

Appendix K

Spill Clean Up

I. SCOPE

This procedure applies to all students, staff, and faculty who in the course of their job duties, handle, transport, or use hazardous materials, or waste within UCI.

II. RESPONSIBILITIES

It is the responsibility of all students, staff, and faculty who in the course of their job duties, handle, transport, or use hazardous materials within UCI to read the Material Safety Data Sheet prior to handling the chemical.

The PI is responsible for training the laboratory staff on the hazards of the chemicals and determines the appropriate spill clean-up procedure when handling small spills.

III. PURPOSE

This procedure provides guidance for the proper clean up of very small amounts (< one cup) of a spilled hazardous material. Follow this procedure to protect students, staff, faculty, and to minimize business, and environmental impact.

IV. PRECAUTION

If you feel the spill is larger than you can handle, do not hesitate to call EH&S at 824-6200. If there is anyone injured, call 911.

V. PERSONAL PROTECTIVE EQUIPMENT (PPE) AND SUPPLIES FOR CLEANUP

A. **Minimum required PPE**

1. Splash Goggles
2. Lab coat
3. Thick Nitrile or neoprene gloves

B. Recommended spill cleanup materials

1. Consumable generic supplies
 - a. 1 gallon plastic container with lid
 - b. 1 heavy duty plastic trash bags
 - c. 1 box polypropylene pads or universal absorbent materials

2. Spill Kit
 - a. 1 box activated carbon
 - b. 1 box liquid acid neutralizer or solid sodium bicarbonate
 - i. 40% triethanolamine (approximately)
 - ii. Appropriate pH indicator for 7-10 range

 - c. 1 box liquid caustic neutralizer or solid citric acid
 - i. 40% citric acid
 - ii. Sufficient triethanolamine to bring pH to 4
 - iii. Appropriate pH indicator for 7-10 range

 - d. Hazardous waste labels
 - i. Must be legible and properly filled out after the spill cleanup is complete (Available online at www.uci.edu)

 - e. Dust pan and broom
 - f. Laboratory tongs or forceps

VI. CLEAN UP PROCEDURES

A. Don appropriate protective equipment

B. Stop the source of the spill

1. Place container in upright position
2. Place container on a polypropylene pad in a safe location
3. Replace lid on container

C. Control spread of any spilled chemical

1. Place polypropylene pads around chemical
2. Use caution around broken glass

D. Absorb free-standing liquids

1. Non-flammable liquids
 - a. Use polypropylene pads
 - b. Check behind drawers and equipment
 - c. Place clean up debris into trash bag

2. Flammable liquids
 - a. Use activated carbon
 - i. Use approximately 2 pounds of activated carbon per pint (.5) liters of spilled liquid.
 - ii. Use dust brush to thoroughly mix activated carbon with liquid
 - iii. Use dustpan and brush to collect all residue
 - iv. Place clean up debris into trash bag

3. Acidic liquids
 - a. Dike and contain liquid with solid neutralizer.
 - b. Spread sufficient material over spill to cover surface with light coating.
 - c. Mix solid neutralizer thoroughly with the acid and absorb
 - d. A small amount of water may be added to cool the slurry, or increase the rate of neutralization.
 - e. pH should be 5-9

4. Caustic Liquids
 - a. Dike and contain liquid with solid neutralizer.
 - b. Spread sufficient material over spill to cover surface with light coating.
 - c. Mix solid neutralizer thoroughly with the caustic and absorb
 - d. A small amount of water may be added to cool the slurry, or increase the rate of neutralization.
 - e. pH should be 5-9

E. Decontaminate area

1. Acids and Caustic spills
 - a. Spray neutralizer on all surfaces affected
 - b. Soak up neutralizer
 - c. Remove neutralizer with water
 - d. If area sticky, use soap to remove remaining neutralizer.

2. All others
 - a. Wipe up all residues from affected area.
 - b. Ensure there are no unsafe conditions present.

F. Dispose of waste generated

1. Seal debris from spill into plastic bag.
2. Seal lid on any broken glass containers and place into plastic bag with debris

3. Properly label waste
4. Submit an EH&S Chemical Waste Pickup request available online at <http://www.ehs.uci.edu/programs/enviro/>.

G. **Restock spill kit**

VII. **BIOLOGICAL SPILL**

A. **Don appropriate protective equipment**

B. **Minimum personal protective equipment for clean-up:**

1. Splash Goggles
2. Lab coat
3. Nitrile or neoprene gloves
4. In addition, respiratory protection may be required based on the infectious agent used

C. **Stop the source of the spill**

1. Place container in upright position
2. Place container on a polypropylene pad or paper towels in a safe location
3. Replace lid on container

D. **Control spread of any spilled biohazardous material**

1. Place polypropylene pads around spill
2. Use caution around broken glass and mechanical device (dustpan and broom or forceps) to pick-up

E. **Decontaminate and absorb free standing liquids**

1. Decontaminate the spill with a 10% bleach solution or other appropriate disinfectant for a 30-minute contact time
2. Dispose of all waste as medical waste in red biohazard bags
3. All medical waste must be decontaminated prior to disposal

Reference: American Chemical Society at:
http://membership.acs.org/c/ccs/pubs/spill_guide_online.htm; September 2007.