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INVESTIGATION OF STRUCTURAL AND OPTICAL PROPERTIES OF SEMICONDUCTOR POLYMER POLY (5-(2-ETHYLHEXYLOXY)-2-METHOXY-CYANOTEREPHTHALYLIDENE)

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Abstract: Nowadays, polymer electronic devices can be used in a wide range of applications. Especially, conjugated polymers have been studied due to their unique electronic and optical properties. These polymer materials are used in many fields such as organic light emitting diodes (OLEDs), Schottky diodes, organic solar cells, organic field effect transistors (FETs), photodetectors, detection systems and batteries. In this study, among conjugated polymers (Cyano-Polyphenylenevinylene, CN-PPV polymers group) poly (5-(2-ethylhexyloxy)-2-methoxy-cyanoterephthalylidene) was investigated (Figure 1) because this polymer has important properties such as semiconductivity and photoconductivity. We have investigated structural and optical properties of this polymer by using IR, Raman and UV measurements. As a result, IR and Raman spectra peaks of polymer were found that correspond to groups in the structure. In addition, the direct and indirect band gaps of the polymer from UV measurement were obtained as 2.5 and 2.22 eV, respectively.

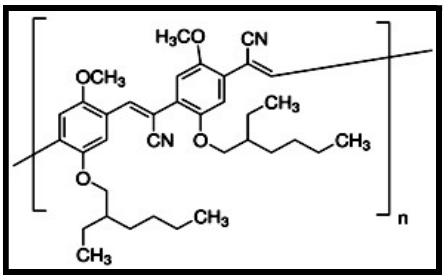

Figure 1. Poly(5-(2-ethylhexyloxy)-2-methoxy-cyanoterephthalylidene)

Keywords: *Polymers; Optical properties; Band gap; Raman spectra; IR spectra.*

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