



FACTS *About...*



HEALTH DEPARTMENT



Barium in Well Water

What is it?

Barium is a metal that occurs naturally in certain types of igneous and sedimentary rocks. Barium can enter the groundwater and well water when rocks that contain barium break down and dissolve.

Barium can combine with other chemicals to form compounds. Some barium compounds are better able to dissolve in water and those compounds are more of a concern for human health, since they are more readily absorbed into the bloodstream. These compounds do not remain in this form in the environment for very long.

Barium compounds that do not dissolve well in water tend to last longer in the environment and are generally not harmful. Barium sulphate and barium carbonate are the barium compounds most commonly found in the soil and water. Barium sulphate is sometimes used in medical tests to take x-rays of the stomach and intestines.

How can barium affect my health?

Health effects from exposure to barium in well water will depend on which barium compounds are present and how well these compounds are absorbed into the bloodstream. Exposure to trace amounts of barium in food and drinking water are not considered to be a concern for human health.

In general, the levels of barium that may be found in well water are below levels that have been found to cause adverse effects in the scientific literature. These effects include vomiting, abdominal cramps, diarrhea, difficulty breathing, increased or decreased blood pressure, numbness around the face, and muscle weakness. Ingesting very large amounts of barium compounds that dissolve easily can cause changes in heart rhythm, paralysis and possibly death.

Both the International Agency for Research on Cancer and the US EPA have not classified barium as a human carcinogen.

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For more information

Durham Region Health Department

905-666-6241 1-800-841-2729 durham.ca

If you require this information in an accessible format, contact 1-800-841-2729.

What is the drinking water standard for barium?

Health Canada set a maximum acceptable concentration (MAC) for barium at 1.0 mg/L. This level is intended to be protective against adverse effects on the cardiovascular system.

The Ontario Ministry of the Environment and Climate Change has adopted the Health Canada MAC as the enforceable drinking water standard for regulated public drinking water systems. While the drinking water standard does not apply to private wells, it may be used by private well owners to assess the acceptability of their water.

How do I know if barium is in my well water?

The only way to know if barium is in your well water is to have it tested. Contact a laboratory accredited by the Canadian Association for Laboratory Accreditation (CALA) and follow its instructions for submitting a water sample.

What should I do if barium is found in my well water?

If barium is found in your well water above the Health Canada MAC, you should avoid consuming raw, untreated water and consult a water treatment professional for options that will reduce the concentration of barium to below the MAC. Do NOT try to boil your water to remove barium, as boiling will only increase the concentration of barium.

When barium is present in your well water, you may choose to increase the safety of the water used for drinking and food preparation. Some options include:

- Using bottled water
- Installing a cistern and arranging for the delivery of safe drinking water by a water hauler
- Drilling a new well at a different location or to a different depth

If you have specific concerns regarding the impact of barium exposure on your personal health, you should consult with your primary health care provider.

More information can be obtained from

Durham Region Health Department, Environmental Help Line
905-723-3818 ext. 4600 or 1-888-777-9613 ext. 4600

Agency for Toxic Substances & Disease Registry (USA) – ToxFAQs for Barium:
<https://www.atsdr.cdc.gov/toxfaqs/tfacts24.pdf>

Government of Manitoba – Barium in Manitoba Well Water:
http://www.gov.mb.ca/waterstewardship/odw/public-info/fact_sheets/pdf/factsheet_barium.pdf

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