

DOW SILICONES CORPORATION TEST REPORT

SCOPE OF WORK

ASTM C1184 EVALUATION OF DOWSIL™ 121 STRUCTURAL GLAZING SEALANT

REPORT NUMBER

S5953.01-106-31 R1

TEST DATES

05/28/25 - 02/04/26

ISSUE DATE

09/25/25

REVISED DATE

02/06/26

RECORD RETENTION END DATE

02/04/30

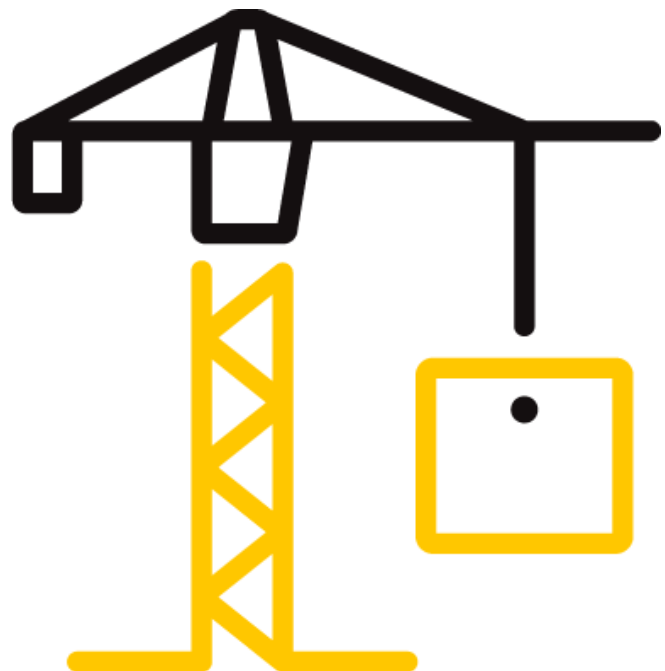
PAGES

13

DOCUMENT CONTROL NUMBER

RT-R-AMER-Test-2827 (07/12/22)

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TEST REPORT FOR DOW SILICONES CORPORATION

Report No.: S5953.01-106-31 R1

Date: 09/25/25 Revised Date: 02/06/26

REPORT ISSUED TO

DOW SILICONES CORPORATION

2200 West Salzburg Road
Auburn, Michigan 48611

SECTION 1

SCOPE

Products: DOWSIL™ 121 Structural Glazing Sealant

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Dow Silicones Corporation to evaluate DOWSIL™ 121 Structural Glazing Sealant in general accordance with ASTM C1184. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at the Intertek B&C test facility in York, Pennsylvania, and at the Dow Silicones Corporation in Auburn, Michigan.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

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For INTERTEK B&C:

COMPLETED BY:	J. Rich Hammons	REVIEWED BY:	Dawn M. Chaney
TITLE:	Technician Team Lead Materials Laboratory	TITLE:	Laboratory Supervisor Materials Laboratory
SIGNATURE:		SIGNATURE:	
DATE:	02/06/26	DATE:	02/06/26

JRH:dmc/kae

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SECTION 2

SUMMARY OF TEST RESULTS

TEST	REQUIREMENT	RESULT
ASTM C639 - Rheological Flow 4.4 ±2°C (40 ±3.6°F)	Vertical: ≤3/16 in. Horizontal: no deformation	Vertical: <1/16 in. Horizontal: no deformation
ASTM C639 - Rheological Flow 50 ±2°C (122 ±3.6°F)	Vertical: ≤3/16 in. Horizontal: no deformation	Vertical: <1/16 in. Horizontal: no deformation
ASTM C603 - Extrudability	≤10 seconds	5 seconds
ASTM C661 - Hardness	20-60	42
ASTM C792 - Heat Aging	≤10% weight loss	2.62%
ASTM C679 - Tack-Free Time	≤3 hours (180 minutes)	45 minutes
ASTM C1135 - Tensile Adhesion Standard Conditions	≥50 psi	116 psi
ASTM C1135 - Tensile Adhesion 88°C (190°F)	≥50 psi	97.0 psi
ASTM C1135 - Tensile Adhesion -29°C (-20°F)	≥50 psi	137 psi
ASTM C1135 - Tensile Adhesion Water Immersion	≥50 psi	116 psi
ASTM C1135 - Tensile Adhesion 5,000 hours QUV Weathering	≥50 psi	101 psi

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SECTION 3

TEST METHODS

The specimens were evaluated in general accordance with the following:

ASTM C1184-23, *Standard Specification for Structural Silicone Sealants*

ASTM C639-24, *Standard Test Method for Rheological (Flow) Properties of Elastomeric Sealants*

ASTM C603-14 (Reapproved 2019), *Standard Test Method for Extrusion Rate and Application Life of Elastomeric Sealants*

ASTM C661-15 (Reapproved 2022), *Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer*

ASTM C792-23, *Standard Test Method for Effects of Heat Aging on Weight Loss, Cracking, and Chalking of Elastomeric Sealants*

ASTM C679-15 (Reapproved 2022), *Standard Test Method for Tack-Free Time of Elastomeric Sealants*

ASTM C1135-19 (Reapproved 2024), *Standard Test Method for Determining Tensile Adhesion Properties of Structural Sealants*

SECTION 4

MATERIAL SOURCE

The materials were selected at Dow Silicones Corporation located in Midland, Michigan and specimen preparation was witnessed by Intertek B&C personnel. Batch numbers for DOWSIL™ 121 Structural Glazing Sealant a 2-Part sealant; LOT: H050P1L001; Expiration Date: 2025.10.11 color Black. Reference the product description photos in Section 10. The material was tested as received. Test specimens will be retained by Intertek B&C for a minimum of four years from the test completion date.

SECTION 5

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Austin Hlinka	Dow Silicones Corporation
Joseph M. Brickner	Intertek B&C
J. Rich Hammons	Intertek B&C
Dawn M. Chaney	Intertek B&C

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SECTION 6**TEST PROCEDURES**

All conditioning of test specimens and test conditions were at standard laboratory conditions, unless otherwise reported. Refer to the test related photos in Section 10. Calibration certificates are available upon request.

General Deviation to Test Procedures

The multi-component sealant was mixed using a swizzle mixing nozzle, not by hand and dispensed immediately as instructed in the following methods.

ASTM C639 - Rheological Flow

The sealant was determined to be Type IV based on the guidelines of ASTM C639. Two stainless steel channels open on the ends (vertical testing) and two stainless steel channels closed on the ends (horizontal testing) were filled with sealant. One channel was placed vertically, and one channel was placed horizontally into a refrigerator maintained at $4.4 \pm 2^{\circ}\text{C}$ ($40 \pm 3.6^{\circ}\text{F}$) for a period of 4 hours. One channel was placed vertically, and one channel was placed horizontally into an oven maintained at $50 \pm 2^{\circ}\text{C}$ ($122 \pm 3.6^{\circ}\text{F}$) for a period of 4 hours. At the end of the 4-hour period, the specimens were removed from their conditioning chambers and observed for any flow on the lower edge. Testing was performed at Dow Silicones Corporation in Auburn, Michigan.

ASTM C603 - Extrudability

A 177 mL (6 fl oz) cartridge was filled with the sealant and then placed into an EFD Ultra 2400 Series dispenser which expelled the sealant with 50 psi of pressure out the end of the cartridge with no nozzle. The rate of extrusion was determined. Testing was performed at Dow Silicones Corporation in Auburn, Michigan.

ASTM C661 - Hardness

Two specimens were prepared by filling a brass frame of internal dimensions measuring 5 in. x 1-1/2 in. x 1/4 in. on top of anodized aluminum plates. The frame was removed, and the sealant was allowed to cure for 14 days at standard laboratory conditions. A Shore "A" durometer (ICN: INT000287) was applied to the surface of each sealant pad with a force of three pounds. The instantaneous hardness reading was measured and recorded. Two additional readings were taken on each sealant pad for a total of six readings.

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ASTM C792 - Heat Aging

Specimens were prepared by filling a brass frame of internal dimensions measuring 5 in. x 1-1/2 in. x 1/4 in. on top of anodized aluminum plates. Before preparing a specimen, the aluminum plate was weighed on Dow Silicone Corporation's digital balance. The aluminum plate and the fresh sealant were weighed using the same balance immediately after removing the brass frame. Specimens were allowed to cure for 7 days at standard laboratory conditions. Following the cure period, Specimens 1 and 2 were placed into a forced-draft oven (ICN: INT03118) maintained at $88 \pm 5^{\circ}\text{C}$ ($190 \pm 10^{\circ}\text{F}$) for 21 days, while Specimen 3 was maintained at laboratory conditions. Specimens were allowed to cool to standard conditions, then re-weighed on a digital balance (ICN: 65216) to determine a percentage of mass loss.

ASTM C679 - Tack-Free Time

Pads of sealant were prepared by filling a brass frame of internal dimensions measuring 5 in. x 1-1/2 in. x 1/4 in. on top of anodized aluminum plates. Upon completion of the first sealant pad, a timer was started. The tack-free time was tested using polyethylene strips and a 30g weight with dimensions 1-5/8 in. x 3/4 in. every minute for the first 10 minutes, followed by every two minutes for the next 10 minutes, and every five minutes for the remainder of the test. The polyethylene strip was placed on the sealant pad and the 30g weight placed on top for 30 seconds. After 30 seconds the weight was removed, and the polyethylene strip was peeled away from the sealant at a 90° angle. The test continued until no sealant adhered to the polyethylene strip when peeled away from the sealant. Testing was performed at Dow Silicones Corporation in Auburn, Michigan.

ASTM C1135 - Tensile Adhesion

Specimens were prepared filling a 2 in. long x 3/8 in. wide x 1/2 in. deep cavity between two pieces of float glass with sealant. The specimens were cured for 21 days at standard laboratory conditions before groups of five specimens were subjected to one of the following conditions immediately prior to testing:

- Standard Laboratory Conditions
- 1 hour at $88 \pm 5^{\circ}\text{C}$ ($190 \pm 10^{\circ}\text{F}$) in an oven (ICN: INT03118) and tested at the same temperature
- 1 hour at $-29 \pm 2^{\circ}\text{C}$ ($-20 \pm 4^{\circ}\text{F}$) in a freezer (ICN: INT000207) and tested at the same temperature
- 7 days of immersion in deionized water and tested within 10 minutes of removal from water
- 5,000 hours of light exposure in a QUV/Se accelerated weathering chamber (ICN: INT00380) in accordance with ASTM C1442-14 (Reapproved 2021), Section 7.3 with bond surface facing the light source

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The conditioned specimens were mounted to an Instron UTM (ICN: 005740) equipped with a 2kN load cell (ICN: 005742) and pulled in tension at a crosshead movement speed of 0.5 in/min until failure occurred. Specimen dimensions were measured using a digital caliper (ICN: INT01151).

SECTION 7

TEST SPECIMEN DESCRIPTIONS

TEST PROCEDURE	NUMBER OF SPECIMENS	NOMINAL SPECIMEN DIMENSIONS
ASTM C639	4	6" x 3/4" x 1/2" deep
ASTM C603	1	177 ml
ASTM C661	2	5" x 1-1/2" x 1/4" thick
ASTM C792	2 and 1 Control	5" x 1-1/2" x 1/4" thick
ASTM C679	1	5" x 1-1/2" x 1/4" thick
ASTM C1135	5 per condition	2" x 1/2" x 3/8" wide

SECTION 8

TEST RESULTS

ASTM C639 - Rheological Flow

SPECIMEN	FLOW (in)
4.4 ±2°C (40 ±3.6°F) Vertical	<1/16
4.4 ±2°C (40 ±3.6°F) Horizontal	No deformation
50 ±2°C (122 ±3.6°F) Vertical	<1/16
50 ±2°C (122 ±3.6°F) Horizontal	No deformation

ASTM C603 - Extrudability

SPECIMEN WEIGHT (mL)	TIME (sec)
177	5

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ASTM C661 - Hardness

READING	SPECIMEN 1	SPECIMEN 2
1	43	40
2	43	43
3	43	40
Average	42	

ASTM C792 - Heat Aging

SPECIMEN	WEIGHT OF ALUMINUM PLATE (g)	WEIGHT OF ALUMINUM PLATE WITH FRESH SEALANT (g)	WEIGHT OF ALUMINUM PLATE WITH AGED SEALANT (g)	WEIGHT LOSS (%)	PRESENCE OF CRACKING OR CHALKING
1	21.70	58.15	57.20	2.61	0 - No cracking or chalking
2	22.05	58.65	57.69	2.63	
Average	21.88	58.40	57.44	2.62	

ASTM C679 - Tack-Free Time

TACK FREE TIME (min)
45

ASTM C1135 - Tensile Adhesion - Ambient Condition

SPECIMEN	TENSILE STRENGTH (psi)
1	115
2	114
3	117
4	118
5	114
Average	116

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ASTM C1135 - Tensile Adhesion - 1 Hour at 88°C

SPECIMEN	TENSILE STRENGTH (psi)
1	95.7
2	95.8
3	94.7
4	100
5	98.9
Average	97.0

ASTM C1135 - Tensile Adhesion - 1 Hour at -29°C

SPECIMEN	TENSILE STRENGTH (psi)
1	147
2	137
3	140
4	127
5	132
Average	137

ASTM C1135 - Tensile Adhesion - Water Immersion

SPECIMEN	TENSILE STRENGTH (psi)
1	107
2	115
3	117
4	118
5	124
Average	116

ASTM C1135 - Tensile Adhesion - QUV Weathering

SPECIMEN	TENSILE STRENGTH (psi)
1	102
2	99.8
3	98.7
4	98.5
5	104
Average	101



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SECTION 9

CONCLUSION

The DOWSIL™ 121 Structural Glazing Sealant met the specified performance requirements listed in ASTM C1184 for the testing performed in this report.

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SECTION 10

PHOTOGRAPHS



Photo No. 1

Material Batch and Expiration Details



Photo No. 2

Material Dispensing Cartridge

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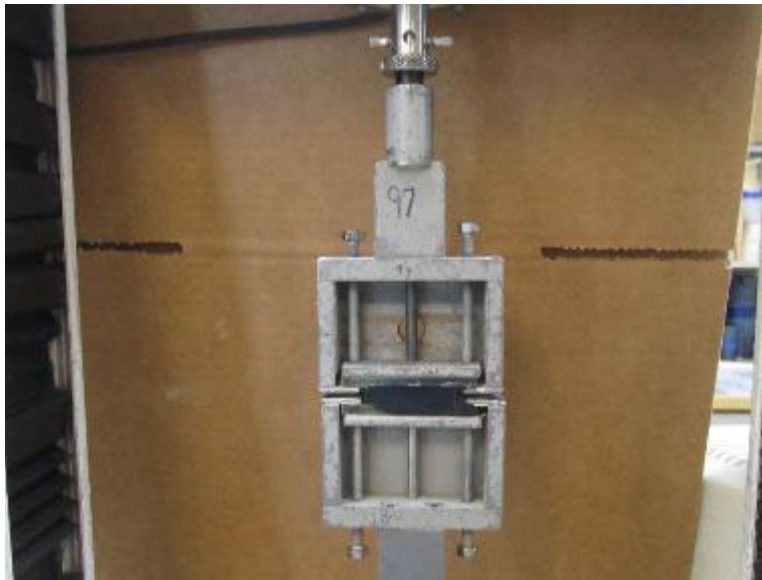


Photo No. 3
ASTM C1135 - Tensile Adhesion - Test Setup



Photo No. 4
ASTM C1135 - Tensile Adhesion - Test Failure Detail

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SECTION 11

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	09/25/25	N/A	Original Report Issue
1	02/06/26	3, 9, 10	Added Weathering Results; updated conclusion statement