

NYLON 66 + PPE — HEAT STABILIZED, BLEND**GMP.PA66+PPE.002**

1 SCOPE. This specification covers the properties of a heat stabilized, pelletized, injection molding grade of a nylon 66 and poly (phenylene ether) blend.

2 TEST PROCEDURES. Tests shall be conducted using the latest issue of the test methods indicated. Suitable precautions should be taken to ensure that applicable safe limits are not exceeded when conducting test procedures, processes, and/or handling the materials required by this specification.

2.1 Test specimens shall be injection molded according to ASTM D1897 using side-gated test molds. Test specimens shall be 3.2 ± 0.2 mm thick unless otherwise specified.

2.2 Tests shall be conducted on dry as-molded, unannealed test specimens. These specimens are to be sealed in water vapor impermeable containers immediately after molding and maintained in the sealed containers at 22 ± 3 C until the time of testing, 24 h min after molding. Tests shall be conducted at 22 ± 3 C unless otherwise indicated.

3 COMPOUND PROPERTIES.

3.1 Compound Properties (Natural). (See Table 1)

3.2 Compound Properties (Colored). Colored compound properties are the same as the natural compound properties.

3.3 Engineering Guidelines. The property values are nominal values only and should be used as guidelines for selecting materials. (See Table 2)

4 SUGGESTED COMPOUND VERIFICATION. Inherent compound properties and test procedures that may be used to identify this material are listed below. The test value and test procedure requirements are identical to those listed in Section 3, Compound Properties.

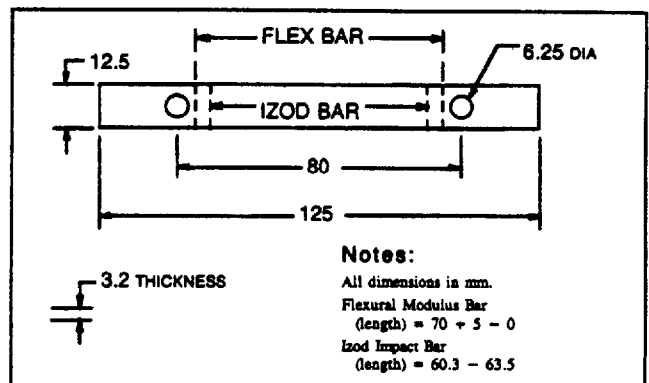
Specific Gravity
Infrared Characterization Scan

5 COMPOUND AND SOURCE APPROVAL. Each vehicle group and component division will have its own approved compound list derived from the corporate plastics file. No shipment shall be made by a new source until a sample of the compound manufactured at a production facility has been approved by the appropriate vehicle group and/or component division. Shipment receipt and certification requirements will vary among receiving locations.

6 IDENTIFICATION. The molding compound shall be identified by the GM corporate specification code and the manufacturer's identification code and lot number, along with any additional vehicle group and component division requirements.

7 INSPECTION AND REJECTION. The purchaser reserves the right to sample incoming shipments even though it is the responsibility of the supplier to meet the requirements stated without dependence upon the purchaser's inspection. The supplier (whether prime contractor or subcontractor) will forfeit qualification if a change is made in material, processing methods, testing methods, or location of manufacture without prior written request to and subsequent approval from the purchaser.

8 GENERAL INFORMATION. This newly issued standard was revised from BOCMS 2-44 by Cadillac.

**FIGURE 1 - UNIVERSAL BAR**

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TABLE 1 - COMPOUND PROPERTIES (NATURAL)

Property	Test Value (SI units)	Test Method
Moisture Content	0.10% max by weight	ASTM D789 or Thermogravimetric Analysis
Water Absorption	0.6% max	ASTM D570
Viscosity	TBD	
Specific Gravity	1.05 - 1.15	ASTM D792
Heat Deflection Temperature at 455 kPa	180 C min	ASTM D648, unannealed
Tensile Stress at Yield	55 MPa min	ASTM D638, Type I bar, 50 mm/minute
Tensile Stress at Yield after Heat Aging	80% min retention of original measured value	ASTM D638, Type I bar, 50 mm/minute, after each of the following exposures: (1) 4 h at 170 C (2) 2 h at 190 C
Tensile Stress at Yield after Humidity Aging	40 MPa min	ASTM D638, Type I bar, 50 mm/minute, after 336 h at 38 C and 100% RH
Elongation at Break	40% min	ASTM D638, Type I bar, 50 mm/minute
Elongation at Yield after Heat Aging	80% min retention of original measured value	ASTM D638, Type I bar, 50 mm/minute, after each of the following exposures: (1) 4 h at 170 C (2) 2 h at 190 C
Elongation at Yield after Humidity Aging	15% max	ASTM D638, Type I bar, 50 mm/minute, after 336 h at 38 C and 100% RH
Flexural Modulus	1800 MPa min	ASTM D790, Method I, tangent calculation, for test bar see Figure 1, 50 mm span, 1.3 mm/minute
Notched Izod Impact	187 J/m min	ASTM D256, Method A, for test bar see Figure 1
Dart Impact at -30 C	28 J min	ASTM D3763

TABLE 2 - ENGINEERING GUIDELINES

Property	Test Value (SI units)	Test Method
Heat Sag	13 mm	ASTM D3769, 1 h at 188 C
Warp Test	1 mm	GM9451P, 24 h at 38 C and 100% RH
Coefficient of Thermal Expansion	$9.0 - 12.6 \times 10^{-5}$ mm/mm/C	ASTM D696
Mold Shrinkage	0.012 - 0.016 mm/mm 0.015 - 0.017 mm/mm	ASTM D955, unannealed ASTM D955, annealed at 163 C for 1 h