



POLYURETHANE (PUR) FOAM, MICROCELLULAR, SHOCK AND VIBRATION ISOLATING

WSD-M2D411-A

1. SCOPE

The material defined by this specification is a closed-cell elastic microcellular polyurethane.

2. APPLICATION

This specification was released originally for material used for compliance bushes in tie bar mountings, and similar heavy duty shock and vibration isolation purposes.

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 APPEARANCE

The foam shall have a homogeneous microcellular cell structure with no large voids, cracks, hard spots or foreign matter which may impair the serviceability of the part or affect the load/deflection and fatigue performance.

3.5 TEST SPECIMEN

The following material properties shall be determined on specimens taken from the core 6 - 10 mm from the surface skin, unless otherwise specified. These specimens shall be free of voids, hard spots and densification lines.

3.5.1	Density, kg/m ³ (ISO 845/ASTM D 3574, Test A)	400 - 700 kg/m ³
3.5.2	Tensile Strength, min (ISO 1798/ASTM D 3574, Test E, 100 +/- 20 mm/minute test speed, 50 mm bench marks, 5 specimens minimum)	3.3 MPa
3.5.2.1	Elongation at Break, min (Test according to 3.5.2)	300%
3.5.3	Compression Set, max (ISO 1856, Method A/ASTM D 3574, Test D, ct calculation, 22 h at 70 +/- 2 °C, 50% deflection, 3 specimens minimum)	10%

Date	Action	Revisions
2004 09 20	Revised	Para 3.0 inserted; para 3.1, 3.2, 3.3, 3.6, 3.7 & 4 deleted
1991 04 22	Released	C10105850



ENGINEERING MATERIAL SPECIFICATION

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3.5.4	Compression Deflection Stress (ISO 3386/2 at 40% compression, except specimen size 50 x 50 x 25 mm and evaluation of the first deflection plot, 100 +/- 20 mm/minute test speed.)	Range	Density Compression Stress
		400 - 500 500 - 600 600 - 700	400 - 1000 800 - 1600 1200 - 2400
3.5.5	Heat Aging (ISO 2440/ASTM D 3574, Test K, 24 h at 140 +/- 2 °C)		
	Tensile Strength Change, max		-15%
	Elongation at Break Change, max		-10%
3.5.6	Humidity Aging (Autoclave) (ISO 2440/ASTM D 3574, Test J, 5 h at 120 +/- 2 °C)		
	Tensile Strength Change, max		-30%
	Elongation at Break Change, max		-20%
3.5.7	Immersion in ASTM Oil No. 1 (ISO 1817/ASTM D 471, 70 h at 100 +/- 2 °C)		
	Tensile Strength Change, max		-25%
	Elongation at Break Change, max		-15%
	Length Change, max (ISO 1923, sample 150 x 25 x 6 mm)		+/- 2%
3.5.8	Immersion in ASTM Oil No. 3 (ISO 1817/ASTM D 471, 70 h at 100 +/- 2 °C)		
	Tensile Strength Change, max		-25%
	Elongation at Break Change, max		-20%
	Length Change, max (Method as 3.5.7)		+/- 6%
3.5.9	Rebound Resilience (ASTM D 3574, Test H at 23 +/- 1 °C, specimen 100 x 100 mm plied up to 12 mm)		45 - 60%

5. GENERAL INFORMATION

The information given below is provided for clarification and assistance in meeting the requirements of this specification.

- 5.1** Color can be natural or as stated on the Engineering Drawing. Parts may be colored by dyeing to identify the hardness category into which they fall.