

Chapter 17

LABORATORY SAFETY

A. References

- a. [EHS Laboratory Safety](#)
- b. [EHS Laboratory Signage Program](#)
- c. [EHS Laboratory Safety Manual](#)
- d. [EHS Chemical Safety](#)
- e. [WAC 296-828 Hazardous Chemicals in Laboratories](#)
- f. [WAC 296-901 Hazard Communication](#)

B. Scope

CAS personnel enter laboratories to instruct, conduct research, or to provide some other service or function. Personnel shall adhere to the requirements of this chapter, the rules, policies, and procedures referenced above, and to make every effort to minimize exposure to chemicals and other potential health and safety hazards in laboratory facilities. This chapter includes subsections that reference the following:

- Responsibilities
- Entering Laboratories and Shops
- Laboratory Signage
- Operating Procedures for Performing Laboratory Inspections and Other Services in Laboratories and Shops
- Employee Information and Training

C. Responsibilities

Dean, Chair or Director:

- Is responsible for ensuring this policy is implemented.
- Is responsible for the safety of all employees, students, and visitors in his or her areas of control.
- Reviews the control methods used by supervisors.
- Ensures the department maintains a file of required authorizations to use restricted or regulated hazardous chemicals.
- Reviews all Incident Reports.
- Ensures that appropriate corrections are made.

Supervisors

- Prepare and implement procedures for personnel entering research, clinical under his or her direction.
- Train employees in laboratory safety procedures.
- Correct improper work practices.
- Develop a positive attitude among employees toward accident prevention.
- Review and evaluate the effectiveness of laboratory safety procedures at least annually, and updates, as necessary.

- Consults the EHS Lab Safety Officer with questions, as needed, to ensure correct and adequate development of laboratory safety policies and procedures.
- Reports and investigates all accidental injuries and work-related illnesses within 24 hours using the Incident Report (see [2.24](#)). Completes Supervisor's Accident Investigation Reports, if applicable. See [2.26](#).
- Initiates corrective action to ensure safety for employees.

Employees:

- Knows and adheres to safety guidelines and policies required for the task assigned.
- Reports unsafe conditions to the principal investigator, faculty member, and immediate supervisor.
- Reports accidents, injuries, and occupational illnesses to immediate supervisor for evaluation and possible investigation.
- Utilizes fume hoods, laboratory safety devices, and personal protective equipment properly as trained. See also [3.10](#).

Laboratory Safety Officer:

- Promotes laboratory health and safety programs.
- Assists supervisors with implementing laboratory safety policies and procedures.
- Records, evaluates, and reports laboratory accidents and laboratory incidents.
- Develops and maintains training resources and provides laboratory safety training.

D. Entering Laboratories and Shops

CAS personnel can be potentially exposed to hazards when entering research laboratories, instructional laboratories, and shops. Employees must review laboratory signage posted at laboratory entrances (See Section E) for hazard information and the personal protective equipment (PPE) required to enter the laboratory. At a minimum, CAS personnel shall wear a laboratory coat or other nonflammable clothing including long pants, closed-toed shoes and eye protection into laboratories. Labs must also have nitrile gloves available. CAS employees are encouraged to engage laboratory personnel as necessary to obtain additional hazard information.

CAS personnel working in laboratories and shops shall limit contact with laboratory materials when possible. It may be necessary to manipulate some laboratory equipment or materials, such as activating an eyewash or moving chemical containers, to view other containers to support the survey or consultation. Placing survey materials, such as notepads or clipboards, on laboratory surfaces may contaminate (chemically or otherwise) those items and should be avoided. See Section E for more information.

E. Laboratory Signage

Laboratory signage identifies laboratory hazards, PPE requirements and emergency contact information. PIs or their designee must review laboratory signage annually and must update laboratory signage when hazards change. Signage can be updated at <http://ehs.wsu.edu/labsafety/LabSignageProgram.html>.

The laboratory signage program is intended to:

- Protect human health and safety;
- Protect research;
- Identify the PPE and/or other controls necessary to enter the laboratory;
- Provide a flexible program that communicates the necessary information for diverse laboratory use that can be updated as hazards change.

Refer to Chapter 14, Hazard Communication for more information.

F. Operating Procedures for Performing Laboratory Inspections and Other Services in Laboratories and Shops

EHS personnel enter WSU laboratories where chemicals, radioactive materials, biohazard materials and lasers are used for education and research. EHS personnel shall be cognizant of laboratory hazards when entering laboratories to perform work. The following information focuses on correct procedures for working safely in laboratories.

a. **Chemicals:**

Laboratory chemicals shall be labeled per [WAC 296-901](#), Hazard Communication. CAS personnel entering laboratories must understand label elements, including pictograms and hazard statements, and the hazards they represent. CAS employees shall consult SDS or contact lab personnel whenever additional information is necessary.

Employees should never eat or drink in a laboratory with chemicals. They should always wear gloves when touching any chemical containers or storage areas to avoid potential injury from chemical residue that may be present. If the chemical container appears unsafe to touch (for example peroxides are observed), the container should be left alone, laboratory personnel should be informed not to touch it, and EHS Environmental Services should be informed immediately.

CAS personnel entering laboratories shall have a fundamental understanding of chemical hazards, including flammability, corrosivity, reactivity and toxicity, and physical hazards such as extreme temperatures and pressures. The minimum PPE identified on laboratory signage shall be worn when entering the laboratory. However, if upon entering the laboratory any one of the following are encountered, leave and contact the Occupational Health and Safety or Environmental Services Program Supervisor or Laboratory Safety Officer for additional instruction:

- Bulging chemical containers or containers (not actively heated) that are warm/hot to touch;
- Old isopropyl ether containers or isopropyl ether containers where crystals are observed or peroxide forming chemicals under distillation where crystals have formed e.g., vinyl ether, tetrahydrofuran
- Concerning odors;
- Irritation to eyes, skin or mucous membranes;
- Leaking gas cylinders or gas delivery systems;
- Fuming or runaway chemical reactions;
- Malfunctioning equipment e.g., electric arcing, unbalanced centrifuge, leaking glovebox;
- Poor housekeeping where chemical carcinogens are in use;
- Other concerning conditions or activities.

See also this APP's Hazard Communication, Spill Response, and Waste Collection chapters.

b. Radioactive Materials:

Radioactive materials used in laboratories will be clearly marked with the radiation symbol. CAS personnel should not handle chemicals or other materials marked with this symbol unless trained and instructed to do so by their supervisor. Never eat, drink, or chew gum in laboratories using radioactive materials. If you observe what you think may be improperly managed radioactive materials, contact the Radiation Safety Office.

c. Biohazard Materials:

Biohazard materials include organisms that could be harmful to your health. Any biohazard material should be clearly marked with the biohazard symbol. Unless specifically directed by their supervisor, EHS personnel should not handle laboratory materials identified as biohazards. Never eat or drink in a laboratory using biohazardous materials. Do not attempt to enter a Biological Safety Level 3 (BSL-3) laboratory without a departmental escort. BSL-3 laboratories have unique entry protocols. If you observe what you think may be improperly managed biohazardous materials, contact the Biosafety Office.

d. Vivaria:

Vivaria keep and/or raise research animals and often require specialized entry and/or quarantine protocols such as stepping on mats to sterilize your shoes. In some cases, you may not enter a vivarium if you have been to another building's vivarium that same day. Contact vivarium personnel before entering.

- e. **Laser Laboratories:**
WSU policy requires laboratories using lasers to be clearly marked both on the laboratory signage (see Section E) and other required signage indicating that a laser may be in use. Signage information must also include the laser's power and whether it is currently operating. Lasers can cause serious eye or skin damage. Specialized protective eyewear is required to enter a laboratory with an active Class 3B or 4 laser. Access to laboratories with active Class 3B and 4 lasers *should* be restricted by laboratory personnel. CAS personnel may not enter a laboratory where a Class 3 or greater unshielded laser is in use without an escort or confirmation from laboratory personnel that the laser is not activated.

- f. **Sharps:**
WSU policy requires laboratory users to dispose sharps (syringes, cannulas, razor blades, etc.) in approved puncture resistant containers and not overfill sharps containers. CAS personnel may encounter containers that are overfilled, or sharps that have been managed inappropriately. Do not handle sharps without tools and/or cut/puncture resistant PPE.

- g. **Glass:**
WSU policy requires laboratory users to place glass waste in designated containers apart from regular trash. These containers must be puncture resistant (cardboard or plastic), lined, and clearly marked. CAS personnel may encounter containers that are overfilled or damaged. Sharp and/or broken glass items may be found outside glass waste containers. CAS personnel shall not handle broken glass without tools and/or cut/puncture resistant PPE.

- h. **Mechanical Hazards:**
Please reference this APP's PPE, Machine and Tool Safety and Lock-Out Tag-Out chapters.

G. Employee Information and Training

Employees expected to enter laboratories will receive training on general laboratory safety principles and practices upon initial employment. Training will include Hazardous Chemicals in Laboratories [WAC 296-828](#) and Hazard Communication [WAC 296-901](#). Training will be provided by the Laboratory Safety Program Manager or another person knowledgeable and competent in the topic (supervisor is responsible for determining the competent person for providing this training in their unit). Employee training is to be documented by recording the employee names, the date and content of the training.

Refer to Chapter 29, Training for more information.