

## **Environmentally Degradable Sago Starch Filled Low-Density Polyethylene**

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### **ABSTRACT**

Degradable native low density polyethylene (LDPE) and modified LDPE films containing 5–30 wt% of sago starch, and LDPE with prodegradant additives in the form of a master batch (MB) in the amounts of 30% starch were prepared by twin screw extrusion followed by injection molding. Studies on their mechanical properties such as tensile strength and elongation at break and biodegradation were carried out by tensile test and exposure to hydrolysis, fungi environment as well as by natural weathering and burial in soil. The presence of high starch contents had an adverse effect on the tensile properties of the blend films. High starch content was also found to increase the rate of biodegradability of the films. The characteristic parameters of the environment were measured during the period of degradation and their influence on degradation of LDPE was discussed. Changes in weight, morphology, thermogravimetric analysis (TGA) and tensile properties of polymer samples were tested during the experiment performed.

**KEYWORDS:** biodegradability; blends; LDPE; mechanical properties; sago starch

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