



**POLYPROPYLENE (PP) MOLDING COMPOUND,
HOMOPOLYMER, HEAT STABILIZED, 35% GLASS
FIBER/MINERAL REINFORCED, 100% PCR/PIR
RESIN CONTENT, 65% RECYCLED MATERIAL BY
WEIGHT, NON-VISIBLE APPLICATIONS**

WRS-M4D1058-A1

1. SCOPE

The material defined by this specification is based on a 25% glass fiber and 10% mineral reinforced thermoplastic injection molding compound, with 100% recycled resin.

2. APPLICATION

This specification was released originally for material used for hidden structural components in floor console.

2.1 LIMITATIONS

This material is not intended for visible or decorated (wrapped, painted, etc) applications.

3. REQUIREMENTS

3.1 APPROVED SOURCES

This specification requires the use of approved sources. Only the sources identified on the Ford Approved Source List (ASL) can be used when this specification is listed on the drawing, CAD file, or other documents. The list of approved sources is located within Ford at www.mats.ford.com or available externally through a Ford Materials Engineer.

The approved source for this specification is TMG Optipro CP2510GM.

3.2 CONDITIONING AND TEST CONDITIONS

All test values are based on material conditioned for not less than 24 h prior to testing in a controlled environment of 23 +/- 2 °C and 50 +/- 5% relative humidity. Testing of the material should occur in the conditioning environment or soon after removal.

3.3 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

3.3.1 Materials approved to these specifications require testing to WSS-M99P2222-D1/latest *Performance, Vehicle Interior Environment Quality Material/Component Requirements*. If collective parts exceed 100 cm² or 100 g then testing will be required per the appropriate performance specification.

3.3.2 Materials requiring High Strain Rate, Creep or fiber oriented Tensile Modulus must test to the requirements of WSS-M99D68-A1/Latest, *Thermoplastic Property Determination. For CAE, High Strain Rate Tensile, Creep and Tensile Modulus*. Data must be included in the material submission package.

Date	Action	Revisions	REV. 00
2015 10 01	Released		



Documents

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- 3.3.3 Performance Criteria:
Parts using this specification shall meet the appropriate performance specification, WSS-M15P4-F/Latest for Hard, Interior, Molded-in-Color component performance.

3.4 SAMPLE PREPARATION

Unless otherwise specified all tests shall be carried out on injection molded, one-end gated test specimens. The test specimens A and D shall be molded using molding conditions defined in ISO 1873-2. No annealing is allowed. See Table 1 for the number of specimens required.

Specimens shall be as follows:

Specimen A	150 minimum x 10 x 4.0 +/- 0.2 mm (ISO 527-2, Specimen Type 1A)
Specimen B	355 x 100 x 1.0 +/- 0.1 mm (ISO 3795)
Specimen C	145 x 60 x 3.2 +/- 0.2 mm
Specimen D	Center of Specimen A. 80 x 10 x 4.0 +/- 0.2 mm
Specimen E	100 mm diameter x 3.2 mm
Specimen F	80 mm diameter x 3.2 mm
Specimen G	90 mm x 200 mm
Specimen H	50 +/- 1 mm diameter x 3.2 +/- 0.2 mm
Specimen I	100 mm x 150 mm, min

3.5 MATERIAL PROPERTIES

3.5.1	Filler Content (ISO 3451-1, Method A, 1h at 700 +/- 25 °C, Test portion 2 - 2.5 g)	30 - 37 %
3.5.2	Density (ISO 1183, Method A)	1.14 – 1.19 g/cm ³
3.5.3	Tensile Strength at Yield (ISO 527-1 & ISO 527-2, Specimen A, 50 mm/minute test speed)	52 MPa min
3.5.4	Elongation at Break (ISO 527-1 & ISO 527-2, Specimen A, 50 mm/minute test speed)	4.5 % min
3.5.5	Tensile Modulus (ISO 527-1 & ISO 527-2, Specimen A, 1 mm/minute test speed)	3.4 GPa min
3.5.6	Flexural Modulus (ISO 178, Specimen D, 64 mm support span, 2 mm/minute test speed)	3.6 GPa min
3.5.7	Impact Strength, Notched Charpy (ISO 179-1/eA, Specimen D)	
3.5.7.1	At 23 +/- 2 °C	9.5 kJ/m ² min Report Break Type
3.5.7.2	At -40 +/- 2 °C	4.5 kJ/m ² min Report Break Type

