Mercury and Mercury Spills

Introduction

At least 16 states have banned the use of thermometers, barometers, and other instruments containing mercury. Eleven states also prohibit the use of elemental mercury in schools and hospitals. The laws limit the ability of manufacturers to sell mercury or mercury-added products. The purpose of laws banning the sale of mercury is to eliminate nonessential uses of mercury and reduce its environmental release. In response to these laws, Flinn Scientific has discontinued the sale of elemental mercury, mercury compounds, and mercury thermometers. The following information may be helpful to you.

Health and Environmental Effects of Mercury

Mercury is a volatile, highly toxic liquid, and a serious environmental hazard. The vapor pressure of mercury at room temperature is more than 100 times greater than the permissible exposure limit for mercury in air (0.01 mg/m3). The threat increases at higher temperatures. Exposure to mercury vapor occurs when mercury is spilled or products that contain mercury break. The high surface tension and low viscosity of liquid mercury are reflected in its common name, quicksilver. These properties cause mercury to break up into small droplets that are easily trapped or hidden. Small amounts of mercury are easy to overlook and may add up over time. There have been reports of 15–20 pounds of spilled mercury found in labs! Inhalation and absorption of mercury leads to nervousness, insomnia, depression, headache, fatigue, tremors, muscle atrophy, and cognitive decline. Mercury is a cumulative poison—it is distributed in the blood within hours of exposure to mercury vapor, and is concentrated in the kidneys. Higher exposures lead to kidney damage and respiratory failure. Mercury and mercury compounds do not biodegrade. Microorganisms in soil and water convert mercury to methyl- and dimethylmercury, which are more toxic than elemental mercury and bioacummulate in the food chain.

Cleaning Up Mercury Spills

- If mercury is spilled or a thermometer breaks, immediately open the windows and doors to provide maximum ventilation.
- Do not use a vacuum cleaner or a broom to clean up a spill. The vacuum will disperse mercury into the air, while a broom will break the mercury into smaller droplets and spread them.
- Avoid contaminating shoes or other items in the area of the spill. Put plastic bags over your shoes.
- Wear chemical-resistant gloves. Collect visible drops of mercury with a medicine dropper or Beral-type pipet. Transfer the mercury to a seamless polyethylene bag or bottle.
- Mercury droplets will cling to vertical surfaces and on the underside of bench tops or shelves. Use a flashlight to locate small beads of mercury on surfaces or in cracks and crevices.
- Lightly cover the area with zinc powder. (Do not use sulfur—it forms a surface film and leaves the mercury under neath exposed.) The resulting zinc amalgam is easily collected.
- The *Mercon® Mercury Spill Control Kit* is an effective mercury suppressant and decontaminant. The kit contains a spray to suppress mercury vapor, a sponge to pick up mercury droplets, chemical wipes to decontaminate the spill site, and a waste container, Flinn Catalog No. AP8771.
- Broken mercury thermometers in an oven can flood the lab with dangerous mercury vapor. Immediately open all windows and place the appliance in the hood. Pack the broken thermometer and all collected mercury into a plastic bottle for licensed hazardous waste disposal.

Replacing Mercury Thermometers

Flinn offers a complete listing of digital and spirit-filled thermometers to meet all of your lab needs! Please consult your current *Flinn Scientific Catalog/Reference Manual* for product information.

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