AEROSPACE
MATERIAL SPECIFICATIONS

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

AMS 3646

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Revised

POLYTRIFLUOROCHLOROETHYLENE SHEET
Molded, Unplasticized

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

2. FORM: Molded sheet up to 0.250 in. in thickness.

3. APPLICATION: Primarily for parts requiring chemical inertness and toughness at temperatures up to 390 F (199 C) or high frequency electrical insulating properties up to 325 F (163 C). The material may also be used at cryogenic temperatures.

4. TECHNICAL REQUIREMENTS: The product shall conform to the following requirements; tests shall be conducted on the product supplied and in accordance with the issue of specified ASTM methods listed in the latest issue of AMS 2350, insofar as practicable.

4.1 General:

4.1.1 Color: The color of the material may range from clear transparent to gray translucent.

4.1.2 Dimensional Stability: Unless otherwise specified, sheet shall not change more than 0.002 in. per in. after being held for 48 hr at 160 F ± 5 (71.1 C ± 2.8) and measured at 70 - 85 F (21.1 - 29.4 C).

4.2 Properties:

4.2.1 Tensile Strength at 77 F ± 2 (25 C ± 1.1), psi, min	4800	ASTM D638 (See Note 1 & 2)
4.2.2 Elongation at 77 F ± 2 (25 C ± 1.1), %, min	100	ASTM D638 (See Note 1 & 2)
4.2.3 Dielectric Strength (short time test, 0.062 in. thick specimen), v per mil, min	500	ASTM D149
4.2.4 Specific Gravity, at 73.4/73.4 F (23/23 C)	2.10 - 2.14	ASTM D792, Method A
4.2.5 ZST (Zero Strength Time) at 482 F ± 4 (250 C ± 2.2), sec, min	300	ASTM D1430

Note 1. Specimens shall be cut using die "A" or "C" of ASTM D412 and tested at a crosshead speed of 1.0 in. per minute.

Note 2. ASTM D1708 test method may be used as an alternate test method if limited material is available.

5. QUALITY: Material shall be molded from virgin, unplasticized polymer and shall be uniform in quality and condition throughout the sheet. The product shall be clean, smooth, and free from foreign materials, inhomogeneities, and imperfections detrimental to fabrication, appearance, or performance, except as specified in 5.1 and 5.2.

5.1 Contamination: Sheet 0.062 in. or less in thickness and parts made from such sheet shall have no foreign particles spaced closer than 2 in. to each other or over 1/32 in. in the largest dimension. Sheet over 0.062 in. in thickness and parts made from such sheet shall have no particles spaced closer than 2 in. to each other or over 1/16 in. in the largest dimension. Particles, if present, shall be completely imbedded in the sheet.

5.2 Voids: Fabricated parts shall contain no voids, fissures, or bubbles of entrapped gas. Sheet shall contain no imperfections which will prevent fabrication of void-free parts.

6. TOLERANCES: Unless otherwise specified, the following tolerances apply when measured at 70 - 85 F (21.1 - 29.4 C).

6.1 Length, Width, or Diameter: May vary from -0 to +10% of the specified dimension.

6.2 Thickness: Shall not vary more than the following when measured to within the nominal length, width, or diameter, unless otherwise specified on the purchase order.

Nominal Thickness Inch	Tolerance, Inch					
	Sheet with Largest Dimension Up to 6 in., excl		Sheet with Largest Dimension 6 to 9 in., incl		Sheet with Largest Dimension Over 9 in.	
	plus	minus	plus	minus	plus	minus
0.011 to 0.030, incl	0.003	0.002	0.006	0.002	0.008	0.002
Over 0.030 to 0.070, incl	0.003	0.002	0.006	0.002	0.010	0.002
Over 0.070 to 0.100, incl	0.006	0.002	0.008	0.002	0.012	0.004
Over 0.100 to 0.250, incl	0.008	0.004	0.012	0.006	0.016	0.008

6.3 Surface Finish: Unless otherwise stated, all surfaces of sheet shall have a surface roughness of 20 microinches or smoother. In all cases, localized surface scratches may be cause for rejection.

7. REPORTS:

7.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's compound number, form or part number, and quantity.

7.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, supplier's compound number, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

8. PACKAGING: Packaging shall be accomplished in such a manner as to ensure that the product, during shipment and storage, will not be permanently distorted, and will be protected against damage from exposure to weather or any normal hazard.

9. APPROVAL:

9.1 To assure adequate performance characteristics, material 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.