



POLYPROPYLENE (PP) HOMOPOLYMER, 20% MINERAL FILLED, BLOW MOLDING COMPOUND, UNDERBODY AND ENGINE

WSS-M4D729-B7

1. SCOPE

The material defined by this specification is a 20% mineral (talc) filled blow molding compound based on polypropylene with controlled rheological properties.

2. APPLICATION

This specification was released originally for material used for engine air cleaner.

2.1 LIMITATIONS

These materials have low impact resistance at low temperatures

3. REQUIREMENTS

Production level materials must be used in preparing test parts / panels. The use of improper sample prep materials can influence test results.

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). Note: Many 4D resin specifications prior to 2011, identified certain requirements with the symbol (s), which indicated that the mean and +/- 3 sigma values were to be reported. The specification minimum, maximum or range was established using 3 sigma data. For 2011 and beyond, refer to Table 1 for number of samples required for each test to establish specification limits.

3.1.1 Recycled content

3.1.1.1 This specification is based on virgin materials, however materials with recycled content as defined by WRS-M99P42-A1 (post-consumer and/or post industrial recyclates and repolymerised recycled materials) should be used whenever technically feasible and following all materials and PV testing required by Ford Materials Engineering. The use of regrind is permitted, for economic / environmental reasons, with compliance as indicated in WSS-M99P1111-A.

3.1.2 Performance Criteria:

Parts using this specification shall meet the appropriate performance specifications, WSS-M15P50-B /Latest for engine compartment and underbody applications.

Date	Action	Revisions	Rev 00
2011 06 06	Activated	Activated	



Documents

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3.2 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 1874-2.

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

3.3 MATERIAL PROPERTIES

3.3.1	Melt Flow Rate (ISO 1133, 230 °C, 2.16 kg)	0.5 – 2.0 g/10 minutes
3.3.2	Filler Content (ISO 3451-1, Method A, talc filler, 1 h at 750 +/- 25 °C, test portion 2 to 2.5 g)	18 - 23%
3.3.3	Density (ISO 1183, Method A)	1.02 – 1.08 g/cm ³
3.3.4	Tensile Strength at Yield (ISO 527-1 and ISO 527-2, Specimen A, 50 mm/minute test speed)	29 MPa min
3.3.5	Tensile Modulus (ISO 527-1 and ISO 527-2, Specimen A 1 mm/minute test speed)	2.5 GPa min
3.3.6	Flexural Modulus (ISO 178, Specimen D 64 mm support span, 2 mm/minute test speed)	2.2 GPa min
3.3.7	Impact Strength, Notched Charpy (ISO 179-1/2, Specimen D)	
3.3.7.1	At 23 +/- 2 °C	2.9 kJ/m ² min Report Break
3.3.7.2	At -40 +/- 2 °C	1.1 kJ/m ² min Report Break

The test specimen must be conditioned for minimum of 6 hours at the above specified temperature prior to impact test. Low temperature testing shall be done within the cold chamber, if not possible, test may be conducted outside, but within 5 seconds.