

lab partner-

discussion-

K_D of Acetic Acid

purpose- The equilibrium constant, K_D, will be determined using titrations.

materials- DI water, acetic acid, NaOH, octanol, separation funnel, burette, erlenmeyer flask, phe

exp experiment #: 1 and 2

procedure for experiment 1-

titrant - NaOH

indicator - phenolphthalein

- coat burette with 0.10M NaOH solution
- refill burette and don't let it run empty

experiments - control 1 + 2, experiments 1 and 2

procedure for experiment continues
on pg. 16-18

etc.

observations/data-raw data-experiment 1 - control 1 -

starting volume of NaOH - 0.00mL

final volume of NaOH - 16.11mL

*re-trial on next page of control 1 turned very bright pink
 too much was added

experiment 2 - control 2 -

starting volume of NaOH - 16.11mL

final volume of NaOH - 32.53mL

final volume of NaOH - 16.42mL

This is the final volume *this is the volume used in titration* very lightpink

experiment 1

starting volume of NaOH - 12.80mL

volume of NaOH - 23.55mL

final volume of NaOH - 10.75mL

✓

starting volume of NaOH - 23.55mL

volume of NaOH - 29.56mL

final volume of NaOH - 6.01mL

pink was a little bit
dark

experiment 2 -

starting volume of NaOH - 8.98mL

volume of NaOH - 17.05mL

✓

final volume of NaOH - 8.07mL

turned bright pink
in ~2 drops

25mL of water
25mL of octanol

water octanol

25mL of water
50mL of octanol
Water

observations/data cont-experiment 2-

Octanol

starting volume of NaOH	- 17.05 mL
volume of NaOH	- 25.40 mL
final volume of NaOH	- 8.35 mL

re-do of control 1-

starting volume of NaOH - 25.40 mL
 volume of NaOH - 42.00 mL
 final volume of NaOH - 16.6 mL

results• K_D 25 mL of H_2O + 25 mL octanol - 0.5625 mL of H_2O + 50 mL of octanol - 0.53

✓ show your calculation!

class results25 mL of H_2O + 25 mL octanol

1. 0.499

2. 0.56

3. 0.501

4. 0.49

5. 0.522

6. 0.645

50 mL of H_2O + 25 mL of octanol

1. 0.50

2. 0.487

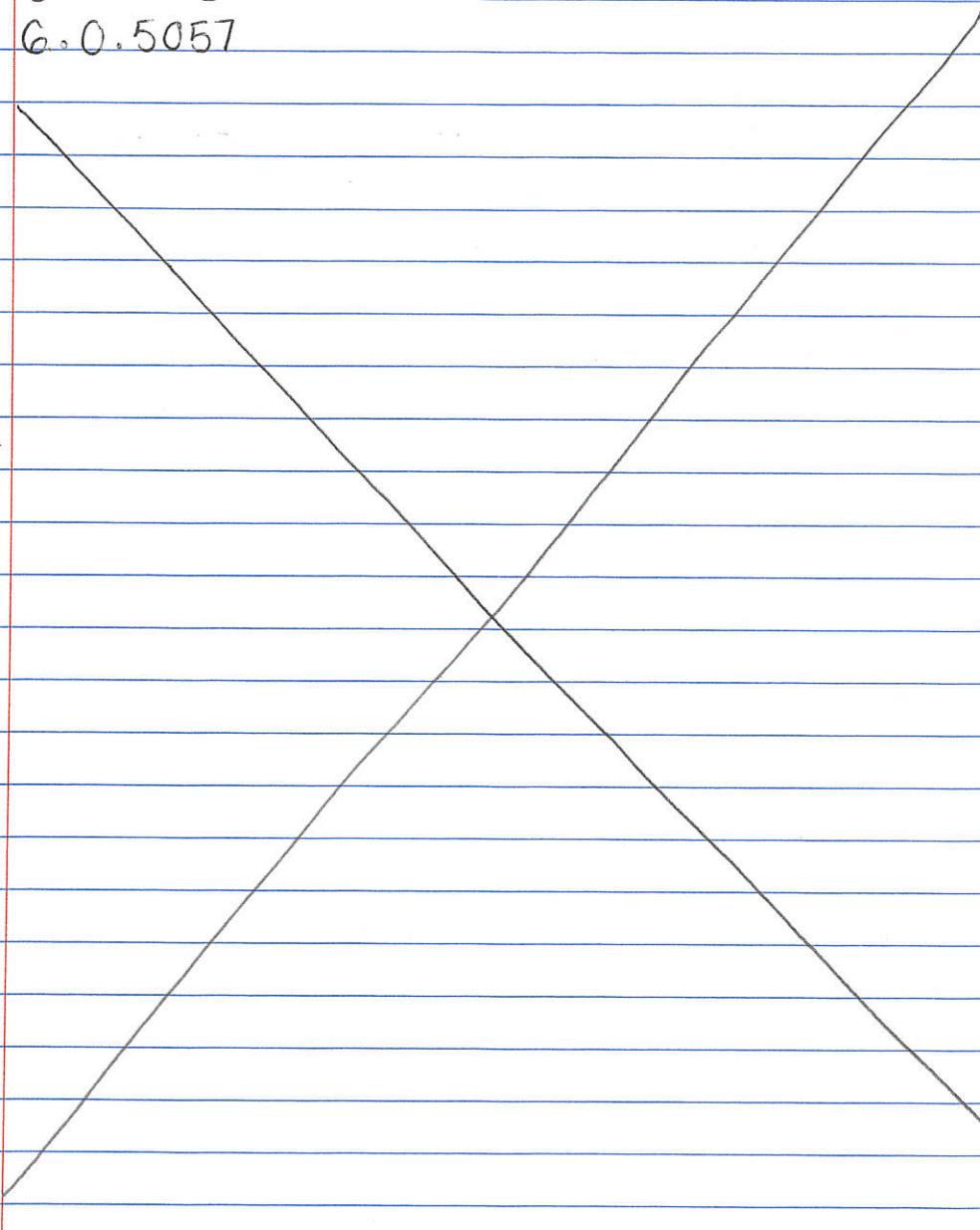
3. 0.577

25mL of H₂O + 50mL of octanol

4.0.53

5.0.526

6.0.5057



procedure for experiment-

*Control 1

- put 25mL of water into a 250mL Erlenmeyer flask
- micropipette 2.00mL of white vinegar
- add stir bar
- add ~2 drops of indicator ← stir at 500rpm
- record starting volume on burette
- titrate to a light pink endpoint
- record and determine volume

*Control 2

- put 25mL of octanol into a 250mL Erlenmeyer flask
- micropipette 2.00mL of white vinegar
- add 10mL of water
- add 2 of indicator
- stir at 500 rpm
- record starting volume
- titrate to a light pink endpoint
- record and determine final volume

procedure for experiment-

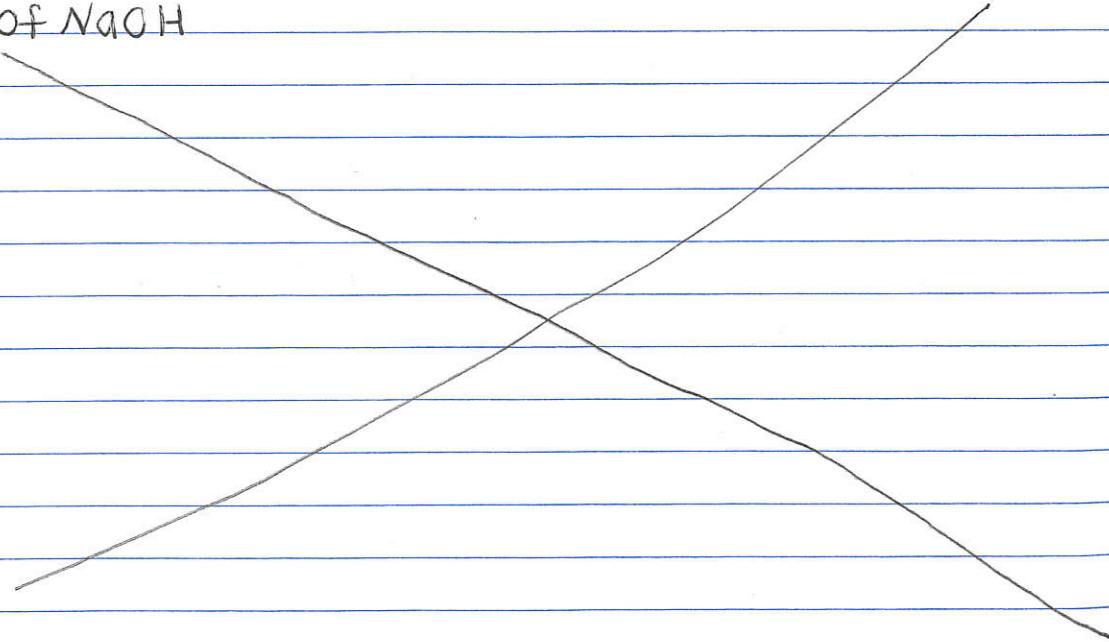
*Experiment 1 (K_p with 25mL water and 25mL octanol)

- add 25mL of water, 25mL of octanol, and 2.00mL of white vinegar to a separatory funnel
- shake for 1 min
- allow it to settle
- let only bottom layer (water) flow into an Erlenmeyer flask
- add stir bar to flask
- add ~2 drops of indicator
- stir at 500 rpm
- record starting volume
- titrate with ~.1M NaOH to a light pink endpoint
- record and determine volume of NaOH to get endpoint
- drain octanol (top) layer into an Erlenmeyer flask
- rinse with 2510mL of DI water and add to Erlenmeyer flask
- add stir bar
- add ~2 drops of indicator
- stir at 500 rpm
- record starting volume
- titrate till light pink endpoint
- record and determine final volume of NaOH

procedure for experiment-

*Experiment 2 (K_D with 25mL water and 50mL octanol)

- add 25mL of water, 50mL of octanol, and 2mL of white vinegar to a separatory funnel
- shake for 1min
- put funnel in ringstand and let it settle
- let bottom layer flow into an Erlenmeyer flask
- add a stir bar
- add ~2 drops of phenolphthalein
- titrate till light pink record starting volume
- record and determine final volume of NaOH



discussion-