J Zaręba et al., J Nanomed Nanotechnol 2016, 7:5 (Suppl)
http://dx.doi.org/10.4172/2157-7439.C1.044

The study of electrostatic properties and dispersion quality of the aqueous solutions of carbon nanotubes with dimeric surfactants

J Zaręba, M Skupin and **M Kozak**
Adam Mickiewicz University in Poznań, Poland

The use of surface active agents in separation of carbon nanomaterials in water is one of the best ways to create a stable homogeneous solution. Different groups of carbon nanomaterials, due to the hydrophobic properties of nanostructures, easily clump. Most interesting in this regard are Carbon Nanotubes (CNT), having inter alia a very high strength, and thermal and electrical conductivity. Surfactants, due to its amphiphilic construction, interact with CNTs forming the steric barriers between the CNT surface and water molecules. The presence of the ion part also causes electrostatic interaction, which improves the dispersion of the solution. Surface energy impacts CNT under the influence of the surfactant drops significantly, allowing the preparation of homogeneous solutions of nanostructures in water. In addition, observable very good stability of the solutions was obtained. Careful study of the degree of electrostatic interaction were made using a conductivity meter, allowing to determine the impact loads on the occurrence degree of dispersion solution. The stability and quality of the dispersed solutions was tested by means of spectroscopic methods UV/VIS (Ultraviolet-visible spectroscopy). The results from all these studies can be used to assess the dispersion of CNTs in water, and thus the quality of the aqueous CNTs suspensions.

Biography

J Zaręba is BSc candidate of Physics in Adam Mickiewicz University in Poznań. His scientific interests are in nanotechnology and modern carbon nanomaterials. From 2016, he is the Contractor of the project of Polish Ministry of Science and Higher Education "Najlepsi zNajlepszych".

zarebajakub@wp.pl

Notes: