



# **SNS COLLEGE OF TECHNOLOGY**

**(An Autonomous Institution)**



## **WATER QUALITY PARAMETERS**

### **Chlorides**

Chlorides are present in all water sources.

Source of chlorine is from mineral deposits, domestic waste water discharges, industrial wastewaters, Irrigation drainage, Human excreta (urine) contains chloride

#### **Significance:**

- Undesirable taste
- Contributes to hardness
- In industrial waters: deposits, boiler corrosion

### **Iron**

- From soil, rock and plant matter
- From pipes; from coagulants

#### **Significance:**

- Stains in clothes
- Growth of iron bacteria in pipelines (red water complaints)
- Corrosion of pipelines—taste and odour problems

### **Sulphates**

Occurs in water from

- Solvent action of water on gypsum and other salts
- Decomposition of organic matter
- Industrial waste waters—atmospheric  $\text{SO}_2$  (acid rain)

#### **Significance:**

- Laxative effects
- Tastes
- Scales in boilers—hardness

### **Total Dissolved Solids (TDS)**

Important constituents are: bicarbonates, chlorides and sulphates of Ca, Mg, and Na. There is generally an increase of hardness with TDS.



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Significance:

- Taste
- Laxative effects
- Indication of hardness
- Waters with high TDS not desirable for industries

## Nitrogen

Nitrogen is important to all life. Nitrogen in the atmosphere or in the soil can go through many complex chemical and biological changes. Nitrogen occurs in natural waters in various forms, including nitrate, or  $\text{NO}_3$ , nitrite, or  $\text{NO}_2$ , and ammonia, or  $\text{NH}_3$ .

The water used for domestic and industrial purpose should be free from toxic substances and pathogenic bacteria.

## Dissolved Oxygen

Surface waters of good quality should contain dissolved oxygen. The optimum dissolved oxygen in natural water is 6-8 ppm which is essential for supporting aquatic life. A fall in dissolved oxygen level indicates that a water body is polluted with organic matter. The basic winkler's method is used to determine the dissolved oxygen.

## Biological oxygen demand (BOD)

BOD is defined as the quantity of oxygen required by bacteria for the oxidation of organic matter present in water under aerobic conditions at 20°C for 5 days. Biodegradable oxygen demanding wastes (Carbohydrates, fats, proteins etc) present in water remove large amount of dissolved oxygen in water. This causes death or decay of aquatic organisms

## Chemical oxygen demand (COD)

COD is defined as the amount of oxygen required for the oxidation of organic matter as well as oxidizable inorganic matter

## Fluoride

Fluoride is found mostly in ground water as a result of dissolution from geological minerals. Fluoride also occurs in surface water in small concentration. Its permissible limit is 1 ppm



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## Sources

1. From geological minerals
2. Chemical waste from industries

Until the limit of 1ppm, it prevents dental caries, improves dental health, Excess fluoride in drinking water can lead to fluorosis, a condition that affects teeth and bones.

## pH

pH is defined as the negative logarithm of hydrogen ion concentration. Most natural waters are generally alkaline due to the presence of sufficient quantity of carbonate. It is the measure of the intensity of acidity or alkalinity of water.