AEROSPACE
MATERIAL SPECIFICATIONS

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

AMS 3645

Issued 4-15-67
Revised

POLYTRIFLUOROCHLOROETHYLENE, COMPRESSION MOLDED
Heavy Sections, Unplasticized

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

2. FORM: Sheet over 0.250 in. in thickness, rod, heavy wall tubing, and large molded and machined parts.

3. APPLICATION: Primarily for parts requiring chemical inertness and toughness at temperatures up to 200 C (392 F) or high frequency electrical insulating properties up to 165 C (329 F). The material also may be used at cryogenic temperatures.

4. MATERIAL: The material shall be molded from virgin, unplasticized polymer.

5. TECHNICAL REQUIREMENTS:

5.1 General:

5.1.1 Color: The color of the material may range from natural translucent white to gray except for localized discoloration resulting from processing.

5.1.2 Condition: Unless otherwise specified, sheet, rod, and tubing shall be supplied in the annealed condition. Rods and tubing shall be supplied with a machined surface on the outside diameter.

5.2 Properties: 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.

5.2.1 Tensile Strength at 23C (73.4 F), psi, min avg	5000	ASTM D638 (See Notes 1 & 2)
5.2.2 Elongation at 23 C (73.4 F), %, min		ASTM D638 (See Notes 1 & 2)
Average	50	
Individual	30	
5.2.3 Dielectric Strength, short time test, 0.062 in. thick specimen, v per mil, min	500	ASTM D149
5.2.4 Specific Gravity	2.12 - 2.17	ASTM D792, Method A
5.2.5 Zero Strength Time at 250 C ± 2 (482 F ± 3.6), sec, min	260	ASTM D1430

Note 1. Specimens shall be machine or die cut to the dimensions of die "A" or "C" of ASTM D412 and tested at a cross-speed of 1.0 in. per minute.

Note 2. ASTM D1708 test method sample size may be used if limited material is available.

5.2.6 Dimensional Stability: All dimensions of raw stock or fabricated parts shall not change more than 0.003 in. per in. when measured at 21 - 29 C (69.8 - 84.2 F), after being held for 48 hr at 71 C ± 5 (159.8 F ± 9).

6. QUALITY: The product shall be uniform in quality and condition, clean, smooth, and free from foreign materials and from internal and external imperfections detrimental to fabrication, appearance, or performance of parts.

7. TOLERANCES:

7.1 Molded and Machined Parts: Shall be within the tolerances specified on the applicable drawing when measured at 21 - 29 C (69.8 - 84.2 F).

Note. Large parts may require closer temperature control for dimensional measurement.

7.2 Sheet, Rod, and Tubing: The following tolerances apply when measured at 70 - 85 F (21.1 - 29.4 C).

7.2.1 Sheet: Thickness tolerance for sheet and discs shall be +10%, -0 for all thicknesses, unless otherwise specified.

7.2.2 Rods:

Nominal Diameter Inches	Tolerance, Inch Plus Only
0.250 to 1.000, incl	0.025
Over 1.000 to 2.000, incl	0.050
Over 2.000 to 3.500, incl	0.070
Over 3.500	As specified by purchaser

7.2.3 Tubes 0.250 In. and Over in Wall Thickness:

Nominal Outside Diameter Inches	ID Tolerance Inch Minus Only	Wall Thickness Tolerance Inch Plus Only
1.000 to 1.500, incl	0.060	0.120
Over 1.500 to 3.000, incl	0.120	0.150
Over 3.000 to 5.000, incl	0.188	0.188
Over 5.000 to 8.000, incl	0.250	0.250
Over 8.000	As specified on purchase order	

8. REPORTS:

8.1 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.

8.2 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.

9. 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.