Awpa Treated Wood

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Timber bridges provide an economical alternative to concrete and steel structures, particularly in rural areas with light to moderate vehicle traffic. Wooden components of these bridges are treated with chromated copper arsenate type C (CCA), pentachlorophenol, or creosote to prolong the life of the structure from a few years to many decades. This results in reduced transportation infrastructure costs and increased public safety. However, the preservative used to treat the wooden components in timber bridges is lost to the environment in small amounts over time. This report describes the concentration of wood preservatives lost to adjacent environments and the biological response to these preservatives as environmental contaminants. Six bridges from various states were examined for risk assessment: two creosote treated bridges, two pentachlorophenol-treated bridges, and two CCA-treated bridges. In all cases, the largest bridges located in biologically active environments associated with slow-flowing water were selected to represent worst-case analyses. Sediment and water column concentrations of preservative were analyzed upstream from, under, and downstream from each bridge. The observed levels of contaminant were compared with available regulatory standards or benchmarks and with the quantitative description of the aquatic invertebrate community sampled from vegetation and sediments. Pentachlorophenol- and creosote-derived polycyclic aromatic hydrocarbons (PAHs) were not observed in the water near any of the selected bridges. However, low levels of PAHs were observed in the sediments under and immediately downstream from these bridges. Pentachlorophenol concentrations did not approach toxicological benchmarks. Sediment concentrations of naphthalene, acenaphthylene, and phenanthrene exceeded the probable effect level. Metal levels at the bridges treated with CCA were less than predicted effect levels, in spite of questionable construction practices. Adverse biological effects were not observed in the aquatic invertebrate community or laboratory bioassays conducted on water and sediments sampled at each of the bridges. Results of this study reveal the need to follow the construction information found in Best Management Practices for the Use of Treated Wood In Aquatic Environments published by Western Wood Preservers Institute. Regulatory benchmarks used in risk assessments of this type need to be indexed to local environmental conditions. The robust invertebrate communities associated with slow-moving streams over soft bottoms were not susceptible to the concentrations of PAHs that would be expected to affect more sensitive taxa, which typically are located in faster moving water over hard bottoms. Contaminants released from timber bridges into these faster systems (where more sensitive taxa are located) are significantly diluted and not found at biologically significant levels.
Pressure Treated Wood Fence Posts (with Oil-type Preservatives). DIANE Publishing
For decades chromated copper arsenate (CCA) was the primary preservative for treated wood used in residential construction. However, recent label changes submitted by CCA registrants will withdraw CCA from most residential applications. This action has increased interest in arsenic free preservative systems that have been standardized by the American Wood Preservers? Association. These include acid copper chromate (ACC), alkaline copper quat (ACQ), copper azole (CBA-A and CA-B), copper citrate (CC), copper dimethyldithio-carbamate (CDDC), and copper HDO (CX-A). All of these CCA alternatives rely on copper as their primary biocide, although some have co-biocides to help prevent attack by copper-tolerant fungi. These alternative treatments have appearance and handling properties?similar to those of CCA and are likely to be readily accepted by consumers. Prior studies indicate that these treatments release preservative components into the environment at a rate greater than or equal to that of CCA, but because their components have lower mammalian toxicity they are less likely to cause concern in residential applications. As the treated wood industry evolves, it is probable that a wider range of types and retentions of wood preservatives will become available, with the treatment more closely tailored to a specific type of construction application.
McGraw-Hill Yearbook of Science & Technology 2012 Amer Chemical Society
NOTE: NO FURTHER DISCOUNT FOR THIS PRINT PRODUCT-- OVERSTOCK SALE -- Significantly reduced list price Wood preservatives are generally grouped into two categories: preservatives used for in-place field (remedial)treatment and preservatives used for pressure treatments.A limitation of in-place treatments is that they cannot beforced deeply into the wood under pressure. However, theycan be applied into the center of large wooden membersvia treatment holes. These preservatives may be availableas liquids, rods, or pastes. Pressure-treated wood has muchdeeper and more uniform preservative penetration thanwood treated with other methods. The type of pressuretreated wood is often dependent on the requirements of thespecific application. To guide selection of pressure-treatedwood, the American Wood Protection Association developedUse Category System standards. Other preservative characteristics, such as color, odor, and surface oiliness may alsobe relevant. Guidelines for selection and application of fieldtreatments and for selection and specification of pressure-treated wood are provided in this document. Related Products: Nondestructive Evaluation of Wood is available here: https: //bookstore.gpo.gov/products/sku/001-001-00704-8 New Exterior Additions to Historic Buildings: Preservation Concerns is available here: https: //bookstore.gpo.gov/products/sku/024-005-01280-0 Guide for In-Place Treatment of Wood in Historic Covered and Modern Bridges is available here: https: //bookstore.gpo.gov/products/sku/001-001-00695-5 Preserving Historic Wood Porches is available here: https: //bookstore.gpo.gov/products/sku/024-005-01240-1 Preservation Briefs: Recognizing and Resolving Common Preservation Problems, 1-14 is available here: https: //bookstore.gpo.gov/products/sku/024-005-01026-2 Preservation Briefs: 15-23 (2007) is avaiable here: https: //bookstore.gpo.gov/products/sku/024-005-01256-7 Preservation Briefs 24-34: Recognizing and Resolving Common Preservation and Repair Problems Prior to Working on Historic Buildings is available here: https: //bookstore.gpo.gov/products/sku/024-005-01147-1 Preservation Briefs 35-42: Recognizing and Resolving Common Preservation and Repair Problems Prior to Working on Historic Buildings is available here: https: //bookstore.gpo.gov/products/sku/024-005-01219-2 Renovation & Historic Preservation resources collection can be found here: https: //bookstore.gpo.gov/catalog/science-technology/construction-archit"
Government Printing Office
Coal Tar CreosoteWHO
Selecting Preservative Treated Wood John Wiley & Sons
Offers the latest regulations on designing and installing commercial and residential buildings.
Best Management Practices for the Use of Preservative-treated Wood in Aquatic Environments in Michigan CRC Press
Due to the extensive use of treated wood products throughout urban and agricultural communities, information concerning the environmental and health risks associated with treated wood is very much in demand. Responding to increasing need for a comprehensive and cohesive source on this topic, Environmental Impacts of Treated Wood compiles the latest information concerning regulations, environmental impact studies, new wood preservative formulations, and state-of-the-art disposal technologies available for minimizing environmental impacts caused by treated wood. Beginning with a background of the production of the most common treated wood products, this book discusses how chemical leaching and transport of certain wood preservatives affect the environment, particularly chromated copper arsenate. A separate section is devoted to case studies that evaluate possible links with cancer and other health risks with repeated exposure to treated wood. Several chapters discuss ways to measure exposure and review various approaches to risk assessment and management. Because treated wood products last a long time, the book also considers the disposal of treated wood in terms of human and environmental impact. It explores novel disposal technologies and practical strategies for complying with regulatory phase-outs of

certain treated wood products within the U.S., Canada, Europe, Australia, and many Asian countries. These include recycling, bioremediation, thermal treatment, and landfills. Environmental Impacts of Treated Wood provides a timely compilation of perspectives necessary for making informed, conscientious decisions in the production, use, and disposal of treated woods that will minimize the environmental impact and human exposure risks associated with treated wood products today.
Leaching of Wood Preservative Components and Their Mobility in the Environment ACS Symposium
"Summarizes information on wood as an engineering material. Properties of wood and wood-base products of particular concern to the architect and engineer are presented, along with discussions of designing with wood and some pertinent uses of wood."--Page ii.
Fraxinus Pennsylvanica Var. Lanceolata International Code Council
This book will present an overview of the steps involved in developing and obtaining regulatory approval of new wood preservative systems. This will include chapters by international experts on new biocides, formulation development, non-biocidal methods to protect wood, efficacy testing oflumber and wood-based composites, registration and approval, and environment and disposal issues. Also covered will be mold growth on lumber and composites treated with the newer wood preservatives and a full section on molds in homes/structures, particularly mold growth on solid and compositebuilding materials, biocides to control molds, mold detection, human health issues, and mold litigation.
How to Collect, Handle, and Use Them Coal Tar Creosote
On cover: IPCS International Programme on Chemical Safety. Published under the joint sponsorship of the United Nations Environment Programme, the International Labour Organization and the World Health Organization, and produced within the framework of the Inter-organization Programme for the Sound Management of Chemicals (IOMC)
Increment Cores DIANE Publishing
This design guide summarizes recent research on the corrosion of metals in treated wood, presents design strategies to minimize corrosion of metals in contact with treated wood, and is targeted toward engineers, architects, builders, and homeowners. The guide is organized as a "question and answer" document. While the questions are arranged in a logical order, each question and answer are self-contained. Special efforts have been made to provide a comprehensive bibliography to direct the reader to further information on each question. The document was created to give practical "hands-on" information for corrosion in treated wood.
Copper Naphthenate Wood - Preservative McGraw-Hill Education
List of members in each vol. (except v. 2).
Wood Preservation in the United States
Wood and other structural lignocellulose biomaterials are renewable resources that provide sustainable products that require considerably less energy to manufacture into useable products than other alternatives produced from nonrenewable resources. However, these materials are readily biodegradable and as such must be protected if they are to be used in adverse environments. Consequently, their protection through chemical and nonchemical means plays a vital role in the satisfactory utilization of many products. This publication represents the third ACS book by the three co-editors in a series addressing scientific and practical aspects of biodeterioration and protection of lignocellulose materials. The objective of this third book diverges to some extent from the prior texts, in that it provides an overall view of our current understanding of the microbial and thermal degradation of plant biomass along with new developments in the rapidly changing field of wood protection. The latter is particularly important in light of dramatic changes in copper-based wood preservative systems that are used extensively to treat wood for residential construction, and in the commercial development of lignocellulose modification processes that protect bio-based materials without the addition of biocides. These changes, along with an update on new organic wood preservative systems, factors influencing wood biodeterioration above ground and in soil contact, wood treatment processes, registration and approval processes, applications of molecular biology in wood protection research, and the conversion of biomass into high value carbon products and worldwide trends in wood protection, are covered in this latest ACS book. The individual chapters were authored by a world-class group of academic and industrial scientists in order to provide a state-of-the-art review and global perspective of this rapidly changing field and reviewed by internationally recognized scientists.
Evaluation of Wood Species and Preservatives for WisDOT Sign Posts
These standardized bridge plans are for superstructures consisting of treated timber. Seven superstructure types are included: five longitudinal and two transverse deck systems. Both HS20 and HS25 loadings are included, along with L/360 and L/500 deflection criteria.
Deterioration and Protection of Sustainable Biomaterials
The residential construction market may have its ups and downs, but the need to keep your construction knowledge current never lets up. Now, with the latest edition of Architectural Graphic Standards for Residential Construction, you can keep your practice at the ready. This edition was expertly redesigned to include all-new material on current technology specific to residential projects for anyone designing, constructing, or modifying a residence. With additional, new content covering sustainable and green designs, sample residential drawings, residential construction code requirements, and contemporary issues in residential construction, it’s a must-have resource. And now it's easier to get the information you need when you need it with references to the relevant building codes built right into the details and illustrations. These new "smart" details go beyond dimensions with references to the International Residential Building Code—presenting all the information you need right at your fingertips. New features and highlights include: Loads of previously unpublished content—over 80% is either new or entirely revised Sustainable/ green design information in every chapter—a must today's practicing building and construction professionals Coverage of contemporary issues in residential construction—aging in place, new urbanism, vacation and small homes, historic residences...it’s all here. Coverage of single- and multi-family dwellings—complete coverage of houses, row homes and quadraplexes as dictated by the International Residential Building Codes.
Protection Against Wood-destroying Organisms
An annual roundup of the amazing breakthroughs in science and technology The McGraw-Hill Yearbook of Science & Technology 2012 continues its tradition of making information on the latest advances in science and technology accessible to the nonspecialist through concise, richly illustrated articles. With entries written by international leaders in their respective fields, this new edition covers a braod range of scientific and technical disciplines from Astronomy to Zoology. 190 experts in science and technology keep you informed about key developments and trends in more than 50 major disciplies Coverage includes forefront topics in areas such as biomedical sciences; cell and molecular biology; computer science; environmental science; genetics; materials science and engineering; neuroscience; polymer chemistry; theoretical physics; and more 300 images, two-color illustrations, and charts complement and enhance the text An extensive index makes finding information easy Features numerous cross-references to the McGraw-Hill Encyclopedia of Science & Technology, 10th Edition, in each article for background reading as well as references to key literature All articles are invited, reviewed, and signed to ensure quality of content, then edited and illustrated to ensure comprehensibility for the nonspecialist reader
Guide for Materials Selection and Design for Metals Used in Contact with Copper-treated Wood
Timber's strength, light weight, and energy-absorbing properties furnish features desirable for bridge construction. Timber is capable of supporting short-term overloads without adverse effects. Contrary to popular belief, large wood members provide good fire resistance qualities that meet or exceed those of other materials in severe fire exposures. From an economic standpoint, wood is competitive with other materials on a first-cost basis and shows advantages when life cycle costs are compared. Timber bridges can be constructed in virtually any weather conditions, without detriment to the material. Wood is not damaged by continuous freezing and thawing and resists harmful effects of de-icing agents, which cause deterioration in other bridge materials. Timber bridges do not require special equipment for installation and can normally be constructed without highly skilled labor. They also present a natural and aesthetically pleasing appearance, particularly in natural surroundings. The misconception that wood provides a short service life has plagued timber as a construction material. Although wood is susceptible to decay or insect attack under specific conditions, it is inherently a very durable material when protected from moisture. Many covered bridges built during the 19th century have lasted over 100 years because they were protected from direct exposure to the elements. In modem applications, it is seldom practical or economical to cover bridges; however, the use of wood preservatives has extended the life of wood used in exposed bridge applications. Using modem application techniques and preservative chemicals, wood can now be effectively protected from deterioration for periods of 50 years or longer. In addition, wood treated with preservatives requires little maintenance and no painting. Another misconception about wood as a bridge material is that its use is limited to minor structures of no appreciable size. This belief is probably based on the fact that trees for commercial timber are limited in size and are normally harvested before they reach maximum size. Although tree diameter limits the size of sawn lumber, the advent of glued-laminated timber (glulam) some 40 years ago provided designers with several compensating alternatives. Glulam, which is the most widely used modem timber bridge material, is manufactured by bonding sawn lumber laminations together with waterproof structural adhesives. Thus, glulam members are virtually unlimited in depth, width, and length and can be manufactured in a wide range of shapes. Glulam provides higher design strengths than sawn lumber and provides better utilization of the available timber resource by permitting the manufacture of large wood structural elements from smaller lumber sizes. Technological advances in laminating over the past four decades have further increased the suitability and performance of wood for modern highway bridge applications.
(spray, Brush, Dip Application)
Guidelines for Design, Installation, and Maintenance of a Waterproof Wearing Surface for Timber Bridge Decks
Wood as an Engineering Material
Proceedings

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