PRI Construction Materials Technologies LLC

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Laboratory Test Report

Report for:	Kelly Allore Dow Silicones Corporation 2200 West Salzburg Road Midland, Michigan 48686
Product Name:	DOWSIL™ 890-SL Silicone Joint Sealant
Project No.:	DCC-527-02-01
Dates Tested:	May 9, 2018 – January 14, 2019
Test Methods:	ASTM D5893
Results Summary:	Compliant: ASTM D5893 Section 6 – Physical Requirements

Purpose:

Evaluate the liquid sealant for specification properties in accordance with ASTM D 5893: *Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements*.

The product is a one-part self-leveling silicone sealant for concrete to concrete pavement joints.

Test Methods:

Testing was completed as described in ASTM D 5893/D5893M-10: *Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements*. Test methods assigned or referenced include 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 793: *Standard Test Method for Effects of Laboratory Accelerated Weathering on Elastomeric Joint Sealants*, ASTM C 1183: *Standard Test Method for Extrusion Rate of Elastomeric Sealants,* ASTM D 412: *Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension,* ASTM D 2202: *Standard Test Method for Slump of Sealants* and ASTM D 5329: *Standard Test Methods for Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements.*

Sampling:

The following materials were received by PRI:

Product	Source	Date	Sampling
DOWSIL™ 890-SL Silicone Joint Sealant	Shepherdsville, KY	January 31, 2019	Dow Silicones Corporation

Results:

Property	Test Method	Result[1]	Requirement
Cure Evaluation [*Pass/Fail*] 1 specimen; 1/2" x 1/2" x 2"; Cure specimen 21d+4h @ 73.4±3.6°F & 50±5%RH;	ASTM D 5893 Sec. 9.1	Pass	No presence of any uncured material
Rheological Properties 1 specimen; ¾" x ½" x 6"; Cond. sealant 16-24h @ 40±3.6°F			
Type NS – Slump (mm)	ASTM D 2202	NA	≤ 7.6
Type SL – Type III [*Pass/Fail*]	ASTM C 639	Pass	Smooth, level with no bubbling
Extrusion Rate 1 specimen; Cond. sealant 16h @ 73.4±3.6°F & 50±5%RH; Test Cond. @ 73.4±3.6°F & 50±5%RH Test with polyethylene nozzle @ 40psi for 60s	ASTM C 1183 Procedure A		
Specific Gravity		1.3	Report
Extrusion Rate (ml/min)		45	≥ 20
Tack-Free Time (min) 1 specimen; Test Cond. 73.4±3.6°F & 50±5%RH	ASTM C 679	60	≤ 310
Effects of Heat Aging (%) 2 specimens; 5" x 1-1/2" x 1/4"; Cure 7d @ 73.4±3.6°F & 50±5%RH; Test Cond. 21d @ 158±3.6°F	ASTM C 792		
Percent Weight Loss		1	≤ 10
Visual Examination for presence of cracks or chalking		Pass	No cracking or chalking
Bond *[Pass/Fail]* 3 specimens per condition; 1/2" x 1/2" x 2"; Substrate – unprimed concrete Cure 21d+4h @ 73.4±3.6°F and 50±5%RH; Test 5 cycles; Rate 1/8 in/h Extension ½"	ASTM D 5893/ ASTM D 5329		
Non-Immersed Bond Tested @ -29+1°C		Pass	No crack, separation, or other opening
Water Immersed Bond 96h immersed @ 73.4±3.6°F Tested @ -29+1°C		Pass	No crack, separation, or other opening
Oven-Aged Bond Test Condition 7d+2h @ 70+1°C Tested @ -29+1°C		Pass	No crack, separation, or other opening
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Property	Test Method	Result[1]	Requirement
Hardness *[dimensionless]* 2 specimens; 5” x 1-1/2” x 1/4”; 3 measurement readings per specimen (6 total); Cure. 21d @ 73.4±3.6°F & 50±5%RH	ASTM C 661		
Cond. 2h @ -29+1°C (Durometer Type A-2)		15	≤ 25
Cond. 23+2°C (Durometer Type 00)		39	≥ 30
Flow *[Pass/Fail]* 1 specimens; 40mm x 60mm x 3.2mm; Cure. 21d @ 73.4±3.6°F & 50±5%RH; Test Cond 72+0.5h @ 200+2°F	ASTM D5893/ ASTM D 5329	Pass	No flow
Ultimate Elongation (%) 5 specimens; Die C; Rate 20in/min; Cure 21d+4h @ 73.4±3.6°F & 50±5%RH Tested @ 73.4±3.6°F & 50±5%RH;	ASTM D 412 Method A	> 1,000	≥ 600
Tensile Stress @ 150% Elongation (psi) 5 specimens; Die C; Rate 20in/min Tested @ 73.4±3.6°F & 50±5%RH;	ASTM D 412 Method A	15	≤ 45
Effects of Accelerated Weathering *[Pass/Fail]* 3 specimens; 5” x 1-1/2” x 1/8”; Cure 72h @ 73.4±3.6°F and 50±5%RH; Test Cond. 5000h ASTM G 154, Cycle 1; Test Cond. 24h @ -15±3.6°F Test 180° around 1/2" ø mandrel in 1s @ -15°F	ASTM C 793		
Visual Inspection for cracking after accelerated weathering		Pass	Pass
Visual Inspection for cracking after cold exposure and low temperature bend		Pass	Pass
Resilience (%) 1 specimen; 6 oz.; Cure 21d+4h @ 73.4±3.6°F & 50±5%RH; Test Cond 7d + 2h @ 158+2°F Tested @ 73.4±3.6°F & 50±5%RH;	ASTM D5893/ ASTM D 5329	86	≥ 75

Notes: 1 – Ultimate elongation testing reached the limits of the apparatus. Results are reported as greater than 1,000% (> 1,000) which is the limit of the apparatus.

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Statement of Attestation:

The product tested complies with the specification properties within ASTM D 5893: *Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements*. The product was evaluated as a self-leveling, single component silicone sealant. The laboratory test results presented in this report are representative of the material supplied.

Signed: _____

Jason Simmons
Director

Date: May 13, 2019

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	01/31/2019	4	NA
Revision	5/31/2019	4	Editorial
Revision	5/31/2019	4	Added footnote 1 to Results Table

END OF REPORT

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