KARAKTERISTIK *ORIENTED STRAND BOARD* DARI LIMBAH VINIR SENGON DENGAN PERLAKUAN PENDAHULUAN DAN KADAR PEREKAT YANG BERBEDA

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INTISARI

Oriented strand board (OSB) merupakan papan komposit yang terbuat dari *strand*, diikat menggunakan perekat tahan air kemudian dikempa panas. Limbah industri kayu lapis berupa vinir dapat dibuat menjadi *strand* untuk digunakan sebagai bahan baku dalam pembuatan OSB. Penelitian ini bertujuan untuk mengetahui pengaruh interaksi perlakuan pendahuluan dan kadar perekat terhadap sifat-sifat OSB dari limbah vinir sengon.

Bahan penelitian ini menggunakan limbah vinir sengon dari industri kayu lapis dan resin isosianat (MDI) sebagai bahan perekat. Penelitian ini menggunakan rancangan acak lengkap (RAL) yang disusun secara faktorial dengan 2 faktor yaitu perlakuan pendahuluan *strand* (tanpa perendaman air, perendaman air panas, dan perendaman air dingin) dan kadar perekat MDI (4% dan 6%). OSB dibuat dengan ukuran 27 x 27 x 1 cm^3, target kerapatan 0,7 g/cm^3, suhu kempa 180℃, dan waktu pengempaan 10 menit dengan metode tiga langkah. Pengujian sifat fisika dan mekanika OSB mengacu SNI 03-2105-2006. Data pada penelitian ini dianalisis menggunakan analisis varian (ANOVA) dan uji lanjut *Honestly Significant Difference* (HSD).

Hasil penelitian menunjukkan bahwa interaksi perlakuan pendahuluan dan kadar perekat berpengaruh signifikan terhadap daya serap air dan pengembangan tebal. Perlakuan pendahuluan berpengaruh signifikan terhadap kerapatan dan MOR sejajar serat. Kadar perekat berpengaruh signifikan terhadap MOR sejajar serat. OSB terbaik pada penelitian ini dibuat dari *strand* perendaman air dingin dengan kadar perekat 6%, menghasilkan nilai kerapatan 0,62 g/cm^3, kadar air 6,47%, daya serap air 48,64%, pengembangan tebal 21,27%, MOR tegak lurus serat 13,97 MPa, MOR sejajar serat 28,27 MPa, MOE tegak lurus serat 1,07 GPa, MOE sejajar serat 3,80 GPa, dan keteguhan rekat internal 0,217 MPa.

Kata kunci: OSB, perlakuan pendahuluan, kadar perekat, sifat fisika dan mekanika

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CHARACTERISTIC OF ORIENTED STRAND BOARD MADE FROM SENGON VENEER WASTE AT DIFFERENT PRE-TREATMENTS AND RESIN LEVELS

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ABSTRACT

Oriented strand board (OSB) is a composite board made of strand, which are bonded using a water resistance adhesive and then hot-pressed. The waste of plywood industry can be used as raw material for OSB production. This study was aimed to determine the interaction effect of pre-treatment and resin level on properties OSB made from sengon veneer waste.

The materials used in this study was veneer waste from sengon plywood industry, while isocyanate resin (MDI) was used as binder. The research design used in this study was completely randomized design using factorial experiment with 2 factors, namely strand pre-treatment (without water immersion, hot-water immersion, and cold-water immersion) and resin level (4% and 6%). OSB was made with a size of 27 x 27 x 1 cm^3, target density of 0,7 g/cm^3, pressing temperature of 180℃ and pressing time for 10 minutes with a three-step press cycle method. The physical and mechanical properties of OSB were evaluated based on SNI 03-2105-2006. The data on this study were analyzed using variance analysis (ANOVA) and Honestly Significant Difference (HSD).

The result showed that the interaction effect of pre-treatment and resin level had a significant effect on water absorption and thickness swelling. Pre-treatment had a significant effect on density and the MOR parallel to grain. Resin level had a significant effect on the MOR parallel to grain. The best OSB produced in this study was pre-treatment cold-water immersion with 6% resin content. Result showed that density of 0,62 g/cm^3, moisture content of 6,47%, water absorption of 48,64%, thickness swelling of 21,27%, the MOR perpendicular to grain of 13,97 MPa, the MOR parallel to grain of 28,27 MPa, the MOE perpendicular to grain of 1,07 GPa, the MOE parallel to grain of 3,80 GPa and internal bond strength of 0,217 MPa.

Keyword: OSB, pre-treatment, resin level, physical and mechanical properties

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