

Influence of the SrSO₄ Addition on BSCCO-2212 Bulk Superconductors

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We fabricated BSCCO-2212 (2212) rod by melt casting process (MCP) and evaluated the effect of the strontium sulfates (SrSO₄) addition on the texture, microstructure, critical current and temperature, and mechanical properties of BSCCO-2212. It was observed that the addition of SrSO₄ improved the critical current (I_c) and mechanical properties of the 2212. The I_c of 2212 increased as the SrSO₄ content increased and reached peak value (260 A at 77 K) at the content of 6 wt.%. On the other hand, XRD analysis showed that SrSO₄ chemically compatible with 2212, and thus SrSO₄ addition did not affect the critical temperature of the 2212. In addition, the addition of SrSO₄ had a beneficial effect on the mechanical hardness and strength of 2212.

keywords: BSCCO-2212, melt casting process, microstructure, strontium sulfates, texture

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