

- Hazardous chemical processes must always be performed inside of the fume hood.
- The fume hood sash should be as low as possible during use. The sash provides the user protection for the head and upper torso. Lower the sash when the hood is not in use. Not only will better protection be afforded to the user, significant energy savings may be realized as well.
- Post and report all problematic or malfunctioning fume hoods to the building proctor and EHS immediately. Never use a hood that is in disrepair or that is not flowing properly. Perform processes 6 inches inside the hood as measured from the sash plane.
- Place an airflow indicator at the bottom edge of the sash. A small piece of chem.-wipe or string will suffice. Movement should be towards the inside of the fume hood.
- All laboratory doors and windows must be kept shut at all times. Open doors and windows can affect supply and exhaust balance and will cause performance issues with the fume hood(s).
- Perchloric acid digestions and evaporations must be performed in a fume hood with wash down features/ functions. Routine use of the wash down system must be adhered to.
- Never allow materials (paper, foils, etc.) to be sucked up into the fume hood exhaust ducting.
- During a power failure or outage, lower the sash to within 2 inches of the fully closed position and discontinue activities until the power is restored and the fume hood is fully functional.
- Keep cup sink traps (if equipped) full of water so that they do not affect airflow. Never allow chemicals to enter cup sink/ sewer system.
- Do not “pack” the hood with items and equipment. All small equipment etc. must be elevated from the work surface at least 1 inch with a non-organic spacer.
- Keep fume hoods clean and hygienic. Chemical residue and a restricted work space may contribute to accidents or contaminated work. Unhygienic hoods will be reported and closed for use until they are cleaned.
- Always wear any additional PPE that may be required. Proper attire, gloves and eye protection are mandatory.



- Control the rate of release of particles or vapors from reactions in order to minimize exposure to such chemicals.
- Do not leave a reaction unobserved for more than a few minutes.
- Place a mark on the front of the fume hood where the sash is raised to 18 inches. Perform work at or below the sash stop level.
- Perform all work in the hood at least six inches inside the hood sash.
- Never put your head in the hood.
- No extension cords or powerstrips should be present in the hood. Ensure that no sources of ignition or spark is present when flammable or explosive chemicals are being used.
- Wear appropriate protective clothing.
- Seal all chemical containers when not in use to avoid the possible build-up of vapors in the hood.
- If especially hazardous or corrosive vapors will be evolved, these exit gases should be passed through scrubbers or absorption trains.

#### *Hood Maintenance*

- Keep the hood clean by removing excess chemicals and used equipment and cleaning up any spills or chemical residues. Make sure you can see through the glass of the sash.



- Do not adjust the hood damper (located in the outgoing air pipe). This could seriously affect the performance of hoods in other rooms. The baffles of the hood (located in the rear of the hood) may be adjusted depending on the work being performed.
- Do not attach exhaust ducts or snorkels to fume hoods without checking with EH&S or Facilities Operations first. Installation of these ducts may affect air flow in the hood.

#### *Getting Assistance*

If you have any questions about fume hood use or your hood need to be repaired or inspected, contact EH&S.



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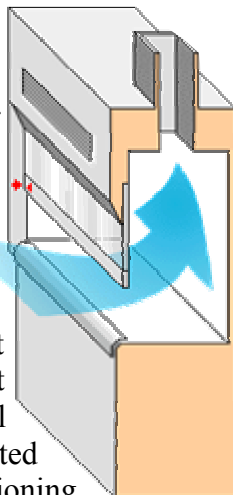
## Chemical Fume Hoods



## Vital Ventilation

## Importance of Laboratory Fume Hoods

Fume hoods or other local exhaust hoods are an important safety component to any laboratory handling toxic solvents, corrosives, or other volatile chemicals. A chemical fume hood is a partially enclosed work space that is exhausted to the outside. Laboratory fume hoods are the first defense to minimize chemical exposure to research workers. They are considered the primary means of protection from inhalation of hazardous vapors because they capture, contain, and expel emissions generated by hazardous chemicals. It is, therefore, important that all potentially harmful chemical work be conducted inside a properly functioning fume hood. The following is intended to outline exposure control practices in relation to the hood.



## Types of Fume Hoods

Chemical fume hoods are approved for three general types of uses: general purpose, radioisotope, and perchloric acid. Hoods approved for each of these uses will appear alike but require different functional and operating parameters. Never use perchloric acid in a hood unless the hood is specifically designed for that purpose.

A chemical fume hood is designed to protect the user by drawing contaminants away from you. Therefore, work with hazardous chemicals should not be done on a clean air bench, which is designed to protect biological specimens by drawing air from the back of the hood toward the user. Likewise a biosafety cabinet (which can exhaust contaminated air back into the work environment) cannot safely be used with hazardous gases and vapors.



## Before Using a Fume Hood

- The hood should be inspected annually by a trained professional. Verify that an inspection is current by checking the date on the inspection sticker.
- Make sure the hood is functioning properly and has good air flow.
- The face velocity of the hood should be between 80-120 lfpm to work properly. If the hood is outside these parameters, contact EH&S about hood repair.
- Sash is the term used to describe the movable glass panel that covers the face area of a fume hood. Keep the hood sash completely closed when not in use.
- Never remove, mod-



- ify, or override installed sash stops.
- Attach a piece of light paper, such as a "Kimwipe" to the inside bottom corner of the hood sash. Inward movement of the paper indicates air is being drawn into the hood. The paper should be moving, but not so rapidly that it tears or comes off.
- Avoid storing excess chemicals or equipment in the hood. If a small amount must be stored in the hood, keep them away from the baffle slots in the rear of the hood or place on blocks so that air can flow to the bottom opening of the baffle.
- Never use the hood as a waste disposal mechanism (e.g., for evaporation of excess chemicals).
- Avoid cross-drafts which can cause turbulence and reduce the efficiency of the hood.



## Working in a Fume Hood

- Use the fume hood when handling volatile or highly toxic chemicals.
- Select the proper exhaust speed setting for your work. If the speed is adjustable, the "low" velocity setting is appropriate when chemicals are stored inside the hood, and the "high" setting is appropriate when working with chemicals.