



**Northern Illinois  
University**

**HAZARDOUS MATERIALS  
TRANSPORTATION AND SHIPPING  
PROCEDURES**

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## **Purpose**

The purpose of this document is to ensure the safe transportation of hazardous materials and hazardous waste in compliance with all applicable regulatory requirements imposed by the United States Department of Transportation (DOT) and the International Air Transportation Association (IATA).

## **Scope**

Hazardous materials and dangerous goods include, but are not limited to: alcohol, acid, solvents, compressed gas, dry ice, laboratory samples and chemicals, radioactive material, pesticides, paints and certain cleaners, equipment or instruments that contain hazardous materials, and lithium batteries.

## **Application**

The hazardous materials transportation and shipping procedures contained in this document are applicable to all NIU faculty, staff, and students who are involved in transportation related activities of hazardous materials and dangerous goods.

## **Regulatory References and University Policies**

- Pipeline and Hazardous Materials Safety Administration (PHMSA), Department of Transportation (DOT), Title 49 Code of Federal Regulations (CFR) Parts 105-180.
- International Air Transportation Association (IATA) Dangerous Goods Regulations
- NIU Facilities Management and Campus Services EH&S Policy
- NIU Health and Safety Policy

## **Definitions**

*Dangerous Goods.* A substance or material which is capable of posing a risk to health, safety, property, or environment and meets the criteria of one or more of the nine United Nations (UN) hazard classes and, where applicable, to one of three UN Packing Groups according to the provisions of Dangerous Good Regulations (DGR) Section 3. The nine classes relate to the type of hazard where as the packing group relates to the applicable degree of danger within the class.

*Hazardous Materials.* A substance or material which has been determined by the U. S. Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated. The term includes items such as samples, reagent chemicals, infectious substances, select agents and commercial products [dry ice, alcohol, acetone, formalin, etc.].

*Hazmat Employee.* An individual employed by a hazmat employer in a manner that directly affects hazardous materials transportation safety, who during the course of employment:

- a) Loads, unloads, or handles hazardous materials;
- b) Tests, reconditions, repairs, modifies, marks, or otherwise represents containers, drums, or packaging as qualified for use in the transportation of hazardous materials;
- c) Prepares hazardous materials for transportation;
- d) Responsible for safety of transporting hazardous materials; or,
- e) Operates a vehicle used to transport hazardous materials.

*Hazmat Employer.* A hazmat employer is a person who employs or uses at least one hazmat employee who:

- a) Transports hazardous materials in commerce;
- b) Causes hazardous materials to be transported in commerce;
- c) Designs, manufacture, fabricates, inspects, marks, maintains, reconditions, repairs or tests a package, container, or packaging component that is represented, marked, certified, or sold by that person as qualified for use in transporting hazardous materials in commerce.

*High Risk Hazardous Materials.* Any chemical that meets the criteria described in 49 CFR 172.800. Examples of high risk hazardous materials include, but are not limited to:

- a) Explosives;
- b) Radioactive material;
- c) Materials poisonous by inhalation;
- d) Bulk hazardous materials shipments; or,
- e) Select agents or toxins regulated by the Centers for Disease Control and Prevention or the United States Department of Agriculture.

# **Part 1: Handling Hazardous Materials**

Northern Illinois University (NIU) is committed to protecting the faculty, staff, students and visitors, as well as the general public and the environment, from the harmful effects of exposure to hazardous materials and dangerous goods.

All transport, whether by hand or by vehicle, from one room to the next, between floors of one building, or between buildings, must be performed in a manner that minimizes risk to the health and safety of building occupants, the public and the environment.

## **1.1 Regulatory Overview**

Federal requirements to ensure the safe transport of hazardous materials in commerce are promulgated by the DOT's Pipeline and Hazardous Material Safety Administration (PHMSA). Regulations for compliance are codified in Title 49 of the Code of Federal Regulations (CFR) Parts 105-180, the Hazardous Materials Transportation Act (HMTA), and the Hazardous Materials Transportation Uniform Safety Act of 1990 (HMTUSA).

The Hazardous Materials Regulations (HMR) are enforced by Research and Special Programs Administration Office (RSPA) and DOT's modal administrations: the Federal Aviation Administration (FAA), the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA), and the United States Coast Guard (USCG).

International and U.S. domestic air transport requirements for hazardous materials are established through a series of technical instructions published by the International Civil Air Organization (ICAO), which are then re-written as regulations by the International Air Transport Association (IATA) and published and updated annually as the IATA Dangerous Goods Regulations. The DOT recognizes the ICAO technical instructions reference and accepts any shipments of hazardous material that are packaged, documented and offered in accordance with the IATA Dangerous Goods Regulations as compliant.

## **1.2 Responsibilities**

The regulations stipulate that NIU as a hazmat employer is ultimately responsible for compliance. However, failure to comply with the regulations may not only result in substantial fines and penalties for the University, but the individual(s) causing the violation can also be held personally liable. Fines as high as \$81,993 per day (49 CFR 107.329) and imprisonment for up to 5 years (49 CFR 107.333) can be levied for noncompliance with the regulations.

### **1.2.1 Environmental Health and Safety**

- a) Communicate the existence and core components of these procedures to all impacted campus units;
- b) Establish and communicates appropriate levels of training for hazardous materials employees;

- c) Conducts periodic audits for hazardous materials shipping compliance; and,
- d) Investigate hazardous materials shipping discrepancies and carrier-rejected shipments.

### **1.2.2 Directors, Department Chairs and/or Leadership**

- a) Identify all faculty, staff, and students who require training and ensure that they are trained before being allowed to ship, transport, and/or receive hazardous materials;
- b) Develop and enforce internal procedures to comply with these procedures, including procedures to maintain training, certification, and shipping records;
- c) Fund the costs of safe and compliant hazardous materials shipments; and,
- d) Support the Environmental Health and Safety Department (EH&S) or regulatory agency audits and investigations;

### **1.2.3 Supervisors and Foreman**

- a) Ensure that all hazardous materials employees, as defined by this program, obtain and maintain the appropriate level of documented training for their duties;
- b) Ensure that all hazardous materials are identified, classified, packaged, and shipped safely and in accordance with applicable regulations;
- c) Maintain training, certification, and shipping records; and,
- d) Request assistance from EH&S or the Office of Research Compliance, Integrity and Safety (ORCIS) if department personnel are not trained.

### **1.2.4 Employees**

- a) Comply with all guidelines and procedures in accordance with this written program and training provided;
- b) Understand the hazards associated with the hazardous material(s) in question;
- c) Must properly handle, classify, package, label, and document all shipments of hazardous materials and must not ship materials for which they are not trained and certified;
- d) Understand and follow emergency spill response procedures; and,
- e) Provide the supervisor with shipping documents and records of training.

### **1.2.5 Radiation Safety Officer**

- a) Ensure that all federal and state regulations are followed with regard to radioactive materials;
- b) Coordinate the entry and exit of all radioactive materials; and,
- c) Maintain records of all transactions.

## **1.3 Training Requirements**

Federal DOT regulations require training (and retraining) of all employees who perform work functions covered by the Hazardous Materials Regulation (49 CFR 172.700). Any employee who works in a shipping area or who may be involved in preparing or transporting hazardous materials is required to have this training. These regulations set out the

responsibilities for institutions and individuals involved in transportation-related activities of hazardous materials and dangerous goods.

Depending on the functions of the employee and type of hazardous material, DOT and IATA training curriculum will vary in subject matter and training duration. This training involves testing and certification. Training is required within 90 days after employment or a change in job function. Recurrent training is required at least once every three years. A hazmat employee who directly affects hazardous material transportation safety must be trained in accordance with this standard. This includes any individual who:

- a) Loads, unloads or handles hazardous materials;
- b) Tests, reconditions or repairs hazmat containers;
- c) Determines proper packaging for a hazardous material;
- d) Packages hazardous materials for transportation, including labeling of the container;
- e) Prepares and/or signs hazardous materials manifests and shipping papers;
- f) Operates a vehicle containing hazardous materials; or,
- g) Is responsible for the transportation safety of hazardous materials.

Federal Law requires each business to have all persons who perform the above functions to be certified. The following types of training the employee must receive are detailed in 49 CFR 172.704:

- a) *General Awareness/Familiarization Training*  
Provide familiarity with the requirements of the regulations, and to enable the employee to recognize and identify hazardous materials consistent with the hazard communication programs required by federal regulatory agencies.
- b) *Function-specific Training*  
Provide training on the requirements of the HMT regulations related to the employee's job duties.
- c) *Safety Training*  
Provide instruction on emergency response procedures, personal protective equipment and accident prevention.
- d) *Security Awareness Training*  
Provide training that affords an awareness of security risks associated with hazardous materials transportation and methods designed to enhance transportation security. This training must also include a component covering how to recognize and respond to possible security threats.
- e) *In-depth Security Training*  
Provide to each Hazmat employee training concerning the security plan and its implementation. Security training must include University security objectives, specific security procedures, employee responsibilities, actions to take in the event of a security breach, and the organizational security structure.

Before any hazmat employee performs a function subject to the HMR, that person must be provided initial training in the performance of that function. Also, if a new regulation is adopted, or an existing regulation is changed that relates to a function performed by a hazmat

employee, that hazmat employee must first be instructed in the new or revised function-specific requirements. As an interim measure, a hazmat employee may perform a required function under the direct supervision of a properly trained and knowledgeable hazmat employee for a period of 90 days, or until the required training is provided, whichever comes first.

Hazmat employers are responsible for training. Each hazmat employee must be trained and tested, and the employer must keep a record of training to include certification of training and testing, date of training, a description of the training material, and the name and address of the person providing the training.

## **1.4 Record Keeping**

For compliance with the hazardous materials transportation regulations, the following records are required to be retained for inspection by an authorized official of the Department of Transportation or of an entity explicitly granted authority to enforce the HMR:

- a) Record of current training of each hazmat employee, inclusive of the preceding three years, in accordance with the regulations shall be retained for as long as that employee is employed by that employer as a hazmat employee and for 90 days thereafter [49 CFR 172.704(d)]. The record must include:
  - i. Hazmat employee's name;
  - ii. The most recent training completion date;
  - iii. A description, copy or the location of the training materials used to meet the requirements;
  - iv. Name and address of the person providing the training; and
  - v. Certification that the hazmat employee has been trained and tested as required.
- b) When a shipping paper is required by the regulations, each person shipping or receiving a hazardous material must retain a copy or an electronic image thereof, that is accessible at or through its principle place of business and must make the shipping paper immediately available, upon request. For a hazardous waste, each shipping paper copy must be retained for three years after the initial carrier accepts the material. [49 CFR 172.201(e)]
- c) For all other hazardous materials, each shipping paper copy must be retained for two years after the initial carrier accepts the material. Each shipping paper copy must include the date of acceptance by the initial carrier. [49 CFR 172.201(e)]



## **1.5 Security**

A security plan must be developed and implemented for regulated shipments of high risk hazardous materials (see “Definitions”). The security plan must comply with 49 CFR 172.802 and include an assessment of possible transportation security risks and appropriate measures to address the assessed risks. Each hazmat employee must receive security awareness training that provides an awareness of security risks associated with hazardous materials transportation and methods designed to enhance transportation security. This training must include a component covering how to recognize and respond to possible security threats.

## **Part 2: Transportation of Hazardous Materials**

The transportation procedures contained in this plan are designed to ensure the safe transport of hazardous materials and waste in a manner that conforms to regulatory requirements and best practices.

### **2.1 Commercial Transportation Procedures**

The commercial transportation procedures cover all off-site shipments of regulated hazardous materials, radiological materials, hazardous and radioactive waste, infectious medical waste, and mixed waste in commerce originating from NIU.

#### **2.1.1 Hazardous Waste**

Transportation of hazardous waste from NIU to off-site locations is managed and arranged by properly trained personnel, using the appropriate shipping containers, labels and other necessary equipment. All off-site transportation of hazardous wastes must be performed by properly licensed third-party subcontractors arranged and coordinated by EH&S.

#### **2.1.2 Radioactive Material**

Transport of radioactive materials to an off-site location will be accomplished following the NIU Radiation Safety Manual procedures. Transportation of radioactive materials will be managed and arranged by ORCIS personnel, using the appropriate shipping containers, labels, and other necessary equipment. To initiate this process, contact the Radiation Safety Officer.

#### **2.1.3 Potentially Infectious Medical Waste (PIMW)**

Transportation of potentially infectious medical waste (PIMW) from NIU to off-site locations is managed and arranged by properly trained personnel, using the appropriate shipping containers, labels and other necessary equipment. All off-site transportation of PIMW must be performed by properly licensed third-party subcontractors.

Occasionally, NIU Health Services must ship biological specimens for diagnosis of an infectious disease, further identification of an infectious agent, or verification of a suspected infectious agent. Only Category B samples or those not subject to DOT regulations will be shipped by commercial carriers from the university. All shipments must follow the protocols listed in the Packaging and Shipping of Biological Substances, which can be found in the Northern Illinois University Health Services Laboratory Policies and Procedures.

## 2.2 Non-Commercial Transportation Procedures

The DOT and IATA regulations apply to the transportation of hazardous materials for commercial purposes. The DOT rules list specific functions that are exempt from the federal standard when hazardous materials are transported for non-commercial purposes on public roads.

As provided in 49 CFR 171.1(d)(5), the Hazardous Materials Regulations (HMR) do not apply to the transportation of a hazardous material in a motor vehicle, aircraft or vessel operated by a Federal, state or local government employee solely for non-commercial Federal, state or local government purposes. A state agency, such as NIU, that transports hazardous materials for its own use, using its own personnel and vehicles, is not engaged in transportation in commerce and thus, the HMR do not apply. However, general handling and safety precautions are still required.

Transporting hazardous materials carries with it some risk to the driver and occupants of the vehicle and others on the road. Spilled chemicals within a vehicle can quickly create dangerous concentration levels that can either overcome the occupants or cause a flammable atmosphere. Chemical releases on a public roadway or the environment can also lead to expensive cleanup and traffic delays. In order to minimize these risks, NIU requires these additional safeguards:

- a) Individual transporting the material(s) must be familiar with, or have available in the vehicle, the Safety Data Sheets (SDSs) associated with the material(s);
- b) Secondary containment must be used to contain any spill of hazardous materials during transport;
- c) Incompatible materials are to be separated into different secondary containers;
- d) Individual transporting hazardous materials must carry a method of communication should a spill or release occur;
- e) A spill kit consisting of personal protective equipment (gloves, goggles, etc.), absorbent material, shovel and/or broom, and plastic waste bags for containerizing the waste must be available in the transport vehicle.

Individuals transporting hazardous materials must be trained and familiar with each material's hazards, the precautionary measures to avoid those hazards, and procedures to contain or clean up a spill. Individuals new to transporting hazardous materials, or transporting new or different materials should consult with EH&S or ORCIS to insure they have appropriate knowledge, training and materials to safely transport hazardous materials.

### **Part 3: Shipping Hazardous Materials**

Shipping undeclared hazardous materials potentially endangers everyone in the transportation chain and can incur penalties and fines both personally and for the institution. When hazardous materials are offered for transport by a commercial carrier like FedEx or UPS, the shipment becomes regulated by the DOT and/or international agencies (IATA). The shipment of hazardous materials from NIU to off-site locations must be arranged and managed by properly trained personnel, using the appropriate shipping containers, labels, and other necessary equipment. In order to provide for the safe and legal shipment of hazardous materials and dangerous goods, the following procedures must be strictly implemented:

- a) Notify EH&S or the ORCIS of the need to ship the material. Include the following information:
  - i. Person who intends to ship the material and contact information;
  - ii. Specific information on the material, quantity and how it is currently contained;
  - iii. Destination for the material including specific address, person receiving material, phone number and billing information.
- b) Trained and certified staff from EH&S or ORCIS will come to determine how the material will be shipped, including any special packaging which may be necessary. Do not prepare the shipment yourself. It must be done by trained and certified personnel.
- c) If special packaging is required as determined by DOT or IATA, it must be purchased by the department and received before the material can be packaged and shipped.
- d) Packaging, paperwork and shipping will be done by certified personnel.
- e) Charges for the shipment are the responsibility of the department.

Departments that ship hazardous materials must establish and maintain files which include copies of all shipping papers and training records. Hazardous materials shipping papers must be retained for two years after the material is accepted by the initial carrier.

It is the responsibility of the department or individual shipping the item to safely ship hazardous materials in accordance with DOT and Federal guidelines. Items and substances that have been declared as hazardous may not be readily apparent to the untrained shipper. It is always best to contact the proper campus personnel if there is any doubt or question that the shipment might require special treatment. If you need help identifying whether or not your item is hazardous, how to prepare for shipping, or how to obtain the required training, contact EH&S or ORCIS.