Influence of Layered Silicates on Thermal and Mechanical Properties of PU/Organo Clay Nanocomposite

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An interclated nanocomposite based on polyurethane acrylate and Cloisite 20A have been synthesized by solution blending method and their morphology, thermal and mechanical properties, water absorption were evaluated. The structures of PU/C-20A nanocomposite were confirmed by X-ray diffraction (XRD) and transmission electron microscopy (TEM). The thermal and mechanical properties of PU/C-20A nanocomposite were investigated by thermal gravimetric analysis (TGA) and differential scanning calorimetric (DSC). The formation of nanocomposite manifests through the enhancement of thermal and mechanical properties as compared with neat PU due to the nanometer-sized dispersion of layered silicate in polymer matrix. These results indicate that nanocomposition is an efficient and convenient method to improve the properties of PU.