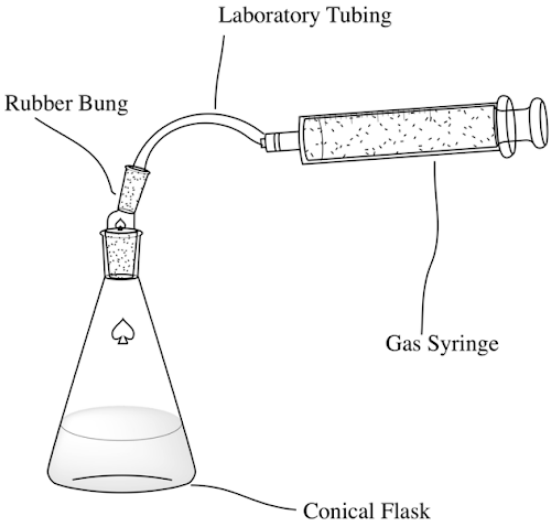
OCR (A) Chemistry A-level

PAG 9: Rates of Reaction - Continuous Monitoring Method

9.1 Rate of Reaction between Magnesium and Hydrochloric Acid



Method

1. Assemble the apparatus as shown in the picture above, with guidance from your teacher.
2. Add 50 cm^3 of HCl to the conical flask, then add a 6 cm strip of magnesium to the conical flask. Immediately insert the bung and start the timer.
3. Record the volume of gas at 15 second time intervals for 2.5 minutes.
4. Repeat for different concentrations of HCl as advised by your teacher.

Analysis

1. For each HCl concentration: Plot a graph of time (sec) on the X-axis against volume of H_2 gas produced (cm^3) on Y-axis.
2. Draw a line of best fit for your time-points on graph.
3. Draw a tangent at time = 0 s. Use the gradient to find the initial rate for each concentration of HCl.

Errors

Some gas may have escaped before putting the bung on.

Safety tips

- Hydrochloric acid - causes severe skin burns and eye damage; toxic if inhaled.
- Hydrogen gas – flammable.

Method modified from AQA A Level Chemistry, Practical Handbook