



DOWSIL™ 982 Silicone Insulating Glass Sealant

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

Features & Benefits

- 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

Applications

- DOWSIL™ 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, DOWSIL 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.
- DOWSIL 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.

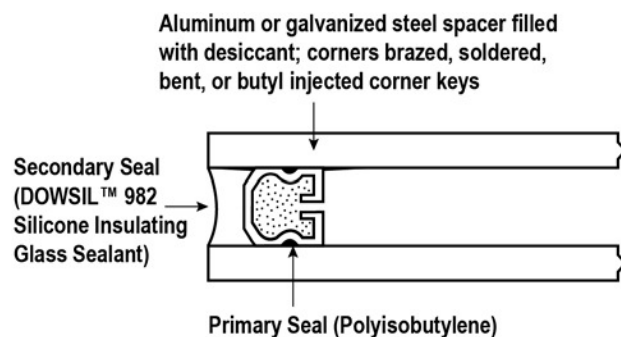


Figure 1: Dual-Seal Type

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

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/Physical Form		Black/Pourable liquid
CTM 0097	Specific Gravity		1.02
As Supplied – Gray Curing Agent			
	Color/Physical Form		Gray/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
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
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	%/%	100/100

1. CTMs (Corporate Test Methods) correspond to standard ASTM (American Society of Testing and Materials) tests in most instances. Copies of CTMs are available upon request.
2. Snap times will vary depending on temperature, humidity and technique used. Dow 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.
3. Calculation based on South Coast Air Quality Management District of California.

Description

DOWSIL 982 Silicone Insulating Glass Sealant is a two-part silicone sealant. As supplied, the base component, DOWSIL 982 Silicone Insulating Glass Sealant-Base, is a smooth, white paste. The curing agent component, DOWSIL™ 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.

Description (Cont.)

DOWSIL 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 may provide assistance in performing adhesion testing to coated glass¹ or spacer surfaces before using DOWSIL 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

1. Some coatings may require edge deletion for optimal long term system performance. Contact your glass supplier for recommendations.
2. Follow solvent manufacturer's recommended safe handling instructions and applicable federal, state and local laws

Mixing

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

DOWSIL 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 1 for ratio weight volumetric equivalents.

Because of its reactivity with atmospheric moisture, DOWSIL 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.

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

How To Use (Cont.) Testing

It is recommended for 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.

Tooling

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

Table 1: Weight Equivalents of Volumetric Mixing Ratios

Volume Ratio	Equivalent Weight Ratio	
	Black Curing Ratio	Gray Curing Ratio
9:1 to 10.5:1	12:1 to 14:1	10:1 to 12:1

Handling Precautions

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

Usable Life And Storage

When stored in closed, airtight containers at or below 32°C (90°F), DOWSIL 982 Silicone Insulating Glass Sealant-Base and DOWSIL 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

DOWSIL 982 Silicone Insulating Glass Sealant-Base and DOWSIL 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

DOWSIL 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 has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, www.consumer.dow.com or consult your local Dow 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 our 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's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

Dow will warrant that DOWSIL 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'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'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 in writing within 30 days of the occurrence of the failure.

Any labor or other costs associated with the repairs are the responsibility of the insulating glass manufacturer. Dow's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, DOW SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.

DOW DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

