

## MERCURY

Mercury is environmentally toxic and heavily regulated:

- Trash disposal of mercury-containing equipment (such as thermometers, blood pressure devices, and thermostats) is prohibited.
- Sink disposal of mercury-contaminated reagents is also prohibited. The Massachusetts Water Resources Authority (MWRA) samples laboratory waste water (the sum of all laboratory effluents) and any amount of mercury will result in a violation.
- Spills of mercury must immediately be reported to the Control Center at 4-4144.

The problem with mercury is that it is not always obviously present (old thermostats for example) and that its presence at low concentrations is not always represented on reagent labels and literature. The most common sources of mercury contamination are outlined below:

### **Sources of Mercury:**

#### **Mercury Thermometers and Equipment:**

Intact or broken thermometers, blood pressure cuffs, switches, thermostats and other equipment must be disposed of through the Environmental Health and Safety (EHS) Department. An effort was undertaken in the early 2000s to remove and replace these types of equipment; if you find a piece of old mercury-containing equipment, contact EHS for replacement.

Contact EHS (through the Control Center) for any spill of mercury, as we have specialized equipment that makes clean-up quick and safe.

If a mercury thermometer has been broken, and some component of its contents entered a sink, you must notify EHS immediately. EHS will typically drain or replace the sink trap (pretty easy to do). If a thermometer was broken into a water bath or some other piece of equipment, this can also be a source of contamination.

#### **Preservatives:**

**Thimerosal** (aka merthiolate) is a mercury-based preservative. If you are using thimerosal in the laboratory to preserve antibodies or other products, it **MUST** be kept from sinks. Also, all dilutions and rinses involving thimerosal must be kept from sinks. Any products (such as antibody kits) which are preserved with thimerosal must be collected.

Some manufactured products (such as some **vaccines**) are preserved with thimerosal and must be disposed of through EHS. It is important to read the product literature and identify the preservation method for your materials.

**HRP-Conjugated Secondary Antibodies:**

The purchased antibodies which most commonly are preserved with thimerosal are horseradish peroxidase bound secondary antibodies. If you are performing **ELISAs** or **Western Blots** there is a strong likelihood that the hrp-conjugated secondary antibodies are mercury contaminated. Antibody literature will typically describe the preservative used. A call to the manufacturer of the antibody can clear up any confusion. Thimerosal-preserved antibodies, as well as first dilutions, must be collected.

**Fixatives and Products:**

**Zenker's** solution or **B-5** fixative are mercury-containing and should never be disposed of into laboratory sinks or to the trash. These materials have been eliminated from hospital use and are easily replaced with non-mercury alternatives (B-Plus for example).

**Bleach:**

Some brands of bleach are still manufactured using mercury cell technology which results in significant levels of contamination in the final product. Clorox, Austin's and Elite bleach products are known to be mercury-free.

**Mercury Waste Collection**

The wastes described above should be collected as 'Hazardous Waste' according the rules of satellite accumulation. Closed containers, specific labeling, and secondary containment are key components of hazardous waste satellite accumulation.

If you have any questions about mercury waste identification or management, please contact EHS at 8-8830.