



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Evaluation of Thermal Treatability of Caucasian Fir (*Abies nordmanniana* (Link.) Spach.) Treated with Heated Tanalith-C of CCA above and below the Fibre Saturation Point

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Abstract: Caucasian fir (*Abies nordmanniana* (Link.) Spach.) was treated using the full-cell process with heated tanalith-C at elevated temperatures from 5 to 70 °C above and below the fibre saturation point (FSP: 32.1%) (in 40% and 20% moisture content (MC) levels). Thermal treatability was determined on the basis of preservative uptake (the percentage of void volume filled, VVF%) in transverse flow (a combination of tangential and radial directions) and triplex flow (based on all 3 flow directions). To characterise the treatability, analysis of the coefficient of transverse thermal conductivity was also performed above and below the FSP. Thermal conductivity (Tc) increased markedly with increasing temperature at either MC level. Tc was found to be relatively high at 40% MC due to the contribution of free water in the lumens. However, VVF% did not follow the evolution of the temperature in both flow directions at either MC level. The VVF% variation seemed to depend on the FSP, e.g., it showed almost a parabolic trend in 20% MC, and reached the highest values in either direction at around 30 °C.

Key Words: Caucasian fir, Thermal treatment, FSP, Elevated temperatures, Thermal conductivity

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