

# LEACHING OF CCA, ACQ, AND CBA COMPONENTS FROM WOOD EXPOSED TO NATURAL WEATHERING AND REACTION OF LEACHATES WITH SOIL

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## ABSTRACT

*There is little information available about the leaching of preservative components, especially from alternative preservatives, by rainfall. Because all of those preservatives are based on Cu-oxide, high concentration of Cu in leachate could be expected. Coating treatments potentially should decrease leaching of preservative components. Also, amounts of preservative components in water after filtration through a soil and potential contamination of ground water are not known.*

*Wood samples (89”X140X300mm) treated with CCA-C, ACQ-D, or CBA were mounted in perforated plastic containers and exposed to natural weathering in Toronto, Ontario for 9 months. Some containers were connected to soil lysimeters containing one of three selected soils with different soil characteristics (clay, sandy loam and organic soil). The leachates were able to pass through the soil column and any preservative components that were not adsorbed by the soil were measured in the water collected below. Other containers (without the perforations) with treated wood samples of two species, Southern Pine and Jack Pine, were used to collect leachates after rain events for chemical analysis and volume measurement (soil input). The influence of two types of acrylic coatings on leaching of preservative components was examined.*

*The most leached element from CCA preservative is Cu followed by As and the lowest leached is Cr. Much higher leaching of Cu was noticed from ACQ than from CCA treated samples. Jack Pine (JP) ACQ samples showed higher leaching of Cu than Southern Pine (SP) ACQ treated samples. The reason for this is the four times higher retention concentration in JP than in SP.*

*Also, JP CBA treated samples leached more cooper than SP CBA treated samples. Amount of Cu leached from CBA was less than from ACQ, probably due to the lower retentions of CBA comparing to ACQ.*

*Both coating treatments reduced leaching of all elements (5-6 times). There was noticeable difference between coatings.*

*Examined soils did not reach adsorption maxima after 9 months and demonstrated very high capacity for adsorption of all examined elements. Also, different soils showed different capacity for adsorption of all elements.*

Keywords: leaching, coatings, clay, sand, organic soil.

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