

CHEM 1105: IONIZATION CONSTANT OF ACETIC ACID

Name: _____ Date: _____ Section _____

Objective:

Procedure:

As in Kwantlen Chemistry 1105 lab manual, pages _____.

Observations

Data

Table 1. Part A: Standardizing NaOH

	Run 1	Run 2	Run3
Initial Buret Reading			
Final Buret Reading			
Volume added			
End Point Description			
Concentration of NaOH			
Volume of Acetic Acid Pipetted			

Table 2. Part B: Method One

Acetic Acid pH	
Volume of Acetic Acid Pipetted	

Table 3. Part C: Method Two

	Initial volume of NaOH	Final Volume of NaOH	Total Volume of NaOH added	pH
To half neutralization				
To $\frac{3}{4}$ neutralization				
Volume of Acetic Acid Pipetted				

Table 4. Part D: Method Three

Volume of Acetic Acid Pipetted	
Mass of boat +sodium acetate trihydrate (g)	
Mass of Emptied Boat	
Mass of sodium acetate trihydrate	
pH after adding 1 st portion of sodium acetate	
Mass of boat +sodium acetate trihydrate (g)	
Mass of Emptied Boat	
Mass of sodium acetate trihydrate	
pH after adding 2 nd portion of sodium acetate	

Calculations:

PART A:

1) Determine the concentration of the NaOH solution:

PART B:

1) Determine the $[\text{H}_3\text{O}^+]$ from the pH.

2) Determine the K_a for the CH_3COOH

PART C:

1) Determine the $[\text{H}_3\text{O}^+]$ from the pH.

2) Determine the moles of NaOH added

- 3) Determine the moles of acetate ions formed

- 4) Determine the concentration of acetate ions formed.

- 5) Determine the moles of CH_3COOH left over.

- 6) Determine the concentration of CH_3COOH left over.

- 7) Using the above data, calculate K_a for the weak acid.

PART D:

- 1) Determine the $[\text{H}_3\text{O}^+]$ from the pH.

2) Determine the moles of sodium acetate trihydrate present in the solution.

3) Determine the concentration of acetate ions present in the solution.

4) Using the above data and the $[\text{CH}_3\text{COOH}]$ provided, calculate the K_a for the weak acid.

Results Summary

Method	pH	$[\text{H}_3\text{O}^+]$	$[\text{CH}_3\text{COOH}]$	$[\text{CH}_3\text{COO}^-]$	K_a
One					
Two	Run 1				
	Run 2				
Three	Run 1				
	Run 2				
Average K_a					

Discussion

Write a short discussion discussing your results for what to include in your discussion see your lab manual.

Conclusion:

Questions

Answer any assigned questions.