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400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 3242G

Issued JUN 1949
Revised OCT 1993
Reaffirmed SEP 1999

Superseding AMS 3242F

Chloroprene (CR) Rubber Weather Resistant 75 - 85

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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:

These products have been used typically for parts, such as window channels, bumper pads, chafing strips, and seals, requiring resistance to weather and for use from -40 to +100 °C (-40 to +212 °F), but usage is not limited to such applications.

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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2.1 SAE Publications:

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

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 624	Rubber Property - Tear Resistance
ASTM D 1415	Rubber Property - International Hardness
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 a chloroprene (CR) elastomer, suitably cured to produce a product meeting the requirements of 3.2.

3.2 Properties:

The product shall conform to requirements shown in Table 1, 3.2.11, and 3.2.12; tests shall be performed on the product supplied and in accordance with specified ASTM methods, insofar as practicable.

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TABLE 1 - Properties

Paragraph	Property	Requirement	Test Method
3.2.1	Hardness, Durometer “A” or equivalent	80 ± 5	ASTM D 2240 or ASTM D 1415
3.2.2	Tensile Strength, minimum	1900 psi (13.1 MPa)	ASTM D 412, Die B or C
3.2.3	Elongation, minimum	150%	ASTM D 412, Die B or C
3.2.4	Tensile Stress at 100% Elongation	Preproduction Value ±20%	ASTM D 412, Die B or C Stretch specimen to 125% elongation twice within five minutes before testing
3.2.5	Tear Resistance pounds force per inch (kN/m), minimum	80% of Preproduction Value	ASTM D 624, Die B
3.2.6	Specific Gravity	Preproduction Value ±0.02	ASTM D 297
3.2.7	Oil Resistance: (Immediate Deteriorated Properties)		ASTM D 471 ASTM Oil No. 3 100 °C ± 1 (212 °F ± 2)
3.2.7.1	Tensile Strength Change, maximum	-40%	70 hours ± 0.5
3.2.7.2	Elongation Change, maximum	-35%	
3.2.7.3	Volume Change	+30 to +90%	
3.2.8	Dry Heat Resistance:		ASTM D 573 100 °C ± 1 (212 °F ± 2) 70 hours ± 0.5
3.2.8.1	Hardness Change, Durometer “A” or equivalent	0 to +10	
3.2.8.2	Tensile Strength Change, maximum	-20%	
3.2.8.3	Elongation Change, maximum		

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TABLE 1 - Properties (Continued)

Paragraph	Property	Requirement	Test Method
3.2.8.3.1	For parts other than extrusions	-50%	
3.2.8.3.2	For extruded parts	-60%	
3.2.8.4	Bend (flat)	No cracking or checking	
3.2.9	Compression Set:		ASTM 395, Method B
3.2.9.1	Percent of Original Deflection, maximum		100 °C ± 1 (212 °F ± 2) 70 hours ± 0.5
3.2.9.1.1	For parts other than extrusions	72	
3.2.9.1.2	For extruded parts	79	
3.2.10	Low-Temperature Resistance:		
3.2.10.1	Brittleness	Pass	ASTM D 2137 Method A -35 °C ± 1 (-31 °F ± 2)

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3.2.11 Weather Resistance: When specified, the product shall have weather resistance acceptable to purchaser, determined by a procedure agreed upon by purchaser and supplier.

3.2.12 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 supplier. 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 manufacturer of the product shall supply all samples for required 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 product conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests for requirements shown in Table 2 are acceptance tests and shall be performed on each lot.

TABLE 2 - Acceptance Tests

Requirement	Paragraph
Hardness	3.2.1
Tensile Strength	3.2.2
Elongation	3.2.3
Specific Gravity	3.2.6
Compression Set	3.2.9
Tolerances	3.4

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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 by the manufacturer, 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

4.3 Sampling and Testing:

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.

4.3.1.1 If specimens cannot be prepared from the product, ASTM test specimens prepared from the same batch and state of cure shall be used for required tests. 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 from the same production lot shall be supplied upon request. This strip shall be prepared from tubing 1.000 inch ± 0.063 (25.40 mm ± 1.60) in OD by 0.075 inch ± 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 product. When the product is a molded shape from which test specimens cannot be cut, a slab 6 inches (152 mm) square by 0.075 inch ± 0.008 (1.90 mm ± 0.20) thick, molded from the same batch of compound, shall be supplied upon request.

4.3.1.2 A lot shall be all product from the same batch of compound processed in one continuous run and presented for manufacturer's inspection at one time.

4.3.1.3 A batch shall be the quantity of compound run through a mill or mixer at one time.

4.3.1.4 When a statistical sampling plan has been agreed upon by purchaser and manufacturer, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report of 4.5 shall state that such plan was used.

4.3.2 For Preproduction Tests: As agreed upon by purchaser and manufacturer.

4.4 Approval:

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

4.4.2 Manufacturer shall use ingredients, manufacturing procedures, processes, and methods of inspection on production product which are essentially the same as those used on the approved sample. If necessary to make any change in ingredients, in type of equipment for processing, or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in ingredients and/or processing and, when requested, sample product. Production product made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Reports:

The supplier of the product shall furnish with each shipment a report showing the results of tests to determine conformance to the acceptance test requirements and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, lot number, AMS 3242G, manufacturer's compound number, form and size or part number, and quantity.

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