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400 COMMONWEALTH DRIVE. WARRENDALE. PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 3241F
Superseding AMS 3241E

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CHLOROPRENE RUBBER
Weather Resistant
55 - 65

1. SCOPE:

1.1 Form: This specification covers a chloroprene rubber in the form of sheet, strip, tubing, extrusions, and molded shapes.

1.2 Application: Primarily for parts, such as window channels, bumper pads, chafing strips, and seals, requiring resistance to weather, for use from -40° to +100°C (-40° to +212°F).

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods
AMS 2810 - Identification and Packaging, Elastomeric Products

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D297 - Rubber Products - Chemical Analysis
ASTM D395 - Rubber Property - Compression Set
ASTM D412 - Rubber Properties in Tension
ASTM D471 - Rubber Property - Effect of Liquids
ASTM D573 - Rubber Deterioration in an Air Oven
ASTM D624 - Rubber Property - Tear Resistance
ASTM D797 - Rubber Property - Young's Modulus at Normal and Subnormal Temperatures
ASTM D2137 - Rubber Property - Brittleness Point of Flexible Polymers and Coated Fabrics
ASTM D2240 - Rubber Property - Durometer Hardness

3. TECHNICAL REQUIREMENTS:

3.1 Material: Shall be a compound based on a chloroprene elastomer, suitably cured to produce a product meeting the requirements of 3.2.

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

3.2.1 As Received:

3.2.1.1	Hardness, Durometer "A" or equiv.	60 ± 5	ASTM D2240
3.2.1.2	Tensile Strength, min	1500 psi (10.3 MPa)	ASTM D412, Die B or C
3.2.1.3	Elongation, min	250%	ASTM D412, Die B or C
3.2.1.4	Tensile Stress at 100% Elongation	Preproduction value ± 20%	ASTM D412, Die B or C Stretch specimen to 125% elongation twice within 5 min. before testing
3.2.1.5	Tear Resistance, lb per in. (kg/m), min	80% of Preproduction value	ASTM D624, Die B
3.2.1.6	Specific Gravity	Preproduction value ± 0.02	ASTM D297

3.2.2 Oil Resistance: (Immediate Deteriorated Properties)		ASTM D471 Medium: ASTM Oil No. 3 Temperature: 100°C ± 1 (212°F ± 2) Time: 70 hr ± 0.5
3.2.2.1 Tensile Strength Change, max	-55%	
3.2.2.2 Elongation Change, max	-45%	
3.2.2.3 Volume Change	+40 to +100%	
3.2.2.4 Decomposition	None	
3.2.2.5 Surface Tackiness	None	
3.2.3 Dry Heat Resistance:		ASTM D573 Temperature: 100°C ± 1 (212°F ± 2) Time: 70 hr ± 0.5
3.2.3.1 Hardness Change, Durometer "A" or equiv.	0 to + 10	
3.2.3.2 Tensile Strength Change, max	-25%	
3.2.3.3 Elongation Change, max		
3.2.3.3.1 For parts other than extrusions	-40%	
3.2.3.3.2 For extruded parts	-50%	
3.2.3.4 Bend (flat)	No cracking or checking	
3.2.4 Compression Set:		ASTM D395, Method B Temperature: 100°C ± 1 (212°F ± 2) Time: 70 hr ± 0.5
3.2.4.1 Percent of Original Deflection, max		
3.2.4.1.1 For parts other than extrusions	72	
3.2.4.1.2 For extruded parts	79	
3.2.5 Low-Temperature Resistance:		
3.2.5.1 Brittleness	Pass	ASTM D2137, Method A Temperature: -35°C ± 1 (-31°F ± 2)
3.2.5.2 Young's Modulus, max (See 8.2)	30,000 psi (205 MPa)	ASTM D797 Temperature: -40°C ± 1 (-40°F ± 2)

3.2.6 Weathering: When specified, the product shall have weather resistance acceptable to the purchaser, determined by a procedure agreed upon by purchaser and vendor.

3.2.7 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.

3.3 Quality: The product, as received by purchaser, shall be uniform in quality Ø and condition, clean, smooth, as free from foreign material as commercially practicable, and free from imperfections detrimental to usage of the product.

3.4 Tolerances: Unless otherwise specified, the following tolerances shall apply:

3.4.1 Sheet and Strip:

TABLE I

Nominal Thickness Inches	Tolerance, Inch plus and minus
Up to 0.125, incl	0.016
Over 0.125 to 0.500, incl	0.032
Over 0.500	0.047

TABLE I (SI)

Nominal Thickness Millimetres	Tolerance, Millimetres plus and minus
Up to 3.12, incl	0.40
Over 3.12 to 12.50, incl	0.80
Over 12.50	1.20

3.4.2 Tubing:

3.4.2.1 Diameter:

TABLE II

Nominal OD or ID (not both), Inches	Tolerance plus and minus	Ovality, % (3.4.2.1.1)
Up to 0.500, incl	0.020 in.	10
Over 0.500 to 1.000, incl	0.030 in.	15
Over 1.000	4%	15

TABLE II (SI)

Nominal OD or ID (not both), Millimetres	Tolerance plus and minus	Ovality, % (3.4.2.1.1)
Up to 12.50, incl	0.50 mm	10
Over 12.50 to 25.00, incl	0.75 mm	15
Over 25.00	4%	15

3.4.2.1.1 Ovality applies to tubing ordered in straight lengths with wall thickness of 0.063 in. (1.60 mm) 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.

3.4.2.2 Wall Thickness:

TABLE III

Nominal Wall Thickness Inches	Tolerance plus and minus
Up to 0.063, excl	0.005 in.
0.063 and over	10%

TABLE III (SI)

Nominal Wall Thickness Millimetres	Tolerance plus and minus
Up to 1.60, excl	0.13 mm
1.60 and over	10%

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the product shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.5. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to the following requirements are classified as acceptance tests and shall be performed on each lot:

Requirement	Paragraph
Hardness, as received	3.2.1.1
Tensile Strength, as received	3.2.1.2
Elongation, as received	3.2.1.3
Specific Gravity	3.2.1.6
Compression Set	3.2.4

4.2.2 Preproduction Tests: Tests to determine conformance to all technical requirements of this specification are classified as preproduction tests and shall be performed on the first-article shipment of a product to a purchaser, when a change in material or processing requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.

4.3 Sampling: Sufficient product shall be taken at random from each lot to perform all required tests. The number of tests for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three. 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 tubing 1 in. ± 0.063 (25 mm ± 1.6) in OD by 0.075 in. ± 0.008 (1.90 mm ± 0.20) in wall thickness, mechanically split and flattened into a strip while being extruded, and cured in the same manner as production material.