

PROCESSING AND DIELECTRIC STUDY OF POLYCARBONATE AND BEDO-TTF/POLYCARBONATE FILMS. Parul Jain, Jennifer Wedebroek, Dr. Julie Harmon, Department of Chemistry, University of South Florida, 4202 E. Fowler Ave CHE205, Tampa, FL 33620.

In the last few decades, there has been growing interest in conductive polymers and composites due to an array of potential applications. BEDO-TTF is a potential candidate for the preparation of crystalline organic metals, superconductors and metal like composites. The present study addresses the effect of Bis (ethylenedioxy) tetrathiafulvalene (BEDO-TTF) on electrical, thermal, and dielectric behavior of Bisphenol A-Polycarbonate and dye doped films, which were produced by the solution casting technique. Dielectric analysis (DEA) study revealed multiple transitions in neat and dye doped PC films. The beta relaxation process below T_g exhibited an Arrhenius behavior, whereas above T_g it showed William-Landel-Ferry (WLF) temperature dependence. This study also showed a separation of conductivity from viscoelastic relaxations. Four point probe helped in understanding the electrical behavior. Neat and dye doped films are non-conductive whereas dye doped films become conductive upon exposure to an electron acceptor, iodine. The conductivity of the films ranged from $1.881\text{E-}4$ to $1.142\text{E-}5 \text{ Scm}^{-1}$ at room temperature.