E1-06

A MICROSTRUCTURAL STUDY OF A Y-Ba-Cu-O CERAMIC SUPERCONDUCTOR PREPARED BY THE TAPE CASTING PROCESS

B.S.B. Karunaratne
Dept. of Physics, University of Peradeniya.

Scanning electron microscopy and high resolution transmission electron microscopy have been performed on a Y-Ba-Cu-O ceramic superconductor

prepared by the tape casting method or the doctor blade process (1). The microstructure of the sintered tape showed somewhat higher porosity and a smaller grain size in the range of 4-10 μm compared to the bulk - sintered samples. However, the subsequent heat-treatment in an oxygen atmosphere resulted in a reduction of porosity of the tapes. The tapes were about 100 μm of thick and showed the onset of superconducting transition near 90 K.

References:

1. Williams, J.C., (1976) Treatise on Materials Science and Technology, Vol.,9, Ceramic Fabrication Processes. edited by F.F.Y. Wang, New York, Academic Press, p.173.