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FACT SHEET

No. 09

ENVIRONMENT, HEALTH & SAFETY INFORMATION FOR THE
BERKELEY CAMPUS

Fume Hoods

One of the most important safety devices in a laboratory is a properly functioning fume hood. The fume hood protects users from inhaling chemicals by constantly pulling air into the hood and exhausting it out of the building. Fume hoods also provide protection in the event of an explosion or fire.

A fume hood should be used in the following situations:

- When handling chemicals with significant inhalation hazards such as toxic gases, toxic chemical vapors, volatile radioactive material, and respirable toxic powders
- When carrying out experimental procedures with strong exothermic reactions
- When handling chemicals with significant vapor pressure
- When chemical vapors generated could cause a fire hazard
- When working with compounds that have an offensive odor

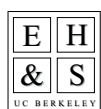
Air Velocity Maintenance and Measurements

To capture vapors adequately, a fume hood must provide an average face velocity of >100 linear feet per minute. However, excessive air velocities can cause turbulence that may bring the contaminants back into the user's breathing zone. (See drawing.)

The Office of Environment, Health & Safety (EH&S) checks campus fume hoods approximately every six months to verify that the air velocity at the work opening is within an acceptable range. The air velocity measurements are noted on the hood. EH&S also performs a smoke test at least once a year to

Top view: Pattern of turbulence from excessive hood velocity. verify inward air flow.

EH&S will post a warning label on fume hoods with a face velocity outside the allowable range and will notify Physical Plant to correct the problem immediately. Questions about restrictions on the use of hoods posted with a warning label should be directed to EH&S at 642-3073.



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How to Use a Fume Hood

Adjust the sash. Position sashes at the arrows to ensure proper airflow velocities at the work opening. Adjust the sash to shield yourself from splashes or flying objects. Horizontally sliding sashes can be used as a body shield by wrapping your arms around the sash panel as you work.

Check that the hood is working properly. By law, all hoods must have a visual indicator that tells the user if the hood is working properly. New hoods often have pressure gauges and alarms. All other hoods must have at least a simple indicator such as a ribbon or tissue attached to the sash. If there is no indicator, you should tape a piece of tissue paper to the sash. If the indicator is not drawn into the hood, the fan is not working, and the hood should not be used. In this case, call the Physical Plant work order desk at 642-1032. After repairs have been made, call EH&S at 642-3073 to recheck the hood.

Minimize storage. Do not take up hood space and block ventilation by storing unused equipment or chemicals in hoods. If large items must be kept in the hood, contact EH&S for evaluation, certification and a smoke test.

Keep all work at least 6 inches inside the hood. The capture ability of a fume hood may not be 100% at the front of the hood.

Never lean your head inside the fume hood when chemicals are present.

Never close non-bypassed hoods completely. Leave at least a two-inch sash opening, particularly if flammable materials are present in the hood.

Avoid cross drafts. Someone walking rapidly past the work opening can create a cross draft that may disturb the direction of airflow and cause turbulence.

Prevent pollution. The chemical vapors generated in most hoods are exhausted into the atmosphere. To minimize pollution, seal all chemical containers not in use. Never use the hood to vent excess chemical waste. By law, all chemical containers must be capped when the hood is not operating.

Keep the hood clean. Remove old experimental glassware and clutter. Wipe up spilled chemicals or residues. Make sure you can see through the glass sash.

Do not heat perchloric acid in standard fume hoods. Perchloric vapors may create explosive perchlorates in the ductwork. Contact EH&S if you are performing perchloric acid digestions.

Do not adjust the damper. Doing so may adversely affect fume hoods in other rooms. Users may adjust the baffles based on the vapor pressure of the materials being used. (See drawing at right for locations of damper and baffles.)

For further information on chemical fume hoods or for related safety training, call EH&S at 642-3073.

