

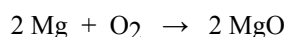
THE MAGNESIUM FIRE STARTER

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INTRODUCTION

The magnesium fire starter, available in camping supply stores, is a novel application of a chemical element for camping or wilderness survival. The device consists of a block of magnesium measuring 7.5 cm x 2.5 cm x 0.9 cm with a circular rod of flint embedded in one side. In camping applications, a knife is used to scrape magnesium shavings from the block. The shavings are collected into a pile next to, or on top of some paper, dry leaves, small twigs, or other flammable material. The block is turned with the flint sparking insert facing the pile of magnesium shavings and the knife is rapidly scraped down the flint rod. The sparks produced will ignite the magnesium shavings which burn with a bright white flame in turn igniting the materials placed near it. The equation for the burning magnesium is



The heat of combustion of magnesium is 24.7 kJ/g (*I*).

MATERIALS NEEDED:

Magnesium fire starter¹
knife
flame-proof board

SAFETY PRECAUTIONS:

Wear safety goggles or glasses.
Keep the magnesium block away from active burning fires.

DISPOSAL:

Magnesium oxide produced in this experiment can be disposed of in the trash.

PROCEDURE:

Place the magnesium over a flame proof board. Using the knife, shave pieces off the narrow side. Accumulate the magnesium shavings into a small pile. Turn the magnesium block so that the flint rod insert is within 2.5 cm of the pile of magnesium shavings. Scrape the knife blade down the flint rod producing sparks that will ignites the magnesium.

LITERATURE CITED:

(*I*) Conkling, J. A., *Chemistry of Pyrotechnics*, Dekker, New York, 1985, p. 68.

FOOTNOTES:

¹Magnesium fire starters are marketed by Coghlan's Ltd., Winnipeg, Canada, and by Safesport Manufacturing Co., Denver, Colorado. They can be found in the camping supply departments of many stores.