Making a buffer

Attendance at Pre-lab Meeting

Copies of lab pages attached; labeled with name and date, complete information, readable, data recorded matches results given in report| /5| Waste was properly disposed of and lab area was cleaned

Evaluation of student performance overall (student was on time, followed safety rules, performed the lab correctly and within the time allowed, etc) Total for General Grading Items Data Analysis and Interpretation

Total for Data Analysis and Interpretation

- Data Table Buffer A| Buffer B| Mass of NaC2H3O2 used to prepare buffer (grams)
- Volume of buffer prepared (mL) 100. 0| 100. 0
- Molar concentration of HC2H3O2 in buffer (M) Initial pH of buffer
- Volume of 0. 5 M NaOH to raise pH by 2 units (mL)
- Volume of 0. 5 M HCl to lower pH by 2 units (mL)
- Volume of 0. 5 M NaOH at equivalence point (mL)

Data Analysis

1. Write reaction equations to explain how your acetic acid-acetate buffer reacts with an acid and reacts with a base.
2. Buffer capacity has a rather loose definition, yet it is an important property of buffers. A commonly seen definition of buffer capacity is: “ The amount of H+ or OH– that can be neutralized before the pH changes to a significant degree. ” Use your data to determine the buffer capacity of Buffer A and Buffer B. (Graphically, we can identify buffer capacity by the sudden change to a very steep slope.)

3. Say, for example, that you had prepared a Buffer C, in which you mixed 8. 203 g of sodium acetate, NaC2H3O2, with 100. 0 mL of 1. 0 M acetic acid. a. What would be the initial pH of Buffer C? b. If you add 5. 0 mL of 0. 5 M NaOH solution to 20. 0 mL each of Buffer B and Buffer C, which buffer’s pH would change less? Explain.