



The drop on water

Chromium

Chromium (Cr) is a metal found naturally in ores, soils, and plants.

Sources

Chromium compounds from natural sources are usually found in groundwater in trace amounts only.

The most common man-made sources of chromium in groundwater are

- burning of fossil fuels
- mining effluent
- effluent from metallurgical, chemical, and other industrial operations

Maximum Acceptable Concentration for Drinking Water = 0.05 mg/L

Chromium may affect the taste or smell of well water, but not at levels normally found in groundwater.

The Canadian drinking water quality guideline for chromium is **0.05 milligrams per litre (mg/L)**.

QUICK FACTS

- Chromium is present in rock and soil.
- Chromium in drinking water has no taste, smell, or colour.
- Chromium can only be detected through chemical testing.
- The Canadian drinking water quality guideline for chromium is **0.05 mg/L**.
- Chromium can be present as chromium 3 or chromium 6 in water.
- Exposure to high levels of chromium 6 in drinking water can cause kidney and liver damage
- Well water with chromium 6 greater than **0.05 mg/L** should not be used for drinking, cooking, or teeth brushing. It may be used for bathing, handwashing, and dishwashing.
- If chromium 6 is present above **0.05 mg/L** in drinking water, consider water treatment options or alternative sources of water.

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Health Risks

Chromium can be present in water in two forms, trivalent chromium (chromium 3) and hexavalent chromium (chromium 6).

Chromium 3 and chromium 6 have very different toxicity characteristics.

Chromium 3 is more commonly found in water. Chromium 3 is essential to human nutrition and is considered non-toxic. When chlorine is present, chromium 3 turns into chromium 6.

Exposure to chromium 6 at levels above 0.05 mg/L in drinking water may cause diarrhea, vomiting, abdominal pain, indigestion, convulsions, and liver and kidney damage.

The risk to human health is through ingestion only – drinking, cooking, teeth brushing. Well water with chromium levels greater than 0.05 mg/L may safely be used for bathing, handwashing, and dishwashing.



Testing

Regularly test your well water for a standard suite of chemical parameters, including chromium. 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 chromium is present above 0.05 mg/L in the first test, the laboratory can conduct a second test to determine if it is trivalent chromium (chromium 3) or hexavalent chromium (chromium 6).

If chromium 6 is confirmed to be present above 0.05 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 chromium 6 levels.

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.

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Treatment

Chromium cannot be removed from water through boiling.

Effective treatment methods include

- distillation
- reverse osmosis

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

FOR MORE INFORMATION

Contact

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1-877-9ENVIRO
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www.gov.ns.ca/nse/water/


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03.2008