MIL-P-15930C
14 October 1981
SUPERSEDING
MIL-P-15930B
31 May 1961
(See 6.6)

MILITARY SPECIFICATION

PRIMER COATING, SHIPBOARD, VINYL-ZINC CHROMATE

(FORMULA NO. 120)

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

1. SCOPE

1.1 Scope. This specification covers primer coating, vinyl-zinc chromate, for use with conventional or hot spray equipment over pretreatment coating (Formula No. 117, DOD-P-15328).

1.2 Classification. Primer covered by this specification shall be of the following composition as specified (see 6.2).

Composition G - General use.
Composition L - Limited use (see 6.5).

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

TT-M-261 - Methyl Ethyl Ketone, Technical.
TT-M-268 - Methyl Isobutyl Ketone (For Use in Organic Coatings).
TT-N-95 - Naphtha, Aliphatic.
TT-P-350 - Pigment, Lampblack - Dry.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 3112, Department of the Navy, Washington, DC 20362 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FEDERAL (Continued)

TT-T-548 - Toluene, Technical.
TT-T-656 - Tricresyl Phosphate.
PPP-P-1892 - Paint, Varnish, Lacquer and Related Materials; Packaging, Packing and Marking of.

MILITARY

MIL-P-15173 - Pigment, Magnesium-Silicate; Dry (Paint Pigment).
DOD-P-15328 - Primer (Wash), Pretreatment, Formula No. 117 for Metals (METRIC).
MIL-I-45208 - Inspection System Requirements.

STANDARDS

FEDERAL

FED-STD-141 - Paint, Varnish, Lacquer, and Related Materials; Methods of Inspection, Sampling, and Testing.
FED-STD-313 - Material Safety Data Sheet, Preparation and Submission of.
FED-STD-595 - Colors.

(Copies of specifications and standards required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DOD adopted shall be the issue listed in the current DODISS and the supplement thereto, if applicable.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 185 - Coarse Particles in Pigments, Pastes, and Paints.
D 562 - Consistency of Paints Using the Stormer Viscosimeter.
D 1210 - Fineness of Dispersion of Pigment-Vehicle Systems.
D 1364 - Water in Volatile Solvents (Fischer Reagent Titration Method).
D 1475 - Density of Paints, Varnish, Lacquer, and Related Products.
D 1640 - Drying, Curing, or Film Formation of Organic Coatings at Room Temperature, Test for.
D 2369 - Volatile Contents of Paints.
D 2698 - Determination of the Pigment Content of Solvent Type Paints by High Speed Centrifuging.

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

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

3. REQUIREMENTS

3.1 Color. The color of the primer shall approximate color No. 34096 of FED-STD-595.

3.2 Composition. The primer shall be composed of the pigments, resin, plasticizer and solvents specified. Small amounts of wetting agents, suspension aids and stabilizers may be used at the discretion of the manufacturer provided all requirements of the specification are met.

3.3 Vehicle.

3.3.1 Nonvolatile vehicle. The nonvolatile vehicle shall conform to the requirements of table I when analyzed as specified in 4.3.2 and 4.3.3.

TABLE I. Nonvolatile vehicle.

Ingredient	Mass percent	
	Minimum	Maximum
Vinyl resin 1/	90	93
Tricresyl phosphate (TT-T-656)	7	10

1/ The resin shall be a hydroxyl containing vinyl chloride-acetate copolymer composed of 89.5 to 91.5 percent vinyl chloride, 5.3 to 7.0 percent vinyl alcohol and 2.0 to 4.0 percent vinyl acetate. It shall have a specific gravity of 1.35 minimum and be furnished as a powdered solid not less than 98 percent of which shall pass through a No. 20 (840 micron) U. S. Standard Sieve Series sieve. An 18 percent solution of the resin in methyl isobutyl ketone shall be no darker than Gardner Color Standard No. 5. The infrared spectrum of the resin shall match the one shown on figure 1 (see 4.3.3.2).

3.3.2 Volatile. The volatile solvent portion of the primer shall conform to the requirements of table II when tested as specified in 4.3.4.

TABLE II. Volatile requirements.

Material	Percent by volume			
	Composition G		Composition L	
	Minimum	Maximum	Minimum	Maximum
Methyl isobutyl ketone (TT-M-268)	60.0	----	----	----
Methyl n-butyl ketone[1/]	----	----	50	----
Methyl ethyl ketone (TT-M-261)	----	----	10	15
Toluene (TT-T-548)	----	40.0	----	15
Aliphatic naphtha (TT-N-95, type I)[2/]	----	----	----	20

1/ The methyl n-butyl ketone shall contain no more than 5 percent by volume of branched chain ketones.
2/ The aliphatic naphtha shall contain no more than 11 percent by volume of aromatic hydrocarbons.

3.3.2.1 Composition L. The volatile content of composition L shall also conform to the following requirements by volume when tested as specified in 4.3.4.

(a) A combination of hydrocarbons, alcohols, aldehydes, ethers, esters, or ketones having an olefinic, or cyclooelefinic type of unsaturation except perchloroethylene: 5 percent maximum.
(b) A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene, methyl benzoate, and phenyl acetate: 8 percent maximum.
(c) A combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene, or toluene: 20 percent maximum.

3.4 Pigment. The pigment portion shall conform to the requirements of table III when tested as specified in section 4.

TABLE III. Pigment composition.

Ingredient	Mass percent	
	Minimum	Maximum
Zinc chromate, insoluble type[1/]	60.0	----
Magnesium silicate (type A or B of MIL-P-15173), Lampblack (TT-P-350), suspension aids, etc.	----	40.0

1/ The zinc chromate shall be an insoluble type containing 16 to 19 percent CrO_3, 67 to 72 percent ZnO and not more than 1 percent water soluble salts.

3.5 Quantitative requirements. The primer shall conform to the quantitative requirements of table IV when tested as specified in 4.3.2.

TABLE IV. Quantitative requirements.

Characteristics	Requirements	
	Minimum	Maximum
Chlorine content, percent by weight of nonvolatile vehicle	45	48
Vinyl acetate, percent by weight of nonvolatile vehicle	2	3
Total solids, percent by weight of primer	34	37
Pigment, percent by weight of primer	15	18
Zinc oxide, percent by weight of pigment	38	45
Chromium trioxide (CrO_3), percent by weight of pigment	9	12
Vehicle solids, percent by weight of primer	17	20
Water, percent by weight of primer	----	0.5
Coarse particles and skins (retained on No. 325 mesh sieve), percent by weight of primer	----	0.2
Viscosity, Krebs units, (see 3.6.1)	75	85
Weight per gallon (pounds)	8.2	8.7
Fineness of grind	5	----
Drying time, air dry, minutes		
Set to touch	----	15
Dry hard	----	30

3.6 Qualitative requirements.

3.6.1 Condition in container. A freshly opened full container of the primer tested as specified in 4.3.6 shall be free from grit, seeds, lumps, abnormal thickening, or livering and shall show no more pigment settling or caking than can be readily reincorporated to a smooth uniform state. The viscosity 1-year after manufacture shall not exceed 90 Krebs units when tested as specified in ASTM D 562.

3.6.2 Accelerated stability.

3.6.2.1 Primer as packaged. The primer shall show no curdling, hard caking, or tough gummy sediment when tested as in 4.3.7.1. It shall remix readily to a smooth uniform state. A film on glass shall be smooth and uniform, free of seeds, pinholes, and grit and have no clear areas lacking color.

3.6.2.2 Reduced primer. When tested as specified in 4.3.7.2, the aged material shall produce a uniform film on glass, free of pinholes, foreign matter, and seeds.

3.6.3 Spraying properties. The primer, tested as specified in 4.3.8, shall spray satisfactorily in all respects and shall show no running, sagging, or streaking. The dried film shall show no dusting or mottling and shall present a smooth uniform finish free from seeds.

3.6.4 Knife test. A film of primer, tested as specified in 4.3.9, shall be hard and tough and shall adhere tightly to and not flake or crack from the metal. The film shall ribbon or curl from the metal on cutting and there shall be no separation between the pretreatment coating and the primer.

3.7 Material safety data sheets. The contracting activity shall be provided a material safety data sheet (MSDS) at the time of contract award. The MSDS is DD Form OSHA 20 and is found in FED-STD-313. The MSDS shall be included with each shipment of the material covered by this specification (see 6.2).

3.8 Toxicity. The material shall have no adverse effect on the health of personnel when properly used for its intended purpose (see 4.4).

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 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 inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Inspection system. The contractor shall provide and maintain an inspection system acceptable to the Government for the supplies and services covered by this specification. The inspection system shall be in accordance with MIL-I-45208.

4.2.1 Finished paint. When ordered by Government activities in quantities of paint 250 gallons or over, at least one unopened container from each lot shall be taken by the representative for test purposes by the designated laboratory prior to acceptance.

4.2.2 Failures. Failure of the primer to pass any test will be cause to reject this sample and the represented lot. Based on the test failed, one additional randomly selected sample may be offered for test at contractor's option, and lot acceptance or rejection based thereon.

4.3 Test methods.

4.3.1 Test conditions. The routine and referee testing conditions shall be in accordance with section 7 of FED-STD-141, except as otherwise specified.

4.3.2 The following tests shall be conducted in accordance with applicable methods of FED-STD-141, or as required in this specification.

TABLE V. Test procedures.

Characteristics	Applicable method in FED-STD-141	Applicable ASTM test method	Requirement paragraph
Isolation of vehicle (super centrifuge)		D 2698	----------
Vinyl resin			
Quantitative analysis	7351		Table I
Qualitative identification	----		3.3.1
Chlorine content	----		Table IV
Vinyl acetate	----		Table I
Tricresyl phosphate	7371	------	Table I
Solvent analysis			
Composition G	----		Table II
Composition L	----		3.4.2.1 & Table II
Total solids		D 2369	Table IV
Pigment solids		D 2698	Table IV
Zinc oxide	7340		Table IV
Chromium trioxide (CrO_3)	----		Table IV
Vehicle solids	1/		Table IV
Water		D 1364	Table IV
Coarse particles and skins		D 185	Table IV
Viscosity		D 562	Table IV
Weight per gallon		D 1475	Table IV
Fineness of grind		D 1210	Table IV
Drying time			
Set to touch		D 1640	Table IV
Dry hard		D 1640	Table IV
Condition in container			3.6.1

See footnote at end of table.

TABLE V. Test procedures. - Continued

Characteristic	Applicable method in FED-STD-141	Applicable ASTM test method	Requirement paragraph
Accelerated stability			
Primer as packaged	----		3.6.2.1
Reduced primer	----		3.6.2.2
Spraying properties	4331, 2131		3.6.3
Knife test	6304		3.6.4

1/ See 4.3.5.

4.3.3 Vinyl resin.

4.3.3.1 Quantitative analysis. Test for compliance with table I using method 7351 of FED-STD-141, except substitute 200 milliliters (mL) of absolute ethanol for 200 mL of alcoholic potassium hydroxide and wash with absolute ethanol. Reserve isolated resin for infrared spectroscopic analysis (see 4.3.3.2).

4.3.3.2 Qualitative identification. Vacuum dry a film of an acetone solution of the resin isolated in 4.3.3.1 on a rock salt plate at 70°C and scan the infrared spectrum from 2.5 to 15 micrometers (um). The spectrum shall match the one shown on figure 1, showing the 2.9, 5.75, and 14.5 um bands in relatively the same absorbance ratios as illustrated.

4.3.3.3 Chlorine content. Weigh accurately about 1-gram (g) of vehicle into a 30 mL nickel crucible. Add 10 g of powdered anhydrous potassium carbonate and mix with a short nickel stirring rod. Evaporate the solvents by drying the contents of the crucible at 105°C for 2 hours. Add an additional 5 g of potassium carbonate to the top of the sample without mixing. Place the crucible in the hole of a suitable refractory on an electric heater and heat gently for 5 minutes followed by full heat for 15 minutes. Transfer the crucible to a metal triangle and heat with a burner until fusion is complete. Cool to room temperature and transfer to a 600 mL beaker containg 200 mL of water. Place a cover glass on the beaker and add 35 mL of concentrated nitric acid very slowly from a pipet. After effervescence has subsided, wash and remove the stirring rod and crucible. Filter the sample through paper of medium porosity into a 800 mL beaker. Add 20 mL of 5 percent silver nitrate solution while stirring vigorously. Heat to boiling, cool to room temperature, and filter through a tared Gooch crucible. Wash with water, dry for 1-hour at 130°C and weigh. Check for compliance with table I.

$$\text{Percent chlorine} = \frac{\text{Weight of PPT by 0.2474 by 100}}{\text{nonvolatile weight of sample}}$$

4.3.3.4 Vinyl acetate.

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

Column preparation: Pack a 5-ft length of 1/4 inch copper tubing with 85 percent phosphoric acid (3 parts), diethylene glycol adipate (20 parts) on Chromosorb W (80 parts).

Operating conditions:

Detector cell temperature, °C	275
Detector cell current, mA	160
Injection port temperature, °C	250
Helium flow at exit, cc/minute	85
Initial column temperature, °C	50
Terminal column temperature, °C	175
Column heating rate, °C/minute	6

Calibration: Determine detector response correction factor by weighing and chromatographing a mixture of acetic and propionic acid: assign a correction factor for acetic acid that will put the area/mass relationships on an equivalent basis.

4.3.3.4.1 Procedure. Accurately weigh a sample containing approximately 2 g of nonvolatile vehicle into a 125 mL flask with a 24/40 glass ground joint. Add 3 ML of methylene chloride, place the flask in a 60°C water bath, and evaporate the solvents using a moderate current of air. Repeat the addition of methylene chloride and solvent evaporation steps until all traces of solvent are gone. Allow the flask to cool to room temperature and accurately weigh in 50 - 60 milligrams of propionic acid. Add 15 mL of tetrahydrofuran to the flask and stir with a magnetic stirrer until all the resin is completely dissolved. Continue stirring and add 15 mL of 0.1 N alcoholic KOH from a pipette. Transfer the flask to a water bath, attach an air condenser, and reflux gently for 2 hours. After reflux, slowly add 20 mL of water, mix well, and filter through rapid paper into a 100 mL beaker (see note 1). Transfer the filtrate to a 60°C water bath and evaporate the solvents with a current of air. If necessary, place the beakers in a 110°C oven to facilitate the complete evaporation of all solvents. Cool the beaker to room temperature, add 5 mL of absolute ethanol, and stir for 1-minute using a rubber policeman. Add three drops of thymol blue (0.1 percent in ethanol) and add concentrated HCl dropwise until a permanent red color develops. Stir for 1-minute and transfer to a

micro-centrifuge tube. Centrifuge, reserve the supernatant liquid for sampling. Inject 40 microliters of sample and follow the operating conditions described above. Calculate the percent vinyl acetate as follows:

$$\text{Percent} = \frac{S \text{ by } D \text{ by } T \text{ by } 100}{I \text{ by } Y \text{ by } F}$$

Where S = Area of acetic acid peak
I = Area of internal standard peak
D = Detector response correction factor
T = Weight of internal standard (propionic acid)
F = 0.70 (convert acetic acid to vinyl acetate)
Y = Nonvolatile weight of sample

Note 1: Quantitative washing and transferring is not required in any of the steps of the procedure.

4.3.4 Solvent analysis for compositions G and L.

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

Column preparation: Pack an 8-ft length of 1/4 inch copper tubing with 20 percent by weight of N,N-Bis (2-cyanoethyl) formamide on 60 to 80 mesh Chromosorb P and a 12-ft length of 1/4 inch copper tubing with 30 percent by weight of diethylene glycol succinate on 60 to 80 mesh Chromosorb P. Join the two columns together with the N,N-Bis (2-cyanoethyl) formamide section first and the diethylene gylcol succinate section last.

Operating conditions:

Detector cell temperature, °C	300
Detector cell current, mA	160
Injection port temperature, °C	250
Helium flow at exit, cc/minute	100
Column heating rate, °C/minute	2
Initial column temperature, °C	60
Terminal column temperature, °C	140

Calibration: Determine detector response correction factors by analyzing known quantities of the solvents and computing their area/mass and area/volume relationship.

4.3.4.1 Procedure. Pour approximately 2 to 3 g of vehicle into a small test tube 13 by 100 millimeters and insert a small stirring rod. Precipitate the resin by the slow addition of 3 mL pentane with constant stirring of the sample. Heat the chromatograph column to 60°C. Withdraw 5 to 6 microliters of the supernatant liquid from the precipitated sample and introduce onto the column. Immediately engage the mechanism for increasing the column temperature. Discontinue heating after column temperature reaches 140°C. Identify each solvent by comparing their retention times to those obtained from known solvents. To determine the amount of each solvent, measure the area of each peak (except pentane), multiply by the appropriate detector response correction factor, and determine the total of the corrected areas. Calculate the percent of each solvent as follows:

$$\text{Percent} = \frac{\text{Corrected area of solvent peak by 100}}{\text{Total correct peak areas}}$$

4.3.5 Chromium trioxide (CrO_3). In a 400 mL beaker weigh from 0.5 to 1.0 g of pigment. Add 12 mL of 50 percent potassium hydroxide solution and 10 mL of water. Handle the beaker gently so as not to agitate the mixture and cover with a watch glass. Boil very gently for 10 to 15 minutes so that the volume does not decrease. Add 50 g of potassium chloride crystals to the hot solution and dilute with water to 200 mL volume. Warm and stir until most of the salt has dissolved and re-heat to a gentle boil. Filter through filter paper of fine texture, collecting the filtrate in a 500 mL Erlenemeyer flask. Wash the paper and beaker thoroughly with water. To the filtrate, add 22 mL of concentrated hydrochloric acid. Immediately add 10 mL of 20 percent potassium iodide solution and titrate with 0.1 N sodium thiosulfate, using starch indicator near the endpoint.

$$\text{Percent } CrO_3 = \frac{\text{Volume of thiosulfate by normality by 3.33}}{\text{Weight of sample}}$$

4.3.6 Condition in container. Determine package condition as in method 3011 of FED-STD-141, and observe for compliance with 3.6.1.

4.3.7 Accelerated stability.

4.3.7.1 Primer as packaged. Place a 3/4 filled closed pint can of the primer in an oven at 60 ± 1°C for 7 days. Remove and allow to stand 24 hours at room temperature. Determine package condition as in method 3011 of FED-STD-141, for compliance with 3.6.2.1. Mix thoroughly and draw down the primer on clear plate glass using a 3 mil (6 mil gap clearance) film applicator. Allow to dry 1/2 hour in a horizontal position and examine by visual inspection and feel for compliance with 3.6.2.1. Determine pinholing by viewing the film through light transmitted by holding a 100 watt, 120 volt incandescent light bulb against the back of the film.

4.3.7.2 Reduced primer. Reduce one part by volume of the primer aged as specified, (see 4.3.7.1) with three parts by volume of thinner conforming to table VI. Mix thoroughly and flow out on clear glass. Allow to dry 1/2 hour in a horizontal position and examine for compliance with 3.6.2.2.

TABLE VI. Thinner.

Ingredient	Composition G		Composition L	
	Percent by weight	Approx. percent by volume	Percent by weight	Approx. percent by volume
Methyl isobutyl ketone (TT-M-268)	50	52	--	--
Methyl N-butyl ketone[1/]	--	--	50	50
Methyl ethyl ketone (TT-M-261)	--	--	15	15
Toluene	50	48	15	14
Aliphatic naphtha[2/] (TT-N-95, type I)	--	--	20	21

1/ The methyl n-butyl ketone shall contain no more than 5-percent by volume of branched chain ketones.
2/ The aliphatic naphtha shall contain no more than 11 percent by volume of aromatic hydrocarbons.

4.3.8 Test for spraying properties. Reduce 2 parts by volume of the primer with 1 part by volume of thinner conforming to table VI. Spray a .5 mil dry film thickness of pretreatment coating (DOD-P-15328) to a steel panel cleaned with the aliphatic naphtha, ethylene glycol monoethyl ether mixture in method 2011 of FED-STD-141. Allow the pretreatment coating to air dry 1-hour and then coat with a .9 mil to 1.1 mil dry film of the primer. Air dry 1-hour and observe for compliance with 3.6.3. For referee test use automatic application per method 2131 of FED-STD-141.

4.3.9 Knife test. Allow the panel prepared in 4.3.8 to air dry 48 hours. Perform the knife test as in method 6304 of FED-STD-141, for compliance with 3.6.4.

4.4 Toxicity and quantity of emitted volatiles. The toxicity of and quantity of emitted volatiles from the paint being qualified shall be determined by the David W. Taylor Naval Ship Research and Development Center, Annapolis, MD 21402, or by any other testing facility approved by the Naval Sea Systems Command, Washington, DC 20362 (see 6.2). Data from this test will be reviewed by the Navy Bureau of Medicine, and by the Naval Sea Systems Command. Based on the data and review of the hazards presented by volatiles, a determination of acceptability will be made by the Naval Sea Systems Command. This paragraph is applicable only to class 2 qualification.

4.5 Packaging inspection. Sample package and packs and the inspection of the packaging, packing and marking for shipment and storage shall be in accordance with the requirements of section 5 and the documents specified therein.

5. PACKAGING

(The preparation for delivery requirements specified herein apply on for direct Government acquisitions.)

5.1 Packaging, packing, and marking. The primer 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 primer shall be furnished in 1-gallon multiple friction top containers or 5-gallon lug cover steel pails as specified (see 6.2).

5.2 Marking. In addition to any special marking specified in the contract or order, each container shall have affixed a warning label of appropriate size conforming to PPP-P-1892. For composition L under "contains" shall be inserted "methyl ethyl ketone". For unit containers that also serve as shipping containers any marking conflict with ICC Regulations shall be resolved by reasonable modification of size of label or use of warning statement without label design (see 6.2 and 6.5). Composition L containers shall be marked as follows:

> "The volatile content of this container is not photochemically reactive as defined by Rule 102 of the South Coast Air Quality Management District."

5.2.1 Each container shall contain the following statement: "Storage at cold temperatures may cause gelling. Fluidity can be restored by heating slowly. Do not exceed 120°F. If thinning is necessary, for composition G (General Use) use 50/50 mixture of methyl ethyl ketone and xylol, and for composition L (Limited Use - where air pollution regulations are in effect) use methyl n-butyl ketone".

6. NOTES

6.1 Intended use. The primer covered by this specification is intended for use over metal surfaces pretreated with pretreatment primer specified by DOD-P-15328 and usually is topcoated with vinyl-alkyd finishes or vinyl antifouling paint. It may be used with hot or conventional spray equipment. Composition L primer should be specified for use in areas with regulations controlling the emission of solvents into the atmosphere. The primer coating is used under vinyl-alkyd topcoats of the Formula No. 122 series or vinyl antifouling paint, Formula No. 121 or 129.

6.2 Ordering data. Acquisition documents should specify the following:

(a) Title, number, and date of this specification.
(b) Composition required (see 1.2).
(c) Request for Material Safety Data Sheet (see 3.7 and 4.4).
(d) Level of packaging and level of packing required (see 5.1).
(e) Size of container and special marking required (see 5.2).

6.3 The primer coating should be purchased by volume, the unit being 1-gallon of 231 cubic inches at 68°F.

6.4 The following formulas approximating 100 gallons, as specified in table VII, have produced primers conforming to this specification. However, the Government assumes no responsibility for the acceptance of products claimed to be manufactured under the identical formulas.

TABLE VII. Formulas approximating 100 gallons.

Ingredients	Pounds	
	Composition G	Composition L
Zinc chromate, insoluble type	82.0	80.1
Magnesium silicate	51.2	50.1
Lampblack	2.1	2.1
Organic suspension agent, 24 percent N.V.	4.1	3.9
Vinyl resin	148.7	145.1
Tricresyl phosphate	12.9	12.5
Methyl isobutyl ketone	335.0	-----
Methyl N-butyl ketone	-----	273.2
Methyl ethyl ketone	-----	79.5
Toluene	218.1	80.1
Aliphatic naphtha	-----	107.1

6.5 Volatile content. Although the container marking specifically refers to the South Coast Air Quality Management District, the enamel may be used anywhere else an enamel complying with 3.4 is allowed. This includes other air pollution control districts or similar areas controlling the emission of solvents into the atmosphere. Information regarding Los Angeles County Air Pollution Rules 102, 442, and 443 may be obtained from: South Coast Air Quality Management District, 9150 E. Flair Drive, El Monte, CA 91731.

6.6 Changes from previous issue. Asterisks (*) are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodians:
Army - MR
Navy - SH
Air Force - 99
Review activities:
Army - MI, EA
Navy - SA
User activities:
Navy - YD, AS

Preparing activity:
Navy - SH
(Project 8010-0913)

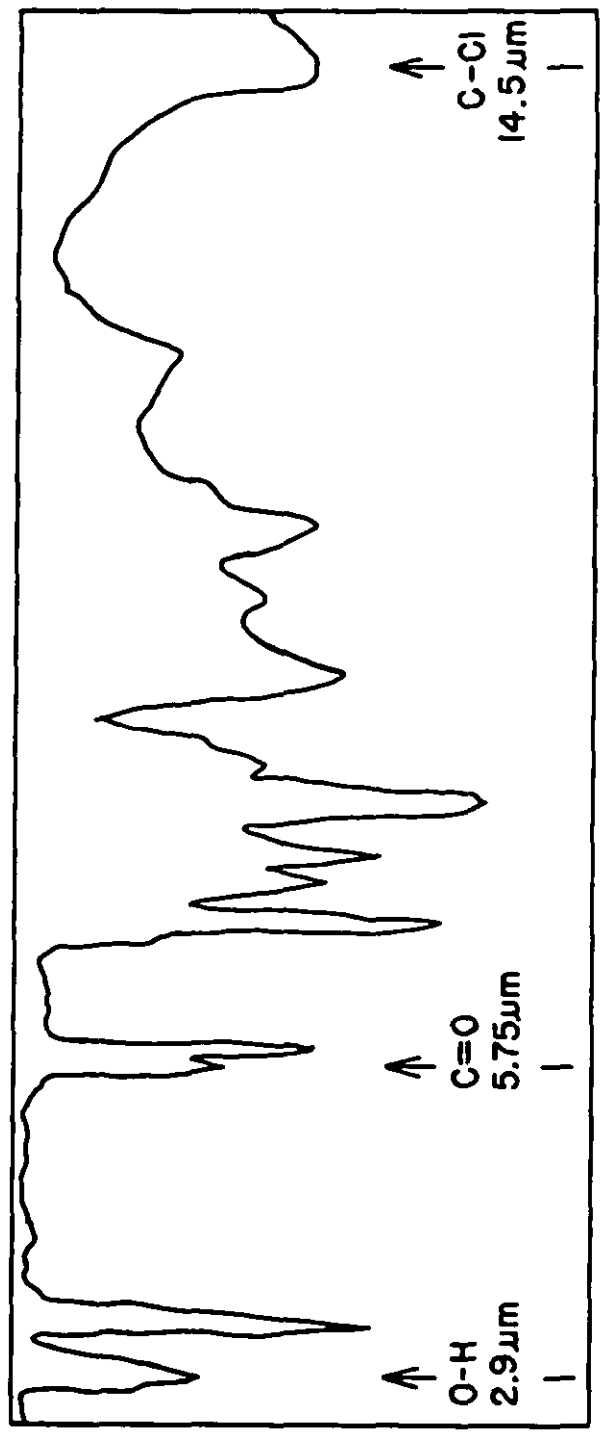

FIGURE 1. Infrared resin spectrum.

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