



THERMOPLASTIC ELASTOMER (TES) STYRENE BLOCK COPOLYMER 25 DUROMETER A HARDNESS

WSS-M2D507-A6

1. SCOPE

The material defined by this specification is a nominally 25 Durometer A thermoplastic elastomer based on Styrene block copolymers (TES) for non-visible interior use having good long term resistance to heat at temperatures up to 100 °C.

2. APPLICATION

This specification was released originally for materials used for elastic sealing lips over-molded onto recirculation-doors of HVAC-systems but can be used for other non-visible interior and under-hood applications. The materials can be processed by conventional thermoplastics molding techniques such as injection molding, extrusion and blow-molding.

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).

3.2 DYNAMIC MECHANICAL ANALYSIS (ASTM D 4065)

Ford Motor Company, at its option, may establish shear modulus/damping vs. temperature curves plotted for -50 to +170 °C temperature range for material/parts supplied to this specification. The shear modulus and damping curves established for initial approval shall constitute the reference standard and shall be kept on file at the designated material laboratory. All samples shall produce shear modulus and damping curves that correspond to the reference standard when tested under the same conditions.

3.3 PREPARATION OF TEST SPECIMENS

Unless otherwise specified, all test shall be conducted on specimens die cut from injection molded plaques 150 x 100 x 2.0 +/- 0.2 mm. The plaques shall be molded according to ISO 294 and film gated along the upper 100 mm edge, and preceded by a 0.8 mm diameter pin gate. No annealing allowed, unless specified otherwise.

3.4 FINISHED PART REQUIREMENTS

The finished part must conform with the requirements of any relevant performance specification and/or the relevant System Design Specifications (SDS).

Date	Action	Revisions
2004 12 07	Revised	Updated format; Inserted 4.
2003 06 04	Activated	





3.5	DENSITY, +/- 0.05 g/cm³ (ISO 1183, Method A/ASTM D 792, Method A1)	1.04
3.6	HARDNESS, DUROMETER A (ISO 868, after 15 sec.)	25 +/- 5
3.7	TENSILE STRENGTH, MPa, min (ISO 37 /ASTM D 412, Die C, 500 mm/min test speed. Measured Parallel to Flow)	1.1
3.7.1	Elongation at Break, % min (Test per para 3.7)	350
3.8	MODULUS AT 100% ELONGATION, +/- 20% (Test per para 3.7)	0.6
3.9	TEAR STRENGTH, kN/m, min (ISO 34, Method B, procedure A/ ASTM D 624, Die C)	
3.9.1	Parallel to Flow	8
3.9.2	Perpendicular to Flow	9
3.10	COMPRESSION SET, %, max (ISO 815, Large Type plied specimen/ASTM D 395, Method B, Type 1 plied specimen)	
3.10.1	72 h at 23 +/- 1 °C	40
3.10.2	24 h at 70 +/- 2 °C	60
3.11	BRITTLENESS POINT, C max (ISO 812, Type B specimen/ ASTM D 2137, Method A)	-40
3.12	OZONE RESISTANCE, Rating, max (FLTM BP 101-01, Method A at 20% elongation)	0
3.13	HEAT AGED (ISO 188/ASTM D 573, 150 +/- 50 air changes/h, 1000 h at 100 +/- 2 °C. Unaged property values shall be determined at the time of the aged properties determination.)	
3.13.1	Hardness Change, max	+10
3.13.2	Tensile Strength Change, % max	+10
3.13.3	Elongation Change, % max	+10