SIFAT-SIFAT BALOK LAMINASI KAYU KARET DAN KAYU SENGON DENGAN VARIASI SUSUNAN LAMINA DAN JENIS PEREKAT

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INTISARI

Balok laminasi merupakan salah satu produk rekayasa yang terdiri dari dua atau lebih kayu gergajian yang direkat dengan bahan perekat. Penelitian ini bertujuan untuk mengetahui interaksi antara variasi susunan lamina dan jenis perekat terhadap sifat fisika dan mekanika balok laminasi kayu Bahan penelitian ini menggunakan kayu Sengon (*Falcataria moluccana*) dan kayu karet (*Hevea brasiliensis*), serta perekat *Polyvinyl Acetate* (PVAc) dan *Aqueous Polymer Isocyanate* (API). Penelitian ini menggunakan rancangan acak lengkap yang disusun faktorial dengan dua faktor, yaitu susunan lamina (SSS, SKS, KSK, KKK) dan jenis perekat (PVAc dan API). Perekat yang dilaburkan sebanyak 293 g/m^2 dan dikempa dingin ±24 jam. Karakteristik balok laminasi yang dievaluasi adalah sifat fisika seperti kadar air dan berat jenis mengacu standar ASTM D 143-94, sifat mekanika berupa keteguhan lengkung statis mengacu stadar ASTM D 143-94 dan keteguhan geser rekat mengacu standar ASTM D 905-03. Hasil pengujian menunjukkan variasi susunan lamina berpengaruh pada berat jenis, modulus patah dan persentase kerusakan kayu secara signifikan. Jenis perekat kayu berpengaruh signifikan terhadap pada kadar air, modulus elastisitas, modulus patah dan persentase kerusakan kayu. Balok laminasi terbaik yaitu susunan lamina KKK dengan perekat API dimana memberikan hasil rata-rata pengujian kadar air 15,48%, berat jenis 0,56, modulus elastisitas 7,42 GPa, modulus patah 41,02 MPa, keteguhan geser rekat 42,241 kg/cm^2 dan persentase kerusakan kayu 6,72%.

Kata kunci : balok laminasi, sengon, karet, susunan lamina, jenis perekat

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THE PROPERTIES OF GLULAM TIMBER FROM SENGON AND RUBBER WOOD WITH DIFFERENT STRUCTURE OF LAMINA AND TYPE OF ADHESIVE

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ABSTRACT

Glulam timber is one of engineered wood products comprising a number of layers of thin lumber bonded together with adhesives. This study was aimed to investigate the interaction between structure of lamina and type of adhesive on physical and mechanical properties of glulam made of sengon and rubber wood. Sengon wood (*Falcataria moluccana*) and rubber wood (*Hevea brasiliensis*) were used as raw materials. *Polyvinyl Acetate* (PVAc) and *Aqueous Polymer Isocyanate* (API) resins were used as adhesive.This research used completely random design with two factors, i.e structure of lamina (SSS, SKS, KSK and KKK) and type of adhesive (PVAc and API). The glue spread of 293 g/m^2 was applied to each glue line. The composite were cold pressed for ±24 hours. The characteristics of glulam timber were evaluated its properties such as moisture content and specific gravity based on ASTM D 143-94, bending properties based on ASTM D 143-94 and shear bond strength based on ASTM D 905-03. The results of this study indicate that different structure of lamina affected significantly the specific gravity, modulus of rupture and percentage of wood failure. The type of adhesives affected significantly the moisture content, modulus elasticity, modulus rupture and percentage of wood failure. The optimum properties of glulam timber was structure of lamina KKK with API which resulted moisture content of 15.48%, spesific gravity of 0.56, modulus of elasticity of 7.42 GPa, modulus of rupture of 41.02 MPa, shear bond strength of 42.24 kg/cm^2 and percentage of wood failure of 6.72%.

Keyword : glulam, sengon wood, rubber wood, structure of lamina, type of adhesive

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