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**Characterization of Polyethylene terephthalate substrate for optoelectronic applications**

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**Abstract**

In this paper different techniques are used for characterization the structural, electrical and optical properties of the polyethylene terephthalate (PET) substrate (2X8) cm with thickness of 200  $\mu\text{m}$ . The PET substrate was characterized by Fourier Transform Infrared spectroscopy (FTIR), Raman spectrometer, Photoluminescence spectroscopy (PL), atomic force microscopy (AFM), scanning electron microscopy (SEM), energy dispersive X-ray (EDX), X-ray diffraction (XRD), a four-point probe, Differential Scanning Calorimetry (DSC) and Thermo gravimetric Analysis (TGA), respectively. Based on functional properties of PET substrate, currently, there is a growing interest in optoelectronic applications. Based on this work, functional properties of PET, such as wettability, hardness, cost, electrical and optical properties can be achieved by tailoring of the morphology of the substrate. The data presented in this paper indicated that the PET films have very high resistivity and sheet resistant. These functional properties make PET substrate to become a suitable and useful material for optoelectronic applications. In this report the, the materials, methods and obtained results will be presented in detail.

**Key words:** Poly (Ethylene Terephthalate) (PET); Morphology and Crystallinity

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