

AEROSPACE MATERIAL SPECIFICATION

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Superseding AMS 3227F

ACRYLONITRILE BUTADIENE (NBR) RUBBER Hot Oil and Coolant Resistant, Low Swell 55 - 65

1. SCOPE:

1.1 Form:

This specification covers a nitrile (NBR) rubber in the form of sheet, strip, tubing, extrusions, and molded shapes.

1.2 Application:

Primarily for hose, packings, bushings, grommets, and seals in contact with hot, petroleum-base lubricating oils and glycol-type coolants from -40° to +100°C (-40° to +212°F).

1.3 Safety - Hazardous Materials:

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

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SAE WEB ADDRESS:

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

2.1.1 Aerospace Material Specifications:

AMS 2279	Tolerances, Rubber Products
MAM 2279	Tolerances, Metric, Rubber Products
AMS 2810	Identification and Packaging, Elastomeric Products

2.2 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM D 297	Rubber Products - Chemical Analysis
ASTM D 395	Rubber Property - Compression Set
ASTM D 412	Rubber Properties in Tension
ASTM D 471	Rubber Property - Effect of Liquids
ASTM D 573	Rubber - Deterioration in an Air Oven
ASTM D 2137	Rubber Property - Brittleness Point of Flexible Polymers and Coated Fabrics
ASTM D 2240	Rubber Property - Durometer Hardness

3. TECHNICAL REQUIREMENTS:

3.1 Material:

Shall be a compound based on an acrylonitrile-butadiene (NBR) elastomer, suitably cured to produce a product meeting the requirements of 3.2.

3.1.1 Color: Shall be black.

3.2 Properties:

The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with specified ASTM methods, insofar as practicable:

3.2.1 As Received:

3.2.1.1	Hardness, Durometer "A" or equivalent	60 ± 5	ASTM D 2240
3.2.1.2	Tensile Strength, minimum	1500 psi (10.3 MPa)	ASTM D 412, Die B or C

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3.2.1.3	Elongation, minimum	300%	ASTM D 412, Die B or C
3.2.1.4	Specific Gravity	Preproduction Value \pm 0.02	ASTM D 297
3.2.2	Lubricating Oil Resistance: (Immediate Deteriorated Properties)		ASTM D 471 Medium: ASTM Oil No. 1 Temperature: 150°C \pm 3 (302°F \pm 5) Time: 70 hours \pm 0.5
3.2.2.1	Hardness Change, Durometer "A" or equivalent	-10 to +10	
3.2.2.2	Tensile Strength Change, maximum	-50%	
3.2.2.3	Elongation Change, maximum	-50%	
3.2.2.4	Volume Change	0 to +10%	
3.2.2.5	Decomposition	None	
3.2.2.6	Surface Tackiness	None	
3.2.3	Processing Oil Resistance: (Immediate Deteriorated Properties)		ASTM D 471 Medium: ASTM Oil No. 3 Temperature: 150°C \pm 3 (302°F \pm 5) Time: 70 hours \pm 0.5
3.2.3.1	Hardness Change, Durometer "A" or equivalent	-20 to +5	
3.2.3.2	Elongation Change, maximum	-75%	
3.2.3.3	Volume Change	0 to +45%	
3.2.3.4	Decomposition	None	
3.2.3.5	Surface Tackiness	None	