

Influence of Ag addition on Superconducting Property of Carbon-doped MgB₂ Superconductor

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In this work, either MgB₂ or Mg (B_{1-x}C_x)₂ superconductor were synthesized. By solid-state reactions occurring during heat treatments at 900 °C after high energy milling of pure Mg and B with up to 5 wt% Ag powder addition. The effects of Ag addition were correlated with the superconducting properties. The critical temperature (T_c) was reduced with Ag addition. The critical current density (J_c) was also decreased as Ag was added to MgB₂ superconductors. XRD patterns indicated that the reaction compound of Mg-Ag was increased as amount of Ag increased. The J_c reduction of MgB₂ superconductor with Ag addition may be caused by the reaction compound of Mg-Ag.

Keywords: MgB₂, Mg-Ag, Critical current density