MIL-I-8474C
31 August 1983
SUPERSEDING
MIL-I-8474B(MR)
28 May 1965

MILITARY SPECIFICATION

INSPECTION OF ALUMINUM ALLOY PARTS, ANODIZING PROCESS FOR

This specification is approved for use by all Departments and Agencies of the Department of Defense

1. SCOPE

1.1 Scope. This specification covers the use of a chromic acid anodizing process for surface inspection for cracks, laps and other defects in parts of aluminum alloy compositions for which the process is compatible.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Director, US Army Materials and Mechanics Research Center, ATTN: DRXMR-SMS, Watertown, MA 02172 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

NO DELIVERABLE DATA REQUIRED BY THIS DOCUMENT

/ AREA MFFP /

SPECIFICATIONS

MILITARY

MIL-A-8625 - Anodic Coatings, for Aluminum and Aluminum Alloys

(Copies of specifications, standards, handbooks, drawings, and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Material. The materials shall be as specified herein. When materials are used that are not specifically designated, they shall be entirely suitable for the purpose.

3.2 Anodic film. The anodic film shall conform to all the requirements for type I coatings of MIL-A-8625 when tested as specified in 4.3, except for the following:

3.2.1 Rinse. After anodizing, parts shall be rinsed in water for the minimum period necessary to remove surface chromic acid. The temperature of the rinse shall not be higher than the temperature of the anodizing solution.

3.2.2 Drying. Following the rinse, the parts shall be maintained at room temperature for a minimum of 2 hours, or they shall be maintained for a minimum period of 1/2 hour at 250° ± 25°F. In either case the parts shall be racked or stored in such a manner that the air has free access to the surfaces to be inspected. Air circulation, not to exceed 50 linear feet per minute, may be used to aid in drying.

3.3 Air agitation. Air agitation of the bath shall not be used when parts are in the bath.

3.4 Inspection. Inspection of the anodized parts shall be by visual examination of the surface for indications of cracks, forging laps or other defects.

3.5 Indications. Voids in the metal which communicate with the outer surface appear as directional stains of chromic acid. Defects which do not contain voids appear as a directional etch on the surface. Insufficient rinsing in cold water produces stains which may be confused with defects. Stains from insufficient rinsing follow drain patterns, whereas stains from flaws follow the lines of the defects.

3.6 Rejection. In case of doubt concerning indications of defects, the anodic film shall be stripped from the part and the part shall be reanodized. If the same indications are obtained for the second time, the defects shall be considered to be present. If the same indications do not reappear, the defects shall be considered to be absent.

3.7 Sealing. When used as part of the anodic film process, sealing shall be accomplished after inspection.

3.8 Painting. The anodic film shall be acceptable as a paint base without further processing, provided the film has not become soiled in handling. In case of contamination, the part shall be cleaned with a suitable solvent or with a detergent completely soluble in cold hard water. The cleaning shall not adversely affect the anodic film.

3.9 Marking. Parts which have satisfactorily met the anodizing inspection requirements shall be marked with the symbol "A" in such a manner and location as to be harmless to the part and to preclude the removal, smearing or obliterating of the marking by subsequent handling. The stamps may contain an identification symbol of the facility. Marking shall be accomplished in one of the following ways.

3.9.1 Etching. Unless otherwise specified, parts shall be marked by etching, employing etching agents and application methods satisfactory to the procuring activity.

3.9.2 Impression stamping. Impression stamping may be used where permitted by the applicable specification or drawing. Impressions shall be located in areas adjacent to the part number or the inspector's stamp.

4. QUALITY ASSURANCE PROVISIONS

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 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 assure supplies and services conform to prescribed requirements.

4.2 Rejection. Acceptance or approval of material in the course of manufacture shall in no case be construed as a guarantee of the acceptance of the finished product.

4.3 Tests to determine compliance with 3.2 shall be accomplished as required by MIL-A-8625.

5. PACKAGING

5.1 Packaging requirements. (Not applicable to this specification)

6. NOTES

6.1 Intended use. The process covered by this specification is intended to be used wehre anodizing procedure is indicated as inspection method for defects in aluminum alloy parts.

6.2 The anodic film may be stripped by immersing the part for 5 minutes in a solution of 1 gallon of sulphuric acid (specific gravity 1.84), 3-1/2 pounds of chromic acid, and sufficient water to make 10 gallons of solution. For stripping, the temperature of the solution should be between 170° and 180°F (76.6 and 82.2°C).

6.3 Specification MIL-I-8474A(USAF) dated 4 February 1957 was cancelled 12 January 1965. That specification was being used by the Department of the Army; therefore this document represents a reinstatement of the previously cancelled specification and a conversion of it to an Army document.

Custodians:
Army - MR
Navy - SH
Air Force - 11

Review Activity:
Army - SM

Preparing activity:
Army - MR

Project No. MFFP-0151

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1 DOCUMENT NUMBER	2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION	4 TYPE OF ORGANIZATION *(Mark one)*
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	☐ OTHER *(Specify)* _____

5 PROBLEM AREAS

a. Paragraph Number and Wording

b Recommended Wording

c Reason/Rationale for Recommendation

6 REMARKS

7a NAME OF SUBMITTER *(Last, First, MI)* – Optional	b WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8 DATE OF SUBMISSION *(YYMMDD)*

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