The drop on water

Sodium

Sodium (Na) is highly soluble and often found naturally in groundwater. It is present in most rocks and soil and in many foods.

Sources

All groundwater contains some sodium, because most rocks and soils contain sodium compounds from which sodium is easily dissolved.

An increase in sodium in groundwater above natural levels may indicate pollution or saltwater intrusion.

The most common sources of elevated sodium levels in groundwater are

- erosion of salt deposits and sodium bearing rock minerals
- naturally occurring brackish water of some aquifers
- water softener backwash
- saltwater intrusion into wells in coastal areas
- infiltration of surface water contaminated by road salt
- irrigation and precipitation leaching through soils high in sodium
- groundwater pollution by sewage effluent
- infiltration of leachate from landfills or industrial sites

Aesthetic Objective for Drinking Water ≤ 200 mg/L

The Canadian drinking water quality guideline for sodium is an Aesthetic Objective (AO) of less than or equal to **200 milligrams per litre (mg/L)**.

In water, sodium has no smell or colour, but it can be tasted by most people at concentrations above 200 mg/L.

QUICK FACTS

- All groundwater naturally contains some sodium.
- Human activities can also be sources of sodium in well water.
- In water, sodium has no smell or colour, but can give water a salty taste.
- Sodium can be detected through chemical testing.
- The Canadian drinking water quality guideline for sodium is an Aesthetic Objective (AO) of less than or equal to **200 mg/L**.
- Sodium in drinking water may cause health concerns for those on sodium-restricted diets.
- To improve the aesthetic quality of drinking water, homeowners may consider water treatment options or use an alternative water source.

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Health Risks

Sodium is an essential ion in bodily fluids. It is not harmful at normal levels of intake from combined food and drinking water sources. Drinking water is generally a minor source of total sodium intake; however, increased intake of sodium may cause problems for people on low sodium diets, such as those with hypertension, heart disease, or kidney problems.

People on sodium-restricted diets may want to discuss concerns related to sodium intake from drinking water with their doctor.

Testing

Regularly test your well water for a standard suite of chemical parameters, including sodium. 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.

Solutions

If sodium is present above 200 mg/L in the first test, get a second test to confirm the original results.

Sodium is an aesthetic parameter. Aesthetic parameters may impair the taste, smell, or colour of water. Although sodium does not pose a health risk for healthy individuals, its presence can indicate deteriorating groundwater quality and could indicate other problems with well water quality, which may cause adverse health effects. Where present in association with chloride, sodium may contribute to corrosion.

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.

If sodium is confirmed to be present above 200 mg/L in the well water, investigate the source of sodium in drinking water. Consider the following:

- If the sodium is from surface sources, such as irrigation or sewage discharges, it may indicate the presence of pathogens or other contaminants present in surface water, which may cause adverse health effects:
  - Test your well water for other contaminants, including bacteria.
  - Inspect the well construction.
  - Consider drilling a new well with proper site selection and construction to prevent contamination.
- If you use road salt on your property, handle, store, and use it properly to minimize groundwater contamination.
- Use water conservation measures, particularly in coastal areas, especially in summer months when groundwater recharge is lowest, to reduce the risk of saltwater intrusion.

When the source of sodium does not pose a health risk, treating your water is optional. You may choose to treat your water to improve the taste and make it more pleasing to consume.

When the source of sodium is from surface sources and other contaminants, including bacteria, are present, consider well construction improvements or water treatment options.

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Treatment

Sodium cannot be removed from water through boiling, chlorination, or pitcher-type filtration. Boiling may increase sodium concentrations.

Effective treatment methods to reduce sodium levels include

- distillation
- reverse osmosis

Buy a treatment system that has been certified to meet the current NSF standards for sodium 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

If water is softened by sodium ion exchange, you should use a separate, unsoftened supply of water for cooking and drinking.

FOR MORE INFORMATION

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

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

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Environment

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