

AEROSPACE MATERIAL SPECIFICATION

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Superseding AMS-QQ-P-416A

Plating, Cadmium (Electrodeposited)

1. SCOPE AND CLASSIFICATION:

1.1 Scope:

This specification covers the requirements for electrodeposited cadmium plating.

1.2 Classification:

Cadmium plating shall be of the following types and classes, as specified (See 6.2):

1.2.1 Types:

- I - As plated
- II - With supplementary chromate treatment (See 3.2.8.1)
- III - With supplementary phosphate treatment (See 3.2.8.2)

1.2.2 Classes:

- 1 - 0.0005 inch, minimum
- 2 - 0.0003 inch, minimum
- 3 - 0.0002 inch, minimum

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 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.

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SAE WFB ADDRESS:

1.4 Warning:

This document includes cadmium as a plating material. The use of cadmium has been restricted and/or banned for use in many countries due to environmental and health concerns. The user should consult with local officials on applicable health and environmental regulations regarding its use.

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, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

AMS 2750	Pyrometry
AMS 6414	Steel Bars, Forgings, and Tubing, 0.80Cr - 1.8Ni - 0.25Mo (0.38-0.43C), Vacuum Consumable Electrode Remelted
AMS 6415	Steel Bars, Forgings, and Tubing, 0.80Cr - 1.8Ni - 0.25Mo (0.38-0.43C)

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM B 117	Salt Spray (Fog) Testing
ASTM B 244	Measurement of Thickness of Anodic Coatings on Aluminum and of other Nonconductive Coatings on Nonmagnetic Basis Metals with Eddy-Current Instruments
ASTM B 487	Measurement of Metal and Oxide Coating Thicknesses by Microscopical Examination of a Cross Section
ASTM B 499	Measurement of Coating Thicknesses by the Magnetic Method: Nonmagnetic Coatings on Magnetic Basis Metals
ASTM B 504	Measurement of Thickness of Metallic Coatings by the Coulometric Method
ASTM B 567	Measurement of Coating Thickness by the Beta Backscatter Method
ASTM B 568	Measurement of Coating Thickness by X-Ray Spectrometry
ASTM E 8	Tension Testing of Metallic Materials
ASTM E 29	Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications
ASTM E 376	Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Examination Methods

2.3 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094 or www.dsp.dla.mil.

TT-C-490	Cleaning Methods for Ferrous Surfaces and Pretreatments for Organic Coatings
MIL-S-5002	Surface Treatments and Inorganic Coatings for Metal Surfaces of Weapons Systems
MIL-STD-1916	DoD Preferred Methods of Acceptance of Product

2.4 National Aerospace Standards:

Available from AIA, Aerospace Industries Association, 1000 Wilson Boulevard, Suite 1700, Arlington, VA 22209-3901 or <http://www.aia-aerospace.org>.

NASM1312-1	Fastener Test Methods - Method 1, Salt Spray
NASM1312-5	Fastener Test Methods - Method 5, Stress Durability
NASM1312-12	Fastener Test Methods - Method 12, Thickness of Metallic Coatings
NASM1312-14	Fastener Test Methods - Method 14, Stress Durability (Internally Threaded Fasteners)

3. REQUIREMENTS:

3.1 Materials:

The materials used shall be such as to produce platings that meet the requirements of this specification.

- 3.1.1 Inventory: Items in inventory that were plated prior to the issuance of this amendment may be used until the supply is exhausted.

3.2 General Requirements:

- 3.2.1 Preplate Stress Relief: Unless otherwise specified by purchaser (6.2e), steel parts which have been machined, ground, cold-formed, or cold-straightened after heat treatment, shall be stress relieved in accordance with Table 1 or Table 1A, as applicable. Stress relief shall precede shot peening, cleaning, and plating for relief of damaging residual tensile stresses. Stress relief is not required for fasteners if all cold working is limited to cold working of the head-to-shank fillet and thread rolling after heat treatment.