

AEROSPACE MATERIAL SPECIFICATIONS

AMS 3136

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Revised

PHENOLIC RESIN COATING MATERIAL, TFE PIGMENTED 300 F Cure

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.

2. APPLICATION: Primarily for use as a dry film lubricant, applied by spray techniques, on materials not adversely affected by cure temperature of 300 F.

3. MATERIAL: A formulation consisting of two parts: a colloidal dispersion of polytetrafluoroethylene pigment and dispersing agents, and a binder consisting of phenolic resin with dye and dispersing agents.

4. COMPOSITION:

4.1 TFE Pigment Component, by weight:

Non-Volatile	59 - 61 %
Volatile	39 - 41 %

4.1.1 Non-Volatile: Shall be polytetrafluoroethylene resin particles with necessary wetting agents and dispersing agents.

4.1.2 Volatile: Shall be water.

4.2 Phenolic Resin Component, by weight:

Non-Volatile	10 - 12 %
Volatile	88 - 90 %

4.2.1 Non-Volatile: Shall be a thermosetting phenolic type with dye and necessary dispersing agents.

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

4.3 Mixed Product, by weight: Shall conform to the following, when mixed in accordance with manufacturer's recommendations:

Non-Volatile	19 - 21 %
Volatile	79 - 81 %

5. TECHNICAL REQUIREMENTS:

5.1 General:

5.1.1 Shelf Life: The colloidal polytetrafluoroethylene resin, after storage in a full, closed 1 qt container at 77 F + 2 for 60 days, shall show no evidence of gelation and shall, after mixing with phenolic resin binder in accordance with manufacturer's recommendations, produce a uniform dispersion free from curds.

Section 8.3 of the SAE Technical Board rules provides that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no obligation to conform to or be guided by any technical report. In formulating and applying technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."

- 5.1.2 Pot Life: Material in 100 g batches, after mixing in accordance with manufacturer's recommendations, shall have a useful pot life of not less than 22 hr when maintained at 60 - 80 F.
- 5.1.3 Curing: When mixed and applied in accordance with manufacturer's recommendations and cured at 300 F \pm 10 for 1 hr, the phenolic resin shall polymerize to produce a coating with a uniform dispersion of polytetrafluoroethylene resin solids.
- 5.2 Corrosion Resistance: A low carbon steel panel with a cured coating 0.0002 - 0.0007 in. thick shall pass 100 hr salt spray test in accordance with ASTM B117-49T, without evidence of deterioration of the coating or corrosion of the basis metal.
- 5.3 Operating Temperature Range: The coating shall show no evidence of chalking, blistering, or loss of adhesion after exposure at 350 F \pm 5 for 100 hours.
- 5.4 Adhesion: An anodized aluminum alloy test panel with a cured coating 0.0002 - 0.0007 in. thick shall have one half of its surface immersed in distilled water at room temperature for 24 hours. The panel shall then be removed and wiped dry with a soft cloth. Immediately thereafter, two parallel scratches 1 in. 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 ensure adhesion. Removal of the tape, using an abrupt motion, shall cause no separation of the coating from the basis metal.
- 5.5 Coefficient of Friction: The cured coating shall have a coefficient of friction not greater than 0.1 when tested at a speed of 25 fpm and a load of 10 lb on a Timken Tester, or equivalent, at a temperature of 70 - 85 F.
6. 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 parts.
7. REPORTS: Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report of the results of tests on each batch of material to determine conformance to this specification. This report shall include the purchase order number, material specification number, formula number, batch number, date of manufacture, and quantity. Shelf life need not be reported.
8. PACKAGING: Unless otherwise specified, material shall be supplied in kit form with the pigment and resin in separate containers with sealed openings. Each container shall be legibly marked to show this specification number and title, vendor's name or trade mark, formula number, batch number, date of manufacture, quantity, directions for mixing, and precautions for storage.
9. APPROVAL:
- 9.1 To assure adequate performance characteristics, compounds shall be approved by purchaser before material for production use is supplied, unless such approval be waived. Results of tests on production material shall be essentially equivalent to those on the approved sample.