AEROSPACE
MATERIAL SPECIFICATIONS

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

AMS 3210B

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SYNTHETIC RUBBER
Electrical Resistant, Chloroprene Type
65 - 75

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

Ø 2. FORM: Sheet, strip, tubing, molded shapes, extrusions, or as ordered.

3. APPLICATION: Primarily for parts requiring resistance to electrical breakdown and the embrittling action of corona and ozone.

4. TECHNICAL REQUIREMENTS:

4.1 General:

4.1.1 Condition: Unless otherwise specified, a suitably cured product shall be furnished.

4.1.2 Weathering: When specified, the product shall have weather resistance acceptable to the purchaser as determined by a procedure agreed upon by purchaser and vendor.

4.1.3 Corrosion: The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.

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. When the product supplied is an extrusion of such shape that suitable Ø test specimens cannot be cut from the product, a separate flat strip test sample shall be supplied upon request. This strip shall be prepared from 1 in. ± 1/16 OD by 0.075 in. ± 0.008 thick wall tubing which shall be mechanically split and flattened into a strip while being extruded and then cured in the same manner as production material.

4.2.1 As Received:

Ø 4.2.1.1	Hardness, Durometer "A" or equiv.	70 ± 5	ASTM D676
4.2.1.2	Tensile Strength, psi, min	1000	ASTM D412, Die B or C
4.2.1.3	Elongation, %, min	400	ASTM D412, Die B or C
4.2.1.4	Tear Resistance, lb per in., min	See Note 1	ASTM D624, Die B
4.2.1.5	Power Factor, %, max	10	ASTM D150 Frequency 60 cycles per sec
4.2.1.6	Dielectric Strength, v per mil, min	300	ASTM D149 Short time test, 0.075 in. thick specimen

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4.2.1.7 Specific Gravity	See Note 2	ASTM D297
4.2.2 Oil Resistance: (Immediate Deteriorated Properties)		ASTM D471 Medium: ASTM Oil No. 1 Temperature: 100 C ± 1 (212 F ± 1.8) Time: 70 hr
4.2.2.1 Tensile Strength Change, %, max	-20	
4.2.2.2 Elongation Change, %, max	-40	
4.2.2.3 Volume Change, %	0 to +15	
4.2.2.4 Decomposition	None	
4.2.2.5 Surface Tackiness	None	
4.2.3 Water Resistance: Ø (Immediate Deteriorated Properties)		ASTM D471 Medium: Distilled Water Temperature: 20 - 30 C (68 - 86 F) Time: 48 hr
4.2.3.1 Weight Increase, %, max	5	
4.2.3.2 Dielectric Strength, v per mil, min	200	
4.2.4 Dry Heat Resistance:		ASTM D573 Temperature: 100 C ± 1 (212 F ± 1.8) Time: 70 hr
4.2.4.1 Hardness Change, Durometer "A" or equiv.	0 to +10	
4.2.4.2 Tensile Strength Change, %, max	-35	
4.2.4.3 Elongation Change, %, max		
4.2.4.3.1 For parts other than extrusions	-50	
4.2.4.3.2 For extruded parts	-60	
4.2.4.4 Bend (flat)	No cracking or checking	
4.2.5 Compression Set:		ASTM D395, Method B Temperature: 100 C ± 1 (212 F ± 1.8) Time: 70 hr
4.2.5.1 Per cent of original deflection, max	85	
4.2.5.2 Per cent of original thickness, max	21	
4.2.6 Low Temperature Resistance:		
Ø 4.2.6.1 Brittleness	Pass	ASTM D746, Procedure B Temperature: -25 C ± 1 (-13 F ± 1.8)
4.2.6.2 Young's Modulus, psi, max Ø (See Note 3)	50,000	ASTM D797 Temperature: -35 C ± 1 (-31 F ± 1.8)
4.2.7 Ozone Resistance:	No cracking	See Note 4

4.2.8	Flame Resistance: Self extinguishing time, sec, max	10	See Note 5

Note 1. Value to be reported.

Note 2. Value to be reported. Production material shall be within ±0.02 of the value found on the approved sample.

Note 3. This test is not normally required but is intended to be used as a referee test in case of disagreement on the results of the brittleness test.

Note 4. Place sufficient mercury in a 500 ml Erlenmeyer flask to form a pool covering the bottom. Place a 1 x 1/2 x 0.075 in. specimen of the rubber in a wooden specimen holder, 1 x 1/2 x 5/16 in. with two grooves each 3/16 in. deep x 3/32 in. wide x 1/2 in. long spaced 1/4 in. between sides of grooves, so that specimen forms a half loop. Place specimens in holders in the flask so that the holders float on the surface of the mercury near side of flask. Stopper the flask with a rubber stopper through which is inserted an electrode extending to within 1 in. of the surface of the mercury. Place the flask on a metal plate and connect the plate and the electrode to a source of 15,000 v, 60 cycle alternating current. Pass this current through the flask. Examine for cracking after 30 minutes.

Note 5. Flame resistance shall be determined in accordance with ASTM D635, except that the specimen shall be clamped in a vertical position and the flame shall be applied at the lower end of the specimen for 30 sec and then withdrawn. The duration of flaming and glowing in the specimens after withdrawal of the burner shall be recorded as the time for the specimen to become self-extinguishing.

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. TOLERANCES: Unless otherwise specified, the following tolerances apply:

6.1 Sheet and Strip:

Nominal Thickness Inches	Tolerance, Inch Plus and Minus
Up to 1/8, incl	1/64
Over 1/8 to 1/2, incl	1/32
Over 1/2	3/64

6.2 Tubing:

6.2.1

Nominal OD or ID (not both), Inches	Tolerance Plus and Minus	Ovality, % (See Note 6)
Up to 1/2, incl	0.020 in.	10
Over 1/2 to 1, incl	0.030 in.	15
Over 1	4%	15

Note 6. Ovality applies to tubing ordered in straight lengths with wall thickness of 1/16 in. and over, and shall be computed from the difference of the minor and major axis diameter measurements, taken at the same transverse plane on the tube, expressed as a percentage of the nominal diameter.

6.2.2

Nominal Wall Thickness Inches	Tolerance Plus and Minus
Up to 1/16, excl	0.005 in.
1/16 and over	10%