

Explanation of the Health Effects of Lead and Copper

Lead causes serious health problems if too much enters your body from drinking water and other sources. Drinking water is just one way we consume lead. EPA estimates that less than 20% of lead exposure for the overall population is from drinking water. Infants who consume mostly mixed formula can receive 40 to 60 percent of their exposure to lead from drinking water. Other major sources include lead paint dust, soil and food, food and beverage containers, leaded gasoline and occupational exposure.

Too much lead can cause damage to the brain and kidneys, and it interferes 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 lower levels of lead more than healthy adults. Lead is stored in the bones, so it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

Some people who drink water containing copper in excess of the action level may, with short term exposure, experience nausea, cramps, diarrhea and/or vomiting with the more severe effects associated with higher levels of copper; and with long-term exposure may experience liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level.

How to reduce or eliminate your exposure to lead and copper in drinking water:

Lead and copper originate in plumbing materials and are released from pipes, valves and faucets by corrosion or friction. Wisconsin banned the use of lead solder in 1984. Prior to then lead was widely used in pipe solder, packing, valves, meters and as solid pipe. Brass is an alloy containing up to 15% lead, and most valves and faucets have brass bodies. Copper pipes installed prior to 1985 may have lead solder joints. Water quality affects how readily plumbing corrodes. Hard water deposits a protective scale in pipes which prevents metals from corrosion. Softened or highly treated water is more aggressive and tends to dissolve pipes and other plumbing materials. The following actions will help reduce your exposure to lead and copper in drinking water:

- Run the water until it turns cold before drinking. It is a good idea to flush the water lines before drinking any time the water has been motionless in the distribution system for 6 hours or more.
- *Use cold water for cooking and preparing baby formula.* Do not cook with or drink water from the hot water tap; lead dissolves more easily in hot water.
- *Do not boil water to remove lead.* Boiling water will not reduce lead levels.
- *Look for alternative sources or treatment of water.* If your lead result is above 15 ppb, you may want to consider purchasing bottled water or a water filter. Read the package to be sure the filter is approved to reduce lead or contact NSF International at 800-NSF-8010, or www.nsf.org for information on performance standards for water filters.
- *Identify if your plumbing fixtures contain lead.* New faucets, fittings, and valves, may contain up to 8 percent lead including those advertised or labeled as "lead-free" and may contribute lead to drinking water. Consumers should be aware of this when choosing fixtures and take appropriate precautions.

Lead and copper compliance samples represent worst-case-scenarios. You might consider taking additional water samples *after flushing*. Most labs charge about \$25 for a metals analysis. Take 1 sample after flushing a minute or so; and another in the middle of a day or evening, to test a random sample during periods of regular water use.

For more information call 920-743-6282 or visit the WDNR website to view or print a brochure about lead at <http://dnr.wi.gov/files/pdf/pubs/dg/dg0015.pdf> and about copper at <http://dnr.wi.gov/files/PDF/pubs/DG/DG0027.pdf>.