

Experimental study on the phase formation of Mg_xB_2 ($x=0.8, 1.0, 1.2$).

ABSTRACT

Phase formation of Magnesium diboride Mg_xB_2 ($x=0.8, 1.0, 1.2$) by in situ reaction of Magnesium (Mg) and Boron (B) at different annealing temperature by varying the nominal Mg composition was compared. The X-ray diffraction pattern indicates that Magnesium Oxide (MgO) is the major secondary phase. Some unreacted Mg was found for nominally stoichiometric and Mg excess samples annealed at or below 750°C . However, no unreacted Mg was detected by XRD for Mg deficient samples. Scanning Electron microscopy images show the porous nature of synthesised samples.

Keyword: Magnesium diboride; Phase formation; Porous.