The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 3275B

Issued OCT 1989
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Superseding AMS 3275A

Submitted for recognition as an American National Standard

Sheet, Acrylonitrile Butadiene (NBR) Rubber and Non-asbestos Fiber Fuel and Oil Resistant

1. SCOPE:

1.1 Form:

This specification covers a compressed non-asbestos fiber and acrylonitrile butadiene (NBR) rubber in the form of sheet.

1.2 Application:

This sheet has been used typically for gaskets, sealing between metal surfaces, in contact with fuels or with lubricating oil up to 150 °C (302 °F), but usage is not limited to such applications. Each application should be considered individually.

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.

QUESTIONS REGARDING THIS DOCUMENT: (724) 772-7161 FAX: (724) 776-0243
TO PLACE A DOCUMENT ORDER: (724) 776-4970 FAX: (724) 776-0790
SAE WEB ADDRESS: http://www.sae.org

2.1 SAE Publications:

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

AMS 2810 Identification and Packaging, Elastomeric Products

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 573 Rubber-Deterioration in an Air Oven
ASTM F 36 Compressibility and Recovery of Gasket Materials
ASTM F 146 Fluid Resistance of Gasket Materials
ASTM F 152 Tension Testing of Nonmetallic Gasket Materials

3. TECHNICAL REQUIREMENTS:

3.1 Materials and Fabrication:

Shall be composed of non-asbestos fibers, inorganic fillers, and acrylonitrile-butadiene (NBR) rubber bonded and felted together under pressure into a pliable, resilient product.

3.2 Properties:

The product shall conform to the requirements shown in Table 1, 3.2.6, 3.2.7, and 3.2.8; tests shall be performed on the product supplied and in accordance with specified ASTM methods, insofar as practicable.

TABLE 1 - Properties

	Property	Requirement	Test Method
3.2.1	Tensile Strength, min	1800 psi (12.4 MPa)	ASTM F 152, Method A
3.2.2	Compressibility	7 to 17%	ASTM F 36, Procedure A
3.2.3	Aromatic Fuel Resistance (Immediate Deteriorated Properties)		ASTM F 146 ASTM Ref. Fuel B 20 to 30 °C (68 to 86 °F) 5 hours ± 0.25
3.2.3.1	Tensile Strength Change, max	-50%	
3.2.3.2	Thickness Change	0 to +10%	
3.2.3.3	Weight Change, max	+15%	
3.2.3.4	Compressibility, max	30%	
3.2.4	Petroleum Hydraulic Oil Resistance		ASTM F 146 IRM 903 (See 8.2) 150 °C ± 2 (302 °F ± 4) 5 hours ± 0.25
3.2.4.1	Tensile Strength Change, max	-30%	
3.2.4.2	Thickness Change	0 to +10%	
3.2.4.3	Compressibility, max	30%	
3.2.4.4	Bend	No cracks	4.5.1
3.2.5	Dry Heat Resistance		ASTM D 573 100 °C ± 2 (212 °F ± 4) 16 hours ± 0.25
3.2.5.1	Compressibility	5 to 20%	
3.2.5.2	Bend	No cracks	4.5.1

3.2.6 Delamination: Sheet shall not delaminate, due to sticking, when removed from an assembly, determined by a procedure agreed upon by purchaser and supplier.

3.2.7 Weather Resistance: Sheet shall have weather resistance acceptable to purchaser, determined by a procedure agreed upon by purchaser and supplier.

3.2.8 Corrosion: 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 supplier. 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 material as commercially practicable, and free from imperfections detrimental to usage of the sheet.

3.4 Tolerances:

Shall be as shown in Table 2.

TABLE 2A - Thickness Tolerances, Inch/Pound Units

Nominal Thickness Inch	Tolerance Inch Plus	Tolerance Inch Minus
Up to 0.0156, incl	0.005	0.002
Over 0.0156 to 0.0625, excl	0.005	0.005
0.0625 and over	0.008	0.008

TABLE 2B - Thickness Tolerances, SI Units

Nominal Thickness Millimeters	Tolerance Millimeter Plus	Tolerance Millimeter Minus
Up to 0.396, incl	0.13	0.05
Over 0.396 to 1.588, excl	0.13	0.13
1.588 and over	0.20	0.20

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The manufacturer of sheet shall supply all samples for manufacturer's tests and shall be responsible for the performance of 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 specified requirements.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tensile strength (3.2.1), compressibility (3.2.2), and thickness change after fuel immersion (3.2.3.2) are acceptance tests and shall be performed on each lot.

4.2.2 Preproduction Tests: All technical requirements are preproduction tests and shall be performed prior to or on the first-article shipment of sheet by the manufacturer, when a change in ingredients and/or processing requires reapproval as in 4.4.1, and when purchaser deems confirmatory testing to be required.

4.3 Sampling and Testing:

4.3.1 For Acceptance Tests: Sufficient sheet 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 A lot shall be all sheet produced in a single production run from the same batch of raw material and presented for manufacturer's inspection at one time.

4.3.2 For Preproduction Tests: Acceptable to purchaser or as stated in the contract.

4.4 Approval:

4.4.1 Sample product shall be approved by purchaser before product for production use is supplied, unless such approval is waived by the purchaser. Results of the tests on production product shall be essentially equivalent to those on the approved sample. Production product made by a revised procedure shall not be shipped prior to receipt of reapproval. If necessary to make any change in parameters for the process control factors, manufacturer shall submit for reapproval a statement of the proposed changes in ingredients and/or processing and, when requested, sample product.

4.4.2 Manufacturer of the product shall make no significant change in material, processes, or control factors from those on which the approval was based, unless the change is approved by the cognizant engineering organization. A significant change is one which, in the judgment of the cognizant engineering organization, could affect the properties or performance of the product.

4.4.2.1 Control factors for producing products include, but are not limited to, the following:

Compound ingredients and proportions thereof within established limits
Sequence of mixing compound ingredients
Type of mixing equipment
Method and equipment for preparing preforms
Basic molding procedure (compression, transfer, injection)
Curing time and pressure; variations of ±10% are permissible
Finishing methods
Methods of inspection.

4.5 Test Methods:

4.5.1 Bend: Bend sample 180 degrees around a diameter equal to either 12T for nominal thicknesses under 0.0625 inch (1.588 mm) or 16T for nominal thicknesses 0.0625 inch (1.588 mm) and over.