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Influence of Ag Doping on Some Physical Properties of Y156 Superconductors Prepared by Solid State Reaction

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Since the discovery the first YBaCuO superconductor has been found in 1987, called as Y123 ($YBa_2Cu_3O_{7-x}$) superconductor. The effect of Ag_2O on the critical temperature was investigate. However, the new YBaCuO called Y156 superconductor was found, then we interest in effect of Ag_2O on some physical properties of this superconductor. The Y156 superconductor doped Ag_2O ($YBa_5Cu_6O_{13-y}$+xAg_2O where x = 0, 0.05, 0.10, 0.15, 0.20) were synthesized by solid state reaction, with calcination temperature, and sintering temperature at 900 ^{0}C, annealing temperature at 550 ^{0}C. All of samples obtained were investigated by SEM, EDX, resistivity measurement, and the standard iodometric titration. The highest critical temperature was found in pure Y156 at 95 K. The lowest critical temperature was found in Y156 doped 0.05Ag_2O at 89K. We found that the surface of Y156 was improved by Ag_2O adding on the porous structure. The pore size in Y156 doped Ag_2O was smallest at 4.6 μm for Y156 doped 0.20Ag_2O.The effect of the ratio of Cu^{3+}/Cu^{2+} depend on the critical temperature of Y156 doped Ag_2O was found.

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