



AEROSPACE MATERIAL SPECIFICATION

AMS2470™**REV. R**Issued 1940-01
Revised 2025-12

Superseding AMS2470P

Anodic Treatment of Aluminum Alloys,
Chromic Acid Process

RATIONALE

AMS2470R results from a Five-Year Review and update of this specification with changes to Ordering Information, Authority (see 1.4), Anodizing Electrolyte (see 3.1.1), Cleaning (see 3.2.1), Fixture/Electrical Contact Locations (see 3.2.3), Anodizing (see 3.3.1.2), Dyeing (see 3.3.2), Sealing (see 3.3.3), Coating Weight (see 3.4.1.1), Corrosion Resistance (see 3.4.2.3.1), Adhesive Bond Verification Test (see 3.4.3), and control factors (see 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:

- AMS2470R
- Aluminum alloy and temper to be anodized
- Required color, if dyed (see 3.1.2 and 8.6)
- Special features, geometry, or processing present on parts that require special attention by the processor
- Optional: fixture contact locations, when not specified (see 3.2.3.2)
- Optional: no sealing for parts that will subsequently be painted, coated, or adhesively bonded (see 3.3.3)
- Sealer to be used if other than water (see 3.1.3)
- If parts are to be subsequently adhesively bonded (see 3.1.1)
- Adhesive bond verification test frequency, if different (see 4.2.2)
- Quantity of pieces to be anodized

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 (CEO) or the purchaser and is not controlled by this specification.

SAE Executive Standards Committee Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2025 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, or used for text and data mining, AI training, or similar technologies, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 1-877-606-7323 (U.S. and Canada only)
Tel: 1-724-776-4970 (outside U.S. and Canada)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE AMS2470R

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS2407R/>

Documents

Standard, visit Sharing Hub

1. SCOPE

1.1 Purpose

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

1.2 Application

This process has been used typically to increase corrosion resistance and to provide surfaces that will promote adherence of paint and other organic finishes and has been found useful for assemblies that have faying surfaces and/or may trap electrolyte, but usage is not limited to such applications.

1.2.1 This process is primarily applicable to aluminum and aluminum alloy parts that have nominal copper content not greater than 5% by weight or total nominal alloy content not greater than 7.5% by weight. AMS2471 is recommended for parts having higher alloy content. Coating may be dyed if specified, but AMS2472 is recommended where a colored finish is required.

1.3 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 that 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.

1.4 Authority

The CEO may impose requirements or approve allowances that supersede the requirements in this AMS.

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 (U.S. and Canada only) or +1 724-776-4970 (outside U.S. and Canada), www.sae.org.

AMS2471	Anodic Treatment of Aluminum Alloys, Sulfuric Acid Process, Undyed Coating
AMS2472	Anodic Treatment of Aluminum Alloys, Sulfuric Acid Process, Dyed Coatings
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
AMS-STD-595	Colors Used in Government Procurement
ARP4992	Periodic Test for Processing Solutions
AS7766	Terms Used in Aerospace Metals Specifications

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) Apparatus

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

ASTM B374 Terminology Relating to Electroplating

ASTM D3762 Adhesive-Bonded Surface Durability of Aluminum (Wedge Test)

2.3 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

MIL-PRF-8625 Anodic Coatings for Aluminum and Aluminum Alloy

2.4 Definitions

Terms used in AMS are defined in AS7766 and as follows; ASTM B374 may be utilized as a reference and referee document when areas of design definition or technical interpretation arise:

2.4.1 PIT

A corrosion pit 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. As a general rule, a corrosion pit usually displays a characteristic tail or line of white aluminum corrosion products.

3. TECHNICAL REQUIREMENTS

3.1 Solutions

3.1.1 Anodizing Electrolyte

The electrolyte shall be an aqueous chromic acid solution. When surfactants or anti-misting additives have been approved for use by the CEO and anodized parts are to be subsequently adhesively bonded (see Ordering Information), the adhesive bond verification test (see 3.4.3) shall be performed.

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

3.1.2.1 AMS-STD-595 may be used as a guide for specifying color of anodized coating (see 8.6).

3.1.3 Sealer

The sealer shall be water of suitable purity and controlled pH maintained at a suitable temperature (see 8.2.10).

3.2 Preparation

3.2.1 Cleaning

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

3.2.1.1 Cleaning materials or products used for surface preparation containing iron, such as steel wool, iron oxide rouge, or steel wire, which may become embedded in the metal and accelerate subsequent corrosion, are prohibited.