AEROSPACE
MATERIAL SPECIFICATIONS

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

AMS 3239B

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SYNTHETIC RUBBER
Phosphate Ester Resistant, Butyl Type
85 - 95

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

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

3. APPLICATION: Primarily for parts such as V-rings, gaskets, grommets, and seals requiring resistance to phosphate 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 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 ø suitable 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.	90 ± 5	ASTM D676
4.2.1.2	Tensile Strength, psi, min	1500	ASTM D412, Die B or C
4.2.1.3	Elongation, %, min	200	ASTM D412, Die B or C
4.2.1.4	Tear Strength, lb per in.	To be reported	ASTM D624, Die B
4.2.2	Phosphate Ester Resistance: (Immediate Deteriorated Properties)		ASTM D471 Medium: Tri-n-butyl phosphate Temperature: 100 C ± 1 (212 F ± 1.8) Time: 70 hr
4.2.2.1	Hardness Change, Durometer "A" or equiv.	0 to -35	
4.2.2.2	Tensile Strength Change, %, max (based on area before immersion)	-25	

4.2.2.3	Elongation Change, %, max	-20	
4.2.2.4	Volume Change, %	0 to +30	
4.2.3	Dry Heat Resistance:		ASTM D573 Temperature: 100 C ± 1 (212 F ± 1.8) Time: 70 hr
4.2.3.1	Hardness Change, Durometer, "A" or equiv.	0 to +5	
4.2.3.2	Tensile Strength Change, %, max	-15	
4.2.3.3	Elongation Change, %, max	-35	
Ø 4.2.4	Compression Set:		ASTM D395, Method B Temperature: 100 C ± 1 (212 F ± 1.8) Time: 70 hr
4.2.4.1	Per cent of original deflection, max	90	
Ø 4.2.4.2	Per cent of original thickness, max	23	
4.2.5	Low Temperature Resistance:		
4.2.5.1 Ø	Brittleness	Pass	ASTM D746, Procedure B Temperature: -25 C ± 1 (-13 F ± 1.8) Time: 10 min.
4.2.5.2	Young's Modulus, psi, max (See Note 1)	70,000	ASTM D797 Temperature: -40 C ± 1 (-40 F ± 1.8)

Note 1. 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.

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	Tolerances, 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 2)
Up to 1/2, incl	0.020 in.	10
Over 1/2 to 1, incl	0.030 in.	15
Over 1	4%	15