

Abstract Submitted
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Estimation of the Thickness of the Interface in Polyoctenamer-Single Walled Carbon Nanotube Composites by Thermogravimetric Analysis ALIN CRISTIAN CHIPARA, ROBERT VAJTAI, PULICKEL M. AJAYAN, Rice University, DORINA M. CHIPARA, ELAMIN IBRAHIM, JAMES HINTHORNE, MIRCEA CHIPARA, The University of Texas - Pan American, THE UNIVERSITY OF TEXAS - PAN AMERICAN COLLABORATION, RICE UNIVERSITY COLLABORATION — In polymer-based nanocomposites, macromolecular chains surround the nanoparticles interacting with them and thus defining a thin layer of material known as interface. The interface exhibits modified physical properties compared to the polymeric matrix; shifts of the glass, melting, and crystallization temperatures. A simple method for the estimation of the thickness of the interface in polymer based nanocomposites, by using thermogravimetric analysis is presented. The method is exemplified through experimental data on polyoctenamer-single walled carbon nanotube nanocomposites obtained by melt mixing. The thermal stability of the as obtained nanocomposites has been investigated by thermogravimetric analysis, using a Q50 TGA instrument from TA Instruments. The measurements have been performed in air and in nitrogen atmosphere at various heating rates (5, 10, 20, 30, and 40 °C/min). Additional measurements by Raman, and Wide Angle X Ray are supporting thermal analysis data.

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