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Fire performance properties of South African commonly used hardwood

The effect of fire or heat and the associated fire hazards of South African hardwoods had been minimally researched. Full combustion is normally accompanied by 'high' temperatures, 'fast' fire/flame spreads with associated 'high' heat release rates as well as smoke and toxic gases. Quantitative investigations on these fire performances of selected and common South African hardwood species that include Stinkwood (ocotea bullata), Tamboti (Spirostachys Africana), Real yellowwood (Podocarpus latifolius) and Leadwood (Combretum imberbe) have been undertaken using the Cone Calorimeter and the Thermogravimetric analysis instrument. In terms of critical heat flux needed for ignition values measures were: lead wood (3.35 kWm-2); Stinkwood (4.51 kWm-2), Tamboti (10.43 kWm-2) and Real yellowwood (18.1 kWm-2). The fire growth rate (FIGRA) in (kW.s-1) were: lead wood (1.39); Stinkwood (5.22), Tamboti (3.30) and Real yellowwood (3.13). The smoke spread rate (SMOGRA) in (m2.s-2) were: lead wood (1.1x10-4); Stinkwood (2.1x10-4), Tamboti (3.7x10-4) and Real yellowwood (6.92x10-5). The activation energy (in kJmol-1) as well as pre-exponential factors (in s-1) for the woods' decomposition were: lead wood (136.9;6.6x10+10); Stinkwood (103.7;1.48x10+8), Tamboti (207.8;2.84x10+17) and Real yellowwood (241.8;9.9x10+19).

Apply to be
 considered for a student
   award (Yes / No)?

yes

Level for award
 (Hons, MSc,
   PhD, N/A)?

MSc

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