**Thermostructural study of polyethylene containing multi-walled carbon nanotubes**

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Abstract

The present work is the study of the influence of multi-walled carbon nanotubes (MWCNTs) in polyethylene, as a reinforcing element.

The three samples prepared by the chemical vapor deposition method are 1mm thick ribbons. We introduced three concentrations equal to 0.5%, 1% and 1.5% MWCNTs. Several experimental techniques, dilatometry, weight loss, heat capacity, X-ray diffraction and infrared spectroscopy, were used.

Dilatometric measurements in the longitudinal and transverse directions show the absence of anisotropy. There is an intense peak around 140 ° C depending on the direction. The calorimetric curves look the same. This may attest to the uniqueness of the mechanism of heat interactions. The spectra of thermogravimetry reveal a stability of the three nanomaterials. Infrared and X-ray diffraction show that there is a relationship between the intensities of the different peaks and the concentrations.