عنوان مقاله:

Nanosize clay effects on morphology and kinetics of thermal degradation of PP/EPDM blends

محل انتشار:

سومین کنفرانس نانوساختارها (سال: 1388)

تعداد صفحات اصل مقاله: 4

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خلاصه مقاله:

Nanostructured materials based on organically modifyed montmorillonite and compatibilized polypropylene (PP)/ethylene propylene diene monomer (EPDM) blend were prepared via melt-mixing of PP, EPDM,nanoclay and PP-g-MA as compatibilizer in an internal batc mixer. The surface morphologies of the pristine blend and nanocomposites were studied by scanning electron microscopy (SEM). Results showed that the particle size of the dispersed EPDM phase was remarkably reduced upon the addition of a small amount of nanoclay (3%). The degree of dispersion of silicate layers in the blend matrix was characterized by X-ray diffractometry (XRD). Results showed that a relatively good dispersion of silicate layers occurred in the system and a mixture of exfoliated/intercalat structure was formed. Thermo gravimetric analysis revealed that nanoclay retarded the thermal decomposition process depending on its concentration. The improvement in thermal resistance of PP/EPDM blend was most profound in case of adding 3 wt.% nanoclay. The retarding process was assigned to the good dispersion of silicate .layers which acted as thermal insulator and mass transport barrier in the system

کلمات کلیدی:

polymer nanocomposite; nanolayered-silicate;morphology; thermal degradation kinetics