

## Lead in Drinking Water

### What is Lead?

Lead is a toxic metal that was used for many years in products found in and around homes (such as in water pipes and paint). It is still used to produce some consumer goods, like electronics and batteries, however its use is greatly restricted in Canada. Everyone is exposed to low levels of lead through food, drinking water, air, dust, soil and some consumer or hobby products. Even at low levels, lead may cause a range of health effects including behavioral problems, learning disabilities, and physical ailments. Young children, infants and pregnant women are at higher risk for harmful effects. Children six years old and under are most at risk because this is when the brain is developing. The primary source of lead exposure for most children is lead-based paint in older homes. Lead in drinking water can add to that exposure.

### What are the Health Effects of Lead?

The health effects of lead are most severe for infants, children under six years of age, pregnant women and nursing mothers. For infants and children, exposure to high levels of lead in drinking water can result in delays in physical or mental development. For adults, it can result in kidney damage, high blood pressure, reduced fertility, and adverse effects to the nervous system. Although the main sources of exposure to lead are ingesting paint chips and inhaling dust, studies have shown that 10 to 20 percent of human exposure to lead may come from lead in drinking water. Infants who consume mostly mixed formula can receive 40 to 60 percent of their exposure to lead from drinking water. Health Canada has established a maximum acceptable concentration for lead in drinking water of 10 ppb (parts per billion) in a free flowing sample of water. Flowing water samples better reflect the overall quality of household drinking water, and are indicative of normal lead exposure from drinking water. This drinking water guideline has been developed to protect the population most at risk, namely infants and young children

### How Does Lead get into Tap Water?

The amount of lead in natural water sources in Canada is typically low. Lead in tap water is most likely from lead service lines (connect the house to the municipal water), lead solder in plumbing, or brass fixtures. Older homes, particularly those constructed before 1955, often contain lead water service lines. Homes constructed prior to the mid to late 1980's may have their plumbing connected with lead base solder. For lengthy periods (over six hours), lead can dissolve into drinking water that is left standing in household piping made with these materials. The most common cause is corrosion, a reaction between the water and the lead pipes or solder. Dissolved oxygen, low pH (acidity) and low mineral content in water are common causes of corrosion. All kinds of water, however, may have high levels of lead.

**What can I do to reduce the risk of exposure to lead?**

- Do not drink water that has been standing in your household water pipes for more than six hours. To rid your plumbing system of standing water, flush the toilet, shower, do laundry, or let the water run for until it feels cold to the touch. You can use the flushed water for other purposes such as plant watering or household cleaning.
- Always use cold, fresh water for drinking, cooking, making baby formula and preparing beverages.
- Do not use ceramic cookware from foreign countries to heat water or store food unless you are sure that they are lead-free.
- Do not store beverages in lead crystal containers, or serve children or pregnant women from lead crystal vessels.
- If you work around lead, shower and change clothing and shoes at work, and wash work clothes separately.
- Be aware that some hobby activities like furniture refinishing, model building and working with metals or stained glass can be sources of lead, use appropriate respirators, keep the area clean and do not let children or pregnant women near the area.
- Exterior paints should not be used indoors since they may contain lead

**Can in-home water treatment systems reduce lead levels?**

Some in-home water treatment equipment such as lead removing filters, reverse osmosis systems, and distillation units do remove lead dissolved in water. These systems can be very costly and require regular maintenance to function properly. If not properly maintained, they can promote the growth of bacteria and cause other water quality problems. The NSF International (formerly known as the National Sanitation Foundation) has currently adopted improved testing protocols for drinking water filtration devices. Pitcher-type drinking water filtration devices are **not able** to consistently reduce the level of lead to meet the provincial standard and are not recommended for use. Manufactures were given until July 15, 2007 to meet the enhanced standards. Bottled water is not necessarily lead-free. Check the label to see if it says whether the water is lead-free. Also, bottled water may cost as much as 100 times more than your tap water.

**Who do I call if I have questions or concerns about water quality?**

Information on water quality may be obtained by calling your local municipality. You can also visit [Health Canada's web site](#) for more information on lead and human health.

References: [www.healthcanada.gc.ca/waterquality](http://www.healthcanada.gc.ca/waterquality), Water Talk, Minimizing Exposure to Lead from Drinking Water Distribution Systems; Health Canada, Reduce your exposure to lead – Home and garden – Healthy Canadians Website; <http://www.cmhc-schl.gc.ca/odpub/pdf/64064.pdf>, About Your House Lead in Older Homes