

عنوان مقاله:

SYNTHESIS AND CHARACTERIZATION OF SiO₂-NANOTUBE HYBRIDES USING A SOL-GEL METHOD

محل انتشار:

سومین کنفرانس بین المللی مواد فوق ریزدانه و نانوساختار (سال: 1390)

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خلاصه مقاله:

This work is focused on synthesis of SiO₂-CNT hybrids via sol-gel method. Homogeneous distribution of carbon nanotubes within silicon matrix was obtained by mixing the functionalized carbon nanotube (CNT-COOH) with active silicic acid followed by titration to the solution of sodium silicate (Na₂SiO₃) under the average temperature condition of 80°C. For synthesis of SiO₂-CNT, different ratios of multi-walled carbon nanotubes and various concentrations of colloidal 2 Narm. Montakhsilica were used. Powder X-Ray Diffraction (XRD) and Scanning Electron Microscopy (SEM) used for studying the structure and morphological characteristics of the synthesized SiO₂-CNT hybrids. The results showed that the various morphologies of SiO₂-CNTs are obtained with different ratio of precursors. The SEM images indicated the formation of uniform nanoparticles, nanowires and nanotube structures in various samples. In addition, the hydrogen storage capacity and thermal conductivity of SiO₂-CNT hybrids were determined and presented in this article. Also total pore volume and BET surface area was calculated for these composites

کلمات کلیدی:

SiO₂-CNT; nanohybride; hydrogen storage capacity; thermal conductivity; BET surface

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