

Unit 8 – Mixtures and Solutions

(Honors Chemistry Syllabus)

[Text Ref.: Ch. 3 (Sect. 3.3), Ch. 7 (Section 7.2 & 7.4), Ch. 8 (Section 8.5) & Ch. 14]

1. **Mixture:** (Section 14.1)
2. **Heterogeneous Mixtures:** (Section 14.1)
3. **3 Types of Heterogeneous Mixtures:** (Section 14.1)
 - A. Suspensions
 - B. Thixotropic Mixtures
 - C. Colloids:
 1. Defn.
 2. Brownian motion
 3. Tyndall effect
4. **Homogeneous Mixtures (Solutions):**
(Sections 3.3, 7.2, 7.4, 14.1 & 14.4)
 - A. Defn.
 - B. 2 Parts of a Solution:
 1. Solvent
 2. Solute
 - C. Soluble vs. Insoluble
 - D. Types of Solutions:
 1. Gas solutions
 2. Liquid solutions
 - a. Aqueous solutions
 - b. Miscible vs. Immiscible
 - c. Electrolytes vs. Nonelectrolytes
(Hint: Look on pgs. 215, 498 & 499)
 - d. Tincture (Hint: Not in book)
 3. Solid solutions
 - a. Alloy
 - b. Amalgam
5. **Chromatography** (Section 3.3 & Lab 14-1)
6. **Concentration, []:** (Section 14.2)
7. **5 ways to express []:** (Section 14.2)
 - A. Percent by mass
 - B. Percent by volume
7. **5 ways to express []:** (cont.)
 - C. Molarity(M) of a solution
 - D. Molality(*m*) of a solution
 - E. Mole Fraction(X) of a solution
8. **The Solvation Process:** (Sections 8.5 & 14.3)
 - A. Solvation
 - B. Molecular Polarity
 - C. Solubility of polar and nonpolar molecules
(Can you explain this phrase? “like dissolves like”?)
 - D. Solubility & hydration of ionic compounds in aqueous solutions
(Hint: Look on pgs. 268 & 490)
 - E. Solubility & hydration of molecules in aqueous solutions
(Hint: Look on pgs. 268 & 491)
9. **3 Factors That Affect Solvation:** (Section 14.3)
 - A. Agitation
 - B. Surface Area
 - C. Temperature
10. **Saturation of solutions:** (Section 14.3)
 - A. 3 Types of Saturated Solutions:
 1. Unsaturated solutions
 2. Saturated solutions
 3. Supersaturated solutions
 - B. Solubilities as a Function of Temperature
 1. Solubilities of Solids
 2. Solubilities of Gases
11. **Concentration vs. Saturation** (Not in book)
12. **Colligative Properties:** (Section 14.4)
 - A. Defn.:
 - B. Boiling Point Elevation
 - C. Freezing Point Depression
 - D. Osmotic Pressure

✓ **Unit 8 Internet help (On Mr. Segulin’s Honors Chemistry Web-page):**

- Online Text
- CyberEd Chemistry: “Solutions” and “Solubility & Precipitation”
- General Chemistry help (pick the topic that you need to assist you)

✓ **Ch. 14 Review Questions:**

- Pgs. 474-511: #'s 1-4, 6-35, 39-43, 45-53, 54-88, 91, 95-111, 118, & 120.
- Pgs. 985-986: #'s 1-16, 19-21