

## Preparation and Characterization of Copolyimide/Silica Nanocomposites

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A series of random and block copolyimide/silica nanocomposites have been prepared from an aromatic polyamic acid derived from 4,4'-oxydianiline (ODA), 1,4-phenylene diamine (PDA) and 1,2,4,5-benzotetracarboxylic dianhydride (PMDA) and a silica network. In this study, Tetraethyl Orthosilicate (TEOS) was used for generating inorganic polymer with the structure of Si-O-Si bond. Random and block copolyimide/silica nanocomposites were synthesized with the different silica contents and their cured films were all transparent. For the analysis, they were analyzed by FTIR spectroscopy, Thermogravimetric analyzer (TGA), Prism coupler, Dielectric constant analyzer, Thermomechanical analyzer (TMA) and X-ray diffractometer (XRD). Therefore, thermal stability, dielectric constant, coefficient of thermal expansion (CTE), and morphological structure were obtained.