

METRIC

A-A-3132A
June 13, 2003
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 (CID) for all federal agencies.

1. **SCOPE.** This coating 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 coating system shall be of the following sizes, as specified (see 6.2).

Size G – One-gallon kit with one gallon of epoxy plus one gallon of urethane.

Size C – Five-gallon kit with five gallons of epoxy plus five gallons of urethane.

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 0.6 percent.

3.1.2 Condition in Container. The individual components of the coating system shall be free from livering, 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.

Beneficial comments, recommendations, additions, deletions, clarifications etc., and any other data which may improve this document should be sent to: ENGINEER RESEARCH AND DEVELOPMENT CENTER, CORPS OF ENGINEERS, U.S. ARMY TOPOGRAPHIC ENGINEERING CENTER, ATTN CEERD-TS, 7701 TELEGRAPH ROAD, ALEXANDRIA, VA 22315-3864.

AMSC N/A

FSC 8010

Distribution Statement A. Approved for public release; distribution is unlimited.

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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.

3.1.4 Intercoat Adhesion. There shall be no intercoat delamination when the following procedure is performed:

The primer/topcoat system shall be spray applied to the recommended film thickness. The primer shall be air-dried for 72 hours at 23 +/- 1 degree C (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.

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.

3.2.1 Quantitative requirements. The paint system shall meet the requirements listed in table 1.

TABLE 1
PHYSICAL REQUIREMENTS

PROPERTY	REQUIREMENT	ASTM TEST METHOD and/or Paragraph No.
Prohibited materials: Lead content, wt. Percent of nonvolatile, max	0.06	See note <u>4/</u> , below
Other prohibited materials listed in 3.1.1, wt. Percent	0.1	See note <u>4/</u> , below
Dry hard time, hours, max Primer Topcoat	8 6	D 1640
Pot-Life, viscosity increase by 10 KU, hours, max/ Mixed primer Mixed top coat	4 4	D 562 See note <u>3/</u> , below
Volatile Organic Compound (VOC) content (less water and exempt solvents), g/l, max. Of epoxy primer Of urethane topcoat	350 420	D 3960, and See note <u>1/</u> , below

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.

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

3.2.2 Corrosion Resistance. The coating system shall be resistant to corrosion as can be demonstrated by the following test. See Table 2, below.

3.2.2.1 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 4032 hours.

3.2.2.2 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-ME 1, Uncontaminated Rusted Steel.

3.2.2.3 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 scribes.

3.2.3 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.

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Table 2
Corrosion Resistance Requirements

PROPERTY	REQUIREMENT	ASTM TEST METHOD and/or Paragraph No.
Blister rating after 1344 h exposure, average, min (adjacent to scribe only)	No more than two panels shall exhibit blistering adjacent to the scribe	See Note <u>a/</u> , below
Blister rating after 2016 h exposure, average, min (adjacent to scribe only)	No more than two panels shall exhibit blistering adjacent to the scribe	See Note <u>a/</u> , below
Blister rating after 2688 h exposure, average, min (adjacent to scribe only)	No more than four panels shall exhibit blistering adjacent to the scribe	See Note <u>a/</u> , below
Blister rating after 3360 h exposure, average, min (adjacent to scribe only)	No more than four panels shall exhibit blistering adjacent to the scribe	See Note <u>a/</u> , below
Blister rating after 4032 h exposure, average, min (adjacent to scribe only)	8	D 714, See Notes <u>a/</u> and <u>b/</u> , below, and paragraph 3.2.3
Rust undercutting of scribe Rating for a single panel, min Average rating of six test panels	5 7	D 1654
Degree of rusting, not adjacent to scribe, min	10	D 610 (SSPC Vis. 2)
Sum of Blister rating, rust undercutting average rating, and degree of rusting, min	25	See Notes <u>a/</u> and <u>b/</u> , below

a/ Blistering not immediately adjacent to the scribe shall be cause for rejection

b/ 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.

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 QUALITY ASSURANCE PROVISIONS

4.1 Contractor quality assurance. The contractor shall maintain substantiating evidence that the product being 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.

4.1.1 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 requirements of section 3, above, and is the same product offered for sale in the commercial marketplace.

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4.1.2 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.

4.2 Market acceptability. The product offered shall be the latest model of the standard product of the supplier and shall have been used in the field for at least one year by the commercial organizations.

5 PACKAGING

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

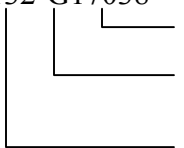
6 NOTES

6.1 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.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this CID.
- b. Color required (see 1).
- c. Quantity and size of the container required (see 2.).
- d. The address to whom the MSDS should be sent (see 3.4).
- e. Packaging, packing and marking required (see 5.1).

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

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 FEDS-STD-595 COLOR NUMBER
 SIZE G = 1Gallon kit Of Epoxy + 1 Gallon of Urethane
 C= 5 Gallon kit Of Epoxy + 5 Gallon kit of Urethane
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6.4 Reference Documents.

Federal Standards:

FED-STD-595 – Colors Used in Government Procurement.

FED-STD-141 – Paint, Varnish, Lacquer and Related Materials: Methods of inspection, sampling and testing.

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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 – Standard Test Method for Evaluating Degree of Blistering Paints.

D 1640 – Drying, Curing, or Film Formation of Organic Coating 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 Concentration 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 an UV/Condensation Cabinet.

SSPC: The Society for Protective Coatings Standards:

SSPC-Guide to Vis 2 – Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces.

SSPC-ME 1 – Uncontaminated Rusted Steel.

SSPC-SP 6 – Commercial Blast Cleaning.

6.5 Source of Documents.

6.5.1 Contact the contracting officer for a copy of paragraph 23,403 of the FAR, and the appropriate paragraphs in 29 and 40 CFR.

6.5.2 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.

6.5.3 Copies of Federal Specifications and standards may be obtained from the Defense Logistics Agency, Defense Automated Printing Service, 700 Robbins Avenue, Bldg. 4D, Philadelphia, PA 19111-5094.

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6.5.4 Copies of documents from SSPC (The Society for Protective Coatings) may be obtained from SSPC: The Society for Protective Coatings, 40 24th Street 6th Floor, Pittsburgh, PA 15222-4656, or through their Website: www.sspc.org

6.6 Products known to meet these requirements.

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|----|---|--|
| a. | Primer: Carbomastic 90
Topcoat: Carbothane 134HG | Carboline
350 Hanley Industrial Court
St. Louis, MO 63144 |
| b. | Primer: Carbomastic 15LO
Topcoat: Carbothane 134HG | Carboline
350 Hanley Industrial Court
St. Louis, MO 63144 |
| c. | Primer: Intergard H.S. Universal Epoxy
Topcoat: Interthane | International Paint, Inc
6001 Antoine Drive
Houston, TX 77091 |
| d. | Primer: Surface-Tolerant Epoxy
Topcoat: Hi Solids Polyurethane | Sherwin - Williams
101 Prospect Ave. NW
Cleveland. OH 44115-1075 |

Custodian:
Army – CE3
Air Force-99

Preparing activity:
Army – CE3
(Project 8010-0191)

Review activity:
Air Force-71
DLA – IS

Civilian Coordinating Activity:
GSA-FSS

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, and send to preparing activity.
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-3132A	2. DOCUMENT DATE (YYYYMMDD) 20030613
3. DOCUMENT TITLE COATING SYSTEM: EPOXY PRIMER/URETHANE TOPCOAT FOR MINIMALLY PREPARED ATMOSPHERIC STEEL		
4. NATURE OF CHANGE <i>(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed)</i>		
5. REASON FOR RECOMMENDATION		
6. SUBMITTER		
a. NAME <i>(Last, First, Middle Initial)</i>	b. ORGANIZATION	
c. ADDRESS <i>(Include Zip Code)</i>	d. TELEPHONE <i>(Include Area Code)</i> (1) Commercial (2) DSN <i>(If applicable)</i>	7. DATE SUBMITTED (YYYYMMDD)
8. PREPARING ACTIVITY		
a. NAME U.S. ARMY TOPOGRAPHIC ENGINEERING CENTER	b. TELEPHONE <i>(Include Area Code)</i> (1) Commercial (2) DSN (703) 428-6862 328-6862	
c. ADDRESS <i>(Include Zip Code)</i> ATTN: CEERD-TS-T 7701 TELEGRAPH ROAD ALEXANDRIA, VA 22315-3864	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Standardization Program Office (DLSC-LM) 8725 John J. Kingman Road, Suite 2533 Fort Belvoir, Virginia 22060-6221 Telephone (703) 767-6888 DSN 427-6888	