



AEROSPACE MATERIAL

Society of Automotive Engineers, Inc. SPECIFICATION

TWO PENNSYLVANIA PLAZA, NEW YORK, N.Y. 10001

AMS 2526

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Revised

COATING, THIN LUBRICATING FILM, MOLYBDENUM DISULFIDE Impingement Applied

1. SCOPE:

- 1.1 Form: This specification covers a thin lubricating coating consisting of finely powdered molybdenum disulfide in a heat-resistant inorganic binder.
- 1.2 Application: Primarily as a coating on metal parts and selected nonmetallic materials requiring less than 0.0002 in. (0.005 mm) surface thickness for reducing wear or minimizing galling.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material 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., Two Pennsylvania Plaza, New York, New York 10001.

- 2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods

- 2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

ASTM B487 - Metal and Oxide Coating Thickness by Microscopical Examination of a Cross Section

ASTM D2510 - Adhesion of Dry Solid Film Lubricants

ASTM D2625 - Endurance (Wear) Life and Load Carrying Capacity of Dry Film Lubricants

- 2.3 Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120.

- 2.3.1 Federal Specifications:

PPP-T-60 - Tape, Pressure-Sensitive, Adhesive, Waterproof

3. TECHNICAL REQUIREMENTS:

- 3.1 Material: Shall consist of finely powdered molybdenum disulfide in a heat-resistant inorganic binder; the material, when properly applied, will form a lubricating film conforming to the requirements of this specification.

- 3.2 Procedure:

- 3.2.1 Cleaning: Before applying the coating, surfaces of the basis material shall be thoroughly cleaned with minimum abrasion or erosion. The cleaned surfaces shall be free from oxides and from foreign materials detrimental to coating adhesion.

- 3.2.2 Surface Finishing: Surfaces to be coated shall be honed with aluminum oxide powder of 240 - 400 mesh to prepare the basis material for coating.

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- 3.2.3 Coating: The coating material shall be applied by spraying at high velocity (impinging) under controlled conditions to all surfaces on which it is specified.
- 3.2.4 Curing: The coating shall be cured as specified on the drawing (See 8.2).
- 3.2.5 Preservation: Unless otherwise specified, a supplementary preservative treatment, such as light machine oil, shall be applied after curing. Prior to using parts, the preservative treatment may be removed by vapor degreasing and drying in warm dry air.
- 3.3 Properties: The coating shall have the following properties; except for the test of 3.3.3, tests shall be conducted on panels approximately 4 in. (102 mm) long x 1 in. (25 mm) wide x 0.200 in. (5.08 mm) thick of the same material, condition, and surface finish as the parts they represent and which are cleaned, coated, and cured with the parts.
- 3.3.1 Adhesion: Pressure-sensitive tape conforming to PPP-T-60, type 1, class 1 shall be applied to a flat surface of a specimen, rolled in place, and then rapidly removed, in accordance with ASTM D2510, Procedure B. The lifting of flakes or particles of the coating from the specimen, exposing the surface of the specimen, shall be cause for rejection but a uniform deposit of powdery material clinging to the tape will be permitted.
- 3.3.2 Thickness: Shall be not greater than 0.0002 in. (0.005 mm), unless otherwise specified, as determined by sectioning specimens and examining them metallographically in accordance with ASTM B487. Any indication of porosity or other conditions detrimental to functional life of the coating shall be cause for rejection.
- 3.3.3 Wear Life: Shall be determined in accordance with ASTM D2625, Procedure A; the time to failure shall be as agreed upon by purchaser and vendor.
- 3.4 Quality: The coating shall be uniform in color, smooth, and free from surface imperfections detrimental to its intended function.
4. QUALITY ASSURANCE PROVISIONS:
- 4.1 Responsibility for Inspection: The vendor shall supply all samples and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.5. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to assure that the coating conforms to the requirements of this specification.
- 4.2 Classification of Tests:
- 4.2.1 Acceptance Tests: Tests to determine conformance to adhesion (3.3.1) requirements of this specification are classified as acceptance or routine control tests.
- 4.2.2 Qualification Tests: Tests to determine conformance to thickness (3.3.2) and wear life (3.3.3) requirements of this specification are classified as qualification or periodic control tests.
- 4.3 Sampling: Sufficient samples shall be prepared to provide for duplicate tests to each requirement of 3.3.
- 4.4 Approval:
- 4.4.1 Coated parts shall be approved by purchaser before parts for production use are supplied.
- 4.4.2 Vendor shall use manufacturing procedures, processes, and methods of inspection on production parts to determine conformance to this specification which are essentially the same as those used on the approved sample parts. If any change is necessary in established composition limits of the coating material or in coating and curing procedures, vendor shall submit for reapproval of the process a detailed statement of the revised operations and, when requested, sample coated parts. No production parts coated by the revised procedure shall be shipped prior to receipt of reapproval.