

Acid - Base Titration Grading KEY

Scribble -5%

not in ink -5%

Significant Figures for Reading (**R**) -5% (**once only**)

Significant Figures for Calculation (**C**) -5% (**once only**)

Answer for NaOH not to 0.1xxx M (or 0.09xxx) or vinegar not to .xxx M -5%

Missing answers for 1) thru 5) -2.5% each

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1) In a titration using NaOH and HCl, 0.0550 mol of NaOH was used . . .

ANS **0.0550** mol

2) What would be the concentration, i.e. the molarity - M, of a solution consisting of 0.5250 mol of NaOH in 5.000L of solution?

ANS **0.1050** M

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3) How many moles of HCl are there in 25.0mL of 0.1015 M HCl solution?

ANS **0.00254** mol

4) Calculate the volume of a 0.1025 M NaOH solution required to neutralize 25.0mL of a solution of HCl which is 0.1500 M .

ANS **36.6** mL

5) Calculate the molarity of a solution of NaOH if 35.75mL of this solution is required to titrate 45.75mL of a 0.1212M HCl solution.

ANS **0.1551** M

6) Each small mark on the buret indicates how many milliliters (mL) of volume:

ANS **0.1** mL

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- 7) Given the answer to question 6) . . .
To the closest 0.01 mL

Exercise using the buret.

Half . . .

- 8) What is the reading? xx.xx mL (R)
9) Drain a few mL . . .
xx.xx mL (R)

Refill . . .

Buret Cylinder

- Initial Reading x.xx mL (R)
Final Reading 1x.xx or 9.xx mL (R)
Volume drained 1x.xx or 9.xx mL (C)

In the above exercise, . . . May not be present if above is OK **DO NOT MARK INCORRECT IF NOT PRESENT!**

Exercise using the pipet:

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What do you need to use to determine the end-point of these titrations?

an (acid-base) indicator

Ask your instructor the specific name of the above which is appropriate for these titrations.

The name of this material is: phenolphthalein

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Data Sheet:

For standardization:

For NaOH:

Initial burett reading **x.xx mL (R)**

Final burett reading **xx.xx mL (R)**

volume of NaOH used **xx.xx mL (C)**

For HCl:mL **25.00 mL(R)**

Molarity of NaOH **0.1xxx M** or **0.09xxx M (C)**
see also current standardization

For fall 20_____ this is: _____ M

For vinegar titration:

Volume of vinegar used: **5.00 mL**

For NaOH:

Initial burett reading **x.xx mL (R)**

Final burett reading **xx.xx mL (R)**

volume of NaOH used **xx.xx mL (C)**

Check Point - Do not . . . Instructor's OK _____

Carry out your plan and fill in your data sheet.

Convert your answer above to % acetic acid in vinegar.

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Fall 1997 analysis at Harriman: (See worksheet abkey.wks)

HCl concentration - 0.1025 M HCl

Fall 20____ Harriman

Standard NaOH concentration: _____ M

			Points OFF	
1%	_____M	< C <	_____M	0%
2%	_____M	< C <	_____M	-5%
3%	_____M	< C <	_____M	-10%
4%	_____M	< C <	_____M	-15%
4%	_____M	> C, C >	_____M	-20%

Determination of Vinegar:

Concentration: _____M

			Points OFF	
20%	_____M	< C <	_____M	0%
40%	_____M	< C <	_____M	-5%
60%	_____M	< C <	_____M	-10%
60%	_____M	>C, C >	_____M	-15%