



POLYETHYLENE (PE), HIGH DENSITY MOLDING COMPOUND, NON VISIBLE EXTERIOR / UNDERBODY

WSS-M4D955-B

1. SCOPE

The material defined by this specification is a thermoplastic high density molding compound based on polyethylene.

2. APPLICATION

This specification was released originally for material used for splash shields, underbody shields / aeroshields, compression molded or thermoformed applications, etc.

2.1 LIMITATIONS

Material approved to WSS-M4D955-B does not contain UV stabilizers, therefore long term exposure to direct sunlight could cause chalking and loss of gloss. This material is susceptible to fluid stress cracking and high mold shrinkage.

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). 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 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 specification, WSS-M15P50-B/Latest.
- Parts must fulfill applicable SDS/CDS requirements.

Date	Action	Revisions	Rev 00
2011 08 08	Activated	New specification	



Documents

K. Mueller, NA



3.2 SAMPLE PREPARATION

All tests specimens shall be prepared from compression molded sheets to approximately 200 x 200 x 4.0 +/- 0.2 mm unless otherwise specified. Preparation of compression molded sheets according to ISO 293, except; aluminum foil, 180 - 200 °C molding temperature, 15 +/- 2 °C/minute cooling rate. The values of this specification are based on unannealed specimens. 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
Specimen I	100 mm x 150 mm, min

3.3 MATERIAL PROPERTIES

3.3.1	Density (ISO 1183, Method A)	0.947 – 0.951 g/cm ³
3.3.2	Tensile Strength at Yield (ISO 527-1 and ISO 527-2, Specimen A, 50 mm/minute test speed)	23 MPa min
3.3.3	Elongation at Yield (ISO 527-1 and ISO 527-2, Specimen A, 50 mm/minute test speed)	9 % min
3.3.4	Tensile Modulus (ISO 527-1 and ISO 527-2, Specimen A, 1 mm/minute test speed)	940 MPa min
3.3.5	Flexural Modulus (ISO 178, Specimen D, 64 mm support span, 2 mm/minute test speed)	860 MPa min
3.3.6	Impact Strength, Notched Charpy (ISO 179-1/2, Specimen D)	
3.3.6.1	At 23 +/- 2 °C	16 kJ/m ² min Report Break Type
3.3.6.2	At -40 +/- 2 °C	5 kJ/m ² min Report Break Type
3.3.6.3	At 80 +/- 2 °C	6 kJ/m ² min Report Break Type

