

Wood Preservative 101: Frequently Asked Question (FAQ)

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Objective

This poster presents basic information on treated wood particularly CCA (Chromated Copper Arsenate)-treated wood. The primary objective of this presentation is to provide beneficial information to those who are not familiar with treated wood issues.

FAQ: Fundamentals

What is a chemical preservative? It is used to protect wood from organisms such as fungi, termites, and natural weather conditions. By protecting the wood, it expands its life. Figure 1 is a picture of three pieces of wood that have been placed outside for 5 months. Wood without preservative deteriorates noticeably faster outside.



Figure 1: Preserving Effects of the CCA Chemical Added to Wood

What is the most common preservative for outdoor settings?

CCA a preservative containing chromium, copper and arsenic has been the most common wood treatment preservative used in the U.S. from the 1980s through 2003. In the 1930's Dr. Sonti Kamasan of India developed the first CCA product. Commercialization of CCA followed in the 1960's. The 1980's marked the time when the use of CCA increased significantly. Besides CCA, ACQ (Ammonium Copper Quaternary) and CBA (Copper Boron Azole) are available on the market. The use of these alternative chemicals is becoming more popular since restrictions were implemented on the use of CCA in residential settings.

What is CCA-treated wood used for? CCA-treated wood is used to build outdoor structures, such as playgrounds, decks, picnic tables, piers, fences and such. The amount of CCA chemical added to the wood differs for different applications (Table 1).

Table 1. Retention levels of CCA-treated for various applications

Application	Retention Value
Above ground	0.25 pcf
Ground/Freshwater contact	0.40 pcf
Salt water splash/Wood foundations/Structural poles	0.60 pcf
Foundation/Fresh water	0.80 pcf
Salt water immersion	2.50 pcf



Figure 3: CCA world map

FAQ: Rising Issues

What are the rising issues associated with CCA-treated wood? Since arsenic and chromium are human carcinogens, CCA-treated wood may not be safe for those who come in frequent contact with it. A particular concern is associated with young children, due to hand-to-mouth behavior while playing on the CCA-treated playgrounds (Figure 2). Also, some exposure can occur through the absorption of arsenic through skin.



Figure 2: Children at a CCA-treated equipped playground

Are there restrictions on the use of CCA-treated wood throughout the world?

Figure 3 summarizes information concerning CCA-treated wood use throughout the world. Many countries have started to implement restrictions on the use of CCA preservatives. The U.S. EPA will not allow CCA products to be used to treat wood intended for most residential uses beginning January 1, 2004.

Although the sale of new CCA playgrounds has been banned in the U.S., are there restrictions concerning existing playgrounds?

There are currently no enforceable restrictions concerning existing CCA playgrounds. The U.S. EPA and U.S. CPSC are currently sponsoring a study which focuses on evaluating the effects of sealants as a means of minimizing exposures to existing CCA-treated playgrounds.

How can arsenic exposure to children be minimized?

- If you are buying a new playground, make sure that it is not made of CCA-treated wood.
- If you already have a CCA-treated playground, the application of certain coatings to the treated wood, such as the oil-based semi-transparent stains, may reduce the release of chemicals. This is currently under evaluation by the U.S. EPA and U.S. CPSC.
- After being in contact with CCA-treated wood, be sure to wash the exposed areas of the body and wash clothes separately from any other household clothing.
- Minimize food consumption while a child is playing on the CCA-treated equipped playground

FAQ: Identification

How can I identify if wood is treated or not?

[Stain test]

The PAN indicator stain identifies copper in the treated wood. The test has a rapid reaction time and a distinctive color. Because of its simplicity and reasonable cost, it is very practical for screening copper treated structures.



Figure 4: PAN Indicator



Figure 5: Testing a playground using the PAN Indicator

[Arsenic test kit]

The Arsenic test kit can be used for the detection of arsenic in treated wood. The procedure is relatively simple.



Figure 6: Arsenic test kit

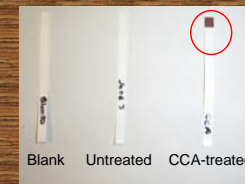


Figure 7: Results of the test kit

[Atomic Absorption (AA) or Inductively Coupled Plasma (ICP)]

These are the most conventional and accurate methods for analyzing metals, but the methods are also time consuming and require a laboratory facility. This method requires the collection of sawdust samples which are then digested in high concentrated acid (EPA: 3050B) to be liquefied. The digested sample is analyzed for the CCA-chemicals using an AA or ICP.



Figure 8: Sawdust collection



Figure 9: Atomic absorption spectrometer

[X-ray fluorescence analyzer (XRF)]

It is the most innovative tool but pricey. XRF analyzers have been used by wood treating plants to test retention levels. It can analyze 12 metals including arsenic, chromium, and copper in a second.



Figure 10: One type of XRF unit



Figure 11: Analyzing a playground using an XRF unit

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