AEROSPACE
MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 3200D

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SYNTHETIC RUBBER
Hydraulic Fluid (Petroleum Base) Resistant
55 - 65

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. FORM: Sheet, strip, tubing, molded shapes, extrusions, or as ordered.

3. APPLICATION: Primarily for seals, gaskets, and similar parts which come in contact with petroleum base hydraulic fluids.

4. TECHNICAL REQUIREMENTS:

4.1 General:

4.1.1 Condition: Unless otherwise specified, a suitably cured product shall be furnished.

4.1.2 Weathering: When specified, the product shall have weather resistance acceptable to the purchaser as determined by a procedure agreed upon by purchaser and vendor.

4.1.3 Corrosion: The product 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.

4.2 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with the issue of specified ASTM methods listed in the latest issue of AMS 2350, insofar as practicable. When the product supplied is an extrusion of such shape that Ø suitable test specimens cannot be cut from the product, a separate flat strip test sample shall be supplied upon request. This strip shall be prepared from a 1 in. ± 1/16 OD by 0.075 in. ± 0.008 thick wall tubing which shall be mechanically split and flattened into a strip while being extruded and then cured in the same manner as production material.

4.2.1 As Received:

Ø 4.2.1.1 Hardness, Durometer "A" or equiv.	60 ± 5	ASTM D676
4.2.1.2 Tensile Strength, psi, min	1400	ASTM D412, Die B or C
4.2.1.3 Elongation, %, min		ASTM D412, Die B or C
4.2.1.3.1 For parts other than extrusions	250	
4.2.1.3.2 For extruded parts	See Note 1	

4.2.2 Processing Oil Resistance: (Immediate Deteriorated Properties)

ASTM D471
Medium: ASTM Oil No. 3
Temperature: 100 C ± 1 (212 F ± 1.8)
Time: 70 hr

4.2.2.1 Hardness Change, Durometer "A" or equiv.	-15 to +5
4.2.2.2 Tensile Strength Change, %, max (based on area before immersion)	

4.2.2.2.1 For parts other than extrusions	-30	
4.2.2.2.2 For extruded parts	See Note 1	
4.2.2.3 Elongation Change, %, max		
4.2.2.3.1 For parts other than extrusions	-30	
4.2.2.3.2 For extruded parts	See Note 1	
4.2.2.4 Volume Change, %		
4.2.2.4.1 For parts other than extrusions	0 to +25	
4.2.2.4.2 For extruded parts	See Note 1	
4.2.2.5 Decomposition	None	
4.2.2.6 Surface Tackiness	None	
4.2.3 Dry Heat Resistance:		ASTM D573 Temperature: 100 C ± 1 (212 F ± 1.8) Time: 70 hr
4.2.3.1 Hardness Change, Durometer "A" or equiv.	0 to +15	
4.2.3.2 Tensile Strength Change, %, max	-10	
4.2.3.3 Elongation Change, %, max	-45	
4.2.3.4 Bend (flat)	No cracking or checking	
Ø 4.2.4 Compression Set:		ASTM D395, Method B Temperature: 100 C ± 1 (212 F ± 1.8) Time: 70 hr
4.2.4.1 Per cent of original deflection, max	70	
Ø 4.2.4.2 Per cent of original thickness, max	18	
4.2.5 Low Temperature Resistance:		
4.2.5.1 Brittleness Ø	Pass	ASTM D746, Procedure B Temperature: -35 C ± 1 (-31 F ± 1.8)
4.2.5.2 Young's Modulus, psi, max (See Note 2)	30,000	ASTM D797 Temperature: -40 C ± 1 (-40 F ± 1.8)

Note 1. Value to be reported.

Note 2. This test is not normally required but is intended to be used as a referee test in case of disagreement on the results of the brittleness test.

5. QUALITY: The product shall be uniform in quality and condition, clean, smooth, and free from foreign materials and from imperfections detrimental to fabrication, appearance, or performance of parts.

6. TOLERANCES: Unless otherwise specified, the following tolerances apply:

6.1 Sheet and Strip:

Nominal Thickness Inches	Tolerance, Inch Plus and Minus
Up to 1/8, incl	1/64
Over 1/8 to 1/2 incl	1/32
Over 1/2	3/64

6.2 Tubing:

6.2.1

Nominal OD or ID (not both), Inches	Tolerance Plus and Minus	Ovality, % (See Note 3)
Up to 1/2, incl	0.020 in.	10
Over 1/2 to 1, incl	0.030 in.	15
Over 1	4%	15

Note 3. Ovality applies to tubing ordered in straight lengths with wall thickness of 1/16 in. and over, and shall be computed from the difference of the minor and major axis diameter measurements, taken at the same transverse plane on the tube, expressed as a percentage of the nominal diameter.

6.2.2

Nominal Wall Thickness Inches	Tolerance Plus and Minus
Up to 1/16, excl	0.005 in.
1/16 and over	10%

7. REPORTS:

7.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's compound number, values to be reported, form or part number, and quantity.

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

8. IDENTIFICATION: Unless otherwise specified, all material shall be identified in accordance with the latest issue of AMS 2810.

9. PACKAGING:

9.1 Packaging shall be accomplished in such a manner as to ensure that the product, during shipment and storage, will not be permanently distorted and will be protected against damage from exposure to weather or any normal hazard.

9.2 Each package shall be permanently and legibly marked in accordance with the latest issue of AMS 2810.