

## Solubility Curves

1. Define solubility:

**Use the solubility curve below to answer questions #2 - #15. Be sure to note the units on the axes of the graph.**

2. In general, how does temperature affect solubility?

3. Which compound is least soluble at 10°C?

4. How many grams of KCl can be dissolved in 100g of water at 80°C?

5. How many grams of NaCl can be dissolved in 100g of water at 90°C?

6. At 40°C, how much KNO<sub>3</sub> can be dissolved in 100g of water?

7. Which compound shows the least amount of change in solubility from 0°C-100°C?

8. At 30°C, 90g of NaNO<sub>3</sub> is dissolved in 100g of water. Is this solution saturated or unsaturated?

9. At 60 C, 72 g of NH<sub>4</sub>Cl are dissolved in 100g of water. This solution is considered to be

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10. A saturated solution of KClO<sub>3</sub> is formed from one hundred grams of water. If the saturated solution is cooled from 90°C to 50°C, how many grams of precipitate are formed?

11. A saturated solution of NH<sub>4</sub>Cl is formed from one hundred grams of water. If the saturated solution is cooled from 80°C to 40°C, how many grams of precipitate are formed?

12. Which compounds show a *decrease* in solubility from 0°C-100°C?

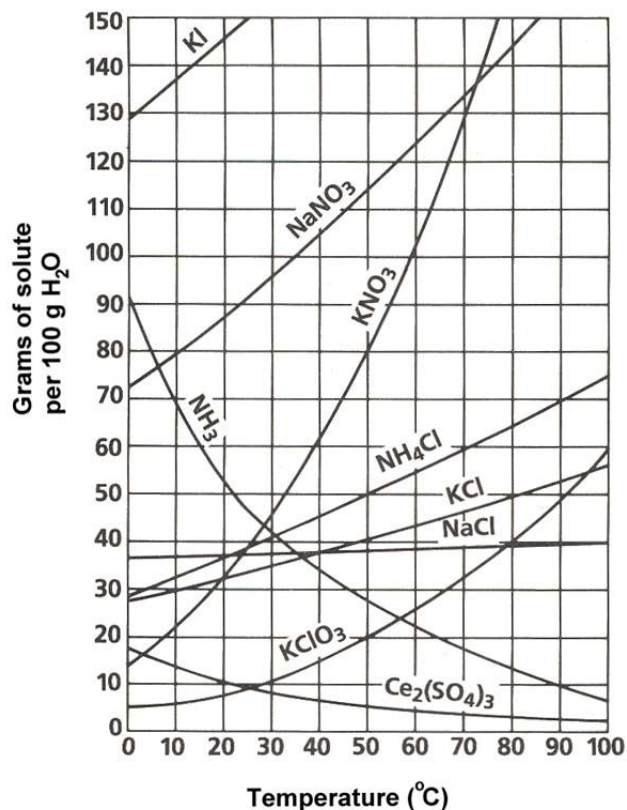
A) potassium chlorate B) cerium sulfate C) sodium nitrate D) ammonia E) Both B and D

13. Which compound is the most soluble at 10°C?

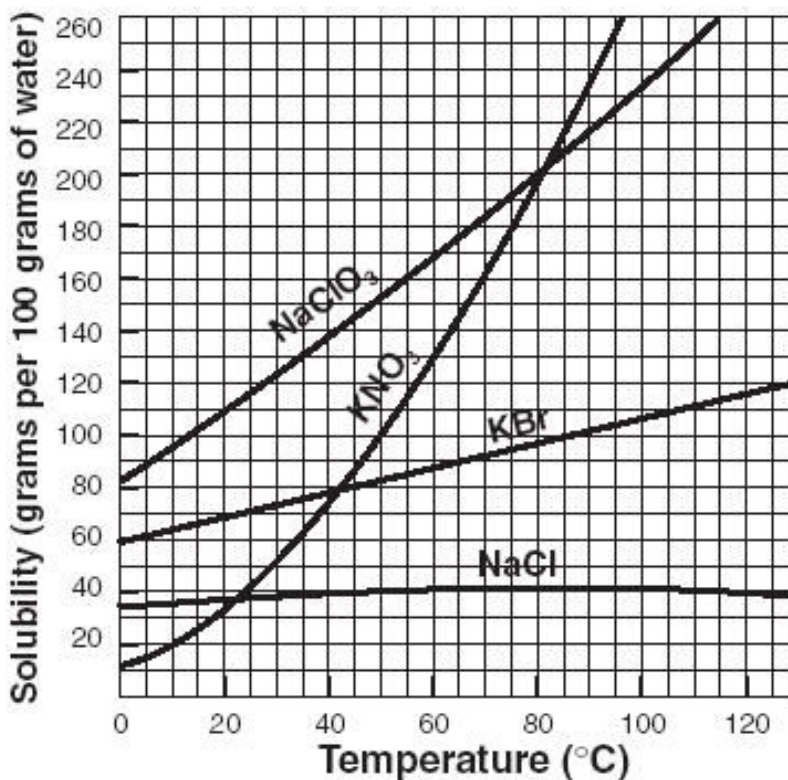
A) Ce<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> B) NaCl C) KCl D) KClO<sub>3</sub> E) NH<sub>3</sub>

14. A chemist adds 120 grams of KCl into a test tube which contains 100 grams of water. The temperature of the water is 80°C. How much of the solute will be left undissolved at the bottom of the test tube?

A) 50 grams B) 60 grams C) 70 grams D) 80 grams E) 56 grams



Use the solubility curve below to answer the following questions.



15. Which salt is least soluble at 20°C?  
A) NaClO<sub>3</sub>    B) KNO<sub>3</sub>    C) KBr    D) NaCl
16. How many grams of KBr can be dissolved in 100g of water at 60°C?
17. How many grams of NaCl can be dissolved in 100 g of water at 100°C?
18. Classify the type of solution: At 40°C, 180g of NaClO<sub>3</sub> is dissolved in 100g of water.  
A) saturated    B) unsaturated    C) supersaturated    D) saturated with some left undissolved
19. Classify the type of solution: At 70°C, 70g of KBr is dissolved in 100g of water.  
A) saturated    B) unsaturated    C) supersaturated    D) saturated with some left undissolved
20. A saturated solution of NaClO<sub>3</sub> is formed from one hundred grams of water. If the saturated solution is cooled from 80°C to 60°C, how many grams of precipitate are formed?
21. A chemist adds 160 grams of KNO<sub>3</sub> into a test tube which contains 100 grams of water. The temperature of the water is 50°C. How much of the solute will be left undissolved at the bottom of the test tube?  
A) 50 grams    B) 60 grams    C) 70 grams    D) 80 grams    E) 56 grams