

## Chemical Spill Clean-Up

### 1. Objective:

- a. This SOP describes the proper procedure for a chemical spill cleanup.

### 2. Scope:

- a. This SOP applies to any chemical spills that occur in TBEP labs on the 14<sup>th</sup> floor.

### 3. Definitions:

- a. Minor spills if:
  - The volume is less than four litres
  - It does not spread rapidly
  - It does not present an immediate hazard to people/environment (health, fire, explosion, etc.)
  - Clean up is simple and can be safely handled without emergency response personnel
- b. Major spills if:
  - The volume is more than 4 litres
  - Access to the spill is restricted
  - It presents an immediate hazard (e.g., health, fire, explosion, etc.)
  - It involves unstable, reactive or incompatible chemicals

**Note:** the more toxic, corrosive or flammable a chemical is, the more likely it is a major spill

### 4. Responsibility:

- a. Managers, Supervisors, or Principal Investigators must ensure that all users are properly trained, and that every lab has a fully stocked chemical spill kit.

### 5. Procedure:

- a. General Procedure:
  - If in doubt, or not comfortable with the cleanup, contact **MaRS Tenant Services at 416-673-8200**. If malodorous/hazardous vapours are generated from the chemical spill which can be spread outside the local area, contact MaRS Tenant Services.
  - Control the spread of the liquid: make a dike around the outside edges of the spill using absorbent material such as cat litter, vermiculite, or spill pillows.
  - Carefully remove other materials, containers, equipment from the path of the spill.
  - Add absorbent to the spill, working from the outer edge of the spill to the centre.
  - If flammable materials are involved, safely extinguish any nearby ignition sources.
  - Prevent the spread of dust and vapors: if the spill occurred in an anteroom, close the door and turn on all fume hoods if applicable.
  - Neutralize the spill [see Special Precautions below], and test with pH paper.

- Dispose of all cleanup materials as hazardous chemical waste following the Chemical Waste Disposal SOP.
- Report the incident to your supervisor and complete an [Accident/Incident Report](#).

b. Major Chemical spills

In addition to the steps above:

- Evacuate and isolate the immediate area, keep out unauthorized persons.
- Contact **MaRS Tenant Services at 416-673-8200** and state your name, location, chemical(s) involved, and the amount spilled.
- Attend to persons who may be contaminated, and treat as per the MSDS sheet.
- Wait in a safe area for the response team and do not allow unauthorized personnel into the contaminated area.

c. Minor chemical spills

- Approach with care as many harmful chemicals lack color or offensive odors.
- Use the chemical's MSDS to determine appropriate cleanup procedures.
- Wear proper PPE including gloves, lab coat, goggles, mask and anything else required for the type of spill.
- If the spilled material is water-soluble, wash the area with warm, soapy water to remove any remaining residue.
- If spilled material is a volatile chemical, open the fume hood to maximum sash height and press the Emergency Exhaust button until the smell is no longer present. Pressing the Emergency Exhaust button shown below provides maximum power in the fume hood. Pressing it again shuts off maximum power.



*Figure 1: Black arrow shows the Emergency Exhaust button*

d. Special Precautions:

Refer to the chemical MSDS for specific procedures, but follow these general rules:

- **Acids:** neutralize spills with sodium bicarbonate (soda ash)
- **Bases:** neutralize spills with citric acid or ascorbic acid
- **Alkali:** neutralize spills with boric acid
- **Dry chemicals:** use a HEPA-filtered vacuum to collect the spill
- **Mercury:** Vapors are highly toxic. Dust with sulphur powder or use a mercury sponge, then vacuum with a mercury vacuum or suction flask.

e. Chemical Spills on Body:

- Wash thoroughly (15 minutes) with water using nearest deluge shower. Remove any overlying clothing that may retain the chemical and prevent thorough washing of the skin.
- Depending on the chemical, additional medical treatment may be required. Consult the MSDS and/or specific laboratory procedure.
- Contact MaRS Tenant Services at **416-673-8200**.
- Report the incident to your supervisor complete an [Accident/Incident Report](#).

f. Chemical in Eye

- Immediately flush eyes with copious amounts of water for at least 15 minutes, removing contact lenses if possible/applicable.
- Seek medical attention immediately. Go to the nearest hospital emergency department.
- If possible, obtain the MSDS and provide it to the treating physician.
- Report the incident to your supervisor complete an [Accident/Incident Report](#).

6. **References:**

- a. <https://ehs.utoronto.ca/report-an-incident/emergency-procedures/chemical-spill-procedures/>
- b. <https://www.acs.org/content/acs/en/about/governance/committees/chemicalsafety/publications/guide-for-chemical-spill-response.html>