



# ECKERD COLLEGE

## Emergency Response Procedures

(1/04)

### PRE-PLANNING FOR AND RESPONDING TO CHEMICAL SPILLS

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This SOP is intended to guide the user in preparing for and responding to chemical spills, so as to minimize the severity of such incidents. This SOP does not address spills or releases of infectious agents, radioactive materials, or mercury.

#### Preplanning

1. Review Material Safety Data Sheets (MSDS) to become familiar with the physical and health hazards of chemicals used and stored in the work area. Note and adhere to recommendations regarding special precautions, spill equipment, or controls.
2. Identify and document procedures and/or equipment failures that could result in releases or exposures.
3. Identify area specific features that may increase or decrease the potential for spills or exposures, as well as the response actions taken to minimize the hazards. For example, sources of ignition in an area where flammable liquids are stored are important considerations for both pre-planning to avoid an emergency and in the actions to take in response to an adverse event.
4. Identify potential receptors (i.e., floor or sewer drains, adjacent areas, other rooms on the same air supply system, etc.) and plan for actions to take to minimize releases via these receptors.
5. Identify maximum quantities of materials that could be released under various conditions (i.e., during container handling, dispensing, fire conditions, etc.).
6. Identify needed and available personal protective equipment, emergency communication devices, spill supplies, fire extinguishers, eye wash stations, emergency showers, first aid kits, and other equipment that are readily available to respond to an accident or release. Know the maximum quantity of released material for which you are adequately prepared to respond, and when outside assistance will be needed.
7. Identify building evacuation routes.

8. Identify campus service units, fire department, and hazardous materials response team notification procedures.

## Small Spills

### What is a small spill?

It is critical that the user know the properties and hazards of the individual chemicals that they work with because of varying routes of exposure and occupational exposure limits. All spill response decisions must be based on the actual chemical involved. The following information is intended only as general guidance. Consult the appropriate MSDS for specific guidance.

In general, a small spill is defined as a release that meets the following parameters:

1. Adequate supplies and PPE are readily available;
2. Respiratory protection is not necessary to avoid over-exposure during the clean-up, and the spill is not in an unventilated or enclosed space that must be bodily entered.
3. The spilled material is not highly toxic, does not endanger people or property except by direct contact, and has good warning properties (e.g., does not deaden the senses; is detected by the senses at concentrations well below the exposure limits; and, exposure produces immediate, and reversible effects- not delayed or permanent effects);
4. The spill is not likely to spread beyond the area immediately involved; and,
5. The threat of secondary events is minimal (e.g., explosions, fires, etc.). Water reactive and air-reactive chemicals, highly flammable solvents in the presence of potential ignition sources, and strong oxidizing agents typically present increased risk for secondary events.

### What supplies should be available?

A spill kit should be assembled of the following materials:

- 1. Personal Protective Equipment**
  - a. Splash Goggles- 1 pr.
  - b. Faceshield- 1
  - c. Assortment of chemically resistant gloves
  - d. Protective outer garment (i.e., tychem® suit, apron, lab coat, shoe covers, etc.)
- 2. Diking Materials and Absorbents.** Diatomaceous earth and vermiculite are relatively inexpensive and effective diking/absorbing agents. However, spill pillows and pads are easier to store and use. When selecting pads or pillows, select a "universal" type that is compatible with a broad range of chemicals.
- 3. Neutralizing Agents.** Citric acid can be used to neutralize caustics. Soda ash can be used to neutralize acids. However, neutralization can often cause splashing, vigorous Gas evolution, and become quite messy. They can also form salt deposits that are hard to

remove from floors and other surfaces. Generally, it is much easier and neater to absorb acids and bases with compatible pillows or pads, or diatomaceous earth.

4. **Disposal containers for spill cleanup residues and contaminated materials.** Plastic pails or buckets equipped with lids are excellent choices. Heavy plastic bags can also be used. If heavy plastic bags are selected, have some duct tape handy to seal the bag after use.
5. **Equipment.** Brushes, brooms, scoops, shovels, dust pans, and other like items that may be necessary to facilitate remote handling of contaminated materials and absorbents.
6. **Decontamination equipment and materials.** Soap and scrub brushes will be needed for final area and equipment decontamination.
7. Fire Extinguisher properly classed for the chemical.
8. First aid kit.
9. Hazardous Material Collection Tags.
10. Special spill control materials as recommended in the Material Safety Data Sheet or as required to prevent releases from spreading to likely receptors (i.e., impervious drain blocks for floor drains, etc.).

#### What are the appropriate response steps for a small spill?

1. Take action to stop the release (i.e., upright containers, close valves, etc.).
2. Alert others in the immediate vicinity and notify your supervisor, if possible. Ensure that extraneous personnel remain at a safe distance until the spill is completely cleaned-up. One of these people can serve as a "monitor" and alert emergency response personnel if the spill unexpectedly results in an emergency.
3. Evaluate the risks to health, property, or the environment and confirm the "small" nature of the spill.
4. Contain the spill. This may involve increasing ventilation via fume hoods or windows if a volatile material is involved, sealing floor drains, closing doors, inactivating potential sources of ignition, etc.
5. Don appropriate personal protective equipment (e.g., gloves, respirator, etc.).
6. Control the spread of liquids. If the material is a liquid and it can spread, form a dike around the perimeter of the spill with absorbent.
7. Absorb the liquid on the interior of the dike with additional granular absorbent, spill pillows, or absorbent pads.

8. Place all absorbents into a heavy plastic bucket or bag and seal the container. Scoops, shovels, tongs, and other remote handling devices work well.
9. If the spill involves solid granular or powdered material, take care not to create dusts while scooping the material into a sealable container. So long as the material is not water-reactive, it can be misted with water to prevent dust formation.
10. Decontaminate the spill area and non-disposable equipment by thoroughly cleaning with soap and water.
11. Thoroughly wash hands, arms, face, and other potentially contaminated body parts.
12. Tag the spill residues, absorbents, and disposable equipment for collection by Facilities.
13. **Notify Campus Safety x8260** of the spill so follow-up action can be initiated as necessary.

### **Large Spills**

In the case of imminent danger to health, property, or the environment, initiate the following actions:

1. Isolate the area of the spill by shutting doors, blocking sewer inlets, etc
2. For indoor releases/spills: Leave the area and pull the fire alarm to initiate building evacuation.

For outdoor releases/spills: Notify emergency response personnel. If possible to do so safely (without risk of over-exposure), take action to stop the release (i.e., shutting valves, etc.) and prevent or minimize releases to storm sewers. Do not initiate evacuation from buildings unless otherwise advised by emergency responders.

3. Render appropriate first aid. Thoroughly wash exposed areas of the skin with soap and water.
4. Remain at a safe location near the scene and present yourself to emergency response personnel to provide information: name of the chemical released, amount, location, potential hazards of the chemical and possible secondary hazards, potential receptors, etc.
5. Notify Campus Safety x8260. Large spills and spills that occur to the environment may require reporting to regulatory authorities and other follow-up action.