

# DEPARTMENT OF MOLECULAR AND CELLULAR BIOLOGY

## SAFE OPERATING PROCEDURE

### FUME HOOD

#### **Purpose:**

To provide instruction on the proper use of chemical fume hoods to control exposure to hazardous materials for staff and students in the Department of Molecular and Cellular Biology.

#### **Application:**

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All users within the Department of Molecular and Cellular Biology should be familiar with the procedures described below.

Fume hoods should be used for all activities/experiments that may create hazardous airborne contaminants, with the exception of biological agents. For biological materials, a Biological Safety Cabinet (BSC) should be utilized (See MCB SOP on Biological Safety Cabinets).

#### **Safety Precautions:**

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- ⚠ All operators must receive 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 supervisor to ensure their personnel are adequately trained.
- ⚠ Ensure work area is unobstructed. If materials must be stored in the hood (e.g., in-use waste containers) place items adjacent to the side wall. 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.
- ⚠ Keep sashes fully closed when not in use.
- ⚠ Keep sashes as low as possible when working in 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.

#### **Certification:**

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Fume hoods are inspected annually by a qualified third party contractor. Certification tags are posted on the equipment, and arranged by EHS.

### *Notes:*

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- ❖ If the fume hood is equipped with a sink, do not allow chemicals to enter the drain.
- ❖ 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.
- ❖ 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 up any minor spills as they occur, and periodically clean the inside of the hood.
- ❖ If an experiment will be left unattended inside a hood, post a sign indicating what the details of the experiment are and whom to contact in case of emergency.

### *Procedure: Preparation*

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- If it is your first time working with a material, or if you are unfamiliar with the hazards, review the applicable MSDS.
- Plan your work so that you know what items and chemicals you need in the hood and the order which materials are to be dispensed and mixed.
- Ensure the fume hood is on and that the airflow is adequate (visually check flow alarm in case the audible tone has been muted).
- Wear the required PPE, including lab coat, gloves and eye/face protection.
- Retrieve chemicals and required items and place in the hood.

### *Procedure: Usage*

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- Lower sash to a reasonable working height.
- Uncap/open containers one at a time and dispense required amounts.
- When possible, use pipetting devices to avoid the need to pour liquids.
- 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 uncapped container. Heating a sealed container may cause an explosion. Do not heat solutions which contain flammable solvents as diluents.
- Recap all containers and return chemicals to appropriate storage locations.
- Close sash completely.
- Should a spill occur, attempt to contain the spill at the source, assess the situation and evacuate the lab if necessary. Refer to the CBS SOP on Chemical Spills for further details on chemical spill clean-up.

## Fume Hood Alarms: Response Procedure

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Fume hood alarm is on and the warning light is on during **REGULAR HOURS** (Mon to Fri, 8:30 am – 4:30 pm)

1. **CLOSE** the sash if open (fume hood sash should be closed when hood is not in use)
2. **If you are using the hood**, then
  - a. **Immediately STOP working**
  - b. **SECURE** any chemicals you are working with
  - c. **CLOSE the SASH**
3. **RESET** the alarm (if possible) - *if the alarm or warning light resumes after resetting* - DO NOT use the hood
4. **Notify Physical Resources at x53854 (regular hours); Security Services at x52245 (after hours)**
5. **Place an “OUT OF ORDER” sign on the hood**

Fume hood alarm is on and the warning light is on **AFTER HOURS** (evenings, weekends and holidays)

1. If sash was open and there are open chemicals in the hood, **LEAVE** the lab because noxious fumes could have accumulated in the hood or could have escaped into the lab. **Immediately Notify Security Services at x52245**
2. If sash was open and there are no open chemicals in the hood, **CLOSE** sash then follow procedure listed above starting at Step 3 (reset alarm)
3. If the sash was closed, then follow procedure listed above starting at Step 3 (reset alarm)

**Reminder: The AFTER HOURS contact number is Security Services at x52245.**