



POLYAMIDE (PA) 66, IMPACT MODIFIED, HEAT STABILIZED WEATHERABLE MOLDING COMPOUND

WSS-M4D706-A4

1. SCOPE

The material defined by this specification is an ethylene copolymer modified, heat stabilized polyamide 66 molding compound.

2. APPLICATION

This specification was released originally for material used for molded in color push pins.

NOTICE: This material absorbs and retains moisture. Part design and tolerances must accommodate changes in part dimensions and physical properties due to moisture absorption or loss in the service/assembly environment.

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.4 MOLDING COMPOUND

3.4.1 Melt Temperature 250 - 265 °C
(ISO 1218, Method B/ASTM D 789)

3.5 MOLDED TEST SPECIMEN

3.5.1 Preparation of Test Specimens

Unless otherwise specified all tests shall be carried out on injection molded one-end gated test specimens.

The following dimensions are required:

- A. 150 min x 10 x 4.0 +/- 0.2 mm (Tensile Bar, ISO 3167)
- B. 120 x 10 x 4.0 +/- 0.2 mm

Specimens with shorter dimensions shall be cut from the center portion of the test specimen A and/or B. The specimens shall be prepared according to ISO 294. No annealing allowed.

Date	Action	Revisions
2006 11 22	Revised	Paragraph 3.8, 3.8.1 & 3.8.2; Added 3.8.3. L. Schmalz
2005 11 29	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.3, 3.9, 3.10 & 4
1996 06 28	Activated	



ENGINEERING MATERIAL SPECIFICATION

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3.5.2	Density (ISO 1183, Method A/ASTM D 792, Method A1)	1.08 - 1.12 g/cm ³
3.5.3	Tensile Strength at Yield, min (ISO R 527/ASTM D 638M, 150 x 10 x 4.0 +/- 0.2 mm specimen, 50 mm/minute test speed)	56 MPa
3.5.3.1	Elongation at Yield, min (Test Method according to para 3.5.3)	5%
3.5.4	Flexural Modulus, min (ISO 178/ASTM D 790M, Method I, Procedure A, 80 x 10 x 4.0 +/- 0.2 mm specimen, 64 mm support span)	1.85 GPa
3.5.5	Shear Modulus at 23 °C (ASTM D 4065, forced constant amplitude, fixed frequency of 1 Hz +/- 15%, strain level below 1%. Specimen approx. 60 x 10 x 4.0 +/- 0.2 mm cut from the center of specimen A. Specimen length between clamps 35 - 40 mm. Soak time at each temperature interval - 3 minutes minimum)	0.67 - 1.01 GPa
Additionally, a Shear Modulus vs. Temperature curve shall be plotted for -50 to +240 °C temperature range, at 5 °C minimum intervals. The plotted curve must be within tolerance range shown on page 5.		
3.5.6	Impact Strength, Izod, min (ISO 180/1A, 63.5 x 10 x 4.0 +/- 0.2 mm specimen, 10 specimens for each test)	
3.5.6.1	At 23 +/- 2 °C	12 kJ/m ²
3.5.6.2	At 0 +/- 2 °C	11 kJ/m ²
3.5.6.3	At -40 +/- 2 °C	8.0 kJ/m ²
The test specimens must be conditioned for minimum of 6 h at the above specified temperature prior to impact test. Low temperature testing shall be done within the cold box, if not possible, test can be conducted outside, but within 5 s.		
3.5.7	Heat Deflection Temperature, min (ISO 75-1, 120 x 10 x 4.0 +/- 0.2 mm specimen)	
3.5.7.1	At 1.82 MPa	54 °C
3.5.7.2	At 0.45 MPa	172 °C