

Synthesis and characterization of a PSSA-Polyaniline composite with enhanced processability in thin films

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Abstract

In this paper we report synthesis and investigation of a composite based on poly(4-styrenesulfonic acid) (PSSA) and polyaniline (PANI) directly obtained in aqueous PSSA medium, with improved thermal stability, conductivity and solubility in polar solvents. The oxidative polymerization reaction of aniline takes place *in-situ* with PSSA as protonating agent. The synthesis was tested at three PSSA/ANI molar ratios, an intense green colored aqueous composite solution being obtained in each case. For comparison purposes, commercially available water soluble polyaniline and PSSA were also investigated. PSSA-PANI composites, PANI and PSSA were investigated through thermal analysis, FT-IR and Raman spectroscopy. Thin films of PSSA/PANI composites were spin coated on glass substrates which were further investigated through AFM and SEM. Also, composite films were deposited on interdigitated electrodes for dielectric measurements.