

Effect of combination oven and microwave heating in the resin semi-curing process on the physical properties of 'compreg' OPW

ABSTRACT

Oil palm wood (OPW) is still difficult to utilize efficiently due to its low strength, non-durability, low dimensional stability, and poor machinability. This study was conducted to investigate semi-curing of OPW with low-molecular weight phenol formaldehyde (Lmw-PF) by a combination of oven and microwave heating. Four main processes in a modified compreg method were used, i.e. drying, impregnation, resin semi-curing heating, and hot-pressing densification. Heating type had a significant effect on the physical properties of treated OPW. The combination of the heating methods used a much shorter time compared to heating by oven only, where over 24 to 30 h were needed to dry the treated OPW.

Keyword: Phenolic resin; Oil palm wood; Wood heating; Physical and mechanical properties