

# *Effect of Eucalyptus globulus wood density on papermaking potential*

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**ABSTRACT:** It is well documented that the characteristics of raw materials determine the papermaking potential of the pulp. The variability of the wood used by the pulp mills is extremely wide. We report on the behavior of three *Eucalyptus globulus* wood chip samples with basic densities of 0.467, 0.537, and 0.600 g/cm<sup>3</sup>, in kraft cooking and papermaking. The pulp yield range of 49%–58.7% was attributed to the different wood chemical composition, in particular to the lignin content and relative proportion of cellulose and hemicelluloses. The morphological characteristics of the pulp fibers were also markedly different. The average fiber length is 0.71, 0.80, and 0.85 mm, respectively for the *E. globulus* of low, intermediate, and high wood basic density. The pulp fibers from the lowest density wood exhibit very high wet fiber flexibility, while those from the highest density wood exhibit rigid behavior. Using this structural property as reference, the corresponding papers are stronger, but exhibit lower light scattering coefficients than those from the lowest density wood.

**Application:** Understanding the morphological characteristics of the *E. globulus* wood fibers in tree selection and genetic improvement programs, in addition to the wood density and pulp yield, can help papermakers to avoid negative impact on light scattering coefficient and refining energy consumption.