ENVIRONMENTAL HEALTH AND SAFETY
University of Nebraska-Lincoln

Safe Operating Procedure

(Revised 11/22)

METALLIC MERCURY SPILL PROCEDURES

Scope

This SOP provides guidance for responding to small and controlled spills of metallic mercury, such as those resulting from the breakage of a thermometer in a laboratory or clinical setting. More serious spills or releases should be reported immediately to EHS, and interim measures taken to prevent tracking and unnecessary exposure (e.g., shut off oven or heating device if one is involved, vacate the spill area, close doors, secure the area, etc.). Serious spills/releases include those that are:

- To a drain
- Outdoors
- To a heated surface
- To a non-mobile porous surface, such as carpeting, upholstery, etc.
- To an inaccessible area (e.g., floor cracks, beneath cabinets, etc.)
- Greater than 5 ml.

Overview of Mercury Hazards

Mercury is a heavy, silvery white, shining metal that is liquid at ordinary room temperature and is toxic by inhalation, absorption through the skin, and ingestion. Mercury may cause sensitization by inhalation and skin contact. It is irritating to the eyes, respiratory system, and skin. The effects of mercury are cumulative and may result in kidney damage, emotional disturbances, unsteadiness, inflammation of the mouth and gums, general fatigue, memory loss, headaches, and irritation or corrosion of the skin.

Commercial Kits and Devices for Responding to Small Mercury Spills

There are several options available for cleaning up mercury spills. These include:

- Mercury vacuum: This device is essential only for responding to large mercury spills and is not an economical choice when dealing with minor mercury spills resulting from broken thermometers or other mercury-containing items. These devices are specially designed to purify exhaust air and capture the elemental mercury for recycling.
- Amalgamating kits: These are sold by numerous safety and lab supply vendors. In brief, the amalgamating powder is sprinkled over the droplets of mercury, wetted to initiate the amalgamating reaction between the powder and the mercury, and then the mixture is scooped up and placed in a container for disposal. Some kits are equipped with a small hand pump for difficult to reach areas and collecting large mercury droplets before amalgamating.

- Sponges: These kits contain specially designed sponges that pick up mercury droplets when firmly pressed against the surface of the spill. Use of a sponge alone is not recommended. If a sponge is used, the area should be treated with an amalgamating powder as well to reduce any mercury vapors emitting from residual mercury. The sponges work best on non-porous, smooth surfaces.

Release/Spill Procedures

In the event of a small mercury spill/release, retrieve the mercury spill kit and follow the manufacturer's instructions. In general, this should include the following actions:

1. Don protective latex or nitrile gloves.
2. Using the scrapers provided with the kit or two small pieces of stiff cardboard (one in each hand), consolidate the droplets of mercury.
3. Collect the large droplets using either a hand pump, mercury sponge, or amalgamating powder.
4. Place the recovered mercury and other contaminated materials (i.e., broken thermometer, cardboard, gloves, etc.) in a heavy-walled polyethylene bottle with a screw-cap lid (or heavy plastic bag that is sealed after use) and label as "mercury spill residue" and tag for collection by EHS.
5. Wash hands, arms, and face thoroughly.

Additional Precautions

- Never use a regular vacuum to clean up mercury or to go over spill areas after they have been cleaned up.
- Do not use a broom during cleanup.
- Be alert to "tracking." It may be necessary to don disposable shoe covers if the spilled mercury has impacted a large area.
- Do not discard mercury or mercury spill residues as ordinary refuse; or clean contaminated apparel or equipment for reuse and allow rinsate to discharge to the sewer or ground. Tag for collection by EHS.
- Contact EHS for environmental monitoring and clean up services if airborne exposure is of concern because of unique circumstances or spill size.