

CERTIFICATE OF ANALYSIS

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ANALYSIS PERFORMED FOR:

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INTRODUCTION

CCA-treated timber is timber treated with Copper Chrome Arsenate. CCA is used for the control and prevention of damage to timber and timber structures by insects, wood rot, wood fungus and general timber decay. Two experiments were performed to see if a clear wood oil would reduce the amount of CCA lost from the timber surface by a simulation of rain and physical rubbing of the surface.

PROCEDURE

All CCA treated timber and the wood oil were supplied by the client.

EXPERIMENT 1

5 CCA treated decking boards of 1 meter in length were cut in half to form 2 sets of end matching replicates. One set of the replicates was coated with the wood oil as per directions on the label and allowed to dry for 2 days. A rain simulator was built which sprayed the decking boards along a major portion of each surface before being collected in a large plastic container underneath. The water was then pumped back up to the shower heads and back over the timber (Photograph 1).

The rain simulator was filled with 100 liters of water and first run for two hours with no timber in place. An aliquot of water was taken and labeled 0 hours. The CCA treated timber that had been coated with the wood oil was then put in place and the rain simulator restarted. Aliquots of the water were taken at 1, 6, 12, 24 and 48 hours. The rain simulator was then emptied, refilled with 100 liters of fresh water and the experiment was repeated using the CCA treated timber that had no oil coating.

The water was analysed for Copper, Chromium and Arsenic using a Varian Ultramass ICP-MS.

EXPERIMENT 2

5 CCA treated decking boards of 500 mm in length were cut in half to form 2 sets of end matching replicates. One set of the replicates was coated with the wood oil as per directions on the label and allowed to dry for 2 days. Each of the boards were then divided into two for a total of 20 samples (10 oil coated and 10 uncoated). A filter paper was taken and rubbed evenly across the entire surface of each sample, using constant downward pressure, a total of 10 times on each sample (Photograph 2). The filter papers were then digested using microwave assisted acid digestion and analysed for Arsenic using a Varian Ultramass ICP-MS.

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RESULTS

Table 1 shows the results of Experiment 1. Results for Copper, Chromium and Arsenic are in µg/L.

Table 1

Time (hrs)	CCA treated timber with wood oil coating			CCA treated timber with no wood oil coating		
	Copper	Chromium	Arsenic	Copper	Chromium	Arsenic
0	124	2.24	1.46	124	2.13	2.04
1	126	3.90	6.74	125	9.18	13.1
6	125	9.66	17.2	143	23.0	43.8
12	137	13.3	26.6	163	32.9	71.1
24	149	20.9	50.4	189	51.7	118
48	172	29.4	86.6	234	67.8	192

Table 2 shows the results of Experiment 2. Results for Arsenic are in µg/filter paper.

Table 2

Sample Number	Arsenic in Oil Coated Timber	Arsenic in Uncoated Timber
1	195	3490
2	258	4670
3	307	2290
4	257	1780
5	211	4670
6	127	5540
7	190	3820
8	178	4950
9	265	4900
10	211	4950

CONCLUSION

Both experiments showed a significant reduction in the amount of metals extracted from the CCA timber that had been treated with the wood oil coating. In experiment 1 the leaching of the elements in the oil coated timber was less than half that of the uncoated timber.

In experiment 2 the amount of Arsenic dislodged from the oil coated timber was 19 times less than the uncoated timber.