

Planning an Investigation to find Rate of Reaction

Worksheet

Combined Science - Chemistry - Key Stage 4

The Rate and Extent of Chemical Change

Dr Deng



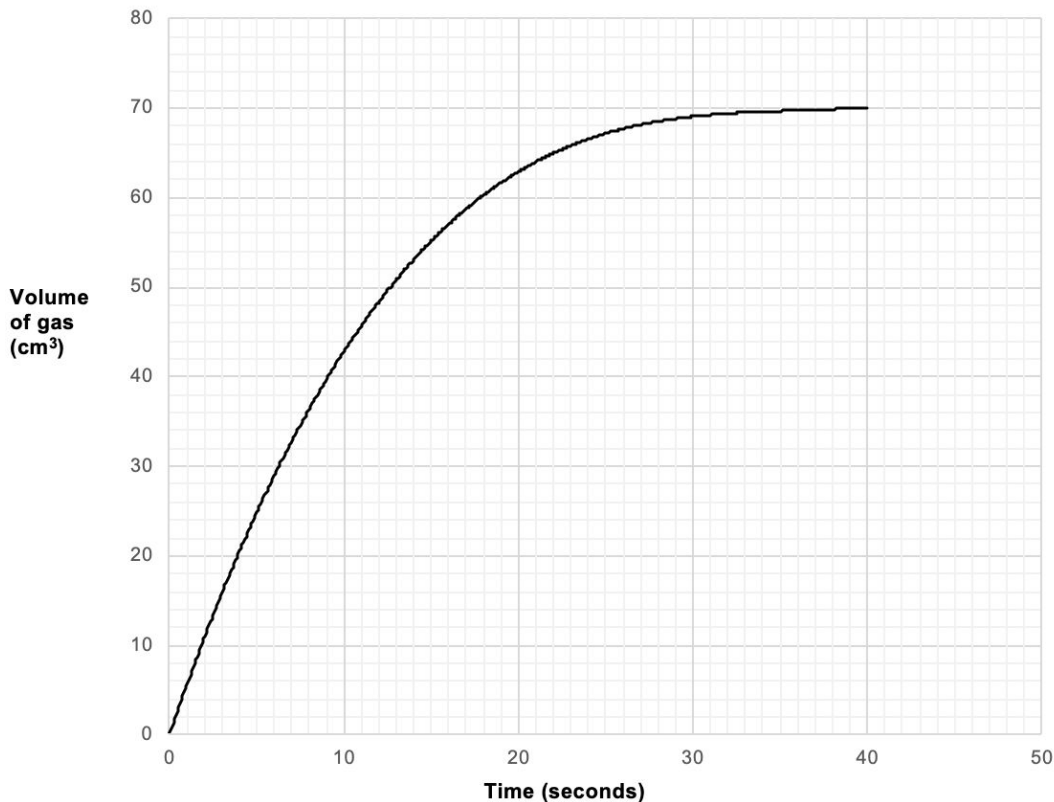
Independent practice

A student investigated the reaction between magnesium and hydrochloric acid to produce magnesium chloride salt and hydrogen gas.

The graph shows the results plotted by the student.

Describe and **Explain** what is happening to rate of reaction:

- a) In the first 10 seconds
- b) Between 15 and 25 seconds
- c) Between 35 and 40 seconds



Rate of reaction graph, E Deng



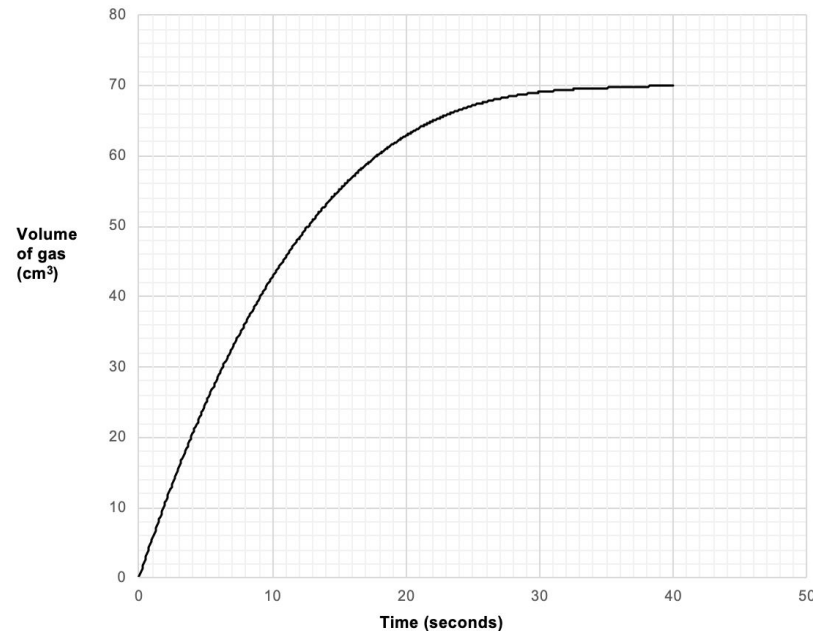
Independent practice answer

Describe and **Explain** what is happening to rate of reaction:

a) In the first 10 seconds

Describe: Rate of reaction increased quickly as the gradient of the graph is very steep. The volume of gas produced increased from 0 to 42 cm³.

Explain: Reaction took place quickly as more reacting magnesium is present in the conical flask with hydrochloric acid, therefore particles collide more frequently.



Rate of reaction graph, E Deng



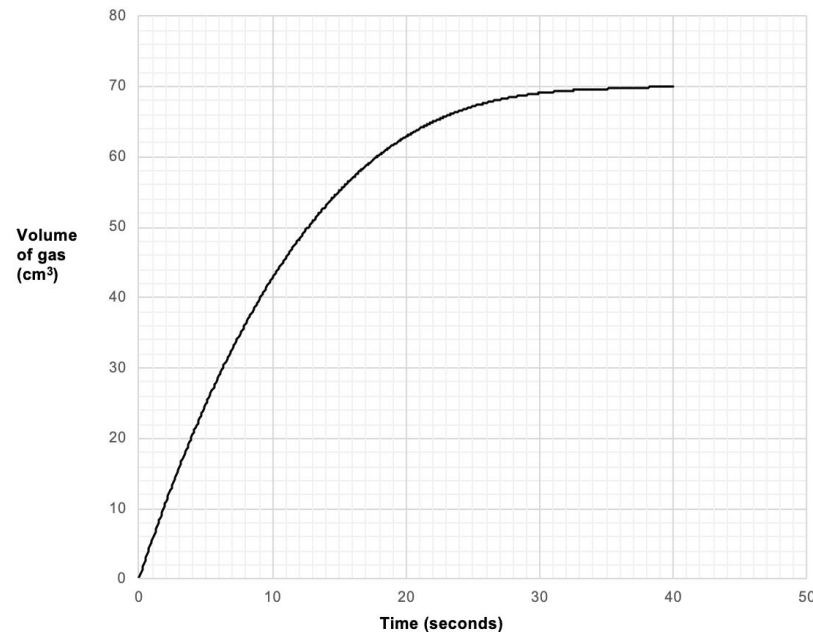
Independent practice answer

Describe and **Explain** what is happening to rate of reaction:

a) Between 15 and 25 seconds

Describe: Rate of reaction started to slow down as the gradient of the graph became less steep. The volume of gas produced increased from 54 to 67 cm³.

Explain: The reaction started to slow down as little magnesium is left in the conical flask reacting with with hydrochloric acid, therefore particles collide less frequently.



Rate of reaction graph, E Deng



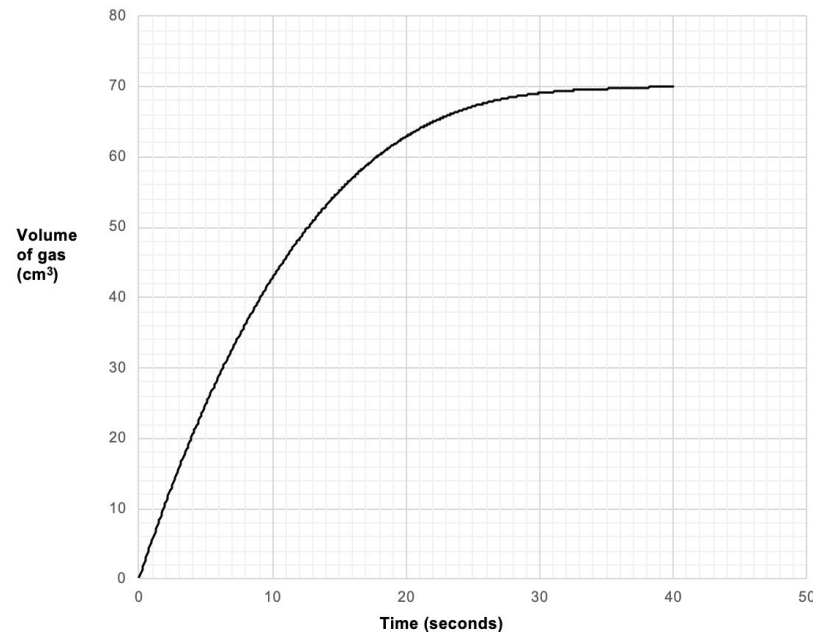
Independent practice answer

Describe and **Explain** what is happening to rate of reaction:

a) Between 35 and 40 seconds

Describe: Reaction has stopped as the graph flattens. No gas has been produced.

Explain: Reaction has stopped because all the magnesium has reacted with hydrochloric acid. No hydrogen gas is released.



Rate of reaction graph, E Deng

