THE PRESERVATIVES

INTRODUCTION

Wood preservatives in Canada are governed by the Pest Control Products Acts and must be registered with the Pest Management Regulatory Agency (PMRA) of Health Canada.

The PMRA's role is to determine if proposed preservatives can be used safely when label directions are followed and if they will be effective for their intended use. If there is reasonable certainty from scientific evaluation that no harm to human health, future generations or the environment will result from exposure to or use of a preservative, its registration for use in Canada will be approved.

Once on the market, PMRA monitors their use through a series of education, compliance and enforcement programs. Preservatives are also reviewed every fifteen years or sooner as new information is discovered and as science evolves. PMRA also requires companies to report any incident they receive about their products, just as they encourage consumers to report any incidents to these companies through their Incident Reporting Program.

In Canada, three different preservatives are registered with the Pest Management Regulatory Agency (PMRA) for industrial / commercial / agricultural uses:

CCA	Guide rail posts, utility poles, bridge timbers, piles, structural glued-laminated timbers, posts and permanent wood foundations
Creosote	Railway ties, mine timbers, poles, foundation piles, marine piles and bulkheads
Pentachlorophenol	Utility poles, cross arms, bridge timbers and ties

The level of protection required is determined by hazard exposure (i.e. climate conditions, whether the wood will be in ground contact or in a special environment such as salt water), what is expected of the installed product (service life and structural integrity) and the potential costs of replacing damaged wood.

CHROMATED COPPER ARSENATE (CCA)

Identification

Sample CAA End Tag

General Description

Chromated Copper Arsenate (CCA) contains inorganic arsenic, chromium and copper and is a pesticide registered for use in Canada under the Pest Control Products Act. While CCA was voluntarily removed from the residential application market in 2005, it remains present in the Canadian industrial and agricultural markets. The base ingredients from which 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.

It is important to note there are significant differences in the chemistry and toxicity of arsenic compounds. Inorganic pentavalent arsenate, one of the primary active ingredients in CCA, is a naturally-occurring trace element which is present in soil, water, air, plants and in the tissues of most living creatures – including humans. It should not be confused with trivalent arsenic compounds, which are generally more toxic than pentavalent compounds and never used in the pressure treating process.

The pentavalent arsenate found in wood preservatives is also the most prevalent arsenic compound in nature. It is rapidly excreted by the kidneys and does not accumulate. Again, it is important to note that chronic inorganic arsenic intoxication is associated with trivalent arsenic, which is not present in CCA solutions.

The chemical reactions that fix the CCA components in the wood are complex. For example, in general terms, the pressure-injected chemicals in CCA are reduced to their metallic state and become bonded to the cellular structure of the wood. These highly insoluble precipitates are virtually immune to leaching (seeping from the wood) and will not vaporize or evaporate under normal conditions.

Many of the allegations about CCA wood preservative are anecdotal and groundless. To date, all evidence collected on the toxicity of CCA treated wood shows no health hazard, even by very exaggerated contact to treated wood. (The oral lethal dose of treated wood for

a 70 kg human would be more than half a kg. Even then it might not prove fatal, because the digestive system would likely be unable to liberate all the arsenic from the wood.) Studies show that properly impregnated wood retains its CCA preservatives in virtually undiminished quantities for decades. Environmental risks from properly processed CCA treated wood are negligible.

CCA treated wood is light green in colour and weathers to a driftwood grey over time. Seasoning after treatment leaves the wood dry, paintable, odorless and clean. This is preferred for applications where there is close human or animal contact. Water repellents, colour, mould inhibitors and additives to improve the climbability of poles can be applied during the treating process. While the oil carriers in penta and creosote impart water repellency to wood in the normal course of treating, CCA do not provide such weathering protection. Applying a water repellent additive during pressure treating slows the initial moisture loss of the wood and reduces shrinkage as the wood comes into equilibrium with the environment. Water repellents also help reduce effects of weathering on wood in use, thereby reducing checking and the rate at which the wood turns grey.

Similarly, colour pigments can be added to the preservative to mask the characteristic soft green of CCA, mould inhibitors can keep wood looking clean in excessive humidity conditions, and various additives can be used to "soften" poles so that they are more easily climbed.

Applications

The PMRA Re-evaluation Note REV2006-07 *Label Guidance for Use of Chromated Copper Arsenate (CCA)* lists the permitted uses of CCA in Canada and is included as a reference.

Chromated Copper Arsenate (CCA) Consumer Safety Information

Exposure to arsenic and chromium may present certain hazards. Follow the safe practices listed below when working with CCA pressure-treated wood. Specific work practices may vary depending on the environment and safety requirements of individual jobs.

Use

Wood treated with CCA should be used only when such protection is important, as in areas where the wood is subject to decay or insect attack or is in contact with damp soil or water. Treated wood is not a substitute for good building design. Proper design and construction principles must be followed to ensure long service and prevent decay. CCA-treated wood should be used in the interior of constructions only when there is a risk of accidental wetting and replacement is difficult (for example, in foundations, basements, ground-floor joists and sub-floors).

Do not use CCA-treated wood where:

- Direct food contact is possible (for example, cutting boards, counter tops, beehives).
- The chemicals in the preservative may enter the food chain (for example, animal feed storage, silos, water troughs, compost bins, mulch).
- The chemicals in the preservative may come into contact with public drinking water (for example, well or reservoir covers), except for uses involving incidental contact such as docks and bridges.

Handling

Only purchase CCA-treated wood that is visibly clean and free of surface residues, as these may contain dislodgeable toxic chemicals.

Wear gloves and long sleeves when handling treated wood.

Wear dust mask, eye protection, gloves and long sleeves when sawing, sanding, shaping or otherwise machining treated wood to avoid skin contact with or inhalation of sawdust.

Where possible, cut or otherwise work with treated wood out-of-doors.

Wash hands after working with the wood, and before eating, drinking, or smoking.

Launder clothing before reuse. Wash separately from other clothing.

After construction, all cut ends, sawdust and construction debris should be cleaned up and disposed of in accordance with local regulations.

Installation and Maintenance

If wood is cut during construction, apply an appropriate "end-cut" preservative (e.g., copper naphthenate for above or below ground or zinc naphthenate for above ground only) to protect exposed, untreated wood. Use these products according to the manufacturers instructions.

The service life of CCA-treated wood may be extended by regular application of coating or sealer, which can protect the wood from weathering effects. Such maintenance may also reduce the potential release of toxic chemicals from the wood.

The use of bleaches, deck cleaners or brighteners that contain sodium hypochlorite, sodium hydroxide, sodium percarbonate, oxalic acid, or citric acid is not recommended as they may release toxic chemicals from CCA-treated wood.

Use corrosion-resistant fasteners to minimize damage and discoloration caused by moisture.

Disposal

Reuse treated wood to the extent possible.

Do not dispose of CCA-treated wood remnants or sawdust in compost heaps, wood chips, or mulch as chemicals from the preservative may enter the food chain

Dispose of construction wastes or material removed from service in accordance with local regulations. Contact your municipality or provincial government to find out how to dispose of CCA-treated wood in your area. (Most areas use ordinary trash collection or burial.)

NEVER BURN TREATED WOOD. Arsenic and chromium may be released into the environment as part of the smoke or remain in the ashes.

PENTACHLOROPHENOL (Penta)

General Description

Penta is the most common oil-borne preservative used industrially for the long-term protection of wood against attack and destruction by fungi and insects. It has been used in Canada for almost half a century.

Oil-borne penta is used extensively for the treatment of utility poles. It is also used for railway ties, foundation piling, timbers in highway construction, construction timbers and poles, and fence posts.

Pure penta is a white, crystalline, aromatic compound. It is produced by reacting phenol with chlorine. Technical penta used in wood preservation usually contains about 10% related chlorophenols such as tetrachlorophenol and some trichlorophenol. It also contains some impurities such as octa-, hepta, and hexachlorodibenzo-p- dioxins and chlorodibenzofurans at levels of parts per million. It is important to note that the highly toxic tetrachlorodibenzo-p-dioxin (2,3,7 ,8-TCDD), which has received much attention in the media, has NOT been found in penta.

For wood preservation treatments, pentachlorophenol is dissolved in petroleum oil conforming to CSA 080.20 1 "Standard for Hydrocarbon Solvents for Preservatives". Penta treating solution concentrations range from 3% to 7% by weight, depending on the wood products and species to be treated.

If, through accidental exposure, pentachlorophenol is absorbed, inhaled or ingested, it does not accumulate in the body (the half-life is about 36 hours). Thus, after exposure, penta is released from the body relatively quickly in the urine. Studies carried out on treatment plant workers exposed to penta for up to 20 years show no long-term adverse health effects. Basic, common sense measures make penta safe for use.

While penta treated wood is safe for many uses, plants in direct contact with penta treated wood could be adversely affected. Therefore, it should not be used in greenhouses or next to house and food plants. Nor should it be used in home interiors or salt-water applications.

However, pressure-impregnated penta does not evaporate or exude from wood to an appreciable extent. According to several studies, this is true not only for wood in ground contact, but also for properly treated piling and timbers in fresh water applications. It is also important to note that low concentrations of penta are biodegradable and subject to photodecomposition.

Penta treated wood is light to dark brown in color, depending on the oil used and the species treated, and usually weathers to a silvery gray over time. It is also somewhat water repellant. This improves the wood's dimensional stability and reduces checking and splitting. The wood is also more resistant to mechanical wear. The oil lubricates the wood, facilitating spur penetration when climbing poles.

Oil-borne penta also slows corrosion of metal fasteners. It is resistant to a variety of corrosive chemicals and is a suitable treatment for several types of chemical storage and conduit structures.

Applications

Penta is registered with PMRA for the following wood uses:

- railway ties
- utility poles, and piling
- outdoor construction materials

Pentachlorophenol Consumer Safety Information

Exposure to pentachlorophenol may present certain hazards. Follow the safe practices listed below when working with penta pressure-treated wood. Specific work practices may vary depending on the environment and safety requirements of individual jobs.

Use

Wood treated with pentachlorophenol should not be used for log homes.

Wood treated with penta should not be used where it will be in frequent or prolonged contact with bare skin (for example, chairs, and other outdoor furniture), unless an effective sealer has been applied.

Pentachlorophenol-treated wood should not be used in residential, industrial, or commercial interiors except for laminated beams or for building components, which are in ground, contact and are subject to decay or insect infestation and where two coats of an appropriate sealer are applied. Sealers may be applied at the installation site.

Wood treated with pentachlorophenol should not be used in interiors of farm buildings where there may be direct contact with domestic animals or livestock, which may crib (bite) or lick the wood.

Do not use pentachlorophenol-treated wood for farrowing or brooding facilities.

Do not use treated wood under circumstances where the preservatives may become a component of food or animal feed. Examples of such sites would be structures or containers for storing silage or food.

Do not use treated wood for cutting boards or countertops. Only treated wood that is visibly clean and free of surface residue should be used for patios, decks and walkways.

Do not use treated wood for construction of those portions of beehives, which may come into contact with the honey.

Pentachlorophenol-treated wood should not be used where it may come into direct or indirect contact with public drinking water, except for uses involving incidental contact such as docks and bridges.

Handling

Avoid frequent or prolonged inhalation of sawdust from treated wood. When sawing and machining treated wood, wear a dust mask. Whenever possible, these operations should be performed outdoors to avoid indoor accumulations of airborne sawdust from treated wood.

Avoid frequent or prolonged skin contact with pentachlorophenol-treated wood; when handling the treated wood, wear long-sleeved shirts and long pants and use gloves impervious to the chemicals (for example, gloves that are vinyl-coated).

When power sawing and machining, wear goggles to protect eyes from flying particles. After working with the wood, and before eating, drinking, and use of tobacco products, wash exposed areas thoroughly.

If oily preservatives or sawdust accumulate on clothes, launder before reuse. Wash work clothes separately from other household clothing.

Disposal

Dispose of treated wood by ordinary trash collection or burial. Treated wood should not be burned in open fires or in stoves, fireplaces, or residential boilers because toxic chemicals may be produced as part of the smoke and ashes. Treated wood from commercial or industrial use (e.g., construction sites) may be burned only in commercial or industrial incinerators or boilers rated at 20 million BTU/hour or greater heat input or its equivalent in accordance with provincial and federal regulations.

CREOSOTE

General Description

Creosote, is a distillate of coal tar and consists of liquid and solid polycyclic aromatic hydrocarbons, other heterocyclic aromatic substances and some tar acids and bases. Creosote is considered a CEPA-toxic preservative.

Creosote is the oldest and one of the most effective industrial preservatives for protecting wood from deterioration and decay caused by fungi, insects and marine organisms. It is virtually insoluble in water.

Creosote has been applied to a large variety of wood products for more than 150 years. It is used primarily for railway ties (where it is often blended with a heavy petroleum oil), utility poles, marine piling and timbers and highway construction.

Creosote is derived from coal tar, which is formed during high temperature carbonization of bituminous coal. This carbonization process takes place during the making of coke by the steel industry. The coal tar is then distilled to produce creosote and other products.

Many factors affect the character and composition of creosote, including the characteristics of the coal, which is used, the method of coal tar distillation and the temperature range in which the creosote fractions are collected. Over 150 chemical compounds have been identified.

Common sense dictates that the creosote preservative must be handled with care. Studies conducted on human workers exposed to creosote indicate there is no increased incidence of cancer or cancer-related deaths. Further studies corroborate that exposure to creosote fumes is not associated with any observed significant adverse health effects.

Pressure-injected creosote does not exude or move out of the wood in a liquid form to any appreciable extent. According to several studies, this is true not only for wood in land use but also for properly treated piling and timbers in the marine environment. Furthermore,

creosote in small concentrations is biodegradable. Tests indicate that creosote is low in toxicity to birds and moderately toxic to fish.

Initially, creosote treated wood is dark brown to black in colour and weathers to a light brown. It has distinct odors, which diminish with age. Because creosote is oily, the treated wood is somewhat water repellant. This improves the wood's dimensional stability and reduces checking and splitting. Creosote treated wood is also more resistant to mechanical wear, which is of vital importance for such applications as railway ties and bridge decking.

Applications

Creosote is registered in Canada with PMRA for the following wood uses:

- railroad ties
- utility poles
- marine pilings
- outdoor construction materials

Creosote Consumer Safety Information

Exposure to creosote may present certain hazards. Follow the safe practices listed below when working with creosote pressure-treated wood. Specific work practices may vary depending on the environment and safety requirements of individual jobs.

Use

Wood pressure treated with creosote should not be used where it will be in frequent or prolonged contact with bare skin (for example, chairs and other outdoor furniture) unless an effective sealer has been applied.

Creosote treated wood should not be used in residential interiors. Creosote treated wood in interiors of industrial buildings should be used only for industrial building components which are in ground contact and are subject to decay or insect infestation and wood block flooring. For such uses, two coats of an appropriate sealer must be applied. Sealers may be applied at the installation site.

Wood treated with creosote should not be used in the interiors of farm buildings where there may be direct contact with domestic animals or livestock, which may crib (bite) or lick the wood.

Do not use creosote treated wood for furrowing or brooding facilities.

Do not use treated wood under circumstances where the preservative may become a component of food or animal feed. Examples of such use would be structures or containers for storing silage or food.

Do not use treated wood for cutting boards or counter-tops.

Only treated wood that is visibly clean and free of surface residues should be used for patios, decks and walkways.

Do not use treated wood for construction of those portions of beehives, which may come into contact with the honey.

Creosote treated wood should not be used where it may come into direct or indirect contact with public drinking water, except for uses involving incidental contact such as docks and bridges.

Do not use creosote treated wood where it may come into direct or indirect contact with drinking water for domestic animals or livestock, except for uses involving incidental contact such as docks and bridges.

Handling

Avoid frequent or prolonged inhalation of sawdust from treated wood. When sawing and machining treated wood, wear a dust mask. Whenever possible, these operations should be performed outdoors to avoid indoor accumulation of airborne sawdust from treated wood.

Avoid frequent or prolonged skin contact with creosote treated wood; when handling the treated wood, wear long sleeved shirts and long pants and use gloves impervious to the chemicals (for example, gloves that are vinyl coated).

When power sawing and machining, wear goggles to protect eyes from flying particles.

After working with the wood, and before eating, drinking, and use of tobacco products, wash exposed areas thoroughly.

If oily preservatives or sawdust accumulate on clothes, launder before reuse. Wash work clothes separately from other household clothing.

Disposal

Dispose of treated wood by ordinary trash collection or burial. Treated wood should not be burned in open fires or in stoves, fireplaces or residential boilers because toxic chemicals may be produced as part of the smoke and ashes. Treated wood from commercial or industrial use (e.g. construction sites) may be burned only in commercial or industrial incinerators or boilers in accordance with provincial and federal regulations.

FIRE RETARDANT WOOD (FRTW)

Wood, the Preferred Building Material

Wood has always been high among man's preferred building materials, for many reasons. It is highly workable in the shop or on site; it is both available and renewable; it is relatively inexpensive; and when manufactured into pre-engineered construction components, wood will carry an increased structural load without losing any of its desirable structural properties.

By treating with fire- retardant chemicals, wood will maintain its structural integrity at even higher temperatures than steel, without losing favorable construction properties. And Fire-Retardant Treated Wood (FRTW) maintains its fire retardant properties for the life of the structure.

Thus, pressure treating with a fire retardant chemical allows for expanded use of both dimensional lumber and plywood in the National Building Code, with no sacrifice in design flexibility or good carpentry practices. In fact, the reverse is true, since the use of FRTW allows the designer greater flexibility in dealing with some of the fire safety aspects of the code where wood is the preferred construction material, or where a potential fire hazard exists.

How FRTW Retards the Spread of Fire

No building is completely fireproof. However, the inherent integrity of FRTW in fire situations is a major point in its favor, compared to other, non-combustible construction materials. Intense heat can cause steel beams, girders and trusses to buckle and collapse. Steel begins to lose strength rapidly: at 550°C it has lost one-half of its breaking strength; at 750°C it has lost 90%. Most aluminum alloys are even more vulnerable to heat, losing half their original strength at 300°C and melting at 600°C.

Now consider the performance of interior FRTW in the event of fire. The fire retardant chemicals, impregnated into the wood under pressure, begin to react when the temperature approaches 272°C, the point where wood will ignite. These chemicals convert the wood tars to a carbon char, which in turn acts as a thermal barrier to retard the rate at which the cross-section is reduced by fire. Non-flammable gases and water vapor are formed and released at a slow, steady rate, to extinguish flammable gas normally produced when wood burns.

FRTW maintains its structural integrity much longer than even non-combustible materials in a fire situation. When the flame source is removed, the treated wood ceases to char, and since it will not support combustion, the flame will not spread. A further benefit: FRTW does not add to the production of smoke and toxic fumes, the major threats to human life in fire situations.

Produced under Stringent Controls

Fire retardant treated wood is manufactured in Canada by a group of experienced, reputable, financially stable companies who are, in turn, members of Wood Preservation Canada. Their financial integrity ensures they will fully support the products they offer, and allows them to undertake the rigorous testing required to pass Canada's building codes and standards.

The National Building Code of Canada (primarily Part 3) requires that all FRTW must be produced through a pressure impregnation method by a licensed treater, in accordance with specific CSA standards. For lumber, the standard is CSA O80.20, and for plywood O80.27. These two standards specify the condition of the material before and after treatment, and specify the UL standard, which determines the product's performance criteria. In fact these two standards should be written into a specification, to clarify the type of product to be installed, and to protect the architect against liability should the contractor mistakenly substitute another product such as one surface-treated with fire-retardant paint.

One final condition applies. To ensure its structural stability, all FRTW must be kiln- dried after treatment: lumber to 19% moisture content and plywood to 15% moisture content.

FRTW Passes Flamespread Test

All FRTW used in Canada must have earned the flamespread rating determined under the test know as "CAN4-S102, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies". This performance test can be carried out only by an accredited third-party testing agency. At the same time, a smoke development rating is also assigned to FRTW. After testing, each species of wood is assigned flamespread and smoke development ratings. Ratings are then imprinted on the Underwriter's Laboratory of Canada label applied to every 100 board feet of FRTW lumber and every 32 square feet of plywood. Some manufacturers go the extent of coloring the wood to permit clear identification on the job site.

Typical Applications of FRTW

The design professional or contractor enjoys wide flexibility in the use of FRTW. Traditionally, interior applications include architectural millwork, paneling, roof assemblies/trusses, beams, interior load bearing and non-load bearing partitions.

Exterior-type fire retardants use different chemical formulations from those used for interior applications; generally, they are applied to shingles and shakes. Under the NBCC, a FRTW roof can be constructed of (a) solely FRTW, or (b) any combination of different structural supports such as non-combustible framework or a heavy timber support. Types of application include group assembly, mercantile, small business and light industrial buildings.

By using solely FRTW or any combination, the designer waives the mandatory 45-minute fire resistance rating required for a roof system in a building of combustible construction. Thus the designer is afforded a high degree of flexibility in both design and material specifications.

FRTW is currently finding strong acceptance in certain residential roof applications, such as government-funded senior citizens apartments, where the long-life economies of a pitched roof design are desired. Wall sheathing is an area where FRT plywood is finding favor, in installations, where standard drywall is subject to damage through day-to-day activities (e.g. warehousing facilities). Raised flooring in mercantile buildings such as restaurants and stage flooring in performing arts centers are other examples where FRTW can be used according to the code.

Major Design Benefits of FRTW

Architects and designers are finding that significant benefits can be derived by specifying FRTW, particularly in roof construction.

Versatility — A pleasing dome roof design was achieved in a recently built theatre attraction by screwing FRTW 2 x 4 members to a welded metal frame, then applying a plywood FRTW roof membrane, scored with relief cuts to allow it to bend to the required shape.

Economy — By using FRTW lumber and plywood in a new mall roof system, the designer was able to solve major cost problems in the design. If untreated materials had been used, the additional cost of a sprinkler system, and a heating system to protect the lines from freezing, would have made the design uneconomical. In addition, the FRTW system allowed the designers to waive the 45-minute fire resistance rating required in a one-storey building of this nature.

Flexibility— Installing sprinklers would have been extremely difficult in a recent school addition. However, by using FRTW in the new roof system, the designers were able to maintain the aesthetically desirable sloped.

Roofline and eliminate the need for sprinklers in the 7,000 square foot addition.

Avoiding “Heat Degradation” Problems

In the past, certain chemicals used in some formulas for fire retardant treatment in the United States led to a problem known as "heat degradation". This caused significant strength loss and increasing brittleness in plywood panels that were exposed to high heat and humidity in an improperly ventilated attic space. The acidic hydrolysis that resulted in these conditions disintegrated the wood fibers, which seriously reduced the panel's structural stability, and they took on a charred or decayed appearance.

Specifiers should always state the appropriate CSA standard (CSA 080.27 for plywood) and the lumber design reduction factors published by the chemical manufacturer.

FRTW Offers Job-Site Convenience

Fire-retardant treated wood can be crosscut to length (not ripped) and drilled for holes following treatment without reducing its effectiveness. End cuts in the field, whether exposed or butted tight, do not require treatment, since any untreated areas are relatively small compared to the overall surface and the flame spread rating remains unaffected. Plywood can be both crosscut and ripped without concern, since the chemical treatment has penetrated throughout the layers.

FRTW is not significantly corrosive to metal fasteners and other hardware in interior applications, even where relative humidity reaches as high as 95%. In fact, testing has demonstrated that FRTW is no more corrosive than untreated wood.

REFERENCES

PMRA Guidance Document on CCA Applications

The Pest Management Regulatory Agency (PMRA) have developed a guidance document for the treated wood industry and other interested stakeholders regarding the permitted uses of Chromated Copper Arsenate (CCA) for treatment of wood for industrial use.

The complete PMRA guidance document on CCA applications can be found in appendix one.

Best Management Practices (BMPs)

Pressure treated wood is a building material widely used to construct piers, docks, buildings, bridges, walks and decks used in or over aquatic and sensitive environments. The pressure treated wood products industry is committed to assuring its products are manufactured and installed in a responsible manner that minimizes any potential for adverse impacts to these important environments. To achieve this objective the Western Wood Preservers Institute (WWPI), Wood Preservation Canada (WPC), the Southern Pressure Treaters Association (SPTA) and the Timber Piling Council (TPC), have developed and encourage the use of these Best Management Practices (BMPs).

What are the Best Management Practices?

The BMPs are recommended guidelines for the production and installation of treated wood products destined for use in aquatic and other sensitive environments. The guidelines were developed by the Supporting Organizations through a consensus process, based on the core philosophy of chemical minimization. Both environmental and economic concerns support the goal of placing enough preservative into a product to provide the needed level of protection while also minimizing use of the preservative above the required minimum to reduce the amount potentially available for movement into the environment.

The complete Best Management Practices guide can be found in appendix two.

Ten Features Often Overlooked About the Extraordinary Wood Pole

Treated wood utility poles combine the exceptional inherent features of a wood pole with the life-extending capability of wood preservation technology.

CSA STANDARDS

The manufacture and application of wood preservatives are governed by CSA O80 standards: a collection of more than 32 different standards based on the commodity being treated (lumber, poles, piles, plywood, etc.). These standards dictate the wood species that may be treated, the allowable preservatives and the retention and penetration of preservative in the wood that must be achieved for the commodity or application. Similar American Wood-Preservers' Association (AWPA) standards are also sometimes referenced.

The following three reference tables are reproduced from CSA O80 standard with the permission of the Canadian Standards Association.

Above Ground Use Categories

Use Category	Service Conditions	Use Environment	Common Agents of Deterioration	Typical Applications
UC1	Interior construction - Above Ground Dry	Continuously protected from weather and interior sources of water	Insects	Interior furniture, millwork and construction furnishings
UC2	Interior construction - Above Ground Damp	Protected from weather, but may be subject to occasional moisture	Decay fungi, and insects	Interior beams, timbers, flooring, framing, millwork, and sill plates
UC3.1	Exterior construction - Above Ground Coated and rapid water runoff	Exposed to all weather cycles, but allow water to quickly drain from the surface	Decay fungi, disfiguring fungi, soft-rot fungi, and insects	Coated millwork, siding, and trim
UC3.2	Exterior construction - Above Ground Uncoated or poor water runoff	Exposed to all weather cycles in vertical and horizontal uses	Decay fungi, disfiguring fungi, soft-rot fungi, and insects	Decking, deck joists, railings, fence pickets, walkways, and uncoated millwork

Ground Contact Use Categories

Use Category	Service Conditions	Use Environment	Common Agents of Deterioration	Typical Applications
UC4.1	Ground contact or fresh water – Non-critical components	Exposed to all weather cycles; normal exposure conditions	Decay fungi, disfiguring fungi, soft-rot fungi, and insects	Fence, deck and guardrail posts, crossties, and utility poles (low decay area)
UC4.2	Ground contact or fresh water – Critical structural components or difficult replacement	Exposed to all weather cycles; high potential for decay, including saltwater splash	Decay fungi, disfiguring fungi, soft-rot fungi, and insects (with increased potential for biodeterioration)	Land, freshwater, and foundation piles, permanent wood foundations, building poles, horticultural posts, crossties and utility poles (high decay areas)

Specialized Use Categories

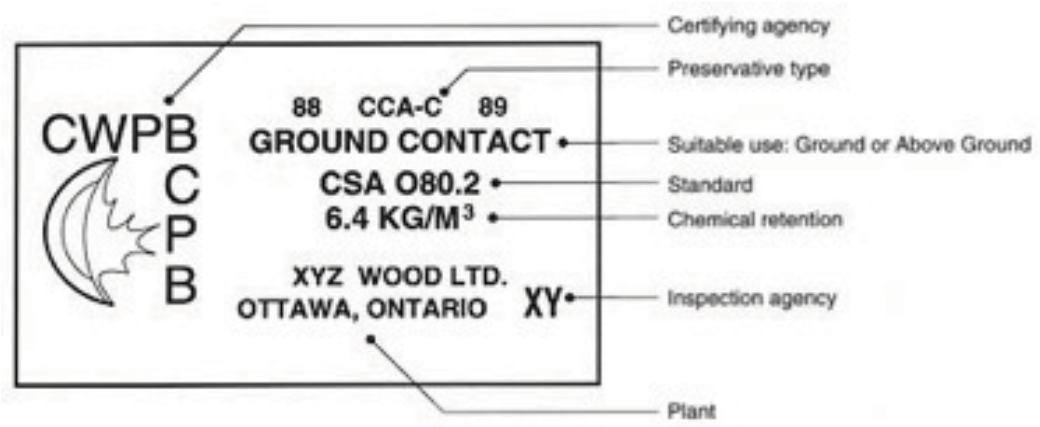
Use Category	Service Conditions	Use Environment	Common Agents of Deterioration	Typical Applications
UC5A	Coastal waters – brackish water or saltwater and adjacent mud zone	Continuous saltwater exposure	Salt water organisms	Piling, bulkheads, and bracing
UCF.1	Fire protection as required by codes - Interior Construction - Above Ground	Continuously protected from weather and other sources of moisture	Fire	Roof sheathing, roof trusses, studs, joists, and panelling

CANADIAN WOOD PRESERVATION BUREAU (CWPB)

The Canadian Wood Preservation Bureau (CWPB) was founded in August 1988. The plan was to develop a third party quality control group for treated wood products in commercial, industrial and residential applications. The plan called for eight directors, three from the membership and five from outside but related groups; i.e. Provincial or Federal Government, Retail Building Supply, Construction or Design Specifications, Utilities and Research or Technical support.
This structure would allow the group to act as an independent organization.

Participation in the CWPB Quality Assurance Program would assure that all producers meet a minimum standard.

The addition of a quality mark or stamp for the user to look for is still the easiest option for product identification



CWPB Quality Stamp

SUPPLIER DOCUMENTATION

Here is a list of information and documentation that you should request and collect from your preservative supplier:

- Preservative Label
- Material Safety Data Sheet for treated wood
- Treated Wood Product Information
- Warranty (if applicable)