

Fabrication of BSCCO Superconductors for Current Lead Application

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$\text{Bi}_2\text{Sr}_2\text{Ca}_1\text{Cu}_2\text{O}_x$ (BSCCO-2212) superconductors for fault current lead were fabricated by centrifugal melting process (CMP). BSCCO-2212 powder was melted at 1200 °C in a resistance furnace using a Pt crucible and poured in a rotating cylindrical molds of various sizes preheated at 550 °C for 2 hour. The solidified BSCCO-2212 samples were heat-treated by partial melting process in oxygen atmosphere. The current-voltage curves at 77K of the samples were obtained by transport measurement, and the microstructure was investigated by scanning electron microscope.

It was found that the critical current (I_c) of the BSCCO-2212 samples was dependent on the heating schedule regarding the grain growth of the BSCCO-2212 plates and the formation of the second phase.

Keywords: BSCCO 2212, Centrifugal Melting Process, Critical current