

عنوان مقاله:

Study on the Mechanical Properties of PP/SEBS-g-MA/OMMT Nanocomposites

محل انتشار:

کنفرانس بین المللی فرآورش پلیمرها (سال: 1390)

تعداد صفحات اصل مقاله: 4

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خلاصه مقاله:

The effect of organo modified montmorillonite (O-MMT) on the constituting balance between stiffness/strength versus toughness/ductility of PP-maleated styrene/ethylene-butylene/styrene (SEBS-g-MA) blend was investigated. In this direction, different PP/15%SEBS-g-MA samples containing various amounts of Cloisite®15A (1, 3 and 5 phr) were prepared using an internal mixer. X-ray diffraction (XRD) and transmission electron microscopy (TEM) were used to evaluate dispersion of the clay particles in the samples. Scanning electron microscopy (SEM) was also used to study dispersion of SEBS-g-MA in the PP matrix. The tensile properties, impact strength as well as hardness of the samples were carried out by means of standard methods. Good intercalated and semi-exfoliated structures were observed on the basis of XRD and TEM results. The results of mechanical properties indicated that addition of Cloisite®15A particles to the PP/SEBS-g-MA blend enhanced the stiffness properties (modulus and strength) of the samples but reduced their toughness property (impact strength). On the other hand, presence of SEBS-g-MA could reduce stiffness properties and increase toughness properties. The stiffness/strength has been challenging toughness/ductility in the case of PP with addition SEBS-g-MA and clay simultaneously. The aim of this study is to prepare PP/SEBS-g-MA nanocomposites which has clear trade-off between stiffness/strength versus toughness/ductility. Mechanical properties of all the samples were also studied

کلمات کلیدی:

Nanocomposites, Toughening, Morphology, SEBS-g-MA, Polypropylene

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