Fabrication of BSCCO Tube by Melting Centrifugal Process

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BSCCO 2212 tubes for fault current limiter (FCL) were fabricated by centrifugal melting process. The BSCCO 2212 powders were synthesized by calcining Bi_2O_3, $SrCO_3$, $CaCO_3$ and CuO powders. $SrSO_4$ (10 wt %) was added to BSCCO 2212 powder to lower the melting point of BSCCO 2212 and improve the mechanical properties. The steel mold preheated at 500℃~700℃ in a box furnace was placed in rotating device and rotated at 850~2800 RPM. BSCCO 2212 pellets of 100~150g were put in a Pt crucible and melted by resistance heating. The BSCCO 2212 melt was put in the rotating mold and cooled down to room temperature. The BSCCO 2212 tube solidified in a mold was easily separated from the mold due to the difference of thermal coefficient between BSCCO 2212 and the mold. BSCCO 2212 tube was often cracked when the cooling rate was high. The processing condition for BSCCO 2212 tube fabrication was studied using XRD and SEM analyses.

keywords : BSCCO 2212, melting centrifugal process, FCL

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