Superconductivity in Y$_2$C$_3$ SATOSHI AKUTAGAWA, JUN AKIMITSU, Aoyama-Gakuin University — The discovery of superconductivity in MgB$_2$ revived the enthusiasm of non-oxides materials and initiated a search for novel superconductivity in intermetallic compounds including light elements, B and C. As a part of these researches, we have reported a relatively high-$T_c$ superconductivity in Y$_2$C$_3$ at 18 K whose $T_c$ could be changed from 10 K to 18 K by synthesis conditions, although this material with a maximum $T_c$ of 11.5 K has already been investigated by Krupka al.. The crystal structure of Y$_2$C$_3$ is a body-centred cubic (Pu$_2$C$_3$-type) structure. In this structure, Y atoms are aligned along the $<111>$ direction and C atoms form dimers. We synthesized a high-purity sample of the medium-$T_c$ phase ($T_c = 13.9$ K) in Y$_2$C$_3$ and examined its physical properties in detail. From a specific heat measurement, the superconducting gap is estimated to be 4.50, indicating that the superconductivity in Y$_2$C$_3$ can be described by an $s$-wave strong coupling regime. From specific heat in various magnetic fields, the upper critical field $H_{c2}(0)$ is estimated to be 24.7 T.