

Abstract—We successfully prepared superconducting powders of magnesium diboride doped with carbon nanotubes by the method of combustion synthesis under high Ar pressure. Powders of magnesium, boron, and multi-walled carbon nanotubes (MWCNT) were used as starting materials. X-ray diffraction analysis showed the presence of MgB₂ and MgO in combustion products. The temperature dependence of magnetization showed a sharp superconducting transition at around 38.5 K. The critical current density can be estimated from the hysteresis of magnetization curve by using the Bean's formula. MgB₂ doped with MWCNT (1%) showed the best value of high critical current density, 1.4×10^8 A/cm² at 5 K, in zero magnetic fields.