YBCO Coated Conductors on the IBAD-MgO Template Fabricated by the TFA-MOD Process

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YBCO coated conductors were prepared on the IBAD-MgO template by the metal-organic deposition using trifluoroacetates (TFA) as precursor. In this work, unlike a conventional TFA-MOD process, we applied a modified TFA-MOD process in which TFA-based solutions were prepared dissolving YBCO powder into triflouroacetic acid. The effects of processing parameter on the superconducting property of YBCO films were investigated by high resolution X-ray diffraction (HR-XRD), field emission scanning electron microscopy (FE-SEM), and dc four probes transport method. Optimal processing condition resulted in YBCO coated conductors possessing high critical current density (Jc) exceeding 1 MA/cm^2 at 77K in a self-field. The Jc values of YBCO coated conductors were found sensitive to the microstructure and in-plane texture. In this paper, we present the relationship among processing parameter, microstructure, texture, and superconducting property of YBCO coated conductors.

Keywords : YBCO coated conductor, TFA-MOD, critical current density

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