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**POST-LAB REPORT #7**

**ACID-BASE TITRATION CURVES – PART I**

*1. Clearly show a calculation of the molarity of NaOH. Use your data, and include units.*

**Trial 1**: mass KHP = **0.4665 g**

Volume of NaOH added at the Equivalence Point = **9.88 mL**

Molarity of NaOH = = = 0.231205 M = **0.231 M**

**Trial 2**: mass KHP = **0.4550 g**

Volume of NaOH at the Equivalence Point = **7.48 mL**

Molarity of NaOH = = = 0.297860 M = **0.298 M**

*2. Clearly show a calculation of the molarity of acetic acid. Use your data, and include units.*

Average molarity of NaOH = = 0.2645 M = **0.265 M**

**Trial 1**: Volume of acetic acid used = **8.50 mL**

Volume of NaOH added at the Equivalence Point = **4.05 mL**

pH at half the Equivalence Point Volume = **4.62**

Molarity of acetic acid = = = **0.126 M**

**Trial 2**: Volume of acetic acid used = **8.50 mL**

Volume of NaOH added at the Equivalence Point = **3.42 mL**

pH at half the Equivalence Point Volume = **4.76**

Molarity of acetic acid = = = **0.107 M**

*3. Clearly show a calculation of the  of acetic acid. Use your exptl. Average p data.*

Average p of acetic acid = Average pH of acetic acid = = **4.69**

= = = 0.0000204174 = **0.000020**

**Chart, line chart

Description automatically generatedGiven the following titration curve, answer questions 4–6. Make sure you clearly label on the graph the volume at the equivalence point, the pH at the equivalence point, the volume where the pH = p, and the value for the p.**

The above titration curve was obtained when a 10.00 mL sample of a 0.50 M base was titrated with an acid.

*4. What is the approximate molarity of the acid (the titrant) used? Show calculation clearly, with units.*

Volume of Titrant at Equivalence point = **40.00 mL**

= Molarity of acid = = = 0.125 M = **0.13 M**

*5. What is the value of the  for the base? Show calculation clearly, with units.*

Ionization equation: + +

Initial pH = **11** Initial pOH = 14 – pH = 14 – 11 = **3**

[] = [] = = **1.0 x M** (1:1 stoichiometry)

= = = **2.0 x**

*6. What is the pH at the equivalence point? Why is the pH not =7.00?****Explain.***

pH at Equivalence point = **6.5**

Since the pH at equivalence point is less than but getting close to 7, the ions from the base ionization equation is slightly more acidic. This gives out a slightly acidic pH of 6.5