METRIC

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SUPERSEDING
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(See 6.6)

MILITARY SPECIFICATION

PRIMER (WASH), PRETREATMENT (FORMULA NO. 117

FOR METALS) (METRIC)

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

1. SCOPE

1.1 Scope. This specification covers pretreatment wash primer for use on clean metal surfaces of all types as a treatment prior to application of the coating system. The purpose of the material is to increase the adhesion of the coating system. The wash primer is not intended to be used as a permanent protective coating in itself. The materials covered by this specification is suitable for use where air pollution regulations apply for solvents in paints (see 6.4).

2. APPLICABLE DOCUMENTS

2.1 Issues of documents. The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of the specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

O-O-670 - Orthophosphoric (Phosphoric) Acid, Technical.
TT-B-846 - Butyl Alcohol; Normal (For Use in Organic Coatings).
TT-I-735 - Isopropyl Alcohol.
PPP-B-566 - Boxes, Folding, Paperboard.
PPP-B-636 - Boxes, Shipping, Fiberboard.
PPP-C-96 - Cans, Metal, 28 Gage and Lighter.
PPP-P-704 - Pails, Metal: Shipping, Steel, Through 12 Gallon).
PPP-P-1892 - Paint, Varnish, Lacquer, and Related Materials; Packaging, Packing, and Marking of.

MILITARY

MIL-P-15173 - Pigment, Magnesium Silicate; Dry (Paint Pigment).
MIL-B-26701 - Bottles, Screw Cap and Carboys, Polyethylene Plastic.

STANDARDS

FEDERAL

FED-STD-141 - Paint, Varnish, Lacquer, and Related Materials: Methods of Inspection, Sampling, and Testing.
FED-STD-313 - Material Safety Data Sheets, Preparation and the Submission of.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Ship Engineering Center, SEC 6124, Department of the Navy, Washington, DC 20362 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 8010

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 for 40" x 48" Pallets.

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
ASTM D 209 - Lampblack, Spec. for.
ASTM D 562 - Consistency of Paints Using the Stormer Viscosimeter, Test for.
ASTM D 1210 - Fineness of Dispersion of Pigment - Vehicle Systems, Test for.
ASTM D 1296 - Odor of Volatile Solvents and Diluents, Test for.
ASTM D 1475 - Density of Paint, Varnish, Lacquer, and Related Products, Test for.
ASTM D 2369 - Volatile Content of Paints, Test for.

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

DEPARTMENT OF TRANSPORTATION
49 CFR 170-189 - Department of Transportation Rules and Regulations for the Transportation of Explosives and Other Dangerous Articles.

(The regulations are a part of the Code of Federal Regulations, available from the Superintendent of Documents, Government Printing Office, Washington, DC 20402.)

NATIONAL MOTOR FREIGHT CLASSIFICATION
National Motor Freight Traffic Association Classes and Rules.

(Application for copies should be addressed to National Motor Freight Traffic Association, Inc., Agent, 1616 P Street, N.W., Washington, DC 20036.)

UNIFORM CLASSIFICATION COMMITTEE
Uniform Freight Classification Ratings, Rules, and Regulations.

(Application for copies should be addressed to the Tariff Publishing Officer, Room 1106, 222 South Riverside Plaza, Chicago, Illinois 60606.)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

3. REQUIREMENTS

3.1 Formula.

3.1.1 The primer shall consist of ingredients conforming to the applicable specifications in the proportions specified (see table I). The formula of the base is given slightly in excess of 80 gallons to allow for normal manufacturing loss.

TABLE I. Formula No. 117.

	Ingredients per 100 gallons paint			
	Kilograms	(Pounds)	Liters	(Gallons)
Ingredients of resin component (80 gallons)				
Polyvinyl-butyral resin[1/]	25.455	(56)	23.089	(6.10)
Zinc chromate (insoluble type)[2/]	24.545	(54)	6.435	(1.70)
Magnesium silicate (type A or B, MIL-P-15173)	3.636	(8)	1.287	(0.34)
Lampblack (ASTM D 209)	0.273	(0.6)	0.151	(0.04)
Butyl alcohol, normal (TT-B-846)	56.818	(125)	69.947	(18.48)
Isopropyl alcohol (TT-I-735)	160.455	(353)	203.633	(53.80)
Water	6.818	(15)	6.813	(1.80)
Ingredients of acid component (20 gallons)				
Phosphoric acid (class 1, O-O-670	12.727	(28)	7.57	(2.0)
Water	11.364	(25)	11.355	(3.0)
Isopropyl alcohol (TT-I-735)	45.0	(99)	56.775	(15.0)

[1/] The resin shall be polyvinyl, partial butyral resin containing only polyvinyl butyral, polyvinyl alcohol, and polyvinyl acetate in the molecule. The resin shall contain 18.0 to 20.0 percent vinyl alcohol and not more than 1.0 percent of vinyl acetate. A 6 percent solution of the resin in methanol shall have a viscosity of 12 to 18 centipoises at 20°C. The specific gravity (25°/25°C) of the resin shall be 1.05 to 1.15.

[2/] The zinc chromate shall be of an insoluble type, showing an analysis of 16 to 19 percent CrO_3, 67 to 72 percent ZnO, and not more than 1 percent water soluble salts.

3.1.2 The formula specified (see table I) is designated Navy formula No. 117. Wherever formula No. 117 is specified, the primer shall conform to this specification.

3.1.3 Toxicity. The material shall have no adverse effect on the health of personnel when properly used for its intended purpose (see 4.5.13). Questions pertinent to this effect shall be referred by the procuring activity to the appropriate service medical department which will act as advisor to the procuring activity.

3.2 Manufacture. The component ingredients of the acid component shall be mixed until uniform in composition. The component raw materials of the resin component shall be mixed and ground as required to produce a product which is uniform and free from lumps. Both components shall be in full conformity with the requirements of this specification.

3.3 Quantitative requirements. The quantitative requirements specified (see table II) shall be criteria for laboratory tests as specified (see 4.5), for the coating as manufactured in accordance with the formula.

TABLE II. Quantitative requirements.

	Minimum	Maximum
Characteristics of resin component:		
Pigment, percent by weight of resin component	9.5	11.0
Volatiles, percent by weight of resin component	79.0	81.5
Nonvolatile vehicle, percent by weight of resin component (calculated by difference)	8.5	10.0
Ratio of pigment to nonvolatile vehicle by weight	1.07	1.15
Coarse particles and skins, as residue retained on No. 325 sieve, percent by weight of resin component	---	0.2

TABLE II. Quantitative requirements. - Continued

	Minimum	Maximum
Characteristics of resin component continued:		
Consistency, Krebs-Stormer, shearing rate, 200 RPM:		
Grams	110	165
Krebs units (equivalent)	63	75
Weight per gallon, kg (pounds)	3.318 (7.3)	3.50 (7.7)
Fineness of grind	6	---
Chromium trioxide (CrO_3), percent by weight of pigment	13.5	---
Zinc oxide (ZnO), percent by weight of pigment	57.0	---
Distillation of 100 g of thinner obtained from resin component:		
Initial boiling point, °C	75	82
Temperature at 80 mL point, °C	---	85
Temperature at 105 mL point, °C	116	---
End point, temperature, °C	---	120
Volume at end point, mL	115	---
Characteristics of acid component:		
Phosphoric acid, percent by weight of acid component	15.0	16.5
Distillation of 150 g of acid component:		
Initial boiling point, °C	75	82
Temperature at 105 mL point, °C	---	83
Volume at end point, mL	125	---
Maximum temperature during distillation, °C	---	102
Weight per gallon, kg (pounds)	3.409 (7.5)	3.591 (7.9)
Characteristics of pretreatment primer:		
Time of drying hard, minutes	---	30

3.3.1 Solvent. The solvent portion of the formulation shall conform to requirements herein specified.

(a) Aromatic compounds with eight or more carbon atoms to the molecule, except ethylbenzene (total aromatics less ethylbenzene), shall not exceed 1 percent by volume.
(b) The ethylbenzene content of the solvent shall not exceed 1 percent by volume.
(c) Compounds with olefinic or cycloolefinic unsaturation shall result in a negative test.
(d) Ketones shall not exceed 1 percent by volume.

3.4 Qualitative requirements.

3.4.1 Odor. The odor of the resin component and of the acid component shall be normal for the volatiles permitted when tested in accordance with ASTM D 1296.

3.4.2 Color. The color of the primer after drying shall be characteristic of the pigments specified (see table I). See 6.5 for color reference.

3.4.3 Water in resin component. Water shall be added to the resin component during manufacture in the exact amount specified (see table I). The finished resin component shall give a negative test for the presence of excess water when tested as specified (see 4.5.4).

3.4.4 Butanol. Butanol shall be present when the coating is tested as specified (see 4.5.5).

3.4.5 Knife test. A film of mixed coating, tested as specified (see 4.5.11), shall be hard and tough and shall adhere tightly to the metal panel. It shall be difficult to furrow off with the knife and shall not flake, chip, or powder. The knife cut shall show beveled edges.

3.4.6 Compatibility. There shall be no evidence of incompatibility of any of the ingredients of the mixed coating when tested as specified (see 4.5.8).

3.4.7 Mixing and application properties. When tested as specified (see 4.5.9), the acid and resin components shall form a smooth and uniform mixture and shall show no signs of thickening or gelation when examined 24 hours after mixing. The components shall mix readily at any temperature between 4°C and 32°C and shall be suitable for spray application within that temperature range.

3.4.8 Condition in container (resin component). The product shall be capable of being remixed to a smooth, uniform consistency. It shall not liver, shall not exceed 85 Krebs units in viscosity, and shall not exceed 1-hour dry hard time (for pretreatment primer). It shall not curdle, gel, or show any other objectionable properties for at least 1 year after date of manufacture.

3.4.9 Surface appearance and workmanship. A flow-out film of the mixed primer, after drying on glass for 24 hours, shall exhibit a surface smooth in appearance and free of defects such as pinholes, coarse particles, skins, or agglomerates of any kind.

3.4.10 Material safety data sheet. The procuring activity shall be provided a material safety data sheet (MSDS) at the time of contract award. The MSDS is DD form 1813 found in FED-STD-313. The MSDS shall be included with each shipment of the material covered by this specification.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Quality conformance inspection. Quality conformance inspection shall be in accordance with method 1031 of FED-STD-141 as specified herein. Submission of forms in accordance with method 1031 shall cover complete tests other than the 1-year condition in container (resin component) test. The 1-year condition in container test (see 3.4.8) shall apply for 1 year after manufacture regardless of other testing or prior acceptance.

4.2.1 Ingredient materials. When requested by the testing laboratory or other controlling authority, 1 pint of each ingredient in the formula specified (see table I) shall be supplied for test purposes.

4.3 Sampling.

4.3.1 Sampling for tests. Test samples, consisting of a container of acid component and a container of resin component, shall be selected in accordance with method 1031 of FED-STD-141. Samples, manufacturer's statement of analysis, and test batch shall be forwarded as specified therein.

4.3.2 Samples of filled containers shall be taken at random, in accordance with MIL-STD-105, inspection level I, and Acceptable Quality Level (AQL) equal to 2.5 percent defective, to verify compliance with product specifications in regard to fill, closure, marking, and other requirements not involving tests. 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 one sample exceeds the acceptance number for the appropriate sampling plan of MIL-STD-105, this shall be cause for rejection of the lot represented by the sample.

4.4 Acceptance. Acceptance of the primer shall be based upon conformance of the primer to the requirements of the specification. Failure to pass any test shall be cause for rejection of the lot.

4.5 Test methods. The tests in table III shall be conducted in accordance with FED-STD-141 and ASTM methods and as specified herein.

TABLE III. Test procedures.

Item	Applicable method in FED-STD-141	Applicable ASTM test method	Requirement
Pigment content	-----	-------	Table II
Volatiles	-----	D 2369	Table II
Nonvolatile vehicle (calculated by difference)	4053	-------	Table II
Ratio of pigment to nonvolatile vehicle	-----	-------	Table II
Coarse particles	4092	-------	Table II
Consistency, Krebs-Stormer	-----	D 562	Table II
Weight per gallon	-----	D 1475	Table II
Fineness of grind	-----	D 1210	Table II
Chromium trioxide	-----	-------	Table II
Zinc oxide	-----	-------	Table II
Distillation	-----	-------	Table II
Phosphoric acid	-----	-------	Table II
Drying time	4061	-------	Table II
Odor	-----	D 1296	3.4.1
Color	-----	-------	3.4.2
Water in resin component	-----	-------	3.4.3
Butanol	-----	-------	3.4.4
Knife test	6304	-------	3.4.5
Compatibility with thinner	4203	-------	3.4.6
Mixing and application properties	3011	-------	3.4.7
Condition in container	3011	-------	3.4.8
Surface appearance	-----	-------	3.4.9

4.5.1 Ratio of pigment to nonvolatile vehicle. Calculate the ratio of pigment to nonvolatile vehicle by dividing the pigment content of the resin component determined in 4.5.1.1, by the nonvolatile vehicle content of the resin component determined by method 4053 of FED-STD-141.

4.5.1.1 Pigment content. Use an IEC centrifuge (or equivalent) designed for maximum speed of 17,000 revolutions per minute (RPM) (or an equivalent one with a high speed attachment). Weigh accurately, to 0.1 milligram (mg) by difference, about 3 grams (g) of paint into an appropriate centrifuge tube. Dilute paint with about 20 milliliters (mL) of 95 percent isopropyl alcohol or 95 percent ethanol (do not use anhydrous alcohol) and mix to uniformity. Seal centrifuge tube with appropriate cap provided for this purpose. Operate centrifuge at its maximum speed [about 17,000 RPM] for about 2 hours. After stopping centrifuge, uncap extraction tube and examine contents; decant clear supernatant liquid. Then refill with 95 percent alcohol, stir to uniformity, cap, and centrifuge (as above) for 1 hour. Repeat last step one more time, then dry to uniform weight (3 hours at 105°C), and calculate percent pigment.

4.5.2 Pigment analysis.

4.5.2.1 Preliminary separation. Weigh out a 2.000-g sample of the pigment and transfer to a 250-mL beaker. Moisten the pigment with acetone and add 25 mL of 1:4 sulfuric acid. Let stand on steam bath for 1 hour with occasional stirring. Filter, wash with 1:4 sulfuric acid free of chromium, and transfer filtrate to a 250-mL volumetric flask. Dilute filtrate to exactly 250 mL and reserve for zinc and chromium determinations.

4.5.2.2 Zinc oxide. Remove a 50.0-mL portion from the volumetric flask and transfer to a 400-mL beaker. Dilute to 150 mL with distilled water and add 25 mL of a 25 percent solution of tartaric acid. Make just neutral to litmus paper with ammonium hydroxide and add 25 mL of formic acid mixture. (To 400-mL formic acid, add 60-mL ammonium hydroxide. Dissolve 500 g of ammonium sulfate in approximately 1 liter (L) of distilled water. Mix the two solutions and add sufficient water to make 2 L.) Care should be taken to adjust the acidity to the proper pH for the quantitative precipitation of the zinc as sulfide. Pass a rapid stream of hydrogen sulfide through the solution for 30 minutes. Filter off the precipitated zinc sulfide and wash with distilled water saturated with hydrogen sulfide. Put the precipitate and paper into a tared porcelain crucible, dry the paper, and then char at low heat until the paper is consumed. Increase the heat to 1,000°C and ignite for 10 minutes. Let cool in desiccator and weigh as zinc oxide.

4.5.2.3 Chromium trioxide. Remove a 50.0-mL portion from the volumetric flask. Transfer to a 600-mL beaker. Dilute to 300 mL with distilled water; add 15 mL of concentrated sulfuric acid and 3 mL of concentrated nitric acid. Bring to a boil; then add 1 mL of 2.5 percent silver nitrate solution and 1 mL of 0.1N potassium permanganate. Slowly add 10 mL of 20 percent ammonium persulfate, freshly prepared. The pink color of permanganate should persist after 10 minutes of boiling, adding more ammonium persulfate if necessary and boiling 10 minutes after last addition of ammonium persulfate. Five mL of 1:3 hydrochloric acid should then be added and the solution boiled for 10 minutes after the permanganate color is destroyed. Cool to 20°C and add standardized ferrous ammonium sulfate solution (approximately 0.1N) until approximately 5 mL in excess has been added. Now titrate with approximately 0.1N potassium permanganate solution (which has been standardized against sodium oxalate), until an excess of approximately 5 mL has been added. Adjust to the correct end point by careful addition of the standardized ferrous ammonium sulfate solution. Multiply the volume of permanganate solution used by the ferrous ammonium sulfate equivalent of 1 mL of standardized permanganate solution, subtract the product from the amount of ferrous sulfate used, and calculate the amount of chromium as CrO_3. To determine the ferrous ammonium sulfate equivalent, take as much of the ferrous ammonium sulfate as was used in the test, dilute in a solution having the same volume and acidity, titrate as above with the permanganate solution, and calculate from the date obtained.

4.5.3 Distillation. Place a 165-g sample of resin component in a 500-mL round-bottom flask, attach a water condenser, and immerse the flask in an oil bath. Heat the oil bath and distill over all the thinner. The temperature of the bath shall not exceed 200°C at any time. Place 100.0 g of thinner distilled from the resin component (to determine the distillation characteristics of the acid component use 150 mL of the acid component) in a 250-mL flask which has a ground-glass neck to fit a 6-ball Snyder column or equal. The column shall be jacketed with an air condenser and provided with a fractionating head and a stopcock for controlling the amount of distillate being removed. The rate of removal of distillate shall be 1 mL per minute. The flask shall be heated by means of an oil bath to provide a rapid reflux. The temperature of the bath should be approximately 175°C to 200°C. When fractionating the thinner distilled from the resin component, change receivers when the distillation temperature reaches 117°C to obtain the portion of the distillate to be used in the test for butanol (see 4.5.5).

4.5.4 Water in resin component. The presence of excess water in the resin component shall be determined by the following laboratory test on the thinner removed from the resin component by distillation. Upon completing the distillation, mix well and remove 10.0-mL portion to a 100-mL glass-stoppered graduated cylinder. Add 90 mL of chemically pure (c.p.) benzene and shake well. Formation of a cloudy solution indicates the presence of excess water. Thinner removed from properly prepared resin component should give a clear solution when tested as specified.

4.5.5 Butanol. The presence of butanol shall be determined on the fraction of the distillate from the resin component which distills at 117°C to 119°C. This material shall have a refractive index of 1.395 to 1.398 at 25°C. When 5 mL of this material is placed in a 100-mL glass-stoppered graduated cylinder with 60 mL of distilled water and shaken, a clear, homogeneous solution shall be formed.

4.5.6 Phosphoric acid.

4.5.6.1 Reagents.

4.5.6.1.1 Standard sodium hydroxide, approximately 2.0N. Dissolve approximately 80 g of c.p. sodium hydroxide in a L of CO_2-free, distilled water. Standardize against National Bureau of Standards potassium acid phthalate in accordance with the instructions provided in the National Bureau of Standards Certificate of Analysis.

4.5.6.1.2 Phenolphthalein indicator. Dissolve 1 g of phenolphthalein powder in 50 mL of pure 95 percent ethyl alcohol and dilute the resulting solution with 50 mL of distilled water.

4.5.6.2 Procedure. Transfer approximately 15 g of acid component to a clean, covered, previously tared Erlenmeyer flask and weigh accurately. Add 50 mL of distilled water to the Erlenmeyer flask. Add 5 drops of phenolphthalein and 10 drops of methyl purple.[1/] Swirl

[1/] Methyl purple indicator is obtainable from laboratory supply companies.

the purple solution carefully. Titrate this solution with the standardized sodium hydroxide to the appearance of a green color (methyl purple end point). An intermediate gray color precedes the green and serves as a warning of the approaching end point. Note the burette reading. Titrate the green solution with standardized sodium hydroxide to the appearance of a purple color (phenolphthalein end point). Note the burette reading. Calculate the percent H_3PO_4 as follows:

$$\text{Percent } H_3PO_4 \text{ (by weight)} = \frac{4.9N\ (A + B)}{G}$$

Where:

G = weight of sample of acid component taken.
N = normality of sodium hydroxide.
A = mL sodium hydroxide to methyl purple end point.
B = mL sodium hydroxide from methyl purple end point to phenolphthalein end point.
A = B $\pm$ 0.5 (mL). If A does not equal B $\pm$ 0.5, the presence of acidic components other than phosphoric acid is indicated. In such cases, the acid component shall be analyzed for phosphoric acid by any suitable standard gravimetric procedure.

4.5.7 Drying time. Drying time shall be determined by method 4061 of FED-STD-141, except that the primer shall be drawn down on a steel panel using a firm applicator that will deposit a dry film thickness of 0.00076 centimeters (cm) to 0.00127 cm. 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.

4.5.8 Compatibility. Compatibility with thinner shall be determined in accordance with method 4203 of FED-STD-141. Fifty mL of mixed primer and 50 mL of isopropyl alcohol conforming to TT-I-735 shall be used. The isopropyl alcohol shall be added slowly to the rapidly stirred coating. Observations shall be made immediately after mixing and also 30 minutes after mixing.

4.5.9 Mixing and application properties. Add slowly one part by volume of acid component, with rapid stirring, to four parts by volume of resin component. Store in a closed glass container for 6 hours. Then spray a portion of the mixed material on a solvent cleaned steel panel to a dry film thickness of 0.00076 cm to 0.00127 cm and examine for leveling and evenness of application. Retain the remainder of the mixed material in the closed glass container for 18 additional hours and examine for absence of nonuniformity by appropriate sections of method 3011 of FED-STD-141.

4.5.10 Color. Determine color by examination of the panel prepared in 4.5.11 for the knife test and observe for compliance with 3.4.2 (see 6.5).

4.5.11 Knife test. Mix the coating as specified in 4.5.9, except omit the standing period. Using a 0.0076-cm (0.0152-cm gap clearance) film applicator, draw down a 5.08-cm wide film of the mixed coating on aluminum, steel, and galvanized steel panels, solvent cleaned as specified in method 2011 of FED-STD-141, using the petroleum naphtha-ethylene glycol monoethyl ether mixture. Air dry for 1 hour under referee conditions, then perform a knife test as specified in method 6304 of FED-STD-141, and observe for compliance with 3.4.5.

4.5.12 Surface appearance. Prepare a flow-out film of the primer by pouring approximately 15 mL of the mixed primer across a glass panel near the upper edge while the panel is lying flat. Then tilt the panel so as to allow the coating to spread over all but the upper edge. Next place the panel in an almost vertical position and allow to drain. After 24 hours, examine the film for compliance with 3.4.9. Coarse particles, skins, and agglomerates are characterized by being larger than the dispersed pigment in particle size and extending beyond the plane of the film.

4.5.13 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 weight 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.

4.6 Inspection of preparation for delivery. The packaging, packing, and marking shall be inspected for compliance with section 5 of this specification.

5. PREPARATION FOR DELIVERY

(The preparation for delivery requirements specified herein apply only for direct Government procurements.)

5.1 Packaging. Packaging shall be level A or C as specified (see 6.2).

5.1.1 Level A.

5.1.1.1 One-gallon size.

5.1.1.1.1 Acid component. Four-fifths of a quart of the acid component shall be furnished in a nominal 1-quart semi-rigid, molded polyethylene cube; wall thickness shall be a minimum of 0.0254 cm (0.010 inch). The closure shall be fitted with a heat-sealed spout for dispensing. The acid component shall be further packaged in a snug-fitting, folding box conforming to style 1, type A, class b of PPP-B-566 and shall be closed in accordance with the specification appendix. The box may have perforations or cut-outs to facilitate pouring and handling.

5.1.1.1.2 Resin component. Four-fifths of a gallon of the resin component shall be furnished in a 1-gallon metal can conforming to type V, class 2, plan B exterior coating of PPP-C-96. The packaged acid component and the 1-gallon can of resin component shall be consolidated within a fiberboard box conforming to type CF of PPP-B-636.

5.1.1.2 Five-gallon size.

5.1.1.2.1 Acid component. One gallon of the acid component shall be furnished in a 1-gallon polyethylene bottle conforming to MIL-B-26701.

5.1.1.2.2 Resin component. Four gallons of the resin component shall be furnished in a 5-gallon lug-covered pail conforming to type II, class 3 of PPP-P-704. The closed bottle of acid component shall be placed in the 5-gallon pail containing the resin component to form a consolidated package and the pail shall be closed and tightly secured.

5.1.2 Level C. The coating compound in the quantity specified (see 6.2) shall be packaged in containers to afford protection against deterioration, damage, or loss of material during shipment from the supply source to the first receiving activity for immediate use. The contractor's normal retail or wholesale packaging methods may be utilized when such meets the requirements of this level.

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

5.2.1 Level A.

5.2.1.1 One-gallon size. A quantity of fiberboard boxes shall be overpacked in fiberboard conforming to type CF, style RSC of PPP-B-636 and closed in accordance with method V of the Appendix to PPP-B-636. The gross weight limitation of the box specification shall apply.

5.2.1.2 Five-gallon size. No further overpacking of pails is required. When specified (see 6.2), 5-gallon pails shall be palletized in accordance with MIL-STD-147.

5.2.2 Level B. A number of fiberboard boxes shall be overpacked in a box conforming to type CF or SF of PPP-B-636. Five-gallon pails will not require overpacking. When specified (see 6.2), 5-gallon pails shall be palletized in accordance with MIL-STD-147.

5.2.3 Level C. The coating compound, packaged as specified (see 5.1), shall be packed in containers acceptable to the common carrier which will insure safe delivery at the destination in a satisfactory condition at the lowest applicable rate. Containers, packing, or method of shipment shall comply with Uniform Freight or National Motor Freight Classification Rules or Regulations or other carrier rules as applicable to the mode of transportation. Container shall comply with Department of Transportation Regulations (see Code of Federal Regulations 49 CFR 170-189).

5.3 Marking. In addition to the labelling specified (see 5.3.1) and any special marking required by the contract or order (see 6.2), interior packages, exterior shipping containers, and palletized unit loads shall be marked in accordance with MIL-STD-129 including the following:

Name of material (including resin and acid components and indicating content and quantity for each).
Contractor's name.
Contract or order number.
Federal Stock number.
Specification number.
Manufacturer's batch number.
Date of manufacture.

5.3.1 Special marking. In addition, the 1-gallon can in 5.1.1.1.2 and the 5-gallon pail in 5.1.1.2.2 shall be marked with the following information by stencil, lithograph, or securely affixed label:

(a) "Instructions for use: Primer pretreatment coating is intended for use on clean metal surfaces of all types as a treatment prior to the application of the primer system. The purpose of the material is to increase the adhesion of the primer system. It is not intended as a permanent protective primer in itself although some protection is afforded for short periods of time. However, to insure best results, the pretreatment should be coated with primer as soon as practicable. The material is sufficiently dry for recoating within 15 to 30 minutes after application. The pretreatment may be applied on damp surfaces (preferably by brushing) but should not be applied to wet surfaces or in rainy weather. The dry film thickness should be from 0.00076 cm to 0.00127 cm. The resin component should be well stirred, with care taken that all settled pigment is completely dispersed. The acid component should be added slowly with stirring, continuing until a complete blending of the mixture is assured. The pretreatment is then ready for use. If the resin component is thickened or gelled, do not add the acid component until fluidity has been restored. This can be achieved by placing in warm water. The pretreatment is most effective when freshly mixed and must be used within 8 hours after the addition of the acid component. The quantity of pretreatment mixed for use shall be the amount required for immediate application. The acid component is not thinner. It is a necessary activator and must be used exactly as directed."
(b) "The volatile content of this container is not photochemically reactive as defined by Rule 102 of the Air Pollution Control District of Los Angeles County" (see 6.4).

6. NOTES

6.1 Intended use. Primer pretreatment coating is intended for use on clean metal surfaces of all types as a treatment prior to the application of the coating system. This primer is considered suitable for use in areas with regulations controlling emission of solvents into the atmosphere.

6.2 Ordering data. Procurement documents should specify the following:

(a) Title, number, and date of this specification.
(b) Level of packaging and level of packing required (see 5.1 and 5.2).
(c) Size of container (see 5.1.1).
(d) Quantity required (see 5.1.2).
(e) Whether palletization is required (see 5.2.1.2 and 5.2.2).
(f) Special marking required (see 5.3).

6.3 The coating will be purchased by volume, the unit being a U. S. gallon at 25°C. For this material, the resin and acid components are required to be furnished separately. The volume is equal to the net weight in pounds divided by the weight per gallon.

6.4 Volatile content. Although the container marking specifically refers to the South Coast Air Quality Management District, the paint may be used anywhere else paint complying with 3.3.1 is allowed. This includes nearly all other air pollution control districts or similar areas controlling this 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, Metropolitan Zone, 434 South San Pedro Street, Los Angeles, California 90013.)

6.5 Color. The color of the primer normally approximates color No. 34096 or color No. 34098 of FED-STD-595. On occasion it may be as light as color No. 34151 of FED-STD-595.

6.6 Changes from previous issue. The symbol "#" is not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodians:
Army - MR
Navy - SH
Air Force - 99
Review activities:
Army - AV, ME
Navy - SA, YD, AS
User activities:
Army - AR
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Preparing activity:
Navy - SH
(Project 8010-0754)

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1. DOCUMENT NUMBER	2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)*
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b. ADDRESS *(Street, City, State, ZIP Code)*	☐ MANUFACTURER
	☐ OTHER *(Specify)*: _____

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

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