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SUPERSEDING
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FEDERAL SPECIFICATION

PRIMER COATING: ZINC DUST, CHLORINATED RUBBER,
(FOR STEEL AND GALVANIZED SURFACES)

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers a ready-mixed zinc dust, chlorinated rubber primer coating for use on steel and galvanized surfaces.

1.2 Classification.

1.2.1 Type. Zinc dust primer coating covered by this specification shall be a chlorinated rubber type, as specified and shall be ready-mixed.

2. APPLICABLE DOCUMENTS

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

Federal Specifications:

TT-P-143 - Paints, Varnish, Lacquer, and Related Materials; Packaging, Packing, and Marking of.
TT-P-460 - Pigment, Zinc-Dust (Metallic-Zinc-Powder), Dry.
TT-T-291 - Thinner; Paint, Volatile Spirits (Petroleum-Spirits).
PPP-T-60 - Tape, Packaging, Waterproof.

Federal Standards:

Fed. Test Method Std. No. 141/GEN - Paint, Varnish, Lacquer, and Related materials; Methods of Inspection, Sampling and Testing.

Fed. Std. No. 595 - Colors.

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General services Administration Regional offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.)

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Standard:

MIL-STD-105D - Sampling Procedures and Tables for Inspection by Attributes.

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(Copies of Military Specifications and Standards required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 Material. The primer shall be furnished in a one package, ready-mixed, consisting of zinc dust as the pigment and a vehicle of chlorinated rubber [1] together with non-saponifiable resins, plasticizers, etc., provided the finished product meets all requirements specified herein.

3.2 Composition.

3.2.1 Pigment. The pigment shall contain a minimum of 98.5% zinc dust conforming to TT-P-460, type I, the balance being antigassing, antisettling agents, driers, etc. Small amount of light fast tinting pigment may be allowed to match color desired provided the primer meets all the requirements.

3.2.1.1 Analysis of zinc dust. The zinc dust shall conform to Fed. Spec. TT-P-460, type I.

3.2.2 Vehicle. The vehicle shall conform to the requirements specified in table I.

TABLE I. Vehicle solids

Ingredients	minimum	maximum
Chlorinated Rubber, Percent by weight	50	91
Unsaponifiable resin or plasticizers, Percent by weight	9	50

3.2.2.1 Thinner. The thinner shall be a thinner complying to TT-T-291, type II, grade A or any thinner or solvent system which comply "Rule 66".[2]

3.2.3 Color. The color shall be normally of gray color characteristic of the zinc dust composition. Light shade of other color may be allowed provided it matches with color standard in Fed. Std. No. 595.

3.3 Qualitative requirements.

3.3.1 Condition in container. When tested as in 4.3-1, the primer as received shall be ready-mixed and shall show no putrefaction, separation of ingredients, livering, skinning, dry hard caking or tough gummy sediment. It shall show no corrosion of the container. Any settled pigment shall be readily dispersible in the liquid portion by hand stirring to a smooth homogeneous state.

3.3.2 Odor. The odor shall not be putrid or otherwise offensive or irritating before, during, and after application, when tested as in 4.3.2.

3.3.3 Miscibility and compatibility. When tested as in 4.3.3 the primer shall be compatible with the thinner. There shall be no separation and precipitation. The blend shall have a minimum Kauri-butanol value of 77.

3.3.4 Storage stability.

3.3.4.1 Partially full container. The primer shall not skin within 48 hours as tested in 4.3.4.1. There shall be no livering, gelling, or

curdling.

3.3.4.2 Full container. After storage for 6 months as tested in 4.3.4.2, the primer shall be usable and shall mix readily to a smooth homogeneous state. There shall be no change in drying time.

3.3.5 Working properties. When brush and spray as in 4.3.5, the primer shall show good brushing and spraying properties. It shall show good leveling, no streaking, running and sagging. The dried film shall be smooth, even, without brush marks and streaks.

3.3.6 Anchorage. A film of the primer when tested as in 4.3.6 shall show no removal or otherwise loosening of the film beyond one sixteenth inch on either side of the score line.

[1] The vehicle (chlorinated rubber) shall be identified and compared as shown in Figure 1.

[2] Information on Rule 66 may be obtained from Los Angeles Air Pollution Control District, Los Angeles, CA 90013.

3.3.7 Recoating Properties. When tested as in 4.3.7 there shall be no lifting, softening or other film irregularities.

3.3.8 Salt spray resistance. The coated panels when tested as in 4.3.8 shall show no corrosion. There shall be no effect of the film such as blistering, softening and wrinkling or lost of adhesion.

3.4 Quantitative requirements. The chlorinated rubber-zinc dust primer coating shall conform to the requirements in table II.

TABLE II. Quantitative requirements

Ingredients	Minimum	Maximum
Total solids, percent by weight of primer	80.0	-----
Pigment, percent by weight of non-volatile	90.0	-----
Water, percent by weight of primer	-----	0.2
Drying time, set to touch (minutes)	-----	15
Drying time, set dry hard (minutes)	-----	30
Weight per gallon, pounds	21.5	-----
Coarse particles, (residue retained on a No. 325 Standard sieve) percent by weight of pigment	-----	4

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 and inspection. Sampling and inspection shall be in accordance with method 1031 of Fed. Test Method Std. No. 141.

4.3 Test procedures. The primer shall be tested in accordance with the following applicable test methods of Fed. Test Method Std. No. 141 indicated in table III and as specified hereinafter.

TABLE III. Index

Characteristics	Requirements reference	Test Method	
		Fed. Test Method Std. No. 141	Paragraph reference
Condition in container	3.3.1	3011	4.3.1
Odor	3.3.2	4401	4.3.2
Miscibility	3.3.3	4203	4.3.3
Storage stability	3.3.4	3021, 3022	4.3.4
Working properties	3.3.5	4321	4.3.5
Anchorage	3.3.6	-----	4.3.6
Recoating	3.3.7	-----	4.3.7
Salt spray resistance	3.3.8	6061	4.3.8
Rubber-base ppts. (chlorinated)	Table I	5211[1]	-----
Unsaponifiable matter	Table I	5041	-----

Color	3.2.3	4250	4.3.9
Total solids	Table II	4041	-----
Pigment content	Table II	4021	-----
Coarse particles	Table II	4091	-----
Drying time	Table II	4061	-----
Weight per gallon	Table II	4184	-----
Water content	Table II	4081	-----

[1] In case of noncompliance run test using Hercules method-CSL-217. Copy of test method may be obtained from Hercules, Inc., 910 Market Street, Wilmington, Delaware 19899.

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4.3.1 Condition in container. Determine the packaged condition of the material in accordance with method 3011 of Fed. Test Method Std. No. 141 for compliance with 3.3.1.

4.3.2 Odor. Test the odor in accordance with method 4401 of Fed. Test Method Std. No. 141 for compliance with 3.3.2.

4.3.3 Miscibility and compatibility. Run miscibility test in accordance with method 4203 of Fed. Test Method Std. No. 141 using one part by volume of mineral spirits conforming to TT-T-291, type II, grade A and eight parts by volume of primer. Observe for compliance with 3.3.3.

4.3.4 Storage stability.

4.3.4.1 Partially full container. Determine skinning after 48 hours in accordance with method 3021 of Fed. Test Method Std. No. 141 except use a 3/4 filled 1/2 pint, multiple friction top can. Observe for compliance with 3.3.4.1.

4.3.4.2 Full container. in accordance with method 3022 of Fed. Test Method Std. No. 141, allow a full standard quart can of the primer to stand undisturbed for 6 months and then examine the contents. Make other applicable tests, then evaluate for compliance with 3.3.4.2.

4.3.5 Working properties.

4.3.5.1 Brushing. Determine brushing properties in accordance with method 4321 of Fed. Test Method No. 141 for compliance with 3.3.5 using the primer as packaged.

4.3.5.2 Spraying. Thin the primer in accordance with manufacturers' instructions. Using steel panel as in 4.3.5.1 spray a coat to a dry film thickness of approximately 1 mil and allow to dry for 24 hours. Observe for compliance with 3.3.5.

4.3.6 Anchorage. Use the panel prepared in 4.3.5.2. Score a line through to the metal across the width using a sharp pointed knife. The film shall than be taped perpendicular to and across the score line with waterproof, pressure sensitive tape (3/4 inch wide) conforming to PPP-T-60, type IV. Press the tape lightly with the thumb making sure the tape adheres to the film. Grasp a free end of the tape then at a rapid speed strip it from the film by pulling back upon itself. Observe for compliance with 3.3.6.

4.3.7 Recoating properties. Brush a coat of primer on steel panel prepared in accordance with method 2011 of Fed. Test Method Std. No. 141 to a dry film thickness. of approximately one mil. After 24 hours air dry, brush a second coat crosswise to the first coat to about the same spreading rate. While brushing observe for pull under brush. Allow to dry for 24 hours then examine for compliance with 3.3.7.

4.3.8 Salt spray. Spray a coat (thinned in accordance with manufacturer's direction) on a steel panel (3" x 6") prepared in accordance with method 2011 of Fed. Test Method Std. No. 141 to a dry film thickness of 1-1/2 to 2 mils. Air dry for 96 hours at room temperature. Subject the panel to salt spray using 5.0% concentration in accordance with method 6061 of Fed. Test Method Std. No. 141 for 144 hours. Upon removal wash gently with running water until free from any visible salt deposits and examine immediately for compliance with 3.3.8.

4.3.9 Color. If shade other than zinc dust characteristic, the color

shall be determined in accordance with method 4250 of Fed. Test Method Std. No. 141. Brush a coat of primer to approximately 1 mil dry film thickness on a tinplated panel prepared in accordance with method 2012 of Fed. Test Method Std. No. 141 and allow to dry at room temperature for 24 hours. Evaluate for compliance with 3.2.3.

4.3.10 Inspection of inspection for delivery. The primer shall be examined for compliance with packaging, packing, and marking requirements of section 5 in accordance with TT-P-143. Any container in the sample having one or more defects or under required fill, shall be rejected, and if the number of defective containers in any sample exceeds the acceptance number of the appropriate sampling plan of MIL-STD-105, the lot represented by the sample shall be rejected.

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, B, C, and the level of packing shall be A, B, and C. The primer shall be furnished in 1-quart or 1-gallon multiple friction top can, in 5-gallon steel pail or in 55-gallon drum as specified (see 6.2).

6. NOTES

6.1 Intended use. The chlorinated rubber zinc dust primer is intended for use as a priming coat on steel and galvanized surfaces for air drying, not baking. Surfaces should be clean and free from dirt, loose rust and oil. The primer is recommended for use for the repair of galvanized surfaces and the repair of galvanized surfaces that will be in contact with water. The optimum condition is to sand blast the substrate. To lengthen and protect the surfaceable life of the primer, it can be top-coated. One or more coats of the primer can be used as a finish coat.

6.2 Ordering data. Purchasers should select the preferred options permitted herein, and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Color. If shade other than zinc dust characteristic (see 3.2.3).
- (c) Selection of applicable level of packaging and packing required (see 5.1).
- (d) Size of container required (see 5.1).

6.3 Basis of purchase. The primer coating should be purchased by volume; the unit being a U.S. gallon of 231 cubic inches at 15.5 deg. C (60 deg. F).

6.4 Primer effectiveness. It is suggested that to maintain the effectiveness of this type of primer the zinc dust or pigment content of the dry film should be a minimum of 90% by weight of the film.

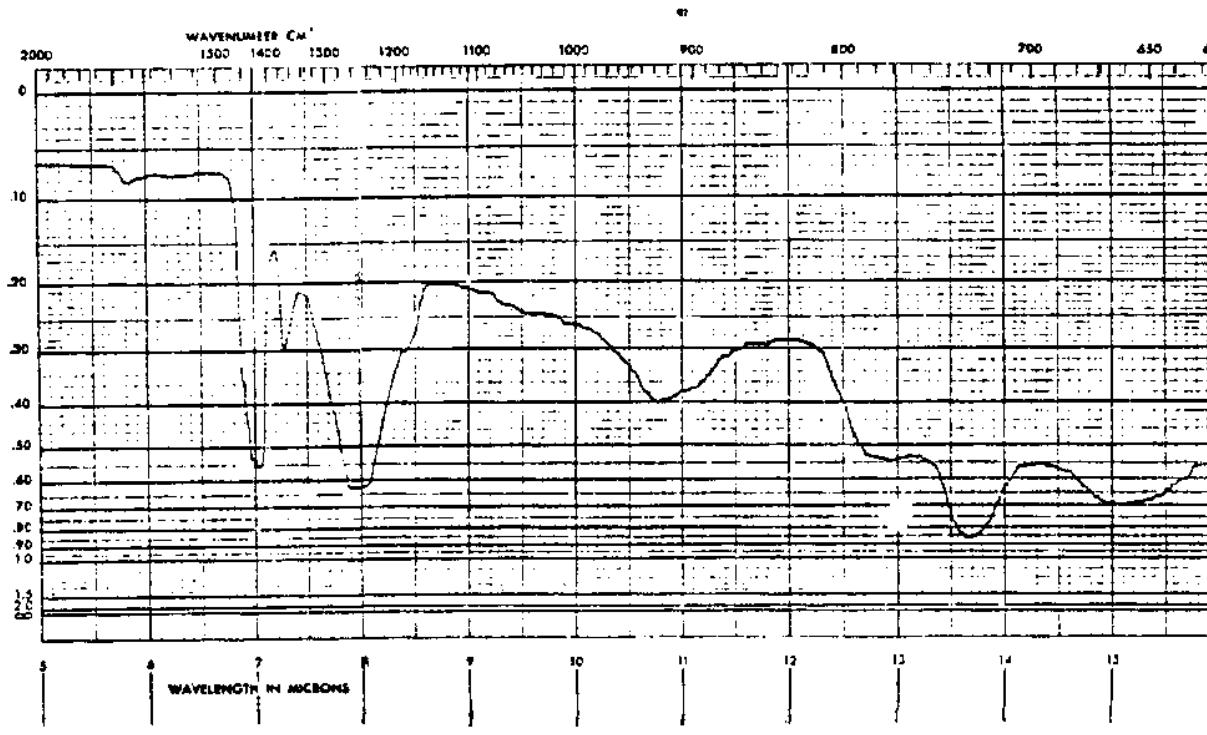


Figure 1

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Preparing Activity:

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CIVIL AGENCY COORDINATING ACTIVITIES:

GSA - FSS

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. Price 30 cents each.