

Lead in Drinking Water



Region of Waterloo
PUBLIC HEALTH

What is lead?

Lead is a metal that occurs naturally and also has many industrial uses. Lead was previously used extensively in the plumbing industry and appeared in a wide variety of products such as paint, gasoline, lead crystal, solder in food cans and even some glazes used for china pottery and dinnerware. These uses of lead have led to it being widespread in the environment. However, since about the 1980s, the use of lead in consumer products has steadily decreased, significantly reducing the public's exposure to lead in Canada.

How might I be exposed to lead?

Exposure to lead can come from drinking water, soil, food, household dust, and air. For the general population in Canada, the main exposure routes are through the mouth (swallowing of food, drinking water, soil or other materials containing lead) or the lungs (inhalation of air). The fetus may also be exposed to lead from the mother via the placenta. Children are at greater risk of swallowing lead than adults due to their frequent hand-to-mouth activity and tendency to mouth or chew objects with which they come into contact (especially non-food products such as paint chips, furniture or toys). Except in infants fed with artificial baby milk (formula), drinking water normally contributes only a small percentage of total lead-intake.

Sources of lead exposure

- **Drinking Water:** Naturally occurring lead in water supplies is very low but elevated levels can come from lead in solder, service connections, or pipes and fixtures in the home if the plumbing was installed before 1990. Lead is more likely to be found in hot water from the tap, especially if the water has been standing in the pipes for a number of hours.
- **Soil:** Lead levels in soils generally reflect soil conditions, geology and the historic uses of lead. The use of lead in products such as gasoline, house paint, and pesticides can contribute to the amount of lead in soil, especially in older urban neighbourhoods.
- **Food:** Traces of lead are found in almost all foods. Lead-glazed pottery, or lead in crystal glassware and ceramics can enter food. Infants can also absorb lead from breast milk, or from artificial baby milk (formula) made with tap water that contains lead.
- **Dust:** Lead in dust and soil can cling to skin, hair, shoes, clothing and vehicles, and can be carried indoors by adults, children and pets. Lead dust can also be generated within older homes from lead-based paints or lead solder.
- **Air:** Lead is released with industrial emissions, smelters and refineries.
- **Products:** Lead is found in some children's costume jewelry, lead hobby solder, lead shot, shells or fishing weights, lead-acid batteries, lead-painted wood.

What are the health effects of lead in drinking water?

The main concern is that lead can impair brain and nervous system development in the developing fetus, infants and young children. The chance and severity of these effects increases with increasing exposure. Infants fed with artificial baby milk (formula) made with tap water that contains lead are most at risk because they may have the highest exposure and are sensitive. Adults and children over six are less sensitive, and tend to have lower exposures. More information about the health effects of lead is available from Health Canada ([see Resources section for more information](#)).

Is lead found in drinking water in Waterloo Region?

All potable water distributed by the Region of Waterloo consistently meets Ontario's drinking water standard for lead, 10 micrograms per litre. The Region of Waterloo and municipal partners test for lead in the distribution system each year.

How can lead get into my tap water?

Lead can enter tap water if any of a building's plumbing (solder, connections, pipes, fixtures) contains lead. The lead level in water in the pipes can increase over time if the water is not used. Flushing the water for a few minutes fills the plumbing system with fresh water and quickly reduces the lead level.

What is the acceptable limit for lead in drinking water?

In Ontario, the *Safe Drinking Water Act* has established 10 micrograms per litre as the drinking water standard for lead. The standard was chosen to protect the entire population, including those most at risk. (A microgram is approximately the weight of a few very fine grains of sand.)

What can I do to reduce my family's exposure to lead from drinking water?

- Contact your local municipality to check if you have lead service lines or contact a plumber to determine if you have lead pipes or solder in your home. If you do, have your drinking water tested for lead by a private laboratory and consider replacing lead-containing materials.
- Use the cold water tap for drinking and cooking (hot water tends to sit in the pipes for longer and may dissolve more lead if it is present). Boiling the water does not remove lead.

- Flush water taps for five minutes, or until the water runs cold, each morning before using the water for drinking or cooking, or any time the water has not been used for six hours or more. To avoid having to run your water each time it has not been used for six hours or more, you can also fill kettles, pitchers and pots with enough flushed water for drinking and daily food preparation.
- Use a filtration system certified by the National Sanitation Foundation (NSF) to remove lead. Look for the NSF-53 mark on the label when purchasing a new filtration system. For faucets and fixtures, look for the NSF-61 or NSF-372 mark. Most end-of-tap filtration systems are NSF-53 certified. Note that some older pitcher-type devices may carry the NSF-53 label but have recently been found not to meet the standard for lead removal. For an up-to-date list of filters that meet this standard, use the tool at www.nsf.org/certified/dwtu. Follow the manufacturer's instructions for maintenance and replacement of these devices.
- If you are on a private well, have your water tested for lead by a private laboratory. Municipalities must test for lead each year.
- If you have elevated levels of lead in your water, consider using an alternate source of water for drinking and cooking, for example bottled water. Boiling the water does not remove lead.

What about bathing, showering, swimming and washing dishes and clothes?

Activities such as bathing, showering, swimming and washing dishes or clothes will not cause a significant exposure to lead. Lead in water is not easily absorbed through the skin or eyes.

Resources:

Health Canada's Lead webpage: www.hc-sc.gc.ca/ewh-semt/contaminants/lead-plomb/asked_questions-questions_posees-eng.php

Alternate formats of this document are available upon request.

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