

Experiment: pH Titration Curve

Purpose:

To titrate a strong acid, HCl, with a strong base, NaOH, and graph the resulting pH changes. To study the indicator phenolphthalein in relationship to the equivalence point.

Procedure

1. Fill the base buret (blue) with **NaOH** up to the 0 mL mark.
2. Fill the acid buret (red) with **HCl** up to the 0 mL mark.
3. Put about 50mL of water in a 400-mL beaker.
4. Use your buret to measure out 10.0 ml of acid into the 400-mL beaker.
5. Add 2-3 drops of phenolphthalein indicator to the beaker and stir gently. Insert the pH meter.

Hold the pH meter at all times.

Be careful not to touch the tip of the pH meter with your hands or jar the delicate end.

Record the pH reading after it stabilizes.

6. Add 0.50 mL of the base NaOH to the beaker.
Stir the solution carefully. Be careful not to touch the tip of the pH meter with the rod.
Record the total volume of NaOH and the pH in the data table.

- Continue adding base in 0.50 mL increments to a total of 6.5 mL of NaOH. Reduce the volume of base added to 0.20 mL increments until the pH is above 10.

Make a notation on the data table when the color of the solution is a light pink (lasting about 10 seconds).

Continue adding base in 0.50 mL increments until the pH is above 12.

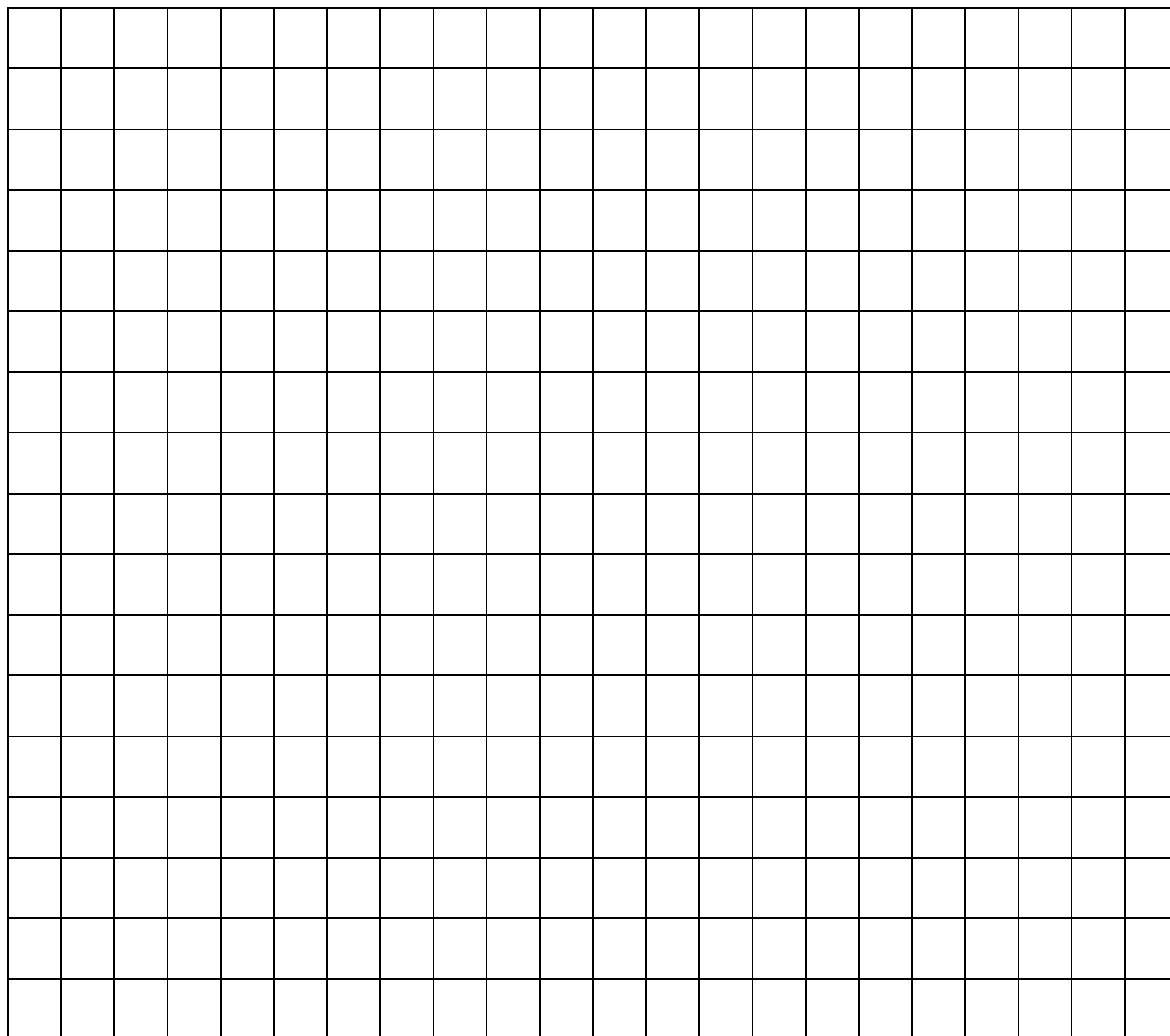
Data Table

Volume of HCl **ml**

[illegible]

Processing the Data:

1. Graph the data putting pH on the y-axis and Volume of NaOH in mL on the x-axis.
Each pH and mL pair is a point on the graph. Draw a smooth curve.



2. What was the total volume of NaOH used to reach the equivalence point? _____
3. What was the total volume of NaOH used when the solution turned faint pink? _____
4. Phenolphthalein is often used to determine the equivalence point when a pH meter is not available. Is this a good choice? Why or why not?