

Strontium in Drinking Water

Strontium is a metal found naturally in the earth's crust. It can be found in:

- soil
- food
- water
- certain products (such as glass, aluminum alloys, paint, electrical applications, signaling devices and fireworks)

Strontium can be found naturally in many drinking water sources across Canada. Groundwater typically contains higher levels of strontium than surface water because it may have been in contact with minerals and rocks containing strontium. Human activities such as mining and manufacturing operations can also release strontium into water.

Testing conducted by your municipality or by an accredited laboratory can determine if strontium is present in the water. These testing results as well as an understanding of the water treatment and the flow of water in the pipes can determine if the water is safe for consumption. Monitoring results from your municipality or by an accredited laboratory can be utilized to determine if strontium levels are below Health Canada's maximum acceptable concentration. The municipality must continue to monitor the strontium levels to ensure that this remains unchanged.

Health Effects of Strontium in Drinking Water

Strontium can replace calcium in bones and cause rickets. Rickets is a bone disorder that may:

- weaken or soften the bones
- stunt growth
- cause bone deformities

Drinking water that contains high levels of strontium may pose a risk to infants because their bones are actively developing.

Guideline Value for Strontium in Drinking Water in Canada

Health Canada worked with the provinces, territories and other federal departments to establish a guideline value for strontium in drinking water at 7.0 milligrams per litre (mg/L). The guideline value is protective of the health of Canadians, including the most vulnerable members of society, such as infants and children.

How to Reduce your Exposure to Strontium in Drinking Water

If you have high levels of strontium in your drinking water, there are effective ways to remove it, as described in the next section (Removing strontium from drinking water).

Strontium will not enter your body through skin or by breathing in vapours while showering or bathing. Bathing and showering in water that contains strontium should not pose a health risk.

Removing Strontium from Drinking Water

There are several options for removing strontium from drinking water, including water treatment devices.

Although no residential treatment devices are certified specifically for strontium removal, the following treatment devices would be able to remove it:

- reverse osmosis
- ion exchange

Health Canada strongly recommends that you use a device that meets the appropriate NSF International/American National Standards Institute drinking water treatment unit standards.

It is important to make sure treatment devices are maintained (or replaced) according to the instructions provided by the manufacturer.

If you are Pregnant, Breastfeeding or Caring for an Infant

If you are pregnant, breastfeeding or preparing infant formula, and suspect that your drinking water may contain strontium, you should have it tested. If strontium levels are above the guideline value, you should:

- find an alternate source of drinking water, or
- install a treatment device to remove strontium

Values in Other Countries

At 7.0 mg/L, Canada is one of the first countries to develop a health-based guideline for strontium in drinking water.

Canada considers information from other countries to develop guidelines.

The World Health Organization, European Union and Australia have not established health-based limits for strontium in drinking water.

The United States does not have a federal drinking water standard for strontium, however the United States has a health reference level of 4 mg/L. While this value is lower than Canada's, it is because slightly different approaches were used, and Canada focused on studies related to drinking water intake.