



AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York, N. Y. 10017

AMS 3248

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Revised

SYNTHETIC RUBBER Phosphate Ester Resistant, Ethylene Propylene Type 55 - 65

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 seals, gaskets, and grommets requiring resistance to phosphate esters or to ozone. 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 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. $\pm 1/16$ 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:**

4.2.1.1 Hardness, Durometer "A" or equiv.	60 ± 5	ASTM D2240
4.2.1.2 Tensile Strength, psi, min		ASTM D412, Die B or C
4.2.1.2.1 For parts other than extrusions	2500	
4.2.1.2.2 For extruded parts	2000	
4.2.1.3 Elongation, %, min		ASTM D412, Die B or C
4.2.1.3.1 For parts other than extrusions	400	
4.2.1.3.2 For extruded parts	320	
4.2.1.4 Tear Strength, lb per in., min		ASTM D624, Die B

4.2.1.4.1	For parts other than extrusions	150	
4.2.1.4.2	For extruded parts	120	
4.2.1.5	Tensile Stress at 200% elongation	To be Reported	ASTM D412 (See Note 1)
4.2.1.6	Specific Gravity	To be Reported	ASTM D297 (See Note 2)
4.2.1.7	Total Ash	To be Reported	ASTM D297 (See Note 3)
4.2.2	<u>Phosphate Ester Resistance:</u> (Immediate Deteriorated Properties)		ASTM D471 Medium: Tri-n-butyl phosphate
4.2.2.1	Hardness Change, Durometer "A" or equiv.	0 to -10	Temperature: 100 C $\pm$ 1 (212 F $\pm$ 1.8) Time: 70 hr
4.2.2.2	Tensile Strength Change, %, max (based on area before immersion)	-20	
4.2.2.3	Elongation Change, %, max	-20	
4.2.2.4	Volume Change, %	0 to +15	
4.2.3	<u>Dry Heat Resistance:</u>		ASTM D573 Temperature: 125 C $\pm$ 1 (257 F $\pm$ 1.8) Time: 70 hr
4.2.3.1	Hardness Change, Durometer "A" or equiv.	0 to +10	
4.2.3.2	Tensile Strength Change, %, max	-15	
4.2.3.3	Elongation Change, %, max	-20	
4.2.4	<u>Compression Set:</u>		ASTM D395, Method B Temperature: 100 C $\pm$ 1 (212 F $\pm$ 1.8) Time: 70 hr
4.2.4.1	Percent of original deflection, max	20	
4.2.4.2	Percent of original thickness, max	5	
4.2.5	<u>Low Temperature Resistance:</u>		
4.2.5.1	Brittleness	Pass	ASTM D746, Procedure B Temperature: -55 C $\pm$ 1 (-67 F $\pm$ 1.8) Time: 10 min.

Note 1. Specimens shall be prestretched to 225% elongation twice within 5 min. of test.
Production material shall be within $\pm$ 20% of the value found on the approved sample.

Note 2. Production material shall be within $\pm$ 0.02 of the value found on the approved sample.

Note 3. Production material shall be within $\pm$ 10% of the value found on the approved sample.

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

Note 4. 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%

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, values to be reported, form or part number, 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. IDENTIFICATION: Unless otherwise specified, all material shall be identified in accordance with the latest issue of AMS 2810.

9. PACKAGING:

9.1 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.

9.2 Each package shall be permanently and legibly marked in accordance with the latest issue of AMS 2810.