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Manganese in Drinking Water

Manganese (Mn) is an element found in air, food, soil, consumer products and drinking water.

Why is manganese a problem?

A small amount of manganese is essential for human health. However, new Health Canada research shows drinking water with too much manganese can be a risk to health.

Manganese can cause discolouration but has no taste. It can also stain laundry.

What are the health concerns from drinking water with too much manganese?

Drinking water with high levels of manganese may harm brain development in infants and young children. According to Health Canada, manganese is most easily absorbed in the body through drinking water.

What amount of manganese can cause health problems?

Health Canada has set a Maximum Acceptable Concentration (MAC) of 0.12 mg/L (120µg/L) for manganese in drinking water.

The MAC is intended to protect all Canadians. It is based on the most vulnerable/sensitive population (e.g. infants and young children).

Health Canada has also established a new Aesthetic Objective for manganese of 0.02 mg/L. Manganese in water at this concentration is not a health concern, but it may affect the colour or appearance of the water.

For more information on the updated guideline, visit Goverrnment of Canada: Guidelines for Canadian Drinking WaterQuality: Guideline Technical Document – Manganese.

Why wasn't manganese in drinking water a health concern before?

For a long time, manganese was only considered a nuisance in drinking water (e.g. causing stains on laundry, plumbing fixtures, etc.). However, new scientific studies show health effects from exposure to high levels of manganese in drinking water. This new information was used to revise the guideline for manganese in drinking water.

How do I know if there is manganese in my drinking water?

Water that contains elevated manganese may be coloured (e.g. dark brown or blackish colour). It often stains laundry and fixtures. The only way to know if you have high levels of manganese is to test your water.

The water supplier or well owner is responsible for testing for potential contaminants. Large public drinking water supply systems monitor for contaminants, including manganese. Your water supplier will know if manganese levels are too high for humans to drink, and tell you if this is the case.

To test your drinking water for manganese, contact your local health authority or a laboratory accredited by the Standard Council of Canada or Canadian Association for Laboratory Accreditation. For more information, visit Ministry of Health - Drinking Water Quality at www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/drinking-water-quality/health-authority-contacts.

For more information about private well water testing, see HealthLinkBC File #05b Well Water Testing.

What should I do if there is manganese in my drinking water?

Contact your water supplier if your water is discoloured and ask for information on the cause. Manganese can cause discoloured water at concentrations that are still safe to drink. As a precaution, don't drink discoloured water or use it to prepare food or infant formula until you get confirmation that it is safe. Other chemicals, such as iron, can cause discolouration. It can be found under similar conditions as manganese. There are no known health concerns from hand washing, showering or bathing in water with high levels of manganese.

If your drinking water exceeds the MAC for manganese, use another source of water. Examples include bottled water for preparing baby formula for infants and young children. Adults who drink water with manganese levels above the MAC are at a lower risk than infants and children. You may wish to consider water treatment to reduce levels or find other sources of drinking water over the long term. Your health authority and water supplier can give you advice on the 'type' of water treatment or what precautions they recommend for your home or community drinking water.

What should I do if I have been drinking water with high levels of manganese?

Health Canada established the MAC using a precautionary approach. It is assumed that the most vulnerable people would be constantly exposed to high levels of manganese for long periods of time. Therefore, there are built-in additional safety factors. Drinking water with manganese levels above the MAC for short periods of time is unlikely to cause any health issues.

If you have been consuming water with high levels of manganese and have concerns about your health, talk to your health care provider.

What can I do to remove manganese from my drinking water?

Home drinking water treatment systems are an option for reducing high levels of manganese. Appropriate treatment to reduce levels of manganese in drinking water include: reverse osmosis, ion exchange/water softeners and oxidizing filters. These treatment systems are typically installed at the point-of-entry into the home. They can also be used at the point-of-use (e.g. taps or faucets). Boiling water may increase manganese concentration, so it is not recommended.

Look for a water treatment device that is certified by the Standards Council of Canada (SCC). Certification means that a device works as claimed by the manufacturer. *Note: There are currently no devices specifically intended for removing only manganese. However, any device that meets NSF/ANSI Standard 42 is able to reduce manganese to safe levels.

How you select an appropriate treatment system will depend on a variety of factors. These include 'how much' and the 'form' of manganese. Other factors include: hardness, iron, alkalinity, sulphide, ammonia and dissolved organic carbon concentrations.

For More Information

If you have concerns about the quality of the water you are drinking, contact the local environmental health officer at your health authority.

- First Nations Health Authority 604-693-6500, toll-free 1-866-913-0033
- Fraser Health 604-587-4600
- Interior Health 250-862-4200
- Island Health 250-370-8699
- Northern Health 250-565-2649
- Vancouver Coastal Health 604-736-2033