AERONAUTICAL MATERIAL SPECIFICATION

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FLEXIBLE PLASTIC EXTRUSIONS

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

2. FORM AND COLOR: This material shall be available as black, white, red, blue, green, yellow and colorless transparent extruded tubing, cord, tape, or shapes as ordered. Colorless transparent material is to be supplied, unless otherwise specified.

3. APPLICATION: The material shall be suitable for line typing and jacketing on wire, flexible conduit, bus bars, and similar applications.

4. QUALITY: (a) The material shall be homogeneous, free from seams, cracks, or inclusions; the surfaces shall not be sticky or tacky, and the material shall be difficult to tear by hand. It shall have high abrasion resistance, and shall not adversely affect aluminum, tinned copper, or silver-plated brass. It shall be unaffected by indoor aging.

(b) All details of manufacture shall be in accordance with best practice for aircraft material, and shall be free from all defects which would adversely affect its serviceability.

5. REQUIREMENTS: (a) Physical Properties.- Tensile tests shall be conducted in accordance with ASTM D412-41. This material shall possess the following physical properties as received:

Tensile Strength, psi	1800 min
Elongation at Break, %	300 min
Specific Gravity 77° /77°F.	1.15 to 1.45

(b) Dielectric Strength.- Tests shall be conducted in accordance with ASTM D350-43, using a tubular specimen with 0.020 ± 0.003 inch wall thickness. The average dielectric strength shall be not less than 750 VPM.

(c) Brittleness.- Tests shall be conducted in accordance with ASTM D746-43T, except that the test specimens shall have a thickness of 0.020 ± 0.003 inch. The specimens shall not fail at -40°F.

(d) Oven Aging.- Tests shall be conducted in accordance with ASTM D573-42 for 70 hours at 212° ± 2°F. Test specimens shall be of the same dimensions as for the brittleness test. Oven-aged specimens when subjected to the brittleness test of paragraph 5(c), shall not fail at -10°F. Specimens oven-aged 150 hours at 185° ± 2°F. shall not be tacky, nor show any appreciable loss of transparency.

(e) Inflammability.- A specimen 0.020 inch thick shall be held horizontally and extended approximately 1/4 inch into the side of a bunsen flame. When burning uniformly, the specimen shall be removed and

held vertically in still air with the flame down. The specimen shall continue to burn for not more than 5 seconds.

(f) Water Absorption Test.- Three weighed specimens approximately 4 inches long with a thickness of 0.020 ± 0.003 inch shall be totally immersed vertically in distilled water for 24 hours at 77° ± 2°F. The specimens shall then be washed for 20 to 30 seconds in methanol, dried for 5 minutes at 212°F. ± 2°F. in an air-oven as specified in ASTM D570-42, cooled to room temperature and re-weighed. At room temperature, the percentage change in weight shall be within the limits of ± 1.5%.

(g) Oil Aging.- Tests are to be conducted in accordance with ASTM D471-43T, except that the test samples shall have a thickness of 0.020 ± 0.003 inch. Test conditions shall be as follows:

Medium	Petroleum Base Lubricating Oil Viscosity 155 ± 5 secs. at 100°F. Aniline Point 158° ± 3°F.
Temperature	212° ± 2°F.
Time	8 hours

After aging, the surface shall neither be tacky nor show signs of decomposition. The aged specimen shall not crack when bent 180° around a 1/4-inch mandrel at a rate of approximately 60° per second at room temperature.

6. SAMPLES: Specimens for testing shall be representative of the lot of material under test. The size of the sample specimen shall be as indicated in the applicable test procedure.

7. DIMENSIONS AND TOLERANCES:

(a) Tubing.-

(1) Dimensions shall be measured in accordance with ASTM D350-43.

(2) Unless otherwise specified on the drawing or purchase order, the following tolerances apply; all dimensions are in inches:

Inside Diameter	Tolerance
Under .030	± .002
.030 to .148, incl.	± .003
.149 to .195, incl.	± .004
.196 to .294, incl.	± .008
.295 to .625, incl.	± .010
.626 to 1.000, incl.	± .012
1.001 to 1.500, incl.	± .015
1.501 to 2.500, incl.	± .018
Over 2.500 to 3.500 incl.	± .020