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The Effect Of hBN addition on properties of Bi-2223 superconductors. MUSTAFA AKDOGAN, ERHAN BUDAK, OZGUR OZTURK, CABIR TERZIOGLU, IBRAHIM BELENLI, Abant Izzet Baysal University — The effect of the addition of hBN ($x = 0.005, 0.015, 0.025, 0.035$ and 0.05 g.) in the *Bi-2223* superconducting samples have been investigated in terms of magnetoresistivity, T_c , J_c^{trans} , and ac susceptibility. The samples were prepared by the conventional solid-state reaction method. We estimated the transition temperature, the activation energy values of the samples from the resistivity vs. temperature measurements in dc magnetic fields up to 0.7 T. We observed that transition temperature, T_c , and transport critical current density, J_c^{trans} , depend on the hBN addition. They both decrease with increasing x up to 0.025 g. With further increasing x up to 0.035 g. Activation energy, U_0 , is calculated from resistivity versus temperature at various magnetic fields. It is observed that U_0 depend on both the hBN content of samples and the applied magnetic field. The ac susceptibility measurements were carried out at different values of the ac magnetic field amplitudes up to 555 A/m. The imaginary part of ac susceptibility measurements is used to calculate J_c using the Bean's Model. The intergranular critical current density is also seen to vary with increasing hBN content. We extracted the peak temperature, T_p , and the pinning force density from our previous ac susceptibility measurements. The pinning force density varied with increasing the hBN content of samples.

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