

GUIDANCE FOR THE MANAGEMENT AND DISPOSAL OF CCA-TREATED WOOD 2017 (Final)

Prepared for:
The Hinkley Center for Solid and
Hazardous Waste Management
and Florida Department of
Environmental Protection

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TABLE OF CONTENTS

| | |
|---|----|
| 1. Introduction | 1 |
| 2. Background | 1 |
| 3. Overview and Applicability | 3 |
| 4. How to Identify Treated Wood | 3 |
| 5. Recommendations for Generating, Collecting and Recycling | 6 |
| 6. <u>Best Management Practices</u> | 7 |
| •Authorized Mulching Operations | 7 |
| •Materials Recovery | 7 |
| •Class I Landfills, Lined Class III Landfills, and Lined C&D Facilities | 9 |
| •Unlined Class III Landfills and C&D Debris Disposal Facilities | 9 |
| •Waste-to-Energy Facilities | 9 |
| •Wood Cogeneration | 9 |
| 7. Frequently Asked Questions | 10 |
| 8. Teaching Tools for Sorting Without Chemical Testing | 11 |
| 9. Pan Stain Indicator | 12 |
| 10. References | 13 |
| 11. FDEP Districts | 14 |

1. Introduction

The purpose of this document is to develop guidance for the regulated community and the Department in Florida on the management and disposal of wood treated with chromated copper arsenate (CCA). It contains recommendations, which are of an advisory nature, for the collecting and recycling of treated wood. It also contains specific Best Management Practices (BMPs) that are designed to reduce the amount of treated wood disposed of at unlined facilities and to minimize the processing of treated wood into mulch at processing facilities. If the owner/operator of a facility employs and properly implements the BMPs contained in this document the Department will presume that the owner/operator is making a reasonable effort to prevent significant quantities of CCA-treated wood from being disposed of or processed at the facility and will not take enforcement action should disposal or processing of some CCA-treated wood at the facility actually occur.

2. Background

CCA is a wood preservative containing chromium, copper and arsenic. These chemicals protect the wood from rotting due to insects and microbial agents. As a result, the use of CCA to pressure treat wood can prolong the service life of the wood 20 to 40 years beyond that without the preservative.

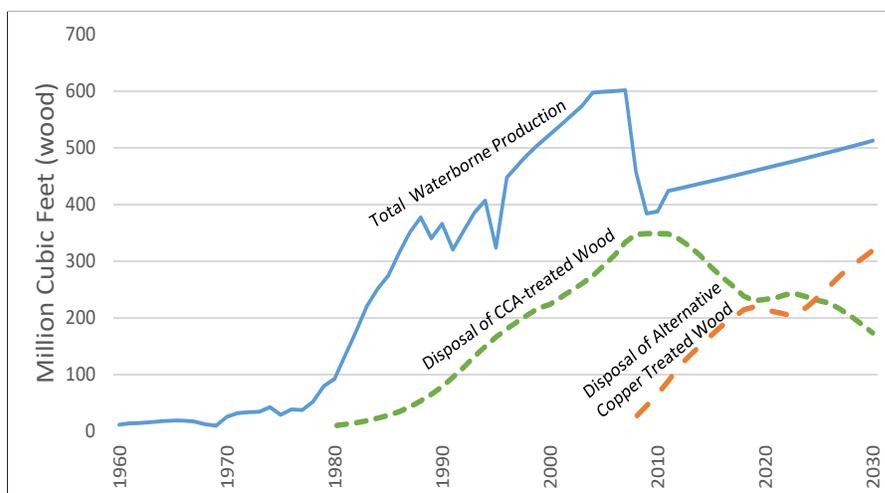
CCA has been used to treat wood since the 1940s, and since the 1970s CCA-treated wood has been used extensively in residential applications. Wood treated with CCA produces no odors or vapors, and you can paint or seal its surface easily. Wood products treated with CCA include lumber, timber, utility poles, posts and plywood. Because of its ease of use and the effectiveness of its treatment, CCA-treated wood was the most widely used type of treated wood in the country and represented about 80 percent of the wood preservation market through 2004. As of 2004, CCA-treated wood has been phased out from residential treated wood uses in lieu of wood treated with copper based alternative chemicals. The alternatives do not contain arsenic, the chemical in CCA that has the highest human health risks.

Although the amount of CCA-treated wood in the disposal sector has been estimated to be decreasing since 2010, it is still important for wood waste recyclers to implement best management practices (BMPs) to avoid the inclusion of CCA from marine, farm, and utility applications plus remnant wood waste from residential structures constructed prior to the voluntary industry CCA phase-out effective January 1, 2004.

2. Background (continued)

In the late 1990s the Florida Department of Environmental Protection became concerned about the large quantity of arsenic that was being imported into the state in the CCA chemicals and the CCA-treated wood. Due to population growth, this wood was needed to supply the high demand for residential housing in Florida. The Department was also concerned about how this CCA-treated wood might be managed when it was to be removed from service. Research conducted by a team of researchers at the University of Miami and the University of Florida (Dr. Helena Solo-Gabriele, and Dr. Timothy Townsend, Principal Investigators), showed that the amount of this wood being disposed of after it reached the end of its service life was significant (Solo-Gabriele et al. 2003). The disposal forecast above shows that the amounts of CCA-treated wood disposed are expected to decrease from their peak in 2013. This decrease will be offset by an increase in the amount of alternative copper-treated wood disposed. Although projections indicate that the amount of CCA-treated wood in the disposal sector is declining, the amounts will remain significant through 2030.

In addition, while not clearly confirmed by ground water data from Florida's unlined disposal facilities, research also indicated that CCA-treated wood and ash from burning this wood could pose a significant leaching threat to ground water if disposed of in unlined disposal facilities in Florida (Townsend et al. 2001, 2004). The research also



Projected Amounts of CCA- and Copper-Treated Wood in the U.S. Disposal Sector

showed that the ash from burning wood waste containing as little as five percent– treated wood could be considered a characteristic hazardous waste due to the high CCA arsenic concentrations in the ash. These concerns led to communications by the Department with regulatory agencies in other states, with members of the wood treating industry in Florida, and with the US Environmental Protection Agency (EPA). On March 17, 2003, the EPA signed an order in response to a voluntary request by wood preservative pesticide producers for cancellation of registration and termination of uses of certain CCA-treated wood products. This agreement required that production of CCA-treated wood for most identified residential uses cease by December 31, 2003. EPA published this notice of cancellation order on April 9, 2003 (EPA 2003).

The Department is still faced with the problem that the amount of CCA-treated wood being disposed of will continue at significant levels in the years to come, and may pose an environmental risk if disposed of in unlined facilities. If treated wood is

made into mulch and then used in a residential setting, it may also pose unacceptable human health or environmental risks.

Consequently, in 2003 the Department convened two Technical Advisory Groups (TAGs) to help study these issues. One TAG focused on potential ground water impacts and, the other focused on operational issues. The TAGs consisted of voluntary members from the scientific, engineering and regulated communities who were familiar with the management problems associated with CCA-treated wood in Florida.

One of the recommendations of the Operation TAG was for the Department to develop a guidance document on the management and disposal of CCA-treated wood.

The first guidance document was published in 2006. This current document, published in 2017, is an update that incorporates the changes in the wood treatment industry and subsequently in the wood waste sector since 2006.

3. Overview and Applicability

Solid waste disposal facilities in Florida are regulated by the Solid Waste Management Facilities rule, Chapter 62-701, Florida Administrative Code (F.A.C.). This rule establishes standards for the operation of solid waste management facilities. Given the studies cited above as well as advice from the EPA (EPA 2004a), Chapter 62-701 was amended effective January 6, 2010 along with the development of the original guidance document of 2006. The amendment required that operators of unlined facilities implement a program to remove CCA-treated wood from the waste stream prior to final disposal or use. Historically Florida's unlined disposal facilities would include most of the Class III landfills and C&D debris disposal sites in the state. Use of the guidance as part of such a pro-

gram has helped owners and operators comply with Department rules as well as minimize future liability for environmental impacts or injury.

In addition, both the Department (DEP, 2002) and the EPA (EPA, 2004b) have determined that CCA-treated wood should not be recycled as mulch or used as fuel in a wood-fired boiler unless that wood-fired facility is specifically authorized by the Department to accept CCA-treated wood. The amendment of January 6, 2010 also prohibits the use of CCA-treated wood as mulch, compost, or a soil amendment. Owner/operators of facilities that process wood wastes for disposal or use should follow this guidance to reduce any future liability for injury to people or the environment, as well as to comply with Department rules regarding CCA.

Finally, as is explained in the following section of this guidance, the Department recognizes the difficulty of identifying CCA-treated wood separately from other forms of wood treated with copper-containing preservatives. At this time there is no cost effective and efficient method to specifically identify arsenic in treated wood. The only practical solution to this dilemma at this time is to require the separation of wood waste which can be reasonably assumed to be treated with preservatives which might contain arsenic. Consequently, the advisory recommendations and the BMPs in this document will focus on managing all those forms of treated wood.¹

¹Wood treated with other chemicals such as pentachlorophenol and creosote, while perhaps posing different environmental concerns, is not addressed by this guidance document.

4. How To Identify Treated Wood

There are several types of wood preservative chemicals. Water-borne preservatives are dry to the touch and thus used almost exclusively for residential applications. Right after the 2004 phase-out the most common alternative for residential applications was alkaline copper quat (ACQ) and copper boron azole (CBA). Both of the early phase copper formulations leached copper at a greater rate. Later generation "micronized" preservatives have since been developed which leach at slower rates. The most common alternatives used today in residential applications are micronized copper quat (MCQ) and micronized copper azole (MCA).

Some wood in residential applications is also treated with borate alone. Other chemicals have also been used to treat wood for industrial applications. For example, pentachlorophenol (PCP) has been used in the past for telephone poles, but is becoming less popular today. Creosote is used to treat railroad ties and some construction pilings. Treated industrial wood products can typically be identified based upon their large dimensions (e.g., railroad ties and utility poles). Thus, they are easier to visually identify and then remove from the waste stream. Treated wood used in residential applications, however, is largely composed of lumber, tim-

bers and plywood in varying sizes and can be found in both treated and untreated forms. So how does one determine if these materials are treated?

The most common method for identifying treated wood among lumber, timber and plywood is to look at the color of the wood. Untreated wood and borate-treated wood typically have a light yellow color. The yellow color is the natural color of Southern Yellow Pine (SYP), the most common wood species used for building construction in Florida.

4. How To Identify Treated Wood (continued)

Wood treated with copper, which includes CCA-, MCQ- and MCA-treated wood, varies in color from a very light green to an intense green color depending upon the amount of chemical impregnated into the wood. The figure to the right shows the color variations in wood resulting from different chemical treatment levels using CCA.



Color of CCA-Treated Wood at Different Retention Levels

For CCA-, MCQ- and MCA- treated wood, a lower amount of chemical is added to wood intended for above ground and ground contact applications. Higher concentrations of CCA are added to wood intended for marine applications or serving as a load-bearing support for structures. MCQ and MCA have not yet been approved for harsher marine and load bearing environments. The majority of the dimensional wood produced is treated using the lower amounts of chemical which imparts a light green color to the wood. Once wood treated with copper has been in-service and has weathered, the green color is generally converted to a silver color. Unfortunately, untreated wood generally weathers to nearly the same silver color as observed in the second image to the right. This change in color for treated wood occurs for wood containing the lower concentrations of chemical after only a year or two of weathering. As a result, sorting out CCA-treated and other copper treated wood from the waste stream based on the green color alone cannot ensure that all the treated wood is identified and removed.

To further complicate sorting, in



Color of New and Weathered CCA-Treated Wood

some cases wood from the construction and demolition (C&D) waste stream can be covered in dust. Clean dimensional wood is common of construction projects. Demolition wood waste on the other hand is typically covered in dust which makes it very difficult to identify the green hue associated with treated wood as can be seen in the images to the right.

Because of the difficulty in identifying treated wood based on its color alone, researchers have developed methods to assist with this identification. Some of these methods may be useful to owner/ operators who seek to improve their separation processes for treated wood. The rest of this Section will describe four of these methods.



Clean construction wood (top) and dusty demolition wood (bottom)

4. How To Identify Treated Wood (continued)

Chemical Stains

Chemical stains refer to specially designed chemicals that can be applied directly to treated wood and show the appearance of a particular chemical in the wood by changing color, i.e., “staining” the wood.

These stains can be easily used in the field to sort treated wood but are labor intensive since stain has to be applied to each piece of wood to be identified. The color change will usually occur within a few seconds and the costs of individual tests are low, on the order of a few cents per sample.

There are several stains that can be used to identify copper-treated wood. They were developed by the wood treatment industry to check the depth of penetration of the CCA preservative into wood. These stains include chrome azurol, PAN indicator, and rubeanic acid. They result in a distinctive color change if copper is present in wood. PAN indicator is the preferred stain for sorting wood within the waste stream due to its short reaction time of about 12 seconds. When it reacts, it produces a color ranging from magenta to red. Untreated wood turns orange in color.



Stain effects on untreated wood (left) and treated wood. (right). Wood with PAN indicator stain is circled

It is important to note that these stains will also test positive if the wood is treated with the new copper-based alternatives, such as MCQ and MCA. Thus a positive result using PAN indicator will indicate that the wood is copper-treated but not necessarily arsenic-treated.

While the PAN indicator is copper specific rather than arsenic specific, because of its low cost and ease of use it is currently the method of choice for assisting owner/operators to sort out treated wood. More information about the PAN stain indicator can be found on page 12.

Arsenic Test Kits

These tests correspond to kits developed for the analysis of arsenic in drinking water which can be also used for the analysis of arsenic in wood. The method requires the collection of a sawdust sample of the wood which is immersed in water. A series of chemicals are added to the wood/water mixture which convert arsenic dissolved in the water to arsine gas. This gas then reacts with a test strip to produce a distinctive color change on the strip. The method requires 45 minutes per sample for processing. Because the use of strong reagents and the formation of arsine gas (a highly poisonous form of arsenic that is dangerous to inhale), this test is not recommended for use by those who are inexperienced with the handling of chemicals.

Additional arsenic specific tests (Omae et al. 2007) have been developed specifically to identify arsenic

in CCA but they require the immersion of CCA-treated wood sawdust in water. The process takes time and is more suitable for analyses in the laboratory.



Positive arsenic test kit result shown by the dark brown spot on the test strip

Untreated ACQ CCA



Arsenic-specific stains shown by blue color

X-Ray Technologies

The use of X-ray technologies for sorting wood waste has been evaluated at the pilot scale showing very promising results. The hand-held XRF units were found to identify the presence of arsenic in treated wood within seconds. Moisture and coatings on the wood did not interfere with the ability of the XRF units to identify arsenic.



XRF unit for analyzing wood in the field

4. How To Identify Treated Wood (continued)

The widespread use of XRF technologies is limited because of the high capital costs of the equipment. For example, hand-held units as of 2017 sell for about \$30,000, but they can also be rented.

XRF has been investigated for potential on-line applications (Hasan et al. 2011a,b). On-line systems are characterized by high capital costs (about \$250,000 as of 2017) and may be suitable for very large facilities that process C&D wood waste. Further research and development is needed

before on-line sorting can be implemented at operating facilities.



On-line sorting system for separating treated from untreated wood

Laser Technologies

Similar to X-ray technologies, laser induced breakdown spectroscopy

(LIBS) has been evaluated at the pilot scale for on-line sorting. An experimental LIBS system has been tested for sorting wood waste by determining how well it can detect chromium in CCA-treated wood. However, the effectiveness of the system to identify treated wood was hampered by wood with high moisture content and the presence of coatings on the wood. Because LIBS can detect coatings, it may be helpful if painted wood is to be separated from a waste stream.

5. Recommendations for Generating, Collecting and Recycling Treated Wood Waste

The Department recognizes that it may be difficult to remove CCA-treated wood from other forms of treated wood. Consequently, the following recommendations are designed to address all treated wood, as much as is practical. These recommendations are also advisory in nature and are separate from the BMPs described in the next section.

Generation and Collection

The best location to separate treated wood waste for proper management is at the generating source. Generators will be more knowledgeable of the type of wood that is being handled, and separation at the source is much more effective than trying to separate treated wood later at a disposal or processing facility.

Dedicated roll-offs: Dedicated, separate roll-offs should be used at job sites involving the construction or demolition of wooden decks, stairs, fences, play ground equipment, landscaping materials, docks and for any

other large-scale uses of treated wood. Generators should place all treated wood scraps in these roll-offs for later disposal at permitted lined landfills or other facilities permitted to receive treated wood. As much as is practical, sawdust generated from cutting the treated wood should also be bagged and disposed of at a lined landfill. Bags of sawdust can be placed in the dedicated roll-offs for treated wood.

No on-site burning of treated wood: Treated wood should not be burned as part of the site cleanup efforts. The burning of CCA-treated wood releases toxic fumes and produces a residual ash which is toxic.

No on-site mulching of treated wood: Treated wood, especially CCA-treated wood, should not be ground up on-site and used as landscaping mulch or soil amendment.

Curbside collection: When feasible, local governments should ensure that treated wood from renovation of fences and decks by homeowners

that is collected through a curbside pickup program is not mixed with vegetative wastes, but is instead taken to a lined landfill for disposal.

Recycling

At this time, there are no acceptable recycling alternatives for CCA-treated wood, other than reuse of discarded lumber, timbers and poles through reuse and salvage centers.



Recycling at Materials Recovery Facility emphasizing the process for wood sorting

6. Best Management Practice (BMP) For Treated Wood

Yard trash processing facilities that receive and process only yard trash as defined in Rule 62-701.200(135), F.A.C. need not follow this Guide for their operations.

As is described in the section, “How to Identify Treated Wood,” the Department recognizes that it may be difficult to separate CCA-treated wood from other forms of treated wood. Consequently, this BMP is designed to maximize the removal of all treated wood from the waste stream. By following this guidance document, the Department will assume that all reasonable measures are being taken by the owner/operator to prevent the disposal or processing of CCA-treated wood at the facility. The following applies to all facility types listed in this section.

A **minimal amount of recordkeeping** is required for all facilities that received treated wood. The owner/operator must maintain records of the volumes or weights of treated wood removed and disposed of and the name of the landfill used for disposal. These records must be kept with the other operational records of the facility and maintained as required by the facility’s permit or applicable rules.

Treated wood which is separated from yard trash or other clean wood² should be stored in a separate container and taken for disposal to a lined disposal facility. Treated wood must not be burned in open piles, air

²Clean wood means wood, including lumber, tree and shrub trunks, branches, and limbs, which is free of paint, glue, filler, pentachlorophenol, creosote, tar asphalt, CCA and other wood preservatives or treatments. While this definition specifically excludes treated wood, the Department expects that a facility that accepts clean wood will inadvertently accept some treated wood that will need to be properly managed.

curtain incinerators or other uncontrolled conditions.

Authorized Mulching Operations

The Department recommends that facilities that mulch or compost any clean wood as defined in Rule 62-701.200(16), F.A.C., including yard trash processing facilities and mulching facilities at landfills, implement the procedures listed above plus the following.

No mulching of treated wood: The owner/operator (or spotter in the case of a landfill mulching operation) must make reasonable efforts to remove any treated wood listed in the table below from the wood waste stream prior to processing. Because of the difficulty of identifying it after-the-fact, extra care should be taken to assure that decorative wood mulches are free of treated wood.

Materials Recovery Facilities (MRFs)

This Section applies to MRFs regulated under Rule 62-701.710, F.A.C. and C&D MRFs regulated under Rule 62-701.730(13), F.A.C. Typically, wood is separated from the waste stream at these facilities, size reduced, and used as landscaping mulch, boiler fuel or, when mixed with soil, initial cover at Class I landfills. In other cases the wood is disposed of in either Class III landfills or C&D debris disposal facilities. To ensure that significant quantities of treated wood are not managed in these ways at MRFs, the Department recommends that the following procedures be implemented by the owner/operator of the facility in addition to those listed earlier in this section.



Types of Wood That Are Typically Treated with CCA

Lumber, timber and plywood with a green color

Wood and wood posts from fences

Wood and wood posts from docks

Wood and wood posts from decks and outdoor stairs

Wood 4 inches by 4 inches or larger in dimension

Dimensional lumber labeled (with end tags) as treated wood

Wood from playground equipment

Lumber used in landscaping flower beds, gardens, etc.

6. Best Management Practice (BMP) For Treated Wood (continued)

Initial scale house inspection/driver interview: Incoming trucks should be inspected visually to look for dedicated loads³ of treated wood, especially from contractors specializing in the demolition and construction of fences, decks and docks. The name of the company may help identify contractors who would be likely to have a dedicated load. The scale house operator may also ask the drivers what they are hauling. All dedicated loads should be diverted at the scale house for disposal at a lined disposal facility or properly managed at the MRF before disposal at a lined disposal facility.



Floor spotters and picking line workers: A trained operator or spotter must inspect the load and pull out larger pieces of treated wood that are listed in the table on page 7. By rule, the MRF must have at least one trained spotter on duty whenever waste is being received. It is recommended that the MRF employ at least one floor spotter per sorting train at the facility. The floor spotter should observe loads as they are tipped onto the tipping floor and

pull out larger pieces of treated wood that are listed in the table on the prior page. The picking line workers should pull out the smaller pieces of treated wood not removed by the floor spotters. Separated treated wood should be placed in a roll-off container for disposal at a lined disposal facility.

Training requirements: The owner/operator should implement a training plan designed to help operators, floor spotters and picking line workers identify treated wood. This training plan is in addition to the trained spotter requirements contained in Rule 62-701.710(4)(c), F.A.C. A teaching tool “example board” like that shown on page 11 should be posted near the picking line. Teaching aids like those shown in the photos of typical waste loads (page 11) may be also used.

Spot-checking program: If wood is mulched at the facility, the owner/operator must implement a monthly spot-checking program to evaluate how effectively treated wood is being removed from the recovered wood waste stream. This program can include the PAN indicator test (page 12) to identify the presence of

copper-treated wood. The program can also include more sophisticated testing procedures to look for arsenic-treated wood. The details of any spot-checking program will have to be developed case-by-case, with the purpose of helping the owner/operator improve operations. The results of the spot-checking program need not be reviewed by Department staff for compliance purposes, and detections of treated wood in the mulch will not in themselves be indicative of a violation of Department standards.

More extensive recordkeeping: The owner/operator should maintain records of the following: (1) volumes or weights of treated wood removed and disposed of in a lined disposal facility; (2) the name of the facility used for disposal; (3) treated wood training records for the floor spotter and picking line workers; and (4) results of the monthly spot-checking program, if required. These records must be kept with the other operational records of the facility and maintained as required by Rule 62-701.710(8), F.A.C.



³Dedicated loads are defined as loads of predominantly or exclusively treated wood that would typically be generated by deck, dock and fence contractors.

6. Best Management Practice (BMP) For Treated Wood (continued)

Class I Landfills, Lined Class III Landfills, and Lined C&D Facilities

If mulching occurs at these facilities, the operator should take adequate steps to ensure that treated wood is not being processed into mulch for off-site uses or for on-site uses outside of the lined disposal area. Because of the potential to increase leaching rates, the Department does not recommend size reduction of treated wood. However, treated wood may be processed and used as initial cover at the disposal area provided it is only used on interior slopes and meets the other requirements for initial cover contained in Chapter 62-701, F.A.C.

If the lined disposal facility is co-located with other unlined facilities, the owner/operator should include specific conditions in its operation plan to assure that the treated wood is disposed of only in lined areas.

Unlined Class III Landfills and C&D Debris Disposal Facilities

To ensure that significant quantities of treated wood are not improperly managed at unlined Class III landfills and C&D debris disposal facilities, the Department recommends that it be managed in a similar fashion as a MRF with an initial scale house inspection, spotters, training requirements, spot-checking program, and more extensive recordkeeping. In addition signage is required.

Signage: Facilities must install signs in the area of incoming traffic flow notifying customers that treated wood will not be accepted for disposal at the facilities, and that the only approved method of disposal is at a lined disposal facility.

Waste-to-Energy (WTE) Facilities

Effective March 2016, the EPA issued a rule which is part of the amendments to the Non-Hazardous Secondary Materials (NHSM) regulations. The rule lists “construction and demolition (C&D) wood processed from C&D debris according to best management practices (C&D-BMP)” as a categorical non-waste when used as a fuel in combustion units (EPA 2016). The BMPs described by the EPA include visual sorting, trained operators, and record-keeping, in a fashion similar to that outlined in this document for the disposal of C&D wood in Class III landfills.

The listing is important because it determines which Clean Air Act (CAA) standards are applicable, either CAA section 112 standards which corresponds to a non-waste determination (fuel) or CAA section 129 standards which corresponds to a waste determination. These standards are different with respect to which pollutants are regulated, the level of monitoring and operator training, as well as which combustion sources are required to have a Title V CAA operating permit.

For WTE facilities that handle refuse derived fuel, it is believed that the proportion of treated wood in the fuel is small. The emissions from the de minimis amounts in the waste-stream are believed to be adequately handled by each facility’s air pollu-

tion control equipment. However, the impacts from large-scale burning of treated wood in WTE facilities have not been tested, and it is not known how much treated wood can be safely burned. Therefore, the use of WTE facilities for large-scale bulk disposal of treated wood is not recommended.

Wood Cogeneration

Wood cogeneration has the potential for having a larger proportion of treated wood given the predominance of vegetative waste in the fuel source. These facilities can receive wood waste from MRFs and implementation of BMPs at the MRFs can reduce the inclusion of treated wood in the fuel stream. In order to check the quality, spot checking of the incoming fuel stream is recommended if the facility accepts recycled C&D wood waste. Spot checking can be done through traditional laboratory analyses which takes several days to obtain results, through the use of PAN stain, or through hand-held XRFs which provide results in near real-time.



7. Frequently Asked Questions

Q1. What do those labels/end tags mean? Can I use them when I sort?



A1. Yes. There is a lot of useful information on the labels attached to the end of dimensional wood. Labels identify the type of chemical that was used to treat the wood (CCA, MCQ, MCA, etc.), the level of treatment (pounds of chemical per cubic foot of wood, for example 0.25, 0.40, 0.80, 2.5, etc.) and the location of the treating plant. If the wood has a label then it is probably treated and according to this guidance should be separated out for disposal at a lined disposal facility.

Q2. Are pallets ever made from treated wood?

A2. Pallets are very rarely made from treated wood. For the most part, pallets can be safely ground up into wood chips for use as mulch or as fuel in a wood-fired boiler. As with other types of wood, inspection of pallets should follow the recommended guidelines.



Q3. Do I need to remove the arsenic-free treated wood products? Is there any harm from them?

A3. Compared with CCA, these other products pose lower risk to the environment or to human health. However, because of the difficulty in differentiating CCA-treated wood from other types of treated wood, this guidance recommends you remove all treated wood from the waste stream.

Q4. What precautions do I need to take when handling treated wood? Should my pickers who handle this type of material take more precautions than others?

A4. All pickers should wear eye protection, dust masks and gloves to prevent splinters. CCA-treated wood splinters in the hands and fingers of workers can get infected and should be removed as soon as possible. It is important to make sure that the entire splinter is removed. Removal may require medical attention. Workers handling wood preserved with CCA should be sure to wash their hands before eating or smoking.

Q5. How do I store this material?

A5. Treated wood, including CCA-treated wood, should be placed directly into a separate container for storage prior to disposal in a lined disposal facility. Simply storing the treated wood in a pile outdoors could continue to pose an environmental threat.

Q6. How do I find lined disposal facilities?

A6. The waste program staff at your District office of the Florida Department of Environmental Protection will know where the lined disposal facilities are located in your part of the state. See the contact information on page 14.

Q7. Can I refuse to accept loads of CCA-treated wood or any other treated wood?

A7. There is nothing in Florida state laws or rules that would require you to accept any particular kind of waste. Unless you are contractually obligated to accept this waste stream by your haulers or local government, you can refuse to accept loads of treated wood.

8. Teaching Tools For Sorting Without Chemical Testing

Materials Recycling Facilities (MRFs) and other facilities that will sort their waste wood can use signs like the two below to help sorters distinguish between wood that can be recycled and wood that should be sent to a lined disposal facility. Signs include text in English and Spanish. The bottom four images can also be used for training.



Explains how to sort wood based on the structure in which it was used.



Explains how to sort wood based on its treatment.



Loads from the demolition of outdoor structures will typically contain CCA-treated wood. Pole at the upper left is treated.



The green colored pole in the front of this pile is treated. Complete recovery of untreated wood from this pile will likely require testing in addition to visual separation.



This load is almost solely CCA-treated wood. It came from a marine construction contractor.



This load is from a construction company that builds trusses and floor joists. It contains treated wood. Green colored boards are treated. Other boards may be untreated.

9. Pan Stain Indicator

Principle: PAN stands for the chemical name of 1-(2-pyridylazo)-2-naphthol, an orange-red solid with a molecular formula $C_{15}H_{11}N_3O$. It is used to determine the presence of almost all metals excluding alkali metals. The reaction with the metals in CCA-treated wood produces a magenta to red color. Untreated wood turns orange in color. It is important to note that the stain is not specific to arsenic within CCA. It reacts with the copper, so that wood treated with any copper-based preservative (such as MCQ and MCQ) will also test positive using this stain.

Safety: Gloves and safety goggles should be used during the application of the stain. The stain should be applied in an environment that would prevent inhalation. The stain should not be ingested and should be kept in a safe place that would prevent children or animals from ingesting the solution. A safety data sheet (SDS) is also available on this product that supplies additional safety information. You may also want to contact the chemical supplier of the stain for additional safety instructions.

Reagents: The PAN Indicator solution (a.k.a., "stain") can be purchased as a pre-mixed solution or a basic chemical ingredients. The pre-mixed solution is more convenient but usually more expensive, in particular if large quantities of the stain are needed. If large quantities of stain are needed, a more economical option would involve purchasing the basic chemical ingredients and mixing these ingredients in a laboratory. The pre-mixed solution can be purchased from Spectrum Chemicals. More information is provided below.

Procedure for Use:

- Using a dropper bottle, apply the stain to the wood. If the wood is relatively clean, the stain can be added directly to the wood. If the wood is soiled we recommend that a small area of the wood be carefully cut away to expose a clean area (approx 1 square centimeter). The stain works best if the wood is dry.
- If testing mulch, it may be easiest to use a spray bottle. When using a spray bottle, be careful to spray the solution downwind to avoid inhalation.
- Wait for color development (about 15 seconds). Color development is fastest if applied to the transverse direction of the wood instead of the radial direction.
- Note the color. If the sample turns a magenta color, then the wood is positive for copper. If the wood turns orange in color, then the wood is negative for most metals and is considered untreated.

Interferences

- Stain will not work properly on colored mulches or mulches that are very soiled.
- Stain will sometimes react as positive with paint and nails on wood, even though the wood maybe untreated.

| Company | Phone Number | Cat. # for PAN | Cat. # for Methanol | Pre-mixed Solution |
|-----------------|--------------|---------------------|---------------------|--------------------|
| <i>Spectrum</i> | 800-772-8786 | P1000-04 (25g) | M1240 (20L) | P-358-100mL |
| <i>Sigma</i> | 800-325-3010 | 82960-5G (5g) | 34860 | |
| <i>Fisher</i> | 800-766-7000 | AC14631- 0100 (10g) | A411-20 | 5487-34 |

10. References

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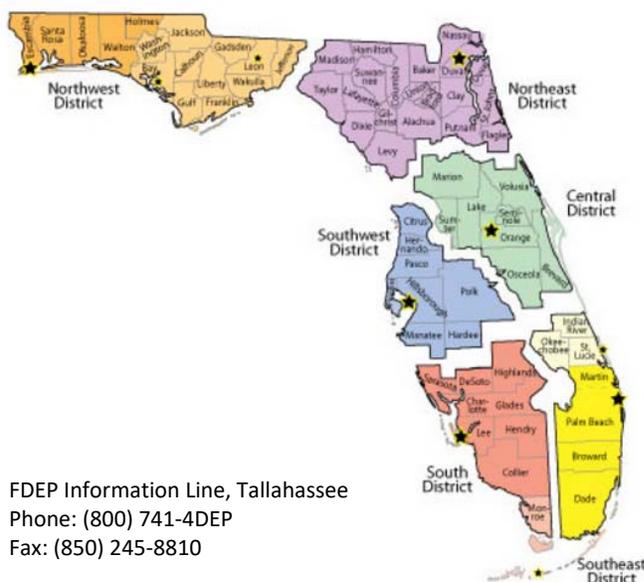
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11. Florida Department of Environmental Protection Districts



FDEP Information Line, Tallahassee
 Phone: (800) 741-4DEP
 Fax: (850) 245-8810

FDEP Headquarters
 2600 Blair Stone Road Tallahassee,
 FL 32399-2400
<http://www.dep.state.fl.us/waste/>

The waste program staff at your District office of the Florida Department of Environmental Protection can provide additional information including a list of lined disposal facilities that are located in your area of the state. The appropriate contacts and District boundaries are shown below.

FDEP District Offices

Northwest District Office
 160 W. Government Street
 Suite 308
 Pensacola, FL 32502
 (850) 595-8300

South District Office
 P.O. Box 2549
 Fort Myers, FL 33902
 (239) 344-5600

Northeast District Office
 8800 Baymeadows Way
 West
 Suite 100
 Jacksonville, FL 32256
 (904) 256-1700

Central District Office
 3319 Maguire Boulevard,
 Suite 232
 Orlando, FL 32803
 (407) 897-4100

Southeast District Office
 3301 Gun Club Road,
 MSC7210-1
 West Palm Beach, FL 33406
 (561) 681-6600

Southwest District Office
 13051 N Telecom Parkway
 Temple Terrace, FL 33637
 (813) 470-5700

Additional information on CCA-treated wood can be found at the Hinkley Center for Solid and Hazardous Waste Management's website for CCA research: www.ccaresearch.org.

*This book is dedicated to the
 memory of
 William W. (Bill) Hinkley
 1945-2005*

DISCLAIMER. The information contained in this document is intended for guidance only. It is not a rule and does not create any standards or criteria which must be followed by the regulated community. While the management of treated wood in accordance with this guidance is not expected to result in contamination of ground water or surface water or to pose a significant threat to human health, compliance with this document does not relieve the owner or operator from the responsibility for complying with the Department's rules nor from any liability for environmental damages caused by the management of these materials.