

Modification of Montmorillonite by new surfactants.

ABSTRACT

The sodium Montmorillonite is not susceptible to polymer due to its organophobic character and has low basal spacing. This study reports on the effect of three new organic cations including Triethyl Amine (TEA), Tripropyl Amine (TPA) and Trioctyl Amine (TOA) on the basal spacing of the clay as indicators to the sociability of the clay to the incorporation of polymers. The Fourier Transform Infrared spectroscopy (FTIR) was used to evaluate the incorporation of the three organic cations in the clay. The X-ray diffraction technique was utilized to indicate the basal spacing of the treated clay as a measure of the susceptibility of new organoclays. The FTIR, XRD and CHNS elemental analysis results shown that the three new organic cations acrylonitrile/montmorillonite were successfully incorporated in the Montmorillonite clay. X-ray diffraction indicates that the basal spacings in acrylonitrile/montmorillonite of the treated clay with TEA, TPA and TOA individually increased by 14.2, 15.1 and 19.5Å, respectively. FTIR spectra illustrate that amine compounds were successfully intercalated into the clay layers.

Keyword: Sodium montmorillonite; Triethyl amine; Surfactant.