

Manganese

Frequently Asked Questions

Infrastructure & Water Services

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What is manganese?

Manganese is a naturally occurring element that is present throughout the environment and can normally be found in many surface and groundwater sources.

How does Health Canada determine the Maximum Acceptable Concentration (MAC) for manganese?

The MAC is based on animal studies and includes safety factors to ensure even sensitive individuals are protected. Concentrations approaching, but remaining less than, the MAC are not associated with increased health risks in individuals. Health Canada calculated the MAC assuming that people would be constantly exposed to elevated levels of manganese for long periods of time. Occasionally consuming water with manganese concentrations slightly greater than the MAC is unlikely to cause any health issues. Health Canada has adopted a precautionary approach due to the limitations on the available information. Manganese concentrations greater than the guideline are only representative of a potential risk to health, but do not represent measurable health impacts.

What are the health effects of manganese?

People who are exposed to high levels of manganese can develop manganese toxicity. The primary target of manganese toxicity is the central nervous system, followed by the reproductive system. There is no evidence to conclude that detectable differences in health will be present at concentrations less than the MAC, the available evidence does suggest that measurable neurological impacts may be possible when infants and children are chronically exposed to manganese concentrations greater than the MAC. New evidence has shown that consuming drinking water with high levels of manganese may impact the memory, attention, motor function,

and the overall intellectual development of infants and young children. The high degree of uncertainty and limitations of available information, the guideline of 120 ppb should be interpreted as being protective of ongoing exposure to all infants relying solely on formula made with tap water. Health impacts in other human groups with decreased exposure or sensitivity might not be significant until drinking water concentrations are much higher.

Can I be exposed to manganese through skin contact?

No. Exposure through skin contact is not harmful. Exposure through hand washing, showering, or bathing from water with manganese is unlikely to be significant. Inhalation of manganese aerosols during showering has not been directly evaluated but it is not expected to pose any risk to human health.

Can I boil the water to remove the manganese?

No. Boiling water is not an effective form of treatment of manganese reduction. However, boiling water is still advised due to the current turbidity levels and Boil Water Advisory in effect for this water service area.

What can I do to reduce my exposure to manganese?

There are several ways you can reduce your exposure to manganese in your drinking water:

- Ensure all infant formula is made with bottled water
- Ensure infants are provided an alternate drinking water source such as bottled water
- Switch your drinking water to an alternate source such as bottled water
- Use tap filters suitable for manganese removal

Where can I find more information on manganese?

Health Canada website at: <https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/water-talk-manganese.html>

BC Ministry of Health website at: https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/waterquality/how-drinking-water-is-protected-in-bc/dwog_part_b_-_13_manganese.pdf