

Rheological Properties of Polysulfone-Sepiolite Nanocomposites

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Abstract : Polysulfone (PSU) is a specialty engineering polymer having various industrial applications. PSU is especially used in waste water treatment membranes due to its good mechanical properties, structural and chemical stability. But it is a hydrophobic material and therefore its surface aim to pollute easily. In order to resolve this problem and extend the properties of membrane, PSU surface is rendered hydrophilic by addition of the sepiolite nanofibers. Sepiolite is one of the natural clays, which is a hydrate magnesium silicate fiber, also one of the well known layered clays of the montmorillonites where has several unique channels and pores within. It has also moisture durability, strength and low price. Sepiolite channels give great capacity of absorption and good surface properties. In this study, nanocomposites of commercial PSU and Sepiolite were prepared by solvent mixing method. Different organic solvents and their mixtures were used. Rheological characteristics of PSU-Sepiolite solvent mixtures were analyzed, the solubility of nanocomposite content in those mixtures were studied.

Keywords : nanocomposite, polysulfone, rheology, sepiolite, solution mixing

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