

Production and characterization of graphene oxide nanofluidic

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ABSTRACT

An essential point in the search for the improvement of thermal systems is the increase in the heat transfer capacity of working fluids. Improvements in nanotechnology have made possible the development of nanofluids, which are produced by the dispersion of nanoparticles in a base fluid, which enable great advances in different industrial sectors in terms of environment, energy and economy, being widely applied in medicine and the electronics industry. Nanofluids constitute a new generation of heat transfer media, due to the improvement of thermophysical properties in relation to conventional fluids. Graphene oxide (GO), a chemically modified form of graphene, synthesized through exfoliation and oxidation, in addition to extensive oxidative modification from the basal plane, is a material of interest due to its high thermal conductivity and low density. This work describes the Modified Hummers Synthesis Method for the production of graphene oxide nanofluidic and its characterization by UV-Vis Spectroscopy. The experimental results show the successful production of the graphene oxide nanofluid, evidenced by the presence of the characteristic graphene oxide bands at 233nm and 300nm. In addition, a variation in the light absorption of the samples in relation to the volumetric concentrations can be observed, directly proportional to the analyte concentration, according to the Beer-Lambert Law.

Keywords: Graphene oxide, Nanofluid, Characterization.

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