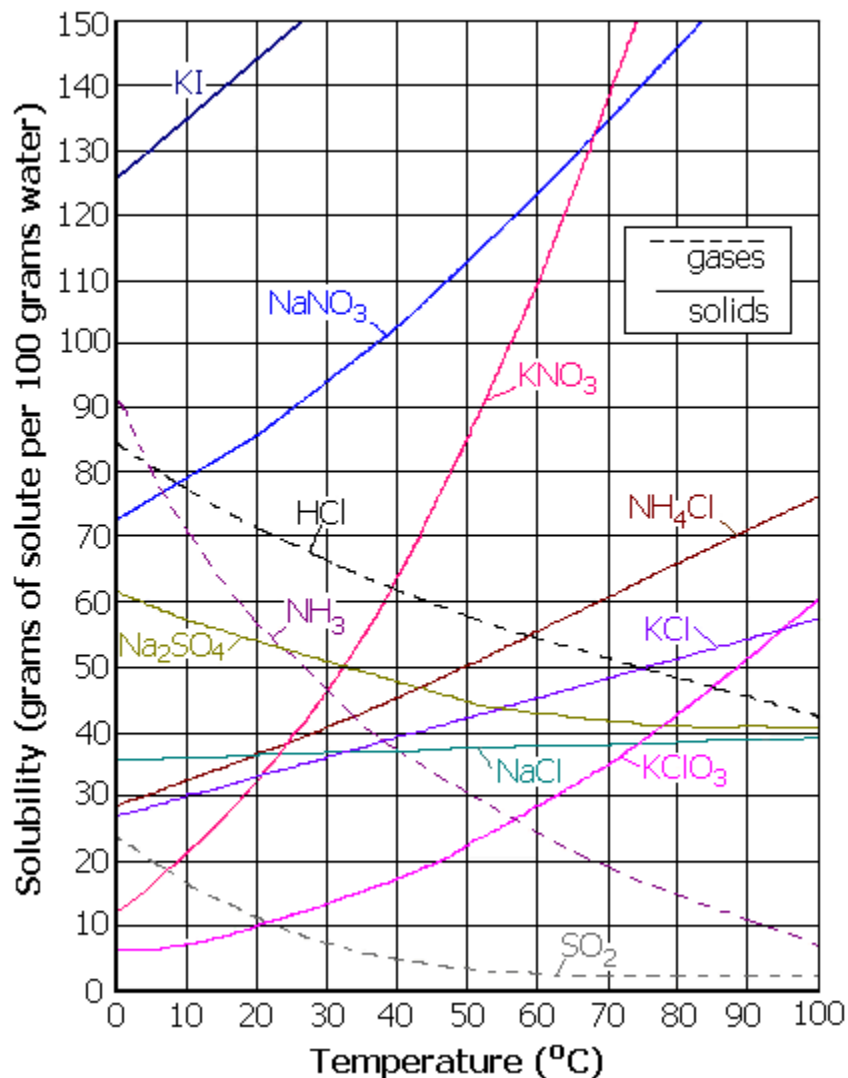


SOLUBILITY CURVES WORKSHEET



- 1.) Which compound is *least* soluble at: (A) 20°C? (B) 80°C?
- 2.) Which substance is the *most* soluble at: (A) 10°C? (B) 50°C? (C) 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 NH₄Cl at 50°C
 (B) 100 grams of NaNO₃ at 80°C
 (C) 30 grams of KNO₃ at 25°C
 (D) 51 grams of KCl at 80°C
 (E) 65 grams of NH₄Cl at 70°C
 (F) 30 grams of NH₃ at 50°C
 (G) 10 grams of KClO₃ at 20°C

- 6.) NH_3 is a gas. Describe what happens to its solubility as the temperature goes from 20°C to 80°C .
- 7.) Which two substances have the same solubility at 68°C ? What is the solubility?
- 8.) Which two substances have the same solubility at 94°C ? What is the solubility?
- 9.) For each of the following, indicate the temperature at which the solution described would be saturated. (Assume all are dissolved in 100 grams of water.)
- (A) 30 grams of NH_4Cl
 - (B) 130 grams of NaNO_3
 - (C) 50 grams of Na_2SO_4
 - (D) 20 grams of KNO_3
 - (E) 40 grams of KCl
 - (F) 60 grams of NH_3
- 10.) For each of these, indicate how many grams of solute (per 100 grams of water) will dissolve.
- (A) NaNO_3 at 70°C
 - (B) NH_4Cl at 50°C
 - (C) KI at 20°C
 - (D) KClO_3 at 90°C
- 11.) At 40°C , how many grams of NaNO_3 will make a saturated solution if the NaNO_3 is added to 100 grams of water?
- 12.) At 80°C , how many grams of KCl can be dissolved in 200 grams of water?
- 13.) At what temperature will 10 grams of NH_3 dissolve completely in 100 grams of water to make a saturated solution?
- 14.) At 40°C , how many grams of KNO_3 can be dissolved in 300 grams of water?
- 15.) At 55°C , how many grams of NaNO_3 can be dissolved in 50 grams of water?
- 16.) At 80°C , you have a saturated solution of KClO_3 . How many grams of solid precipitate will form if the solution is cooled to 50°C ?
- 17.) How many grams of NaNO_3 precipitate will form if a saturated solution at 70°C is cooled to 10°C ?
- 18.) A solution contains 20 g of NH_4Cl at 50°C . How many more grams of NH_4Cl need to be added to the 100 grams of water for the solution to be saturated?

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Molarity & Dilutions Worksheet

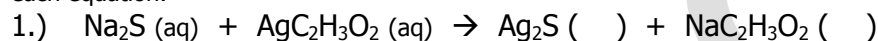
- 1.) What is the molarity of a solution in which 58.5 grams of NaCl are dissolved in 1.0 L of solution?
- 2.) What is the molarity of a solution in which 10.0 grams of AgNO_3 is dissolved in 500. mL of solution?
- 3.) How many grams of KNO_3 should be used to prepare 2.00 L or a 0.500 M solution?
- 4.) What volume of a 0.25 M solution could be made from 5.0 grams of KCl ?

- 5.) How many grams of CuSO_4 are needed to prepare 100. mL of a 0.10 M solution?
- 6.) How much 18 M sulfuric acid (H_2SO_4) is needed to prepare 250 mL of a 6.0 M solution?
- 7.) 17 mL of 12 M hydrochloric acid (HCl) is diluted to 100. mL. What is the concentration of the new solution?
- 8.) To what volume should 25 mL of 15 M nitric acid (HNO_3) be diluted to prepare a 3.0 M solution?
- 9.) To what volume should 50. mL of 12 M hydrochloric acid be diluted to produce a 4.0 M solution?
- 10.) If 25.0 mL of 18 M sulfuric acid is diluted to 550. mL, what is the concentration of the diluted solution?

Answers: 1.) 1.0 M; 2.) 0.118 M; 3.) 101 g; 4.) 0.27 L or 270 mL; 5.) 1.6 g; 6.) 83 mL; 7.) 2.0 M; 8.) 130 mL; 9.) 150 mL; 10.) 0.82 M

NET IONIC EQUATIONS WORKSHEET

Determine the solubility of the products ((aq) or (s)). Then, write the net ionic equation. Also indicate the spectator ions for each equation.



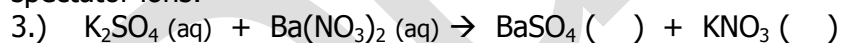
net ionic eqn:

spectator ions:



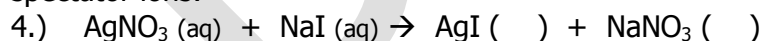
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spectator ions:



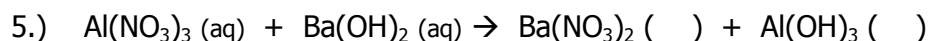
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spectator ions:



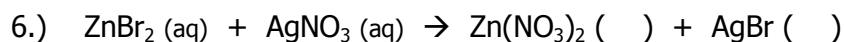
net ionic eqn:

spectator ions:



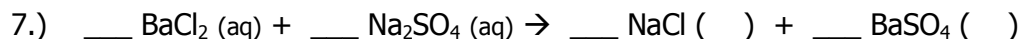
net ionic eqn:

spectator ions:



net ionic eqn:

spectator ions:



net ionic eqn:

spectator ions:

UNIT 12 REVIEW WORKSHEET

Part 1 – Solubility Curves - USE YOUR SOLUBILITY CURVE GRAPH TO ANSWER #1-4.

1. At what temperature does 135 grams of KI dissolved in 100 grams of water form a saturated solution?
2. How many grams of KNO_3 will dissolve in 400 grams of water at 60°C ?
3. If 10 grams of KClO_3 are dissolved in 100 grams of water at 30°C , is the solution saturated, unsaturated, or supersaturated?
4. How many grams of solid precipitate will form if a saturated NaNO_3 solution is cooled from 80°C to 20°C ?

Part 2 – Concentration of Solutions

5. How many grams of $\text{Fe}(\text{C}_2\text{H}_3\text{O}_2)_3$ are needed to dissolve to make 350. mL of a 2.50 M solution?
6. What is the molarity of a solution made by diluting 17.3 mL of 12 M hydrochloric acid to 550. mL?

Part 3 – Solubility – Write (s) or (aq) next to each product. Then, write the net ionic equation.

7. $\text{Ca}(\text{NO}_3)_2(\text{aq}) + \text{Na}_2\text{CO}_3(\text{aq}) \rightarrow \text{NaNO}_3() + \text{CaCO}_3()$
8. $\text{Zn}(\text{NO}_3)_2(\text{aq}) + \text{K}_3\text{PO}_4(\text{aq}) \rightarrow \text{KNO}_3() + \text{Zn}_3(\text{PO}_4)_2()$