

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 3202E

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SYNTHETIC RUBBER Dry Heat Resistant (55-65)

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, molded shapes, extrusions, or as ordered.
3. **APPLICATION:** Primarily for packings, bushings, grommets and seals where resistance to dry heat is of prime importance.
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 listed ASTM methods, insofar as practicable. When the product supplied is an extrusion of such shape that 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. $\pm$ 1/16 OD by 0.075 in. $\pm$ 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 $\pm$ 5	
4.2.1.2 Tensile Strength, psi, min	1500	ASTM D412-51T, Die B or C
4.2.1.3 Elongation, %, min	250	ASTM D412-51T, Die B or C
 - 4.2.2 **Processing Oil Resistance:**
(Immediate Deteriorated Properties)

	ASTM D471-52T
	Medium: ASTM Oil No. 3
	Temperature: 212 F $\pm$ 2
	Time: 70 hr
 - 4.2.2.1 Hardness Change, Durometer "A" or equiv. -15 to +10 | | - 4.2.2.2 Tensile Strength Reduction, %, max
(based on area before immersion) 50 | |

4.2.2.3	Elongation Reduction, %, max	40	
Ø 4.2.2.4	Volume Change (Method A), %	-10 to +50	
4.2.2.5	Decomposition	None	
4.2.2.6	Surface Tackiness	None	
4.2.3	<u>Dry Heat Resistance:</u>		ASTM D865-52T Temperature: 300 F + 2 Time: 70 hr -
4.2.3.1	Hardness Change, Durometer "A" or equiv.	0 to +20	
4.2.3.2	Tensile Strength Reduction, %, max		
4.2.3.2.1	For parts other than extrusions	60	
Ø 4.2.3.2.2	For extruded parts	70	
4.2.3.3	Elongation Reduction, %, max		
4.2.3.3.1	For parts other than extrusions	70	
Ø 4.2.3.3.2	For extruded parts	85	
4.2.3.4	Surface Hardening	None	
4.2.3.5	Bend (flat)	No cracking or checking	
4.2.4	<u>Compression Set:</u>		ASTM D395-52T, Method B Temperature: 212 F + 2 Time: 70 hr - Compressed to 0.350 in. thick
4.2.4.1	Per cent of original deflection, max	50	
4.2.4.2	Per cent of original thickness, max	15	
4.2.5	<u>Low Temperature Brittleness:</u>	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 Plus and Minus	Ovality (Note 1)
1/2 and under	0.020 in.	10%
Over 1/2 to 1, incl	0.030 in.	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.

6.2.2	Nominal Wall Thickness Inch	Tolerance Plus and Minus
	Under 1/16	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 meets the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's compound number, 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, 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.