POLYAMIDE (PA) 6,6 HEAT STABILIZED, COOLING AGENT RESISTANT, 30% GLASS FIBER REINFORCED MOLDING COMPOUND **WSS-M4D752-B1**

POLYAMIDE (PA) 6,6 HEAT STABILIZED, COOLING AGENT RESISTANT, 30% GLASS FIBER REINFORCED MOLDING COMPOUND RECYCLED GRADE, 25% PCR AND/OR PIR CONTENT **WRS-M4D752-B2**

POLYAMIDE (PA) 6,6 HEAT STABILIZED, COOLING AGENT RESISTANT, 30% GLASS FIBER REINFORCED MOLDING COMPOUND RECYCLED GRADE, 50% PCR AND/OR PIR CONTENT **WRS-M4D752-B3**

1. SCOPE

The materials defined by these specifications are thermoplastic injection molding compound based on a 30% glass fiber reinforced, heat stabilized, cooling agent resistant polyamide 6,6.

2. APPLICATION

These specifications were released originally for material used for parts of the engine cooling components.

2.1 LIMITATIONS

- This material absorbs and retains moisture. Part design and tolerances must accommodate changes in part dimensions and physical properties due to moisture absorption or loss in the service/assembly environment.
- This material does not contain UV stabilizers, long term exposure to direct sunlight will cause chalking and loss of gloss.

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 values. For 2011 and beyond, refer to Table 1 for number of samples required for each test.

3.1.2 WSS-M4D752-B1 is based on virgin materials.

3.1.3 WRS-M4D752-B2 must contain 25% recycled content as defined by WRS-M99P42-A1 (post- consumer and/or post industrial recyclates and repolymerised recycled materials) The remaining portion of the material can come from virgin sources.

3.1.4 WRS-M4D752-B3 must contain 50% recycled content as defined by WRS-M99P42-A1 (post-consumer and/or post industrial recyclates and repolymerised recycled materials). The remaining portion of the material can come from virgin sources.

Date	Action	Revisions	Rev 02
2013 07 04	Released	Revision of WSS-M4D752-B1 added WRS-M4D752-B2/B3	V. Cerato, FoE
2011 03 17	Revised	See Summary of Revisions	V. Cerato, FoE
2010 06 29	Activated	V Cerato / G. Kowalski concurred by Global Materials Team	

Controlled document at www.MATS.ford.com
Copyright © 2013, Ford Global Technologies, LLC
Licensee=/, User=,
Not for Resale,
Copyright Ford Motor Company
Provided by IHS Markit under license with FORD
No reproduction or networking permitted without license from IHS
Full document details: FORD WRS-M4D752-B3 2013
Documents Document Sharing Hub

3.1.5 The use of regrind is permitted, for economic/environmental reasons, with compliance as indicated in Ford Engineering CAD and Drafting Standard E-4.

3.1.6 Dry as molded:
All test values indicated herein are based on material and specimens with moisture content not exceeding 0.2% except where noted (Moisture Conditioned) (test according to ISO 15512 Method B/ASTM D 6869).

All test materials have to be sealed in moisture-proof containers and stored at 23 +/- 2 °C for at least 24 h immediately after processing. If the moisture content exceeds 0.2%, conditioning the material for a minimum of 16 h at 40 – 50 °C at a reduced pressure below 133 kPa.

Conduct tests in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5% relative humidity. Individual specimens shall not be removed from closed containers until immediately before testing.

3.1.7 Performance Criteria

Parts using this specification shall meet the appropriate performance specifications, WSS-M15P50-B.

3.1.8 As specified in WSS-M99P1111-A, paragraph 3.5, Ford Materials Engineering may request a Control Plan and Certificate of Analysis (CoA) containing lot testing requirements which must include, but are not limited to:

Melt Flow Rate
Filler Content
Impact Strength, Notched Charpy at 23°C
Flexural Modulus

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 Temperature 250 – 265 °C
((ISO 11357, 10 °C/min heating rate))

Documents
Document Sharing Hub

--`,,```,,,,````-`-`,,`,,`,`,,`---
Copyright Ford Motor Company
Provided by IHS Markit under license with FORD
No reproduction or networking permitted without license from IHS
Full document details: FORD WRS-M4D752-B3 2013
Copyright © 2013, Ford Global Technologies, LLC
Licensee=/, User=,
Not for Resale,