

Syracuse University

Laboratory Guidance Document



Irritants

This Laboratory Guidance Document was created by Syracuse University Environmental Health & Safety Services (EHSS) to assist researchers in developing laboratory specific standard operating procedures (SOPs) for the storage, handling, and disposal of irritant materials.

Potential Hazards:

An irritant is a material that is not a corrosive, but which can cause reversible inflammation or irritation to a body surface, including eyes, respiratory tract, skin or mucous membranes, upon contact.

The severity of irritation is dependent on:

- The concentration of the chemical
- The duration of contact
- Personal health status and sensitizations

Some irritants are classified as sensitizers and may cause delayed symptoms for those exposed. A sensitizer is a chemical that can cause an allergic reaction upon repeated low level exposures.

Properties:

A wide variety of organic and inorganic compounds are irritants. These materials can be solids, liquids, or gases.

Common Laboratory Irritants	
Ammonia	Nitrogen dioxide
Dichloromethane	Ozone
Formaldehyde	Phosgene
Halogens	Sodium dodecyl sulfate
MS-222 (tricane)	Sulfur dioxide

Common Laboratory Sensitizers
Formaldehyde
Glutaraldehyde
Thiourea
2-Mercaptoethanol

General Precautions:

1. Training.

The Principal Investigator is responsible for ensuring all personnel under their supervision are aware of the hazards of irritant materials, have received appropriate hands-on training, adhere to the laboratory SOPs, and are provided with the appropriate personal protective equipment.

2. Awareness

Irritants often present other associated hazards. Be aware of all hazards present, and adjust SOPs accordingly.

Personal Protective Equipment (PPE):

- In addition to the standard laboratory attire (i.e., long pants and closed toe shoes), the following PPE is recommended:
 - ANSI certified (Z87) chemical splash goggles
 - Knee-length lab coat
 - Chemically compatible gloves
- Additional PPE may be necessary based on other hazards present.

Best Practices for the Safe Handling of Irritant Materials:

Although SOPs will vary according to the material used, the following practices are generally applicable for projects involving irritant chemicals:

1. Perform work involving irritant materials inside a fume hood.
2. Ensure spill clean-up kits are readily available and compatible with the material in use.
3. Handling procedures should be carried out in a way to minimize potential for splash, splatter, or other likely scenarios for accidental contact.
4. Eliminate or substitute for a less hazardous material when possible.
5. Design your procedure to use the least amount of material possible to achieve the desired result.

Storage:

1. Ensure secondary containment and proper segregation of incompatible chemicals/materials.
2. Demarcate irritant storage areas by posting a hazard warning sign in the storage area.
3. Irritant gas cylinders should be stored in accordance with the Compressed Gases Guidance Document Review.
4. Store liquid irritant chemicals below eye level.
5. Ensure that storage containers are in good condition and compatible with the chemical.

Disposal & Waste Management:

Chemical waste must be stored in a compatible container and labeled with a hazardous waste tag provided by EHSS.

- Ensure the waste container is fitted with a proper screw cap.
- Place the waste container in the satellite accumulation area in secondary containment and notify the EHSS Hazardous Waste Group at 315.443.9132 for disposal.

Spill Response:

Only personnel who understand the hazards of the irritant material and are confident in their ability to safely and properly clean the spill should perform the cleanup.

1. EHSS and/or the lab personnel may clean small spills by absorbing the spill with paper towels then decontaminating the spill area with compatible cleanup materials.

2. EHSS will oversee and direct the cleanup of large spills. Depending on the location and/or severity of the spill, EHSS may seek assistance from an outside emergency response services provider.
3. All cleanup materials contaminated with irritant materials should be disposed of as hazardous waste.

First Aid:

The manufacturer's SDS should be used as a reference for determining appropriate first aid measures.

1. **Skin Contact:**
 - Quickly remove all PPE and clothing that may contain the corrosive material.
 - Rinse the affected area with water for at least 15 minutes.
 - Seek medical attention.
2. **Eye Contact:** Flush eyes with lukewarm water for at least 15 minutes and seek medical attention immediately.
3. **Ingestion:** Seek medical attention immediately.
4. **Inhalation:** Move to fresh air and seek medical attention immediately.

Incident Response:

All laboratory emergencies must be reported to DPS at 315-443-2224.

Appendix I. Hazard Signage.

Post this warning sign at all storage and use areas.