



Engineering Material Specification

Material Name

POLYURETHANE MOLDING COMPOUND, ETHER BASED

Specification Number

ESA-M4D347-A

1. SCOPE

The material defined by this specification is an ether based polyurethane compound that may be processed by either extrusion or injection molding.

2. APPLICATION

This specification was released originally for material used for rear spring insulator retainers.

3. REQUIREMENTS

3.1 SLAB STOCK PROPERTIES

3.1.1	Specific Gravity, min (ASTM D 792)	1.19
3.1.2	Hardness - Durometer "D" (ASTM D 2240)	59 - 65
3.1.3	Tensile Properties (ASTM D 412, 2 in (50 mm)/min)	
3.1.3.1	Tensile Stress, min	
	At 100% Elongation	2300 psi (15.9 MPa)
	At 300% Elongation	4500 psi (31.0 MPa)
3.1.3.2	Tensile Strength, min	5500 psi (37.9 MPa)
3.1.3.3	Elongation at Break, min	320%
3.1.4	Tear Strength, min (ASTM D 624, Die "C")	600 lb/in (105 kN/m)
3.1.5	Ozone Rating (ASTM Rating, FLTM BP1-1)	0
3.1.6	Low Temperature Brittleness, max (ASTM D 746)	-57°C
3.1.7	Properties After Oven Aging (ASTM D 573, 70 h at 102 ± 3°C)	
	Tensile Strength, decrease, max	15%

Date	Para. No.	Revisions	Approval
1979 01 10		Metricated and Retyped LAH2 823385	
1973 04 04		Redrawn and revised COB10-719160-5	E. F. Fran 11-17-1E

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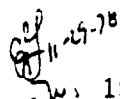


- | | | |
|--------|---|---------|
| | Elongation, decrease, max | 15% |
| | Hardness - Durometer "D", change | ± 3 |
| 3.1.8 | Properties After Liquid Immersion
(ASTM D 471, 70 h at $100 \pm 3^{\circ}\text{C}$, ASTM No. 1 oil) | |
| | Tensile Strength, decrease, max | 10% |
| | Elongation, decrease, max | 10% |
| | Hardness - Durometer "D", change | ± 3 |
| | Volume Change | 0 - 3% |
| 3.1.9 | Properties After Liquid Immersion
(ASTM D 471, 70 h at $100 \pm 3^{\circ}\text{C}$, ASTM No. 3 oil) | |
| | Tensile Strength, decrease, max | 10% |
| | Elongation, decrease, max | 10% |
| | Hardness - Durometer "D", change | ± 5 |
| | Volume Change | 0 - 10% |
| 3.1.10 | Compression Set, max
(ASTM D 395, Method "B" plyed, 22 h at 70°C) | 45% |
| 3.2 | MOLDED PARTS - QUALITY CONFORMANCE | |
| | Material from parts shall be tested as follows: | |
| 3.2.1 | Specific Gravity, min
(ASTM D 792) | 1.19 |
| 3.2.2 | Hardness - Durometer "D"
(ASTM D 2240) | 57 - 63 |
| 3.3 | SUPPLIER'S RESPONSIBILITY | |

Material supplied to this specification must be equivalent to that originally approved. Changes in formulation or processing shall not be made without prior approval as described in Supplier Procedure I-A.

4. APPROVAL OF SUPPLIERS

Suppliers to this specification must be approved by the affected product engineering office. Procedure for gaining approval of a specific material to a new/existing ES-M specification is contained in Supplier Procedure I-A. Approved new suppliers will be added to the Engineering Materials Approved Source List.


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