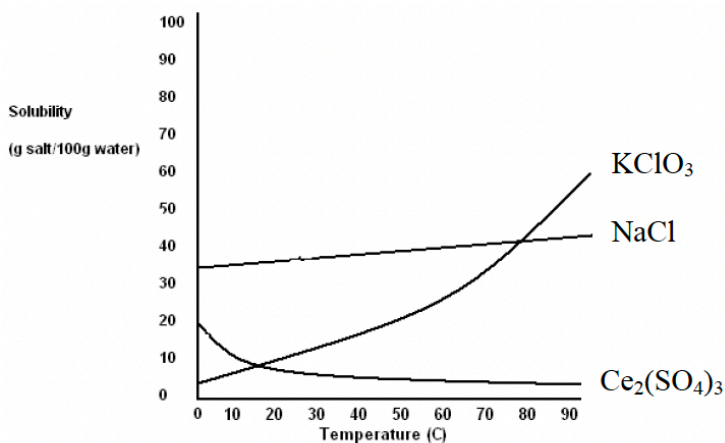


Unit 3.9 & 3.10

Separation of Solutions & Solubility

1. Use Coulomb's Law and visual representations to explain why BaSO_4 is not soluble in water and why MgSO_4 is soluble in water.
2. The following questions refer to the solubility curve shown below. Suppose you have four beakers containing equal volumes of water. You then add one type of salt to each beaker until the solutions become saturated.
 - (a) Which of the three saturated solutions below would produce the greatest mass of precipitate when cooled from 90°C to 60°C ?
 - (b) The molarity of which solutions would increase by the greatest degree when it is cooled from 20°C to 0°C ?



3. Explain how solutes can be separated through paper chromatography based on intermolecular forces.

Name: _____

Date: _____

4. Fractional distillation was used to isolate an unknown volatile substance that had contaminated the well water at a rural property.
 - (a) Is the boiling point of the unknown substance greater than, less than or equal to 100°C at 1.0 atm? Justify your answer.

 - (b) What can be said about the relative strengths of IMFs among and between the components in question (contaminant and water)?

5. Explain why a glass of soda at 30°C will go flat faster than a glass of soda at 5°C ?

6. $\text{NO}(\text{g})$ is more soluble in water than $\text{O}_2(\text{g})$. Explain.