

CHEMICAL FUME HOOD USE GUIDE – CNSM

Chemical fume hoods constitute an important safety resource for CNSM personnel. See Figure 1 for a standard fume hood diagram. Hoods are used instead of strap-on respirators to protect personnel from airborne chemical hazards. When used PROPERLY hoods provide protection from hazardous vapors, gases, fumes, mists and dusts that may arise from the materials being handled. General guidelines for the use of a chemical fume hood are listed below. **All ten considerations below MUST be understood and followed** when using a hood to protect you from harmful concentrations of hazardous material (levels above the Cal/OSHA Threshold Limit Value).

1. The unit must have passed a **performance inspection** by CNSM Safety within the past year. A sticker near the sash will indicate the most recent inspection date. Hoods that do not pass inspection are posted with a **warning sign**. These hoods MAY be used for "open bench" type operations that only generate nuisance levels of airborne contaminants. Do not use such a hood for protection as you **WILL LIKELY BE EXPOSED** to the material being handled.
2. A continuously-operating **airflow indicator** must be present, operational and demonstrate proper airflow.
 - A. MICRO and PH2 hoods are equipped with simple Vaneometers (Figure 2) which show velocity in linear feet per minute (LFM). Verify airflow is in excess of 100 LFM prior to each use.
 - B. MLSC hoods have grey *Phoenix Controls* airflow indicators (Figure 3). When the green light next to "Standard Operation" is lit the hood is working properly.
 - C. HSCI hoods have ivory *Phoenix Controls* airflow indicators (Figure 4). When the green light next to "Standard Operation" is lit the hood is working properly.

NOTE: MLSC and HSCI hoods are equipped with motion sensors that automatically reduce the airflow rate when the hood is not in use. Such changes in airflow are normal and a green light will appear on the control panel next to "Standby Operation".

3. Use the hood with the sash no higher than the mechanical stop or point indicated by the "**arrow**" **stickers**. Temporarily raising the sash above the arrow/stop position (to facilitate equipment or container movement) may not be done for more than a few minutes or when hazardous materials are in use. Keep the hood sash closed when not using the hood.
4. To ensure proper performance, minimize the amount of material inside. An item as large as a basketball can cause an airflow "dead zone" preventing the hood from meeting proper airflow standards and allowing hazardous emissions out into the lab. All items in the hood should be no closer than 6 inches from the front airfoil. Also keep 1 inch of space between items in the hood. For best results elevate large objects 1 inch above hood floor with blocks. If you place a large item, call CNSM Safety for an airflow survey to ensure the airflow is still adequate.
5. **Do not manipulate hazardous materials in a malfunctioning hood** as you will be exposed to the material being handled. In the event of a hood failure or ventilation malfunction, STOP WORK IMMEDIATELY, close the hood sash and inform others in the room. Report any hood problems promptly to your supervisor, CNSM Safety (ext. 5-5632) or the campus HELP line (ext. 5-4357).
 - A. MICRO and PH2 hoods DO NOT have lights or audible alarms. Frequently check the velocity on the Vaneometer and listen for any changes in airflow velocity.
 - B. MLSC hoods have audible alarms that will sound and a red light will appear on the control panel next to "Caution – Flow Alarm".
 - C. HSCI hoods have audible alarms that will sound and a red light will appear on the control panel next to "Flow Alarm".
6. The "Emergency Exhaust" button on MLSC and HSCI airflow indicators is used to clear the hood or room in the event of a spill, smoke etc. (NOT for an actual fire as it will "fan the flames"). Push the mute button to silence the resultant alarm if desired. MLSC hoods have a three position knob on the right side of the hood that should be kept in the middle position for normal lab use. The upper position is for exceptionally HOT operations or when significant amounts of hydrogen gas are produced. The lower position is best for pulling away very dense, heavy vapors/gases.
7. In the event of fire, close the sash (if safe to do so) and exit room. Do not push the Emergency Exhaust button! Use hallway fire alarm as appropriate.
8. **Do not use the hood to intentionally dispose of (evaporate) hazardous materials.** Containers of volatile materials in the hood must be kept closed when not in use.
9. Hood use for a **Cal/OSHA-regulated carcinogen** requires more stringent standards. These carcinogens are listed on pages 30-31 of the CNSM *Safety Program Manual*.
10. Hoods should be **cleaned periodically**. Annual cleaning is recommended.

Additional Considerations:

- Section 36 of our Safety Program Manual provides more detailed hood use guidelines.
- Lab Coordinators for CNSM instructional labs: Please make sure all your lab instructors have been trained on these guidelines.
- After addition of large items, the airflow must be re-surveyed. Also, contact CNSM Safety for a check anytime the indicator suggests diminished performance.
- Users may NEVER put their head into the hood.

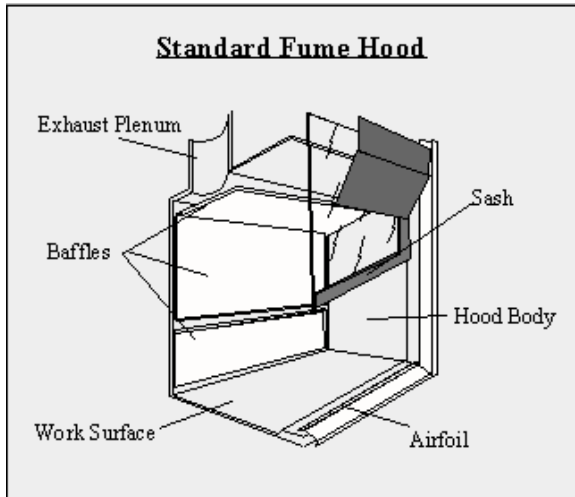


Figure 1. Basic features of a chemical fume hood.



Figure 3. MLSC hood *Phoenix Controls* unit indicating proper operation. Note green light lit.



Figure 2. MICRO hood Vaneometer. Note airflow reading above 100 LFM (arrow).

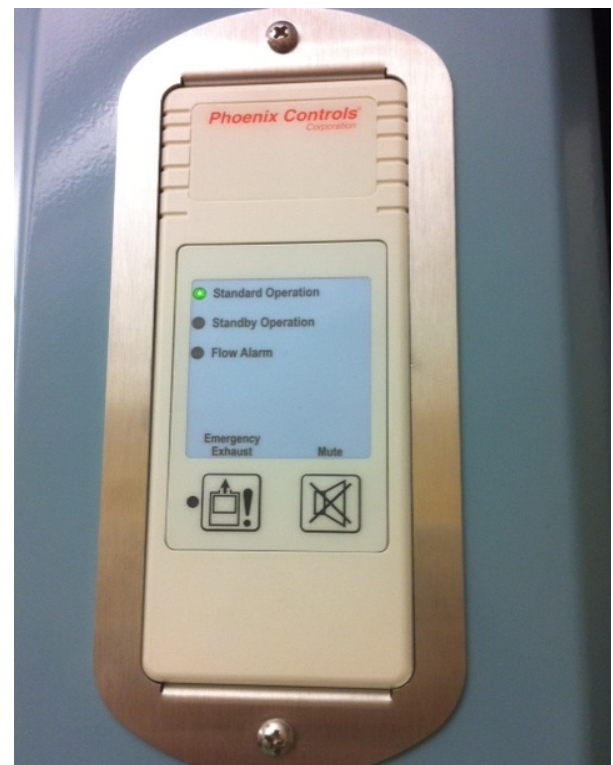


Figure 4. HSCI hood *Phoenix Controls* unit indicating proper operation. Note green light lit.