

Practice with K_{sp} and Common Ions

AP Chem

Helpful Sites:

Solubility Equilibrium Help Step by Step---> <http://users.stlcc.edu/gkrishnan/solubilityproduct.html>

K_{sp} Basic---> <http://web.mst.edu/~gbert/Aj2.HTML?JAVA/Aksp.HTM>

K_{sp} with Common Ions ---> <http://web.mst.edu/~gbert/Aj2.HTML?JAVA/Aksp2.HTM>

*Part I. Solve for the **solubility** of this compound at 25 deg C. Write the dissociation equation and equilibrium expression first.*

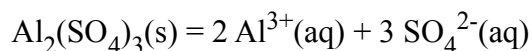
1. CuCl K_{sp} = 1.0×10^{-6}
2. Zr(NO₃)₂ K_{sp} = 1.4×10^{-23}
3. aluminum sulfate K_{sp} = 3.5×10^{-4}

*Part II. Solve for the **K_{sp}** for these compounds at 25 deg C. Write the dissociation equation and equilibrium expression first.*

4. Given: The solubility of lead(II) iodide in water at 25° C is 1.4×10^{-3} moles/Liter.
5. Given: The solubility of scandium (III) sulfate in water at 25° C is 2.72×10^{-1} moles/Liter.

*Part III. Calculate **solubility of the common ion** in solution.*

6. The solubility product constant of aluminum sulfate in water at 25° C is K_{sp} = 3.5×10^{-4} .
Calculate the solubility of this compound in 1.00 M Al(NO₃)₃(aq) at 25°C.



7. The solubility product constant of tin(II) hydroxide in water at 25° C is K_{sp} = 1×10^{-14} .
Calculate the solubility of this compound in 0.020 M KOH(aq) at 25°C.
 $\text{Sn}(\text{OH})_2(\text{s}) = \text{Sn}^{2+}(\text{aq}) + 2 \text{OH}^{-}(\text{aq})$

Answers:

1. S = 1.0×10^{-3} moles/L
2. S = 8.9×10^{-6} moles/L
3. S = 8.0×10^{-2} moles/L
4. K_{sp} = 1.1×10^{-8}
5. K_{sp} = 1.6×10^{-1}
6. S = 2.3×10^{-2} moles/L
7. S = 2.5×10^{-11} moles/L