



Lead is a naturally occurring element that is used for a variety of purposes, including as an ingredient in gasoline, paint and metal pipes. Although lead has been banned from gasoline and most paint, it can still be found in many households due to its prevalent past use. The primary sources of lead exposure to people are generally lead paint and dust, especially in pre-1978 housing. However, the U.S. Environmental Protection Agency (EPA) estimates that 10 to 20 percent of human exposure to lead may come from drinking water.

Contact Information

**North Dakota
Department of
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Division of Water Quality

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Lead in drinking water

Naturally occurring lead in groundwater is rare, but lead can enter drinking water through corrosion of household plumbing including pipes, fixtures and faucets with lead solder. In 1986, the U.S. Congress restricted lead content in plumbing materials; therefore, homes built prior to 1986 are more likely to have lead pipes, fixtures and solder.

Potential risk factors that affect lead levels in drinking water include the type of plumbing materials used, the amount of time water stays in the pipes and the chemistry of the water. Through corrosion, lead can enter drinking water. Corrosion is the dissolving or wearing away of metal caused by a chemical reaction between water and plumbing materials.



How can lead in drinking water affect human health?

Lead levels that exceed drinking water standards create a greater risk for health problems such as damage to the brain, kidneys and nervous system, and impacts to the cardiovascular system. Health effects will vary depending on the individual, the amount of lead content in the water, the amount of water consumed and the length of exposure, as lead can accumulate in the body. Children and pregnant women are particularly susceptible to lead exposure. In children, even low levels of exposure can lead to brain damage, learning disabilities, hearing loss and seizures. In pregnant women, the risks to the developing fetus include miscarriage, premature birth, reduced birth weight and developmental problems.

How is lead regulated in drinking water?

The federal Safe Drinking Water Act (SDWA) reduced the maximum allowable lead content in pipes, pipe fittings, fixtures and solder. In addition, the EPA issued the Lead and Copper Rule (LCR) to address leaching of lead and copper into drinking water. A public drinking water system must make its drinking water less corrosive to the materials used to transport water to consumers' taps. The EPA has an established action level of 15 parts per billion for lead in public or municipal drinking water systems. In North Dakota, all wells must be constructed according to Article 33-18-01 of the North Dakota Administrative Code. However, water quality in private wells is not regulated by the state.

What should I do about lead in my household drinking water?

If your drinking water comes from a public water system, your water is already being tested for lead and meets water quality standards before leaving the treatment plant. However, if you have an older home or pipe system you could be at increased risk for lead exposure through corrosion of pipe material. If you have a private well, you are responsible for maintaining and routinely testing the water quality of your well. The first step is to contact a certified water testing laboratory. A list of state-certified laboratories for well water testing is included in this fact



North Dakota Laboratories for Well Water Testing

Fargo-Cass Public Health Environmental Laboratory

Fargo, North Dakota
701-298-6997

Minnesota Valley Testing Laboratories, Inc.

Bismarck, North Dakota
701-258-9720
800-279-6885

North Dakota Department of Environmental Quality

Division of Chemistry
Bismarck, North Dakota
701-328-6142

RMB Environmental Laboratories, Inc.

Watford City, ND
701-444-2202

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sheet. The laboratory will provide instructions on how to collect the sample or send out a sampling kit. The most common water quality tests are for bacteria, nitrate and mineral content. Consumers should contact a mineralogical testing laboratory for a lead analysis if they are concerned about the presence of lead in their drinking water. The typical cost of a lead test is generally from \$35 to \$45.

If your source of drinking water has lead levels that exceed the EPA drinking water action level of 15 parts per billion, options to limit risk include:

- Remove the source; replace lead pipes and fixtures.
- Flush water through the system before drinking or cooking.
- Do not use hot tap water for cooking or drinking; run cold water and heat if needed.
- Use bottled water for drinking and cooking.
- Install a household treatment system.

What are household treatment systems?

There are two main kinds of household treatment systems: point-of-entry and point-of-use. A household point-of-entry system treats all the water you use in your home. A household point-of-use system treats water at a point such as a kitchen faucet. Some household treatment systems for removing lead include:

- Reverse osmosis
- Distillation
- Carbon filters

The effectiveness of a treatment system will vary based on water chemistry; therefore, the North Dakota Department of Environmental Quality recommends having a professional evaluate your household to determine the right water treatment system for your use. Contact your local water purification professional for an evaluation and estimate of cost. You also may find useful information about household water supplies at the NDSU Extension Service website: <https://www.ag.ndsu.edu/publications/environment-natural-resources/household-water-supply>

FOR MORE INFORMATION

<https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water#regs>

<https://www.epa.gov/lead>

<http://www.wellowner.org/>

REFERENCES

U.S. EPA-Lead in Drinking Water
(<https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>)

CDC-Lead-Water (<http://www.cdc.gov/nceh/lead/tips/water.htm>)

ATSDR Toxic Substances Portal: Lead
(<http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=22>)