Frequently Asked Questions (FAQs)

Manganese in Drinking Water

Public drinking water is routinely tested for the presence of metals.
Metals may be present in drinking water, but they are subject to specific legal limits.
Manganese is an example of a metal that may be found in drinking water.
The following Frequently Asked Questions have been developed to give you more information if high levels of manganese are found in your drinking water (whether you are on a public or private water supply).

1. What is manganese?

Manganese is a silver-grey metal that occurs naturally in soil, water and rocks.

It is an important element in our diets and small amounts are necessary for good health.

2. How can I be exposed to manganese?

Most of our exposure to manganese is from food. Nuts, grains, beans and tea are rich in manganese.

3. How does manganese get into drinking water?

Manganese is found naturally in many surface water (lakes and rivers) and groundwater (underground) sources. Water passing through soil and rock can dissolve minerals containing manganese. This is the most likely source of manganese in drinking water.

4. What is the regulatory level of manganese in drinking water?

In Ireland, the European Union (Drinking Water) Regulations 2023 have set a manganese limit of **50 µg/l** water (micrograms per litre). Above this, manganese can affect the colour (appearing black-ish) and the taste of the water. It can also stain laundry and plumbing fixtures.

Drinking water may become unpalatable (discoloured with an unpleasant taste) at levels above 50 µg/l.

https://www.irishstatutebook.ie/eli/2023/si/99/made/en/print (Table C)

5. How might manganese affect my health?

Exposure to high manganese levels on an ongoing basis in drinking water can be a risk to health. New scientific studies show that many years of exposure to high levels of manganese may have a harmful effect on the nervous system and brain development. Some groups in the population are more vulnerable such as babies in the womb, infants and young children.

6. What is regarded as high level of manganese in drinking water?

The World Health Organization (WHO) established a provisional health-based guideline value of 80 µg/L based on identified health considerations for bottle-fed infants. This limit is intended to protect everyone in the population and is based on protecting the most vulnerable such as babies in the womb, infants and young children with an inbuilt margin of safety.

Therefore, it is advised that you should not drink water with manganese levels above 80 µg/l on an ongoing basis.

https://www.who.int/publications/i/item/WHO-HEP-ECH-WSH-2021.5

7. Who might be at higher risk of health effects?

Infants and *young children* are more vulnerable to the potentially harmful effects of high levels of manganese in drinking water. They absorb more manganese and their bodies are less able to remove it. **As baby formula can contain small amounts of manganese as a nutrient, it is important that the water used to make up the formula does not contain high levels of manganese.** *Babies in the womb* and *pregnant women* are also considered to be vulnerable groups.

Other vulnerable groups include the elderly, those with liver disease and people who are anaemic (i.e. low levels of iron in their blood) - more manganese is absorbed when the body has low levels of iron.

8. What is the HSE's health advice on manganese in drinking water?

Your drinking water should not have manganese levels above the drinking water regulatory standard of 50 µg/l. Above this, your water is legally considered unwholesome and it may become discoloured (black-ish) and have an unpleasant taste. Should your water exceed this standard, efforts should be made to identify the source of the manganese and reduce levels in your drinking water.

While the regulatory level is 50 µg/l there is currently no scientific evidence suggesting any adverse health effects at levels of up to 80 µg/l.

You should not drink water with manganese levels above 80 µg/l on an ongoing basis.

If you have any health concerns about manganese you should seek medical advice.

9. How would I know what level of manganese is in my drinking water?

The only way to know the levels of manganese in your drinking water is to test the water.

Public drinking water is routinely tested by Uisce Éireann (formerly Irish Water). The results of these tests are available on their website https://www.water.ie/help/water-quality/results/

If you are on a private group water scheme or use a private drinking water supply, such as a well, spring or stream your Local Authority will be able to discuss testing your water.

10. What happens if your drinking water is found to contain high manganese levels?

- Further sampling of your drinking water may be required.
- If you are on a public supply, Uisce Éireann will advise you. https://www.water.ie/help/water-quality/
- If you are on a private regulated supply, you can contact your Local Authority for advice.
- If you are on a private well, you can also contact your Local Authority for advice as they are the statutory agency for private drinking water supplies.

11. Where can I get further advice?

- Uisce Éireann https://www.water.ie/help/water-quality/
- Environmental Protection Agency http://www.epa.ie/water/dw/
- Your local County or City Council https://www.lgma.ie/en/irish-local-government/
- Your local HSE Department of Public Health https://www.hse.ie/eng/services/list/5/publichealth/publichealthdepts/contact%20us/
- Your local HSE Environmental Health Service https://www.hse.ie/eng/services/list/1/environ/contact.html
- Contact your GP if you have any concerns about your health.