

## Effects of Growth Temperature on $\text{Sm}_{0.2}\text{Y}_{0.8}\text{Ba}_2\text{Cu}_3\text{O}_{7-x}$ Superconductors Fabricated by Seeded Infiltration and Growth

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Effects of growth temperature on  $\text{YSmBaCuO}_5$  (211) phase distribution within  $\text{Sm}_{0.2}\text{Y}_{0.8}\text{Ba}_2\text{Cu}_3\text{O}_{7-x}$  (123) phase was investigated.  $\text{Sm}_{1.8}\text{Ba}_{2.4}\text{Cu}_{3.4}\text{O}_{7-y}$  (Sm1.8) seed crystals were used. The optimum melt temperature of melt infiltration-growth was 1055 °C. The growth temperature varied with an interval of 5°C from 985 to 1005°C. Single phase of 123 was stable at 995°C, and at that temperature 211 phase coexisted with the average particle size of 3.2 μm within the 123 grains. When the growth temperature was lowered from 995°C with an interval of 5°C, the particle size of 211 phase increased 1.3 times at each interval. At higher growth temperature than 995°C the segregation of 211 phase and the other second phases were observed.

Keywords : Melt infiltration-growth,  $\text{Sm}_{0.2}\text{Y}_{0.8}\text{Ba}_2\text{Cu}_3\text{O}_{7-x}$  (123) superconductors, Growth temperature