POLYPROPYLENE (PP) FOAM, CLOSED CELL, LOW DENSITY **WSB-M4D815-A1**

POLYPROPYLENE (PP) FOAM, CLOSED CELL, MEDIUM DENSITY **WSB-M4D815-A2**

POLYPROPYLENE (PP) FOAM, CLOSED CELL, HIGH DENSITY **WSB-M4D815-A3**

1. SCOPE

The materials defined by these specifications are closed cell polypropylene foams produced by compression molding of expanded polypropylene beads.

2. APPLICATION

These specifications were released originally for materials used as fillers in low flex modulus bumper covers for dimensional stability of the bumper surface or as an energy absorbing mechanism in place of PGMs.

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 medium sized cell structure with no large voids or solid spots which may impair the serviceability of the part.

3.5 TEST SPECIMEN

The following material properties are based on foam blocks compression molded from the same lot. All specimens shall be free from molded skin except for hardness testing. A block 900 x 600 x 50 mm is usually sufficient for all tests. Minimum physical values for each density range are based on the minimum density for that range.

		A1	A2	A3
3.5.1	Density, kg/m^3 (ISO 845/ASTM D 3574, Method A)	18 – 39	40 – 55	56 - 90
3.5.2	Tensile Strength, kPa, min (ISO 1926/ASTM D 3574, 50 mm bench marks, 5 specimen minimum)	100	200	450

Date	Action	Revisions
2006 03 21	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.3, 3.8, 3.9, 4; Corrected numbering 3.5.2.1
1992 11 03	Revised	NB00E10043064095 M.A. Myers
1992 03 12	Released	NB00I10043054164 M.A. Myers

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			A1	A2	A3
	3.5.2.1	Elongation at Break, %, min (Test acc. to 3.4.2)	2	2	2
3.5.3	Compressive Strength, kPa, min (ISO 844/ASTM D 1621, 50 x 50 x 25 mm specimen)				
	3.5.3.1	At 10% strain	25	100	150
	3.5.3.2	At 25% strain	40	150	200
	3.5.3.3	At 50% strain	90	230	300
	3.5.3.4	At 75% strain	240	480	600
3.5.4	Water Absorption, % by Volume, max (ASTM D 2842, subject specimen to a 51 mm head of water for 96 h)		8	8	8
3.5.5	Dimensional Stability, %, max		8	6	4

Test Method: A specimen approximately 300 x 300 mm in size shall be placed in a mechanical convection oven maintained at 100 +/- 2 °C for 3 h. Overall dimensional changes shall be measured after cooling down to room temperature.

3.5.6	Heat Aged (ISO 188/ASTM D 573, 150 +/- 50 air changes/h, 30 minutes at 95 +/- 2 °C test specimen as in 3.4.2)				
	3.5.6.1	Tensile Strength Change, %, max	10	10	10
3.5.7	Heat Aging Performance (A1 - A3) (ISO 188/ASTM D 573, 150 +/- 50 air changes/h, 1000 h at 80 +/- 2 °C. Unaged property values shall be determined at the time of the aged properties determination)				
	3.5.7.1	Tensile Strength Change, %, max (Test method per para 3.5.3)	25	25	25
3.5.8	Environmental Cycling (A1 - A3) (FLTM BQ 104-07, Procedure 9)				No change in appearance, color or configuration

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