DETERMINATION OF PMMA BLOCK SEMICONDUCTOR

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ABSTRACT

DETERMINATION OF POLY METHYL MATACRYLATE (PMMA) BLOCK SEMICONDUCTOR

In this study, the Poly methyl metacrylate (PMMA) block was irradiated using Electron beam accelerator at 50kGY. The band gap energy obtained from this irradiated PMMA sample was 3.4450 eV which fall in the range of most common semiconductor. From the hot probe measurement it was found that this irradiated PMMA was n-type semiconductor. Therefore it was can be concluded that the charge carries in this irradiated system was electrons. These electrons were release from the breaking of –CH bond of the methylene group $–CH_{2,}$ and the CH_3 group of PMMA structure that had been confirmed from the Fourier Transform Infrared (FTIR) analysis. The decreased in the glass transition temperature, Tg and the decomposition temperature of the irradiated PMMA system observed from the Differential Scanning Calorimetry (DSC) and Thermogravimetric analysis (TGA) thermograms supported the occurrence of bond breaking.