

**PENGARUH JENIS PELARUT DAN JUMLAH ASAM SITRAT  
TERHADAP SIFAT MEKANIKA PAPAN PARTIKEL DARI AMPAS  
TEBU (*Bagasse*)**

Oleh :

Fitri Nur Hikmawati<sup>1</sup>

Agus Ngadianto<sup>2</sup>

**INTISARI**

Peningkatan kebutuhan kayu oleh masyarakat semakin tinggi, namun produktivitas hutan semakin menurun. Untuk mengatasi masalah tersebut maka perlu inovasi penggunaan bahan lain pengganti kayu seperti papan partikel. Salah satu bahan yang dapat diolah menjadi papan partikel adalah ampas tebu (*bagasse*). Penelitian ini bertujuan untuk mengetahui interaksi antara kadar perekat dan jenis pelarut terhadap sifat mekanika papan partikel dari limbah ampas tebu.

Pada penelitian ini menggunakan metode rancangan acak lengkap (*Completely Randomize Design*) secara faktorial dengan dua perlakuan dan tiga kali ulangan pada tiap percobaan. Perlakuan yang digunakan adalah jenis pelarut (asap cair dan aquades) dan kadar perekat (10%, 20%, 30%). Partikel yang digunakan adalah partikel yang lolos saring 10 mesh dan tertahan 60 mesh. Partikel dikeringkan kemudian dicampur dengan larutan perekat, dikempa selama 10 menit dengan suhu 200°C dengan tekanan 1000 Psi. Parameter yang diuji berupa sifat mekanika antara lain kerapatan, modulus patah (MOR), modulus elastisitas (MOE), dan keteguhan rekat internal.

Hasil penelitian ini menunjukkan bahwa interaksi jenis pelarut dan kadar perekat tidak berpengaruh nyata pada semua parameter yang diuji. Parameter yang sesuai dengan standar JIS A 5908:2003 hanya kerapatan dan keteguhan rekat internal saja, sedangkan untuk modulus patah (MOR) dan modulus elastisitas (MOE) belum memenuhi standar. Papan partikel dengan perlakuan jenis pelarut asap cair dan kadar perekat 20% memiliki nilai uji mekanika terbaik, yaitu nilai kerapatan 0,632%, nilai modulus patah (MOR) sebesar 73,179 kgf/cm<sup>2</sup>, nilai modulus elastisitas (MOE) sebesar 21.008,640 kgf/cm<sup>2</sup>, dan nilai keteguhan rekat internal (IB) sebesar 1,613 kgf/cm<sup>2</sup>.

Kata kunci : jenis pelarut, kadar perekat, ampas tebu, sifat mekanika

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<sup>1</sup> Mahasiswa Program Studi Pengelolaan Hutan, SV-UGM NIM :  
15/386317/SV/09703

<sup>2</sup> Dosen Pembimbing Program Studi Pengelolaan Hutan, SV-UGM

## **THE EFFECT OF SOLVENT TYPE AND ADHESIVE CONTENT AGAINST MECHANICAL PROPERTIES OF PARTICLE BOARD FROM BAGASSE**

by :

Fitri Nur Hikmawati<sup>1</sup>

Agus Ngadianto<sup>2</sup>

### **ABSTRACT**

The demand of timber by community is increasing, however forest productivity is declining progressively. The solution of this problem is innovation on the application of other material that can substitute timber such as particle board. One of materials that can be turned into a particle board is bagasse. The aim of this research is knowing the interaction between adhesive content and solvent type to mechanical properties of particle board that made of waste bagasse.

This research used a complete randomized design methods in factorial with two treatments and three replication on each treatment. The treatment were solvent type (liquid smoke and aquadest) and adhesive content (10%, 20%, 30%). The particles used in this research were particles that passed through 10 mess filter and retained on 60 mess filter. The particles were drained and mixed up with the adhesive solution, then forged for 10 minutes at temperature of 200°C and 1000 Psi pressure. The tested parameters were mechanical properties such as density, modulus of reptime (MOR), modulus of elasticity (MOE), and internal bonding.

The result of this research shows that the interaction between solvent type and adhesive content has no significant effect in all tested parameters. The parameters that conform to JIS A 5908: 2003 Standard are only density and internal bonding, while the modulus of reptime (MOR) and modulus of elasticity (MOE) are not fulfill the standard. The particle board with liquid smoke solvent and 20% adhesive treatment had the best mechanical test mark, which the mark of density was 0,632%, mark of the modulus of reptime (MOR) was 73,179 kgf/cm<sup>2</sup>, mark of modulus of elasticity (MOE) was 21.008,640 kgf/cm<sup>2</sup>, and mark of internal bonding (IB) was 1,613 kgf/cm<sup>2</sup>.

Keywords: solvent type, adhesive content, bagasse, mechanical properties

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<sup>1</sup> Student of Program Study Forest Management , SV-UGM

<sup>2</sup> Lecture of Program Study Forest Management , SV-UGM