

AP Chemistry 30 – Lab Activity 9: Preparing Buffers

Learning Objective

1. Prepare a solution using appropriate equipment
2. Perform a titration and related calculations using a strong acid and a strong base,

Website

<http://chemcollective.org/vlab/104>

Procedure

You have 1.00 M sodium acetate (NaAc), 1.00 M acetic acid (HAc), distilled water and strong acids and bases. Additionally, you have a variety of glassware.

Buffer 1: Create a buffer solution with a pH of 4.75 such that when 1.00 mL of 10.0 M HCl is added to 100. mL of your buffer, the resulting pH is 3.75 (+/- 0.1). What concentrations of HAc and NaAc do you need to create the buffer solution?

Calculations and Discussion

1. Show all your work to calculate the volume of acid and base needed to create the buffer.
2. Prepare the buffer in the virtual workroom. Take a picture of your buffer when you have the correct pH.
3. Add 1 mL of 10M HCl to your buffer in the virtual workroom. Take a picture of the resulting solution, including the pH.
4. Record the steps for how you prepared your buffer solution and added the strong acid. Include the glassware you used and the correct solution volumes.

Hints:

- Keep a lot of significant digits. (To how many decimal places can you measure the volume on a pipette?)
- Use the correct glassware – which tools are best for measuring?