

Synthesis and Characterization of Bio material based Polyurethane

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Generally, polyurethane has been produced by petroleum based polyols, isocyanates and chain extenders. Recently, polyurethane researches about polyols and chain extenders have been replaced by the bio-based material from petrochemical-based materials because of petroleum resources depletion and environmental problems. The castor oil consisting of ricinoleic acid and hydroxy group has reacted with isocyanate to form polyurethane. Isosorbide was bio material based diol and it has been evaluated as excellent non toxic, thermal stabilities and chemical stabilities. In this study, Bio materials based polyurethane was synthesized by prepolymer polymerization of MDI, PTMEG, castor oil, isosorbide and 1,4-butane diol. ATR-FTIR spectra confirmed the formation of polyurethane and polymer phase morphology was confirmed by AFM. Physical properties were determined by DSC, TGA, GPC and UTM.

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