



AEROSPACE MATERIAL SPECIFICATION

AMS2467™**REV. A**

Issued 1995-10
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Revised 2022-06

Superseding AMS2467

Hard Anodic Coating of Magnesium Alloys
Alkaline Type, High Voltage

RATIONALE

AMS2467A results from a Five-Year Review and update of this specification with the addition of the Notice to purchaser, clarification of surfaces to be coated in Classification (1.3), addition of the definition of Pit (2.4.1), addition of fixture/electrical contact locations, clarification of final rinsing (3.2.3), moved corrosion-resistance specimen configuration to 4.3.3.2 (3.4.2, 3.4.3), clarified wording regarding wear index value and cycle rating in accordance with ASTM D4060, added wording to quality regarding differences in anodize appearance (3.5), added standard wording for suspension of periodic testing when process is not being performed (4.2.2.1), deleted wording requiring preproduction testing when a change is made as this is already covered (4.2.3), added new definition of lot, added standard wording regarding sampling (4.3.1), added wording for when specimen material form is not available (4.3.2), added specimen configuration (4.3.3.2, 4.3.3.3), replaced approval wording with that from recently published anodize AMS's (4.4.1), clarified wording for when changes to approved processing is made (4.4.2), updated control factors (4.4.3), clarified wording regarding resampling and retesting wording for when parts are stripped and recoated (4.6.1 and 4.6.1.1), revised notes 8.2, and added new notes 8.3 and 8.5.

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:

- AMS2467A
- Specified coating classification (1.3)
- Basis metal to be anodized, and metal temper and/or basis metal material specification, to be anodized
- Special features, geometry or processing present on parts that requires special attention by the processor
- Optional: Fixture/electrical contact locations, when not specified (3.2.2)
- Optional: Post treatment (see 3.3.5)
- Optional: Corrosion testing exposure time, for alloys other than AMS4439 and AMS4446 (see 3.4.2)
- Part number and quantity of pieces to be anodized

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<https://www.sae.org/standards/content/AMS2467A/>

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2. Parts manufacturing operations such as heat treating, forming, joining and media finishing, performed prior to anodizing can affect the condition of the substrate and if performed after anodizing, 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.

1. SCOPE

1.1 Form

This specification establishes the procedures used to produce a hard anodic coating on magnesium alloys and the properties of the coating.

1.2 Application

This coating has been used typically to provide corrosion resistance and abrasion resistance to sand-cast magnesium alloys, but usage is not limited to such applications.

1.3 Classification

Anodic finishes are classified by coating thickness as follows:

Class 1 Thin Coating: Coating thickness shall be in the range of 0.0002 to 0.0004 inch (5 to 10 μm) and produce a dimensional buildup on the part, for each surface coated, of 0.0001 to 0.0002 inch (2.5 to 5 μm). See 3.4.1 and 8.2.

Class 2 Thick Coating: Coating thickness shall be in the range of 0.0008 to 0.0010 inch (20 to 25 μm) and produce a dimensional buildup on the part, for each surface coated, of 0.0004 to 0.0005 inch (10 to 12.7 μm). See 3.4.1 and 8.2.

- 1.3.1 If a class is not 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.

AMS4439	Magnesium Alloy, Sand Castings, 4.2Zn - 1.2 Rare Earths - 0.7Zr (ZE41A-T5) Precipitation Heat Treated
AMS4446	Magnesium Alloy, Sand Castings, 8.7Al - 0.70Zn - 0.26Mn (AZ91E-T6) Solution and Precipitation Heat Treated
ARP4992	Periodic Test for Process 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 B244 Measurement of Thickness of Anodic Coatings on Aluminum and of Other Nonconductive Coatings on Nonmagnetic Basis Metals With Eddy-Current Instruments

ASTM B487 Measurement of Metal and Oxide Coating Thicknesses by Microscopical Examination of Cross Section

ASTM D1654 Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments

ASTM D4060 Abrasion Resistance of Organic Coatings by the Taber Abraser

2.3 U.S. Government Publications

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

MIL-STD-2073-1 Standard Practice for Military Packaging

2.4 Definitions

Terms used in AMS are defined in AS7766 and as follows:

2.4.1 PIT

A 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. 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 pit usually displays a characteristic tail or line of white magnesium corrosion products.

3. TECHNICAL REQUIREMENTS

3.1 Equipment

3.1.1 Tanks

Shall be fabricated from, or lined with, a material that is compatible with the baths used for cleaning, pretreatment, anodizing, or post-treatment solutions and shall be equipped with temperature controls capable of controlling the bath temperature within specified limits.

3.1.2 Fixtures

Hooks, clamps, and racks used to suspend parts in the electrolyte, and which are in contact with the electrolyte, shall be fabricated from magnesium or magnesium alloys, or from aluminum alloys containing magnesium (5000 or 6000 series). Such fixtures shall be protected with suitable maskant at the electrolyte-air interface.