HARVARD
Campus Services
ENVIRONMENTAL HEALTH & SAFETY

Research Material Shipment & Transport Manual

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Table of Contents

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Introduction

Harvard is a world-class research institution, committed to serving as a model of quality in our safety practices as in our teaching and research. Integral to research discovery and advancement is collaboration across institutions, both domestically and internationally. Such collaboration often involves the sharing of research materials, including biological samples, chemicals, reagents, research prototypes, and research equipment, including laptops to lasers. The transport and exchange of research materials may be subject to strict regulatory requirements related to the health and safety of shipping carriers and the public, international sanctions, protection of intellectual property, and export controls.

There are as many as ten different agencies imposing public health, safety and security requirements on the transport and exchange of research materials. For transporting or importing hazardous research materials (by hand or common carrier), researchers and research staff need to be aware of proper training, handling, labelling, and packaging requirements as well as the need to secure the appropriate federal safety and transport permits. The requirements and resources, by material and mode of transport, are described in more detail below. Harvard Environmental Health & Safety (EH&S) provides assistance and guidance in these areas.

For transporting or exporting research materials (by hand or common carrier) internationally, researchers and research staff must be aware that the shipment of **any** research materials, whether hazardous or not, may be controlled for export by U.S. authorities. Further detail on these requirements is detailed in the section on Export Controls below. Your School or Institute Export Control Administrator provides assistance and guidance in this area.

It is important to note that the transport or shipment of chemicals, biologicals, radioactive materials or radiation generating devices internationally may require guidance from **BOTH** EH&S and your School or Institute Export Control Administrator.

Prior to sharing, shipping, or otherwise transporting research materials, ensure that proper controls are in place, including:

- Proper labelling to ensure safe shipping of hazardous materials and the prevention of waste or loss of perishable materials.
- Proper packaging and transport of hazardous materials to avoid accidental exposure of personnel who may handle or be exposed to the material during transport.
- Adequate training to handle, package and ship hazardous materials.
- Authorization to Self-transport hazardous research materials.
- Execution of Material Transfer Agreements to prevent theft of intellectual property when sharing items or information with third parties; and
- Securing applicable permits or export licenses prior to transport or exchange of research materials.

Failure to comply with health and safety and transportation regulations may result in significant delays in transport, confiscation of samples by agencies, loss of perishable research materials, fines, and other civil and criminal penalties, injury, and/or risks to public health and the environment.

This manual outlines the applicable regulatory requirements and the resources available to Harvard researchers and staff to facilitate the transport and exchange of research materials safely, compliantly, and efficiently.

Material Transfer Agreements (MTAs)

When sharing research materials, MTAs specify the rights, obligations, and restrictions of both the providing and receiving parties with respect to issues such as ownership, publication, intellectual property and permitted use, and liability.

The Harvard Office of Technology Development (OTD) provides high-quality, expedited service while keeping Harvard investigators' interests protected (i.e., the freedom to publish research results, to transfer modifications to other non-profits, etc.).

Visit the OTD MTA webpage for information on securing agreements for incoming and outgoing materials.

Shipment and Transportation of Hazardous Research Materials

Shipments of Hazardous Research Materials

The packaging, handling and transport of hazardous materials is subject to strict local, state, federal and international regulations. This is particularly so if the material is transported through the "public domain," namely, those roadways, airways, and sea lanes accessible to the public. Improper packaging of hazardous research materials can lead to leakage, hazardous material contamination of public areas, or injury to those handling the transported material or individuals and property nearby. The regulations are usually applied based on the method of transport (e.g., domestic ground or air). The U.S. Department of Transportation (DOT) and the International Air Transport Association (IATA) establish requirements for hazardous material transport via ground and air transport respectively. Additionally, the U.S. Departments of Commerce, State and Treasury establish export requirements and impose trade restrictions on the shipment or transport of certain hazardous materials internationally. Failure to comply with hazardous material transport requirements and export regulations (if applicable) can lead to fines, jail time, injury, loss of material, or delays in transport.

Harvard faculty, students, or staff who package, label, ship, prepare shipping documents, or self-transport hazardous research materials must complete appropriate training and comply with all federal, international, and local regulations.

Harvard Environmental Health & Safety (EH&S) assists laboratory researchers and staff in managing shipments and transportation of hazardous materials, including chemicals, radioactive materials, and biological materials, by ground, air, or sea. For EH&S assistance with hazardous research material transport, please contact EHS_ResearchTransport@harvard.edu.

In addition to EH&S, School or Institute Export Control Administrators can advise laboratory researchers and staff on whether export controls apply to the shipment or hand-carry of hazardous research materials internationally.

Shipment of hazardous research materials requires special attention and training, as each type of hazardous material will have specific requirements relating to:

- Training
- Packaging
- Labeling
- Documentation
- Mode of transport

For specific information about the shipment and transport of different types of hazardous research materials, please see below.

Training

Federal regulations and the Harvard Lab Safety Policy mandate training for all individuals involved in the shipment of hazardous materials including those who package, label, ship, prepare shipping documents, or otherwise transport hazardous materials. Online training is available for the research community on the Harvard Training Portal (HTP) to enable researchers to ship or transport specific materials themselves. The table below outlines the

options to ship or transport research materials. For more details, please review the requirements by specific research material below.

Can I be trained to ship my own research material?

Research Material		Can I be trained to ship this material?
Chemicals	Small volumes of flammables, corrosives, and common fixatives	Yes
	Non-hazardous chemicals	Yes
	All others	No. Contact EH&S
Biologicals	Infectious agents causing serious disease Division 6.2 Infectious Substances	No. Contact EH&S. See Biologicals section below for more information.
	All other infectious agents	Yes
	Nucleic acids and proteins, human and animal tissue samples, non-infectious genetically modified materials	Yes
Dry ice		Yes
Radioactive material or radiation generating devices	Radioactive materials, lasers, X-ray devices	No

For a complete list of shipping and transport training courses available to you, please see Appendix B.

Chemical

Trained faculty, staff, or students may ship specific small quantities of certain chemicals that are classified as flammables, corrosives, or common fixatives and are often used in biological research to fix or preserve biological samples (e.g., ethanol or formalin). Completion of the HTP course Shipping Excepted Quantities: Flammables, Corrosives, and Common Fixatives is required prior to shipping or transporting such items via ground or air.

Other hazardous chemicals must be shipped by someone specially trained to ship chemical hazardous materials. Contact EH&S to arrange this type of shipment.

For the transport or shipment of chemicals internationally, whether hazardous or not, you must also consult your School or Institute Export Control Administrator.

Biological

There are five basic classifications for biological materials when it comes to transportation and shipping:

- Non-regulated biological material
- Exempt Human or Animal Specimens
- Genetically Modified Microorganism/Organism
- Biological Substance, Category B
- Infectious substance, affecting humans **OR** Infectious substance, affecting animals (Category A)

Training is required for anyone that will prepare a shipment of biological material or transport material via ground or air. This training is available online through HTP and is called Shipping Biological Materials and Dry Ice. The training will provide you with all instructions for classifying, packaging, labeling, and documenting a shipment of biological material.

Trained faculty, staff, or students may ship all categories of biological material except for Category A materials. To determine what constitutes a Category A shipment, please utilize this flowchart. Contact EH&S to arrange shipments of Category A materials.

For the transport or shipment of biological materials internationally, whether hazardous or not, you must also consult your School or Institute Export Control Administrator.

Radioactive Material or Radiation Generating Devices

No one may use, acquire, or remove from the University any radioactive materials or radiation generating devices (e.g., irradiators, x-rays, and lasers) without obtaining written authorization from the Radiation Protection Office (RPO) in EH&S. This includes registration of radioactive materials in consumer products that are licensed for sale to the general public and do not require any registration with governmental agencies.

For complete requirements governing the transport and exchange of radioactive materials or radiation generating devices, please reference Harvard's Radiation Safety Manual.

For the transport or shipment of radioactive materials or radiation generating devices internationally, whether hazardous or not, you must also consult your School or Institute Export Control Administrator.

Other Methods of Transport (when shipment via carrier is not feasible)

Off-Campus Self-Transport or Hand Carry

Self-transport or hand carry of research materials via ground or air is strongly discouraged. Self-transport of research materials, especially hazardous research materials, may incur increased scrutiny of material identity and packaging by authorities, and complex documentation requirements. In rare instances where use of a carrier or courier service may be limited (e.g., remote field site), hand carry or self-transport may be considered. Examples of self-transport or hand carry include carrying research materials in airline checked or carry-on

luggage or using a personal vehicle to transport research materials. In these cases, you must notify EH&S at EHS_ResearchTransport@harvard.edu and meet all requirements outlined below in order to perform self-transport. Additionally, if you are planning to hand-carry research materials internationally, you must notify your School or Institute Export Control Administrator so that they can review the items and determine whether an export license is required.

Note that arranging all required paperwork may take weeks to months depending on the nature of the material and where it will be transported. Be sure to reach out to EH&S and your School or Institute Export Control Administrator (if international) as soon as you suspect that self-transport may be needed to move research materials. Unauthorized self-transport, improperly packaged items, and/or items with inadequate documentation may subject you to detention or other enforcement action by Customs and Boarder Protection (CBP). The following requirements are found in a checklist format in Appendix C.

Requirements for self-transport or hand carry of research materials:

- Obtain and carry documentation that proves you have authority to transport and/or exchange the research materials.
    - An MTA is the recommended mechanism of documentation. If an MTA is not established, a letter signed by the Principal Investigator (PI) must be obtained.
- Obtain and carry all permits relevant to public, agricultural, and environmental health. See the sections below pertaining to domestic or international transport of research materials. These may include import permits for the destination country or export licenses for materials leaving the U.S.
- For international self-transport or hand carry, have the material reviewed by your Export Control Administrator who could review the materials being transported and determine if an export license if needed.

- Obtain and carry documentation that accurately identifies the material to be transported and ensures it is allowable for self-transport or hand carry via ground or air. The documentation must also outline that the packaging and labelling meets regulatory requirements. This documentation must include references to the regulation(s) that govern the transport of materials via these modes. EH&S can review your hand carry plans and provide this documentation.
- Package and label research materials appropriately per regulations cited above.
- Arrange for notification of relevant authorities *before* you self-transport research materials. This may include the Transportation Security Administration (TSA), Customs and Boarder Protection (CBP), United States Department of Agriculture (USDA), and others. EH&S can make these notification arrangements for you.
- Declare all research materials to customs and border authorities. Present all paperwork to justify legitimate self-transport of research materials.
- Carry a list of institutional contacts if questions arise during transport. This list should include contact information for the PI, EH&S, School or Institute Export Control Administrator, lab manager, or other pertinent lab contact.

Local Transport of Research Materials

Intracampus

Biological

When transporting biohazardous materials by foot within a Harvard campus, take precautions to prevent accidental spills, particularly in public areas of campus buildings and exterior walkways.

The following requirements must be observed during the transportation of biological materials or hazardous chemicals within a campus (e.g., between two laboratories or buildings on the same campus):

- Place the primary container(s) in a secondary transport container that is also sealed. The secondary container must be sealed, shatterproof, and leak-proof and sturdy enough to remained closed in case the container is dropped.
    - Note: **Never place dry ice or other chemical that requires venting/pressure release into a sealed container.** Seal primary and secondary containers and then place them into dry ice.
- Add sufficient, compatible absorbent material to the secondary container to absorb the entire contents of the primary container in case of a spill or leakage.
- Decontaminate the outside of the primary container before placing into the secondary container. Decontaminate the secondary container before leaving the laboratory.
- Clearly label the primary container, including the identity of the research material, the universal biohazard symbol (if the biological material has been assigned BL2 by the Committee on Microbiological Safety) and the name and phone number of the person carrying the material or the lab the material belongs to.
- Carry a pair of clean disposable exam gloves with you when transporting biohazardous materials. Do not wear gloves while moving materials around campus.
- Avoid transporting materials through eating areas or break rooms. The container should be carried directly to the intended laboratory, avoiding all unnecessary stops, and not taken to bathrooms, offices, cafeterias, or other public or inappropriate locations.
- Secure IACUC approval prior to transport of any experimentally infected animals.
- Recommended secondary container for test tubes/vials:

- Nalgene Biotransport Carrier
- Less expensive options include Plano tackle, field boxes with O-ring seals, available at various sporting goods stores and through Amazon.

Chemical

When transporting chemicals (regardless of hazard) by foot within a Harvard campus, take precautions to prevent accidental spills, particularly in public areas of campus buildings and exterior walkways.

- If your sample also contains biological or radiological materials, please consult those sections of this manual for further guidance on the transportation requirements for those hazards.
- The label on primary container(s) should be understandable to trained laboratory personnel and members of emergency response teams.
- If you are transporting a material in the original, manufacturer-provided container, you may rely on the existing manufacturer label to provide the necessary information, as long as it includes:
  - Lab name
  - Full chemical name
  - GHS hazard identification
  - CAS number
- If you are transporting a lab-made, experimental material, the container(s) should be labeled with:
  - Researcher's name

  - Material identification (name of the chemical compound(s) in the sample container, and the quantity and/or concentration of each
  - Appropriate hazard warnings (e.g., GHS hazard classification). If hazards for multiple containers are similar, a single label on the secondary container is sufficient.
  - If applicable, specify that the sample is dry nanomaterials or nanomaterials in solution, as nanomaterials may exhibit unusual reactivity and toxicity from their parent compounds

- The primary container should be labeled appropriately and tightly sealed, with a threaded cap closure, a tape seal, or a wire tie, parafilm to prevent a removable closure from inadvertently opening during transport.
- Primary containers should be placed within secondary containment, which is meant to prevent the primary container from breaking, and prevent release of the material should the primary container break –
  - A bottle carrier may be used as secondary containment.
  - If transporting multiple bottles of liquids, ensure they are secure. Glass bottles should be separated with cushioning (such as absorbent pads) to avoid breakage and spills.
    - Use carts with attached side rails or lips to contain a spill that may occur
    - Consider having a spill kit on the cart, or know where the spill kits on your travel route are
    - Using a cart or bottle carrier avoids the need to wear gloves for your own protection and avoids potential contamination of public surfaces. If a glove must be worn, remember to use the one-handed glove technique.

- For sample tubes, the secondary container must be gasket-sealed, shatterproof, leak-proof, and sturdy enough to remain closed in case the container is dropped.
    - Closed sample tubes should be placed upright in a sealed container ideally with absorbent materials absorb liquids that might leak from the inner container(s) during normal events in transport
    - Recommended secondary container for sample tubes/vials:
        - Nalgene Biotransport Carrier
        - Less expensive options include Plano tackle, field boxes with O-ring seals, available at various sporting goods stores and through Amazon.
    - Note: **Never place dry ice or other chemical that requires venting/pressure release into a sealed container.** Seal primary and secondary containers and then place them into dry ice.
- Avoid transporting materials through high traffic areas, eating areas, or break rooms. The container should be carried directly to the intended laboratory and not taken to, or transported through, offices, cafeterias, or other public or non-laboratory locations.
- When possible, use freight elevators when transporting research materials and disclose to non-lab passengers that you are transporting lab research materials and encourage them to wait for another elevator.
- If transporting via stairs, use the fire-rated emergency stairwells typically at the end(s) of the floor

- The indoor transport of cylinders and cryogenic materials is building specific, please consult with your Lab Safety Adviser, Facilities manager, ROMS, etc. as applicable.

Radioactive Material or Radiation Generating Devices

Transportation of radioactive materials is regulated by the Massachusetts Radiation Control Program, U.S. Department of Transportation (DOT), U.S. Postal Service, the License of the destination facility as well as other local regulations. To ensure the transportation of radioactive materials meets these regulatory requirements, **all transportation for radioactive materials must first be approved by the Radiation Protection Office**. Review Harvard's Radiation Safety Manual for complete instructions on how to transport such materials on campus.

Intercampus and within the Greater Boston Area

Transporting materials considered to be hazardous materials between Harvard campuses (e.g., Longwood, Cambridge, Allston, etc.) and neighboring institutions using public roadways must be done in compliance with US Department of Transportation (DOT) requirements. A guide for transportation of biological materials with the greater Boston area can be found on the EH&S webpage and a table of options for local transport of biological materials can be found in Appendix D.

Harvard University Mail Services can transport eligible research materials to local Harvard or affiliate sites under the DOT Materials of Trade exception. To utilize this method, first contact EHS_ResearchTransport@harvard.edu to confirm that the materials you'd like to ship are eligible and to receive a brief training. The Transport of Research Materials form must be provided to the HUMS courier along with each package.

Domestic Transport or Exchange of Research Materials

Within the United States, the Department of Transportation (DOT) regulates all activities related to the shipment and transport of hazardous materials (e.g., chemicals, gases, etc.). The Hazardous Materials Regulations apply to each person who performs functions related to the transportation of hazardous materials. DOT oversees the Hazardous Materials Regulations (49 CFR Parts 100-185) that regulate all activities involved with the shipment and transport of hazardous materials (e.g. chemicals, gases, etc.). This includes shipping hazardous materials interstate, intrastate, through commerce by rail car, aircraft, motor vehicle and vessel. These comprehensive regulations govern transportation-related activities by offerors (e.g., shippers, shipping/receiving departments, brokers, forwarding agents, freight forwarders,); carriers (i.e., common, contract, and private trucking and other transport companies). In most cases Harvard acts as an offeror of hazardous materials.

Interstate Transport of Biologicals

United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA APHIS)

USDA APHIS regulates the interstate movement of agricultural products to prevent pests and agricultural disease agents from spreading within the U.S. Examples of regulated items include livestock disease agents (naturally occurring or engineered), material known or reasonably expected to contain livestock disease agents, vectors of livestock diseases, naturally occurring or engineered organisms that impact plants directly or indirectly, plant pests, noxious weeds, soil, or plants.

More detailed information about USDA APHIS permits can be found in the Biological Importation section. Contact EH&S as soon as possible when you suspect the need for an USDA intrastate transfer permit.

United States Centers for Disease Control and Prevention (CDC)

Generally, the CDC only regulates the *importation* of infectious biological agents capable of causing illness in humans, materials known or reasonably expected to contain an infectious biological agent, and vectors of human disease (such as insects or bats). However, if noted as a condition of an issued import permit, subsequent transfers of any infectious biological agent, infectious substance or vector within the United States will require an additional permit issued by the CDC.

United States Fish and Wildlife Services (FWS)

Fish and Wildlife Services may regulate the interstate transport of certain animal species. Please reach out to your biosafety officer with questions.

International Transport or Exchange of Research Materials

Import

Chemical Imports: Toxic Substances Control Act

Laboratories engaged in research must consider the applicability of the Toxic Substances Control Act (TSCA) to their operation. The Toxic Substances Control Act (TSCA), administered by the U.S. Environmental Protection Agency (EPA), is intended to ensure that the human health and environmental effects of chemical substances are identified and adequately addressed prior to production or transport. Visit the EH&S webpage on TSCA for more information and import certification form.

Biological Imports: Permits

Harvard EH&S Biosafety can help you determine if you need an import permit for biological materials, assist you in the application process, and support you in preparing for import permit inspections. Permits must be applied for in the name of the faculty member who is the

principal investigator overseeing the use of the imported biological material. EH&S does not maintain an umbrella permit. You must notify the EH&S Biosafety team at EHS_ResearchTransport@harvard.edu as soon as you identify the need to obtain a permit.

Centers for Disease Control (CDC) Import Permit Program

The CDC Import Permit Program, or IPP, regulates the importation of infectious biological materials that could cause disease in humans in order to prevent their introduction and spread into the U.S. The program ensures that the importation of these agents is monitored and that facilities receiving permits have appropriate biosafety measures in place to work with the imported agents.

Items Requiring CDC Import Permits: Contact EH&S or utilize the CDC Import Permit Program e-Tool for help determining if a permit is needed.

- Any infectious (etiologic) agent known or suspected to cause disease in humans.
- Unsterilized specimens of human and animal tissues (such as blood, body discharges, fluids, excretions, or similar material) containing an infectious or etiologic agent.
- Hosts and Vectors:
    - Animals. Any animal known or suspected of being infected with an organism capable of causing disease in humans may require an import permit. Importation of live turtles of less than 4 inches in shell length and live nonhuman primates is regulated by the CDC Division of Global Migration and Quarantine (DGMQ)
    - Bats. All live bats require an import permit from the CDC and the U.S. Department of Interior, Fish and Wildlife Services.

- Arthropods. Any living insect or other arthropod that is known or suspected of containing an etiologic agent (human pathogen).
- Snails. Snail species capable of transmitting a human pathogen.

To Obtain a CDC Import Permit:

- Notify EH&S at EHS_ResearchTransport@harvard.edu.
- Importation permits are issued only to the importer, who must be located in the United States.
- The permittee must be the Principal Investigator of the laboratory. Exceptions must be reviewed by EH&S.
- EH&S will assist you in applying for your permit online through the CDC eIPP System.

United States Department of Agriculture, Animal and Plant Health Inspection Service

USDA APHIS regulates the import, transit and release of regulated animals, animal products, veterinary biologics, plants, plant products, pests, organisms, soil, and genetically engineered organisms, and all agricultural products to ensure U.S. agricultural industries are kept free from pests and diseases. APHIS makes sure that all imported agricultural products shipped to the United States from abroad meet the Agency's entry requirements to exclude pests and diseases of agriculture. APHIS regulates the importation of plants and plant products, organisms/microorganisms, soil, animals and animal products, and vectors.

USDA also regulates the interstate movement of agricultural products to prevent pests and agricultural disease agents from spreading within the U.S.

USDA APHIS requirements for import permits is complex. Contact EH&S Biosafety for help determining if a permit is required.

Items Requiring USDA APHIS Import Permits:

- Animal pathogens and biological materials of animal origin
    - USDA APHIS requires permits for the importation of animal pathogens and biological materials that contain animal material. Materials such as cell culture-grown pathogens containing animal components (e.g., bovine serum albumin, blood agar, etc.) require permits due to the potential for the presence of organisms/viruses that may be dangerous to animals.
    - Some animal products may not need a USDA import permit but are still subject to review at the port of entry by USDA inspectors
    - Visit the USDA website or contact EH&S for a list of items that do not require an import permit. While a permit may not be required, there may be documentation requirements to successfully import the materials into the U.S.
    - Permits related to animal health must remain active for the entire duration importation/interstate transport is occurring.
- Soil, plant material, plant pests and plant pathogens
    - If you plan to import soil, plant material, plant pests or plant pathogens from a country outside of the U.S., or from certain areas within the U.S., you must be authorized by APHIS through their permitting system. These permits will stipulate handling precautions, storage conditions, and disposal requirements, designed to prevent the release or spread of pathogens that may be present in the samples. These types of permits must remain active for the entire duration of material possession, use, storage, and transport.

To Obtain a USDA Import Permit:

- Notify EH&S at EHS_ResearchTransport@harvard.edu.

- The permittee must be the Principal Investigator of the laboratory. Exceptions must be reviewed by EH&S.
- EH&S will assist you in applying for your permit on-line using the USDA ePermits system.

Fish & Wildlife Service and National Marine Fisheries Service

Fish and Wildlife Service permits are required for marine mammals, certain fish, and certain live animals, including bats as well as species covered by the Convention on International Trade in Endangered Species (CITES). Contact EH&S and review the USFWS website on import and export to determine if you need a permit.

Export

Export Control

The U.S. government actively regulates, and in some cases, restricts the export of certain items and information, including technologies that it deems critical to the interests of national security, the economy, and foreign policy. The Departments of State, Commerce, and Treasury administer the primary controls on exports of goods, commodities, and information. The Department of State Directorate of Defense Trade Controls (DDTC) administers export controls of **defense items**, Department of Commerce Bureau of Industry and Security (BIS) administers export control of **items that have both commercial and possible military applications**, and the U.S. Department of the Treasury Office of Foreign Assets Control (OFAC) enforces **country-specific embargoes and financial sanctions on individuals, organizations, and countries**. For more information on Comprehensively Sanctioned or Targeted Sanctions Countries, see Appendix II of the University's Screening Process and Monitoring Guidance.

Controlled items may include certain pathogens, genetically modified organisms, toxins, chemicals, lasers, software, robotics, and other research items and equipment. The export of controlled items, information or software may require approval from the U.S. government in

the form of an export license. An export license permits controlled tangible items or software to be sent outside the U.S. or controlled information or software to be shared with foreign persons in the U.S. or abroad. Before carrying, shipping, sharing, or otherwise sending any materials outside of the United States, consult the International Shipping Guidance.

Additionally, contact your School or Institute Export Control Administrator when:

- Shipping or hand-carrying research samples, models, equipment, or other items internationally
- The shipment of research materials involves a Restricted Party on a U.S. Government export or trade sanctions list
- The shipment involves items, information or software on the U.S. Commerce Control List or the U.S. Munitions List.

School or Institute Export Control Administrators can help determine if an export license is required. All license applications must be reviewed and approved by the Office of the Vice Provost for Research prior to submission. Export Licenses must be applied for in the name of the faculty member who is the principal investigator overseeing the research and transport of the material.

In the event of a violation of U.S. export controls, both the individual shipping or transporting the item, as well as the University, may be held liable. The individual shipper may be subject to criminal and civil penalties, as well as denial of export privileges and debarment from contracting with the federal government.

Chemical Exports: Toxic Substances Control Act

See the reference to the TSCA above under Chemical imports and visit the EH&S webpage on TSCA for more information and export notification form.

Biological Exports

Exportation of biological materials usually does not require a USDA or CDC export permit. Export permits and certification are available through USDA, however, in the case that the destination country requires documentation of the health status or disease risk of agricultural products. Contact EH&S or visit the USDA website for more information. The external recipient may also need to have an import permit to allow entry into their country. All permits must be included with the other documentation for the shipment.

Off-Campus, Domestic or International Shipment of Animals (including naïve animals)

Shipments of animals to other institutions or another Harvard campus are complicated transactions for the investigator's laboratory, veterinary services, and receiving institutions. Sending laboratories, veterinary staff, and Institutional Animal Care and Use Committees must work together to coordinate animal shipments with the recipient institution and all intermediary authorities (e.g., national veterinary authorities, Customs). Some receiving institutions may need additional assurances regarding health status, required additional diagnostic testing results, or documentation of various aspects of animal care or husbandry. These may require extensive communication and time. Under IATA, shipments of infected animals are strictly controlled.

For animals originating at or transported to the Harvard Longwood Campus, contact the Harvard Center for Comparative Medicine.

For animals originating at or transported to the Cambridge campus, Allston Campus, or Concord Field Station, contact the FAS Office of Animal Resources.

References

Harvard Policies:

- EH&S:
    - Environmental Health & Safety Policy
    - Laboratory Safety Policy
    - Harvard Biosafety Manual
    - Harvard Radiation Safety Manual
- OVPR:
    - OVPR Export Controls Policies and Procedures
    - Export Control Policy Statement
    - Export License Review and Approval Policy
    - International Shipping Guidance
    - Specially Designated National List Screening Process and Monitoring Guidance

Federal Agency Regulations:

- International Traffic in Arms Regulations
- Export Administration Regulations
- OFAC Sanctions Lists
- Department of Transportation Hazardous Materials Regulations (49 CFR Parts 100-185)
- United States Department of Agriculture Animal and Plant Health Inspection Service Imports & Exports
- CDC Import Regulations (42 CFR Part 71.54)

International Regulations:

- International Air Transport Association Dangerous Goods Regulations

Appendices

Appendix A – Who to Contact for Help by Keyword

	Harvard EH&S	Export Control	OTD
Chemical (hazardous)	×		
Biological pathogen	×		
Biological GMO/GMMO	×		
Biological human, animal samples	×		
Animal pathogens	×		
Soil, plant material, plant pests, plant pathogens	×		
USDA permits	×		
CDC permits	×		
USFWS permits	×		
Import	×		
Export		×	
Self-transport or hand carry of hazardous research materials	×	×	
International destinations	x	×	
Restricted party		×	
Trade sanction		×	
US Commerce Control or Munitions list		×	
TSCA	×		

International	x	x	
Intrastate	x		
Intellectual property (IP)			x
Material Transfer Agreement (MTA)			x
Department of Transportation (DOT)	x		
International Air Transport Association (IATA)	x		
Air, ground transport	x		
Radioactive materials, radiation-generating devices (e.g., lasers, x-rays)	x		
Live animals – Contact Local Harvard Animal Facility			

Appendix B – Research Material Shipping Training Courses

Research Material		HTP Training Available
Chemicals	Small volumes of flammables, corrosives, and common fixatives	Shipping Excepted Quantities: Flammables, Corrosives, and Common Fixatives
	All others	None – shipment must be coordinated by EH&S
Biologicals	Category B, GMO/GMMO, exempt specimens	Shipping Biological Materials and Dry Ice
	Category A	None – shipment must be coordinated by EH&S
Dry ice		Shipping Non-regulated Materials and Dry Ice
Radioactive material or radiation generating devices		None – shipment must be coordinated by EH&S

Appendix C – Self-transport or Hand Carry (by air) Checklist

☐	Obtain and carry documentation that proves you have authority to transport and/or exchange the research materials. - An MTA is the recommended mechanism of documentation. If an MTA is not established, a letter signed by the Principal Investigator (PI) must be obtained.
☐	Obtain and carry all permits relevant to public, agricultural, and environmental health. See the sections below pertaining to domestic or international transport of research materials.
☐	For international self-transport or hand carry, have the material reviewed by your Export Control Administrator and obtain and license if needed.
	Obtain and carry all import and export authorizations for international self-transport. These may include import permits for the destination country or export licenses for materials leaving the U.S.
☐	Obtain and carry documentation that accurately identifies the material to be transported and ensures it is allowable for self-transport or hand carry via ground or air. The documentation must also outline that the packaging and labelling meets regulatory requirements. This documentation must include references to the regulation(s) that govern the transport of materials via these modes. EH&S can review your hand carry plans and provide this documentation.
☐	Package and label research materials appropriately per regulations cited above.
☐	Arrange for prior notification of relevant authorities before you self-transport research materials. This may include the Transportation Security Administration

	(TSA), Customs and Border Protection (CBP), United States Department of Agriculture (USDA), and others. EH&S can make these notification arrangements for you.
☐	Declare all research materials to CBP authorities. Present all paperwork to justify legitimate self-transport of research materials.
☐	Carry a list of institutional contacts if questions arise during transport. This list should include contact information for the PI, EH&S, School or Institute Export Control Administrator, lab manager, or other pertinent lab contact.

Appendix D – Options for Local Transport of Research Materials

Type of Shipment	**Non-hazardous material on wet ice or ice packs**	**Non-hazardous biological on dry ice** **Genetically Modified Micro-Organisms** **Exempt Patient or Animal Specimen** **Category B Biological Substance**	**Excepted quantities of chemical fixatives or preservatives (< 30ml)**
Considered DOT-Hazmat by ground?	No	Yes	Yes, with less stringent requirements than fully regulated hazmat.
Required Training	No IATA / DOT training required	Shipper/transporter must be IATA/DOT trained if a vehicle is used to transport the material. Training is offered in the Harvard Training Portal.	

Packing/Labeling	To and From information	Fully DOT Compliant packing/labeled required if transported via vehicle	
HUMS courier service	Yes	Yes[2]	Yes[5]
Walking, bicycling, or e-scooting	Yes	Yes	Yes
Personal vehicle	Yes	Not recommended[2,3]	Not recommended[3]
Taxicab	Yes[1]	Yes[1, 2]	No
Medical Courier	Yes[4]	Yes[4]	No
Mass Transit, i.e., MBTA trains, busses, commuter rail	No	No	No
Local shuttles: **(e.g., MASCO Shuttle, Harvard Shuttles)**	No	No	No
Car for hire, i.e., UBER, Lyft	No	No	No

1. Call ahead to ensure company will take biomedical packages/dry ice. Metro Cab is one suggested taxi company. Individual drivers have the right to refuse any package. You may be required to ride with your package.

2. Avoid transporting dry ice packages in a poorly ventilated vehicle due to suffocation hazard.
3. Transporting regulated shipments may null and/or void your auto insurance in case of an accident.
4. Examples of couriers = Deliv, Skycom. Your School or Department may already have an agreement with a courier service.
5. Larger quantities of regulated chemicals may be acceptable under DOT Materials of Trade exception. Contact EH&S EHS_ResearchTransport@harvard.edu.

If you are unsure about any aspect of shipping biological materials (hazardous or non-hazardous) contact EH&S at EHS_ResearchTransport@harvard.edu