

**ABSTRACT:**

Oxidation behaviour of AZ91D was investigated by heating the alloy granules in a ceramic mould between 650 and 800 °C, for 30 and 60 min. The granules failed to melt in unprotected environment even when the temperature was increased to 800 °C. Raising the temperature increased the oxides thickness linearly, however, oxidation enhanced beyond 750 °C with severe mould–metal reaction and selective oxidation. Heating duration showed more pronounced effect on oxide formation compared to heating temperature. MgO was found to be the dominant compound in oxidation products. Aluminium participated during severe oxidation or combustion to some extent whilst no zinc oxide was detected.