

INCH - POUND

MIL-E-1115D
1 June 1995
SUPERSEDING
DOD-E-1115C
24 February 1982
(See 6.11)

MILITARY SPECIFICATION

ENAMEL, INTERIOR AND EXTERIOR, ALKYD, WHITE (FORMULA NO. 30)

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

1. SCOPE

1.1 Scope. This specification covers general purpose white alkyd enamel (Formula No. 30) for interior and exterior shipboard use. This product may be used where air pollution regulations apply.

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, SEA 03R42, Naval Sea Systems Command, 2531 Jefferson Davis Hwy, Arlington, VA 22242-5160 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8010

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

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SPECIFICATIONS

FEDERAL

- TT-T-291 - Thinner, Paint, Mineral Spirits, Regular and Odorless.
- PPP-P-1892 - Paint, Varnish, Lacquer, and Related Materials; Packaging, Packing, and Marking of.

STANDARDS

FEDERAL

- FED-STD-141 - Paint, Varnish, Lacquer and Related Materials: Methods of Inspection, Sampling and Testing.
- FED-STD-313 - Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities.
- FED-STD-595 - Colors Used in Government Procurement.

(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.

PUBLICATIONS

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

- 40 CFR CH. 1, Part 60, Appendix A, Method 24 - Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings.
- 40 CFR, Part 261, Appendix II, Method 1311 - Toxicity Characteristic Leaching Procedure (TCLP).

NATIONAL ARCHIVES AND RECORDS ADMINISTRATION

- Federal Register, Volume 47, Number 103, Appendix A, Pages 23376 - 23389.

(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.)

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 (see 6.2).

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)
 Threshold Limit Values (TLVs) for Chemical Substances and Physical
 Agents in the Work Environment and Biological Exposure Indices.

(Application for copies should be sent to the American Conference of
 Governmental Hygienists, 6500 Glenway Avenue, Bldg D7, Cincinnati, OH 45211.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- D 185 - Standard Test Methods for Coarse Particles in Pigments,
 Pastes, and Paints. (DoD adopted)
- D 476 - Standard Specification for Titanium Dioxide Pigments.
 (DoD adopted)
- D 523 - Standard Test Method for Specular Gloss. (DoD adopted)
- D 562 - Standard Test Method for Consistency of Paints Using the
 Stormer Viscometer. (DoD adopted)
- D 563 - Standard Test Method for Phthalic Anhydride Content of
 Alkyd Resins and Resin Solutions. (DoD adopted)
- D 1210 - Standard Test Method for Fineness of Dispersion of
 Pigment-Vehicle Systems. (DoD adopted)
- D 1296 - Standard Test Method for Odor of Volatile Solvents and
 Diluents. (DoD adopted)
- D 1306 - Standard Test Method for Phthalic Anhydride Content of
 Alkyd Resins and Esters Containing Other Dibasic Acids
 (Gravimetric). (DoD adopted)
- D 1475 - Standard Test Method for Density of Paint, Varnish,
 Lacquer, and Related Products. (DoD adopted)
- D 1542 - Standard Test Method for Qualitative Detection of Rosin in
 Varnishes. (DoD adopted)
- D 1729 - Standard Practice for Visual Evaluation of Color
 Differences of Opaque Materials. (DoD adopted)
- D 2369 - Standard Test Method for Volatile Content of Coatings.
 (DoD adopted)
- D 2805 - Standard Test Method for Hiding Power of Paints by
 Reflectometry.
- D 3278 - Standard Test Methods for Flash Point of Liquids by
 Setaflash Closed-Cup Apparatus. (DoD adopted)
- E 1252 - Standard Practice for General Techniques for Qualitative
 Infrared Analysis.
- F 718 - Standard for Shipbuilders and Marine Paints and Coatings
 Product/Procedure Data Sheet. (DoD adopted)

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

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)
 Rule 1106 - Marine Coating Operations.

(Application for copies should be addressed to the South Coast Air Quality
 Management District, 9150 E. 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.)

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2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, 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 Toxicity. The material shall have no adverse effect on the health of personnel when used for its intended purpose (see 4.6). Questions pertinent to this effect shall be referred by the contracting activity to the appropriate service medical department which will act as advisor to the contracting activity.

3.2 Formula. The enamel shall consist of ingredients conforming to the requirements of applicable specifications in the proportions as specified in table I, except that small amounts of tinting agents may be added as necessary to conform to the color requirement (see 3.5.2). Small quantities of antisetling, antisagging, and antiskinning agents may also be added to the formulation, provided that all other requirements of the specification are met. Test information required by method 1031 of FED-STD-141 shall include the exact formula used (see appendix).

3.2.1 Formula No. 30. The formula specified (see table I) is designated Navy Standard Formula No. 30. Whenever Formula No. 30 is specified, the enamel shall conform to this specification (see table I).

TABLE I. Formula No. 30.

Ingredients	Kilogram (kg)	(Pounds) <u>1/</u>
Alkyd resin solution <u>2/</u>	191.6	(422.3)
Titanium dioxide <u>3/</u>	118.2	(230.6)
Calcium carbonate <u>4/</u>	141.6	(310.4)
Paint thinner <u>5/</u>	59.4	(131.0)
Drier, calcium <u>6/</u>	2.8	(6.2)
Suspending agent <u>7/</u>	13.7	(30.1)
Dispersant <u>8/</u>	0.7	(1.5)
Suspending agent <u>9/</u>	2.7	(6.0)
Antiskinning agent <u>10/</u>	0.9	(1.9)
Drier, cobalt 12% <u>11/</u>	0.286	(0.6)
Drier, neodymium 12% <u>12/</u>	2.9	(6.3)
Drier, bipyridal 30% <u>13/</u>	0.345	(0.8)

1/ The formula as given makes 100 gallons.

2/ Alkyd resin, safflower oil, 90% solids, McWhorter Technologies, #57-5816, Carpentersville, IL.

3/ ASTM D 476. This formulation used Tioxide TR-63 Tioxide America, Inc., Lisle, IL.

4/ Omyacarb-1 from OMYA, Inc., Proctor, VT (Omyacarb-5 is also acceptable).

5/ PM Acetate, Propylene Glycol Monomethyl Ether Acetate.

6/ Calcium 6%, synthetic carboxylate, Cem-all.

7/ Bentone 38 Gel, Niles Chemical Paint.

8/ Nuosperse 657, Huls America, Piscataway, NJ.

9/ Anti-Terra 204, BYK-Chemie, Wallingford, CT.

10/ Methyl Ethyl Ketoxime, Skino #2.

11/ Cobalt 12%, synthetic carboxylate, Cem-all.

12/ Neodymium 12%, Neo-Cem 250.

13/ Bipyridal 30%, DRI-Rx.

Note: Items 6, 10, 11, 12, and 13 manufactured by OMG-Mooney Chemicals, Inc., Cleveland, OH.

3.2.2 Metal content. The content of each soluble metal and total content of each metal of the enamel shall be not greater than the values listed in tables II and III when tested as specified in 4.4.17 and 4.4.18.

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TABLE II. Soluble metals content.

Soluble metal or its compound	Maximum, mg/L
Antimony or its compounds	15
Arsenic or its compounds	5
Barium or its compounds (excluding barite)	100
Beryllium or its compounds	0.75
Cadmium or its compounds	1
Chromium (VI) compounds	5
Chromium or chromium (III) compounds	560
Copper or its compounds	25
Fluoride salts	180
Lead or its compounds	5
Mercury or its compounds	0.2
Molybdenum or its compounds	350
Nickel or its compounds	20
Selenium or its compounds	1
Silver or its compounds	5
Tantalum or its compounds	100
Thallium or its compounds	7
Tungsten or its compounds	100
Vanadium or its compounds	24
Zinc or its compounds	250

TABLE III. Total metals content.

Metal	Maximum, ZWT
Antimony or its compounds	0.015
Arsenic or its compounds	0.001
Barium or its compounds (excluding barite)	0.10
Beryllium or its compounds	0.0002
Cadmium or its compounds	0.0005
Chromium (VI) compounds	0.0005
Chromium or chromium (III) compounds	0.56
Copper or its compounds	0.01
Fluoride salts	0.18
Lead or its compounds	0.005
Mercury or its compounds	0.0002
Molybdenum or its compounds	0.35
Nickel or its compounds	0.02
Selenium or its compounds	0.001
Silver or its compounds	0.001
Tantalum or its compounds	0.100
Thallium or its compounds	0.007
Tungsten or its compounds	0.100
Vanadium or its compounds	0.01
Zinc or its compounds	0.25

3.2.3 Hazardous air pollutants (HAPs). The contents of HAPs solvents in the total enamel shall be not greater than the weight percent (%WT) values listed in table III when tested as specified in 4.4.19.

TABLE IV. Hazardous solvent content.

Hazardous solvent in total enamel	Maximum, %WT
Benzene	0.05
Chlorinated solvent(s), total	0.05
Carbon tetrachloride	
Chloroform (trichloromethane)	
Methylene chloride (dichloromethane)	
Tetrachloroethylene (perchloroethylene)	
1,1,1-Trichloroethylene (Methyl chloroform)	
Trichloroethylene	
Ethyl benzene	0.05
Methyl, ethyl and butyl mono-ethers of ethylene glycol or the acetates, total (methyl, ethyl and butyl cellosolves and acetates)	0.05
Methyl ethyl ketone (MEK)	0.05
Methyl isobutyl ketone (MIBK)	0.05
Toluene	0.05
Xylene (all forms), total	0.1

3.3 Manufacturing. The enamel, as received in its original container, shall be free from skins, lumps, sediness, jelling, curdling, separation, and hard settling or caking. It shall be capable of being converted to a smooth, uniform condition by hand stirring.

3.3.1 Film appearance. Films of the enamel, prepared as specified (see 4.4.14), shall have a smooth and uniform appearance and shall show no evidence of wrinkling, seeding, or other nonuniformity.

3.4 Quantitative requirements. The enamel shall conform to the quantitative requirements shown in table V and as herein specified.

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TABLE V. Quantitative requirements.

Characteristics	Requirements	
	Minimum	Maximum
Pigment, percent by mass of enamel	43.1	47.1
Volatiles, percent by weight	18.6	22.6
Nonvolatile vehicle, percent by mass of enamel (calculated by difference)	32.3	36.3
Phthalic anhydride, percent by mass of nonvolatile vehicle	31.0	35.0
Water, percent by mass of enamel	----	0.2
Coarse particles and skins (as residue on no. 125 sieve), percent by mass of enamel	----	0.5
Consistency, Krebs-Stormer shearing rate 200 rpm, Kreb units	70	80
Mass per gallon, kg	11.8	12.8
Drying time - set-to-touch, hours - dry hard, hours	---- ----	3.5 8.0
Fineness of grind	7	----
Flash point, °C	100	----
Gloss, 60-degree specular	88	----
Asbestos content	None	----

3.4.1 Volatile organic content (VOC). When tested as specified in 4.4.16, the VOC of the paint shall not exceed 340 g/L (2.8 lb/gal).

3.5 Qualitative requirements. The enamel shall conform to the qualitative requirements specified (see table II) when tested as specified in 4.4.

3.5.1 Odor. The odor shall be characteristic of the volatiles permitted when tested as specified (see 4.4).

3.5.2 Color. The color of the enamel shall match the dry color chip no. 17886 of FED-STD-595 when tested as specified (see 4.4.7).

3.5.3 Flexibility. The enamel shall show no evidence of cracking when tested as specified (see 4.4.13).

3.5.4 Compatibility with thinner. There shall be no evidence of incompatibility of any of the ingredients of the enamel as received, when tested as specified (see 4.4.6).

3.5.5 Shelf storage life. When original, unopened containers are stored as specified (see 4.4.15), the enamel shall meet the requirements of 3.3 and 3.5.2. Coarse particles and skins, viscosity, time of setting to touch and time of drying hard shall not vary more than 10 percent from the values specified (see table V).

3.5.6 Skimming. The enamel shall not skin within 48 hours in a three-quarters full container when tested as specified (see 4.4.5).

3.5.7 Rosin and rosin derivatives. Rosin and rosin derivatives shall not be present when tested as specified (see 4.4.10).

3.5.8 Phenolic resins. Phenolic resins shall not be present when tested as specified (see 4.4.11).

3.5.9 Application characteristics.

3.5.9.1 Brushing properties. The product, when tested as specified (see 4.4.8), shall be capable of being brushed out and laid off without excess drag on the brush. When dry, the brush-coated surface shall be free from sags, runs, wrinkles, excess brush marks, or other film defects. The film shall exhibit good adhesion and a smooth, uniform appearance.

3.5.9.2 Spraying properties. The enamel, when tested as specified (see 4.4.9), shall show no running, sagging, streaking, dusting, mottling, color separation, or other film defects. The film shall exhibit good adhesion and a smooth, uniform appearance.

3.5.10 Dry opacity. A maximum of 7.0 milliliters (mL) per 930 square centimeters (cm²) of the enamel shall be required to obtain a dry film contrast ratio of 0.92, when tested as specified (see 4.4).

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3.5.11 Material safety data sheet (MSDS). The contracting activity shall be provided a material safety data sheet at the same 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).

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) Quality conformance inspection (see 4.3).

4.3 Quality conformance inspection. Quality conformance inspection shall be provided in accordance with method 1031 of FED-STD-141 and as specified in 4.4 (see 6.3 and appendix).

4.3.1 Ingredient materials. When requested by the contracting activity, 1 pint of each ingredient in the formula specified (see table I) shall be available for test purposes.

4.4 Test procedures. Test shall be conducted in accordance with table VI.

TABLE VI. Test procedures.

Test	Applicable method in FED-STD-141	Applicable ASTM test
Pigment content	4021	-----
Volatiles	----	D 2369
Nonvolatile vehicle content	4053	-----
Phthalic anhydride	----	D 563
Water	4081	-----
Coarse particles and skins	----	D 185
Consistency	----	D 562
Mass per gallon	----	D 1475
Drying time	4061	-----
Fineness of grind	----	D 1210
Flash point	----	D 3278
Gloss	----	D 523
Brushing properties	4321	-----
Spraying properties	4331	-----
Flexibility	6221	-----
Color	----	D 1729
Condition in container	3011	-----
Stability in partially full container	3021	-----
Dilution stability	4203	-----
Rosin and rosin derivatives	----	D 1542
Phenolic resin	5141	-----
Odor	----	D 1296
Dry opacity	----	D 2805

4.4.1 Pigment content. Extract the pigment from a weighed sample of enamel in accordance with method 4021 of FED-STD-141, using extraction mixture. Dry and weigh extracted pigment. Calculate percent pigment in the enamel.

4.4.2 Phthalic anhydride. Determine phthalic anhydride content of the nonvolatile vehicle in accordance with ASTM D 563, applying the correction procedure described in 4.2 of the test method. If dibasic acids other than phthalic are present, ASTM D 1306 shall be used.

4.4.3 Drying time. Drying time shall be determined in accordance with method 4061 of FED-STD-141, except that the specified conditions of temperature and humidity shall apply only for referee tests in case of dispute. All other tests shall be conducted under prevailing laboratory conditions.

4.4.4 Condition in container. Determine the condition of the enamel, as received in its container, in accordance with method 3011 of FED-STD-141 and observe for compliance with 3.5.5 (see 6.8).

4.4.5 Skinning. Determine skinning characteristics of the material in partially filled container in accordance with method 3021 of FED-STD-141.

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4.4.6 Compatibility with thinner. Determine compatibility with thinner in accordance with method 4203 of FED-STD-141. Fifty mL of enamel shall be mixed with 50 mL of mineral spirits conforming to type II, grade A of TT-T-291. Observations shall be made immediately after mixing and repeated in 30 minutes.

4.4.7 Color. Prepare test panel by applying a single drawdown coat of the enamel to a planar piece of opaque white glass using a doctor blade with a clearance of 0.152 millimeters (mm) (0.006 inch) [designed to give a wet film thickness of approximately 0.0076 mm (0.003 inch)]. The coated panel shall be allowed to dry 24 hours under prevailing laboratory conditions before comparing with the standard color card as specified in ASTM D 1729 (see 3.5.2).

4.4.8 Brushing properties. Determine brushing properties of the enamel in accordance with method 4321 of FED-STD-141 and observe for compliance with 3.5.9.1.

4.4.9 Spraying properties. Determine spraying properties of the enamel in accordance with method 4331 of FED-STD-141. Reduce eight parts by volume of enamel with one part by volume of thinner conforming to TT-T-291, type II, grade A. Spray coat the steel panel to a dry film thickness of $0.0254 \text{ mm} \pm 0.00254 \text{ mm}$ (0.001 ± 0.0001 inch) and observe for compliance with 3.5.9.2. For referee test, the automatic film application described in method 2131 of FED-STD-141 shall be used.

4.4.10 Rosin and rosin derivatives. Conduct test for rosin and rosin derivatives in accordance with ASTM D 1542. A portion of the separated, nonvolatile vehicle shall be used for the test.

4.4.11 Phenolic resins. Conduct test for phenolic resins in accordance with method 5141 of FED-STD-141. A portion of the nonvolatile vehicle shall be used for the test.

4.4.12 Gloss. Determine 60-degree specular gloss in accordance with ASTM D 523. Prepare the panels for test by applying a single drawdown coat of enamel using a doctor blade designed to give a dry film thickness of $0.0254 \text{ mm} \pm 0.0076 \text{ mm}$ (1.0 ± 0.3 mils). Dry the panels for 48 hours under prevailing laboratory conditions of temperature and humidity in a room free from dust and fumes.

4.4.13 Flexibility. Determine flexibility in accordance with method 6221 of FED-STD-141. Draw down a 5.08-cm (2-inch wide) film of the enamel with a suitable film applicator that will give a dry film thickness of $0.0254 \text{ mm} \pm 0.0076 \text{ mm}$ (0.0010 ± 0.0003 inch) on a flat tin panel prepared in accordance with method 2012 of FED-STD-141, using the aliphatic naphthaethylene glycol monoethyl ether mixture. Air dry the test specimen for 2 hours in a horizontal position; then bake for 24 hours in an air circulating oven at 100 to 105°C (212 to 221°F). At the end of the baking period, condition the panel for 30 minutes at $25 \pm 5^\circ\text{C}$ ($77 \pm 9^\circ\text{F}$) and bend over a 3.2-mm (1/8-inch) mandrel. The coated surface of the panel shall be uppermost during the bending which shall be accomplished at a uniform rate over approximately 2 seconds. The panel shall be examined at the bend, using a seven-power lens and any cracking shall be noted.

4.4.14 Film appearance. On a clean, smooth glass plate draw the enamel down to a dry film thickness of $0.00508 \text{ cm} \pm 0.0005 \text{ cm}$ (0.002 ± 0.0002 inch). Dry for 48 hours in a horizontal position at $23 \pm 1^\circ\text{C}$ ($74 \pm 2^\circ\text{F}$) and 50 ± 5 percent relative humidity. Examine for conformance to 3.3.1.

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4.4.15 Storage stability. A 1-gallon container of enamel shall be stored in the original, unopened container or containers for 12 months from the date of manufacture at standard conditions and then shall be tested to determine compliance with the requirement of 3.5.5.

4.4.16 VOC (volatile organic content). VOC tests shall be conducted on enamel prepared for application in accordance with the manufacturer's ASTM F 718 data sheet. The VOC test shall be conducted in accordance with 40 CFR CH.1, Part 60, Appendix A, (EPA) Method 24 and shall be in compliance with the requirements of 3.4.1 .

4.4.17 Soluble and total metal content. Asbestos, soluble and total metal content, except tantalum and tungsten, shall be determined on a dry paint film of the enamel in accordance with the 40 CFR, Part 261, Appendix II, Method 1311 and the appropriate test listed below. Asbestos shall be analyzed in accordance with the method in the Federal Register, Volume 47, Number 103, Appendix A, pages 23376-23389 and the results shall be recorded as percent by weight of the dry paint film. Soluble metal content shall be reported as milligrams per liter (mg/L). Total metal content shall be reported as percent by weight of the dry paint film. The test results for asbestos or metal shall be in conformance to the requirements of 3.2.2 and tables II and III. Tantalum and tungsten soluble metal content and total metal content shall be analyzed as specified in 4.4.18.

Test Method for Evaluating Solid Waste
Physical/Chemical Methods, SW-846

<u>Metal/material</u>	<u>Digestion Test Method</u>
All metals, except Chromium IV	3050
Chromium IV	3060

<u>Metal/material</u>	<u>SW-846 Analysis Test Method</u>
Antimony	7040 or 7041
Arsenic	7060 or 7061
Barium	7080 or 7081
Cadmium	7131
Total chromium	7190
Lead	7421
Mercury	7470 or 7471
Nickel	7520 or 7521
Selenium	7740 or 7741
Silver	7760 or 7761

Methods for Chemical Analysis of Water
and Waste, EPA-600/4-020, EPA, 1979

<u>Metal/material</u>	<u>Test Method</u>
Beryllium	210.1 or 210.2
Cobalt	219.1 or 219.2
Copper	220.1 or 220.2
Fluoride	340.1, 340.2 or 340.3
Molybdenum	246.1 or 246.2
Thallium	279.1 or 279.2
Vanadium	286.1 or 286.2
Zinc	289.1 or 289.2

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4.4.18 Tantalum and tungsten content. Determine the tantalum and tungsten content of the enamel using any appropriate spectroscopy test method. Conduct the tests in accordance with the equipment manufacturer's directions for the use of the instrument. Paint manufacturer is responsible for establishing information supporting the test method choice and analytical accuracy. Test results for tantalum and tungsten shall be as specified in 3.2.2 and tables II and III.

4.4.19 Hazardous solvent content. Hazardous solvent content shall be determined in accordance with Methods 7356 and 7360 of FED-STD-141. Solvent fractions shall be identified in accordance with ASTM E 1252. Test results shall be reported as percent by weight of the total paint. The test results for each solvent shall be as specified in 3.2.3 and table IV.

4.5 Inspection of packaging. Sample packages and packs, and the inspection of the preservation, packing and marking for shipment and storage shall be in accordance with the requirements of section 5 and the documents specified therein.

4.6 Toxicity. A manufacturer of material shall disclose the formulation of his product to the Navy Bureau of Medicine and Surgery, Navy Department, Washington, DC 20372. The disclosure of proprietary information, which shall be held in confidence by the Bureau of Medicine and Surgery, shall include: the name, formula, and approximate percentage by mass and volume of each ingredient in the product; the results of any toxicological testing of the product; identification of its pyrolysis products; and any such other information as may be needed to permit an accurate appraisal of any toxicity problem associated with the handling, storage, application, use, or disposal of the material.

5. PACKAGING

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

5.1 Packaging, packing, and marking. The enamel shall be packaged, packed, and marked in accordance with PPP-P-1892. The level of packaging shall be A or C and the level of packing shall be A, B, or C as specified (see 6.2). The enamel shall be furnished in 1-gallon cans or 5-gallon pails as specified (see 6.2).

5.1.1 Special marking. In addition to other markings required on the containers, there shall be the following statement: "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." (see 6.5).

5.1.2 Shelf life marking. In addition to other markings specified by 5.1 and 5.1.1, each unit container, intermediate container where applicable, and shipping container shall be marked as follows: "Date of first reinspection (insert date 1 year after date of manufacture)".

6. NOTES

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

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6.1 Intended use. This enamel is intended for general purpose use on interior and exterior shipboard surfaces where fire-retardancy is not required. This product may be applied where air pollution regulations apply.

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) Level of packaging and level of packing required (see 5.1).
- (d) Size of container required (see 5.1).
- (e) Special marking required (see 5.1.1 and 5.1.2).

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>
4.3 and appendix	DI-MISC-80678	Certification/data report	10.3.2 does not apply

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 Purchase unit. Paint should be purchased under this specification by volume, the unit being 1 U.S. gallon (231 cubic inches) at 15.5°C (60°F).

6.5 Volatile content. Although the container marking specifically refers to the South Coast Air Quality Management District, the paint may be used anywhere else a paint complying with 3.4.1 is allowed. This includes all other air pollution control districts or similar areas controlling the emission of solvents into the atmosphere. Information regarding Los Angeles County Air Pollution Rules 102, 442, and 443 may be obtained from: South Coast Air Quality Management District, 19150 E. Flair Drive, El Monte, CA 91731.

6.6 Composition by volume. For information only and with the understanding that the mass volume relationships of ingredients may vary slightly, the approximation of composition by volume is included in table VII.

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TABLE VII. Composition by volume.

Ingredients	Gallons
Titanium dioxide	7.14
Zinc oxide	1.61
Alkyd resin solution	66.25 (42.00) <u>1/</u>
Paint thinner	26.50
Lead naphthenic drier	0.63
Cobalt naphthenic drier	<u>0.75</u>
Total volume	102.88

1/ Figure in parentheses refers to volume of resin solids (nonvolatile).

6.7 Alternate resin. If it is desired to use an alkyd resin solution conforming to the requirements for type I, class B of TT-R-266, the mass of the alkyd resin solution as specified in table I of this specification should be multiplied by 1.17 and the mass of paint thinner (petroleum spirits) reduced by 0.17 times the specified mass of alkyd resin solution. The resin solution used in any case should contain as solvent paint thinner conforming to type II, grade A of TT-T-291.

6.8 Condition in container. The Government, at its option and at any time not to exceed 1 year after manufacture, may test enamel stored in its original containers for product condition, viscosity, and dry hard time. (Any action by the Government to disqualify enamel after prior acceptance will be based on the examination of enamel stored in its original containers.)

6.9 Materials Safety Data Sheets. Contracting officers will identify those activities requiring copies of completed Material Safety Data Sheets prepared in accordance with FED-STD-313. The pertinent Government mailing addresses for submission of data are listed in FED-STD-313.

6.10 Subject term (key word) listing.

Pigment
Shipboard surfaces
Volatile organic content (VOC)

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.

Custodians:
Navy - SH
Air Force - 99

Preparing activity:
Navy - SH
(Project 8010-0982)

Review activity:
Navy - SA, MC

APPENDIX

CERTIFICATION/DATA REPORT TECHNICAL CONTENT REQUIREMENTS

10. SCOPE

10.1 Scope. This appendix covers information that shall be included in the certification/data report when specified in the contract or order. This appendix is mandatory only when data item description DI-MISC-80678 is cited on the DD Form 1423.

20. APPLICABLE DOCUMENTS

This section is not applicable to this appendix.

30. CERTIFICATION CONTENT

30.1 Certification/data report. The contractor shall furnish certification/data reports for each lot of enamel in accordance with the data ordering document included in the contract or purchase order. In addition to the requirements covered by the data ordering document, the certification/data report shall include the following information:

- (a) Conformance of each lot of ingredient material, stating test results and source, as applicable (see 3.2).
- (b) Certification that hazardous air pollutants (HAP) and volatility requirements (VOC) are met (see 3.2.3 and 3.4.1).
- (c) Certification that storage stability requirements are met (see 3.5.5).

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the comment number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.

The preparing activity must provide a reply within 30 days from receipt of this 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
MIL-E-1115D

 2. DOCUMENT DATE (YYMMDD)
950601

3. DOCUMENT TITLE

ENAMEL, INTERIOR AND EXTERIOR, ALKYD, WHITE (FORMULA NO. 30)

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) DSN
(if applicable)

7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

 A. NAME Technical Point of Contact (TPOC)
MR. JOHN TOCK, SEA 03M1
ADDRESS ALL CORRESPONDENCE AS FOLLOWS:

 b. TELEPHONE (Include Area Code)
(1) Commercial: DSN:
TPOC: 703-602-0216 EXT. 109 332-0216

 c. ADDRESS (Include Zip Code)
COMMANDER, NAVAL SEA SYSTEMS COMMAND
ATTN: SEA 03R42
531 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VA 22242-5160

 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 DSN 289-2340