



POLYAMIDE (PA) 66 HEAT STABILIZED,
19% GLASS/MINERAL REINFORCED

WSS-M4D951-A1

POLYAMIDE (PA) 66 HEAT STABILIZED,
19% GLASS/MINERAL REINFORCED,
25% MIN POST CONSUMER CONTENT

WSS-M4D951-A2

1. SCOPE

The materials defined by these specifications are a glass/mineral reinforced, heat stabilized polyamide 66 molding compound.

2. APPLICATION

These specifications were released originally for material used for air cleaner housing.

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

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).

3.1.1 All requirements of these specifications, identified by symbol (s), shall be met with data representing 3 sigma values.

3.3 CONDITIONING AND TEST CONDITIONS

All test values indicated herein are based on material and specimens with moisture content not exceeding 0.2% (test according to ISO 960 or ASTM D 789).

All test materials immediately after processing have to be sealed in containers that are impermeable to water vapor. If the moisture content exceeds 0.2%, condition the material for a min of 16 h at 40 - 50 °C at a reduced pressure below 133 Pa.

Conduct tests in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5% relative humidity. Individual specimens shall not be removed from closed containers until immediately before testing.

3.4 MOLDING COMPOUND

A1

A2

(s) 3.4.1 Filler Content, %
(ISO 3451-1 or ASTM D 5630)

17 – 21

17 - 21

(s) 3.4.2 Melt Temperature, °C, min
(ISO 3146, Method C)

259 – 265

259 - 265

Date	Action	Revisions
2006 07 20	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.7, 3.8 & 4
1997 12 17	Revised	Added WSS-M4D951-A2; Rev. 1, 3, 5
1997 02 20	Activated	



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**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 (ISO 3167, Type A)
- B. 60 x 60 x 2.0 +/- 0.1 mm (ISO/DIS 294-3)
- C. 355 x 100 x 2.max mm (ISO 3795)

Test specimen A, B, and C shall be molded using molding conditions defined in ISO 1874-2. Specimens with shorter dimensions shall be cut from the center of the specimen. No annealing allowed.

		A1	A2
	3.5.2 Density, g/cm ³ (ISO 1183, Method A)	1.24 - 1.29	1.21 - 1.29
(s)	3.5.3 Tensile Strength at Break, min (ISO 527-1 and ISO 527-2, Specimen A)	73 MPa	73 MPa
(s)	3.5.4 Flexural Modulus, min (ISO 178, 80 x 10 x 4.0 specimen [use center section of specimen A], 2 mm/minute test speed, 64 mm support span)	3.3 GPa	3.3 GPa

A1 & A2

3.5.5	Shear Modulus at 23 °C (ASTM D 5279, forced constant amplitude, fixed frequency of 1 Hz +/- 15%, strain level below 1%. Specimen approximately 60 x 10 x 4.0 cut from the center of specimen A. Specimen length between clamps 35 - 40 mm. Soak time at each temperature interval, 3 minutes min)	1440 MPa/GPa
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Additionally, a shear modulus vs. temperature curve shall be plotted for -50 to +240 °C temperature range, at 5 °C min intervals. The plotted curve must be within tolerance range granted on the original material approval and it shall constitute the reference standard for materials supplied to this specification and shall be kept on file at the designated material laboratory and be available on request.

(s)	3.5.6	Impact Strength, Izod, min (ISO 180/1A, 80 x 10 x 4.0 +/- 0.2 mm specimen [use center section of specimen A], 10 specimens for each test)
(s)	3.5.6.1	At 23 +/- 2 °C
	3.5.6.2	At -40 +/- 1 °C

2.3 kJ/m²1.4 kJ/m²**Documents**

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