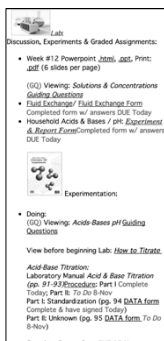


Chem 108: Lab Week 12



Chem 108: Class/ Lab Week 12

- 1) Fluid Exchange
(Handout) *Due Today*
- 2) Acid-Base Equilibrium Experiment
(Handout) *Due Today*
- 3) Any missing assignments
Due Today

Chem 108: Lab Week 12

Name: _____
Section: _____

To Do & DUE Today

Report Form - Acid Base Titration

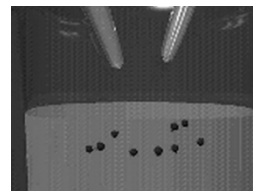
Part 1-Standardization of NaOH Solution

Molarity of HCl used	1	2	3	4	5	6
Titration						
Base buret, final reading (mL)						
Base buret, initial reading (mL)						
Volume of base used (mL)*						
Molarity of NaOH (M)*						
Average molarity of NaOH*					M	

Show the calculations for each of the entries in the Data Table marked with * on the calculations page for one titration.

Have signed before leaving lab.

Neutralization Reactions

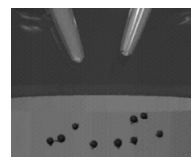


Neutralizations / Titrations



Chem 108 titration: phenolphthalein indicator
Chem 120/121 Titration Curves

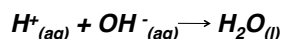
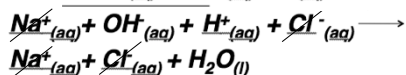
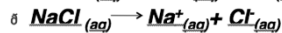
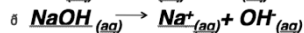
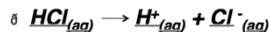
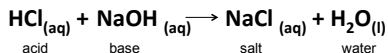
Neutralization Reactions



Would there be a difference in the reaction of acetic acid versus HCl?

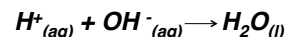
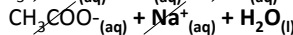
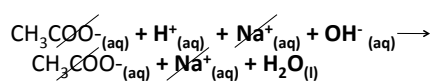
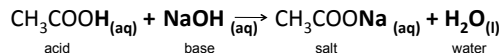
Aqueous Reactions: Neutralization

Net Ionic Equations

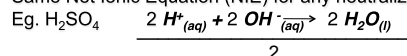


Aqueous Reactions: Neutralization

Net Ionic Equations

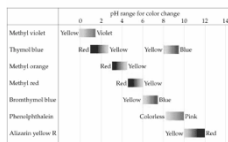
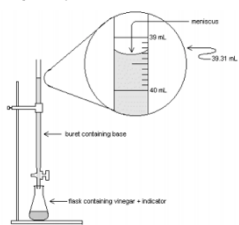


Same Net Ionic Equation (NIE) for any neutralization



Acid-Base Titration

<https://www.youtube.com/watch?v=9D8S2LsNE>



Part 1: Standardization (in pairs)

Equipment

From the stockroom:
 plastic 1 L bottle
 50 mL buret
 buret clamp
 25 mL vol. pipet and bulb

From the common drawer:
 ring stand

From your drawer:
 funnel
 125 mL flask
 250 mL flask
 2 beakers (one for waste)
 wash bottle

Chem 108: Lab
Week 12

Name: _____

Section: _____

To Do (with a partner)

Report Form - Acid Base Titration

Part 1 - Standardization of NaOH Solution

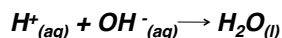
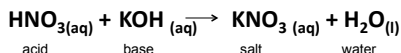
Molarity of HCl used	1	2	3	4	5	6
Titration						
Base buret, final reading (mL)						
Base buret, initial reading (mL)						
Volume of base used (mL)*						
Molarity of NaOH (M)*						
Average molarity of NaOH*					M	

Show the calculations for each of the entries in the Data Table marked with * on the calculations page for one titration.

Have signed before leaving lab.

Aqueous Reactions: Neutralization

Net Ionic Equations

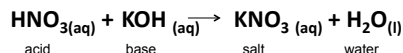


25.00 mL of $M_{\text{HCl}} = 0.2160 \text{ M}$ nitric acid solution was titrated with a potassium hydroxide solution. It required 24.20 mL as an average of three trials to reach a faint pink color.

$M_{\text{KOH}} = ?$

Aqueous Reactions: Neutralization

Net Ionic Equations



25.00 mL of $M_{\text{HCl}} = 0.2160 \text{ M}$ nitric acid solution was titrated with a potassium hydroxide solution. It required 24.20 mL as an average of three trials to reach a faint pink color.

$$?M_{\text{KOH}} = [M_{\text{HNO}_3} \times V_{\text{HNO}_3} / V_{\text{KOH}}] [? \text{ mol}_{\text{KOH}} / ? \text{ mol}_{\text{HNO}_3}]$$

$$= \frac{0.2160 \text{ mol}_{\text{HNO}_3} \times 0.02500 \text{ L}_{\text{HNO}_3} \times 1 \text{ mol}_{\text{KOH}}}{\text{L}_{\text{HNO}_3} \times 0.02420 \text{ L}_{\text{KOH}} \times 1 \text{ mol}_{\text{HNO}_3}} = 0.2231 \text{ M}_{\text{KOH}}$$

QUESTION

A 35.00 mL sample of 0.2250 M HBr was titrated with 42.30 mL of KOH. What is the concentration of the KOH?

- A. 0.0930 M
- B. 0.3030 M
- C. 0.2720 M
- D. 0.1860 M
- E. 0.3720 M

QUESTION

A 35.00 mL sample of 0.2250 M H_2SO_4 was titrated with 42.30 mL of KOH. What is the concentration of the KOH?

- A. 0.0930 M
- B. 0.3030 M
- C. 0.2720 M
- D. 0.1860 M
- E. 0.3720 M

Chem 108: Lab

Part 2: Week 13

To Do next week (individually)

Part 2--Determination of Unknown Acid

Unknown code						
Average Molarity of Base from Part 1				M		
Titration	1	2	3	4	5	6
Base buret, final reading (mL)						
Base buret, initial reading (mL)						
Volume of base used (mL)*						
Molarity of unknown acid (M)*						
Average molarity of unknown (M)*				M		

Show the calculations for each of the entries in the Data Table marked with * on the calculations page for one titration.