

Fume Hood SOP

Definition:

- **Fume Hood:** A safety device designed to protect lab personnel from exposure to volatile chemicals. It exhausts hazardous particles for safe dispersal into the atmosphere. It also provides a barrier between chemical reactions and the laboratory.
- **Fume hood User/Operator:** Any individual that uses TBEP's fume hoods.

Purpose:

- The purpose of this protocol is to educate the user/operator on the proper steps to safely and efficiently operate TBEP's fume hoods.
- This protocol will outline potential risks with using the fume hood and the corresponding safety measures.

Scope:

- This SOP applies to the fume hoods in the TBEP labs on the 14th floor of the MaRS West Tower.

Responsibility:

- **Principal Investigators, Lab Manager/Supervisor shall:**
 - Ensure that only workers who are informed about hazards, controls, safe work and emergency procedures can conduct work within the fume hoods.
 - Ensure that all appropriate precautions are being followed and that required personal protective equipment (PPE) is being worn.
- **Workers shall:**
 - Work in accordance with the standard and emergency operating procedures.
 - Ensure fume hood is in good condition before use, and report if defective.
 - Wear appropriate PPE as required.

Precaution:

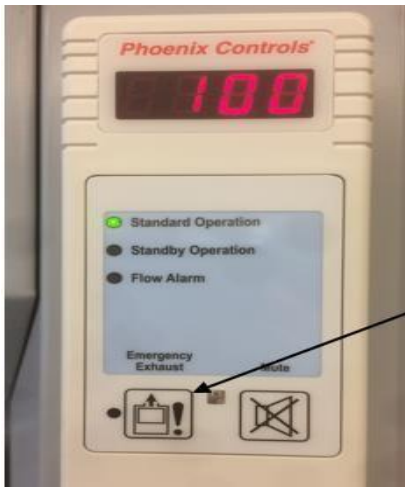
- Before operating the fume hood, conduct the following safety checks:
 - Turn on the fume hood lights to see clearly.
 - On the certification sticker, verify:
 - Last EHS inspection date;
 - That average air flow reading is satisfactory;
 - Emergency numbers are clearly listed;
 - Safe operating heights are clearly indicated.
 - On the airflow monitor/alarm:
 - Check that the airflow reader is functioning properly;
 - Alarm sticker is present and lists instructions in case of an alarm.
 - Fume hood sash:
 - Is undamaged and properly adjusted;
 - Height corresponds to the certification sticker reference.

- Ensure that all items are kept at least 6" back from the sash opening for better capture
 - Interior is clutter-free and has enough space for safe handling of chemicals; minimize the amount of equipment stored inside the fume hood
 - Periphery equipment – such as gas valves, nozzles, hoses – are undamaged.
- **Always:**
 - Wear prescribed PPE: lab coat, long pants, gloves, eye protection;
 - Do your experiments towards the back of the fume hood;
 - Keep the sash level within the range shown on the certification sticker.
- **Never:**
 - Use the fume hood if the alarm is sounding. Follow the procedures outlined in section 6 below and call **MaRS Tenant Services (416-673-8200)**;
 - Ignore an alarm by muting it when it is sounding;
 - Extend your head inside a fume hood to check on an experiment;
 - Use a fume hood for an experiment for which it is not designed;
 - Change or remove any part of a fume hood.
- **Avoid:**
 - Making quick movements around the fume hood, this disrupts the airflow;
 - Using the fume hood in high traffic, this reduces the risk of spills or airflow disruption;
 - Placing flammable materials near open flame while working in the fume hood;
 - Evaporating or storing chemical waste inside a fume hood.
- **When the fume hood is not in use:**
 - Turn off the hood lights;
 - Close the sash.

Safety Procedures:

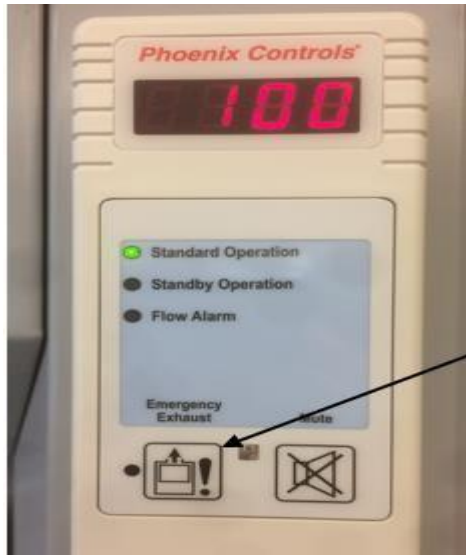
- Fume Hood Alarm Conditions
 - If the fume hood alarm sounds, do not panic; suspend work in the fume hood and lower the sash.

Note: Pressing the 'Emergency Exhaust' button on the fume hood as shown in the figure.



- If the alarm **stops** while the sash level is lowered, work can continue in the fume hood within the prescribed safe height levels
- If the alarm **does not stop** while the sash is lowered:
 1. Close the sash completely.
 2. Unplug /power down any heat sources inside the fume hood.
 3. Post an “out of order” sign on the fume hood.
 4. Contact **MaRS Tenant Services (416-873-8200)**.
- Hazards in a Fume Hood
 - **Chemical fume hood failure:** for loss of power, central ventilation failure or loss of negative pressure and spills/exposure to infectious/toxic substances, follow the [TBEP Emergency Protocol](#)
 - Call **MaRS Tenant Services (416-673-8200)**
 - Explain the incident and the location
 - Refer to the [Chemical Spill SOP](#).
 - Evacuate the room immediately and close doors as you exit.
 - **Chemical fume inhalation:** from volatile chemicals, lower the sash, evacuate to an open, airy area. All inhalation injuries require proper medical assessment.

Note: When you press the ‘Emergency Exhaust’ button on the fume hood as shown in the figure below, it provides maximum power to the fume hood. Power is shut off when you press it again.



- **Glassware explosion:** call MaRS Tenant Services (416-673-8200) and/or 911 if required.

- **Chemical spills on body:** Find the nearest deluge shower station and follow the [Emergency Deluge Shower Protocol](#)
 - Consult with your supervisor or safety protocols on the next steps for further treatment for that specific chemical.
 - If you are unsure about whether or not to consult a medical professional, call the office of Environmental Health and Safety at 416-978-4467.

- **Chemicals in eye:** find the nearest eyewash station and follow the Eyewash SOP
 - If possible try to remove contact lenses first.
 - After fifteen minutes of rinsing, seek medical attention at the nearest hospital emergency room.
 - Try to bring a Material Safety Data Sheet to the physician or at least remember the chemical that contacted your eye.

For all the events listed above, report the incident to your PI/supervisor and complete an online incident report.

References:

- https://ehs.utoronto.ca/wp-content/uploads/2018/12/Fume-Hoods-03-Design-Standard_November-2018.pdf
- <https://ehs.utoronto.ca/our-services/biosafety/biosafety-manual/Fume%20Hoods/>
- https://ehs.unl.edu/sop/s-lab_hood_use.pdf
- <https://ehs.ucsc.edu/lab-safety-manual/hoods.html>