



Shipping Guidelines for Biological Specimens

Biological Materials Shipping Guidelines

Shipments of certain biological materials are regulated domestically by the Department of Transportation (DOT) as well as the Federal Aviation Administration (FAA), and the International Air Transportation Association (IATA), if sent internationally. Any students or College employees involved in packaging materials, preparing samples for shipping, handling such packages, preparing related paperwork, or signing to authorize shipments must contact EHS prior to shipment.

Many biological samples and even common laboratory reagents are shipped on dry ice, which is subject to additional shipping regulations. This document will provide guidelines for the correct and safe shipment of your biological samples and reagents.

There are 3 basic classifications for shipments of biological materials:

- **Exempt Human or Animal Specimens-** A human or animal specimen with a minimum likelihood of causing disease. In making such a determination, an element of professional judgment is required. That judgment should be based on known patient medical history, symptoms and individual circumstances of the source, and endemic local conditions
- **Biological Substance, Category B-** an infectious substance that is not in a form generally capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans or animals when exposure to it occurs. This includes Category B infectious substances transported for diagnostic or investigational purposes.
- **Biological Substance, Category A-** see appendix at end of document

Shipping Samples on Dry Ice

Ground Transportation

Packages shipped with dry ice via ground transportation are **not** subject to any special regulations, and can be processed by UPS like any other package.

Air Shipments

(1) U.S. Domestic:

For all medical packages on dry ice (prepared under 49 CFR):

No Hazardous Material Agreement is required
No Hazardous Material Shipping Papers are required
No acceptance audit is performed
Hazardous Material accessorial charges will not be applied
Process through UPS WorldShip® shipping document
Mark the outer carton with:

***The words "Dry Ice for Medical Purposes"**

***The amount of dry ice contained in the package**

No other paperwork is required

(2) For non-medical, non-hazardous U.S. domestic air packages with 2.5 kg (5.5 pounds) or less of dry ice (prepared under 49 CFR):

No Hazardous Material Agreement is required
No Hazardous Material Shipping Papers required
No acceptance audit is performed
Hazardous material accessorial charges will not be applied
Process through UPS WorldShip shipping document
Mark the outer carton with:

- The words "Dry Ice" or "Carbon Dioxide, Solid"
- A description of the non-hazardous contents (e.g. food, meat)
- The amount of the dry ice contained in the package (or a statement that there is 2.5 kg [5.5 pounds] or less in the package)

No other paperwork is required for these packages

(3) For non-medical U.S. domestic packages with greater than 2.5 kg (5.5 pounds) of dry ice and/or all International Air Transport Association (IATA) prepared shipments containing dry ice:

The following are required under 49 CFR:

- UPS Dangerous Goods Agreement required
- Hazardous Materials shipping papers (\$5 per package dry ice fee applies)
- An acceptance audit is performed
- The package must be properly marked as containing "Dry Ice" (or "Carbon Dioxide, Solid"), UN1845

- The net weight of dry ice must be indicated on the shipping papers and can also be marked on the outer package

The following are required under IATA (International shipments):

- Process through UPS WorldShip shipping document (A per package dry ice fee applies)
- An acceptance audit is performed
- Mark the outer carton with:
 - The words "Dry Ice" or "Carbon Dioxide, Solid" and "UN1845"
 - The amount of dry ice contained in the package in KG
 - Class 9 Diamond label

Dry ice containing packages that are to be shipped by air are heavily regulated and subject to several requirements.

1. Gas Venting: When solid dry ice sublimates into gaseous CO₂, pressure can build inside of sealed containers. If this pressure is allowed to build continuously, it may result in an explosion. For this reason, dry ice should *never* be shipped in an airtight container such as a jar or other vessel with a threaded lid.
2. Package Integrity: A package containing dry ice must be strong enough to withstand the stresses of repeated loading, unloading, sorting, and transport. Additionally, some plastics can become brittle and breakable when exposed to the low temperatures created by dry ice. If a plastic container will be used for shipment of dry ice, ensure that it can withstand low temperatures *and* shipment stresses.

Stickers with correct signage can be obtained from the EHS office. A sample UPS Next Day Air shipping document (aka: airbill) like the one used here at Skidmore, along with instructions for its correct usage can be found at the end of this document.

Shipping Potentially Infectious Materials

The Center for Disease Control places strict guidelines on the shipment and transit of potentially infectious biological materials. The CDC has established two categorizations for biological materials to be shipped. **Category A materials are not accepted by the UPS.** A list of category A substances can be found at the end of this document.

- a. Class A Materials: These materials are “an infectious substance which in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals. The proper shipping names for these substances are: UN2814 (infectious substances, affecting humans) and UN2900 (infectious substances, affecting animals)”

- b. Class B Materials: These materials are “an infectious substance which does not meet the criteria for inclusion in Category A. Infectious substances in category B must be assigned to UN 3373.”

All Category B Materials Require

1. A leak proof primary container. The primary container must have positive closure, such as a screw on cap. The primary container may be glass, metal, or plastic, and may not have a volume exceeding 500mL (liquids) or 500g (solids). The primary container must be able to withstand pressures of no less than 95kPa in a range of -40 to 55°C without leakage to qualify for air transport.
2. Leak proof secondary packaging. Each primary container must be individually wrapped or otherwise separated and placed in a leak proof secondary container. If liquids are being shipped, enough absorbent material (paper towel, cellulose wadding, etc.) to fully absorb a leak from the primary container must be included. The secondary container must be able to withstand the same pressure and temperature fluctuations as the primary container.
3. Outer Packaging. The secondary container must be placed inside of a third container that has at least one rigid side of 4 inch width. An itemized list of contents must be placed inside of a leak-proof bag and placed between the secondary container and the outer packaging. A standard ziplock bag is usually sufficient for this purpose. The outer container must be marked with
 - a. The UN 3373 label containing the words “Biological Substances, Category B”
 - b. Name, address, and contact information of both the sender and receiver

**UPS Next Day Air®
UPS Worldwide Express®**

Shipping Document

See instructions on back. Visit UPS.com® or call 1-800-PICK-UPS® (800-742-5877) for additional information and UPS Tariff/Terms and Conditions.

TRACKING NUMBER 1Z 115 613 22 1042 1641

1 SHIPMENT FROM

SHIPPER'S UPS ACCOUNT NO. **115613**

REFERENCE NUMBER

NAME _____ TELEPHONE _____

COMPANY **SKIDMORE COLLEGE**

STREET ADDRESS **815 N BROADWAY**

CITY AND STATE **SARATOGA SPRINGS NY** ZIP CODE **12866**

2 EXTREMELY URGENT DELIVERY TO

NAME _____ TELEPHONE _____

COMPANY _____

STREET ADDRESS _____ DEPT./FLR. _____

CITY AND STATE (INCLUDE COUNTRY IF INTERNATIONAL) _____ ZIP CODE _____

3 WEIGHT LTR ☐ PAK ☐ WEIGHT _____ DIMENSIONAL WEIGHT (If Applicable) _____ LARGE PACKAGE ☐

4 SHIPPER RELEASE ☐

5 TYPE OF SERVICE ☐ NEXT DAY AIR ☐ EXPRESS (INT'L) ☐ CHARGES \$ _____

FOR INTERNATIONAL SHIPMENTS CUSTOMS VALUE \$ _____ DOCUMENTS ONLY \$ _____

6 OPTIONAL SERVICES ☐ SATURDAY PICKUP See instructions. \$ _____ ☐ SATURDAY DELIVERY See instructions. \$ _____

☐ DECLARED VALUE FOR CARRIAGE For declared value over \$100, see instructions. \$ _____ AMOUNT \$ _____

☐ C.O.D. If C.O.D., enter amount to be collected and attach completed UPS C.O.D. tag to package. \$ _____ AMOUNT \$ _____

7 ADDITIONAL HANDLING CHARGE ☐ An Additional Handling Charge applies for certain items. See instructions. \$ _____

8 METHOD OF PAYMENT ☐ BILL SHIPPER'S ACCOUNT NUMBER ☐ BILL RECEIVER ☐ BILL THIRD PARTY ☐ CREDIT CARD ☐ CHECK ☐

IN SECTION 1 RECORD ACCOUNT NO. IN SECTION 9

9 RECEIVER'S/THIRD PARTY'S UPS ACCT. NO. OR MAJOR CREDIT CARD NO. _____ EXPIRATION DATE _____

THIRD PARTY'S COMPANY NAME _____

STREET ADDRESS _____

CITY AND STATE _____ ZIP CODE _____

10 SHIPPER'S SIGNATURE **X** DATE OF SHIPMENT _____

All shipments are subject to the terms contained in the UPS Tariff/Terms and Conditions of Service, which are available at ups.com and local UPS offices.

0101911202609 1/10 S **UPS COPY**

Proper usage of UPS Airbill

1. Shipper information: Includes account number (provided by Skidmore Post Office), as well as name, address, and other contact information of the shipper.
2. Receiver's name, address, and other contact info.
3. Billable weight of package, if known. This is in addition to the weight of dry ice (if applicable) which must be listed on the UN9 label (Available from EHS).
4. Request for shipper release. If marked, UPS will only make one delivery attempt, a signature may not be obtained, and a UPS delivery record indicating shipper release will serve as proof of delivery.
5. Indicate type of service requested and custom charge amount if applicable.
6. Indicate any optional services desired for this shipment.
7. Mark this box if you are shipping
 - a. Anything encased in a secondary container made of metal or wood
 - b. Any cylindrical container (drum, barrel, pail, etc.) not fully encased in a corrugated cardboard shipping container

- c. Any package who's longest side exceeds 60in or second longest side exceeds 30in
 - d. Any package weighing over 70lbs
- 8. Indicate desired method of payment
- 9. If you wish to charge the receiver for this shipment, provide their contact and payment information here.
- 10. Your signature and the date of shipment

Shipper's Declaration not Required.

Dry ice amount must be in kilograms.

Note: 2 lbs. = 1 kg.

Airwaybills/airbills must have the following shown in the "Nature and Quantity of Dangerous Goods" area:

1. Dry Ice; 9; UN1845;

2. $\frac{\text{Number}}{\text{(pages)}} \times \frac{\text{Kg}}{\text{(kg.)}}$ Kg III

DRY ICE,
_____ **kg.**

Shipper's Name and Address

9

UN1845

Consignee Name and Address

Appendix A: Category A Biological Agents

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

| | |
|--|--|
| | Monkeypox virus |
| | Nipah Virus |
| | Mycobacterium tuberculosis(cultures only) |
| | Omsk hemorrhagic fever virus |
| | Poliovirus(cultures only) |
| | Rabies virus (cultures only) |
| | Rickettsia prowazekii(cultures only) |
| | Rickettsia rickettsii(cultures only) |
| | Rift Valley fever virus (cultures only) |
| | Russian spring-summer encephalitis virus(cultures only) |
| | Sabia virus |
| | Shigella dysenteriae type 1(cultures only) |
| | Tick-borne encephalitis virus(cultures only) |
| | Variola virus |
| | Venezuelan equine encephalitis virus (cultures only) |
| | West Nile virus(cultures only) |
| | Yellow fever virus(cultures only) |
| | Yersinia pestis(cultures only) |
| UN 2900 Infectious substances affecting animals | African swine fever virus (cultures only) |
| | Avian paramyxovirus Type 1 – Velogenic Newcastle disease virus (cultures only) |
| | Classical swine fever virus (cultures only) |
| | Foot and mouth disease virus (cultures only) |
| | Lumpy skin disease virus (cultures only) |
| | Mycoplasma mycoides– Contagious bovine pleuropneumonia (cultures only) |
| | Peste des petits ruminants virus (cultures only) |
| | Rinderpest virus (cultures only) |
| | Sheep-pox virus (cultures only) |
| | Goatpox virus (cultures only) |
| | Swine vesicular disease virus (cultures only) |
| | Vesicular stomatitis virus (cultures only) |