

Formation of Carbon Nanofibers with hydrochloric acid as a promoter

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Carbon nanofibers were formed by the use of Ni-Al catalysts, ethanol as carbon source and hydrochloric acid as a promoter at elevated temperatures. It was found that, with Ni : Al = 1:1 catalyst system, herringbone-type carbon nanofibers(HCNFs), cup-stacked-type carbon nanofibers and bamboo-shaped carbon nanotubes can be formed at temperature of 450 °C-550 °C, 600 °C and 700 °C, respectively. When Ni : Al = 1:4 catalyst system was conducted, HCNFs, cup-stacked-type carbon nanofibers and Multi-walled carbon nanotubes (MWCNTs) were synthesized at temperature of 500 °C, 600 °C and 700 °C, respectively.

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