

PENGARUH SUHU KEMPA DAN JUMLAH PEREKAT TERHADAP
SIFAT-SIFAT PAPAN PARTIKEL LIMBAH PASAHAN
BAMBU PETUNG (*Dendrocalamus Asper* Backer)

Hidayat¹⁾ dan T. A. Prayitno²⁾

INTISARI

Teknologi papan partikel merupakan salah satu alternatif teknologi yang dapat dimanfaatkan untuk mengolah limbah pasahan bambu. Kualitas papan partikel dipengaruhi oleh berbagai faktor diantaranya suhu kempa dan jumlah perekat. Penelitian ini dilakukan agar dapat memberikan informasi mengenai sifat-sifat papan partikel dengan bahan baku pasahan limbah dari bambu petung (*Dendrocalamus asper* Backer) serta untuk mengetahui pengaruh suhu kempa dan jumlah perekat urea formaldehida terhadap kualitas papan partikel yang dihasilkan.

Bahan penelitian berupa partikel bambu petung, perekat urea formaldehida (UA-147), dan hardener (NH_4Cl). Penelitian ini menggunakan rancangan acak lengkap dengan percobaan dua faktor, faktor yang pertama yaitu suhu kempa (150°C dan 170°C), faktor yang kedua yaitu jumlah perekat (5%, 10% dan 15%) sehingga diperoleh 6 kombinasi perlakuan dengan 3 kali ulangan. Parameter yang diuji dalam penelitian ini adalah kerapatan, kadar air, penyerapan air, pengembangan tebal, modulus patah, modulus elastisitas, dan keteguhan *internal bonding*, pengujian ini berdasarkan standar ASTM D 1037-64.

Hasil penelitian menunjukkan interaksi faktor suhu kempa dan faktor jumlah perekat berpengaruh sangat nyata terhadap keteguhan *internal bonding*. Faktor jumlah perekat juga berpengaruh sangat nyata terhadap keteguhan *internal bonding*. Faktor suhu kempa berpengaruh nyata terhadap MOR dan berpengaruh sangat nyata terhadap kerapatan, kadar air, penyerapan air, pengembangan tebal, dan *internal bonding*. Nilai kerapatan tertinggi yaitu $0,8877 \text{ g/cm}^3$ pada interaksi A1P3. Nilai kadar air terendah yaitu 7,6911 % pada interaksi A2P3. Nilai penyerapan air terendah yaitu 5,6994 % pada interaksi A1P3. Nilai pengembangan tebal terendah yaitu 42,0456 % pada interaksi A1P3. Nilai modulus patah tertinggi yaitu $46,4099 \text{ kg/cm}^2$ pada interaksi A1P3. Nilai modulus elastisitas tertinggi yaitu $10689,95 \text{ kg/cm}^2$ pada interaksi A2P3. Nilai keteguhan *internal bonding* tertinggi yaitu $5,3038 \text{ kg/cm}^2$ pada interaksi A1P3.

Kata kunci : Bambu Petung, Papan Partikel, Suhu kempa, Jumlah Perekat

¹ Mahasiswa Jurusan Teknologi Hasil Hutan, Fakultas Kehutanan UGM

² Staf Pengajar Jurusan Teknologi Hasil Hutan, Fakultas Kehutanan UGM

**THE EFFECT OF PRESSING TEMPERATURE AND THE NUMBER OF
UREA FORMALDEHIDA ADHESIVE TOWARD
THE CHARACTERISTIC OF PARTICLEBOARD OF
PETUNG BAMBOO (*Dendrocalamus asper* Backer) CHISEL WASTE**

Hidayat¹ and T. A. Prayitno²

ABSTRACT

Particleboard technology is one of the alternatives technology, that can be used to process bamboo chisel waste. The quality of particleboard affected by various factors such as pressing temperature and the number of adhesive. The research aimed to give information about the characteristics of particleboard using petung bamboo (*Dendrocalamus asper* Backer) waste raw material and to find out the effect of the pressing temperature and the number of urea formaldehida adhesive toward the quality of resulted particleboard.

The research material consist of petung bamboo particle, urea formaldehida adhesive (UA-147), and hardener (NH₄CL). The research use completely random design with two factors. The first factor was pressing temperature (150°C and 170°C), the second factor was the number of adhesive (5%, 10%, and 15%) and it be obtained 6 kinds of combinations with 3 times repeatable. The parameter that measured were density, moisture content, water absorption, thickness swelling, modulus of rupture (MOR), modulus of elasticity (MOE), and internal bonding strength, the testing based on ASTM D 1037-64 standard.

The result showed that the interaction between pressing temperature and the number of adhesive had very significant effect towards internal bonding. The number of adhesive factor also had very significant effect towards internal bonding. The pressing temperature factor had significant effect towards modulus of rupture (MOR) and had very significant effect towards density, moisture content, water absorption, thickness swelling, and internal bonding. The highest value of density was 0,8877 g/cm³ (A1P3). The lowest value of moisture content was 7,6911 % (A2P3). The lowest value of water absorption was 55,6994 % (A1P3). The lowest value of thickness swelling was 42,0456 % (A1P3). The highest value of modulus of rupture was 46,4099 kg/cm² (A1P3). The highest value of modulus of elasticity was 10689,95 kg/cm² (A2P3). The highest value of internal bonding was 5,3038 kg/cm² (A1P3).

Key words: Petung Bamboo, Particle Board, Pressing Temperature, Number of Adhesive.

¹ Student of Forest Result Technology Department, Forestry Faculty UGM

² Lecturer staff of Forest Result Technology Department, Forestry Faculty UGM