



## Chemical Quality: Magnesium (Mg)

## What is Magnesium?

- 💧 Magnesium is necessary in the human body and plays an essential part in the functioning of the muscles. The recommended daily magnesium requirement is 250 mg.
- 💧 Physically, magnesium is an alkaline earth metal that burns with a brilliant light to form magnesium oxide.
- 💧 Magnesium hydroxide is well known as the anti-acid solution, “Milk of Magnesia”.
- 💧 Magnesium sulphate is well known as a purgative called “Epsom salts”.

## Magnesium in water

- 💧 If the magnesium concentration of water is less than 10 mg/l, it can be assumed that the water is fresh and unpolluted.
- 💧 Some hard groundwater may have magnesium concentrations of several hundred mg/l.

## What problems can Magnesium cause?

- 💧 Magnesium can cause **suppression of the central nervous system**, when ingested in large amounts; however, this is very unlikely, since magnesium has a bitter taste.
- 💧 Ingestion of a combination of magnesium and sulphate can result in **diarrhea**.
- 💧 When magnesium concentration of water exceeds 70 mg/l, the water develops a **bitter** taste.
- 💧 High concentrations of magnesium and calcium can cause **scaling** in distribution systems and appliances.
- 💧 People that are **sensitive** to magnesium are children under the age of 1 year and people that consume large volumes of water.

## How can Magnesium in water be treated?

- 💧 Generally magnesium concentrations can be reduced in water by **lime softening**, followed by **re-carbonation**.
- 💧 Other than these methods, **ion exchange resins** or **precipitation** of magnesium at high pH are also effective in reducing the magnesium concentrations.
- 💧 All methods used to remove magnesium from water require skilled operation and maintenance.
- 💧 Home treatment kits, using **ion-exchange processes** are expensive and treat only small volumes of water.



Magnesium  
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Mg  
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