The drop on water

Barium

Barium (Ba) is a common element in the earth's crust, although only trace levels are normally found in natural waters.

Sources

Barium is present as a trace element in both igneous and sedimentary rocks. It occurs most commonly as barite and witherite.

Barium compounds are often used in oil and gas well drilling operations. Industrial effluents may also contribute to barium in water in some areas.

Maximum Acceptable Concentration for Drinking Water = 1.0 mg/L

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

The Canadian drinking water quality guideline for barium is **1.0 milligrams per litre (mg/L)**.

Health Risks

The amount of barium present in water is usually not high enough to become a health concern. However, there are some areas of Nova Scotia where barium may be elevated, primarily in areas underlain by sedimentary or carbonate rocks.

Exposure to very high concentrations of barium may cause gastrointestinal discomfort, muscular weakness, high blood pressure, or cardiovascular disease.

The risk to human health is through ingestion only – drinking, cooking, teeth brushing. Well water with barium levels greater than 1.0 mg/L may safely be used for bathing, handwashing, and dishwashing.

QUICK FACTS

- Barium is present in rock and soil.
- Barium in drinking water has no taste, smell, or colour.
- Barium can only be detected through chemical testing.
- The Canadian drinking water quality guideline for barium is **1.0 mg/L**.
- Exposure to very high levels of barium in drinking water can cause gastrointestinal discomfort, muscular weakness, high blood pressure, or cardiovascular disease.
- Well water with barium greater than **1.0 mg/L** should not be used for drinking, cooking, or teeth brushing. It may be used for bathing, handwashing, and dishwashing.
- If barium is present above **1.0 mg/L** in drinking water, consider water treatment options or alternative sources of water.

Barium

Testing

Regularly test your well water for a standard suite of chemical parameters, including barium. 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 barium is present above 1.0 mg/L in the first test, get a second test to confirm the original results.

If barium is confirmed to be present above 1.0 mg/L in the well water,

- Find an alternate source of water for drinking, cooking, and teeth brushing, such as bottled water or another well that has been tested and found to be safe.

  or
- Treat your current source of water to reduce barium levels.

Treatment

Effective treatment methods for barium include

- distillation
- ion exchange
- reverse osmosis

Buy a treatment system that has been certified to meet the current NSF standards for barium 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**.

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.

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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