Solubility Constant Product Calculations Practice

Part 1

1.) A solution in equilibrium with a precipitate of $FeCO_3$ contains $5.0 \times 10^{-6}\ M\ Fe^{+2}$ and $6.0 \times 10^{-6}\ M\ {CO_3}^{-2}$. Calculate K_{sp} for $FeCO_3$.

2.) What is the concentration of Zn^{+2} ions in a saturated solution made by shaking $ZnS_{(s)}$ with water?

3.) How many grams of $PbSO_{4\ (s)}$ will dissolve in $5.0\ L$ of water?

4.) How many grams of $BaCrO_4$ are present in $10.0\ L$ of a saturated solution of $BaCrO_4$.

5.) An experiment shows that a maximum of $7.35\ g$ of silver acetate can dissolve in $1.00\ L$ of water at $25°C$. What is K_{sp} for silver acetate?

6.) Calculate the molar solubility of Ag_2CrO_4.

7.) Calculate the solubility of $Fe(OH)_2$ in grams per litre.

8.) A solution in equilibrium with a precipitate of Ag_2S contained $1.6 \times 10^{-16}\ M\ S^{-2}$ and $2.6 \times 10^{-17}\ M\ Ag^{+}$. Calculate the solubility product of Ag_2S.

9.) A small piece of the mineral smithsonite, $ZnCO_3$, with a mass of $0.000\ 14\ g$ just dissolves in $100.0\ mL$ of water. Calculate K_{sp} for $ZnCO_3$.

10.) What is the concentration of Cd^{+2} ions in saturated $Cd(OH)_2$? $K_{sp} = 5.3 \times 10^{-15}$ for $Cd(OH)_2$.

11.) What mass of Pb^{+2} is present in $5.0\ L$ of saturated $Pb(IO_3)_{2\ (aq)}$?