ABSTRACT

THE EFFECT OF $CaCO_3$ THROUGH PHASE FORMATION OF BSCCO-2212 SUPERCONDUCTOR WITH DOPING Pb (BPSCCO-2212)

By

AMEILDA LARASATI

It has been done variation of $CaCO_3$, that is 0,95; 1,00; 1,05 and 1,10 through phase formation of BSCCO-2212 superconductor with doping Pb. Samples were calsined at temperature of 800^0C for 10 hours and sintered of 820^0C for 20 hours. This research was used solid state reaction method which consist of grinding, pressing and heating. The samples were characterized using X-Ray Diffraction (XRD) and Scanning Electron Microscopy (SEM). X-Ray Diffraction analyses revealed that samples have formed BPSCCO-2212 phase (it shown by present of Bi-2212 peaks) and have oriented (it shown by present of h = k = 0 peaks and *l*). X-Ray Diffraction (XRD) result showed that volume fraction (Fv) of sample with $CaCO_3$ 0,95 was 84,5% and orientation degree (P) was 17,15%. Sample with $CaCO_3$ 1,00 has volume fraction (Fv) 80,81% and orientation degree was (P) 16,06%. Sample with $CaCO_3$ 1,05 has volume fraction (Fv) 85,73% and orientation degree (P) 36,77%. Sample with $CaCO_3$ 1,10 has volume fraction (Fv) 87,26% and orientation degree (P) 21,35%. It showed that increase of $CaCO_3$ (0,95; 1,00; 1,05 and 1,10) have higher volume fraction (Fv) than $CaCO_3$ 1,00. Sample with $CaCO_3$ 1,10 has the highest volume fraction (Fv) 87,26% and sample with $CaCO_3$ 1,05 has the highest orientatiton degree 36,77%. SEM analyses indicated that crystal structure has been oriented.

Key words : $CaCO_3$, BPSCCO-2212, volume fraction, orientation degree.