



Lead in Drinking Water

Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water.

Health Effects of Lead

Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

Sources of Lead

Lead is a common, natural, toxic, and often useful metal that was used for years in products found around the home. It can be found throughout the environment in lead-based paint, air, soil, household dust, food and certain types of pottery, porcelain and pewter. It can also be found in water.

Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily because of corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome plated brass faucets, and, in some cases, pipes made of lead that connect your house to the water main (service lines). Some common causes of corrosion are dissolved oxygen, acidity (low pH) and low mineral content in the water. In 2011 the federal Safe Drinking Water Act was amended to define "lead free" as having not more than 0.2 percent lead in solder and flux and not more than a weighted average of 0.25 for wetted surfaces of pipes, fittings, and fixtures.

When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first draw from the faucet in the morning, or later in the afternoon after returning from work or school, can contain higher levels of lead.

Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water.

Other important sources of lead exposure are lead-based paint, soil, and household dust. Homes build prior to 1978 may have lead-based paint both inside and outside of the house. Ingestion of lead-based paint chips is frequently a cause of lead exposure in young children. Soil and household dust may also contain deteriorating lead-based paint.

Steps You Can Take to Reduce Your Exposure to Lead in Drinking Water

To reduce your exposure to lead in drinking water, the following precautions should be considered and taken.

- Let the water run from the faucet before using it for drinking or cooking any time the water in a faucet has gone unused for more than six hours. The longer water resides in your home or building's plumbing, the more lead it may contain. Flushing the faucet means running the cold water until the water gets noticeably colder, usually about 30 seconds to two minutes. If your house or building has a lead service line to the water main, you may have to flush the water for a longer time. Although toilet flushing or showering flushes water through a portion of your home or building's plumbing system, you still need to flush water in each faucet before using it for drinking or cooking. Flushing faucet water is a simple and inexpensive measure you can take to reduce lead exposure. To conserve water, fill a couple of bottles for drinking water after flushing the faucet, and wherever possible use the first flush to wash dishes or water the plants.

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- Do not cook with or drink water from the hot water tap. Hot water can dissolve more lead in less time than cold water. If you need hot water, draw water from the cold tap and heat it on the stove or microwave. Do not prepare baby formula with water from the hot water tap.
- Do not boil water to remove lead. Boiling water will not reduce lead levels.
- Periodically remove the strainers from faucets and flush by running water for three to five minutes to remove any loose lead solder or debris that has accumulated over time.
- Determine if the service line that connects your home or building to the water main is made of lead. The best way to determine if your service line is made of lead is by hiring a licensed plumber to inspect the line. At the same time, a licensed plumber can check to see if your home or building's plumbing contains lead solder, lead pipes or pipe fittings that contain lead. The public water system that delivers water to your home should maintain records of the materials located in the distribution system.
- Have an electrician check your wiring. If grounding wires from the electrical system are attached to your pipes, corrosion may be greater. Check with a licensed electrician or your local electrical code to determine if your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself because improper grounding can cause electrical shock and fire hazards.
- If parents have concerns about lead exposure, you may want to have your child's blood tested for lead by your family doctor or pediatrician and they can provide you information about the health effects of lead.

Despite a public water system's best efforts to control water corrosivity and remove lead from the water supply, lead levels in some homes or buildings can be high. To find out if you need to take action, have your drinking water tested to determine if it contains excessive concentrations of lead. Testing is essential because you cannot see, taste, or smell lead in drinking water. A list of laboratories certified by Ohio EPA to perform lead analysis on drinking water samples can be found on Ohio EPA's webpage at epa.ohio.gov/Portals/28/documents/Certified_Labs_for_Lead_and_Copper.pdf.

The steps described above will reduce the lead concentrations in your drinking water. However, if a water test indicates that the drinking water coming from your faucet contains lead concentrations higher than 15 parts per billion after flushing, or after the public water system has completed actions to minimize levels, then you may want to take any of the following additional measures.

- Purchase or lease a home treatment device certified by an independent testing agency such as NSF International and is rated for lead reduction. Home treatment devices are limited in that each unit treats only water that flows from the faucet(s) to which it is connected, and all the devices require periodic maintenance and replacement. Counter top devices such as reverse osmosis systems installed on the faucet or distillers can effectively remove lead from your drinking water. Some activated carbon filters may reduce lead levels at the faucet; however, all lead reduction claims should be investigated. Be sure to check the actual performance of a specific home treatment device before and after installing the unit. Be sure to follow the manufacturer's recommendations for the replacement of filters or other media in the treatment unit to ensure the product is working correctly.
- Purchase bottled water for drinking and cooking. The Centers for Disease Control and Prevention recommends children and pregnant women use bottled water or water from a filtration system that has been certified by an independent testing organization to reduce or eliminate lead for cooking, drinking and baby formula preparation.

Additional Information

For more information about your drinking water, contact your water provider. For more information about reducing lead exposure around your home or building and the health effects of lead, visit U.S. EPA's website at epa.gov/lead or contact your health care provider. The Ohio Department of Health's [Questions and Answers About Lead Poisoning](#) and Ohio EPA's [learn about lead webpage](#) are also helpful sources of information.