

Water Contaminant of the Month

Lead (Chemical Symbol: Pb): Lead is a tasteless, odorless, gray-colored metal. It is naturally occurring in the soil throughout the world. It is a component of many batteries, an ingredient in some pesticides, and a component of brass, bronze and solder alloys used in water system components. For many years it was used as an additive in gasoline, paint and wood preservatives. Early water pipes in city water distribution systems were made of lead, but nearly all lead pipes have been replaced in municipal systems.

Lead is not extremely soluble in many natural waters. Unless you live in an area where lead mining takes place the most likely source of lead in drinking water is the plumbing system of your house. Corrosive water with low pH, low mineral content or high dissolved oxygen is most likely to dissolve lead from pipe solder joints and plumbing system components. It takes time for drinking water to dissolve lead from plumbing components, so the longer water has been sitting your home's pipes the more lead it may contain. If it has been more than 6 hours since water in a particular faucet has been used, it should be "flushed" before the water is consumed. This may take as little as 5 or 10 seconds if water has been used elsewhere in the house for showering, toilet flushing, laundry, etc. If no water has been used in the house for an extended period (overnight or after a weekend away) it may take two minutes or more to flush lead from the system. Always do other water-using activities (toilet flushing, showering, etc) before drinking, making coffee, mixing juice or making infant formula. Do not consume water from the hot water tap as it is more likely to contain higher levels of lead.

The health effects of lead are most severe for infants and children. Lead exposure can cause mental and physical development problems, learning disabilities and behavioral problems. In adults it can cause kidney problems and high blood pressure. The EPA estimates that 10 to 20 per cent of lead exposure for the average person comes from drinking water, but for infants who are fed mixed formula this level can be as high as 40 to 60 per cent.

Lead is listed by the US EPA as a primary contaminant in the Safe Drinking Water Act. In public water systems lead is regulated by treatment technology if a percentage of the samples collected at consumer's taps exceeds the Action Level of 15 µg/L (15 ppb). If more than 10% of the water samples collected at the tap exceed 15 ppb the water supplier must take steps to reduce the corrosiveness of the water supplied to consumers.

Lead can be removed from drinking water at the point of use by reverse osmosis filtration, activated carbon filtration, ion exchange, and distillation. Flushing the initial water from household pipes after 6 or more hours of contact time is the first step in reducing lead content of drinking water.

(Source: *Lead in Drinking Water*, USEPA,
<http://www.epa.gov/ogwdw/lead/basicinformation.html>)