



# AEROSPACE MATERIAL SPECIFICATION

**AMS2530™****REV. B**

Issued 2010-01  
Reaffirmed 2019-01  
Revised 2026-02

Superseding AMS2530A

Tungsten Disulfide Coating, Thin Lubricating Film, Binder-Less Impingement Applied

## RATIONALE

AMS2530B results from a Five-Year Review and update of this specification with changes to Ordering Information, Authority (see 1.4), Definition (see 2.5.1), Masking (see 3.2.2), Coefficient of Friction (see 3.4.7), Wear Resistance (see 3.4.8), Periodic Tests (see 4.2.2), and control factors (see 4.4.3).

## NOTICE

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

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

- AMS2530B
  - Part number of parts to be coated
  - Quantity of pieces to be coated
  - Vacuum stability, if required (see 3.4.6)
  - Coefficient of friction requirement, test method, and sampling, if required (see 3.4.7)
  - Wear resistance requirement, test method, and sampling, if required (see 3.4.8)
  - Adhesion, if it is to be an acceptance test (see 4.3.1.1)
2. Parts manufacturing operations such as heat treating, forming, joining, and media finishing can affect the condition of the substrate for anodizing or, if performed after coating, could adversely affect the coated part. The sequencing of these types of operations should be specified by the cognizant engineering organization or the purchaser and is not controlled by this specification.

## 1. SCOPE

### 1.1 Form

This specification covers a coating consisting of tungsten disulfide without binders and does not require a curing process.

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**SAE WEB ADDRESS:**

Full document details: SAE AMS2530B

For more information on this standard, visit  
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Documents

Standard, visit Sharing Hub

## 1.2 Application

This product has been used typically on metal parts and selected nonmetallic materials (e.g., thermoplastic and thermosetting polymers) where a friction-reducing coating under 0.00002 inch (0.5 µm) thick is required and where wear, galling, seizure, and fretting need to be minimized, but usage is not limited to such applications.

This lubricating film has been shown to be compatible with such fluids as reagent grade water, petroleum-based hydraulic fluid, petroleum-based oils and greases, SAE phosphate ester test fluid #1, silicone fluid, unsymmetrical dimethylhydrazine (UDMH)-compatible grease, inhibited fuming red nitric acid (IFRNA)-compatible grease, solid rocket propellants, nitrogen tetroxide, liquid oxygen, and hard radiation environments.

## 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 that 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 Authority

The cognizant engineering organization (CEO) may impose requirements or approve allowances that supersede the requirements in this AMS.

## 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 (U.S. and Canada only) or +1 724-776-4970 (outside U.S. and Canada), [www.sae.org](http://www.sae.org).

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

ASTM B567 Measurement of Coating Thickness by the Beta Backscatter Method

ASTM D2510 Adhesion of Solid Film Lubricants

ASTM D2511 Thermal Shock Sensitivity of Solid Film Lubricants

ASTM D2649 Corrosion Characteristics of Solid Film Lubricants

ASTM D7091 Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals

ASTM E595 Total Mass Loss and Collected Volatile Condensable Materials from Outgassing in a Vacuum Environment

## 2.3 ASQ Publications

Available from American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203, Tel: 800-248-1946 (United States or Canada) or +1-414-272-8575 (all other locations), [www.asq.org](http://www.asq.org).

ANSI/ASQ Z1.4 Sampling Procedures and Tables for Inspection by Attributes

## 2.4 U.S. Government Publications

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

DOD-L-85645 Lubricant, Dry Film, Molecular Bonded

## 2.5 Definitions

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

### 2.5.1 HONE

Fine abrasive blast to obtain a uniform matte appearance.

## 3. TECHNICAL REQUIREMENTS

### 3.1 Coating Material

The material used for the coating shall consist of tungsten disulfide in a finely powdered, lamellar form. The material shall contain no graphite, molybdenum disulfide, binders, or organic constituents so as to be compatible in liquid oxygen systems and hard radiation environments. The coating material, properly applied, shall, without a curing process, form a lubricating film conforming to the requirements of 3.4.

### 3.2 Preparation

#### 3.2.1 Cleaning

The surfaces of the basis material shall be thoroughly cleaned using a procedure capable of removing all polar and non-polar substances, including oils and greases, as well as any corrosion products and scale/oxide deposits. The cleaning procedure shall not produce pitting or intergranular attack of the basis metal and shall preserve dimensional requirements. The cleaned surfaces shall be free from oils (including skin oils), greases, dirt, particulate matter, or other surface contamination. All parts shall be handled in such a manner as to prevent recontamination of any surfaces to be coated during the application process.

#### 3.2.2 Masking

For parts with surfaces on which coating is not permitted, masking shall be applied and removed after coating by a method that will not change the properties of the base material or the applied coating. External shielding between the impingement nozzle and the part may be used instead of masking the part if its effectiveness can be demonstrated by inspection.

#### 3.2.3 Surface Finishing

Unless otherwise approved by the CEO, surfaces of parts to be coated shall be honed with 5 micron aluminum oxide powder to prepare the basis material for coating (see 2.5.1). Following honing, surfaces shall be cleaned to remove all residual particles.

### 3.3 Procedure

The coating material shall be applied to all specified surfaces by spraying at high velocity (impinging) under controlled conditions.