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400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 3242F

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Superseding AMS 3242E

CHLOROPRENE (CR) RUBBER
Weather Resistant
75 - 85

1. SCOPE:

1.1 Form: This specification covers a chloroprene (CR) 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 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 2279 - Tolerances, Rubber Products
MAM 2279 - Tolerances, Metric, Rubber Products
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

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2.2 ASTM Publications (Continued):

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 (CR) 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 specified ASTM methods, insofar as practicable:

3.2.1 As Received:

3.2.1.1	Hardness, Durometer "A" or equiv.	80 ± 5	ASTM D2240
3.2.1.2	Tensile Strength, min	1900 psi (13.0 MPa)	ASTM D412, Die B or C
3.2.1.3	Elongation, min	150%	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	-40%	
3.2.2.2	Elongation Change, max	-35%	
3.2.2.3	Volume Change	+30 to +90%	
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)
3.2.3.1 Hardness Change, Durometer "A" or equiv.	0 to +10	Time:	70 hr ± 0.5
3.2.3.2 Tensile Strength Change, max	-20%		
3.2.3.3 Elongation Change, max			
3.2.3.3.1 For parts other than extrusions	-50%		
3.2.3.3.2 For extruded parts	-60%		
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)
3.2.4.1 Percent of Original Deflection, max		Time:	70 hr ± 0.5
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 (-30°F ± 2)
3.2.5.2 Young's Modulus, max (See 8.2)	50,000 psi (345 MPa)	ASTM D797 Temperature:	-40°C ± 1 (-40°F ± 2)

3.2.6 Weathering: When specified, the product shall have weather resistance acceptable to 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, determined by a procedure agreed upon by purchaser and vendor. Discoloration of metal shall not be considered objectionable.

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

3.4 Tolerances: Shall conform to AMS 2279 or MAM 2279.

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 prior to or on the first-article shipment of a product to a purchaser, when a change in material, processing, or both 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 data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, contracting officer, or request for procurement

4.3 Sampling: Shall be as follows:

4.3.1 For Acceptance Tests: Sufficient product shall be taken at random from each lot to perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three. If specimens cannot be prepared from the product, ASTM test specimens prepared from the same batch and state of cure shall be used. 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 ± 1.60) in OD by 0.075 in. ± 0.008 (1.90 mm ± 0.20) in wall thickness, mechanically slit, and flattened into a strip while being extruded, and cured in the same manner as production material. When the product is a molded shape from which test specimens cannot be cut, a slab 6 x 6 in. (150 x 150 mm) by 0.080 in. ± 0.008 (2.00 mm ± 0.20) molded from the same batch of compound shall be supplied upon request.