

## ABSTRAK

### PENGARUH VARIASI KADAR DOPING Pb TERHADAP TINGKAT KEMURNIAN FASE SUPERKONDUKTOR BPSCCO-2212 PADA SUHU SINTERING 835°C MENGGUNAKAN METODE PENCAMPURAN BASAH

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Penelitian ini dilakukan untuk mengetahui pengaruh kadar doping Pb terhadap kemurnian fase (fraksi volume, derajat orientasi, impuritas) dan struktur mikro. Variasi doping Pb yang dilakukan yaitu sebesar 0; 0,2; 0,4 dan 0,6 mol menggunakan metode pencampuran basah. Sampel dikalsinasi pada suhu 800°C selama 10 jam dan disintering pada suhu 835°C selama 20 jam. Sampel dikarakterisasi menggunakan *X-Ray Diffraction* (XRD) dan *Scanning Electron Microscopy* (SEM). Hasil karakterisasi XRD menunjukkan nilai fraksi volume mengalami kenaikan pada sampel BPSCCO-2212/0 – BPSCCO-2212/0,4 dan turun kembali pada sampel BPSCCO-2212/0,6. Fraksi volume tertinggi pada sampel BPSCCO-2212/0,4 sebesar 73,026%. Sedangkan fraksi volume terendah pada sampel BPSCCO-2212/0 sebesar 71,277%. Sementara, nilai derajat orientasi tertinggi yaitu pada sampel BPSCCO-2212/0 sebesar 36,658% dan derajat orientasi terendah pada sampel BPSCCO-2212/0,2 sebesar 25,262%. Hasil karakterisasi SEM menunjukkan sudah terorientasi meskipun belum sempurna dengan *void* (ruang kosong antar lempengan) yang dihasilkan relatif sedikit.

**Kata kunci** : Superkonduktor BPSCCO-2212, doping Pb, metode pencampuran basah, fraksi volume, derajat orientasi

## ABSTRACT

### THE EFFECT OF Pb DOPING VARIATIONS ON THE LEVEL OF PURE PHASE OF SUPERCONDUCTOR BPSCCO-2212 AT 835°C SINTERING TEMPERATURE USING WET MIXING METHODS

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*This research was conducted to determine the effect of Pb doping levels on phase purity (volume fraction, degree of orientation, impurities) and microstructure. The variations of Pb doping are 0; 0.2; 0.4 and 0.6 mol using wet mixing method. The samples were calcined at 800°C for 10 hours and sintered at 835°C for 20 hours. The samples were characterized using X-Ray Diffraction (XRD) and Scanning Electron Microscopy (SEM). The XRD characterization results show that the volume fraction value increases in the BPSCCO-2212/0 - BPSCCO-2212/0.4 sample and drops back in the BPSCCO-2212/0.6 sample. The highest volume fraction was 73.026% in the BPSCCO-2212/0.4 sample. While the lowest volume fraction was 71.277% in the BPSCCO-2212/0 sample. Meanwhile, the highest orientation degree value was 36.658% for the BPSCCO-2212/0 sample and the lowest orientation degree was 25.262% for the BPSCCO-2212/0.2 sample. SEM characterization results showed that it was oriented even though it was not perfect with relatively few voids (empty space between plates) produced.*

**Keywords:** BPSCCO-2212 superconductor, Pb doping, wet mixing method, volume fraction, orientation degree.