



POLYPROPYLENE (PP) HOMOPOLYMER, 20% MINERAL FILLED, MOULDING COMPOUND

WSS-M4D729-B5

POLYPROPYLENE (PP), 20% MINERAL FILLED, MOULDING COMPOUND, ---% PCR AND/OR PIR CONTENT
(The specification for a recycled version of this resin is under development. Contact Materials Engineering (NA) for status)

WRS-M4D729-B6

1. SCOPE

The material defined by this specification is a 20% mineral (talc) filled injection molding compound based on polypropylene.

2. APPLICATION

This specification was released originally for material used for IP structure and/or ducts for non-visible and non-color-matched applications in the vehicle interior.

2.1 LIMITATIONS

These materials have low impact resistance at low temperatures. Production level materials must be used in preparing test parts / panels. The use of improper sample prep materials can influence test results.

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 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.

3.1.2 WSS-M4D729-B5 is based on virgin materials.

3.1.3 WRS-M4D729-B6 must contain XX% Post Consumer Recycled (PCR) and/or Post Industrial Recycled (PIR) content as defined by WRS-M99P42-A1. The remaining portion of the material can come from virgin sources.

3.1.4 The use of regrind is permitted for economic and environmental reasons with compliance as indicated in WSS-M99P1111-A.

3.1.5 Materials used in interior applications must meet the requirements outlined in WSS-M99P2222-C1/Latest, *Performance, Vehicle Interior Environment Quality Material/Component Requirements*. Data must be included in material submission package.

Date	Action	Revisions	Rev. 0
2011 10 17	Activated		





3.1.6 Performance Criteria:

Parts using this specification shall meet the appropriate performance specifications, WSS-M15P4-F/Latest or WSS-M15P45-B/Latest.

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. No annealing is allowed. See Tables 1 and 2 for the number of samples 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

3.3 MATERIAL PROPERTIES

3.3.1	Filler Content (ISO 3451-1, Method A, talc filler, 1 h at 750 +/- 25 °C, test portion 2 to 2.5 g)	18 - 23%
3.3.2	Density (ISO 1183, Method A)	1.03 – 1.15 g/cm ³
3.3.3	Tensile Strength at Yield (ISO 527-1 & ISO 527-2, specimen A, test speed: 50 mm/minute)	27 MPa min
3.3.4	Tensile Modulus (ISO 527-1 & ISO 527-2, Specimen A 1 mm/minute test speed)	2.0 GPa min
3.3.5	Flexural Modulus (ISO 178, Specimen D 64 mm support span, 2 mm/minute test speed)	2.2 GPa min
3.3.6	Impact Strength, Notched Izod (ISO 180/1A, Specimen D)	
3.3.6.1	At 23 +/- 2 °C	2.0 kJ/m ² min Report Break Type
3.3.6.2	At -40 +/- 2 °C	1.2 kJ/m ² min Report Break Type

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.