

## Applications of Solubility

- 1.) When 25.0 mL of NaCl solution having an unknown concentration is titrated with 0.100 M AgNO<sub>3</sub>, using chromate ion as an indicator, 36.8 mL of the AgNO<sub>3</sub> solution are required to reach the equivalence point. What is the [Cl<sup>-</sup>]?
- 2.) What volume of 0.988 M Cl solution is required to titrate 25.0 mL of 0.0750 M AgNO<sub>3</sub>, using chromate indicator?
- 3.) A solution of potassium chloride is made by dissolving 3.25 g KCl in water and diluting to 500.0 mL. If 94.8 mL AgNO<sub>3</sub> solution is required to titrate 25.00 mL of the KCl solution, what is the molar concentration of the AgNO<sub>3</sub>?
- 4.) A student is assigned the task of finding the K<sub>sp</sub> value for silver acetate. Several grams of AgCH<sub>3</sub>COO (s) are added to distilled water and stirred overnight. The next day a 50.0 mL sample of the saturated AgCH<sub>3</sub>COO solution is titrated with 30.6 mL of 0.100 M NaCl. What is the value of K<sub>sp</sub> for AgCH<sub>3</sub>COO?

5.) A 4.75 g silver coin was dissolved in nitric acid and the resulting solution diluted to 250 mL. When a 25.0 mL sample of 0.200 M NaCl was titrated with the silver solution, using chromate indicator, 28.8 mL of silver solution was required. What was the percentage purity of the silver in the coin, assuming any impurities present were unreactive?

6.) A 95.6 g sample of chicken from a restaurant was checked for Cl<sup>-</sup> (in the form of NaCl) as follows. The chicken was blended with water and suction filtered. The solution obtained was then diluted to 1.00 L. A 25.0 mL sample of the solution was titrated with 0.200 M AgNO<sub>3</sub> solution, using chromate indicator, and 15.3 mL was found to be needed.

a.) What was the [Cl<sup>-</sup>] in the solution?

b.) How many grams of the NaCl were extracted from the meat?

c.) What was the percentage of NaCl in the original chicken sample?