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Laboratory Test Report

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

Product Name: DOWSIL™ 888 Silicone Joint Sealant

Project No.: DSC-007-02-01

Dates Tested: Mar. 29, 2019 - Dec. 31, 2019

Test Methods: ASTM D 5893

Results Summary: Compliant: ASTM D 5893 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, cold applied, non-sag silicone sealant.

Test Methods: Testing was completed as described in ASTM D 5893/D 5893M-16: *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 purchased by PRI:

| <u>Product</u> | <u>Source</u> | <u>Date</u> | <u>Sampling</u> |
|------------------------------------|--------------------|---------------|---------------------------|
| DOWSIL™ 888 Silicone Joint Sealant | Shepherdsville, KY | Mar. 15, 2019 | Dow Silicones Corporation |

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Results:

| Property | Test Method | Result ¹ | Requirement |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|----------------------------------------|
| Cure Evaluation [<i>Pass/Fail</i>] 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; 3/4" x 1/2" x 6"; Cond. sealant 16-24h @ 40±3.6°F | | | |
| Type NS – Slump (mm) | ASTM D 2202 | 0 | ≤ 7.6 |
| Type SL – Type III [<i>Pass/Fail</i>] | ASTM C 639 | NA | 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 | | 1.5 | Report |
| Extrusion Rate (ml/min) | | 42 | ≥ 20 |
| Tack-Free Time (min) 1 specimen; Test Cond. 73.4±3.6°F & 50±5%RH | ASTM C 679 | 45 | ≤ 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 | | 0.2 | ≤ 10 |
| Visual Examination for presence of cracks or chalking | | Pass | No cracking or chalking |
| Bond [<i>Pass/Fail</i>] 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 1/2" | 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 |
| <i>Continued on following page</i> | | | |

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| Property | Test Method | Result ¹ | Requirement |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|-------------|
| Hardness [<i>dimensionless</i>] 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) | | 10 | ≤ 25 |
| Cond. 23+2°C (Durometer Type 00) | | 66 | ≥ 30 |
| Flow [<i>Pass/Fail</i>] 1 specimen; 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 D 5893/ 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 | >2,127 | ≥ 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 | 26 | ≤ 45 |
| Effects of Accelerated Weathering [<i>Pass/Fail</i>] 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 D 5893/ ASTM D 5329 | 82 | ≥ 75 |

Notes: 1 – Ultimate elongation testing reached the limits of the apparatus. Results are reported as greater than 2,127% (> 2,127) 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 non-sag, single component silicone sealant. The laboratory test results presented in this report are representative of the material supplied.

Signed: 
Brent Barbeau
Manager

Date: Jan. 14, 2020

Report Issue History:

| Issue # | Date | Pages | Revision Description (if applicable) |
|----------|---------------|-------|--------------------------------------|
| Original | Jan. 14, 2020 | 4 | NA |

END OF REPORT

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