

Name:
College ID:
Thomas Edison State University
General Chemistry II with Labs (CHE-122)
Section no.:
Semester and year:

Written Assignment 8: Solubility Equilibria

Answer all assigned questions and problems, and show all work.

1. Silver chloride ($K_{sp} = 1.6 \times 10^{-10}$) has a larger K_{sp} than silver bromide ($K_{sp} = 7.7 \times 10^{-13}$). Which of these silver compounds will be the most soluble? (5 points)
2. Calculate the concentration of ions in the following saturated solutions: (a) $[I^-]$ in AgI solution with $[Ag^+] = 9.1 \times 10^{-9} M$, (b) $[Al^{3+}]$ in $Al(OH)_3$ solution with $[OH^-] = 2.9 \times 10^{-9} M$. (20 points)

(Reference: Chang 16.53)

3. The molar solubility of $MnCO_3$ is $4.2 \times 10^{-6} M$. What is the K_{sp} for this compound? (15 points)

(Reference: Chang 16.55)

4. What is the pH of a saturated zinc hydroxide solution? (15 points)

(Reference: Chang 16.59)

5. If 20.0 mL of 0.10 M $Ba(NO_3)_2$ are added to 50.0 mL of 0.10 M Na_2CO_3 , will $BaCO_3$

precipitate? (15 points)

(Reference: Chang 16.61)

6. Calculate the molar solubility of AgCl in a 1.00-L solution containing 10.0 g of dissolved CaCl_2 . (15 points)

(Reference: Chang 16.69)

7. Compare the molar solubility of $\text{Mg}(\text{OH})_2$ in water and in a solution buffered at a pH of 9.0. (15 points)

(Reference: Chang 16.73)