

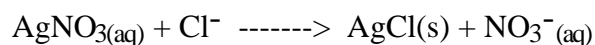
Chemistry 105 - Fundamental Chemistry

Fall Semester 1997 - Titration

1) One method used commercially to peel potatoes is to soak them in a solution of sodium hydroxide for a short time, remove them from the sodium hydroxide, and spray off the peel. The concentration of sodium hydroxide is normally in the range of $3M$ to $6M$. The sodium hydroxide is analyzed periodically. In one such analysis, 45.70mL of $0.500M$ sulfuric acid is required to completely react with a 20.0mL sample of sodium hydroxide solution. a) Write the balanced chemical equation. b) What is the concentration of the sodium hydroxide solution? **$2.28M$**

2) What is the molarity of a sodium hydroxide solution (as above) if 48.0mL is needed to neutralize 35.0mL of a $0.144M$ sulfuric acid solution? **$0.210M$**

3) Municipal water supplies are often chlorinated to kill bacteria and to prevent the spread of disease. The quantity of Cl^- in a water supply is determined by titrating the sample with AgNO_3 according to the equation:



What mass of chloride ion is present in a 10.0g sample of water if 20.2mL of $0.100M$ AgNO_3 are required to react with all the chloride in the sample? **$7.17 \times 10^{-2} \text{ g}$**

4) What mass of chloride ion is present in a sample of water if 15.7mL of $0.108M$ AgNO_3 is required to titrate the sample? **0.0602g**