

AEROSPACE MATERIAL SPECIFICATION

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Superseding AMS 2421B

Plating Magnesium for Solderability Zinc Immersion Process

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1. SCOPE: This specification covers the requirements for surface preparation of magnesium and magnesium alloys to provide a surface finish which can be soft soldered.
2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Materials Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.
 - 2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.
 - 2.1.1 Aerospace Material Specifications:
AMS 2350 - Standards and Test Methods
AMS 2408 - Tin Plating
AMS 4751 - Solder, Tin-Lead, Eutectic, 63Sn - 37Pb
 - 2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM B487 - Measurement of Metal and Oxide Coating Thicknesses by Microscopical Examination of a Cross Section
ASTM E290 - Semi-Guided Bend Test for Ductility of Metallic Materials
 - 2.3 Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.
 - 2.3.1 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of
3. TECHNICAL REQUIREMENTS:
 - 3.1 Preparation:
 - 3.1.1 Impregnation of castings, when required or permitted, shall be done prior to plating. All excess impregnant shall be removed prior to curing or baking.
 - 3.1.2 All machining shall be completed prior to cleaning and plating, unless otherwise specified.
 - 3.2 Procedure: Shall consist of thorough cleaning of the magnesium surfaces, pickling, and activating followed by application of a zinc immersion coating, a copper strike, a copper plate, an electro-deposit of tin, and a hot oil reflow.
 - 3.2.1 Cleaning and Pickling: Prior to plating, the parts shall be cleaned to remove grease, oil, and other surface contamination in accordance with the following procedure:
 - 3.2.1.1 Vapor degrease when visible coatings of heavy oil or grease are present.
 - 3.2.1.2 Cathodically clean parts in a suitable alkaline aqueous solution at 200° F ± 10 (93° C ± 5), using a current density of 10 - 40 asf (108 - 431 A/m²) at 6 volts. The solution shall have pH of 11.0 or higher.