

Pengurangan Laju Degradasi Sifat-sifat Mekanis Material Komposit Melalui Proses Asetilasi (Sudiyatno)

**PENGURANGAN LAJU DEGRADASI
SIFAT-SIFAT MEKANIS MATERIAL KOMPOSIT
MELALUI PROSES ASETILASI**

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Abstract

One of problems commonly faced in producing composite materials with natural fibers, as reinforcement is the degradation rate of their mechanical properties due to environmental influence. To overcome this problem, acetylation with acetic anhydride has been applied to two different wood fibres, high thermomechanical pulp (HTMP) and Kraft pulp fibres, taken from Radiate Pine. In this experiment, the effect of acetylation on the mechanical properties and water absorption of wood fibre/polypropylene composites has been studied. The mechanical test results showed that the Kraft pulp composites have better properties compared to HTMP fibre composites. The water absorption test results revealed that the acetylation significantly reduced the rate of water absorption of both composites made of HTMP fibre and Kraft pulps. Furthermore, because of the higher WPG (weight percent gain) of acetylation, the water absorption of the HTMP fiber composites was lower than that of the Kraft pulp composites. After 1200 hours of immersion, both acetylated fibre composites had reasonably better mechanical properties than those of the untreated composites did. In addition, the properties of the Kraft pulp composite degraded more than those of the HTMP fiber composites. This indicates that the moisture not only degraded the interfacial adhesion, but also degraded the Kraft pulp fibre.