



## Transporting Hazardous Materials on Campus

### Standard Operating Procedure

Rev Date: 7/03/2020

*This standard operating procedure (SOP) outlines required methods when transporting hazardous chemicals, biological materials, compressed gases, and cryogenics at UT Austin. These practices and procedures are intended to provide a safe working environment, promote a culture of forward-thinking risk mitigation, and to promote compliance with federal, state, and local regulations pertaining to hazardous materials.*

#### APPLICABILITY

These requirements are to be used by students, faculty, and staff when transporting hazardous materials, compressed gases, and cryogenics between rooms or buildings at UT Austin for research and teaching laboratories and laboratory support operations.

Radioactive materials and Biological Substance Category A (substances capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals) materials have other transportation requirements and therefore are exempt from these requirements. Contact Environmental Health & Safety (EHS) at 512-471-3511 for assistance with transporting these materials.

Requirements for transporting animals can be found in [Guidelines for the Transportation of Animals](#).

#### RESPONSIBILITIES

##### Department Chair or Institute Director

- Implement policies/rules that align with the requirements of this document and which prevent inappropriate transportation of hazardous materials within Departmental/Institute operations.

##### Faculty, Supervisory staff, Employee, and Students

- Implement procedures that follow these requirements and prevent inappropriate transportation of hazardous materials.

##### Environmental Health & Safety (EHS)

- Provide information and technical assistance regarding transportation and storage regulation and best practices.
- Provide regulatory required training to shippers of hazardous materials.
- Act as the UT Austin representative during regulatory inspections.

#### TRANSPORTATION

Hazardous materials being transported are at increased risk of exposure to spill events. **Contact EHS immediately at 512-471-3511 in the event of an exposure or a spill of any size.**

### Improper methods of transporting hazardous materials:

- Transportation via personal automobiles for work purposes.
- Transportation via public transit.
- Transportation in hazardous severe weather conditions.
- Transportation of hazardous liquids without proper secondary containment.

### Containment requirements for hazardous materials:

Any UT lab personnel (faculty, students and staff) that transport hazardous materials on campus must have completed the following trainings: hazard communication (OH101), site-specific hazard communication (OH102), and be familiar with spill reporting/response procedures. Packaged hazardous materials must remain in the original shipping package until arriving at the usage or storage location. Unpackaged/research materials should be transported using the guidelines outlined below:

#### Chemicals:

- Review SDS prior to transport.
  - Be knowledgeable of the hazards and precautions of the material being transported.
  - Familiarize yourself with product regulations and supplier instructions.
  - Know what to do in case of a leak, incident, or emergency.
- Chemicals for transport must use the container-within-a-container concept.
- Small quantities ( $\leq 4\text{L}$ ) of individual containers may be carried within an easily-handled watertight secondary container or bucket.
- Large quantities ( $\leq 20\text{L}$ ) of individual containers/packages must be transported in a watertight secondary container or bucket on a cart.
- Contact the EHS office for quantities  $> 20\text{L}$  for guidance.
- Transport incompatible materials (such as acids and bases) within independent watertight secondary containers.
- Label containers with common chemical name or proper shipping name.

#### Biological Materials:

- Biological samples must be prepared for transport using the triple packaging method.
- Place samples into leak proof primary containers (vials, tubes, etc.) with positive closure (screw-on, snap-on, or push-on) and properly labeled.
- Lids/caps should be secured with tape or parafilm.
- Containers/vials should then be placed into a leak-proof secondary container (plastic bag sealed with tape or in a sealable ziplock bag) with absorbent materials in sufficient quantity to absorb the entire contents.
- Apply a biohazard label if materials to be transported are classified as BSL-2.
- The samples should then be placed into an outer container (plastic or hard-walled) with a secure lid.

#### Dry Ice:

- Complete dry ice shipping (OH601) training.
- The container (insulated chest) must be designed and constructed to permit the release of carbon dioxide gas in order to prevent a buildup of pressure that could rupture the container.
- Only use a minimum amount of dry ice to keep the samples frozen.

Hazardous materials that are transported or shipped off-campus may need special packaging and may need to be shipped by trained certified personnel. Contact EHS at 512-471-3511 for assistance.

General Transportation Requirements Indoors/Outdoors:


1. Transport hazardous materials only during normal work hours (Mon-Fri 8:00AM-5:00PM) and plan route with supervisor.
  - a. Avoid transporting hazardous materials during class changes and in high traffic areas.
  - b. A freight elevator should be used if available for moving hazardous materials within buildings/floors.
2. Check for leaks or physical damage to primary and secondary containers prior to transport.
3. Transportation of larger bottles/packages between and within buildings:
  - a. Should be done by walking and using indoor corridor connections whenever possible.
  - b. Use a cart or bottle tote safety carrier. See example in Figure 1.
  - c. Have suitable personal protective equipment (safety glasses & clean gloves).
  - d. Move cautiously especially around corners and when on uneven terrain.
4. Transporting small sample containers/vials between labs within the same building and floor or between buildings:
  - a. Containers should be in secondary containment lined with absorbent material in case of a leak.
  - b. Know location of spill supplies in case of an accidental release or spill in a hallway. Contact EHS for spill assistance within a building or outdoors.
  - c. Proper PPE (lab coat and eye protection) should be worn when transporting materials from one lab directly to another lab within the same building (no stops).
  - d. One hand should be left ungloved to touch communal surfaces (e.g., door handles, elevator buttons).



Figure 1: Handheld safety tote carrier

Do not attempt to move outdated ethers or other potentially unstable/reactive compounds. Chemicals that are outdated and potentially unstable; in corroded containers; having cracked or missing lids; unknown/unlabeled should be properly disposed of through EHS and NOT moved or relocated. Do not move chemical waste.

Transporting hazardous materials by vehicle:

1. Use of a personal vehicle is prohibited. Only UT-owned vehicles should be used for transporting hazardous materials on campus. Contact EHS at 512-471-3511 for guidance.
2. Hazardous materials and packages containing hazardous materials should be stored in plastic secondary containment and secured to prevent movement or tipping over while in transit.
3. All hazardous materials should be secured in the trunk or the cargo area of the vehicle.
  - i. If transporting on dry ice and no trunk is available have the windows open/cracked (at all times while in transit) to allow fresh air into the car.
  - ii. Most vehicle air conditioning controls are equipped with a recirculation button (  ) which recirculates air in the car and does not bring in fresh air. Ensure that this feature is turned off.
4. Hazardous materials must be under direct control/secured and never left unattended while in transit.

Secure the hazardous materials immediately once arriving at the usage or storage location.

Supplemental Requirements for Compressed Gases and Cryogenics:

1. Inspect Dewars, cylinders, and hand trucks for damage. Do not attempt to transport damaged Dewars or cylinders; contact EHS for assistance.
2. Ensure cylinders are secured with a chain, protective caps, and valve outlet caps in place.
3. Transport cylinders and Dewars using suitable material handling equipment. See example in Figure 2.
  - a. Dewars equipped with integrated castors may be transported outdoors using two people to stabilize and control the Dewar during transport.
4. Transport via elevator presents potential entrapment hazards. Transport via passenger elevator is prohibited when a freight elevator is present in the building. Freight elevators should be used when transporting compressed gas cylinders and Dewars. Warn potential riders to use the stairs or wait for an unoccupied car.
5. Arrange to have a colleague meet the cylinder on the destination floor.
6. Load the cylinder/Dewar into the empty elevator.
7. Place a sign (provided in Attachment 1) across the entrance of the elevator or in a clearly visible location on the hand truck. See example in Figure 3.
8. Apply a barricade across the elevator entrance if available.
9. Press the number for the destination floor and exit the elevator; do not ride in an elevator with a compressed gas cylinder/Dewar.
10. Remove the cylinder/Dewar and signage from the elevator at the destination floor.



Figure 2: Typical Cylinder Hand Trucks



Figure 3: Cylinder Transport in Elevators

## TEMPLATE REVISIONS

<b>DATE</b>	<b>REVISION</b>	<b>NAME</b>
02.27.2019	Document created	Suzanne Kilpatrick, Rachel LeBansky, Chris Singh, Eric Wilson, Andrea McNair
07.03.2020	Updates/additions	Rudy Guerrero

**Attachment 1**



**DO NOT  
ENTER**

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**DO NOT  
TOUCH**