



AEROSPACE MATERIAL SPECIFICATION	AMS2400™	REV. Y
	Issued 1940-01 Revised 2020-07	
Superseding AMS2400X		
Plating, Cadmium		

RATIONALE

AMS2400Y results from a Five-Year Review and update of this specification with changes to Ordering Information, Stress Relief Treatment (3.1.2, 3.1.2.2, 3.1.2.3), alkaline cleaning (3.1.4.1), Fixture/Electrical Contact Locations (3.1.5), Procedure (3.2.3), Thickness (3.4.1), Acceptance Tests (4.2.1), Periodic Tests (4.2.2), Sampling for Testing (4.3), Adhesion Testing (4.3.1.3), Acceptance Tests (Table 2), Periodic Tests (4.3.3), control factors (4.4.3), and Rejections (7).

NOTICE

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

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

- AMS2400Y
- Plating thickness desired (see 3.4.1)
- Basis metal to be plated
- Tensile strength or hardness of the basis metal
- For parts 36 HRC and above, any work performed after heat treatment as stated in 3.1.2
- Pre-plate stress relief to be performed by plating processor (time and temperature) if different from 3.1.2
- Pre-plate stress relief temperature for peened parts if it is to be above 375 °F (3.1.2.3)
- Special features, geometry or processing present on parts that requires special attention by the plating processor
- Color if different than that in 3.5.2
- Hydrogen embrittlement relief to be performed by plating processor (parameters or reference document) if different from 3.4.4
- Minimum thickness on internal surfaces, if required (see 3.4.1.4.1)
- Optional: Periodic testing frequency (4.2.2) and sample quantity (4.3.3)
- Optional: Fixture/Electrical contact locations, when not specified (3.1.5)

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SAE WEB ADDRESS:

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS2400Y/>

- Quantity of pieces to be plated
- 2) Parts manufacturing operations such as heat treating, forming, joining and media finishing can affect the condition of the substrate for plating, or if performed after plating, could adversely affect the plated 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 Purpose

This specification covers the requirements for electrodeposited cadmium on metal parts.

1.2 Application

This process has been used typically to provide corrosion resistance to metal parts, but usage is not limited to such applications.

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.

1.4 Warning

This process uses 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 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.

AMS2750	Pyrometry
AMS2759/9	Hydrogen Embrittlement Relief (Baking) of Steel Parts
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications
ARP4992	Periodic Test for Processing Solutions
AS2390	Chemical Process Test Specimen Material

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 B253	Preparation of Aluminum Alloys for Electroplating
ASTM B374	Terminology Relating to Electroplating
ASTM B487	Measurement of Metal and Oxide Coating Thickness by Microscopical Examination of Cross Section
ASTM B499	Measurement of Coating Thicknesses by the Magnetic Method: Nonmagnetic Coatings on Magnetic Basis Metals
ASTM B504	Measurement of Thickness of Metallic Coatings by the Coulometric Method
ASTM B567	Measurement of Coating Thickness by the Beta Backscatter Method
ASTM B568	Measurement of Coating Thickness by X-Ray Spectrometry
ASTM B571	Qualitative Adhesion Testing of Metallic Coatings
ASTM D3359	Rating Adhesion by Tape Test
ASTM E376	Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Testing Methods
ASTM F519	Mechanical Hydrogen Embrittlement Evaluation of Plating/Coating Processes and Service Environments

3. TECHNICAL REQUIREMENTS

3.1 Preparation

3.1.1 Parts shall be within drawing dimension limits before plating, except as specified in 3.1.1.1.

3.1.1.1 Parts having part numbers with the prefix AN, MA, MS, or AS, and required to be plated in accordance with this specification, or parts where the drawing specifies that dimensions apply after plating, shall be made to such dimension that parts will be within drawing limits after plating. Undercutting before plating shall not be permitted unless specifically authorized by specifications referenced on the applicable drawing.

3.1.2 Stress Relief Treatment

All steel parts having a hardness of 36 HRC and above and that are machined, ground, cold formed or cold straightened after heat treatment shall be cleaned to remove surface contamination and thermally stress relieved before plating. (Residual tensile stresses have been found to be damaging during electrofinishing.) Furnaces used for stress relief shall be in accordance with AMS2750; minimum requirements shall be Class 5 and Type D Instrumentation. Temperatures to which parts are heated shall be such that maximum stress relief is obtained while still maintaining hardness of parts within drawing limits. Unless otherwise specified, the following treatment temperatures and times shall be used:

3.1.2.1 For parts, excluding nitrided parts, having a hardness of 55 HRC and above, including carburized and induction hardened parts, stress relieve at 275 °F ± 25 °F (135 °C ± 14 °C) for 5 to 10 hours.

3.1.2.2 For parts having a hardness less than 55 HRC, and for nitrided parts, stress relieve at 375 °F ± 25 °F (191 °C ± 14 °C) for a minimum of 4 hours. Higher temperatures shall be used only when specified or approved by the cognizant engineering organization.

3.1.2.3 For peened parts: If stress relief temperatures above 375 °F (191 °C) are specified, the stress relieve shall be performed prior to peening.