

عنوان مقاله:

Mechanical properties of anisotropic low density rigid polyurethane/organoclay nanocomposite foam

محل انتشار:

کنفرانس بین المللی فرآورش پلیمرها (سال: 1390)

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خلاصه مقاله:

Free rise low density rigid polyurethane (RPUF)/organoclay nanocomposite foam was prepared at two different Cloisite30B organoclay contents (1 and 3 wt %). The density of the foam samples was kept constant at 30 kg/m³. Morphology of the PU nanocomposite foams was studied by X-ray diffraction (XRD) method. The cellular structure of RPUFs was examined by optical microscopy image taken from the samples in rise and transverse directions. Results show that the cell size reduces and the cell size distribution become narrower by incorporating of organoclay. Mechanical characterization, including compression and stress relaxation were conducted on PU foams. Polyurethane foams represent the different mechanical behavior in the rise and transverse directions. This difference is attributed to the anisotropic cellular structure of the free rise PU foam in which the cells are elongated at rise direction. Furthermore, the results indicate that nanocomposite foam with 1% Cloisite 30B shows improved mechanical properties in both rise and transverse directions

کلمات کلیدی:

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