

INCH POUND

MIL-P-26915C (USAF)
20 March 1992

SUPERSEDING

MIL-P-26915B (USAF)
30 July 1979

MILITARY SPECIFICATION

PRIMER COATING, ZINC DUST PIGMENTED, FOR STEEL SURFACES

This specification is approved for use by the Department of the Air Force, and is available for use by all Departments and Agencies of the Department of Defense

1. SCOPE

1.1 Scope. This specification covers two types of organic resin zinc dust pigmented primer for use on steel surfaces. The primers are compatible with aliphatic polyurethane and enamel topcoats, and have reduced volatile organic compound (VOC) content.

1.2 Classification. The zinc dust primer shall be furnished in the following types and classes as specified:

Type I - Low VOC primer, solvent reducible
Type II - Low VOC primer, water reducible

Class A - 340 grams per liter maximum
Class B - 250 grams per liter maximum

1.3 Components. For purposes of qualification, the specification makes no differentiation with respect to number of separately packaged components. Unless otherwise specified by the procuring activity, the primer may be furnished as a single component or multi-component kit as stability and performance permit.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to Warner Robins ALC/LKJE, Robins AFB GA 31098-5609, by using the self addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8010

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MIL-P-26915C (USAF)

2. APPLICABLE DOCUMENTS**2.1 Government documents.**

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

SPECIFICATIONS**FEDERAL**

QQ-S-698	Steel, Sheet and Strip, Low Carbon
TT-C-490	Cleaning Method and Pretreatment of Ferrous Surfaces for Organic Coatings
TT-E-529	Enamel, Alkyd, Semi-Gloss
TT-S-735	Standard Test Fluids, Hydrocarbons
PPP-P-1892	Paint, Varnish, Lacquer and Related Materials; Packaging, Packing and Marking

MILITARY

MIL-L-7808	Lubricating Oil, Aircraft Turbine Engine, Synthetic Base
MIL-T-81772	Thinner, Aircraft Coating
MIL-C-85285	Coating, Polyurethane, High Solids

STANDARDS**FEDERAL**

FED-STD-313	Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities
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MIL-P-26915C (USAF)

FED-STD-595

Colors

FED TEST METHOD STD Nr
141Paint, Varnish, Lacquer and
Related Materials; Method of
Inspection, Sampling and
Testing

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the STANDARDIZATION DOCUMENTS ORDER DESK, BLDG 4D, 700 ROBBINS AVE, PHILADELPHIA PA 19111-5094.)

2.1.2 Other Government Documents. The following other Government documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of solicitation.

CODE OF FEDERAL REGULATIONS

49CFR 171-178

Department of Transportation
(DOT) Regulations for the
Transportation of Explosives
and Other Dangerous Articles by
Land and Water

(Application for copies of the Code of Federal Regulations (CFR) should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402)

(Copies of specifications, standards and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Non-Government publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASTM D 521

Standard Methods for Chemical
Analysis of Zinc Dust (Metallic
Zinc Powder)

ASTM D 1296

Standard Test Method for Odor
of Volatile Solvents and
Dilutents

MIL-P-26915C(USAF)

ASTM D 1364	Standard Test Method for Water in Volatile Solvents (Fischer Reagent Titration Method)
ASTM D 1542	Standard Test Method for Qualitative Detection of Rosin in Varnishes
ASTM D 1748	Rust Protection by Metal Preservatives in the Humidity Cabinet
ASTM D 2243	Standard Test Method for Freeze-Thaw Resistance of Water Borne Paints
ASTM D 2369	Standard Test Method for Volatile Content of Coatings
ASTM D 2698	Standard Method for Determination of the Pigment Content of Solvent Reducible Paints by High Speed Centrifuging
ASTM D 3335	Standard Test Method for Low Concentrations of Lead, Cadmium and Cobalt in Paint by Atomic Absorption Spectroscopy

(Application for copies should be addressed to the American Society for Testing and Materials, 1915 Race Street, Philadelphia PA 19103.)

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

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

3. REQUIREMENTS

3.1 Qualification. The primers furnished under this specification shall be products which are qualified for listing on the applicable Qualified Products List at the time set for opening of bids (see 4.3 and 6.3). Any change in the formulation of a qualified product will necessitate its requalification. The material supplied under contract shall be identical, within manufacturing tolerances, to the qualified product.

MIL-P-26915C (USAF)

3.2 Material. The materials specified herein shall be of such quality as to produce products conforming to the requirements of this specification.

3.3 Toxicity. The manufacturer shall certify that the coatings contain no substance known to be toxic to the user under normal conditions of usage. Material Safety Data Sheets shall be prepared and submitted in accordance with FED-STD-313, one copy of which shall be forwarded to the qualifying activity of the specification (see 4.3.2).

3.4 Components. Except where otherwise specified, the manufacturer is given latitude on the design of the product with respect to selection of organic resin system, solvents, diluents and number of separately packaged components. Selections must be appropriate for the application and must result in a product kit which meets all requirements of the specification.

3.4.1 Solids content. Total solids shall be a minimum of 72 percent by weight of primer.

3.4.1.1 Zinc content. Zinc content shall be a minimum of 80 percent by weight of total solids.

3.4.1.2 Lead content. The primer shall contain no lead.

3.4.1.3 Hexavalent chromium. The primer shall contain no hexavalent chromium.

3.4.2 Zinc dust pigment. The zinc dust pigment shall be metallic zinc powder suitable for use as a pigment for protective coatings. The dry powder zinc pigment shall measure a minimum of 94 percent metallic zinc and a minimum of 96 percent of the powder shall pass through a number 325 sieve. The required material is a finely divided (5 to 10 microns) gray powder, known commercially as "zinc dust". Surface treatments to the granular particles of zinc dust which enhance their stability, compatibility and performance may be used.

3.4.3 Liquid vehicle. The liquid vehicle portion of the primer shall be suitable for the intended purpose and shall provide a coating that will conform to the requirements of this specification. It shall contain no rosin or rosin derivatives when tested as specified in 4.6.7.

3.4.4 Volatile organic compounds (VOC). Class A primer shall contain not more than 340 grams per liter (2.8 pounds per gallon) of volatile organic compounds and class B primer shall contain not more than 250 grams per liter (2.1 pounds per gallon) of volatile organic compounds when tested as specified in 4.6.8.

3.4.5 Compounds of chlorine. The manufacturer shall certify that the primer does not contain chlorinated solvents or hydrolyzable chlorine derivatives.

3.4.6 Water content. Water content shall not exceed 0.25 percent by weight of primer as supplied.

3.5 Qualitative requirements.

MIL-P-26915C (USAF)

3.5.1 Condition in container. The components of the primer shall be free from curdling, agglomerates, gelling, seeding, putrefaction, gassing and livering in the freshly opened containers and shall contain no more caking, settling and separation than can be easily and completely reworked to a smooth homogeneous state.

3.5.2 Odor. The odor of the wet primer and dry film shall not be obnoxious when tested as specified in 4.6.12.

3.5.3 Primer stability. Catalyzed and reduced primer shall not settle to the extent that it cannot be easily redispersed into a smooth homogeneous mixture by hand mixing when tested after standing undisturbed for four hours as specified in 4.6.13.

3.5.4 Miscibility with thinner. When tested in accordance with 4.6.14, the primer shall be compatible with a thinner appropriate to the coating composition, MIL-T-81772 (type as appropriate) for a solvent reducible composition or water for a water reducible composition, when mixed to spraying viscosity.

3.5.5 Storage stability. At the time of submission of bid, the manufacturer shall certify that after 1 year's storage at a temperature of $32^{\circ}\text{C} \pm 6^{\circ}\text{C}$ ($90^{\circ}\text{F} \pm 10^{\circ}\text{F}$), the primer shall be capable of meeting all of the requirements of this specification.

3.5.6 Freeze-thaw stability. After testing as specified in 4.6.16, the condition in container shall be satisfactory and dry film specimens shall show no more than slight changes in hiding power, sheen, speckiness, agglomeration, coagulation or color.

3.5.7 Mixing. When tested as specified in 4.6.17, a one-gallon container of primer shall be easily mixed by hand to form a smooth homogeneous material free from lumps or other objectionable characteristics.

3.5.8 Pot life. The pot life of the mixed and thinned primer ready for spraying shall be not less than four hours at 24°C (75°F) with constant stirring.

3.5.9 Application. The primer shall be suitable for application by spraying over solvent-cleaned, phosphoric acid treated, zinc phosphated or sand blasted steel. In one cross coat, applied by spray, at least 2.5 mils (0.006 cm) in dry film thickness shall be deposited. One hour after application, the coating shall be smooth and even, free of runs, sags, steaks or other imperfections. The primer for spraying shall be thinned in accordance with the manufacturer's recommendations (see 4.6.19).

3.5.10 Drying time. A film of the primer prepared and tested in accordance with 4.6.20, shall dry dust free in not more than one hour and shall dry through in not more than 2 hours.

3.6 Film properties.

MIL-P-26915C(USAF)

3.6.1 Flexibility. A film of the primer, 2.5 to 3.5 mils-dry film thickness, shall show no cracking or loss of adhesion in the bend area when tested as specified in 4.6.21.

3.6.2 Lifting properties. When tested in accordance with 4.6.22, topcoating films applied to the primer shall produce no lifting or other film imperfections.

3.6.3 Adhesion (wet tape). Coatings of the primer, the primer plus enamel, and the primer plus polyurethane topcoat shall show no blistering, softening or loss of adhesion between topcoats and primer or between primer and substrate when tested as specified in 4.6.23.

3.6.4 Fluid resistance.

3.6.4.1 Water resistance. Immediately upon removal from 48 hour immersion in distilled water at 140°F (38°C) for primer film and 24 hour immersion for primer topcoated with enamel and polyurethane, the primer and topcoat films shall show no wrinkling, blistering, loss of adhesion or other visible defects. Slight softening may be disregarded. Twenty four hours after removal, the immersed portion of the films shall be equal in hardness and color to the unimmersed portion (see 4.6.24).

3.6.4.2 Hydrocarbon resistance. When tested as specified in 4.6.24, a film of the primer and primer plus topcoats shall show no wrinkling, blistering, loss of adhesion or other visible defects immediately after removal from 24 hours immersion at 75°F (24°C) in fluid conforming to TT-S-735, Type III. Slight softening may be disregarded. Twenty four hours after removal, the immersed portion of the film shall be equal in hardness and color to the unimmersed portion.

3.6.4.3 Synthetic fluid resistance. A film of the primer, prepared and tested in accordance with 4.6.24, shall show no wrinkling, blistering, loss of adhesion or other defects immediately after removal from 168 hours immersion at 160° F (71°C) in fluid conforming to MIL-L-7808. Slight softening or staining may be disregarded.

3.6.5 Accelerated weathering. The primer shall not be adversely affected by 300 hours accelerated weathering when tested as specified in 4.6.25.

3.6.6 Humidity resistance. When tested in accordance with 4.6.26, a coating of primer and primer plus topcoats shall show no blistering, wrinkling or loss of adhesion.

3.6.7 Salt spray resistance. When tested in accordance with 4.6.27, a coating of the primer and primer plus topcoats shall show no blistering, wrinkling or loss of adhesion. There shall be no rusting or other visual evidence of panel corrosion.

3.6.8 Inhibitive properties. When tested in accordance with 4.6.28, a primer coated panel shall inhibit the spread of corrosion beyond a maximum of

MIL-P-26915C (USAF)

one-eighth inch from the score line.

3.6.9 Topcoating properties. The primer shall provide a suitable base for topcoating with additional coats of primer, with polyurethane conforming to MIL-C-85285, Type II and listed on QPL-85285, and with enamel conforming to TT-E-529 when tested as specified in 4.6.29.

3.6.10 Adhesion to weathered finishes. For touchup and maintenance painting, the primer shall adhere to aged finishes when tested in accordance with 4.6.30. The coatings shall dry tight to the aged finish and shall show no evidence of lifting or peeling.

3.6.11 Heat resistance. The primer shall not be adversely affected by a 24 hour bake at 350°F (177°C) when tested as specified in 4.6.31.

3.6.12 Color. A colorant shall be added to the primer to obtain a contrast in color between the primer and cleaned, sand blasted steel surfaces during primer and topcoat application.

4. QUALITY ASSURANCE PROVISIONS

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

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

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

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

4.3 Qualification inspection. Qualification inspection shall consist of all requirements of Section 3 and all inspections and tests of Section 4.

MIL-P-26915C (USAF)

4.3.1 Qualification samples. A unit test sample shall consist of the kit components to make one gallon. Each sample shall be identified as follows and forwarded to a testing laboratory as designated in the letter of authorization. A minimum of three units shall be provided for test.

Qualification test sample
Specification MIL-P-26915C
Primer Coating, Zinc Dust Pigmented, for Steel Surfaces
Manufacturer's name and product number
Submitted by (name and date) for qualification testing in accordance with authorization (reference authorizing letter)

4.3.2 Supporting documentation. In addition to the qualification test samples, the manufacturer shall furnish results of its own testing showing that the material satisfactorily conforms to the requirements of the specification. Material Safety Data Sheets (MSDS) shall be prepared and submitted to the qualifying laboratory in accordance with FED-STD-313.

4.4 Quality conformance inspection. The quality conformance inspection shall consist of all tests specified in Section 3 except storage stability (3.5.5) and weather exposure (3.6.5).

4.4.1 Rejection and retest. Failure to meet any quality conformance test shall result in rejection of the batch represented and may constitute sufficient justification for removal of the product from the Qualified Products List. Rejected material shall not be resubmitted for acceptance without prior approval of the procuring activity. The application for resubmission shall contain full particulars concerning previous rejections and measures taken to correct the deficiencies.

4.5 Test panels.

4.5.1 Test panel material. Test panels shall be prepared from sheet steel conforming to QQ-S-698, cold-rolled, and may be of any convenient size and thickness subject to the following limitations:

a. Unless otherwise specified, panels shall be at least two inches wide by four inches long.

b. Panels for the flexibility tests shall be 0.022 ± 0.002 inch (0.056 ± 0.005 cm) thick.

c. Other test panels shall be 0.03 to 0.06 inch (0.08 to 0.15 cm) thick.

4.5.2 Surface preparation of panels.

4.5.2.1 Solvent-cleaned panels. Test panels shall be selected from smooth steel free from rust. The panels shall be scoured with steel wool, washed in solvent (acetone or methylethylketone) and then rinsed in clean solvent. After panels have air-dried, they shall be wiped clean with a solvent-dampened, clean,

MIL-P-26915C (USAF)

lint free cloth.

4.5.2.2 Phosphoric acid cleaned panels. The test panels selected shall be free from other than light rusting. They shall be scoured with steel wool to remove rust or other adhering contamination, washed in solvent as in 4.5.2.1, rinsed in clean solvent and air dried. The panels shall be treated as follows:

a. Immerse for 2 hours in an acid cleaner of the following composition maintained at a temperature of $24^{\circ}\text{C} \pm 1^{\circ}\text{C}$:

3150 ml of water
650 ml of technical grade, 85% phosphoric acid
3.8 grams of diethyl 1,3,thiourea
1.4 grams of alkylarylsulfonate wetting agent

b. Rinse in water and immerse for 15 minutes in the following dichromate solution maintained at a temperature of $24^{\circ}\text{C} \pm 1^{\circ}\text{C}$:

3785 ml of water
114 grams of potassium dichromate

c. Force dry the panels at a temperature of 88 to 100°C .

4.5.2.3 Sand blasted panels. The panels shall be washed in solvent as specified in 4.5.2.1, rinsed in clean solvent and air dried. The entire panels shall be blasted using any suitable equipment and blasting material. The blasting material shall be free from oil, grease, dirt, water and other materials that would impair the coatability of the panel surface. After blasting, the panels shall be cleaned by using clean compressed air or vacuum.

4.5.2.4 Zinc phosphated panels. Test panels shall be selected from smooth steel free from rust. Zinc phosphate shall be applied in accordance with TT-C-490, Type I.

4.5.3 Coating of test panels.

4.5.3.1 Application of primer. After preparation specified in 4.5.2, the panels shall be kept clean and free from fingerprints, rust and other surface contamination. Application of at least one coat of primer shall be accomplished within one hour after cleaning, or the panels may be stored in clean toluene for not more than 72 hours prior to coating. The primer shall be thoroughly mixed and thinned in accordance with the manufacturer's instructions. Unless otherwise specified, a single coat of the primer shall be applied by spray, using a wet cross coat, to a dry film thickness of 2.5 to 3.5 mils (0.006 to 0.009 cm). The panel shall be in a nearly vertical position during spraying and for at least two minutes after completion of spraying. Panels that are to be used for salt spray, humidity or other tests where corrosion or rusting of the panel is a factor shall be coated on both sides and shall be dip coated around the edges to a distance of approximately one-eighth inch. The coating shall be air dried or baked as applicable. Panels to be tested with the primer only shall be aged at least ten days prior to testing.

MIL-P-26915C (USAF)

4.5.3.2 Application of topcoats. After the primed panels have air dried for not less than one hour or more than 24 hours, the specified topcoating shall be applied by spray. Primer topcoating shall be applied to a dry film thickness of 2 to 3 mils (0.005 to 0.008 cm), and air dried for at least seven days prior to testing. Except where otherwise indicated in the specific test method, enamel and polyurethane coatings used for topcoating shall conform to TT-E-529 and MIL-C-85285, Type II, respectively, color number 24052 per Fed-Std-595.

4.6 Tests.

4.6.1 Test procedures. An index of testing procedures is given in Table I.

4.6.2 Solids content. Total solids shall be determined for the mixed primer kit by ASTM D 2369. Report the value obtained and determine compliance to 3.4.1.

4.6.3 Zinc content. The vehicle portion of the primer shall be isolated in accordance with ASTM D 2698. The total zinc as Zn in the solids shall be determined in accordance with ASTM D 521. Report the value obtained and determine compliance to 3.4.1.1.

4.6.4 Lead content. Determine the amount of lead as a percent by weight of total solids by atomic absorption spectroscopy, ASTM D 3335.

4.6.5 Hexavalent chromium. Obtain ¼ gram of the material remaining from the nonvolatile content determination in 4.6.2. Place sample in a 15 ml centrifuge tube. Add 5 ml of 25% aqueous KOH. Agitate the tube by shaking for a minute, then centrifuge. The supernatant liquid should be colorless. A yellow color indicates the presence of chromate and constitutes failure of the product.

4.6.6 Zinc dust pigment. The manufacturer shall provide the analysis of the zinc dust pigment that is used in the manufacture of the primer to show conformance to 3.4.2.

4.6.7 Liquid vehicle. Test the primer for the presence of rosin in accordance with ASTM D 1542. A positive indication of rosin shall constitute failure of the material.

4.6.8 Volatile organic compounds (VOC). After the coating mixed and prepared for application, calculate the grams of VOC per liter of coating, less water and less exempt compounds (exempted chlorinated solvents are not permitted by this specification) by the following equation:

$$\text{VOC (in g/l)} = \frac{W_s - W_w - W_{es}}{V_s - V_w - V_{es}}, \text{ where: } \begin{array}{l} W_s = \text{weight of volatile compounds in grams} \\ W_w = \text{weight of water in grams} \\ W_{es} = \text{weight of exempt compounds in grams} \\ V_s = \text{volume of material in liters} \\ V_w = \text{volume of water in liters} \\ V_{es} = \text{volume of exempt compounds in liters} \end{array}$$

MIL-P-26915C (USAF)

TABLE I. TEST PROCEDURES

Inspection or Test	Requirement Paragraph	Test Paragraph	Test Method
Components			
Solids content	3.4.1	4.6.2	ASTM D 2369
Zinc content	3.4.1.1	4.6.3	ASTM D 2698, D 521
Lead content	3.4.1.2	4.6.4	ASTM D 3335
Hexavalent Chromium	3.4.1.3	4.6.5	--
Zinc dust	3.4.2	4.6.6	--
Liquid vehicle	3.4.3	4.6.7	ASTM D 1542
Volatile organic compound (VOC)	3.4.4	4.6.8	--
Chlorine compounds	3.4.5	4.6.9	--
Water content	3.4.6	4.6.10	ASTM D 1364
Qualitative requirements			
Condition in container	3.5.1	4.6.11	FTMS 141 Method 3011
Odor	3.5.2	4.6.12	ASTM D 1296
Primer stability	3.5.3	4.6.13	--
Miscibility	3.5.4	4.6.14	FTMS 141 Method 4203
Storage stability	3.5.5	4.6.15	FTMS 141 Method 3022
Freeze-thaw stability	3.5.6	4.6.16	ASTM D 2243
Mixing	3.5.7	4.6.17	--
Pot life	3.5.8	4.6.18	--
Application	3.5.9	4.6.19	--
Drying time	3.5.10	4.6.20	FTMS 141 Method 4061
Film properties			
Flexibility	3.6.1	4.6.21	FTMS 141 Method 6221
Lifting properties	3.6.2	4.6.22	--
Adhesion (wet tape)	3.6.3	4.6.23	--
Water resistance	3.6.4.1	4.6.24	--
Hydrocarbon resistance	3.6.4.2	4.6.24	--
Synthetic fluid resistance	3.6.4.3	4.6.24	--
Accelerated weathering	3.6.5	4.6.25	FTMS 141 Method 6152
Humidity resistance	3.6.6	4.6.26	ASTM D 1748
Salt spray resistance	3.6.7	4.6.27	FTMS 141 Method 6061
Inhibitive properties	3.6.8	4.6.28	--
Topcoating properties	3.6.9	4.6.29	--
Adhesion to weathered finish	3.6.10	4.6.30	--
Heat resistance	3.6.11	4.6.31	--
Color	3.6.12	4.6.32	--

4.6.9 Compounds of chlorine. Check manufacturer's certification that no compounds of chlorine (e.g., trichloroethane, methylene chloride) are present.

4.6.10 Water content. Test for the presence of water in the primer in accordance with ASTM D 1364. Determine compliance to 3.4.6.

MIL-P-26915C (USAF)

4.6.11 Condition in container. Determine the condition in container according to the procedures applicable to ready mixed pigmented materials in Method 3011.1 of FTMS 141.

4.6.12 Odor. Test for characteristic, residual and noxious odor of the wet primer and dried film relative to the solvents and diluents used in accordance with ASTM D 1296. Determine conformance to 3.5.2.

4.6.13 Primer stability. A one quart container shall be fixed to within approximately 1/2 inch from the top with well mixed primer. The container shall be sealed and stored at $75^{\circ} \pm 2^{\circ}\text{F}$ ($24^{\circ} \pm 1^{\circ}\text{C}$) undisturbed for four hours. At the end of this period, the container shall be opened and the primer hand mixed for not more than three minutes. There shall be no evidence of undispersed lumps of pigment remaining after completion of the stirring. Small amounts of pigment clinging to the stirrer shall not be cause for rejection.

4.6.14 Miscibility with thinner. Determine the compatibility of the type primer under test with its respective thinner in accordance with Method 4203.1 of FTMS 141, except use a standing period of 10 minutes rather than the four hours specified in the test method. Without regular agitation, some settling of zinc pigment (both types) or emulsion break (type II) may occur on prolonged standing.

4.6.15 Storage stability. A kit of primer shall be stored for one year under normal room temperature conditions. At the end of the storage period, inspect the condition of the material for undesirable qualities in accordance with Method 3022.1 of FTMS 141 and test for performance to the requirements for odor, stability, mixing, pot life, application and drying time.

4.6.16 Freeze-thaw stability. Subject the product, either as packaged or in aliquot quantities of the components prepared in accordance with the test method, to the conditioning procedures and examinations of ASTM D 2243. Determine compliance to 3.5.6.

4.6.17 Mixing. A one gallon sample of the primer shall be mixed according to the manufacturer's instructions. The material shall be briskly stirred by hand. The complete mixing shall be accomplished in not more than five minutes. After the mixture appears homogenous or at the end of the five minute period, whichever occurs first, the material shall be allowed to stand for one minute. It shall then be poured slowly into another container. The primer shall be observed during pouring and the residue remaining in the mixing container observed for any evidence of lumps or pigment that has not been wetted by the liquid vehicle.

4.6.18 Pot life. A sample of the mixed primer, reduced to spraying viscosity in accordance with the manufacturer's instructions, shall be let stand, covered for four hours. Control evaporation but stir regularly to maintain the emulsion (type II) and keep the zinc pigment suspended. The pot life is acceptable if the coating can still be applied and pass the requirements of 3.5.9 through 3.6.4.2.

MIL-P-26915C (USAF)

4.6.19 Application. Panels shall be prepared, cleaned and coated in accordance with 4.5.1, 4.5.2 and 4.5.3.1 respectively. The coated panels shall be examined for conformance with 3.5.9.

4.6.20 Drying time. The drying time of the primer shall be determined in accordance with Method 4061 of FTMS Nr 141 except that the primer shall be sprayed on a solvent cleaned steel panel, as specified in 4.5, to a dry film thickness of 2.5 to 3.5 mils (0.006 to 0.009 cm). The drying time shall be in accordance with 3.5.10.

4.6.21 Flexibility. Solvent cleaned and phosphated panels coated with primer as specified in 4.5.2.4, 4.5.3.1 and cured as applicable shall be bent 180 degrees over a 1/2 inch diameter mandrel in accordance with Method 6221 of FTMS Nr 141. Similar panels shall be conditioned for one hour at -65°F (-54°C) and while still at that temperature bent around a four inch diameter mandrel. The panels shall be visually examined immediately for evidence of failure, and then after conditioning to room temperature shall be examined again to determine compliance with 3.6.1.

4.6.22 Lifting properties. Solvent cleaned panels coated with one spray coat of primer as specified in 4.5.3.1 and air dried for not less than one hour or more than 24 hours shall be topcoated with the following materials in accordance with 4.5.3.2:

- a. Second primer coat of the type under test.
- b. Enamel, TT-E-529.
- c. Polyurethane coating, MIL-C-83286.

The panels shall be examined for conformance to 3.6.2.

4.7.23 Adhesion (wet tape). Test panels cleaned by each of the methods specified in 4.5.2 shall be coated with each of the following combinations of coatings:

- a. primer only, 2.5 to 3.5 mils (0.006 to 0.009 cm).
- b. primer, 2.5 to 3.5 mils (0.006 to 0.009 cm),
plus enamel, 2.0 to 3.0 mils (0.005 to 0.008 cm).
- c. primer, 2.5 to 3.5 mils (0.006 to 0.009 cm),
plus polyurethane, 2.0 to 3.0 mils (0.005 to 0.008 cm).

The panels shall be tested in accordance with Method 6301.1 of FTMS Nr 141 for compliance to 3.6.3.

4.6.24 Fluid resistance properties. Solvent cleaned panels prepared, coated and cured as specified in 4.5 shall be half immersed in the specified fluids (see 3.6.4). Immersion in water and hydrocarbon fluids shall consist of panels coated with primer only, primer plus enamel and primer plus polyurethane.

MIL-P-26915C (USAF)

Synthetic fluid immersion panels shall be coated with primer only. Immersion in distilled water shall be 48 hours at 100°F (38°C) for the primer only and 24 hours at 100°F (38°C) for the primer plus topcoats. Immersion in fluid conforming to TT-S-735, Type III, shall be 24 hours at 75°F (24°C). Immersion in synthetic fluid, MIL-L-7808, shall be 168 hours at 160°F (71°C). Resistance properties shall conform to the requirements of 3.6.4.

4.6.25 Accelerated weathering. Steel panels solvent cleaned, coated and cured as specified in 4.5 with primer, primer plus enamel and primer plus polyurethane shall be subjected to 300 hours exposure to accelerated weathering in accordance with Method 6152 of FTMS Nr 141. Following this exposure, the panels shall be inspected for loss of flexibility, blistering, loss of either intercoat or metal adhesion or any other apparent defects. Slight whitening of the film shall be disregarded.

4.6.26 Humidity resistance. Panels prepared by each of the four cleaning methods specified in 4.5.2 shall be coated with primer only, primer plus enamel and primer plus polyurethane in the dry film thicknesses per 4.5.3.2 and cured. The panels shall be exposed in a humidity cabinet in accordance with ASTM D 1748 and operated at 120°F ± 2°F (49°C ± 1°C) and 100 percent humidity. The primer shall be exposed for 168 hours. After exposure the panels shall be examined for conformance to 3.6.6.

4.6.27 Salt spray. Panels shall be prepared, cleaned, coated with primer only, primer plus enamel and primer plus polyurethane, and cured. They shall then be exposed in accordance with Method 6061 of FTMS Nr 141 except that they shall not be scored. Panels shall be exposed for 336 hours.

4.6.28 Inhibitive properties. Panels shall be prepared, cleaned, coated, cured and exposed as specified in 4.6.27 except that they shall be scored and the time of exposure shall be 21 days. After the exposure period, the panels shall be removed, washed in water without scrubbing, allowed to dry and examined for conformance to 3.6.8.

4.6.29 Topcoating properties. Panels with primer applied shall be observed for suitability for topcoating during the preparation of panels for other tests. Panels topcoated with enamel and polyurethane shall be observed for any tendency towards intercoat adhesion failure during evaluation of adhesion (4.6.23), warm water immersion (4.6.24), humidity resistance (4.6.26) and salt spray resistance (4.6.27). Any appreciable primer to topcoat separation shall be considered evidence of unsatisfactory topcoating properties.

4.6.30 Adhesion to weathered finishes. Test panels coated with primer plus polyurethane topcoat which have been through the accelerated weathering test shall be scuffed with 400 grit sanding paper, solvent wiped and recoated with primer and primer plus polyurethane topcoat in accordance with 4.6.23. The coatings shall be allowed to dry for 24 hours and shall be examined for compliance to 3.6.10.

4.6.31 Heat resistance. Steel panels cleaned with solvent, coated with one coat of primer and cured as specified in 4.5 shall then be exposed in an oven to

MIL-P-26915C (USAF)

a temperature of $350^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ($177^{\circ}\text{C} \pm 3^{\circ}\text{C}$) for 24 hours. The panels shall then be removed and conditioned to room temperature. The coating shall be tested for adverse effects by the flexibility test (4.6.21) and the humidity test (4.6.26). Performance of the oven exposed coating shall be equal to or better than the unexposed coating.

4.6.32 Color. The color of the primer when wet and when dry shall be inspected for sufficient contrast against bare white metal. Determine conformance to 3.6.12.

5. PACKAGING

5.1 Packaging and packing. The primer coatings shall be packaged, packed, and marked in accordance with PPP-P-1892. The level of packaging shall be A or C and the level of packing shall be A, B or C as specified (see 6.2). The size of containers shall also be specified (see 6.2). The container size shall refer to the liquid vehicle container which shall provide the specified volume of the mixed primer. For example, a one gallon container shall be of the standard one gallon size and contain an adequate amount of liquid vehicle to provide at least 231 cubic inches (3786 ml) of the mixed primer. All components of a unit quantity of coating shall be packaged together as a kit.

5.2 Marking and labeling. In addition to the marking specified in PPP-P-1892, individual cans and containers shall bear a printed label showing the following nomenclature and information as applicable:

Specification MIL-P-26915C, Type, Class
Name of manufacturer
Date of manufacture by month and year
Batch number
Net contents
Precautions

Individual containers shall be marked, either by stencil or durably attached labels, with mixing, thinning, application and curing instructions, as applicable. All printed labels shall be overcoated with a clear coating for weatherproofing.

5.2.1 Precautionary markings. Unit, intermediate and shipping containers shall be marked: "WARNING! Contains flammable volatile solvent." Shipping containers shall be marked in accordance with Department of Transportation regulations CFR 171-178 and shall bear the "Flammable Liquid" red labels as specified therein.

6. NOTES

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

6.1 Intended use. The primer specified herein is for use on steel surfaces intended for support equipment and facilities structure. The primer is intended

MIL-P-26915C (USAF)

for use primarily with MIL-C-85285 topcoat material. For most equipment, a dry film thickness of 2.5 to 3.5 mils should be used. For support equipment such as noise suppresser systems and facilities structure, a dry film thickness of 4 to 6 mils should be used. The primer is intended to provide appreciable galvanic protection to steel substrate.

6.2 Ordering data. Procurement documents should specify the following:

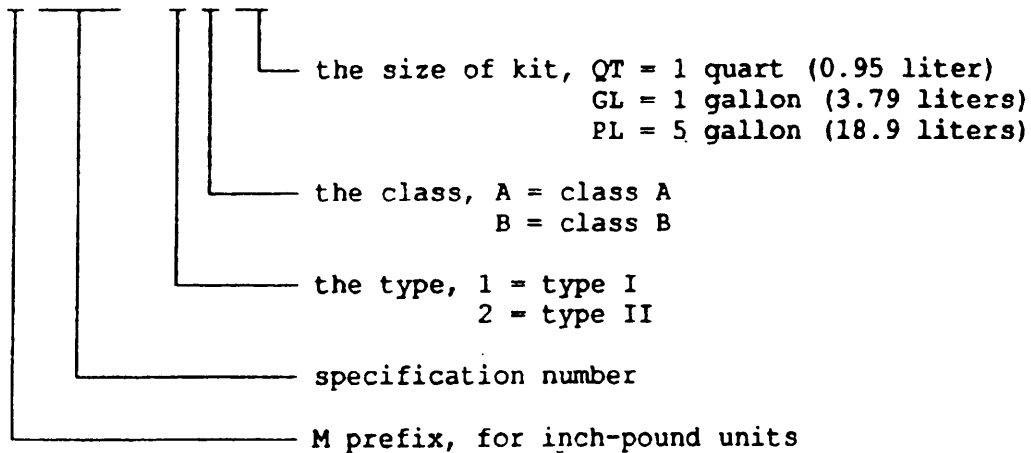
- a. Title, name and date of this specification
- b. Type and class
- c. Selection of applicable levels of packaging and packing
- d. Required type and size of container
- e. Basis unit of purchase is the US gallon, 231 cubic inches of mixed primer at 77°F (25°C).

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time set for opening of bids, listed or approved for inclusion on the next issue of the Qualified Products List. Manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order to be eligible to receive contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is Warner Robins ALC/LKJE, Robins AFB GA 31098-5609. Instructions on the qualification process may be obtained from that activity. Material furnished under this specification subsequent to qualification is expected to be of the same composition and equal to products upon which approval was originally granted. In the event that the primer furnished under contract is found to deviate from the composition of the approved product, or that the product fails to perform satisfactorily, approval of such products may be withdrawn, followed by removal from the Qualified Products List.

6.4 Part numbers. Part numbers for cataloging purposes under this specification shall conform to the following convention:

M 26915 - x y zz

Example of PIN: M26915-2AGL



MIL-P-26915C (USAF)

6.5 Reclaimed materials. The primer may be manufactured from reclaimed materials to the extent possible without jeopardizing the material quality or performance. The reclaimed materials shall be reprocessed, remanufactured or recycled in a manner which restores them to the same chemical composition and physical properties as the materials originally selected for use.

6.5 SUBJECT TERM (KEY WORD) LISTING

Corrosion Inhibitive
Lead Free
Sacrificial Coating
VOC Compliant
Water Reducible

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

CUSTODIAN:

Air Force - 99

Preparing Activity:

Air Force - 84

REVIEW ACTIVITY:

Air Force - 82

(Project Number: 8010-F392)

USER ACTIVITIES:

Air Force - 70, 71, 80, 82, 84

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

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

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RECOMMEND A CHANGE	1. DOCUMENT NUMBER MIL-P-26915C	2. DOCUMENT DATE (YYMMDD) 1992 March 20
3. DOCUMENT TITLE Primer Coating, Zinc Dust Pigmented, for Steel Surfaces		
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)		
5. REASON FOR RECOMMENDATION		
6. SUBMITTER		
a. NAME (Last, First, Middle Initial) WR-ALC/LKJE ROBINS AFB GA 31098-5609		
b. ADDRESS (Include Zip Code)		
c. TELEPHONE (Include Area Code) (1) Commercial 63284		(2) AUTOVON
7. DATE SUBMITTED (YYMMDD)		
8. PREPARING ACTIVITY		
a. NAME		
b. TELEPHONE (Include Area Code) (1) Commercial 63284		
c. ADDRESS (Include Zip Code)		
IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340		