

**UTILIZATION OF RECYCLE  
POLYETHYLENE (PE) BLEND WITH  
VARIOUS CORN STARCH LOADING**

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## ABSTRACT

A low density polyethylene /linear low density polyethylene (LDPE/LLDPE) corn starch blend with various corn content were produced by using the Tumbler mixer and extrusion blow film machine. Apart from that, the biodegradation of the mechanical and physical properties to prepared biodegradation LDPE/LLDPE was investigated. Water absorption increase from 0.41g on 1% of corn starch to 0.47g on 4% of corn starch. High the corn loading promotes high water absorption due to hydrophilic properties of corn. Water absorption increase from 11% to 17% as corn starch content increase from 1% to 4% respectively. The mechanical properties was carried out and value of tensile strength of the LDPE/LLDPE corn blend decrease from 16.50MPa of LDPE/LLDPE to 4.88MPa 4% of corn content and elongation at break Absorbance peaks of ATR-FTIR spectrum showed the main absorption peak of LDPE and LDPE/CS blend which indicated the compatibility between corn starch and LDPE. However, biodegradability of the films increased as the starch content increased as it can be seen by the percentage of weight loss of each film. The corn starch content was optimized to 3 % as it promotes good degradability of the plastic film and it also has similar mechanical performance of LDPE/LLDPE film.