
Standard Safety Protocol

Hazardous Chemical Spill Control Procedure

1. Introduction

1.1. Purpose

To outline the procedure for safely cleaning a laboratory spill within the EV Building.

1.2. Scope

Applicable to all members of the EV Building using chemicals for conducting approved research, teaching course/labs or maintenance of equipment, instrumentation or accessories associated with the Department of Physical and Environmental Science. This SOP covers only the control of chemical spills. Biohazardous spills (<https://ehs.utoronto.ca/our-services/biosafety/>) and spills concerning radioactive material or devices (<https://ehs.utoronto.ca/our-services/radiation-safety/>) are not covered in this document. Please refer to the provided links for more detail.

1.3. Responsibility

Principal Investigators/Supervisors/Area Managers

- Ensuring spill kits are made readily available and spill response procedures are prominently posted in areas where hazardous agents are handled or stored.
- Ensuring employees are trained on spill response, Personal Protective Equipment (PPE) and spill kit locations, contents, and proper use of all the above.
- Ensuring spill kits are routinely inspected and used spill kit supplies are promptly replenished.

All members occupying laboratory, office, or building service space

- Following safety guidelines and procedures while working with hazardous chemical, biological & radioactive agents to minimize spills.
- Receiving training and following safety procedures on responding to spills.

Environmental Health & Safety (EHS) Services

- Establishing the spill control program and conducting periodic review of the program
- Working with Human Resources to ensure spill response training and respiratory protection training courses are provided on a regular basis.
- Facilitating and supporting laboratories' ongoing compliance

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1.4. Accountability

Principal Investigator/Facilities Management/Laboratory Instructor

1.5. Emergency Contacts

- Principal Investigator/Supervisor/Area Manager
- Emergency Fire/Police/Ambulance:911
- U of T Police:416-978-2222
- EHS : 416-208-5141
- EHS Services: 416-208-8187
- Chemical Spills: 416-978-7000
- Spill Kit Supplies & Inquiries: 416-208-4834

2. Referenced Documents

- 2.1. <https://www.utsc.utoronto.ca/physsci/sites/utsc.utoronto.ca/physsci/files/u35/UTSC%20Spill%20Procedures%20Jan%202018.pdf>
- 2.2. <https://ehs.utoronto.ca/report-an-incident/spill-reporting-procedures/>
- 2.3. <https://ehs.utoronto.ca/report-an-incident/emergency-procedures/chemical-spills-on-body/>
- 2.4. <https://ehs.utoronto.ca/report-an-incident/emergency-procedures/mercury-spill-procedures/>

3. Chemicals & Supplies

- 3.1. Chemical Spill Kits
- 3.2. Paper towels
- 3.3. SDS of all chemicals involved in the spill and possible by-products

4. Personal Protective Equipment

- 4.1. Nitrile/Nylon Gloves (purchase from ChemStores)
- 4.2. Laboratory Coat/Jacket
- 4.3. Safety Glasses/Goggles

5. Definition of a Spill

5.1. Minor Chemical Spill

- Presents little or no hazard to person or property and is small enough to be safely cleaned up using the emergency spill kit located in the vicinity.
- If the spill is in an open area and the vapours are being dispersed, it will not be considered a significant hazard.

5.2. Elevator Spills (Chemicals)

- Hazardous agent is spilled or accidentally released inside the elevator, evacuate the elevator immediately and **contact Campus Police (416-978-2222)**.

Approver:
T.Adamo

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- Once the elevator is taken out of service, decide if you can safely handle the spill.

5.3. Major Chemical Spill

- Spill that cannot be contained safely with the area spill kit and/or threatens to enter the sewer system or travel beyond the boundaries of building/property to endanger the environment.
- Major spills must be handled by evacuating the area, restricting access to the area, **notifying** persons in the vicinity and the **appropriate emergency contacts**.

6. Chemical Spill Kits

- Building Spill Kits Location
 - EV313, hallway leading to freight elevator.
 - SW111K, Hazardous Waste Storage Facility.
- Laboratory Spill Kits
 - Each laboratory will have a designated spill kit available.
 - Be aware of your labs spill kit location.

7. Chemical Spill Response

- If spilled material is flammable / combustible, eliminate all ignition sources if feasible.
- When in the lab, select the Emergency Purge on as many fume hoods to capture or direct flow of vapours. De-select after danger has passed or after a maximum use of 30 minutes.
- Notify Principal Investigator / Supervisor/ Area Manager / and people in the immediate area.
- Evacuate immediate area. Post warning sign(s) to identify the hazard and limit access to the area. Use caution tape to establish a barrier if necessary.
- STOP - THINK! Do not rush. Carefully plan the cleanup.
- Obtain the safety data sheet (SDS) and determine the appropriate measure to be taken with respect to first aid and cleanup.
- Attend to any persons who may have been contaminated following Worker Exposure / Personal Decontamination Procedures (refer to Section 9). Ensure first aid measures are followed and appropriate medical attention is sought.
- Decide if you can safely handle the spill. If so, proceed to steps outlined in Spill Cleanup Procedures (refer to Section 8) to clean up the spill.

IF YOU ARE UNSURE AS TO THE EXTENT OF THE SPILL OR ARE UNSURE HOW TO HANDLE THE SITUATION:

CALL ENVIRONMENTAL PROTECTION SERVICES (416-978-7000) AND CAMPUS POLICE (416-978-2222).

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8. Chemical Spill Cleanup Procedure

8.1. Contain the chemical spill

- Wear appropriate personal protective equipment (PPE).
- Obtain the appropriate spill kit
- Contain spill rapidly by diking with suitable materials (e.g. socks, absorbent sheets). Attempt to prevent chemical from contaminating groundwater and sewer system. Cover opening using drain cover to sewer if able to do so.
- Confine the spill to a small area. Do not allow the material to spread. Dike, block or contain the size and spread of the liquid spill by using the appropriate absorbent material in the spill kit.
- Carefully remove other materials, containers and equipment from the spill area.

8.2. Chemical Spill Cleanup

- Spill kits contain cleanup materials and protective equipment required to decontaminate a minor spill safely and effectively.
 - For acid spills, cover spill with acid neutralizer. (Note: NEVER use general spill kits to clean up extremely hazardous spills such as hydrofluoric acid, or peroxy (per-) organic other highly reactive acids or highly unstable organic compounds.)
 - For basic/caustic spills, cover spill with base/caustic neutralizer.
 - Use the pH indicator to determine if acid/basic/caustic spill has been effectively neutralized within a range of pH 6-8. Please note that neutralization reactions may produce heat and may require time to cool.
 - For general/solvent spills, cover spill with general absorbent/activated charcoal mix.
 - For mercury spills, use damp cloth or tissue to wipe mercury into disposal container or plastic dropper to vacuum up droplets. If mercury has broken up into smaller globules, sprinkle with sulphur powder or commercial product and leave for several hours before cleanup. Be careful of broken glass if a thermometer was involved. Put all mercury-contaminated waste in plastic containers. Please see link: <https://ehs.utoronto.ca/report-an-incident/emergency-procedures/mercury-spill-procedures/>
 - Loose spill control materials should be distributed over the entire spill area, working from the outside and circling to the inside. This reduces the chance of splash or spread of the spilled chemical.
 - When spilled materials have been absorbed, use brush and scoop to place materials in an appropriate container. Polyethylene bags may be used for small spills. Pails may be appropriate for larger quantities

8.3. Chemical Spill Disposal

- Dispose of all cleanup materials as hazardous waste. Do NOT use BIO or RAD bags for disposal of chemical waste. Waste must be properly packaged in a leak-proof container, sealed, and labeled with a hazardous waste label. Bring waste to Central

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Stores on the 1st floor of the Science Wing for disposal or Chemstores on the 1st floor of the EV Building.

8.4. Chemical Spill Reporting

- Report the incident to your supervisor and fill out the “Accident / Incident / Occupational Disease Report”.
 - **Employees:** <https://ehs.utoronto.ca/report-an-incident/online-accidentincident-eform-for-employees/>
 - **Students/Visitors:** <https://ehs.utoronto.ca/report-an-incident/online-accidentincident-eform-for-students-contractors-and-visitors/>

9. Chemical Exposure

9.1. General Decontamination

- Remove contaminated clothing to prevent further contact.
- Flush contaminated area with water for no less than 15 minutes.
- Seek immediate medical attention. **Obtain the SDS- if possible.**

9.2. Chemical Spills on the Body

- Wash thoroughly (15 minutes) with water using nearest emergency / deluge shower or hand / spray unit. Remove any overlying clothing that may be contaminated or prevent thorough washing of the skin.
- Depending on the chemical, additional medical treatment may be required. Consult the SDS and/or specific laboratory procedures.
- When in doubt about further treatment, contact EHS Services and seek medical attention.
- Report the incident to your supervisor and fill out the “Accident / Incident / Occupational Disease Report”. **Please see Section 8.4 Chemical Spill Reporting.**

9.3. Chemical Spills with Eye Contact

- Immediately proceed to the closest eyewash station. Remove contact lenses.
- Flush eyes with copious amounts of water for at least 15 minutes.
- SEEK MEDICAL ATTENTION IMMEDIATELY. Go to the nearest hospital emergency room.
- Where possible, obtain the SDS and provide it to the treating physician.
- Report the incident to your supervisor and fill out the “Accident / Incident / Occupational Disease Report”. **Please see Section 8.4 Chemical Spill Reporting.**

10. Hazardous Chemical/Agent Training

- WHMIS & Lab Safety Training (EHS101)
 - Required before working with any hazardous / chemical agents
- Radiation Safety Training (EHS701 / EHS705)
 - Required before working with any radioactive materials
- Biosafety Training (EHS601 / EHS602)
 - Required before working with any biological agents
- Respiratory Protection Training (EHS532)
 - Required for cleanup of large spills, i.e. areas with large spill kits
- Waste Management (EHS803)

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