

A study of poly vinyl chloride / poly (butylene adipate-co-terephthalate) blends.

ABSTRACT

Polymer blends were prepared by melt blending technique using poly vinyl chloride (PVC) and poly(butylene adipate-co-terephthalate) (PBAT). Different ratios of the blends were studied to investigate their mechanical, thermal and morphological properties. The FTIR spectrum indicated a slight increase of frequencies at C=O peak from 1714 to 1718 cm⁻¹ indicating a chemical interaction between C=O of PBAT and α -hydrogen of PVC. The tensile properties of PVC/PBAT blends highest at weight ratio of 50/50. The dynamic mechanical analysis (DMA) result proves that PVC and PBAT formed a miscible system with one glass transition temperature (T_g). The incorporation of PBAT results in a gradual decrease of the viscosity (loss modulus) and an increase of elasticity (storage modulus). The thermal properties of blend show the decomposition temperature of PVC in the blend decrease with the addition of PBAT. Scanning electron micrograph shows good interfacial adhesion on the tensile fractured surface of PVC/PBAT blend, which played important roles in enhancing the mechanical properties (strength and modulus).

Keyword: Biodegradable; Organoclay; Nanocomposite.