

Unit 10: Solutions



Solutions and Solubility Curves

Definitions

- **Solution**: a mixture, where one substance is dissolved into another substance
- **Solute**: is the substance being dissolved (i.e. the substance present in the least amount)
- **Solvent**: is the substance doing the dissolving (i.e. the substance present in the most amount)
- **Soube**: when a substance can be dissolved into another substance
- **Insoube**: when a substance *cannot* be dissolved into another substance

Examples of Solutions

Air

- $78\% \text{N}_2 + 21\% \text{O}_2 + 1\% \text{varrious gasses} = \text{Air}$

Kool-aid

- $\text{water} + \text{flavor packet} + \text{sugar} = \text{Goodness}$

Soda Water

- $\text{H}_2\text{O} + \text{CO}_2 = \text{"Fizzy Water"}$

10 Karat Gold

- $10 \text{ parts Gold (Au)} + 14 \text{ parts Copper (Cu)} = 10 \text{ Karat Gold}$



Types of Solution

Aqueous

- When a substance is dissolved by water

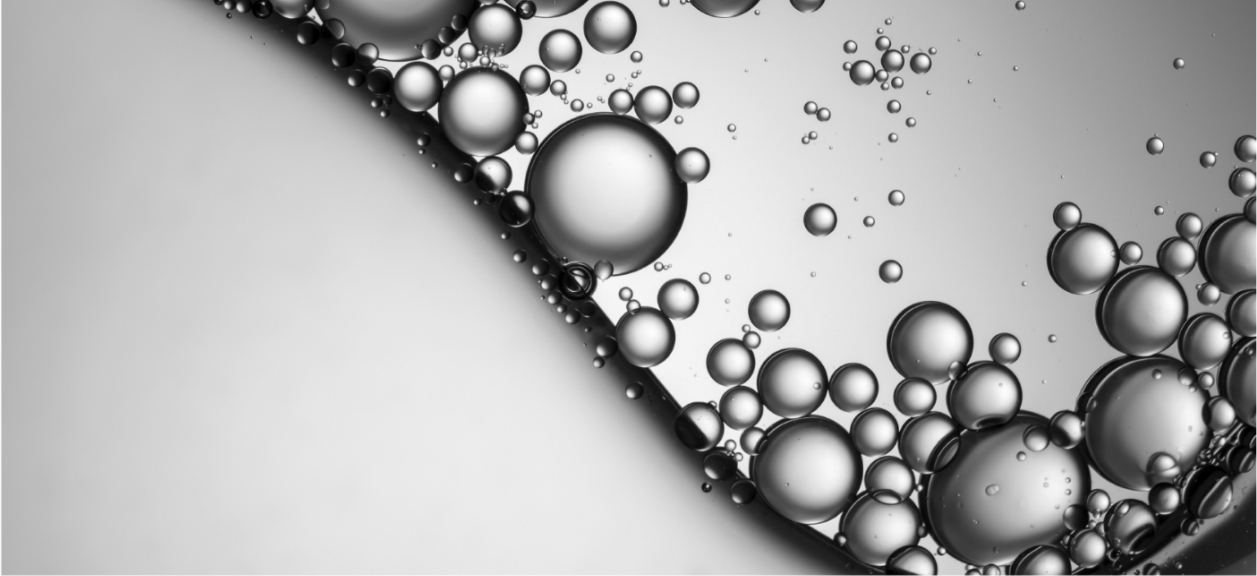
Tincture

- When a substance is dissolved by alcohol.



Insouble

Oil + Water

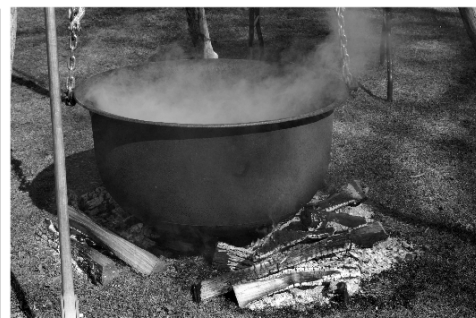


How to increase the rate at which a SOLID substance dissolves

1. Stirring

2. Increasing the Temperature

3. Breaking the substance into smaller pieces



How to increase the rate at which a GAS substance dissovles

1. Increase the pressure of the gas



2. Decrease the Temperature of the solvent



More Definitions...

Solubility: the maximum amount of a solute that will dissolve into a given amount of a solvent

Concentration: refers to how much solute is present

- Terms - these are used more for comparing and contrasting
 - Concentrated (more)
 - Diluted (less)



The Last Definitions...

Saturated: the *maxium* amount of solute that a solvent can hold at a given temperature

Unsaturated: any solution that *can* dissolve more solute at a given temperature

Supersaturated: a solution that currently has more solute than it can normally handle at a given temperature

How to tell the difference

Place one more crystal in the solution and if one of the following happens, then you know what type of solution you have.

1. Crystal dissolves = Unsaturated
2. Crystal *does not* dissolve = Saturated
3. More crystals start to fall out of solution = Supersaturated



Solubility Curves

