[INCH-POUND]
A-A-52474B
March 1, 2010
SUPERSEDING
A-A-52474A
December 4, 1996

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. Cathodic electrocoat can be supplied in a single container or pre-mixed resin and pigment paste, or in two separate containers, one for the resin and another for the pigment paste. The composition of the primer shall be as follows.

2.2.1 Resin feed component. The resin feed component shall consist of cathodic epoxy based resins 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 the resin feed component, plus volatile solvents and pigments.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data that may improve this document should be sent to DAMI_STANDARDIZATION@conus.army.mil or U.S. Army RDECOM, Tank Automotive Research, Development and Engineering Center, ATTN: RDTA-EN/STND/TRANS MS #268, 6501 E. 11 Mile Road, Warren, MI 48397-5000. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.daps.dla.mil.

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 characteristic of titanium dioxide pigments, a grey or black. Representative FED-STD-595 color numbers include but are not limited to the range: from white (27925) to black (27030) including those that are grey (like 26493) with a 60° gloss range of 30 to 85 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 of the same grades and alloys used in the end item. Sufficient types and quantities of test panels shall be tested to qualify the variety of surface conditions and alloys used in the end item. Test panels shall include the most corrosion prone alloys 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 hexavalent chromium-free conversion process or alternate environmentally compliant 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. Unless otherwise specified, test panels shall be 4 x 12 in. (10.2 x 30.5 cm).

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. The primer film, with and without topcoat, shall achieve a rating of 10 when subjected to ASTM D6677.

2.6.2 Flexibility. An aluminum panel shall be used to determine the flexibility of the primer when subjected to ASTM D522, method B, using a 0.25 in. (6.4 mm) mandrel. The primer film shall show no cracking or flaking. Cracks occurring at either end and extending no more than 0.25 in. (6.4 mm) 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% diethylenetriamine
- 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 inside of the box shall be coated 10 inches (25.4 cm) up the panel such that the panels pass the following corrosion test: 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 55 gallon (208.18 L) drums, totes and tank wagons (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. The Government reserves the right to receive a copy of all data.

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 receive a copy of all such documents to prove 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. The Government reserves the right to receive a copy of the experimental design, all data, and all data analysis.

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.

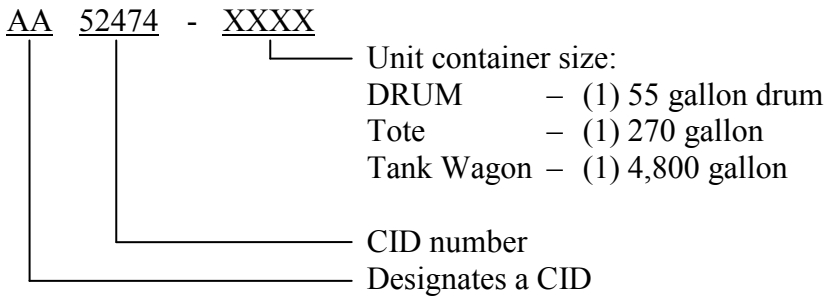
6.1.1 Other Government documents and publications. The Code of Federal Regulations (CFR), the Environmental Protection Agency (EPA), and the Occupational Safety and Health Administration (OSHA), are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

6.1.2 Non-Government publications. Copies of ASTM D523 “Specular Gloss (DoD Adopted)”, ASTM D3359 “Measuring Adhesion by Tape Test (DoD Adopted)”, ASTM D6677 “Standard Test Merhod for Evaluating Adhesion by Knife”, ASTM B117 “Operating Salt Spray (Fog) Testing Apparatus”, ASTM D522 “Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings”, 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. If required, the specific issue of each document listed.
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:



MILITARY INTERESTS:

Custodian:
Army – AT

CIVIL AGENCY COORDINATING ACTIVITY:
GSA - FAS

Preparing Activity:
Army - AT

(Project: 8010-2009-033)

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