

عنوان مقاله:

Effect of surface modification on dispersion of ZnO Nanoparticles and synthesis of ZnO/PMMA Nanocomposite

محل انتشار:

اولین همایش ملی تکنولوژی های نوین در شیمی و پتروشیمی (سال: 1393)

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خلاصه مقاله:

Surface modification of inorganic nanoparticles plays a key role in the synthesis of organic/inorganic nanocomposites. In this study ZnO/poly(methyl methacrylate)(PMMA) composite were successfully prepared in three steps via emulsion polymerization. In the first step Zinc oxide with particle diameters of 20 and 50 nm were modified with tri-methoxyvinylsilane(TMVS). Then in the second step; surface modified nanoparticles was dispersed in MMA. Finally in the third step ZnO nanoparticles loaded monomer was introduced into deionized water containing surfactant ,and emulsion polymerization was carried out. Surface modified ZnO-nanoparticles were characterized with Fourier transform infrared spectroscopy (FT-IR), scanning electron microscopy (SEM), X-ray powder diffraction (XRD). The result showed that ZnO nanoparticles have been encapsulated successfully inside PMMA particles. The resulting novel nanocomposites were characterized by several techniques. Transmission electron microscopy and droplet size were determined by dynamic light scattering were performed in order to study the dispersion of nanofillers in the .polymer matrix

کلمات کلیدی:

Surface modification, ZnO/PMMA Nanocomposite, ZnO Nano-particles, Trimethoxyvinyl Silane (TMVS)

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