

AEROSPACE MATERIAL SPECIFICATION

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Superseding AMS 3270H

Chloroprene (CR) Rubber Sheet, Cotton Fabric Reinforced
Weather Resistant

1. SCOPE:

1.1 Form: This specification covers cotton-fabric-reinforced chloroprene (CR) rubber in the form of sheet.

1.2 Application: Primarily for parts, such as gaskets and seals, requiring resistance to weather, moderate heat, water, and petroleum-base lubricating oil.

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.

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

2.1.1 Aerospace Material Specifications:

AMS 2810 - Identification and Packaging, Elastomeric Products

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

ASTM D 471 - Rubber Property - Effect of Liquids
 ASTM D 573 - Rubber - Deterioration in an Air Oven
 ASTM D 751 - Testing Coated Fabrics
 ASTM D 2137 - Rubber Property - Brittleness Point of Flexible Polymers and Coated Fabrics

3. TECHNICAL REQUIREMENTS:

3.1 Material and Fabrication: The product shall consist of a single ply of woven cotton fabric of the type specified in 3.1.1 for the respective nominal thicknesses, impregnated and coated on both faces with a chloroprene (CR) rubber compound, the rubber being cured to produce a product meeting all technical requirements of this specification. Thickness of coating shall be substantially uniform and equal on both faces of the sheet.

3.1.1 Construction: Shall be as specified in Table I.

TABLE I

	Nominal Thickness, Inch				
	0.008	0.010	0.025	0.035	0.050
Fabric Type	Balloon Cloth	6.25 Sheeting	Grade A Airplane Cloth	#10 Duck	#10 Duck
Thread Count, per inch, min					
Warp	120	60	80	45	45
Filling	120	48	80	27	27
Finished Weight, oz per sq yd	6.5 - 9.5	8.0 - 12.0	24.5 - 29.5	29.0 - 41.0	49.0 - 59.0

TABLE I (SI)

	Nominal Thickness, Millimeters				
	0.20	0.25	0.64	0.89	1.27
Fabric Type	Balloon Cloth	6.25 Sheeting	Grade A Airplane Cloth	#10 Duck	#10 Duck
Thread Count, per 25.4 mm, min					
Warp	120	60	80	45	45
Filling	120	48	80	27	27
Finished Weight, g/m ²	220 - 322	271 - 407	831 - 1000	983 - 1390	1661 - 2000

3.1.2 Color: Shall be black.

3.1.3 Surface Cleanliness: Sheet having evenly dusted surfaces will be acceptable provided that surfaces can be cleaned without damage to the sheet and that such surfaces can be cemented satisfactorily.

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

3.2.1 As Received: Shall be as specified in Table II, determined in accordance with ASTM D 751.

3.2.2 Non-Aromatic Fuel Resistance:
(Immediate Deteriorated Properties)

ASTM D 471

Medium: ASTM Ref. Fuel A
Temperature: 20° - 30°C
(68° - 86°F)

3.2.2.1 Volume Change 0 to +20% **Time:** 70 hours ± 0.5

3.2.2.2 Surface Tackiness None

3.2.3 Oil Resistance:
(Immediate Deteriorated Properties)

ASTM D 471

Medium: ASTM Oil No. 3
Temperature: 100°C ± 1
(212°F ± 2)

3.2.3.1 Volume Change +20 to + 65% **Time:** 70 hours ± 0.5

3.2.3.2 Surface Tackiness None

3.2.4 Dry Heat Resistance:

ASTM D 573

Temperature: 100°C ± 1
(212°F ± 2)
Time: 70 hours ± 0.5

3.2.4.1 Surface Hardening None

3.2.5 Low-Temperature Brittleness: Pass

ASTM D 2137, Method A

Temperature: -35°C ± 1
(-31°F ± 2)

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

3.2.7 Corrosion: The sheet 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: Sheet, as received by purchaser, shall be uniform in quality and condition, smooth, as free from foreign materials as commercially practicable, and free from imperfections detrimental to usage of the sheet.

3.4 Sizes and Tolerances: Sheet shall be supplied in nominal thicknesses of 0.008, 0.010, 0.025, 0.035, and 0.050 inch (0.20, 0.25, 0.64, 0.89, and 1.27 mm) and in widths as ordered. Tolerances shall be as follows:

TABLE II

As-Received Properties

Nominal Thickness Inch	Breaking Strength		Grab Method		Bursting Strength, Diaphragm Tester		Hydrostatic Pressure Resistance		Adhesion	
	Warp	Filling	Warp	N. min	psi, min	kPa, min	at 20 psi (138 kPa)	Pressure	lbf per inch width, min	(N/m width), min
0.008	40	40	178	178	70	483	No leaks in	5	5	876
0.010	37	19	165	85	50	345	1 hour, min,	5	5	876
0.025	90	90	400	400	125	862	for all	5	5	876
0.035	250	170	1112	756	350	2413	thicknesses	5	5	876
0.050	250	170	1112	756	350	2413		5	5	876

3.4.1 Thicknesses: Shall be as specified in Table III.

TABLE III

Nominal Thickness Inch	Tolerance, Inch	
	plus	minus
0.008	0.002	0.001
0.010	0.002	0.002
0.025	0.003	0.003
0.035	0.004	0.004
0.050	0.005	0.005

TABLE III (SI)

Nominal Thickness Millimeters	Tolerance, Millimeters	
	plus	minus
0.20	0.05	0.03
0.25	0.05	0.05
0.64	0.08	0.08
0.89	0.10	0.10
1.27	0.13	0.13

3.4.2 Width: ± 1.0 inch (± 25 mm)

4. QUALITY ASSURANCE PROVISIONS:

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

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests for properties as received (3.2.1), oil resistance (3.2.3) and dry heat resistance (3.2.4) are acceptance tests and shall be performed on each lot.

4.2.2 Preproduction Tests: Tests for all technical requirements are preproduction tests and shall be performed prior to or on the first-article shipment of a product to a purchaser, when a change in ingredients and/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, contracting officer, or request for procurement.