

INTISARI

Kampas rem merupakan suatu komponen kendaraan yang berfungsi menghentikan atau memperlambat laju kendaraan. Kampas rem pada penelitian ini dibuat menggunakan bahan dasar limbah batang salak serta resin *phenolic* sebagai bahan pengikat. Penelitian ini bertujuan untuk mengetahui karakteristik sifat fisik dan mekanik dari komposisi berdasarkan variasi fraksi volume partikel serat salak.

Pembuatan Material kampas rem ini dilakukan dengan proses kompaksi, dengan tekanan sebesar 4 ton dan ditahan selama 20 menit dengan suhu 120°C. Setelah mencapai *holding time* yang diinginkan, material dimasukkan kedalam oven dan dilakukan proses sintering dengan suhu 150° C selama 90 menit.

Variasi fraksi volume partikel dibuat 0%, 20%, 25%, 30%, 35%, 45%, dan 55%. Pengujian yang dilakukan meliputi uji keausan dan uji kekerasan. Dari hasil pengujian keausan tersebut diketahui spesimen komposit serat salak dengan komposisi serat 55% memiliki nilai abrasi spesifik paling rendah atau ketahanan aus paling tinggi dibandingkan dengan spesimen komposit dengan komposisi serat yang lain yaitu sebesar $4,3 \times 10^{-7}$ mm²/kg. Lalu dari hasil perhitungan uji kekerasan diketahui spesimen komposit serat salak yang memiliki komposisi 55% serat, nilai kekerasannya lebih besar dibandingkan dengan spesimen komposit yang lain yaitu sebesar 221,86 N/mm².

Kata kunci: serat, kampas rem, resin *phenolic*, keausan, kekerasan

ABSTRAK

Brake pads is a vehicle component that functions to stop or slow the pace of the vehicle. The brake pads in this research were made of snake fruit stem waste as the base material and phenolic resin as the binder. This study aims to determine the characteristics of physical and mechanical properties of the composition based on variations in volume fraction of snake fruit fiber particle.

Brake pads material were made by compaction process, with pressure of 4 tons and held for 20 minutes with a temperature of 120°C. After reaching the desired holding time, the material were inserted into the oven and sintered with a temperature of 150°C for 90 minutes.

Variations in particle volume fractions were made at 0%, 20%, 25%, 30%, 35%, 45%, dan 55%. Tests performed include wear test and hardness test. From the result of the wear test, it is known that the composite salak fiber specimen with 55% fiber composition has the lowest specific abrasion value or the highest wear resistance compared to composite specimen with other composition fiber which is $4,3 \times 10^{-7} \text{ mm}^2/\text{kg}$. Then from the result of calculation of hardness test, it is known that the specimen composite of snake fruit fiber which have composition of 55% fiber, its hardness were harder than the other composite specimen that is equal to 221,86 N/mm².

Keywords: fiber, brake pads, phenolic resin, wear, hardness