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# Acc4<sup>th</sup> International Workshop Advances in Cleaner Production

“INTEGRATING CLEANER PRODUCTION INTO SUSTAINABILITY STRATEGIES”

## Analysis of the Efficiency between Different Adhesives for the Manufacture of Laminated Bamboo Panels

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### Abstract

In each product production process, the incorporation of techniques and methods to reduce waste and environmental issues are generally facilitating the maintenance of a natural more balanced. The clean production is a good alternative for this to occur. Considering the whole production cycle and incorporating environmentally sustainable techniques, the life cycle of industrialized something is optimized, which prevents techniques pipe end. The bamboo plant easy to grow and good workability, has been applied in various purposes such as the production of flooring, furniture, fixtures and even decorative structures in civil construction and cement. This plant to be inserted in the manufacture of laminated bamboo plates avoids, for example, species of wood endangered may be used. When used, this plant is from crops specifically grown for various purposes which may have bamboo and features. Something has researched in countries like Brazil, specifically in Goiás. This work has as main goal to evaluate the efficiency of different adhesives used for making laminated bamboo panels. In forming laminated boards, the process can be summarized in the defoliation of the plant and general cleaning for the removal of unwanted parts, cutting planer four sides for finishing cutting, gluing of parts and finally finishing determine where this material may be applied. This technical-scientific research laboratory tests were performed, where properties of twelve laminated bamboo beams can be compared. The plant was chosen type *Dendrocalamus giganteus*. This genus is one of the best to perform carpentry work. For each type of adhesive applied to the plates of laminated bamboo, bending tests (reduced size), hardness, density, screw withdrawal, shear stress and shear stress at the glue line, a tool constituted conclusive on the workability of the different Products promoters junction between the parts that form the plywood. In some types of adherent reviews have not responded well to tests, bringing the disruption of certain body-of-evidence, but one can prove the efficiency of adhesives used in the manufacture of laminated bamboo. The technology of bamboo utilization for the formation of products useful in our daily lives is something shown by research centers of renowned educational institutions, and this work is the result of a detailed study on the plates made with bamboo. In environments with significant levels of humidity and temperatures can shorten the use of furniture, laminate made with *Dendrocalamus giganteus* has higher efficiency over other matters falling in the furniture industry.

**Keywords:** Bamboo laminate, sustainable technologies, clean production, furniture industry, environmentally sustainable materials.

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