

THEORY

The theory of the present experiment is based on the fact that the rate of reaction between a metal and an acid is directly proportional to the surface area of the metal. In this experiment, the rate of reaction between magnesium metal and hydrochloric acid is studied. The reaction is as follows:

$$\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$$

The rate of reaction is measured by the volume of hydrogen gas evolved over a fixed period of time. The rate of reaction is expected to increase with the surface area of the magnesium metal used.

AIM

To study the effect of surface area on the rate of reaction between magnesium metal and hydrochloric acid.

To determine the rate of reaction between magnesium metal and hydrochloric acid.

To determine the order of reaction with respect to the concentration of hydrochloric acid.

To determine the order of reaction with respect to the surface area of magnesium metal.

To determine the rate constant of the reaction between magnesium metal and hydrochloric acid.

To determine the activation energy of the reaction between magnesium metal and hydrochloric acid.

To determine the rate of reaction between magnesium metal and hydrochloric acid at different temperatures.

To determine the rate of reaction between magnesium metal and hydrochloric acid at different pressures.

To determine the rate of reaction between magnesium metal and hydrochloric acid at different catalysts.

To determine the rate of reaction between magnesium metal and hydrochloric acid at different concentrations of magnesium metal.

To determine the rate of reaction between magnesium metal and hydrochloric acid at different concentrations of hydrochloric acid.

To determine the rate of reaction between magnesium metal and hydrochloric acid at different concentrations of magnesium chloride.

To determine the rate of reaction between magnesium metal and hydrochloric acid at different concentrations of hydrogen gas.

To determine the rate of reaction between magnesium metal and hydrochloric acid at different concentrations of water.

To determine the rate of reaction between magnesium metal and hydrochloric acid at different concentrations of sodium chloride.

EXPERIMENT

