

Safe Practices and Waste Management in Chemistry Laboratories

The chemistry laboratory has hazards that are less common in everyday life. It is essential that all students, instructors, laboratory assistants, teaching assistants and researchers are aware of the hazards, knowledgeable of the location and operation of the emergency facilities available in the lab and familiar with procedures in the event of an emergency. All emergencies, injuries, accidents, etc., must be reported to the Chemistry Main Office using an incident report form.

Personal safety

Eating and drinking are forbidden in all laboratories. It is forbidden for any individual to work alone in a chemistry laboratory without being regularly monitored by a coworker (every 15 minutes). In order to enter a laboratory, an individual must wear appropriate eye protection (options are available for purchase at the University Bookstore). Prescription glasses do not provide adequate protection against splashes from either the side or the top of the glasses, and a pair of safety eye wear that fits over the prescription glasses is required (options are available for purchase at the University Bookstore). Users of contact lenses must be aware that vapors in the chemistry laboratory may be absorbed by the lens and may lead to irritation and damage to the cornea if not dealt with promptly. All instructors, students and researchers working in a laboratory must wear a lab coat (available for purchase at University Bookstore) and shoes that cover the top of the foot and have a back.

First Aid Kit

Each chemistry laboratory has a First Aid Kit. Before you work in a laboratory, check the location(s) of the First Aid Kit(s). If you or a colleague in the laboratory are injured, no matter how minor, call for assistance. A coworker, instructor or teaching assistant will give First Aid and call for medical attention if warranted. Call Campus Security (7599) or call 911 directly, if necessary.

Emergency Shower

There are emergency showers in each chemistry laboratory. Before you work in a laboratory, check the location(s) of the showers. Pulling down on the rod of the shower releases water. Pushing the rod up stops the flow of water. A person who has been splashed with corrosive liquid or solvent should be quickly doused under the shower. Call for assistance immediately. When necessary, remove clothing to avoid corrosive liquid being in prolonged contact with the skin.

Eyewash Fountain

There are eyewash fountains in all chemistry laboratories. Before you work in a laboratory, check the location(s) of the eye wash fountains. When material has been splashed into the face, call for assistance immediately and flush the eyes for a minimum of twenty minutes.

Fire Extinguishers

Each chemistry laboratory contains a number of fire extinguishers. Before you work in a laboratory, check the location(s) of the fire extinguishers.

The CO₂ extinguishers can be quickly identified by the large black nozzle. To operate this type of extinguisher, pull the pin on the side of the handgrip, direct the nozzle at the base of the flames and squeeze the handgrip. This type of extinguisher is used for organic liquid fires and minor electrical fires. Do not use a CO₂ extinguisher on sodium, potassium, or metal hydride fires, which should be covered in sand.

All Purpose (ABC) Dry Chemical Extinguishers can be quickly identified by the small nozzle and pressure gauge. To operate this type of extinguisher, pull the pin on the side of the handgrip, direct the nozzle at the base of the flames and squeeze the handgrip. This type is useful for all fires, except sodium, potassium, or metal hydride fires (use sand).

It is required that any use of a fire extinguisher, however minor, be reported to the Chemistry Main Office.

Spill Kit

Spill kits are used to soak up a liquid spill. Before you work in a laboratory, check the location(s) of the spill kit(s). In the event of a chemical spill. Call for assistance and notify the supervisor of the lab. Follow the instructions on the spill kit. Store the absorbent containing the liquid in a fume hood.

Fire

Before you work in a laboratory, check the location(s) of the safe exits. If the fire alarm sounds, make your experiment safe and pull out all plugs from the electrical sockets. Leave the building by the nearest exit and go directly to one of the assembly points at the fountain or on the grass between the Petch Building and the Elliott Lecture Building. Never use the elevator when the fire alarm sounds.

If a fire starts in your laboratory, assess the situation:

- a) A small fire can be extinguished with a fire extinguisher, but be careful of people in the immediate area.
- b) If you have any doubt, clear the immediate area of people and sound the fire alarm. The fire department should also be called (911), but not until the fire alarm has been activated. Personal safety must be the priority in an emergency.

Following an emergency evacuation, no one may enter the building unless an emergency coordinator has indicated that it is safe to do so.

Earthquake

In the event of an earthquake, duck, cover and hold. When the shaking has stopped, evacuate the building as in the case of the fire alarm sounding. Watch for falling debris, both inside and outside of the building. Keep well away from any structures, trees and fallen power lines. Be prepared for aftershocks. Assemble with others in one group and be prepared to identify yourself to the emergency coordinator.

Cell Phones and Ear Phones

Cell phones must be turned off and stored during undergraduate laboratory classes and ear phones are forbidden in all chemistry laboratories.

Hazardous Chemicals and Waste Management

Some compounds are toxic, flammable or reactive. Before using a compound, acquire the necessary information so that you are knowledgeable of the potential hazards and appropriate waste disposal procedures. Do not dispose of chemicals down the sink.

Consider the six categories of chemistry laboratory waste for which the laboratory has a separate waste container:

Landfill. Paper towels, non-recyclable paper.

Glass. Cleaned broken glass and non-recyclable glass.

Halogenated Organic Liquids.

Non-halogenated Organic Liquids.

Solid Chemicals. Mostly ionic salts.

Aqueous Solutions. Acidic or basic solutions are neutralized and if they contain toxic cations, they are collected for disposal as hazardous waste.

The UVic Department of Occupational Health, Safety and Environment (OHSE) is responsible for the appropriate disposal of hazardous waste throughout the campus, and provide necessary guidelines and training.

Chemical hazard symbols



Corrosive



Environmental
Hazard



Flammable



Compressed
Gas



Irritant



Acute
Toxicity



Oxidizer



Explosive



Respiratory
Hazard