Technical Data Sheet

DOWSIL™ 983 Structural Glazing Sealant

Description

DOWSIL™ 983 Structural Glazing Sealant is a two-part, neutral-cure, RTV silicone sealant.

Sustainability Attribute:

Decarbia™
Advancing carbon neutrality with Dow

Applications

- DOWSIL™ 983 Structural Glazing Sealant is designed for specialized use where dual structural and weatherseal applications are desired for factory glazing and curtainwall production. Once cured, this structural sealant forms a durable, flexible, watertight bond that can be warranted for 20 years and used in ±25% movement weatherseal applications. It has excellent unprimed adhesion to glass, alodine, and anodized aluminum[1], although DOWSIL™ Primer-C OS is recommended for fast and consistent adhesion, especially to Kynar and other high-performance substrates approved for architectural structural glazing applications.

[1]Certain sealing materials used in the anodizing process may increase the potential for use for primer to gain adhesion within a 24 hour period.

Composition

- Two-part, neutral-cure, RTV silicone sealant

Features & Benefits

- Approved for structural and weatherseal applications[2]
- Meets ASTM C719 Class 25 (G, A, O)
- Meets ASTM C1184 Structural Glazing Specification
- Low VOC formula (less than 18 g/L when mixed properly)

[2]All structural applications MUST be reviewed by the technical staff. If their recommendations are followed, Dow will issue a structural adhesive warranty for a specific job.

Typical Properties

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

Test[1]	Property	Unit	Result
	As Supplied - DOWSIL™ 983 Structural Glazing Sealant Base		
	Color		White
	Physical Form		Paste
ASTM D1475	Specific Gravity		1.36

1. ASTM: American Society for Testing and Materials.

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Typical Properties (Cont.)

Test	Property	Unit	Result	
	As Supplied - DOWSIL™ 983 Structural Glazing Sealant, Curing Catalyst			
	Color		Black	Gray
	Physical Form		Paste	Paste
ASTM D1475	Specific Gravity		1.055	1.00
	As Catalyzed - Mixed at 9:1 Base to Catalyst by Volume			
	Working Time	minutes	10–25	
	Unit Handling Time, 24°C (75°F), Minimum[2]	hours[3]	4–24	
	VOC Content, Mixed Black or Gray[4,5]	g/L	< 18	
ASTM D 2202	Flow/Sag (Slump)	inches(mm)	< 0.2 (< 5)	
	As Cured - 1 Day at Room Temperature (77°F and 50% RH)			
ASTM C 661	Durometer Hardness, Shore A	points	30–40	
	As Cured - 7 Days at Room Temperature (77°F and 50% RH)			
ASTM C 661	Durometer Hardness, Shore A	points	35–45	
ASTM D 412	Tensile Strength, Ultimate	psi (MPa)	300 (2.0)	
ASTM C 1135	Tensile Strength at 25%	psi (MPa)	50 (0.35)	
ASTM C 1135	Tensile Strength, Ultimate	psi (MPa)	160 (1.1)	
ASTM C 1135	Elongation, Ultimate	%	120	
	Specifications			
ASTM C 719	Movement Capability	%	±25	
ASTM C 1184	Structural Silicone Sealant Specification		Passes	

2. Adhesion must be confirmed prior to shipping to job site.
3. Timeframe depends on how units are moved and verified for performance by deglazing for adhesion and fill.
4. Based on South Coast Air Quality Management District of California. Maximum VOC is listed both inclusive and exclusive of water and exempt compounds.
5. Depending on mixing ratio.

Description

DOWSIL™ 983 Structural Glazing Sealant is a two-part silicone formulation. As supplied, the base is a smooth, white paste and the curing agent is available in black or gray. Once catalyzed, the material cures to a high-modulus, flexible silicone rubber that is flexible for use in structural and/or weatherseal applications.

DOWSIL™ 983 Structural Glazing Sealant features:

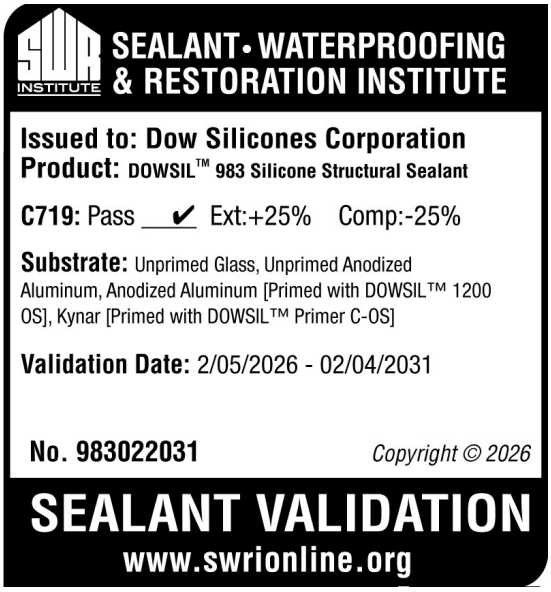
- Unprimed adhesion to most common construction materials
- A physical property profile that is more than sufficient for structural adhesive and weatherseal applications
- A noncorrosive by-product
- Excellent weatherability, durability and recovery after repeated extension and compression up to 25%

DOWSIL™ 983 Structural Glazing Sealant is compatible with reflective glass, laminated glass, and most insulating glass. It can be used in deep, narrow joints to obtain a full and complete cure.

How to Use

DOWSIL™ 983 Structural Glazing Sealant, when used in structural applications, MUST be reviewed by the technical staff, attention Construction Sealants Technical Service and Development.

Complete design and installation guidelines are contained in the Americas Technical Manual, available from Dow, and must be followed for warrantable applications when using this product.



Method of Application

DOWSIL™ 983 Structural Glazing Sealant curing agent must be thoroughly mixed into the base using an airless mixing system. DOWSIL™ 983 Structural Glazing Sealant is compatible with existing commercial two-part silicone dispensing equipment. Neither hand mixing nor mechanical mixing is satisfactory due to incorporation of air, resulting in altered physical properties.

Lot matching of DOWSIL™ 983 Structural Glazing Sealant curing agent and base is NOT required. DOWSIL™ 983 Structural Glazing Sealant curing agent should be lightly stirred if any separation is seen prior to use. Because of its reactivity with atmospheric moisture, curing agent should not be exposed to air for prolonged periods.

DOWSIL™ 983 Structural Glazing Sealant is supplied as two separate components. As a custom feature, the cure rate may be adjusted by changing the base-to-curing-agent ratio from 8:1 to 10:1 by volume. Sealant physical properties are not significantly changed over this range. Changes in the temperature and humidity of the environment and material temperatures in the package will affect snap time and cure properties. Colder temperatures will slow cure and adhesion development. To obtain optimum adhesion, joints should be tooled immediately after sealant application to ensure complete substrate contact.

Questions about the use of DOWSIL™ 983 Structural Glazing Sealant can be answered by calling your local application sales engineer. Our laboratory personnel and technical service staff are also available for assistance.

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™ 983 Structural Glazing Sealant should be stored in airtight, closed containers. When stored at or below 79°F (26°C) for gray and 86°F (30°C) for black, both the base and curing agent have a shelf life of 12 months from date of manufacture. Refer to product packaging for “Use By” date.

Packaging Information

DOWSIL™ 983 Structural Glazing Sealant curing agent and DOWSIL™ 983 Structural Glazing Sealant Base are packaged separately.

DOWSIL™ 983 Structural Glazing Sealant Base is available in 48.5 gal (183.8 L) lined, straight-sided drums or fiber packs.

DOWSIL™ 983 Structural Glazing Sealant curing agent is available in 39.6 lb (18 kg) pails for black, 37.5 lb (17 kg) pails for gray.

Limitations

DOWSIL™ 983 Structural Glazing Sealant should not be applied:

- 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
- Where painting of sealant is required
- To surfaces in direct contact with food
- In below-grade or continuous-immersion applications
- In horizontal joints where abrasion and physical abuse are likely to be encountered

Because of a potential for incompatibility, DOWSIL™ 983 Structural Glazing Sealant should not come in contact with, or 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.

Table 1: Typical Weight Equivalents of Volumetric[1] Mixing Ratios

Volume Ratio	Equivalent Weight Ratio (Black Curing Agent)	Equivalent Weight Ratio (Gray Curing Agent)
8:1 to 10:1	10.3:1 to 13:1	11:1 to 13.5:1

1. Standard volumetric pump ratios are normally set at 9:1; check with pump manufacturer.

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NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

Limited Weatherseal Warranty: The Dow Chemical Company produces and sells a full line of silicone construction sealants and adhesives. These products offer a variety of physical characteristics and adhesion properties.

DOWSIL™ 983 Structural Glazing Sealant is part of that line and, when used with compatible substrates and when applied within the stated shelf life and according to manufacturer's recommendations for application and joint design, Dow warrants that it will perform as a watertight weatherseal for a period of 20 years from the date of purchase. In addition to maintaining the integrity of the weatherseal, the sealant will not change color when used with backup materials and substrates that have been approved for compatibility by Dow, either after specific testing or as noted in a current Dow publication.

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

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

Structural Adhesion Warranty: DOWSIL™ 983 Structural Glazing Sealant may be used as a structural adhesive under certain conditions, but The Dow Chemical Company disclaims any general adhesion warranty. Dow will issue project-specific Structural Adhesion Warranties on a case-by-case basis. No Structural Adhesion Warranty will be issued until Dow has reviewed the pertinent building prints and specifications and has completed adhesion and compatibility testing of the various materials to be used with DOWSIL™ 983 Structural Glazing Sealant. For details on how to obtain the Structural Warranty, please contact your sales application engineer.

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