

CHEM 2115 Titrations Lab Report Experiment #7-2 Chem I Lab

Name _____ Section# _____ Station# _____ Date _____

Be sure to include the necessary units for the values reported in the tables below. Attach sample calculations of each type necessary to obtain the results in the above table. These should include the equations used, substituted values, appropriate units, and results.

Part II: Vinegar Analysis

	Trial 1	Trial 2	Trial 3
Mass of graduated cylinder and vinegar			
Mass of graduated cylinder after transfer			
Mass of vinegar sample			
Buret Reading (final)			
Buret Reading (initial)			
Volume of NaOH used			
Molarity of NaOH (average from Part I)			
Moles of NaOH titrated			
Moles of acetic acid (HC₂H₃O₂) in sample			
Mass of acetic acid in sample			
Mass percent of acetic acid in sample			

Average Mass Percent Acetic Acid in Vinegar	
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Question 1: Explain how the reported percent of CH₃COOH in the vinegar sample would be affected if a drop of standardized NaOH solution sticks to the side of the Erlenmeyer flask and is not washed down into the vinegar with the wash bottle.

Part III: Antacid Analysis

Antacid used _____

	Trial 1	Trial 2	Trial 3
Mass of antacid (crushed tablet)			
Volume of HCl added			
Concentration of HCl used			
Mole of HCl added			
Buret Reading (final)			
Buret Reading (initial)			
Volume of NaOH used			
Molarity of NaOH (average from Part I)			
Moles of NaOH titrated (to neutralize leftover HCl)			
Mole of HCl (to react with antacid)			
Equivalent moles of base in antacid			
Equivalent moles bases per gram antacid			

Average equivalent moles base per gram antacid	mol/g
Cost of antacid per gram (Circle the appropriate value)	<i>Rolaids = \$0.0221/g</i> <i>Tums = \$0.0569/g</i>
Antacid cost (\$) per equivalent mole of base	\$/mol

Question 2: If the endpoint in the antacid titration is missed and too much NaOH is used, will the reported amount of antacid in the sample be too high or too low? Explain.

Class data for this experiment can be downloaded from a Blackboard file in which each student will have entered the molarity of their NaOH solution and data on their two antacid trials. Tests were done on 2 different brands of antacids. The goal of this part of the report is to use Excel to find the equivalent moles of base / g tablet for each measurement made in the class, and then to determine the average value for both antacid samples. **Directions for the calculations are given in the lab manual.**

Class average results and antacid evaluation: Submit the results of your calculations of the class average values for *equivalent mol base / g antacid* and *cost / g antacid* for each of the antacids by filling in the table below. In addition, note any data points that were discarded in the averaging of the antacid data and justification for excluding them.

	Tums	Roloids
Equivalent mole base/g antacid		
Antacid cost/equivalent mol base		

Compare the two antacids: Which has more neutralizing power per gram (that is, which contains more equivalent base per gram)? Which is a better buy (lower cost per mole of base)?

Relative Error Analysis:

Compare your results for the antacid to the class values by calculating the relative error.

Antacid used _____ Relative error _____

Comment on your relative errors. Are your values high or low, relative to the class averages? Are your values within 1% or 5% or 10% of the class values? Are they more than 10% from the class averages?