



## Chemical Quality: Zinc (Zn)

### What is Zinc?

- 💧 Zinc is an essential nutrient, playing an important role in a **healthy skin** and the **formation of cell membranes**, as well as in the **immune system**.
- 💧 Zinc is a **grey metal**, which is relatively resistant to corrosion.
- 💧 Zinc is utilised in **galvanising** industries to protect iron from corrosion.

### Zinc in water

- 💧 When a water source has a zinc concentration of approximately **0,015 mg/l**, it is an indication that the water source is fresh and unpolluted.
- 💧 Higher zinc levels can be an indication of zinc pollution, from e.g. industrial processes of zinc leaching into the ground water.

### What problems can Zinc cause?

- 💧 Normal levels of zinc in unpolluted water have no adverse **health** effect on the human body.
- 💧 Zinc concentrations of more than 20 mg/l can cause **nausea and vomiting** in children under the age of 2, people receiving chemotherapy and people that consume large volumes of water.
- 💧 Elevated levels of zinc in water can impart a **bitter, metallic taste** to water.
- 💧 Water with zinc concentrations exceeding 5 mg/l can have a **milky appearance**.

### How can Zinc in water be treated?

- 💧 Zinc is removed from water by **raising the pH** to between 9,5 and 10, under which circumstances the zinc will **precipitate** as zinc hydroxide. The latter can be removed from the water by means of **settlement and filtration**, followed by **readjusting the pH** with a suitable acid.
- 💧 Zinc removal from water is usually very easy, the most difficult part being the accurate readjustment of the pH in the end.
- 💧 Home treatment kits, using ion-exchange processes are expensive and treat only small volumes of water.



zinc  
30  
Zn  
65.39



Reference: DWAF (1998). Quality of domestic water supplies. Vol. 1: Assessment Guide. WRC No. TT 101/98, pp. 21.