

[INCH-POUND]
A-A-50570
January 17, 1997
SUPERSEDING
MIL-P-28578B
7 July 1988

COMMERCIAL ITEM DESCRIPTION

PAINT, WATER-BORNE, ACRYLIC OR MODIFIED ACRYLIC, SEMIGLOSS, FOR METAL SURFACES

The General Services Administration has authorized the use of this commercial item description for all Federal agencies.

1. **SCOPE.** This Commercial Item Description (CID) covers a water-borne, semigloss paint, acrylic, or modified acrylic, for use as a topcoat on exterior or interior previously painted metal surfaces in nonmarine environments or surfaces treated with a primer conforming to A-A-50557. The paint is also intended for use in all environments directly over suitable previously painted surfaces. It is suitable for use in environments where volatile organic compound (VOC) emissions are controlled by air quality regulations (see 3.3.2). The paint should be applied only at temperatures between 50 and 100 degrees Fahrenheit (°F) (10 and 38 degrees Celsius (°C)) and a relative humidity no higher than 85 percent.

2. **CLASSIFICATION.** The paint covered by this CID shall be one type; however, it may be procured in colors as specified (see 7.2) by the procuring agency.

3. SALIENT CHARACTERISTICS.

3.1 General. The paint shall consist of pigments and vehicle combined to produce a ready-to-use product meeting all the requirements of this CID. The paint shall be free of materials that would be toxic to personnel under normal conditions of use.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: Commanding Officer (Code 1581), Naval Construction Battalion Center, Port Hueneme, CA 93043-4301, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8010

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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3.2.1 Pigments. All pigments shall be chalk-resistant and alkali-resistant. Tinting pigments may be used when necessary to provide the color required (see 3.4.2 and 7.2) and may be lightfast. Suitable extender pigments may be included when needed.

3.2.2 Vehicle. The vehicle shall consist of an acrylic or modified acrylic copolymer. Other necessary additives such as preservatives, antifoam agents, and dispersants may be included.

3.3 Quantitative requirements.

3.3.1 Prohibited materials. The manufacturer shall certify that the nonvolatile portion of the primer contains less than 0.06 percent lead (when tested in accordance with ASTM D 3335) and the primer does not contain chromium, toxic heavy metals, halogenated solvents, benzene, ethylbenzene, xylene (all isomers), 2-ethoxyethanol or 2 methoxyethanol and their corresponding acetates.

3.3.2 Test conditions. Paint shall be conditioned and tested in a room environment maintained as specified in ASTM D 3924 unless otherwise specified in test method.

3.3.3 VOC content. The VOC content shall be not greater than 2.1 pounds per gallon (lb/gal) (250 grams per liter (g/L)). Test in accordance with ASTM D 3960 and calculate as grams of VOC per liter of coating, less water and exempt solvents.

3.3.4 Drying time. The dry-to-touch time shall be not greater than 2 hours and the dry-hard time shall be not greater than 16 hours. Determine the dry-to-touch time and dry-hard time in accordance with ASTM D 1640.

3.3.5 Fineness of grind. The fineness of grind shall be not less than 6 Hegman units. Determine the fineness of grind in accordance with ASTM D 1210.

3.3.6 Specular gloss. The 60 degree (°) specular gloss mean reading shall be not less than 30 nor greater than 60. Measure the 60° specular gloss in accordance with ASTM D 523.

3.3.7 Opacity. Test in accordance with ASTM D 2805 for a spreading rate of 400 square feet per gallon. The contrast ratios shall be as shown for the reflectances indicated below:

<u>Reflectance</u>	<u>Minimum Contrast Ratio</u>
80 and above	0.97
79 - 76	0.98
75 and below	0.99

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3.4 Qualitative requirements.

3.4.1 Condition in container. The paint, as received, shall be ready-mixed, and shall show no evidence of biological growth, livering, skinning, putrefaction, rust from corrosion of the container, or hard settling of the pigment. Any settled pigment shall be readily dispersible in the liquid portion by hand stirring for five minutes to form a smooth, homogeneous product, free from persistent foam. Storage stability shall be determined by filling three resin-lined, friction-top, one-pint cans with the paint, and close cans tightly. Expose one can and contents three times to the following temperature cycles:

- a. Low temperature of 40 ± 3 °F (4.45 ± 1.65 °C) for sixteen hours.
- b. High temperature of 100 ± 3 °F (38 ± 1.65 °C) for eight hours.

Store second can and contents at 40 ± 3 °F (4.45 ± 1.65 °C) for two weeks. Store the third can and contents at 100 ± 3 °F (38 ± 1.65 °C) for two weeks. Following the exposure periods the paint shall show no gelation, pigment settling, excessive thickening, coagulation, lumps, or coarse particles, and when applied to a glass panel shall dry to a smooth, uniform finish. Any agglomerated pigment not dispersed by stirring, shall brush-out to a defect free surface.

3.4.2 Color. The color shall be as specified (see 7.2). Apply the paint to a clean, smooth, plate-glass panel with a 0.003-inch (0.076 mm) (approximately 0.006-inch (0.152 mm) gap clearance) film applicator. Allow the film to dry for 24 hours. Evaluate the color of the dry film visually in accordance with ASTM D 1729.

3.4.3 Working properties. Test by applying the paint to three smooth steel vertical surfaces at 8 mils (20.3 mm) wet film thickness by spray, and 4 mils (10.1 mm) wet film thickness by brush or roller. The steel surfaces shall be cold-rolled steel panels conforming to ASTM D 609, Type 3, prepared for coating by Method D. Dry the paint in a well-ventilated room or other enclosed space, free from drafts and dust, in diffused light, not in direct sunlight. Maintain the air temperature between 75 ± 5 °F (24 ± 3 °C) and the relative humidity at 50 ± 5 percent during application and drying. After four hours of drying, apply a second coat in the same manner as the first. After drying there shall be no visual runs, sags, streaks, flashes, laps, pinholing, mud-cracking, eyeing, or cratering after application of the first coat; no picking-up or rolling-up of the first coat during application of the second coat; and after 24 hours the finish shall be smooth and uniform.

3.4.4 Microbial growth resistance. When tested in accordance with ASTM D 3273, the degree of microbial growth shall have a disfigurement rating of not greater than 8 as specified in ASTM D 3274.

3.4.5 Flexibility. The test shall be performed on a draw down of the color finish coating on panels, conforming to ASTM D 609, Type I, prepared for coating by Method C. The thickness of the panel shall be 0.0375 ± 0.0125 inch (0.095 ± 0.032 mm). Apply a two-inch (51 mm) wide film of the paint with a film applicator that will give a dry thickness of 0.09 to 1.1 mils (0.23 to 2.79 mm). Air dry the coated panel for 24 hours at a temperature of

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70 to 80 °F (21 to 27 °C) and then place in an oven at 98 to 102 °F (37 to 39 °C) for four days. After removal from the oven condition the panel for two hours at 70 to 80 °F (21 to 27 °C), and then bend over a 0.25 inch (6.35 mm) diameter mandrel, as described in ASTM D 522. The coating shall be examined in strong light for cracking or flaking when bent over the mandrel.

3.4.6 Adhesion to previously painted surfaces. When tested as specified in 3.4.6.1 and 3.4.6.2, the adhesion shall be rated 4B or better.

3.4.6.1 Alkyd adhesion. Coat a panel, having an area of not less than 24 square inches (15 484 square millimeters (mm²)), of a noncorroding substrate, with one coat of alkyd enamel conforming to SSPC-Paint 104, Type I. The dry film thickness of the coating shall be a nominal 2 mils (0.051 mm). Expose the test panel to 1,000 hours of accelerated weathering in accordance with ASTM G 53. At the end of the exposure period, wash the panel with water using a soft sponge. Apply one coat of the paint using a 0.003-inch (0.076 mm) (approximately 0.006-inch (0.152 mm) gap clearance) film applicator and allow to dry for 72 hours. Determine the adhesion in accordance with ASTM D 3359, Method B.

3.4.6.2 Epoxy adhesion. Coat two 3- by 8- inch (76 by 203 mm) cold-rolled steel panels, having an area of not less than 24 square inches (15 484 mm²), conforming to ASTM D 609, Type 1, prepared for coating by Method D, with an epoxy material conforming to MIL-P-24441/1, Formula 150. The dry film thickness of the coating shall be 2 mils (0.051 mm). Allow one coated panel to dry for 24 hours and the second panel for 96 hours. At the end of the drying time, apply one coat of the paint to each panel using a 0.003-inch (0.076 mm) (approximately 0.006-inch (0.152 mm) gap clearance) file applicator and allow to dry for 72 hours. Determine the adhesion as specified in 3.4.6.1.

3.4.7 Humidity resistance. Apply one coat of primer conforming to A-A-50557 and two coats of test paint to a hot-rolled steel panel, having an area of not less than 24 square inches (15 484 mm²), prepared for coating by blast cleaning to a nominal 2.0 mil (0.051 mm) profile in accordance with SSPC-SP 10, using an aluminum oxide grit. Draw down the coats using a 0.003-inch (0.076 mm) (approximately 0.006-inch (0.152 mm) gap clearance) film applicator. Allow the panel to dry 24 hours between each coat, and cure the finished panel one week before scribing and exposure. Scribe an "x," 2 inches (51 mm) wide and 2 inches (51 mm) high, through the coating to the metal, on the lower half of the panel, before exposure testing. Protect the cut edges of the panel with a suitable material stable under the conditions of the test, such as carnauba wax. Test the panel, coated side down, in accordance with ASTM D 2247 for 1,000 hours. Examine the exposed panel for compliance to ASTM D 714.

3.4.8 Salt spray resistance. There shall be no rust bleed-through and the degree of blistering shall be not greater than 6 and of medium density as defined in ASTM D 714. There shall be no rust creepage more than 0.125-inch (3 mm) from the scribed mark. Expose the panel in accordance with ASTM B 117 for 1,000 hours.

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3.4.9 Accelerated weathering resistance. Apply the paint to a smooth 3- by 8-inch (76 by 203 mm) aluminum test panel, using a 0.003-inch (0.076 mm) (approximately 0.006-inch (0.152 mm) gap clearance) file applicator, and allow the panel to cure for one week. Measure the 60° specular gloss in accordance with ASTM D 523. Expose the test panel to 1,000 hours of accelerated weathering in accordance with ASTM G 53 and then remeasure the 60° specular gloss. The 60° specular gloss of the weathered panel will be no less than 80 percent of the original value.

3.5 Material Safety Data Sheets (MSDS). MSDS shall be prepared in accordance with FED-STD-313 and submitted as directed in the contract or order at time of acquisition award.

4. REGULATORY REQUIREMENTS.

4.1 Materials. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR). Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this CID are to be new and be fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products are allowed under this CID.

5. QUALITY ASSURANCE PROVISIONS.

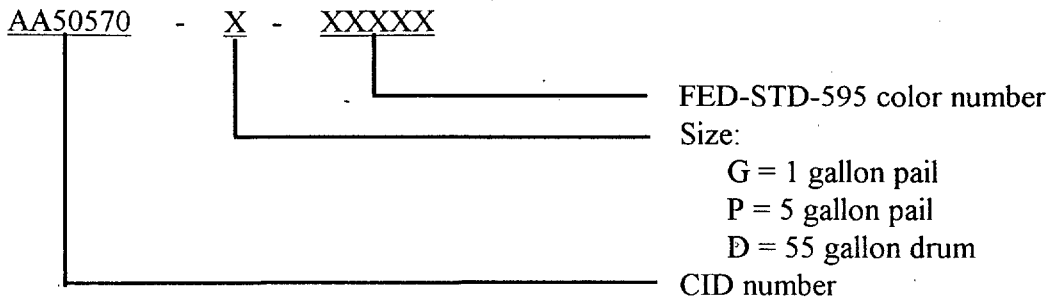
5.1 Product Conformance. The products provided shall meet the salient characteristics of this commercial item description, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial market. The government reserves the right to require proof of such conformance.

6. PACKAGING. The preservation, packing, and marking shall be as specified in the contract or order.

7. NOTES.

7.1 Part Identification Number (PIN). The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor. The PIN used for units acquired to this description will be assigned as follows:

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7.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Color required (see 2, 3.2.1, and 3.4.2).
- c. Packaging and quantity required (see 6).

7.3 Source of documents.

7.3.1 ASTM Standards are available from American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

7.3.2 The Federal Acquisition Regulation (FAR) may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

7.3.3 Steel Structures Painting Council (SSPC) documents may be obtained at SSPC, 4400 Fifth Avenue, Pittsburgh, PA 15213-2683.

7.4 Subject term (key word) listing.

Metal paint
VOC controlled paint

MILITARY INTERESTS:

Custodians:

Army - AV
Navy - YD1
Air Force - 99

Review Activities:

Navy - SH
Air Force - 84

CIVIL AGENCY COORDINATING ACTIVITY:

GSA-FSS

Preparing Activity:

Navy - YD1

(Project 8010-0949)

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.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
A-A-50570

2. DOCUMENT DATE (YYMMDD)
960722

3. DOCUMENT TITLE

PAINT, WATER-BORNE, ACRYLIC OR MODIFIED ACRYLIC, SEMIGLOSS, FOR METAL 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)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (if applicable)	7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME RUSSELL REYNOLDS	b. TELEPHONE (Include Area Code) (1) Commercial (805) 982-5946 (2) AUTOVON 551-5946
c. ADDRESS (Include Zip Code) COMMANDING OFFICER, NCBC CODE 1581C 1000 23RD AVENUE PORT HUENEME, CA 93043-4301	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: DEFENSE QUALITY AND STANDARDIZATION OFFICE 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22401-3466 Telephone (703) 756-2340 AUTOVON 289-2340