**ACID AND BASE TITRATION**

**Prelab questions:**

1. What is a titration?
2. What is a burette?
3. What is phenolphthalein?
4. What is a neutralization reaction?
5. Making the acid needed for lab (part1)

* For this lab you will need 10mL of 0.5M HCl. You will be making your 0.5M HCl from 6M HCl. Use the calculation we learned in class to calculate **how much 6M HCl you will need.**

1. Calculation for Prediction of Unknown Base Volume (part2)

* Now that you have your 0.5M HCl, you **need to calculate the unknown volume of the 0.3M NaOH.**  Do this by using the molarity calculation, but this time for an ACID and a BASE. (not acid to acid)

**Purpose:** Use molarity calculations to correctly carry out an acid base titration.

**Hypothesis:** Use proficiency scale to write your hypothesis.

**Materials:**

* 0.5M HCl (hydrochloric acid)
* 6M HCl (hydrochloric acid)
* .3 M NaOH (Sodium Hydroxide)
* Phenolphthalein
* Ring Stand
* Burette
* Funnel
* 125 or 150mL Erlenmeyer Flask
* Pipette
* 10mL graduated cylinder
* Waste Beaker

**Part One Making .5M HCl**

1. Measure out the calculated amount of 6M HCl using the 10mL graduated cylinder.

2. Using distilled water fill 10mL graduated cylinder to the 10 mL mark to make your new 0.5MHCl solution.

3. Add your new 0.5M HCl solution to Erlenmeyer flask and add 2 drops of Phenolphthalein

**Part 2: Doing the Titration**

1. Make sure your burette is clean and in working order. Rinse Burette with distilled water.
2. **Rinse burette** with 2mL of 0.3M NaOH**. Discard waste into waste beaker.**
3. Fill burette to the zero mark with 0.3 M NaOH.
4. Record your initial volume of burette.
5. Add the base drop wise until solution turns pink. \*\* Reminder you have calculated the amount of NaOH it should take to neutralize the 0.5M HCl, make sure to slow down when you are getting close to that number.
6. Record your final amount of 0.3M NaOH used.
7. **Once it has turned pink. Use a pH strip to test the pH.**
8. If neutral you have saltwater. If it is still an acid continue to add base until it is pink. If it to basic add the buffer to make in neutral.
9. Put the extra base in the Base Waste Container
10. Pour neutralized acid solution down the drain.
11. Rinse everything with water

**Trial 2 and 3**

1. Repeat Part 1: Making the Acid

2. Part 2: Doing the Titration

1. Record your initial volume of burette.
2. Add the base drop wise until solution turns pink. \*\* Reminder you have calculated the amount of NaOH it should take to neutralize the 0.5M HCl, make sure to slow down when you are getting close to that number.
3. Record your final amount of 0.3M NaOH used.
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5. If neutral you have saltwater. If it is still an acid continue to add base until it is pink. If it to basic add the buffer to make in neutral.
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7. Pour neutralized acid solution down the drain.
8. Rinse everything with water

**Observations**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Trial 1 | Trial 2 | Trial 3 |
| Initial Volume on Burette |  |  |  |
| Volume on Burette  when saw my first  color change |  |  |  |
| Final Volume on Burette |  |  |  |
| Total amount used  (Final – Initial= Total) |  |  |  |
| How close was to calculated  (calculated-total) |  |  |  |

**Post Lab Questions:**

1. Were your procedures accurate to your calculations? Why or why not?
2. Did you have saltwater at the end of your titration? Why or why not?
3. Was this a good titration or not how can you tell?

**Conclusion:** **In your conclusion you need to answer the following in a paragraph form (1/2 page):**

* **Re-State your hypothesis.**
* **State whether your hypothesis was correct or incorrect and WHY.**
* **State what you might do different next time you do this lab**
* **State what you learned and how it relates to the topics being discussed in class.**