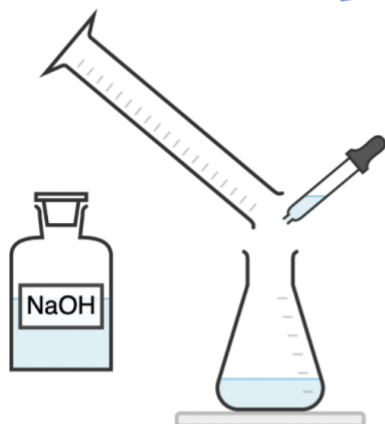


Integrated Instructions

START

Aim: To use a colour-changing indicator to find the reacting volumes of solutions of a strong acid and alkali

1. Add 25 cm³ of sodium hydroxide solution to the conical flask using the measuring cylinder.



2. Add 5 drops of phenolphthalein indicator to the 0.1 M sodium hydroxide in the conical flask. Gently swirl the flask and the contents will turn pink.



3. Place the conical flask on a white tile.

4. Use the second measuring cylinder to add 40 cm³ of 'unknown' hydrochloric acid solution to the conical flask.



5. Use the 1 ml pipette to add more hydrochloric acid to the conical flask, 1 ml at a time. Eventually, one of these drips will cause the colour a colour change from pink to clear. At this point, ensure no more hydrochloric acid is added.



6. Record the total volume of hydrochloric acid required to neutralise the solution on your table.

7. Repeat the experiment two more times and complete your table. Calculate the mean volume of hydrochloric acid needed to neutralise 25 cm³ of 0.1 mol/dm³ sodium hydroxide.

END