

Itsaree Howpinjai 2009: Particleboard from Agarwood (*Aquilaria* spp.) Residual. Master of Science (Forestry), Major Field: Forest Products, Department of Forest Product. Thesis Advisor: Assistant Professor Wiwat Hanvongjirawat, Dr.rer.nat. 68 pages.

Particleboard productions from non-induced and distilled agarwood residual were studied. Particleboard were produced at density 0.65 g/cm^3 , used resin in surface layer 8, 10 and 12% and core layer 6, 8 and 10% by oven dry weight. Particleboard were pressed at temperature 140, 150, 160 and 180°C with specific pressure 41 kg/cm^2 . Finished particleboard were tested physical and mechanical properties according to EN (European Standard)

Modulus of rupture value of non- induced agarwood residual particleboard did not passed EN standard. Modulus of rupture value of distilled agarwood residual particleboard at condition 12% of resin on surface and 10% of resin in core layer at temperature 140°C passed the EN standard.

The modulus of elasticity value of non-induced agarwood residual particleboard at condition 10% resin in surface layer and 8% resin in core layer were pressed at temperature 140, 150 and 180°C and condition 12% resin in surface layer and 10% resin in core layer were pressed at temperature 150°C , that passed the EN standard. Distilled agarwood residual particleboard that used resin 12% in surface layer and 10% in core layer at temperature 140 and 150°C shown that the values of modulus of elasticity passed the EN standard.

Internal bonding values of both non-induced and distilled agarwood residual particleboard of all conditions passed the standard from EN.

Thickness swelling value of particleboards almost passed standard.

Formaldehyde content of non-induced and distilled agarwood particleboard were in the class E1 of standard.

Student's signature

Thesis Advisor's signature