

## Fabrication of Cu-Sheathed YBCO Thick Films by using Screen Printing Method with Y211 and BaCO<sub>3</sub> Powders

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We fabricated YBCO thick films by using screen printing method with Y211 and BaCO<sub>3</sub> powders on Cu-substrate in N<sub>2</sub> atmosphere. Cu-sheathed YBCO thick film process is more simple and economic than YBCO coated conductor methods. The heat treatment is performed in the range of 860 – 875°C for 5min in the tube furnace of N<sub>2</sub> atmosphere. The flow rate of N<sub>2</sub> gas is fixed 60 ml/min. Microstructure and phases of thick films were investigated by optical microscope, X-ray diffraction(XRD) and SEM. At heat-treatment temperature, the thick films were in a partially molten state by liquid reaction between CuO of oxidized copper sheath and the powders which were printed on Cu-sheath. During the heat-treatment procedure, YBCO superconducting particles nucleate and grow in preferred orientations.

Keywords : partial melting, Cu-sheath, screen printing, N<sub>2</sub> gas