

$$10 \mu\text{g Ag}^+ \times \frac{1\text{g}}{10^6 \mu\text{g}} \times \frac{1\text{mol}}{107.8\text{g}} = \text{to molarity}$$

$$10 \text{ ppb} = 9.3 \times 10^{-8} \text{ M}$$

$$100 \text{ ppb} = 9.3 \times 10^{-7} \text{ M}$$

1. A concentration of 10-100 ppb (1 $\mu\text{g/L}$) by mass of Ag^+ is an effective disinfectant in swimming pools. Above 100 ppb Ag^+ has negative effects on health. Using K_{sp} values, calculate the equilibrium concentration of silver for the following silver salts. Determine the salt that would be the best choice to use in a pool. Circle your choice and show your work. example a)



a. AgBr

$$7 \times 10^{-7} \text{ M}$$

b. AgCl

$$1 \times 10^{-5} \text{ M}$$

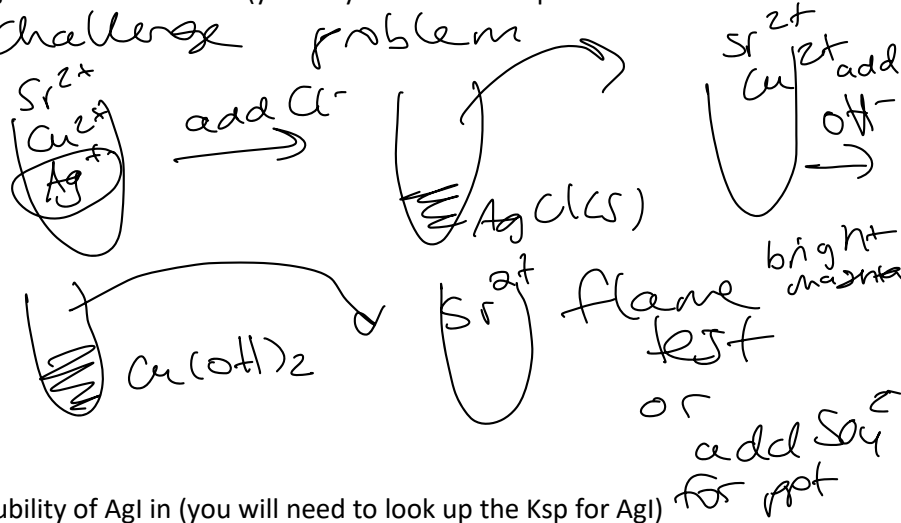
c. AgI

$$9 \times 10^{-9} \text{ M}$$

$$K_{sp} = x^2$$

$$x = \sqrt{K_{sp}}$$

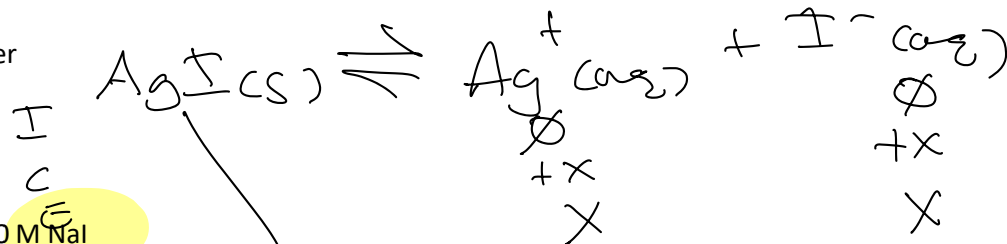
2. Three cations, Sr^{+2} , Cu^{+2} and Ag^+ are separated using two different precipitating reagents. What precipitating reagents could be used? (you may need to use K_{sp} values in addition to solubility rules) challenge problem



3. Calculate the molar solubility of AgI in (you will need to look up the K_{sp} for AgI)

$$K_{sp} = 8.5 \times 10^{-17}$$

a. Water

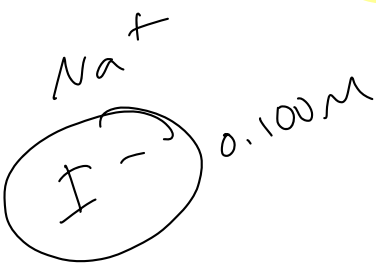
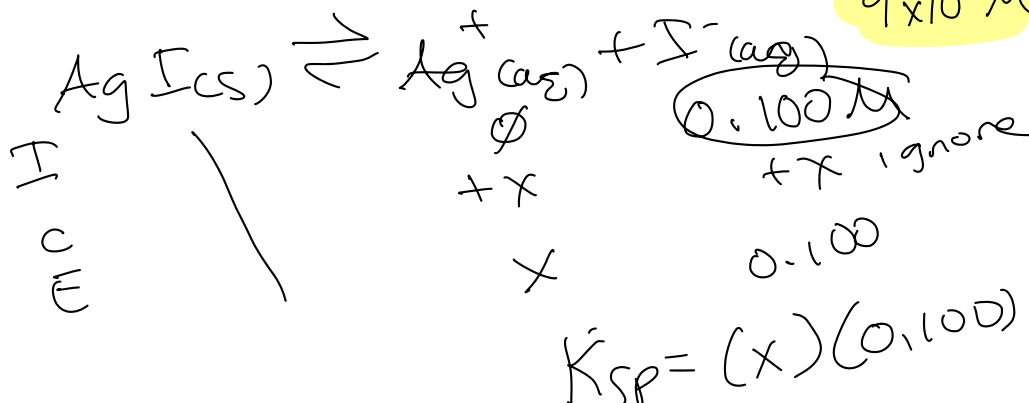


$$K_{sp} = x^2$$

$$x = \sqrt{K_{sp}}$$

$$9 \times 10^{-9} \text{ M}$$

b. 0.100 M NaI



$$x = \frac{8.5 \times 10^{-17}}{0.100}$$

$$x = 8.5 \times 10^{-16}$$