

Biological Materials and Dry Ice Shipments Manual

(EHS Program Manual 6.2)



1.0 Introduction

This Biological Material and Dry Ice Shipments Manual has been developed as part of the Weill Cornell Medicine (WCM) Environmental Health and Safety (EHS) Programs.

Certain biological materials, as well as dry ice and preservatives, are categorized as dangerous goods when shipped. The handling and shipping of dangerous goods are regulated by federal and international agencies, including:

- International Air Transport Association (IATA)
- U.S. Department of Transportation (USDOT)
- Federal Aviation Administration (FAA)
- United States Postal Service (USPS)
- Centers for Disease Control and Prevention (CDC)
- Occupational Health and Safety Administration (OSHA)
- U.S. Department of Health and Human Services (USDHHS)
- U.S. Department of Agriculture (USDA)
- U.S. Department of Commerce (USDOC)
- U.S. Department of Fish and Wildlife (USFWS)

Compliance with this Manual is essential to ensuring that biological materials and dry ice shipments are shipped in accordance with the stringent regulations established by these agencies. Penalties for non-compliance with these regulations are significant and could result in the following fines:

- Up to \$250,000 and up to five years imprisonment for the individual shipper.
- Up to \$500,000 per incident for the organization.
- Up to 10 years imprisonment for a willful violation resulting in the release of a hazardous material (dangerous good) that results in death or bodily injury.

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3.0 Objective

The purpose of this Manual is to provide WCM employees guidance in the proper shipping of biological materials and dry ice shipments by air as mandated by federal and international regulations as well as WCM procedures.

The shipment process includes:

- Obtaining approval from the Office of Sponsored Research Administration (OSRA) by using their Material Transfer Agreement form.
- Obtaining import, export, and/or interstate permits, if applicable.
- Training all persons shipping dangerous goods. Initial and recurrent training are required.
- Classifying the biological material.
- Determining the appropriate packing instructions and guidelines.
- Selecting the appropriate packing materials.
- Packing, marking, and labeling the package(s) properly.
- Completing, signing and retaining all shipping documentation.
- Securing the packages prior to shipment.

3.1 DANGEROUS GOODS ASSESSMENT FORM

An example of the [Dangerous Goods Assessment](#) Form is available for shippers who require assistance with their shipments. If assistance is required, submit a Dangerous Goods Assessment Form to EHS.

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4.0 Applicability

4.1 WHOM DOES THIS MANUAL APPLY TO?

4.1.1 Shippers

The requirements of this Manual apply to all WCM faculty, staff, employees, or students who perform any of the activities in steps 4 through 9 of the shipment process identified in [Section 3.0 – Objective](#). People performing any of these activities will hereby be identified as “shippers.”

4.1.2 Carry-on and Checked Baggage Restrictions

IATA regulations govern the transport of dangerous goods on passenger and cargo aircraft. The IATA regulations state that no person shall carry dangerous goods or cause dangerous goods to be carried aboard an aircraft in either checked or carry-on baggage or on their person unless specifically permitted by IATA ([Appendix A](#)) and the airline.

4.2 WHAT DOES THIS MANUAL APPLY TO?

This Manual focuses on the IATA Air Transportation Requirements for biological materials and preservatives as identified herein. The IATA Air Transport Regulations are more restrictive for these substances, and compliance with IATA's packing instructions will ensure compliance with the ground transportation requirements established by the USDOT. If the shipper intends to ship any other biological, chemical, or radiological substance not specifically identified in this procedure, then the shipper must contact EHS for further instructions and training.

4.3 HOW LONG DO THE REQUIREMENTS OF THIS MANUAL APPLY?

The shipping guidelines and requirements of this procedure are primarily derived from the 2019 IATA Dangerous Goods Regulations (59th Edition). These regulations are revised on an annual basis; therefore, this document will be revised by EHS annually.

Shippers must ensure that they possess and are compliant with the most current version of this procedure prior to conducting any shipments.

5.0 Significant Changes for 2019

IATA modifies and updates its regulations on an annual basis. This document reflects the most current regulatory shipping requirements. ***There are no significant changes between 2018 and 2019.***

6.0 Import, Export, and Interstate Transport Permits

Importing (IM), exporting (EX), and interstate (IS) shipments of biological materials may require additional documentation and/or permitting for agencies such as:

- US Department of Commerce - Bureau of Industry and Security (EX)
- CDC Etiological Agent Import and Transport Permits (IM and IS)
- USDA - APHIS Plant Protection Quarantine (IM)
- USDA - APHIS CITES Permits (IM and EX)
- USDA - APHIS Veterinary Services Permits (IM, EX, and IS)
- US Fish and Wildlife Permits (IM and EX)
- U.S. Food and Drug Administration (FDA) (IM and EX)

These permits and documents **must be obtained prior to shipping or receiving** the biological materials. These permits and documents may take several weeks to obtain. Contact EHS to determine if your shipment requires any permitting.

6.1 FOREIGN NATIONALS

Shipments to or from foreign nationals within the United States are **still regulated** as importing and exporting.

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7.0 Biological Material Classifications

This section focuses on the classification of biological materials. Shippers must also determine if other dangerous goods (e.g., regulated preservatives and/or dry ice) are included in the shipment. The Shipper's knowledge of the biological material and its intended use will help determine if the material is classified as one of the following:

- Non-Regulated Biological Materials
- Select Agents and Toxins
- Infectious Substance, Category A
- Biological Substance, Category B
- Patient Specimens
- Genetically Modified Micro-Organisms and Organisms
- Biological Products
- DNA Sequencing Samples to Cornell-Ithaca
- Campus-to-Campus (C2C) Bus Service

Shippers must review the following descriptions of biological materials to determine which description most accurately applies. A flowchart ([Appendix B](#)) is available to facilitate this process.

7.1 NON-REGULATED BIOLOGICAL MATERIALS

The following are biological materials that are exempt from the dangerous goods shipping requirements unless mixed, preserved, and/or otherwise shipped with a material which is still classified as a dangerous good.

- Substances that do not contain infectious substances or substances that are unlikely to cause disease in humans or animals.
- Substances containing micro-organisms (not including genetically modified micro-organisms), which are non-pathogenic to humans or animals.
- Substances in a form that any present pathogens have been neutralized or inactivated such that they no longer pose a health risk.
- 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.
- Blood or blood components that have been collected for transfusion or for the preparation of blood products to be used for transfusion or transplantation.
- Any tissues or organs intended for the use in transplantation.

If this classification most accurately describes the biological material, refer to [Section 9.0 – General Biological Material Packaging Requirements](#).

7.2 SELECT AGENTS AND TOXINS

Only the WCM Responsible Official is authorized to acquire and transfer select agents and toxins. A list of select agents and toxins is provided in [Appendix C](#).

If the biological material is a select agent or toxin, contact the [WCM Responsible Official via EHS](#) for the shipment of this substance.

7.3 INFECTIOUS SUBSTANCE, CATEGORY A

Biological materials are classified as Infectious Substance – Category A if it is an infectious substance which is being transported in a form that, when exposure to it occurs, is capable of causing permanent disability, a life-threatening or fatal disease in otherwise healthy humans or animals. Pathogens are defined as microorganisms (including bacteria, viruses, rickettsia, parasites, fungi) and other agents such as prions, which can cause disease in humans or animals.

Indicative examples of substances that meet these criteria are provided in [Appendix D](#). The table listed in Appendix D is not exhaustive. Infectious substances, including new or emerging pathogens, which do not appear in Appendix D but meet the same criteria must be classified as Category A. In addition, if there is doubt as to whether or not a substance meets the criteria, it must be included in Category A.

If this classification most accurately describes the biological material, refer to [Section 10.0 – Infectious Substance, Category A Shipper Requirements](#).

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7.3.1 Infected Live Animals

Live infected animals must not be transported by air. Contact EHS if live infected animals need to be shipped.

7.4 BIOLOGICAL SUBSTANCE, CATEGORY B

Infectious substances which do not meet the criteria for inclusion in Category A are classified as Biological Substance, Category B. Examples of infectious substances meeting the criteria for Biological Substance, Category B include:

- Human blood, tissue, or other potentially infectious materials infected with Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), or other blood-borne pathogens not otherwise considered an Infectious Substance, Category A pathogen.
- Human blood, tissue, or other potentially infectious materials being shipped for infectious disease screening. This includes specimens not known to be infectious but, are still being shipped for infectious disease screening.

If this classification most accurately describes the biological material, refer to [Section 11.0 – Biological Substance, Category B Shipper Requirements](#).

7.4.1 Infected Live Animals

Infected live animals must not be transported by air. Contact EHS if live infected animals need to be shipped.

7.5 PATIENT SPECIMENS

Patient specimens are those collected directly from humans or animals, including, but not limited to, excreta, secretions, blood and its components, tissue, tissue fluid swabs, and body parts being transported for purposes such as research, diagnosis, investigational activities, disease treatment and prevention.

7.5.1 Patient Specimens with Category A or B Pathogens

Patient specimens containing or reasonably expected to contain Category A or Category B pathogens must be classified as either an Infectious Substance, Category A, or a Biological Substance, Category B, depending on the classification of the pathogen.

7.5.2 Patient Specimens being sent for Infectious Disease Screening

Patient specimens that are being sent to screen for the presence of infectious diseases must be classified as Biological Substance, Category B.

7.5.3 Patient Specimens with Minimal Likelihood of Containing Pathogens

An element of professional judgment is required to determine if a patient specimen has the minimal likelihood of having a pathogen present. 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 classification include:

- blood or urine tests to monitor cholesterol levels
- blood glucose levels
- hormone levels or prostate-specific antigens (PSA)
- tests required to monitor organ function such as heart, liver or kidney function for humans or animals with non-infectious diseases
- therapeutic drug monitoring
- tests conducted for insurance or employment purposes to determine the presence of drugs or alcohol
- pregnancy tests
- biopsies to detect cancer
- antibody detection in humans or animals.

If this classification most accurately describes the biological material, refer to [Section 12.0 – Patient Specimen Shipper Requirements](#).

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7.5.4 Patient Specimens Transported in Dedicated Vehicles

USDOT regulations do not apply to private or contract motor carriers used exclusively to transport patient (diagnostic) specimens or biological products. Medical or clinical equipment and laboratory products may be transported aboard the same vehicle, provided they are properly packaged and secured against exposure or contamination. Note that in order for the vehicle to be “dedicated,” the vehicle cannot be utilized for other purposes at the same time (e.g., patient transport).

If this classification most accurately describes the biological material and transportation process, then no specific packing instructions are required by law. Prepare the shipment in accordance with [Section 9.0 – General Biological Material Packaging Requirements](#) and the carrier’s specifications, if applicable.

7.6 GENETICALLY MODIFIED MICROORGANISMS AND ORGANISMS

Genetically modified microorganisms (GMMO) and organisms (GMO) are micro-organisms and organisms in which genetic material has been purposely altered through genetic engineering in a way that does not occur naturally. GMMOs and GMOs are divided into the following categories:

7.6.1 Infectious GMMO and GMO

GMMOs and GMOs that are infectious must be classified as either Infectious Substance, Category A, or Biological Substance, Category B, depending on the classification of the pathogen.

7.6.2 Non-Infectious GMMO and GMO

This classification refers to all GMMOs and GMOs which are not infectious.

Examples of non-infectious genetically modified organisms include adenoviral and lentiviral vectors which have been rendered incapable of replication.

If this classification most accurately describes the biological material, refer to [Section 13.0 – Genetically Modified Microorganism Shipper Requirements](#).

7.7 BIOLOGICAL PRODUCTS

Biological products are those products derived from living organisms which are manufactured and distributed in accordance with the requirements of appropriate national authorities, which may have special licensing requirements, and are used either for prevention, treatment, or diagnosis of disease in humans or animals, or for development, experimental or investigational purposes related thereto. They include, but are not limited to, finished or unfinished products such as vaccines.

Biological products are divided into the following categories:

7.7.1 Government-Approved Biological Products

IATA does not regulate biological products that are manufactured and packaged in compliance with national governmental health authorities’ approval (e.g., USDA or HHS - Food and Drug Administration) and transported for the purposes of final packaging or distribution, and used for personal health care by medical professionals or individuals.

If this classification most accurately describes the biological material, then the material must be packaged according to the approval. If the biological product is shipped with another dangerous good not associated with the approval (e.g., dry ice), then the requirements for the other dangerous goods would still apply. Furthermore, shippers must confirm if the carrier has more stringent restrictions which must be met.

7.7.2 Non-Approved Biological Products with Category A or B Pathogens

Biological products not approved by a national governmental health authorities’ approval (e.g., USDA or HHS – Food and Drug Administration) containing Category A or Category B pathogens must be classified as Infectious Substance, Category A or Biological Substance, Category B depending on the pathogen.

7.7.3 Biological Products Transported in Dedicated Vehicles

USDOT regulations do not apply to private or contract motor carriers used exclusively to transport diagnostic specimens or biological products. Medical or clinical equipment and laboratory products may be transported aboard the same vehicle, provided they are

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properly packaged and secured against exposure or contamination. Note that in order for the vehicle to be “dedicated,” the vehicle cannot be utilized for other purposes at the same time (e.g., patient transport).

If this classification most accurately describes the biological material and transport process, then no specific packing instructions are required by law. Prepare the shipment in accordance with [Section 9.0 – General Biological Material Packaging Requirements](#) and the carrier’s specifications, if applicable.

7.8 DNA SEQUENCING SAMPLES SENT TO CORNELL – ITHACA

This classification refers to DNA sequencing samples being shipped to the DNA Sequencing Facility at the BioResource Center of Cornell University, Ithaca, NY.

If this classification most accurately describes the biological material, refer to [Section 14.0 – DNA Sequencing Sample Shipments to Cornell-Ithaca](#).

7.9 CAMPUS-TO-CAMPUS (C2C) BUS SERVICE

This service applies to biological materials that are not regulated as hazardous materials by the U.S. Department of Transportation (DOT) **and** are allowed to be transported via the Campus-To Campus Bus Service between WCM in New York City and Cornell University’s Ithaca campus. A list of these materials is provided in the [Campus-To-Campus \(C2C\) Bus Service Package Form](#).

If this classification most accurately describes the biological material, refer to [Section 15.0 – Campus-2-Campus \(C2C\) Bus Service](#).

8.0 Chemical Classifications

This Biological Material and Dry Ice Shipments procedure and its associated training program exclude most chemicals classified as dangerous goods. Only dry ice, dangerous goods chemical preservatives shipped with infectious substances, and non-hazardous chemical preservatives may be shipped when conducted in accordance with this section. Contact EHS to review shipments of any chemicals not specifically approved in this section.

8.1 DRY ICE

Dry ice is often used when shipping samples which must remain at low temperatures. Dry ice is regulated as a dangerous good when shipped because of its off-gassing properties. Specifically, dry ice is solidified carbon dioxide and undergoes sublimation (changes from solid to gas) at normal atmospheric conditions. The off-gassing of carbon dioxide can lead to the displacement of oxygen, resulting in asphyxiation. Additionally, if improperly packaged (i.e., not vented), the off-gassed carbon dioxide can pressurize a container, potentially resulting in the container exploding. As such, the use of dry ice in shipments is regulated by the United States Department of Transportation (USDOT), the Federal Aviation Administration (FAA), and the International Air Transport Association (IATA).

If shipping with dry ice, refer to [Section 16.0 – Dry Ice Shipper Requirements](#).

8.2 CHEMICAL PRESERVATIVES WITH INFECTIOUS SUBSTANCES

IATA and USDOT allow 30 ml or less (per primary receptacle) of flammable liquids (Class 3), corrosive (Class 8), or miscellaneous dangerous goods (Class 9); as long as it is necessary for maintaining the viability, stabilizing, preventing degradation, or neutralizing the hazards of the Category A and Category B infectious substances. When shipped with Category A and Category B infectious substances, these chemical preservatives are exempt.

Common dangerous good chemical preservatives include:

- Ethanol solutions
- Formaldehyde (≥10% concentration of formaldehyde)
- Acetic Acid

8.2.1 Flammable Liquids (Class 3) Definition

Flammable Liquids (Class 3) are liquids, mixtures of liquids, or liquids containing solids in solution or in suspension; which give off a flammable vapor at temperatures of not more than 60°C (140°F) closed-cup test. Refer to the SDS or contact EHS to determine if the substance is a flammable liquid.

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8.2.2 Corrosive (Class 8) Definition

Corrosive (Class 8) substances which by chemical action can cause severe damage when in contact with living tissue or, in the case of leakage, will materially damage or even destroy other goods or the means of transport. Refer to the SDS or contact EHS to determine if the substance is corrosive.

8.2.3 Miscellaneous Dangerous Goods (Class 9) Definition

Miscellaneous Dangers Goods (Class 9) are articles and substances that may present a danger not covered by other classes during air transport. Refer to the SDS or contact EHS to determine if the substance is a miscellaneous dangerous good.

8.3 CHEMICAL PRESERVATIVES WITH NON-INFECTIOUS BIOLOGICAL MATERIALS

If chemical preservatives are shipped with any non-infectious biological materials (not Category A or Category B infectious substances), chemical preservatives classified as flammable liquids (Class 3), corrosive (Class 8), or miscellaneous dangerous goods (Class 9) are no longer exempt. These shipments must be packaged and shipped in accordance with the requirements for the dangerous good chemical preservative requirements.

This manual and the Biological Material and Dry Ice Shipments training do not cover these types of shipments. Contact EHS for assistance with shipments of dangerous goods chemical preservatives with non-infectious biological materials.

8.4 COMMON NON-HAZARDOUS CHEMICAL PRESERVATIVES

Non-hazardous chemical preservatives used for maintaining the viability, stabilizing, preventing degradation, or neutralizing the biological material have no specific shipping restrictions when shipped in accordance with the biological material shipping requirements identified in this manual. Common non-hazardous chemical preservatives include:

- 10% Formalin (3.75% formaldehyde concentration)
- Formaldehyde (<10% concentration of formaldehyde)
- Phosphate buffered saline solutions

8.5 LIQUID NITROGEN AND DRY SHIPPER REQUIREMENTS

Liquid nitrogen is regulated as a dangerous good when shipped. This manual and the Biological Material and Dry Ice Shipments training do not cover shipments with liquid nitrogen and liquid nitrogen dry shippers. Contact EHS for assistance with shipments of liquid nitrogen.

Additional information on preparing and shipping requirements is available in the [EHS Update – Liquid Nitrogen Dry Shippers Preparation and Shipping Requirements](#).

8.6 CAMPUS-TO-CAMPUS (C2C) BUS SERVICE

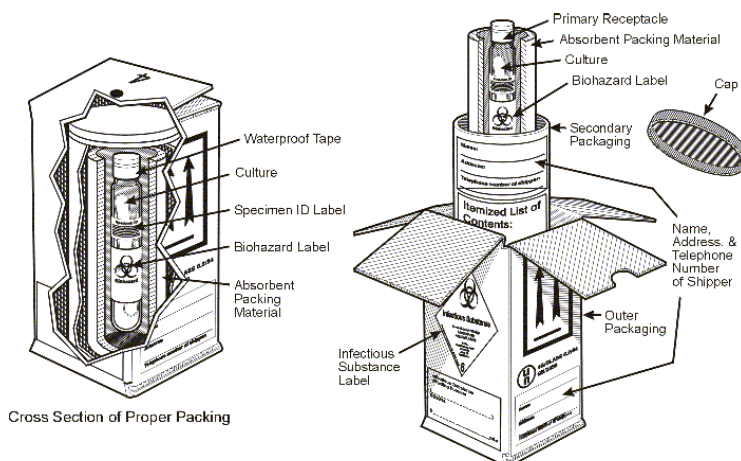
This service applies to chemical materials that are not regulated as hazardous materials by the U.S. Department of Transportation (DOT) **and** are allowed to be transported via the Campus-To Campus Bus Service between WCM in New York City and Cornell University's Ithaca campus. A list of these materials is provided in the [Campus-To-Campus \(C2C\) Bus Service Package Form](#).

If this classification most accurately describes the biological material, refer to [Section 15.0 – Campus-2-Campus \(C2C\) Bus Service](#).

9.0 General Biological Material Packaging Requirements

Shippers must ensure that biological materials are prepared and packaged as specified by its classification in Section 7.0. In general, a basic triple performance packaging strategy applies when shipping biological materials, as shown on the picture.

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The following requirements represent the minimum packaging requirements for all biological materials. Additional packaging requirements may apply depending on the biological material classification and packaging requirements further identified in this Manual.

9.1 PRIMARY RECEPTACLES

Primary receptacles must be leak-proof for liquids and sift-proof for solids. “Biohazard” labels, if applicable to the material shipped, must be utilized.

9.2 SECONDARY PACKAGING

The primary receptacle(s) must be placed into secondary packaging in such a way that, under normal conditions of transport, they cannot break, be punctured or leak. Secondary packaging must be leak-proof for liquids and sift-proof for solids.

9.2.1 Liquid Specimens

An 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.

9.2.2 Fragile Primary Receptacles

If several fragile primary containers are placed into the same secondary packaging, they must be either individually wrapped or separated to prevent contact among them.

9.3 DURABLE AND RIGID OUTER PACKAGING

Secondary packaging must be secured in a **durable and rigid outer packaging** with suitable cushioning material. Outer packages must have one side with dimensions of not less than 100 mm x 100 mm when hazard class labels are required. A list of packaging suppliers is included in [Appendix E](#).

9.4 DRY ICE PACKAGING REQUIREMENTS

When biological materials are shipped with dry ice, interior support must be provided to secure the secondary packaging(s) or packages in their original position after the dry ice has dissipated. The outer packaging or overpack must permit the release of carbon dioxide gas. The primary receptacle and the secondary packaging must maintain their integrity at the temperature of the refrigerant used.

9.5 ICE PACKAGING REQUIREMENTS

When biological materials are shipped with regular ice (not ice packs), interior support must be provided to secure the secondary packaging(s) or packages in their original position after the ice has melted. The outer packaging or overpack must be leak-proof. The primary receptacle and the secondary packaging must maintain their integrity at the temperature of the refrigerant used.

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10.0 Infectious Substance, Category A Shipper Requirements

Infectious Substance, Category A biological materials must be shipped in compliance with IATA Packing Instruction 620. Shippers are compliant with the requirements of IATA Packing Instruction 620 when shipping as specified in this Manual and utilizing appropriate performance tested packaging designed in compliance with Packing Instruction 620.

10.1 CONTAINER SIZE AND QUANTITY LIMITATIONS

10.1.1 Primary Receptacle Limit

There are no primary receptacle quantity limitations.

10.1.2 Outer Packaging Quantity Limit

The following outer packaging quantity limitations (totals per package) depend on the type of shipment:

- **Passenger and Cargo Aircraft Shipments** - Must not exceed 50ml of liquid or 50g of solid infectious material.
- **Cargo Aircraft Only Shipments** - Must not exceed 4L of liquid or 4kg of solid infectious material.
- **Special Provision "A81"** - The outer packaging limits do not apply to body parts, organs, or whole bodies known to contain or suspected of containing infectious substances. These materials must still be packed in accordance with this Section, so as to present no hazard to persons or animals during transport. "A81" must be noted on the Shipper's Declaration when this Special Provision is utilized.

10.2 PACKAGING REQUIREMENTS

Shippers must confirm that the packaging, including secondary packaging, has been tested and is suitable for shipping in accordance with IATA Packing Instruction 620 [e.g., stamped "UN 4G / Class 6.2" ("A" in illustration below)]. A list of packaging suppliers is provided in [Appendix E](#).

Note: Special consideration for selecting appropriate packaging is required when samples are refrigerated or frozen (e.g., dry ice or pre-frozen packs).

10.2.1 General Packaging Requirements

Packaging must comply with [Section 9.0 – General Biological Material Packaging Requirements](#) in addition to the other requirements outlined in this section.

10.2.2 Closure Instructions

Shippers must follow the packaging manufacturer's closure instructions. Record retention information for these instructions is available in [Section 21.3 – Packaging Closure Instructions](#).

10.2.3 Packaging Reuse

Packaging reuse is not recommended. Before reuse, each packaging must be inspected and may not be reused unless free from incompatible residue, rupture, or other damage which reduces its structural integrity. All inappropriate dangerous goods markings and labels must be removed or completely obliterated. The closure instruction requirements described above must be satisfied.

10.2.4 Substances Shipped at Ambient Temperature or Higher

Primary receptacles must be of glass, metal, or plastic. Positive means of ensuring a leak-proof seal must be provided, such as heat seal, skirted stopper, or metal crimp seal. If screw caps are used, these must be secured by positive means (e.g., tape, paraffin sealing tape, or manufactured locking closure).

10.2.5 Lyophilized Substances

Primary receptacles must be either flame-sealed ampoules or rubber-stoppered glass vials with metal seals.

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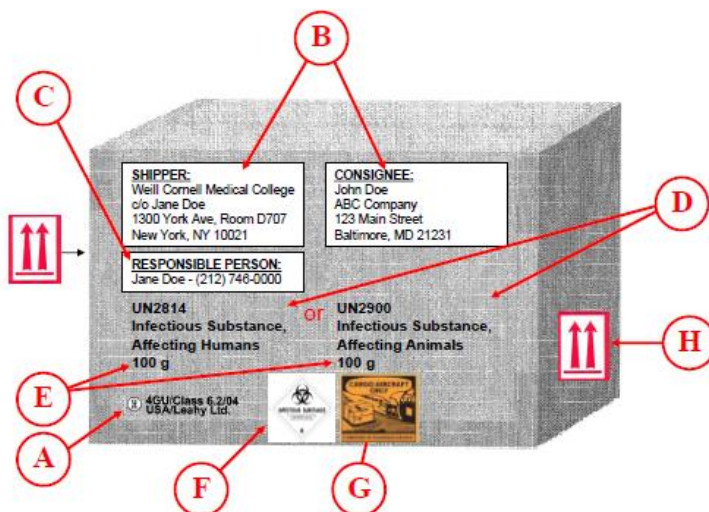


10.2.6 95 kPa Pressure-Tested Primary or Secondary Packaging

The primary receptacle or the secondary packaging must be capable of withstanding, without leakage, an internal pressure producing a pressure differential of not less than 95 kPa (0.95 bar, 13.8 lb/in²); and temperatures in the range of -40°C to 55°C (-40°F to 130°F).

Shippers must ensure that the manufacturer of either the primary receptacle or the secondary packaging has tested the container to the 95kPa pressure standard. Replacement “95 kPa” bags are available from many packaging manufacturers and must be specifically labeled as “95 kPa”. *Ziplock bags or unlabeled specimen transport bags are prohibited.*

10.3 MARKINGS AND LABELS



- **UN Packaging Specification** (“A” in Illustration Above): Confirm that the packaging has been tested and is suitable for shipping according to with IATA Packing Instruction 620 (e.g., stamped “UN 4G / Class 6.2”).
- **Ship “From” and “To” Information** (“B” in the previous illustration): The full name and address of the shipper (“From”) and consignee (“To”) must be clearly labeled or marked on the package. Shipper information should start with “Weill Cornell Medicine” followed by the shipper’s specific information, name, and address.
- **Responsible Person** (“C” in the previous illustration): The name and phone number of a person with first-hand knowledge of the materials being shipped and has received appropriate shipper training.
- **“UN” Number and Proper Shipping Name** (“D” in the previous illustration): The proper shipping name is either: “UN2814, Infectious Substance, Affecting Humans”, or “UN2900, Infectious Substance, Affecting Animals”.
 - If the pathogen affects humans only or humans and animals, then “Infectious Substance, Affecting Humans” must be used. If the pathogen is only capable of affecting animals, then “Infectious Substance, Affecting Animals” must be used. Abbreviations or variations in spelling are violations and therefore prohibited.
 - ****NOTE: Special Provision “A140”** - The technical name need not be shown on the package.
- **Net Quantity (If More Than One Package)** (“E” in the previous illustration): If more than one package is shipped, then the net quantity of biological material must be marked on the package under the proper shipping name.
- **Class 6.2 – Hazard Class Label** (“F” in the previous illustration):

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- 6.2 Hazard Class label must be affixed to the side of the package.
- Labels must be 4"x 4" in size. Use only pre-printed shipping labels. Do not print paper labels. Contact EHS if labels are needed.
- Package must be large enough for the label to fit on one side.

— **As of October 1, 2014, shippers can no longer utilize Class 6.2 Hazard Class labels containing Center for Disease Control (CDC) information. Above is an image of the revised Class 6.2 Hazard Class label.**

- **Cargo Aircraft Only Label ("G" in the previous illustration):**



- If the outer package limits from Section 10.1.2 were used for the shipment, then a Cargo Aircraft Only label must be affixed to the side of the package.
- The label must be 120mm x 110mm in size. For small packages of Category A, these dimensions may be halved.
- Use only pre-printed shipping labels. Do not print paper labels. Contact EHS if labels are needed.

- **Package Orientation Arrows (≥ 50 MI Liquid) ("H" in the previous illustration):** Package orientation arrows must be affixed or pre-printed on opposite sides of the package when shipping 50 ml or more of Category A liquid materials.

10.4 SHIPPING DOCUMENTS

If the infectious substance being transported is unknown, but suspected of meeting the criteria for inclusion in Category A; the words "Suspected Category A Infectious Substance" must appear on the Itemized List of Contents and the Shipper's Declaration in parenthesis after the proper shipping name.

10.4.1 Itemized List of Contents / Commercial Invoice

An Itemized List of Contents must be enclosed between the secondary packaging and the outer packaging. An example [commercial invoice](#) may be utilized if an itemized list of contents is not available. The commercial invoice should be utilized for international shipments.

10.4.2 Shipper's Declaration for Dangerous Goods

A Shipper's Declaration for Dangerous Goods is required. *Refer to the [Shipper's Declaration for Dangerous Goods](#) for further instructions on completing this document.*

10.4.3 Carrier's Air Waybill (e.g., FedEx Airbill)

The following must be identified on the carrier's air waybill, as shown in the example FedEx Airbill below.

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The form is a FedEx USA Airbill. It includes fields for 'From' (Sender's Name, Address, City, State, ZIP, Phone) and 'To' (Receiver's Name, Address, City, State, ZIP, Phone). It also has sections for 'Package Information' (Weight, Dimensions, Number of Packages, Total Weight), 'Special Handling' (Priority, Fragile, etc.), and 'Dangerous Goods' (Yes/No, Declaration, etc.). Red circles A through F highlight specific fields: A (Sender's Name), B (Priority Overnight), C (Other packaging), D (Does this shipment contain dangerous goods?), E (Cargo Aircraft Only), and F (Number of Packages).

- **“To” / “From” Information** (“A” in the illustration above): Complete “To” and “From” information.
- **Priority Shipping** (“B” in the illustration above): The fastest shipping service must be selected (e.g., Priority Overnight).
- **Other Packaging** (“C” in the illustration above): Select “Other” packaging. FedEx packaging cannot be used to ship these materials.
- **Dangerous Goods Designation** (“D” in the illustration above): Select the “Yes As per attached Shipper’s Declaration” box.
- **Cargo Aircraft Only Designation** (“E” in the illustration above): Select “Cargo Aircraft Only” if the Cargo Aircraft Only outer packing limits from [Section 10.1.2](#) are utilized.
- **Number of Packages** (“F” in the illustration above): Enter the number of packages shipped (typically “1”) and the total weight.

11.0 Biological Substance, Category B Shipper Requirements

Biological Substance, Category B must be shipped in compliance with IATA Packing Instruction 650. Shippers are compliant with the requirements of IATA Packing Instruction 650 when shipping as specified in this Manual, and utilizing appropriate performance tested packaging designed in accordance with Packing Instruction 650.

11.1 CONTAINER SIZE AND QUANTITY LIMITATIONS

11.1.1 Primary Receptacle Quantity Limitations

Must not exceed 1L of liquid or 4kg of solid biological material.

11.1.2 Outer Packaging Quantity Limitations

Must not exceed 4L of liquid or 4kg of solid biological material.

Exception: The packaging quantity limits do not apply to body parts, organs, or whole bodies. These materials must still be packed in accordance with Section 11.2 to present no hazard during transport.

11.2 PACKAGING REQUIREMENTS

Shippers must confirm that the packaging has been tested and is suitable for shipping in accordance with IATA Packing Instruction 650. A list of packaging suppliers is provided in [Appendix E](#).

Note: Special consideration for selecting appropriate packaging is required when samples are refrigerated or frozen (e.g., dry ice or pre-frozen packs).

11.2.1 General Packaging Requirements

Packaging must comply with [Section 9.0 – General Biological Material Packaging Requirements](#) in addition to the other requirements in this section.

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11.2.2 Closure Instructions

Shippers must follow the packaging manufacturer's closure instructions. Record retention information for these instructions is available in [Section 21.3 – Packaging Closure Instructions](#).

11.2.3 Packaging Reuse

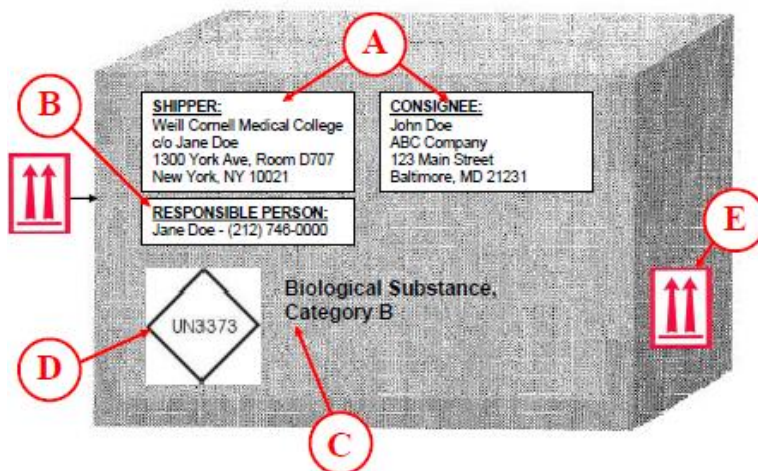
Packaging reuse is not recommended. Before reuse, each packaging must be inspected and may not be reused unless free from incompatible residue, rupture, or other damage which reduces its structural integrity. All inappropriate dangerous goods markings and labels must be removed or completely obliterated. The closure instructions requirements described above must be satisfied.

11.2.4 95 kPa Pressure-Tested Primary or Secondary Packaging

The primary receptacle or the secondary packaging must be capable of withstanding, without leakage, an internal pressure producing a pressure differential of not less than 95 kPa (0.95 bar, 13.8 lb./in²) and temperatures in the range of -40°C to 55°C (-40°F to 130°F).

Shippers must ensure that the manufacturer of either the primary receptacle or the secondary packaging has tested the container to the 95kPa pressure standard. Replacement "95 kPa" bags are available from many packaging manufacturers and must be specifically labeled as "95 kPa". *Ziplock bags or unlabeled specimen transport bags are prohibited.*

11.3 MARKING AND LABELS



11.3.1 UN Packaging Specification

Since no UN Specification marking is required on the outside of the package, shippers must confirm that the packaging has been tested by the manufacturer and is suitable for shipping in accordance with IATA Packing Instruction 650.

- **Ship "From" and "To" Information** ("A" in the illustration above): The full name and address of the shipper ("From") and consignee ("To") must be clearly labeled or marked on the package.
- **Responsible Person** ("B" in the illustration above): The name and phone number of a person with first-hand knowledge of the materials being shipped and has received appropriate shipper training.
- **Proper Shipping Name** ("C" in the illustration above): The proper shipping name "Biological Substance, Category B" in letters at least 6 mm high must be marked on the outer packaging adjacent to the diamond-shaped mark. Abbreviations or variations in spelling will result in a violation.
- "UN3373" – Hazard Class Label ("D" in the illustration above):

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- “UN3373” Hazard Class label must be affixed to the side of the package
- Labels must be 2"x 2" in size. Use only pre-printed shipping labels. Letters and numbers must be at least 6 mm tall, and the line/diamond must be 2 mm thick.
- The label must be orientated to appear in the shape of diamond as shown here.
- Package must be large enough for the label to fit on one side.

- **Package Orientation Arrows (“E” in the illustration above):** Package orientation arrows must be affixed on opposite sides of the package if 50 ml or more Category B biological liquids are shipped.

11.4 SHIPPING DOCUMENTS

11.4.1 Itemized List of Contents / Commercial Invoice

An Itemized List of Contents must be enclosed between the secondary packaging and the outer packaging. An example [commercial invoice](#) may be used if an itemized list of contents is not available. The commercial invoice should be utilized for international shipments.

11.4.2 Shipper's Declaration for Dangerous Goods

A Shipper's Declaration for Dangerous Goods is not required unless shipped with Category A Infectious Substances. If shipped with materials requiring a Shipper's Declaration, the Biological Substance, Category B information must be included.

11.4.3 Carrier's Air Waybill (e.g., FedEx Airbill)

The following must be identified on the carrier's air waybill. An example FedEx Airbill is provided below.

- **“To” / “From” Information (“A” in the illustration above):** Complete “To” and “From” information.
- **Priority Shipping (“B” in the illustration above):** The fastest shipping service must be selected (e.g., Priority Overnight).
- **Other Packaging (“C” in the illustration above):** Select “Other” packaging. FedEx packaging cannot be used to ship these materials.
- **Dangerous Goods Designation (“D” in the illustration above):** Select the “Yes. Shipper's Declaration not required” box.
- **UN3373 and Proper Shipping Name (“E” in the illustration above):** The “Nature and Quantity of Goods” box must show “UN3373, BIOLOGICAL SUBSTANCE, CATEGORY B,” and the number of packages being shipped. For FedEx USA Airbills, which do not have this box, the text may be written in any free area of the Airbill.
- **Number of Packages (“F” in the illustration above):** Enter the number of packages shipped (typically “1”) and the total weight.

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12.0 Patient Specimen Shipper Requirements

Patient specimens for which there is minimal likelihood that pathogens are present must be packaged as specified in this section. If the patient specimen contains or is reasonably expected to contain Category A or B pathogens, then it **cannot** be packaged in accordance with this section.

12.1 CONTAINER SIZE AND QUANTITY LIMITATIONS

There are no container size limitations for patient specimens.

12.2 PACKAGING REQUIREMENTS

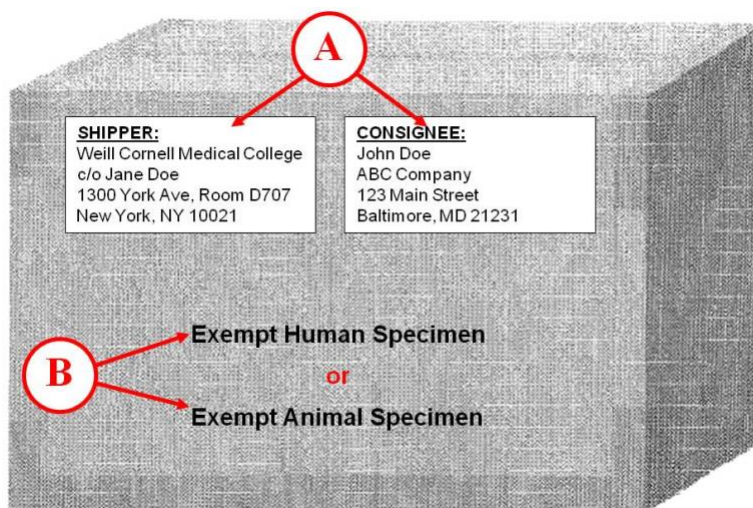
Packaging must comply with [Section 9.0 – General Biological Material Packaging Requirements](#). FedEx prohibits the use of their standard FedEx boxes to ship exempt human or animal specimens.

Note: Special consideration for selecting appropriate packaging is required when samples are refrigerated or frozen (e.g., dry ice or pre-frozen packs).

12.2.1 Packaging Reuse

Packaging reuse is not recommended. Before reuse, each package and material must be inspected and may not be reused unless free from incompatible residue, rupture, or other damage which reduces its structural integrity. All inappropriate dangerous goods markings and labels must be removed or completely obliterated. A list of packaging suppliers is in [Appendix E](#).

12.3 MARKINGS AND LABELS



- **Ship “From” and “To” Information** (“A” in the illustration above): The full name and address of the shipper (“From”) and consignee (“To”) must be clearly labeled or marked on the package.
- **Proper Shipping Name** (“B” in the illustration above): The package must be marked either “EXEMPT HUMAN SPECIMEN” or “EXEMPT ANIMAL SPECIMEN”, as appropriate. No variations in spelling are acceptable.

12.4 SHIPPING DOCUMENTS

12.4.1 Itemized List of Contents / Commercial Invoice and Shipper’s Declaration for Dangerous Goods

An Itemized List of Contents and Shipper’s Declaration are **not** required. A [commercial invoice](#) should be utilized for international shipments.

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12.4.2 Carrier's Air Waybill

The following must be identified on the carrier's air waybill, as shown in the example FedEx Airbill below.

- **“To” / “From” Information** (“A” in the illustration above): Complete “To” and “From” information.
- **Priority Shipping** (“B” in the illustration above): Priority Overnight shipping is not required.
- **Other Packaging** (“C” in the illustration above): Select “Other” packaging. FedEx packaging cannot be used to ship these materials.
- **Dangerous Goods Designation** (“D” in the illustration above): Select the “No” box. This material is not technically classified as dangerous goods as long as the patient specimen is packaged and labeled in accordance with this Section.
- **Number of Packages** (“E” in the illustration above): Enter the number of packages shipped (typically “1”) and the total weight.

13.0 Genetically Modified Micro-Organism Shipper Requirements

Genetically modified microorganisms (GMMOs) and genetically modified organisms (GMOs) must be shipped in compliance with IATA Packing Instruction 959. Shippers are compliant with the requirements of IATA Packing Instruction 959 when shipping in accordance with this Manual and utilizing appropriate packaging. If the GMMO/GMO is infectious, then it **cannot** be packaged in accordance with this section.

13.1 CONTAINER SIZE AND QUANTITY LIMITATIONS

There are no container size limitations for GMMOs and GMOs.

13.2 PACKAGING REQUIREMENTS

Shippers must confirm that the packaging is suitable for shipping in accordance with IATA Packing Instruction 959. GMMO / GMO packaging must be of good quality, strong enough to withstand the shocks and loadings normally encountered during transport, including trans-shipment between transport units and between transport units and warehouses as well as any removal from a pallet or over-pack for subsequent manual or mechanical handling. Packaging must be constructed and closed to prevent any loss of contents that might be caused under normal conditions of transport, by vibration, or by changes in temperature, humidity or pressure.

Note: Special consideration for selecting appropriate packaging is required when samples are refrigerated or frozen (e.g., dry ice or pre-frozen packs).

A list of packaging suppliers is provided in [Appendix E](#).

13.2.1 General Packaging Requirements

Packaging must comply with [Section 9.0 – General Biological Material Packaging Requirements](#) in addition to the other requirements outlined in this section.

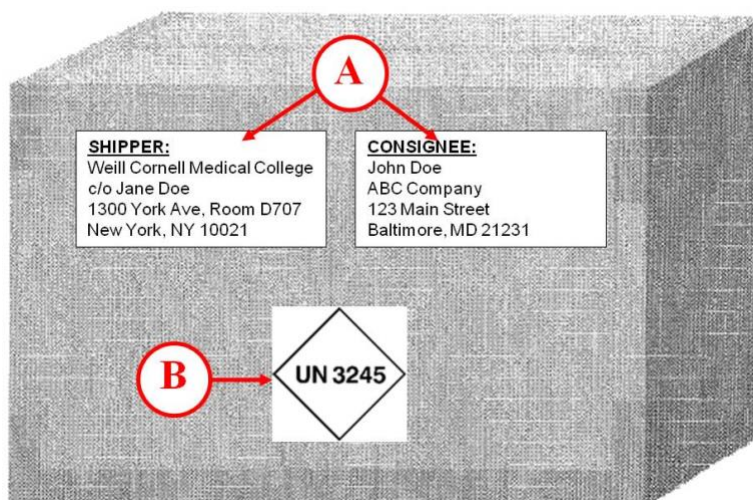
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13.2.2 Packaging Reuse

Packaging reuse is not recommended. Before reuse, each packaging must be inspected and may not be reused unless free from incompatible residue, rupture, or other damage which reduces its structural integrity. All inappropriate dangerous goods markings and labels must be removed or completely obliterated.

13.3 MARKINGS AND LABELS



- **Ship “From” and “To” Information** (“A” in the illustration above): The full name and address of the shipper (“From”) and consignee (“To”) must be clearly labeled or marked on the package.
- **“UN3245” – Hazard Class Label** (“B” in the illustration above):



- UN3245 label must be affixed to the side of the package.
- Labels must be 2”x 2” in size. Use only pre-printed shipping labels. Letters and numbers must be at least 6 mm tall and the line/diamond must be 2 mm thick.
- Label must be orientated to appear in the shape of diamond as shown here.
- Package must be large enough for the label to fit on one side.

13.4 SHIPPING DOCUMENTS

13.4.1 Itemized List of Contents / Commercial Invoice and Shipper’s Declaration for Dangerous Goods

The Itemized List of Contents and Shipper’s Declaration are not required unless shipped with Category A Infectious Substances. If shipped with materials requiring a Shipper’s Declaration, the GMMO information must be included.

A [commercial invoice](#) should be utilized for international shipments.

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13.4.2 Carrier's Air Waybill

The following must be identified on the carrier's air waybill, as shown in the example FedEx Airbill below.

- **"To" / "From" Information** ("A" in the illustration above): Complete "To" and "From" information.
- **Priority Shipping** ("B" in the illustration above): Priority Overnight shipping is not required.
- **Other Packaging** ("C" in the illustration above): Select "Other" packaging. FedEx packaging cannot be used to ship these materials.
- **Dangerous Goods Designation** ("D" in the illustration above): Select the "Yes. Shipper's Declaration not required" box.
- **UN3245 and Proper Shipping Name** ("E" in the illustration above): The "Nature and Quantity of Goods" box must show "UN3245, GMMO" or "UN3245, GMO" and the number of packages being shipped. For FedEx USA Airbills, which do not have this box, the text may be written in any free area of the Airbill.
- **Number of Packages** ("F" in the illustration above): Enter the number of packages shipped (typically "1") and the total weight.

14.0 DNA Sequencing Sample Shipments to Cornell-Ithaca

Laboratory personnel must appropriately package DNA sequencing samples prior to shipment by EHS. The DNA samples must be packaged as follows.

14.1 PACKAGING REQUIREMENTS

14.1.1 Primary Receptacles

DNA should be in water or Tris (not in TE) in a 500ul screw cap vial. Bacterial cell pellets should be in 15ml round bottom tubes (e.g., Falcon 2059 tube) or a deep well block that holds >1ml.

14.1.2 Secondary Packaging

Place the samples in a properly labeled envelope and seal the envelope closed. The envelope should be unpadded and the appropriate size for the quantity and size of the samples being sent.

14.2 LABELING

Write your name, phone number, laboratory location, and order number on the envelope.

14.3 SHIPPING TO CORNELL-ITHACA

Laboratory personnel must drop off the DNA sequencing samples into the drop-box located in B-building basement corridor of 1300 York Avenue. EHS will prepare the shipments to the DNA Sequencing Facility at Cornell-Ithaca.

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15.0 Campus-to-Campus (C2C) Bus Service

Permitted biological and chemical materials must be appropriately packaged, marked and labeled and meet package terms and conditions.

15.1 PACKAGING REQUIREMENTS, MARKING & LABELING, AND QUANTITY LIMITATIONS

[WCM EHS](#) must be contacted to assess if biological and/or chemical materials intended for transport are permitted on the C2C bus.

15.2 SHIPPING TO CORNELL-ITHACA

This service is restricted to Cornell business use, **and must be scheduled in advance by phone**. Please call [Campus-2-Campus Bus Service](#) at 607-254-8747 during regular business hours (7:30 AM- 4:00 PM, Monday through Friday) to make arrangements and receive information regarding terms and conditions.

16.0 Dry Ice Shipper Requirements

Dry ice must be shipped in compliance with IATA Packing Instruction 954. Shippers are compliant with the requirements of IATA Packing Instruction 954 when shipping in accordance with this Manual and utilizing appropriate packaging.

16.1 PACKAGE QUANTITY LIMITATIONS

Packaging must not contain more than 200 kg of dry ice.

16.2 PACKAGING REQUIREMENTS

16.2.1 Venting

Dry ice must utilize packaging designed and constructed to permit the release of carbon dioxide gas and prevent a build-up of pressure that could rupture the package. **Do not place dry ice in airtight canisters, bags or other containers.**

16.2.2 Package Integrity

The package must be free from damage and of adequate strength for intended use. It must be strong enough to withstand the loading and unloading normally encountered in transport. It must also be constructed and closed in order to prevent any loss of contents that might be caused by vibration or by changes in temperature, humidity, or altitude.

Examples include commercially available packaging systems consisting of a Styrofoam container within a durable and rigid cardboard box.

16.2.3 Package Materials

Do not use plastics that can be rendered brittle or permeable by the temperature of dry ice. This problem can be avoided by using commercially available packages intended to contain dry ice.

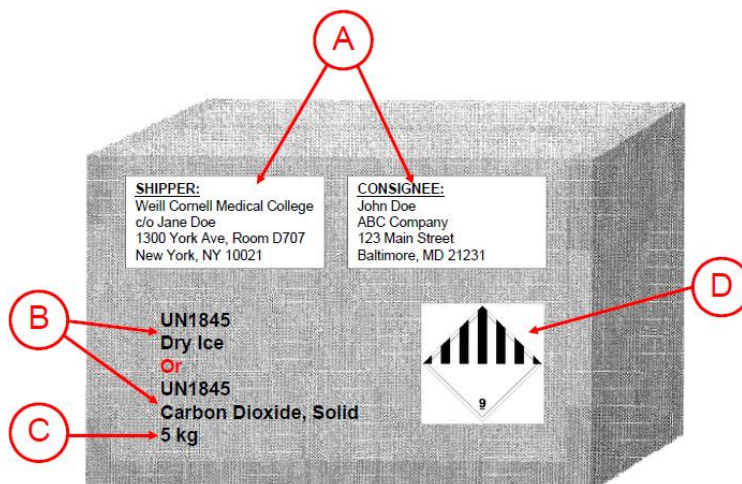
16.2.4 Packaging Vendors

A list of packaging vendors is provided in [Appendix E](#). FedEx boxes are not acceptable for shipping dry ice.

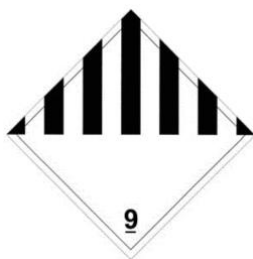
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16.3 MARKINGS AND LABELS



- **Ship “From” and “To” Information (“A” in the illustration above):** The full name and address of the shipper (“From”) and consignee (“To”) must be clearly labeled or marked on the package.
- **“UN1845” and Proper Shipping Name (“B” in the illustration above):** One of the following proper shipping names and UN1845 identification number for dry ice must be marked on the package. No spelling variations are acceptable.
 - “UN1845, Dry Ice”, or
 - “UN1845, Carbon Dioxide, Solid”.
- **Net Weight of Dry Ice (“C” in the illustration above):** The net weight of dry ice placed in the package must be marked on the package adjacent to the proper shipping name and UN number. **The net weight must be in kilograms.**
- **Class 9 – Hazard Class Label (“D” in the illustration above):**



- Class 9 hazard class label must be affixed to the side of the package.
- Labels must be at least 4”x 4” in size. Use only pre-printed shipping labels.
- Package must be large enough for the label to fit on one side.

As of **October 1, 2014**, shippers can no longer utilize Class 9 Hazard Class labels containing a horizontal line through the midpoint. Above is an image of the revised Class 9 Hazard class label.

16.4 SHIPPING DOCUMENTATION

16.4.1 Itemized List of Contents / Commercial Invoice and Shipper’s Declaration for Dangerous Goods

An Itemized List of Contents and Shipper’s Declaration are not required. If a Shipper’s Declaration is required for another dangerous good (e.g., Category A infectious substance), then the information pertaining to dry ice must be included.

A [commercial invoice](#) should be utilized for international shipments.

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16.4.2 Carrier's Air Waybill

The following must be identified on the carrier's air waybill, as shown in the example FedEx Airbill below.

- **“To” / “From” Information** (“A” in the illustration above): Complete “To” and “From” information.
- **Priority Shipping** (“B” in the illustration above): It is highly recommended that all packages with dry ice be shipped priority overnight whenever possible. Insulated containers will still sublimate an estimated 5 to 10 pounds of dry ice in a 24-hour period. Actual timeframes will vary depending on the package used and volume and density of dry ice.
- **Other Packaging** (“C” in the illustration above): Select “Other” packaging. FedEx packaging cannot be used to ship these materials.
- **Dangerous Goods Designation** (“D” in the illustration above): Select the “Yes Shipper’s Declaration not required” box.
- **Nature and Quantity of Goods:** The proper shipping name, hazard class, UN identification number, number of packages, and net weight must be entered on the carrier’s air waybill.
 - **Pre-Printed (e.g., FedEx Airbills)** (“E” in the illustration above): FedEx pre-prints this information in Section 6 of their FedEx USA Airbill for domestic service. Complete the following:
 1. Check the Dry Ice box.
 2. Enter the total number of packages and net weight of dry ice per package in kilograms.
 - **Not Pre-Printed Information:** If the information is not pre-printed, the following information must be entered in the **Nature and Quantity of Goods** section of the carrier’s air waybill:
 1. Enter **“UN1845, Dry Ice, 9”** or **“UN1845, Carbon Dioxide, Solid, 9”**.
 2. (Enter # of packages) **x** (Enter net weight per package, in kilograms). *For example package: 1 x 5 kg.*
- **Number of Packages** (“F” in illustration above): Enter the number of packages shipped (typically “1”) and the total weight.

17.0 Shipper’s Declaration for Dangerous Goods

A Shipper’s Declaration for Dangerous Goods is always required for the shipment of Category A Infectious Substances.

A completed example of a Shipper’s Declaration for one dangerous good shipped (e.g., Category A Infectious Substance, ambient or ice packs, without Dry Ice) is provided in [Appendix F](#). A completed example of a Shipper’s Declaration for two dangerous goods shipped (e.g., Category A Infectious Substance with Dry Ice) is provided in [Appendix G](#).

17.1 SHIPPER’S DECLARATION – FEDEX APPROVED VENDOR SOFTWARE

Fed-Ex requires all Shippers Declarations to be prepared using FedEx-approved third-party software with error checking capabilities. In past years, shippers could use fillable PDF documents to prepare Shippers Declarations. This is no longer allowed. **Contact EHS for access to FedEx-approved Shipper’s Declaration software.**

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17.2 GENERAL REQUIREMENTS

- The person completing the form must have received Biological Material and Dry Ice Shipments training within the past two years (refer to [Section 20.0](#) of this manual).
- The Shipper's Declaration must be completed in English using the online Shipper Declaration software to prepare the document. The use of historical, fillable PDFs is no longer accepted by FedEx.
- Three (3) color copies with vertical red hatchings must accompany the shipment. Each copy must be identical and comply with all the requirements.
- The Shipper's Declaration form must fit on one page. If the declaration form does not contain sufficient space, additional Shipper's Declaration forms may be used and must show:
 - A page number and the total number of pages,
 - The Air Waybill number, and
 - Aircraft limitation and shipment type must be the same on all pages.
- Alterations and amendments made to the Shipper's Declaration must be signed with the same signature used to sign the document (refer to [Section 14.2](#)).

17.3 24-HOUR EMERGENCY RESPONSE INFORMATION

IATA and USDOT require that the Shipper's Declaration identify an emergency response contact that is immediately available 24-hours to provide technical information and emergency response guidance. To satisfy this requirement, Weill Cornell Medical College retains the services of CHEMTREC and utilizes their 24-hour emergency telephone number.

In order to utilize this service, shippers must:

- Complete the Shipper's Declaration and provide the CHEMTREC emergency contact information outlined in the Shipper's Declaration Instructions.
- **A copy of the Shipper's Declaration must be submitted to CHEMTREC - SDS Department (Fax: 703-741-6090) prior to shipping.** The cover page of the submission must identify the following:
 - "CHEMTREC - SDS Department"
 - "Weill Cornell Medical College Customer Code – 24294"

17.4 SHIPPER'S DECLARATION INSTRUCTIONS

- **Shipper and Consignee Information** ("A" in Appendix F/G): Enter the full name and address of the shipper and consignee. Shipper information must be as follows in order to comply with 24-Hour Emergency Contact Information.

Weill Cornell Medicine
c/o (Shipper name or Principal Investigator)
Street Address

- **Air Waybill Number** ("B" in Appendix F/G): Enter the carrier's air waybill unique tracking number.
- **Page Number(s)** ("C" in Appendix F/G): Enter the page number(s), typically "1 of 1".
- **Transport Details / Limitations** ("D" in Appendix F/G):
 - For shipments of Infectious Substances – Category A utilizing the Cargo Aircraft Only outer packing limits in accordance with Section 10.1.2, cross-out or XXX-out "Passenger and Cargo Aircraft".
 - For all other shipments packaged in accordance with this procedure cross-out or XXX-out "Cargo Aircraft Only".
- **Airport of Departure and Destination** ("E" in Appendix F/G): If this is unknown, enter in the city, state and country associated with the Shipper and Consignee in the respective Departure and Destination boxes.
- **Shipment Type** ("F" in Appendix F/G): Cross-out or XXX-out the word "Radioactive".

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17.4.1 Nature and Quantity of Dangerous Goods

Utilize the following table to assist in completing the Nature and Quantity of the Dangerous Goods portion of the Shipper's Declaration. Select the appropriate proper shipping name(s), which identify the dangerous goods being shipped, and fill in the related information onto the Shipper's Declaration.

UN or ID No. "G"	Proper Shipping Name "H"	Class or Division "I"	Packing Group "J"	Packing Inst. "L"
UN2814	Infectious Substance, Affecting Humans (Insert Technical Name of Infectious Substance)	6.2		620
UN2900	Infectious Substance, Affecting Animals (Insert Technical Name of Infectious Substance)	6.2		620
UN3245	Genetically Modified Micro-Organisms	9		959
UN3245	Genetically Modified Organisms	9		959
UN3373	Biological Substance, Category B	6.2		650
UN1845	Dry Ice or Carbon Dioxide, Solid	9		954

- **Technical Names** must be recognized microbiological names currently used in scientific and technical handbooks, journals, and texts. Do not use abbreviations. Spell-out the full name of the infectious substance/disease.
- **Unknown but Suspected Category A Infectious Substance** - If the infectious substance being transported as UN2814 or UN2900 is unknown but suspected of meeting the criteria for inclusion in Category A the words "Suspected Category A Infectious Substance" must be listed as the technical name.

17.4.2 Quantity and Type of Packaging

- **One Dangerous Good Shipped** ("K" in Appendix F): Identify the number and type of packages and net quantity of the dangerous goods. The unit of measure for the net quantity must be the same as indicated in the "Container Size Limitations" for the dangerous goods specific shipper requirements. Examples include:
 - "1 fiberboard box x 25 g" where 1 package contains 25 total grams of the solid biological material.
 - "2 fiberboard boxes x 25 ml" where 2 packages contain 25 total milliliters per package of liquid biological material.
- **Two or More Dangerous Goods Shipped** ("K" in Appendix G): When two or more different dangerous goods are packed into the same outer package (i.e. multiple types of biological materials and/or dry ice), only indicate the net quantity of the dangerous goods on the corresponding line of the Shipper's Declaration. The unit of measure for the net quantity must be the same as indicated in the "Container Size Limitations" for the dangerous goods specific shipper requirements.
 - Underneath the last dangerous good in this package, write "ALL PACKED IN ONE" and then the type of package (e.g., "All packed in one fiberboard box").
- **Authorization** ("M" in Appendix F/G): If the special provision referred to in [Section 10.1.2](#) was utilized for this shipment, then "A81" must be listed in this portion of the Shipper's Declaration. Otherwise, leave this area blank.
- **Additional Handling Information** ("N" in Appendix F/G):
 - **Responsible Person Contact Information:** The name and telephone number of a responsible person must be included on the Shipper's Declaration for infectious substances in Category A (UN 2814 and UN 2900). This contact should be the shipper or someone else familiar with the contents of the shipment, but is not the 24-hour Emergency Contact. Provide the following Responsible Person Contact Information in the Additional Handling section:

"Responsible Person: (Insert Shipper Name and Phone Number)"

- **24-Hour Emergency Contact:** EHS has contracted the services of CHEMTREC to serve as the 24-hour emergency contact for WCM shipments. As such, "Weill Cornell Medical College" must appear on the first line of the "Shipper" information on the Shipper's Declaration. Provide the following 24-Hour Emergency Contact information in the Additional Handling section:
- **US / Domestic Shipments:** "Emergency Contact: CHEMTREC: 800-424-9300 (Weill Cornell Medical College Customer Code – 24294)"

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- International Shipments: “**Emergency Contact: CHEMTREC: 703-527-3887 (Weill Cornell Medical College Customer Code – 24294)**”

17.5 EMERGENCY TELEPHONE NUMBER (“O” IN APPENDIX F/G)

If the Shipper's Declaration form includes a separate Emergency Telephone Number section, enter the following information. Otherwise, the 24-Hour Emergency Contact information provided in the Additional Handling Information section will suffice.

- US / Domestic Shipments: “**CHEMTREC - 800-424-9300 (Customer Code - 24294)**”
- International Shipments: “**CHEMTREC - 703-527-3887 (Customer Code – 24294)**”

17.6 CERTIFICATION STATEMENT AND SIGNATURE (“P” IN APPENDIX F/G)

Enter the name and title of the signatory, **both are required**. The person signing the Shipper's Declaration must be properly trained and have first-hand knowledge of the shipment. While it is acceptable to have an untrained Principle Investigator, Doctor, or Manager's name listed in the Shipper Section, **the Certification Section must identify and be signed by only the trained shipper**.

Additionally, given the fact that the new FedEx version of this document allows for the use of a typed signature, it is only permissible for the trained shipper to type her or his name, **as typing in the name of another person constitutes forging their signature**.

18.0 Additional Carrier Requirements (Airway Bills)

In addition to the requirements established by IATA for the transport of dangerous goods by air, specific carriers may have more stringent requirements. The shipper must contact their intended carrier and verify if the carrier has any additional requirements from those specified in this Manual. The following are additional limitations for a few common carriers which relate to shipment of biological materials.

18.1 FEDERAL EXPRESS (FEDEX)

The following are the additional requirements and limitations for FedEx.

- **Risk Group 4 Infectious Substances** – FedEx will not accept Risk Group 4 infectious substances for shipment.
- **Shipper's Declaration** – FedEx Approved Vendor Software: FedEx requires all Shippers Declarations to be prepared using FedEx-approved third-party software with error checking capabilities. In past years, shippers could use fillable PDF documents to prepare Shippers Declarations. This is no longer allowed. Contact EHS for access to FedEx-approved Shipper's Declaration software.
- **Shipper's Declaration** – Three Copies: When a Shipper's Declaration is required, three (3) color copies must be provided with each shipment at the origin location.

18.2 UNITED PARCEL SERVICE (UPS)

The following are the additional requirements and limitations for UPS.

- **Category A Infectious Substances**: UPS will not accept shipments of Category A Infectious Substances. UPS will only accept shipments of:
 - Category B Biological Substances
 - Exempt Patient Specimens
 - Non-Regulated Specimens
- **Contracted Services**: International shipments of Category B Biological Substances without an approved contract with UPS are prohibited. Shippers must establish contracted services with UPS in order to ship Category B substances.

19.0 Pre-Shipment Storage and Security

All packages of dangerous goods prepared in accordance with this Manual **must** remain in the possession of and under the supervision of the Shipper, until collected by the transport company. **The use of drop box locations is prohibited**. Additionally, any concerns regarding unauthorized personnel representing a possible security threat must be reported to NYP Security (212-746-0911) and EHS immediately.

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20.0 Training

All Weill Cornell Medical College employees who prepare shipments and/or complete the shipping documents (i.e., “shippers”) in accordance with this procedure must satisfactorily complete Biological Material and Dry Ice Shipper Training; and related safety training **before** conducting a shipping activity. Training must be recurrent at least once every two years.

20.1 SAFETY TRAINING

Safety training is a required component for dangerous goods shipment training. This requirement is satisfied with the completion of either (1) Laboratory Safety or (2) Clinical and General Safety training.

- **Laboratory Safety Training** is required for shippers working in laboratories that handle or use biological materials and chemicals (e.g., dry ice or chemical preservatives).
- **Clinical and General Safety Training** is required for shippers working in clinical areas that handle clinical specimens and chemicals (e.g., dry ice, formalin).

20.2 BIOLOGICAL MATERIAL AND DRY ICE SHIPMENTS TRAINING

Biological Material and Dry Ice Shipments training consists of two components:

- **Biological Material and Dry Ice Shipments Training Course:** Shippers must attend the Biological Material and Dry Ice Shipment Training course once every two years and successfully pass the Biological Material and Dry Ice Shipment competency test. Upon successful completion of the training course and competency test, the shipper will be provided a certificate of training. Only upon receipt of this certificate is the training attendee authorized to act as the shipper of biological materials or dry ice.
- **Prior to Shipping Biological Materials and Dry Ice:** Shippers must have read and be familiar with the requirements identified in the most current version of this procedure prior to each shipment.
- **Note:** that IATA re-issues its regulations on an annual basis and may revise the shipper requirements throughout the course of the year. All necessary revisions will be made accordingly by EHS to this Manual; it is the shipper's responsibility to ensure they are using the most up-to-date version of the manual which will be posted on the EHS website.

21.0 Record Retention, Availability, and Revisions

21.1 TRAINING RECORDS

Once training has been completed, Certificates of Training will be provided to shippers who have successfully completed the training requirements. A printed copy of the training certificate must be centrally filed for a minimum of three years and be readily available for inspection. If training is conducted by a training entity other than EHS, then it is the responsibility of the shipper to obtain and maintain copies of their training records and training materials.

21.2 SHIPPING DOCUMENTS

Shipping documents, (e.g. Shipper's Declaration for Dangerous Goods, Airbills, and Commercial Invoices) must be retained by the Shipper for a minimum of 2 years from the date of shipment and made available upon request by EHS or a governing agency.

21.3 PACKAGING CLOSURE INSTRUCTIONS

Packaging closure instructions for DOT Specification or UN standard packaging subject to federal and international shipping regulations must be retained for a minimum of 90 days.

21.4 REVISIONS

IATA revises the Dangerous Goods Regulations on an annual basis and/or throughout the course of the year. This procedure will be updated by EHS accordingly. Shippers must ensure that all shipments of biological materials are in accordance with the most current version of this procedure. The most current version of this procedure will be posted on the [EHS website](#).

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22.0 Definitions

Biological products are those products derived from living organisms, which are manufactured and distributed in accordance with the requirements of appropriate national authorities. These products may have special licensing requirements, and are used either for prevention, treatment, or diagnosis of disease in humans or animals; or for development, experimental or investigational purposes related thereto. They include, but are not limited to, finished or unfinished products such as vaccines.

Carrier(s) means a person or entity engaged in the transportation of passengers or property by:

- Land or water, as a common, contract, or private carrier, or
- Civil aircraft.

Corrosives (Class 8) are substances which by chemical action, can cause severe damage when in contact with living tissue or, in the case of leakage will materially damage or even destroy, other goods or the means of transport. Refer to the MSDS or contact EHS to determine if the substance is corrosive.

Cultures are the result of a process by which pathogens are intentionally propagated. This definition does **not** include patient specimens.

Dangerous goods are articles or substances which are capable of posing a risk to health, safety, property, or the environment. General classifications of dangerous goods include explosives, gases, flammable liquids, flammable solids, spontaneously combustibles, water-reactives, oxidizers, organic peroxides, toxic and infectious substances, radioactive material, corrosives, and miscellaneous.

Flammable liquid (Class 3) comprises liquids or mixtures of liquids or liquids containing solids in solution or in suspension which give off a flammable vapor at temperatures of not more than 60°C (140°F) closed-cup test. Refer to the MSDS or contact EHS to determine if the substance is a flammable liquid.

Foreign national is any person other than a US citizen, US permanent or temporary legal resident alien, or person in US custody.

Genetically modified micro-organisms and organisms are micro-organisms (GMMO) and organisms (GMO) in which genetic material has been purposely altered through genetic engineering in a way that does not occur naturally.

Infectious substances are substances which are known or are reasonably expected to contain pathogens.

Miscellaneous Dangerous Goods (Class 9) are articles and substances, which during air transport, present a danger not covered by other classes. Refer to the MSDS or contact EHS to determine if the substance is a miscellaneous dangerous good.

Net quantity is the weight or volume of the dangerous goods contained in a package excluding the weight or volume of any packaging material. **Note:**

only International System units of measure (e.g., kg, g, L, ml, etc.) may be used when shipping dangerous goods by air.

Pathogens are micro-organisms (including bacteria, viruses, rickettsia, parasites, fungi) and other agents such as prions, which can cause disease in humans or animals.

Patient specimens are those collected directly from humans or animals, including, but not limited to, excreta, secretions, blood and its components, tissue and tissue fluid swabs, and body parts being transported for purposes such as research, diagnosis, investigational activities, disease treatment and prevention.

Select agents and toxins are viruses, bacteria, rickettsia, fungi, and toxins that, according to U.S. Department of Human Health Services and the U.S. Department of Agriculture, have the potential to cause substantial harm to public health, animal or plant health, or to animal or plant products. *The shipment of select agents can only be conducted by the WCM Responsible Official.* Contact EHS for further assistance in shipping Select Agents.

Shipper(s) refers to WCM faculty, staff, employees, or students who perform any of the activities in steps 3 through 9 of the shipment process identified in Section 3.0 – Objective.

World Health Organization (WHO) Risk Group is characterized by the pathogenicity of the organism, the mode and relative ease of transmission, the degree of risk to both an individual and a community, and the reversibility of the disease through the availability of known and effective preventative agents and treatment. The Risk Group criteria are developed and published in the *World Health Organization Laboratory Biosafety Manual (third edition, 2004)*.

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Risk Group 4 (high individual and community risk): a pathogen that usually causes serious human or animal disease and that can be readily transmitted from one individual to another, directly or indirectly, and for which effective treatment and preventative measures are not usually available.

23.0 References

- 49 CFR Subchapter C – Hazardous Materials Regulations
- American Biological Safety Association (<http://www.absa.org/riskgroups/index.html>)
- Federal Express – Dangerous Goods Shipping
- IATA Dangerous Goods Regulations (54th Edition, 2013)
- National Select Agent Registry (<http://www.selectagents.gov/>)
- University of New Hampshire Shipment of Biological Material Manual
- UPS Guide to Shipping International Dangerous Goods
- UPS Guide to Shipping Ground and Air Hazardous Materials

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Appendix A – IATA Provisions for Dangerous Goods Carried by Passengers or Crew



Dangerous Goods Regulations

TABLE 2.3.A
Provisions for Dangerous Goods Carried by Passengers or Crew
(Subsection 2.3)

Dangerous goods must not be carried in or as passengers or crew, checked or carry-on baggage, except as otherwise provided below. Dangerous goods permitted in carry-on baggage are also permitted "on one's person", except where otherwise specified.

2

2.3

The pilot-in-command must be informed of the location				
Permitted in or as carry-on baggage				
Permitted in or as checked baggage				
The approval of the operator is required				
Alcoholic beverages , when in retail packagings, containing more than 24% but not more than 70% alcohol by volume, in receptacles not exceeding 5 L, with a total net quantity per person of 5 L.	NO	YES	YES	NO
Ammunition (cartridges for weapons), securely packaged (in Div. 1.4S, UN 0012 or UN 0014 only), in quantities not exceeding 5 kg gross weight per person for that person's own use. Allowances for more than one person must not be combined into one or more packages.	YES	YES	NO	NO
Avalanche rescue backpack , one (1) per person, containing a cartridge of compressed gas in Div. 2.2. May also be equipped with a pyrotechnic trigger mechanism containing no more than 200 mg net of Div. 1.4S. The backpack must be packed in such a manner that it cannot be accidentally activated. The airbags within the backpacks must be fitted with pressure relief valves.	YES	YES	YES	NO
Batteries, spare/loose, including lithium metal or lithium ion cells or batteries , for portable electronic devices must be carried in carry-on baggage only. Articles which have the primary purpose as a power source, e.g. power banks are considered as spare batteries. These batteries must be individually protected to prevent short circuits.	NO	NO	YES	NO
Camping stoves and fuel containers that have contained a flammable liquid fuel , with empty fuel tank and/or fuel container (see 2.3.2.5 for details).	YES	YES	NO	NO
Chemical Agent Monitoring Equipment , when carried by staff members of the Organization for the Prohibition of Chemical Weapons on official travel (see 2.3.4.4).	YES	YES	YES	NO
Disabling devices such as mace, pepper spray, etc. containing an irritant or incapacitating substance are forbidden on the person, in checked and carry-on baggage.	FORBIDDEN			
Dry ice (carbon dioxide, solid) , in quantities not exceeding 2.5 kg per person when used to pack perishables not subject to these Regulations in checked or carry-on baggage, provided the baggage (package) permits the release of carbon dioxide gas. Checked baggage must be marked "dry ice" or "carbon dioxide, solid" and with the net weight of dry ice or an indication that there is 2.5 kg or less dry ice.	YES	YES	YES	NO
e-cigarettes (including e-cigs, e-pipes, other personal vaporizers) containing batteries must be individually protected to prevent accidental activation.	NO	NO	YES	NO
Electro shock weapons (e.g. Tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc. are forbidden in carry-on baggage or checked baggage or on the person.	FORBIDDEN			
Fuel cells containing fuel, powering portable electronic devices (e.g. cameras, cellular phones, laptop computers and camcorders), see 2.3.5.10 for details.	NO	NO	YES	NO
Fuel cell cartridges, spare for portable electronic devices, see 2.3.5.10 for details.	NO	YES	YES	NO
Gas cartridges, small, non-flammable containing carbon dioxide or other suitable gas in Division 2.2. Up to two (2) small cartridges fitted into a self-inflating safety device such as a life jacket or vest. Not more than one (1) device per passenger and up to two (2) spare small cartridges per person, not more than four (4) cartridges up to 50 mL water capacity for other devices (see 2.3.4.2).	YES	YES	YES	NO
Gas cylinders, non-flammable, non-toxic worn for the operation of mechanical limbs. Also, spare cylinders of a similar size if required to ensure an adequate supply for the duration of the journey.	NO	YES	YES	NO
Hair curlers containing hydrocarbon gas , up to one (1) per passenger or crew-member, provided that the safety cover is securely fitted over the heating element. These hair curlers must not be used on board the aircraft at any time. Gas refills for such curlers are not permitted in checked or carry-on baggage.	NO	YES	YES	NO
Heat producing articles such as underwater torches (diving lamps) and soldering irons (See 2.3.4.6 for details).	YES	YES	YES	NO
Insulated packagings containing refrigerated liquid nitrogen (dry shipper), fully absorbed in a porous material containing only non-dangerous goods.	NO	YES	YES	NO
Internal combustion or fuel cell engines , must meet A70 (see 2.3.5.15 for details).	NO	YES	NO	NO
Lamps, energy efficient when in retail packaging intended for personal or home use.	NO	YES	YES	NO
Lithium Batteries: Security-type equipment containing lithium batteries (see 2.3.2.6 for details).	YES	YES	NO	NO

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Limitations

TABLE 2.3.A
Provisions for Dangerous Goods Carried by Passengers or Crew
(Subsection 2.3) (continued)

The pilot-in-command must be informed of the location				
Permitted in or as carry-on baggage				
Permitted in or as checked baggage				
The approval of the operator is required				
△ Lithium Batteries: Portable electronic devices containing lithium metal or lithium ion cells or batteries, including medical devices such as portable oxygen concentrators (POC) and consumer electronics such as cameras, mobile phones, laptops and tablets, when carried by passengers or crew for personal use (see 2.3.5.9). For lithium metal batteries the lithium metal content must not exceed 2 g and for lithium ion batteries the Watt-hour rating must not exceed 100 Wh.	NO	YES	YES	NO
Lithium batteries, spare/loose with a Watt-hour rating exceeding 100 Wh but not exceeding 160 Wh for consumer electronic devices and PMED or with a lithium metal content exceeding 2 g but not exceeding 8 g for PMED only. Maximum of two spare batteries in carry-on baggage only. These batteries must be individually protected to prevent short circuits.	YES	NO	YES	NO
Lithium battery-powered electronic devices. Lithium ion batteries for portable (including medical) electronic devices, a Wh rating exceeding 100 Wh but not exceeding 160 Wh. For portable medical electronic devices only, lithium metal batteries with a lithium metal content exceeding 2 g but not exceeding 8 g.	YES	YES	YES	NO
Matches, safety (one small packet) or a small cigarette lighter that does not contain unabsorbed liquid fuel, other than liquefied gas, intended for use by an individual when carried on the person. Lighter fuel and lighter refills are not permitted on one's person or in checked or carry-on baggage.	NO	ON ONE'S PERSON		NO
Note: "Strike anywhere" matches, "Blue flame" or "Cigar" lighters are forbidden.				
Mobility Aids: Battery-powered wheelchairs or other similar mobility devices with non-spillable wet batteries or with batteries which comply with Special Provision A123 or A199 , (see 2.3.2.2).	YES	YES	NO	NO
Mobility Aids: Battery-powered wheelchairs or other similar mobility devices with spillable batteries or with lithium batteries (see 2.3.2.3 and 2.3.2.4 for details).	YES	YES	NO	YES
Mobility Aids: Battery-powered mobility aids with lithium ion batteries (collapsible) , lithium-ion battery must be removed and carried in the cabin (see 2.3.2.4(d) for details).	YES	NO	YES	YES
Non-radioactive medicinal or toiletry articles (including aerosols) such as hair sprays, perfumes, colognes and medicines containing alcohol; and	NO	YES	YES	NO
△ Non-flammable, non-toxic aerosols in Division 2.2 , with no subsidiary risk, for sporting or home use.	NO	YES	NO	NO
The total net quantity of non-radioactive medicinal or toiletry articles and non-flammable, non-toxic aerosols in Division 2.2 must not exceed 2 kg or 2 L and the net quantity of each single article must not exceed 0.5 kg or 0.5 L. Release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents.				
Oxygen or air, gaseous, cylinders required for medical use. The cylinder must not exceed 5 kg gross weight.	YES	YES	YES	YES
Note: Liquid oxygen systems are forbidden for transport.				
Permeation devices , must meet A41 (see 2.3.5.16 for details).	NO	YES	NO	NO
Portable electronic devices containing non-spillable batteries , batteries must meet A67 and must be 12 V or less and 100 Wh or less. A maximum of 2 spare batteries may be carried (see 2.3.5.13 for details).	NO	YES	YES	NO
Radioisotopic cardiac pacemakers or other devices, including those powered by lithium batteries, implanted into a person or fitted externally, or radiopharmaceuticals contained within the body of a person as the result of medical treatment.	NO	ON ONE'S PERSON		NO
Security-type attaché cases, cash boxes, cash bags , etc. incorporating dangerous goods, such as lithium batteries and/or pyrotechnic material, except as provided in 2.3.2.6 are totally forbidden. See entry in 4.2–List of Dangerous Goods.		FORBIDDEN		
Specimens, non-infectious packed with small quantities of flammable liquid, must meet A180 (see 2.3.5.14 for details).	NO	YES	YES	NO
△ Thermometer, medical or clinical , which contains mercury, one (1) per person for personal use, when in its protective case.	NO	YES	NO	NO
Thermometer or barometer, mercury filled carried by a representative of a government weather bureau or similar official agency (see 2.3.3.1 for details).	YES	NO	YES	YES

□ **Note:**

The provisions of 2.3 and Table 2.3.A may be limited by State or operator variations. Passengers should check with their airline for the current provisions.

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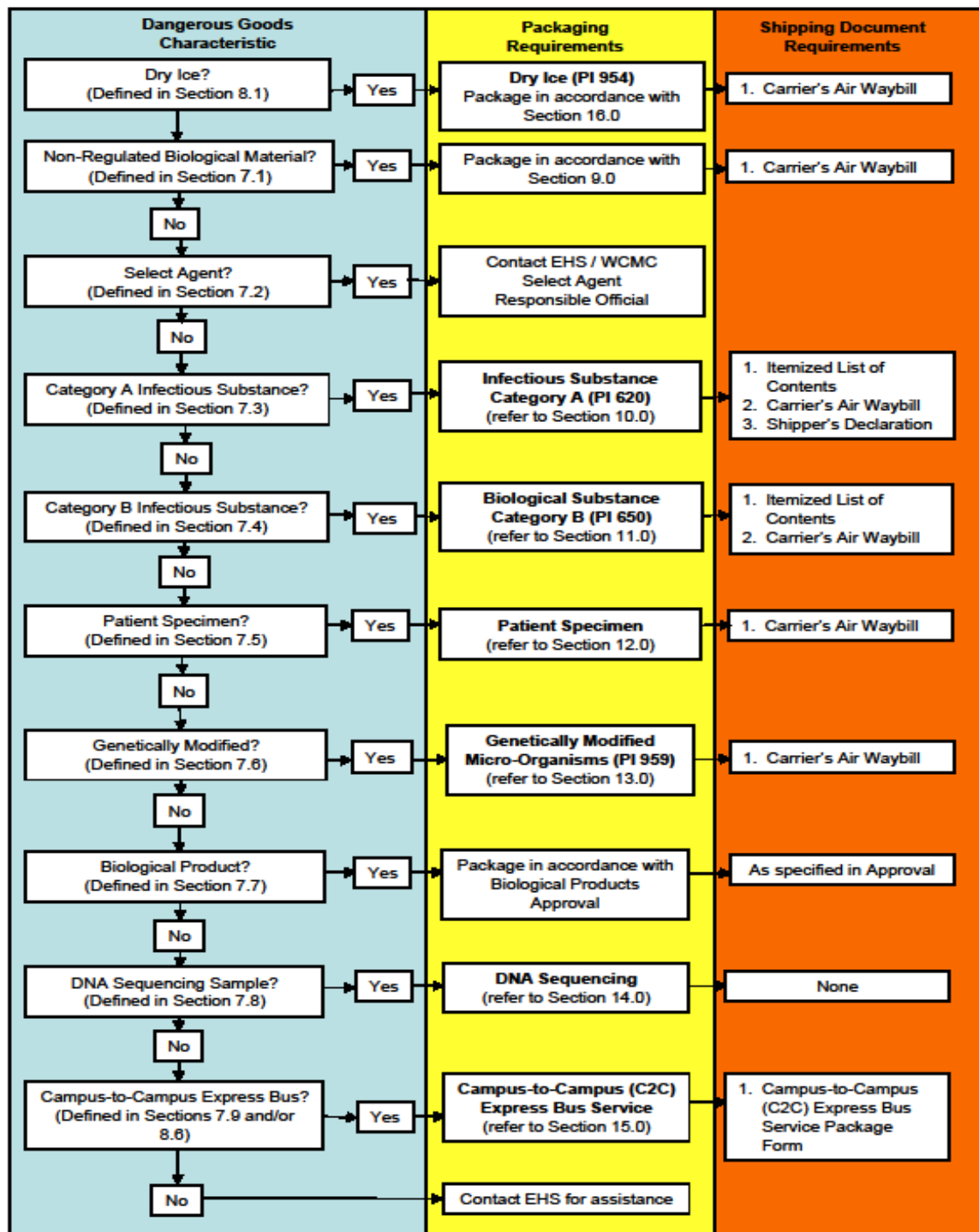
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Appendix B – Biological Materials Classification Flowchart



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Appendix C – HSS and USDA Select Agents and Toxins

HHS AND USDA SELECT AGENTS AND TOXINS 7 CFR Part 331, 9 CFR Part 121, and 42 CFR Part 73

HHS SELECT AGENTS AND TOXINS

Abrin
 Botulinum neurotoxins*
 Botulinum neurotoxin producing species of *Clostridium**
 Conotoxins (Short, paralytic alpha conotoxins
 containing the following amino acid
 sequence X₁CCX₂PACGX₃X₄X₅X₆CX₇)
Coxiella burnetii
 Crimean-Congo haemorrhagic fever virus
 Diacetoxyscirpenol
 Eastern Equine Encephalitis virus
 Ebola virus*
*Francisella tularensis**
 Lassa fever virus
 Lujjo virus
 Marburg virus*
 Monkeypox virus
 Reconstructed replication competent forms of the 1918
 pandemic influenza virus containing any portion of the
 coding regions of all eight gene segments
 (Reconstructed 1918 Influenza virus)
 Ricin
Rickettsia prowazekii
 SARS-associated coronavirus (SARS-CoV)
 Saxitoxin
South American Haemorrhagic Fever viruses:
 Chapare
 Guanarito
 Junin
 Machupo
 Sabia
 Staphylococcal enterotoxins A,B,C,D,E subtypes
 T-2 toxin
 Tetradotoxin
Tick-borne encephalitis complex (flavi) viruses:
 Far Eastern subtype
 Siberian subtype
 Kyasanur Forest disease virus
 Omsk hemorrhagic fever virus
 Variola major virus (Smallpox virus)*
 Variola minor virus (Alastrim)*
*Yersinia pestis**

OVERLAP SELECT AGENTS AND TOXINS

Bacillus anthracis *
Bacillus anthracis Pasteur strain
Brucella abortus
Brucella melitensis
Brucella suis
*Burkholderia mallei**
*Burkholderia pseudomallei**
 Hendra virus
 Nipah virus
 Rift Valley fever virus
 Venezuelan equine encephalitis virus

USDA SELECT AGENTS AND TOXINS

African horse sickness virus
 African swine fever virus
 Avian influenza virus
 Classical swine fever virus
 Foot-and-mouth disease virus*
 Goat pox virus
 Lumpy skin disease virus
Mycoplasma capricolum
Mycoplasma mycoides
 Newcastle disease virus¹
 Peste des petits ruminants virus
 Rinderpest virus*
 Sheep pox virus
 Swine vesicular disease virus

USDA PLANT PROTECTION AND QUARANTINE (PPQ) SELECT AGENTS AND TOXINS

Peronosclerospora philippinensis (*Peronosclerospora*
 sacchari)
Phoma glycinicola (formerly *Pyrenochaeta glycines*)
Ralstonia solanacearum
Rathayibacter toxicus
Sclerophthora rayssiae
Synchytrium endobioticum
Xanthomonas oryzae

*Denotes Tier 1 Agent

¹ A virulent Newcastle disease virus (avian paramyxovirus serotype 1) has an intracerebral pathogenicity index in day-old chicks (*Gallus gallus*) of 0.7 or greater or has an amino acid sequence at the fusion (F) protein cleavage site that is consistent with virulent strains of Newcastle disease virus. A failure to detect a cleavage site that is consistent with virulent strains does not confirm the absence of a virulent virus.

12/4/2012

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Appendix D – Indicative List of Category A Infectious Substances

INFECTIOUS SUBSTANCES, AFFECTING HUMANS, UN2814

<i>Bacillus anthracis</i> (cultures only)	Japanese Encephalitis virus (cultures only)
<i>Brucella abortus</i> (cultures only)	Junin virus
<i>Brucella melitensis</i> (cultures only)	Kyasanur Forest disease virus
<i>Brucella suis</i> (cultures only)	Lassa virus
<i>Burkholderia mallei</i> – <i>Pseudomonas mallei</i> – Glanders (cultures only)	Machupo virus
<i>Burkholderia pseudomallei</i> – <i>Pseudomonas pseudomallei</i> (cultures only)	Marburg virus
<i>Chlamydia psittaci</i> – avian strains (cultures only)	Monkeypox virus
<i>Clostridium botulinum</i> (cultures only)	<i>Mycobacterium tuberculosis</i> (cultures only)
<i>Coccidioides immitis</i> (cultures only)	Nipah virus
<i>Coxiella burnetii</i> (cultures only)	Omsk hemorrhagic fever virus
Crimean-Congo hemorrhagic fever virus	<i>Poliovirus</i> (cultures only)
Dengue virus (cultures only)	Rabies virus (cultures only)
Eastern equine encephalitis virus (cultures only)	<i>Rickettsia prowazekii</i> (cultures only)
Ebola virus	<i>Rickettsia rickettsii</i> (cultures only)
<i>Escherichia coli</i> , verotoxigenic (cultures only)	Rift Valley fever virus (cultures only)
Flexal virus	<i>Russian spring-summer encephalitis virus</i> (cultures only)
<i>Francisella tularensis</i> (cultures only)	Sabia virus
Guanarito virus	<i>Shigella dysenteriae</i> type 1 (cultures only)
Hantaan virus	<i>Tick-borne encephalitis virus</i> (cultures only)
Hantavirus causing hemorrhagic fever with renal syndrome	Variola virus
Hendra virus	Venezuelan equine encephalitis virus (cultures only)
Hepatitis B virus (cultures only)	<i>West Nile virus</i> (cultures only)
Herpes B virus (cultures only)	<i>Yellow fever virus</i> (cultures only)
Highly pathogenic avian influenza virus (cultures only)	<i>Yersinia pestis</i> (cultures only)
Human immunodeficiency virus (cultures only)	

INFECTIOUS SUBSTANCES, AFFECTING ANIMALS, UN2900

African swine fever virus (cultures only)	<i>Mycoplasma mycoides</i> – Contagious bovine pleuropneumonia (cultures only)
Avian paramyxovirus Type 1 – Velogenic newcastle disease virus (cultures only)	Peste des petits ruminants virus (cultures only)
Classical swine fever virus (cultures only)	Rinderpest virus (cultures only)
Foot and mouth disease virus (cultures only)	Sheep-pox virus (cultures only)
Goatpox virus (cultures only)	Swine vesicular disease virus (cultures only)
Lumpy skin disease virus (cultures only)	Vesicular stomatitis virus (cultures only)

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Appendix E – Packaging Supplier List

DG Supplies, Inc.
Phone: (800) 347-7879
<http://www.dgsupplies.com>
Grainger
Phone: (800) 472-4643
<http://www.grainger.com/>

Saf-T-Pak, Inc.
Phone: (800) 814-7484
<http://www.saftpak.com>

VWR Scientific
Phone: (800) 932-5000
<http://www.vwrsp.com>

Berlin Packaging
Phone: (800) 229-7546
<http://www.berlinpackaging.com/>
EXAKT Technologies, Inc. Phone: (800) 866-7172
<http://www.exaktpak.com>

HAZMATPAC, Inc.
Phone: (800) 923-9123
<http://www.hazmatpac.com>

Therapak Corporation.
Phone: (888) 505-7377
<http://www.therapak.com>

CARGOpak Corp.
Phone: (800) 266-0652
<http://www.cargopak.com/>
Fisher Scientific
Phone: (800) 766-7000
<http://www.fishersci.com>

Inmark, Inc.
Phone: (800) 646-6275
<http://www.inmarkinc.com>


ThermoSafe Brands
Phone: (800) 323-7442
<http://www.thermosafe.com/>

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Appendix F – Commercial Invoice Example

Commercial Invoice, available on the [EHS website](#):

Commercial Invoice							
AIR WAYBILL NO. (All shipments must include Air Waybill)			DATE OF SHIPMENT		PAGES		
SHIPPER / EXPORTER INFORMATION (complete name and address)			CONSIGNEE / IMPORTER INFORMATION (complete name and address)				
COUNTRY OF EXPORT			IMPORTER – IF OTHER THAN CONSIGNEE (complete name and address)				
EXPORT REFERENCES (e.g., order no., invoice no.)							
COUNTRY OF MANUFACTURE							
COUNTRY OF ULTIMATE DESTINATION							
NO. OF PKGS.	TYPE OF PKG.	FULL DESCRIPTION OF GOODS	UNIT SIZE	QUANTITY	WEIGHT	UNIT VALUE	TOTAL VALUE
TOTAL NUMBER OF PACKAGES			TOTAL WEIGHT		TOTAL INVOICE VALUE		
<p>IF SHIPMENT IS FOR EXPORT, THESE COMMODITIES, TECHNOLOGY, OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.</p> <p>I DECLARE ALL THE INFORMATION CONTAINED IN THIS INVOICE TO BE TRUE AND CORRECT.</p>							
SIGNATURE OF SHIPPER/EXPORTER		TITLE		DATE			

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Appendix G – Example Shipper's Declaration Form – One Dangerous Goods

SHIPPER'S DECLARATION FOR DANGEROUS GOODS				(Provide at least three copies to the airline.)		
Shipper Weill Cornell Medical College Dr. Robert Smith 1300 York Avenue New York, NY 10065				Air Waybill No. 844964519855 Page 1 of 1 Pages Shipper's Reference Number		
Consignee John Doe ABC Company 123 Main Street Baltimore, MD 21231						
<i>Two completed and signed copies of this Declaration must be handed to the operator</i>				WARNING Failure to comply with 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 in the limitations of the regulations (delete non-applicable)				Airport of Departure New York, NY		
<input checked="" type="checkbox"/> PASSENGER AND CARGO AIRCRAFT <input type="checkbox"/> CARGO AIRCRAFT ONLY				Airport of Destination: Baltimore, MD		
				Shipment type: (delete non-applicable) <input type="checkbox"/> NON-RADIOACTIVE <input checked="" type="checkbox"/> RADIOACTIVE		
NATURE AND QUANTITY OF DANGEROUS GOODS						
Dangerous Goods Identification				Quantity and type of packaging	Packing Inst.	Authorization
UN or ID No.	Proper Shipping Name	Class or Division (Subsidiary Risk)	Pack- ing Group			
UN 2814	Infectious Substance, Affecting Humans (Human immunodeficiency virus-cultures only)	6.2		1 fiberboard box x 25 g	620	
Additional Handling Information Responsible Person: Jane Doe 212-746-0000 Emergency Contact: CHEMTREC 800-424-9300 (Weill Cornell Medical College Customer Code - 24294)						
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 Jane Doe/Dangerous Goods Shipper Place and Date New York, NY April 9, 2010 Signature [A typed signature may be used if the origin and destination are in the United States or its territories.] Jane Doe		
800-424-9300				Emergency Telephone Number		
FOR RADIOACTIVE MATERIAL SHIPMENT ACCEPTED FOR PASSENGER AIRCRAFT, THE SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN OR INCIDENT TO RESEARCH, MEDICAL DIAGNOSIS, OR TREATMENT. ADR EUROPEAN TRANSPORT STATEMENT: CARRIAGE IN ACCORDANCE WITH 1.1.4.2.1						

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SHIPPER'S DECLARATION FOR DANGEROUS GOODS				(Provide at least three copies to the airline.)					
Shipper Weill Cornell Medical College Dr. Robert Smith 1300 York Avenue New York, NY 10065			Air Waybill No. 844964519855 Page 1 of 1 Pages Shipper's Reference Number						
Consignee John Doe ABC Company 123 Main Street Baltimore, MD 21231									
<i>Two completed and signed copies of this Declaration must be handed to the operator</i>			WARNING Failure to comply with all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties.						
TRANSPORT DETAILS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> This shipment is subject to the limitations of the IATA Dangerous Goods Regulations (delete non-applicable): <div style="border: 1px solid black; padding: 2px; display: inline-block;"> PASSENGER AND CARGO AIRCRAFT </div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-left: 10px;"> CARGO AIRCRAFT ONLY </div> </td> <td style="width: 50%; padding: 5px;"> Airport of Departure New York, NY </td> </tr> <tr> <td colspan="2" style="padding: 5px;"> Airport of Destination: Baltimore, MD </td> </tr> </table>			This shipment is subject to the limitations of the IATA Dangerous Goods Regulations (delete non-applicable): <div style="border: 1px solid black; padding: 2px; display: inline-block;"> PASSENGER AND CARGO AIRCRAFT </div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-left: 10px;"> CARGO AIRCRAFT ONLY </div>	Airport of Departure New York, NY	Airport of Destination: Baltimore, MD		Shipment type: (delete non-applicable) <div style="border: 1px solid black; padding: 2px; display: flex; justify-content: space-between;"> NON-RADIOACTIVE XXXXXXX </div>		
This shipment is subject to the limitations of the IATA Dangerous Goods Regulations (delete non-applicable): <div style="border: 1px solid black; padding: 2px; display: inline-block;"> PASSENGER AND CARGO AIRCRAFT </div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-left: 10px;"> CARGO AIRCRAFT ONLY </div>	Airport of Departure New York, NY								
Airport of Destination: Baltimore, MD									
NATURE AND QUANTITY OF DANGEROUS GOODS									
Dangerous Goods Identification				Quantity and type of packaging	Packing Inst.	Authorization			
UN or ID No.	Proper Shipping Name	Class or Division (Subsidiary Risk)	Pack-ing Group						
UN 2814	Infectious Substance, Affecting Humans (Human immunodeficiency virus-cultures only)	6.2		25 g	620				
UN 1845	Dry Ice	9		20 kg All packed in one fiberboard box.	954				
Additional Handling Information Responsible Person: Jane Doe 212-746-0000 Emergency Contact: CHEMTREC 800-424-9300 (Weill Cornell Medical College Customer Code - 24294)									
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 Jane Doe/Dangerous Goods Shipper Place and Date New York, NY April 9, 2010 Signature [A typed signature may be used if the origin and destination are in the United States or its territories.] Jane Doe					
800-424-9300				Emergency Telephone Number					
FOR RADIOACTIVE MATERIAL SHIPMENT ACCEPTABLE FOR PASSENGER AIRCRAFT, THE SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN OR INCIDENT TO RESEARCH, MEDICAL DIAGNOSIS, OR TREATMENT. ADR EUROPEAN TRANSPORT STATEMENT: CARRIAGE IN ACCORDANCE WITH 1.1.4.2.1									

Environmental Health and Safety | Weill Cornell Medicine | TEL 646-962-7233 | WEB weill.cornell.edu/ehs | EMAIL ehs@med.cornell.edu



Appendix I – Dangerous Goods Assessment Form

Dangerous Goods Assessment Form, available on the [EHS website](#):

DANGEROUS GOODS ASSESSMENT FORM



This form is intended for those in need of assistance from Environmental Health and Safety (EHS) to evaluate items (e.g., batteries, biological products, chemicals, patient specimens, reagents, samples) that require transport to various locations throughout the world coming from Weill Cornell Medical College (WCRC). If you are in need of assistance, please complete sections 1 through 3 to allow EHS to properly assess shipping, packaging, labeling, and documentation requirements for your upcoming flight or shipment. **NOTE: Radioactive substances are NOT included on this form;** if applicable, please contact EHS (ehs@med.cornell.edu or 646-962-7233) for radioactive substance shipments instructions.

Please note that some items identified as "Dangerous Goods" for air transport must be shipped using a freight forwarder and may require a government agency permit. This process requires additional documentation for government regulatory agencies, transporters, and airlines which can take several weeks to complete. The shipping timeline is dependent upon the nature of the material and complexity of the shipment. Additional information regarding shipping can be found on the EHS website: <http://weill.cornell.edu/ehs/shipping>.

Please submit this form at least 1 week prior to the expected ship date. If more than 5 items need assessment, please re-fill out this form as many times as necessary and e-mail all forms compiled to ehs@med.cornell.edu.

For questions regarding Material Transfer Agreements, please contact the Office Of Sponsored Research Administration: <http://osra.weill.cornell.edu>.

SECTION 1: CONTACT INFORMATION

SHIPPER / TRAVELER INFORMATION	AIRLINE / DESTINATION INFORMATION
Principal Investigator / Lab:	Name of Destination Country:
Name of Contact to Discuss Shipment / Transport:	Name of Layover Countries (if any):
Shipper / Transporter Contact Phone:	Name of Courier / Airline to be Used:
Shipper / Transporter Contact E-Mail:	Expected Ship / Travel Date:

SECTION 2: MATERIAL DESCRIPTION (Please note: Provide the Safety Data Sheet for all items with chemicals.)

	ITEM 1	ITEM 2	ITEM 3	ITEM 4	ITEM 5
Material Name / Type:					
Manufacturer or Producer of Item:					
Catalog Number (if applicable):					
Country of Manufacture:					
Number of Items:					

(Continued on next page.)



QUESTIONS? ENVIRONMENTAL HEALTH AND SAFETY

CALL 646-962-7233 ONLINE weill.cornell.edu/ehs EMAIL ehs@med.cornell.edu
Weill Cornell Medical College | 102 East 67th Street, Room LA-0020 | New York, NY 10065

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CONTINUED: Dangerous Goods Assessment Form



	ITEM 1	ITEM 2	ITEM 3	ITEM 4	ITEM 5
Volume / Weight of Each Individual Item:					
Value of Each Item (US\$):	\$	\$	\$	\$	\$
Shipping Temperature:					
Quantity of Dry Ice to be Used (if applicable):					
Need Assistance with Purchasing a Shipping Box/Container?					
SECTION 2B: Answer only if BIOLOGICAL MATERIALS.					
Is Item Likely to Contain an Infectious Agent?					
Which Description Best Fits This Item?					
Is Item Contained in Leak-Proof Container?					
Does This Item Contain a Preservative?					
What Preservative Type and Quantity per Container?					
Who is Preparing the Shipment?					
Date of Bio. Material and Dry Ice Shipments Training of Person Preparing Package:					
Need Assistance in Selecting Appropriate Packaging?					
SECTION 3: SUBMIT THE COMPLETED FORM to EHS via email: ehs@med.cornell.edu.					
SECTION 4: ENVIRONMENTAL HEALTH AND SAFETY USE ONLY				EHS Identification #: _____	

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