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^{13}C NMR Study of Graphite Intercalated Superconductor CaC_6 Crystals in the Normal State MOOHEE LEE, SUNG HOON KIM, KI HYEOK KANG, B. J. MEAN, B. NDIAYE, Konkuk University, Seoul, South Korea, JUN SUNG KIM, POSTECH, Pohang, South Korea — ^{13}C NMR(Nuclear Magnetic Resonance) measurements have been performed to investigate the local electronic structure of a superconducting graphite intercalation compound CaC_6 (T_c = 11.4 K). A large number of single crystals were packed and sealed in a quartz tube for naturally abundant ^{13}C NMR. Spectrum, Knight shift, linewidth, spin-lattice relaxation time T_1, and the spin-spin relaxation time T_2 were measured in the normal state as function of temperature down to 70 K at 4.8 T and 8.0 T. ^{13}C NMR spectrum shows a narrow peak with a very small Knight shift. Knight shift and linewidth of the ^{13}C NMR are almost temperature-independent around, respectively, 0.012% and 1.2 kHz. The spin-lattice relaxation rate $1/T_1$ is proportional to temperature confirming a Korringa behavior as for nonmagnetic metals. The Korringa product is measured to be T_1T= 210 s.K. From this value, the Korringa ratio is deduced to be $\xi = 0.73$, close to unity, which suggests that the independent-electron description works well for CaC_6, without complexity arising from correlation and many-body effects.

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