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-530-02-01
Dates Tested:	August 7, 2018 – October 15, 2018
Test Methods:	ASTM C 920
Results Summary:	Compliant: ASTM C 920: Type S, Grade P, Class 100/50, Use O (portland cement concrete)

Purpose:

Determine specification properties of the identified product for compliance with ASTM C 920: *Standard Specification for Elastomeric Joint Sealants*.

The product is a self-leveling silicone joint sealant for concrete pavement joints.

Test Methods:

Testing was completed as described in ASTM C 920-18: *Standard Specification for Elastomeric Joint Sealants*. Test methods assigned or referenced include ASTM C 510; *Standard Test Method for Staining and Color Change of Single or Multicomponent Joint 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 719: *Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle),* ASTM C 793: *Standard Test Method for Effects of Laboratory Accelerated Weathering on Elastomeric Joint Sealants*, ASTM C 794: *Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants*, ASTM C 1183: *Standard Test Method for Extrusion Rate of Elastomeric Sealants* and ASTM C 1246: *Standard Test Method for Effects of Heat Aging on Weight Loss, Cracking, and Chalking of Elastomeric Sealants After Cure*, and ASTM C 1442: *Practice for Conducting Tests on Sealants Using Artificial Weathering*

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[1,2]	Requirement
Rheological Properties (in) 1 specimen; 3/4" x 1/2" x 6"; Type I 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		NA	≤ 3/16
Vertical Slump at 122±3.6°F		NA	≤ 3/16
Horizontal Slump at 40±3.6°F		Pass	Shall exhibit a smooth, level surface
Horizontal Slump at 122±3.6°F		NA	No deformation
Extrusion Rate (ml/min) 1 specimen; Cond. sealant 16h @ 73.4±3.6°F & 50±5%RH; Specific Gravity of complete (ASTM D 1475) Test Cond. @ 73.4±3.6°F & 50±5%RH Test with plastic nozzle @ 40psi for 60s	ASTM C 1183 Procedure A		
Specific Gravity	ASTM D 1475	1.3	Report
Extrusion Rate		45	≥ 10
Application Life – Type M, Grade P ONLY (mL/min) 1 specimen; Cond. sealant 16h @ 73.4±3.6°F & 50±5%RH; Test Cond. 3h @ 73.4±3.6°F & 50±5%RH Test with plastic nozzle @ 40psi for 60s	ASTM C 1183 Procedure A	NA	
Specific Gravity	ASTM D 1475		Report
Extrusion Rate 5 min after mixing			≥ 10
Hardness (hardness reading) 2 specimens; 5" x 1-1/2" x 1/4"; 3 measurement readings per specimen (6 total); Cond. 21d @ 73.4±3.6°F & 50±5%RH followed by; Test Cond. 73.4±3.6°F & 50±10%RH; Test Durometer, Type A-2	ASTM C 661		
Indentation Hardness		7	< 60

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Property	Test Method	Result[1,2]	Requirement
Effects of Heat Aging (%) 3 specimens; 5” x 1-1/2” x 1/4”; Cure 28d @ 73.4±3.6°F & 50±5%RH; Test Cond. 21d @ 158±3.6°F	ASTM C 1246		
Percent Weight Loss		0.4	≤ 7
Visual Examination for presence of cracks or chalking		Pass	No cracking or chalking
Tack-Free Time (h) 2 specimens; 3-3/4” x 1” x 1/8”; Test Cond. 73.4±3.6°F & 50±5%RH; Test @ 72h	ASTM C 679	1	≤ 72
Stain and Color Change *[Pass/Fail]* 3 specimens; 5” x 1-1/2” x 1/4”; Cond. 24h @ 73.4±3.6°F & 50±5%RH; Test 100h ASTM G 154, Cycle 1 Test 14d at 73.4±3.6°F & 50±5%RH w/ immersion daily	ASTM C 510		
Visual Inspection for stain and color change		Pass	No visible stain or color change
Adhesion and Cohesion Under Cyclic Movement (in^2) 3 specimens; 1/2” x 1/2” x 2”: Movement +100%/-50% Cure 21d @ 73.4±3.6°F and 50±5%RH followed by; Test Cond. 7d Water Immersion @ 73.4±3.6°F; Test Cond. 7d Compressed @ 158°F; Test 10 cycles at 73.4±3.6°F; Rate 1/8 in/h; Test 10 cycles with compression at 158±3.6°F followed by extension at -15±3°F; Rate 1/8”/h	ASTM C 719		
Aggregate loss in bond and cohesion Large aggregate concrete substrate unprimed		0	≤ 1-1/2
Aggregate loss in bond and cohesion Small aggregate concrete substrate unprimed		1	≤ 1-1/2
Adhesion-in-Peel (lbf) 4 specimens; 1” x 1/16”; Cure 21d @ 73.4±3.6°F and 50±5%RH followed by; Immersed in distilled water for 7d @ 73.4±3.6°F Test Cond. 73.4±3.6°F & 50±5%RH; Rate 2.0”/min	ASTM C 794		
Adhesion-in-Peel Concrete substrate unprimed	*Pre-immersion*	17.1	≥ 5
	Post-immersion	14.3	

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Property	Test Method	Result[1,2]	Requirement
Adhesion-in-Peel exposed to UV through glass (lbf) 4 specimens; 1" x 1/16"; Cure 21d @ 73.4±3.6°F and 50±5%RH followed by; Test Cond. 200h ASTM G 154, Cycle 1 Immersed in distilled water for 7d @ 73.4±3.6°F Test Cond. 73.4±3.6°F & 50±5%RH; Rate 2.0"/min	ASTM C 794/ ASTM C1442		
Adhesion-in-Peel UV through glass unprimed		14	≥ 5
Effects of Accelerated Weathering *[Pass/Fail]* 3 specimens; 5" x 1-1/2" x 1/4"; Cure 21d @ 73.4±3.6°F and 50±5%RH; Test Cond. 250h ASTM G 154, Cycle 1; Test Cond. 24h @ -15±4°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

Notes: 1 – NA represents "Not Applicable"
2 – All specimens for peel adhesion exhibited less than 25% adhesive failure.

Statement of Compliance:

The product tested complies with the physical requirements specified in ASTM C 920-28: *Standard Specification for Elastomeric Joint Sealants*. The laboratory test results presented in this report are representative of the material supplied.

Limits of Use: Refer to page 1 results summary for class of movement and for qualified substrates.

Signed: 

Jason Simmons
Director

Date: January 31, 2019

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	01/31/2019	4	NA

END OF REPORT