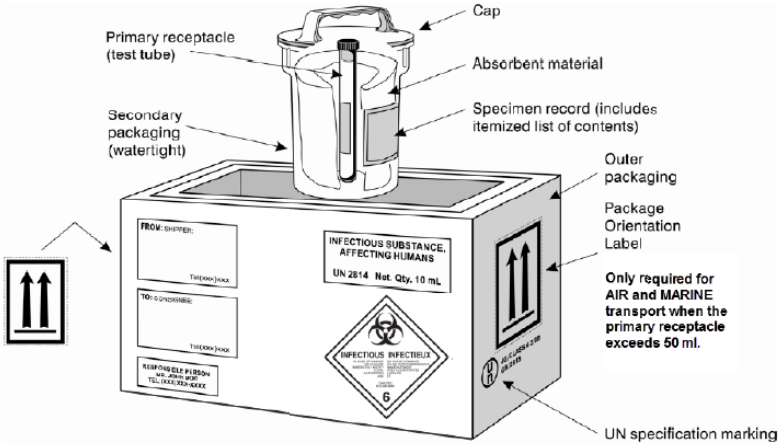


Figure 1: Example of triple packaging system for the packaging and labelling of Category A infectious substances (*Figure provided by IATA, Montreal, Canada*)

Packing Instruction 620

* The following video shows how to appropriately pack a Category A Infectious Substance according to Packing Instruction 620

* https://youtu.be/cA4qYHg3U_M

REMEMBER:

If you alter the packaging bearing UN markings, you may be fined as the packaging is no longer compliant with the regulations and standards.

Indicative List of Category A Infectious Substances

TABLE 3.6.D
Indicative Examples of Infectious Substances Included in Category A in Any Form Unless Otherwise Indicated (3.6.2.2.2.1)

UN Number and Proper Shipping Name	Micro-organism
UN 2814 Infectious substance affecting humans	*Bacillus anthracis* (cultures only) *Brucella abortus* (cultures only) *Brucella melitensis* (cultures only) *Brucella suis* (cultures only) *Burkholderia mallei–Pseudomonas mallei*–Glanders (cultures only) *Burkholderia pseudomallei–Pseudomonas pseudomallei* (cultures only) *Chlamydia psittaci*–avian strains (cultures only) *Clostridium botulinum* (cultures only) *Coccidioides immitis* (cultures only) *Coxiella burnetii* (cultures only) Crimean-Congo haemorrhagic fever virus Dengue virus (cultures only) Eastern equine encephalitis virus (cultures only) *Escherichia coli*, verotoxigenic (cultures only) Ebola virus Flexal virus *Francisella tularensis* (cultures only) Guanarito virus Hantaan virus Hantavirus causing hemorrhagic fever with renal syndrome Hendra virus Hepatitis B virus (cultures only) Herpes B virus (cultures only) Human immunodeficiency virus (cultures only) Highly pathogenic avian influenza virus (cultures only) Japanese Encephalitis virus (cultures only) Junin virus Kyasanur Forest disease virus Lassa virus Machupo virus Marburg virus Monkeypox virus *Mycobacterium tuberculosis* (cultures only) Nipah virus Omsk haemorrhagic fever virus Poliovirus (cultures only) Rabies virus (cultures only) *Rickettsia prowazekii* (cultures only) *Rickettsia rickettsii* (cultures only) Rift Valley fever virus (cultures only) Russian spring-summer encephalitis virus (cultures only)

TABLE 3.6.D
Indicative Examples of Infectious Substances Included in Category A in Any Form Unless Otherwise Indicated (3.6.2.2.2.1) *(continued)*

UN Number and Proper Shipping Name	Micro-organism
	Sabia virus *Shigella dysenteriae type 1* (cultures only) Tick-borne encephalitis virus (cultures only) Variola virus Venezuelan equine encephalitis virus (cultures only) West Nile virus (cultures only) Yellow fever virus (cultures only) *Yersinia pestis* (cultures only)
UN 2900 Infectious substances affecting animals	African swine fever virus (cultures only) Avian paramyxovirus Type 1–Velogenic Newcastle disease virus (cultures only) Classical swine fever virus (cultures only) Foot and mouth disease virus (cultures only) Goatpox virus (cultures only) Lumpy skin disease virus (cultures only) *Mycoplasma mycoides*–Contagious bovine pleuropneumonia (cultures only) Peste des petits ruminants virus (cultures only) Rinderpest virus (cultures only) Sheep-pox virus (cultures only) Swine vesicular disease virus (cultures only) Vesicular stomatitis virus (cultures only)

Type 1B Packaging

* A Type 1 B container is typically used for UN3373 Biological Substance – Category B, but it can also be used for the transport of certain Category A Infectious Substances.
* If you were shipping a sputum sample for TB testing, this would be a Category B package.
* A positive TB culture, however, would require Category A packaging.

(See previous slide – Indicative List of Category A Infectious Substances)

* The marking required on the outer packaging of a Type 1B container includes:
  * The text **TC-125-1B**
  * The name and address or symbol of the packaging manufacturer.

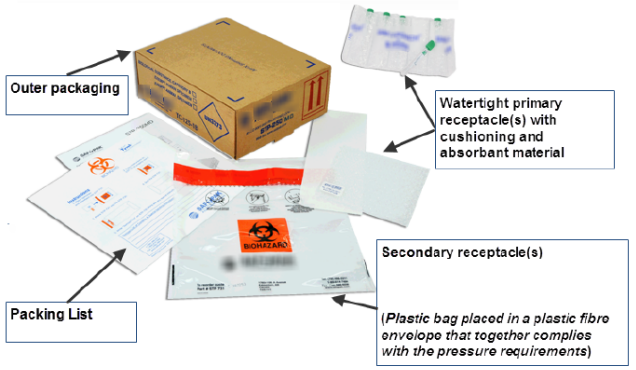


Figure 2: Example of type 1B packaging (*images provided by Saf-T-Pak*)

Packing Instruction 650

* The following video shows how to appropriately pack a Category B Biological Substance according to Packing Instruction 650

* https://youtu.be/segYrsI6qAA

REMEMBER:

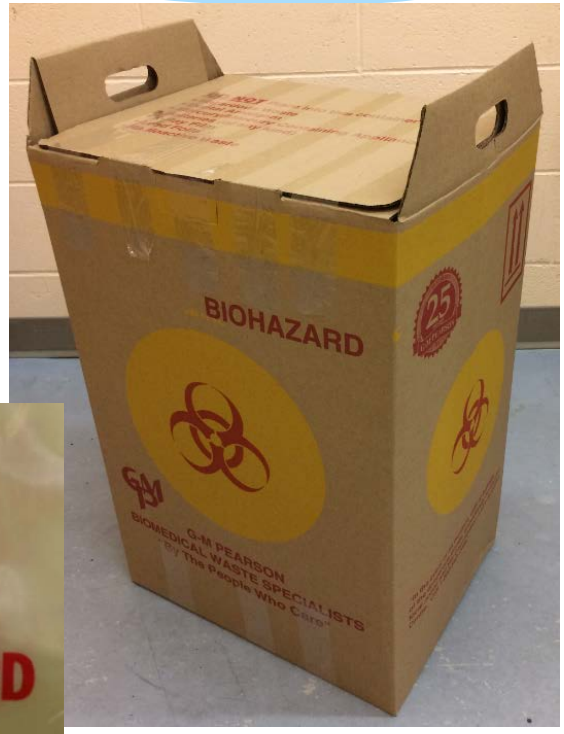
Failing to declare and ship Category A or Category B infectious substances appropriately can result in fines of up to $50, 000.

Type 1C Packaging

Type 1C packaging is single or combination packaging suitable for transporting most biomedical waste. There are 3 options:

1. Single Packaging (Intermediate Bulk Container or Drum)
2. Combination Package (Bag inside a Box)
   a. Bag and box must meet strength tests as per CAN/CGSB-43.125
3. Sharps Container
   a. Must meet requirements of CAN/CGSB-43.125

No certification marks are required for a Type 1C Container.



Quick Reference Guide for Road Transport

Quick Reference Guide – Road Transport

Item	Category A	Category B	Waste
Classification	**UN2814** Infectious Substance, Affecting Humans **UN2900** Infectious Substance, Affecting Animals	**UN3373** Biological Substance, Category B	**UN2814** or **UN2900** if waste contains Category A **UN3291** if waste contains Category B or if the shipper has reasonable grounds to believe that there is a low probability of containing infectious substances
Packaging Selection	**Type 1A** **Type 1B** (Only in certain instances. Refer to Section 5.16 and Subsections 2.36(2) and (3) of the TDG Regulations for more details)	**Type 1A** **Type 1B**	**Type 1A** **Type 1B** **Type 1C**
Documentation	**Yes**	**No**, if shipped in accordance with Section 1.39 of the TDG Regulations	**No**, if shipped in accordance with Section 1.39 or Section 1.42.3 of the TDG Regulations
Labels / marking	**Yes**, Class 6.2 label Shipping name and UN number (no technical name)	**Yes** Category B mark and 24-hour number	**Not required if** shipped in accordance with Section 1.42.3 of the TDG Regulations
Placards	**Yes**, if ERAP is required; see Section 7.1(7) **No**, if total gross mass of shipment is 500 kg or less and no ERAP is required	**No**, if total gross mass of shipment is 500 kg or less	**No**, if total gross mass of shipment is 500 kg or less
Training	**Yes**	**Yes**	**Not required if** shipped in accordance with Section 1.42.3 of the TDG Regulations

Transporting Waste Containing Category A Infectious Substances

There is NO EXEMPTION for waste containing Category A infectious substances.

Anyone handling, offering for transport or transporting these materials must comply with the Regulations.

1. Must complete the appropriate shipping documents
2. Must display the appropriate safety marks
3. Must use a Type 1A package
4. Must be appropriately TDG trained and hold a valid training certificate
5. Must have an approved Emergency Response Assistance Plan (ERAP)

Type 1A packages are not large enough for items such as personal protective equipment, gowns, gloves, linen, waste, etc.

As such, we may need to apply for an Equivalency Certificate in order to transport the waste in a non-standard means of containment. (See Part 14 of the TDG Regulations)

Contact your Infection Control Coordinator, Hazardous Waste Specialist and Biological Safety Officer immediately to help facilitate this application.

Transport Canada can be contacted with questions at:

* 1-855-298-1520
* tdgapprovals@tc.gc.ca

Checklists

Supervisors/Managers should provide checklists for your area to ensure all appropriate requirements are met for your dangerous goods shipment.

Recommended checklists are available in the back of the IATA Dangerous Goods Regulations if one is not available.

Packaging Checklist

Item	Category A	Category B	Exempt Patient Specimens		
Manufacturer's instructions followed	☐	☐	☐		
Good quality packaging	☐	☐	☐		
Primary receptacles properly closed and leak-proof	☐	☐	☐		
Primary receptacles secured with secondary means	☐	Recommended	Recommended		
Multiple receptacles wrapped individually	☐	☐	☐		
Sufficient absorbent inside each secondary packaging	☐	☐	☐		
Secondary packaging properly closed and leak-proof	☐	☐	☐		
Primary receptacle or secondary packaging 95 kPa pressure compliant	☐	☐	N/A		
Itemized list of contents between secondary and outer packaging	☐	☐	N/A		
Outer package displays UN specification mark	☐	N/A	N/A		
Outer package displays TC-125-1A	☐	N/A	N/A		
Outer package displays TC-125-1B	N/A	☐	N/A		
Rigid outer packaging	☐	☐	N/A		
Minimum external dimensions of outer packaging	☐	☐	☐		

Marking and Labeling Checklist

Item	Category A	Category B	Exempt Patient Specimens	Dry Ice	Formalin
Address of shipper	☐	☐	☐	☐	☐
Address of receiver	☐	☐	☐	☐	☐
Hazard label/mark affixed	☐	☐	N/A	☐	☐
Proper shipping name or other designation	☐	Already on mark	☐	☐	☐
Technical name	Optional	N/A	N/A	N/A	N/A
Quantity of dangerous goods	If shipped with dry ice	N/A	N/A	☐	☐
Name and telephone number of responsible person	☐	☐	☐	☐	☐

Section 8

Safe Handling and Transport Practices

General Safety Information

* With all of the various hazards, different materials present, and with some materials presenting more than one hazard, it is important to know the nature of each material you handle.
* Safe handling information can be found in your area's Standard Operating Procedures (SOPs). Make sure you follow these SOPs at all times. Shortcuts may lead to accidents.

WHMIS

* The Workplace Hazardous Materials Information System (WHMIS) legislation requires your employer to ensure hazard warning labels and Safety Data Sheets (SDSs) provide the information you need to safely handle the hazardous materials in your area.
* If a container label does not provide you with the information you need, check the SDS. The SDS provides detailed specific information.

Shipping Documents

* TDG hazard information is also found on a material's shipping document. These may also be called the material's Bill of Lading, Shipping Order, Manifest, Invoice or Shipper's Declaration.
* Shipping documents will have the UN number, proper shipping name, TDG class and emergency contact numbers.

Personal Protective Equipment (PPE)

* Hazardous materials can enter your body and harm you in 4 ways:

1. Absorption
2. Ingestion
3. Inhalation
4. Injection

* A hazardous material's SDS lists the appropriate PPE for handling that material.
* Do not substitute or improvise equipment. Wear the PPE recommended and be sure to wear it correctly.

Goggles and Gloves

* When working with hazardous materials, you will most likely need eye protection for splash, fume and particulate hazards. Goggles and face shields are often the appropriate eye and face protection.
* Vinyl, rubber or other synthetic gloves are often used when handling hazardous chemicals. If required, you can tape or fold the cuffs of your gloves to prevent liquids from running inside your glove.
* Be sure to always check the SDS and your department's SOPs for PPE requirements.

Decontamination

* Whenever you finish working with hazardous materials, you need to decontaminate.
* Decontamination may be physical or chemical.
* Physical decontamination methods include scrubbing; diluting; absorbing; vacuuming; vaporizing; and sandblasting.
* Chemical methods of decontamination include neutralizing; dissolving; sterilizing; and disinfecting.
* Some decontamination processes need a combination of physical and chemical methods.

Container Handling

* Good housekeeping is essential. Update illegible labels, make sure containers are stored safely when not in use, and be sure to stack them carefully so they will not fall.

Compressed Gases

* Treat compressed gases as potentially explosive. Do not expose them to temperatures above 120°C.
* Secure cylinders with straps or chains to move or store them.
* When you empty a cylinder, remove the regulator and cover the valve with a protective cap.

Flammable Chemicals

* Store flammable chemicals in an appropriate storage cabinet.
* Keep ignition sources away from flammable materials and use static grounding procedures when transporting.
* Avoid handling hazardous materials in dusty atmospheres as they are more prone to fire hazard.

Section 9

Emergency Response Assistance Plans

What is an ERAP?

* An ERAP or Emergency Response Assistance Plan is a plan that describes what is to be done in the event of a transportation accident involving certain higher risk dangerous goods. The ERAP is required by the Transportation of Dangerous Goods Regulations (TDGR) for dangerous goods that require special expertise and response equipment to respond to an incident. The plan is intended to assist local emergency responders by providing them with technical experts and specially trained and equipped emergency response personnel at the scene of an incident.

When Do You Need an ERAP?

* A person must have an approved ERAP before offering for transport or importing certain dangerous goods above a quantity specified in Column 7 of Schedule 1 of the Transport of Dangerous Goods Regulations. If no number (or reference to a special provision) appears in column 7, an ERAP is not required. If a number appears in column 7 of Schedule 1, then we must refer to Section 7.1 of the TDG Regulations.

Class 6.2 Infectious Substances that Require an ERAP

* A person who offers for transport or imports any quantity of the Class 6.2 Infectious Substances (shown to the right), or any substance that exhibits characteristics similar to these substances must have an approved ERAP.

TABLE 1

Name of Infectious Substance	UN Number
(a) Crimean-Congo Hemorrhagic fever virus;	UN2814
(b) Ebola virus;	
(c) Flexal virus;	
(d) Guanarito virus;	
(e) Hantaviruses causing hemorrhagic fever with renal syndrome;	
(f) Hantaviruses causing pulmonary syndrome;	
(g) Hendra virus;	
(h) Herpes B virus (Cercopithecine Herpesvirus-1);	
(i) Junin virus;	
(j) Kyasanur Forest virus;	
(k) Lassa virus;	
(l) Machupo virus;	
(m) Marburg virus;	
(n) Monkeypox virus;	
(o) Nipah virus;	
(p) Omsk hemorrhagic fever virus;	
(q) Russian Spring – Summer encephalitis virus;	
(r) Sabia virus; and	
(s) Variola (smallpox virus).	

Part 7 TDG Regulations

* Due to the low likelihood of requiring an ERAP, the process will not be further discussed in this training.
* In the event that an ERAP is required, consult with safety personnel in your facility and follow the instructions provided in Part 7 of the TDG Regulations.

Section 10

Reporting Requirements

Reportable Events

1. The release or anticipated release of dangerous goods being offered for transport, handled or transported by road vehicle, railway vehicle or ship
2. The release or anticipated release of dangerous goods that are being offered for transport, handled or transported by aircraft
3. Undeclared or misdeclared dangerous goods that are being offered for transport, handled or transported by aircraft
4. The loss or theft of dangerous goods
5. Unlawful interference with dangerous goods

Emergency Reports (Ground)

* You are required by law to report to the local authority any release or imminent release of dangerous goods in excess of the amounts shown in the following table.
* **Northwest Territories Local Authority – (867) 920-8130**

Table

Class	Packing Group or Category	Quantity
1	II	Any quantity
2	Not applicable	Any quantity
3, 4, 5, 6.1 or 8	I or II	Any quantity
3, 4, 5, 6.1 or 8	III	30 L or 30 kg
6.2	A or B	Any quantity
7	Not applicable	A level of ionizing radiation greater than the level established in section 39 of the "Packaging and Transport of Nuclear Substances Regulations, 2015"
9	II or III, or without packing group	30 L or 30 kg

Information Included in an Emergency Report

* Name and contact information of the person making the report
* Date, time and location of incident and release of dangerous goods
* Mode of transport
* Shipping name and/or UN number
* Total quantity of dangerous goods being shipped and the estimated quantity released
* Type of incident leading to the release

Release or Anticipated Release Report (Ground)

* As soon as possible after making an emergency report, the person who made the report must also report the incident to:
  * CANUTEC
    * 1-888-CANUTEC (1-888-226-8832) or 613-996-6666
  * The shipper of the dangerous goods
* In addition to the information in the Emergency Report the following details must be provided (if applicable):
  * The name and location of any road, railway or waterway that was closed
  * The means of containment of the dangerous goods
  * The number of people evacuated or sheltered in place
  * The number of deaths and the number of persons who sustained injuries that required immediate medical treatment by a health care provider

30 Day Follow Up Report

* The person who made the reports discussed earlier (or the person's employer) must make a follow up report in writing to the Director General within 30 days.
* See 8.7 of the TDG Regulations for more information.
* If changes to the information provided in the 30 day follow up report change within **1 year** of its submission, the person that made the report must notify the Director General as soon as possible.
* The report must be kept for **2 years**.
* A copy of the report must be provided to an inspector within **15 days** of receiving the request in writing.

Dangerous Goods Accident or Incident Report (Air)

* This report is very similar to the report required for ground transport and requires a 30 day follow up report.
* This type of report would typically be completed by airport/airline personnel.
* The major difference is the quantity of the release that would trigger the report.

Table

Class	Quantity
1, 2, 3, 4, 5, 6, 8 or 9	Any quantity
7	A level of ionizing radiation greater than the level established in section 39 of the "Packaging and Transport of Nuclear Substances Regulations, 2015"

Undeclared or Misdeclared Dangerous Goods Report (Air)

* In the event that dangerous goods are discovered at an airport, air cargo facility, or on board an aircraft without the appropriate documentation or dangerous goods marks, they are required to report this to CANUTEC as soon as possible.
* **Ensure that all dangerous goods shipments have been appropriately declared and labeled.**

Loss or Theft Report

* In the event that ANY infectious substances included in Class 6.2 are lost or stolen in transport it MUST be reported to CANUTEC as soon as possible.
* If the goods are later found, this discovery must also be reported to CANUTEC.
* Many other dangerous goods are reportable if lost or stolen, but it is unlikely that they would be shipped in a health care role.
* See Part 8 of the TDG Regulations for more information.

Information to be included in a Loss or Theft Report:

* Name and contact information of the person making the report
* Shipper, receiver and carrier contact information
* Whether the goods were lost or stolen
* Shipping name and/or UN number
* Quantity of goods lost or stolen
* Description of the means of containment for the lost or stolen goods
* Approximate date, time and location of the loss or theft.

Security Plans

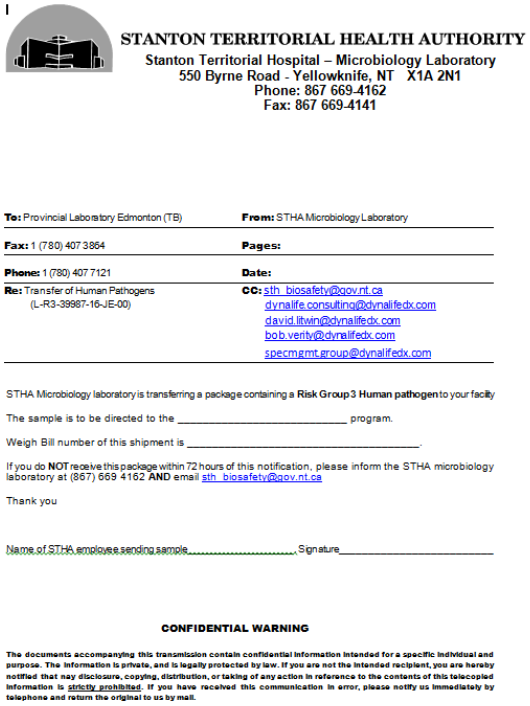
Security plans are required for all goods listed on the Indicative List of High Consequence Dangerous Goods.

* The security plan can be found on pages 43-47 of the **STHA Biosafety Program Manual.**
* The security risk assessment can be found in the **Shared Drive > SRHB-FORMS > Safety and Security**
* Transport of specimens is part of the Referral Laboratory contract.

High Consequence Dangerous Goods	Description
Class 1, Division 1.1 explosives	Substances and articles which have a mass explosion hazard
Class 1, Division 1.2 explosives	Substances and articles which have a projection hazard but not a mass explosion hazard
Class 1, Division 1.3 compatibility group C explosives	Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.
Division 2.3 Toxic gases (excluding aerosols)	Gases which are known to be so toxic or corrosive to humans as to pose a hazard to health
Division 6.1 (toxic substances) substances of Packing Group 1, except when transported under excepted quantities	Substances which are liable either to cause death or injury or to harm human health if swallowed, if inhaled or by skin contact. Substances of Packing Group I are classified as those presenting a very severe toxicity risk.
Division 6.2 infectious substances of Category A	Substances that are known to contain, or reasonably expected to contain pathogens. Pathogens are defined as micro-organisms and other agents such as prions, which can cause disease in humans or animals. Substances of Category A are infectious substances which are transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals.
Class 7 radioactive materials in quantities greater than 3000A_1 (special form) or 3000 A_2, as applicable, in Type B and Type C packages	

Notification of Shipment

* In compliance with the Human Pathogens and Toxins Act and Regulations and to guard against loss or theft of high consequence dangerous goods, the Biological Safety Officers of the licenced shipping and receiving facilities are notified in writing whenever a Category A infectious substance is being transported.



STANTON TERRITORIAL HEALTH AUTHORITY
Stanton Territorial Hospital – Microbiology Laboratory
550 Byrne Road - Yellowknife, NT X1A 2N1
Phone: 867 669-4162
Fax: 867 669-4141

To: Provincial Laboratory Edmonton (TB)	**From:** STHA Microbiology Laboratory
Fax: 1 (780) 407 3864	**Pages:**
Phone: 1 (780) 407 7121	**Date:**
Re: Transfer of Human Pathogens (L-R3-39987-16-JE-00)	**CC:** sth_biosafety@gov.nt.ca dynalife.consulting@dynalifedx.com david.litwin@dynalifedx.com bob.verity@dynalifedx.com specmgmt.group@dynalifedx.com

STHA Microbiology laboratory is transferring a package containing a **Risk Group 3 Human pathogen** to your facility

The sample is to be directed to the _____ program.

Weigh Bill number of this shipment is _____.

If you do **NOT** receive this package within 72 hours of this notification, please inform the STHA microbiology laboratory at (867) 669 4162 **AND** email sth_biosafety@gov.nt.ca

Thank you

Name of STHA employee sending sample_____, Signature_____

CONFIDENTIAL WARNING

The documents accompanying this transmission contain confidential information intended for a specific individual and purpose. The information is private, and is legally protected by law. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, or taking of any action in reference to the contents of this telecopied information is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original to us by mail.

Unlawful Interference Report

* If there has been unlawful interference (tampering) with dangerous goods while they were being imported, offered for transport, handled or transported, the person who was responsible for the goods must report the unlawful interference to CANUTEC as soon as possible after discovery.

* The report must include:
  * The name and contact information of the person making the report
  * Names and contact information of the shipper, receiver and carrier
  * Detailed description of the unlawful interference
  * Shipping name and/or UN number of the dangerous goods
  * Description and quantity of the means of containment
  * Approximate date, time and location of the unlawful interference

Section 11

Proper Use of Equipment for Handling Dangerous Goods

Equipment for Handling Dangerous Goods

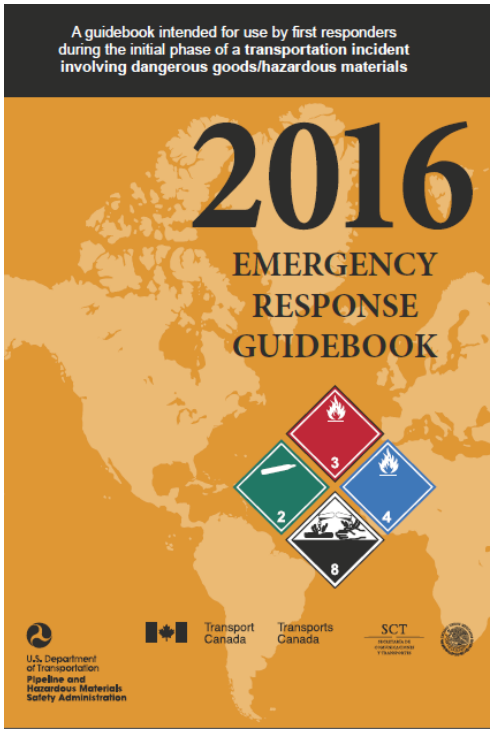
* Many different types of equipment may be used for handling and transporting dangerous goods.
* As these may vary depending upon your workplace, they will not be covered in this module.
* If specific equipment is used for this purpose in your work area, it is the responsibility of your Manager/Supervisor to provide you with the related Standard Operating Procedures and training.
* Once this has been completed and documented, the “Use of Equipment” box can be checked on your Dangerous Goods training certificate.

Section 12

Emergency Measures

Emergency Response

* Even if you are careful, accidents can still occur.
* That is why it is important to know what to do in an emergency, before it happens.
* For incidents within the facility, procedures for handling different types of emergencies can be found in the **Code Binder**.
* Transport Canada also publishes the **Emergency Response Guidebook** to assist in the event of a transportation incident involving dangerous goods.



Step 1 – Secure the Area

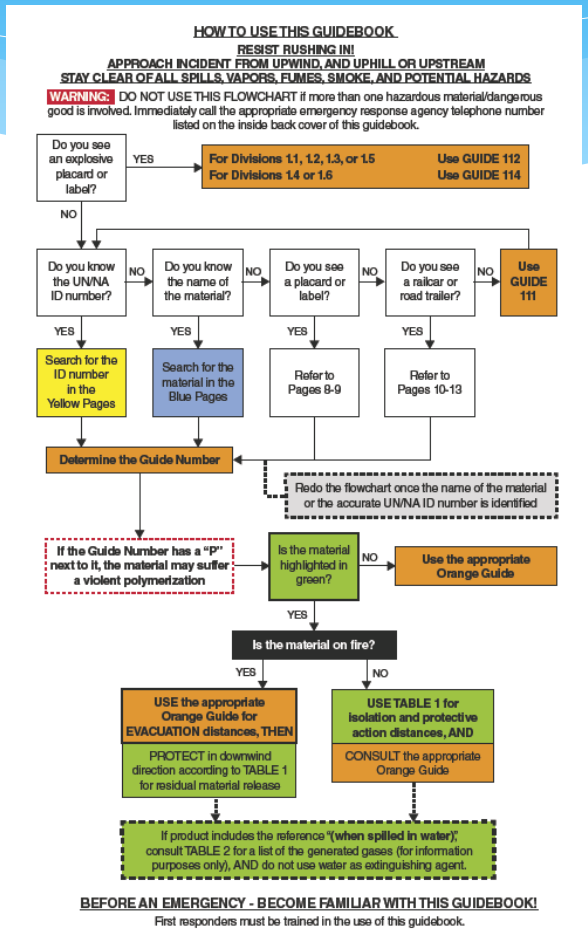
* Your safety is vital. Do not rush in.
* Stay upwind, uphill or upstream from the released material to avoid any vapor, fumes or smoke.
* Isolate the area to protect yourself and others.

Step 2 - Notify

* Notify your Manager or Supervisor of the Emergency and/or call the appropriate code.
* Any quantity that could pose a danger to public safety must be reported to the local authorities (Police and Fire Department).
* In the Northwest Territories, also call **(867) 920-8130**
* After calling the authorities, call CANUTEC.
* Once response personnel arrives, you may have completed your emergency response duties. The following steps may not be applicable to you unless you are participating further in the response.

First Responders

* First Responders **MUST** be trained in the use of the guidebook.
* If responding to an emergency is expected to be part of your duties, your Supervisor/Manager needs to ensure that this training occurs.



Step 3 – Identify the Hazards

* Try to identify the goods from as far away and as upwind as possible.
  * Placards, container labels, shipping documents, SDSs and people at the scene may help you identify the risks
* **NEVER** touch, smell or taste any spilled material to identify it.

* If you can see a placard or label, you can use the guidebook to find the correct emergency response in the **orange pages.**

Step 4 - Assess the Situation

* Is there a fire, or sparks near the leak?
* Will the weather impact the emergency response?
* What is the terrain like?
* Who or what is at risk?
* Is there the possibility that the facility will need to be evacuated or placed on air exclusion?
* Are additional resources required?
* What can be done now?

* Report any information you have been asked to provide to the response team members.
* They will use this information to help determine what level of response is required and what resources are needed.

Step 5 - Respond

* If you are called on to help handle a small spill or leak, enter the area only when you are wearing the appropriate PPE.
* If you can safely do so:
  * Stop or contain the leak
  * You may need to neutralize the leaking material or transfer it to another container

Step 6 - Disposal

* Disposal of the clean up materials depends on the hazardous material involved.
* Contact the Hazardous Waste Specialist or an Environmental Specialist, if required.

REMEMBER:

* Hazardous waste disposal requires proper containment, marking and labeling.

Safety

* The most important part of emergency response is SAFETY.
* Do what is within your ability and training and no more.
* Safe work practices combined with emergency preparedness makes a good combination for a safe work environment with hazardous materials.