


## Procedure: General Laboratory and Workshop Safety

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	<b>Responsible Administrative Unit:</b> Environmental Health and Safety	<b>Policy Contact:</b> Barb O’Kane Director of Environmental Health and Safety <a href="mailto:bokane@mines.edu">bokane@mines.edu</a>

### Applicability

The following laboratory and workshop safety procedure applies to all laboratories and workshops where use or storage of hazardous materials occurs or where a physical hazard exists. Shop/lab managers, principal investigators and advisors are responsible for communicating expectations for adherence to these and other lab-specific safety procedures.

### Training

Complete the following training as required:

Training title	Required for	Provided By	Refresher training frequency
General Laboratory Safety Training	Anyone working in a laboratory	EHS, Classroom. <a href="#">See training calendar</a> for schedule.	One time - upon initial assignment.
Lab-specific training, including use of personal protective equipment	Anyone working in a laboratory	Lab owner, PI or senior lab researcher	One time and as changes occur.
Hazardous Waste Generator	Those who generate hazardous waste and anyone purchasing hazardous chemicals	EHS, Classroom. <a href="#">See training calendar</a> for schedule. Refresher training online	Upon initial assignment and annual refresher.
Machine shop or Lab-specific safety training	Working in a lab or machine shop	PI, shop owner or other senior lab worker – orient new users to the area specific hazards and controls this includes personal protective equipment.	Upon initial assignment and when changes occur.
Biosafety training	Working with biological materials	EHS, Classroom. Call EHS to arrange training.	One time, upon initial assignment.
Blood Borne Pathogen training (BBP)	Working with blood or other potentially infectious materials	EHS, classroom. Call EHS to arrange training.	Upon initial assignment and annual refresher training.
Radiation Safety Training	Work with radiological materials or x-ray producing equipment	EHS, Online training and in-person area specific training. Contact Radiation Safety Officer to schedule training	One time - upon initial assignment.
Laser Safety Training	Work with Class 3B and 4 Lasers	EHS, online training. Contact Radiation Safety Officer to schedule training	One time - upon initial assignment.

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### **Appropriate Lab Attire**

The minimum appropriate lab and workshop attire includes the items listed below. Additional personal protective equipment (PPE) may be necessary depending on the hazards of the activity. Contact Environmental Health and Safety (EHS) for assistance in evaluating laboratory hazards and PPE needs.

- **Safety glasses** with side shields or safety goggles.
- **Sturdy shoes** that cover the whole foot and protect feet from spills, broken glass, or falling objects. No open-toed shoes, sandals, crocs™, flip-flops, etc.
- **Clothing that covers exposed skin**, including long, durable pants or long skirts and sleeved shirts, to protect against abrasions and hazardous materials. Do not wear loose clothing while working around moving machinery.
- **Wear a lab coat** (and possibly an apron) when working with hazardous materials that may contaminate clothing or cause physical injury by skin contact. Work with highly flammable or pyrophoric materials require the use of flame resistant lab coats, available through EHS.
- **Wear appropriate gloves** when handling chemicals, hot or cold objects, welding, working with heavy equipment or when objects present a physical injury risk. Remove gloves and wash hands before leaving the laboratory.
- **Leave lab coats in the laboratory** – do not take or wear contaminated lab coats into non-laboratory areas (bathrooms, conference rooms, offices, hallways) and do not take contaminated lab coats home.
- **Tie back and secure long hair.** Remove loose or dangling objects such as bracelets and necklaces. Avoid wearing hand jewelry.

### **Working Alone**

Working alone means work performed when nobody is within sight or earshot that could assist in the event of an emergency. This applies to circumstances where, in the event of injury or emergency, immediate assistance is not readily available and the student/worker may not be able to self-rescue or activate emergency services. This situation can exist during and outside regular working hours (Monday – Friday 8 AM to 5 PM).

Principle investigators and supervisors should discuss with their students/workers upcoming work and evaluate whether or not it is acceptable to perform the work alone or if a buddy-system should be used. EHS is available to assist with hazard evaluation and control.

Examples of work that should not be performed alone include changing out toxic gas cylinders, working with pyrophoric materials outside of a glovebox, working with shock sensitive materials, working on energized electrical systems with exposures greater than 50 volts, entering a confined space, working around mechanical equipment with exposed rotating parts (e.g. lathe, roller mill or power saw), working with concentrated ( $\geq 48\%$ ) hydrofluoric acid or working with highly exothermic reaction systems (e.g. polymerizations, oxidations, or hydrogenations).

### **Food and Beverages**

Do not consume or store food or beverages in labs or workshops.

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### **Access Control**

Follow the Mines [Building Access Policy](#) for authorized entry to laboratories. Authorized entry means with the permission of the Principal Investigator, Lab or Workshop Director, and other Mines required policies relating to restricted access. Laboratory and workshop doors must be locked when not occupied. Doors must not be propped open - propping doors may allow unauthorized access to hazardous areas and may compromise fire protection and air handling (HVAC) function.

### **General Chemical Safety Work Practices**

- Minimize chemical exposure-
  - Avoid skin contact as much as possible.
  - Wear eye protection.
  - Verify there is adequate ventilation.
  - Wear appropriate gloves for the hazards.
  - Wear lab coats and other protective clothing.
  - Do not eat or drink in the lab. Do not apply cosmetics, lip balm.
  - Wash hands after removing gloves and before leaving the lab.
  - Don't pipet or start a siphon by mouth.
  - Keep personal belongings away from chemicals.
- Be knowledgeable. Do not underestimate risk-
  - Obtain and read safety data sheets prior to initial handling of a chemical.
  - Assume that any unfamiliar chemical is hazardous.
  - Consider mixtures to be as hazardous as any component.
  - Know the emergency procedures for the lab, department and building.
  - Know location of emergency shower, eyewash station, fire extinguishers and first aid kit.
- Use proper engineering controls and safe procedures-
  - Substitute less hazardous chemicals when practical.
  - Verify there is adequate ventilation. Use laboratory hood and/or glove box when handling open chemical containers.
  - Label all chemical containers.
  - Keep work areas clean and uncluttered.

### **Document Control Log**

Revision #	Revision Description	Date
1	Initial issue	8/7/2012
2	Added appropriate lab attire, food and beverage, access control and working after hours information	6/12/2015
3	Change from Guidelines to a campus procedure	3/1/2018