

Name \_\_\_\_\_ Block: \_\_\_\_\_ Date: \_\_\_\_\_

Chemistry 12  
**SOLUBILITY CONCEPTS**

- Decide whether each of the following are electrolytes or not (yes or no) when dissolved in water.
  - $\text{AgNO}_3$  \_\_\_\_\_
  - $\text{CH}_3\text{CH}_2\text{OH}$  \_\_\_\_\_
  - $\text{NH}_4\text{Cl}$  \_\_\_\_\_
  - $\text{CH}_3\text{CH}_2\text{COOH}$  \_\_\_\_\_
  - $\text{Ba}(\text{OH})_2$  \_\_\_\_\_
- Give three examples of **ionic** compounds:
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- Give two examples of **molecular** compounds
  - \_\_\_\_\_
  - \_\_\_\_\_
- Define a **saturated solution** \_\_\_\_\_  
\_\_\_\_\_
- Solubility is the \_\_\_\_\_ concentration of a substance in solution at a given temperature.
- Write a net ionic equation for **dissolving** ammonium sulphate.  
\_\_\_\_\_
- Write a net ionic equation for the **crystallization** of calcium dichromate.  
\_\_\_\_\_
- Write a net ionic equation for **dissolving** ammonium oxalate.  
\_\_\_\_\_

9. Write a net ionic equation for the *precipitation* of magnesium sulphate.
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10. Write a net ionic equation for the *equilibrium present in a saturated solution* of calcium oxalate.
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11. Calcium fluoride has a solubility of 6.87 grams/L at a certain temperature. Express this solubility in moles per Litre.

12. The molar solubility of  $\text{Ag}_2\text{CO}_3$  at a certain temperature is  $8.3 \times 10^{-5}$  M. Express this solubility in grams per Litre.

13. 0.0021 grams of  $\text{MgCO}_3$  will dissolve in 1.0 L of water at a certain temperature. Express this solubility in grams/100 mL of water.

14. A solution of  $\text{FeBr}_3$  has a  $[\text{Br}^-]$  which is 0.36 M. Find the  $[\text{Fe}^{3+}]$  in the same solution.

15. You dissolve  $3.20 \times 10^{-2}$  moles of  $\text{Fe}(\text{NO}_3)_3$  into water to make 2.00 L of solution. Determine the  $[\text{Fe}^{3+}]$  and  $[\text{NO}_3^-]$ .

16. 30.0 mL of 0.850 M  $\text{Ba}(\text{NO}_3)_2$  is added to 50.0 mL of water.
- Find the new  $[\text{Ba}(\text{NO}_3)_2]$  in the solution.
  
  
  - Find the new  $[\text{NO}_3^-]$  in the solution.
17. 67.0 mL of 0.25 M  $\text{BaCl}_2$  is mixed with 25.0 mL of 0.30 M  $\text{NaCl}$ . Determine the final  $[\text{Cl}^-]$  in the new mixture.
18. An aqueous solution of rubidium phosphate ( $\text{Rb}_3\text{PO}_4$ ) is mixed with an aqueous solution of magnesium nitrate and a precipitate forms.
- Write a **balanced formula equation** for this reaction. Include all subscripts and coefficients.  

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  - Write a balanced, **complete (total) ionic equation** for this reaction. Include all subscripts, coefficients and ion charges where necessary.  

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  - Write a **net ionic equation** for this reaction. Include all subscripts, coefficients and ion charges where necessary.  

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