



INDIANA UNIVERSITY

**OFFICE OF THE EXECUTIVE VICE PRESIDENT
FOR UNIVERSITY ACADEMIC AFFAIRS**

University Environmental Health and Safety

Indiana University

Hazardous Materials Move Guide

Transportation Procedures for Chemical and Biological Materials

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SECTION 1

Introduction

This Guide has been developed as a supplement to the Indiana University Environmental Health and Safety (IUEHS) [Hazardous Materials Transportation Program](#) and Department of Transportation (DOT) hazardous materials regulations to facilitate the safe and compliant relocation of chemical and biological materials*. This Guide does not cover any aspect of shipping or receiving HazMat packages through commercial vendors (i.e. FedEx), nor does it meet [HazMat Employee](#) training required by DOT for HazMat transportation. Instead, it supplements the [Hazardous Materials Transportation Program](#) which must be reviewed before using this Guide. Contact [IU Radiation Safety](#) for assistance with transporting radioactive materials, which are also not covered in this Guide.

To protect health, safety and the environment, as well as to ensure regulatory compliance, you must adhere to all requirements and limitations as instructed in this Guide for relocating hazardous materials under the following scenarios:

➤ *Purpose*

1. **Relocation:** Your operation uses hazardous materials, and is moving or expanding into a new space. This applies to moves involving University buildings on and off-campus, for both laboratory and non-laboratory operations.
2. **Laboratory Closure:** A laboratory is closing, resulting in surplus chemicals which other IU researchers on campus want to relocate for use in another laboratory.
 - If a researcher is separating from IU and wants to move chemicals from their IU lab to another University, that researcher **must contact IUEHS** at their respective campus for authorization and further information.

➤ *Destination*

- **Intra-building:** Moves which take place inside the same building. When materials can be transported between adjacent buildings without going outside, it is considered *intra-building* transport.
- **Inter-building:** Moves that require transporting hazardous materials between two, non-connected University buildings. These moves generally require a vehicle. However, they can be done using a cart if the following conditions are met:
 - The buildings are connected by interior tunnels or walkways, **or**
 - The buildings are near each other and accessible by gently-sloped, paved surfaces with low pedestrian and vehicle traffic.
- **Inter-campus:** Moves between two different Indiana University campuses (this scenario is rare).

➤ *Mode of transport*

- Cart – applies to intra-building and inter-building moves.
- Vehicle – applies to inter-building and inter-campus moves. *Limitations apply* and will be outlined in the following section.

* For the purposes of this Guide, the term hazardous materials includes both chemicals and biological materials that have the potential to harm human health or the environment.

SECTION 2

Transportation by Vehicle: General Requirements and Limitations

Due to safety and regulatory requirements, limitations exist for transporting hazardous materials by vehicle, which applies to inter-building and inter-campus moves for any type of operation. For laboratory moves, contractors hired to move equipment and furniture are typically not licensed, trained, or equipped to handle or move chemicals. In addition, **University personnel are prohibited from transporting hazardous materials in a personal vehicle.**

In order to transport hazardous materials by vehicle for any reason without being subject to stringent Department of Transportation regulations, the materials must be:

- Owned by the University,
 - Properly packaged in accordance with [Attachment A](#) of this Guide,
 - Transported in a *University vehicle* (owned, leased, or rented) **by authorized and fully trained Indiana University employees only.**
1. Because of these restrictions, IUEHS is the primary resource for inter-building/inter-campus moves for which vehicles must be used. A fee is charged at an hourly rate to recover labor costs, and is discussed prior to your move.
 2. If your inventory is small and/or low hazard you may choose to transport the materials yourself subject to the requirements of Section 4C of this Guide. If you choose this option, you must still notify IUEHS using the online [Hazardous Material Move Notification and Authorization Form](#) and receive authorization. If you do not regularly transport hazardous materials on campus, you will require HazMat employee training per the IUEHS Hazardous Materials Transportation Program.

Refer to [Section 4C](#) of this Guide for more information on specific requirements and limitations.

SECTION 3

General Procedures

The following procedures apply to hazardous materials moves for intra-building, inter-building, inter-campus relocation, and laboratory closures or researcher separation resulting in surplus chemicals to transfer or dispose.

1. Notify IUEHS immediately:

A. Relocations (*Lab and Non-lab*)

Complete the online [Hazardous Material Move Notification and Authorization Form](#) as soon as you know your operation is relocating. This form provides IUEHS with key information about the move such as the primary contact and department; the starting location and destination by campus, building name(s), and room number(s); the move date(s); types of hazardous materials being moved, and any other pertinent factors involved.

The form also indicates if the move will require IUEHS or contractor assistance due to lack of resources (including trained employees), large or highly hazardous inventories, multiple move locations, etc. Once the *Hazardous Materials Move Notification Form* is received, a representative from your campus IUEHS office will contact you to schedule a firm date, review preparation procedures, and answer any questions. IUEHS requires a 30 day advanced notice for hazardous materials moves. This allows enough time to ensure adequate IUEHS resources are available or to choose and schedule an appropriate contractor. It is *strongly recommended* that you schedule the HazMat portion of the move on a different date as equipment and furniture.

Request a waste pickup for any materials that you will not be moving to your new location prior to the day of the move. Any materials that are left at the old location after the date of the move will be considered abandoned and IUEHS will charge the responsible department for their disposal.

B. Laboratory Closures

Complete the online [Researcher Departure/Lab Closeout Notification](#) as soon as you know:

- **Your lab is shutting down, or**
- **A researcher is departing the University and will be leaving behind hazardous materials in an operational laboratory.**

This form provides IUEHS with key information about the closing laboratory and also provides laboratory personnel with links to important information about procedures for properly decommissioning laboratory facilities and equipment as well as chemical management and waste disposal. See Section 3.25 of the [IU Laboratory Safety and Chemical Hygiene Plan](#) for specific materials that cannot be transferred to other users, and must be disposed as waste.

2. Evaluate Your Hazardous Materials Inventory

For hazardous materials moves, ensure that all containers for relocation are in sound condition, with tight fitting lids. **Note:** *Parafilm® is not acceptable as a lid.* If a container does not have a lid or the lid cannot be secured, the material must be repackaged prior to the move. In addition, you may find unstable materials that will need special evaluation and removal by IUEHS or a contractor. Refer to the *Chemicals of Concern* list (below) for examples.

Per the IUEHS [IU Laboratory Safety and Chemical Hygiene Plan](#), hazardous materials moves and closure of any operation with hazardous materials require the clean out of old, outdated and unwanted materials, and waste containers. It is highly recommended that you use a central location to place waste items so

they can be easily inventoried for disposal. All waste materials should be disposed in accordance with the [IU Waste Management Program](#).

Request a waste pickup for any materials that you will not be moving to your new location prior to the day of the move. Any materials that are left at the old location after the date of the move will be considered abandoned and IUEHS will charge the responsible department for their disposal.

Chemicals of Concern

Contact IUEHS if you discover any potentially explosive or unstable materials. These include but are not limited to:

- Expired peroxide formers with visible signs of peroxide formation (needle like structures or crystals around lid or inside the container);
- Explosives or flammable solids that are explosive when dry including picric acid and 2,4-dinitrophenyl hydrazine;
- Nitrocellulose;
- Any compound that is considered reactive or explosive due to exposure to air, light, shock, friction, or heat; and
- Leaking containers of any hazardous material.

SECTION 4

A. Intra-Building Moves by Cart

This section applies to anyone who needs to move hazardous materials from one location inside a building to another inside the same building (*or connected, adjacent buildings*) because of a relocation or transfer of hazardous materials.

Intra-building moves do not typically require assistance from IUEHS. However, for unusual circumstances, assistance can be provided. A fee is charged at an hourly rate to recover labor costs, and is discussed prior to your move. Once the [Hazardous Material Move Notification and Authorization Form](#) has been submitted to IUEHS, and the chemical inventory has been evaluated for container condition and waste disposal, follow these procedures for moving hazardous materials to a new location:

1. Any IU employee that transports chemical or biological materials within the same building must have either *Hazard Communication Training* or *Laboratory Safety Training*, and be familiar with spill reporting and response procedures.
2. Segregate incompatible materials according to hazard (see [Attachment A](#) of this Guide).
 - a. Ensure all containers are closed, in sound condition and properly labeled to fully identify their contents.
 - b. Use secondary containment such as a box, deep tray or other means with cushioning to stabilize containers and prevent potential chemical releases.
3. Use a cart with containment lip for transporting any hazardous materials through hallways.
 - a. You may hand-carry up to two (total) containers in safety totes only (**Figure 1**) within the same building, while avoiding stairs and using a freight elevator when feasible.
4. Use a freight elevator where available for moving hazardous materials within buildings. Avoid the use of stairs to transport hazardous materials throughout a building.

FIGURE 1: SAFETY TOTE EXAMPLE



B. Inter-Building Moves by Cart

This section applies to anyone who needs to move hazardous materials from one building to another building on campus for relocation or transfer of hazardous materials.

Inter-building moves by cart typically involve small volumes, and ordinarily do not require assistance from IUEHS. However, for unusual circumstances, IUEHS assistance or contractor recommendations can be provided. A fee is charged at an hourly rate to recover labor costs for IUEHS assistance, and is discussed prior to your move. Once the [Hazardous Material Move Notification and Authorization Form](#) has been submitted to IUEHS, and the chemical inventory has been evaluated for container condition and waste disposal, follow these procedures for moving hazardous materials to a new location:

1. Any IU employee that transports chemical or biological materials from one building to another by cart must have either *Hazard Communication Training* or *Laboratory Safety Training*, and be familiar with spill reporting and response procedures.
2. Segregate incompatible materials according to hazard (see [Attachment A](#)).
 - a. Ensure all containers are closed, in sound condition and properly labeled to fully identify their contents.
 - b. Place segregated, compatible materials into boxes with cushioning or divider inserts to keep bottles from tipping or rattling together during transport. Contact IUEHS at your respective campus if boxes or tubs are needed. A limited number *may* be available for loan on some campuses.
3. Use a cart with containment lip for transporting any hazardous materials outside.
4. Use a freight elevator where available for moving hazardous materials in and out of buildings. Avoid the use of stairs to transport hazardous materials whenever possible.
5. Keep cart transport on paved surfaces such as sidewalks with low vehicular and pedestrian traffic whenever feasible. Do not push carts through grass, gravel, mulch, or other unstable surfaces. Do not push carts up or down steep slopes. If there is no path between the buildings where you will be relocating that meets these criteria, you will need to use a vehicle. See Section 2 and Section 4C of this Guide for more information.

C. Inter-Building Moves by Vehicle

This section applies to anyone who needs to relocate hazardous materials from one building to another on or off campus, or between two IU campuses (inter-campus).

In addition to the limitations and training requirements found in [Section 2](#), there are also specific limitations and packing requirements for relocating hazardous materials inventories by vehicle. For safety and liability reasons, strict adherence to these requirements must be followed.

- **Limits on the amount of HazMat that can be transported in a vehicle:**

Hazmat moves by vehicle are limited to a total of 15 gallons of liquid and 50 pounds of solid materials, excluding reactive materials (Hazard Class 4 in [Attachment A](#) of this Guide). There is a 5 pound limit for reactive materials, which is included in the total amount limit.

- **Prohibited Hazardous Materials:**

In case of an accident, leaking container or other potential release, the following materials are ***prohibited from vehicle transport***. You must contact IUEHS at your respective campus to make arrangements for transport of these materials if the need arises.

- Chemicals designated as posing a [Poison by Inhalation hazard \(PIH\)](#). Always refer to the SDS for highly toxic materials to ensure they are not a PIH.
- Gas cylinders unless they can be *secured and kept upright* inside the vehicle as is required for all cylinders.
- Any hazardous material in an open, unstable or leaking container.

- **Packaging Requirements**

All loose containers of hazardous materials for vehicle transport must be segregated and packed upright into boxes, in one layer, with cushioning. Buckets, carboys and other sturdy individual containers can be transported as-is as long as they are closed and in sound condition. They must be loaded in the vehicle away from incompatible materials, upright, and in a manner that prevents them from tipping over. Follow the guidelines in [Attachment A](#) of this Guide for additional general packing requirements.

SECTION 5

Tips for Success

Moving hazardous materials can pose a unique set of challenges. Using these tips can prevent confusion or frustration on moving day.

- One person (with a back-up when feasible) should be appointed to oversee and coordinate all HazMat-related activities for the move. This person should be trained in laboratory safety or hazard communication, and be familiar with the chemical and/or biological materials in the lab. This person should ensure that the procedures in this Guide are followed, and serve as the point of contact for IUEHS should any questions arise.
- Allow adequate time to evaluate your HazMat inventory, and discard any unwanted or waste materials in advance of the move.
- Begin looking for interim cold-storage space for refrigerated materials. All refrigerators must be empty for contractors to move them. Freezer units (-40 and -80) do not have to be emptied, but must be packed with packing paper to ensure no shifting will occur. IUEHS Biosafety personnel must give final authorization for any freezer containing biohazardous materials to be moved with materials inside.
- Obtain adequate packing materials (sturdy boxes, tape, cushioning material) and, if moving to a location in the same or adjacent building have enough sturdy carts, boxes or deep trays, etc. for secondary containment.

- It is strongly recommended that hazardous materials moves be scheduled on a different day as the general move for furniture and equipment. This eliminates competition for docks and freight elevators, as well as excessive foot traffic and crowding in the area of the move.

Attachment A

Hazardous Materials Move Chemical Segregation and Packing Guidelines General Requirements

- *Always wear the appropriate personal protective equipment (PPE) when handling chemicals.* For laboratories, the minimum PPE is safety glasses, lab coat, and chemically resistant gloves.
- Materials must be segregated by hazard. Incompatible materials or those posing a higher hazard must be packed separately. Pack all loose materials that are chemical in nature, including bleach and other cleaning products. Pack containers in a manner that prevents breakage. Ensure all lids are tightly sealed, and containers are in sound condition. For cart moves, metal and plastic containers that are in good condition do not need to be put in a box or tub as long as the cart has an adequate secondary containment lip.
- Boxes and tubs must be packed in a single layer with cushioning material. Boxes must weigh less than 50 pounds.
- Follow your campus emergency procedures for a chemical spill.
- Special arrangements must be made to move large volumes of biological materials. This can be indicated on the [Hazardous Material Move Notification and Authorization Form](#).

Segregation by Hazard



Flammable Liquids:

- Most flammable liquids can be packed together.
- Do not pack flammable acids and flammable bases in the same box.
- Compartmentalized boxes are ideal for packing flammable liquids.



Reactive Materials:

- Reactive materials must be separated by hazard and clearly marked. Examples include: sodium metal, phosphorus pentoxide, solid paraformaldehyde, sodium borohydride, etc.
- Ensure boxes of reactives are clearly marked.
- Separate water reactives, air reactives (pyrophorics), and flammable solids.



Oxidizers & Organic Peroxides:

- Solid and liquid oxidizers and organic peroxides can be packed in boxes or original shipping containers.
- Ensure boxes of oxidizers and organic peroxides are clearly marked.
- Separate oxidizers from organic peroxides.
- Separate oxidizers and organic peroxides from any other organic materials, especially flammable materials.
- Separate oxidizers from powdered metals.
- Separate hydrogen peroxide from metals and metal compounds.



Toxic Materials:

- Miscellaneous toxic and inert materials can be combined into boxes following the general packing guidelines of a single layer with cushioning, and weighing 50 pounds or less.



Corrosives:

- Pack corrosive materials according to their compatibility
- Pack acids separately from bases.
- Pack organic acids separately from inorganic acids, and oxidizers (including nitric and perchloric acids).
- Pack cyanides and sulfides separate from acids.
- Separate acids from powdered metals.
- Compartmentalized boxes are ideal for packing corrosive liquids.

**Refer to a material's SDS and its label markings to determine its hazard class or general hazards. If you have questions, contact IUEHS.*