

ABSTRAK

PENGARUH VARIASI WAKTU SINTERING TERHADAP TINGKAT KEMURNIAN FASE SUPERKONDUKTOR BSCCO-2212 PADA SUHU SINTERING 835°C MENGGUNAKAN METODE PENCAMPURAN BASAH

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Penelitian ini dilakukan untuk mengetahui pengaruh variasi waktu sintering terhadap pertumbuhan fase superkonduktor BSCCO-2212 dengan menghitung tingkat kemurnian fase yang terbentuk dan melihat struktur mikronya. Variasi waktu sintering yang dilakukan adalah 10, 20, 30, dan 40 jam dengan disinterring pada suhu 835°C. Sampel hasil sintesis dikarakterisasi menggunakan *X-Ray Diffraction* (XRD) dan *Scanning Electron Microscopy* (SEM). Hasil XRD menunjukkan bahwa semakin lama waktu sintering yang dilakukan, semakin menurun tingkat kemurnian fase yang dihasilkan. Fraksi volume tertinggi didapatkan sebesar 83,90% pada sampel BSCCO-2212/ts10. Sedangkan fraksi volume terendah sebesar 77,71% pada sampel BSCCO-2212/ts40. Sementara, derajat orientasi tertinggi sebesar 20,46% pada sampel BSCCO-2212/ts20. Derajat orientasi terendah sebesar 9,54% pada sampel BSCCO-2212/ts40. Hasil karakterisasi SEM menunjukkan sudah terorientasi serta memiliki ruang kosong (*void*) yang sedikit.

Kata kunci: superkonduktor BSCCO-2212, waktu sintering, dan derajat orientasi

ABSTRACT

VARIATION OF SINTERING TIME ON PURITY LEVEL OF BSCCO-2212 SUPERCONDUCTOR PHASE AT SINTERING TEMPERATURE 835°C USING WET MIXING METHOD

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This research was conducted to determine the effect of variations in sintering time on the growth of the BSCCO-2212 superconducting phase by observing the level of purity of the formed phase and looking at its microstructure. Variations in sintering time were 10, 20, 30, and 40 hours with sintering at a temperature of 835°C. The synthesized samples were characterized using X-Ray Diffraction (XRD) and Scanning Electron Microscopy (SEM). XRD results show that the longer the sintering time is carried out, the lower the level of purity produced. The highest volume fraction was obtained at 83.90% in the sample BSCCO-2212/ts10. While the lowest volume fraction was 77.71% in the sample BSCCO-2212/ts40. Meanwhile, the highest orientation degree was 20.46% in the BSCCO-2212/ts20 sample. The lowest degree of orientation was 9.54% in the sample BSCCO-2212/ts40. The results of the SEM characterization show that it is oriented and has little empty space

Keywords: *Superconductors BSCCO-2212, sintering time, volume fraction, and degree of orientateo*