

Concentration and Solubility

Chapter 9: The Amazing World of Solutes, Solvents, and Solutions · Topic 2

Key Concept

A solution that has dissolved the maximum possible amount of solute at a given temperature is called saturated; if less than the maximum is dissolved, it is unsaturated. For most solids, solubility increases as temperature rises — this is why sugar dissolves faster and in greater quantity in hot tea than in cold water. However, this rule doesn't apply to all substances; the solubility of gases in liquids, for example, typically decreases as temperature increases, which is why a warm fizzy drink loses its carbonation faster than a cold one.

Quick Revision Notes

- Solubility is the maximum amount of solute that dissolves in a solvent at a given temperature.
- A saturated solution holds the maximum solute possible; an unsaturated solution holds less.
- For most solids, solubility increases with temperature.
- For gases dissolved in liquids, solubility typically decreases as temperature increases.

Practice Questions

- 1 Explain how increasing temperature usually affects the solubility of a solid.
- 2 What is the difference between a saturated and an unsaturated solution?
- 3 Why might a cold soda retain its fizz longer than a warm one?