عنوان مقاله:

Tensile and Morphological Properties of Microcellular Polymeric Nanocomposite Foams Reinforced with Multi-walled Carbon Nanotubes

محل انتشار:

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خلاصه مقاله:

Polyamide 6 (PA6) is used in many applications due to its advantages and improving its properties seems essential. For this purpose in the present study, PA6 was melt compounded with various multi-walled carbon nanotubes (MWCNTs) contents and then was foamed using Azodi carbon amide (ACA) as blowing agent under different injection molding conditions. Morphological properties were investigated using X-ray diffraction (XRD) and scanning electron microscopy (SEM) tests. The results demonstrated that an appropriate distribution of MWCNTs was observed in polymeric matrix and 0.85, 0.94 and 1 Å increase in distance between walls of CNTs was observed. Also, the SEM results illustrated that microcellular structure was achieved in all samples. The results illuminated that mean cell size was improved about 34% in samples containing 1 wt% MWCNT. The tensile properties of samples were investigated and the effect of MWCNTs content was studied on specific tensile and yield strengths. The results indicated that specific tensile strength and yield strength were significantly increased almost 164% and 147% by addition of 1 wt% .of MWCNTs, respectively

کلمات کلیدی:

Foam, Mechanical properties, Nanocomposite, Polymer, XRD