



POLYPROPYLENE (PP) COPOLYMER, 15% GLASS FIBER REINFORCED, COLOR PIGMENTED, UV STABILIZED, BLOW MOLDING COMPOUND, EXTERIOR

WSS-M4D994-A

1. SCOPE

The material defined by this specification is a glass-filled blow-molding compound based on a polypropylene copolymer.

2. APPLICATION

This specification was released originally for material used for blow-molded side step bars.

3. REQUIREMENTS

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 was developed for virgin material only. The use of regrind in parts used on Ford vehicles is not allowed without the prior written approval from Ford Materials Engineering. Written approval from Ford Materials Engineering must be requested on a part-by-part basis. All requests for approval must be accompanied with the following:

- Engineering drawing defining the maximum allowable regrind content as a significant characteristic.
- Complete PV test data for parts manufactured with the maximum allowable regrind content as specified on the engineering drawing.

3.2 MOLDING COMPOUND

(s)	3.2.1	Melt Flow Rate (ISO 1133, 230 °C, 2.16 kg)	0.2 – 2.6 g/10 minutes
(s)	3.2.2	Glass Fiber Content (ISO 3451-1, Method A, 30 minutes at 600 +/- 25 °C, test portion 4 - 5g)	12 - 17%

Date	Action	Revisions
2004 11 19	Activated	



Documents

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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 minimum x 10 x 4.0 +/- 0.2 mm (ISO 3167, Type 1A)
- B. 60 x 60 x 2.0 +/- 0.1 mm (ISO/DIS 294-3)
- C. 355 x 100 x 1.0 +/- 0.1 mm (ISO 3795)

Test specimen A shall be molded using molding conditions defined in ISO 294. Specimens with shorter dimensions shall be cut from the center of the specimen A. No annealing allowed.

3.3.2	Density (ISO 1183, Method A)	0.95 – 1.01 g/cm
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(s)	3.3.3	Tensile Strength at Yield, min (ISO 527-1 & ISO 527-2, 150 minimum x 10 x 4.0 +/- 0.2 mm specimen, test speed: 50 mm/minute)	35 MPa
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3.3.4	Tensile Stress/Strain Curves (ISO 527-1, 527-2, ISO 11403-1; 150 x 1 x 4 mm specimen [specimen A]) Test speed shall be 5 mm/minute for all materials.		
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Provide a curve of tensile stress versus strain using one specimen per lot at each of the following temperatures: -40 °C, 23 °C and 85 °C (high temp is dependent on material type). For ductile materials, the curve shall cover strain through yield point.

(s)	3.3.5	Flexural Modulus, min (ISO 178, 80 x 10 x 4.0 +/- 0.2 mm specimen, [use center section of specimen A], 2 mm/min test speed, 64 mm support span)	2.0 GPa
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(s)	3.3.6	Impact Strength, Izod, min (ISO 180/1A, 80 x 10 x 4.0 +/- 0.2 mm specimen, 10 specimens for each test)	
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3.3.6.1	At 23 +/- 2 °C	10 kJ/m ²
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3.3.6.2	At -40 +/- 1 °C	2 kJ/m ²
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