

pH of Strong & Weak Acids

Aim: To compare the pH of strong and weak acids of the same concentration.

Equipment:

- Citric Acid powder ($C_6H_8O_7$)
- 0.1M Hydrochloric acid solution (HCl)
- Measuring cylinder
- pH probe
- Spoon
- 2 beakers

Method:

1. Calculate the molar mass of citric acid.
2. Determine the mass of citric acid needed to make a 0.1M solution of citric acid.
3. Make the 0.1M solution of citric acid.
4. Pour approximately 25ml of citric acid and hydrochloric acid into two separate beakers.
5. Use the pH probe to record the pH of each solution. Compare the results.

Results: Firstly, the 0.1M citric acid solution was calculated and made (see Calculations)

Substance	pH
Citric Acid	2.1
Hydrochloric Acid	1.1

Calculations:

Molar Mass of Citric Acid: 192.12532 grams

\ 0.1 moles of Citric Acid: 19.212532 grams

Converting this figure from per litre to 25ml:

Mass of Citric Acid powder needed to make 25ml of 0.1M Citric Acid solution = 0.4803 grams

Conclusion: The pH was lower for the strong acid while the weak acid registered a higher pH.