

# Solubility Curve Worksheet

- 1) Define solubility.  
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- 2) Look at the graph below. In general, how does temperature affect solubility?  
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- 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?  
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- 8) At 30°C, 90g of NaNO<sub>3</sub> is dissolved in 100g of water. Is this solution saturated or unsaturated?  
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- 9) At 60°C, 72g of NH<sub>4</sub>Cl is dissolved in 100g of water. Is this solution saturated or unsaturated?  
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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?  
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- 13) Which compound is the most soluble at 10°C?  
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- 14) Which compound (besides Ce<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>) is the least soluble at 50°C? \_\_\_\_\_

- 15) For each of the following solutions, explain how much of the solute will dissolve and how much will remain undissolved at the bottom of the test tube?

a) 120 g of KCl in 100 g of water at 80°C

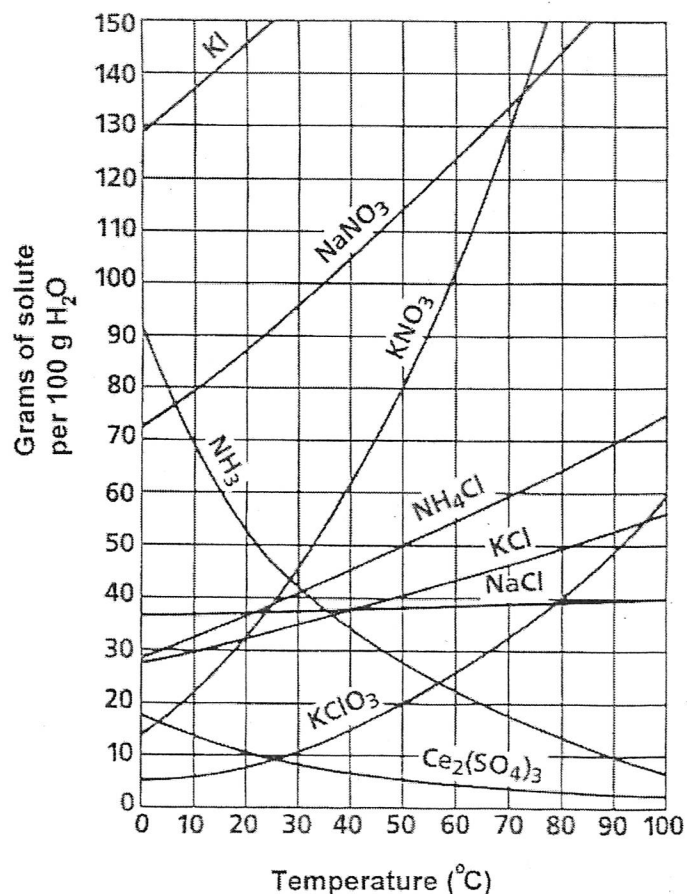
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b) 130 g of NaNO<sub>3</sub> in 100 g of water at 50°C

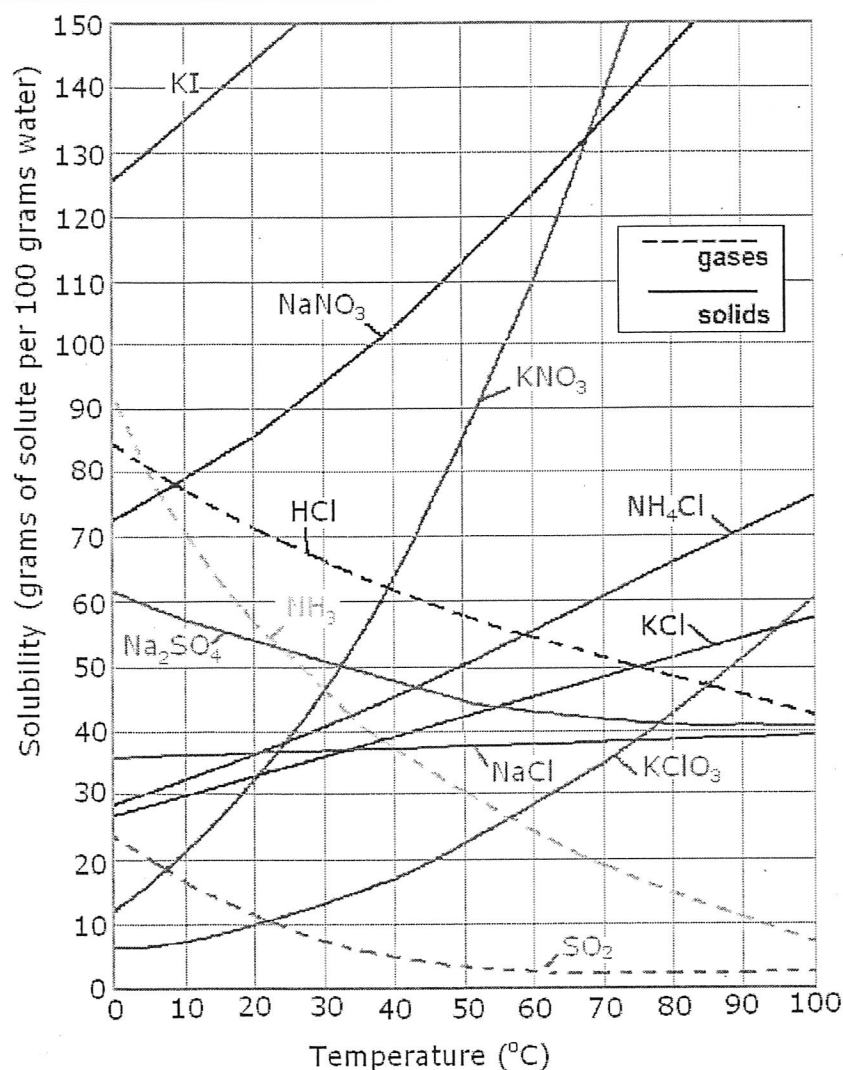
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UNIT 12 - SOLUTIONS

**SOLUBILITY CURVES WORKSHEET**



- 1.) Which compound is *least* soluble at 20 °C? At 80 °C?
- 2.) Which substance is the *most* soluble at 10 °C? At 50 °C? At 90 °C?
- 3.) The solubility of which substance is *most* affected by changes in temperature?
- 4.) The solubility of which substance is *least* affected by changes in temperature?
- 5.) Are the following solutions saturated, unsaturated, or supersaturated?  
(Assume all are dissolved in 100 grams of water.)
  - (A) 50 grams of KNO<sub>3</sub> at 50 °C
  - (B) 100 grams of NaNO<sub>3</sub> at 80 °C
  - (C) 30 grams of KNO<sub>3</sub> at 25 °C
  - (D) 50 grams of KCl at 80 °C
  - (E) 65 grams of NH<sub>4</sub>Cl at 70 °C
  - (F) 90 grams of KNO<sub>3</sub> at 60 °C
- 6.) NH<sub>3</sub> is a gas. Describe what happens to its solubility as the temperature goes from 20 °C to 80 °C.