

Household Mercury Sources

There are some sources of household mercury that are much, much higher in mercury than household batteries. Luckily, mercury use in these products is becoming less common, and alternatives are increasingly available. These are the main types of household mercury products you will find with lots of mercury:

Mercury flame sensors: Also called automatic gas shut-off valves, are used as safety devices in gas ranges and other appliances. A flame sensor stops the flow of gas if the open flame does not produce heat, such as when the pilot light is out. These contain about 1 gram (1,000 mg) of mercury. So **one flame sensor is equal to about 40 button cell batteries**. They were used in older gas-fired appliances (e.g. dryers, stoves, and furnaces) to open or shut off gas. These will be hard to remove, but another reason for separating out and backhauling your appliances. Many newer model appliances now



Photo source: www.mercvt.org

use an electronic igniter or electronic flame sensor. You might find in the trash another type of flame sensor used in **fire detection systems**. **These are** used to activate sprinkler systems or alarms.

Switches are devices that regulate the flow of electricity; when open they allow current to flow and when closed they prevent current from flowing. Some temperature or pressure sensitive and mechanical switches may contain mercury. Typical examples include:

- ❖ The hood and trunk light switches in some pre-YR 2000 cars,
- ❖ Silent wall switches,
- ❖ Garage door openers,
- ❖ Clothes dryer lids,
- ❖ Microwave ovens,
- ❖ Proximity or position sensors found in irons and space heaters,
- ❖ Sump pumps and bilge pumps.



Mercury switch

The average mercury-containing switch has about **3 grams of mercury**, the same as **120 button cell batteries**. Taking out just **one such switch removes more mercury than two to four years** of a pretty good household battery program. The reason? Beside the much lower amount of mercury in household batteries, button cell batteries usually last several years. So for every 400 button batteries in your community being used, there will be only about 100 needing replacement each year (and going to the trash). But you will be doing well if you can collect even 10% to 50% of what is going to the trash. Note, large switches can contain up to **70 grams** of mercury (about **660 button cell batteries**).

Temperature switches: These are used in food warming trays, hot water boilers, ovens, sterilizers, molding machines, heat exchangers, labeling machines, water baths, heat sealers, refrigerating equipment, ventilation equipment, alarm systems, bearings, popcorn machines, hot stamping, watering

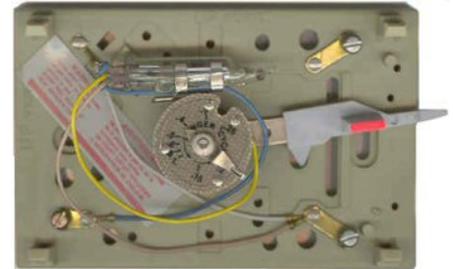
fountains, vending machines, and deep fat cookers. Due to their mercury content, these switches are becoming less popular with the food and beverage industry. They contain anywhere between **1 to 10 grams of mercury** (40 to 400 button cell batteries).

Fever Thermometers: Those containing mercury are identified by the color of the bulb. **If the bulb is silver, the thermometer**

most likely contains mercury, anywhere between **500 to 3,000 mg** (20 to 120 button cells). Digital fever thermometers are mostly used now (which don't contain mercury), but watch out for people throwing out their old mercury bulb thermometers.



Thermostats: Mercury-containing thermostats may be used in heating and cooling systems in residential, medical, commercial and industrial settings. **Most non-digital thermostats contain mercury, anywhere between 3 grams to 18 grams** (equal to 120 to 720 button cell batteries). Thermostats that contain mercury can usually be identified by **carefully removing the front plate of the device and looking**. If there are glass "ampoules" inside that contain a silver



Thermostat with cover off. Source: Environment Canada

liquid, it is most probably mercury. Watch out for people replacing their old thermostats with digital models that they can use for programming the temperatures. Such models are definitely better for the environment, but make sure people don't discard their old thermostats in the landfill.

Note: The primary source for the above "Other Mercury Sources" discussion is the Environment Canada, at <http://www.ec.gc.ca/MERCURY/SM/EN/sm-mcp.cfm?SELECT=SM>

How to remove the mercury components from big appliances ("white goods")

There is a great step-by-step manual with pictures to take the mercury out *before* the freezers, ovens, washing machines, etc. are discarded or stored at your unlined dump. You might print this out and have your operator read it, or keep a copy for households to read when they are ready to discard their white goods. If don't have an appliance backhaul (most of us don't), then the mercury will eventually get into the environment. So removing the mercury switches and sensors will be a significant help in protecting subsistence and community health. Go to:



Photo source: www.mercvt.org

<http://www.mercvt.org/PDF/appman.pdf> for the **Household Appliance**

Mercury Switch Removal Manual developed by the **Mercury Education and Reduction Campaign**, Vermont Agency of Natural Resources. Their site at www.MERCvt.org lists a number of other mercury-reducing practical steps your community can take.

Other useful mercury information

Web Links:

Topic	Website address
Overview of mercury and why it's a concern	http://www.epa.gov/earlink1/mercury/index.htm http://www.epa.gov/epaoswer/hazwaste/mercury/index.htm http://www.nwf.org/mercury/
What you should do if you have a mercury spill 	http://www.epa.gov/epaoswer/hazwaste/mercury/spills.htm http://www.epa.gov/boston/eco/mercury/spillstherm.html http://www.state.in.us/idem/ctap/mercury/spill.pdf http://www.idph.state.il.us/envhealth/factsheets/mercuryspills.htm http://www.state.nj.us/health/eoh/survweb/merchome.pdf http://www.michigan.gov/deq/1,1607,7-135-3585_4127_4175-11751--_00.html

Shipping out mercury containing items:

Unfortunately, shipping out mercury can get expensive, but you should be able to use IGAP funds for this activity. To save money, it's best to store all your mercury containing items and ship them out together rather than item by item. So if there are several thermostats, thermometers, switches or other mercury containing items in the community that will eventually need to be disposed, it's best to **store them in a safe place** until everything can be shipped out, all at once.

When the mercury containing items are ready to be shipped out, contact the following companies for quotes:

Total Reclaim www.totalreclaim.com Tel: (907) 229-0183
 12101 Industry Way, Unit #C4 Anchorage, AK 99515

Emerald Services www.emeraldhw.com Tel: (907) 258-1558
 800 East Ship Creek Avenue Anchorage, AK 99501

Phillips Services Anchorage, AK 1 (800) 478 9008 (907) 272 9007



Through these companies, you can order **DOT-approved shipping containers** to put the "mercury debris" in. These containers come in a variety of sizes (e.g. 1-gallon, 5-gallon etc. containers). The companies will also help you fill out a hazardous waste manifest to ship the material.

Any **spilled mercury will need to be put in a ziplock bag** with absorbent material around it (e.g. kitty litter), in the DOT-approved container. (Read the information on the webpages listed in the table on the previous page on how to safely cleanup small mercury spills)

What are the typical costs for shipping out mercury containing items?

The table below shows sample costs for shipping out mercury containing items gathered from the companies listed above:

Item	Costs
DOT-approved container	\$6-\$20
Processing fee (manifest and shipping paperwork)	\$50
Transportation costs from Village to Anchorage (depends on location)	\$25-\$100
Disposal fee for mercury debris	Up to ~\$350