AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York, N. Y. 10017

AMS 2491A

Superseding AMS 2491

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SURFACE TREATMENT OF POLYTETRAFLUOROETHYLENE
Bonding Preparation

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

2. APPLICATION: Primarily for rendering surfaces of polytetrafluoroethylene parts capable of supporting a high strength adhesive bond. The bonding preparation can affect the electrical properties of the material and this should be considered before utilizing it for the treatment of electronic components.

3. MATERIAL: The surface treating agent shall be a solution of sodium or other alkali metal in anhydrous liquid ammonia or tetrahydrofurannaphthalene or other suitable solvent.

NOTE. Safety Precaution: Sodium metal reacts violently with water. Tetrahydrofuran solvent is highly flammable. Therefore, it is recommended that persons handling these materials be experienced or trained in their use.

4. PREPARATION: Parts to be treated shall be cleaned of all dirt, grease, oil, and other contamination. Cleaned parts shall be thoroughly dried prior to surface treatment.

5. PROCEDURE: The clean, dry parts shall be exposed to the surface treating agent until all surfaces to be bonded display a uniform color.

5.1 Cleaning: The treated parts shall be cleaned and thoroughly dried. A suitable cleaning technique is to immerse the parts in acetone, then water, followed by a final rinse with clean, anhydrous acetone.

6. TECHNICAL REQUIREMENTS: When ASTM methods are specified for determining conformance to the following requirements, tests shall be conducted in accordance with the issue of the ASTM method listed in the latest issue of AMS 2350.

6.1 Color: Treated surfaces of parts shall have a uniform, dull, dark brown to black color.

6.2 Properties: Unless otherwise specified, representative specimens of surface-treated polytetrafluoroethylene which have been bonded to the applicable aluminum specimens with an epoxy adhesive compound conforming to the latest issue of AMS 3690 shall meet the following requirements:

6.2.1 Tensile Strength at 70 - 75 F (21.1 - 23.9 C), psi, min	1000	ASTM D897, See Note 1
6.2.2 Shear Strength at 70 - 75 F (21.1 - 23.9 C), psi, min	1000	ASTM D1002, See Note 2

Note 1. Treated polytetrafluoroethylene disc approximately 0.030 in. thick shall be bonded between the two halves of a standard aluminum tensile test specimen.

Note 2. Treated polytetrafluoroethylene strip having a maximum thickness of 0.030 in. bonded between 2 standard aluminum lap shear plates shall be used.

7. PACKAGING: Unless otherwise specified, treated parts that are not to be bonded immediately shall be heat sealed in polyethylene bags in a manner which will prevent exposure to ultraviolet light and other surface contamination.

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