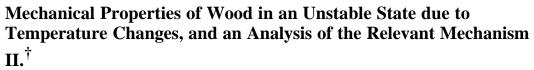


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[PDF (299K)] [References]



Selective and uniform elimination of chemical constituents from wood blocks

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Abstract: In order to prepare wood specimens for subsequent measurements of

mechanical properties, we examined the selective and uniform elimination of wood constituents from a 4 mm thick cross section of hinoki (*Chamaecyparis obtusa* Endl.). The results are summarize as follows:

1) Lignin was uniformly eliminated by a modified Klaudiz's method (45°C, ~72h) throughout the block. Moreover, the amount of remaining lignin could be controlled by varying the reaction duration. The uniformity was confirmed also by a consideration of reaction kinetics.

2) The elimination of hemicellulose was carried out in an 0.4% aqueous solution of NaOH under high temperature and pressure. These conditions promoted the instantaneous and uniform diffusion of the reagent into the interior of the wood block. As a consequence hemicellulose was easily eliminated even from the thick cross section. The amount of remaining hemicellulose could be controlled by varying the concentration of NaOH.

The method proposed here assures the uniformity of wood constituents throughout the wood block, and would be widely applicable to purposes other than the mechanical tests, although the lack of ununiformity between inner and outer layers of cell wall may remain.

Keywords: wood block, uniform elimination, lignin, hemicellulose



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