#20 Analysis of acetic acid

Three parts to this experiment.

Read notes on web site explaining how to use a pipet and buret ***before*** coming to lab.

Do each titration 3 times. First time is usually a rough estimate, use the 2nd and 3rd titration results to get average.

Omit Q2

Part A. Preparation of NaOH solution

You have to prepare about 400 mL of a NaOH solution of approx 0.1M

Note that the volume and molarity are only approximate; you will determine the accurate molarity in Part B

Part B. Determine accurate NaOH molarity

H_2SO_4 + 2 NaOH 6 products
1 mole 2mole

use: $M_A V_A = \frac{1}{2} M_B V_B$

M_A is given on the bottle of sulfuric acid
V_A = 10.00 mL
M_B is what you you are trying to find (Q1)
V_B is buret volume of base you use

Do titration 3 times. First time is usually a rough estimate, use the 2nd and 3rd titration results to get average.

Part C. Analysis of vinegar

$HC_2H_3O_4$ + NaOH 6 products
1 mole 1mole

use: $M_AV_A = M_BV_B$

M_A is unknown
V_A = 5.00 mL
M_B molarity of NaOH from Part B (Q3)
V_B is buret volume of base you use

Do titration 3 times. First time is usually a rough estimate, use the 2nd and 3rd titration results to get average.

Part C. Analysis of vinegar

Q4. Find moles of acetic acid in 100 mL vinegar

(Remember, in Q3 you just found molarity which is moles in 1000 mL vinegar)

Q5. Find mass of acetic acid in 100 mL vinegar

(Remember moles = mass ÷ Form. Wt)

Part C. Analysis of vinegar

Q6. Find % (by mass) of acetic acid in 100 mL vinegar

Remember

[mass per 100 mL] x 100 is %)

Experimental tips

Phenolphthalein is the indicator; it turns pink in base

When using pipet bulbs not ***NOT*** suck soultion into the bulbs, this may contaminant the solution (and bulbs)

When using the buret:
fill with funnel;
make sure tap fits firmly;
fill carefully,
read to 0.01 mL;
1 drop of base from buret should cause permanent pink color change. Then record buret reading.