

NOT MEASUREMENT
SENSITIVE

MIL-A-8625E

AMENDMENT-1

13 November 1989

MILITARY SPECIFICATION

ANODIC COATINGS, FOR ALUMINUM AND ALUMINUM ALLOYS

This amendment forms a part of military specification MIL-A-8625E, dated 25 April 1988, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

1.2.1 Type IB, Delete and substitute:

Type IB - Chromic acid anodizing, low voltage process, $22 \pm 2V$, (see 3.4.1)

2.1.1, Delete and substitute:

2.1.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

PAGE 2

Under "FEDERAL STANDARDS" delete:

FED-STD-595 - Color

After the listing of all government documents delete, "(Copies of specifications and standards required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)" and substitute:

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center, (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia PA. 19120.)

PAGE 2

2.2, delete and substitute:

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation.

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Delete "(Nongovernment standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)"

2.3, Delete and substitute:

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

PAGE 4

Add the following new paragraph after 3.4.2:

3.4.2.1 Photosensitized (identification) nameplates. When Type II anodic coatings are specified for use in photosensitized nameplates, oxalic acid anodizing may be used in lieu of sulfuric acid anodizing, at the option of the contractor. If oxalic acid anodizing is used, the resultant coating shall meet all the requirements specified in this document for Type II anodic coatings.

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3.7.2.1, at the end of the third sentence add:

, see 6.16

PAGE 7

3.7.2.2, delete and substitute:

3.7.2.2 Abrasion resistance. When tested in accordance with 4.5.5, unsealed Type III coatings shall provide a hard abrasion resistant finish as specified herein, see 6.17. The anodic coating shall have a maximum wear index of 3.5 mg/1000 cycles on aluminum alloys having a copper content of 2 percent or higher, see 6.13. The wear index for all other alloys shall not exceed 1.5 mg/1000 cycles.

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3.8.1.1, at the end of the last sentence add:

, see 6.15.

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3.13, at the end of the second sentence add:

, see 6.14.

4.1, Delete and substitute:

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1, delete and substitute:

4.1.1 Responsibility for compliance. All items must meet all requirements of Section 3. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

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4.3.3, delete and substitute:

4.3.3 Failure. Failure to conform to any of the process control requirements specified in Table I shall result in immediate halt of production. The reason for failure shall be determined and corrected before production resumes. All traceable and retrievable work from the time the failed process control specimens were anodized to the time when the failure was determined shall be rejected, unless the contractor can demonstrate that the items under review can meet the requirements of this specification. Unless otherwise specified, parts which have been painted or have gone onto a higher level of assembly shall not be considered retrievable.

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4.5.5, delete and substitute:

4.5.5 Abrasion resistance. Test specimens, prepared in accordance with 4.3.2.2.3, shall be tested in accordance with Method 6192.1 of FED-STD-141 using CS-17 wheels with a 1000 gram load. The wheels shall revolve on the anodic coating at a speed of 70 revolutions per minute (RPM) for 10,000 cycles. The wear index shall be determined after the 10,000 cycle period by dividing the weight loss by 10. The wear index shall meet the requirements of 3.7.2.2.

PAGE 17

6.14, delete and substitute:

6.14 Size of contact marks. In order to obtain the desired current density without burning the parts, the size or number of contact marks will be greater for parts having higher surface areas. Because current density is a measure of the required current per square foot of aluminum being anodized, a part having twice as much surface area relative to another will require twice as much current. Trying to force the higher currents required for larger parts through smaller contact areas sufficient for parts with lower surface areas may result in burning.

6.15, delete and substitute:

6.15 Sealing. In general, a sodium dichromate seal will provide better corrosion resistance than a hot water seal but both methods are capable of providing anodic coatings which meet the requirements of this specification. The hot water seal has environmental advantages but the anodic coating is more difficult to visually examine because it lacks the bronze color associated with the sodium dichromate seal.

PAGE 18

6.16, delete and substitute:

6.16 Effects on coating thickness. A hardcoat of 2 mils or more is extremely difficult to obtain on high silicone die castings such as 360, 380, and 383. It is recommended that this be considered when specifying a coating thickness for high silicone castings.

Add paragraph 6.17 as follows:

6.17 Effects of Type III coating thickness on abrasion resistance. The abrasion resistance of Type III coatings will decrease as the coating thickness approaches 3 mils. In general, abrasion resistance does not increase with increasing coating thickness.

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Add paragraph 6.18 as follows:

6.18 Supersedure data. Type I, conventional chromic acid anodizing, referenced throughout this specification is the same as the Type IA designated in the D revision and the Type I in all versions preceding the D revision.

Add paragraph 6.19 as follows:

6.19 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Add paragraph 6.20 as follows:

6.20 Subject term (key word) listing

Aluminum
Aluminum alloys
Anodic coatings
Anodizing

Custodian:
Army - MR
Navy - AS
Air Force - 11

Preparing activity:
Navy - AS
(Project no. MFFP-0435)

Review activities:
Army - AR, AV, MI
Navy - EC, OS, SH
Air Force - 70, 71, 80, 82, 85, 99

User activities:
Army - AT, CR, GL, ME