

MIL-C-8514C(ASG)

10 DECEMBER 1967

Superseding

MIL-C-8514B(ASG)

26 July 1963

MILITARY SPECIFICATION

COATING COMPOUND, METAL PRETREATMENT, RESIN-ACID

This specification has been approved by the Department of the Air Force and by the Naval Air Systems Command.

1. SCOPE

1.1 This specification covers one type and grade of pretreatment coating for use on clean metal surfaces of all types as a treatment prior to application of the coating system. The smooth finish spray-type coating may also be applied by brushing, roller coating, or swabbing.

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

Federal

O-O-670	Orthophosphoric (Phosphoric) Acid, Technical
QQ-A-250/5	Aluminum Alloy Alclad 2024, Plate and Sheet
RR-S-00366	Sieve, Test
TT-B-846	Butyl Alcohol: Normal (Butanol) (for Use in Organic Coatings)
TT-I-735	Isopropyl Alcohol
TT-L-32	Lacquer, Cellulose Nitrate, Gloss, for Aircraft Use
PPP-B-566	Boxes, Folding, Paperboard
PPP-B-636	Box, Fiberboard
PPP-C-96	Can, Metal, 28 Gage and Lighter
PPP-P-704	Pails: Shipping, Steel (1 through 12 Gallon)

Military

MIL-A-6091	Alcohol, Ethyl, Specially Denatured, Aircraft
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FSC 8030

MIL-C-8514C(ASG)

MIL-C-8507	Coating, Wash Primer (Pretreatment) for Metals, Application of (for Aeronautical Use)
MIL-P-8585	Primer Coating; Zinc Chromate, Low-Moisture-Sensistivity
MIL-B-26701	Bottles, Screw Cap and Carboys, Polyethylene, Flexible, Plastic

STANDARDS

Federal

FED. TEST METHOD STD. NO. 141	Paint, Varnish, Lacquer, and Related Materials; Methods of Inspection, Sampling, and Testing
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Military

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129	Marking for Shipment and Storage

(Copies of specifications, standards, drawings, and publications required by suppliers 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 document forms 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:

Interstate Commerce Commission

49 CFR 71 - 90	Interstate Commerce Commission Rules and Regulations for the Transportation of Explosives and Other Dangerous Articles
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(The Interstate Commerce Commission Regulations are now a part of the Code of Federal Regulations (latest cumulative pocket supplement) available from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402. Orders for the above publication should cite "Code of Federal Regulations, 49 CFR 71 - 90 (Revised 1956).")

3. REQUIREMENTS

3.1 Materials.- The ingredients used in the manufacture of this product shall conform to applicable Government specifications. Ingredient materials conforming to contractor's specifications may be used provided that prior approval is obtained from the procuring activity. The use of contractor's specifications shall not constitute waiver of Government inspection.

3.1.1 Toxicity.- The material shall have no adverse effect on the health of personnel when used for its intended purpose.

3.2 Composition.-- The coating shall consist of ingredients conforming to the applicable specifications in the proportions shown in table I. The formula of the base is given slightly in excess of 100 gallons to allow for normal manufacturing loss.

TABLE I. Composition 1/

Coating ingredients	Pounds per 100 gallons of mixed material	Gallons per 100 gallons of mixed material
<b>Ingredients of resin component</b> (80 gallons):		
Polyvinyl-butylal resin <u>2/</u>	56	6.10
Zinc chromate (insoluble type) <u>3/</u>	54	1.59
Magnesium-silicate <u>4/</u>	8	0.35
Butyl alcohol, normal (TT-B-846)	125	18.40
Ethyl alcohol (MIL-A-6091)	380	55.70
<b>Ingredients of acid component</b> (20 gallons):		
Phosphoric acid (class 1 of O-O-670)	28	2.0
Water (maximum)	25	3.0
Ethyl alcohol (MIL-A-6091)	102	15.0

1/ The use of lampblack or any other tinting pigment shall be prohibited.

2/ The resin shall be a polyvinyl partial butylal resin containing only polyvinyl butylal, polyvinyl alcohol, and polyvinyl acetate in the molecule. The resin shall be one of two types conforming to the following requirements:

	<u>Type I</u>	<u>Type II</u>
Polyvinyl alcohol, percent by weight	18.0 to 20.0	10.5 to 13.0
Polyvinyl acetate, percent by weight maximum	1.0	1.5
Viscosity:		
6 percent in methanol, centipoises at 20° C	13 to 18	---
5 percent in ethanol (95 percent) centipoises at 25° C	---	18 to 28
Specific gravity	1.05 to 1.15	1.05 to 1.15

3/ The zinc chromate shall be of an insoluble type, showing an analysis 16 to 19 percent  $\text{CrO}_3$  and 67 to 72 percent  $\text{ZnO}$ , and not more than 1 percent water soluble salts.

4/ The use of an extra fine variety of magnesium-silicate such as Whittaker, Clark, and Daniels #399 SF, or equivalent, is preferable in order to produce a finely ground material and a smooth film.

3.3 Manufacture.-- The component raw materials of the coating base shall be mixed and ground as required to produce a product which is uniform, stable, free from grit and entirely suitable for the purpose intended. Prior to addition of the acid component, the product shall be capable of being broken up easily with a paddle to a smooth, uniform consistency, and shall not liver, thicken, curdle, gel, nor show any other objectionable properties. The component ingredients of the acid component shall be mixed until uniform in composition.

3.4 Quantitative requirement.-- The coating shall conform to the quantitative requirements shown in table II when tested as specified in section 4.

3.5 Qualitative requirements.--

3.5.1 Odor.-- The odor of the resin component and of the acid component shall be normal for the volatiles permitted when tested as specified in 4.6.2.

3.5.2 Color.-- The color of the coating after drying shall be characteristic of the pigments specified in table I.

3.5.3 Water in resin component.-- There shall be no indication of water present in the resin component when tested as specified in 4.6.5.

3.5.4 Butanol.-- Butanol shall be present when the coating is tested as specified in 4.6.6.

3.5.5 Compatibility.-- There shall be no evidence of incompatibility of any of the ingredients of the mixed coating when tested as specified in 4.6.9.

3.5.6 Mixing and application properties.-- When tested as specified in 4.6.10, the acid and resin components shall form a smooth and homogeneous mixture, and shall show no signs of gelation on storage. The components shall mix readily at any temperature between 4° and 32° C, and shall be suitable for spray application within the temperature range.

3.5.7 Metal and coating anchorage.-- Panels, prepared as specified in 4.6.11, shall show satisfactory adhesion of the pretreatment coating to the metal and satisfactory intercoat and system adhesion of the finish scheme.

3.5.8 Smoothness and appearance.-- A film of pretreatment coating prepared and tested as specified shall dry to a smooth finish, free from grit, seeds, or other surface imperfections. On panels prepared and tested as specified in 4.6.12, a discernible image of the wire screen of a No. 4 sieve shall be obtained.

3.6 Workmanship.-- The component ingredients shall be carefully mixed and processed in a manner that will assure conformance to all the requirements of this specification.

TABLE II. Quantitative requirements

Characteristics	Minimum	Maximum
Characteristics of resin component:		
Pigment, percent by weight	9.5	10.5
Volatiles, percent by weight	80.0	82.0
Nonvolatile vehicle, percent by weight (calculated by difference)	8.5	9.5
Ratio of pigment to nonvolatile vehicle by weight	9.7 to 9	10.3 to 9
Coarse particles and skins, as residue retained on standard No. 325 mesh sieve (RR-S-00366), percent by weight	---	0.5
Viscosity, Krebs units	57	74
Weight per gallon, pounds	7.2	7.7
Fineness of grind	7	---
Chromium oxide ( $\text{CrO}_3$ ), percent by weight of pigment	14	---
Zinc oxide ( $\text{ZnO}$ ), percent by weight of pigment	57	---
Distillation:		
Initial boiling point, ° C	63	83
Temperature at 80 ml. point, ° C	---	85
Temperature at 100 ml. point, ° C	116	---
End point, temperature, ° C	---	120
Volume at end point, ml.	112	---
Characteristics of acid component:		
Phosphoric acid, percent by weight	15.0	16.5
Distillation:		
Initial boiling point, ° C	63	83
Temperature at 105 ml. point ° C	---	83
Volume at end point, ml.	120	---
Maximum temperature during distillation, ° C	---	102
Weight per gallon, pounds	7.5	7.9
Characteristic of primer pretreatment coating:		
Time of drying hard, minutes	---	30

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection.- Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any other commercial laboratory acceptable to 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 Classification of inspections.- All the inspections required herein for the testing of pretreatment coating are classified as quality conformance inspections, for which necessary sampling techniques and methods of testing are specified in this section.

4.3 Test conditions.- The laboratory testing conditions shall be in accordance with Federal Test Method Standard No. 141, except as specifically modified herein.

4.3.1 Test panels.- All panels for test purposes shall be unscored, solvent-cleaned, aluminum-clad aluminum alloy conforming to QQ-A-250/5, except as otherwise specified herein.

4.4 Batch data.- Batch production data shall be furnished in accordance with Method 1031 of Federal Test Method Standard No. 141.

4.4.1 Report of test.- The manufacturer shall submit test reports to the Government in accordance with Method 1031 of Federal Test Method Standard No. 141 for each batch, showing the results of all tests specified herein. Each ingredient material shall be identified as to the name of its manufacturer and that manufacturer's trade name and formula number.

4.4.1.1 In lieu of reporting analytical results on the breakdown of the non-volatile and volatile composition of the pretreatment coating, the manufacturer may report such results as "calculated" under the condition that he has carefully described by separate report, attached to manufacturer's test reports, the character and detail of his production methods which, in his opinion, guarantee that any suitable analysis made by the Government will yield acceptable results.

4.5 Sampling.-

4.5.1 Sampling for tests.- Test samples consisting of a container of acid component and container of resin component shall be selected in accordance with Method 1031 of Federal Test Method Standard No. 141. Samples, manufacturer's statement of analysis, and test batch shall be forwarded as specified therein.

4.5.2 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.

4.5.3 Rejection criteria.-- If a test specimen fails to pass any of the tests required by this specification, the lot represented by the sample shall be rejected.

4.6 Inspection methods.-- The inspections of this specification shall be performed in accordance with the applicable methods of Federal Test Method Standard No. 141 and as specified herein.

4.6.1 Examination of product.-- The pretreatment coating shall be examined for conformance with the material and workmanship requirements of this specification.

4.6.2 The tests listed below shall be conducted as specified in Federal Test Method Standard No. 141:

<u>Test</u>	Applicable method No., Fed. Test Method Std.
	<u>No. 141</u>
Pigment (using ethyl alcohol as extraction mixture)	4021
Volatiles	4041
Nonvolatile vehicle (calculated by difference)	4041
Coarse particles and skins (using alcohol as wash liquid)	4092
Viscosity	4281
Weight per gallon	4184
Fineness of grind	1/ 4411
Odor	4401

1/ Only the 4- or 2-mil gages may be used, with preference expressed for the latter.

4.6.3 Pigment analysis.-- The test shall be conducted as follows.

4.6.3.1 Preliminary separation.-- Weigh out a 2,000-gram sample of the pigment and transfer to a 250-milliliter (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 (see 4.6.3.2 and 4.6.3.3).

4.6.3.2 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 grams of ammonium sulfate in approximately 1 liter of distilled water. Mix the two solutions and add sufficient water to make 2 liters.) Care should be taken to adjust the acidity to the proper pH for the quantitative precipitation of the zinc 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  $1,000^{\circ}\text{C}$ , and ignite for 10 minutes. Let cool in desiccator and weigh as zinc oxide (see 3.4).

4.6.3.3 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 and 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 0.1 N 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  $20^{\circ}\text{C}$  and add standardized ferrous ammonium sulfate solution (approximately 0.1 N) until approximately 5 ml. in excess has been added. Now titrate with approximately 0.1 N 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  $\text{CrO}_3$ . 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 data obtained (see 3.4).

4.6.4 Distillation.-- The test shall be conducted as follows: Place a 150-gram 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  $200^{\circ}\text{C}$  at any time. Place the 100.0 grams of thinner distilled from the resin component (to obtain the distillation characteristics of the acid component, use 150 ml. of this component) in a 250-ml. flask which has a ground glass neck to fit a 6-ball Snyder column, or equivalent. 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  $175^{\circ}$  to  $200^{\circ}\text{C}$ . When fractionating the thinner distilled from the resin component, change receivers when the distillation temperature reaches  $117^{\circ}\text{C}$  to obtain the portion of the distillate to be used in the test for butanol (see 4.6.6).

4.6.5 Water in resin component.-- The presence of water in the resin component shall be determined by the following test on the thinner removed from the resin component by distillation. Upon completing the distillation, mix well and remove a 10-ml. portion to a 100-ml. glass-stoppered graduated cylinder. Add 90 ml. reagent grade benzol and shake well. A clear solution should be obtained indicating the absence of water. When water is present, the solution will appear cloudy (see 3.5.3).



4.6.6 Butanol.- The presence of butanol shall be determined on the fraction of the distillate from the resin component which distills at 117° to 119° C. The 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 (see 3.5.4).

4.6.7 Phosphoric acid.- The test shall be conducted as follows.

4.6.7.1 Reagents.-

4.6.7.1.1 Standard sodium hydroxide, approximately 2.0 N.- Dissolve approximately 80 grams of reagent grade sodium hydroxide in a liter of CO<sub>2</sub>-free, distilled water. Standardize against National Bureau of Standards Certificate of Analysis.

4.6.7.1.2 Phenolphthalein indicator.- Dissolve 1 gram of phenolphthalein powder in 50 ml. of pure 95 percent ethyl alcohol and dilute the resulting solution with 50 ml. of distilled water.

4.6.7.2 Procedure.- Transfer approximately 15 grams 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 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<sub>3</sub>PO<sub>4</sub> as follows:

$$\text{Percent H}_3\text{PO}_4 \text{ (by weight)} = \frac{4.9N (A + B)}{G}$$

Where:

G = weight of samples of acid components taken.

N = normality of sodium hydroxide.

A = milliliters sodium hydroxide to methyl purple end point.

B = milliliters sodium hydroxide from methyl purple end point to phenolphthalein end point.

A = B ± 0.5 (ml.). If A does not equal B ± 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 (see 3.4).

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

4.6.8 Drying time.- Drying time shall be determined by Method 4061 of Federal Test Method Standard No. 141, except that the pretreatment coating shall be reduced as specified in 4.6.11 and sprayed on an aluminum clad panel to a dry film thickness of 0.2 to 0.3 mil. (see 3.4).

4.6.9 Compatibility.- Compatibility with thinner shall be determined in accordance with Method 4203 of Federal Test Method Standard No. 141. Fifty ml. of mixed coating and a mixture of 45 ml. of ethyl alcohol conforming to MIL-A-6091 and 5 ml. of butanol shall be used. Observations shall be made immediately after mixing and also 30 minutes after mixing (see 3.5.5).

4.6.10 Mixing and application properties.- The test shall be conducted as follows: Add one part by volume of acid component to four parts by volume of resin component while stirring. Then store for 6 hours in a closed glass container. Material shall then be sprayed and examined for leveling and marking properties (see 3.5.6).

4.6.10 Metal and coating anchorage.- A 4 by 12 unscored panel of aluminum clad aluminum alloy in accordance with QQ-A-250/5 shall be solvent cleaned and sprayed with a single wet coat of pretreatment coating which has been reduced 4 volumes of base solution to one volume of acid component to one volume of a mixture of 90 percent ethyl alcohol and 10 percent butanol. The dry film thickness shall be 0.0002 to 0.0003 inch. After air-drying 30 minutes, the lower half of the panel shall be sprayed with one single wet coat of control formula primer conforming to MIL-P-8585. The dry film thickness of the primer shall be 0.0003 to 0.0004 inch. After the primer has air-dried for 30 minutes, the lower half of the panel (which has been primed) shall be topcoated, 30 minutes apart, with two coats of test lacquer conforming to TT-1-32. Each lacquer topcoat shall be applied to a dry film thickness of 0.0006 to 0.0007 inch. The adhesion of the pretreatment coating and the outercoat and system adhesion shall be determined in accordance with Method 6304 of Federal Test Method Standard No. 141 24 hours after the last coat of lacquer has been applied (see 3.5.7).

4.6.12 Smoothness and appearance.- The topcoated portion of the panel, prepared as specified in 4.6.11, shall be used. Place it 5 inches from the reflector edge of a strong diverging light source. A ground glass filter shall be placed in a No. 4 sieve conforming to RR-S-00366 which shall be held against the reflector of the light. The image of the wire screen shall be discernible on the panel. A blurred or completely obliterated image shall be considered as failure (see 3.5.8).

4.7 Packaging, packing, and marking.- Preparation for delivery shall be inspected for conformance to section 5.

## 5. PREPARATION FOR DELIVERY

### 5.1 Packaging.-

#### 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 0.010 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 I, 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 MIL-B-26701 polyethylene bottle. The screw cap on the polyethylene bottle containing the acid accelerator must be suitably tightened so that the cap does not come loose during the initial shaking of the kit for pigment dispersion.

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 so as to form a consolidated package and the pail shall be closed and tightly secured.

5.1.2 Level C.- The coating compound shall be packaged in accordance with the contractor's commercial practice.

5.1.3 When the pigmented portion of the wash primer is supplied in 1020 cold rolled steel containers, the inside of the container shall be suitably lined so that the paint ingredients do not attack the liner. There shall be no evidence of rust formation inside the container.

5.2 Packing.-

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 taped closed in accordance with appendix of PPP-B-636. The gross weight limitation of the box specification shall apply.

5.3 Marking of shipments.- All containers shall be marked in accordance with Interstate Commerce Rules and Regulations for the Transportation of Explosives and Other Dangerous Articles. Interior packages and exterior shipping containers shall be marked in accordance with MIL-STD-129. In addition, individual containers shall bear a printed label with the following information:

#### MIXING INSTRUCTIONS

The resin component should be well stirred to redisperse any settled pigment. Then add the acid component slowly to the resin while stirring; never add in reverse order. One volume of acid component is always used with four volumes of the resin. This mixture is generally considered satisfactory for brush application (except under low relative humidity (RH)). For spray application (or brush application at low RH), add approximately one volume of thinner equal to the volume of the acid component. Apply over clean, dry surfaces, in general accordance with MIL-C-8507. This thinner should have the following composition, depending on weather conditions:

Thinner ingredients	Normal weather (35 to 70 percent RH)		Dry weather (below 35 percent RH)		Damp weather • (greater than 70 percent RH)	
	Parts by volume (Read down)					
Ethyl alcohol (MIL-A-6091)	9	0	10	0	1	0
Isopropyl alcohol (TT -I-735)	0	9	0	10	0	0
N-butyl alcohol (TT-B-846)	1	1	1	1	1	1
Water (demineralized)	0	0	20	20	0	0

If blushing occurs, spray lightly with butyl alcohol, to eliminate the condition. An extra hour of drying will then be needed before overcoating is applied. Dry approximately 1 to 4 hours. Apply the overcoat as soon as possible after the coating resists removal with the finger nail.

The material is most effective when freshly mixed and must be used within 4 hours after the addition of the acid component. The quantity of material mixed for use shall be the amount required for immediate application.

The acid component is not a thinner. It is a necessary activator and must be used exactly as directed.

- \* Use the least amount of butyl alcohol that will eliminate blushing. Increase the proportion of butyl alcohol only if blushing still persists. The greater the butyl alcohol content, the longer the necessary drying time.

Dry film thickness should be 0.0003 to 0.0004 inches, except as may be otherwise authorized by specific process specifications.

5.3.1 One-gallon size.- In addition to the marking and labeling specified in 5.3, marking shall include the following:

Specification number  
Name of manufacturer  
Manufacturer's batch number  
Date of manufacture  
Pack includes 1-quart cube of acid enclosed  
with 1-gallon can of resin.

5.3.2 Five-gallon size.- In addition to the marking and labeling specified in 5.3, marking shall include the following:

Specification number  
 Name of manufacturer  
 Manufacturer's batch number  
 Date of manufacture  
 Pail includes 1-gallon bottle of acid enclosed  
 with 4 gallons of resin.

## 6. NOTES

6.1 Intended use.- The pretreatment coating covered by this specification is intended to be used as a treatment on aircraft metals, prior to the application of any primer, and is not intended as a permanent protective coating in itself. The function of this pretreatment coating is to upgrade the adhesion of the subsequently applied aircraft primer.

6.2 Ordering data.- Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Quantity.
- (c) Applicable levels of packaging and packing required (see 5.1).

6.2.1 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.

6.3 Application.- Information covering application of pretreatment coating may be found in MIL-C-8507.

6.4 Marginal indicia.- The margins of this specification have been marked to indicate where changes, deletions, or additions to the previous issue have been made. This has been done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content as written, irrespective of the marginal notations and relationship to the last previous issue.

### Custodians:

Navy - AS  
 Air Force - 84

### Preparing activity:

Navy - AS  
 Project No. 8030-N001

### Reviewer activities:

Navy - AS  
 Air Force - 85

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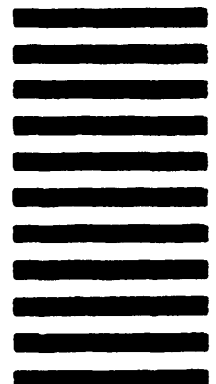
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# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER		2. DOCUMENT TITLE					
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)					
b. ADDRESS (Street, City, State, ZIP Code)		<input type="checkbox"/> VENDOR					
		<input type="checkbox"/> USER					
		<input type="checkbox"/> MANUFACTURER					
		<input type="checkbox"/> 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)	

DD FORM 1426  
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PREVIOUS EDITION IS OBSOLETE.

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