Technical Data Sheet

DOWSIL™ 982-FS Silicone Insulating Glass Sealant

Features & Benefits

- Two-part, neutral cure, RTV silicone sealant
- Cures to form a durable, long-lasting, high-modulus, flexible, weather-tight bond
- Structural secondary sealant capability[1]
- Unprimed adhesion to glass and metal substrates, such as stainless steel and aluminum
- Adhesion to heat mirror films
- Non slump, permitting automated glazing
- 12 month shelf life from date of manufacture
- Noncorrosive byproducts
- Low shrinkage (< 5 percent)
- Meets ASTM C-1369 Specification for Structurally Glazed Insulating Glass Units

[1]For IG units used in structural glazing applications it is the responsibility of the Insulating Glass Manufacturer to size the sightline per appropriate industry accepted load sharing methods.

Applications

- DOWSIL™ 982-FS Silicone Insulating Glass Sealant is intended for use as a secondary sealant in dual-sealed insulating glass (IG) units (see Figure 1). A primary seal, typically polyisobutylene mastic (PIB), is required to prevent moisture vapor from transmitting into the airspace as well as retain gasses, such as argon, in the IG unit. When used in IG unit fabrication, DOWSIL™ 982-FS 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 NRFC 706 certification.
- Can be used as a secondary insulating glass sealant for structurally attached IG units. In the event that the sealant is used in this application it is the IG manufacturers' responsibility to ensure suitability and conduct the structural bite calculations using industry accepted load sharing methods.
- Can be used as the insulating glass sealant for the manufacture of IG units with captured Heat Film technologies.

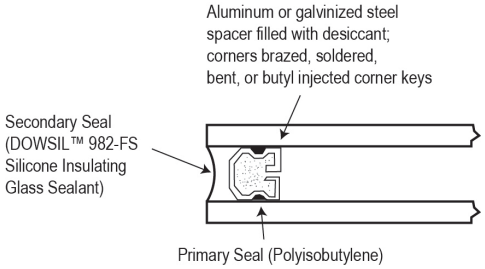


Figure 1:
Dual Seal Type

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Typical Properties

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

Test[1]	Property	Unit	Result
	As Supplied — DOWSIL™ 982-FS Silicone Insulating Glass Sealant - Base		
	Color		White
	Physical Form		Paste
ASTM D 1475	Specific Gravity		1.36
	As Supplied — DOWSIL™ 982-FS Silicone Insulating Glass Sealant - Black Curing Agent		
	Color		Black
	Physical Form		Pourable liquid
ASTM D 1475	Specific Gravity		1.06
	As Supplied — DOWSIL™ 982-FS Silicone Insulating Glass Sealant - Gray Curing Agent		
	Color		Gray
	Physical Form		Pourable liquid
ASTM D1475	Specific Gravity		1.00
	As Catalyzed — Mixed at 9:1 Base-to-Curing Agent by Volume		
	Working Time	minutes	10–25
ASTM D 2202	Flow/Sag (Slump)	inches (mm)	< 0.2 (< 5.1)
	VOC Content[2,3]	g/L	< 18
	As Cured — 7 Days at 25°C (77°F) and 50 percent Relative Humidity		
ASTM C 661	Durometer Hardness, Type A	points	35–45
ASTM D 412	Tensile Strength	psi (Mpa)	280 (2.0)
ASTM D 412	Elongation	percent	240
ASTM C1135	Ultimate Tensile Strength	psi (MPa)	150 (1.1)
ASTM C1135	Ultimate Elongation	%	110
	Specifications		
ASTM C1369	Structural Silicone Sealant Specification		passes

1. ASTM: American Society for Testing and Materials.
2. VOC is based on South Coast Air Quality Management District of California. Maximum VOC is listed both inclusive and exclusive of water and exempt compounds.
3. Depending on mixing ratio.

Description

DOWSIL™ 982-FS Silicone Insulating Glass Sealant is a two-part silicone formulation. As supplied, the base is a smooth, white paste. The curing agent is available in black or gray and is a pourable liquid. Once catalyzed, the material cures to a high modulus, silicone rubber that is intended for IG applications, including IG units for heat mirror applications and IG units which will be structurally glazed.

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Description (Cont.)

DOWSIL™ 982-FS Silicone Insulating Glass Sealant features:

- Unprimed adhesion to most common IG substrates and heat mirror films
- A physical property profile that is sufficient for IG secondary sealant applications
- A noncorrosive by-product
- Excellent weatherability, durability and recovery after repeated extension and compression up to 25%.

DOWSIL™ 982-FS Silicone Insulating Glass Sealant is supplied in 2 separate components. As a custom feature for the customer, the cure rate may be adjusted by changing the base to curing agent mix ratio between 8:1 and 10:1 by volume. Sealant physical properties do not significantly altered over this range. Environmental changes such as temperature and humidity will affect product working time. Colder temperatures will slow cure rate and adhesion development. See Table 1 for weigh equivalents to volumetric ratios.

Table 1: Width Equivalents of Volumetric Mixing Ratios

	Equivalent Weight Ratio	
Volume Ratio	Black Curing Agent	Curing Agent Gray
8:1 to 10:1	10.3:1 to 13:1	11.1:1 to 13.5 :1

How To Use

Design Considerations

Insulating glass units intended for conventional dry glazing or residential window applications should be designed with the secondary sealant dimensions in accordance with the “Sealant Manufacturers Minimum Sealant Dimensions and Placement Survey” distributed by IGMA, TB-1201-89(05).

Insulating glass units intended for structural silicone glazing applications should contain secondary sealant depths as determined by industry accepted standards such as trapezoidal load distribution rules and load sharing principles.

Adhesion and compatibility should be evaluated prior to sealant use. If requested, Dow may provide assistance in performing adhesion testing to coated glass[1], spacer surfaces or heat mirror films prior to using DOWSIL™ 982-FS Silicone Insulating Glass Sealant.

Heat Mirror Film Applications

Ensure sealant has attained sufficient cure and adhesion build prior to processing IG units in high temperature ovens. Follow procedures established by heat mirror film suppliers.

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 or solvent methods. 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 manufacturers recommended safe handling instructions and applicable federal state and local laws

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How To Use (Cont.)

Mixing
To obtain optimal physical properties, DOWSIL™ 982-FS Silicone Insulating Glass Sealant – Base and DOWSIL 982-FS Silicone Insulating Glass Sealant – Curing Agent should be thoroughly mixed using standard two - part dispensing and mixing equipment. DOWSIL 982-FS Silicone Insulating Glass Sealant is compatible with commonly used commercial 2-part silicone dispensing equipment. Neither hand mixing nor mechanical mixing will produce satisfactory results.

Because of its reactivity with atmospheric moisture, DOWSIL™ 982-FS Curing Agent should not be exposed to air for prolonged periods.

During shutdown of mixing equipment, dispensing and mixing lines require purging with uncatalyzed base to minimize cured sealant buildup in lines and static mixing elements.

Lot matching of base and catalyst containers is not required.

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

- Butterfly test to ensure proper mixing
- 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 agent are changed, or at the start of every shift or production run. Specific procedures for these recommended tests are available in the Insulating Glass Technical Manual.

Tooling
To obtain optimum adhesion, joints should be tooled immediately after sealant application. Questions about the use of DOWSIL™ 982-FS Silicone Insulating Glass Sealant can be answered by calling the Business Center.

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 DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life And Storage

DOWSIL™ 982-FS Silicone Insulating Glass Sealant should be stored in closed, airtight containers at or below 27°C (80°F). Both the base and the curing agent have a shelf life of 12 months from date of manufacture. Refer to product packaging for “Use By” date.

Packaging Information

DOWSIL™ 982-FS Silicone Insulating Glass Sealant – Base and DOWSIL 982-FS Silicone Insulating Glass Sealant – Curing Agent are packaged separately.

DOWSIL™ 982-FS Silicone Insulating Glass Sealant – Base is available in 183.8 L (48.5 gal) 250 kg (551 lb) lined, straight-sided drums.

DOWSIL™ 982-FS Silicone Insulating Glass Sealant – Curing Agent is available in 18 kg (39.6 lb) pails for black or 17 kg (37.5 lb) for gray.

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Limitations

DOWSIL™ 982-FS 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 or continuous water immersion applications.

Because of a potential for incompatibility, DOWSIL™ 982-FS Silicone Insulating Glass Sealant should not come in contact with, nor be exposed to, sealants that liberate acetic acid.

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, dow.com, or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products — from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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