

Karakterisasi komposit linear low density polyethylene-serat nanas-organoclay Pacitan = Characterization of linear low density polyethylene-pineapple fiber-organoclay Pacitan composite

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Abstrak

Komposit yang terbuat dari linear low density polyethylene diperkuat serat nanas dan organoclay Pacitan telah berhasil difabrikasi. Clay Pacitan dimodifikasi menggunakan cetyltriethylammonium bromide dan asam sulfat menghasilkan peningkatan basal spacing sebesar 0,65 nm. Material komposit difabrikasi menggunakan metode compression molding. Modulus lentur dan tarik tertinggi, 3,7 GPa dan 1,42 GPa, didapatkan pada komposit dengan kandungan organoclay 7 Wt%. Penambahan organoclay 1 wt% meningkatkan kekuatan lentur sebesar 15,9 %. Sedangkan, nilai kekuatan tarik tertinggi diperoleh untuk bahan tanpa kandungan clay dan cenderung menurun saat terdapat organoclay. Kemudian, hasil pengujian heat deflection temperature menunjukkan suhu defleksi panas tertinggi didapatkan untuk komposit dengan penambahan organoclay 1wt%.

.....Composite materials made from linear low density polyethylene reinforced pineapple fiber and organoclay Pacitan were successfully fabricated. Clay Pacitan Was modified by cetyltrimethylammonium bromide and sulfuric acid creating an increase in the basal spacing Width of 0.65 nm. The composite materials Were fabricated using a compression molding technique. The highest values of flexural and tensile moduli Were 3.7 GPa and 1.42 GPa, respectively obtained in the composites with the organoclay content of 7 wt% content. The addition of 1 Wt% organoclay increased the flexural strength of 15.9 %. Meanwhile, the highest tensile strength values obtained in the pristine polymer materials and tended to decrease When organoclay content increased. In addition, the heat deflection temperature test result showed that the highest value was obtained for the composite with the addition of 1 wt% organoclay.