

Water-Borne Copper Naphthenate:
An Arsenic and Chromium Free
Preservative for Wood

By

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ABSTRACT

Coppers Naphthenate is a well known commercially used wood preservative used for the preservative treatment of wood poles, fence posts, lumber, glulam beams, timbers, and wooden shakes/shingles. Recently, researchers have begun to investigate alternative formulations of the typically oil-borne preservative into new, environmentally friendly ~~water-borne~~ waterborne formulations. This preservative system offers many environmental advantages over other chromium and arsenic-containing formulations that will soon be banned for certain uses. Included in this research to be reported is six-year stake test efficacy data comparing waterborne Copper Naphthenate with oil borne copper naphthenate, ACQ and CCA-C at four exposure sites in the USA. In addition to studying the performance of Copper Naphthenate in Southern Pine (*Pinus spp.*), this study also briefly reviews the efficacy in lesser-studied softwood species such as Red Pines and Ponderosa Pine and the performance in Maple, Oak, Beech, and Y. Poplar. Additional work presented here also indicates that waterborne Copper Naphthenate may be a good biocide for the protection of wood composites. At retentions of 0.7-1.0 kgm/m³(as copper), this new preservative system is giving excellent performance results in all softwood species and most hardwood species. This emerging new preservation technology offers a potential new lumber treatment offering benefits to treaters and consumers over that of conventional arsenical wood preservatives.

Keywords: Copper Naphthenate, Hardwoods, southern pine, Softwoods, efficacy, composites, and performance