

## **Preparation and Properties of Poly(ethylene terephthalate)/clay nanocomposites by melt blending using thermally stable surfactants**

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### **Abstract:**

Polymer/inorganic nanocomposites are of great interest because they exhibit significantly improved properties compared to conventional materials.

Semicrystalline Poly(ethylene terephthalate) (PET) and its composites are widely used in packaging, construction, automobile, household, electrical and textile industries.

Considerable efforts have been devoted to improve its physical, mechanical and barrier properties through mixing it with nanoclays to produce layered clay-incorporated PET composites.

The present communication focuses on the preparation and the study of some properties of PET-montmorillonite clay nanocomposites using various organically modified clays. A montmorillonite clay, originated from Maghnia (Algeria), is in a first step modified with different amounts of phosphonium or ammonium surfactants, then used to elaborate PET nanocomposites as prepared via the melt-mixing method.

Some results of the effect of these different organoclays on the morphology, stability, and thermal properties of PET will be presented.

**Keywords:** Poly (ethylene terephthalate) (PET), clay, nanocomposites, surfactants, melt blending