

# Chapter Fourteen: Mixtures and Solutions

## Section 1: Types of Mixtures

**Mixtures:** a blend of two or more kinds of matter, each of which retains its own identity and properties

- Example: Supreme Pizza and Milk

**Heterogeneous Mixtures:** a mixture that does not have a uniform composition throughout

**Homogeneous Mixtures:** a mixture that has a uniform composition throughout

- Also called a solution
  - **Solution:** a homogeneous mixture of two or more substances
    - Results in a mixture that has the same composition throughout
    - Can exist as gases, liquids, or solids (alloy metals – solid solution where two metals are uniformly mixed)
    - **Solute:** In a solution, the substance being dissolved
    - **Solvent:** In a solution, the substance doing the dissolving

**Suspension:** a mixture containing particles that settle out if left undisturbed...gravity pulls them to the bottom

- Example: jar of muddy water

*Thixotropic mixture:* a solid-like mixture that settles to the bottom and water on the top but when agitated or stirred, it flows like a liquid

- Example: toothpaste or paints

**Colloids:** a heterogeneous mixture of intermediate-sized particles (between atomic-scale size of solution particles and the size of suspension particles)

- Example: Milk

- Particles are between 1 nm and 1000 nm in diameter and do not settle out

**Electrolyte:** a substance that dissolves in water to give a solution that conducts electric current

- A light bulb will “glow” in this type of solution

**Nonelectrolyte:** substance that dissolves in water to give a solution that does not conduct electric current

**Brownian motion:** the dispersed particles of liquid colloids make jerky, random movements

- Example: pollen grains in water

**Tyndall Effect:** particles in a colloid that scatters light

- Example: rays of sunlight passing through smoke-filled air or lights through a fog
- Can be used to determine the amount of colloid particles in suspension

**Soluble:** matter that is capable of being dissolved

- Example: sugar is soluble in water

**Miscible:** two liquids that are soluble in each other in any proportion

**Insoluble:** a substance that does not dissolve in a solvent

**Immiscible:** two liquids that can be mixed together but separate shortly after