[INCH-POUND]
A-A-52474A
December 4, 1996
SUPERSEDING
A-A-52474
December 27, 1993

COMMERCIAL ITEM DESCRIPTION

ELECTROCOATING PRIMER

The General Services Administration has authorized the use of this Commercial Item Description (CID) for all federal agencies.

1. SCOPE. This CID covers a water borne, cathodic epoxy electrodeposition primer (herein after referred to as primer) intended for use on cleaned and pretreated steel, galvanized steel, and aluminum. The primer meets solvent emission maximums of 1.2 pounds per gallon (lbs/gal) (143.8 grams per liter (g/L)) of volatile organic compounds.

2. SALIENT CHARACTERISTICS

2.1 Materials. Unless otherwise specified herein, the material used shall be in accordance with the manufacturer's material specification for cathodic electrodeposition primer. The use of recovered material made in compliance with regulatory requirements is acceptable provided all requirements of this CID are met (see 3.1).

2.2 Design and construction. The composition of the primer shall be as follows.

2.2.1 Resin feed component. The resin feed component shall consist of epoxy or epoxy-urethane resin combined with the necessary amounts of flow control agents and volatile solvents.

2.2.2 Pigment paste component. The pigment paste shall consist of a resin as specified in resin feed component, plus volatile solvents, pigments, and silicone extenders.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any other data which may improve this document should be sent by letter to: U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/BLUE, Warren, MI 48397-5000.

AMSC N/A FSC 8010

2.2.3 Characteristics. The following characteristics (tolerance ranges) of the resin feed and pigment paste components shall be established by the manufacturer at the time of initial process approval (see 4.3):

a. Total solids, percent by weight.
b. Weight per gallon.
c. pH range.
d. Viscosity, centipoise-second.
e. Epoxy resin content.

2.3 Mixed primer. The following characteristics (tolerance ranges) of the mixed primer shall be established by the manufacturer at the time of initial process approval (see 4.3):

a. Total solids, percent by weight.
b. Pigment/binder content.
c. pH range.
d. Conductivity, micromhos.
e. Volatile organic compounds (VOC), lbs/gal (g/L).
f. Lead content (see 2.4).
g. Cure time and temperature.
h. Dry film thickness.
i. Viscosity.

2.4 Hazardous material control. Products and processes used by suppliers shall conform to the employee and consumer health, employee safety, and environmental regulations as specified by the Occupational Safety and Health Administration (OSHA) (40 Code of Federal Regulation (CFR) Part 1910) and Environmental Protection Agency (EPA) (40 CFR Parts 261 to 265).

2.5 Color. The color of the primer shall be gray or black with a gloss range of 30 to 70 in accordance with ASTM D523.

2.6 Performance. Unless otherwise specified, the performance of the primer shall be verified with steel and aluminum test panels representative of the end item. Sufficient steel test panels shall be prepared to adequately qualify the variety of surface conditions and alloys used in the end item. Aluminum test panels shall be of the most corrosion prone alloy used in the end item design. Uncoated and galvanized steel panels (hot dip and electrogalvanized shall be separately qualified) shall be pretreated with zinc phosphate. Unless otherwise specified (see 6.2), the zinc phosphate process shall incorporate a crystal modifier or a grain refining accelerator in the phosphating solution, a separate grain refiner as a pretreatment or a grain refiner addition to the cleaner. The aluminum panels shall be treated with a chromate conversion process or alternate process acceptable to the procuring activity. The primer shall be applied to a dry film thickness required

to meet the corrosion resistance requirements of the contract. All test panels shall be 4 x 12 in. (10.2 x 30.5 cm). The performance requirements are as follows:

2.6.1 Adhesion. Several primed panels shall be topcoated with a chemical agent resistive coating (CARC) paint to a minimum dry film thickness of 1.8 mils (45.7 microns) and allowed to air dry seven days. The primed panels and primed, topcoated panels shall perform as follows:

a. The primer film shall not show any removal from the surface of the panels when subjected to ASTM D3359, method B, classification 5B.
b. The primer film and topcoat shall show no more than 5% removal from the surface when subjected to ASTM D3359, method B, classification 4B.
c. A narrow ribbon of coating shall be difficult to remove from the panels when cut with a curved-blade knife which is held approximately 30 degrees (°) to the panel. The coating shall not flake, chip, or powder when cut, and the knife cut shall show no beveled edges.

2.6.2 Flexibility. An aluminum panel shall be used to determine the flexibility of the primer when subjected to FED-STD-141, method 6221, using a 0.25 in. (0.64 cm) mandrel. The primer film shall show no cracking or flaking. Cracks occurring at either end and extending no more than 0.25 in. (0.64 cm) shall be disregarded.

2.6.3 Salt spray resistance. Three panels of each substrate shall have two intersecting lines scribed across the surface of each panel so that the bare substrate is exposed. The edges of all panels shall be sealed. The panels shall then be subjected to 5% salt spray for 1000 hours as described in ASTM B117. After being subjected to the salt spray, the panels shall be washed free of salt and examined immediately for the following:

a. One panel from each substrate shall be checked for adhesion in accordance with ASTM D3359, method B, classification 3B.
b. One panel from each substrate shall be stripped down mechanically. The panel shall show no more then a trace of rusting, pitting, corrosion or blister larger then 0.39 in. (0.99 cm). For visual inspection the use of ASTM D610, number 8, shall be used.
c. The crossed scribed area shall not exceed 0.13 in. (0.33 cm) score rust creeping on either side of the scribe line or loss of adhesion.
d. There shall be no more than 5 scattered blisters with none larger than 0.04 in. (1 mm).

2.6.4 DS2 resistance. Place two spots of DS2 agent on a primed steel panel and let stand uncovered for 30 minutes. Thoroughly wash with cool water. The primer shall show no signs of blistering or wrinkling. After drying, there shall be no film softening of the primer. The DS2 agent shall consist of the following:

- 70% diethylenetriaming
- 28% ethylene glycol monomethyl ether
- 2% sodium hydroxide

2.6.5 Throw power. In determining the throw power of the primer bath, 4 x 18 in. (10.2 x 45.7 cm) steel panels shall be used. A throw power box shall be assembled by securing two metal panels face to face with a 0.38 in. (0.97 cm) gap between the panels. The panels shall be assembled using a nonconductive material along the sides and with the top and bottom ends open. Submerge the throw power box less than 18 in. (45.7 cm) into the primer bath and deposit a film measuring 1 ±0.1 mils (25.4 ±2.54 microns) dry on the outside of the box. The dry film on the inside of the throw box shall be 1 ±0.1 mils (25.4 ±2.54 microns) on all areas at least 10 in. (25.4 cm) up the panel. Seal the uncoated section and all edges of the test panel and expose the inside face to a 5% salt spray for 96 hours per ASTM B117. After rinsing there shall be no more than a trace amount of rusting (ASTM D610 no. 8) and no blisters larger than 0.04 in. (0.10 cm) in diameter on the entire 10 in. (25.4 cm) coated surface.

2.6.6 Appearance. The cured coating shall be smooth and uniform, free of sags, pits, craters or blisters.

2.6.7 Accelerated corrosion test. The accelerated corrosion test shall be as specified in the contract (see 6.2).

2.7 Toxicity. The primer shall contain no benzene, chlorinated solvents or acetates of ethylene based glycol ethers. The primer shall have no adverse effects on the health of personnel when used for its intended purpose.

2.8 Unit container sizes. The primer shall be available in the following unit container sizes: pint (0.47 L), gallon (3.79 L), 5 gallon (18.93 L) pail, and 55 gallon (208.18 L) drum (see 6.2 and 6.3).

2.9 Identification marking. Identification markings shall be permanent and legible and shall include, as a minimum, the manufacturer's identification code (CAGE), the contract number, the national stock number (NSN) and the Part or Identifying Number (PIN) (see 6.2 and 6.3).

3. REGULATORY REQUIREMENTS

3.1 Recovered material. 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).

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. The contractor is responsible for the performance of all inspections, examinations, and tests.

4.2 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.

4.3 Initial process approval. The contractor shall document all process control characteristics (the minimum being those as specified in 2.2.3 and 2.3), allowable operating ranges for each type of process control test and frequency of testing. The procedure shall be qualified by the successful performance of the corrosion resistance design requirements specified in the contract. The procedure shall be approved by the Materials Engineering Dept. of the procuring activity prior to production.

4.4 Process optimization. A design of experiments shall be conducted to optimize all process parameters.

5. PACKAGING. Preservation, packing, and marking shall be as specified in the contract or order (see 6.2).

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Addresses for obtaining copies of referenced documents.

6.1.1 Other Government documents and publications. The Code of Federal Regulations (CFR), the Environmental Protection Agency (EPA), and the Occupational Safety and Health Administration (OSHA), are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Copies of FED-STD-141 "Paint, Varnish, Lacquer and Related Materials: Methods of Inspection, Sampling and Testing" are available from the Defense Printing Service Detachment Office, Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

6.1.2 Non-Government publications. Copies of ASTM D523 "Specular Gloss (DoD Adopted)", ASTM D3359 "Measuring Adhesion by Tape Test (DoD Adopted)", ASTM B117 "Operating Salt Spray (Fog) Testing Apparatus", and ASTM D610 "Evaluating Degree of Rusting on Painted

Steel Surfaces (DoD Adopted)" are available from the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

6.2 Ordering data. Acquisition documents must specify the following:

a. Title, number, and date of this CID.
b. Issue of DoDISS to be cited in the solicitation.
c. If zinc phosphate process is other than as specified.
d. Accelerated corrosion test, if required.
e. Unit container size and PIN.
f. Selection of applicable level of packaging and marking requirements.

6.3 Part or identification number (PIN). The PIN to be used for primer acquired to this CID is as follows:

AA 52474 - XXXX

- XXXX: Unit container size:
  - PINT - (1) pint
  - QT - (1) quart
  - GAL - (1) gallon
  - PAIL - (1) 5 gallon pail
  - DRUM - (1) 55 gallon drum
- 52474: CID number
- AA: Designates a CID

MILITARY INTERESTS:

Custodian:
Army - AT

CIVIL AGENCY COORDINATING ACTIVITY:
GSA - FSS

Preparing Activity:
Army - AT

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