

## What is Mercury?

Mercury is a naturally occurring heavy metal. It is unique because it is liquid at atmospheric temperatures, and it uniformly expands and contracts in response to changes in temperature and pressure. Mercury occurs naturally and is found in very small amounts in oceans, rocks, and soil. Mercury naturally cycles through the environment when rocks break down, volcanoes erupt, and soil decomposes. It then circulates and is distributed throughout the environment. In its metallic form, mercury is a silvery white liquid that reflects light like a mirror.

Mercury's unique properties make it suitable for measuring temperature and pressure. It has been used in thermometers, thermostats, barometers, and blood pressure gauges. Its shine made it desirable for coating mirrors and making mercury glass. Its affinity for other precious metals made it important in the mining of gold and silver and making dental amalgam.

Mercury is toxic. It is a hazardous chemical that can cause irreversible damage to your brain and nervous system. Its production, transport, and use are now highly regulated. The western world has found replacements for many of the standard uses of mercury, but mercury is still a necessary component of fluorescent, neon, and high-intensity light bulbs, silver dental amalgam and preservatives in vaccines and cosmetics.

## How Does Mercury Affect the Environment?

Although mercury is a natural element, the waste and residual contamination from past use of the metal and the ongoing burning of fossil fuels for energy continue to emit mercury into the environment. Mercury can become airborne when coal, oil, wood, or natural gas is burned as fuel or when mercury-containing garbage is incinerated. Once in the air, mercury can fall to the ground with rain and snow. This can then contaminate soil, bodies of water, and the creatures living there.

## What Are the Human Health Effects of Mercury?

People are most often exposed to mercury through inhalation. Mercury vaporizes at room temperature and is both colorless and odorless. Mercury can also be taken into the body through the skin, mouth, or by eating mercury-contaminated fish (see Mercury in Fish section below).

Mercury affects the human brain, spinal cord, kidneys, lungs and liver. Symptoms of short-term exposure to high levels of mercury include nausea, shortness of breath, fever, muscle aches, skin rash, sore gums, and an elevated white blood cell count. Symptoms of long-term exposure include tingling sensations in the fingers and toes, numbness around the mouth, and tremors. Long-term exposure can result in symptoms that get progressively worse and lead to personality changes, tunnel vision, stupor, coma, and death.



## Mercury in Fish

1. Mercury in natural waters is taken up by microscopic animals and plants known as plankton.
2. Minnows and juvenile fish eat large quantities of plankton and absorb the mercury in them.
3. Large fish eat the smaller fish, accumulating mercury in their organs and tissues. This process is called biomagnification. The older and larger the fish the greater the potential for high mercury levels in their bodies.

No method of cooking or cleaning can reduce the amount of mercury in the fish tissue; but, removing and disposing of the organs prior to cooking does reduce the amount of mercury consumed. Please see DEQ's Healthy Fish Consumption Guidance webpage at <https://tinyurl.com/ypyhtcj3>.



## Pollution Prevention Tips

- Use red bulb alcohol, digital, or LCD forehead thermometers.
- Use electronic (digital) thermostats, mechanical snap acting switches, magnetic snap switches.
- Use reduced mercury fluorescent lamps (green tipped).
- Choose mercury-free toys, shoes, jewelry. Be careful at garage sales and estate auctions because mercury has spilled from antique clocks and barometers.
- Do not store mercury in your home. See DEQ's Mercury Spill fact sheet for disposal options.
- Use less energy. Coal-fired power plants are a major source of mercury pollution. Reducing demand for electric power means less mercury is emitted into the environment from power plants.
- Using energy efficient compact fluorescent lamps instead of incandescent light bulbs is one way to reduce energy use.



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## Where Might You Encounter Mercury?

Mercury has a long history of use in consumer products. Older products may not be labeled as containing mercury; however, newer products are often labeled as Contains Mercury or Hg, which is the chemical symbol for mercury. The labeling is a result of an international movement to keep mercury out of the waste stream.

Products that may contain mercury include:

- Thermometers.
- Thermostats.
- Barometers.
- Blood pressure gauges.
- Some household switches manufactured before 1991.
- Tilt switches (e.g., hood and trunk lights) in US cars manufactured before 1997 and in some current imports.
- Tilt switches in consumer products that turn off when they fall over (e.g., space heaters, irons).
- On/off switches on older range ventilation hoods.
- Fluorescent, neon, and high intensity lamps.
- Electronics.
- Some alkaline batteries manufactured before 1994.
- Some button batteries.
- Latex paints manufactured before 1992.
- Dental amalgam.
- Old chemistry sets and toys.
- Lighted athletic shoes manufactured in the US before 1997.
- Some pesticides manufactured before 1994.
- Some skin lightening creams. Though banned in the US, some imports may still contain mercury.
- Some Asian medicinals.
- Some religious amulets and folk medicines.
- Mercurochrome.
- Thimerosal.
- Antique paint pigment (vermillion was made from cinnabar mercury containing ore).
- Antique mirrors, barometers, clocks.
- As a road leveling device in a late 1950s Studebaker.
- Many other products.

## Regulations Regarding Recycling and Disposal

Mercury is recyclable and the preference is for it to be handled as a recyclable material and not a hazardous waste.

Federal regulations (Title 40 Code of Federal Regulations (40 CFR) Part 261.24) set the limits for determining whether a waste is a hazardous waste. Mercury is considered a hazardous waste if laboratory tests show that 0.2 mg/l of mercury will leach out of a waste. The RCRA Universal Waste Rule (40 CFR Part 273) covers batteries, pesticides, fluorescent lamps, and mercury-containing equipment. This is meant to encourage recycling and proper disposal and reduce regulatory burden. State regulations (Oklahoma Administrative Code Title 252 Chapter 205 (OAC 252:205)) regulate the management of hazardous waste. Oklahoma adopted the federal Universal Waste Rule; therefore, fluorescent lamps, and other mercury-containing devices may be recycled in accordance with the Universal Waste requirements.

The laws governing the disposal of hazardous waste (including mercury) are aimed at businesses. Household hazardous waste is exempt from this regulation. Households may legally dispose of their residential hazardous wastes in the trash. However, DEQ encourages residents to take these items to household hazardous waste collection sites and other centers for proper recycling or disposal. DEQ can collect mercury and mercury-containing items, except lightbulbs. Locke Supply Co. accepts fully intact thermostats that contain mercury for recycling.

If mercury is spilled, it should be cleaned up immediately. Please see DEQ's fact sheet on mercury cleanups. In general, if mercury spills are cleaned up immediately, there is less potential for long-term exposure problems. If a mercury spill isn't cleaned up immediately, the metal will continue to vaporize, and the vapors will contaminate everything porous in the area and will amalgamate with metals.

## Contacts

If you or someone you know has been exposed to mercury, please call Oklahoma Poison Control at **(800) 222-1222**.

If you have a mercury spill, please exit your home immediately and call the Oklahoma Department of Environmental Quality at **(405) 702-5100**. After normal working hours and on weekends, call the DEQ hotline at **(800) 522-0206**. DEQ will also be happy to answer any questions regarding mercury.

Mercury releases greater than one pound, approximately two tablespoons, should be reported to the National Response Center at **(800) 424-8802**.