

Tuesday, February 25th

Objective: Students will be able to describe the properties of a solution.

1. Bellringer
2. Solutions Notes
3. Worktime

Due: none
Homework: Solutions Practice, Salt on Road Article, Test Corrections

Apr 4-8:16 AM

What is a solution?

Solutions are **homogeneous mixtures** of 2 or more substances

They are well **mixed**. You can't see **separate phases (parts)**

Examples: **air, tap water, steel, vinegar, rubbing alcohol, kool aid, salt water, brass**

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Vocab

Solvent: substance **doing the dissolving** Usually present in **alarger amount**. **ex: water in salt water**

Solute: substance that gets **dissolved** **ex: salt in salt water**

Soluble: a substance that **can be dissolved** in a solvent **ex: salt is soluble in water**

Insoluble: a substance that **won't dissolve** in a solvent **ex: sand is insoluble in water**

Solvation: process of surrounding **solute** particles with **solvent** particles to form a **solution**

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Factors Affecting the Rate of Solvation

Agitation: (**stirring** or **flicking**) increases the rate of solvation (substance dissolves **faster** with mixing)

Particle Size: **smaller** particles solvate **faster** (crushed sugar dissolves faster than chunks)

Temperature: usually **higher** temp = fast solvation (salt in **boiling** water dissolved **faster** than in water at room temperature or cooler)

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Solubility

Solubility: the **maximum** amount of **solute** that will dissolve in a given amount of **solvent** at a particular **temperature**.

-- usually given in units of:

- **grams of solute per grams of solvent**
- **grams of solute per mL of solvent**

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"Like dissolves like"

-- phrase scientists use when **predicting the solubility**

-- means that **dissolving** occurs when the solute and solvent are **similar**

-- substances that are similar in **size (mass)** and **polarity** (polar or nonpolar) will be soluble

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Water: The Super Solvent

-- Sometimes called the **UNIVERSAL SOLVENT** because it is a very versatile solvent

-- water is **small** and **polar**-- its ability to attract other **small polar** particles makes it an excellent solvent

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Water dissolves many covalent substances

-- Water also is a good solvent for many **covalent** compounds --> Nonmetals

-- sucrose (table sugar) is an example

-- It's possible to dissolve almost **200 g** of sugar in **100 mL** of water

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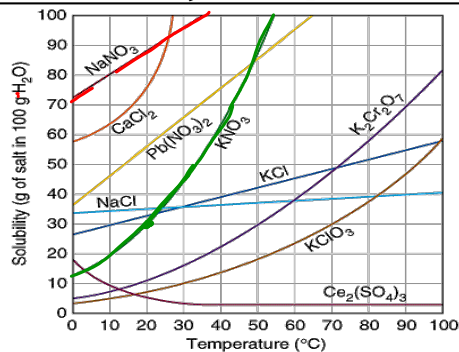
Temperature and Solubility

-- Solubility of **solids** usually **increases** with an increase in **temperature** (**direct** relationship)

-- The solubility of a **gas in a liquid** usually **decreases** with an increase in **temperature** (**indirect** relationship)

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Solubility Graph



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Pressure and Solubility

-- As the external pressure of a gas in any solution **increases**, its solubility **increases**

-- Pressure and solubility are **directly** related

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Worktime for Solutions Practice

Mar 5-9:00 AM

Attachments

solutionSalt.zip

clipboard(20615).galleryitem