

## **THERMAL ANALYSIS OF EPOXY/POLYESTER BLEND FILLED WITH MONTMORILLONITE (MMT) CLAY – NANOCOMPOSITE**

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### **Abstract**

In the present work, polymer nanocomposites based on thermoset polymer blends (Epoxy/Polyester) containing montmorillonite (MMT) clay are synthesized by high shear mechanical mixer, then kept in a ultra-sonicator for better dispersion of clay in the blend matrix. Different percentages of modified nanoclays (0, 1, 2, 3 and 5 wt %) was incorporated into the epoxy/polyester blend matrix in order to examine the influence of the nanofillers on nanophase morphology and materials' properties. Thermal properties of the nanocomposite were studied using Thermogravimetric analysis (TGA) and Differential scanning calorimetry (DSC). Scanning Electron Microscopy (SEM) images of the fractured surfaces were taken. The observation established good miscibility of epoxy/polyester blend and homogenous dispersion of MMT clay in the blend matrix. In TGA, 10° C rise in decomposition temperature was observed for 5wt. % clay sample when compared with the 0wt% clay sample. DSC results showed that the modified clay particles affected the glass transition temperature (Tg) of the nanocomposites.

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