Abstract Submitted
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On the Effect of TiO2 Nanoparticles on the Crystallization of PEO JESUS EDUARDO SALDANA, ALIN CRISTIAN CHIPARA, ALEJANDRO CASTILLO, JAMES HINTHORNE, ELAMIN IBRAHIM, MIRCEA CHIPARA, The University of Texas - Pan American — Nanocomposite consisting of various amounts of TiO2 nanoparticles dispersed within polyethylene oxide (PEO) have been prepared by melt mixing. The thermal properties of these nanocomposites have been investigated by Differential Scanning Calorimetry (DSC) and Thermogravimetric Analysis (TGA). TGA data revealed a weak increase of the thermal stability of the PEO matrix upon the loading with nanoparticles. The crystalline structure of PEO and TiO2 has been confirmed by Wide Angle X-Ray Scattering and electron microscopy. Isothermal and non isothermal DSC was used to investigate the melting/crystallization process. Additional information regarding the nanofiller has been obtained via Raman and FTIR spectroscopy. The shift of the melting and crystallization temperature due to the loading with TiO2 nanoparticles is analyzed.

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