

Physical Parameters of Water Quality assessment

- Colour
- Odour
- Turbidity
- Temperature
- Conductivity

Chemical Parameters for Water Quality assessment

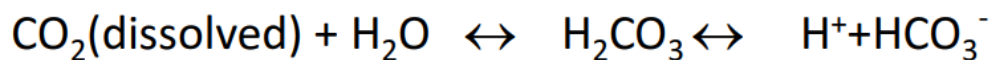
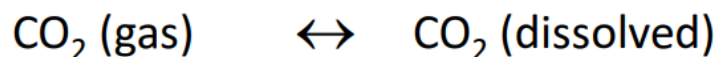
- pH
- Acidity
- Alkalinity
- Hardness
- Solids

Harmful Chemicals

- Chlorides
- Sulphates
- Iron
- Nitrates
- Heavy Metals
- Pesticides

Alkalinity

- Capacity to neutralize acid
- Presence of carbonates, bi-carbonates and hydroxide compounds of Ca, Mg, Na and K
- Alkalinity is determined by measuring the amount of acid needed to lower the pH in a water sample to a specific endpoint; the results are usually reported in standardized units as milligrams CaCO₃ per liter
- Carbon dioxide dissolves in water to form carbonic acid, which dissociates and is in equilibrium with bicarbonate and carbonate ions



Hardness

- Capacity of water for reducing and destroying the lather of soap
- **It is total concentration of calcium and magnesium ions**
- **Types**
- Temporary –Bicarbonates of Calcium and Magnesium
- Permanent –Sulphates , chlorides and nitrates of calcium and magnesium
- **Impact**
- Causes encrustations in water supply structures

Total Hardness

- **Total Hardness:** total concentration of metal ions expressed in terms of mg/L of equivalent CaCO_3
- Primary ions are Ca^{2+} and Mg^{2+}
- also iron and manganese
- **Total Hardness approximates total alkalinity**

Common problems

Visible effects	Reasons
water turns black, smell	Waste water
Acidic taste	Low pH
Alkaline taste	High pH
Boiled Rice hard and yellow	High Alkalinity
White deposits on boiling	Hardness

Visible effects	Reason
Iron taste, change in color after exposure to atmosphere, change in color of clothes & utensils Oily appearance on top of water body	Iron
Soap not lathering	hardness
Brownish black streaks on teeth	Flouride
Growth of Algae	Nitrate, phosphate
Fish kills	Low pH, less DO
Salty taste	chloride