

Solutions Lesson 2 Check for Understanding

Part ONE: Terminology

Define the following words & state where they occur on a Solubility Curve

- Saturated:
- Unsaturated:
- Supersaturated:

Part TWO: Conceptual Solubility

- What is the difference in how the solubility of a gas versus a solids changes with temperature?
- What is the difference in how the solubility of a gas versus a solids changes with pressure?

Part THREE: Solubility Curves

Solubility curves can be used to determine if a particular solution is saturated at a given set of conditions and how much of the solute is dissolved under those conditions.

Whenever you are given a graph to analyze the first thing you should do is look at each axis to determine what information the graph is showing.

X-axis – Temperature **Y-axis** – Amt. of Solute in grams per 100g of solvent

Each line represents the maximum amount of solute that can be dissolved in 100 g of H₂O at a particular temperature.

Below the line → the solution is unsaturated

On or above the line → the solution is saturated

Above the line and all the solute is dissolved → the solution is supersaturated (**it must say that the solute is completely dissolved**)

****** Changing the amount of water (solvent) → The graph represents grams of solute per 100 g of water, if you change the amount of water the amount of solute changes proportionally (200 g, double the amount of solute can dissolve)**

Use the graph to the right to answer the following questions:

- If **all the solute dissolves** would the resulting solution be saturated, unsaturated, or supersaturated?
 - 60g KCl @ 70°C _____
 - 10g KClO₃ @ 60°C _____
 - 80g NaNO₃ @ 10°C _____
 - 70g CaCl₂ @ 20°C _____
- What mass of solute will dissolve in **100g** of water at the following temperatures?
 - Pb(NO₃)₂ @ 10°C _____
 - Ce₂(SO₄)₃ @ 50°C _____
 - NaCl @ 20°C _____
 - Which of the **above** three substances is most soluble in water at 20°C. _____
- If 115g KNO₃ are added to 100g of water at 35°C, how many grams do not dissolve?
- What mass of solute will dissolve in **200 g** of water at the following temperatures?
 - Pb(NO₃)₂ @ 10°C _____
 - Ce₂(SO₄)₃ @ 50°C _____
 - NaCl @ 20°C _____

