



# PRI Construction Materials Technologies LLC

6412 Badger Drive

Tampa, FL 33610

813.621.5777

<https://www.pri-group.com/>

## Laboratory Test Report

**Report for:** Kelly Allore  
Dow Silicones Corporation  
2200 West Salzburg Road  
Midland, Michigan 48686

**Product Name:** DOWSIL™ 790 Silicone Building Sealant

**Project No.:** DCC-508-02-01

**Dates Tested:** April 10, 2018 – February 6, 2019

**Test Methods:** ASTM C 920

**Results Summary:** Compliant: ASTM C 920:  
Type S, Grade NS, Class +100 / -50, Use M, G, A, O(Kynar))

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

The product is a n ultra-low modulus silicone joint sealant.

**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.

<u>Product</u>	<u>Source</u>	<u>Date</u>	<u>Sampling</u>
DOWSIL™ 790 Silicone Building Sealant Lot Number 0009621623	Tampa, FL	April 3, 2018	PRI-CMT

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**Results:**

Property	Test Method	Result <sup>1,2</sup>	Requirement
Rheological Properties (in) 1 specimen; 3/4" x 1/2" x 6"; Type II 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		~ 0	≤ 3/16
Vertical Slump at 122±3.6°F		~ 0	≤ 3/16
Horizontal Slump at 40±3.6°F		Pass	No deformation
Horizontal Slump at 122±3.6°F		Pass	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	1.5	Report
Extrusion Rate		39	≥ 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		26	< 60

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Property	Test Method	Result <sup>1,2</sup>	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		0.3	≤ 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 <sup>2</sup> ) 3 specimens; 1/2" x 1/2" x 2": Movement +100% / -50% Cure 7d @ 73.4±3.6°F and 50±5%RH followed by; Cure 7d @ 122±3.6°F and 95±5%RH followed by; Cure 7d @ 122±3.6°F 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 Concrete mortar substrate unprimed		0	≤ 1-1/2
Aggregate loss in bond and cohesion Glass substrate unprimed		0	≤ 1-1/2
Aggregate loss in bond and cohesion Anodized Aluminum substrate primed (DOWSIL™ Primer 1200 OS)		0	≤ 1-1/2
Aggregate loss in bond and cohesion Kynar substrate primed (DOWSIL™ Primer C-OS)		0	≤ 1-1/2

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Property	Test Method	Result <sup>1,2</sup>	Requirement
Adhesion-in-Peel (lbf) 4 specimens; 1" x 1/16"; Cure 7d @ 73.4±3.6°F and 50±5%RH followed by; Cure 7d @ 122±3.6°F and 95±5%RH followed by; Cure 7d @ 122±3.6°F 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 mortar substrate unprimed	<i>Post-immersion</i>	19	≥ 5
Adhesion-in-Peel Glass substrate unprimed	<i>Post-immersion</i>	21	≥ 5
Adhesion-in-Peel Anodized Aluminum substrate primed (DOWSIL™ Primer 1200 OS)	<i>Post-immersion</i>	21	≥ 5
Adhesion-in-Peel Kynar substrate primed (DOWSIL™ Primer C-OS)	<i>Post-immersion</i>	20	≥ 5
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		22	≥ 5
Effects of Accelerated Weathering [ <i>Pass/Fail</i> ] 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" ∅ 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.

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**Statement of Compliance:**

The product tested complies with the physical requirements specified in ASTM C 920-18: *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:**

\_\_\_\_\_  
July 12, 2019

**Report Issue History:**

Issue #	Date	Pages	Revision Description (if applicable)
Original	4/23/2019	5	NA
1	7/12/2019	5	Clarification of primer name

**END OF REPORT**

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