

Title:	<i>SAFE WORK PRACTICE #6:</i> SAFE WORK PRACTICES FOR MECHANICAL EQUIPMENT TO PROTECT AGAINST CHEMICAL EXPOSURE
SWP document #:	FSSC-SSWP-006-v1.0
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This Safe Work Practice is approved and maintained by the Faculty of Science Safety Committee. Please contact Leanne Lucas, Safety Advisor Science Activities, with any questions or concerns (leanne.lucas@smu.ca)

1. PURPOSE

To outline how the mechanical equipment in the Faculty of Science is maintained and controlled to prevent exposures to chemical hazards. To outline how to mitigate hazards by conducting a Hazard and Control Assessment.

2. SCOPE

- 2.1** This document is controlled by the Dean of Science with specific responsibilities assumed by the Senior Director of Facilities Management and the Departmental Chairs/Program Coordinators.
- 2.2** Facilities Management is responsible for fixed in place mechanical equipment that controls exposure to chemicals. Specifically, but not limited to, ventilation equipment (e.g. fume hoods, fume extractors, etc.) and fixed chemical storage locations.
- 2.3** With support from the Safety Advisor, Science Activities, the Chairs/Program Coordinators and Laboratory Supervisors (Laboratory Instructors and Principal Investigators) are responsible for:
- (i) elimination or reduction of hazardous chemical use;
 - (ii) proper placement of warning signs;
 - (iii) requisite WHMIS or other training of persons;
 - (iv) handling of chemicals in accordance with corresponding standard operating procedures (SOP); and
 - (v) the proper use of personal protective equipment (PPE).

2.4 Work involving unknown chemicals, new chemicals or processes, or physical changes to labs requires a **Hazard and Control Assessment** to assess the level of risk and risk mitigation strategies.

3. DEFINITIONS

3.1 Fixed in place mechanical equil334.15 51.144 Tm0F1 12 Tf1 0 0 1 105.62 6282 Tm0 gsPTf1 0 0 1 95.5

5.1.3 Any change in chemical exposure control processes shall only be addressed after a written Risk Assessment is received and reviewed by the departmental chair(s) involved in the change, the Safety Advisor Science Activities, the Dean of Science, and the Senior Director of Facilities Management.

5.2 Control Options and Actions

5.2.1 Strategies for mitigation of potential hazards can follow the hierarchy of controls.

5.2.1.1 Elimination of hazardous chemical or process. Is this chemical or process necessary for the teaching or research objective?

5.2.1.2 Substitution of a less hazardous chemical or process. Can we use another chemical or process, or less hazardous form of the chemical (e.g. more dilute) to carry out the process effectively and meet the teaching/research requirement?

5.2.1.3 Specific training from qualified personnel shall be provided to the operators with regards to potentially hazardous chemicals or processes, to ensure safety and prevent unsafe exposures. An SOP shall be developed and ready for use.

5.2.1.4 Engineering controls must be used to reduce the chemical hazard to an acceptable level. Define the types and levels of hazardous chemicals and select the best engineering control. Choice of engineering controls may require professional assistance and specific testing of airborne contaminant levels.

5.2.1.5 Personal protective equipment used when dealing with chemical hazards may include, but is not limited to: lab coats, safety glasses (with side shields), goggles, face shield, minimal exposed skin, and gloves. PPE is to be selected as necessary for the task, and shall always be worn as required.

5.2.1.6 If the necessary equipment to adequately reduce the risk associated with a hazard is not available, the work will not

their rounds, as part of the Lone Worker/Student program. Ensure the warning sign contains the following information, based on WHMIS categories:

- 5.3.2.1.1 Class of chemical (e.g. flammable and subclass).
- 5.3.2.1.2 Signal Words and Hazard Statements.
- 5.3.2.1.3 Hazard Pictogram(s).

5.3.3 All Hazard and Control Assessments must be reviewed and approved by those assigned responsibility. ~~Risk~~ Completed Assessments must be kept on file.

6. REFERENCES

6.1 Science Safety Documents:

Experiment in Progress Form
Hazard and Control Assessment

6.2 Fundamentals of Industrial Hygiene, B Plog et al, National Safety Council, 1011 pages, 1996.

6.3 Part 5 Handling and Storage of Materials, Occupational Health and Safety General Regulations, Nova Scotia.

https://novascotia.ca/just/regulations/regs/ohsgensf.htm#TOC1_5

6.4 OHS Program Manual Chapter 3 Hazard Identification, Risk Assessment, Risk Control.
. <https://www.smu.ca/about/ohs-programs.html>

7. REVISION HISTORY

Date	Version	Summary of changes
2024-11-08	v1.0	New SWP. Replaces Work Instruction SOP-FSSC-WI-006 Revision 17 (Jan. 18, 2021). Clarified purpose. Added new form and updated procedure to reflect use of the new form. Updated references.