

SAFE WATER

LEAD IN DRINKING WATER



What is lead?

Lead is a toxic heavy metal that occurs in the air, soil, and water. It is found everywhere. It is naturally present in the environment and is also used extensively in modern industry (mining, manufacturing, and burning of fossil fuels). The amount of lead Canadians are exposed to has significantly decreased since the early 1970s, due mainly to the elimination of lead in gasoline, paint, and solder in food cans.

What is solder?

Solder is a metal alloy that is melted to join metallic surfaces, such as plumbing pipes. Although lead water pipes were replaced by copper in the 1950s, lead solder was still used until the 1980s. At this time it was found that lead soldered pipes can also leach the toxic metal into water.

What are the effects and symptoms of lead exposure

Even small amounts of lead can be harmful, especially to infants, young children, and pregnant women. Long-term exposure to lower lead levels may cause delays in normal physical and mental development in babies and young children, slight deficits in attention span, hearing, and learning abilities of children

Common symptoms of long-term exposure to lower lead levels include:

- Anemia
- Abdominal pain
- Fatigue
- Irritability
- Appetite loss
- Constipation
- Sleeplessness
- Headache

Severe cases of lead poisoning are rare in Canada.

Who is at risk?

Lead exposure is most serious for young children and pregnant women. Children absorb lead more easily than adults and are more susceptible to its harmful effects. Even low level exposure may harm the intellectual development, behaviour, size, and hearing of infants. During pregnancy, especially in the last trimester, lead can cross the placenta and affect the unborn child. If your water supply exceeds 10ug/L and you have children under six or you are pregnant, you should use an alternate water supply, like bottled water.

If you're concerned about lead exposure, your doctor can conduct a simple blood test to measure your blood lead level. Your doctor can then recommend corrective action if the amount is over the acceptable level.

Is there lead in my drinking water?

The amount of lead in natural water supplies throughout Canada is very low. In fact, in Windsor-Essex County, the concentration of lead in the water supply is far below the maximum acceptable concentration of 0.010 mg/L and is therefore well within safe drinking water levels.

However, lead can enter the water supply from lead solder in plumbing, or lead-containing brass fittings, or faucets in your home. Homes built before 1950 often have leaded distribution lines and service connections. In newer homes, lead may leach from solder for several years. Lead is more likely to be found in soft or very acidic water and in very old or very new homes.

The amount of lead in your water also depends on the types and amounts of minerals in the water, how long the water stays in the pipes, the amount of wear in the pipes, the water's acidity, and its temperature.

JUST THE FACTS



How do I know if I have lead water service lines?

Homes constructed prior to 1948 may have lead water service lines. Both lead and copper piping were used up until 1958 when copper water service lines became the standard in the plumbing industry. Lead-based solder was used for plumbing until the mid to late 1980's until changes to the Plumbing Code prohibited its use.

How can I minimize my risk?

There are a number of steps you can take to minimize your risk of exposure. Be aware that boiling will not remove lead in the water.

Flushing

- The amount of lead in tap water will increase with the length of time water is left standing in pipes. Let tap water run for at least 5 minutes before drinking it if it has been standing in the pipes for longer than 6 hours.
- Flushing the toilet, showering, or washing dishes is more than sufficient to flush standing water from your pipes each morning.
- To conserve water and avoid the extensive flushing of taps, keep some drinking water in the refrigerator.
- Hot or warm water is likely to contain higher levels of lead. Use only cold water for drinking, cooking, making baby formula, and preparing beverages.

Bottled water

Bottled water is not necessarily lead-free. Check the label to see if it says whether the water is lead-free. Lead content is listed on the "Analysis Label" and is also referred to as "Pb". The water is lead-free if the value for lead is zero.

In-home water treatment systems

Some in-home water treatment systems can remove lead in water. These devices may be certified for meeting requirements as set by organizations such as the Canadian Water Quality Association or the U.S.-based Water Quality Association. These associations can certify if an in-home treatment system meets the standards for the removal or reduction of contaminants in the water being treated.

For more information see the Canadian Water Quality Association Fact Sheet, "Residential Treatment Devices" at www.cwwa.ca/pdf_files/treatmentunits.pdf

What more can I do to reduce my risk of exposure to lead?

- Do not use ceramic cookware from foreign countries to heat water or store food unless you're sure that they are lead-free.
- Do not store beverages in lead crystal containers.
- Be aware that some hobby activities like furniture refinishing, model building and working with metals or stained glass can be sources of lead.
- Exterior paints should not be used indoors as they may contain lead.

References:

Health Canada. (2004). *Lead information package*. Retrieved May 30, 2007 from http://www.hc-sc.gc.ca/ewh-semt/contaminants/lead-plomb/asked_questions-questions_posees_e.html

World Health Organization. (1996). *Guidelines for drinking-water quality*, 2nd ed. Vol. 2. Author: Geneva.

What is the Windsor-Essex County Health Unit doing?

To address the possibility of lead in our water supply, there are several steps being taken by the Windsor-Essex County Health Unit, local municipalities and the utility companies. These include systematic testing of water in homes, along with an education and awareness campaign to educate homeowners about the issue of lead pipes and what they can do.

Can I have my water tested for lead levels?

Although lead test kits are available from stores for drinking water, they are not generally considered accurate or reliable. A private residence can call their municipal water distribution office and request individual testing. Look on your latest bill payment for your water to find the contact information for your water distribution office.

For more information about water quality.

Contact your water distribution office
or

**Windsor-Essex County
Health Unit**
www.wehealthunit.org
519-258-2146

Information for Property Owners about Lead Water Service Line Replacement

Purpose of this fact sheet

The purpose of this fact sheet is to provide information to property owners on the benefits of replacing a lead water service line on their property when municipalities replace the portion of the line located on theirs.

How does lead in drinking water affect health?

Children six and under are more sensitive to the effects of lead because they are still developing and able to absorb ingested lead more easily than adults. Long-term exposure to elevated levels of lead may increase the risk of subtle impairment of learning capacity and intellectual development. In addition, pregnant women can pass lead in their blood to their fetus during pregnancy.

What are lead service lines and how can they introduce lead into drinking water?

As shown in Figure 1, service lines are the underground pipes that connect to the municipal water mains and supply water into buildings. Municipalities are responsible for the portion of the service line up to the property line, and property owners are responsible for that portion of the line on their property.

Figure 1



Credit: City of London

Prior to the mid-1950s, lead was commonly used as service line material. If a building has a lead service line, lead can dissolve into the drinking water, especially if the water has been left standing in the plumbing for an extended period of time, for example, overnight.

One way of reducing exposure to lead in drinking water is by replacing lead service lines with newer materials such as copper or plastic that do not contain lead.

Why is it important to replace the lead service lines on both sides of the property line?

Full replacement of both portions of the lead service lines provides the best reduction of lead levels in the water entering the building.

Moreover, research shows that replacing only a portion of the lead service line may actually make lead problems worse, especially right after the partial replacement is completed. This is because the work done while replacing the municipal portion can shake loose lead particles that can then enter the drinking water.

Also, connecting the lead line to a new copper line may result in an electrochemical process between the two metals that can cause the water to wear away and dissolve some of the lead in the lead line. This may create a serious long-term problem with lead in the water.

Lead lines, fixtures or solder used to connect pipes within buildings can still result in lead in the drinking water, although less than that which could come from lead service lines.

If a home was built between the mid-1950s and 1989, there likely won't be lead pipes or service lines, but there might be lead in some fixtures or solder used to connect the pipes. Homes built after 1989 are unlikely to have any lead in pipes, service lines, solder or joints.

If lead is suspected to be a problem in drinking water supplied within

buildings where there are no lead

service lines, a plumbing evaluation can assist in assessing internal pipes, fixtures or solder for the presence of lead.

Who pays for service line replacement?

Municipalities pay for replacing a service line on their side of the property line and property owners pay for the portion on their side. A municipality will normally inform property owners when they are scheduling service line replacements so that the owners can opt to replace theirs at the same time.

Municipal coordination of the full replacement can mean a reduced cost to the property owner and is also the best way to minimize overall health risks to users of water in the building.

Some municipalities offer other forms of assistance to help property owners with replacing their service lines. Ask your municipality or your public utilities commission for more information.

Other related sources of information:

Ontario's Ministry of the Environment [Drinking Water Ontario](http://www.ontario.ca/drinkingwater) website for additional information about lead in drinking water, including what to do if you suspect you have lead materials in your service lines or lead in your plumbing.

www.ontario.ca/drinkingwater

Health Canada, *Effects of Lead on Human Health* www.hc-sc.gc.ca/hl-vs/iyh-vsv//environ/lead-plomb-eng.php