

Titration of a strong acid against a strong base using an indicator

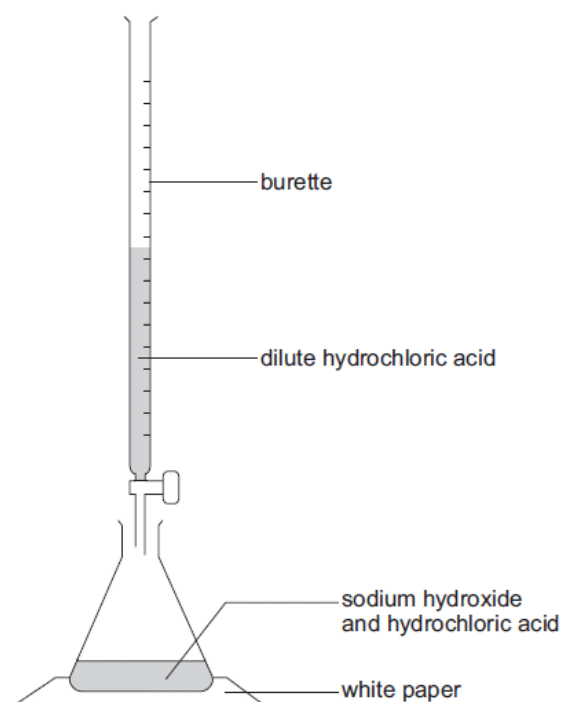
Introduction

In this experiment sodium hydroxide is neutralised with hydrochloric acid to produce the soluble salt, sodium chloride in solution. An indicator is used to show when neutralisation has occurred. The solution could then be concentrated and crystallised to produce sodium chloride crystals.

Apparatus

burette
 measuring cylinder
 100 cm³ conical flask
 small filter funnel
 white paper
 dilute sodium hydroxide
 dilute hydrochloric acid
 indicator
 clamp stand, boss and clamp or burette stand

Diagram of Apparatus



Method

1. Use the small funnel to fill the burette with acid. Run a little acid out into a waste beaker to fill the part of the burette that is below the tap. Record the starting volume of acid in the burette.
2. Accurately measure 25 cm^3 of sodium hydroxide solution into a conical flask.
3. Add 2 drops of indicator.
4. Add 0.1 cm^3 of acid at a time, swirl the flask after each acid addition. Keep adding acid until the indicator changes colour. Record the final volume of acid in the burette.
5. Repeat steps 1-4 twice more.

Analysis

1. Calculate the volume of acid that was needed to neutralise the alkali in each repeat.
2. Calculate the mean volume of dilute hydrochloric acid needed to neutralise 25 cm^3 sodium hydroxide solution.
3. What do your results tell you about the concentration of the alkali?