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Estimation of the Thickness of the Interface in Polyoctenamer-Nanodiamond Composites by Thermogravimetric Analysis ARNOLD FONSECA, ALEJANDRO CASTILLO, ANGEL MALDONADO, JULIAN VELAZQUEZ, EDGAR RODRIGUEZ, The University of Texas- Pan American — In polymer-based nanocomposites, the macromolecular chains surrounding the nanoparticles interact with them, 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 have been reported elsewhere [1, 2]. The polymeric matrix of these nanocomposites is polyoctenamer (PO). PO has a glass transition temperature of -65 oC, melting temperature of 55 oC, and an average degree of crystallinity of about 30 %. Nanocomposites of PO-ND containing various concentrations of ND have been obtained by melt mixing at 30 oC, using a counter-rotating two-screw mixer (POLYLAB). Samples containing 0, 0.05, 0.10, 0.25, 0.50, 1.00, 2.50, 5.00, 7.50, and 10 % wt. ND dispersed within PO have been obtained. The thermal stability of the as obtained nanocomposites has been investigated by thermogravimetric analysis, using a Q 50 from TA Instruments. The measurements have been performed in nitrogen atmosphere at various heating rates (5, 10, 20, 30, and 40 oC/min). Additional measurements by Raman, Differential Scanning Calorimetry, and Wide Angle X Ray are supporting thermal analysis data.

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