

PENGARUH KADAR AIR BAHAN BAKU DAN KADAR PEREKAT TERHADAP SIFAT – SIFAT *ORIENTED STRAND BOARD* DARI LIMBAH VINIR SENGON

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INTISARI

OSB adalah papan komposit yang merupakan perkembangan dari *waferboard* dan dapat dibuat dari limbah industri perkayuan. Sifat-sifat kekuatan OSB dinilai cocok digunakan sebagai substitusi terhadap kayu lapis dalam beberapa aplikasi. Penelitian ini bertujuan untuk mengetahui pengaruh interaksi kadar air bahan baku *strand* dan kadar perekat terhadap kualitas OSB yang dihasilkan.

Bahan yang digunakan pada penelitian ini adalah limbah vinir sengon dengan ketebalan 0,85 mm dan perekat MDI. Penelitian ini disusun secara faktorial dengan 2 faktor yaitu kadar air bahan baku ($5\pm 1\%$, $10\pm 1\%$, dan $15\pm 1\%$) dan kadar perekat (4% dan 6%). OSB dibuat dengan ukuran $27\times 27\times 1$ cm², target kerapatan 0,7 g/cm³, suhu kempa 180°C, dan waktu pengempaan selama 10 menit dengan sistem bukaan 1 menit. Pengujian sifat fisika dan mekanika OSB menggunakan standar SNI 03-2105-2006. Analisis data menggunakan analisis varian (ANOVA) dan uji lanjut *Honestly Significant Difference* (HSD).

Hasil penelitian menunjukkan bahwa kadar perekat dan interaksi kadar air bahan baku dengan kadar perekat tidak berpengaruh terhadap semua parameter uji. Kadar air bahan baku berpengaruh terhadap kerapatan, pengembangan tebal, MOE dan MOR. Kadar air bahan baku 5% dengan kadar perekat 6% menghasilkan sifat fisika dan mekanika OSB terbaik yang memenuhi standar SNI 03-2105-2006 dengan rata-rata kerapatan 0,62 g/cm³, kadar air 6,13%, pengembangan tebal 35,97%, daya serap air 57,24%, MOE 0,95 GPa, MOR 16,01 MPa, IB 0,08 MPa, dan kuat cabut sekrup 33,47 kgf.

Kata kunci: *Oriented Strand Board*, limbah vinir sengon, kadar air bahan baku, kadar perekat, sifat fisika dan mekanika

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THE EFFECT OF RAW MATERIAL MOISTURE CONTENT AND RESIN CONTENT ON THE PROPERTIES OF ORIENTED STRAND BOARD MADE FROM SENGON VENEER WASTE

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ABSTRACT

OSB is a composite board which developed from waferboard and can be produced from waste of wood industries. The strength properties of OSB were considered as suitable for plywood substitute in several applications. In this study, strands were obtained from the waste of veneer from sengon plywood industry. The objective of this study was to determine the effect of moisture content of strand and resin content on the quality of OSB.

The materials used in this study was sengon veneer waste with thickness of 0,85 mm and MDI resin as adhesive. The research was arranged in factorial with 2 factors, i.e., raw material moisture content ($5\pm 1\%$, $10\pm 1\%$, dan $15\pm 1\%$) and resin content (4% and 6%). OSB was made with $27\times 27\times 1$ cm² size, 0,7 g/cm³ target density, 180°C pressing temperature, and 10 minutes pressing time with 1 minute opening system. The physical and mechanical properties of the OSB were evaluated based on SNI 03-2105-2006. The data were analyzed using analysis of variance (ANOVA) and Honestly Significant Difference (HSD).

The results of the research showed that the interaction between raw material moisture content and the resin content did not affect the parameters test. Raw material moisture content had effect on density, thickness swelling, MOE, and MOR. OSB made from raw material with moisture content of 5% and resin content of 6% resulted in the best properties of OSB and met the requirement of SNI 03-2105-2006 standard, i.e. density of 0,62 g/cm³, moisture content of 6,13%, thickness swelling of 35,97%, water absorption of 57,24%, MOE of 0,95 GPa, MOR of 16,01 MPa, IB of 0,08 MPa, and screw holding power of 33,47 kgf.

Keywords: Oriented Strand Board, sengon veneer waste, raw material moisture content, resin content, physical and mechanical properties

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