

CONDUCTING PROPERTIES OF ELECTROSPUN EXPANDED POLYSTYRENE (EPS) / CARBON BLACK NANOFIBRE BLEND

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ABSTRACT

Polymer waste re-use is crucial to minimize waste generation. Nanostructuring of these wastes to advance material can enhance application as sensor, filters, fillers, etc. Therefore, this study is aimed at investigating the conducting properties of electrospun expanded polystyrene and expanded polystyrene / carbon black nanofibre. The morphology of the fibers were analyzed using optical microscope, the chemical bonding was determined by UV-Visible spectrophotometer and Fourier Transform Infrared (FTIR), and electrical properties was characterized using Four point probe. Non beaded fibre was obtained with no conducting properties. The molecular bond revealed enhanced $\pi - \pi^*$ transition in the composite fibre. The composite fibre showed conducting property in I-V characteristics that at low concentrations of carbon black. Cheap conducting polymer blend is presented with potential application as sensor and energy devices.