



CONSTRUCTION MATERIALS

TECHNOLOGIES

LABORATORY TEST RESULTS

Report for: Momentive Performance Materials
260 Hudson River Road
Waterford, NY 12188

Attention: Errol Bull

Product Name: SSG4400	Manufacturer: Momentive Performance Materials
Date Received: January 12, 2014	Source: Momentive Performance Materials
PRI-CMT Project No.: MPM-038-02-01	Dates Tested: February 1, 2014 – Oct. 27, 2014

Purpose: Determine specification properties for *Momentive Performance Materials' SSG4400* for compliance with ASTM C 1184: *Standard Specification for Structural Silicone Sealants*. *SSG4400* is a high-modulus neutral curing structural silicone sealant, which is classified as Type M, Use G.

Test Methods: Testing was completed as described in ASTM C 1184-13: *Standard Specification for Structural Silicone Sealants*. Test methods assigned or referenced include ASTM C 603; *Standard Test Method for Extrusion Rate and Application Life of Elastomeric Sealants*, ASTM C 639: *Standard Test Method for Rheological (Flow) Properties of Elastomeric Sealants*, ASTM C 661: *Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer*, ASTM C 679: *Standard Test Method for Tack-Free Time of Elastomeric Sealants*, ASTM C 792: *Standard Test Method for Effects of Heat Aging on Weight Loss, Cracking, and Chalking of Elastomeric Sealants*, ASTM C 1135: *Standard Test Method for Determining Tensile Adhesion Properties of Structural Sealant*, ASTM C 1442: *Standard Practice for Conducting Tests on Sealants Using Artificial Weathering Apparatus*.

Sampling: Samples were provided by Momentive Performance Materials. PRI-CMT received shipment on January 12, 2014. PRI-CMT feels the product tested is representative of the material for which recognition is sought.

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Results of Testing:

ASTM C 1184


Property	Test Method	Result	Requirement
Sealant Physical Property Requirements			
Rheological Properties (in) 1 specimen; 3/4" x 1/2" x 6"; Type IV Cond. sealant 16h @ 73.4±3.6°F & 50±5%RH; Cond. channel 2h @ Temp; Test Cond. 4h @ Temp	ASTM C 639		
Vertical Slump at 40±3.6°F		1/16	≤ 3/16
Vertical Slump at 122±3.6°F		1/16	≤ 3/16
Horizontal Slump at 40±3.6°F		Pass	No deformation
Horizontal Slump at 122±3.6°F		Pass	No deformation
Extrudability (s) 1 specimen; Cond. sealant 16h @ 73.4±3.6°F & 50±5%RH; Test Cond. @ 73.4±3.6°F & 50±5%RH; Extruded immediately from cartridge Test with no nozzle @ 50psi	ASTM C 603		
Extrusion Rate		2	≤ 10
Hardness (Shore A) 2 specimens; 5" x 1-1/2" x 1/4"; 3 measurement readings per specimen (6 total); Cond. 7d @ 73.4±3.6°F & 50±5%RH followed by; Cond. 7d @ 100±3.5°F & 95%RH followed by; Cond. 7d @ 73.4±3.6°F & 50±5%RH; Test Cond. 73.4±3.6°F & 50±10%RH; Test Durometer, Type A-2	ASTM C 661		
Indentation Hardness		38	20-60
Effects of Heat Aging 3 specimens; 5" x 1-1/2" x 1/4"; Cond. 7d @ 73.4±3.6°F & 50±5%RH; Cond. 21d @ 88±5°C	ASTM C 792		
Weight Loss(%)		2	≤ 10
Visual examination for presence of cracks or chalking		Pass	No cracking or chalking
Tack-Free Time [Pass/Fail] Test Cond. 73.4±3.6°F & 50±5%RH	ASTM C 679		
Tack-Free Time		Pass	No transfer in 3h
<i>Continued on Following Page</i>			

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Property	Test Method	Result	Requirement
Tensile Adhesion (psi) 5 specimens per condition; 3/8" x 1/2" x 2"; Substrate float glass; Cure 21d @ 73.4±3.6°F and 50±5%RH; Rate = 12.7mm/min Condition as follows:	ASTM C 1184		
Standard conditions		123	≥ 50
Cond. 1h @ 88±5°C		89	≥ 50
Cond. 1h @ -29±2°C		178	≥ 50
Cond. 7d immersed in DI water @ 23±2°C		124	≥ 50
Cond. 5,000h UV/Con	ASTM C 1442 Sec. 7.3	95	≥ 50

Statement of Attestation:

The results of testing were determined in accordance with ASTM C 1184: *Standard Specification for Structural Silicone Sealants* as described herein. The laboratory test results presented in this report are representative of the material supplied.

Signed: 
 Bill Bennett
 Laboratory Technician

Signed: 
 Jason Simmons
 Director

Date: November 7, 2014

Date: November 7, 2014

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	11/07/2014	8	NA

APPENDIX ATTACHED

MPM-038-02-01 PRI-CMT Accreditations: IAS TL-189; Miami-Dade 11-0429.05; Florida TST5878; Los Angeles TA24819; CRRC
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Appendix A: Data for Tensile Adhesion

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Method description
 ASTM C 1135/1184 Tensile Adhesion
 ID 011-1

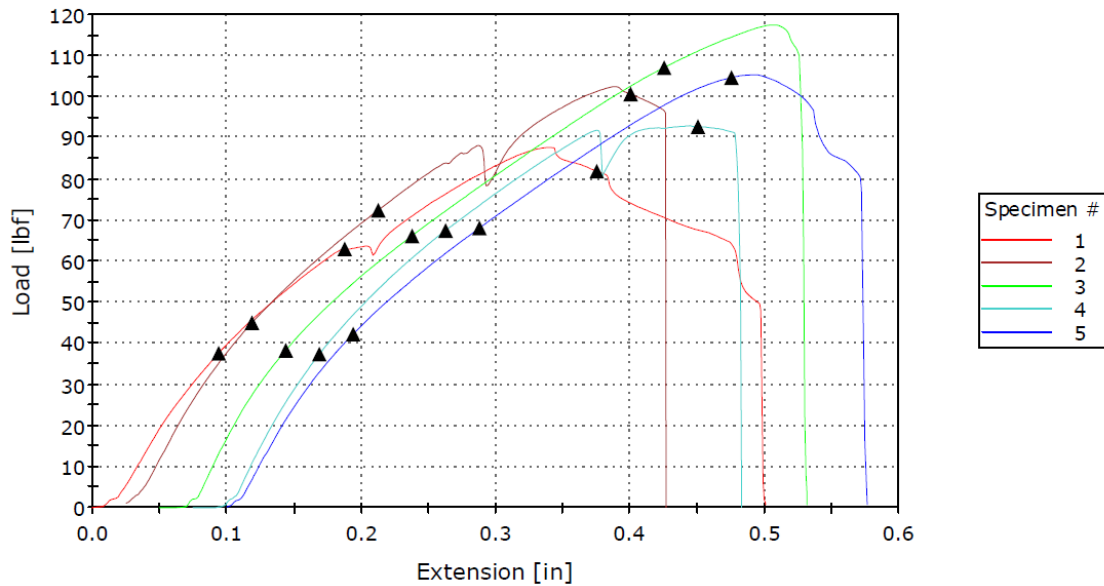
Client Name / Product Identification
 Momentive Performance Materials
 SSG4400

Project Number
 MPM-038-02-01

Conditioning / Weathering
 Standard conditions

Additional Notes
 Technician - BB

Specimen 1 to 5



	Tensile stress at Maximum Load [psi]	Tensile strain (Extension) at Maximum Load [%]	% Cohesive Failure	Maximum Load [lbf]	Area [in ²]	Thickness [in]	Width [in]	Crosshead Speed [in/min]
1	109.747	90.480	100	87.743	0.79950	0.410	1.950	0.50
2	121.593	96.925	100	102.479	0.84280	0.430	1.960	0.50
3	146.129	121.827	100	117.487	0.80400	0.400	2.010	0.50
4	104.829	98.449	100	92.931	0.88650	0.450	1.970	0.50
5	132.369	104.892	100	105.365	0.79600	0.400	1.990	0.50
Mean	122.933	102.515		101.201	0.82576	0.418	1.976	0.50
Standard deviation	16.811	11.950		11.551	0.039	0.022	0.024	0.000

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Method description
 ASTM C 1135/1184 Tensile Adhesion
 ID 011-1

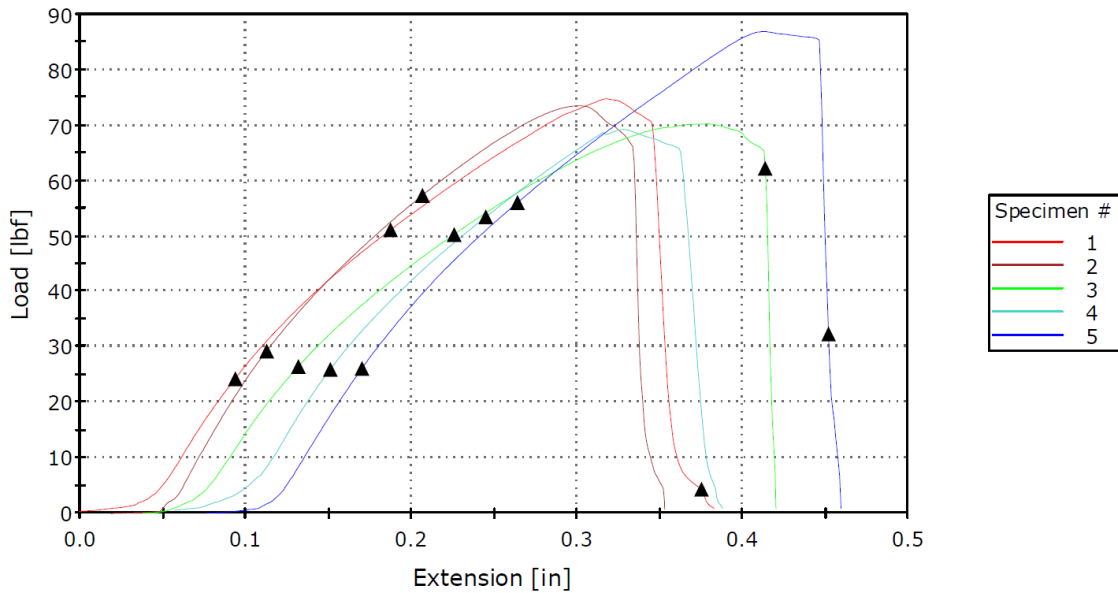
Client Name / Product Identification
 Momentive Performance Materials
 SSG4400

Project Number
 MPM-038-02-01

Conditioning / Weathering
 1h @ 88C

Additional Notes
 Technician - BB

Specimen 1 to 5



	Tensile stress at Maximum Load [psi]	Tensile strain (Extension) at Maximum Load [%]	% Cohesive Failure	Maximum Load [lbf]	Area [in ²]	Thickness [in]	Width [in]	Crosshead Speed [in/min]
1	86.199	84.701	100	74.717	0.86680	0.440	1.970	0.50
2	86.706	75.160	100	73.449	0.84710	0.430	1.970	0.50
3	88.610	90.928	100	70.179	0.79200	0.400	1.980	0.50
4	86.530	72.263	100	69.224	0.80000	0.400	2.000	0.50
5	98.462	90.036	100	86.794	0.88150	0.430	2.050	0.50
Mean	89.301	82.618		74.873	0.83748	0.420	1.994	0.50
Standard deviation	5.207	8.533		7.038	0.040	0.019	0.034	0.000

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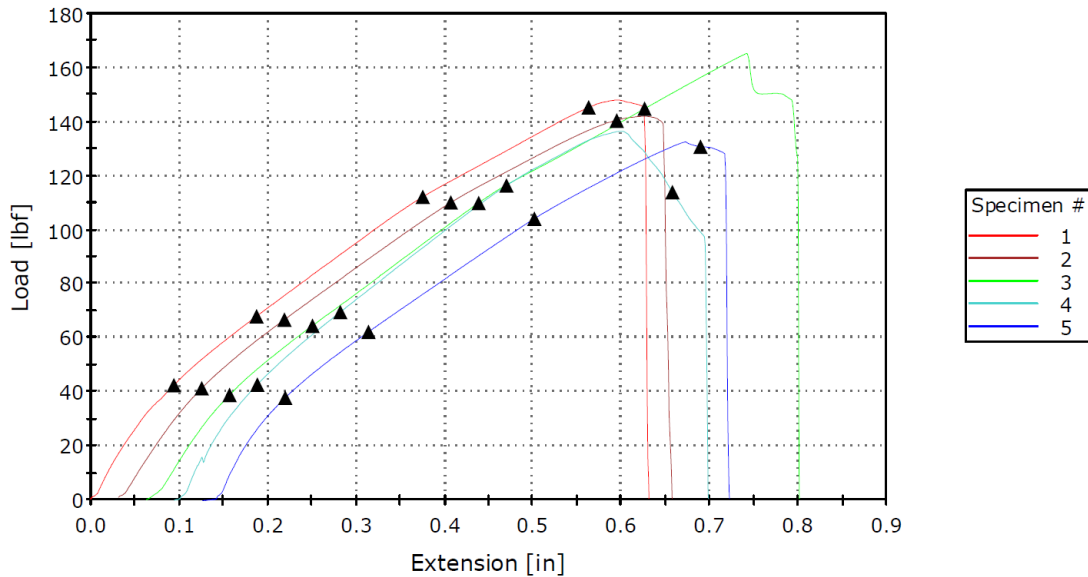
Client Name / Product Identification
 Momentive Performance Materials
 SSG4400

Project Number
 MPM-038-02-01

Conditioning / Weathering
 1h @ -29C

Additional Notes
 Technician - BB

Specimen 1 to 5



	Tensile stress at Maximum Load [psi]	Tensile strain (Extension) at Maximum Load [%]	% Cohesive Failure	Maximum Load [lbf]	Area [in ²]	Thickness [in]	Width [in]	Crosshead Speed [in/min]
1	178.771	158.227	100	147.915	0.82740	0.420	1.970	0.50
2	171.570	158.480	100	141.957	0.82740	0.420	1.970	0.50
3	210.839	180.791	100	165.108	0.78310	0.410	1.910	0.50
4	161.950	134.262	100	136.491	0.84280	0.430	1.960	0.50
5	164.911	145.338	100	132.522	0.80360	0.410	1.960	0.50
Mean	177.608	155.401		144.799	0.81686	0.418	1.954	0.50
Standard deviation	19.675	17.362		12.747	0.024	0.008	0.025	0.000

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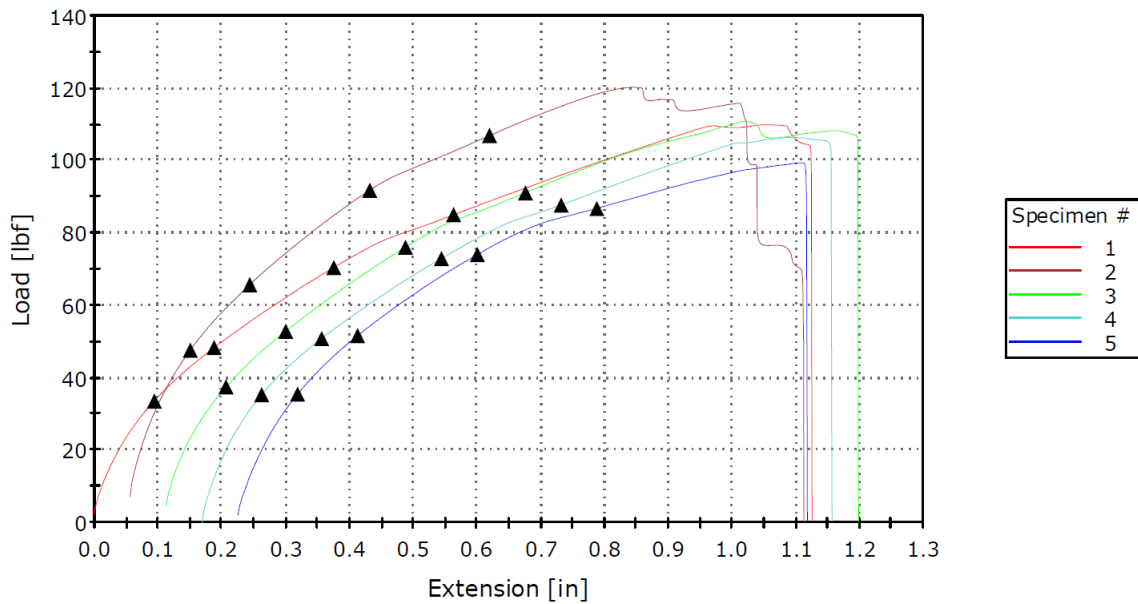
Client Name / Product Identification
 Momentive Performance Materials
 SSG4400

Project Number
 MPM-038-02-01

Conditioning / Weathering
 7d immersed in DI water

Additional Notes
 Technician - BB

Specimen 1 to 5



	Tensile stress at Maximum Load [psi]	Tensile strain (Extension) at Maximum Load [%]	% Cohesive Failure	Maximum Load [lbf]	Area [in ²]	Thickness [in]	Width [in]	Crosshead Speed [in/min]
1	131.681	280.924	100	109.848	0.83420	0.430	1.940	0.50
2	118.389	209.818	100	120.153	1.01490	0.510	1.990	0.50
3	129.484	243.146	100	110.799	0.85570	0.430	1.990	0.50
4	126.672	244.257	100	106.404	0.84000	0.420	2.000	0.50
5	115.857	235.591	100	99.405	0.85800	0.440	1.950	0.50
Mean	124.416	242.747		109.322	0.88056	0.446	1.974	0.50
Standard deviation	6.949	25.473		7.527	0.076	0.036	0.027	0.000

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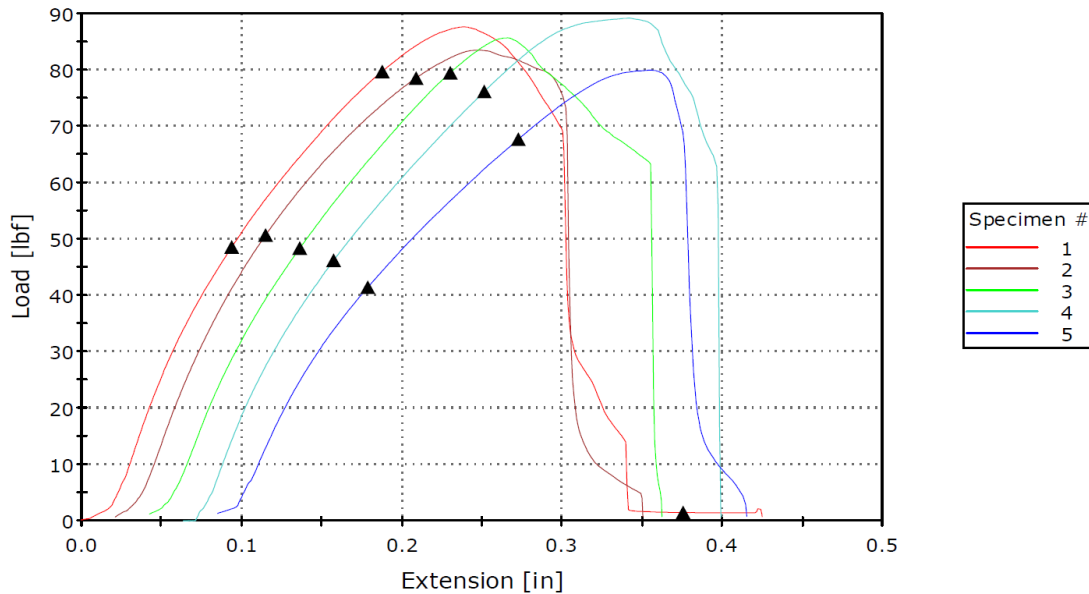
Client Name / Product Identification
 Momentive Performance Materials
 SSG4400

Project Number
 MPM-038-02-01

Conditioning / Weathering
 5000h UV/Con

Additional Notes
 Technician - BB

Specimen 1 to 5



	Tensile stress at Primer point (Tensile strain (Extension) 25 %) [psi]	Tensile stress at Primer point (Tensile strain (Extension) 50 %) [psi]	Tensile stress at Primer point (Tensile strain (Extension) 100 %) [psi]	Tensile stress at Primer point (Tensile strain (Extension) 150 %) [psi]	Tensile stress at Maximum Load [psi]	Tensile strain (Extension) at Maximum Load [%]	% Cohesive Failure	Maximum Load [lbf]	Area [in ²]	Thickness [in]	Width [in]	Crush Speed [in/min]
1	62,578	69,131	74,818	79,499	84,685	63.783	100	87,591	0.92507	0.463	1.998	0.50
2	62,218	69,788	74,818	79,499	84,685	66.672	100	83,462	0.97208	0.467	1.998	0.50
3	62,004	69,773	74,818	79,499	84,685	59.860	100	85,827	0.91881	0.461	1.978	0.50
4	59,500	66,856	71,818	76,499	81,685	74.008	100	89,137	0.93039	0.423	1.962	0.50
5	69,011	76,934	81,818	86,499	91,685	72.005	100	79,931	0.84727	0.423	2.003	0.50
Mean	62,266	69,699	74,818	79,499	84,685	66.005		85,152	0.89972	0.452	1.991	0.50
Standard deviation	2.222	4.525	-----	-----	7.329	6.613		3.616	0.056	0.028	0.011	0.000

END OF REPORT

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