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TOUGHENING OF POLY ETHYLENE TERPHETHALATE WITH FUNCTIONALIZED ACRYLONITRILE-BUTADIENE RUBBER THROUGH REACTIVE MIXING

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In this study acrylonitrile-butadiene rubber (NBR) was functionalized applying grafting reaction by glycidyl methacrylate (GMA) in the presence of dicumyl peroxide (DCP) as an initiator. The functionalized rubber was blended with poly (ethylene terphthalate) (PET). Morphological and Mechanical Properties of the final blends were studied. Chemical titration was used to define the amount of grafted GMA. Two important factors affect the grafting process: (a) GMA concentration (b) DCP concentration. The outstanding difference was observed between PET/NBR-g-GMA and PET/NBR in terms of dispersed phase morphology. DMTA showed desirable compatibility between two components of the blend (PET/NBR-g-GMA). The enhanced compatibility led to increased impact properties. Bond formation between the NBR-g-GMA epoxide group and PET carboxyl or hydroxyl end groups was the most important factor to achieve the desirable compatibility between two components of the blend.