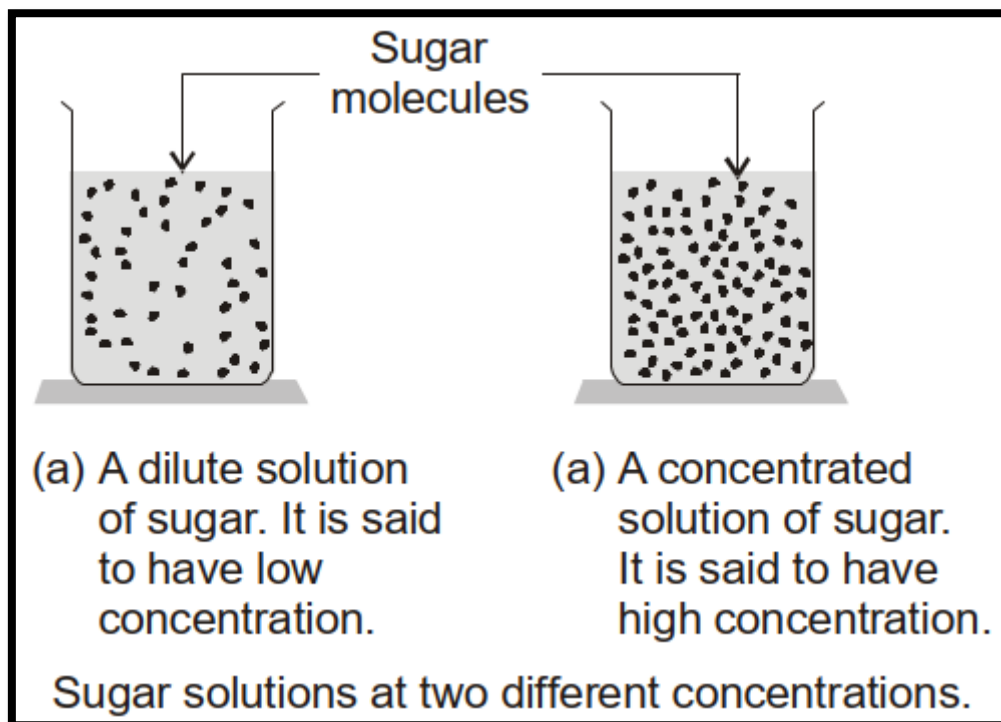


Is Matter Around Us Pure Concentration Of Solution

❖ Pure Concentration Of Solution:

The concentration of a solution is the amount of solute present in a given quantity of the solution. The most common way of expressing the concentration of a solution is the 'percentage method'.



The concentration of a solution is defined as the mass of solute in grams present in 100 grams of the solution. The concentration of a solution refers to the mass of solute in 100 grams of the solution and not in 100 grams of the solvent.

$$\text{Concentration of solution} = \frac{\text{Mass of solute}}{\text{Mass of solution}} \times 100$$

The Case of a Liquid Solute Dissolved in a Liquid Solvent

The concentration of a solution is defined as the volume of solute in millilitres present in 100 millilitres of the solution. The concentration of solution refers to the volume of liquid solute in 100 mL of solution and not in 100 mL of solvent.

$$\text{Concentration of solution} = \frac{\text{Volume of solute}}{\text{Volume of solution}} \times 100$$

PHYSICAL AND CHEMICAL CHANGES:

Physical Changes

Those changes in which no new substances are formed, are called physical changes. Some common examples of physical changes are: Melting of Ice, Freezing of water, Boiling of water, Condensation of steam, Making a solution, Glowing of an electric bulb and Breaking of a glass tumbler.

The physical changes are temporary changes which can be reversed easily to form the original substance.

Chemical Changes

Those changes in which new substances are formed, are called chemical changes. Some common examples of chemical changes are: Burning of a magnesium wire; Burning of paper; Rusting of iron; Formation of curd from milk; and Cooking of food.

◆ PHYSICAL CHANGE

1. No new substance is formed in a physical change.
2. A physical change is a temporary change.
3. A physical change is easily reversible.
4. Very little heat (or light) energy is usually absorbed or given out in a physical change.
5. The mass of a substance does not alter in a physical change.

◆ CHEMICAL CHANGE

1. A new substance is formed in a chemical change.
2. A chemical change is a permanent change.
3. A chemical change is usually irreversible.
4. A lot of heat (or light) energy is absorbed or given out in a chemical change.
5. The mass of a substance does alter in a chemical change.

◆ SOLUBILITY

The maximum amount of a solute which can be dissolved in 100 grams of a solvent at a specified temperature is known as the solubility of that solute in that solvent (at the temperature). For **example:** A maximum of 32 grams of potassium nitrate can be dissolved in 100 grams of water at 20°C, therefore, the solubility of potassium nitrate in water is 32 grams at 20°C.

Substance (or Solute)	Solubility in water (at 20°C)
1. Copper sulphate	21 g
2. Potassium nitrate	32 g
3. Potassium chloride	34 g
4. Sodium chloride	36 g
5. Ammonium chloride	37 g