

## CHAPTER OVERVIEW

### 10: Solids, Liquids and Solutions

In contrast to gases, solids and liquids have microscopic structures in which the constituent particles are very close together. The volume occupied by a given amount of a solid or liquid is much less than that of the corresponding gas. Consequently solids and liquids collectively are called condensed phases. The properties of solids and liquids are much more dependent on intermolecular forces and on atomic, molecular, or ionic sizes and shapes than are the properties of gases.

#### Topic hierarchy

- 10.1: Prelude to Solids, Liquids and Solutions
- 10.2: Solids
- 10.3: Lattices and Unit Cells
- 10.4: Crystal Systems
- 10.5: Closest-Packed Structures
- 10.6: Liquids
- 10.7: Viscosity
  - 10.7.1: Lecture Demonstration
- 10.8: Amorphous Materials- Glasses
- 10.9: Phase Transitions
- 10.10: Enthalpy of Fusion and Enthalpy of Vaporization
  - 10.10.1: Astronomy- Water on Mars
  - 10.10.2: Lecture Demonstrations
- 10.11: Vapor-Liquid Equilibrium
- 10.12: Boiling Point
- 10.13: Critical Temperature and Pressure
- 10.14: Phase Diagrams
- 10.15: Solutions
- 10.16: Saturated and Supersaturated Solutions
- 10.17: Miscibility
  - 10.17.1: Cultural Connections- Oil and Water
- 10.18: Measuring the Composition of a Solution
- 10.19: Solubility and Molecular Structure
- 10.21: The Separation of Mixtures
- 10.22: Distillation
- 10.23: Chromatography
- 10.24: Colligative Properties of Solutions
- 10.25: Boiling-Point Elevation and Freezing-Point Depression
- 10.26: Osmotic Pressure
- 10.27: Colloids

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