

HSEES

FACT SHEET

JUNE 2000

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MERCURY THERMOMETERS



Concern about the toxicity of elemental mercury has prompted many states to institute programs to limit exposure of workers and the general public to the substance. The Alabama Department of Public Health discourages the use of mercury thermometers and urges all school nurses to use alternate methods of body temperature measurement.

When liquid mercury is spilled, it forms droplets that can accumulate in tiny spaces and then emit vapors into the air. Mercury vapor in the air is odorless, colorless, and toxic. One-half gram of mercury from a broken thermometer can detectably pollute 5 million gallons of a large body of water if washed down a sink. Whole families have been poisoned at home from mercury spills which have not been cleaned up or were cleaned up with an ordinary vacuum cleaner. Children are at highest risk. The small volume of mercury in a fever thermometer is not likely to cause a problem but should still be cleaned up properly.

From July 1, 1999 through December 31, 1999, forty possible mercury exposures were reported to the Regional Poison Center at Children's Hospital in Birmingham. The majority of the cases involved a thermometer. Of these, eighty percent occurred in private residences and twenty percent were in health care facilities.

Examples of Elemental Mercury Exposures

Case #1 - A seventeen year-old female dropped a thermometer at home and it broke. When the teenager attempted to pick up the thermometer, the mercury spilled onto her hands and the floor. After contacting the Poison Center, proper clean up procedures were followed.

Case #2 - In a private home, a two year-old male bit a glass thermometer while his mom was attempting to take his temperature. The mother retrieved the glass from the child's mouth but the child swallowed some of the mercury. The mother called the Poison Center where observation and dilution were suggested. The child remained asymptomatic.

Alternatives to Elemental Mercury Thermometers

Teflon-coated mercury thermometers - breakage resistant; slightly higher cost; comparable accuracy

Spirit-filled, mercury-free thermometers - filled with mineral spirits therefore less toxic; comparable price; comparable accuracy

Alcohol-based, mercury-free thermometers - not hazardous; comparable price; less accurate

Microprocessor-based thermometers - not hazardous; digital readout; excellent accuracy; more expensive than mercury thermometers

Mercury Toxicology

Mercury is naturally-occurring and has several forms (metallic, inorganic and organic). The most common form in industrial use is the shiny, silver-white metal that is called metallic mercury, or simply, mercury. It is a liquid at room temperature, easily breaks up into many small droplets and evaporates to form mercury vapor, a colorless and odorless gas. This fact sheet contains information on incidents involving only metallic mercury.

Mercury has many uses including measuring temperature (in thermometers) and pressure (in barometers and blood pressure units), and in batteries, electrical switches, and mercury vapor lamps, including fluorescent bulbs. Mercury is also used in the production of chlorine gas and caustic soda, to extract or reclaim gold, and in boilers and mirror coatings. Silver-colored dental fillings typically contain about 50% mercury. Some Mexican-American and Asian populations may still use mercury in folk remedies for chronic stomach disorders. Some groups in Latin American and Caribbean cultures use mercury called *azogue* or *vi dajan* in religious rituals. These cultural, medicinal and religious uses of mercury can lead to mercury exposure and the possibility of health effects.

HAZARDOUS SUBSTANCES EMERGENCY EVENTS SURVEILLANCE

Exposure to mercury may result from breathing air contaminated by mercury vapor, from skin absorption when handling mercury liquid, or by eating contaminated foods or drinking contaminated liquids. Exposure to sufficiently high levels of mercury can cause permanent damage to the nervous system and brain, kidneys and developing fetus. Mercury affects many different brain functions and a variety of symptoms may occur. These include personality, sensation and difficulties with memory.

Short-term exposure to high levels of mercury vapor in the air can damage the lungs; cause nausea, vomiting or diarrhea; cause increases in blood pressure or heart rate; and cause skin rashes or eye irritation.

Contact Information

Should you require further assistance or information on phasing out the use of mercury thermometers please contact:

Mr. Robin Moore
rmoore@adph.state.al.us
Alabama Department of Public Health
1-800-201-8208

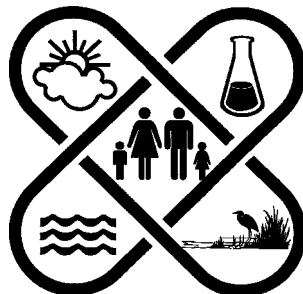
or

The Regional Poison Control Center
The Children's Hospital of Alabama
1-800-292-6678

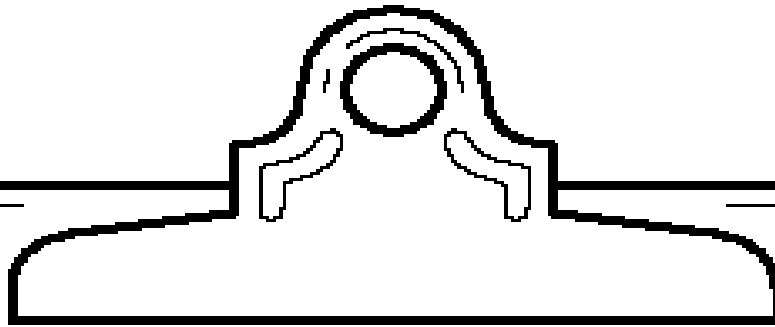
The Alabama Department of Public Health would like to thank the Regional Poison Control Center at Children's Hospital for their assistance in this project and would like you to be aware of their emergency number for any urgent poison information.

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DIVISION OF EPIDEMIOLOGY



RISK ASSESSMENT BRANCH



In Case of a Mercury Spill:

1. Isolate the spill and ventilate the room to the outside of the building.
2. Remove any mercury from your shoes, clothing, or skin.
 - If possible, stay still and have someone bring you some wet paper towels and a plastic trash bag. Wipe off visible mercury and dispose of towels in bag. Seal bag and dispose. Shower well in cool water.
 - If spill is not on your person, wear gloves to clean up. Again, use a wet paper towel and plastic trash bag.
3. If spill is from a mercury manometer, there is enough mercury contained to justify your purchase of a mercury spill kit, so if you have a mercury manometer on site, we suggest purchasing a spill kit as a precaution. If this spill has been spread around a large area or if there is a large amount pooled in an area that you can not reach, you may need to consult a certified mercury clean-up contractor.
4. **Never:**
 - Use an ordinary vacuum cleaner
 - Use a broom
 - Pour mercury down a drain
 - Wash mercury-contaminated items in a washing machine