

Abstract Submitted  
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**Thermal Properties of PEO-anatase nanocomposites** MIRCEA CHIPARA, The University of Texas Pan American, HE HUANG, University of New Orleans, KAREN LOZANO, The University of Texas Pan American, DAVID HUI, XU HAILAN, University of New Orleans, RAFAEL VILLEGAS, THOMAS MION, The University of Texas Pan American — Polyethylene-oxide (PEO) - anatase composites containing various amounts of anatase ranging between 0 and 20 % wt. have been prepared. The as obtained samples have been investigated by Thermogravimetric Analysis at different heating rates ranging from 5 to 40 K/min. This study was focused on the effect of nanofillers on the activation energy and overall reaction order as well as on the temperature at which the mass loss rate is maxim. The first derivative of the as obtained thermogram has been fitted by using an extended Wigner-Breit-Fano function. The effect of the concentration of anatase nanoparticles on the parameters of the Wigner-Breit-Fano are discussed in detail. Non-isothermal differential scanning calorimetry measurements have been performed in order to determine the effect of anatase nanoparticles on the melting and crystallization of PEO. Isothermal crystallization at various temperatures ranging from 303 to 320 K have been also performed. The study aimed to correlate isothermal crystallization data with non-isothermal results and to determine the effect of anatase nanoparticles on the melting and crystallization of PEO. The crystallization process has been investigated within Avrami and Ozawa approaches.

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