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**Study of the critical current density of a hot pressed $MgB_2$** CHI HSIANG HSIEH, CHIA HAO CHANG, CHU NAN CHANG, HSU HON CHUNG — We report the result of the study of a hot-pressed $MgB_2$. We found that the hot-pressec(2.0GPa and 900$^\circ$ for 30 min.) $MgB_2$ has Tc $\cong$ 39K and $\Delta$T= 1.93 K. Its critical current density, $J_c$ increase about an order of magnitude than the untreated one. A significant improvement of the critical current density versus B was also found. The measurements of XRD and x-ray near-edge absorption spectra of B, O, and Mg edge show that the impurity of MgO originally existed in the $MgB_2$ powder before hot press disappears and instead $B_2O_3$ and other unknown impurities of compounds and oxides appear in the sample. Our result suggests that MgO is not the major impurity that cause the enhancement.

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