AN AMERICAN NATIONAL STANDARD

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400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 3081A

Issued 6-15-75
Revised 1-1-88

Superseding AMS 3081

ANTI-SCUFFING TREATMENT, GRAPHITE VARNISH

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of April 31, 1987. It is recommended that this specification not be specified for new designs.

This cover sheet should be attached to the "A" Revision of the subject specification.

Noncurrent refers to those materials which have previously been widely used and which nay be required on some existing designs in the future. The Aerospace Materials Division dues not recommend these-as standard materials for future use in new designs. Each of these "Noncurrent" specifications is available on request.

This specification is under the jurisdiction of the AMS Committee "B".

Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

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ANTI-SCUFFING TREATMENT
Graphite Varnish

1. SCOPE:

1.1 Purpose: This specification covers the engineering requirements for producing a graphite-varnish coating on parts.

1.2 Application: Primarily for dry lubricant applications up to 350°F (175°C) and anti-scuffing or anti-seize applications up to 900°F (480°C).

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., 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods
AMS 3132 - Varnish, Synthetic Resin, Corrosion Preventive
AMS 3170 - Thinner, Alcohol - Ester

2.2 Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.2.1 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Coating Material: Shall consist of a mixture of one part AMS 3132 varnish and two parts of a dispersion of colloidal graphite in alcohol, thinned with AMS 3170 thinner to proper consistency for application. The alcoholic dispersion of colloidal graphite shall contain 18 - 22% by weight of graphite.

3.2 Preparation:

3.2.1 Unless otherwise specified, parts shall be prepared for coating by wet or dry abrasive blasting or by shot peening the surfaces to be coated to provide a matte finish, uniform in appearance on Ø areas of equivalent hardness, and substantially free from visible tool marks. Abrasive blasting or shot peening of surfaces on which coating is optional will be permitted.

3.2.1.1 Gear and spline teeth shall be prepared by wet abrasive blasting unless shot peening of such areas is required by the drawing. All other surfaces of gears and splined parts may have incomplete or no roughening, unless otherwise specified.

3.2.2 The roughened parts shall be cleaned of residual abrasive or shot by air-blasting, by vapor degreasing, or by rinsing or wiping with methyl ethyl ketone, acetone, or alcohol, and air drying. Parts Ø made of titanium or titanium alloys shall not be vapor degreased nor shall they be rinsed or wiped with alcohol other than isopropyl alcohol.

3.2.3 Drawing dimensions shall apply before preparation, unless otherwise specified.

3.3 Procedure:

3.3. 1 The coating material shall be applied by spraying one or more coats to a film thickness of approximately 0.0002 in. (5 µm). If part geometry makes spraying impractical, the coating material may be applied by dipping or brushing.

3.3.1.1 When more than one coat is required to meet the film thickness requirement, parts shall be allowed to dry in air for not less than 10 min. between coats.

3.3.1.2 Nonfunctional surfaces of gears and splined parts may be coated with AMS 3132 varnish (without the added graphite) in lieu of the material of 3.1; in such case, the ungraphited material shall overlap the graphite-varnish.

3.3.2 The coated parts shall be heated to 300° F ± 10 (150°C ± 5), held at heat for 1 - 2 hr, and cooled.

3.4 Quality: The coating shall be continuous, tightly adherent, hard, tough, uniformly dull and black, and free from bubbles, craters, pin holes, wrinkles, and other surface irregularities.

3.5 Tolerances: When areas to be coated are designated on the drawing, a tolerance of +0, -l/8 in. (-3 mm) will he allowed on the boundaries of such areas; when areas not to be coated are designated, a tolerance of +1/8 in. (+3 mm), -0 will be allowed.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The coating vendor shall be responsible for performing all required inspections. Results of such inspection shall be reported to the purchaser as required by 4.5. Purchaser reserves the right to perform such confirmatory inspection as he deems necessary to ensure that the coating conforms to the requirements of this specification.

4.2 Classification of Inspection: Inspections to determine conformance to all technical requirements of this specification are classified as acceptance inspections and as preproduction inspections.

4.2.1 For direct U. S. Military procurement, substantiating test data and, when requested, coated parts for preproduction inspection shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.

4.3 Sampling: Shall be as agreed upon by purchaser and vendor.

4.4 Approval:

4.4.1 Coated parts shall be approved by purchaser before parts for production use are supplied, unless such approval be waived.

4.4.2 Vendor shall use coating material, manufacturing procedures, and procesees on production parts which are essentially the same as those used on the approved sample parts. If any change is necessary in coating material or procedures, vendor shall submit for reapproval of the coating a statement of the proposed changes in meterial or processing and, when requested, sample coated parts. Production parts coated by the revised procedure shall not be shipped prior to receipt of reapproval.