

THE INTERNATIONAL RESEARCH GROUP ON WOOD PROTECTION

Section 2

Test Methodology and Assessment

**Comparative Laboratory Leaching Test Methods to Study Post-Treatment  
Storage Period Impacts on CCA Leachability and Fixation in Treated  
Kempas (*Koompassia malaccensis*) Heartwood**

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Paper prepared for the IRG – IUFRO Regional Research Symposium  
International Union of Forest Research Organizations All Division 5 Conference  
Taipei, Taiwan  
29 October – 2 November 2007

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by

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## Abstract

Three laboratory leaching test methods were compared to determine the effects of different post-treatment storage fixation periods on leachability/fixation of CCA components from treated kempas (*Koompassia malaccensis*) permeable heartwood. End-sealed test wood blocks of permeable were treated with CCA to target retention of  $5.6 \text{ kg/m}^3$ , immediately stored to fix at ambient conditions for 0 and 48 hours, 1, 2 and 4 weeks, followed by a 2 weeks leaching test comparing 3 leaching tests: the methods of EN84 (consisting of initial vacuum impregnation of wood in water), EN84-1 (replacing initial vacuum impregnation with initial immersion of wood in water) and a new, and least severe, test EN84-2 (daily routine of soaking wood for 5 hours in water followed by drip drying for 19 hours). Leachates harvested from these leaching tests were analysed for cumulative leaching losses of copper (Cu), chromium (Cr) and arsenic (As) that occurred over the 2 weeks leaching period. Overall, leached CCA elements ranged from  $0.48 - 4.02 \mu\text{g/ml}$  Cu,  $0.61 - 5.76 \mu\text{g/ml}$  Cr and  $0.46 - 4.02 \mu\text{g/ml}$  As. There were significant variations in leaching losses ( $P < 0.05$ ) between unfixed and stored fixed blocks among the 3 laboratory leaching test methods. Significant variations of Cu, Cr and As levels existed between the least severe method and the other two methods that used prolonged immersion of wood in water. However, there were no significant differences in CCA leaching losses between EN84 method and the EN84-1 method, while the merits of the least severe leaching regime as indicators of realistic CCA leaching of “fixed” treated wood aboveground outdoors are discussed.

Keywords: Leaching test, EN84 method, CCA preservative fixation, tropical timbers, Kempas