



The drop on water

Zinc

Zinc (Zn) is a metal normally found in small amounts in nature.

Sources

Although zinc occurs naturally, most zinc finds its way into groundwater because of human activities.

Galvanized liners or fittings or metal pipes coated with zinc, present in many older wells or plumbing systems, can leach zinc into drinking water.

Well water may also be contaminated through processes, such as

- mining
- lead-zinc smelters
- steel production
- coal burning
- hazardous waste disposal

QUICK FACTS

- Zinc is naturally occurring, but most zinc found in groundwater is due to human activities.
- Zinc can give water an undesirable taste and a milky appearance.
- Zinc can be detected through chemical testing.
- The Canadian drinking water quality guideline for zinc is an Aesthetic Objective (AO) of less than or equal to **5.0 mg/L**.
- To improve the aesthetic quality of drinking water, homeowners may consider water treatment options or use an alternative water source.

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Aesthetic Objective for Drinking Water ≤ 5.0 mg/L

The Canadian drinking water quality guideline for zinc is an Aesthetic Objective (AO) of less than or equal to **5.0 milligrams per litre (mg/L)**.

Water containing zinc at concentrations above 5.0 mg/L tends to have a milky appearance (opalescent), develops a greasy film when boiled, and has an undesirable sharp taste. It may also leave a whitish residue on pipes and fixtures.

Health Risks

Zinc is an essential element and is generally considered to be non-toxic, but exposure to very high concentrations of zinc may result in nausea and diarrhea.

Testing

Regularly test your well water for a standard suite of chemical parameters, including zinc. Use an accredited water testing laboratory. Find a list of accredited water testing laboratories at www.gov.ns.ca/nse/water/waterlabs.asp or see the Yellow Pages under “laboratories.”

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

The cost of analyzing water samples can range from \$15 for a single parameter to \$230 for a full suite of chemical parameters. The cost can vary depending on the lab and the number of parameters being tested.

REGULAR TESTING

Homeowners are responsible for monitoring the quality of their well water:

- Test for bacterial quality every 6 months.
- Test for chemical quality every 2 years.
- Test more often if you notice changes in physical qualities – taste, smell, or colour.

Regular testing alerts you to problems with your drinking water.



Solutions

If zinc is present above 5.0 mg/L in the first test, you should determine the source of the zinc. Get a second test, taking a sample of water from the well before it enters the building. This will help determine whether the zinc is present in the groundwater or the plumbing or well materials.

Zinc is an aesthetic parameter. Aesthetic parameters may impair the taste, smell, or colour of water. Although zinc does not pose serious health risks, if the source of zinc is corrosion of plumbing materials, be aware that other metals, such as lead or cadmium, may also be released into the water. Get a metal scan done at an accredited water testing laboratory, because the presence of other metals in drinking water may pose health risks.

If zinc is confirmed to be the only metal present above the guideline limit, the following options are available to make your water more pleasing to consume:

- Remove the source of zinc.
- 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 the pH so water is less corrosive (for more information, see our fact sheets on pH and corrosive water).
- Use a treatment system to reduce zinc levels in your water.

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Treatment

Zinc cannot be removed from water through boiling. Boiling water may increase the concentration of zinc.

Effective treatment methods include

- adsorption
- cation exchange

Buy a treatment system that has been certified to meet the current NSF standards for zinc reduction. NSF International is a not-for-profit, non-governmental organization that sets health and safety standards for manufacturers in 80 countries. See its website at 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, see our publications *Water Treatment Options* and *Maintaining Your Water Treatment*, part of the *Your Well Water* booklet series at www.gov.ns.ca/nse/water/privatewells.asp.

Considerations

Galvanized well liners are no longer allowed under the Well Construction Regulations and galvanized fittings are no longer allowed under the National Plumbing Code of Canada. Galvanized well liners or fittings may be present in older well or plumbing systems.

FOR MORE INFORMATION

Contact

Nova Scotia Environment at
1-877-9ENVIRO
or 1-877-936-8476

www.gov.ns.ca/nse/water/

