Name: _____ Date: _____

AP Chemistry 30 – Lab Activity 12: Weak Acid and Strong Base Titration Curves

Learning Objectives

1. Create a titration curve for a strong base and a weak acid.
2. Perform calculations to demonstrate how various points on the curve are determined.

Procedure

1. Download the Weak Acid-Strong Base Titration Tool from the course website on the Advanced Acid Equilibrium page.
2. Use the tool to calculate the pH for a titration with 0.0550 M NaOH as the titrant in the burette and 15.0 mL of 0.140 M hypobromous acid, HBrO ($K_a = 2.1 \times 10^{-9}$) as the analyte in the Erlenmeyer flask. Record the data from no base added up to 50.0 mL of base, with a data point every 5.0 mL.
3. Use Excel to create a graph that shows the pH of the solution as sodium hydroxide is added. Print this graph.

Calculations

1. Show how the pH of the acid is calculated before any base is added.
2. Calculate the pH of the solution at the:
    a. Half equivalence point
    b. Equivalence point
3. Which indicator from the table below is the best option for this titration? Explain why.

Indicator	pH Range of Colour Change
Methyl violet	0 – 1.6
Methyl red	4 – 6
Alizarin yellow	10 – 12