

Title: Measuring the Stoichiometry of Magnesium Oxide

Equipment Needed:

Crucibles and lids

- Crucibles to be used once and discarded, i.e. one per student

- Save Lids

ceramic triangles

(Ringstands - Rings - B Burners or propane torches)

Large size stirring rods

tongs

Chemicals Needed:

Mg ribbon preferred - 0.25 g sample for each student. (~30 cm - check this)

Special Precautions:

Warn the students about possible errors they might make. Errors observed include:

Not letting the balances settle during zeroing

Not reading the balances to nearest 0.001g

Not crushing the material up after the first firing before adding water

Not heating the damp MgO to a red heat for long enough to decompose the hydroxide

Spillage

Adding the water after the first firing before the sample has cooled enough

Not firing long enough for the first firing.

Suggested Instructions:

Explain the importance of reading the balances to the nearest 0.001g

Suggest using the tongs to lift the lid during the first firing to see if the sample is still flaring up.

Explain the reason for the crushing of the sample and the addition of the water.

Explain the reason for the pre-fire

It is OK for them to handle the crucible with clean hands when taking them to the balance. This has two advantages - It can not be too hot for weighing and they are not as likely to drop the crucibles. A single fingerprint weighs about 0.01mg and is therefore insignificant.