

## FACTS ON DRINKING WATER

### Lead

Lead (Pb) is a naturally occurring element. The main source of lead in drinking water is through contact with plumbing materials with lead components.

#### Sources

Lead is naturally found in bedrock ore, but rarely found in source water.

The main source of lead in drinking water is through corrosion of plumbing materials with lead components, such as pipes, solder, faucets, fittings, and older galvanized well liners.

The amount of lead dissolved into drinking water depends on factors such as pH, alkalinity, water temperature, water hardness, length of piping, and the amount of time water is left in pipes.

#### Health Risks

Guidelines for Drinking Water Quality are of two different types:

Maximum Acceptable Concentrations (MAC) are based upon potential adverse health effects (listed in this factsheet if applicable) but water test results that exceed these levels do not necessarily indicate any immediate health problem. This is because whenever possible MACs are developed to be low enough that years of exposure at this level would still only increase the health risk slightly.

However, corrective actions should be taken if water test results exceed the MAC in order to remove any potential for increased health risk.

Aesthetic Objectives (AO) are not based upon health effects, but water test results that exceed these levels may indicate that the water could have objectionable taste, odour, appearance or other factors.

Corrective actions are recommended if water test results exceed the AO but may not be necessary.

#### Maximum Acceptable Concentration for Drinking Water = 0.01 mg/L

In water, dissolved lead has no taste, smell, or colour. It can only be detected through a chemical test.

The Canadian Drinking Water Quality Guideline for lead is 0.01 milligrams per litre (mg/L).

Lead in drinking water can cause a variety of adverse health effects. Children, infants, and unborn children are more strongly affected by exposure to lead because their bodies absorb lead more readily than adults. Children's brains and nervous systems are also more sensitive to the effects of lead.

Children exposed to lead levels above 0.01 mg/L can suffer from

- damage to the brain and nervous system
- behaviour and learning disabilities
- delays in physical and mental development
- hearing disorders

Health effects for adults exposed to lead levels above 0.01 mg/L may include

- increased blood pressure
- kidney damage
- anemia
- digestive problems
- nerve disorders
- memory loss
- muscle and joint pain
- fatigue
- irritability
- headaches

The risk to human health is through ingestion only – drinking, cooking, teeth brushing. Well water with lead levels greater than 0.01 mg/L may be used for bathing, handwashing, and dishwashing.

## Testing

Regularly test your well water for a standard suite of chemical parameters, including lead. Use an SCC or CALA accredited water testing laboratory. Find a list of accredited laboratories at <http://www.scc.ca> or [www.cala.ca](http://www.cala.ca).

Get the special sampling bottles and instructions on proper sampling from the laboratory.

For more information on water testing services, please see Department of Environment's water testing services at <http://www.gnb.ca/environment>. Cost of analysis will vary depending on the accredited laboratory and the number of parameters being tested.

## Solutions

If lead is present above 0.01 mg/L in the first test, you must determine the source of the lead. Get a second test, taking a sample of water from the well before it enters the building. This will help determine whether the lead is present in the groundwater or the plumbing materials. While you are waiting for your test results, find an alternate source of water for drinking, cooking, and teeth brushing that has been tested and found to be safe.

If the source of lead is corrosion of lead-containing plumbing materials, consider the following options:

- Remove the source of lead.
- Flush faucets until the water runs as cold as possible before using the water for drinking, cooking, or teeth brushing.
- Avoid using hot tap water for drinking, cooking, or making baby formula.
- Adjust pH so water is less corrosive (for more information, see our fact sheets on pH and corrosive water).
- Use a treatment system, to reduce lead levels.
- Use alternative water sources, such as bottled water or another well that has been tested and found to be safe.

## Treatment

**Lead cannot be removed from water through boiling. Boiling water may increase the concentration of lead.**

If the groundwater is found to have high levels of lead before entering the home, flushing the faucet will not be effective. Consider the following treatment systems to reduce lead levels:

- cation exchange
- distillation
- reverse osmosis
- water filters with certification NSF Standard No. 53 for reduction of lead

Buy a treatment system that has been certified to meet the current NSF standards for lead reduction. NSF International is a not-for-profit, nongovernmental organization that sets health and safety standards for manufacturers in 80 countries. See its website at [www.nsf.org](http://www.nsf.org).

Once installed, re-test your water to ensure the treatment system is working properly. Maintain the system according to the manufacturer's instructions to ensure a continued supply of safe drinking water.

For more information on water treatment, please contact a private water treatment company.

## Considerations for cation exchange (water softener)

If the pH of water is below 7, cation exchange generally removes lead. If the pH of water is above 7, lead may be in a form which cannot be readily removed using cation exchange. This may affect the efficiency of your water treatment unit.

**For more information, please contact the nearest regional Health Protection Branch office:**

**Bathurst**

165 St- Andrew Street  
(506) 549-5550

**Grand Falls**

131 Pleasant Street  
(506) 737-4400

**Shippagan**

239B, boulevard J.D. Gauthier  
(506) 336-3061

**Campbellton**

10 Village Avenue, Unit 15  
(506) 789-2549

**Miramichi**

1780 Water Street  
(506) 778-6765

**St. Stephen**

41 King Street  
(506) 466-7615

**Caraquet**

295, boulevard St-Pierre Ouest  
(506) 726-2025

**Moncton**

81 Albert Street  
(506) 856-2814

**Sussex**

30 Moffett Avenue  
(506) 432-2104

**Edmundston**

121 Church Street  
(506) 737-4400

**Perth-Andover**

35 F Tribe Rd.  
(506) 273-4715

**Tracadie**

3520, rue Principale  
(506) 394-3888

**Fredericton**

300 St Mary's Street  
(506) 453-2830

**Saint John**

55 Union Street  
(506) 658-3022

**Woodstock**

200 King Street  
(506) 325-4408