

Palm oil as the carbon source for the synthesis of carbon nanotubes using floating catalyst - chemical vapour deposition method

ABSTRACT

CNTs were synthesized using floating catalyst by dual-furnace thermal chemical vapour deposition method at 800-1000°C. Cooking oil made of palm oil was used as the carbon precursor. Ferrocene in the presence of 0.05 M zinc nitrate and a p-type silicon wafer was used as a catalyst precursor and a sample target, respectively. The deposition temperature was varied from 800-1000°C. Nitrogen gas was used as a gas carrier with a constant flow rate of 150 sccm/min. Field emission scanning electron micrographs show the formation of CNTs together with other carbons formed on the silicon substrate. Raman spectroscopy studies were also supported the formation of CNTs.

Keyword: Carbon nanotubes; Chemical vapor deposition (CVD); Floating catalyst; Palm oil; Zinc oxide