

CCA as an Industrial Preservative

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CCA is an effective and successful wood preservative used to increase the life span of various industrial wood products.

How it Works

The base ingredients of CCA treating solutions are made are hexavalent chromium, cupric oxide, arsenic pentoxide and water. Treatment solution concentrations usually range from 2% to 4% by weight depending on the species of wood to be treated and the product's end use.

In CCA, the copper is the primary fungicide, the arsenic is a secondary fungicide and an insecticide, and the chromium is a fixative which also provides UV resistance. CCA is applied to wood in a water solution and chemically reacts with the wood to form a virtually insoluble precipitate. This reaction is called fixation. CSA standards require all wood to be tested to ensure fixation is complete before the wood leaves the treating plant. Most CCA-treated wood contains around 1.5% by weight of preservative, but the amount in the wood is normally expressed in kilograms per cubic metre. ¹(Pressure Treated Wood)

History and Current Status of Use

CCA is an effective wood preservative formulated in 1933. CCA began extensive use as a wood preservative in the 1970's.

The first large scale use of CCA treated poles occurred in 1940 and 1941 when Bell Telephone System installed 18,000 CCA-treated southern pine poles. Some of those poles have been removed since then due to line obsolescence or accidents, but not a single one is known to have been removed due to biological degradation. ²

On February 12, 2002, the EPA announced a voluntary decision by industry to move nonindustrial use of treated lumber products away from pressure-treated wood that contains

¹ *Pressure treated Wood* (n.d.) Retrieved from CWC <http://CWC.CA/DesignWithWood/Durability/Pressure+Treated+Wood>

² © 2005 Arch Wood Protection WOL-0025-R2 Brochure

chromated copper arsenate (CCA) preservative in favour of new alternative wood preservatives. This move applied to decking, play sets, and residential projects.

This decision does not affect industrial products. Permitted uses include utility poles and cross arms, marine facilities (pilings and structures), pilings for terrestrial and freshwater uses, commercial and agricultural construction (primarily foundations), highway structures (such as bridge components, guardrails, and posts), farm fencing and posts, and permanent wood foundations.

All heavy duty wood preservatives are currently undergoing Re-evaluation by Health Canada's Pest Management Regulatory Agency and the United States Environmental Protection Agency. New regulations and rules are designed to minimize environmental and human health effects potentially associated with all wood treatment.

Health Canada's Pest Management Regulatory Agency, under the authority of the Pest Control Products Act, is proposing continued registration for the sale and use of creosote, pentachlorophenol, chromated copper arsenate and ammoniacal copper zinc arsenate products in Canada.³

Common CCA Industrial Treated Products:

Generally speaking industrial wood is exposed to harsher conditions than wood treated for residential purposes. Industrial timber may require increased retentions to protect the wood for its intended use. Industrial timber may be exposed to harsher structural conditions than residential treated wood.

CCA compliments wood as a successful construction material by improving wood's durability and strength by offering effective protection from dry rot, fungi, molds, termites, and other pests. CCA treated wood is light green in colour and weathers to a driftwood grey over time. Seasoning after treatment leaves the wood dry, paintable, odourless and clean. Fixed CCA is virtually immune to leaching (seeping from the wood) and will not vaporize or evaporate under normal conditions.

CCA Treated Wood Utility Poles:

Commonly used throughout North America and is the preferred preservative for some Utilities. CCA provides effective long life for poles and the treatment process does not significantly affect bending strength. CCA poles are highly leach resistant, clean to the touch, odour free and have an attractive appearance. A key challenge is CCA inability to treat some pole species primarily Douglas fir.

CCA Timber Bridges:

CCA treated timber bridges offer an attractive appearance with a stable treatment in the wood. The CCA wood combination offers an economical building solution.

³ *Heavy Duty Preservatives* Retrieved from http://www.hc-sc.gc.ca/cps-spc/pest/part/consultations/_prvd2010-03/prvd-2010-03-eng.php

CCA Treated Piling

CCA treated piling offers an economical driven foundation solution with long service life expectancy. CCA offers aesthetically pleasing presentation in float, dock, and bridge construction

CCA Guide Rail Posts

CCA treated guide rail posts offer an economical and effective barrier that fits well aesthetically for roadside barrier systems.

Other Common Uses

Anchor logs

Timbers for various uses

Agricultural products

Cooling Towers

Preserved Wood Foundations

Industrial Wood Preserving Industry Today

Today Wood Treating is one of the most highly regulated and closely managed manufacturing processes in North America. Modern wood treating facilities operate in compliance to the Technical Recommendations Document⁴ to produce CCA industrial products using environmentally sound guidelines with an emphasis on worker safety.

CCA offers excellent results in extending the lifespan of industrial wood. The fixation process creates a safe and environmentally acceptable product. The resulting clean product offers an economical solution for many industrial uses.

⁴ Environment Canada – *Pollution and Waste-Guidance for Wood Preservation Facilities Reporting*
Retrieved from <http://www.ec.gc.ca/inrp-npri/>