

# AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
29 West 39th Street  
New York City

## AMS 3238

Issued 2-15-53

Revised

### SYNTHETIC RUBBER Inorganic Ester Resistant Butyl Type (65-75)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. FORM: Sheet, strip, molded shapes, extrusions, or as ordered.
3. APPLICATION: Primarily for parts such as O-rings, gaskets, grommets and seals requiring resistance to inorganic esters or low permeability to gases. Not suitable for use in contact with petroleum base fluids due to excessive swell.

#### 4. TECHNICAL REQUIREMENTS:

##### 4.1 General:

- 4.1.1 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 <u>As Received</u> :		
4.2.1.1 Hardness, Durometer "A" or equiv.	70 ± 5	
4.2.1.2 Tensile Strength, psi, min	1500	ASTM D412-51T, Die B or C
4.2.1.3 Elongation, %, min	300	ASTM D412-51T, Die B or C
4.2.2 <u>Inorganic Ester Resistance</u> (Immediate Deteriorated Properties)		ASTM D471-51T
4.2.2.1 Tensile Strength Reduction, %, max (based on area before immersion)	30	Medium: Tri-n butyl phosphate Temperature: 212 F ± 2 Time: 70 hr
4.2.2.2 Elongation Reduction, %, max	20	
4.2.2.3 Volume Change (Method A), %	0 to +30	
4.2.2.4 Hardness Change, Durometer "A" or equiv.	0 to -20	

Section 7C of the SAE Technical Board rules provides that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."

Property	Value	Test Method
<b>4.2.3 <u>Dry Heat Resistance:</u></b>		ASTM D573-48
4.2.3.1 Tensile Strength Reduction, %, max	20	Temperature: 212 F $\pm$ 2 Time: 70 hr
4.2.3.2 Elongation Reduction, %, max	40	
4.2.3.3 Hardness Change, Durometer "A" or equiv.	0 to +10	
<b>4.2.4 <u>Compression Set:</u></b>		ASTM D395-49T, Method B
4.2.4.1 Percent of Original Deflection, max	85	Temperature: 212 F $\pm$ 2 Time: 70 hr
4.2.4.2 Percent of Original Thickness, max	22	Compressed to 75% of original thickness
<b>4.2.5 <u>Low Temperature Brittleness:</u></b>	Pass	ASTM D736-46T (See Note) Temperature: -40 F $\pm$ 2 Time: 5 hr

Note. 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	Tolerance, 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:

6.2.1 Nominal OD or ID (Not both), Inch	Tolerance, Inch Plus and Minus	Ovality (Note 1)
1/2 and under	0.020	10%
Over 1/2 to 1, incl	0.030	15%
Over 1	4%	15%