



POLYPROPYLENE (PP) HOMOPOLYMER, 20% TALC FILLED, INJECTION MOLDING COMPOUND, INTERIOR

WSS-M4D729-A3

1. SCOPE

The material defined by this specification is a thermoplastic polypropylene homopolymer injection molding compound with 20% talc filler, UV stabilized in interior trim colors.

2. APPLICATION

This specification was originally released for material used for interior center high mounted stop light (CHIMSL) housings.

3. REQUIREMENTS

3.1 APPROVED SOURCES

This specification is part of the Ford Co-Managed Buy (CMB) agreement. Tier 1 Molders who are participating under the CMB agreement must use one the following approved sources (deviations require approval from Raw Materials Purchasing and Materials Engineering):

NA:	Washington Penn Plastics	-	PPH5TF2
EU:	Audia Plastics	-	PPH5TF2

Molders not on the CMB program or regions without CMB are required to use materials listed on the Ford Approved Source List (ASL), and are encouraged to use the CMB sources listed above. Only the sources identified on the Approved Source List 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.

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 INFRARED SPECTROPHOTOMETRY AND/OR THERMAL ANALYSIS

IR spectra and thermograms from initial material approval shall constitute the reference standard and shall be kept on file at the designated material laboratory. The material supplier shall ensure that all future material supplied to the specification shall produce IR spectra and thermograms that correspond to the reference standard when tested under the same conditions.

3.4 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

3.4.1 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.

Date	Action	Revisions	Rev. 03
2016 01 20	Revised	See Summary of Revisions	T. Nover, EU
2006 11 22	Revised	Paragraph 3.8, 3.8.1 & 3.8.2; Added 3.8.3.	L. Schmalz, NA
1997 11 12	Activated		M. Masserant, NA

**3.5 MOLDING COMPOUND**

- 3.5.1 Filler Content 17 - 25%
(ISO 3451-1, Method A)

3.6 MOLDED TEST SPECIMEN**3.6.1 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 (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 1873-2. Specimens with shorter dimensions shall be cut from the center of the specimen A. No annealing allowed.

- 3.6.2 Density 1.03 - 1.10 g/cm³
(ISO 1183, Method A)

- 3.6.3 Tensile Strength at Yield 26.5 MPa min
(ISO 527-1 and ISO 527-2, 150 min x 10 X
4.0 +/- 0.2 mm specimen, test speed:
50 mm/minute)

- 3.6.4 Flexural Modulus 2.3 GPa min
(ISO 178, 80 x 10 x 4.0 +/- 0.2 mm specimen
[use center section of specimen A], 2 mm/
minute test speed, 64 mm support span)

- 3.6.5 Shear Modulus at 23 °C 900 - 1300 MPa
(ASTM D 4065, forced constant amplitude,
fixed frequency of 1 Hz +/- 15%, strain
level below 1%. Specimens approximately
60 x 10 x 4.0 +/- 0.2 mm cut from the
center of specimen A. Specimen length
between clamps 35 - 40 mm. Soak time at
each temperature interval - 3 minutes min).

Additionally, a shear modulus versus temperature curve shall be plotted for -50 to +140°C temperature range, at 5 °C min intervals. The plotted curve must be within tolerance range granted on the original material approval and it shall constitute the reference standard for materials supplied to this specification and shall be kept on file at the designated material laboratory and be available on request.

- 3.6.6 Impact Strength, Izod
(ISO 180/1A, 80 x 10 x 4.0 +/- 0.2 mm
specimen [use center section of specimen
A], 10 specimens for each test)

3.6.6.1 At 23 +/- 2 °C

3.6.6.2 At -40 +/- 1 °C

1.7 kJ/m² min



Documents

1.7 kJ/m² min

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