# COPPER FIXATION USING A PYROLYTIC RESIN

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Abstract:

CCA will be banned for residential use as a wood preservative in North America at the end of 2003. The alternatives will be copper based chemicals, such as Ammonium Copper Quad (ACQ) or Copper Azole (CA). Leaching of copper from treated wood into the environment will become one of the most important issues for the wood preserving industry. So far, no wood treatment with the new copper alternatives offers a long term fixation of copper in wood to last as long as CCA does. As a mean to improve the fixation of copper in treated wood, the formulation of a resin designed to penetrate and immobilize copper in the wood cells was undertaken. The use of pyrolytic oil in the composition of this resin as a percentage of the total phenol base can reduce the environmental problems associated with the use of petroleum-born phenol.

Leaching tests have been conducted with 3 different formulations of resins, containing different ratios of pyrolytic oil in total phenol. The leachates were analyzed for the presence of copper by using atomic absorption techniques. A reduction of leaching copper of around 20 times was observed when comparing the treatment with and without the resin. Variations were observed between wood species as well as between the resins containing different concentrations of pyrolytic oil. The organic leachate was measured using gas chromatography and mass spectroscopy (GC/MS). Trace amounts of organics, mostly acetic acid, were found in the leachate.

Keywords: Leaching, copper, pyrolysis oil, resin, fixation, wood, preservation