

Chem Unit 12.1 Notes - Types of Mixtures

12.1 Types of Mixtures



What's in this stuff?

Mixtures

Mixture: combination of two or more substances.

Heterogeneous mixtures: don't blend smoothly – individual components remain distinct.

Homogeneous mixture: have uniform composition.

Heterogeneous Mixtures

Suspension: A mixture that contains particles that settle out if left undisturbed.

Example: Tanana River water.

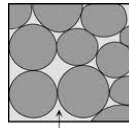


Heterogeneous Mixtures

Thixotropic Mixture: A solid-like mixture that separates into a liquid and solid layer when agitated.

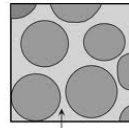
Ex: Tanana River mud. Jiggling makes it separate through liquefaction.

Water-Saturated Sediment



Water fills in the pore space between grains. Friction between grains holds sediment together.

Liquefaction



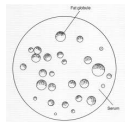
Water completely surrounds all grains and eliminates all grain to grain contact. Sediment flows like a fluid.



Heterogeneous Mixtures

Colloid: Mixture of dispersing medium and particles between 1 nm and 1000 nm. Particles don't settle out.

1. Ex: Milk.
medium = water
particles = fat globules.



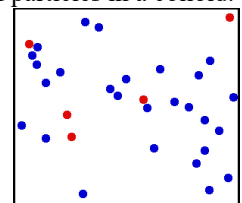
2. Ex: Jello.
medium = gelatin network
particles = water solution.



Heterogeneous Mixtures

Brownian Motion: movement of particles in a colloid. Particles collide with dispersion medium, never settling out.

Tyndall Effect: Scattering of light passing through colloid particles. (Laser Demo)



Chem Unit 12.1 Notes - Types of Mixtures

Homogeneous Mixtures

Solutions: substances composed of two or more components having uniform composition.

Solvent: Substance that dissolves something.

Solute: Substance that is dissolved.



3. Ex: Sugar in water solution – sugar is dissolved (solute), water dissolves it (solvent)

Homogeneous Solution Types

Unsaturated – More solute can be dissolved

Saturated – Solvent holds the maximum amount of solute. Rate of solvation equals rate of crystallization.

Supersaturated – An unstable situation – more solute is dissolved than 'should' be possible.

Happens when solute is dissolved at high temperature, and then the temp is reduced. (Sodium Acetate Demo)

Factors Speeding Dissolution

Agitation – stirring or shaking



Larger surface area – pulverize solute

Heating – solids dissolve faster in warm solvent



Gases do not dissolve in warm solvent, however, but do in cold solvent.

Other Terms

Soluble: Solid that dissolves in a particular solvent.

Insoluble: Solid that doesn't dissolve.

4. List three solid substances that don't dissolve in water.

Sand, steel, wood, granite.

Other Other Terms

Miscible: When describing liquids – two liquids that will dissolve into each other.

5. List two miscible liquids.
Glycol in water.

Immiscible: When two liquids won't mix.

6. List two immiscible liquids.
Oil in water.



Homework

12.1 Problems.
Due: Next Class.