



# AEROSPACE MATERIAL SPECIFICATION

**AMS2516™****REV. F**

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Superseding AMS2516E

Polytetrafluoroethylene (PTFE) Resin Coating, High Build,  
370 to 400 °C (698 to 752 °F) Fusion

## RATIONALE

This document has been determined to contain basic and stable technology which is not dynamic in nature.

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## 1. SCOPE

### 1.1 Purpose

This specification establishes the engineering requirements for producing thick coatings of polytetrafluoroethylene (PTFE) resin on parts and the properties of such coatings.

### 1.2 Application

Primarily to provide dry lubrication, high heat stability, and corrosion protection on parts which operate at not higher than 527 °F (275 °C) for limited periods or not higher than 473 °F (245 °C) for extended periods. This coating is usually smoother than that of AMS2515. This coating may also be used as a release film for molds.

### 1.3 Safety – Hazardous Material

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 form 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 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

AMS5045 Steel Sheet and Strip, 0.25 max Carbon, Hard Temper

## 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](http://www.astm.org).

ASTM A 108 Steel Bars, Carbon, Cold-Finished, Standard Quality

ASTM B 117 Salt Spray (Fog) Testing

## 2.3 U.S. Government Publications

Available from the Document Automation and Production Service (DAPS), Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6257, <http://assist.daps.dla.mil/quicksearch/>.

MIL-STD-202 Test Methods for Electronic and Electrical Component Parts

# 3. TECHNICAL REQUIREMENTS

## 3.1 Material

The coating materials (primer and finish coating) shall be dispersions of polytetrafluoroethylene (PTFE) resin solids with a small amount of coalescing resin in a water medium. The primer may be either pigmented or unpigmented. The finish resin coating material shall be unpigmented unless colored material is specified by purchaser.

## 3.2 Preparation

3.2.1 Cleaning: Surfaces, other than anodized aluminum, to be coated shall be degreased, chemically cleaned or lightly abrasive blasted, cleaned to remove abrasive particles, and air dried. Anodized aluminum surfaces need only be degreased and dried.

3.2.2 Preheating: Immediately prior to coating, metals shall be preheated to  $752^{\circ}\text{F} \pm 9$  ( $400^{\circ}\text{C} \pm 5$ ) to produce a light oxide film and remove any organic contamination and air cooled. Preheating of aluminum, magnesium, and copper is not required (See 8.2).

## 3.3 Coating

3.3.1 Primer: A primer resin coat of 0.0002 to 0.0007 inch (5 to 18  $\mu\text{m}$ ) dry film thickness shall be applied to the prepared surfaces and fused as in 3.4.

3.3.2 Finish: The finish resin coating material shall be applied to the primed surfaces as required to yield the specified total dry film thickness. Thickness of each coat shall be 0.002 to 0.003 inch (51 to 76  $\mu\text{m}$ ) for the first few coats but should gradually be decreased to approximately 0.001 inch (25  $\mu\text{m}$ ) as total coating thickness increases toward 0.040 inch (1.02 mm). Each coat shall be fused as in 3.4 before application of the succeeding coat.

3.3.2.1 For best corrosion resistance, coated surfaces shall be sanded with 300 to 400 grit paper and cleaned between coats.