

AERONAUTICAL MATERIAL SPECIFICATION

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SYNTHETIC RUBBER Aromatic Fuel 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:** Sheet, strip, molded shapes, extrusions, or as ordered.
3. **APPLICATION:** Primarily for gaskets, diaphragms, bushings, grommets, sleeves, seals, and packings requiring resistance to aromatic and non-aromatic fuels when continuously or alternately exposed to both.
4. **TECHNICAL REQUIREMENTS:**
 - 4.1 **General:**
 - 4.1.1 **Weathering:** When specified, the product shall have weather resistance acceptable to the purchaser as determined by a procedure agreed upon by purchaser and vendor.
 - 4.1.2 **Corrosion:** The product shall not have a corrosive or other deleterious effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.
 - 4.2 **Properties:** Unless otherwise specified, 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.

<u>Property</u>	<u>Value</u>	<u>Test Method</u>
4.2.1 As Received:		ASTM D412-41
Hardness, Durometer "A" or equiv.	70 ± 5	
Tensile Strength, psi, min	1500	
Elongation, %, min	250	
4.2.2 Non-Aromatic Fuel Resistance:		ASTM D471-46T
(After 24 hr drying at 158 F - 2)		Medium: ASTM Fuel No. 1
Volume Change (Method A), %, max	-5	Temperature: 70-85F
		Time: 24 hr

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Property	Value	Test Method
4.2.3 <u>Aromatic Fuel Resistance:</u> (Immediate Deteriorated Properties)		ASTM D471-46T
Hardness Change, Durometer "A" or equiv.	0 to -20	
Tensile Strength Reduction, %, max (based on area before immersion)	50	Medium: ASTM Fuel No. 2 Temperature: 70-85F
Elongation Reduction, %, max	50	Time: 168 hr
Volume Change (Method A) in 24 hr, %	0 to +45	
Volume Change (Method A) in 168 hr, % (calculated on basis of unimmersed volume)	0 to +45	
Volume Change on Drying (after 168 hr aromatic fuel immersion) at 158 F \pm 2 for 24 hr (based on unimmersed volume)	-5	
Copper Strip Corrosion	None	Note 1
Gum Content, %, max	10	Note 1
Fuel Insoluble Residue, %, max	0.50	Note 2
4.2.4 <u>Dry Heat Resistance:</u>		ASTM D573-45
Hardness Change, Durometer "A" or equiv.	0 to +10	
Tensile Strength Reduction, %, max	20	Temperature: 212F \pm 2
Elongation Reduction, %, max	40	Time: 70 hr
Surface Hardness or Brittleness	None	
Bend (flat)	No Cracks	
4.2.5 <u>Compression Set:</u>		ASTM D395-46T, Method B
Per cent of original deflection, max	75	Temperature: 212 F \pm 2 Time: 70 hr
Per cent of original thickness, max	17	Compressed to 70% original thickness
4.2.6 <u>Low Temperature Brittleness:</u>	Pass	ASTM D736-46T Temperature: -40 F \pm 2 Time: 5 hr

Note 1: Copper Strip Corrosion and Gum Content after Aromatic Fuel Immersion:
Dice a 10-gram sample into 1/16-inch cubes. Place the diced sample and a polished copper strip in a flask containing 250 ml of ASTM Reference Fuel No. 2 and allow flask and contents to stand for 48 hours at 70-85F. The copper strip shall show no corrosion evidenced by discoloration at the end of the 48 hours. Decant the fuel from the flask into an accurately tared glass dish, taking care that no small particles of sample are carried over. Pour 250 ml of unused fuel (the blank) into an identical tared glass dish. Evaporate the fuel in both dishes simultaneously to apparent dryness over a live steam bath and then complete the evaporation in an electric oven at 212 F for 30 minutes. Cool dishes in a desiccator and weigh. Subtract weight of gum in the blank from gross weight of gum in the sample, and from the net weight calculate percentage of gum on the basis of the original sample weight.

Note 2 Fuel Insoluble Residue after Aromatic Fuel Immersion:

After determination of the gum content as in Note 1, extract the gum remaining in each dish ten times with ASTM Reference Fuel No. 2, using 50-ml portions each time and allowing each portion to soak the gum for not more than 5 minutes. Filter the ten extractions through two weighed Gooch crucibles, one crucible corresponding to each dish. The increase in weight of the Gooch crucible plus the weight of the gum remaining in the corresponding dish is considered to be the weight of the fuel insoluble residue. Subtract weight of insoluble residue in the blank from gross weight of insoluble residue in the sample, and from the net weight calculate percentage of insoluble residue on the basis of the original sample weight.

5. QUALITY: The product 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. TOLERANCES: Unless otherwise specified, the following tolerances apply:

6.1 Sheet and Strip:

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

6.2 Tubing:

Nominal Wall Thickness Inch	Tolerance Plus and Minus
Less than 1/16	0.005 inch
1/16 and over	10 %

7. REPORTS: Unless otherwise specified, the vendor shall furnish with each shipment three copies of a notarized report stating that the product meets the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's compound number, form or part number, and quantity.

8. IDENTIFICATION: Unless otherwise specified, all material shall be identified and marked 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 weathering or any normal hazard.

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