



POLYAMIDE 66 (PA66), HEAT STABILIZED 40% GLASS FIBER/MINERAL REINFORCED MOLDING COMPOUND

WSS-M4D823-A2

1. SCOPE

The material defined by this specification is a heat stabilized 25% glass fiber and 15% mineral reinforced polyamide 66 molding compound.

2. APPLICATION

This specification was released originally for material used for engine valve covers.

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.

3.1 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 this specification, identified by symbol (s), shall be met with data representing 3 sigma values using latest ISO test methods.

3.1.2 This specification is based on virgin material only. The use of in-house regrind is not allowed unless the part is validated during PV testing with the documented level of regrind noted on the part drawing.

NOTE: Statistical data shall be derived from testing a minimum of 30 lots. The statistical data shall be submitted with initial characterization data. For provisional approval prior to completion of 30 lot testing statistical data shall be derived from testing of 30 evenly divided subgroups from a minimum of 3 lots. These data shall be included with the specification draft when requesting a new specification. After completion of 30 lot testing, specification values may be revised to reflect the final results.

For materials used in applications requiring small amounts (less than 3 lots) the above requirement may be waived at the option of the affected Product Development Materials Activity.

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.

Date	Action	Revisions
2006 05 22	Activated	



Documents

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**3.2 MOLDING COMPOUND**

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| 3.2.1 | Glass Fiber/Mineral Content
(ISO 3451/4, test temperature
600 +/- 25 °C, test portion 1 g) | 38 - 42% |
| 3.2.2 | Melt Temperature
(ISO 1218, Method B/ASTM D 789,
or DSC - ASTM E 794) | 258 - 263 °C |

3.3 MOLDED TEST SPECIMEN**3.3.1 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.

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| 3.3.2 | Density
(ISO 1183, Method A/ASTM D 792,
Method A1) | 1.42 - 1.55 g/cm ³ |
| 3.3.3 | Tensile Strength at Max Load, min
(ISO R 527/ASTM D 638M, 150 x
10 x 4.0 +/-0.2mm specimen,
5 mm/minute test speed) | 140 MPa |
| 3.3.4 | Tensile Stress/Strain Curves
(ISO 527-1, 527-2, ISO 11403-1; 150 x 10 x 4 mm specimen A). Test speed shall be 5
mm/minute for all materials. | |
| 3.3.5 | 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) | 7 GPa |
| 3.3.6 | Impact Strength, Izod, min
(ISO 180, Method A/ASTM D 256, Method A, 80 x 10 x 4.0 +/-0.2 mm specimen, 10
specimens for each test) | |
| 3.3.6.1 | At 23 +/- 2 °C | 6.0 kJ/m ² |