

## Study of Nano Clay Based on Pet

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**Abstract :** A (PET)/clay nano composites has been successfully performed in one step by reactive melt extrusion. The PEN was first mixed in the melt state with different amounts of functionalized clay. It was observed that the composition PET/4 wt% clay showed total exfoliation. These completely exfoliated composition called nPET, was used to prepare new nPET nano composites in the same mixing batch. The nPEN was compared to neat PET. The nanocomposites were characterized by different techniques: differential scanning calorimetry (DSC) and wide-angle X-ray scattering (WAXS). The micro and nanostructure/properties relationships were investigated. From the different WAXS patterns, it is seen that all samples are amorphous phase. In addition, nPET blends present lower T<sub>c</sub> values and higher T<sub>m</sub> values than the corresponding neat PET. The present study allowed establishing good correlations between the different measured properties.

**Keywords :** PET, montmorillonite, nanocomposites, exfoliation, reactive melt-mixing

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