

## Solute, Solvent and Solution

### Solute, Solvent, and Solution

#### Understanding Solutions

A solution is a homogeneous mixture formed when a solute dissolves in a solvent. The key components of a solution include:

**Solvent:** The substance that dissolves another substance. It makes up the largest part of the solution. In most cases, water is the solvent and is known as the universal solvent because it can dissolve many substances.

**Solute:** The substance that dissolves into the solvent. It makes up a smaller proportion of the solution. For example, sugar dissolves in water, making sugar the solute.

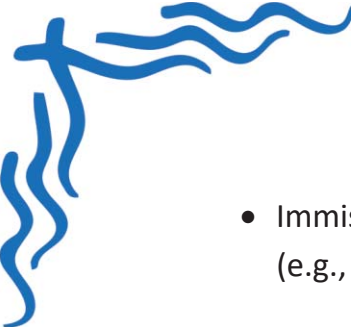
**Concentration:** The more solute in a solution, the higher its concentration. For example, adding more sugar to water increases the concentration of the solution.

#### Interesting Facts About Solutions

- If you pour a handful of salt into a full glass of water, the water level decreases instead of overflowing. This happens because salt molecules fill the spaces between water molecules.
- The air we breathe is a gaseous solution containing oxygen, nitrogen, and other gases.
- Our body fluids are liquid solutions carrying essential nutrients.
- Carbonated drinks are solutions of carbon dioxide gas dissolved in water under high pressure.

#### Solubility and Miscibility

- Soluble substances dissolve in water, such as salt, sugar, soap, orange juice, coffee, and milk.
- Insoluble substances do not dissolve in water, such as sand, oil, chalk powder, mud, wax, and sawdust.
- Miscible liquids mix completely to form a single solution (e.g., milk and water, lemon juice and water).

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- Immiscible liquids do not mix completely; one liquid floats on top of the other (e.g., oil and water).

### **Saturated and Unsaturated Solutions**

- **Saturated Solution:** A solution that cannot dissolve more solute. Any extra solute remains undissolved at the bottom.
  - **Unsaturated Solution:** A solution that can still dissolve more solute.
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