

Poly (Acrylonitrile-Co-Methylacrylate)/Poly N-Methyl Pyrrole and Pyrrole Nanocomposites

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Abstract : In this study, Poly (acrylonitrile-co-methylacrylate)/N-Methyl Pyrrole and Pyrrole ([P(AN-co-MA)]-NMPy and [P(AN-co-MA)]-PPy) core-shell nanoparticles were obtained by in situ emulsion polymerization in the presence of Sodium dodecyl benzene sulfonate and sodium dodecyl sulfate (SDBS and SDS) by using ammonium per sulphate in the aqueous medium. The spectroscopic characterizations during the formation of nanocomposites were studied using Attenuated total reflectance Fourier transform infrared (FTIR-ATR) spectroscopy, ultraviolet-visible spectrophotometer (Uv-Vis). Electrical conductivity of the emulsion solution was measured by Conductivity Meter from aqueous sample solution. Also, yield of the powder nanocomposites was measured. SDBS and SDS used for investigation of surfactant effect on yield, electrical conductivity and polymerization process. Determination of polymerization yield, (FTIR-ATR) and (Uv-Vis) prove that the SDBS surfactant become more incorporated into the conducting polymers and there is strong interaction between the [P(AN-co-MA)]-PPy derivatives which prepared by these surfactants. The similar inclusion of SDS into conducting polymers was not observed, there is a remarkable difference at nanocomposites which prepared with SDS.

Keywords : nanocomposites, core-shell, pyrrole, surfactant

Conference Title : ICTE 2016 : International Conference on Textile Engineering

Conference Location : Sydney, Australia

Conference Dates : December 15-16, 2016