

Spill Response Procedures

Section 1: Chemical Spills

In the event of a chemical spill, the individual(s) who caused the spill is/are responsible for initial response. It is the responsibility of the lab to have spill control and personal protective equipment appropriate for the chemicals being handled readily available.

The following are general guidelines for handling a chemical spill:

1. **Immediately alert** area occupants and supervisor. Evacuate the area, if necessary.
2. If there is a fire or medical attention is needed, contact **FIU Police at 7-5911 (MMC)/6-5911 (BBC)**.
3. **Attend** to any people who may be contaminated. Contaminated clothing must be removed immediately, and the skin flushed with water for no less than fifteen minutes. Clothing must be laundered before reuse.
4. If a flammable material is spilled, immediately warn occupants, control sources of ignition, and ventilate the area.
5. **Don** personal protective equipment, as appropriate to the hazards. Refer to the Safety Data Sheet for additional information.
6. **Never enter** a contaminated atmosphere without protection or use a respirator without training. If respiratory protection is needed, call FIU Police and evacuate the area.
7. **Use** the chart below to determine the extent and type of spill. If the spill is large, if there has been a release to the environment or if there is no one knowledgeable about spill clean-up available, call FIU Police.

Table 1: Spill Response Cleanup Guide.

| Spill Category | Spill Volume | Response | Treatment Materials |
|----------------|---------------------|---|--|
| Small (most)* | Less than 10 gal | Chemical treatment (neutralizer) or absorbent | Acid/base neutralizing powder or pink PIG mats, Absorbent pads |
| Large | Greater than 10 gal | Call FIU Police | Varies |

**If it is determined to be a small spill and you can clean it up, continue with Step 8.*

8. **Protect** floor drains or other means for environmental release. Spill socks and absorbents may be placed around drains, as needed.
9. **Contain** and clean-up the spill according to the table above. Loose spill control materials should be distributed over the entire spill area, working from the outside, circling to the inside. This reduces the chance of splash or spread of the spilled chemical. Bulk absorbents and many spill pillows do not work with hydrofluoric acid. POWERSORB (by 3M) products or their equivalent will handle hydrofluoric acid. Specialized hydrofluoric acid kits also are available. Many neutralizers for acids or bases have a color change indicator to show when neutralization is complete.
10. 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. Five gallon pails or 20 gallon drums with polyethylene liners may be appropriate for larger quantities.

11. **Complete** a hazardous waste label, identifying the material as “Spill Debris involving XYZ Chemical”, and affix onto the container. Spill control materials will need to be collected by EH&S. Submit a [Hazardous Waste Pick Up Request](#).
12. **Decontaminate** the surface where the spill occurred using a mild detergent and water, when appropriate.
13. **Report** all spills to your supervisor or the Principal Investigator.
14. **Report** all spills to EH&S at <https://ehs.fiu.edu/report>.

Spill Control Material Inventory

Your laboratory or work area is required to have access to sufficient quantity of absorbents or other types of materials to control any spill that can be reasonably anticipated.

Required Lab Spill Response Materials:

Personal Protective Equipment

- chemical splash goggles
- gloves (recommend Silver Shield or 4H)
- shoe covers
- plastic or Tyvek aprons and/or Tyvek suits

Absorption Materials

- Spill pillows
- Spill socks
- DOT pails (5 gallon) with polyethylene liners
- loose absorbent, such as vermiculite or clay

Neutralizing Materials

- Acid Neutralizer
- Caustic Neutralizer
- Commercial neutralizers, such as Neutrasorb (for acids) and Neutrakit-2 (for bases) have built in color change to indicate complete neutralization
- Solvent Neutralizer
- Commercial solvent neutralizers, such as Solusorb, act to reduce vapors and raise the flashpoint of the mixture

Mercury Spills

- Small mercury vacuum to pick up large drops (optional)
- Hg Absorb Sponges - amalgamate mercury residue
- Hg Absorb Powder - amalgamates mercury
- Hg Vapor Absorbent - reduces concentration of vapor in hard to reach areas Mercury Indicator - powder identifies presence of mercury

Clean-up Tools

- Polypropylene scoop or dust pan
- Broom or brush with polypropylene bristles

- Polypropylene bags sealing tape
- pH test papers
- Waste labels
- Floor sign - DANGER Chemical Spill - Keep Away

Section 2: Biohazardous Spills

Planning for Spills

The consequences of any spill of biohazardous material can be minimized by performing all work on plastic-backed absorbent liner to absorb spills. A simple spill kit should be readily available and should include the following items:

- Chlorine bleach or some other EPA-approved concentrated disinfectant
- Package or roll of paper towels
- Autoclavable bag
- Latex or nitrile gloves
- Forceps for picking up broken glass

For all biological spills:

- **Report** to your supervisor or the Principal Investigator (PI); and
- **Report** to EH&S at <https://ehs.fiu.edu/report>; and
- **Any spill involving recombinant or synthetic nucleic acid molecules must be immediately reported to the Institutional Biosafety Committee (IBC); go to <https://research.fiu.edu/ibc>.**

Spills inside a Biological Safety Cabinet

1. **Leave** the cabinet turned on.
2. **Put** on gloves and a lab coat.
3. **Spray** or wipe cabinet walls, work surfaces, and equipment with appropriate EPA-approved disinfectant. If necessary, flood the work surface, as well as drain pans and catch basins below the work surface, with disinfectant.
4. **Wait** at least 20 minutes.
5. **Soak** up disinfectant and spill with paper towels. Drain catch basin into a container. Lift front exhaust grill and tray and wipe all surfaces. Ensure that no paper towels or solid debris are blown into the area beneath the grill.
6. **Autoclave** all clean-up materials before disposal in the biohazardous waste container.
7. **Wash** hands and any exposed surfaces thoroughly after the clean-up procedure.

Small Spill outside a Biological Safety Cabinet (less than 500 mL)

1. **Put** on gloves and a lab coat.
2. **Cover** spill with paper towels and gently apply disinfectant, proceeding from the outer edge of the spill to its center.
3. **Leave** in place for at least 20 minutes.

4. **Pick up** the towels and discard into a biohazard container. Use forceps to pick up any broken glass and place them into a sharp container.
5. **Re-wipe** the spill area with disinfectant.
6. **Remove** gloves and thoroughly wash hands.

Large Spill of BSL2 Material outside a Biological Safety Cabinet (more than 500 ml)

1. **EVACUATE** THE ROOM IMMEDIATELY
2. **Warn** others to stay out of the spill area to prevent spread of contamination.
3. **Call** FIU Police at 7-5911 (MMC)/6-5911 (BBC).
4. **Post** a sign on the door warning others of the biological materials spill.
5. **Remove** any contaminated clothing and put it into a biohazard bag for later autoclaving.
6. **Wash** hands and exposed skin and inform your PI or supervisor about the spill.
7. **Put** on protective clothing (lab coat, gloves, mask, eye protection, shoe covers) and assemble clean-up materials.
8. **Wait** 30 minutes before re-entering the contaminated area to allow dissipation of aerosols.
9. **Cover** the spill with paper towels and gently apply disinfectant, proceeding from the outer edge of the spill to its center.
10. **Leave** in place for at least 20 minutes.
11. **Collect** all treated materials and discard in a biohazard container. Use forceps to pick up any broken glass and place in a sharp container.
12. **Re-wipe** the spill area with disinfectant.
13. **Remove** gloves and wash hands thoroughly.

Section 3: Radioactive Material Spills

In the event of a spill, the Radiation Safety Officer (RSO) and FIU Police must be notified immediately. Decontamination procedures must be carried out under the supervision of the RSO or person(s) designated by the RSO, and other individuals who are responsible for the facility or laboratory.

General Guidelines

In all cases of physical injury, medical attention takes precedence over contamination concerns. Call FIU Police 7-5911 (MMC)/6-5911 (BBC) to request medical assistance.

Plan ahead and equip your lab with spill response supplies such as paper towels, appropriate cleaning agent, extra waste bags, and gloves. The key steps to follow are:

1. Stop ... working - get your thoughts together and don't panic.
2. Presume ... everything is contaminated until proven otherwise.
3. Inform ... the RSO, FIU Police, and others in the area about the spill.
4. Localize ... the spilled material to contain the spill.
5. Label ... or cordon off the area to limit access.
6. **Report** to your supervisor or the Principal Investigator (PI); and
7. **Report** to EH&S at <https://ehs.fiu.edu/report>

Cleaning the Spill

Area will be cordoned off, marked, and declared as restricted entry by RSO. The spill should be handled based on the type of contamination:

- The radionuclide is in a small volume of liquid and dries after it reaches the surface.
- The radionuclide is in a larger volume of liquid and is wiped off before it dries. The remainder then dries before it is cleaned.
- The radionuclide is airborne and has become attached to dust or other particulates in the air before depositing on the surface.

Decontamination Procedures

1. **Don** the appropriate PPE (disposable gloves, protective footwear, and other appropriate protective measures such as face masks if airborne contamination is a possibility)
2. **Wipe** the area with a cloth damp with a chelating solution.
3. **Survey** after each sweep to determine the level of contamination.
4. **Treat** all materials used (wiping cloth, gloves, washing and rinsing solutions, etc.) as radioactive waste until monitoring determines otherwise.
5. **Keep** area isolated until surveys demonstrate activity is no higher than background. The RSO must certify the area to be contamination free.
6. **Remove** gloves and wash hands thoroughly.