

AKS Review
Solutions



AKS Correlation

14a. Explain solubility in terms of substance involved (i.e. solute, solvent) and the process of dissolving a solute by:

- observing factors that effect the rate at which a solute dissolves in a specific solvent
 - demonstrating that solubility is related to temperature by constructing a solubility curve
 - expressing concentrations in molarity
 - preparing and properly labeling solutions of specified molar concentrations
 - relating molality to colligative properties
-

1. (a) What is a solution?

(b) What are the two parts of a solution?

2. Identify the solute and solvent in an aqueous solution of sugarwater.

Solute: _____

Solvent: _____

3. If one liquid is soluble in another liquid, such as food coloring in water, the two liquids are considered _____.

4. If one liquid is insoluble in another, such as oil in water, the two liquids are _____.

5. Define solvation.

6. (a) Explain the phrase "like dissolves like" using the terms polar and nonpolar.

(b) Identify whether the following substances would dissolve in WATER (polar) or GASOLINE (non polar).

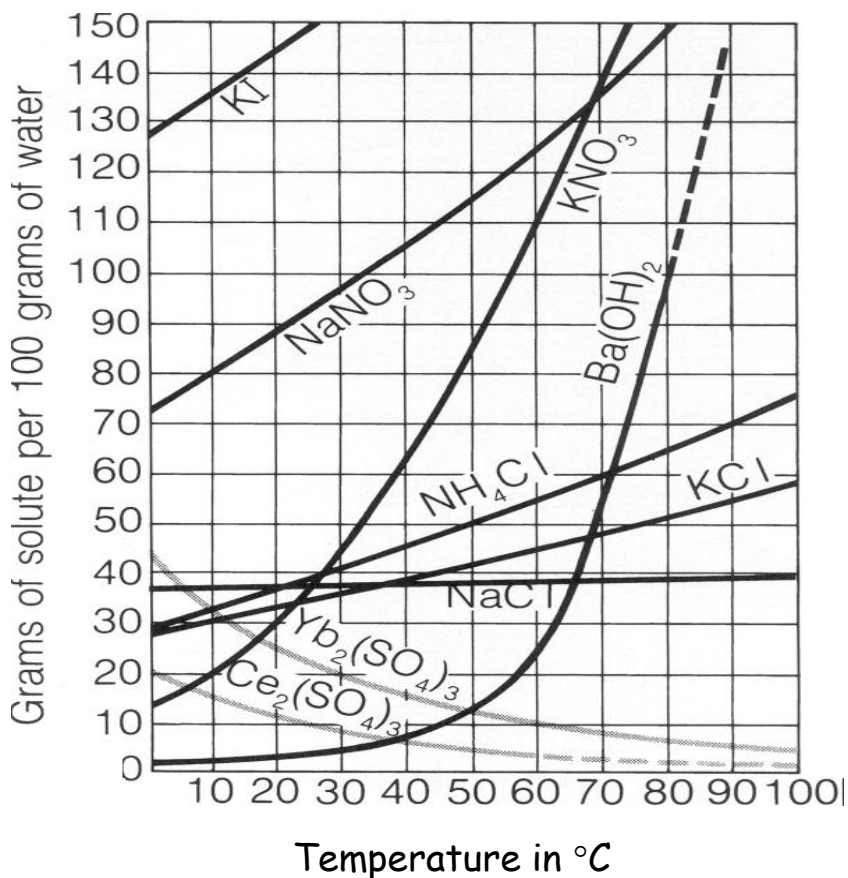
NaCl

CH₄

I₂

7. Discuss three factors that affect the rate at which solvent particles dissolve solute particles.
8. What is solubility?
9. Distinguish between saturated solutions, supersaturated solutions, and unsaturated solutions.
10. (a) What happens to solubility of solid as temperature increases?
(b) What happens to solubility of gases as temperature increases?
11. 210 gram of table salt is dissolved in a solution of 3.50 L. What is the molarity of this salt solution?
12. (a) What is a colligative property?
(b) List the four colligative properties.
- 1.
 - 2.
 - 3.
 - 4.
13. Use a colligative property to explain why salt is often thrown on icy steps and roads in the winter.

14. Use the graph below for the questions that follow.



- How much ammonium chloride dissolves in 100 g of water at 50°C?
- At what temperature does 115 g of sodium nitrate dissolve in 100 g of water?
- Name the solutes that behave like gas.
- If 40.0 g of NH₄Cl is dissolved in 100 g of water at 90 °C, how much more solute can be added before the solution becomes saturated?
- At 80 °C, 52 g of KCl is dissolved in 100 g of water. The temperature is then lowered to 10°C. How much KCl will precipitate out of solution?
- What is the mass of Yb₂(SO₄)₃ that can dissolve in 400 g of water at 60°C?