ELECTRICAL AND MAGNETIC PROPERTIES OF $\mathbf{YBa_2(Cu_{1-x}As_x)_3O_{7-\delta}}$ SUPERCONDUCTING COMPOUNDS

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The influence of partial substitution of Cu by As in the $YBa_2(Cu_{1-x}As_x)_3O_{7-\delta}$ superconducting compounds $0 < x < 0.1$ were studied by using X-ray diffraction, electrical resistivity, dc and ac magnetic susceptibility measurements. The $YBa_2(Cu_{1-x}As_x)_3O_{7-\delta}$ samples were prepared by a standard ceramic method. The structure has been analyzed by X-ray diffraction. As doped samples have orthorhombic-type structure. No unreacted phase were observed. Partial substitution of copper by arsenic ions does not suppress the transition from normal to superconducting states for this range of doping. The T_c values, determined from dc electrical resistivity and dc and ac magnetic susceptibility measurements, decrease with increasing As concentration, but these still have large value up to 85 K, when $x = 0.1$.

9.7 cm

13.4 cm

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