

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

RATIONALE

AMS3275C results from a Five Year Review and update of this specification.

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 302 °F (150 °C), 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

2.1 The purchase order date shall stipulate the published document that shall be in effect. The supplier may work to a subsequent revision unless a particular revision is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published revision shall apply

2.2 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AMS2810 Identification and Packaging, Elastomeric Products

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2.3 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

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 Temperature: 68 to 86 °F (20 to 30 °C) Time: 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 8.3) Temperature: 302 °F ± 4 (150 °C ± 2) Time: 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 Temperature: 212 °F ± 4 (100 °C ± 2) Time: 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.

3.2.7 Weather Resistance

The product shall show no evidence of cracking when tested in accordance with ASTM D 1149, Method B, Procedure B2 for seven days at $105^{\circ}\text{F} \pm 2$ ($40^{\circ}\text{C} \pm 1$). The ozone pressure shall be 50 ± 5 MPa.

3.3 Dimensions and Tolerances

Dimensions and tolerances shall be as specified in the parts standard, drawing or purchase document. If not specified, shall be as shown in Table 2.

TABLE 2A - THICKNESS TOLERANCES, INCH/POUND UNITS

Nominal Thickness Inch	Tolerance Inch	Tolerance Inch
	Plus	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	Tolerance Millimeter
	Plus	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

3.4 Toxicological Formulations

The material shall have no adverse effects on the health of personnel when used for its intended purpose in accordance with manufacturer's instructions and with appropriate handling procedures.

3.5 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.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The manufacturer of the product shall be responsible for performance of all required tests. Purchaser reserves the right to sample and perform any testing deemed necessary to ensure that the product conforms to the AMS requirements.

4.2 Classification of Tests

4.2.1 Acceptance Tests

Each lot of product shall conform to Table 3

TABLE 3 – ACCEPTANCE TESTS	
Requirement	Paragraph Reference
Tensile Strength	3.2.1
Compressibility	3.2.2
Thickness change after fuel immersion	3.2.3.2

4.2.1.1 Lot: A quantity of one size of product processed as one production entity from a batch

4.2.1.2 Batch: The quantity of compound run through a mill or mixer at one time.

4.2.1.3 Random Sampling

The method shall be as specified in the parts standard, drawing or purchase document. If not specified, product shall be taken at random from each lot to perform all the required acceptance tests. The number of test iterations for each requirement shall be specified in the applicable test procedure.

4.2.1.4 Sample shall be from a production batch/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.

4.4 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.