

## **MERCURY-CONTAINING PRODUCTS: A BRIEF OVERVIEW**

Prepared by the Northeast Waste Management Officials' Association

Mercury is present in a number of products that become part of the solid waste stream, including certain thermometers, fluorescent lamps, button batteries, thermostats, manometers, switches, relays, and dental supplies. When solid waste is burned in a municipal solid waste or medical waste incinerator, most of the mercury that is present is volatilized and, depending on the air pollution control device(s), released to the atmosphere. Some of the mercury in landfilled waste, including land-applied sludge and ash, may also be released to the atmosphere, although good data on mercury emissions from these sources are presently lacking in most of the U.S.

Mercury is used in manufacturing processes and some ends up in manufactured products, such as those listed above. Of the mercury that ends up in products, a portion is eventually disposed of or recycled as municipal solid waste, while other portions may be disposed of as hazardous or medical waste or discharged to a sewage treatment facility. There are numerous mercury-containing products in today's waste stream that are no longer produced, including cylindrical alkaline batteries, certain pesticides, and certain latex paints made before the early 1990s.

The following sections provide a brief and incomplete list of some of the mercury-containing products that are still being manufactured. There are mercury-free alternatives available for a significant number of these products.

### **Wiring Devices & Switches, Including Thermostats**

This is currently the largest category of mercury consumption and the biggest single use of mercury in this category is the mercury relay. Mercury relays usually have a long life span.

#### **Examples:**

Tilt switches for convenience lighting in the trunks and hoods of cars - U.S. automobile manufacturers estimate that 12.2 million mercury convenience light switches a year go into cars, which is equivalent to 8.5 metric tons of mercury per year. Non-mercury switch drop in replacements for the mercury switches in cars are available.

Switches in freezers and gas ovens - Certain chest freezers contain mercury switches to activate an interior light. Each freezer contains one switch, and each switch contains about 1 gram of mercury. Certain pilot light gas ranges have a switch that contains about 2 grams of mercury.

Thermostats - According to the Thermostat Recycling Corporation, there are an estimated 50 million thermostats that have a mercury switch in homes nationwide. Each unit contains at least one ampule of mercury with an estimated 2 to 4 grams of mercury per ampule. Alternative non-mercury digital thermostats are widely available.

### **Electric Lighting**

Flourescent lamps are the major source of mercury in electric lighting. The average amount of mercury

used in individual lamps has decreased since the 1980s, but more of these lamps are manufactured each year.

According to EPA, the average mercury content of fluorescent bulbs was 22.8 milligrams in 1995. In the past few years, the lamp manufacturers have significantly reduced the mercury content of the bulbs (the average in 1990 was 41.6 milligrams).

### **Measuring Devices & Control Instruments**

Thermometers, barometers, and sphygmomanometers (blood pressure cuffs) are the major mercury-added products in this category.

#### **Examples:**

Fever thermometers - Mercury fever thermometers contain approximately 0.5 - 1 gram of mercury. There are many types of alternative non-mercury fever thermometers on the market, including a variety of small digital thermometers (that may contain a mercury-added button cell battery that has a relatively small amount of mercury), and others.

Laboratory thermometers - Laboratory thermometers vary depending on size, but on average contain 3 grams of mercury. There are a variety of non-mercury thermometers available for laboratory use including certain digital, alcohol, and spirit-filled thermometers. The alternative thermometer chosen by a laboratory would depend on its ultimate use and specifications.

Manometers - Mercury-containing dairy manometers contain 355 grams of mercury. There are non-mercury digital manometers that are widely available.

### **Dental Supplies**

Dental mercury amalgam fillings are prepared with prepackaged capsules.

### **Button Cell Batteries**

Certain button cell batteries, including those used in hearing aids, some wrist watches, and other products that require a very small battery, contain mercury. There are also speciality batteries used in hospitals, military facilities and commercial applications that require mercury to function. These speciality batteries may contain higher amounts of mercury.

### **Laboratory and Pharmaceutical Chemicals, Paints and Coatings**

There are numerous uses of mercury in laboratory and pharmaceutical products as well as a small number of coatings. Mercury can be an active ingredient, a preservative or a contaminant introduced in the manufacture of one of the ingredients in a chemical formulation. Examples of mercury-contaminant compounds used in clinical laboratories include Zenker's solution, B5 solution, certain hematoxylin solutions, and thimerosol.

For more information on mercury-containing products contact: Terri Goldberg, NEWMOA, (617) 367-8558 x 302.