



Fact Sheet

Department of Public Health and Environment
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Equal Employment Opportunity/Affirmative Action

LEAD IN DRINKING WATER

Health Concerns

Lead is a naturally occurring element found in the earth's crust. It is a heavy metal found in various geological formations such as iron ore deposits. Lead has no beneficial effects in humans. High levels of lead can cause serious damage to the brain, kidneys, nervous system, and the formation of red blood cells. Young children and pregnant women are at the greatest risk. A dose of lead that would have little effect on an adult can have a large effect on a child due to higher intestinal absorption rates and a higher rate of brain growth and maturation. A child's mental and physical development can be irreversibly stunted by over-exposure to lead.

Sources of Lead in Drinking Water

Lead exists throughout our physical environment. We are exposed to very small amounts each day, usually, with no bad health effects. Well water in Minnesota usually does not contain detectable levels of lead. However, the pipes and other components (such as faucets, valves, or fittings) in your household plumbing may contain lead. If they do, lead may dissolve into the water from both pipes and components. The longer the water stands idle in the plumbing pipes and components, the more lead that can dissolve into the water.

The most common cause for elevated lead levels in drinking water are:

- Lead pipes, which are typically the worst contributor to elevated lead levels.
- Lead solder, which was used in the past to join copper pipes, but has been illegal in Minnesota since 1985.
- Brass components such as faucets, coolers, and valves. While containing low lead levels of eight percent or less, they will still dissolve lead into the water, especially for the first two months of use. If you have new brass plumbing components installed in your plumbing system, flush the water between the new components and drinking faucet for the first two months.

Wells drilled over 20 years ago may contain lead "packers" above the well screen. Some brands of submersible pumps manufactured before 1995 may contain leaded-brass components. Since January of 1995, all submersible pump manufacturers in America have agreed not to use leaded-brass components in submersible pumps.

Recommended Drinking Water Limits

The Minnesota Department of Health has established a Maximum Contaminant Level (MCL) for lead of 15 micrograms per liter (ug/L). (One ug/L is equivalent to one part per billion, or one part of lead for every one billion parts of water.) Water containing over 15 ug/L of lead should not be used for drinking or preparing food, including baby formula.

Testing for Lead in Water

To get a complete picture of how much lead is dissolving into your plumbing system, have a laboratory test your water for lead. Testing your household water for lead will require one or more water samples, depending on how much you want to learn about your situation.

First Sample - If you want to learn how much lead dissolves into your water overnight, without flushing, collect the first water out of the faucet that the family uses most for drinking and cooking water. This first "unflushed" sample will usually give the highest lead level. If this sample does not indicate more than 15 parts per billion of lead, it is probable that a short morning flushing will remove most of the dissolved lead in your water. A word of caution: your situation may not be typical. For example, if your house has a mix of older and newer plumbing components, the lead levels may not be their highest when you first open the faucet. To be sure of your plumbing system components, take a little time and evaluate your own water distribution system.

Flushed Sample - If the laboratory test results show elevated lead levels, flush the faucet for a minute or two and collect another sample for testing. The test results from this sample will tell you if the water was flushed long enough. If the test sample still comes back with elevated lead levels, flush longer and test again.

If your home is supplied with a private well, the Washington County Public Health and Environment Department recommends the water also be tested for coliform bacteria and nitrate-nitrogen. These are the basic tests for the sanitary quality of your water. The Public Health and Environment Department provides sampling kits for testing well water. For more information about this service, contact the Public Health and Environment Department at 651-430-6655.

Recommended Precautions and Procedures

Flush the system before using water for drinking or cooking!

The simplest method to reduce lead exposure from drinking water is to turn on the cold water tap each morning, and let it run for a minute or two, until the water gets cold. This will "flush" the water that is standing in the plumbing pipes and components. You should do this for all faucets used for drinking or cooking. Flushing will remove much of the lead that may have dissolved into the water overnight. Flush the system any time the water has not been used for six hours or longer. After an extended absence, such as a vacation, flush the system for twice as long as you normally do.

Never use water from the hot-water tap for cooking or drinking!

Hot water dissolves lead from pipes and fixtures faster than cold water. Don't use hot water for drinking or preparing food items such as instant mix cereals, and especially baby formula. Draw water from a cold water tap that has been flushed and then heat it.

Treatment of Drinking Water

Carbon filters and cartridge filters do not remove lead from water. Water softeners can reduce the amount of lead entering your home, but cannot reduce the amount of lead in your drinking water if the lead is coming from your plumbing.

With any type of point-of-use unit, regular maintenance is essential. Failure to properly maintain a unit will reduce its effectiveness and, in some cases, make the water quality worse. Two common types of water treatment units effective in removing lead from water are reverse-osmosis (RO) devices and distillers.

The RO unit uses a membrane with pores tiny enough to screen out contaminants. A distiller removes contaminants by boiling the water and then condensing the steam, leaving the lead behind in the original vessel. Effectiveness, efficiency, and cost are considerations in buying a home water treatment unit. Cost considerations should include not just the purchase price but long-term costs of operation and maintenance.