

## PHYSICAL CHARACTERISTICS OF SHORT ROTATION WOODY BIOMASS

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Woody biomass produced on a short rotation basis (< 7 years) is a potential biomass feedstock for the bioeconomy of the future. Since age affects the composition of woody biomass, the goal of this study was to document the effect of age (3 year old versus 7 year old), moisture content (10% to 30%), and bark on the physical characteristics (bulk density, particle density, compressibility and moisture sorption behavior) of short rotation Eucalyptus ground through 1/8" screen. Results obtained showed that presence of bark (1/8" screen) sample reduced the bulk density of 3 year old ground Eucalyptus from 178 kg/m<sup>3</sup> to 140 kg/m<sup>3</sup>. The bulk and particle densities of 7 year old were respectively significantly higher and lower than that of 3 year old. At applied pressures of up to 12 kPa, the bulk density of the ground samples (i.e. compressibility) increased by up to 30%. Compressibility significantly increased with bark content and moisture content. The compressibility of the 3 year old sample was improved by grinding through a smaller screen size (1/16" screen). The significant effect of bark and moisture content on bulk density and compressibility will impact the logistics of transporting and storing ground short rotation woody biomass before they are fed into the throat of the bioconversion plant.