



Engineering Chemistry

CYC 102

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Overview

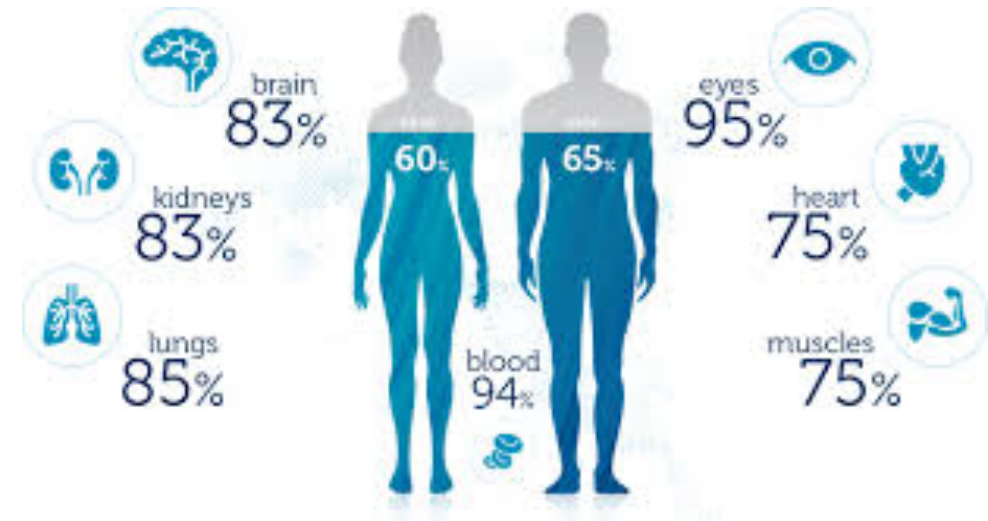
- **Water treatment: Introduction**
- **Importance of Water**
- **Role of water in Engineering Field**
- **Sources Of Water**
- **Specification Of Water**
- **Summary**



Water Treatment: Introduction

Importance of water

- Living things are indeed in need of water for existence.
- Cleanses and energizes our body.
- Maintains our body temperature at the right level.
- It is one of the essential resources for our health.
- Almost all Human activities-domestic, agricultural and industrial demands water.



Role of water in Engineering Field

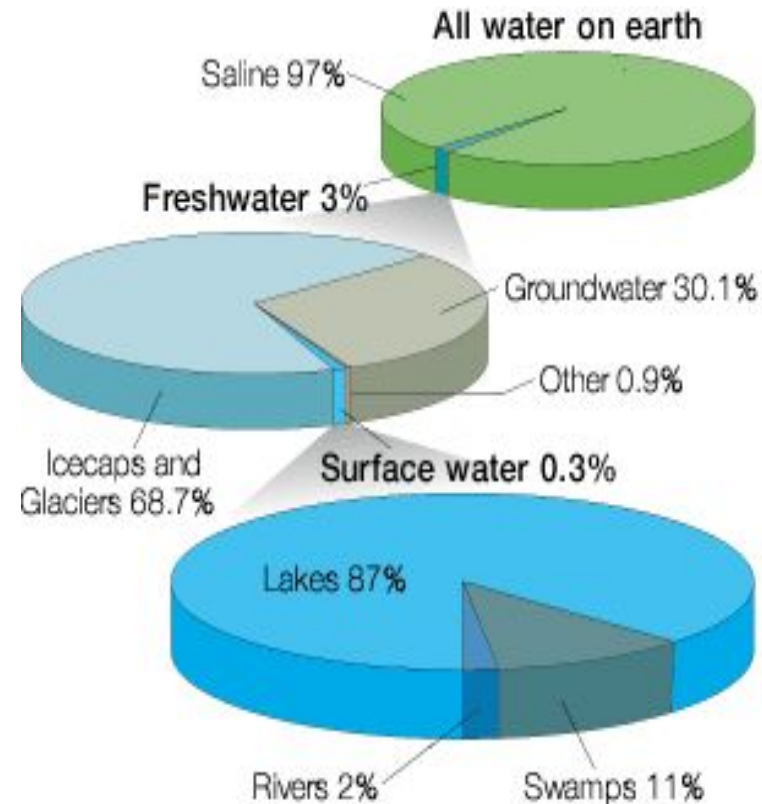
- Steam generation.
- Coolant in power and chemical plants.
- Production of steel, rayon, paper, textiles, air-conditioning, chemicals industries, polymers and many more.



Water Treatment: Introduction...Contd.

Uneven Distribution of water

- ✓ Only 3% Of freshwater (69% resides in glaciers, 30% underground, and less than 1% is located in lakes, rivers and swamps)
- ✓ Remaining 97% resides in the ocean.
- ✓ 1% of the water on the Earth's surface is usable by humans
- ✓ Hence, its judicious and economical use is of utmost importance.





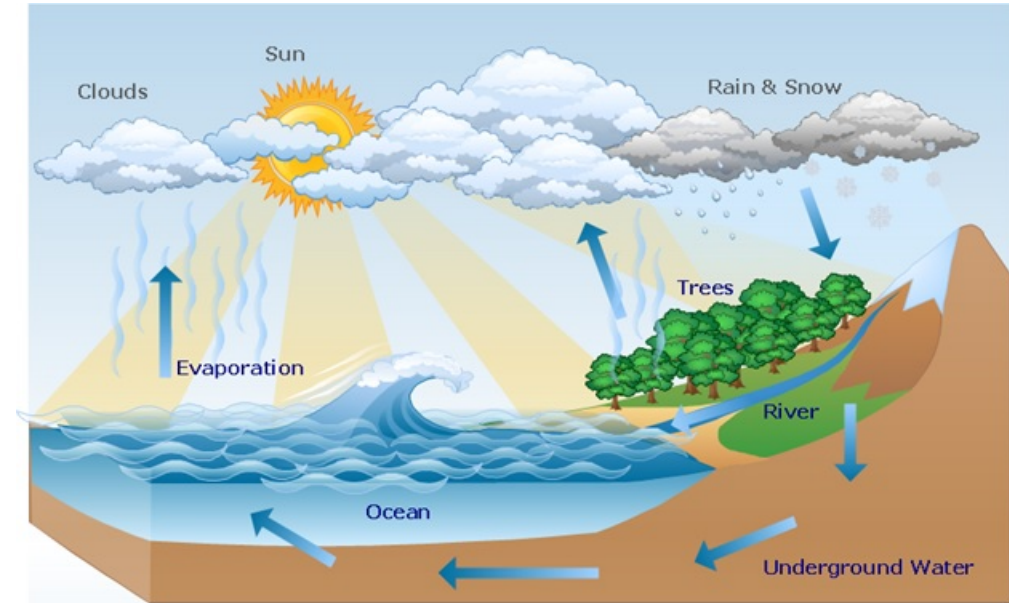
Sources of water

A) Surface Water

- Rain water
- Purest form of natural water
- River water
- Lake water
- Sea water
- Most Impure form of natural water

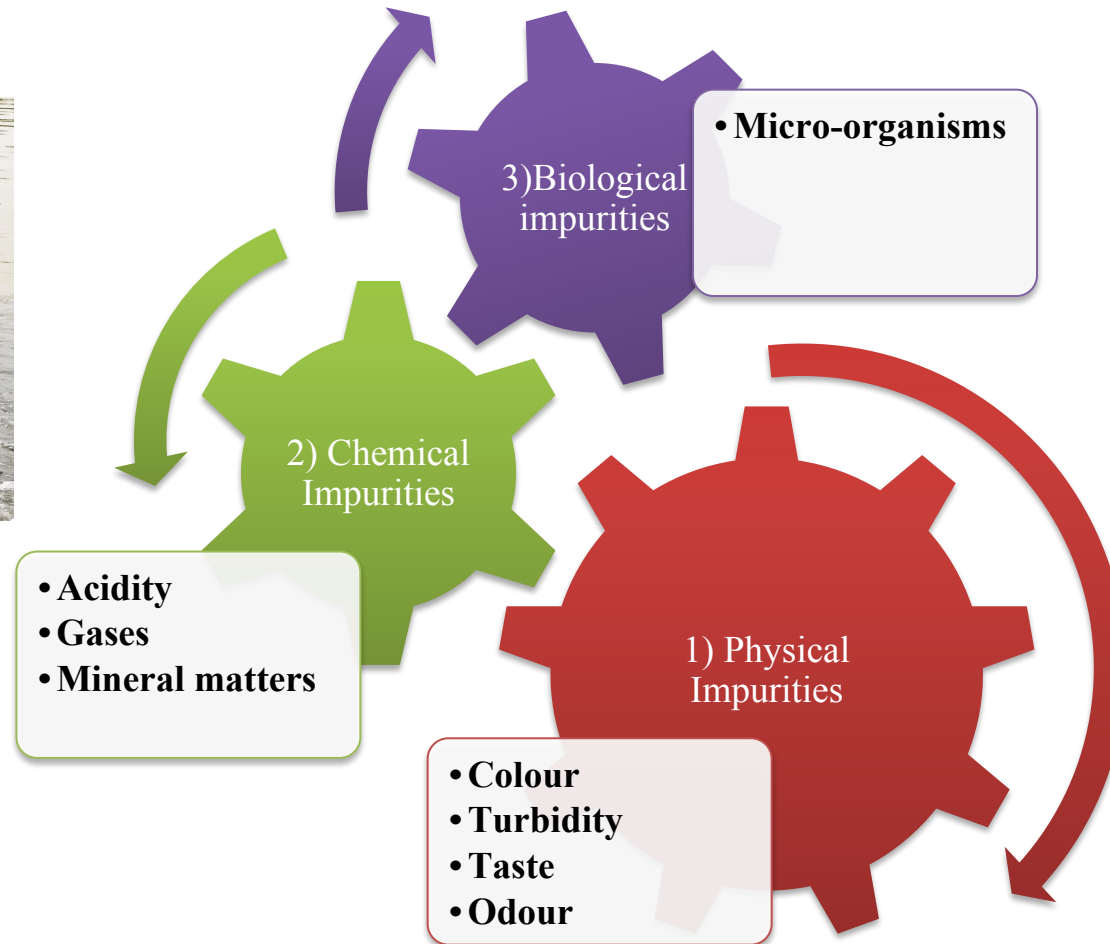
B) Under Ground water

- Springs
- Well water





Characteristics Imparted by Impurities in water





Specifications For water

Purpose	Specification required
Drinking	Palatable, clear and free from colour, odour, turbidity and pathogens.
Laundries	Soft water, free from color and salts of Fe and Mn
Textile dyeing	Free from colour, turbidity, organic matter, Fe and Mn.
Boilers	Zero hardness water, Free from dissolved salts, suspended impurities, silica and dissolved gases.
Drugs and pharmaceuticals	Soft and clear, Free from pathogens, colour, odor and suspended impurities.
Construction	Not too hard, should contain less of chlorides.
Beverages	Free from alkalinity
Paper industry	Free from silica, colour, turbidity, organic matter, Fe, Mn, and alkalinity



Summary

- Water is nature's most wonderful gift.
- Essential for existence of life on earth.
- Less than 1% world's water resources available for ready use.
- Sources of water: Surface water and under ground water.
- Different specifications water is required for different sectors.



Thank You!