

## **Effect of high temperature treatment on dimensional stability and bonding quality of bamboo strips**

### **Abstract**

A study was undertaken to determine the effect of high temperature curing on dimensional stability and bonding quality of bamboo strips (*Gigantochloa scortechinii* and *G. brang*). Strips with epidermis removed were subjected to high temperature conditions using palm oil as heating medium. The temperatures applied were 140, 160 and 180°C for durations of 30, 60 and 120 min. The treatment improved the dimensional stability and reduced the moisture absorption by bamboo strips. Anti-swelling efficiency (ASE) values increased as the durations of treatment increased irrespective of the treatment temperature. The best treatment condition for *G. scortechinii* to achieve maximum ASE value (85.6%) was 180°C and 120 min while for *G. brang*, the maximum ASE value (91.7%) could be attained with treatment condition of 180°C and 60 min. In general, the high temperature treatment significantly reduced the shear strength of the bamboo laminates. Between the two bamboo species, the reduction in shear strength was more pronounced in *G. scortechinii* than in *G. brang*. The optimum oil treatment condition for *G. scortechinii* in order to meet the minimum standard requirement of glue bond quality for plywood was 160°C and 30 min, while for *G. brang* it was 180°C and 60 min. © KFRI 2007.