

(METRIC)
A-A-3132
April 17, 1998

COMMERCIAL ITEM DESCRIPTION

COATING SYSTEM: EPOXY PRIMER/URETHANE TOPCOAT FOR MINIMALLY PREPARED ATMOSPHERIC STEEL

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

1. **SCOPE.** This paint system consists of a commercially available epoxy primer and urethane topcoat, produced by a single manufacturer, and marketed for use as a system. The coating system is suitable for use on minimally prepared rusted and/or painted ferrous metal substrates. As a minimum, the topcoat shall be available in white, black, gray, and safety yellow.

2. **CLASSIFICATION.** This commercial item description describes one type of epoxy primer/urethane topcoat for minimally prepared atmospheric steel.

3. **SALIENT CHARACTERISTICS.**

3.1 **General requirements.**

3.1.1 **Materials.** Wide latitude is afforded the formulator, provided the system meets the requirements as specified herein. The manufacturer shall ensure that no mercury, cadmium, hexavalent chromium compounds, or chlorinated solvents are used in the formulation. If any of these substances is present as an impurity in the coating system, its concentration shall be less than 0.1 percent by weight. The lead content of the nonvolatile portion of the coating shall not exceed 0.06 percent.

3.1.2 **Condition in container.** The individual components of the coating system shall be free from limering, seeds, and hard settled pigment and shall be readily mixed to a uniform condition by five minutes of hand stirring. A closed, three-quarter filled quart container of each individual component shall not skin within 48 hours, when stored at room temperature.

3.1.3 **Application Properties.** The primer and topcoat shall not sag, run, or streak when applied by brush, airless spray, or roller at the manufacturer's recommended thickness. The dried coatings shall have a smooth uniform appearance. A dried film of the epoxy primer shall have no visible cracks or fractures, when examined under 30X magnification.

3.2 **Special requirements.** Unless otherwise stated in the test method, all routine and referee testing shall be done at the conditions specified in ASTM D 3924.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: General Services Administration, Paints and Chemicals Center, Supply and Environmental Management Division (10FTE), 400 15th St. SW, Auburn, WA. 98001-6599.

FSC 8010

3.2.1 Quantitative requirements. The paint thinner shall meet the requirements listed in table I.

TABLE I
REQUIREMENTS

PROPERTY	REQUIREMENT	ASTM TEST METHOD and/or Paragraph No.
Prohibited materials		
Lead content, wt. percent of nonvolatile, max	0.06	See note <u>5</u> /
Other prohibited materials listed in 2.1.2, wt. percent	0.1	See note <u>5</u> /
Dry hard time, hours, max		
Primer	8	D 1640
Top coat	6	D 1640
Pot-Life, viscosity increase by 10 KU, hours, max/		
Mixed primer	4	D 562 <u>3</u> /
Mixed top coat	4	D 562 <u>3</u> /
Intercoat adhesion	No intercoat delamination	See note <u>4</u> /
Volatile Organic Compound (VOC) content (less water and exempt solvents), g/L, max.		
Of epoxy primer	350	D 3960 <u>1</u> /
Of urethane topcoat	420	D 3960 <u>1</u> /
Blister rating after 4032 h exposure, average, min (adjacent to scribe only)	8	D 710, 3.3.1 and 3.3.3
Rust undercutting of scribe		
Rating for a single panel, min.	5	D 1654 and 3.3.3
Average rating of six test panels	7	D 1654 and 3.3.3
Degree of rusting, not adjacent to scribe, min	10	D 610 (SSPC Vis. 2) and 3.3.3
Sum of Blister rating, rust undercutting average rating, and degree of rusting, min.	25	3.3.1

1/ The VOC shall be determined on the paint as applied in accordance with the manufacturer's instructions for use.

2/ The time to dry hard shall be determined for the epoxy coating applied at the recommended film thickness.

3/ The initial viscosity of a one quart sample of thoroughly mixed coating shall be measured, and again after three hours.

4/ The primer/topcoat system shall be spray applied to the recommended film thickness. The primer shall be air dried for 72 hours at 72 ± 2 degrees F and 50 ± 5 percent relative humidity prior to application of the topcoat. The topcoat shall be allowed to dry seven days prior to testing. A sharp knife

shall be used to produce two parallel scribes through the coating approximately one inch long and one-quarter inch apart. A third scribe shall be made perpendicular to and through the parallel scribes. The knife shall be used to determine the intercoat adhesion by attempting to delaminate the urethane topcoat from the epoxy primer along the perpendicular scribe.

5/ For referee purposes only. Lead content shall be measured using X-Ray fluorescence, cadmium content by ASTM D 3335, chromium content by ASTM D 3718, and mercury content by ASTM D 3624. Organic solvents shall be identified using FED-STD-141 methods 7356 and 7375.

3.3 Accelerated Corrosion Resistance.

3.3.1 Requirements. No more than two panels shall exhibit blistering adjacent to the scribe after 1344 and 2016 hours of testing. No more than four panels shall exhibit blistering adjacent to the scribe after 2688 and 3360 hours of testing. The blister rating shall be the average of the sum of the average numerical ratings for frequency and size. Frequency ratings shall be converted as follows; 10 = none, 8 = few, 6 = medium, 4 = medium dense, 2 = dense, 0 = total. Blistering not immediately adjacent to the scribe shall be cause for rejection. The remaining requirements are given in table I.

3.3.2 Test Method. The corrosion resistance of the epoxy primer/polyurethane topcoat system shall be evaluated using the following test procedure.

3.3.2.1 Preparation of Test Specimens. Pre-rusted test specimens measuring 100 mm x 300 mm x 3.2 mm (4.0 x 12.0 x 0.125 inches) shall be prepared in accordance with SSPC Coatings Test Panel Preparation Specification No. 1, Uncontaminated Rusted Steel.

3.3.2.2 Application of Paint System. The first coat of epoxy primer shall be spray applied to the recommended dry film thickness and allowed to cure for eight hours at 72 ± 2 degrees F and 50 ± 5 percent relative humidity. The urethane topcoat shall be spray applied and allowed to dry for a minimum of seven days prior to testing. Prior to exposure, test panels shall be scribed in accordance with ASTM D1654 such that the coating is uniformly removed down to the substrate along the entire length of the scribe.

3.3.2.3 Cyclic Test Exposure. Six test coupons of the epoxy primer/urethane topcoat coating system shall be exposed in accordance with ASTM D 5894 for a total of 4032h.

3.3.2.4 Inspection and Evaluation of Test Coupons. A transparent grid overlay shall be used to enhance the results of the visual examination. Panels shall be evaluated after 332, 672, 1344, 2016, 2688, 3360, and 4032 hours of exposure, except that undercutting at the scribe shall only be determined after 4032 hours.

3.3 MSDS. The manufacturer shall comply with requirements set forth by the Hazardous Communication Standard 29 CFR 1910.1200 (d) through (g). All Material Safety Data Sheets (MSDSs) submitted shall comply with provisions of FED-STD-313.

4. REGULATORY REQUIREMENTS.

4.1 Federal Acquisition Regulations (FAR). The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the FAR.

5. QUALITY ASSURANCE PROVISIONS.

5.1 Contractor quality assurance. The contractor shall maintain substantiating evidence that the product offered meets the salient characteristics of this Commercial Item Description and that the product conforms to the producer's own drawing, specifications, standards, and quality assurance practices, and is the same product offered for sale in the commercial marketplace.

The contractor shall provide the required information in a tabulated format and with enough clarity so that the formulation of the tested product can be traced compared to the offered product(s). The contractor shall also provide a summary of performance data, consisting of test reports, substantiating that the product to be supplied under this CID meets the ASTM documents cited under 3.2 through 3.3.2.4, and is the same product offered for sale in the commercial marketplace.

The government reserves the right to require proof of such conformance prior to first delivery and thereafter as may be otherwise provided for under the provisions of the contract.

6. PACKAGING.

Preservation, Packing, and marking shall be as specified in the contract or order.

7. NOTES.

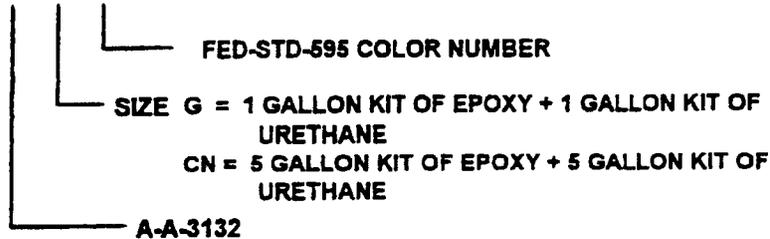
7.1 Intended Use. This coating system is intended primarily for use on hand or power tool cleaned exterior steel substrates exposed to rural or industrial atmospheres where finish colors other than aluminum are desired. It may also be used for interior surfaces that are dry or subject to high humidity and condensation. In some cases this coating system can be used to overcoat existing coating systems as a means of extending their service life. An assessment of the current coating condition and the application of a test patch of the proposed overcoat material must be conducted to determine the viability of the overcoat option. Higher grades of surface preparation, such as SSPC-SP 6 Commercial Blast Cleaning, may be selected at the discretion of the specifier. SP 6 may be appropriate for the complete removal of a deteriorated coating system. Better grades of surface cleaning than SP 6 will not significantly improve the performance of the coating system and do not warrant the higher cost.

7.2 Ordering Data. Purchasers should include the following information in the contract or purchase order.

- (a) Title, number, and date of this commercial item description
- (b) Quantity of paint kits and size of the containers required
- (c) Color required
- (d) Address to whom MSDSs should be sent
- (e) Packaging, packing, and marking required

7.3 Part Identification Number (PIN). The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor.

AA3132-G17038



7.4 Referenced documents.

Federal and Military Specifications:

- FED-STD-141 - Paint, Varnish, Lacquer and Related Materials: Methods of Inspection, Sampling and Testing.
- FED-STD-313 - Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities.

ASTM Standards:

- D 562 - Consistency of Paints Using the Stormer Viscometer.
- D 610 - Evaluating Degree of rusting on Painted Steel Surfaces.
- D 714 - Vulcanized Fiber Sheets, Rods, and Tubes Used for electrical Insulation.
- D 1640 - Drying, Curing, or Film Formation of Organic Coatings at Room Temperature.
- D 1654 - Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- D 3335 - Low Concentrations of Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy.
- D 3718 - Low Concentrations of Chromium in Paint by Atomic Absorption Spectroscopy.
- D 3624 - Low Concentrations of Mercury in Paint by Atomic Absorption Spectroscopy.
- D 3924 - Standard Environment for Conditioning and Testing Paint, Varnish, Lacquers, and Related Materials.
- D 3960 - Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
- D 5894 - Cyclic Salt Fog/UV Exposure of Painted Metal, (Alternating Exposures in a Fog/Dry Cabinet and a UV/ Condensation Cabinet.)

Steel Structure Painting Council

- SSPC-Guide to Vis 2 - Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces.
- SSPC-SP 6 - Commercial Blast Cleaning.

7.5 Source of Documents.

7.5.1 Contact the contracting officer for a copy of paragraph 23.403 of the FAR, and the appropriate paragraphs in 29 and 40 CFR.

7.5.2 Copies of ASTM specifications and standards may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

7.5.3 Copies of Federal Specifications and standards may be obtained from the Federal Supply Service Bureau, Specification Section, Suite 8100, 470 East L'Enfant Plaza, SW, Washington, DC 20407.

7.5.4 Copies of Steel Structures Painting Council (SSPC) specifications for surface preparation are available from SSPC, 4516 Henry St., Pittsburgh, PA 15213-3728

7.6 Products known to meet these requirements.

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|--|---|
| a. Primer: Carbomastic 90
Topcoat: Carbothane 134HS | Carboline
350 Hanley Industrial Court
St. Louis, MO 63144 |
| b. Primer: Carbomastic 15LO
Topcoat: Carbothane 134HS | Carboline
350 Hanley Industrial Court
St. Louis, MO 63144 |
| c. Primer: Intergard H.S. Universal Epoxy
Topcoat: Interthane | International/Coourtalds Coatings
6001 Antoine
Houston, TX 77210-4806 |
| d. Primer: Surface-Tolerant Epoxy
Topcoat: Hi Solids Polyurethane | Sherwin-Williams
101 Prospect Ave. NW
Cleveland, OH 44115-1075 |

MILITARY INTERESTS:

Custodian

Army - CE
Air Force - 99

Review Activities

Army - CE
Air Force - 84

User Activities

Army - CE

**CIVIL AGENCY
COORDINATING ACTIVITY:**

Preparing Activity:

GSA-FSS