

INFLUENCES OF PARTICLE SIZE AND CEMENT CONTENT ON PROPERTIES OF CEMENT-BONDED COMPOSITES FROM EUCALYPTUS VENEER WASTE

Abel O. Olorunnisola^{1} and Subodh P. Agrawal²

¹Wood Products Engineering Unit,
Department of Agricultural & Environmental Engineering
University of Ibadan, Nigeria.

²Organic Building Materials Division,
Central Building Research Institute,
Roorkee, 247 667, India.

*Corresponding Author: abelolorunnisola@yahoo.com, abelolorunnisola@gmail.com

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Abstract.

This study investigated the effects of particle size and wood-cement ratio on strength and sorption properties of cement-bonded composites from *Eucalyptus tereticornis* Sm. veneer waste. Composites were manufactured at a target density of 1000kg/m³ using sieved, hammer-milled eucalyptus particles at wood/cement ratios by weight of 10:90, 20:80 and 30:70 respectively. The loose bulk density of the eucalyptus particles ranged between 118 and 137 kg/m³ at a moisture content of about 9.0 %, while water absorption at 24 hours ranged between 286.0% and 433.0%. Composites produced with particles retained on 0.045 mm sieve at 10% wood content exhibited superior strength properties and dimensional stability. The density of composites produced at 30% wood content was below 1000 Kg/m³, suggesting an upper limit of 20% for *E. tereticornis* Sm. particle addition in cement for composite production. The water absorption behavior of the composites indicates their unsuitability for outdoor applications.