

Acrylonitrile Butadiene Styrene (ABS) / Poly (lactic acid) (PLA) with Graphene Nanoplatelet (GNP) Nanocomposites

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Abstract.

This work reports the preparation and characterization of poly(lactic acid) (PLA) blends with acrylonitrile-butadiene-styrene (ABS). The binary blend system was prepared via melt blended in a twin screw extruder for 15 minutes at 35 rpm. Graphene nanoplatelet (GNP) was incorporated in the blend system at various loadings i.e. 0.2 – 1.0%. The blends were then characterized for the mechanical, thermal and morphological properties. It was found that the tensile strength was the highest at 0.4% wt loading. Morphology studies by scanning electron microscopy (SEM) revealed that there were visible droplets in the PLA/ABS/GNP blend that could contribute the improvement in tensile properties.

Keywords: PLA; ABS; graphene; melt blending; nanocomposites