

## Mercury in School Buildings and Maintenance Areas

### Items that contain mercury:

- fluorescent lamps
- high intensity discharge lamps - including mercury vapor, metal halide, and high pressure sodium lamps
- mercury thermostats
- mercury switches and relays (e.g., silent light, fire alarm)
- mercury thermostat probes and flame sensors

Never use a vacuum cleaner to clean up a mercury spill as this causes mercury to vaporize into the air.

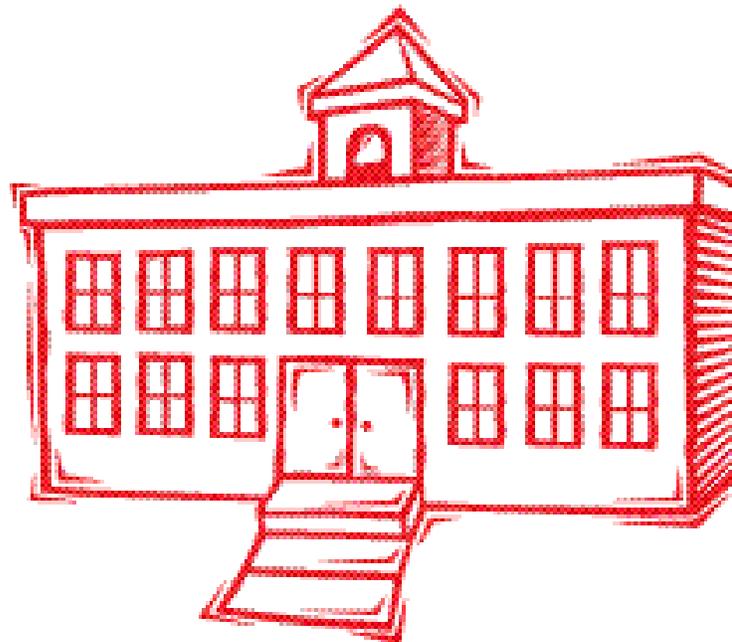
### Fluorescent and High-Intensity Discharge Lamps

Fluorescent and High-Intensity Discharge (HID) lighting does provide the environmental benefit of energy efficiency; it can use up to 50 percent less electricity than incandescent lighting.

The most common fluorescent lamp is the tube style, used as overhead lighting in offices and businesses. Compact globe styles are used in homes and offices. HID lighting is used in security, outdoor, or warehouse applications (e.g., parking lot light poles and warehouse rafters).

Waste fluorescent and HID lamps release mercury when they are broken, burned in waste-to-energy plants, or buried in landfills. Therefore, waste lamps should be managed properly and recycled.

There are currently no mercury-free fluorescent light bulbs manufactured. There are “low-mercury” bulbs available, and they are sometimes mistakenly thought to be “mercury-free.” However, all fluorescent bulbs available today still contain some mercury. Therefore, DEP recommends that all fluorescent bulbs be recycled.



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The Massachusetts Universal Waste Rule [310 CMR 30.1000] was adopted to encourage recycling by streamlining requirements. It includes the following handling requirements for spent mercury-containing lamps:

- Store unbroken lamps inside a box or fiber drum to prevent breakage, and in a protected area.
- Label the containers “Universal Waste - Mercury-Containing Lamps.” If lamps are accidentally broken, store them in a sealed container. Collect spilled powder using a disposable rag, and add it to the sealed container. Mop the area clean.
- It is not necessary to have a special mercury spill kit for cleaning up broken lamps because the mercury in the lamps is not in a liquid form.
- Once a sufficient quantity of lamps is collected, contact a lamp recycler to collect them.

Some lamp recyclers in the northeast are listed below:

Superior Special Services  
218 Canton Street  
Stoughton, MA 02072  
(781) 341-6080

Northeast Lamp Recycling  
250 Main Street  
East Windsor, CT 06088  
(860) 292-1992

Superior Special Services is currently on state contract, available to schools and municipalities, for mercury recycling. In June 2001, the price for recycling fluorescent lights was 9.5 cents per foot for less than 7500 feet or 8.5 cents per foot for more than 7500 feet. Containers for storing the bulbs, pick up, and recycling are included in the price. To obtain the state contract pricing, contact Superior (2001 contact Amanda Poverchuk 781-341-6080 x213) and reference state contract #ST7J211.

For more information, consult the DEP fact sheet: “Fluorescent Lamp Management for Businesses and Institutions,” at <http://www.mass.gov/dep/files/lamps.htm>. Also, see <http://www.lamprecycle.org>

## Mercury Thermostats and Non-Mercury Alternatives

Mercury-containing tilt switches have been used in thermostats for more than 40 years. The thermostats provide accurate and reliable temperature control, require little or no maintenance, and do not require a power source. However, each switch contains approximately three grams of mercury. Some thermostats may contain several switches.

To determine whether a thermostat contains mercury, carefully remove the front plate and look for the small glass ampules that contain silver liquid. Because the mercury in thermostats is completely enclosed, it does not pose an immediate threat to health or to the environment, unless the glass breaks or the product is disposed of in the regular trash.

Non-mercury thermostats, including air-controlled, reed switch, vapor-filled diaphragm, snap-switch and programmable electronic, are readily available.





## Other Mercury-Containing Devices and Alternatives

- Mercury switches and relays
- Mercury thermostat probes and flame sensors

Mercury-containing switches and relays, including tilt switches and float switches and displacement/plunger relays, are found in a variety of items, including chest freezers, silent light switches, hot water heaters, bilge and sump pumps, septic tanks, and storage tanks. If a mechanical switch is not visible in these items, a mercury switch is probably being used.

Mercury-containing thermostat probes, also known as flame sensors or gas safety valves, may be found in several types of gas-fired appliances that have pilot lights, such as: ranges, ovens, clothes dryers, water heaters, furnaces, gas meters, and space heaters. The mercury is inside a tube and expands or contracts to open and shut the valve.

Because the mercury in these switches, relays and probes is completely enclosed, it does not pose an immediate threat to health or to the environment, unless the mercury is leaking or the product is disposed of in the regular trash.

When purchasing or replacing any of these items be sure that the new item has a non-mercury switch, relay, or thermostat probe. Alternatives to switches and relays include hard-contact switches, solid-state switches, electro-optical switches, inductive sensors, capacitive sensors, photoelectric sensors, and ultrasonic sensors. Most new float switches are now made without mercury. Non-mercury float control switches include magnetic dry reed switches, optic sensors, and mechanical switches. Alternatives to mercury-containing thermostat probes include electric flame sensors and electronic ignition.

## Storing Unwanted Mercury Devices

To safely remove an unwanted mercury thermostat, use a screwdriver and a pair of wire cutters to remove the entire thermostat from the wall. **DO NOT** attempt to remove the switches themselves or dismantle the thermostat in any way.

When disposing of unwanted mercury thermostats, switches, relays or thermostat probes save the mercury devices in two sealed, non-breakable containers (e.g., two sealed, zip-lock plastic bags, one inside the other) in a safe place. Label the containers "Universal Waste - Mercury-Containing Devices" and indicate the date that they were stored.

Unwanted mercury devices are classified as universal wastes and should NOT be disposed of in the regular trash. Arrange for proper disposal of the universal wastes. For more information, see the fact sheet "Establishing Hazardous and Universal Waste Collection Areas."

For thermostats only, a consortium of thermostat manufacturers formed the Thermostat Recycling Corporation (TRC) to collect and recycle used thermostats. Thermostats are collected at participating Heating, Ventilation and Air Conditioning Supply Wholesalers. There may be a participating wholesaler in your area. For a list of participating wholesalers, see <http://www.nema.org/government/environment/>.

When disposing of a large item that you know contains a mercury switch, relay, or thermostat probe, alert your white goods hauler to the presence of mercury in the device. Alternately, if you have been trained and are confident that you can safely remove the switch, relay or thermostat probe yourself without disturbing the mercury, do so and, until you arrange for proper disposal, store the mercury-containing component as described previously.

## How to Handle a Mercury Spill or Leak

If a mercury leak or spill occurs and it is less than two tablespoons, you may be able to clean it up yourself. If you have a mercury spill kit, follow the instructions that come with it. Otherwise, follow these instructions:

- First ventilate the room to the outdoors and keep people and animals out of the area.
- Remove all jewelry from hands and wrists.
- Wear rubber gloves to avoid mercury contact with the skin.
- Use an eyedropper or two pieces of stiff paper to scoop the mercury into an unbreakable container.
- Place all contaminated cleaning materials in two sealed, non-breakable containers (one inside the other).
- Remove contaminated carpeting and store with contaminated cleaning materials.
- Label the containers “Hazardous Waste - Mercury Spill Clean Up Materials” and indicate the date that they were stored. Store them in an appropriate location.
- Dispose of all contaminated materials as hazardous waste.
- See the fact sheet “Establishing Hazardous and Universal Waste Collection Areas” for more information.
- Replace the item with a non-mercury alternative.

If the spill is greater than two tablespoons, you should get professional spill response assistance. First, close off the area immediately. Call the Massachusetts DEP’s Spill Response Center at 888-304-1133, or your local fire department. To minimize volatilization, turn down the temperature to below 65 degrees Fahrenheit. Open windows and ventilate the area. Surround and contain the spill as much as possible. For a release to the environment of one pound (approximately two tablespoons) or more, reporting to the Spill Response Center is required.

**NEVER** use a vacuum cleaner or broom to clean up a mercury spill as this causes mercury to vaporize into the air, causing greater potential for health risks. **NEVER** pour mercury down the drain. Mercury is heavier than water and may get trapped in the plumbing system and continue to vaporize into the room, causing potential health risks.

## Additional Information

For additional information on facility systems, equipment and supplies that may contain mercury, see the website of the National Institutes of Health at <http://www.nih.gov/od/ors/ds/nomercury/systems.htm> or the website of the Burlington, Mass. Board of Health at <http://www.208.58.133.9/health/Mercury.htm>.

