

# LEAD IN DRINKING WATER

## How Lead Gets Into Water

Lead in drinking water usually comes from water system components or household plumbing rather than wells, springs, or ponds. Lead from other sources, such as ingesting old-paint chips or dust, can add to the effects of lead in water.

## Health Issues

Because the nervous and circulatory systems in young children are not fully developed, lead and other toxic substances can easily enter the brain. Long-term exposure to even low levels of lead can cause irreversible learning difficulties, mental retardation, and delayed neurological and physical development. Infants and children up to age 6 are most susceptible to these toxic effects. Pregnant women exposed to lead can pass the effects to their unborn child. Exposure for adults primarily affects the nervous system. It can impair hearing, vision, and muscle coordination. Lead is also toxic to the blood, kidney, heart, and reproductive system. Lead poisoning is a particular problem because there may be no unique signs or symptoms associated with lead exposure. Early symptoms of lead poisoning may include loss of appetite, fatigue, irritability, anemia and, sometimes, abdominal pain. Because of the general nature of symptoms at this stage, lead poisoning is not often suspected.

## Measuring Lead in Drinking Water

Lead may be present in your home drinking water if:

- There are lead pipes, brass fixtures, or lead connectors in your home or private water system.
- Lead solder was used on your home water pipes.
- You have soft water (low mineral content), or acidic water.

The only way to know the amount of lead in your household water is to have your water tested. Water samples for lead content must be taken as a “first draw”. If water in a particular faucet is not used for six hours or longer, the more lead and dissolved minerals will be in the water. This is the lead level the Ohio EPA wants checked when a lead sample is drawn.

## Treatment Options for Elevated Lead Levels in Private Water Systems

The first treatment option would be to remove the source of the lead, be it a component within the water system or the household plumbing. There are several treatment methods suitable for removing lead from drinking water, including reverse osmosis, distillation and carbon filters specially designed to remove lead. Typically these methods are used to treat water at only one faucet. Reverse osmosis units can remove approximately 85 percent of the lead from water. Distillation can remove approximately 99 percent. Simply boiling water does not remove lead. A water softener can be used to pre-treat water for either a reverse osmosis or distillation unit when water is excessively hard. Low flow rates are required when using lead selective carbon filters. Typically they have flow controllers which limit the system to 0.25 to 0.5 gallons per minute.

## **Summary**

Lead rarely occurs naturally in drinking water. It is more common for lead contamination to occur at some point in the water delivery system. Too much lead in the human body can cause serious damage to the brain, kidneys, nervous system and red blood cells. Young children, infants and fetuses are especially vulnerable to lead poisoning. To determine the presence of lead in drinking water and its possible source, a specific procedure must be used to collect samples and a certified laboratory used for testing. Public and private water supplies must comply with the EPA action level of 15 ppb lead. Management of a private drinking water well for lead is a decision made by the well owner and/or water user. A water test is the only way to determine the lead concentration. If drinking water exceeds the EPA lead standard of 15 ppb, steps can be taken voluntarily to reduce the risk. Options include removing the lead source, managing the water supply used for drinking and cooking by flushing water with high lead concentrations from the water system, using water treatment equipment or using an alternative water source. Options selected must be based on the specific situation.