AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 3215E

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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 and sleeves 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 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 listed ASTM methods, insofar as practicable.

Property	Value	Test Method
4.2.1 As Received:		
Hardness, Durometer "A" or equiv.	70 ± 5	
Tensile Strength, psi, min	1500	ASTM D412-49T
Elongation, %, min	250	ASTM D412-49T
4.2.2 Non-Aromatic Fuel Resistance: (After 24 hr drying at 158 F ± 2) Volume Change (Method A), %, max	-5	ASTM D471-49T Medium: ASTM Fuel No. 1 Temperature: 70-85 F Time: 24 hr

	Property	Value	Test Method
4.2.3	Aromatic Fuel Resistance: (Immediate Deteriorated Properties)		ASTM D471-49T Medium: ASTM Fuel No.2 Temperature: 70-85 F Time: 168 hr
	Hardness Change, Durometer "A" or equiv.	0 to -20	
	Tensile Strength Reduction, %, max (based on area before immersion)	50	
	Elongation Reduction, %, max	50	
	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 ± 2 for 24 hr, %, max (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	Dry Heat Resistance:		ASTM D573-48 Temperature: 212 F ± 2 Time: 70 hr
	Hardness Change, Durometer "A" or equiv.	0 to +10	
	Tensile Strength Reduction, %, max	20	
	Elongation Reduction, %, max	40	
	Surface Hardness or Brittleness	None	
	Bend (flat)	No cracks	
4.2.5	Compression Set:		ASTM D395-49T, Method B Temperature: 212 F ± 2 Time: 70 hr
	Per cent of original deflection max	75	
	Per cent of original thickness, max	19	Compressed to 75% original thickness
4.2.6	Low Temperature Brittleness:	Pass	ASTM 736-46T Temperature: -40 F ± 2 Time: 5 hr

Note 1: Copper Strip Corrosion and Gum Content after Aromatic Fuel Immersion: Dice a 10-gram sample into 1/16 in. 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 70-85 F. 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 ± 2 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.

Note 3: To be specified only until satisfactory replacement test and values are established.

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	Tolerances, Inch Plus and Minus
1/8 and under	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
Under 1/16	0.005 inch
1/16 and over	10%