

عنوان مقاله:

Improving the properties of Silicone Based Nanocomposites by Graphene Nanoplates and an Organosilane as a Coupling agent

محل انتشار:

دوازدهمین سمینار بین المللی علوم و تکنولوژی پلیمر (سال: 1395)

تعداد صفحات اصل مقاله: 3

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خلاصه مقاله:

Elastomeric nanocomposites based on silicone rubber (SR) containing Graphene nano-sheets were prepared using a two-roll mill mixer. Mechanical, morphological and rheological characterizations of the prepared nanocomposites were carried out in order to study the effect of different nanographene compositions (0.5, 1, 2 wt%) and also an organosilane as a coupling agent. The better interaction between graphene and SR was directly confirmed by transmission electron microscopy (TEM) and scanning electron microscopy (SEM). The results depicted a decreasing trend in the optimum cure time (t_{90}) and scorch time (t_5) values of the nanocomposite samples with increasing graphene loading and using the coupling agent. The mechanical properties of the prepared nanocomposites showed a considerable increase in the tensile strength and modulus of SR/Graphene nanocomposites. Moreover, elastic modulus (G'), loss modulus (G'') and complex viscosity (η^*) of the samples have been increased with increasing the nanographene content and also presence of the organosilane.

کلمات کلیدی:

Nanocomposite-Graphene-Silicone rubber-Organosilane-coupling agent

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