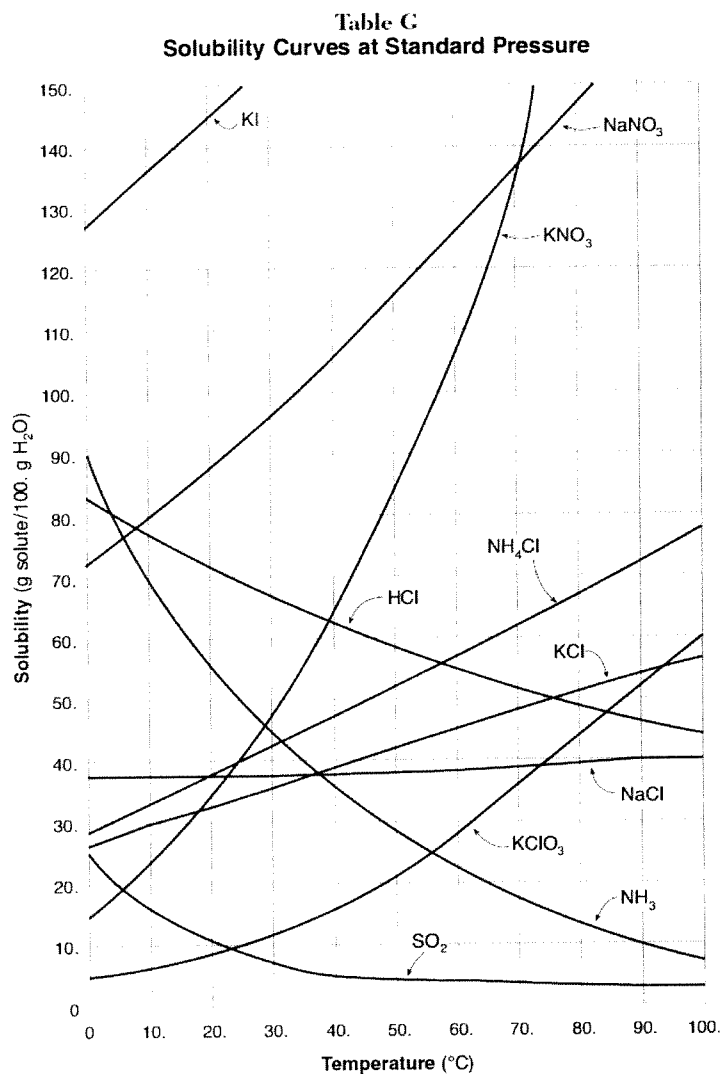


Questions on Solubility (Table G)

Directions: refer to Table G, Solubility Curves, and answer the questions below.



1. At which temperature do NaNO₃ and KNO₃ have the same solubility?
2. 100 g of water saturated with KClO₃ is cooled from 50°C to 30°C. How much solid crystallizes?
3. How much NH₄Cl is needed to saturate 50 g of water at 35°C?
4. Which substance on the graph shows the smallest increase in solubility over the range 80°C to 100°C?
5. Which of the substances on the graph have approximately the same solubility over the range 20°C to 25°C?

6. 321 g of KNO_3 are used to saturate water at 60°C . What is the mass of water that is used?
7. When a saturated solution of KClO_3 at 24°C is evaporated to dryness, the mass decreases 200 g. How much solid remains?
8. What is the smallest mass of water necessary to dissolve 40 g of NH_3 completely at 4°C ?
9. Which of the substances on the graph has a solubility that is relatively unaffected by changes in temperature?
10. Which substances on the graph have solubilities that decrease with increases in temperature?
11. 30 g of KI are dissolved in 300 g of water at 10°C . How much additional KI is necessary to saturate the solution?
12. 500 g of water is saturated with KCl at 10°C . If the temperature is raised to 60°C , how much additional KCl is needed to resaturate the solution?
13. What is the average rate of increase in solubility (in g per 100 g H_2O per $^\circ\text{C}$) for NaNO_3 in the range $10^\circ\text{C} - 20^\circ\text{C}$?
14. Which substance shows the largest increase in solubility in the range $30^\circ\text{C} - 70^\circ\text{C}$?
15. Which substance is most soluble at 50°C ? Which substance is least soluble at 50°C ?
16. 100 g of water is saturated with KClO_3 at 70°C . To what temperature must the solution be cooled in order for 10 g of solid to crystallize?
17. Assuming that all of the following can form supersaturated solutions, indicate whether the following solutions are saturated, unsaturated, or supersaturated.
 - a) 40 g of KCl in 100 g of H_2O at 80°C
 - b) 120 g of KNO_3 in 100 g of H_2O at 60°C
 - c) 80 g of NaNO_3 in 100 g of H_2O at 10°C