AERONAUTICAL MATERIAL SPECIFICATION

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AMS 7274B

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RINGS, SEALING, SYNTHETIC RUBBER
Oil Resistant (65-75)

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

2. FORM: Molded rings.

3. APPLICATION: Sealing rings for use at temperatures as low as -65 F, where resistance to hot lubricating oil is required. The cross-section of such rings is usually not over 3/16 in. in diameter or thickness.

4. TECHNICAL REQUIREMENTS:

4.1 Corrosion: The product shall not have a corrosive effect on the 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 listed ASTM Methods, insofar as practicable. The ASTM Methods for manufacturing specimens do not apply. Tensile strength testing is not required on rings which, after cutting, are too short to permit testing. Eliminating tensile testing does not eliminate testing for elongation; elongation test can be made by stretching a ring over a mandrel of a size which will stretch the ring sufficiently to produce the required elongation when figured on the inside diameter of the ring.

Property	Value	Test Method
4.2.1 As Received:		
4.2.1.1 Hardness, Durometer "A" or equiv.	70 ± 5	
4.2.1.2 Tensile Strength, psi, min	1500	ASTM D412-49T
4.2.1.3 Elongation, %, min	150	ASTM D412-49T
4.2.2 Lubricating Oil Resistance: (Immediate Deteriorated Properties)		ASTM D471-49T
4.2.2.1 Hardness Change Durometer "A" or equiv.	-5 to +10	Medium: ASTM Oil No. 1 Temperature: 300 F + 2 Time: 96 hr
4.2.2.2 Tensile Strength Reduction, %, max (based on area before immersion)	60	
4.2.2.3 Elongation Reduction, %, max	50	
4.2.2.4 Volume Change (Method A), %	0 to +10	

	Property	Value	Test Method
4.2.2.5	Decomposition	None	
4.2.2.6	Surface Tackiness	None	

4.2.2.7 If impracticable to determine tensile strength of rings 0.5 in. and less nominal ID after oil immersion, the rings shall withstand, without cracking, closing flat.

	Property	Value	Test Method
4.2.3	Processing Oil Resistance: (Immediate Deteriorated Properties)		ASTM D471-49T
4.2.3.1	Hardness Change, Durometer "A" or equiv.	-20 to 0	Medium: ASTM Oil No. 3 Temperature: 300 F ± 2 Time: 70 hr
4.2.3.2	Volume Change (Method A), %	+25 to +45	
4.2.3.3	Decomposition	None	
4.2.3.4	Surface Tackiness	None	
4.2.4	Dry Heat Resistance:		ASTM D573-48
4.2.4.1	Hardness Change, Durometer "A" or equiv.	0 to +10	
4.2.4.2	Tensile Strength Reduction, %, max	25	Temperature: 212 F ± 2 Time: 70 hr
4.2.4.3	Elongation Reduction, %, max	40	
4.2.4.4	Surface Hardening	None	
4.2.4.5	Bend (flat)	No cracking or checking	
4.2.5	Compression Set:		ASTM D395-49T, Method B
4.2.5.1	Per cent of original deflection, max	50	Temperature: 250 F ± 2 Time: 70 hr Compressed to 70% original thickness
4.2.5.2	Per cent of original thickness, max	15	

4.2.5.3 Rings over 2 in. nominal ID may be cut for testing. The cut specimen shall be not less than 1 in. in length.

4.2.6 Low Temperature Brittleness:
(After Aging in Lubricating Oil)

The specimen for rings 2 in. and less nominal ID shall be a complete ring; the specimen for rings over 2 in. nominal ID shall be a piece 3 in. long cut from a ring. The specimen shall be immersed in lubricating oil in accordance with 4.2.2 and, after cooling in air to room temperature, shall be placed in a refrigerator at -40 F + 2 and held at that temperature for 5 hours. At the end of the refrigeration time, the specimen, while in the refrigerator or within 10 sec after removal from the refrigerator, shall withstand, without cracking, bending as follows: The complete ring shall be ovalized until the minor axis is equal to 50% of the original ID, and the 3-in. specimen shall be bent around to form a circle.

4.2.6.1 Should the testing schedule be such as to make it inconvenient to place the specimen in the refrigerator as soon as it has cooled to room temperature, the specimen may be allowed to rest in air until such time as it is convenient to resume the test.

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

6. REPORTS: Unless otherwise specified, the vendor of rings shall furnish with each shipment three copies of a report stating that the rings meet the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's compound number and batch number, part number, and quantity.

7. PACKAGING:

7.1 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 weathering or any normal hazard.

7.2 Each package shall be marked to give the following information:

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PART NUMBER _____
PURCHASE ORDER NUMBER _____
QUANTITY _____
COMPOUND NUMBER _____
BATCH NUMBER _____
MANUFACTURER'S IDENTIFICATION _____
DATE OF CURE _____

8. APPROVAL:

8.1 To assure adequate performance characteristics, compounds shall be approved by purchaser before rings for production use are supplied, unless such approval be waived. Results of tests on production rings shall be essentially equivalent to those on the approved sample; the specific gravity shall not vary more than 0.02 from that of the approved sample.