 <b>NUS</b> National University of Singapore <b>NUS Safety &amp; Health Guidelines</b>	Procedure No:	OSHE/SOP/CS/03
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	<b>Safe Operation of Fume Hoods</b>	000 21-Oct-04
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Prepared By	Approved By	Review Date
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## 1.0 OBJECTIVE

The purpose of this procedure is to provide guidance on the safe operation of fume hoods in National University of Singapore laboratories.

## 2.0 SCOPE

The fume cupboards/hoods currently being used in the National University of Singapore (NUS). This SOP is also applicable under the Chemical, Radiation and Fire Safety & Health Programme.

## 3.0 RESPONSIBILITIES

### 3.1 Director / HOD / PI

The Director/HOD/PI has overall responsibility for ensuring a system is established for the safe use of the fume hood.


### 3.2 Designated Person

There shall be a designated person to oversee the correct operation and maintenance of the fume hood.

- a. This person shall periodically inspect the fume hood to ensure its operational performance.
- b. He/She will arrange for the yearly safety certification by a competent person and keep a copy of the certification report for verification purposes.
- c. He/she will make necessary arrangements for repair works of the fume hood.
- d. He/she will report to the Director/HOD/PI unsafe practices by fume hood users.

### 3.3 Fume hood users

- a. Fume hood users shall attend appropriate training on the safe use of the fume hood.
- b. Fume hood users shall report any injuries, defects or breakdowns to their supervisor.

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## 4.0 DEFINITION

**Fume Hood:** A fume hood is essentially a ventilated box with an adjustable work opening. It provides extraction to remove any fumes produced within the box. It is designed to draw air through the front opening, i.e. the flow is to be even and non-turbulent through the open face of the hood.

## 5.0 PROCEDURES

### 5.1 Preparation & Material Placement

- a. Read the Material Safety Data Sheets for materials being used in a fume hood. Note and observe any precautions regarding the use of the chemical in a fume hood.
- b. Always consult the manufacturer before commissioning work involving the use of radioactive chemicals/isotopes in the fume hood. Procedures such as perchloric acid digestions must never be done in regular fume hood.
- c. Do not dispose of waste chemicals via the fume hood sink, it is used mainly for rinsing and supply purposes.
- d. Ensure the fume hood has been inspected in the past 12 months by a qualified technician (refer to the certification label). Label that indicates the past service record of the fume hood should be affixed on the fume hood by the qualified technician.
- e. Turn on the fluorescent light and cabinet fan 5 minutes before beginning work.
- f. Confirm inward air flow by holding a tissue at the middle of the edge of the viewing panel and ensuring it is drawn in.
- g. If the cabinet is equipped with an alarm, test the alarm and switch it to the "ON" position.
- h. Do not place storage items at the back of the working area in the fume hood. This is of particular relevance where a perspex screen or lead bricks are used for radioisotope work.
- i. Place equipment at least 16 cm inside the fume hood and ensure there is a 3 – 6 cm air gap around any large bulky equipment in a hood.
- j. Ensure adequate personal protective equipment is worn e.g. eye and face protection, lab aprons or coats. (The type of PPE required would depend on the findings obtained from the risk assessment).
- k. Keep the working area of the fume hood clear of clutter and waste materials. Fume hoods are not storage cabinets. Storage reduces air flow and compromises fume hood extraction efficiency.

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## 5.2 Operation

- a. Active work should flow from clean to contaminated areas across the work surface.
- b. Work with the sash closed as far as practical to maintain effective capture of chemical fumes and to act as a safety shield.
- c. Keep traffic near the fume hood to a minimum to prevent unnecessary turbulence of the air intake.
- d. Do not leave a reaction unobserved for an extended period of time. If equipment or chemicals are to be kept in the hood longer than 8 hours, all hazardous materials must be clearly and accurately labeled.
- e. Do not place electrical sparks producing equipment in a hood with flammable chemicals.
- f. Promptly clean up any chemical spills according to the requirements stipulated in the MSDS.

## 5.3 Completion


- a. At the end of the experiment, decontaminate the fume hood surfaces and equipment, if necessary.
- b. Return equipment & chemical bottles to their storage cabinets.
- c. Finally, leave the sash in its fully closed position.

## 5.4 Other Considerations

- a. All repairs to the fume hood should be done by a qualified technician. Any malfunction in the operation of the fume hood should be reported and repaired before the fume hood is used again.
- b. The fume hood must be subjected to a yearly certification by a competent/qualified professional to an international standard such as ASHRAE Standard 110 entitled "Method of Testing Performance of Laboratory Fume Hoods" or the Australian Standard AS/NZS2243.8 -2001 Safety in Laboratories - Fume Cupboards. Re-certification is required each time the fume hood is repaired or relocated.

## 6.0 RECORDS

- a. A copy of the yearly certification report must be kept in a file by the fume hood owner for verification purposes.
- b. A label indicating the date of certification, the date of the next certification, to what standard test was performed, and the name of the certifier should be affixed to the exterior of the cabinet. This label should be provided by the certifier of the fume hood.

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## 7.0 REFERENCES

- a. ASHRAE Standard 110 entitled "Method of Testing Performance of Laboratory Fume Hoods"

## 8.0 APPENDICES

Nil