

Slot-die Coating & Calcination Step of YBCO Precursor Films in Metal Organic Deposition Method

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Slot-die coating & calcination step using fluorine-free Y & CU precursor solution doped with Sm formed the YBCO precursor films on the buffered metal tape. To obtain the smooth and crack-free surface of YBCO precursor films, the parameters of slot-die coating and the heating profile of calcination step must be optimized. Among the parameter of slot-die coating process, the viscosities of the precursor solution was controlled from 60cP to 200cP to obtain the thicker films from one single coating. About 2.5 μ m thick YBCO precursor films are recognized with the viscosity of about 200cP. The moving speed of buffered metal tape was varied from 1m/h to 30m/h according to the full coverage of the width of tape. The slot-die coated films are heated up to 400 $^{\circ}$ c in humid oxygen atmosphere in continuous reel-to-reel method. The YBCO precursor films was identified with Y₂O₃, BaF₂, and CuO phase by XRD and consisted of fine grains of xx nm size observed by FE-SEM. The YBCO films show the critical current density over MA/cm² using the precursor films formed by slot-die coating & calcination step.

Keywords : MOD, YBCO, coated conductor

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