

NEATH PORT TALBOT COLLEGE COLEG CASTELL NEDD PORT TALBOT

School of Maths & Science Science Practical

Finding the formula of Magnesium Oxide

◆ Aim

At the end of the experiment you should be able to;

1. Accurately measure the weight of Magnesium using weighing by difference
2. Form Magnesium Oxide by reacting Magnesium with Oxygen
3. Calculate the number of moles of Magnesium and Oxygen involved in the reaction.
4. Determine the molecular formula of Magnesium Oxide.

◆ Introduction

When magnesium is heated in air, it reacts with oxygen. During this **oxidation** reaction, magnesium oxide is produced. This increases the mass. If we know the mass of magnesium at the start, and the mass of magnesium oxide produced at the end, we can work out the mass of oxygen which has been combined with the magnesium. We can use these masses to work out the formula of magnesium oxide.

◆ Safety



Control Measures

- The wearing of safety glasses, gloves and a laboratory coat at all times will be sufficient to take account of most hazards and significant risks.
- Keep stoppers on bottles as much as is possible
- Keep flammable liquids away from flames
- All waste is to be placed in the labelled container immediately after use.
- You are reminded of the need of good laboratory practise in order to maintain a safe working environment.

Hazards

Irritant

Magnesium Ribbon

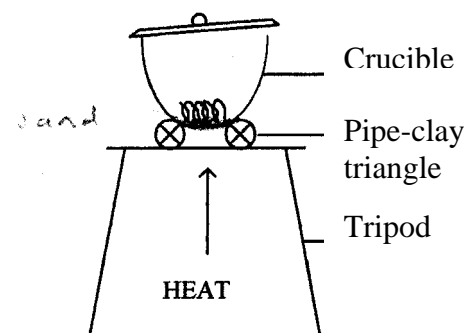


◆ Procedure

1. Weigh the empty crucible with its lid, and write down the result in a table.
2. Clean the piece of magnesium ribbon with sandpaper, then coil it loosely around a pencil. Put the magnesium ribbon into the crucible and put the lid on. Weigh the crucible, lid, and magnesium together, and write down the result in your table.
3. Put the crucible onto the pipe-clay triangle. Leave the lid slightly ajar to allow air into the crucible. Heat gently for a minute, then strongly. Continue heating until the reaction has finished (the magnesium will glow at first, then look a bit like a furry grey-black caterpillar — it really will!)
4. Turn the Bunsen burner off, and allow the crucible to cool for a few minutes. Reweigh the crucible with its lid and contents, and write down the result in your table.

◆ Results

Objects	Mass(g)
crucible + lid	
crucible + lid + magnesium	
crucible + lid + contents after reaction	



◆ Conclusions

1. Work out the mass of magnesium used in the experiment.
2. Work out the mass of magnesium oxide formed.
3. Use your answers to (1) and (2) to work out the mass of oxygen gained.
4. Look up the $A_r(\text{Mg})$ and $A_r(\text{O})$. Use these numbers, and the masses worked out in parts (1) and (3), to work out the number of moles of magnesium and oxygen involved.
5. Finally, work out your formula for magnesium oxide. You will probably find that the formula has a complicated number in it — round it off to 1 decimal place.
6. The accepted formula is MgO . How close did you get?
Explain why your formula might be different from the accepted one.

