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Morphological and Mechanical Investigation of Thermoplastic Elastomers of Nylon 6,6/SEBS-Mg

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To increase toughening properties of nylon 6,6, alloys of this thermoplastic with 5, 10, 15, and 20 percent of maleic anhydride grafted SEBS were prepared. Mixing of rubber with nylons were done at optimal thermal and shear rates, according to viscosity curves, in a counter rotate twin screw extruder. Morphological investigations with different methods show almost one phase morphology for these rubber toughened thermoplastics which can be rarely observed for other rubber toughening systems. The observed morphology is similar to that one can be observed for thermoplastic-elastomer polymeric blends. In addition, this morphology is almost stable and does not change with heating blends even at stagnant situation for long time. Investigation of mechanical properties shows that this morphology could produce super toughened nylons with impact strength about 15 times more than virgin nylon.