

Personal Protective Equipment



Summary: Personal protective equipment (PPE) is a necessary part of laboratory safety in addition to engineering controls (i.e., laboratory ventilation) and good work practices. When properly selected and used, personal protective equipment can be effective in minimizing individual exposure. Always inspect personal protective equipment prior to use, and if found to be defective, notify your instructor and replace gear as appropriate.

What to do? How to do this? Determine the type(s) of PPE to use. Review the laboratory procedure, Safety Data Sheets (SDS) and other hazard information, and guidance from your instructor to determine appropriate PPE to wear based on chemical hazards encountered. If you have questions about PPE, ask your instructor. You may also contact the Gustavus Environmental Health and Safety Office (EHSO) at (507) 933-7494 for additional PPE information.

- A. Eye Protection:** At minimum, SAFETY GLASSES ARE REQUIRED for all persons entering areas where chemicals are stored or used.
1. Safety glasses must have side shields and meet American National Standards for Occupational and Education Eye and Face Protection standards. Prescription glasses **are not** considered a form of eye protection. The safety glasses you purchased from the Gustavus BookMark meet these standards during most course laboratory experiments within the chemistry department.
 2. Contact lenses may be worn if appropriate protective eyewear is also worn. Contact lenses **ARE NOT** considered a form of eye protection.
 3. Approved chemical goggles must be worn during chemical transfer/ handling operations or during any other operations having any likelihood for chemical splash or spray (i.e., processes above or below ambient pressure) may occur.¹
 4. In addition to safety eyewear, an approved face shield is to be worn when working with highly corrosive chemicals, where there is any likelihood for chemical splash/spray, or where flying fragments/particles are generated.¹

B. Hand Protection

Selection:

1. No single material can protect against all chemical, physical (e.g., cuts, abrasions, burns temperature extremes) or biological hazards. It is critical to select the correct glove for the hazard. Incorrect selection may result in false sense of security and increased exposure.
2. Consult your instructor for questions when selecting gloves for chemical use, as gloves are not recommended for every experiment that you will perform.

Inspections:

1. Inspect gloves before and after each use.
2. Check for perforations by inflating gloves with air or water.

¹ See the following website for information about approved eyewear. If you have questions, please contact the Environmental Health and Safety Office (EHSO) at extension 7494 or your instructor.
http://www.uvexrx.com/documents/UvexRx_ANSI_2010_AdvisoryBulletin_Standard.pdf

3. Inspect visually for tears or rips.
4. Discoloration or stiffness may indicate chemical degradation.
5. Torn or damaged gloves should be replaced immediately.

Use:

1. For disposable gloves, replace when chemical contact occurs, or when damage is suspected.
2. Wash hands after removing gloves (even when double gloving).
3. Remove gloves before you leave the lab or before handling objects such as doorknobs, telephones, or computer keyboards.
4. Use designated pens when wearing gloves.

Cleaning and Storage:

1. For reusable gloves, wash after removal and air dry in the lab.
2. Store gloves in a clean area away from chemicals, temperature extremes, and other hazards.

Disposal:

1. Dispose of contaminated gloves in the proper hazardous waste container.

C. Protective Clothing

1. Laboratory coats may be required when hazardous chemicals are in use. Check with your instructor. Lab coats must be removed immediately upon discovery of significant contamination.
2. Personal apparel: Only closed toed shoes are permitted in labs. No sandals, flip flops, bare feet, etc. Short skirts and short pants may need to be covered by a lab coat when working with hazardous chemicals. Loose clothing and long hair must be restrained to prevent chemical or flame contact, entanglements, etc.

D. Respiratory Equipment

1. Respiratory protection is not required during chemistry laboratory operations in which you are working with small amounts of respiratory irritants.
2. When respiratory protection is deemed warranted, instructors will advise you to use a laboratory fume hood for the chemical operation.

E. Hearing Protection

1. Hearing protection is rarely required during laboratory operations.
2. If a laboratory operation generates noise conditions in which researchers have to raise their voices to be heard, contact the EHSO for an assessment.
3. Hearing protectors such as earmuffs or earplugs may be necessary to minimize noise exposures.