AEROSPACE
MATERIAL SPECIFICATIONS
SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 3653C

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TUBING, ELECTRICAL INSULATION
Standard Wall, Extruded Polytetrafluoroethylene

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

2. FORM: Flexible tubing.

3. APPLICATION: Primarily for electrical insulating sheath at temperatures up to 500 F (260 C).

4. TECHNICAL REQUIREMENTS:

4.1 Color: Unless otherwise specified, tubing shall be natural in color, ranging from translucent white to opaque white. When ordered in colors, the colors shall be in accordance with the latest issue of MIL-STD-104 or as agreed upon between purchaser and vendor.

4.2 Properties: The product shall conform to the following requirements; tests shall be performed 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.

4.2.1	Tensile Strength at 200% Elongation, psi	2,500 - 6,000	ASTM D876 Temperature: 77 F ± 2 (25 C ± 1.1)
4.2.2	Elongation, %, min	200	ASTM D876 Temperature: 77 F ± 2 (25 C ± 1.1)
4.2.3	Dielectric Breakdown, v, min, average		ASTM D876 Temperature: 77 F ± 2 (25 C ± 1.1)

Nominal Wall Thickness, Inch

0.009	8,000
0.012	10,000
0.016	13,000
0.020	16,000
0.025	18,000
0.030	20,000
0.035	20,000
0.040	20,000

4.2.4	Stress Relief (shrinkage), %, max	1.0	ASTM D876 Temperature: Medium:	500 F ± 5 (260 C ± 2.8) Liquid
4.2.5	Heat Aging (weight loss), %, max	0.05	ASTM D876 Temperature:	Method B 572 F ± 5 (300 C ± 2.8) 3 hr
4.2.6	Specific Gravity	2.14 - 2.21	ASTM D792 (See Note 1)	Method A

Note 1. Suitable wetting agent should be added to the water to assure complete wetting of the specimen.

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

6. SIZES AND TOLERANCES: Unless otherwise specified, the following sizes are standard, and the tolerances apply at 75 - 85 F (23.9 - 29.4 C).

Size No.	Inside Diameter, Inches			Wall Thickness, Inch	
	Nominal	Minimum	Maximum	Nominal	Tolerance plus and minus
30	0.012	0.010	0.015	0.009	0.002
28	0.015	0.013	0.019	0.009	0.002
26	0.018	0.016	0.022	0.009	0.002
24	0.022	0.020	0.027	0.012	0.003
23	0.026	0.023	0.030	0.012	0.003
22	0.028	0.025	0.032	0.012	0.003
21	0.032	0.029	0.036	0.012	0.003
20	0.034	0.032	0.040	0.016	0.003
19	0.038	0.036	0.044	0.016	0.003
18	0.042	0.040	0.049	0.016	0.003
17	0.047	0.045	0.054	0.016	0.003
16	0.053	0.051	0.061	0.016	0.003
15	0.059	0.057	0.067	0.016	0.003
14	0.066	0.064	0.074	0.016	0.003
13	0.076	0.072	0.082	0.016	0.003
12	0.085	0.081	0.091	0.016	0.003
11	0.095	0.091	0.101	0.016	0.003
10	0.106	0.102	0.112	0.016	0.003
9	0.118	0.114	0.124	0.020	0.004
1/8 in.	0.125	0.120	0.130	0.020	0.004
8	0.133	0.129	0.141	0.020	0.004
7	0.148	0.144	0.158	0.020	0.004
6	0.166	0.162	0.178	0.020	0.004
5	0.186	0.182	0.198	0.020	0.004
4	0.208	0.204	0.224	0.020	0.004
3	0.234	0.229	0.249	0.020	0.004
1/4 in.	0.255	0.250	0.260	0.020	0.004
2	0.263	0.258	0.278	0.020	0.004
1	0.294	0.289	0.311	0.020	0.004

6. SIZES AND TOLERANCES - Cont'd:

Size No.	Inside Diameter, Inches			Wall Thickness, Inch	
	Nominal	Minimum	Maximum	Nominal	Tolerance plus and minus
5/16 in.	0.321	0.313	0.334	0.020	0.004
0	0.330	0.325	0.347	0.020	0.004
3/8 in.	0.387	0.375	0.399	0.025	0.005
7/16 in.	0.451	0.438	0.464	0.025	0.005
1/2 in.	0.515	0.500	0.530	0.025	0.005
5/8 in.	0.643	0.625	0.662	0.025	0.005
3/4 in.	0.772	0.750	0.795	0.030	0.006
7/8 in.	0.901	0.875	0.927	0.035	0.007
1 in.	1.030	1.000	1.060	0.035	0.007
1-1/4 in.	1.287	1.250	1.325	0.040	0.007

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, color, size, 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:

8.1 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.

8.2 Each package shall be permanently and legibly marked to give the following information:

TUBING, EXTRUDED POLYTETRAFLUOROETHYLENE, STANDARD WALL
AMS 3653C
SIZE NO. _____
COLOR _____
QUANTITY _____
PURCHASE ORDER NUMBER _____
MANUFACTURER'S IDENTIFICATION _____

9. APPROVAL:

9.1 To assure adequate performance characteristics, compound 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.