

## عنوان مقاله:

The effect of nanotubes' content and their hydroxy- and carboxy-functionalization in (hydrogenated) nitrile rubber/(un)functionalized multi-walled carbon nanotubes composites prepared by melt compounding and their morphology, mechanical, structural, thermodynamic, and functional properties

## محل انتشار:

سومین کنفرانس نانوساختارها (سال: 1388)

تعداد صفحات اصل مقاله: 4

## نویسنده:

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## خلاصه مقاله:

Nanocomposites were prepared by mixing (un)functionalized multi-walled carbon nanotubes (MWCNT) with hydrogenated nitrile elastomer (HNBR). Utilization of transmission electronic microscopy (TEM), scanning electron microscopy (SEM), atomic force microscopy (AFM), and small- and wide-angle X-ray scattering techniques (SAXS and WAXS), for advanced morphology observation of conducting fillers-reinforced hydrogenated nitrile rubber composites, is reported. Increase in hardness, elastic modulus, tensile strength, density, and tear strength with increasing nanotube content was clearly visible for unfunctionalized, hydroxy-, and carboxy-functionalized nanotubes due to enhanced distribution of carbon nanotubes (CNT) and their aggregated particles in the applied rubber matrix. Dynamic mechanical analysis (DMA) of the composites indicated outstanding properties, the composites having dissimilar behaviour depending predominantly both on nanotubes' type and content and consequently on rubber/filler interface surface topography that is the extent of presence of carbon nanotube aggregates having different size and structure depending on the type and the content of nanotubes.

## کلمات کلیدی:

Elastomeric polymers; Fiber reinforced composites; Functionalized multi-walled carbon nanotubes; Nanocomposite; Nanostructure

## لینک ثابت مقاله در پایگاه سیویلیکا:

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