



## Mercury

<http://www.epa.gov/hg/about.htm>  
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## Basic Information

### In a nutshell: What's mercury and why is it a concern?

- Mercury is a naturally occurring element (Hg on the periodic table) that is found in air, water and soil. It exists in several forms: elemental or metallic mercury, inorganic mercury compounds, and organic mercury compounds. Elemental or metallic mercury is a shiny, silver-white metal and is liquid at room temperature. If heated, it is a colorless, odorless gas.
- Exposures to mercury can affect the human nervous system and harm the brain, heart, kidneys, lungs, and immune system. Learn more about the health effects of mercury.
- The most common way we are exposed to mercury is by eating fish or shellfish that are contaminated with mercury. Learn more about mercury in fish and shellfish and about other ways you can be exposed to mercury.

**Forms of mercury.** Mercury is a naturally occurring element that is found in air, water and soil. It exists in several forms: elemental or metallic mercury, inorganic mercury compounds, and organic mercury compounds. [More information](#)

**Sources of mercury.** Mercury is an element in the earth's crust. Humans cannot create or destroy mercury. Pure mercury is a liquid metal, sometimes referred to as quicksilver that volatilizes readily. It has traditionally been used to make products like thermometers, switches, and some light bulbs.

Mercury is found in many rocks including coal. When coal is burned, mercury is released into the environment. Coal-burning power plants are the largest human-caused source of mercury emissions to the air in the United States, accounting for over 50 percent of all domestic human-caused mercury emissions (Source: [2005 National Emissions Inventory](#)). EPA has estimated that about one quarter of U.S. emissions from coal-burning power plants are deposited within the contiguous U.S. and the remainder enters the global cycle. Burning hazardous wastes, producing chlorine, breaking mercury products, and spilling mercury, as well as the improper treatment and disposal of products or wastes containing mercury, can also release it into the environment. Current estimates are that less than half of all mercury deposition within the U.S. comes from U.S. sources. [More information](#).

**Sources of mercury compounds.** In the U.S., mercury compounds are manufactured in small amounts for specialty uses, such as chemical and pharmaceutical applications. Larger quantities of these compounds are generated as byproducts from pollution control activities at gold mines or in waste. Elemental mercury is processed in the U.S. from byproduct mercury compounds, and an unknown quantity of mercury compounds is imported into the United States for conversion to elemental mercury. [Learn more about mercury compounds \(PDF\)](#). (123 pp, 738K, [About PDF](#))

**Exposure to mercury.** Mercury in the air eventually settles into water or onto land where it

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can be washed into water. Once deposited, certain microorganisms can change it into methylmercury, a highly toxic form that builds up in fish, shellfish and animals that eat fish. Fish and shellfish are the main sources of methylmercury exposure to humans. Methylmercury builds up more in some types of fish and shellfish than others. The levels of methylmercury in fish and shellfish depend on what they eat, how long they live and how high they are in the food chain.

EPA works with the U.S. Food and Drug Administration (FDA) and with states and tribes to issue advice to women who may become pregnant, pregnant women, nursing mothers and parents of young children about how often they should eat certain types of commercially-caught fish and shellfish. Fish advisories are also issued for men, women, and children of all ages when appropriate. In addition, EPA releases an annual summary of information on locally-issued fish advisories and safe-eating guidelines to the public. Fish is a beneficial part of the diet, so EPA & FDA encourage people to continue to eat fish that are low in methylmercury. [More information](#)

Another less common exposure to mercury that can be a concern is breathing mercury vapor. These exposures can occur when elemental mercury or products that contain elemental mercury break and release mercury to the air, particularly in warm or poorly-ventilated indoor spaces. [More information](#)

**Health effects of mercury.** Mercury exposure at high levels can harm the brain, heart, kidneys, lungs, and immune system of people of all ages. Research shows that most people's fish consumption does not cause a health concern. However, it has been demonstrated that high levels of methylmercury in the bloodstream of unborn babies and young children may harm the developing nervous system, making the child less able to think and learn. [More information](#)

**Ecological effects of mercury.** Birds and mammals that eat fish are more exposed to mercury than other animals in water ecosystems. Similarly, predators that eat fish-eating animals may be highly exposed. At high levels of exposure, methylmercury's harmful effects on these animals include death, reduced reproduction, slower growth and development, and abnormal behavior. [More information](#)

**Reducing mercury releases.** EPA issues regulations that require industry to reduce mercury releases to air and water and to properly treat and dispose of mercury wastes. In 2010, EPA is working to develop emissions standards for power plants under [Clean Air Act section 112](#), consistent with the [D.C. Circuit's February 2008 opinion \(PDF\)](#) (18pp, 51k, [about PDF](#)) regarding the Clean Air Mercury Rule (CAMR). On October 6, 2009, EPA published a [final rule that limits emissions, including emissions of mercury, from medical waste incinerators](#).

EPA works with partners in state, local and tribal governments to implement a variety of programs designed to reduce mercury pollution and impacts. Most of EPA's environmental regulations and programs are implemented by the states. In addition, under U.S. environmental laws, the states are often permitted to adopt local environmental laws and regulations that are more stringent than federal requirements. As of 2005, twenty- two states were implementing or developing overall [state-based mercury action plans](#).

[EXIT Disclaimer](#) Many of the state plans include pollution reduction elements that exceed federal requirements. In particular, the states in the Great Lakes basin and northeast region have led efforts to identify and pursue ways to reduce and prevent mercury releases to the environment, both as individual states and in multi-state collaborations.

EPA also works with industry to promote voluntary reductions in mercury use and releases. In December 2008, [EPA, the ADA and the NACWA signed a Memorandum of Understanding \(PDF\)](#) (17 pp., 893K, [about PDF](#)) to establish a Voluntary Dental Amalgam Discharge Reduction Program. The goal of the program is for dentists to follow the [ADA's best management practices \(BMPs\) for amalgam waste](#). [EXIT Disclaimer](#)

EPA works with international organizations to prevent the release of mercury in other countries. EPA has provided expertise to the United Nations Industrial Development Organization (UNIDO)'s Global Mercury Project's small-scale gold (artisanal) mining project, which focuses on best management practices to reduce occupational exposures, emissions and mercury use. Learn more about [EPA's international activities](#),

The public can contribute to mercury reduction efforts by [purchasing mercury-free products](#) and [correctly disposing of products that contain mercury](#). Learn more about [consumer and commercial products that contain mercury](#).

For more information, see [answers to frequent questions about mercury](#).