



Spill Clean up

Procedure

Date of Issue: 11.03.15

1. Purpose

The purpose of procedure is to ensure any chemical spills are cleaned up appropriately. There are various steps that laboratory personnel can take in the event of a laboratory spill. The laboratory worker may be able to respond to a small contained lab spill. Laboratory workers should never put themselves in harms way. If there is any doubt about the safety of the individual in the lab, immediately call 911. Vancouver Fire and Rescue Services will notify the Hazmat Team

2. Scope

Written safe work procedures must be prepared for hazardous operations, including chemicals, spill response, and workers must be adequately instructed in and follow the procedures. Accidental release or spills of chemicals or other hazardous substances must be controlled immediately, and cleaned up under the supervision of persons knowledgeable in the hazards involved and the precautions to be taken during the cleanup operations. It is the responsibility of the supervisor to ensure personal protective equipment required during emergency cleanup or escape is immediately available.

If appropriate equipment and trained personnel are not available on site, the clean-up should not proceed. Contact the Vancouver Fire and Rescue Services and Risk Management Services for support.

3. Procedure

Once the risk of injuries has been controlled, the spill may be cleaned up and the area decontaminated using the following general procedures:

- 1) Notify all personnel and the supervisor in the vicinity of the spill, of any flammable, highly toxic or volatile material is spilled. Evacuate and post warnings in the area if necessary.
- 2) If clothing has become contaminated, remove and enter emergency shower, if eyes have been affected, flush eyes for **15 minutes**.
NOTE: BE SURE CHEMICAL IS NOT WATER REACTIVE.



Spill Clean up

Procedure

Date of Issue: 11.03.15

- 3) Before responding to any spill the following information must be obtained:
 - Name of the chemical(s) involved.
 - Approximate quantity.
 - Hazards of the chemical (review MSDS if available):
 - Flammability: flash point; vapour pressure
 - Toxicity – TLV
 - Corrosiveness – pH
- 4) Perform clean-up procedures *only* if:
 - a) The appropriate spill control material, equipment and protective clothing are available.
 - b) Personnel are familiar with equipment and clean-up procedures.
 - c) More than one person is in the lab and available to participate. Work in teams. One person cleans the spill; the other should remain outside of the contaminated area and hand supplies to person cleaning.
 - d) There are no ignition sources present.
- 5) After reviewing the MSDS and assessing the hazards posed by the spill, establish the appropriate clean-up procedure.
- 6) Determine the extent of evacuation required.
- 7) Gather the required equipment and materials. If the appropriate materials are not available, call Vancouver Fire and Rescue Services (VFRS) for assistance.
- 8) Put on appropriate protective clothing, a minimum of rubber gloves, eye protection and lab coat. Toxic, corrosive or irritating volatile materials will require the use of a respirator. Ensure appropriate type of respirator and cartridges are used. A *full-face respirator* is the minimum requirement for volatile irritating, toxic or corrosive materials; if SCBA is required, call VFRS at 911.
- 9) Use a spill control material (unreactive, neutral, compatible material) to make a dike to contain the spill and prevent it from spreading into a drain or under furniture or equipment.
- 10) Mix the spill control compound with the spill, wait for any neutralizing/absorbent reactions to be complete, and scoop the material into an impervious container.
- 11) Wash the affected area and PPE with an appropriate cleaning solution (soap and water).



Spill Clean up

Procedure

Date of Issue: 11.03.15

- 12) Arrange for pick-up of the waste material by the Environmental Services Facility (ESF) at 822-6306.
- 13) The responsible person must determine using the table in the [UBC Spill Reporting Procedures](#).
- 14) If the spill is reportable contact which agencies require notification.
- 15) Complete [Incident/Accident forms](#) and send to Risk Management Services, the Department Head and Local Safety Committee.
- 16) For spills greater than 1L, and for highly flammable solvents, highly toxic or corrosive materials, Vancouver Fire and Rescue Services should be called (911) for stand-by support.

In some cases specific procedures may be required to clean up the spill. Below are procedures for:

- [Flammable solvents](#)
- [Acids](#)
- [Caustics](#)
- [Hydrofluoric Acid](#)
- [Perchloric Acid](#)
- [Mercury](#)

a. Flammable Solvents

Note: Never attempt to clean up a solvent spill if an ignition source is present

- 1) Apply solvent absorbent (Spill X-S, Solusorb or equivalent product) from the perimeter inward, covering the total spill area.
- 2) Mix thoroughly with plastic scoops until material is dry and free flowing, and no evidence of free liquid remains.
- 3) Transfer the absorbed solvent to an appropriate disposal container that is not soluble in the solvent, and seal the container.
- 4) Contact the ESF at 822-6306 for directions concerning disposal of the container and its contents.



Spill Clean up

Procedure

Date of Issue: 11.03.15

b. Acids

(except hydrofluoric acid and perchloric acid – see below)

- 1) Apply acid neutralizer (Spill X-A, Neutrasorb or equivalent product) from the perimeter of the spill, inward.
- 2) Carefully mix with brushes and scoops; if necessary, add more neutralizer to any free acid.
- 3) When foaming subsides, check pH of a **homogeneous** sample of the mixture.
- 4) Test pH with pH paper (e.g. E.M. Quant Company available from BDH or Anachemia Science).
- 5) If pH is not between 4 and 10, add more neutralizer.
- 6) When the acid has been sufficiently neutralized, pick up treated material with scoops and transfer to a disposal container.
- 7) Seal container appropriately, and label.
- 8) Decontaminate and wash spill site surfaces with soapy water and wet sponge.
- 9) Contact the ESF at 822-6306 for directions concerning disposal of the bag and its contents.

c. Caustics

- 1) Apply neutralizer for caustics (Spill X-C, Neutrakit-2 or equivalent product) from the perimeter of the spill, inward.
- 2) Carefully mix with brushes and scoops; if necessary, add more neutralizer to any free base.
- 3) When foaming subsides, check pH of a homogeneous sample of the mixture.
- 4) Test pH with pH paper (e.g. E.M. Quant Company available from BDH or Anachemia Science).
- 5) If pH is not between 4 and 10, add more neutralizer.
- 6) When the caustic has been sufficiently neutralized, pick up treated material with scoops and transfer to a disposal bag container.
- 7) Seal container appropriately, and label.
- 8) Decontaminate and wash spill area surfaces with water and wet sponge.
- 9) Check with the ESF at 822-6306 for directions concerning disposal of the bag and contents.



Spill Clean up

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d. Mercury (metallic) Spill

- 1) Report the spill to a supervisor; if necessary, contact HSE for further assistance.
- 2) Evacuate all personnel from area if spill is large, or room is small and ventilation is poor.
- 3) Wear appropriate personal protective equipment such as lab coat, rubber, latex or vinyl gloves, plastic boot protectors, splash goggles and half-mask respirator with approved cartridge for mercury vapours
- 4) Ventilate area as much as possible; i.e. open all windows.
- 5) Mark off spill area with signs, barriers or tape.
- 6) Pool mercury using stiff paper or plastic sheet to carefully manoeuvre beads of mercury into one large pool.
- 7) Shake off any mercury that clings to paper or plastic into a wide-mouth container before being transferred with a funnel into a small, clean container.
- 8) Pick up mercury using a glass pipette with a rubber bulb OR a glass filter flask equipped with a trap and a vacuum source such as a large rubber bulb, water aspirator, vacuum tap or vacuum pump.
- 9) Transfer liquid mercury to glass (preferable) or plastic bottle of the smallest size possible equipped with a tight fitting lid. Label "Waste Mercury".
- 10) Decontaminate spill area by using one of the following methods:
 - a. Dust area of spill with sulfur powder, then sweep mercury/sulfur mixture into wide-mouth jar equipped with tight fitting lid.

OR

 - b. Use zinc pieces (pre-rinsed in dilute hydrochloric acid) to act as magnets to pick up mercury droplets, then place zinc/mercury pieces into wide-mouth jar equipped with tight fitting lid. Label the wide-mouth jar: "Mercury/Clean-up Materials".
- 11) The final clean-up steps include:
 - a. Cracks - spread sulphur or spray MERCONVAP® solution into cracks and leave as a cover to inhibit evaporation of any mercury that is not visible or accessible.
 - b. Remove all personal protective equipment before leaving room – decontaminate or dispose of as "Waste Mercury Materials".
 - c. Place all labelled mercury containers into a solid container and label appropriately - i.e. "Waste Mercury" or "Mercury Clean-up Materials."
 - d. Contact the ESF at 822-6306 for directions concerning disposal.



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When placing a call to 911 or the Hazmat Team, provide the operator with:

- a) Your name and phone extension.
- b) Exact location of spill (building and room number).
- c) Name of material spilled.
- d) Quantity of material spilled.
- e) Information on injuries to personnel

Off-campus locations, such as hospital sites, may have different phone numbers and protocols.

If appropriate equipment and trained personnel are not available on site, the clean-up should not proceed. Contact the Vancouver Fire and Rescue Services and Risk Management Services for support.

END OF DOCUMENT

Approved: (a signed copy exists on file)

Distribution: Available to all Risk Management Services employees with authority to access drive S:\Department\Policies & Procedures

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