ABSTRAK

Raden Aditya 2022. Pengujian Kenerja Alat Uji Tarik Berbasis Digital Dengan Spesimen Komposit Fragmentasi Berpenguat Serat Sabut Kelapa (Dibimbing oleh Dr.Ir.Mukhlis M, S.T., M.T. dan Ir.Ahmad Seng, M.T.)

Uji Tarik adalah alat pengujian yang sering digunakan untuk mengetahui sifat dari suatu material. Salah satu diantaranya adalah alat uji tarik komposit, seiring dengan perkembangan teknologi bahan alat uji tarik yang masih berbasis analog harus beralih ke berbasis digital sehingga diperlukan cara untuk memaksimalkan penggunaan alat uji tarik komposit berbasis digital. Tujuan penilitian adalah untuk mengetahui tingkat ketelitian pada hasil alat uji tarik komposit dan mengetahui pengaruh perlakuan serat sabut kelapa dengan asap cair terhadap kekuatan tarik komposit fragmentasi.

Metode yang dilakukan meliputi uji tarik fragmentasi tanpa perlakuan, perlakuan 1 jam sebanyak 20 spesimen, perlakuan 2 jam sebanyak 20 spesimen, dan perlakuan 3 jam sebanyak 20 spesimen, jadi total spesimen uji sebanyak 80 spesimen.

Hasil penilitian menunjukan bahwa alat uji tarik komposit serat alam berbasis digital mampu mengukur gaya (F) tarik sebesar 284 N dari 80 spesimen. Adapun dari pengujian dengan variasi spesimen tampa perlakuan, perlakuan 1 jam, perlakuan 2 jam, dan perlakuan 3 jam menunjukan hasil bahwa kekuatan tarik (σ) terbesar terjadi pada perlakuan 2 jam sebesar 39,313 Mpa.

Kata kunci : Serat Sabuk Kelapa, Uji Tarik, Fragmentasi

ABSTRACT

Raden Aditya 2022. Performance Testing of Digital Based Tensile Test Equipment With Fragmentation Composite Specimens Reinforced by Coconut Coir Fiber (Supervised by Dr.Ir.Mukhlis M, S.T., M.T. and Ir.Ahmad Seng, M.T.)

Tensile Test is a testing tool that is often used to determine the properties of a material. One of them is composite tensile test equipment, along with the development of technology for tensile test equipment, which is still analog-based, must switch to digital-based so that a way is needed to maximize the use of digital-based composite tensile test equipment. The purpose of this study was to determine the level of accuracy in the results of the composite tensile test equipment and to determine the effect of the treatment of coco fiber with liquid smoke on the tensile strength of the fragmentation composite.

The methods carried out included the tensile fragmentation test without treatment, 20 specimens for 1 hour treatment, 20 specimens for 2 hours treatment, and 20 specimens for 3 hours treatment, so the total test specimens were 80 specimens.

The results showed that the digital-based natural fiber composite tensile test equipment was able to measure the tensile force (F) of 284 N from 80 specimens. As for testing with variations in specimens without treatment, treatment for 1 hour, treatment for 2 hours, and treatment for 3 hours, the results showed that the greatest tensile strength (σ) occurred in the 2-hour treatment of 39.313 Mpa.

Keywords : Coconut Belt Fiber, Tensile Test, Fragmentation