AEROSPACE MATERIAL SPECIFICATION

AMS2472™ REV. H

Issued 1965-02
Revised 2020-01

Superseding AMS2472G

Anodic Treatment of Aluminum Alloys Sulfuric Acid Process, Dyed Coatings

RATIONALE

AMS2472H is the result of a Five-Year and update of this specification with changes to Ordering Information, Definitions (2.3), Electrical Contact Points (3.2.3), Anodizing (3.3.1.2), Sealing (3.3.3), Touch Up (3.3.4), Corrosion Resistance (3.4.2), Quality (3.5.1), Periodic Tests (4.2.2.1), Acceptance Tests (4.3.1), Periodic Tests (4.3.2), Sample Configuration (4.3.3), and Control Factors (4.4.3).

NOTICE

ORDERING INFORMATION: The following information shall be provided to the processor by the purchaser.

1. Purchase order shall specify not less than the following:

   - AMS2472H
   - Basis metal to be anodized
   - Required color
   - Special features, geometry or processing present on parts that requires special attention by the processor
   - Quantity of pieces to be anodized
   - Electrical contact locations, when specified

2. Parts manufacturing operations such as heat treating, forming, joining and media finishing can affect the condition of the substrate and adversely affect the finished part. The sequencing of these types of operations should be specified by the cognizant engineering organization or purchaser and is not controlled by this specification.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

SAE values your input. To provide feedback on this Technical Report, please visit
http://standards.sae.org/AMS2472H

1. SCOPE

1.1 Purpose

This specification establishes the requirements for dyed anodic coatings on aluminum alloys.

1.2 Application

This process has been used typically to increase corrosion resistance and to produce colored surfaces on aluminum alloy parts, but usage is not limited to such applications.

1.2.1 AMS2470 or AMS2471 should be specified for coatings to be used as a base for paint or other organic finishes. This process is not suitable for parts which contain joints or recesses in which the anodizing solutions may be retained.

1.3 Classification

This specification covers two types of coating classified as follows:

Class 1 - Coatings for Identification

Class 2 - Coatings for Decorative Purposes

When no class is specified, Class 1 shall be supplied.

1.4 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2470	Anodic Treatment of Aluminum Alloys, Chromic Acid Process
AMS2471	Anodic Treatment of Aluminum Alloys, Sulfuric Acid Process, Undyed Coating
AMS2473	Chemical Film Treatment for Aluminum Alloys, General Purpose Coating
AMS4037	Aluminum Alloy, Sheet and Plate, 4.4Cu - 1.5Mg - 0.60Mn (2024; -T3 Flat Sheet, - T351 Plate), Solution Heat Treated
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications
ARP4992	Periodic Test Plan for Processing Solutions

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B117 Operating Salt Spray (Fog) Testing Apparatus

ASTM B137 Measurement of Coating Mass Per Unit Area on Anodically Coated Aluminum

ASTM B374 Terminology Relating to Electroplating

2.3 Definitions

Terms used in AMS are clarified in ARP1917 and as follows.

2.3.1 PIT

A pit, as used in 3.4.2, is defined as an area of localized corrosion having a depth greater than its width. Pit size may be determined by either direct dimensional measurement or by comparison to known references. A superficial pit or discontinuity in the anodize surface itself, not penetrating thru to the base metal and not showing the presence of white corrosion products is not rejectable. As a general rule, a rejectable pit usually displays a characteristic tail or line of white aluminum corrosion products.

3. TECHNICAL REQUIREMENTS

3.1 Solutions

3.1.1 Electrolyte shall be an aqueous solution of sulfuric acid of suitable concentration (8.2.2) maintained within ±2 °F (±1 °C) of the temperature approved in 4.4.3.

3.1.2 Dye shall be as required to produce the specified color.

3.1.3 Sealer shall be an aqueous solution of nickel acetate or cobalt acetate or other solution permitted by the cognizant engineering organization (see 8.2.3).

3.2 Preparation

3.2.1 Cleaning and Deoxidation

Parts shall have clean surfaces, free from water break, prior to immersion in the anodizing bath.

3.2.2 Masking

Areas where anodizing is prohibited shall be masked.

3.2.3 Electrical Contact Points

Tight electrical contact shall be maintained during the anodic treatment to prevent contact arcing (burning) of parts, but small irregularities of coating at points of electrical contact are acceptable. For parts that are to be anodized all over, and contact locations are not specified, contact locations shall be at the discretion of the processor. For parts that are not to be anodized all over, and contact locations are not specified, locations shall be in areas on which coating is not required. When required, contact locations shall be approved by the cognizant engineering organization.