

### 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 zinc and hydrochloric acid is studied. The reaction is as follows:

$$\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$$

The rate of reaction is measured by the volume of hydrogen gas evolved in a given time. The rate of reaction is found to be directly proportional to the surface area of the metal. This is because a larger surface area provides more sites for the reaction to occur, leading to a faster rate of reaction.

### AIM

To study the effect of surface area of zinc on the rate of reaction with hydrochloric acid.

### APPARATUS

- Conical flask
- Delivery tube
- Gas jar
- Stop watch
- Measuring cylinder
- Beaker
- Thermometer
- Hydrochloric acid
- Zinc metal

### PROCEDURE



The rate of reaction is measured by the volume of hydrogen gas evolved in a given time. The rate of reaction is found to be directly proportional to the surface area of the metal. This is because a larger surface area provides more sites for the reaction to occur, leading to a faster rate of reaction.