



# MANGANESE



## What is manganese?

Manganese has the symbol "Mn" and is an essential nutrient found naturally in the environment and can be present in air, food, water, soil and rock.

Water that contains manganese may be coloured, but not always. It would not have a distinct smell or taste.

## What are the effects of manganese in drinking water?

Infants should not consume drinking water or formula prepared with water that has high levels of manganese. Even for a short time, this water can have developmental health risk to infants.

Exposure to manganese in drinking water for infants can cause neurological and behavioural effects, deficits in memory, and issues with attention and motor skills.

Children and adults are less sensitive to manganese than infants, and may be able to safely consume drinking water with concentrations of manganese slightly above the maximum acceptable concentration for short periods of time.

Long term use will require safe alternative sources of drinking water or a certified water treatment system.

## What is the guideline for manganese ?

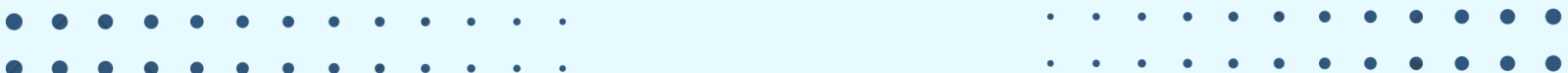
Although humans need to consume small amounts of manganese to be healthy, too much manganese in drinking water can lead to some adverse health effects for infants.

The maximum acceptable concentration of manganese in drinking water is 0.12 milligrams per litre (mg/L). The Aesthetic Objective (AO) for manganese in drinking water is less than or equal to 0.02 milligrams per litre (mg/L).

The Guidelines for Canadian Drinking Water Quality for Manganese are based on recent scientific studies and set out the basic parameters that every water authority should strive to achieve in order to provide the cleanest, safest and most reliable drinking water possible.

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 <https://www.gov.nl.ca/ecc/waterres/quality/drinkingwater/>





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## Removing manganese from drinking water

Treatment options are available to reduce manganese to levels below the standard. Carbon filtration units can remove small amounts of undissolved manganese.

Dissolved manganese can be removed by pre-treating with chlorine, ozone or by adding certain other chemicals that cause the metals to precipitate and settle or be filtered out. Water treatment methods such as ion exchange, oxidizing filters, and reverse osmosis can also be used but these have variable effectiveness and may be expensive for small water systems or households.

Look for devices that have been certified as meeting the appropriate NSF International (NSF)/American National Standards Institute (ANSI) standards for the removal of manganese (Mn). Currently, there are no reverse osmosis units that are certified specifically for manganese removal. However, a unit that is certified to remove other metals, such as arsenic or lead, will also be effective for manganese removal. Be sure to follow the instructions for use and care.

## Reducing your exposure

Manganese will not enter the body through the skin or by breathing in vapours while showering or bathing. These activities are considered safe for infants under the age of one and all other residents.

All residents, including residents who are pregnant, breastfeeding or preparing infant formula should use a safe alternate source of drinking water.

Commercially produced bottled water or sources known to be safe would be acceptable. Bottle re-filling stations may not meet acceptable water quality guidelines.

Additionally the installation of a treatment device to remove manganese from drinking water would also be acceptable.

## Where can I find out more?

To find out more, please visit Environment and Climate Change's website at [www.gov.nl.ca/ecc/water](http://www.gov.nl.ca/ecc/water). You can also contact an Environmental Health Officer or Program Manager at the nearest Government Service Centre, NL Health Services, or a water resources official with ECC.

