

CH15

I. Calculate solubility from K_{sp} or K_{sp} from solubility (molar solubility * FW = gram solubility), only use molar solubility for calculations.

II. $Q_{sp} > K_{sp}$, ppt form; $Q_{sp} < K_{sp}$, no ppt

III. pH effect on solubility:

Anion of the salt	Acid solution	Base solution
OH^-	Solubility increase	Solubility decrease
Conjugated base of weak acid	Solubility increase	No effect
Conjugated base of strong acid	No effect	No effect

IV. common ion effect calculation: always use small x approximation

CH15

15.I

1. The solubility of silver dichromate at a given temperature is 5 g/100 mL. Calculate the K_{sp} at this temperature. After you calculate the K_{sp} value, take the negative log and enter the (pK_{sp}) value with 2 decimal places. (value \pm 0.05). **(2.2069)**

15.II

2. The K_{sp} of AgCl at 25 °C is 1.6×10^{-10} . Consider a solution that is $1.0 \times 10^{-7} M$ CaCl₂ and $1.0 \times 10^{-3} M$ AgNO₃.
 - A. $Q > K_{sp}$ and a precipitate will form.
 - B. $Q > K_{sp}$ and a precipitate will not form.
 - C. $Q < K_{sp}$ and a precipitate will not form.
 - D. $Q < K_{sp}$ and a precipitate will form.
 - E. The solution is saturated.

15.III

3. Which of the following compounds will have a different solubility with lower pH?
a. AgNO_3 b. CaCl_2 c. **Ca(OH)_2** d. CuCl e. **BaCrO_4**

15.IV

4. The K_{sp} of Al(OH)_3 is 1.0×10^{-33} . What is the solubility of Al(OH)_3 in $0.010 \text{ M Al(NO}_3)_3$? Give your answer using scientific notation and to 2 significant figures (i.e., one decimal place). (**1.6×10^{-11}**).