Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS3270G
Superseding 3270F
Issued 6-15-50
Revised 6-15-75

CHLOROPRENE RUBBER SHEET, COTTON FABRIC REINFORCED
Weather Resistant

1. SCOPE:

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

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

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 Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, Pennsylvania 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, Pennsylvania 19103.

ASTM D471 - Change in Properties of Elastomeric Vulcanizates Resulting from Immersion in Liquids
ASTM D573 - Accelerated Aging of Vulcanized Rubber by the Oven Method
ASTM D751 - Testing Coated Fabrics
ASTM D2137 - Low Temperature Impact Test for Brittleness Determination of Flexible Polymeric Materials or Fabrics Coated Therewith, or Both

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 ø a chloroprene 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 in., 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, Millimetres				
	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					
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 - 2001

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 are cementable.

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 D751.

3.2.2 Non-Aromatic Fuel Resistance: (Immediate Deteriorated Properties)		ASTM D471 Medium: ASTM Ref. Fuel A Temperature: 20° - 30°C (68° - 86°F) Time: 70 hr ± 0.5
3.2.2.1 Volume Change	0 to +20%	
3.2.2.2 Surface Tackiness	None	

3.2.3 Oil Resistance: (Immediate Deteriorated Properties)		ASTM D471 Medium: ASTM Oil No. 3 Temperature: 100°C ± 1 (212°F ± 1.8) Time: 70 hr ± 0.5
3.2.3.1 Volume Change	+20 to +65%	
3.2.3.2 Surface Tackiness	None	
3.2.4 Dry Heat Resistance:		ASTM D573 Temperature: 100°C ± 1 (212°F ± 1.8) Time: 70 hr ± 0.5
3.2.4.1 Surface Hardening	None	
3.2.4.2 Bend (flat)	No cracking or checking	
3.2.5 Low Temperature Brittleness:	Pass	ASTM D2137, Method A Temperature: -35°C ± 1 (-31°F ± 1.8)

3.2.6 Weathering: When specified, sheet shall have weather resistance acceptable to the 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. Discoloration of metal shall not be considered objectionable.

3.3 Quality: Sheet shall be uniform in quality and condition, clean, smooth, as free from foreign materials as Ø commercially practicable, and free from imperfections detrimental to fabrication, appearance, or performance of parts.

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

3.4.1 Thickness: 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 Millimetres	Tolerance, Millimetres 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 in. (±25 mm).

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the sheet shall supply all samples 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 perform such confirmatory testing as he deems necessary to assure that the sheet conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to properties as-received (3.2.1), oil resistance (3.2.3), and dry heat resistance (3.2.4) requirements are classified as acceptance or routine control tests.

4.2.2 Qualification Tests: Tests to determine conformance to all technical requirements of this specification are classified as qualification or periodic control tests.

4.3 Sampling: Sufficient material shall be taken from each lot to perform all required tests in triplicate.

4.3.1 A lot shall be all sheet produced in one continuous coating operation from the same roll of fabric and the same batch of compound and presented for vendor's inspection at one time.

4.4 Approval:

4.4.1 Sample sheet shall be approved by purchaser before sheet for production use is supplied, unless such approval be waived. Results of tests on production sheet shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use ingredients, manufacturing procedures, processes, and methods of inspection on production sheet which are essentially the same as those used on the approved sample sheet. If any change is necessary in ingredients, in type of equipment for processing, or in manufacturing procedure, vendor shall submit for reapproval a statement of the proposed changes in material and processing and, when requested, sample revised sheet. No production sheet made by the revised procedure shall be shipped prior to receipt of reapproval.

4.5 Reports:

4.5.1 The vendor of the sheet shall furnish with each shipment three copies of a report of the results of tests to determine conformance to the acceptance test requirements of this specification and a statement that the sheet conforms to the other technical requirements. This report shall include the purchase order number, material specification number and its revision letter, vendor's material designation, form or part number, and quantity.

4.5.2 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 and its revision letter, contractor or other direct supplier of sheet, supplier's material designation, part number, and quantity. When sheet for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of sheet to determine conformance to the requirements of this specification, and shall include in the report a statement that the sheet conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.