



Safe Method of Use 15 - Mercury Spills

Mercury-containing devices are commonly used in laboratories and shops to measure temperature (thermometers and thermostats), pressure (barometers and manometers), liquid density (hydrometers), and humidity (hygrometers, psychrometers and barometers).

Mercury is a potent neurotoxin and can cause long lasting, human health effects. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems. Short-term exposure to high levels of metallic mercury vapors may cause effects including lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation.

Mercury can present exposure hazards under the following conditions:

- Mercury thermometers in ovens may break if the oven's temperature rises above the thermometer's capacity.
- Inadequate pressure-system connections in may release mercury into the air at high velocities, which will atomize the mercury into extremely small particles and spread it over a large surface area.
- Spills not cleaned up promptly may vaporize faster than the room's ventilation can safely remove toxic fumes.

The following is a list of "best management practices" that can be implemented by faculty, staff, and students:

- Replace mercury devices with non-mercury substitutes if available.
- Avoid inhaling mercury vapors by working in a fume hood, or well-ventilated area, and away from heat.
- Store mercury-containing reagents and waste in tightly capped and shatter-resistant containers away from sinks and drains.

- Prevent skin contact, especially when handling organic mercury compounds such as methylmercury. See the Safety Data Sheet for guidance on suitable glove types.
- Small spills of mercury, such as broken thermometers, must be cleaned up immediately by laboratory personnel.

Clean-Up

- A lab coat and disposable gloves must be worn during cleanup of mercury spills to prevent skin absorption or contamination of clothing.
- The best way to collect mercury is to use an index card or rubber squeegee to form a pile that can be sucked up or amalgamated.
- Beads of mercury can be sucked up with a disposable pipette, a water-trapped vacuum line attached to a disposable pipette or a hand-operated vacuum pump.
- Mercury-absorbing powders, if available, can be used to amalgamate mercury. Mercury waste and materials used in spill cleanup must be promptly placed in a sealed bottle or in a double layer of plastic bags and labelled for disposal as hazardous waste.
- Under no circumstances should mercury be swept with a broom or vacuumed with an ordinary vacuum cleaner. These procedures will disperse mercury more quickly into the air and spread the contamination.
- After all visible mercury has been collected, the area should be washed with a detergent solution, rinsed, and allowed to dry before use. This treatment should remove most remaining mercury residue.
- All mercury wastes must be managed and disposed as hazardous waste to be disposed by an approved chemical waste contractor.

Contact:

Hazards and Containment Manager to arrange for disposal