Transportation & Shipment of Dangerous Goods

Contents

1.0 Scope

The purpose of this document is to set guidelines and procedures for the safe handling and transportation of dangerous goods to and from Queen's University. This procedure applies to products that are defined as dangerous goods under the Transportation of Dangerous Goods Regulations (TDG). Included are products as well as waste chemical, radioactive and biological products and organisms. As a rule all research associated products fall under some category of the TDG legislation and therefore this procedure applies and must be followed. The regulations apply when dangerous goods are:

- Received and/or Shipped by Queen's University employees
- Transported more than three kilometres on public roads, by air, or rail
- Shipped within Canada or Internationally

2.0 Applicable Legislation:

Transportation of Dangerous Goods Act (1992), and regulations (June 23, 2022)
ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air.
IATA Dangerous Goods Regulations, International Air Transport Association
CNSC Transport Packaging of Radioactive Materials Regulation 2015
IAEA Regulations for the Safe Transport of Radioactive Material 2018 Edition
Laboratory Biosafety Guidelines, Health Canada
Environmental Protection Act
Ontario General Waste Management Regulation, Reg. 347 and 558/00

The Transportation of Dangerous Goods Regulation can be viewed at:

https://laws-lois.justice.gc.ca/eng/regulations/SOR-2001-286/index.html

3.0 Definitions

Approved Packaging Material: packaging materials which have been tested and meet the requirements of the TDG and IATA Regulations.

Carrier: means a person who has possession of dangerous goods while they are in transport

Consignor/shipper: a person who offers a package to a carrier.

Consignee: a person who receives or is intended to receive a package from a carrier.

Class-7: Radioactive specific shipment. All Transportation of Dangerous Goods Class-7 shipments at Queen's University require the attention of the Radiation Safety Officer from the onset.

Dangerous Good: A product, substance or organism included by its nature or by the TDG regulations in any of the classes listed in the schedule of the act.

ERAP: Emergency Response Assistance Plan is required for quantities exceeding those listed in column 7 of schedule 1 of the TDG Clear Language Regulations

Handling: loading, unloading, packing or unpacking of dangerous goods in a means of containment for the purposes of, in the course of or the following transportation and includes storing them in the course of transportation.

Hazard Labeling/Placards: labels/placards which easily identify the hazards or dangers of materials that are contained in a package or on a vehicle.

HWIN: (Hazardous Waste Information Network), a web based waste management program administered by the Ministry of the Environment (MOE). The system keeps track of waste manifests, and all generators, shippers and receivers must be registered along with the names of individuals responsible for the signing of manifests.

IAEA: International Atomic Energy Agency

IATA: International Air Transportation Association

Receiver (Consignee): Initial person who receives a consignment of dangerous goods

Release: (a) a discharge, emission, explosion, outgassing or other escape of dangerous goods, or any component or compound evolving from dangerous goods, from a means of containment being used to handle or transport the dangerous goods, or (b) an emission, from a means of containment being used to handle or transport dangerous goods, of ionizing radiation that exceeds a level or limit established under the Nuclear Safety and Control Act.

Shipper (Consignor): a person who offers a consignment of dangerous goods for shipment

3.1 Acronyms:

TDG - Transportation of Dangerous Goods
EH&S - Environmental Health and Safety
IATA - International Air Transport Association (Air)
RSO – Radiation Safety Officer
SDS - Safety Data Sheet
MTA - Material Transfer Agreement

4.0 Responsibilities

The department head/director is responsible for ensuring that employee(s) in their department who have been designated to handle dangerous goods comply with the TDG Regulations as outlined in this document and have received the appropriate training. Ensure all Class 7 radioactive shipments are completed by or under the supervision of the Radiation Safety Officer (RSO).

4.1 The consignor (shipper) must ensure that:

i. The goods are properly classified, packaged, labeled, marked and include SDS if necessary;
ii. The Air Waybill or Bill of Lading contains all information required by the TDG or IA TA Regulations depending on mode of transport;
iii. If placards are necessary for the consignment, they are supplied and placed on the vehicle before it is loaded. Most carriers will have the correct placards as they know about the dangerous goods shipment prior to pick up;
iv. The carrier is given a signed and dated copy of the shipping documents, either the Air Waybill or Bill of Lading, and if needed the Shippers Declaration. The shipping invoice which will be a Commercial or Pro Forma invoice is required when shipping internationally;
v. A copy of the Air Waybill or Bill of Lading. a copy of the Shippers Declaration and/or the Commercial or Pro Forma invoice will be maintained on file for 6+ current year.

4.2 The carrier must ensure that:

i. The consignor/shipper presents a shipping document that is complete and correct, and is dated and signed and the shipping description on the shipping document is consistent with the safety marks displayed on the container;

ii. The vehicle or container is checked before accepting it to make sure that it is in good condition for transport;
iii. The placards are displayed on the vehicle or containers before the dangerous goods are loaded. They must be visible on all four sides and displayed until all dangerous goods are removed from the vehicle;
iv. The shipping document is always accessible. On the road, leave the document in the pocket of the driver's door or on the seat beside the driver;
v. A copy of the shipping document and any additional documents required by the TDG Regulation must be retained for a period of two years;
vi. Their TDG training is current.

4.3 The consignee (receiver) must ensure that:
i. The shipment is unloaded safely:
ii. In the event of a release, requirements of the TDG or the IATA Regulations are to be met;
iii. The supplier is notified if dangerous goods received are not in compliance with TDG or IATA Regulations;
iv. Their training is current to receive dangerous goods as identified in Appendix 1.

5.0 Training

An individual who RECEIVES and/or SHIPS dangerous goods, including hazardous waste must receive the appropriate TDG training and be knowledgeable about their requirements under the regulations. A training certificate is valid for three years under TDG after which the individual must undergo re-certification. An un-trained individual may handle dangerous goods provided the goods are handled in the presence and under the direct supervision of an individual who holds a training certificate.

Courses offered:

- **Transportation of Dangerous Goods Training for Queen's University Shippers and Receivers**, available online at the Department of Health and Safety website.
- **Transportation Of Dangerous Goods: Biohazard Module**, available online at the Department of Health and Safety website. This training module is not intended as a stand-alone course. **You must complete the Queen's TDG on-line course before doing the biohazard module. Then write both sections of the TDG quiz.**
- **Shipment and Transport of hazardous waste.** Mainly intended for individuals directly signing waste manifests. Training available through special arrangement with EH&S.

Training is NOT required for regular online waste disposal through the EH&S website unless filling containers of 20L or more including UN certified 200 L drums and 20 L white plastic jugs. **No training is required for disposal of 20 L red Solvent safety cans**.

- Receiving Class-7 radioactive package specific training is included in annual radiation training for all radiation users at Queen's University provided by the RSO.

EH&S will retain all training records and each individual trained will be provided with a "TDG Certified" card that must be carried when shipping or receiving dangerous goods.

The TDG Certification to receive Class-7 shipments is printed on a certified radiation user's annual radiation training certificate. The training record states the individual has, "successfully completed a prescribed written examination and has shown an understanding of the principles of the *Radioisotope Safety in the Laboratory* including the receipt of packages containing radioisotopes in accordance with the Transportation of Dangerous Goods Regulations" and this certificate is signed and dated by the RSO.

Only the RSO is certified to complete TDG-Class 7 shipments (radioactive materials) and does so in accordance with the applicable legislation and internal Radiation Protection Program (RPP) procedure SOP-RADIATION-05.

6.0 Shipping and Receiving

Dangerous goods must be shipped and/or received only by TDG trained employees, or an employee working in the presence and under the direct supervision of an individual who holds a training certificate. Receiving Class-7 radioactive package specific training is included in annual radiation training for all radiation users at Queen's University provided by the RSO.

6.1 Damaged Packages

Damaged packages should be accepted by University receivers. Under the Packaging and Transport of Nuclear Substances Regulation, a consignee cannot refuse a shipment that is damaged, or allow it to be shipped from their possession if the shipment is knowingly not in compliance. This will apply to all shipments of dangerous goods.

If you receive a damaged radioactive shipment (Class-7), safely isolate the shipment, preferably in a fume hood, obtain all the shipping documentation, and notify the RSO immediately. Keep

everyone away from the damaged package until the RSO arrives. A damaged radioactive shipment is a reportable incident to the Canadian Nuclear Safety Commission.

In case of an emergency such as a large spill of any hazardous material contact EH&S immediately.

Damaged goods shall be disposed through the Queen's University hazardous waste disposal system located on the EH&S website.

6.2 Classification

The shipper is responsible for the proper classification of dangerous goods. Consult Appendix 1 for a list of TDG shipping classes. See appendix 1, 4, 5 for classification of biological and infectious substances. A Safety Data Sheet (SDS) may also provide the necessary information to properly classify your dangerous goods into one of the classes. If after consulting the regulations you are still unsure of the class or the type of package required, contact the manufacturer, consult the original shipping documentation, or contact EH&S.

The RSO must be contacted when sending packages containing class 7 radioactive substances. The RSO has received additional training allowing them to package and ship radioactive packages.

The RSO's Class-7 Transportation of Dangerous Goods Training consists of the following:

- Knowledge of applicable regulations
- Explanation of necessary terms
- Proper classification of shipments according to the appropriate regulations
- Proper shipping name selection
- Use of Schedules 1,2,3, and 4 with the IAEA regulation
- Preparation of different types of packages
- Selection of appropriate containers
- Labelling the different packages
- Preparation of the shipping documents
- Emergency response assistance plans
- Accident reporting requirements
- The physical shipping of the package and chain of custody

This TDG Class-7 specific training must be renewed every 2 year for shipping by air and every 3 years for shipping by ground. The TDG training certificate must be signed by the trainee, the

facilitator of the training, as well as the head of the employee's department. The signed training certificate should be always available.

Shippers of other dangerous goods must keep on file a "proof of classification" for all dangerous goods offered for transport or imported into Canada for a 5 year period from the date on the shipping document.

Proof of classification can include a:

- test report
- lab report or,
- document that explains how dangerous goods were classified. This includes :
    - an SDS specific to the chemical with matching CAS numbers and valid within 3 years, or a
    - Queen's University: Transportation of Dangerous Goods Chemical Classification Profile. See appendix 6. for instructions and form. This form must also be used for all custom made solutions and new compounds.

Further information the proof of classification must have:

- Date of when the dangerous goods were classified,
- Technical name of dangerous goods,
- The classification of dangerous goods.

6.3 Packaging

According to the TDG Clear Language Regulation, some dangerous goods cannot be shipped above certain specified quantities unless an Emergency Response Assistance Plan (ERAP) has been developed. Consult the TDG handbook to see if your shipment falls under the amount specified in column 7 of schedule 1. ERAP quantities below 75 (L or Kg) are summarised in Appendix 3 of this document. If an ERAP is required for your shipment consult EH&S.

The means of transport determines the type of packaging that is required. Packages shipped only by ground must meet the packaging instructions as stated in the TDG Clear Language Regulation and a standard published by Transport Canada, called Transport Canada Standard TP14850E, "Small Containers for Transport of Dangerous Goods, Classes 3, 4, 5, 6.1, 8 and 9. The standard can be downloaded at http://www.tc.gc.ca/publications/en/tp14850/pdf/hr/tp14850e.pdf .

Packages transported by air must meet the packaging requirements set out in the IATA Regulations. These must be purchased from IATA directly, or alternatively, EH&S can be contacted to obtain the required information.

The shipper is responsible for ensuring the outer package contains the following:

- The **Shipping Name** listed in upper case letters
- Hazard class label(s)
- Identification number (UN number)
- Packing group
- Orientation label (for liquids only)
- Standardized UN certification mark (Automatically appears on UN certified packaging)

Example of Dangerous Goods Safety Marks: Small Means of Containment

① Orientation label (optional) ② Primary class label ③ Standardized UN certification (according to standard)

④ Shipping name ⑤ UN number ⑥ Subsidiary class label

6.4 Documentation

The shipper is responsible for filling out the proper shipping documentation which can only be signed by a trained employee, or an untrained employee working in the presence and under the

direct supervision of an individual who holds a training certificate. Three documents apply to the shipment of dangerous goods depending on the mode of transport and the type of goods being shipped:

- Straight Bill of Lading Form- for shipments by ground under TDG
- Shippers Declaration of Dangerous Goods Form- for shipments by air under IATA
- Waste Manifest- for shipments of hazardous waste Under TDG & Reg. 347/558

See Appendix 2 for sample shipping documentation.

Forms and labels can be obtained from couriers, online or from EH&S. Departments are responsible for maintaining shipping documentation on record for two years following the date of shipment. This is in addition to the requirement to retain the Proof of Classification for 5 years.

7.0 International Shipments

For international Shipments, Queen's University contracts a customs broker to avoid delays at the border. Dangerous goods documentation must accompany the shipment. Additional information can be found on the Strategic Procurement Services website.

8.0 Laboratory Relocation, Chemical Move

If your laboratory is moving and chemicals need to be transported to your new location please contact EH&S for assistance. For smaller amounts of chemicals transported within university owned buildings, EH&S may be able to provide free transport provided the chemicals are properly packaged.

For large amounts of chemicals or distances greater than 3 km, an independent contractor must he hired to properly package and transport the chemicals.

Further, researchers are required to provide an SDS for every chemical. These must be supplied to EH&S prior to the move. SDS should preferably be in electronic format, paper copies are also acceptable.

9.0 Shipments of Hazardous Waste by Queen's University Employees

For hazardous waste disposal refer to the "Hazardous Waste Disposal Procedures SOP-CHEM-01 document available at the EH&S website. EH&S must be contacted if the disposal of hazardous waste requires a third party contractor and is outside the University's waste management system. Refer to section 10.0 for a list of documentation required prior to shipment authorization.

No one is authorized to sign a Waste Manifest unless they have received additional training by EH&S.

Waste Manifest documents must be forwarded to EH&S immediately as copy 1 (white) must be mailed to the Ministry of the Environment within three days of shipment.

10.0 Shipments of Hazardous Waste by Independent Contractors & PPS

If contractors are generating hazardous or non-hazardous waste, they are responsible for the disposal and shipment of the waste from Queen's University, and must comply with all relevant legislative requirements. The contractors are to provide their own *Ontario Waste Generator Number*.

The Queen's University *Ontario Waste Generator Number* CAN NOT be used unless approved by EH&S. This is absolutely necessary to avoid future liability for the University, and to comply with the current legislative requirements.

To obtain approval, EH&S must be provided with the following:

1. Analytical results identifying the type of waste and its shipping class.
2. Certificate of Approval (COA) of the CARRIER for the class being shipped.
3. "Schedule A" of the RECEIVER for the class being shipped.
4. A brief description of how and where the waste will be treated/disposed.

Note: EH&S may have the "COA" and "Schedule A" information on file, contact EH&S prior to sending any documentation.

A TDG trained representative from EH&S or other authorized individual will sign the waste manifest upon presentation of the above shipping documentation.

11.0 Emergency Procedures and Incident Reporting

- Call Campus Security Ext. 36111 or 613-533-6111 for emergencies involving dangerous goods (e.g. fire, explosion. spill, etc.).
- All incidents involving dangerous goods on campus (e.g. improperly packaged or labeled goods. improper documents, damaged containers, etc.) must be reported to EH&S 613-533-2999. After hours contact Campus Security.
- All incidents involving radioactive (TDG Class-7) shipments must be reported to the Radiation Safety Officer immediately.
- CANUTEC (Canadian Transport Emergency Centre): This Centre is operated by Transport Canada to assist emergency response personnel in handling dangerous good emergencies. Federal regulations require that CANUTEC must be contacted in the event of an incident or accident involving radioactive materials or infectious substances. This is in addition to any reporting that must be done by provincial or municipal statutes. The information number is (613) 996-6666.
- CHEMTREC: A service of the Chemical Manufacturers Association, provides emergency response personnel with immediate access to information and expert assistance for handling hazardous materials incidents. The information number is (800) 424-9300.

12.0 Exemptions under TDG

12.1 Dry Ice or Carbon Dioxide, Solid Used as Refrigerant

TDG Regulations do not apply to dry ice, UN 1845, used as a refrigerant provided the package is designed and constructed to permit the release of carbon dioxide (i.e. not air tight). The shipper must also include on the document that accompanies the shipment the words *"Dry ice as refrigerant"*.

12.2 Limited Quantities

Certain dangerous goods, except explosives, radioactives and infectious substances, are partially exempt from the TDG regulations. To be exempted, the overall package of goods must have a gross mass less than or equal to 30 kg and the package must be designed, constructed, filled,

closed, secured and maintained to avoid any accidental release. Individually, a solid must have a mass expressed in kilograms, a gas or a liquid a volume expressed in litres that is less than or equal to the number shown for them in column 6 of Schedule 1 of the TDG regulations, or must meet the requirements as stated in section 2.8 of the IATA Regulation

When using this exemption, each means of containment (i.e. box, etc.) must have a gross mass of 30 kg or less and display one of the following international marks:

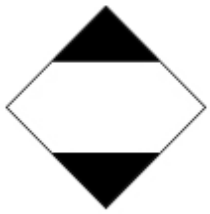


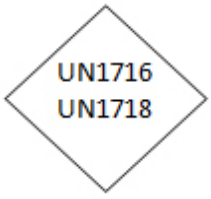
Image A

Image B (in compliance with International Civil Aviation Organization (ICAO) Technical Instructions by Air)

Until December 31, 2020, instead of the international mark shown above, the means of containment may display:

- the words "Limited Quantity" or "quantité limitée";
- the abbreviation "Ltd. Qty." or "quant. ltée";
- the words "Consumer Commodity" or "bien de consommation";

- the UN number of each limited quantity of dangerous goods, preceded by the letters "UN", on a square on point (*see example below*).



12.3 Test Samples (TDG Ground Only)

TDG Regulations do not apply to samples of goods (except explosives, infectious substances or radioactive materials) if the gross mass is less than or equal to 10 kg and they are dangerous goods in transport for the purposes of classifying, analysing, testing or demonstrating. The samples must be accompanied by a shipping document that includes the name and address of the consignor and the words "test samples". The package must be designed, constructed, filled, closed, secured and maintained to prevent any accidental release. The package must have marked on it the words "test samples". Consult the regulations to determine if your goods fall under this exemption.

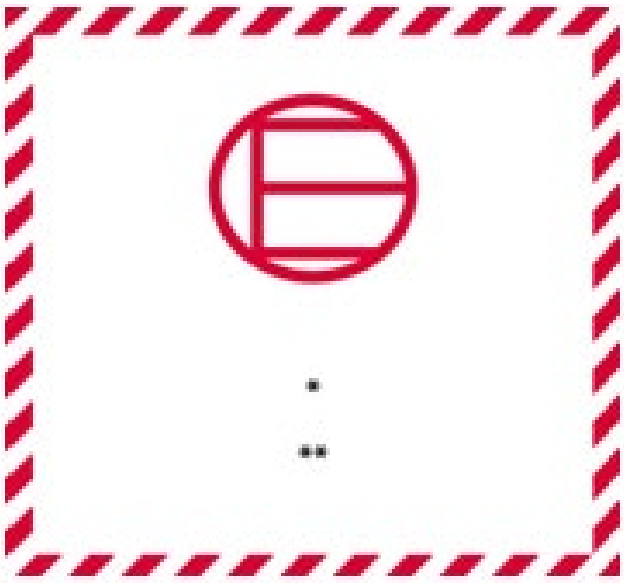
12.4 Dangerous Goods in an Instrument or in Equipment (TDG Ground Only)

TDG Regulations do not apply to goods that are contained in, and are not intended to be discharged from instruments or equipment that is designed to perform a function other than to solely contain dangerous goods. The instrument must not be listed as a dangerous good in schedule 1. A solid must have a mass expressed in kilograms, a gas or a liquid, a volume expressed in litres that is less than or equal to the number shown for them in column 6 of Schedule 1 of the TDG regulations.

12.5 Dangerous Goods in Excepted Quantities (IATA by Air)

Excepted Quantities Exemption under IATA (section 1.17.1) apply to goods below certain quantities as listed in the regulations. Packages that qualify for the exemption must be marked with an Excepted Quantities Label (see below). A *Shippers Declaration of Dangerous Goods* form is not required. Consult the regulations to ensure your goods fall under this exemption. http://www.tc.gc.ca/eng/tdg/clear-part1-475.htm#sec1.17.1

EXCEPTED QUANTITIES MARK



Replace * with the primary class

Replace ** with the name of the consignor or the consignee

13.0 Auditing

EH&S reserves the right to select a department at random to audit their compliance with the TDG requirements under this procedure.

14.0 Contact Information

Department of Environmental Health & Safety
355 King Street West, 1st Floor, West Wing,
Main Office: ext. 32999
Fax: 33078

Dangerous Goods Shipments: ext. 74976
Radioactive Shipments (Radiation Safety Officer): ext. 78358
Biohazard Shipments ext. 77077

Appendix 1. Classification of Dangerous Goods

NINE CLASSES OF DANGEROUS GOODS (Summary)

Class 1 ***Explosives***

Class 1.1 Mass explosion hazard
Class 1.2 Projection hazard but not a mass explosion hazard
Class 1.3 Fire hazard and either a minor blast hazard or a minor projection hazard or both but not a mass explosion hazard
Class 1.4 No significant hazard beyond the package in the event of ignition or initiation during transport
Class 1.5 Very insensitive substances with a mass explosion hazard; and
Class 1.6 Extremely insensitive articles with no mass explosion hazard

Class 2 ***Gases***

Class 2.1 Flammable gases
Class 2.2 Non-flammable and non-toxic gases
Class 2.3 Toxic gases

Class 3 ***Flammable Liquids***

Class 4 ***Flammable Solids; Substances Liable to Spontaneous Combustion; Substances That on Contact with Water Emit Flammable Gases (Water-reactive: Substances)***

Class 4.1 Flammable Solids
Class 4.2 Substances liable to spontaneous combustion
Class 4.3 Water-reactive substances

Class 5 ***Oxidizing Substances and Organic Peroxides***

Class 5.1 Oxidizing substances
Class 5.2 Organic peroxides

Class 6 ***Toxic and Infectious Substances***

Class 6.1 Toxic substances
Class 6.2 Infectious substances

Class 7 ***Radioactive Materials***

Class 8 ***Corrosives***

Class 9 ***Miscellaneous Products, Substances or Organisms***

CLASS 1 - Explosives

Explosives may be capable, by chemical reaction, of producing gas at a temperature, pressure and speed that would damage the surroundings. Alternatively, they may produce an explosive or pyrotechnic effect by heat, light, sound, gas or smoke, or a combination of those means as a result of non-detonative, self-sustaining exothermic chemical reactions.

Class 1 has six divisions:

Class 1.1 mass explosion hazard
TNT;TETRYL

Class 1.2 projection hazard but not a mass explosion hazard
GRENADES; BOMBS

Class 1.3 fire hazard and either a minor blast hazard or a minor projection hazard or both but not a mass explosion hazard
FIREWORKS

Class 1.4 no significant hazard beyond the package in the event of ignition or initiation during transport
FLARES, AERIAL

Class 1.5 very insensitive substances with a mass explosion hazard
EXPLOSIVE, BLASTING, TYPE B

Class 1.6 extremely insensitive articles with no mass explosion hazard
ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE

Explosives are divided into 13 compatibility groups as described in Appendix 2 of the TDG Regulations. Compatibility groups are used to determine which explosives may be transported together. See table on page 57.

Class 1.1, 1.2, 1.3

Label and Placard

** place for division – to be left blank if explosive is a subsidiary class

* place for the Compatibility Group Letter – to be left blank if explosive is a subsidiary class

Class 2, Gases has three divisions:

Class 2.1 flammable gases

PROPANE; ACETYLENE, DISSOLVED

Class 2.2 non-flammable and non-toxic gases
NITROGEN, REFRIGERATED LIQUID;
AIR, COMPRESSED

Class 2.3 toxic gases
CHLORINE; CYANOGEN

Oxidizing Gases

THERE ARE NO PACKING GROUPS FOR GASES.

CLASS 3 - Flammable Liquids

Flammable Liquids have a flash point less than or equal to 60.50C, or are intended to be transported at a temperature not less than their flashpoint.

Class 3 flammable liquids
ACETONE; PAINT; ADHESIVES

DETERMINATION OF THE PACKING GROUP

Packing Group	Flash Point	Initial boiling point
PG I	60.5 C or less	35 C or less
PG II	Less than 23 C	Greater than 35 C
PG III	23 C or more	Greater than 35 C

CLASS 4 - Flammable Solids; Substances Liable to Spontaneous Combustion; Substances That on Contact with Water Emit Flammable Gases (Water-reactive Substances)

Class 4 has three divisions:

Class 4.1 flammable solids(substances which are readily combustible, liable to cause fire through friction, desensitised explosives or self-reactive substances) SAFETY MATCHES; NITROCELLULOSE WITH ALCOHOL

Class 4.2 substances liable to spontaneous combustion (substances which are pyrophoric or self-heating) PHOSPHORUS, WHITE, MOLTEN; SODIUM SULFIDE

Class 4.3 water-reactive substances (substances which emit a flammable gas or spontaneously ignite in contact with water) SODIUM; LITHIUM

CLASSES 4.1, 4.2 AND 4.3 PRODUCTS ARE ASSIGNED PACKING GROUPS.

CLASS 5 - Oxidizing Substances and Organic Peroxides

Class 5 has two divisions:

Class 5.1 oxidizing substances (substance which yield oxygen. Thereby causing or contributing to the combustion of other material)
CALCIUM HYPOCHLORITE; ZINC PEROXIDE
OXIDIZING SUBSTANCES ARE ASSIGNED PACKING GROUPS

Class 5.2 organic peroxides (substances which contain the "-0-02' chemical structure and may be unstable)
ORGANIC PEROXIDE TYPE D, SOLID
(type B to F)

ORGANIC PEROXIDES (TYPE B TO F) ARE INCLUDED IN PACKING GROUP H.

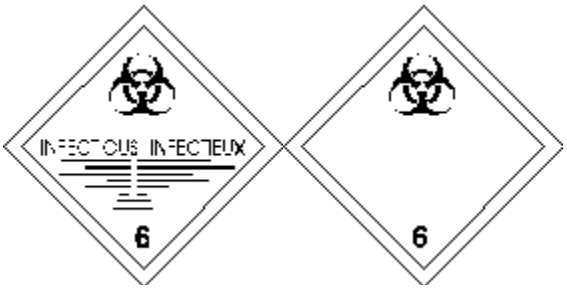
CLASS 6 - Toxic and Infectious Substances

Class 6 has two divisions:

Class 6.1 Toxic Substances (substances which pose a serious threat to human health or life if absorbed through the skin, swallowed, or inhaled) PHENOL; CARBON TETRACHLORIDE, STRYCHNINE, ARSENIC) Toxins from plant, animal or bacterial sources which do not contain any infectious substances, or toxins that are not contained in substances which are infectious substances should be considered for classification in Class 6.1 and assigned to UN 3172.

TOXIC SUBSTANCES ARE ASSIGNED PACKING GROUPS.

Class 6.2 Infectious Substances - organisms (e.g. bacteria, viruses, fungi) or substances that contain organisms that are infectious or that are reasonably believed to be infectious to humans or to animals.



Those who work with infectious materials will be familiar with the Risk Group classification used by the Public Health Agency of Canada and the Canadian Food Inspection Agency (as defined in Queen's University Biohazard Risk Group Definitions, SOP-Biosafety-05). However, TDG regulations do not use Risk Group classifications. **Infectious substances must be classified in Division 6.2 and assigned to UN 2814, UN 2900, UN3291 or UN 3373 as described below and in the classification flow chart in Appendix 5.** The regulations contain

the definitions noted below and a table that lists examples of agents which fall into Category A. However the table is not an exhaustive list. **A good rule of thumb is that if the material has to be cultured using containment level 3 operational practices, or with higher physical or operational containment then it must be shipped as Category A.** Some organisms if present in any form, even in diagnostic samples, must be shipped as Category A (e.g. Ebola virus), whereas **many other organisms are Category A only if shipped as cultures (e.g. Hepatitis B virus).** If you are in doubt contact the University Biological Safety Officer. **The regulations state that if there is doubt as to whether or not a substance meets the criteria it must be included in Category A.**

Infectious Substance, Category A - An infectious substance that is transported in a form such that, when it is released outside of its means of containment and there is physical contact with humans or animals, it is capable of causing permanent disability or life-threatening disease in otherwise healthy humans or animals. **Many examples are given in the list in Appendix 6.** Other infectious material that causes similar health risk to humans or animals to those agents on the list must also be classified as Category A.

UN 2814, Infectious substance, affecting humans (*this is the proper shipping name*) – a Category A substance which causes disease in humans or both in humans and animals, e.g. HEPATITIS B (cultures only), HUMAN IMMUMODEFICIENCY VIRUS (cultures only), EBOLA VIRUS. Packaging must be UN certified, drop and crush tested. For air transportation follow IATA packaging instruction 602 and see IATA regulations for other details. For ground transportation only, follow TDG regulations, packaging group Category A.

UN 2900, Infectious substance, affecting animals (*this is the proper shipping name*) – a Category A substance which causes disease only in animals, not humans, e.g. FOOT AND MOUTH DISIEASE VIRUS (cultures only), VESICULAR STOMOATITIS VIRUS (cultures only). Packaging must be UN certified, drop and crush tested. For air transportation follow IATA packaging instruction 602 and see IATA regulations for other details. For ground transportation only, follow TDG regulations, packaging group Category A.

Note: *assignment to UN 2814 or UN 2900 must be based on the known medical history and symptoms of the source human or animal, endemic local conditions, or professional judgement concerning individual circumstances of the source human or animal.*

Infectious Substance, Category B - An infectious substance which does not meet the criteria for inclusion in Category A.

- Infectious substances in Category B must be assigned to UN 3373.
- Specimens containing Category B microorganisms that are transported for the purposes of diagnosis, investigational purposes, research, disease treatment or prevention are assigned to **UN3373**.
- The proper shipping name of **UN 3373** is **Biological substance category B.** Previously acceptable shipping names for UN 3373 also included "Clinical specimens" or "Diagnostic Specimens" however from 1 January 2007 it was anticipated that the use of those shipping names would no longer be permitted –
- Transport marking must be displayed on the external surface of the outer packaging.
- For air transportation follow IATA packaging instruction 650 and see IATA regulations for other details. For ground transportation only, follow TDG regulations, packaging group Category B. Packaging and documentation requirements are lower than for Category A. Packaging does not need to be UN certified, and testing of the packaging is not as rigorous as for Category A, but there are requirements so special UN3373 shipping boxes should be purchased.

Exemptions:
The following are exempt from TDG regulations unless they meet the criteria for inclusion in another class:

- Substances which do not contain infectious substances or that contain micro-organisms which are non-pathogenic to humans or animals i.e. risk group 1 micro-organisms would not be subject to TDG regulations
- Pathogens that have been neutralized or inactivated
- Environmental samples (including food and water samples), which are not considered to pose a significant risk of infection
- Dried blood spots, collected by applying a drop of blood onto absorbent material, or fecal occult blood screening tests and blood or blood components which have been collected for the purposes of transfusion or for the preparation of blood products to be used for transfusion or transplantation and any tissues or organs intended for use in transplantation

Patient specimens:
- Must be assigned to UN 2814, UN 2900, or UN 3373 as appropriate except if they meet one of the above criteria or if there is a minimal likelihood that pathogens are present and **if** the specimen is packed in a **packaging which will prevent any leakage and** which is marked with the words "**Exempt human specimen**" or "**Exempt animal specimen**" as appropriate.

Note: *in determining whether a patient specimen has a minimal likelihood that pathogens are present, an element of professional judgment is required to determine if a substance is exempt under this paragraph. That judgment should be based on the known medical history, symptoms, and individual circumstances of the source human or animal, and endemic local conditions. Examples of specimens which may be transported under this paragraph include the blood or urine tests to monitor cholesterol levels, blood glucose levels, hormone levels, prostate specific antigens (PSA); test required to monitor organ function for humans or animals with non-infectious diseases; biopsies to detect cancer, etc.*

- Packaging for "Exempt human/animal specimens" must meet the following conditions:
- Packaging must consist of three components:
  - leak-proof primary receptacle(s)
  - leak-proof secondary packaging
  - an outer packaging of adequate strength for the capacity, mass and intended us, and with at least one surface having minimum dimensions of 100 mm x 100 mm
- for liquids, absorbent material in sufficient quantity to absorb the entire contents must be placed between the primary receptacle(s) and the secondary packaging so that, during transport, any release or leak of a liquid substance will not reach the outer packaging and will not compromise the integrity of the cushioning material
- when multiple fragile primary receptacles are placed in a single secondary packaging, they must be either individually wrapped or separated to prevent contact between them.

Medical or Clinical Wastes

Medical or clinical wastes containing Category A infectious substances must be assigned to UN 2814 or UN 2900, as appropriate. Medical or clinical wastes containing infectious substances in Category B, must be assigned to UN 3291.

- Proper shipping name for **UN3291** is **Clinical waste, unspecified, n.o.s.** or **(Bio) Medical waste, n.o.s.** or **Regulated medical waste, n.o.s.**
- At Queen's all waste requiring this label would be packaged and documented by the Department of Environmental Health and Safety
- Decontaminated medical or clinical wastes are not subject to these regulations unless they meet the criteria for inclusion in another class

Genetically Modified Micro-organisms

Genetically modified micro-organisms not meeting the definition of an infectious substance must be classified according to Subsection 3.9 of the IATA regulations regarding Class 9 – Miscellaneous Dangerous Goods (see below and contact Biosafety Officer).

Prohibitions
A live animal that has been intentionally infected and is known or suspected to contain an infectious substance must not be transported by air unless the infectious substance contained cannot be consigned by any other means. Infected animals may only be transported under terms and conditions approved by the appropriate national authority.

Passenger Provisions
Category A or B Infectious Substances are not permitted for transport in carry-on or checked baggage and must not be carried on a person. Packages containing Exempt human or animal specimens may be carried in checked or carry-on baggage provided that they meet the applicable packaging requirements.

CLASS 7 - Radioactive Materials

Substances with a specific activity greater than 70 kBq/kg are included in Class 7, Radioactive Materials. Radioactive materials are represented by categories (activity groups) from I to III, category III being the most dangerous one. The transport index must be calculated and identified on the package using the proper label. Radioactives are also regulated according to the 'Packaging and Transport of Nuclear Substances Regulations."

Class 7 includes:

Category I -White the contents and activity must be displayed

Category II –Yellow the contents, activity and transport index must be displayed

Category III –Yellow the contents, activity and transport index must be displayed

Category I – White

Label and Optional Placard

Class 7, Radioactive Materials

Category II – Yellow

Label and Optional Placard

Class 7, Radioactive Materials

Category III – Yellow

Label and Optional Placard

Class 7, Radioactive Materials

Placard

The word "RADIOACTIVE" is optional.

Class 7, Radioactive Materials

Label

CLASS 8 - Corrosives

Corrosives are known to cause permanent damage of human skin and/or cause corrosion of other substances. They can violently react with other substances to create an explosion, toxic vapours, etc. It is important to separate acids and bases (caustics, alkaline products) that are generally incompatible.

Class 8 corrosives
SODIUM HYDROXIDE,
SOLUTION; SULFURIC ACID

CORROSIVES ARE ASSIGNED PACKING GROUPS.

CLASS 9 - Miscellaneous Products, Substances or Organisms

A substance is included in Class 9, Miscellaneous Products, Substances or Organisms, if it does not meet the criteria for inclusion in any of Classes 1 to 8 and;

- is included in Class 9 in Schedule 1 of the TDG Regulations;
- contains a genetically modified micro-organism or organism that does not meet the definition if infectious substances but which are capable of altering animals, plants or microbiological substances in a way which is not normally the result of natural reproduction. They must be assigned to UN 3245, unless authorised for use by the appropriate national authorities of the states of origin, transit and destination.
- is listed in Appendix 1, Marine Pollutants, of the TDG Regulations, and is intended for marine transport;
- is offered for transport or transported at a temperature greater than or equal to 100C (liquid) or 240C (solid) - except for asphalt or tar
    - UN3257, elevated temperature liquid, n.o.s.
    - UN3258, elevated temperature solid n.o.s
- Is intended for disposal and
    - Is a leachate toxic according to the leachate concentrations listed in appendix 4, Part 2; or
    - contains a chemical at or above the concentration listed in Appendix 5, Part 2.
        - . UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.
        - UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S.

OTHER PLACARDS

DANGER PLACARD

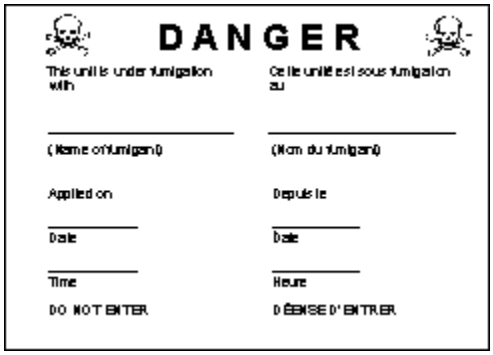
Placard

SIGNS

ELEVATED TEMPERATURE SIGN

This sign may be displayed on a standard-sized white placard.

FUMIGATION SIGN



MARKS

MARINE POLLUTANT MARK

The symbol is a fish and a tree.

SOR/2014-159

CATEGORY B MARK

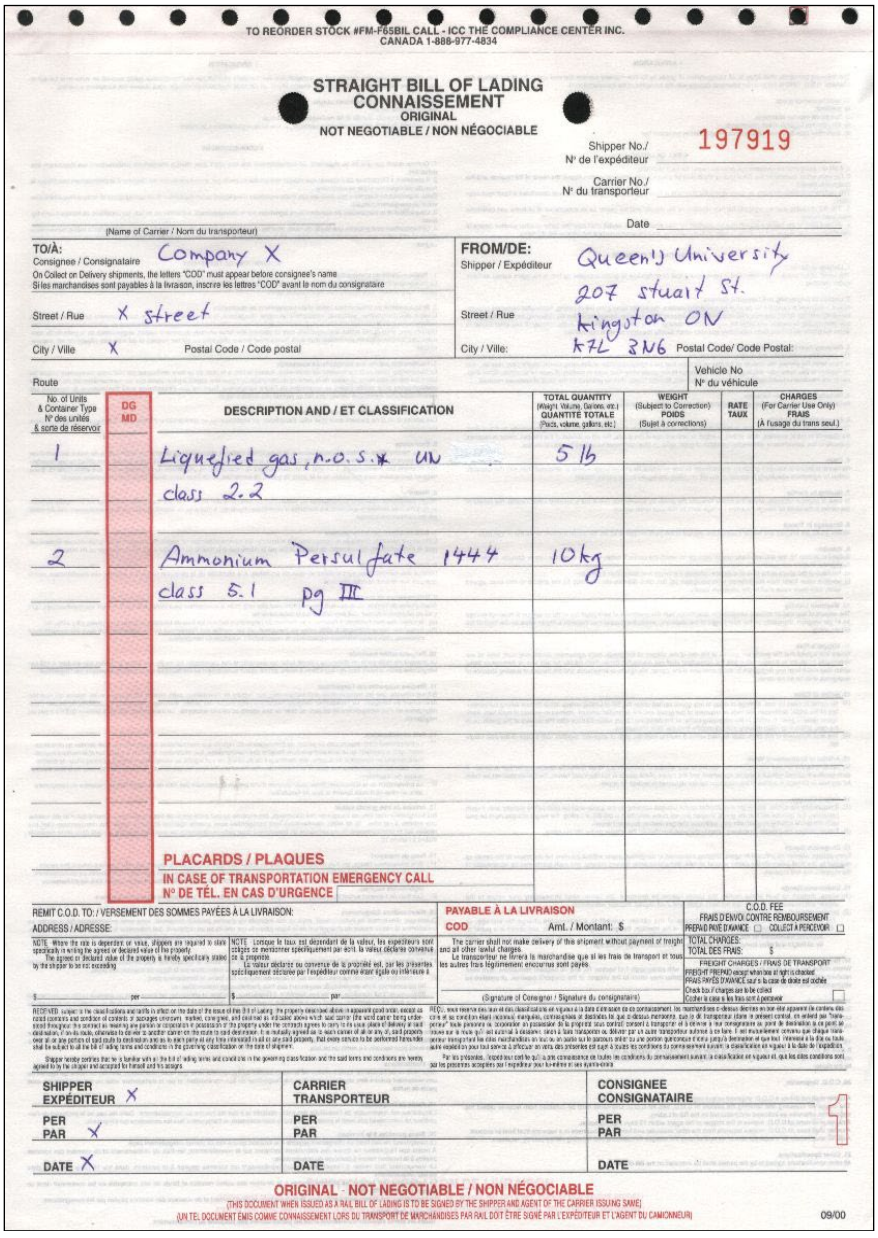
SOR/2008-34

PANELS

ORANGE PANEL

Appendix 2. Shipping Documentation

Figure 1. Straight Bill of Lading for shipments by ground transport



TO REORDER STOCK #FM-F65BIL CALL - ICC THE COMPLIANCE CENTER INC.
CANADA 1-888-977-4834

STRAIGHT BILL OF LADING
CONNAISSEMENT
ORIGINAL
NOT NEGOTIABLE / NON NÉGOCIABLE

Shipper No./ N° de l'expéditeur: 197919
Carrier No./ N° du transporteur:
Date:

(Name of Carrier / Nom du transporteur)

TO/À: Consignee / Consignataire: Company X
On Collect on Delivery shipments, the letters "COD" must appear before consignee's name
Si les marchandises sont payables à la livraison, inscrire les lettres "COD" avant le nom du consignataire
Street / Rue: X street
City / Ville: X Postal Code / Code postal:

FROM/DE: Shipper / Expéditeur: Queen's University
Street / Rue: 207 stuart St.
City / Ville: kingston ON
Postal Code/ Code Postal: K7L 3N6

Route
Vehicle No / N° du véhicule

No. of Units & Container Type N° des unités & sorte de réservoir	DG MD	DESCRIPTION AND / ET CLASSIFICATION	TOTAL QUANTITY (Weight, Volume, Gallons, etc.) QUANTITÉ TOTALE (Poids, volume, gallons, etc.)	WEIGHT (Subject to Correction) POIDS (Sujet à corrections)	RATE TAUX	CHARGES (For Carrier Use Only) FRAIS (À l'usage du trans seul.)
1		Liquefied gas, n.o.s.* UN class 2.2	5 lb			
2		Ammonium Persulfate 1444 class 5.1 pg III	10kg			

PLACARDS / PLAQUES
IN CASE OF TRANSPORTATION EMERGENCY CALL
N° DE TÉL. EN CAS D'URGENCE

REMIT C.O.D. TO: / VERSEMENT DES SOMMES PAYÉES À LA LIVRAISON:
ADDRESS / ADRESSE:
NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per $ per

NOTE: Lorsque le taux est dépendant de la valeur, les expéditeurs sont obligés de mentionner spécifiquement par écrit, la valeur déclarée consentie de la propriété.
La valeur déclarée ou convenue de la propriété est, par les présentes, spécifiquement déclarée par l'expéditeur comme étant égale ou inférieure à
$ par $ par

PAYABLE À LA LIVRAISON
COD Amt. / Montant: $
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
Le transporteur ne livrera la marchandise que si les frais de transport et tous les autres frais légitimement encourus sont payés.
(Signature of Consignee / Signature du consignataire)

C.O.D. FEE
FRAIS D'ENVOI CONTRE REMBOURSEMENT
PREPAID / PAIÉ D'AVANCE ☐ COLLECT / À PERCEVOIR ☐
TOTAL CHARGES
TOTAL DES FRAIS: $
FREIGHT CHARGES / FRAIS DE TRANSPORT
FREIGHT PREPAID (except where box at right is checked)
FRAIS PAYÉS D'AVANCE (sauf si la case de droite est cochée)
Check box if charges are to be collect
Cocher la case si les frais sont à percevoir ☐

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property, over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

REÇU, sous réserve des classifications et tarifs en vigueur à la date d'émission du connaissement, les marchandises décrites ci-dessus en bon état apparent (le contenu des colis et la condition étant inconnus), marquées, consignées et destinées tel que ci-dessus mentionné, que le dit transporteur (dans le présent contrat, on entend par "transporteur" toute personne ou corporation en possession de la propriété sous contrat) s'engage à transporter à son lieu habituel de livraison à ladite destination, si elle est sur sa route, sinon à livrer à un autre transporteur qui doit livrer par la suite à destination. Il est mutuellement convenu, quant à chacun desdits transporteurs de tout ou partie de ladite marchandise sur tout ou partie de ladite route à destination, et quant à chaque partie intéressée à tout moment dans la totalité ou une partie de ladite marchandise, que chaque service à effectuer en vertu des présentes est sujet à toutes les conditions du connaissement suivant la classification en vigueur à la date de l'expédition.
Par les présentes, l'expéditeur certifie qu'il a pris connaissance de toutes les conditions du connaissement suivant la classification en vigueur et que les dites conditions sont par les présentes acceptées par l'expéditeur pour lui-même et ses ayants-droits.

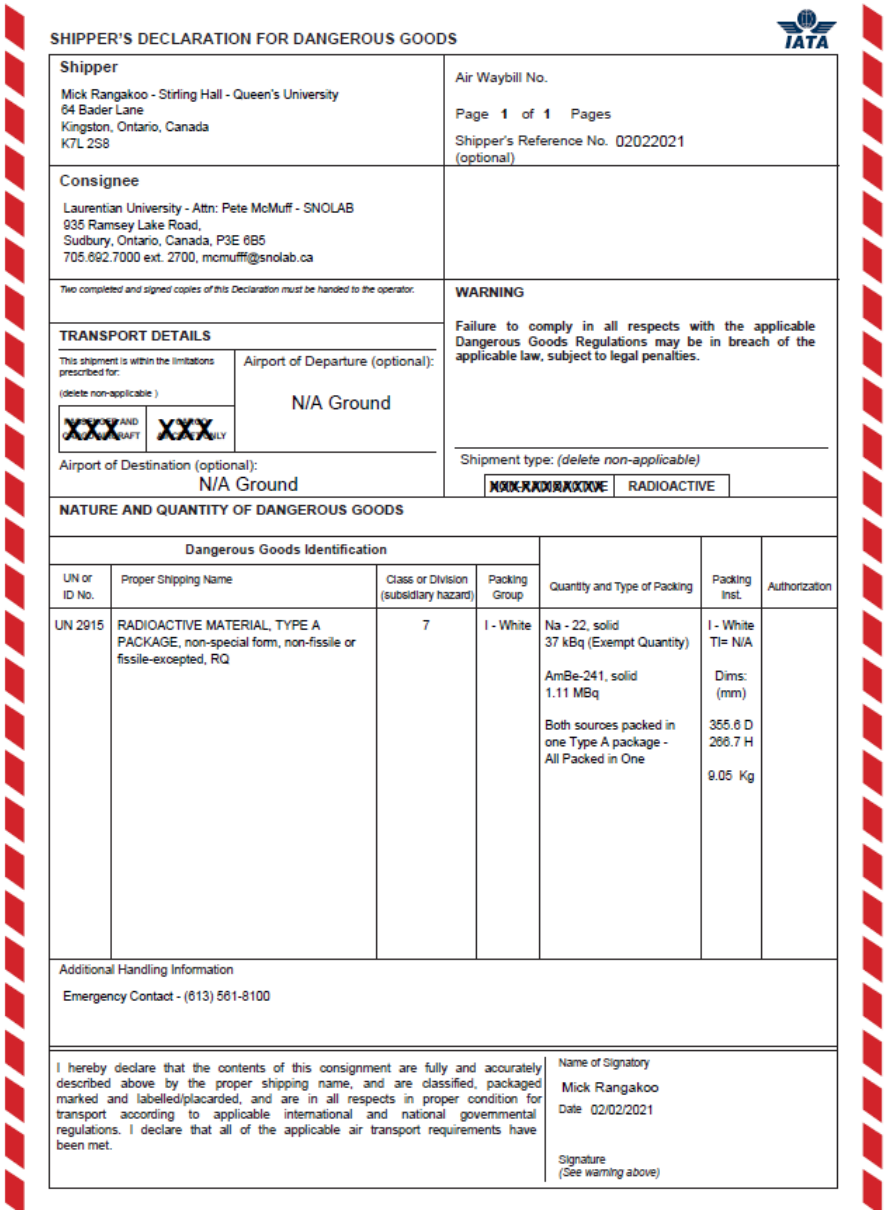
SHIPPER EXPÉDITEUR X	CARRIER TRANSPORTEUR	CONSIGNEE CONSIGNATAIRE
PER PAR X	PER PAR	PER PAR
DATE X	DATE	DATE

1

ORIGINAL - NOT NEGOTIABLE / NON NÉGOCIABLE
(THIS DOCUMENT WHEN ISSUED AS A RAIL BILL OF LADING IS TO BE SIGNED BY THE SHIPPER AND AGENT OF THE CARRIER ISSUING SAME)
(UN TEL DOCUMENT ÉMIS COMME CONNAISSEMENT LORS DU TRANSPORT DE MARCHANDISES PAR RAIL DOIT ÊTRE SIGNÉ PAR L'EXPÉDITEUR ET L'AGENT DU CAMIONNEUR)

09/00

Figure 2. Shippers Declaration of Dangerous Goods Form for shipments by air transport



SHIPPER'S DECLARATION FOR DANGEROUS GOODS

Shipper
Mick Rangakoo - Stirling Hall - Queen's University
64 Bader Lane
Kingston, Ontario, Canada
K7L 2S8

Air Waybill No.

Page 1 of 1 Pages

Shipper's Reference No. 02022021 (optional)

Consignee
Laurentian University - Attn: Pete McMuff - SNOLAB
935 Ramsey Lake Road,
Sudbury, Ontario, Canada, P3E 6B5
705.692.7000 ext. 2700, mcmufff@snolab.ca

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)

XXX AND CARGO AIRCRAFT | XXX ONLY

Airport of Departure (optional): N/A Ground

Airport of Destination (optional): N/A Ground

Shipment type: *(delete non-applicable)*

XXX-XXXRXXXE | RADIOACTIVE

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification						
UN or ID No.	Proper Shipping Name	Class or Division (subsidiary hazard)	Packing Group	Quantity and Type of Packing	Packing Inst.	Authorization
UN 2915	RADIOACTIVE MATERIAL, TYPE A PACKAGE, non-special form, non-fissile or fissile-excepted, RQ	7	I - White	Na - 22, solid 37 kBq (Exempt Quantity) AmBe-241, solid 1.11 MBq Both sources packed in one Type A package - All Packed in One	I - White TI= N/A Dims: (mm) 355.6 D 266.7 H 9.05 Kg	

Additional Handling Information

Emergency Contact - (613) 561-8100

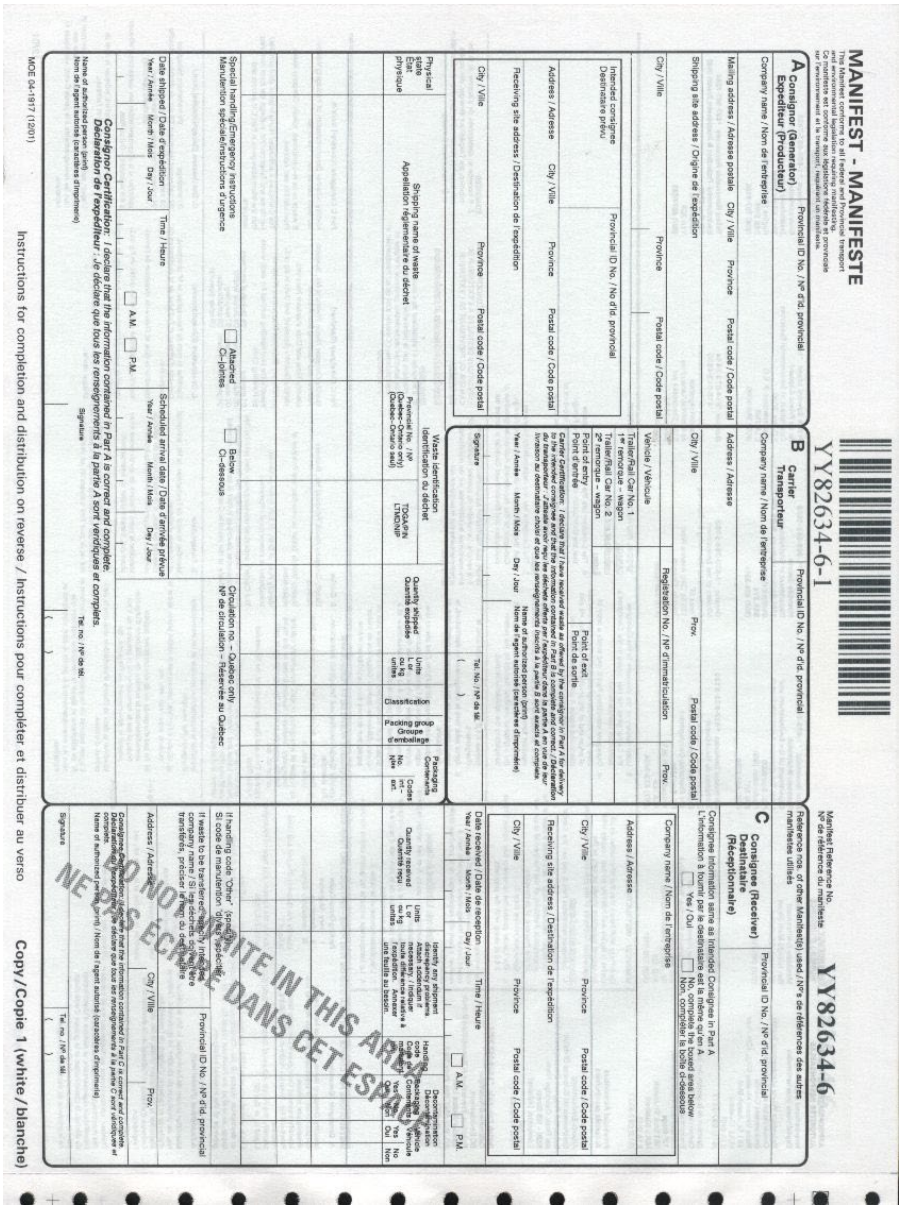
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental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

Name of Signatory
Mick Rangakoo

Date 02/02/2021

Signature *(See warning above)*

Figure 3. Waste Manifest for shipments of hazardous waste



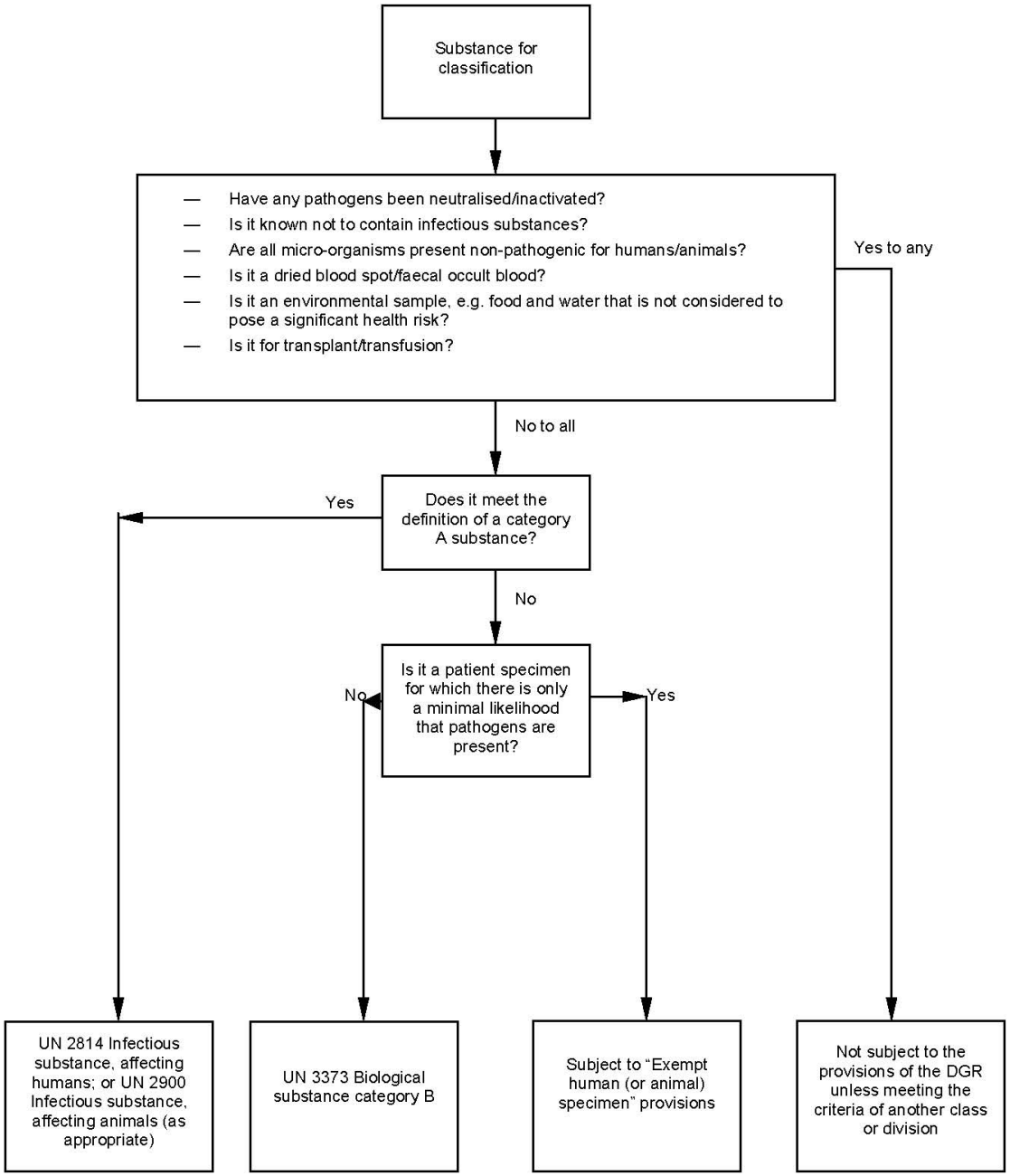
Appendix 3. Table of substances that cannot be shipped above the quantities specified without an ERAP.

UN #	Shipping Name	ERAP (Kg or L)
1008	Boron Trifluoride, Compressed	25
1026	Cyanogen	0
1045	Fluorine, Compressed	25
1048	Hydrogen Bromide, Anhydrous	25
1050	Hydrogen Chloride Anhydrous	25
1053	Hydrogen Sulfide or Hydrogen Sulphide	0
1062	Methyl Bromide	25
1064	Methyl Mercaptan	25
1067	Dinitrogen Tetroxide or Nitrogen Dioxide	0
1069	Nitrosyl Chlorine	25
1071	Oil Gas, Compressed	25
1076	Phosgene	0
1581	Chloropicrin and Methyl Bromide Mixture	25
1582	Chloropicrin and Methyl Chloride Mixture	25
1589	Cyanogen Chloride, Stabilized	0
1612	Hexaethyl Tetraphosphate and Compressed Gas Mixture	25
1660	Nitric Oxide, Compressed	0
1749	Chlorine Trifluoride	25
1859	Silicon Tetrafluoride, Compressed	25
1911	Diborane, Compressed	25
1953	Compressed Gas, Toxic, Flammable, N.O.S.	0
1955	Compressed Gas, Toxic, N.O.S.	0
1967	Insecticide Gas, Toxic, N.O.S.	0
1975	Nitric Oxide and Dinitrogen Tetroxide Mixture or Nitric Oxide and Nitrogen Dioxide Mixture	25
2186	Hydrogen Chloride, Refrigetaret Liquid	25
2188	Arsine	0
2189	Dichlorosilane	25
2190	Oxygen Difluoride, Compressed	0
2191	Sulfuryl Fluoride or Sulphuryl Fluoride	25
2192	Germane	0
2194	Selenium Hexafluoride	25

2195	Tellurim Hexafluoride	25
2196	Tungsten Hexafluoride	25
2199	Phosphine	0
2202	Hydrogen Selenide, Anhydrous	0
2203	Silane, Compressed	25
2417	Carbonyl Fluoride, Compressed	25
2418	Sulfur Tetrafluoride or Sulphur Tetrafluoride	25
2451	Nitrogen Trifluoride, Compressed	25
2534	Methylchlorosilane	25
2548	Chlorine Pentafluoride	25
2676	Stibine	0
2900	Infectious Substance, affecting animals (Risk Groups 4)	0
2814	Infectious Substance, affecting humans (Risk Group 4)	0
2901	Bromine Chloride	25
2977	Radioactive Material, Uranium Hexafluoride, Fissile	25
2978	Radioactive Material, Uranium Hexafluoride, non-Fissile	25
3057	Trifluoroacetyl Chloride	25
3083	Perchloryl Fluoride	25
3060	Liquefied Gas, Toxic, Flammable, N.O.S.	0
3162	Liquefied Gas, Toxic, N.O.S	0
3303	Compressed Gas, Toxic, Oxidizing, N.O.S.	0
	******CHECK TDG GUIDEBOOK FOR ALL ****** ****COMPRESSED AND LIQUEFIED GASSES****	

* Consult the TDG Regulation if your shipment exceeds 75 Kg or L

Appendix 4: Classification of Infectious Substances



Reference: IATA Guidance Document reflecting the references applicable to the 51st Edition (2010) of the IATA Dangerous Goods Regulations (DGR).

Appendix 5: Indicative Examples of Infectious Substances Included in Category A in Any Form Unless Otherwise Indicated

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 hemorrhagic 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)
Omsk hemorrhagic 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)
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 Number and Proper Shipping Name	Micro-organism
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)
	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)
	Goatpox virus (cultures only)
	Swine vesicular disease virus (cultures only)
	Vesicular stomatitis virus (cultures only)

Appendix 6. Queen's University: Transportation of Dangerous Goods Chemical Classification Profile

Please fill out the following form as accurately as possible then forward the completed and signed copy to the Department of Environmental Health and Safety, safety@queensu.ca, attention Tom Martinek. We will assign the proper TDG shipping categorization and will return the form back to you. You as the shipper, must keep this form on file for five years from the date of shipment.

GENERATOR DETAILS:

Generator Name (PI)			Queen's University				
Type of Industry / Business:	Educational						
Site Address:							
Mailing Address *(if different)*:							
Contact:		Phone:		Ext:		Fax:	
Alternate Contact:		Phone:		Ext:		Fax:	

TDG Shipping Information:

For EH&S Use only

Common Name of the Waste			
TDGA Shipping Name			
Hazard Class:		Packing group:	
Special Instructions:			

The above classification was assigned based on information provided by Queen's researchers and technicians in this chemical classification profile. The TDG classification and packing group has been assigned based on the classification and packing group of the pure constituents as listed in the Composition of Waste Table, taking into account the concentration of the constituents in the solution /mixture. Further, taken into account were the physical properties and reactivity and hazard characteristics as listed in this profile.

_____

NAME & TITLE

_____

SIGNATURE

DATE

COMPOSITION OF WASTE:

List all chemicals/compounds. Provide SDS's or analytical data if available. Check box if SDS provided. ☐			
%	Chemicals/Compounds	%	Chemicals/Compounds

Generating Process (detailed description):

PHYSICAL PROPERTIES:

Physical State: (Please check box)	☐ Solid	☐ Liquid	☐ Gas	
Phases/Layers: (#, ie. 1, 2, 3)				
Liquid %		Sludge %		Solid %		Powder %	
Viscosity:	☐ Low	☐ Medium	☐ High	
Pumpable:	☐ Yes ☐ No	Pourable:	☐ Yes ☐ No	
Colour:				
pH:	☐ ≤2	☐ 2.1 - 7	☐ 7.1 - 12.4	☐ ≥ 12.5	☐ NA
Specific Gravity:	☐ 0.8	☐ 0.8 - 1	☐ 1.1 - 1.7	☐ >1.7	
BTU/lb:	☐ ≤ 5000	☐ 5,000 – 10,000	☐ ≥ 10,000	
Describe Odour:				
Odour:	☐ Strong	☐ Mild	☐ None	
Flash Point (FP) (closed cup) & Boiling Point (BP):	☐ FP < 22.8°C & BP <37.8°C	☐ FP < 22.8°C & BP>37.8°C	☐ FP ≥22.9°C-<37.8° & BP N/A
	☐ FP 37.8°C - 60°C & BP N/A	☐ FP 60°C - 93.3°C & BP N/A	☐ FP > 93.3°C & BP N/A

REACTIVITY / HAZARDOUS CHARACTERISTICS

Is this waste any of the following? (Please ensure that **at least** one box is checked)			
☐ Explosive	☐ Pyrophoric	☐ Ignitable Solid	☐ Shock Sensitive
☐ Oxidizer	☐ Air Reactive	☐ Water Reactive	☐ Polymerizable
☐ Radioactive	☐ Biological	☐ Asbestos	☐ Activated Carbon
☐ Reactive Cyanide	☐ Reactive Sulfide	☐ Nitro Cellulose / Lacquer Dust	
☐ None of the Above			
☐ Other (Please Describe)			

ATTACHMENTS

Please check documentation included as attachments for this waste stream:		
☐ Profile Only	☐ Sample	☐ Material Safety Data Sheet (MSDS)
☐ Analysis *(if yes, please specify)*	☐ *TCLP (Reg. 558)*	☐ LEP (Reg. 347)
☐ Other (please specify): Elements by Atomic Spectroscopy (Water), PCB Analysts		

GENERATOR CERTIFICATION

As an employee and authorized representative of the Generator, I hereby certify that information contained in this profile is a complete and accurate representation of all known and/or suspected hazards of the material(s) described.

NAME & TITLE

SIGNATURE

DATE