



Changes in Pressure-Treated Wood for Residential Construction

Wood treated with chromated copper arsenate (CCA), commonly called “green-treated” wood, dominated the residential market for several decades and was sold at lumberyards under a variety of trade names. However, as the result of voluntary changes submitted by CCA registrants, labeling of CCA by the Environmental Protection Agency (EPA) now permits the product to be used primarily for industrial applications. Use of wood treated prior to 2004 is not affected by this change. This development has raised questions about the availability of CCA-treated wood and the properties of alternative types of treatments.

What Type of Applications Are Affected by the CCA Restriction?

CCA-treated wood will not be available for most residential applications, although exceptions were made for engineered composite wood products, permanent wood foundations, and large structural timbers (see table). The label changes cite specific commodity standards listed in the 2001 or 2002 editions of the American Wood-Preservers’ Association’s (AWPA) *Book of Standards*.

Alternatives to CCA for Residential Construction

To become standardized by AWPA, preservative-treated wood must undergo a series of rigorous tests to ensure its durability. The results of these tests are reviewed by AWPA members who represent government agencies, universities, commercial chemical suppliers, and treaters. Be wary of purchasing preservative-wood that has not been standardized for an intended application by either AWPA or some other major standard-setting body, such as the American Society for Testing and Materials (ASTM).

Several arsenic-free preservative formulations have been standardized by AWPA for use in many applications previously dominated by CCA. Currently, these alternatives all rely heavily on copper as their primary active ingredient. They include acid copper chromate, alkaline copper quat (ACQ), copper azole, and copper HDO.

Depending on location and intended use, one or more of these alternative types of treated wood may be available. Be aware that various suppliers can sell the same type of

treated wood by different names, so you may need to ask the supplier for more information to determine the preservative used. Also, some manufacturers incorporate colorants or water repellents into their preservative treatments. These treatments can also have different trade names.

Products that can still be treated with CCA under conditions of the new label language

Type of end use	AWPA Standard ^a	
	U1	C
Lumber & timbers used in seawater	G	C2
Land, fresh water, & marine piles	E	C3
Utility poles	D	C4
Plywood	F	C9
Wood for highway construction	A,B,D,E	C14
Round, half-round, & quarter-round fenceposts	B	C16
Poles, piles, & posts used as structural members on farms	B,D	C16
Wood used in marine construction (not including above the water)	G	C18
Lumber & plywood for permanent wood foundations	A,F	C22
Round poles & posts used in building construction	B,D	C23
Sawn timbers (≥5 in. thick) used to support residential and commercial structures	A	C24
Sawn crossarms	A	C25
Structural glue-laminated members	F	C28
Cooling tower components	A	C30
Structural composite lumber (parallel strand or laminated veneer lumber)	F	C33
Shakes & shingles	A	C34

^aThe letters and numbers designate specific AWPA standards for various treated wood products. CCA can only be used if treated to the specifications of one of these standards.



Currently, ACQ and copper azole have emerged as the most widely available alternatives to CCA in residential construction. Their mention in this article does not constitute an endorsement of either product.

Alkaline Copper Quat (ACQ)

The fungicides and insecticides in ACQ are expressed as copper oxide (67%) and a quaternary ammonium compound (quat, 33%). Multiple variations of ACQ have been standardized or are in the process of standardization. There are three types of ACQ: ACQ-B, ACQ-D, and ACQ-C. ACQ-B is an ammoniacal copper quat formulation; ACQ-D is an amine copper quat formulation; and ACQ-C is formulated with either ammonia or amine and a slightly different quat compound. Minimum retentions of 0.25 lb/ft³ or 0.4 lb/ft³ are specified for wood used above ground or in ground contact, respectively. A retention of 0.6 lb/ft³ is specified for critical structural members in ground contact.

Copper Azole (CBA-A and CA-B)

The first copper azole formulation developed was type A (CBA-A), which contains 49% copper, 49% boric acid, and 2% tebuconazole. Type B (CA-B) was more recently standardized. CA-B does not contain boric acid and contains 96% copper and 4% tebuconazole. Minimum retentions of CBA-A are 0.20 lb/ft³ and 0.41 lb/ft³ for wood used above ground or in ground contact, respectively. A retention of 9.8 kg/m³ (0.61 lb/ft³) is specified for critical structural members placed in ground contact. Minimum retentions of CA-B are 0.10 lb/ft³ or 0.21 lb/ft³ for wood used above ground or in ground contact, respectively. A retention of 0.31 lb/ft³ is specified for critical structural members placed in ground contact.

Will I Notice a Difference with the CCA Alternatives?

From a practical end-use basis, there is little difference between CCA and the recently developed alternatives. The appearance, strength properties, and handling characteristics of the treated wood are very similar to those of CCA-treated wood. The alternatives are slightly more expensive, however; and the cost difference increases at higher preservative retentions.

The alternative treatments may be somewhat more corrosive to metal fasteners than was CCA. In-service corrosion with the CCA alternatives is difficult to evaluate because of the absence of long-term service data, but major fastener and preservative manufacturers are working to minimize corrosion concerns. Hot-dipped galvanized fasteners and connectors (meeting ASTM A153 and ASTM A653 Class G185 sheet, respectively, or better) are recommended for protection against the effects of moisture often present where treated wood is used. For permanent wood foundations, use 304 or 316 steel. Aluminum should not be used in direct contact with wood.

Precautions

Do not assume that all “green-treated” wood is equal. The type of preservative, its retention, and quality of treatment are critical to performance. With CCA alternatives, it will be more important to match the type of preservative and its retention with the intended application.

CCA used for aboveground or ground contact applications was often sold at only one retention (0.4 lb/ft³). Because the new preservatives are more expensive, the wood is now treated to a lower retention for aboveground use. Wood treated for aboveground use should not be placed in contact with the ground.

Look carefully at the end tag of each piece of treated wood to determine its appropriate end use. It’s very easy for pieces treated for different end uses to be mixed in the same pile.

Quality Assurance

With rapid changes taking place in the treating industry, it is more important than ever to ensure that wood is being treated to standard specifications. The U.S. Department of Commerce American Lumber Standard Committee (ALSC) accredits third-party inspection agencies for treated wood products. Updated lists of accredited agencies can be found on the ALSC website (www.alsc.org).

The easiest way to know if wood has been treated to standard specifications is to look for a quality mark or symbol of an ALSC-accredited agency on the front or back of the end tag.

0.10 pcf XYZ Agency 000 AWWA UC3B STDS	2003	2004
	FOR ABOVE GROUND USE NoName Wood Preserving Co. AnyTown, AnyState	

03 Ground Contact 04 ABC Agency 0.40 pcf Alkaline Copper Quat NoName Wood Treating	2003	2004
	End Use—Ground Contact ACQ Wood Preservative	

End tags have many different formats. The end use and type of preservative are usually shown on the front, but also look on the back. In these examples, the third party inspection information is shown on the left-hand side.