MIL-P-14553C(MR)
13 November 1972
SUPERSEDING
MIL-P-14553B(MR)
2 June 1966

MILITARY SPECIFICATION

PRIMER COATING; DIPPING, AUTOMOTIVE

1. SCOPE

1.1 Scope. This specification covers two classes of an alkyd baking primer for dip application on automotive components. It also provides two compositions, one of which is suitable for use under AIR POLLUTION REGULATIONS (see 6.5).

1.2 Classification. The primer shall be of the following classes as specified (see 6.2):

Class 1 - Low bake (300-325°F.)
Composition G - General use
Composition L - Limited use (see 6.5)

Class 2 - High bake (365-385°F.)
Composition G - General use
Composition L - Limited use (see 6.5)

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

P-P-546 - Polish, Automobile, Liquid and Paste
TT-C-490 - Cleaning Methods and Pretreatment of Ferrous Surfaces for Organic Coatings
TT-E-529 - Enamel, Alkyd, Semi-Gloss
TT-N-97 - Naphtha; Aromatic
TT-P-143 - Paint, Varnish, Lacquer and Related Materials; Packaging, Packing and Marking of

Military

MIL-L-12277 - Lacquer; Automotive, Hot Spray

STANDARDS

Federal

Fed. Test Method Std. No. 141 - Paint, Varnish, Lacquer and Related Materials, Methods of Inspection, Sampling, and Testing

(Copies of specification, 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 document forms a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on the date of invitation for bids or request for proposal shall apply.

American Society for Testing and Materials

ASTM D 2088 - Determination of Low Concentrations of Lead in Paint

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

3. REQUIREMENTS

3.1 Qualification. The primer furnished under this specification shall be a product which is qualified for listing on the applicable Qualified Products List at the time set for the opening of bids (see 6.4). Any change in formulation of a qualified product will necessitate its requalification. The material supplied under contract shall be identical, within manufacturing tolerances, to the product receiving qualification.

3.2 Color. The primer shall be dark gray or black.

3.3 Composition.

3.3.1 Pigments. The pigmentation of the primer shall be selected from the following materials; carbon black, lamp black, titanium dioxide, zinc chromate, iron oxide, and extenders. It shall show a minimum of 5 percent zinc chromate by weight of total pigment.

3.3.2 Vehicle. The vehicle shall be a pure vegetable oil phthalic alkyd resin with a minimum phthalic anhydride content of 36.0 percent together with the necessary amounts of volatile solvents to meet the requirements of 3.4. Small amounts of driers, wetting agents, antioxidants and stabilizers may be used. The vehicle shall show negative rosin and phenolic resin tests. The volatile portion shall contain no benzene, chlorinated solvents, or any other solvent of highly toxic nature.

3.3.2.1 Composition L. The volatile content of composition L primers shall also conform to the following requirements by volume when tested as in 4.4.3.

(a) Aromatic compounds with eight or more carbon atoms except ethyl benzene: 8 percent maximum.
(b) Ethyl benzene, toluene and branched ketones: 20 percent maximum.
(c) Solvents with an olefinic or cyclo-olefinic type of unsaturation: negative test (see 6.6).
(d) Total of a + b: 20 percent maximum.

3.4 Quantitative requirements. The primer also shall conform to the requirements specified in Table I when tested as in 4.4.

TABLE I - Requirements

	Requirements	
	Minimum	Maximum
Total solids, percent by weight of primer	55	--
Pigment, percent by weight of primer	30	--
Pigment volume, percent of total solids volume	--	35
Zinc chromate, percent by weight of pigment	5	--
Lead, percent by weight of non-volatile	--	0.5
Phthalic anhydride, percent by weight of vehicle solids	35	--
Water, percent by weight of primer	--	0.5
Coarse particles and skins, (retained on a 325 mesh screen) percent by weight of pigment	--	0.5
Fineness of grind	7	--
Viscosity, No. 4 Ford cup, seconds	20	60
60 degree specular gloss	10	60
Flash point, open cup, °F.	110	--
Drying time, baking		
Class 1		
Full hardness at 250 to 260°F., minutes	--	60
Full hardness at 300 to 325°F., minutes	--	20
Class 2		
Full hardness at 365 to 385°F., minutes	--	20
Weight per gallon, pounds	9.0	--
Hiding power (contrast ratio)	0.99	--

3.5 Qualitative requirements.

3.5.1 Condition in container. A freshly opened full container of primer tested as in 4.4.8 shall be free from grit, seeds, skins, lumps, abnormal thickening or livering and shall show no more pigment settling or caking than can be readily reincorporated to a smooth homogeneous state.

3.5.2 Storage stability. A full one gallon container of primer shall show no skinning, livering, curdling, hard dry caking or tough gummy sediment when tested as in 4.4.9. The primer shall remix readily to a smooth homogeneous state and shall have a maximum viscosity of 80 seconds. The primer shall meet all other requirements of the specification.

3.5.3 Dilution stability. When tested as in 4.4.10, the freshly reduced primer shall show no evidence of curdling or incompatibility; the aged primer shall be free from caking or hard settling of the pigment and any pigment which may have settled shall completely redisperse.

3.5.4 Stability to aeration. When tested as in 4.4.11, the primer shall not increase in viscosity more than 10 seconds.

3.5.5 Flexiblity. When tested as in 4.4.12, a film of the primer shall not crack or flake.

3.5.6 Knife test. When tested as in 4.4.13, the primer shall adhere firmly to the metal. The cut shall show beveled rather than jagged edges and the removed portion shall tend to curl in a ribbon-like formation.

3.5.7 Dipping properties. When tested as in 4.4.15, the primer shall produce a uniform coating free from drain lines and silking.

3.5.8 Lacquer resistance. When tested as in 4.4.16, the lacquer coated primer shall show no blistering, wrinkling, lifting, bleeding, flashing or dulling. The topcoat shall be difficult to remove from the primer and the primer from the panel when cut with the knife blade.

3.5.9 Fatty edge hardness. When tested as in 4.4.17, the fatty edge of the primer shall be firm to the thumb nail and the fatty edge of the lacquer coated primer shall not smear or lift when buffed with the polishing wheel.

3.5.10 Enamel resistance. When tested as in 4.4.18, the enamel coated primer shall show no blistering, wrinkling, lifting, bleeding, flashing or dulling. The topcoat shall be difficult to remove from the primer and the primer from the panel when cut with the knife blade.

3.5.11 Salt spray resistance. When tested as in 4.4.19 there shall be no blistering or rust staining of the paint film except along the score. Undercutting, as characterized by loosening of the paint film, shall not extend beyond 1/4 inch on either side of the score. After the paint is stripped from the specimen there shall be no evidence of rust formation (pitting or staining) beyond 3/16 inch on either side of the score, except that 6 scattered rust pits not exceeding 1/16 inch in diameter outside the area of the score will be permitted.

3.5.12 Water resistance. When tested as in 4.4.20 and examined immediately upon removal from the water, each specimen shall show no more than 6 scattered blisters no larger than 1/16 inch in diameter.

3.5.13 Weather resistance. When tested as in 4.4.21, the unprotected primer shall show no checking, cracking, blistering or rusting. The topcoated primer shall be free from any visible defects other than normal chalking and the formation of fine blisters and rust along the score. It shall be difficult to remove and show no evidence of embrittlement when cut with the knife blade, and no rust creepage or undercutting beyond 3/16 inch from the score when scraped with the knife blade. On removal of the topcoated primer, the surface of the steel (excluding the score) shall show no rusting, pitting, or corrosion.

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 in the contract or order, the supplier 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 that supplies and services conform to prescribed requirements.

4.2 Sampling, inspection and testing. Unless otherwise specified, sampling, inspection and testing shall be in accordance with method 1031 of Fed. Test Method Std. No. 141.

4.3 Classification of tests. Testing under this specification shall be for the following:

(a) Qualification.
(b) Acceptance of individual lots.

4.3.1 Qualification testing shall consist of all tests specified in Section 3 (see 6.4).

4.3.2 Acceptance testing of individual lots shall consist of all tests specified in Section 3 with the exception of storage stability (see 3.5.2 and 4.4.9) and weather resistance (see 3.5.13 and 4.4.21).

4.4 Test methods.

4.4.1 Test conditions. The routine and referee testing conditions shall be in accordance with Section 7, Fed. Test Method Std. No. 141 except as otherwise specified herein.

4.4.2 The following tests shall be conducted in accordance with Fed. Test Method Std. No. 141 and as hereinafter specified.

TABLE II. Index

Tests	Test Method: Applicable method in Fed. Test Method Std. No. 141	Test Method: Paragraph of this specification giving further references	Paragraph of this specification giving requirements
Isolation of vehicle	4032	--	--
Rosin in isolated vehicle	5031	--	3.3.2
Phenolic resin	5141	--	3.3.2
Benzene	5091	--	3.3.2
Chlorinated solvents	5132	--	3.3.2
Aromatic hydrocarbons	--	4.4.3.2	3.3.2.1
Olefinic and cyclo-olefinic compounds	--	4.4.3.3	3.3.2.1
Ketones	5172	4.4.3.4	3.3.2.1
Total solids	4041	--	Table I
Pigment content	4022	--	Table I
Pigment volume	4312	--	Table I
Zinc chromate	7340	--	Table I
Lead content	--	4.4.4	Table I
Phthalic anhydride	7021	--	Table I
Water	4082	--	Table I
Coarse particles and skins	4092	--	Table I
Fineness of grind	4411	--	Table I
Viscosity	4282	--	Table I
Specular gloss	6101	4.4.5	Table I
Flash point	4294	--	Table I
Drying time	--	4.4.6	Table I
Weight per gallon	4184	--	Table I
Hiding power (contrast ratio)	4122	4.4.7	Table I
Condition in container	3011	4.4.8	3.5.1
Storage stability	3022	4.4.9	3.5.2
Dilution stability	4203	4.4.10	3.5.3
Stability to aeration	--	4.4.11	3.5.4
Flexibility	6221	4.4.12	3.5.5
Knife test	6304	4.4.13	3.5.6
Preparation of test panels	--	4.4.14	--
Dipping properties	4341	4.4.15	3.5.7
Lacquer resistance	6251	4.4.16	3.5.8
Fatty edge hardness	--	4.4.17	3.5.9
Enamel resistance	--	4.4.18	3.5.10
Salt spray resistance	6061	4.4.19	3.5.11
Water resistance	6011	4.4.20	3.5.12
Weather resistance	6160	4.4.21	3.5.13

4.4.3 Solvent analysis for composition L.

4.4.3.1 Separation of volatile portion. Pour about 15 grams of the primer into a 50 ml. distilling flask. Add 10 ml. of tricresyl phosphate and several anti-bumping stones or Berl saddles. Fit a release valve into the mouth of the flask and attach a delivery tube to the side arm, extending into a receiver consisting of a test tube (20 x 150 mm) with side arm for attaching to a vacuum pump. The glass delivery tube should reach 1-1/2 inches from the bottom of the tube. Immerse the receiver in a dry ice-acetone bath. Preheat a silicone oil bath to 180°C. Raise the oil bath until the oil reaches the sample level. Reduce the pressure slowly to 10 mm. of mercury. After all solvent has distilled, carefully release the vacuum using the valve that is connected to the distilling flask. Reserve the collected distillate for the aromatic solvent determination and the test for ketone, olefinic and cyclo-olefinic compounds.

4.4.3.2 Determination of aromatic hydrocarbons.

Apparatus: A gas chromatograph equipped with a thermal conductivity detector.

Column Preparation: Two lengths of 1/4-inch copper tubing, 6-ft. and 18-ft. long, are packed with 35% N,N-Bis(2-cyanoethyl) formamide on 60- to 80- mesh Chromosorb P.

Operating Conditions:	6-ft.	18-ft.
Detector cell temperature, °C.	300	300
Detector cell current, ma.	150	150
Injection port temperature, °C.	300	300
Helium flow at exit, cc/minute	175	110
Column temperature, °C.	125	100

4.4.3.2.1 Total aromatic content - procedure A. Transfer precisely 3 ml. of distillate or thinner to a 25-ml. glass-stoppered volumetric flask and add exactly 0.3 ml. of high purity phenylcyclohexane. While cooling the graduate under tap water, add 15 ml. of 85% sulfuric acid slowly. After all the acid has been added, shake vigorously for 2 minutes and allow the layers to separate. Add sufficient 85% acid to force the top layer into the neck of the flask and then transfer most of the top layer to a micro-separatory funnel. Wash the distillate with 5 ml. portions of distilled water until all acid has been removed and reserve the washed solvent for chromatographic analysis. Install the 6-ft. column and follow the operating conditions described above. Inject about 5 microliters of the acid-treated sample and allow the chromatogram to develop until the internal standard, phenylcyclohexane, emerges.

$$\% \text{ total aromatic solvents, v/v} = \frac{A \times 10^{*} \times 1.07^{**}}{B}$$

where, A = area of aromatic solvent peaks
B = area of internal standard peak
* = percent of internal standard
** = detector response correction factor

NOTE: If the above determination exceeds 8 percent, continue with the following procedure:

4.4.3.2.2 Toluene and ethylbenzene - procedure B. Treat 3 ml. of solvent in the same manner as described in procedure A except substitute benzene for phenylcyclohexane. Install the 18-ft. column and follow the operating conditions described for that column. Inject about 3 microliters of sample and allow the chromatograph to develop until all of the xylene isomers appear. Purge the column by raising the column temperature to 120°C. After the high boiling materials emerge, reset the column temperature to 100°C. Calculate the percent of toluene and ethylbenzene as follows:

$$\% \text{ toluene, v/v} = \frac{(\text{area of toluene peak})(1.017)^{*}\ (10)^{**}}{(\text{area of benzene peak})}$$

$$\% \text{ ethylbenzene, v/v} = \frac{(\text{area of ethylbenzene peak})(1.054)^{*}\ (10)^{**}}{(\text{area of benzene peak})}$$

where, * is the correction factor for the detector response
** is the percentage of internal standard added

NOTE: Sensitivity of the instrument should be adjusted to keep peaks from running off the scale. Appropriate corrections must be made for changes in sensitivity when computing the peak areas.

4.4.3.3 Test for olefinic or cyclo-olefinic compounds. Take 2 test tubes and place 2 drops of the distillate in each. Dissolve the first sample in 1 ml. of carbon tetrachloride and add 1 drop of 1 percent bromine in carbon tetrachloride. Shake and allow to set for 5 minutes. A positive test is indicated by the complete absence of yellow color when observed against a white background. Dissolve the second sample in 1 ml. of acetone and add 1 drop of 1 percent permanganate solution (1 gram of potassium permanganate crystals in 95 ml. of acetone and 5 ml. of water). Shake and allow to set for 2 minutes. A positive test is indicated by the decolorization of the purple solution. The solvent is considered to fail the test for olefinic and cyclo-olefinic compounds if either of the above tests is positive (see 3.3.2.1 and 6.6).

4.4.3.4 Determination of ketone content. Determine total ketone content according to method 5172 of Fed. Test Method Std. No. 141 (para 4.3); calculate as methyl isobutyl ketone. Omit first five sentences of paragraph 4.3.1 substituting the following. Add 15 ml. of absolute alcohol to a 250 ml. glass stoppered Erlenmeyer flask and accurately pipette in 1.5 ml. of distillate followed by exactly 25 ml. of hydroxylamine hydrochloride reagent.

$$\% \text{ ketone, v/v (computed as methyl isobutyl ketone)} = \frac{(V_1 - V_2) \times N \times 0.10 \times 100}{1.5 \times 0.98 \times 0.82}$$

4.4.4 Lead content. Determine the total lead content as in ASTM D 2088 and check for compliance with Table I.

4.4.5 Specular gloss. Determine 60 degree specular gloss as in method 6101 of Fed. Test Method Std. No. 141 except prepare the panel as in 4.4.15 and check for compliance with Table I.

4.4.6 Drying time. Draw down the primer on solvent cleaned steel panels using a film applicator that will produce a dry film thickness of 0.0004 to 0.0006 inch. Allow the panels to air dry 5 minutes then bake at the applicable temperature and time and determine full hardness for compliance with Table I. The film shall be considered to have reached full hardness when it is very difficult to remove with a knife blade.

4.4.7 Hiding power. Determine the contrast ratio as in method 4122 of Fed. Test Method Std. No. 141. Use a film applicator that will deposit a dry film thickness of 0.0005 inch maximum after baking at 250 to 260°F. for one hour. Determine the reflectance and verify the film thickness in the area in which the reflectance was measured. Calculate the contrast ratio and check for compliance with Table I.

4.4.8 Condition in container. Determine package condition on acceptance testing as in method 3011 of Fed. Test Method Std. No. 141 and observe for compliance with 3.5.1. On qualification testing evaluate pigment settling or caking by proceeding as in method 3011 of Fed. Test Method Std. No. 141 but do not stir. Reseal and then agitate the can for 5 minutes on a paint shaker[1/]. On reexamination of the contents, the disclosure of any gel bodies, or undispersed pigment indicates unsatisfactory settling properties.

4.4.9 Storage stability. Allow a full standard one gallon can of primer to stand undisturbed for 6 months as in method 3022 of Fed. Test Method Std. No. 141. Examine the contents and evaluate for compliance with 3.5.2 but do not stir. Reseal and then agitate the can for 5 minutes on a paint shaker (see 4.4.8). Examine contents, measure viscosity and make other applicable tests to determine compliance with 3.5.2.

4.4.10 Dilution stability. Reduce the primer as packaged with naphtha conforming to TT-N-97, type III using twice the volume of thinner recommended by the manufacturer for regular dip application and observe for evidence of incompatibility as in method 4203 of Fed. Test Method Std. No. 141. For composition L primers use a thinner that will meet the requirements of 3.3.2.1. Pour 8 fluid ounces of the freshly agitated reduced material into a pint can. Stopper the can and let stand for 7 days at room temperature. Inspect the sample for evidence of hard settling by probing the bottom of the container with a spatula. Restopper the can and agitate on a paint shaker (see 4.4.8) for one minute. Repeat the spatula test and then flow some of the material on a clear glass plate, drain and observe for proper pigment dispersion. Check for compliance with 3.5.3.

1/ An apparatus of this type powered by a 1/4 hp motor operates at a rate of 1350 shakes per minute, and is manufactured by Red Devil Tools, Irvington, N. J.

4.4.11 Stability to aeration. Fit two 500 ml. Erlenmeyer flasks with rubber stoppers which have been drilled to permit the insertion of two 1/4 inch glass tubes. Add 300 ml. of naphtha conforming to TT-N-97, type III to flask number 1. For composition L primers use a thinner that will meet the requirements of 3.3.2.1. Insert a 1/4 inch glass tube through the stopper and extend it to within 1/2 inch of the bottom of the flask. Connect this tube to an air line. Insert another section of glass tubing through the stopper and extend it 1/2 inch below the bottom of the stopper. Insert similar sections of glass tubing into the second flask. Using a piece of rubber tubing, connect the exhaust line (short tube) from flask number 1 to the longer tube in flask number 2. Use the short tube in flask number 2 to exhaust air to the atmosphere. In flask number 2, place 300 ml. of primer that has been reduced to 18 to 20 seconds, No. 4 Ford cup using TT-N-97, type III naphtha as the thinner. For composition L primers use a thinner that will meet the requirements of 3.3.2.1. Open the air line and adjust the flow to generate 120 bubbles per minute in the system. Continue aeration at this rate for 300 hours. Check the viscosity, No. 4 Ford cup, of the primer and determine compliance with 3.5.4.

4.4.12 Flexibility. Using a suitable film applicator that will give a dry film thickness of 0.0004 to 0.0006 inch, draw down a film of unreduced primer on a 3 by 6 inch smooth finish steel panel prepared in accordance with method 2011 of Fed. Test Method Std. No. 141 using the aliphatic naphtha ethylene glycol monoethyl ether mixture. The panel shall be prepared from new cold rolled carbon steel rust-free 0.010 ± 0.001 inch thick with a Rockwell 15-T maximum hardness of 82 and finished with a surface roughness of 8 to 12 microinches. Bake for 40 minutes at 300 to 325°F. for class 1 or 365 to 385°F. for class 2. Bake for an additional 72 hours at 200 to 225°F., condition for 15 minutes under referee conditions and bend over a 1/8 inch mandrel as in method 6221 of Fed. Test Method Std. No. 141. Examine the coating for compliance with 3.5.5.

4.4.13 Knife test. Perform the knife test as in method 6304 of Fed. Test Method Std. No. 141 on a flat portion of the flexibility test panel and examine for conformance to 3.5.6.

4.4.14 Preparation of test panels. Punch holes in the center at both ends of eighteen 4 by 12 inch panels of 20 gauge SAE 1010 steel and spray phosphate in accordance with TT-C-490, type I. Reduce the primer to a viscosity between 13 and 18 seconds No. 4 Ford cup with naphtha conforming to TT-N-97, type III. For composition L primers use a thinner that will meet the requirements of 3.3.2.1. Dipcoat the panels as in method 2121 of Fed. Test Method Std. No. 141 using an automatic motor driven device, and withdraw the panels at a constant rate of 4 inches per minute. Flash bake the first coat for 5 minutes at 300 to 325°F. for class 1 and 365 to 385°F. for class 2. Reverse end for end and apply a second coat. Bake this coat for the time specified for tests in 4.4.15 through 4.4.21 at 300 to 325°F. for class 1 and 365 to 385°F. for class 2. The final dry film thickness shall be 0.0004 to 0.0006 inch.

4.4.15 Dipping properties. Determine the dipping properties as in method 4341 of Fed. Test Method Std. No. 141. Bake 2 panels prepared as in 4.4.14 for 20 minutes, cool to room temperature, and examine for compliance with 3.5.7.

4.4.16 Lacquer resistance. Bake one panel prepared as in 4.4.14 for 15 minutes, one for 20 minutes, and one for 40 minutes. Spray the panels with a topcoat of lacquer conforming to MIL-L-12277 to a dry film thickness between 0.0009 and 0.0011 inch. Bake for 20 minutes at 180°F., air dry for 24 hours at room temperature and determine lacquer resistance as in method 6251 of Fed. Test Method Std. No. 141. Examine the panel for any visible defects, cut with a knife blade and check for compliance with 3.5.8.

4.4.17 Fatty edge hardness. Bake one panel prepared as in 4.4.14 for 15 minutes. Test for firmness of the fatty edge by scratching with the thumbnail and check for compliance with 3.5.9. Buff the lacquer coated primer panel of 4.4.16 that was baked for 15 minutes with a compound conforming to P-P-546 using a polishing wheel and lamb's wool bonnet. Examine for compliance with 3.5.9.

4.4.18 Enamel resistance. Bake one panel prepared as in 4.4.14 for 15 minutes, one for 20 minutes and one for 40 minutes. Spray the panels with a topcoat of olive drab enamel conforming to TT-E-529, class B to a dry film thickness between 0.0009 and 0.0011 inch. Bake for one hour at 250 to 260°F. and air dry for 24 hours at room temperature. Examine the panel for any visible defects, cut with a knife blade and check for compliance with 3.5.10.

4.4.19 Salt spray resistance. Prepare 4 panels as in 4.4.14 and bake for 20 minutes. On two of the panels apply a lacquer topcoat as in 4.4.16 except air dry for 72 hours instead of 24 hours. On the other two panels apply an enamel topcoat as in 4.4.18. Score all specimens and expose to 5 percent salt spray for 240 hours as in method 6061 of Fed. Test Method Std. No. 141. Upon removal, wash the panels gently in running water not warmer than 100°F. until free from any visible salt deposits and immediately examine for blistering. Two hours after removal, check for rust creepage or undercutting by rapidly scraping a knife blade back and forth across the score and examine for compliance with 3.5.11. Strip the film from the panels by means of lacquer thinner and inspect the steel for compliance with 3.5.11.

4.4.20 Water resistance. Prepare 4 test panels as in 4.4.19 but do not score. Immerse completely in an aerated distilled water bath maintained at 95 ± 2°F. for 96 hours, as in method 6011 of Fed. Test Method Std. No. 141. Examine immediately upon removal for compliance with 3.5.12.

4.4.21 Weather resistance. Prepare 4 test panels as in 4.4.19, but topcoat only a 2-1/2 inch longitudinal strip of primer on each panel. Score the specimens longitudinally in the center of the topcoated area and then place on exterior exposure as in method 6160 of Fed. Test Method Std. No. 141. After 12 months check the area coated with the primer alone for compliance with 3.5.13. After an additional 6 months exposure check any visible defects in the topcoated area and cut with a knife blade. Check for rust creepage or undercutting by rapidly scraping a knife blade back and forth across the score. Strip the paint from this section of the panel using lacquer thinner and observe for compliance with 3.5.13.

5. PREPARATION FOR DELIVERY

5.1 Packaging, packing and marking. The primer shall be packaged, packed and marked in accordance with TT-P-143. 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 primer shall be furnished in 1 quart or 1 gallon multiple friction top containers, in 5 gallon lug cover steel pails or in 55 gallon steel drums as specified (see 6.2).

5.2 Additional marking. In addition to the markings required by TT-P-143, each container of primer shall bear the following precautionary marking:

Caution: Contains zinc chromate.
Take adequate precautions when spraying.
Avoid breathing mist or dust.
Avoid skin contact.

6. NOTES

6.1 Intended use. The primer covered by this specification is intended primarily for dip application on automotive components. It may also be used for flow application. Although not intended for spray application it may be used in this manner for spot priming. This primer is not intended for use under the acrylic type lacquers and enamels.

6.2 Ordering data. Procurement documents should specify the following:

(a) Title, number, and date of this specification.
(b) Class and composition of primer required (see 1.2).
(c) Size of containers (see section 5).
(d) Level of packaging and level of packing (see section 5).

6.3 The primer should be purchased by volume, the unit being one United States liquid gallon of 231 cubic inches at 68°F. (20°C.).

6.4 Qualification. With respect to products requiring qualification, awards will be made only for such products which are at the time set for opening of bids, qualified for inclusion in the applicable Qualified Products List whether or not such products have actually been so listed by that date. The attention of suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government, tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is the U.S. Army Mobility Equipment Research and Development Center, Coating and Chemical Laboratory, Aberdeen Proving Ground, Maryland 21005, and information pertaining to qualification of products may be obtained from that activity.

6.5 Composition L enamels should be specified for use in areas with regulations controlling the emission of solvents into the atmosphere.

6.6 The test for olefinic and cyclo-olefinic compounds will not be positive for solvents containing less than 1 percent of these compounds.

Custodian:
Army - MR

Preparing activity:
Army - MR

(Project No. 8010-A008)

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)*
	☐ VENDOR
b. ADDRESS *(Street, City, State, ZIP Code)*	☐ USER
	☐ 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)*

(TO DETACH THIS FORM, CUT ALONG THIS LINE.)

DD FORM 82 MAR 1426

PREVIOUS EDITION IS OBSOLETE.

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