

INCH-POUND

MIL-W-18142C

29 June 1990

SUPERSEDING

MIL-W-18142B

13 August 1957

(See 6.11)

MILITARY SPECIFICATION

WOOD PRESERVATIVE SOLUTIONS, OIL-SOLUBLE, SHIP AND BOAT USE

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification establishes the requirements for oil soluble wood preservative solutions for the non-pressure treatment of ship and boat building lumber and plywood. This product may be used where air pollution regulations apply.

1.2 Classification. The material shall be furnished in the following types as specified (see 6.2).

Type A - Copper naphthenate

Type C - Zinc naphthenate

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 5523, Department of the Navy, Washington, DC 20362-5101 by using the self-addressed Standardization Document Improvement Proposal (DL Form 1426, appearing at the end of this document or by letter.

AMSC N/A

FSC 8030

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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SPECIFICATIONS

FEDERAL

- TT-E-485 - Enamel, Semi-Gloss, Rust-Inhibiting.
- TT-E-490 - Enamel, Silicone Alkyd Copolymer, Semigloss (For Exterior and Interior Non-Residential Use).
- TT-T-291 - Thinner, Paint, Mineral Spirits, Regular and Odorless.
- PPP-C-96 - Cans, Metal, 28 Gage and Lighter.
- PPP-D-729 - Drums, Shipping and Storage, Steel, 55 Gallon (208 Liters).
- PPP-F-320 - Fiberboard: Corrugated and Solid, Sheet Stock (Container Grade), and Cut Shapes.
- PPP-P-704 - Pails, Metal: (Shipping, Steel, 1 Through 12 Gallons).

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- MIL-L-19140 - Lumber and Plywood, Fire-Retardant Treated.

STANDARDS

FEDERAL

- FED-STD-313 - Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities.

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-147 - Palletized Unit Loads.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, BLDG. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DEPARTMENT OF LABOR

- Code of Federal Regulations (CFR)
- 29 CFR, Part 1910.1200 - Hazard Communication Standard.

(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. When indicated, reprints of certain regulations may be obtained from the Federal agency responsible for issuance thereof.)

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2.2 Non-Government publications. The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- D 56 - Standard Test Method for Flash Point by Tag Closed Testor.
(DoD adopted)
- D 3951 - Standard Practice for Commercial Packaging. (DoD adopted)

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103).

AMERICAN WOOD PRESERVER'S ASSOCIATION (AWPA)

- A 5 - Standard Method for the Determination of Copper in Copper Naphthenates.
- P 8 - Standards for Oil Borne Preservatives.

(Application for copies should be addressed to the Secretary-Treasurer, American Wood Preserver's Association, P.O. Box 849, Stevensville, MD 21666.)

BRITISH NATIONAL STANDARDS INSTITUTE

- 3770 - Zinc Naphthenate and Zinc Naphthenate Concentrates.
Specification for.

(Application for copies should be addressed to the British Standards Institution, British Standards House, 2 Park St., London, W.1.)

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

- Rules and Regulations - Rule 102

(Application for copies should be addressed to the South Coast Air Quality Management District, 9150 Flair Drive, El Monte, CA 91731.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, specifications, specification sheets or MS standards), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.4) in accordance with 4.3.

3.2 General description. The preservative solution shall be for brush, dip, and spray coat application and shall consist of a fungicidal ingredient, a solvent (see 3.3), and other ingredients as necessary.

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3.3 Solvents. Solvents for types A and C preservatives shall conform to type I, grade A, of TT-T-291 (see 6.3).

3.4 Finished formulation. As required, the raw materials shall be mixed to produce a preservation solution which is uniform, homogeneous, and free from dirt, grit, and sludge and in accordance with the requirements of table I.

TABLE I. Finished formulation.

Property	Type A	Requirement	Type C
Fungicide type	Copper naphthenate		Zinc naphthenate
In accordance with	AWPA P 8		B.S. 3770
Minimum concentration	68 grams/gal, as copper, at 77°F	163 grams/gal at 77°F	102 grams/gal as zinc, at 77°F
Maximum concentrate	85 grams/gal, as copper, at 77°F		128 grams/gal as zinc, at 77°F
Wax content	None	None	None
Min. flash point	100°F	100°F	100°F
Insolubles		0.1 mL/50 mL (maximum)	
Blooming	Solvent shall be free from blooming and deposits of crystals when visually inspected by the unaided eye		
Paint compatibility	Solvent shall not interfere with application, drying or adhesion of paints, nor shall it bleed through such coatings		

3.5 Toxic products and formulations. The material shall have no adverse effect on the health of personnel when used under normal conditions and with proper precautions for its intended purpose. Questions concerning this shall be referred by the contracting activity to the Navy Medical Command (NAVMEDCOM) who will act as an advisor to the contracting activity.

3.6 Material safety data sheet (MSDS). The contracting activity shall be provided with a material safety data sheet at the time of contract award. The MSDS shall be provided in accordance with the requirements of FED-STD-313. The MSDS shall be included with each shipment of the material covered by this specification (see 6.9).

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3.7 Labeling. In addition to the requirements of 5.3, each container shall be labeled with product use instructions, and safety precautions containing at least the information of 6.6 and 6.7, and environmental hazard information including any warning or instructional information required by CFR 1910.1200 and by the EPA including instructions or cautions on the safe, approved methods of disposal in compliance with Federal, State and Local regulations.

3.8 Photochemical reactivity. The volatile content of this material shall not be photochemical.

3.9 Special marking. Each container (interior and exterior) shall be marked with the following (see 6.8).

"The volatile content of the material in this container is not photochemically reactive as defined by Rule 102 of the South Coast Air Quality Management District."

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of the manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- (a) Qualification inspection (see 4.3).
- (b) Quality conformance inspection (see 4.4).

4.2.1 Inspection conditions. Unless otherwise specified (see 6.2), all inspections shall be performed in accordance with the test conditions specified herein.

4.3 First article inspection. First article inspection shall consist of the examination and tests specified in table II (see 6.3 and 6.4).

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TABLE II. First article inspection.

Inspection	Requirement	Test method
Preservative, concentration	table I	4.5.1
Solvent (min. concentration)	3.3 and table I	certification
Anti-blooming	table I	4.5.5
Wax content	table I	4.5.2
Min. flash point	table I	4.5.3
Insolubles	table I	4.5.4
Paint compatibility	table I	4.5.5
Labeling	3.7	4.6

4.4 Quality conformance inspection. Quality conformance inspection shall be as specified in table III (see 6.3).

TABLE III. Quality conformance inspection.

Inspection	Requirement	Test method
Group A Preservative concentration	table I	4.5.1
Group B Anti-blooming	table I	4.5.5
Paint compatibility	table I	4.5.5

4.4.1 Lot. For purposes of sampling, a lot shall be defined as the quantity of the wood preservative offered for inspection at one time from one manufacturing batch.

4.4.2 Batch. A batch shall be defined as that quantity of preservative which has been manufactured in a unit process and subjected to a physical mixing operation to provide a uniform final product.

4.4.3 Sampling for tests. The inspector shall select two containers at random from each inspection lot. From each of the two containers, 1-quart specimens shall be taken and placed in separate, clean, dry, metal or glass containers and forwarded for testing.

4.4.3.1 Optional samples. When requested by the contractor, the inspector may select two 3-quart samples instead of two 1-quart samples. Each sample shall be divided into three parts. One part shall be forwarded to the testing laboratory in accordance with 4.4.3, one part to the contractor, and one part to be held by the inspector for use in case of dispute.

4.4.4 Sampling for examination of containers. A random sample of filled containers shall be selected by the inspector in accordance with table IV to verify compliance with all requirements of this specification regarding fill, closure, marking, and other requirements not involving tests.

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TABLE IV. Sampling for examination of containers.

Major defects			
Lot size	Sample size	Accept	Reject <u>1/</u> <u>2/</u> <u>3/</u>
2 - 50	5	0	1
51 - 90	7	0	1
91 - 150	11	0	1
151 - 280	13	0	1
281 - 500	16	0	1
501 - 1200	19	0	1
1201 - 3200	23	0	1
3201 - 10000	29	0	1
10001 - 35000	35	0	1
35001 - over	40	0	1
Minor defects			
2 - 15	2	0	1
16 - 25	3	0	1
26 - 90	5	0	1
91 - 150	6	0	1
151 - 280	7	0	1
281 - 500	9	0	1
501 - 1200	11	0	1
1201 - 3200	13	0	1
3201 - over	15	0	1

- 1/ All defective items must be replaced with acceptable items prior to lot acceptance.
- 2/ Inspect sample size until reject criteria is reached.
- 3/ Rejected lots may be screened and resubmitted for inspection and test.

4.4.4.1 Examination of containers. Each sample filled container shall be examined for defects of construction of the container and the closure, for evidence of leakage, and for unsatisfactory markings as specified in table V. Each sample container shall also be weighed to determine the quantity of contents. Any container in the sample having one or more defects or under required fill shall be rejected, and if the number of defective containers in any sample exceeds the acceptance number for the appropriate sample size of table IV, the lot represented by the sample shall be rejected.

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TABLE V. Classification of defects.

Category	Defect
Major	
101	Underfilling of container.
102	Container leakage.
103	Improper marking.
104	Wrong color.
Minor	
201	Deformed container, no leaks.

4.4.5 Lot acceptance. The inspection test samples selected in accordance with 4.4.3 shall be separately subjected to the tests specified in 4.4. The inspector shall not release a lot until a favorable report is received from the laboratory. Nonconformance of either sample shall be basis for rejection.

4.4.5.1 Noncompliance. If a sample fails to pass the inspections in group B, the contractor shall notify the contracting activity and the cognizant inspection activity of such failure and take corrective action on the materials or processes, or both, as warranted, and on all units of product which can be corrected and which are manufactured under essentially the same materials and processes, and which are considered by the contracting activity to be subject to the same failure. Acceptance and shipment of the product shall be discontinued until corrective action, acceptable to the contracting activity has been taken. After the corrective action has been taken, all of the inspections in group B shall be repeated on additional sample units (all tests and examinations, or the test which the original sample failed, at the option of the contracting activity). Group A inspections may be performed again, but final acceptance and shipment shall be withheld until group B inspection has shown that the corrective action was successful. In the event of failure after reinspection, information concerning the failure shall be furnished to the cognizant inspection activity and to the contracting activity.

4.5 Tests.

4.5.1 Fungicide. The wood preservative solution shall be tested as follows to verify conformance to 3.3.

4.5.1.1 Type A - copper naphthenate. A 5-milliliter (mL) portion at 77 degrees Fahrenheit (°F) (24.7 degrees Celsius (°C)) of the thoroughly mixed sample shall be drawn by suction through a pipette into a 250 mL Kjeldahl flask. Then 25 mL of concentrated sulfuric acid shall be added and the sample heated gently under a hood for 1/2 hour with occasional swirling, taking care to avoid foaming over. The heat shall be increased until the sample is thoroughly charred; then 2 mL to 3 mL portions of concentrated nitric acid shall be added until the solution clears. The solution shall be cooled and transferred to a 200 mL tall form beaker. The Kjeldahl flask shall be washed with two 15 mL portions of distilled water and the washings added to the acid solution. The solution shall be boiled for 3 minutes. The solution shall be cooled and carefully neutralized with ammonium hydroxide, avoiding spattering, until the solution turns dark blue; a few drops shall be

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added in excess. If the solution is not clear at this point, it shall be filtered through a number 40 Whatman paper. The paper shall be washed well with distilled water and then discarded with the precipitate. At this stage, copper shall be determined volumetrically or electrolytically. If the volumetric method is selected, the above filtration shall be done with a 250 mL Erlenmeyer flask, proceeding in accordance with the method outlined in AWWA A5. If the electrolytic method is selected, the above filtration shall be done with a 200 mL tall form beaker, adding 10 mL (1:1) sulfuric acid and 1 mL of concentrated nitric acid, and diluting to approximately 120 mL with distilled water. Testing shall proceed using the standard method for determining copper by electrolysis. The quantity of copper in the type A preservative shall be calculated as follows:

$$\text{weight of copper} \times 757 = \text{grams copper per gallon.}$$

4.5.1.2 Type C - zinc naphthenate. (See test method in British National Standards Institute BS 3770 except that solution shall be of 3 percent zinc) metal by weight.

4.5.2 Wax content (types A and C). A 20 mL portion of preservative shall be transferred to a 250 mL Erlenmeyer flask, adding 25 mL of H_2SO_4 , and heating on a steam bath for 1 hour occasionally agitating. The sample shall be transferred to a 250 mL separatory funnel, and after phases separate, the acid (lower) layer shall be discarded. Then, 25 mL of 5 percent NaOH solution shall be added, shaken thoroughly, and the caustic (lower) layer shall be discarded. This procedure shall be repeated with an additional 25 mL of NaOH, discarding the caustic. The sample shall be washed with 25 mL of 5 percent HCl, discarding washings and repeated with another 25 mL of HCl. The contents of the separator shall be transferred to a dried tared crystallizing dish, evaporated to dryness on a steam bath and baked for 1 hour at 212 to 230°F (100 to 110°C). It shall then be cooled and examined for wax, its presence being indicated by an opaque solid film. (If solid film is not observed, the statement "no wax present" shall be reported. Any oily film that appears on cooling shall be disregarded). Then 25 mL of distilled cold water shall be added and swirled for 1 minute so that oil, if present, floats on the surface of the water, then decant. This rinsing procedure shall be repeated five times and finally evaporated to dryness. It shall then be heated for 1 hour at 221°F (105°C), cooled, weighed, and the percent wax calculated as follows:

$$\text{weight of wax} \times 5 = \text{percent wax content}$$

4.5.3 Flash point. The flash point shall be determined in accordance with ASTM D 56.

4.5.4 Insolubles. A 50 mL portion of the preservative solution shall be placed in a 50 mL centrifuge tube possessing a conical bottom and a graduated scale. The tube and contents shall be chilled to 0°F (minus 17.6°C) overnight (16 hours minimum). The chilled tube shall be quickly placed in a centrifuge and rotated for 3 minutes at 2000 revolutions per minute (r/min). The volume of sediment shall be read. Insolubles shall be calculated as percent by volume.

4.5.5 Blooming and compatibility with paint. One-half inch Douglas fir plywood panels (3 by 12 inches approximately) shall be immersed in the wood preservative to one-half their length for a period of 3 minutes. The panels shall then be hung vertically with the treated portion down for a period of 72 hours for

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types A and C preservative at room temperature. At the end of this drying time, the treated surfaces shall be visually examined for the absence of blooming, crystal deposits, and glossy or waxy films. Upon completion of this examination, the panels shall be given one brush coat of exterior haze-gray paint conforming to TT-E-490. The coating shall be allowed to dry for 24 hours at room temperature, examined for drying and adhesion over the treated and untreated halves of the specimen, and for bleeding of the wood preservative through the treated portion. If the paint is adequately dry (a slight tackiness or softness being permissible for type A) and shows no evidence of bleeding of the wood preservative, a second coat of the haze-gray paint shall be applied to the test specimens. After drying 24 hours, the second coat shall be examined again for tackiness, adhesion, and bleeding of preservative.

4.5.6 Toxicological information. The contractor shall have the toxicological information and associated information available for review by the contracting activity to evaluate the safety of the material for the intended use.

4.6 Inspection of packaging. Sample unit and exterior packs and the inspection of preservation, packing, and marking for shipment, stowage, and storage shall be in accordance with the requirements of 3.7, 4.4.4, and section 5 and the documents specified therein.

5. PACKAGING

(The packaging requirements specified herein apply only for direct Government acquisition.)

5.1 Preservation (unit packs). Preservation shall be level A, C, or commercial, as specified (see 6.2).

5.1.1 Unit pack. Unless otherwise specified (see 6.2), the preservative solution shall be furnished in 1-gallon cans, 5-gallon pails, or 55-gallon drums as specified (see 6.2).

5.1.2 Level A.

5.1.2.1 Cans. Cans shall conform to type V, class 2 of PPP-C-96 with plan B exterior coating, side seam striping, and either a wire or bridge type handle.

5.1.2.2 Five gallon pails. Pails shall conform to type I, class at the contractor's option of PPP-P-704. Exterior coating shall be of olive drab color.

5.1.2.3 Fifty-five gallon drums. Drums shall conform to PPP-D-729 with the type and class, as applicable, at the contractor's option. Exterior coating shall conform to TT-E-485, olive drab color. Type I, class A drums shall be provided with cap seals.

5.1.3 Level C. Cans, pails, and drums shall conform to the level A requirements except that the exterior coatings shall conform to that as used in the commercial production of such containers.

5.1.4 Commercial. Preservative solution in the unit pack quantity specified (see 5.1.1) shall be unit packaged in accordance with ASTM D 3951.

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5.2 Packing. Packing shall be level A, B, C or commercial, as specified (see 6.2).

5.2.1 Navy fire-retardant requirements.

5.2.1.1 Lumber and plywood. Unless otherwise specified (see 6.2), all lumber and plywood including laminated veneer material used in shipping container and pallet construction, members, blocking, bracing, and reinforcing shall be fire-retardant treated material conforming to MIL-L-19140 as follows:

- Level A and B - Type II - weather resistant.
Category 1 - general use.
- Level C - Type I - non-weather resistant.
Category 1 - general use.

5.2.1.2 Fiberboard. Fiberboard used in the construction of class-domestic, non-weather resistant fiberboard, and cleated fiberboard boxes shall meet the flammability and smoke requirements of PPP-F-320 and amendments thereto.

5.2.2 Levels A, B and C.

5.2.2.1 Cans. Cans shall be arranged and packed in accordance with the appendix to PPP-C-96.

5.2.2.2 Pails and drums. Pails and drums shall not require overpacking for shipment. When specified (see 6.2), pails and drums shall be palletized in accordance with MIL-STD-147.

5.2.3 Commercial. Packing shall be in accordance with ASTM D 3951.

5.3 Marking.

5.3.1 Levels A, B, and C. In addition to any special marking required (see 3.7, 3.8.1, 6.2 or herein), filled containers (unit, intermediate, and shipping) and palletized loads shall be marked, including bar coding, in accordance with MIL-STD-129 and the applicable container specification.

5.3.2 Commercial. In addition to any special marking required (see 3.7, 3.9 and 6.2), container markings shall be in accordance with ASTM D 3951. Bar coding shall be in accordance with MIL-STD-129. In addition, each container shall be marked with the required application guidelines and precautionary measures (see 3.7, 6.6, and 6.7).

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The wood preservatives described by this specification are intended for use in preventing the decay of wood and to be compatible with subsequent gluing, caulking, and painting operations (see 6.6.1).

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6.2 Acquisition requirements. Acquisition documents must specify the following:

- (a) Title, number, and date of this specification.
- (b) Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
- (c) Type required (see 1.2).
- (d) First article, when required (see 3.1).
- (e) If inspection conditions are other than specified (see 4.2.1).
- (f) Level of preservation and packing required (see 5.1 and 5.2).
- (g) Container size, if other than specified and the unit pack quantity required (see 5.1.1).
- (h) When fire-retardant requirements are not required (see 5.2.1.1).
- (i) When palletization of pails or drums is required (see 5.2.2.2).
- (j) Special marking required (5.3.1 and 5.3.2).

6.3 Consideration of data requirements. The following data requirements should be considered when this specification is applied on a contract. The applicable Data Item Descriptions (DID's) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested/provided and that the DID's are tailored to reflect the requirements of the specific acquisition. To ensure correct contractual application of the data requirements, a Contract Data Requirements List (DD Form 1423) must be prepared to obtain the data, except where DoD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

<u>Reference Paragraph</u>	<u>DID Number</u>	<u>DID Title</u>	<u>Suggested Tailoring</u>
3.3	DI-MISC-80678	Certification data/ report	----
4.3 and 4.4	DI-T-5329	Inspection test report	----

The above DID's were those cleared as of the date of this specification. The current issue of DoD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL), must be researched to ensure that only current, cleared DID's are cited on the DD Form 1423.

6.4 First article. When first article inspection is required, the contracting officer should provide specific guidance to offerors whether the item(s) should be a preproduction sample, a first article sample, a first production item, a sample selected from the first ___ production items, a standard production item from the contractor's current inventory (see 3.1), and the number of items to be tested as specified in 4.3. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first articles. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

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6.5 Acquisition volume. The material should be purchased by volume, the unit being a U.S. gallon at 77°F (25°C). The volume should be determined by dividing the net weight in pounds by weight per gallon. To obtain weight per gallon, multiply the specific gravity at 77°F (25/25°C) by 8.33.

6.6 Application guidelines.

6.6.1 General. Wood preservatives should be allowed to dry before subsequent operations. The usual drying time is at least 24 hours for a brush application and 72 hours for a 3-minute dip. In many cases, less than optimum conditions of temperature, humidity or air circulation will require longer drying times. If the wood preservative is not allowed to dry, the migration of the unevaporated solvent will discolor painted surfaces and prevent the satisfactory performance of glues, paints, and caulking compounds. Treated lumber and plywood should not be placed in solid piles as this prevents solvent evaporation. When applying wood preservatives, it is necessary to treat all surfaces. End grain surfaces are particularly susceptible to decay and should receive both thorough and repeated applications. The penetration of wood preservatives applied by non-pressure means is generally slight. Therefore, cut, bored, or sanded surfaces which have been previously treated require retreatment if adequate protection is to be assured. Surfaces to be varnished may be treated with type C preservative in which the coloring ingredients have been omitted. Large vats of preservative solution should be covered when not in use; otherwise, solvent evaporation will produce concentrated solutions which can cause painting difficulty.

6.6.2 Choice of preservative type. Type A is a very effective and low toxicity (the copper naphthenate) preservative but characterized by a natural, deep green color which may interfere with light color finishes. Heavy surface buildup of the treatment may also interfere with paint adhesion. It may be reduced by solvent wiping and/or light sanding. In previous edition of this specification there was a type B preservative. It has been deleted because it is more hazardous to apply and in use and it is now only available for application by licensed applicators. Type C is a low toxicity material (the zinc naphthenate) and is clear in color and less apt to cause painting problems and color show through. However, it is less effective or durable than type A and it is less suitable in situations having a high decay potential on wet or leaching conditions. Type A is the materials of choice where greater wood preservation is needed and where the color of type A can be tolerated.

6.7 Precautionary measures.

6.7.1 Fire hazard (all types). The solvent or thinner used in the wood preservative may have a flash point as low as 100°F (37.8°C), and care should be taken to prevent fire. Smoking, welding, and other sources of fire should not be permitted near the treating operation or treated material until after 24 hours of drying, under conditions of adequate ventilation to insure removal of flammable vapors. Treating should be done out-of-doors or in an adequately ventilated room. The preservatives should be stored out-of-doors or in a "paint" room where adequate precautions are taken from the fire hazard standpoint.

6.7.2 Protective clothing. Spray applicators should wear protective clothing (including overalls, jacket, gloves, and boots) impervious to the wood treatment formulation, and a respirator, head covering, and goggles when spraying. Applicators who apply pentachlorophenol by other application processes (for

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6.10 Subject term (key word) listing.

Copper naphthenate
Zinc naphthenate

6.11 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Preparing activity:
Navy - SH
(Project 8030-0600)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:		1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYMMDD)
3. DOCUMENT TITLE			
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)			
5. REASON FOR RECOMMENDATION			
6. SUBMITTER			
a. NAME (Last, First, Middle Initial)		b. ORGANIZATION	
c. ADDRESS (Include Zip Code)		d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (if applicable)	7. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY			
NAME Technical Point of Contact (TPOC). Mr. John Pinto (SEA 05M3)		b. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON	
PLEASE ADDRESS ALL CORRESPONDENCE AS FOLLOWS:		TPOC: 703-6029146	
c. ADDRESS (Include Zip Code) Commander, Naval Sea Systems Command Department of the Navy (SEA 5523) Washington, DC 20362-5101		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041 3466 Telephone (703) 756-2340 AUTOVON 289-2340	