



## What is mercury?

Mercury is a naturally occurring element that is found in oceans, rocks, and soils. It can be found as a pure element—elemental (metallic) mercury—or as a compound—organic and inorganic mercury.

*Note: ATSDR's Don't Mess with Mercury Lesson Plans are about elemental mercury and do not discuss the other forms of mercury.*

## Quick facts about elemental mercury

1. Mercury's symbol on the Periodic Table of Elements is "Hg," which is an abbreviation for the Greek word hydragyrum (liquid silver). Its atomic number is 80.
2. Physical properties of elemental mercury:
  - Mercury is the only metal that is liquid at room temperature.
  - Even at room temperature, mercury evaporates into an odorless vapor that is invisible to the unaided eye.
  - Mercury is very dense. Two tablespoons of mercury weighs about 1 pound.
  - Mercury has a high surface tension, which makes it very slippery. When it is spilled, it breaks into many small drops, known as beads.
  - Mercury is a good conductor of heat and electricity.
3. Some people call elemental mercury quicksilver.
4. Breathing in mercury vapors is the most common way to get mercury poisoning—and also the most dangerous.
5. Spilled mercury beads easily spread and hide in small spaces (like cracks in the floor). They can release vapors that can be inhaled by students and staff even years after a spill.
6. Mercury has been used to make many different kinds of products, including devices used in schools. These include glass thermometers, thermostats, electrical switches, gauges, and science laboratory equipment, among others.
7. Because mercury is a hazardous chemical, many manufacturers have removed it from consumer products.
8. Mercury is not a banned substance and some products still contain it. For example, compact fluorescent light (CFL) bulbs contain a small amount of mercury. Note, that if a bulb breaks, the amount of mercury in the CFL is so small that it will not produce enough vapor to make people sick. However, it is still important to clean up safely and properly.



## Instructions for students who find mercury

- **DON'T** mess with it.
- **DON'T** touch it.
- **DON'T** walk through it or get it on your clothes, backpack or other things.
- **DO** find an adult and ask for help.

## Health effects of mercury

- Mercury poisoning can affect the nervous system, lungs, and kidneys.
- Inhaling mercury vapors can cause different symptoms depending on how long and how much of the vapor people inhale.

Inhaling <b>high levels</b> of vapors for a <b>short period</b> of time	Inhaling <b>low levels</b> of vapors for a <b>long period</b> of time
<ul style="list-style-type: none"> <li>• Nausea, vomiting, diarrhea</li> </ul>	<ul style="list-style-type: none"> <li>• Feeling anxious or tired</li> </ul>
<ul style="list-style-type: none"> <li>• Headaches</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of appetite</li> </ul>
<ul style="list-style-type: none"> <li>• Shortness of breath</li> </ul>	<ul style="list-style-type: none"> <li>• Trembling (shaking)</li> </ul>
<ul style="list-style-type: none"> <li>• Eye irritation and vision problems</li> </ul>	<ul style="list-style-type: none"> <li>• Memory problems</li> </ul>
<ul style="list-style-type: none"> <li>• Chest pain</li> </ul>	<ul style="list-style-type: none"> <li>• Hearing problems</li> </ul>

## Differences between elemental mercury and other forms of mercury

- Unlike organic and inorganic mercury, which are compounds, elemental mercury is pure, i.e., it is not chemically bonded to other elements.
- Organic mercury is mainly methylmercury. Due to environmental pollution, fish may contain mercury that they have accumulated through the food chain.
- Ethylmercury is another form of organic mercury. It is found in some vaccine preservatives and some antiseptics.
- Inorganic mercury compounds are found in batteries, some disinfectants, and some health remedies and creams.
- All three forms of mercury are harmful to human health.

## Elemental mercury resources

- Websites:
  - » Agency for Toxic Substances and Disease Registry's Don't Mess with Mercury—For Students website: <http://www.atsdr.cdc.gov/dontmesswithmercury/students.html>
  - » Ohio EPA public service announcement highlighting mercury vapors: <http://www.youtube.com/watch?v=tpqP3ReC1cQ>
  - » North Dakota Department of Health. Mercury Containing Devices/Products: <http://www.ndhealth.gov/wm/Mercury/MercuryContainingDevicesProducts.htm>
  - » US EPA Region 9. Public Service Announcement: Mercury Is Toxic: <http://www.epa.gov/region9/psa/mercury/>
  - » US EPA's Mercury Page: <http://www.epa.gov/mercury/index.html>
  - » Mercury in Schools Case Studies: <http://www.epa.gov/hg/casestudies.htm>
- Books:
  - » Lew, Kristi. Mercury (Understanding the Elements of the Periodic Table). New York, NY: Rosen Publishing Group, 2009.
  - » Watt, Susan. The Elements: Mercury. Tarrytown, New York: Benchmark Books, 2005.

## Contact ATSDR for more information about elemental mercury

- Sue Casteel: [scasteel@cdc.gov](mailto:scasteel@cdc.gov)
- Dr. Michelle Watters: [mwatters@cdc.gov](mailto:mwatters@cdc.gov)