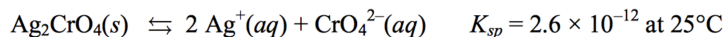


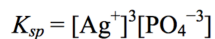
1. Answer the following questions relating to the solubilities of two silver compounds, Ag_2CrO_4 and Ag_3PO_4 .

Silver chromate dissociates in water according to the equation shown below.



- Write the equilibrium-constant expression for the dissolving of $\text{Ag}_2\text{CrO}_4(s)$.
- Calculate the concentration, in mol L^{-1} , of $\text{Ag}^+(aq)$ in a saturated solution of Ag_2CrO_4 at 25°C .
- Calculate the maximum mass, in grams, of Ag_2CrO_4 that can dissolve in 100. mL of water at 25°C .
- A 0.100 mol sample of solid AgNO_3 is added to a 1.00 L saturated solution of Ag_2CrO_4 . Assuming no volume change, does $[\text{CrO}_4^{2-}]$ increase, decrease, or remain the same? Justify your answer.

In a saturated solution of Ag_3PO_4 at 25°C , the concentration of $\text{Ag}^+(aq)$ is $5.3 \times 10^{-5} \text{ M}$. The equilibrium constant expression for the dissolving of $\text{Ag}_3\text{PO}_4(s)$ in water is shown below.



- Write the balanced equation for the dissolving of Ag_3PO_4 in water.
- Calculate the value of K_{sp} for Ag_3PO_4 at 25°C .
- A 1.00 L sample of saturated Ag_3PO_4 solution is allowed to evaporate at 25°C to a final volume of 500. mL. What is $[\text{Ag}^+]$ in the solution? Justify your answer.