

May 31, 2012

Attn: Dow Corning Customer

Re: Compatibility of Dow Corning® 982 Silicone Insulating Glass Sealant

Dow Corning Corporation is a leading manufacturer of silicone sealants used in Insulating Glass manufacturing. As a service to our customers, Dow Corning will provide compatibility testing to verify the impact of contact between Insulating Glass Unit components and Dow Corning's secondary sealant.

To understand the significance of compatibility between Dow Corning secondary sealants used in the manufacture of Insulating Glass units and other sealants and components it is first important to define the level of contact that the Dow Corning sealant is expected to experience with the other sealants and components.

- Full Contact – The sealant or component is expected to be in direct contact with the Dow Corning secondary sealant throughout the life of the installation.
- Incidental Contact – Because of issues such as product squeeze out or the slight shifting of components, the sealant or component may contact some small area of the Dow Corning secondary sealant during the life of the installation

The following materials are approved for full or incidental contact with Dow Corning® 982 Silicone Insulating Glass Sealant. Other products may be submitted to the Dow Corning Americas Testing Laboratory for compatibility testing and evaluation:

- Dow Corning® 983 Structural Glazing Sealant
- Dow Corning® 995 Silicone Structural Sealant
- Dow Corning® 795 Silicone Building Sealant
- Dow Corning® 791 Silicone Weatherproofing Sealant
- 100% Silicone Setting Blocks

Thank you for your request and please let us know if you have any further questions.

Sincerely,

DOW CORNING CORPORATION

Distributor Resource Center
800 346 9882 Option 2
Construction@dowcorning.com



12 May 2016

Sample Test Name: Cables

Ref.: COMPATIBILITY Test Report

The Dow Corning construction laboratory has completed the compatibility testing in support of your above referenced project.

1. Sample Nr 81287	Substrate Details
Substrate Type	Other Substrate
Substrate Mnf Name / Supplier Name	View Glass
Mnf code / Batch Number	E334907
Substrate Description	Plastic Cable Housing.
Surface to test	Uniform Surface
Sealant	Application Recommendation
Dow Corning® 790 Silicone Building Sealant	Approved for Contact in Weatherseal Applications
Dow Corning® 795 Silicone Building Sealant	Approved for Contact in Weatherseal Applications
Dow Corning® 983 Structural Glazing Sealant	Approved for Contact in Weatherseal Applications

The Compatibility tests are performed in accordance to the Modified ASTM C1087. A summary of this laboratory testing / evaluation and application recommendation is listed above.



12 May 2016

Sincerely,

MATTHEW SCHAFKA
BUSINESS DEVELOPMENT PROFESSIONAL

Dow Corning[®] 982 Silicone Insulating Glass Sealant

FEATURES

- Cures to form a durable, long-lasting, high-modulus, flexible, weather tight bond
- Meets ASTM C-1369 Specification for Structurally Glazed Insulating Glass Units
- Excellent unprimed adhesion to glass and metal substrates, such as galvanized steel and aluminum
- Consistently nonslump, permitting automated glazing
- 12 month shelf life from date of manufacture
- Noncorrosive byproducts
- Low shrinkage (<5 percent)

COMPOSITION

- Two-part silicone sealant

Two-part silicone sealant for use as a secondary sealant in insulating glass units

APPLICATIONS

- *Dow Corning*[®] 982 Silicone Insulating Glass sealant is intended for use as a secondary sealant in a dual-sealed insulating glass unit (see Figure 1). A primary seal, typical being a polyisobutylene mastic, is required to prevent moisture vapor from transmitting into the airspace of the insulating glass unit. When used in IG unit fabrication, *Dow Corning* 982 Silicone Insulating Glass Sealant bonds to typical IG substrates and completes a weather-resistant unit capable of meeting the ASTM E-2190 specification which is a requirement of NFRC 706 certification.
- *Dow Corning* 982 Silicone Insulating Glass Sealant can also be used as a secondary edge seal in an insulating glass unit that will be structurally glazed. In the event that the sealant is used in this application it is the IG manufacturers' responsibility to ensure suitability and conduct structural bite calculations using industry accepted load sharing methods.

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Test ¹	Property	Unit	Result
As Supplied - Base			
	Color / Physical Form		White / Paste
CTM 0097	Specific Gravity		1.38
ASTM C 1183	Extrusion Rate, 90 psi, 1/8" orifice	g/min	160
As Supplied – Black Curing Agent			
	Color		Black
	Physical Form		Pourable liquid
CTM 0097	Specific Gravity		1.02
As Supplied – Gray Curing Agent			
	Color		Gray
	Physical Form		Pourable liquid
CTM 0097	Specific Gravity		1.22
As Catalyzed – Mixed at 9:1 Base-to-Curing Agent by Volume			
CTM 0092	Working Time (Snap Time) ²	minutes	30-90 min
ASTM D 2202	Flow/Sag (Slump)	inches (mm)	<0.2 (<5.1)
SCAQMD ³	VOC Content – Black	g/L	14
	VOC Content – Gray	g/L	13

TYPICAL PROPERTIES (Con't)

Test	Property	Unit	Result
As Cured – 7 days at 25°C (77°F) and 50 percent Relative Humidity			
ASTM C 661	Durometer hardness, Shore A	points	43
ASTM D 412	Tensile Strength	psi (MPa)	228 (1.6)
ASTM D 412	Elongation	percent	219
ASTM C 794	Adhesion-in-Peel, Cohesive Failure		
	Aluminum / Glass	% / %	100

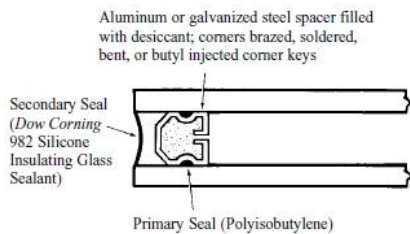
¹CTMs (Corporate Test Methods) correspond to standard ASTM (American Society of Testing and Materials) tests in most instances. Copies of CTMs are available upon request.

ASTM: American Society for Testing and Materials.

²Snap times will vary depending on temperature, humidity and technique used. Dow Corning recommends snap time be repeated daily using the same method and it be used as an indicator value, with a focus on significant deviations from the current trend as a potential signal that the mix ratio could be off.

³Calculation based on South Coast Air Quality Management District of California

Figure 1: Dual-Seal Type



DESCRIPTION

Dow Corning 982 Silicone Insulating Glass Sealant is a two-part silicone sealant. As supplied, the base component, *Dow Corning* 982 Silicone Insulating Glass Sealant-Base, is a smooth, white paste. The curing agent component, *Dow Corning*[®] 2-Part Curing Agent, is a pourable liquid available in black or gray. Once mixed at the proper base-to-curing agent ratio, the material cures to a durable, high-modulus, flexible silicone seal that is chemically stable.

Dow Corning 982 Silicone Insulating Glass Sealant retains design properties and maintains adhesion to substrates, keeping insulated glass seals weatherproof, after years of exposure.

HOW TO USE

Design Considerations

Insulating glass units intended for conventional dry glazing or residential window application should be designed with the secondary sealant dimensions in accordance with the "Sealant Manufacturers Minimum Sealant Dimensions and Placement

Survey," distributed by SIGMA, 01 July 1989.

Insulating glass units intended for structural silicone glazing applications should contain secondary seal depths as determined by industry-accepted standards, such as the trapezoidal load distribution rule and load-sharing principles.

Adhesion and compatibility should be evaluated before sealant use. If requested, Dow Corning may provide assistance in performing adhesion testing to coated glass¹ or spacer surfaces before using *Dow Corning* 982 Silicone Insulating Glass Sealant in production quantities.

Surface Preparation

Before using this product, clean all surfaces, removing all foreign matter and contaminants, such as grease, oil, dust, water, frost, surface dirt, old sealants or glazing compounds and protective coatings.

Clean all metal, glass and plastic surfaces by mechanical solvent procedures. Always wipe solvents on and off with clean, oil- and lint-free cloths.²

Mixing

To obtain ultimate physical properties, *Dow Corning* 982 Silicone Insulating Glass Sealant-Base and *Dow Corning* 2-Part Curing Agent should be thoroughly mixed using automated two part mixing and dispensing

equipment. *Dow Corning* 982 Silicone Insulating Glass Sealant is compatible with commercially available equipment. Mixing by hand or utilizing small mechanical mixing devices will not produce satisfactory results.

Dow Corning 982 Silicone Insulating Glass Sealant is supplied as two separate components. As a custom feature for the customer, the cure rate may be adjusted by changing the base-to-curing agent mix ratio from 9:1 to 10:5:1 by volume. Sealant physical properties are not significantly changed over this range. Changes in the temperature and humidity of the environment, however, will affect snap time. See Table I for ratio weight volumetric equivalents.

Because of its reactivity with atmospheric moisture, *Dow Corning* 2-Part Curing Agent should not be exposed to air for prolonged periods.

During shutdown of mixing equipment, dispensing and mixing lines should be purged with uncatalyzed base to minimize sealant buildup.

¹Some coatings may require edge deletion for optimal long term system performance. Contact your glass supplier for recommendations.

²Follow solvent manufacturer's recommended safe handling instructions and applicable federal, state and local laws

Table 1: Weight Equivalents of Volumetric Mixing Ratios

<u>Equivalent Weight Ratio</u>		
<u>Volume Ratio</u>	<u>Black Curing Ratio</u>	<u>Gray Curing Ratio</u>
9:1 to 10.5:1	12:1 to 14:1	10:1 to 12:1

Lot matching of *Dow Corning* 982 Silicone Insulating Glass Sealant-Base and *Dow Corning* 2-Part Curing Agent is NOT required.

Testing

Dow Corning recommends several in-house quality control tests to ensure optimum sealant performance. These tests include:

- Butterfly test to ensure proper mix
- Snap time or cure test to ensure expected sealant cure rate at proper mix ratio
- Tab adhesion test to ensure proper sealant adhesion to production surfaces

These tests should be performed every time lots of base or curing agents are changed, or every time the production line is started. Specific procedures for these recommended tests can be supplied by Dow Corning.

Tooling

To obtain optimum adhesion, joints should be tooled immediately after sealant application to ensure complete substrate contact.

HANDLING

PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE ON THE DOW CORNING WEB SITE AT DOW CORNING.COM, OR FROM YOUR DOW CORNING SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING

DOW CORNING CUSTOMER SERVICE.

USABLE LIFE AND STORAGE

When stored in closed, airtight containers at or below 27°C (80°F), *Dow Corning* 982 Silicone Insulating Glass Sealant-Base and *Dow Corning* 2-Part Curing Agent will have a shelf life of 12 months from date of manufacture. Refer to product packaging for “Use By” date.

PACKAGING INFORMATION

Dow Corning 982 Silicone Insulating Glass Sealant-Base and *Dow Corning* 2-Part Curing Agent are sold as separate components, allowing manufacturers to purchase and create their own kits.

The base component is available in drums. The curing agent is supplied separately in both pails and drums.

LIMITATIONS

Dow Corning 982 Silicone Insulating Glass Sealant should not be applied:

- As a primary or single seal in an insulating glass unit
- To building materials that bleed oils, plasticizers or solvents – materials such as impregnated wood, oil-based caulks, green or partially vulcanized rubber gaskets and tapes
- On food contact surfaces – this product does not comply with FDA food additive regulations
- In below-grade applications
- In contact with or exposed to sealants that liberate acetic acid
- In continuous immersion in water

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

To support Customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

For further information, please see our Web site, dowcorning.com or consult your local Dow Corning representative.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer’s tests to ensure that Dow Corning’s products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

Dow Corning will warrant that *Dow Corning* 982 Silicone Insulating Glass Sealant will maintain its flexibility and adhesion to glass and metal spacers in insulating glass units for a period of 10 years if the insulating glass manufacturer uses the product under the following conditions:

- Within its stated shelf life
- With compatible substrates

- With a base-to-curing agent mix ratio from (9:1 to 10.5:1 by volume)
- According to Dow Corning's recommendations for application and quality control testing
- In an insulating glass unit that has been tested and certified to a NFRC 706 by an approved certified test laboratory

Limitations: This warranty specifically excludes failure of the sealant due to:

- Natural causes such as lightning, earthquake, hurricane, tornado, fire, etc.
- Stress on the sealant exceeding 20 psi
- Movement of the structure resulting in stresses on the sealant that exceed Dow Corning's published specifications for elongation for the sealant, whether due to structural settlement, design error or construction error
- Continuous immersion in water
- Disintegration of the underlying substrates
- Mechanical damage to the sealant caused by individuals, tools or other outside agents
- Changes in the appearance of the sealant from the accumulation of dirt or other contaminants deposited on the sealant from the atmosphere

Remedies: In the event of a claim under this warranty, the insulating glass manufacturer must notify Dow Corning Corporation in writing within 30 days of the occurrence of the failure.

Dow Corning's sole liability shall be to furnish sufficient replacement material or refund of the purchase price of all goods shown to be other than as warranted.

Any labor or other costs associated with the repairs are the responsibility of the insulating glass manufacturer.

DOW CORNING SHALL NOT BE LIABLE FOR AND EXPRESSLY DISCLAIMS ANY LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGE, WHETHER IN CONTRACT OR IN TORT, INCLUDING NEGLIGENCE. THIS WARRANTY IS IN LIEU OF ALL WRITTEN OR ORAL, EXPRESS OR IMPLIED WARRANTIES, AND DOW CORNING SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

We help you invent the future. TM

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