



ABS + POLYAMIDE 6 BLEND (ABS + PA6) MOLDING COMPOUND, INTERIOR

WSS-M4D960-A2

1. SCOPE

The material defined by this specification is a molded in color molding compound based on acrylonitrile-butadiene-styrene (ABS) and PA6 blend that has been UV stabilized for unpainted interior applications. It has excellent chemical and stress crack resistance, high impact strength and low gloss.

2. APPLICATION

This specification was released originally for material used for door switch bezels on the Crown Victoria/Grand Marquis platform to replace painted PC/ABS.

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.

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 All requirements of this specification, identified by symbol (s), shall be met with data representing 3 sigma values using latest ISO test methods.

3.1.2 This specification is based on virgin materials, however materials with recycled content as defined by WSS-M99P42-A (post-consumer and/or post industrial recyclates and repolymerized 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.

3.1.3 WSS-M99P1111-A exception for conditioning of PA.

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/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.

Date	Action	Revisions	Rev. 1
2012 05 30	Updated	See Summary of Revisions	Y. Bankowski, NA
2010 01 07	Activated		Y. Bankowski, NA

**Critical Process Parameters**

At the request of Ford Materials Engineering the supplier shall be responsible to collect critical process control data on each lot of material produced. Testing required will be jointly developed between Ford Materials Engineering and the supplier based on Control Plan and PFMEA review at the time of initial approval. Annually the supplier will review the in process data with Ford Materials Engineering to show that the process has remained under control. The data needs to be submitted in January for the previous calendar year. Data showing poor quality control measures or lack of submitted data may result in deletion from the Ford Approved Source List.

3.2 MOLDING COMPOUND

3.2.1	Melt Flow Rate (ISO 1133, 240 °C, 10 kg)	Report Only
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3.3 MOLDED TEST SPECIMEN**3.3.1 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 minimum x 10 x 4.0 +/- 0.2 mm (ISO 527-2, specimen 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 3167. Specimens with shorter dimensions shall be cut from the center of the specimen A. No annealing allowed.

3.3.2	Density (ISO 1183, Method A)	1.03 – 1.09 g/cm ³
3.3.3	Tensile Strength at Max Load (ISO 527-1 & ISO 527-2, 150 minimum x 10 x 4.0 +/- 0.2 mm specimen A, test speed: 50 mm/minute)	35 MPa min
3.3.3.1	Elongation at Break (Test Method according to para 3.3.3)	8% min
3.3.4	Tensile Modulus, (ISO 527-1 & ISO 527-2, 150 minimum x 10 x 4.0 +/- 0.2 mm specimen A test speed: 1 mm/min)	1600 MPa min
3.3.5	Impact Strength, Izod, notched (ISO 180/1A, 80 x 10 x 4.0 +/- 0.2 mm specimen [use center section of specimen A], 10 specimens for each test)	
3.3.5.1	At 23 +/- 2 °C	48 kJ/m ² min
3.3.5.2	At -40 +/- 2 °C	6.5 kJ/m ² min

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.

