



P-12-199

INFLUENCE OF EXTRACTIVE CONTENT ON WOOD FLOUR THERMAL STABILITY OF DIFFERENT SPECIES FROM BRAZIL

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Wood flour (WF) is a common waste generated at different stages of the wood processing in lumber industries of Brazil. A portion of this waste is used as energy source; however a considerable part of the generated waste is destined for landfill or burning. Wood thermoplastic composites have been receiving considerable attention in the last years as substitute of composites reinforced with inorganic fibers. Thermoplastic composites filled with wood flour are materials that offer an alternative for using this agricultural waste viewing the production of light materials with some specific properties. However, there are few studies on the relationship between composition and thermal stability of different wood species that might be influenced on the performance of wood composites. On this way, the presented study compares the thermal stability of different wood species, which is an important parameter for development of wood thermoplastic composites, since the thermal degradation of wood usually begins at 200°C. This work also analyses the effect of wood extractives on wood thermal properties. Four different wood species from regions south and center-west of Brazil were investigated: *Pinus spp.*, *Eucalyptus grandis*, *Mezilaurus itauba* and *Dipteryx odorata*. The wood extractives were eliminated from the wood via Soxhlet extraction in triplicate using three different extractions: ethanol/benzene, ethanol and hot water. The thermal stability of the wood species before and after Soxhlet extraction was determined with thermogravimetric analysis (TGA) and differential thermogravimetry analysis (DTG) under identical conditions in an inert atmosphere. The obtained results showed that in all cases the removal of extractives improved the thermal stability of the wood species studied. The temperature when higher rate of weight loss (T_{Max}) occurs was shifted to higher values after removal of extractives. The wood extractives contribute a few percent to the entire wood composition but they strongly contribute with the wood thermal stability.