

## SOP - Standard Operating Procedures for Safe Operation of Chemical Fume Hoods

Date: June 13, 2023

### **Purpose:**

To provide instruction on the proper use of chemical fume hoods to control exposure to hazardous chemical agents. All users of fume hoods shall be familiar with these procedures and have received training on the safe operation of the fume hood prior to using the equipment. Training may be delegated to a qualified individual, but it remains the responsibility of the Principal Investigator (PI) to ensure their personnel are adequately trained.

### **Use Procedures/Safety Precautions:**

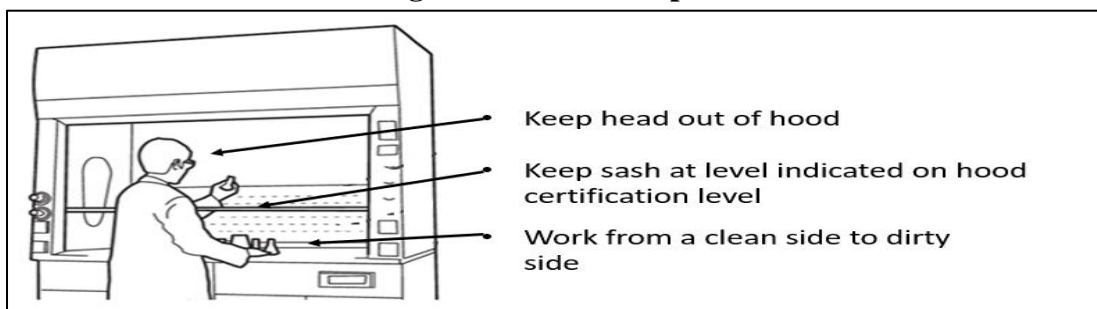
Perform a hazard assessment as described within the LSUHSC [Chemical Hygiene Plan](#) prior to work with potentially hazardous chemical agents. Based on the result of the hazard assessment, substitute toxic chemicals with less hazardous materials whenever possible.

Fume hoods should be used for all activities/experiments that may create hazardous airborne contaminants, apart from biological agents. For biological materials, a biological safety cabinet should be used (See [SOP - BSC](#) on Biosafety Cabinets).

When fume hood use is required, adhere to the following work procedures.

- Plan your work so that you know what items and chemicals you need in the hood and the order of which materials are to be dispensed and mixed.
- Ensure the fume hood is on and that the airflow is adequate (visually check flow alarm or use tissue wipe to see if flow exists).
- Don the required PPE, including lab coat, gloves, and eye/face protection.
- Retrieve chemicals and required items and place them in the hood.
- If materials must be stored in the hood (e.g., in-use waste containers) place items adjacent to a side wall. Ensure work area is unobstructed. To ensure proper function, the baffles at the lower rear of the hood and the airflow through the front opening must not be obstructed.
- Always work at least 6" (15 cm) in from the front lip of the hood.
- Lower sash to a reasonable working height, keeping it as low as possible (Maximum height is level mark on certification tag.).
- Active work should flow from clean to contaminated areas across the work surface.

**Figure 1 – Hood Setup**



- Do not extend your head inside of the hood while experiments are being performed.
- Arms should be moved in and out slowly, perpendicular to the front opening to minimize disruption of air flow.
- Uncap/open containers one at a time and dispense required amounts.
- When possible, use pipetting devices to avoid the need to pour liquids. Mouth pipetting should never be performed.
- When diluting, always add acids or base to water to avoid splashes of concentrated hazardous materials.
- If heating is required to dissolve a hazardous material, all heating must be done inside the hood in an uncappped container. Heating a sealed container may cause an explosion. Do not heat solutions which contain flammable solvents as diluents.
- When work is complete, recap all containers and return chemicals to appropriate storage location, clean hood workspace, and close sash completely.
- If spills occur, attempt to contain the spill at the source, assess the situation and perform cleaning as described in see [EHS 200.02, Chemical Spill Response Procedures](#).

### **Other Considerations:**

- If a fume hood is malfunctioning, do not attempt to use it. Post a sign indicating the hood is out of service and report the equipment problem to the appropriate departmental contact or create an [on-line work request](#).
- Fume hoods use a large amount of energy, but closing the sash when not in use brings consumption down drastically. Always close the sash on the hoods in your lab when they are not in use.
- Keep fume hoods clean. Clean the interior and exterior surfaces and sash periodically, and after minor spills as they occur, using deionized water; then wipe the areas down with a soap solution and rinse. Personnel should wear appropriate PPE when cleaning the fume hood to protect themselves from the chemicals.
- If an experiment is left unattended in a hood, post a sign indicating an experiment is in progress and who to contact.
- Do not store chemicals in fume hood unless storage is the sole use of the hood.
- Perchloric acid at concentrations >70% must not be used in standard fume hoods. Heated or concentrated perchloric acid must be handled in specially designed hoods with wash down features to prevent formation of explosive perchlorates.

### **Inspection/Certification:**

EH&S performs annual fume hood certifications and random inspections. When certified, certification tags are posted on the equipment. Do not use a chemical fume hood unless the current certification sticker is present. If a certification sticker is missing or certification past due, contact EH&S for assistance.

**Figure 2 - Fume Hood Certification Sticker**

**SASH  
WORKING  
HEIGHT**

→

FACE VELOCITY

100 fpm

Inspected by:  
SLL

Inspection Date:  
5/2/23

Due for  
recertification  
within 1 year

For questions or  
concerns,  
contact EHS  
568-6585