

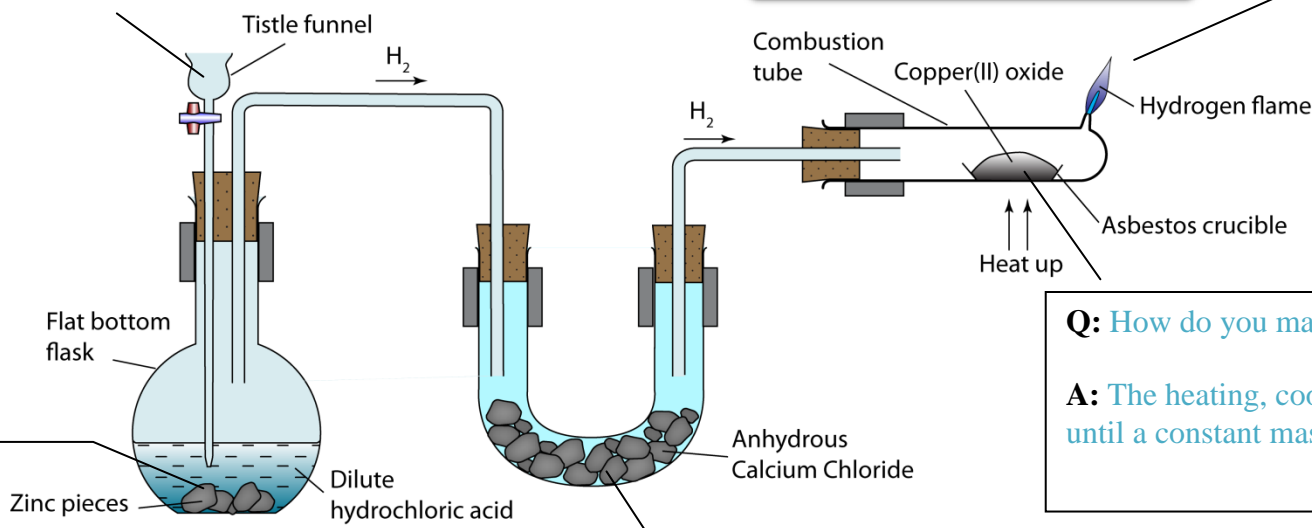


Chemical Formulae and Equations 4

Finding Empirical Formula – Experiment 1

Q: What is the function of the thistle funnel?

A: To add more dilute HCl acid into the flask.



Q: Why the hydrogen gas is combusted?

A: To ensure continuous flow of hydrogen gas and hence prevent the air outside from diffusing into the combustion tube.

Q: Why the combustion tube need to be slanted slightly towards the hydrogen flame?

A: To prevent water from flowing towards the hot crucible and cracks the combustion tube.

Q: How do you make sure that the copper(II) oxide has completely reacted?

A: The heating, cooling and weighing processes are repeated several times until a constant mass is obtained.



Q: Why zinc pieces but not zinc powder is used?

A: So that the reaction does not occur too fast and the release of hydrogen can last for longer time.

Q: What is the function of anhydrous calcium chloride?

A: To absorb water vapour in hydrogen gas

Q: Name another substance that can be used to replace anhydrous calcium chloride.

A: Concentrated sulphuric acid

Observation

The copper(II) oxide will glow during the reaction. The black copper(II) oxide will turn brown after the reaction complete.

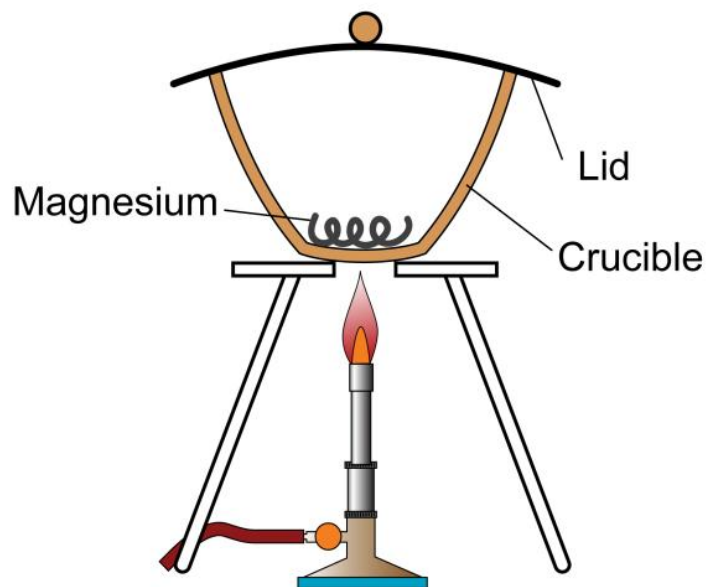
Precaution steps

1. Before the hydrogen gas is ignited, it must be allowed to flow through the apparatus for a few minutes to eliminate all the air in the apparatus.
2. The flow of hydrogen gas need to be continued during the cooling process to prevent hot copper reacts with the oxygen from the air.



Chemical Formulae and Equations 4

Finding Empirical Formula – Experiment 2



Q: Why the crucible needs to be closed with the lid when the magnesium is heated?

A: To prevent the magnesium oxide (the white smoke) from being released into the surrounding.

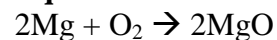
Q: Why the lid needs to be open once in a while during the heating?

A: To allow oxygen gas from the air to move into the crucible to react with magnesium.

Observation:

The magnesium tape burn vigorously and produced white smoke. The grey colour magnesium tape turn into white powder after the reaction

Equation:



Precaution step:

The magnesium tape is cleaned with sand paper to remove the layer of magnesium oxide on the surface.