

Nanocomposites and nanomaterials

Surface modification of carbon nanomaterials with amine groups

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Nowadays, an enormous interest of new nanomaterials and their interesting properties is observed. It is due to their potential applications in many fields of modern science and technology, such as medicine, biology sensing, catalysis and hydrogen storage systems [1-3].

Three different groups of carbon nanomaterials, such as: multiwalled carbon nanotubes, ordered mesoporous carbon and glassy carbon have been initially oxidized and then functionalized (by reaction of aminopropyltriethoxysilane, APTES) to introduce the amine groups onto their surfaces [4]. The above-mentioned carbon nanoporous materials were characterized by several instrumental techniques, such as nitrogen adsorption/desorption measurements, X-ray photoelectron spectroscopy, scanning electron microscopy, X-ray diffractometry and elemental analysis. The obtained results clearly show the difference in the structure, morphology, porosity and surface chemistry of those amine-functionalized carbon nanomaterials.

Both, oxidation and introduction the amine groups onto carbon nanomaterials surfaces make some changes in their porous structure and surface chemistry.

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