



Laboratory Health and Safety Facts

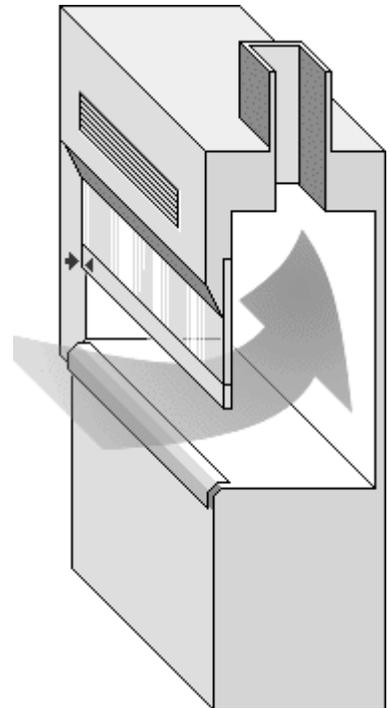
Using a Chemical Fume Hood

What is the purpose of the laboratory chemical fume hood?

- **The fume hood is the most important local exhaust device used in laboratories.** When used properly, it will protect the user from exposure to potentially harmful chemicals. It's important to remember that the hood is just part of the building's complete ventilation system, and its performance is influenced by other parts of the system.
- **Successful hood performance depends on the velocity of air moving through the hood.** Airflow is affected by cross drafts, entrance shapes, thermal loading and objects placed in the hood.
- The hood sash is meant to protect the user from exposure to harmful vapors, and to minimize the effects of explosions, fires, spills or splashes that may occur in the hood.

What is the proper function of the hood?

- To adequately protect the fume hood user, the linear face velocity of air into the hood should be between **80 and 120 feet per minute (fpm)**. Arrows on the side of the hood should indicate where the sash should be positioned to achieve the proper airflow. This sash height should be set **between 8 and 16 inches** from the bottom of the opening to protect the user and allow adequate room to work.
- Keep in mind that faster velocities, especially above 250 fpm, create hazardous conditions by interfering with operations such as transferring dry chemicals and flame control on burners.
- A fume hood that isn't performing properly is often worse than no hood at all because the user is likely to have a false sense of security about its ability to provide protection.



What are the procedures for safe use of a fume hood?

- For optimum safety, use all hazardous chemicals in the hood. Always perform procedures with highly toxic materials in the hood, especially those with a permissible exposure limit (PEL) of **50 ppm or less**. See the MSDS for this information.
- Perform work at least **6 inches** into the hood to ensure that air is being adequately exhausted away from you and protecting you from exposure to hazardous vapors.

- Keep only equipment and chemicals necessary for your experiment in the hood. When possible, use equipment that is raised off of the work surface, allowing for better airflow.
- Eliminate clutter in the hood. **Fume hoods are not meant for storage of chemicals or lab equipment.** Keep combustibles, such as paper towels, out of the hood.
- Minimize traffic near the hood, especially when conducting a hazardous procedure.
- **Know the health hazards of the materials you are working with**, and become familiar with the signs and symptoms of overexposure.
- Do not block the rear hood exhaust slots with equipment or materials. Keep items at least three inches away from back baffles.
- **Never stick your head into the hood** or leave the sash fully open during experiments involving hazardous chemicals.
- Do not position fans or air conditioners in the room in a manner that will direct air flow across the face of the hood and interfere with containment.
- Chemical fume hoods **should never be used as a means of evaporating old or unwanted chemicals.** Submit all waste disposal requests to the OEH&S.

What are the criteria for evaluating the hood's performance?

- The ideal face velocity should be approximately **100 fpm** at a sash height of 15 inches.
- No one measurement should be less than **80 fpm** or higher than **120 fpm**.
- A smoke test should **never** reveal a reverse or turbulent airflow.

How do we get our chemical fume hood evaluated?

The Office of Environmental Health and Safety evaluates the performance of fume hoods and works with the building engineer and Facilities Planning & Management to identify and correct problems that may arise.

For evaluation of a chemical fume hood or for more information, contact the Office of Environmental Health and Safety at 577-1200.

www.oehs.wayne.edu