Standard Operating Procedures on Spills of Hazardous Chemicals

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These Standard Operating Procedures describe the steps to be taken (1) to prevent the spill of a hazardous chemical, and (2) to respond to a chemical spill that has occurred. (3) Information about spill kits is also given.

(1) Preventing a Spill

The possibility of a spill and preparation for handling it should be anticipated in setting up your experiment. Appropriate precautions will alleviate many associated complications.

Before using a hazardous chemical:

- Familiarize yourself with the potential hazards of that chemical. Material Safety Data Sheets (MSDS's) are a valuable source of information. Each laboratory has a notebook of MSDS's of the hazardous chemicals used in that laboratory. Whenever you add a new chemical, you should add the MSDS sheet to that notebook. Information on hazardous chemicals and procedures for handling them can also be obtained from books available in the Science Library and the Industrial Hygiene Office (56-235).
- Evaluate the type of toxicity of the hazardous chemical (i.e., corrosive, irritant, sensitizer, carcinogen) and the possible routes of exposure (i.e., inhalation, skin absorption, ingestion, injection). Evaluate hazards of flammable and explosive chemicals.
- Select appropriate procedures to minimize exposure. Wear appropriate eye protection and protective apparel.
- Ask yourself, what is the worst that could happen? Ask yourself if you are prepared to handle such a situation. Do not underestimate risks, and consider substituting less hazardous materials, techniques, and equipment.
- Be prepared for accidents. Know what specific action you will take in the event of a chemical spill. Know the location of the laboratory spill kit, be familiar with the location of the nearest fire alarm and telephone, and know emergency telephone numbers.
- Have a knowledgeable colleague review your experimental design and safety procedures to judge the adequacy of the precautions and emergency steps.
- Purchase only the amount of hazardous material that will be used within a reasonable period, in the smallest container that is practical.
- Plan the transportation of hazardous materials to avoid heavy traffic areas and times. Use hazardous materials inside the chemical fume hood.
- Use secondary containers, metal cans, or plastic-coated bottles for storing and transporting.

- Do not place glass containers of chemicals on the floor.
- Take precautions to avoid fallen or leaking gas cylinders.

(2) <u>What to do when a Spill Occurs</u>

Whoever causes a minor spill must clean it up. The Industrial Hygiene Office (3-2596) provides advice on the proper clean-up techniques and personal protective equipment.

However, some spills may be too large or too dangerous for laboratory personnel to handle, in which case the Industrial Hygiene Office will work with you to arrange for a professional spill team to come in.

<u>Minor Chemical Spill</u>

- Alert people in the area that a spill has occurred.
- Use personal protective equipment (provided in the spill kits located in each laboratory) to protect yourself during the clean up. Avoid breathing vapors from the spill.
- Avoiding risks of injury or contamination, confine the spill to a small area. Prevent the spill from entering any drains.
- Neutralize/absorb the spill with shakers for acids, caustics, and solvents using the spill kits located on each floor of the building 6A and the Biophysics Laboratory and also use the clean up materials provided in the spill kits located in each laboratory.
- Collect residue, place in an appropriate container, label with a red tag, and dispose of as hazardous waste. Contact the MIT Safety Office (3-4736) for a hazardous waste pickup.
- Clean the spill area with water.

<u>Major Chemical Spill</u>

- Alert people in the lab that a spill has occurred and ask them to evacuate; close doors to the affected area.
- Attend to injured or contaminated persons and remove them from exposure. If necessary, request help by calling the Campus Police, emergency number 100.
- If you feel you have been exposed to any hazardous material, report to MIT Medical for an evaluation.
- Report the emergency (3-1212 or 100) and contact the Industrial Hygiene Office (3-2596) for cleanup assistance-
- If spilled material is flammable, turn off ignition and heat sources if it can be done safely.
- If it can be done safely, block off any drains where the spill may enter .
- Have a person knowledgeable about the incident and laboratory stand by to assist emergency personnel. If chemicals are known, provide MSDS' s for the emergency response team.

(3) Spill Kits

Each floor of the building 6A and the biophysics laboratory are equipped with the spill kits, which contain shakers for neutralizing/absorbing a wide variety of:

- acids (Spill-X-A)*
- caustics (Spill-X-C)*
- solvents (Spill-X-S)*

Also, each laboratory is equipped with spill kits which contains:

- Personal protective equipment: goggles and gloves that are chemical-resistant.
- Spill control pillows and wipes
- Disposal bags to collect the spilled material and contaminated clean-up materials.

Be aware of the location of spill kits. They should be checked on a regular basis.

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* Name of the neutralizer/absorber.