***STANDARD OPERATING PROCEDURE – G002***

**Using a fume hood**

1. **Objectives**

The objective of this document is to establish standard operating procedures for using a fume hood, ensuring the safety of laboratory personnel by mitigating potential risks associated with hazardous materials and injuries. Additionally, this SOP aims to enhance the efficiency of experimental workflows.

1. **Personal Protective Equipment**

To ensure safety of using a fume hood, appropriate personal protective equipment (PPE) must be worn. This includes:

* Long pants and closed-toe shoes to protect against spills and splashes.
* A long-sleeved, buttoned lab coat to minimize skin exposure.
* Safety glasses or goggles to protect against splashes or flying debris.
* Disposable nitrile gloves to prevent direct contact with hazardous chemicals.
* Face mask to reduce the risk of inhalation of aerosols or particulates.
* If the user has long hair, it should be tied back.
1. **Potential Hazards**

Using a fume hood poses various hazards that must be managed to maintain a safe working environment. These include:

* **Chemical Exposure:** Inhalation of toxic fumes or vapors from hazardous substances.
* **Fire Hazard:** Flammable materials may ignite if proper precautions are not observed.
* **Injury:** Risk of cuts or chemical burns from improper handling of materials.
* **Contamination:** Spills or splashes may affect the working area or other materials.
* **Airflow Disruption:** Blocked airflow can reduce the effectiveness of the fume hood, increasing exposure risks.
* **Electrical Hazards:** Faulty wiring, damaged equipment, or improper use of electrical devices within the fume hood can lead to electrical shock.
1. **Training**

Ensure all personnel have received proper training on their hazards and safe handling techniques.

* MC03 Chemical Safety II / Hazardous Waste Management
* MC07 Chemical Safety I / Chemical Safety for Laboratory Users

**Procedures**

1. Preparation
* Verify that the fume hood is certified annually by checking the ‘Certified for Use’ label. Fume hoods should be checked at least once a year.
* Ensure the fume hood is clean and organized before beginning work.
* Verify that the fume hood is functioning properly and control is turn on without any alarm and buzzer.
* Review the procedures and materials to be used in the fume hood.
1. Setup
* Position all materials and equipment inside the fume hood, making sure they are at least 16 cm (6 inches) within the sash.
* Elevate bulky equipment as necessary to allow for unobstructed airflow beneath and around it.
* Adjust the sash to the correct height for optimal operation and safety.
* Confirm that the hood is in operation and functioning properly before use.
1. Operation
* Do not attempt to override or disable fume hood autosash, airflow monitors or alarms.
* Maintain the sash at a designated height while working to ensure proper airflow.
* Maintain the hood free of clutter and mess
* Avoid obstructing the hood slots with large equipment or materials.
* Never remove the airfoil or modify the fume hood in any way.
* Work at least 16 cm (6 inches) into the fume hood.
* Do not lean into the fume hood or place your head inside while working.
* Avoid opening the sash beyond 50cm.
* Open the sash slowly to prevent sudden changes in airflow.
* Avoid rapid movements to maintain airflow.
* Use appropriate techniques for transferring chemicals to avoid spills or splashes.
1. Monitoring
* Regularly check the fume hood during operation to ensure adequate airflow and to watch for any alarms or signs of malfunction.
* Stay alert for any unusual odors or signs of airflow disruption.
1. Post-Operation
* After finishing your work, clean the surfaces of the fume hood and properly dispose of waste materials.
* Return all materials and equipment to their designated storage locations.
* Close the sash when leaving the fume hood to ensure safety.
* Notify CMO-LS if any malfunction or safety concerns arise.
1. **Disposal/Spills/Incident**
* Chemical waste and other materials generated in the fume hood should not be stored there long-term.
* Ensure chemical waste is labeled correctly.
* In the event of a chemical spill or exposure, follow the laboratory’s emergency procedures.
* If an alarm sounds or if airflow is disrupted, exit the fume hood immediately and inform the supervisor.
* Report any injuries to the Principal Investigator (PI) or departmental safety officer (DSO) immediately.
* For serious incidents, contact the security unit immediately by calling the 24-hour hotline on 23588999.
1. **References**
* Dimauro, J. (2016). *SOP\_SMB016.4: Using a fume hood.* Risk Assessment. The University of Sydney.
* Coleman, N. & Nikolic, A. & Shepherd, N. (2014). *SOP SMB016.3 (AN NC NS 0314): Using a fume hood.* The University of Sydney*.*
* Dartmouth College and the National Institutes of Health (n.d.) *Laboratory Fume Hoods Video: Chemical Fume Hood Animation.* From: <https://hseo.hkust.edu.hk/node/3636>
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* Health, Safety and Environment Office, The Hong Kong University of Science and Technology (2025). *Proper Use of Fume Hoods.* From: <https://hseo.hkust.edu.hk/sites/default/files/Proper%20Use%20of%20Fume%20Hoods.pdf>