

Effect of glue spreads on the structural properties of laminated veneer lumber from spindleless rotary veneers recovered from short rotation hevea plantation logs

ABSTRACT

Unproductive young rubber trees (15 years old) with smaller diameters (15 to 18 cm) compared to conventional rubber logs, harvested at the age of 25 years old, were selected for the production of laminated panels. Spindleless rotary veneer peeling was applied to logs from short-rotation rubber forest plantations to produce veneers for structural purposes. This raises questions about the utilization of these small-diameter logs with respect to its effect on the quality of veneer and laminated panels produced. This study examines the effect of the glue spread rates on the physical and mechanical properties of rubberwood laminated veneer lumber (LVL). Analysis of variance shows that the application of a 280 g/m² glue spread rate significantly improved the density, water absorption and dimensional stability of rubberwood LVL. The mechanical properties of rubberwood LVL produced with a 200 g/m² glue spread rate met the minimum requirement for the 2.1E-3100F stress class; 91.05 MPa for the modulus of rupture in the flatwise direction and 50.23 MPa for compressive strength parallel to the longitudinal axis. The modulus of elasticity in the flatwise direction of 11,189.55 MPa reached the minimum requirement for the 1.5E-2250F stress class.

Keyword: Laminated veneer lumber; Small-diameter Hevea log; Spindleless rotary veneers; Glue spread rate; Structural properties