ANALISIS KEKUATAN *IMPACT* DAN MODEL PERPATAHAN KOMPOSIT *POLYESTER* BERPENGUAT SERAT ALAM IJUK

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui perbedaan kekuatan *impact* tipe serat *continuous, discontinuous,* dan *woven* serta untuk mengetahui model patahan komposit *polyester* berpenguat serat alam ijuk. Penelitian ini menggunakan metode eksperimen dimana variabel bebasnya yaitu tipe serat *continuous, discontinuous,* dan *woven* serta variabel terikat adalah kekuatan *impact*. Berdasarkan hasil pengujian yang telah dilakukan serta melakukan analisis data didapatkan hasil dari nilai rata-rata pada tipe serat *continuous* sebesar = 1.082,88 J/m^2, *discontinuous* sebesar = 794,67 J/m^2 dan *woven* sebesar = 1.427,06 J/m^2 . Dari data tersebut dapat disimpulkan bahwa tipe serat memiliki perbedaan yang signifikan terhadap kekuatan *impact*. Tipe serat *woven* memiliki nilai yang lebih tinggi dibandingkan dengan tipe serat *continuous* dan *discontinuous*. Pada tipe serat *discontinuous* memiliki nilai lebih rendah daripada tipe serat *continuous*. Secara mikroskopik pada pola patahan komposit *polyester* berpenguat serat alam ijuk menunjukan mekanisme patahan getas (*briettle)* pada semua spesimen uji. Namun pada spesimen tipe serat *discontinuous* kondisi patahan menunjukkan mekanisme *brush type*.

Kata kunci : tipe serat, kekuatan *impact*, model patahan

THE ANALYSIS OF IMPACT FORCES AND POLYESTER COMPOSITES FRACTURE MODEL WITH NATURAL PALM FIBERS

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ABSTRACT

The objective of this study is to found differences in impact forces between continuous, discontinuous, and woven fiber type of the polyester composites with natural palm fibers and to find out the description of the microfracture structure. This study used experimental methods with independent and dependent variables. The independent variables are continuous, discontinuous, and woven fiber type. Then, the dependent variable was impact forces. Based on the results of tests, show that results from the average score at continuous fiber type = 1.082.88 J/m2, discontinuous = 794.67 J/m2 and woven = 1.427.06 J/m2. The conclusion of this study is between various fiber orientations was a significant difference in impact forces. The type of woven fibers has a higher value compared to the type of continuous and discontinuous fibers. Discontinuous fiber type has a lower score than continuous fiber type. The fracture model of polyester composite with natural palm fibers showed the mechanism of brittle fracture (brittle) in all test specimens. However, in specimens with the type of continuous fibers and woven, the fracture conditions indicate a brush fracture mechanism.

***Keywords** : fibers type, impact forces, fracture model*