AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 3239

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SYNTHETIC RUBBER
Inorganic Ester Resistant
Butyl Type (85-95)

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

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

3. APPLICATION: Primarily for parts such as V-rings, gaskets, grommets and seals requiring resistance to inorganic esters or low permeability to gases. Not suitable for use in contact with petroleum base fluids due to excessive swell.

4. TECHNICAL REQUIREMENTS:

4.1 General:

4.1.1 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 listed ASTM methods, insofar as practicable.

Property	Value	Test Method
4.2.1 As Received:		
4.2.1.1 Hardness, Durometer "A" or equiv.	90 ± 5	
4.2.1.2 Tensile Strength, psi, min	1500	ASTM D412-51T, Die B or C
4.2.1.3 Elongation, %, min	200	ASTM D412-51T, Die B or C
4.2.2 Inorganic Ester Resistance: (Immediate Deteriorated Properties)		ASTM D471-51T
4.2.2.1 Tensile Strength Reduction, %, max (based on area before immersion)	25	Medium: Tri-n butyl phosphate Temperature: 212 F ± 2 Time: 70 hr
4.2.2.2 Elongation Reductions, %, max	20	
4.2.2.3 Volume Change (Method A), %	0 to +30	
4.2.2.4 Hardness Change, Durometer "A" or equiv.	0 to -35	

Property	Value	Test Method
4.2.3 Dry Heat Resistance:		ASTM D573-48 Temperature: 212 F ± 2 Time: 70 hr
4.2.3.1 Tensile Strength Reduction, %, max	15	
4.2.3.2 Elongation Reduction, %, max	35	
4.2.3.3 Hardness Change, Durometer, "A" or equiv.	0 to +5	
4.2.4 Compression Set:		ASTM D395-49T, Method B Temperature: 212 F ± 2 Time: 70 hr
4.2.4.1 Percent of Original Deflection, max	90	
4.2.4.2 Percent of Original Thickness, max	18	Compressed to 80% of original thickness
4.2.5 Low Temperature Brittleness:	Pass	ASTM D736-46T (See Note) Temperature: -40 F ± 2 Time: 5 hr

Note. To be specified only until satisfactory replacement test and values are established.

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

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

6.1 Sheet and Strip:

Nominal Thickness Inch	Tolerance, Inch Plus and Minus
1/8 and under	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), Inch	Tolerance, Inch Plus and Minus	Ovality (Note 1)
1/2 and under	0.020	10%
Over 1/2 to 1, incl	0.030	15%
Over 1	4%	15%

Note 1: 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 location on the tube, expressed as a percentage of the nominal diameter.