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## Lead In Drinking Water

Is there lead in your drinking water? Lead can be harmful to your health. How harmful lead can be to you depends on your general state of health, how much lead gets into your body, and where the lead ends up being stored in your body.

It is difficult to understand why lead in drinking water is a potential health hazard or even a concern. Most people believe that their water comes from pure sources without any contamination or that the water has been treated, so there is not a problem. This is not the case for lead. The primary source for lead in most drinking water sources is the piping used within a distribution system or the household plumbing. Other routes of lead exposure include: lead paint used in homes prior to 1978, dust or soil containing lead, food grown in contaminated soil or stored in poorly glazed pottery.

### **The concern:**

**Lead** is a toxic metal that is harmful to human health; there is NO safe level for lead exposure. The degree of exposure depends on the level of the exposure and route of the exposure (air, water, food). It has been estimated that up to 20 % of the total lead exposure in children can be attributed to a waterborne route, i.e., consuming contaminated water. In addition, infants, fetuses, and young children are particularly vulnerable to lead poisoning. This is because they usually consume more water and are still developing which promotes the lead uptake in their bodies. High levels of lead contamination in a child can cause coma, convulsions, damage major organs, and cause death. Moderate to low levels of exposure may cause brain neurological damage (hearing disorders), inhibit growth, and cause learning disabilities. There may be no signs of lead poisoning or the signs could mimic a flu or other gastrointestinal disease. The symptoms may include: cramps, irritability, fatigue, vomiting, constipation, sleep disorder, poor appetite, and trouble sleeping. Unlike other contaminants, lead will accumulate within the body over time. Lead will tend to be stored in the brain, bones, kidneys and other major organs. It can be stored in a child's blood for months and in the bones for many decades. Some of the effects of lead poisoning can not be cured, but it is possible to reduce the amount of lead exposure.

### **Lead in drinking water:**

Drinking water is only one of the possible routes of exposure to lead contamination, but it is one of the easiest routes of contamination to reduce. The primary route for lead poisoning in drinking water is not old contamination of the water by leaded fuels, old batteries or some hazardous waste site, the primary route is the distribution system used to carry water to your home and more importantly the plumbing within your home. Your household plumbing may be the cause for lead in your drinking water. In old piping lead was used to make the piping and/or solder. In homes built prior to the 1930's water pipes were primarily made from lead. These pipes typically have a dull gray color and can be scratched with a key. A magnet will not stick to lead pipes. In buildings built between the 1930's and early 1980's, copper pipes were often used, but the solder contained lead. This does not mean that a newer home is safe from lead contamination; in fact, the available data suggests that buildings less than 5 years old can have high levels of lead.

### **Water quality as it relates to lead:**

The water quality of your drinking water can have a great impact on the lead level of your water. If your water is soft or corrosive, it can accelerate the leaching of lead and copper from your household plumbing. The signs of this type of problem would include: greenish rings (copper) around basins, metallic or bitter taste to your water especially in the mornings, and frequent leaks/ evidence of corrosion of your household plumbing.

### **Lead testing:**

If you suspect that your water contains lead, have it analyzed by a certified laboratory, like Montana Environmental Lab, not by someone giving a free analysis to sell you some type of treatment system. To sample your water for lead, you should take a **“first draw sample”** which means sampling after the water has had the maximum possible time to sit in the pipes. Most people sample from the kitchen sink, first thing in the morning. Take a second sample after running the water for a while to check that the fresh incoming water is free of lead. We will provide you with sampling instructions and containers. It is also recommended that you have the samples tested for copper and pH, alkalinity, calcium hardness, and total dissolved solids. You should also have the laboratory calculate a Langlier Saturation or Corrosion Index.

### **If you think you have a problem:**

- \* Contact your doctor - Please do not panic, you may not have a problem.
- \* Have the members of the household's blood checked for lead.
- \* **Have your drinking water analyzed by a certified laboratory, like Montana Environmental Laboratory.**

In the interim, you may be able to flush the water lines to reduce the level of lead contamination. Overnight, the water reacts with the piping and leaches lead out of the piping or solder. In the morning flush out the water that has been sitting in your pipes overnight by letting every faucet run for a few minutes.

Depending on the amount of lead solder in your home, it may be possible to install a neutralizer. A neutralizer would react with the corrosive elements of your water rather than permitting the water to react with the piping. In more extreme cases, it may be necessary to replace some or all of the plumbing with copper lines using a low or no lead solder.

### **Important tips:**

Hot water usually contains more lead than cold water. Therefore, use cold water when making baby formula and cooking. A carbon or particulate filter does not always remove lead. A water softener may reduce the level of lead, but if the water is overly softened it may become corrosive and leach even more lead from the piping and solder.