



The Thermit Reaction

In a recent accident a teacher's hand was severely burned when a thermit reaction went off prematurely. The experiment had only a short length of magnesium ribbon as fuse, and matches were being used to light it. Unfortunately, a lighted match dropped on to the top layer (magnesium powder and barium peroxide) and the reaction started suddenly.

It is important to realise that the purpose of magnesium ribbon is not because of any difficulty in igniting the mixture, but to allow the teacher to retire to a safe distance (2 to 3 metres) behind tall safety screens. The experiment can be carried out in safety if a long piece of magnesium ribbon is used - say 15 cm. The free end of this can be snipped into a fringe to facilitate ignition, and should be positioned well clear of the edge of the crucible, with a minimum overhang of 5 cm. (see diagram).

As an alternative to the Battersea crucible*, the reaction may be carried out in a glass beaker (say 400 cm³ capacity) filled with dry kaolin (china clay). The thermit mixture is placed in a cavity in the centre of the kaolin, made by inserting and then removing the boiling tube.

* A small terracotta plant pot may also be used in place of the now unavailable Battersea crucible.

