



**THERMOPLASTIC POLYESTER-ETHER ELASTOMER (TEEE),
66 DUROMETER D HARDNESS MOLDING COMPOUND**

WSK-M4D893-A1

**THERMOPLASTIC POLYESTER-ETHER ELASTOMER (TEEE),
66 DUROMETER D HARDNESS, HEAT STABILIZED
MOLDING COMPOUND**

WSK-M4D893-A2

1. SCOPE

The materials defined by these specifications are a rigid thermoplastic polyester-ether elastomer (TEEE) molding compounds, 66 durometer D hardness. WSK-M4D893-A2 material has added heat stabilisation.

2. APPLICATION

These specifications were released originally for materials used for functional automotive applications such as damping bushes, etc.

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.4 MOLDING COMPOUND

- (s) 3.4.1 Melt Flow Rate Range 10 - 15 g/10 minutes
(ISO 1133, 240 °C, 2.16 kg)

The material shall be dried for 1 h minimum at 135 °C in a mechanical convection oven immediately preceding the test.

3.5 MOLDED TEST SPECIMEN

3.5.1 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 (Tensile Bar, ISO 3167)
B. 120 x 10 x 4.0 +/- 0.2 mm

Specimens with shorter dimensions shall be cut from the center portion of the test specimen A and/or B. The specimens shall be prepared according to ISO 294. No annealing allowed.

- 3.5.2 Density 1.18 - 1.30 g/cm³
(ISO 1183, Method A)

Date	Action	Revisions
2006 06 26	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.3, 3.8, 3.9 & 4
2001 06 22	Revised	Update
1995 02 01	Released	EP00E10460360001

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	3.5.3	Hardness, Durometer D, min (ISO 868, 15 s dwell)	61
(s)	3.5.4	Tensile Strength at Yield, min (ISO R 527, 150 min x 10 x 4.0 +/- 0.2 mm specimen, 50 mm/minute test speed)	22 MPa
(s)	3.5.4.1	Elongation at Yield, min (Test Method according to para 3.4.4)	18%
(s)	3.5.5	Flexural Modulus, min (ISO 178, 80 x 10 x 4.0 +/- 0.2 mm specimen, 2 mm/minute test speed, 64 mm support span)	400 MPa
	3.5.6	Shear Modulus at 23 °C (ASTM D 4065, forced constant amplitude, fixed frequency of 1Hz +/- 15%, strain level below 1%. Specimen approx. 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 minimum)	210 - 340 MPa
	Additionally, a Shear Modulus versus Temperature curve shall be plotted for -50 to +100 °C temperature range, at 5 °C minimum intervals. The plotted curves must be within tolerance ranges shown on page 4.		
(s)	3.5.7	Impact Strength, Izod, min (ISO 180/1A, 80 x 10 x 4.0 +/- 0.2 mm specimen, 10 specimens for each test)	
	3.5.7.1	At 23 +/- 2 °C	18 kJ/m ²
	3.5.7.2	At -40 +/- 2 °C	3 kJ/m ²
	3.5.7.3	At -10 +/- 2 °C	9 kJ/m ²
	The test specimens must be conditioned for minimum of 6 h at the above specified temperature prior to impact test. Low temperature testing shall be done within the cold box.		
(s)	3.5.8	Heat Deflection Temperature, min (ISO 75, 120 x 10 x 4.0 +/- 0.2 mm specimen, 0.32 +/- 0.01 mm deflection)	
	3.5.8.1	At 1.80 MPa	45 °C
	3.5.8.2	At 0.45 MPa	105 °C
	3.5.9	Heat Aging Performance (ISO 188, except 150 +/- 50 air changes/h, WSK-M4D893-A1 - 1000 at 90 +/- 2 °C and WSK-M4D893-A2 - 1000 at 110 +/- 2 °C. Unaged property values shall be determined at the time of the aged properties determination)	