

Blend of Polyamide 6 with Polybutylene Terephthalate Compatibilized with Epoxidized Natural Rubber (ENR-25) and N Butyl Acrylate Glycidyl Methacrylate Ethylene (EBa-GMA)

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Abstract : In this work, blends of polyamide 6 (PA6) and polybutylene terephthalate (PBT) were successfully prepared. The effect of epoxidized natural rubber (ENR-25) and n butyl acrylate glycidyl methacrylate ethylene (EBa-GMA) as a compatibilizer on properties of PA6/PBT blends was also investigated by varying amount of ENR-50 and EBA-GMA, i.e., 0, 0.1, 0.5, 5 and 10 phr. All blends were prepared and shaped by using twin-screw extruder at 230 °C and injection molding machine, respectively. All test specimens were characterized by phase morphology, impact strength, tensile, flexural properties, and hardness. The results exhibited that phase morphology of PA6/PBT blend without compatibilizer was incompatible. This could be attributed to poor interfacial adhesion between the two polymers. SEM micrographs showed that the addition of ENR-25 and EBA-GMA improved the compatibility of PA6/PBT blends. With the addition of ENR-50 as a compatibilizer, the uniformity and the maximum reduction of dispersed phase size were observed. Additionally, the results indicate that, as the amount of ENR-25 increased, and EBA-GMA increased, the mechanical properties, including stress at the peak, tensile modulus, and izod impact strength, were also improved.

Keywords : EBA-GMA, epoxidized natural rubber-25, polyamide 6, polybutylene terephthalate

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