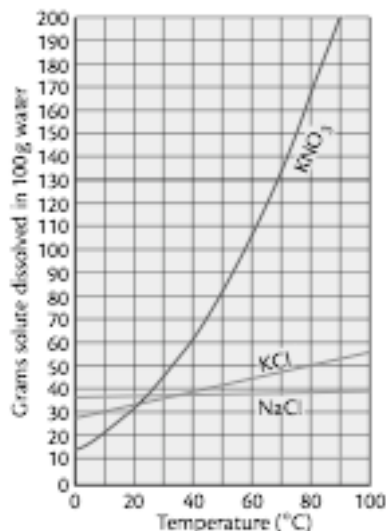


Solubility Curves

A Solubility Curve is a graph that shows us the relationship between the amount of solute that can dissolve in a particular liquid and temperature. Each point on the graph tells us the saturation point for that temperature.

Use the solubility curve below to answer the questions that follow.



- In your own words, what is the relationship shown on this solubility curve for each of the three substances?
- Notice the solubility graph for sodium chloride (NaCl) is almost horizontal. What does this tell us about the solubility of the substance as temperature increases?
- At 50° C, how much potassium nitrate (KNO₃) will dissolve in 100 grams of water to form a saturated solution?
- Consider a solution containing 80 grams of KNO₃ in 100 grams of water at 60° C. Locate this point on the graph. What does this tell you about the level of saturation of this solution?
- Considering the information from Question 4, what would happen if you cooled this solution to 40° C?
- What is the solubility of KNO₃ at 70° C?
- At what temperature will the solubility of KNO₃ be 25 g per 100 g of water?
- How much KNO₃ will dissolve in 150 g of water at 40° C?
- What mass (in grams) of KNO₃ will dissolve in 100 g of water at 60° C?
- What mass of KCl will dissolve in 100g of water at 60° C?
- You dissolve 25 g of KNO₃ in 100 g of water at 30° C producing an unsaturated solution.
 - How much more KNO₃ do you need to add in order for the solution to be saturated?
 - What is the minimum mass of 30° C water to dissolve 25 g of KNO₃?
- A supersaturated solution of KNO₃ is formed by adding 150 g of KNO₃ to 100 g of water, heating until the solute completely dissolves, and then cooling the solution to 55° C.
 - If the solution is agitated, how much KNO₃ will precipitate out?
 - How much 55° C water would have to be added (to the original 100 g) to dissolve all of the KNO₃?

