

INCH-POUND

A-A-59885

September 20, 2012

COMMERCIAL ITEM DESCRIPTION

CORROSION PREVENTION COMPOUND

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

1. **SCOPE.** This commercial item description identifies the requirements for Corrosion Prevention Compounds (CPCs) to be applied to military combat and tactical vehicle systems and support equipment. The CPC will be applied to painted and bare metal surfaces. CPC usage would occur during system use and operation in corrosive atmospheres and prior to oceanic transportation and long-term storage.

2. **CLASSIFICATION.** The Corrosion Prevention Compounds (CPCs) are the following types:

2.1 Type

Type I - Bio-based formulation. This includes plant oil and lanolin based formulations. The formulation must meet the USDA Product Category “Corrosion Preventative” requirement of 53% Minimum Bio-based Content.

Type II - Petroleum-based formulation.

3. SALIENT CHARACTERISTICS.

3.1 Description. The CPCs salient characteristics and performance requirements shall be as defined in Table I and Table II.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data that may improve this document should be sent to usarmy.detroit.rdecom.mbx.tardec-standardization@mail.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.dla.mil>.

A-A-59885

3.2 Prohibited Materials. The CPC manufacturer shall ensure the CPC composition does not contain nor use the following:

- a) Class I and Class II Ozone Depleting Substances (ODSs) in accordance with 40CFR82.
- b) Volatile Organic Compounds (VOCs) in accordance with 40CFR51.100.
- c) Hexavalent Chromium (Cr(VI)).
- d) Mercury, Benzene, chlorinated solvents, or other carcinogenic and toxic materials in accordance with 29CFR1910.1200.
- e) Hazardous Air Pollutants (HAPs) in accordance with 40CFR61.01.

3.3 Chemical Resistance. There shall be no discoloration, staining, whitening, or softening of the paint topcoat after application or removal of the CPC.

3.4 Condition in Container. The CPC as received shall be ready-to-use and shall show no evidence of biological growth, skimming, corrosion of the container, and shall be free from foreign material. The CPC shall be applied in accordance with the manufacturer's instruction without thinning or other product alteration.

3.5 Appearance. CPC color can be varied as long as CPC is translucent. When applied to a painted surface, the CPC does not change the visual appearance of the coating system other than giving topcoat a "wet" look.

3.6 Application Properties. The CPC shall be applied by spray application (air or airless assisted). The CPC shall be capable of being applied in a narrow band (~1/2-inch or less) without runs or drips. When applied according to manufacturer recommendations, the cured CPC shall have a uniform thickness and be free of defects of any kind.

3.6.1 Application on Electronic Equipment. Prior to application of the CPC on electronic equipment, the manufacturer shall provide certification from the electronic component manufacturer. The certification shall state that application of the CPC shall not have a detrimental impact on the component.

TABLE I. Salient Characteristics

Property	Characteristic	Verification
Appearance	Translucent	Visual inspection (see 3.5)
Application	Spraying and misting in non-line of sight applications	Visual Inspection (see 3.6)
Volatile Organic Compound content (g/L or lbs/gallon)	50 grams/liter (0.42 lbs./gallon)	EPA Method 311
Non-volatile content (% by weight), minimum	90	ASTM D2832
Density (lbs/gallon), minimum	7.3-7.7 lbs./gal (0.87 – 0.92 kg/L)	ASTM D1475
Flash point, minimum	≥140 degrees F	ASTM D93

A-A-59885

TABLE II. Performance Requirements

Property	Requirement	Verification
Drying Time	< 24 hours	ASTM D1640 (see 3.7)
Humidity Chamber, time to failure	≥ 400 hours	ASTM D1748
Corrosion prevention in a crevice	5 months, visible benefit as compared to an untreated control and a maximum pit-depth of 0.008-inch or less within a crevice	Natural marine atmospheric testing with sample exposure, orientation and evaluation as described in 3.10 – 3.10.4
Microbial growth	No presence	ASTM D4610
Effect on polyimide, polyalkene, PVC, and PFE wiring insulation	No crazing, cracking, or staining	ASTM F484
Effect on acrylic plastic and polycarbonate	No crazing, cracking, or staining	ASTM F484
Effect on urethane, polyurethane, and epoxy coatings	No crazing, cracking, or staining	ASTM F502
Effect on electronic equipment/components, maximum change from initial contact resistance	< 5 milliohms	ASTM D877
Storage stability	Meets all Table I and Table II requirements after 2 years (24 months) of storage at shelf temperatures (see 3.8)	

3.7 Drying Time. A period of time (see Table II) in which the compound has penetrated desired areas, and the compound cannot be physically removed by wiping or other casual physical contact. The compound should also be "dried" within this time period such that it is no longer tacky, and does not exhibit the ability to absorb air borne debris or particulates.

3.8 Storage Stability. In addition to performance requirements listed in Table 2, the CPC shall freely flow, be stable, and uniform and show no signs of gelling, solidification, haze or precipitation.

3.9 Storage. The CPC container shall be constructed so as to prevent any leakage of material during transport and storage. The CPC shall have a shelf life of at least 24 months.

A-A-59885

3.10 Corrosion Prevention in a Crevice. The CPC shall be capable of providing the minimum performance within a crevice as described in Table 2. This shall have been demonstrated by testing performed at a natural marine exposure site (e.g., NASA Kennedy Space Center Corrosion Site, Cape Canaveral Air Force Station, Naval Surface Warfare Center Carderock Fort Lauderdale, University of Hawaii Coconut Island, Naval Research Laboratory Key West, Q-Lab South Florida, etc.). Testing will be performed for a period of 5 months, following which a destructive evaluation shall be performed and results reported.

3.10.1 Test Samples. Test samples shall be carbon steel shelf panels that incorporate crevices created by methods of manufacturing. These samples are commercially available from ACT Test Panels (273 Industrial Drive, Hillsdale, MI 49242, 517-439-1485) or can be constructed by the tester from 1008 through 1010 sheet steel in accordance with SAE J2329, grade CR1E. Figure 1 shows a sketch of these samples with dimensions.

Samples shall be untreated carbon steel, which is cleaned (solvent cleaning to remove surface oil or contaminants and in preparation of the surface to apply wash primer) and degreased prior to painting. Cleaning, pretreating, priming and top coating shall be done in accordance with MIL-DTL-53072, using wash primer DOD-P-15328 (or its replacement), epoxy primer (MIL-DTL-53022 Type II) and polyurethane topcoat (MIL-DTL-64159 Type II). No other coatings, pretreatments or post-treatments shall be used.

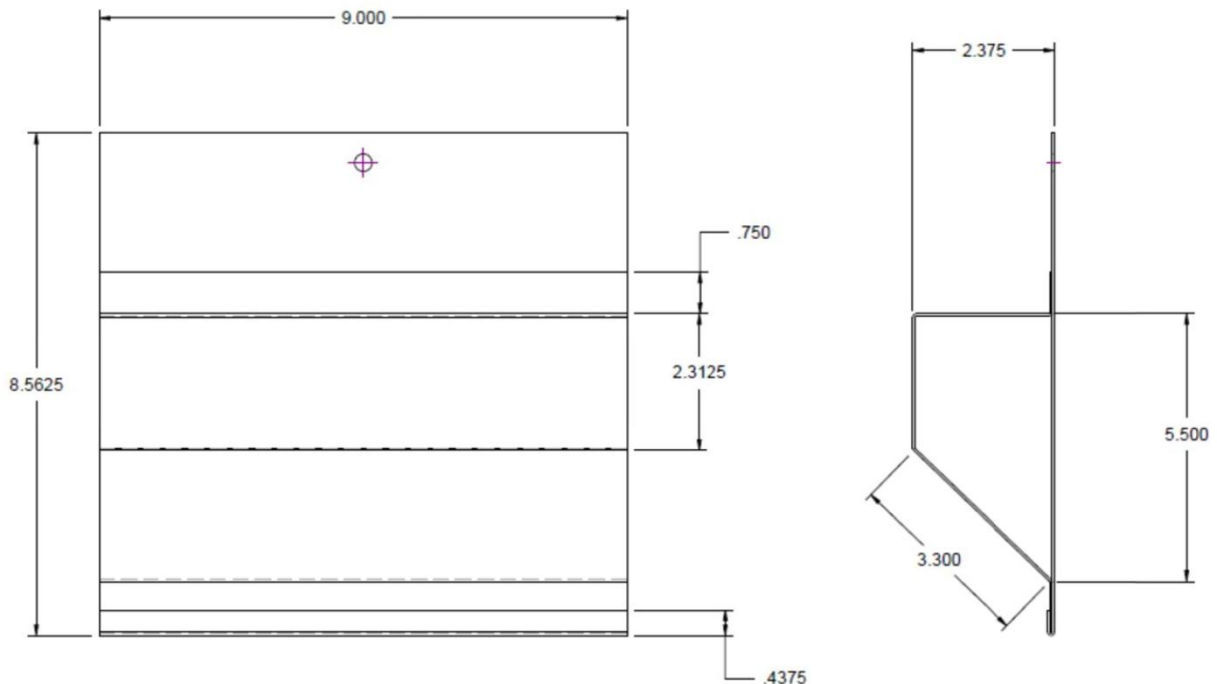


FIGURE 1 – Carbon Steel Shelf Panel Sketch.

A-A-59885

3.10.2 CPC Application. CPC application shall be performed using the methods recommended by the OEM, but shall be applied as described herein. Treatment shall be made to the outside surface of the crevices only. During application a ½ to ¾-inch wide fan shall be maintained and sufficient material shall be applied to fully cover the crevice without resulting in runs, drips or pooling of material. Treatment shall be made to the top crevice (created by spot welding) and bottom crevice (created by the hem flange), although only the top crevice will be evaluated. No rinsing or CPC removal shall be done prior to the start of testing, unless part of the normal application procedure.

3.10.3 Test Method. A minimum of 2 samples per CPC material shall be oriented vertically with the primary face towards the ocean. The maximum distance between the mean high-tide line and the sample shall be 250 meters. Samples shall be exposed unsheltered (except as naturally occurs from dunes or other native features) from the ocean for a period of 5 months, during which periodic visual assessments may be made, although no disassembly will be performed.

3.10.4 Inspection Method. At the completion of the exposure period the samples shall be removed and inspected for corrosion within the top crevice area. This will be accomplished by disassembling the samples. Using a drill bit just bigger than the spot-welds, the welds shall be drilled out allowing the sample to be opened. To aid in inspection the panel may be cut into smaller pieces, although any such cuts shall not be made through the crevice (test) areas.

Once disassembled, the interior surfaces shall be inspected for presence of corrosion (rust), and documented in accordance with ASTM D610. This shall be recorded for both crevice faces and both samples (4 ratings total). The minimum (lowest rating) shall be that of the requirement or higher. Prior to any cleaning or additional handling, the samples shall be photographed.

Once rated for visible corrosion, the corrosion products shall be cleaned from the crevice faces. Mechanical or chemical cleaning methods can be used provided they do not cause additional metal loss. Glass bead blasting with a 120-grit abrasive at a pressure of 100-psi or less has been found effective, although care should be taken to not remove base metal or warp the samples. After cleaning each sample, the surfaces shall be visually examined for pitting, with the 10 deepest pits visually identified. These pits shall be measured using a mechanical pitting gage to the nearest 0.001-inch (1-mil). If no pitting is visible, 10 random spots shall be selected and measured for pitting to verify no pitting has occurred. At the completion of this testing a total of 40 measurements shall be made, these measurements shall be ordered from lowest to highest readings.

Readings 1 through 38 shall meet the requirement in Table II. Failure to meet the requirement will result in a non-conformance to this CID.

A-A-59885

4. **REGULATORY REQUIREMENTS.** 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).

5. PRODUCT CONFORMANCE PROVISIONS

5.1 Responsibility for inspection. The contractor is responsible for all inspections, including examinations and tests.

5.2 Contractor Certification. The contractor shall certify and maintain substantiating evidence that the product offered meets the salient characteristics and performance requirements of this Commercial Item Description and that the product conforms to the producer's own drawings, specifications, workmanship standards, and quality assurance practices. Items with known defects shall not be submitted for Government acceptance. The Government reserves the right to require proof, in the form of test reports by a third party/independent test laboratory accredited to ISO/IEC 17025, of such conformance prior to the first delivery and thereafter as may be otherwise provided for under the provisions of the contract or order.

5.3 Material Safety Data Sheet. The manufacturer shall comply with requirements set forth by the Hazardous Communication Standard, 29 CFR 1910.1200. All Material Safety Data Sheets submitted shall comply with provisions of FED-STD-313.

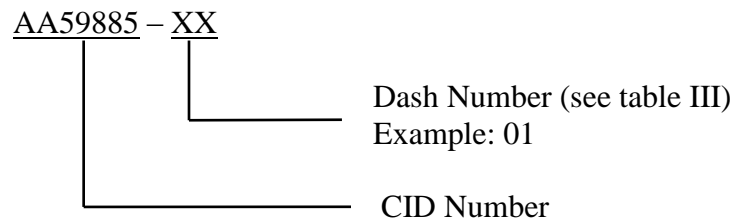
5.4 Market Acceptability. The contractor/vendor shall verify that the CPC offered under this CID is the same product offered for sale in the commercial marketplace.

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

7. NOTES

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

7.1 Part or Identification Number (PIN). The following PIN procedure is for Government purposes and does not constitute a requirement for the contractor. The PINs to be used for CPCs acquired to this CID are created as follows:



A-A-59885

TABLE III. National Stock Numbers and Dash Numbers.

Dash	Type	Container	Quantity	NSN
1	1	5 gallon can	1	
2	1	55 gallon drum	1	6850-01-607-7343
3	1	16 oz pump	12	
4	2	12.75 oz aerosol	12	
5	2	16 oz pump	12	8030-01-414-7423
6	2	5 gallon can	1	8030-01-414-8947

7.2 Addresses for obtaining copies of referenced documents.

7.2.1 Government Documents.

7.2.1.1 Federal Standards. Copies of Federal Standards are available from <https://assist.dla.mil/quicksearch/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094

7.2.1.2 Code of Federal Regulations. CFR documents are available from www.gpoaccess.gov/cfr/index.html or U.S. Government Printing Office, P.O. Box 979050, St. Louis, MO 63197-9000.

7.2.2 Non-Government Documents.

7.2.2.1 ASTM Documents. Copies of ASTM documents are available from www.astm.org or ASTM International, P.O. Box C700, West Conshohocken, PA 19428-2959.

7.2.2.2 ISO Documents. Copies of these documents are available from www.iso.org or www.ansi.org or ANSI Customer Service Department, 25 W. 43rd Street, 4th Floor, New York, NY 10036.

7.3 Shelf Life. This specification covers items where the assignment of a Federal shelf-life code is a consideration. Specific shelf-life requirements should be specified in the contract or purchase order, and should include, as a minimum, shelf-life code, shelf-life package markings in accordance with MIL-STD-129 or FED-STD-123, preparation of a materiel quality storage standard for type II (extendible) shelf-life items, and a minimum of 85 percent shelf-life remaining at time of receipt by the Government. These and other requirements, if necessary, are in DoD 4140.27-M, Shelf-life Management Manual. The shelf-life codes are in the Federal Logistics Information System Total Item Record. Additive information for shelf-life

A-A-59885

management may be obtained from DoD 4140.27-M, or the designated shelf-life Points of Contact (POC). The POC should be contacted in the following order: (1) the Inventory Control Points that manage the item and (2) the DoD Service and Agency administrators for the DoD Shelf-Life Program. Appropriate POCs for the DoD Shelf-Life Program can be contacted through the DoD Shelf-Life Management website: <https://www.shelflife.hq.dla.mil/>.

MILITARY INTERESTS:

Custodians:

Army - AT
Navy - SH
Air Force - 99

Preparing Activity:

Army – AT

Review activity:

Army - MR
GSA/ FAS

(Project 8030-2012-003)

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