

### Synthesis and Characterization of Soluble Polyimide-Clay nanohybrid

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Soluble polyimide(PI) was prepared by reacting 4,4'-Oxydianiline (ODA), Hexafluoroisopropylidene Bisphthalic Dianhydride (6FDA). Cloisite 20B (C-20B) was used by solution blending method for improving PI's properties. Different loading levels of C-20B improved PI's thermal and mechanical properties while the water absorption capacity has been reduced. The structures of PI/C-20B nanohybrids were confirmed by fourier transform infrared spectroscopy (FTIR) while X-ray diffraction and transmission electron microscopy (TEM) showed the intercalation of PU into layer silicates. The thermal properties of PI and PI/C-20B nanohybrids were investigated by thermal gravimetric analysis (TGA) and differential scanning calorimetric (DSC). Thus the formations of nanohybrids manifests through the enhancement of thermal, mechanical and anti-water absorption properties as compared with neat PI due to the nanometer-sized dispersion of layered silicate in polymer matrix.