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

AEROSPACE MATERIAL SPECIFICATION

AMS 3136B
Superseding AMS 3136A
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COATING MATERIAL, PHENOLIC RESIN
PTFE Pigmented, 300°F (149°C) Cure

1. SCOPE:

1.1 Type: This specification covers a phenolic-resin-base coating material pigmented with polytetrafluorethylene resin, supplied in kit form.

1.2 Application: Primarily for use where lubricity is required on materials not adversely affected by the 300°F (149°C) curing temperature.

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

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

ASTM B117 - Salt Spray (Fog) Testing

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

2.3.1 Federal Specifications:

PPP-P-1892 - Paint, Varnish, Lacquer, and Related Materials; Packaging, Packing, and Marking of

3. TECHNICAL REQUIREMENTS:

3.1 Material:

3.1.1 Composition: Shall consist of a two-part formulation, one part being a phenolic resin base with dye and dispersing agents and the other being collodial dispersion of polytetrafluorethylene (PTFE) with necessary wetting and dispersing agents. After mixing in accordance with the manufacturer's recommendations, the mixed product shall conform to the following, by weight:

Nonvolatile	19 - 21%
Volatile	79 - 81%

3.1.1.1 The composition of the individual components shall be as follows:

3.1.1.1.1 Phenolic Resin Component (by weight):

Nonvolatile	10 - 12%
Volatile	88 - 90%

3.1.1.1.1.1 Nonvolatile: Shall be thermosetting phenolic resin with dye and dispersing agents.

3.1.1.1.1.2 Volatile: Shall be an organic solvent composed of alcohols, esters, and diluents.

3.1.1.1.2 PTFE Pigment Component (by weight):

Nonvolatile	59 - 61%
Volatile	39 - 41%

3.1.1.1.2.1 Nonvolatile: Shall be polytetrafluoroethylene resin particles with necessary wetting agents and dispersing agents.

3.1.1.1.2.2 Volatile: Shall be water.

3.1.2 Shelf Life: The PTFE pigment component shall show no evidence of gelation after storage for at least 60 days at 77°F ± 2 (25°C ± 1.1) in a full, closed container and, at the end of this period, shall produce a uniform dispersion free from curds when mixed with the phenolic resin component in accordance with the manufacturer's recommendations.

3.1.3 Pot Life: After mixing in accordance with the manufacturer's recommendations, the mixed product, in 100-g batches, shall have a useful pot life of not less than 22 hr when mainained at 60° - 80°F (15.6° - 26.7°C).

3.2 Properties:

3.2.1 Curing: When mixed and applied in accordance with manufacturer's recommendations and cured at 300°F ± 10 (148.9°C ± 5.6) for 1 hr ± 0.1, the phenolic resin shall polymerize to produce a coating with a uniform dispersion of polytetrafluoroethylene resin solids.

3.2.2 Corrosion Resistance: A low-carbon steel panel with a cured coating 0.0002 - 0.0007 in. (5 - 18 μm) thick shall show no evidence of deterioration of the coating or corrosion of the basis metal after exposure for not less than 100 hr to salt spray test, conducted in accordance with ASTM B117.

3.2.3 Heat Resistance: The coating shall show no evidence of chalking, blistering, or loss of adhesion after exposure for not less than 100 hr at 350°F ± 5 (176.7°C ± 2.8).

3.2.4 Adhesion: An anodized aluminum alloy test panel with a cured coating 0.0002 - 0.0007 in. (5 - 18 μm) thick shall have one half of its surface immersed in distilled water at room temperature for 24 hr ± 0.2. The panel shall then be removed and wiped dry with a soft cloth. Immediately thereafter, two parallel scratches 1 in. (25 mm) apart shall be made by a sharp stylus on the coated surface subjected to immersion. Within 1 min. after the panel has been removed from the water, a piece of pressure-sensitive, paper masking tape shall be placed across the two scratches and sufficient pressure applied to assure adhesion. Removal of the tape, using an abrupt motion, shall cause no separation of the coating from the basis metal.

3.2.5 Coefficient of Friction: The cured coating shall have a coefficient of friction not greater than 0.1, determined at a speed of 25 fpm (127 mm/sec) and a force of 10 lb (44.5 N) on a Timken Tester, or equivalent, at a temperature of 70° - 85°F (21.1° - 29.4°C).

3.3 Quality: The cured coating shall be smooth, uniform, and free from tackiness, craters, pin holes, sags, runs, bubbles, heavy edges, and other imperfections detrimental to performance of coated parts.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the coating material shall supply all samples and shall ø 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 ensure that the coating material conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to composition (3.1.1), pot life (3.1.3), curing ø (3.2.1), and adhesion (3.2.4) requirements are classified as acceptance or routine control tests.

4.2.2 Qualification Tests: Tests to determine conformance to all technical requirements of this specifi- ø cation are classified as qualification or periodic control tests.

4.2.2.1 For direct U.S. Military procurement, qualification test material and supporting test data shall be ø submitted to the cognizant qualification agnecy as directed by the request for procurement. the procuring activity, or the contracting officer.

4.3 Sampling: Shall be as follows:

4.3.1 Acceptance Tests: Sufficient coating material shall be taken from each lot to permit making the following numbers of tests; a lot shall be all coating material produced in one continuous manufacturing operation from the same lots of raw materials and presented for vendor's inspection at one time.

ø Property	Reference Paragraph	Number of Tests
Composition	3.1.1	1
Pot Life	3.1.3	1
Curing	3.2.1	2 (See 4.3.1.1)
Adhesion	3.2.4	2

ø 4.3.1.1 This requirement is to be determined on the panels prepared for the adhesion test.

ø 4.3.2 Qualification Tests: As agreed upon by purchaser and vendor.

4.4 Approval:

4.4.1 To assure adequate performance characteristics, coating material shall be approved by purchaser before coating material for production use is supplied, unless such approval be waived. Results of tests on production coating material shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use the same ingredients and manufacturing processes for production coating material ø as for approved sample coating material. If any change is necessary in ingredients or processing, vendor shall submit for reapproval a statement of the proposed changes in material or processing and, when requested, sample coating material. No production coating material made by the revised procedure shall be shipped prior to receipt of reapproval.

4.5 Reports: The vendor of coating material shall furnish with each shipment three copies of a report of ø the results of tests to determine conformance to the acceptance test requirements and stating that the coating material conforms to the other technical requirements of this specification. This report shall include the purchase order number, material specification number and its revision letter, batch number, and quantity.