

Practical 3 – Chapter 5

Enthalpy change of formation of magnesium oxide

The aim of this experiment is to determine the enthalpy change of formation of magnesium oxide. This is an enthalpy change that cannot easily be measured directly. The enthalpy changes for two separate reactions will be measured and then you will need the enthalpy change for a third reaction, which can be looked up.

Safety

- You must wear eye protection at all times when carrying out this practical.

What to do

Reaction 1

- 1 Using a measuring cylinder, measure out 100 cm^3 of 1.00 mol dm^{-3} hydrochloric acid into a polystyrene cup.
- 2 Weigh out 0.50 g of magnesium turnings.
- 3 Measure the initial temperature of the acid.
- 4 Add the magnesium to the acid, stir rapidly and measure the maximum temperature reached.

Reaction 2

- 1 Using a measuring cylinder, measure out 100 cm^3 of 1.00 mol dm^{-3} hydrochloric acid into a polystyrene cup.
- 2 Weigh out 0.50 g of magnesium oxide.
- 3 Measure the initial temperature of the acid.
- 4 Add the magnesium oxide to the acid, stir rapidly and measure the maximum temperature reached.