

ABSTRACT

PHASE FORMATION OF BSCCO-2223 SUPERCONDUCTING MATERIALS WITH Pb DOPING (BPSCCO-2223) ON THE LEVEL OF Ca = 2,10 WITH VARIATION OF SINTERING TEMPERATURE

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The synthesis of BSCCO-2223 superconducting materials with Pb doping (BPSCCO-2223) has been administered with solid reaction. The synthesis was performed for 10 hours by calcination at temperature of 800°C and for 20 hours to varied at the temperature 840°C, 845°C, 850°C, and 855°C. This variation was performed to determine the effect of sintering temperature on phase formation of superconductor being viewed based on volume fraction, impurities, and the degree of orientation. Result of the research show the increase of sintering temperature could increase the volume fraction and decrease impurity. Volume fraction of BPSCCO-2223 that is relatively high is 86,80% on the sintering temperature of 855°C. The lowest volume fraction is 76,88% on the sintering temperature of 840°C. The highest degree of orientation is 47,87% on sintering temperature 850°C. The lowest degree of orientation is 37,28% on sintering temperature 845°C. Result of SEM show that all the samples have shown that layers arranged in the direction of the empty space between the plates (void) is relatively small.

Keywords: superconductor BPSCCO-2223, sintering, volume fraction, impurity, degree of orientation.