

## **CHLORIDES**

Chloride is one of the most common anions found in tap water. It generally combines with calcium, magnesium, or sodium to form various salts: for example sodium chloride (NaCl) is formed when chloride and sodium combine. Chloride occurs naturally in ground water, but is found in greater concentrations where seawater and run-off from road salts (salts used to de-ice icy roads) can make their way into water sources. As such, well owners near snowy roads or road salting storage facilities are especially at risk for high levels of sodium chloride.

Although chlorides are harmless at low levels, well water high in sodium chloride can damage plants if used for gardening or irrigation, and give drinking water an unpleasant taste. Over time, sodium chloride's high corrosivity will also damage plumbing, appliances, and water heaters, causing toxic metals to leach into your water. Interestingly, there is no federally enforceable standard for chlorides in drinking water, though the EPA recommends levels no higher than 250 mg/L to avoid salty tastes and undesirable odors. At levels greater than this, sodium chloride can complicate existing heart problems and contribute to high blood pressure when ingested in excess.

The good news is that chlorides can easily be removed from water with either a reverse osmosis system or a distiller.

### RO system - An under-sink RO system

Reverse osmosis works by passing water through a semi-permeable membrane that separates pure water into one stream and salt water into another stream. In regular osmosis water flows from a lower concentration of salts to higher concentrations; in reverse osmosis the application of pressure greater than the osmotic pressure reverses the water flow from higher concentrations to much lower concentrations, producing pure water. With this method, about 50% of water can be recovered as pure water, while about 50% becomes salty wastewater.

### Water Distiller

Distillers, on the other hand, use evaporation and condensation to separate pure, fresh water from its contaminants. The prolonged boiling process kills virtually all types of microorganisms, including bacteria, viruses and parasites. Microorganisms are not evaporated into the product water but remain in the boiling chamber as part of the residue. Distillers work very well, but use a lot of electricity.