

PACKAGING AND SHIPPING HAZARDOUS MATERIALS/DANGEROUS GOODS



DO NOT prepare any international shipments before consulting with UNL Export Control at exportcontrol@unl.edu or call 402.472.6929.

Background

The United States Department of Transportation (DOT) regulates the domestic transport of hazardous materials in commerce by all modes of transportation (water, air, highway, and rail). However, DOT has no international authority.

The International Air Transport Association's (IATA) consensus standards apply to international shipments of dangerous goods by air. IATA standards may also apply to domestic transfers because DOT has incorporated IATA standards by reference. Most commercial air carriers provide domestic and international transport services, and require their customers to observe IATA standards whether their shipment is intended for domestic or international transfer. IATA refers to regulated materials as "Dangerous Goods." DOT refers to regulated materials as "Hazardous Materials." While the definitions are not identical, in function they are equivalent.

Training

In accordance with both DOT regulations and IATA standards, all "hazmat" employees must have documented and current training. Hazmat employees must receive initial training before conducting any transportation related function and retraining every three years.

A "hazmat" employee is anyone engaged in any pre-transport or transport function of hazardous materials/dangerous goods. For example: packaging; labeling; signing transportation documentation; loading or unloading; transporting in commerce.

Stockroom personnel, secretaries, researchers and others who sign for in-coming shipments of hazardous materials are NOT "hazmat employees" and therefore are not subject to training requirements. In order to maintain this exclusion, these individuals must abide by the following requirements:

1. Do not perform any function related to shipment of a dangerous good/hazardous material in commerce (e.g., signing of transport papers, placarding, labeling, packaging, etc.); and



2. Do not perform any unloading functions for or with the delivering entity.

EHS offers online DOT/IATA training for the following dangerous goods:

- Infectious Substances - (on-line is for recurrent training only; initial training must be completed in an instructor-led format with EHS)
- Biological Substances and Patient Specimens (human or animal) (initial and recurrent training), and
- Dry Ice/Dangerous Goods in Excepted Quantities (initial and recurrent training).

Following completion of initial on-line training, EHS will contact the person completing the module to briefly review applicable packaging and labeling requirements. Recurrent training can be achieved by completing the appropriate EHS web-based training modules. Arrangements can be made to provide training for other types of dangerous goods/hazardous materials by contacting EHS.

Employees who successfully complete the EHS DOT/IATA training program will be listed as “designated/qualified shippers.” Employees who have completed training through other programs will be listed as “designated shippers” after providing sufficient documentation of training and a demonstration of competency to the EHS office.

Persons who do not have current training qualifications can arrange for packaging and shipment of dangerous goods through EHS. Some departments have trained employees who prepare shipments of dangerous goods for departmental faculty and staff.

Other Regulatory Considerations

In addition to DOT/IATA regulations, some hazardous materials/dangerous goods may be subject to other import, export, and domestic transfer regulations. This may include materials that are not classified as hazardous materials/dangerous goods by DOT or IATA. For additional information, see the following EHS SOPs, and contact the University of Nebraska-Lincoln (UNL) Export Control Office.

- a) Import and Movement of Animals, Animal Products, and/or Organisms and Vectors Affecting Animals***
- b) Import and Movement of Plants, Plant Products, Soil, Plant Pests and Pathogens***
- c) Import and Transfer of Infectious Biological Materials and other CDC Regulated Agents***



Special Instructions for Other Types of Dangerous Goods\Hazardous Materials

Authorization Restrictions

Currently, only certain individuals in EHS have broad shipping credentials. Regardless of the employing department, employees who attain broad shipping credentials are still **restricted** from shipping the items listed below. Contact EHS for instructions as for how to ship a restricted item.

- Select Agents
- Radioactive material

Emergency Contact Information – USA and Canada

The University of Nebraska-Lincoln (UNL) uses the emergency notification service of CHEMTREC. For shipments that require a declaration for dangerous goods, the following should be included in the section titled “Additional Handling Information.” *“For Chemical Emergency, Spill, Leak, Fire, Exposure or Accident, call CHEMTREC Day or Night. Within USA or Canada call 1-800-424-9300.”*

Under the same section in the space indicated, type the 24-hour emergency telephone number: *1-800-424-9300* for domestic North America shipment.

Emergency Contact Information – International

Contact EHS for instructions and detailed information for any international shipments that require a Declaration for Dangerous Goods. **DO NOT** initiate any international shipment requiring a Declaration for Dangerous Goods without consulting EHS.

Prior to shipment, a Safety Data Sheet or agent hazard summary must be submitted to CHEMTREC to facilitate response in the event of an emergency. Fax the following information to CHEMTREC at 703.741.6090:

- The organization name: *“University of Nebraska – Lincoln”*
- The University of Nebraska-Lincoln’s CHEMTREC customer number: 227166
- A copy of the Safety Data Sheet or agent hazard summary for the dangerous goods being shipped

Safety Information

Prior to preparing any dangerous goods/hazardous material for shipment, review the Safety Data Sheet. The Emergency Response Guidebook is another source of safety and emergency response information. While not a substitute for consulting a chemical-specific reference source related to the hazards of a particular chemical, the following table summarizes typical hazards of each DOT Hazard Class that certain EHS employees may offer for shipment (other



than infectious, biological substances, patient specimens (human or animal) and dry ice/dangerous goods in excepted quantities, which are covered in separate SOP's).

Hazard Class/ Division	General Hazards
2.1 (Flammable Gas)	Gas under pressure, which can release large amounts of energy if cylinder ruptures. Gas is highly flammable and fire or explosion may result in contact with an ignition source. Gas can be asphyxiating or irritating.
2.2 (Non-Flammable Gas)	Gas under pressure, which can release large amounts of energy if cylinder ruptures. Gas can be asphyxiating or irritating, and is sometimes cryogenic (meaning contact with skin or mucous membranes may cause frostbite-like burns).
2.2 (Oxidizing)	Gas under pressure, which can release large amounts of energy if cylinder ruptures. Oxidizing gases, while not flammable themselves will enhance combustion of other materials. Gas can be asphyxiating or irritating. Some oxidizing gases can be cryogenic.
2.3 (Poisonous Gas)	Gas under pressure, which can release large amounts of energy if cylinder ruptures. Often toxic, and can lead to serious injury or death if inhaled or absorbed through the skin.
3 (Flammable Liquid)	Contact with an ignition source may result in fire- even vapors that have been emitted and traveled from the source liquid. May also be toxic, irritating, or corrosive to skin and mucous membranes. Some flammable liquids may also polymerize, resulting in the release of large amounts of energy or heat.
3 (Combustible Liquid)	While not as sensitive as flammable liquids, contact with an ignition source may result in fire. May also be toxic, irritating, or corrosive to skin and mucous membranes.
4.1 (Flammable Solid)	Susceptible to ignition by heat, sparks, friction, or flames and often burn very fast and difficult to extinguish. May be thermally unstable and generate large amounts of heat upon decomposition. May be toxic, irritating, or corrosive to skin and mucous membranes.
4.2 (Spontaneous Combustible)	These materials are generally pyrophoric, meaning they will self-heat and spontaneously ignite in the presence of air. Often difficult to extinguish. Vapors are often corrosive to respiratory tract, skin, and mucous membranes.
4.3 (Dangerous when Wet)	Materials in this class will often self-heat and spontaneously ignite or give off flammable or toxic vapors in the presence of water. Often difficult to extinguish. Vapors are often corrosive to respiratory tract, skin, and mucous membranes.
5.1 (Oxidizing)	While materials in this class are not flammable themselves, they will liberate oxygen thereby enhancing the combustion of other materials. May react violently with hydrocarbons to produce an explosion.
5.2 (Organic Peroxides)	These materials are similar in nature to oxidizers, but they are organic compounds thereby making them an even greater fire risk. Organic



	peroxides are often thermally unstable and may react with great energy. Often toxic by all exposure routes. May be sensitive to friction.
6.1 (Poison Inhalation Hazard)	These materials are toxic to humans, typically by inhalation as well as other potential routes of exposure. Often, short duration exposure can lead to serious injury or death.
6.1 (Poison)	These materials are typically toxic to humans, typically by ingestion or contact. Contact with these materials can be very damaging to body systems or lethal.
7 (Radioactive)	Any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed the values specified in the table specified in 49 CFR 173.436 or values derived according to the instructions in 49 CFR 173.433. In practice this would include any material whether solid, liquid, or gas, which emits ionizing radiation spontaneously greater than the 49 CFR 173 limits as previously referenced.
8 (Corrosive)	These materials can cause severe and irreversible destruction of tissues and mucous membranes upon contact.



Security Awareness

Hazmat employees must receive training related to security. Following is a summary of the security awareness information included in the EHS IATA training program. Reduce the possibility of unauthorized access, possession, and use by securing all hazardous materials/dangerous goods. The following general guidelines represent minimum requirements:

- Packages containing hazardous materials/dangerous goods must be kept in a secured area, or under the supervision of a designated shipper, or other authorized employee(s) until picked up by the carrier. Limit access to areas where dangerous goods/hazardous materials packages are prepared for shipment, received, stored, unpacked or used to authorized employees only. Report latches and locks on doors or other security devices that are damaged, sticky, or have been tampered to your supervisor and the Building Maintenance Reporter.
- Make sure the carrier picking up dangerous goods/hazardous materials shipments has identification (e.g., company ID, uses a clearly identified company vehicle, or wears a company uniform).
- Report suspicious individuals, behavior, stolen or missing dangerous goods/hazardous materials, and known or suspected unauthorized entry into secured areas to your supervisor and to the University of Nebraska-Lincoln (UNL) Police Department 402.472.2222. Be aware of your surroundings; look for out-of-place vehicles and abandoned or out-of-place backpacks, bags, or other containers.
- Limit information concerning hazardous materials/dangerous goods shipments to individuals who need to know, such as other authorized employees, carrier personnel, and supervisors. Do not share information on dangerous goods/hazardous materials shipments with casual acquaintances or strangers.
- Be familiar with emergency procedures in place at UNL and know what to do if a package is leaking or damaged.