

## **Kajian Sifat Mekanikal Papan Serpai Berlapis Mengandung Habuk Kayu Gergaji**

The study was conducted to determine the mechanical properties of a three layered and homogeneous particleboard produced from tropical hardwoods sawdust with the targeted density of 750kg/m<sup>3</sup>. Homogeneous particleboards are made from wood particles size ranges retained at 0.6 mm sieve size and passed through 1.18mm sieve size. Three layer panel were made using fine particles (0.6mm - 1.18mm) and coarse particles (1.18mm - 2.36mm) for top and bottom surfaces and core material respectively. Three layers particleboard was produced at ratio of 25: 50 : 25 for top : core : bottom properties. Urea formaldehyde used was 12% for homogeneous particleboards, while for the 3 layer particleboards 12% urea formaldehyde was used for the surface and bottom material (0.6mm - 1.18mm) and 9% was used for core material (1.18mm - 2.36mm). For both types of particleboards 1% wax, 3% hardener and 0 - 40% polyethylene was used. The modulus of elasticity, modulus of rupture, internal bond, thickness swelling and water absorption of particleboards were determined according to British Standards Institution (BS EN Standard). Results of the study indicate that, 70% and 30% of sawdust and polyethylene respectively can produce three layer particleboard that conform to the BS EN Standard with the exception of modulus of elasticity and modulus of rupture whereby only 40% -50% of the requirements are met. Therefore, this particleboard has a great potential for non critical industrial and utility applications where strength, smoothness, and edge quality are not the significant requirements such as flooring, ceiling and partitions.