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Formation of Transition Metal Cluster Adducts on the Surface of Single-walled Carbon Nanotubes: HRTEM Studies

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Abstract

We report the formation of chromium clusters on the outer walls of single-walled carbon nanotubes (SWNTs). The clusters were obtained by reacting purified SWNTs with chromium hexacarbonyl in dibutyl ether at 100 degrees C. The functionalized SWNTs were characterized by thermogravimetric analysis, XPS, and high-resolution TEM. The curvature of the SWNTs and the high mobility of the chromium moieties on graphitic surfaces allow the growth of the metal clusters and we propose a mechanism for their formation.

Keywords

Author Keywords: Carbon nanotubes; organometallic functionalization; transition metal clusters; HRTEM

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