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Section: Laboratory Safety Manual	Subject Title: Transportation of Dangerous Goods	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Transportation of all **infectious substances** outside this hospital must comply with the Transportation of Dangerous Goods Regulations (**TDGR**). For air transport, International Civil Aviation Organization (ICAO) technical instructions must be followed. The requirements for ICAO can be found in the IATA Dangerous Goods Regulations. A copy of the IATA DGR can be found in Microbiology Room 1470. Each shipment must be properly packaged, labeled and include appropriate documentation.

Purpose:

To ensure that all shipments transported outside this hospital comply with the Transportation of Dangerous Goods Regulations (TDGR) when shipping within Canada.

Responsibility:

Certified shippers, or a person under the direct supervision of a trained individual.

Key Elements:

The Regulations address

- Classification
- Packaging
- Labeling
- Documentation
- Training
- Emergency response
- Shipping with Dry Ice

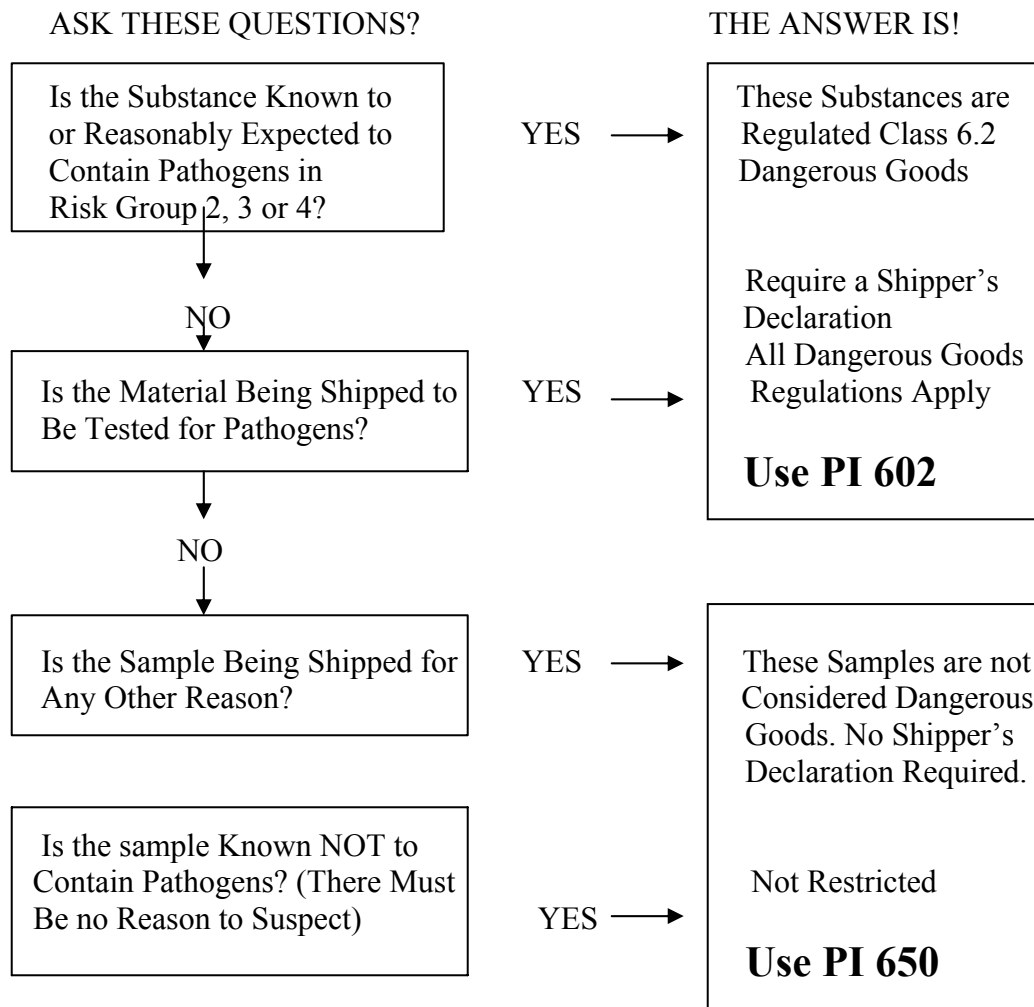
Related Documents:

GENERAL CHEMICAL SAFETY	MI\LS\11\v01
CLASSIFICATION OF BIOLOGICAL AGENTS ACCORDING TO RISK	MI\LS\08\v01
Transportation of Dangerous Goods Form	

Procedures:

CLASSIFICATION

The shipper must determine with each shipment, for air or road transport, whether the material being shipped is dangerous goods or not. The flow chart below can be used to assist with this decision.



The TDGR classifications that the microbiology laboratory handles are:

- Class 6, Division 2 – Infectious Substances
- Class 9 – Miscellaneous such as dry ice

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TDGR Classes

- Class 1- Explosives
- Class 2- Gasses
- Class 3- Flammable liquids
- Class 4- Flammable solids
- Class 5- Oxidizing substances
- Class 6- Poisonous substances, Infectious Substances
- Class 7- Radioactive substances
- Class 8- Corrosives
- Class 9- Miscellaneous (including dry ice)

TDGR separates **diagnostic specimens** from **infectious substances**. They require different documentations and labeling but similar packaging. (Both require the use of the commercially available transport container e.g. SAF-T-PAK company).

Infectious Substances

Patient specimens containing viable microorganisms, or reasonably believed to be positive with organisms belonging to RISK GROUP II, III, IV as outlined in the Medical Research Council (MRC) / Health and Welfare Canada (HWC) Laboratory Biosafety Guidelines (This virtually includes all human infectious agents seen in the Labs). Use packing instruction 602.

Diagnostic Specimens

Patient specimens reasonably believed NOT to contain Risk Groups II-IV agents. Use packing instruction 650.

Risk Group I organisms are unlikely to cause human disease and are therefore not regulated by TDGR.

EXEMPTIONS for Risk Group II for ROAD transport ONLY:

Only the organisms listed below are considered dangerous goods and require **Type 1A** containment. All other Risk group II organisms, including cultures, can be shipped in **Type 1B** containment.

Risk Group II

- a) *Corynebacterium diphtheriae*
- b) *Echinococcus* (gravid segments)
- c) Genus Vesiculovirus: VSV Indiana lab strain or other proven lab- adapted strains
- d) Hepatitis B virus
- e) *Cowdria ruminatum* that affects only animals: *R.bovis* and *R. Ovina*
- f) *Salmonella typhi*
- g) *Vibrio cholerae* (including El Tor)
- h) Any organism that exhibits similar characteristics to those on this list

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EXEMPTIONS for Risk Group III for ROAD transport ONLY:

All Risk Group III organisms including cultures are considered dangerous goods EXCEPT the following in diagnostic specimens ONLY:

Risk Group III

- a) Chlamydia psittaci
- b) Ehrlichia canis
- c) Eperythrozoon species
- d) Haemobartenella species(e)
- e) Mycobacterium avium
- f) Neorickettsia helminthoeca

Summaries of Send-out Requirements

1. DIAGNOSTIC SPECIMENS:

Postal Requirements

- Shipping Dangerous Goods by regular mail is **NOT LEGAL** in Canada.
- If you are **absolutely sure** the sample is **free of any infectious agent** it may be mailed to anywhere in Canada only by:
 - using Security Regulated or Priority Post
 - meeting Canada Post's **minimum packaging requirements**
 - **phone 1-800-661-3434 to determine best way to pack the samples**
 - **BE PREPARED TO ASSUME FULL LIABILITY**

Courier (Federal Express)

- Must be packaged according to International Air Transportation Association (IATA) **packaging instruction 650**
- Requires no special hazard or infectious labels, nor special shipping documents
- **NOTE:** even if sending package to another place in Canada: package may be diverted through the States, then you must follow the IATA rules. Always check with courier company to see how the package will be routed.

2. INFECTIOUS SUBSTANCES:

Microorganisms or specimens known or thought to likely contain infectious substances, **CANNOT** be mailed via regular Canada Post.

Infectious substances and diagnostic specimens can be shipped by First Class, Priority Mail or Express Mail only if in compliance with the regulations. Infectious substances must be packaged, labeled, marked and have shipping documents. They must be able to be

tracked as in Registered Mail.

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For Provincial Health Lab (PHL) pickups, "PHL plastic containers" are acceptable. Trained personnel **ONLY** must prepare the samples, etc for send out and fill out and sign the proper Dangerous Goods Declaration forms.

TRANSPORTATION PROTOCOLS FOR DIAGNOSTIC & INFECTIOUS SPECIMENS:

The Transportation of Dangerous Goods Regulations (TDGR)

The transportation of Dangerous Goods Regulations is the extension of the protection under universal precautions of the healthcare worker, public and environment. The dangerous goods regulations operate on the premise that while all specimens require a minimum level of containment, infectious substances present a higher degree of risk and therefore, require a much higher level of containment during transport. The health care professional, who in many cases is also the shipper, is best qualified to make the decision regarding the level of hazard that a shipment presents.

PACKAGING

Infectious substances require **Type 1A** containment (Packaging instruction 602), and Diagnostic specimens require **Type 1B** containment (Packaging instruction 650) for safe transport of specimens.

To make the decision, the shipper must take into account the hazard that would occur in the event of an accident during the transportation of the specimen from point of origin to destination.

TRANSPORTATION OF ROUTINE DIAGNOSTIC SPECIMENS (NON-INFECTIOUS) PACKING INSTRUCTION 650 (TYPE 1B)

REGULATIONS

- Canadian CGSB 43, 125-M 90 Specification (TC-125-1B Packaging)
- IATA Packing Instruction 650
- US Postal Regulations
- Canadian Postal Requirements

SPECIMENS

The specimens are those that are reasonably believed **not** to contain infectious substance. These specimens are not subject to TDGR or IATA regulations. Examples:

Diagnostic - Routine test samples: Blood tubes, Swabs, Urine samples

Shipments to arrive at their destination with no hazard to the public and environment during shipment.

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The packaging must include:

Inner packaging comprising

- A leak/shock-proof primary receptacle(s) - (Single or Multiple Bubble Wrap)
- For multiple specimens packing, wrap tubes individually to prevent contact.
- Use an airtight, leak-proof, re-closable double-locked (zip) polyethylene bag with document pouch for secondary packaging.
- Place an absorbent material between the primary receptacle and the secondary packaging. (Sufficient to absorb the entire content)

Outer packaging comprising

- A sturdy box of adequate strength for its capacity, weight and intended use.
- The completed package must be capable of withstanding at least a 1.2 metre drop test on a hard unyielding surface without release of its contents.

LABELING

Label the package appropriately with sender's and receiver's

Name

Telephone #

Address

(A Shipper's Declaration for Dangerous Goods is **not** required for diagnostic specimen transport)

DOCUMENTATION

Fill out airline waybill if required.

On waybill add phrase:

- ◆ “Dangerous Goods Shipper’s Declaration Not Required” in the “Handling Instructions” column.
- ◆ Add the quantity being shipped in “Nature and Quantity of Goods” column.
- ◆ Also in “Nature and Quantity of Goods column” and on the PACKAGE “Diagnostic Specimen Packed in Compliance with IATA Packing Instruction 650”.

TRANSPORTATION OF INFECTIOUS SUBSTANCES: PACKING INSTRUCTION 602 (TYPE 1A)

REGULATIONS:

- UN recommendations
- ICAO Technical Instructions
- IATA Packing Instruction 602
- Canadian - CGSB 43.125 - M90
- 1A Containment for Infectious Substances
- Canada - Transportation of Dangerous Goods Act & Regulations

PROCEDURE MANUAL

TORONTO MEDICAL LABORATORIES \ MOUNT SINAI HOSPITAL MICROBIOLOGY DEPARTMENT

- U.S.A. - 39 CFR, 42 CFR and 49 CFR (Including HM 181-the adoption of UN recommendations as regulations)

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Infectious Substances

Substances containing viable micro-organisms including a bacterium, viurs, rickettsia, parasite, fungus, or a recombinant, hybrid or mutant, that are known or reasonably believed to cause disease in humans or animals. Shippers of infectious substances must comply with the above regulations and must ensure that shipments are prepared in such a manner that they arrive at their destination in good condition and that they present no hazard to persons or animals during shipment.

SPECIMENS

Known to contain viable microorganisms (Risk groups II, III & IV listed in Laboratory Biosfety Guidelines, 1996)

PACKAGING

The package must have a UN Specification Mark on it.

The packaging must include:

- A watertight, shock proof primary receptacle(s).
Firstly, secure the tube/container cap with a piece of parafilm, place it in a single/multiple bubble wrap and secure it with a tape. For multiple tube packing, individual wrapping is done to prevent the contact.

(Do not exceed the maximum of 50 ml total net volume)

A watertight secondary package (Pressure Vessel). Place the wrapped tubes in a leak-proof container (ISS-1) with absorbent material and the lid is securely closed. Insert the container back into a corrugated cushioning material box. (Absorbent material placed between the primary and secondary packaging, should be sufficient to absorb the content).

- Place itemized list of contents between secondary and outer packaging.
- Close box flaps in numbered sequence

LABELING

Label Type 1A package to include:

- ◆ UN number
- ◆ Proper shipping name - Infectious substance, affecting humans
- ◆ Technical name in brackets (name of pathogen)
- ◆ Risk group
- ◆ Name, address and telephone number of the shipper and the consignee
- ◆ Name and telephone number of a person responsible for the shipment which could be the shipper or another person

- ◆ Infection substance hazard label
- ◆ Orientation label if not pre printed on box

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DOCUMENTATION

- ◆ Fill out “Shipper’s Declaration for Dangerous Goods” form from computer template
- ◆ Refer to Shipper’s Document Checklist
- ◆ Print 4 copies
- ◆ Fill out air waybill and in “Handling Information” box add
“Dangerous Goods as per attached “Shipper’s Declaration”
- ◆ Print copy
- ◆ File one copy of each in shipping binder in Microbiology Room 1470

SHIPPER’S DOCUMENT CHECKLIST

Document	YES
Name, address and phone number of shipper	
Name, address and phone number of consignee	
Name and phone number of Person Responsible	
Page of page	
Airport of departure (if known)	
Airport of destination (if known)	
DELETE radioactive box	
DELETE aircraft limitation box	
Proper shipping Name (Infectious substance, affecting humans)	
Technical name (in brackets)	
Class (6.2, 9)	
UN Number (UN 2814, UN 2900)	
Packing Group (Dry Ice only PG III)	
Quantity (ml ,g, kg)	
Type and number of packages	
Packing Instruction (602, 904)	
Authorization (NA)	
“Prior arrangements...” statement	
24 hour emergency contact number	
“ If package damaged....phone Canutec (613- 996- 6666)” statement	
Name and title of signatory	
Place and date	
Shipper’s signature	
“Prepared according to...” statement	

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TRAINING

- Each person who offers for transport must be properly trained and hold a current training certificate.
- The certificates are filed with management and held for 2 years past expiry.
- Certification is valid for 2 years for air and 3 years for ground transport.
- A shipper must be able to classify dangerous goods, package them accordingly and prepare appropriate documentation.
- They must be prepared to assume full liability.
- Transport Canada has the authority to inspect, seize and in cases of non-compliance, administer fees.

EMERGENCY RESPONSE

In the event of a spill or an accident involving infectious substances while being transported phone:

- ◆ CANUTEC 613-966-6666

This number is entered in the Handling box on the “Shipper’s Declaration for Dangerous Goods” form

- ◆ Local Police

A 24 hour monitored phone number is required on the “Shipper’s Declaration” when

- ◆ Shipping to the USA (check operator variations for each country)
- ◆ Shipping risk group 4 organisms

Use Microbiologist-on-call phone number. Shipper must notify the Microbiologist on-call what they are shipping and the destination.

Current Certificate Holders are: Judith Cunningham	Helen Dedier
Cindy Larocque	Lillian Law
John Ng	Wayne Marshall
Sylvia Pong-Porter	Jo-Anne Sverha

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SHIPPING WITH DRY ICE

Dry ice is regulated dangerous goods and must always be declared by marking, labeling and documentation.

Mark package to include:

- ◆ Dry Ice
- ◆ UN 1845
- ◆ Net Weight

Label package to include:

- ◆ Class 9 Miscellaneous Dangerous Goods hazard label
- * It is important that the package is not sealed as it may explode

Document Waybill to include:

In Nature and Quantity of Goods column:

- ◆ Dry Ice
- ◆ Class 9
- ◆ UN 1845
- ◆ Quantity being shipped

For Diagnostic specimens add the phrases

a) “Diagnostic specimen packed in compliance with Packing Instruction 650”.

In Handling Information column add phrase

b) Dangerous Goods - Shipper’s Declaration not required”.

For Infectious substances being packaged with dry ice a Shipper’s Declaration is required and must include on form:

- ◆ Dry ice
- ◆ Class 9
- ◆ UN 1845
- ◆ Packing Group- III
- ◆ Quantity being shipped
- ◆ Packing Inst.- 904

Dry ice can be obtained from the 9th floor at MSH