



Chemical Quality: Sodium (Na)

What is Sodium?

- 💧 Sodium is an important dietary constituent, which is necessary to maintain the electrolyte balance in the body.
- 💧 Sodium is an alkali metal.
- 💧 Sodium is one of the 2 parts of ordinary table salt or sodium chloride (NaCl₂).

Sodium in water

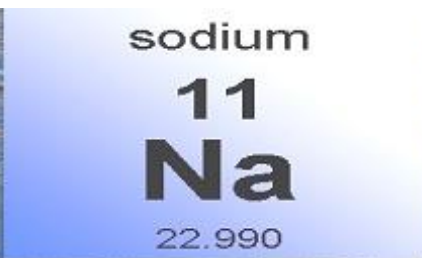
- 💧 Sodium concentrations in water can vary from less than 50 mg/l in regions with high rainfall, to 500 mg/l in arid regions.
- 💧 The sodium concentration in seawater is 11 000 mg/l.
- 💧 Higher sodium concentrations are found naturally in ground and surface waters of the Western and Southern Cape, as well as in some mine waters.

What problems can Sodium cause?

- 💧 Excessive intake of high concentrations of sodium can put pressure on the renal and cardiac systems.
- 💧 It can also cause disturbances in the salt balance of the body.
- 💧 Children under the age of 2 years, people with water retention problems and people who drink large volumes of water are at risk to develop serious health problems from excessive sodium intake.
- 💧 If sodium is present in fresh water along with chloride (sodium chloride), the water taste salty.

How can Sodium in water be treated?

- 💧 Sodium can be removed from water, by the following desalination processes:
 - Reverse osmosis
 - Electro dialysis
 - Ion-exchange demineralisation
 - Distillation
- 💧 All of the above treatment processes require a high level of operator skills and maintenance.
- 💧 These processes can easily fail because of suspended matter and scaling, which can occur in hard water.
- 💧 Home treatment kits, using ion-exchange processes are expensive and treat only small volumes of water.



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