

عنوان مقاله:

Structural and mechanical properties of polypropylene / phosphor strontium aluminate melt spun nanocomposite fibers

محل انتشار:

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خلاصه مقاله:

Phosphor strontium aluminate (SrAl_2O_4 : Eu^{2+} , Dy^{3+}) nanoparticles were mixed with polypropylene by an internal mixer to prepare a uniform mixture with polymer. Polypropylene / phosphor strontium aluminate nanocomposite fibers were produced by melt spinning process. Morphological, thermal and structural properties of produced fibers were investigated. Also the mechanical properties of the produced fibers were studied. The SEM results showed that the nanoparticles were uniformly distributed within the polymer matrix and they were shapeless. DSC results indicated that the melting point and the crystallinity increased with increasing concentrations of nanoparticles in the fibers. XRD images showed nanoparticles in the fibers matrix and also proved that crystal size did not change in the fibers. Mechanical properties show that the tenacity, modulus and the shrinkage decreased by increasing the amount of nanoparticles in the fibers but the linear density increased.

کلمات کلیدی:

;nanocomposite fibers; phosphor strontium aluminate; melt spinning; nanoparticles

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