

# Iron & Manganese



## What are iron and manganese?

Iron and manganese are metallic elements present in many rock types. Iron has the symbol “Fe” and manganese has the symbol “Mn.” Both are commonly found in water and are essential elements required in small amounts by all living organisms. Concentrations of iron and manganese in groundwater are generally higher than those measured in surface waters.

## What is the guideline for iron and manganese in drinking water?

The Aesthetic Objective (AO) for iron in drinking water is less than or equal to 0.3 milligrams per litre (mg/L) while the Aesthetic Objective for manganese in drinking water is less than or equal to 0.05 mg/L. The taste, colour and smell of manganese or iron at concentrations above the drinking water guidelines may be noted by some.

## How could iron & manganese affect my health?

At concentrations found in most natural waters and at concentrations below the aesthetic objective, iron and manganese are not considered a health risk. Water with a high concentration of iron or manganese may cause the staining of plumbing fixtures or laundry. Manganese solids may form deposits within pipes and break off as black particles that give water an unpleasant appearance and taste. Similarly, iron can collect and block pipes or fixtures and produce colour, taste and rust flakes in water. Both elements can increase the growth of unwanted bacteria that form a slimy coating in water pipes.

## What can well owners do about high levels of iron and manganese in well water?

Carbon filtration units can remove some forms of iron and manganese. Iron and manganese can be removed at the same time, by water treatment with chlorine, ozone or by adding 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.



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## Drinking Water Awareness