ABSTRACT

PREPARATION AND CHARACTERIZATION OF PLASTIC FROM THE MIXTURE CELLULOSE OF SOLID WASTE TAPIOCA AND LDPE USING SINGLE SCREW EXTRUDER

By

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Plastic from the mixture of cellulose and Low Density Polyethylene (LDPE) had been made by using single screw extruder. Plastics were made in the form of film using split capillarity dies. Mixture of plastic was added with glycerol as plasticizer with variations of cellulose as fixed and variable on the contrary. The results show that the plastic produced slightly more rigid due to the addition of cellulose. The thermal properties of film plastics was Differential Scanning Colorimetry (DSC). The DSC thermogram shows the addition of cellulose resulted in shifting melting point of LDPE, while the addition of glycerol resulted in decreasing melting point of a mixture of plastic film. The decomposition process of film plastic using TG/DTA show that the amount of plastic decomposition process is not stable due to unhomogeneous mixture of cellulose-LDPE. The best results from the composition of the plastic is then characterized using FTIR and FTIR results showed that only mixed plastics without chemical interaction because only a shift in wavelength.

Keyword: LDPE, Cellulose, Extruder, Glycerol, DSC, TGA.