

Fabrication of YBCO Films in MOD Processing Via Chemically Modified Precursor Solution

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Superconducting YBCO films were successfully fabricated by MOD process using chemically modified precursor solution. In this study, a chemically modified precursor solution for MOD processing was synthesized using metal-organic salts and organic additives. It was shown that crack-free and uniform precursor films were formed after calcination in humidified Oxygen atmosphere. Less than 3 hours are required to finish the calcination process. XRD measurement shows that BaF₂, CuO, Y₂O₃ are major constituent of precursor films. Furthermore, YBCO films without any secondary phases were successfully fabricated after annealing in wet Ar/O₂ atmosphere. The YBCO film prepared on a LaAlO₃ single crystal substrate (10mmx10mm) gives transport I_c of 9A at 77K. This chemical modification approach is a possible candidate for improving MOD-processing of YBCO coated conductor.

keywords : MOD, YBCO, coated conductor

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