POLYETHERSULFONE (PESU), 30% GLASS FIBER REINFORCED MOLDING COMPOUND — **WSF-M4D774-A**

POLYETHERSULFONE (PESU), 30% GLASS FIBER REINFORCED MOLDING COMPOUND, REDUCED FLOW RATE — **WSF-M4D774-A2**

1. SCOPE

The materials defined by these specifications are glass fiber reinforced thermoplastic polyethersulfone molding compounds.

2. APPLICATION

These specifications were released originally for material used for speed control output pulleys.

3. REQUIREMENTS

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 COMPOUN

		A	A2
3.4.1	Melt Flow Rate, g/10 minutes (ISO 1133/ASTM D 1238, 340 °C, 5.0 kg)	10 - 17	3 - 10

The material shall be dried for 4 h minimum at 300 °C in a mechanical convection oven immediately preceding the test.

3.4.2	Glass Fiber Content (A & A2) (ISO 3451/1, Method A, 2 h at 800 +/- 25 °C)	27 - 33%

3.5 MOLDED TEST SPECIMEN

3.5.1 Preparation of Test Specimens (A & A2)

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.

Date	Action	Revisions
2006 01 30	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.3, 3.7, 3.8 & 4
1991 01 31	Released A2	DE00E00107002086 Revised 3.5.8
1990 07 11	Released	DE00E00107002060 J. B. Huebner

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3.5.2	Density (A & A2) (ISO 1183, Method A/ASTM D 792, Method A1)		1.56 - 1.62 g/cm^3
3.5.3	Tensile Strength at Max Load, min (A & A2) (ISO R 527/ASTM D 638M, 150 min x 10 x 4.0 +/- 0.2 mm specimen, 5 mm/minute)		125 MPa
3.5.4	Flexural Modulus, min (A & A2) (ISO 178/ASTM D 790M, Method I, Procedure A, 80 x 10 x 4.0 +/- 0.2 mm specimen, 64 mm support span)		6.7 GPa
		A	**A2**
3.5.5	Shear Modulus at 23 °C, GPa (ASTM D 4065, forced constant amplitude, fixed frequency of 1 Hz +/- 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).	1.54 - 2.57	1.35 - 2.25

Additionally, a Shear Modulus vs. Temperature curve shall be plotted for -50 to +250 °C temperature range, at 5 °C minimum intervals. The plotted curve must be within tolerance range shown on page 4 (WSF-M4D744-A) and 5 (WSF-M4D774-A2).

3.5.6 Impact Strength, Izod, min (A & A2)
(ISO 180, Method A/ASTM D 256, Method A, 80 x 10 x 4.0 +/- 0.2 mm specimen, 10 specimens for each test)

3.5.6.1	At 23 +/- 2 °C	5.5 kJ/m^2
3.5.6.2	At -40 +/- 2 °C	5.0 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, if not possible, test can be conducted outside, but within 5 s.

3.5.7 Heat Deflection Temperature, min (A & A2)
(ISO 75/ASTM D 648, 120 x 10 x 4.0 +/- 0.2 mm specimen)

3.5.7.1	At 1.82 MPa	210 °C
3.5.7.2	At 0.45 MPa	215 °C

3.5.8 Heat Aging Performance (A & A2)
(ISO 188/ASTM D 573, 150 +/- 50 air changes/h, 1000 h at 200 +/- 2 °C. Unaged property values shall be determined at the time of the aged properties determination)

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