

HIGH PERFORMANCE BUILDING

# Select & specify: ASEAN/ANZ product guide

## Enabling High Performance Building

**DOW**

®



## Select & specify

### A product guide to DOWSIL™ material solutions for High Performance Building

This product guide provides a comprehensive overview of the DOWSIL™ range of proven material solutions for high-performance sealing applications in structural glazing, insulating glazing, weatherproofing, fire protection, crystal-clear bonding and panel bonding. It is intended to assist specifiers and applicators with product selection, as well as to introduce recent innovations in the Dow portfolio.

We invite you to engage at an early project stage with our team of design and performance experts who are dedicated to helping solve technically challenging and complex design problems, assisting in the delivery of buildable solutions. We also invite you to visit [dow.com/construction](http://dow.com/construction) for more detailed product information.

## What is High Performance Building?

### Addressing needs for well-designed, energy-efficient, safe, sustainable buildings

A façade is just one piece of a complex puzzle that contributes to the overall optimization and integration of a building's performance. It is technically difficult to assess the individual contribution of various façade components and simultaneously consider the influence of factors such as climate, building control systems and occupancy rates.

Dow is committed to meeting and exceeding the service expectations of architects, specifiers and contractors through the application of proven expertise and to providing a true understanding of how the implementation of existing and new materials can contribute to meeting project goals in an environmentally responsible and innovative way.

The versatility and diversity of silicone-based materials can contribute to green building certification such as LEED, BREEAM and other global equivalents. In Asia, 7 of DOWSIL sustainable solutions are certified under Singapore Green Building product scheme and awarded "Excellent" Ratings. The qualification of our products is a recognition of our continued commitment to support green standards and building a sustainable future which benefit all customers and stakeholders.

With benefits for design and aesthetics, durability, safety, energy efficiency, and productivity, building professionals can depend on the DOWSIL™ brand for solutions to their most demanding construction challenges.

### Sustainability and energy efficiency

With dedicated R&D teams driving toward energy smart construction, silicon-based solutions for high-performance building and net-zero structures include technologies directly impacting energy performance which help reduce the risk of condensation and provide high performance insulation solutions for watertight and airtight weatherproofing and more.

The sustainable nature of silicone contributes to green certifications such as LEED, BREEAM and other global

equivalents. In Asia, 7 of DOWSIL™'s materials solutions are certified under Singapore Green Building Product scheme and awarded "Excellent" ratings. The qualification of our products is a recognition of our continued commitment to support green standards and building a sustainable future which benefit all customers and stakeholders beyond the High Performance Building segment.



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NOTE: Most of the DOWSIL™ brand products in this guide previously were sold under the Dow Corning® brand name.



## The next chapter in creative glazing and façade construction

### Fully integrated and compatible silicone systems for unrivaled design freedom, functionality and efficiency in use

Silicone is not a product, but an entire field of chemistry. Known as “the missing link,” it combines the advantages of glass and silicones, making it unique and able to deliver many problem-solving and innovation-enabling benefits.

Dow Performance Silicones is long-established and renowned for its expertise in silicon technology. We continue to focus on the challenges that matter most – and, in façade construction, we innovate to harness its unique benefits to enhance sustainability, beauty, functionality and efficiency of the built environment to improve the overall health and well-being of building occupants and communities.

Innovative, fully compatible silicone systems from Dow are shaping and optimizing the performance of buildings all over the world – from enabling glass-walled skyscrapers and facilitating energy-efficient materials to permitting a wealth of inspiring design opportunities in modern architecture.

Dow’s advanced materials are engineered as a compatible, safe and ready-to-use system from one source. Considering Dow’s broad organic and silicone chemistry, a new potential for unrevealed hybrids in various applications opens up new potential in high-performance creative glazing, façade construction and beyond.

## Applications in high-performance façades

### Tailor-made to last and perform

For more than 50 years, Dow has used its pioneered and proven technologies to advance sustainable construction. Our silicone products for building façades are characterized by their outstanding weathering properties, UV resistance, temperature resistance, long-term elasticity and long service life. With safety always the top priority, Dow provides silicone solutions that meet established global and local standards.

Our silicone adhesives and sealants provide a fully compatible, long-term-durable system and aid in realizing high-performing designs that are reliable, fast and efficient.

The diagram below indicates the areas of application for solutions from Dow High Performance Building.

#### 1 Structural glazing silicones

Two-component, fast curing

- DOWSIL™ 983 Structural Glazing Sealant
- DOWSIL™ 121 Structural Glazing Sealant

One-component

- DOWSIL™ 795 Structural Glazing Sealant
- DOWSIL™ 995 Silicone Structural Sealant

#### 2 DOWSIL™ SG spacer tape

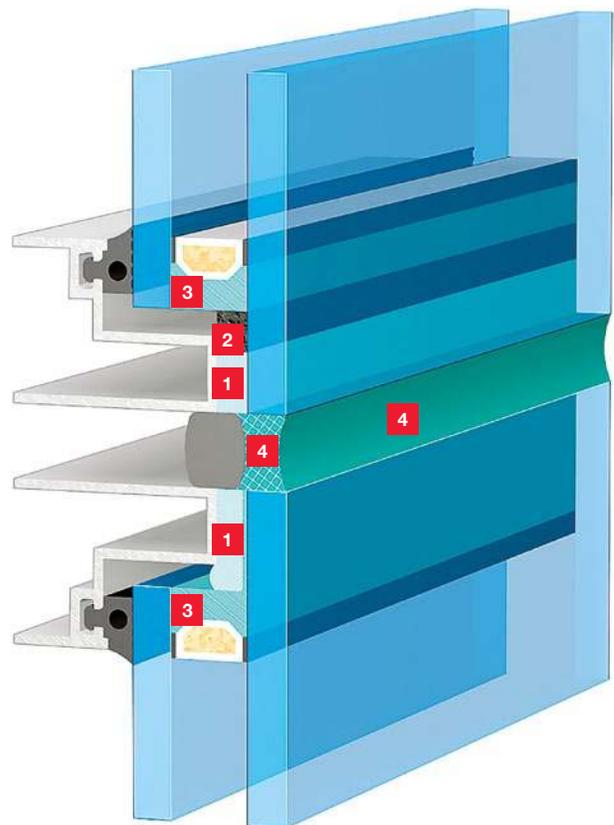
#### 3 Insulating glass silicones (secondary seals)

Two-component, fast curing

- DOWSIL™ 982 Silicone Insulating Glass Sealant
- DOWSIL™ 3363 Insulating Glass Sealant

#### 4 Weatherproofing silicones

- DOWSIL™ 791 Silicone Weatherproofing Sealant
- DOWSIL™ 991 Silicone High Performance Sealant (clean sealant)
- DOWSIL™ 757 Weatherproofing Sealant (self-cleaning glass)
- DOWSIL™ 790 Silicone Building Sealant (concrete seal)



# Structural bonding and sealing with confidence

## A proven track record

Successful sealing and bonding of the building envelope while meeting performance and quality standards requires careful planning and execution. Collaboration with Dow technical specialists is recommended in the early phase of project design, with a goal of achieving a smarter building through innovative thinking and the use of suitable materials that enable the intent of the design. Building project teams are supported through to project delivery with services such as thermal modeling, performance simulations, and laboratory testing on all materials in contact with the sealant to ensure adhesion and compatibility. Trained and certified fabricators and applicators can be recommended via the Dow Quality Bond™ program for long-term security, safety and peace of mind, as well as access to extended project warranties (see page 21).



glazing applications is greater than 50 years. This recently has been verified by two independent scientific studies by The Federal Institute for Materials Research and Testing (BAM) in Germany and the ift Rosenheim, also in Germany. For further details on these studies, visit [consumer.dow.com/50plus](http://consumer.dow.com/50plus) and download our “50+ Years of Proven Silicone Performance” brochure.

Dow has more than 50 years of expertise in weathersealing and structural glazing, with our oldest four-sided silicone structural glazing project being constructed in 1964 and still functioning according to its intended performance. For optimum assurance, it is recommended that the question of durability be addressed at the façade system level with all components included.

### Our products and services

The following pages provide an overview of Dow’s creative architectural solutions, innovative products and industry-leading expertise. We invite you to contact your local Dow representative for further information or for collaboration on future construction projects. Alternatively, please visit [consumer.dow.com/contactus](http://consumer.dow.com/contactus).

### 50+ years of proven silicone performance

Under normal conditions of design, application and maintenance, the expected lifetime of silicone in structural

The image shows a timeline of structural glazing technology from the 1950s to the 2010s, overlaid on a city skyline. The timeline is represented by a series of dotted lines connecting text boxes to specific years or decades. The text boxes describe the technology used in each period:

- 1950s:** Silicone weatherproofing sealants
- 1960s:** Two-sided structural glazing
- 1970s:** Four-sided structural glazing
- 1980s & 1990s:** Protective glazing for seismic, bomb blast and hurricane resistance
- 2010s:** High-design-strength structural glazing

The background of the image is a city skyline at dusk, featuring several prominent skyscrapers, including the Burj Khalifa, the Shanghai Tower, and the Taipei 101.

# Structural glazing (SG) silicones

## Proven durability and performance

### Technologies and benefits

Dow offers a range of one- and two-component silicones based on proven neutral alkoxy technology for structural bonding of glass, metal and other building components. With excellent long-term durability and UV resistance, these state-of-the-art façade silicones have high structural capability and are designed to control dynamic and static loads while accommodating building movement.

Their excellent long-term adhesion performance is proven through external testing and approvals such as ASTM, GB and many other standards, while their temperature resistance and weatherability properties make them fit for use in all climates.

### A durable, elastic bond

DOWSIL™ structural glazing silicones have high movement capability, which is particularly important given the increasing trend toward larger glass units. The optimum ratio between movement and structural capability makes this technology ideal for small, medium and high-rise glass façades.



Courtesy of Wojciech Wandzel

## Product highlights

### One-component

DOWSIL™ 795 Structural Glazing Sealant

- Neutral; moisture curing; low odor
- Onsite and factory bonding; ready to use
- UV and weather resistant
- Complies with ASTM C1184, ASTM C920, ASTM C719 Class 50

DOWSIL™ 995 Silicone Structural Sealant

- Neutral; moisture curing
- Ready to use
- Suitable for structural applications, especially hurricane glazing and protective glazing using window films
- High tensile strength; excellent mechanical properties

### Two-component

DOWSIL™ 983 Structural Glazing Sealant

- Fast curing; low odor
- High movement capability; high strength
- Excellent UV and weather resistance
- Complies with ASTM C1184, ASTM C710 Class 25, SWRI

### Reparation kits for structural glazing

DOWSIL™ 121 Structural Glazing Sealant Cartridge System

- Ready-to-use twin cartridge
- Mixing ratio 1:1 by weight with static mixer
- Applied with a recommended pneumatic or battery-operated applicator gun
- Complies with ASTM C1184, ASTM C719 Class 25, SWRI

# A new level of performance for insulating glass

## Engineered for comfort, efficiency and high performance

Insulating glass (IG) sealants from Dow are available to help designers achieve the desired appearance, performance and durability of windows and glass façades in both residential and commercial buildings. These sealants are suitable for single-pane, multipane and gas-filled glazing.

### Proven performer

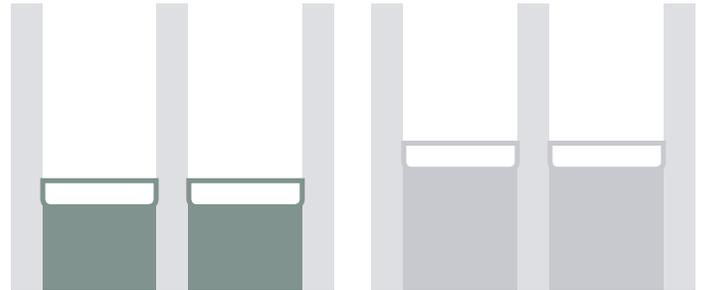
DOWSIL™ 982 Silicone Insulating Glass Sealant has a long, proven track record of use in projects around the world. Two-part and neutral-curing, this secondary sealant has excellent adhesion to a wide range of substrates, including coated, enameled and reflective glass. It complies with the requirements of ASTM C1369 and ASTM E2190.

### High-strength silicone for insulating glass: enhanced productivity and economic joints

Façade designs with larger XXL glass formats, high wind, high climatic loads and other considerations typically lead to larger joints. DOWSIL™ 3363 High Strength Insulating Glass Sealant provides the highest design strength on the market with European approval and allows for more economical joints that are up to 30% smaller. This has a positive impact on aesthetics with a slim joint design. It also improves productivity during unit fabrication, as the joint can be filled faster. DOWSIL™ 3363 Sealant has been tested according to EN1279 2/3 and is well-suited for highly demanding façade designs.



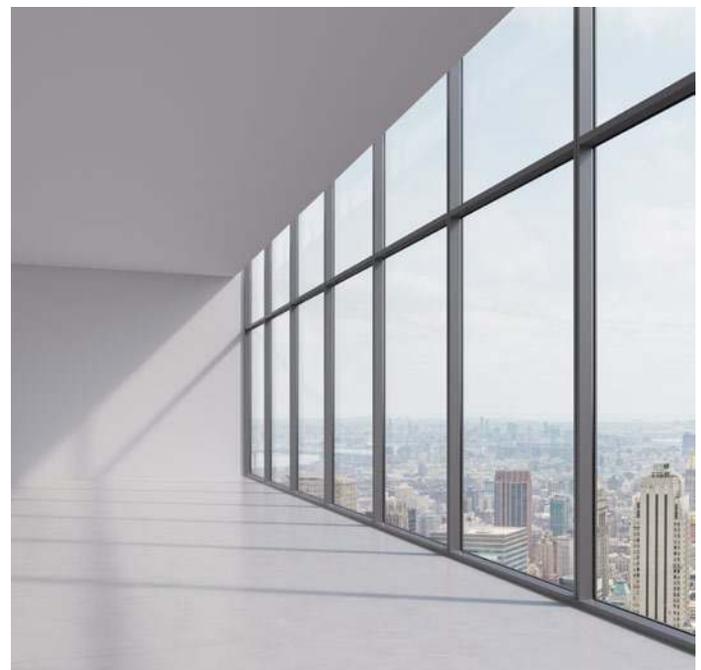
**Torre Titanium La Portada | Santiago, Chile**  
DOWSIL™ 982 Silicone Insulating Glass Sealant was used as a secondary sealant for the many large insulating glass units in the facility.



**DOWSIL™ 3363 Insulating Glass Sealant**

**Standard sealant**

Because of DOWSIL™ 3363 Insulating Glass Sealant's high design strength of 0.21 MPa, you can use up to 30% less sealant with to achieve smaller, stronger joint edges.



## Insulating glass (IG) sealants

### Performance, productivity and energy efficiency

Our silicone secondary sealants are based on proven neutral-cure alkoxy technology, which offers outstanding resistance to UV and high temperatures, as well as high structural capability. All products are suitable for single-pane and multipane glazing as well as gas-filled insulating glass.

With an increasing trend toward triple-glazed units for enhanced thermal performance, climatic loads can be quite high. If high windloads also are anticipated, the sealant bite can significantly increase, impacting the production line speed to allow larger cavities to be filled.

All DOWSIL™ insulating glass silicones are compatible and designed for use with our range of structural glazing and weatherproofing silicones.

## Product highlights

### Two-component

#### DOWSIL™ 982 Silicone Insulating Glass Sealant

*For proven performance*

- Two-part secondary edge seal
- Fast curing; low odor
- Good long-term adhesion to glass and spacers
- Structural capability as secondary IG edge seal
- Outstanding UV and weather resistance
- Complies with ASTM C1369, ASTM E2190

#### DOWSIL™ 3363 Insulating Glass Sealant

*For high strength and productivity*

- Fast curing; low odor
- Ideal for demanding IG applications where economic joints and productivity are required
- Thermal conductivity: 0.28 W/m<sup>2</sup>K
- High design strength: 0.21 MPa – less joints up to 30%
- European approval ETA 002
- Good long-term adhesion to glass and spacers
- Factory bonding using dispensing pumps



# Structural glazing and insulating glass: products, applications and properties

	DOWSIL™ 983 Structural Glazing Sealant	DOWSIL™ 795 Structural Glazing Sealant	DOWSIL™ 995 Silicone Structural Sealant	DOWSIL™ 121 Structural Glazing Sealant Cartridge System	DOWSIL™ 982 Silicone Insulating Glass Sealant	DOWSIL™ 3363 Insulating Glass Sealant
	Structural Glazing				Insulating Glass (IG) – Secondary Seal	
<b>Applications</b>						
<b>Building type</b>	Commercial	Commercial	Commercial	Commercial	Commercial	Commercial
<b>Standard SG – 2-sided and 4-sided</b>	X	X	X	X		
<b>Smart SG – high strength in supertall buildings</b>	X			X		
<b>Smart SG – ultrahigh strength with trapezoidal joint designs</b>	X			X		
<b>SG for hurricane glazing</b>	X	X	X	X		
<b>SG for bomb-blast applications</b>	X		X			
<b>SG for seismic activities</b>	X	X	X	X		
<b>SG for point-fixed façades</b>						
<b>Onsite repair glazing</b>		X	X	X		
<b>IG – warm edge for enhanced energy efficiency</b>						X
<b>IG – gas-filled double-glazed/triple-glazed for SG</b>					X	X
<b>IG – symmetric and stepped for SG</b>					X	X
<b>IG – economical for high productivity</b>					X	X
<b>IG – in high-load designs (hurricane, bomb blast, climatic, etc.)</b>					X	X
<b>Technical Properties</b>						
<b>Cure system</b>	2-part, neutral, RTV	1-part, neutral, RTV	1-part, neutral, RTV	2-part, neutral, RTV	2-part, neutral, RTV	2-part, neutral, RTV
<b>Application with manual gun</b>		X	X			
<b>Mixing ratio by weight</b>	10:1			1:1	10:1	10:1
<b>Application with hydraulic, pneumatic or gear pump</b>	X		X	X	X	X
<b>Time until bonded/sealed units are ready for load-bearing (at +23°C and 50% relative humidity)<sup>(1)</sup></b>	24-72 hours	7-14 days	7-14 days	24-72 hours	24-72 hours	24-72 hours
<b>Joint depth restrictions, mm</b>	<60	≤15	≤15	<60	<60	
<b>Service temperature range, °C</b>	-50 to +150	-50 to +150	-50 to +150	-50 to +150	-50 to +150	-50 to +150
<b>Shelf life, months</b>	12	12	18	12	12	14
<b>Working time/skin-over time (at +23°C and 50% relative humidity), minutes</b>		20-30 (ASTM C639)	10-20	15-45		5-10
<b>Shore A hardness</b>	35-45 (ASTM C661)	35 (ASTM C661)	40	30-40 (ASTM C661)	42 (ASTM C661)	60 (EN 1279-6)
<b>Tensile strength, N/mm<sup>2</sup></b>	1.1 (ASTM C1135)	1.2 (ASTM C1135)	1.17 (ASTM C1135)	0.93 (ASTM C1135)	1.0 (ASTM C1135)	1.5 (ISO 8339)
<b>Tear strength, kN/m</b>	7 (ASTM D624)	8.5 (ASTM D624)	7 (ASTM D624)			
<b>Dynamic design strength, kPa</b>	138	138	138	138	138	210
<b>Approvals/certifications/standards met</b>	ASTM C1184; ASTM C719, Class 25	ASTM C1184; ASTM C920, Class 50	CE-Mark; TT-S- 001543A, Class A; TT-S-00230C, Class A; ASTM C920, Class 50; ASTM C1184; GB 16776; SNJF- VEC; EN 13022	ASTM C719, Class 25 (G,A,O); ASTM C1184	ASTM C1369; ASTM E2190	EN 1279 part 4 and 6; EN 13022; EN 15434; European Technical Approval (ETA13/0359);

<sup>(1)</sup>For 1-part sealants, time varies depending on joint depth.

Specification writers: These values are not intended for use in preparing specifications. Please contact your local Dow sales office before writing specifications on these products.

# Weatherproofing sealants with 65 years' experience

## Minimize nature's toll on the building envelope

Effective weatherproofing of a building façade is key in determining long-term performance. Airtightness and protection against weather and water ingress are crucial to maintaining an energy-efficient building skin. Dow Performance Silicones has more than 65 years of experience in design, performance and durability.

DOWSIL™ weathersealing silicones stay flexible and maintain adhesion, even in high-movement joints. Suitable for glass and nonglass façades, they have high long-term elasticity and exhibit superior durability in outdoor UV exposure. With excellent adhesion to glass, metal and a variety of other common building substrates, DOWSIL™ weathersealing silicones provide outstanding life-cycle value and are compatible with all DOWSIL™ SG and IG sealants.

## Product highlights

### Weather sealants for façades

#### Glass façades

##### DOWSIL™ 791 Silicone Weatherproofing Sealant

- Ready to use; one-component; low odor
- High movement capability and flexibility: ±50%
- Neutral cure; noncorrosive
- UV and high-temperature resistance
- Complies with ASTM C920, ASTM C719 Class 50, SWRI

##### DOWSIL™ 991 Silicone High Performance Sealant

- Nonstaining on natural stone
- Reduces residue rundown on metal and glass panels
- Reduces façade cleaning and maintenance
- Compatible with all DOWSIL™ structural glazing and insulating glazing sealants
- High movement capability and flexibility: ±50%

##### DOWSIL™ 757 Weatherproofing Sealant

- One-component; low modulus; silicone hybrid base
- Designed for use in direct contact with “clean” photocatalytic, hydrophilic and standard glass
- Good adhesion to glass, aluminum and metal

#### Nonglass façades

##### DOWSIL™ 790 Silicone Building Sealant

- Excellent unprimed adhesion to masonry and concrete substrates
- Ultralow modulus
- Extensive compression capability: +100%/-50%
- Neutral cure; noncorrosive
- UV and temperature resistance
- Wide variety of colors
- Meets ASTM C920, ASTM C719 Class 100/50, SWRI



### Complementary products

#### DOWSIL™ Building Insulation Blanket

- Thin, flexible insulation material
- Increases thermal performance; addresses thermal bridging
- Insulates tough connection points in building envelopes
- Retrofitting existing designs to meet new performance requirements

#### DOWSIL™ 123 Silicone Seal

- Preformed silicone seal for weatherproofing joints
- Economical, high-performance alternative to recaulking
- Low modulus; high movement capability
- Easy to install; available in a range of colors and finishes
- Can be secured with DOWSIL™ 791 Silicone Weatherproofing Sealant



# Sealants and foams for fire protection

## Protective fire safety sealing solutions

Dow provides a range of sealants and foams for interior and exterior fire sealing applications, such as sealing of joints, pipes, cable penetrations and wall-to-floor connections. Designed to help prevent the spread of fire and smoke through wall and floor joints, these products provide superior performance and enable the construction of safer buildings when compared to standard sealants.

Special silicone formulations can provide high-temperature resistance up to +265°C – and even up to +315°C short-term. Their burning behavior is beneficial in fire and smoke sealing applications, as they are not flame-propagating – a good technology to ensure high safety performance.

### Product highlights

#### Fire-retardant sealants

##### DOWSIL™ Firestop 700 Silicone Sealant

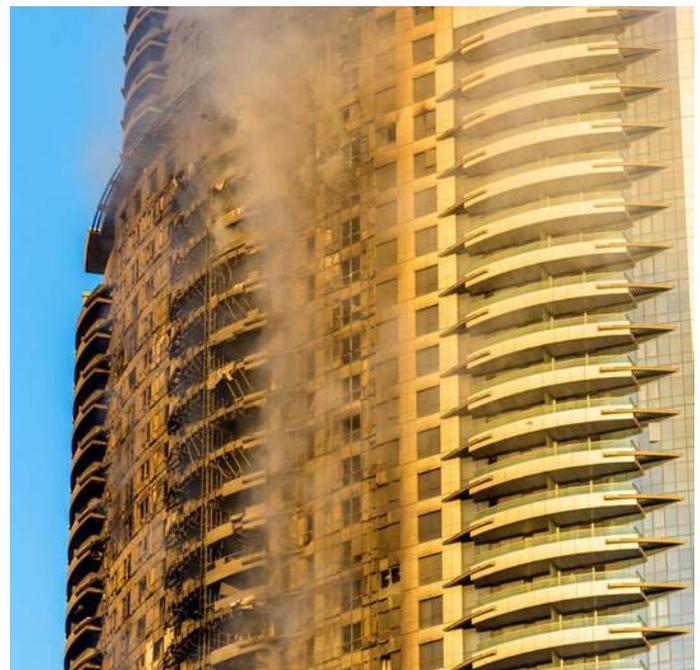
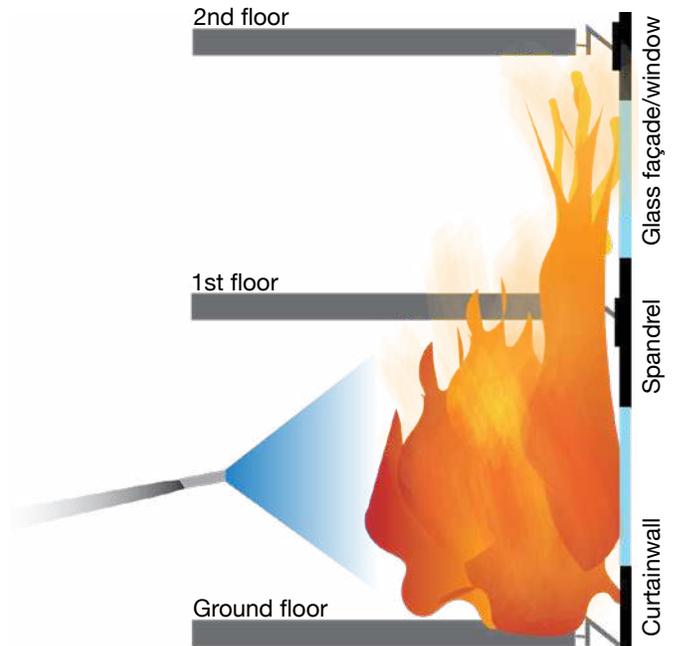
- Meets BS 476 Part 22; ISO 11600 F&G 25LM; certified by EXOVA CF 5198 for Civil Defense Applications in the Middle East
- For weathersealing of curtainwall and building façades
- Also suitable for sealing of expansion joints and pipe and cable penetrations in fire-rated structures
- Up to a four-hour fire rating
- Excellent weathering characteristics; long service life

##### DOWSIL™ Smoke Seal 800 SL Self-Leveling Silicone Sealant

- For horizontal applications where flame- and smoke-retarding properties are required (e.g., floor-to-wall connections)
- One-component; noncorrosive
- UL certification
- Up to a three-hour fire rating
- High movement capability

##### DOWSIL™ Firestop 400 Acrylic Sealant

- Intumescent acrylic for internal use to help maintain integrity of firewalls
- Suitable for joints around door and window frames and joints in fire-rated partitions
- Up to a two-hour fire rating
- Tested to BS 476 Part 22: 1987



#### Fire-rated foam

##### DOWSIL™ Firestop 3-6548 Silicone RTV Foam

- For prevention of smoke and gas through penetration seals in walls and floors
- Up to a four-hour fire rating
- Good flexibility under the most demanding conditions
- Forms to fit complex, irregular shapes

# Weatherproofing and fire protection: products, applications and properties

	DOWSIL™ 791 Silicone Weatherproofing Sealant	DOWSIL™ 791T Silicone Weatherproofing Sealant	DOWSIL™ 991 Silicone High Performance Sealant
Weathersealing (WS)			
<b>Applications</b>			
<b>Special features</b>	WS – standard	WS – transparent	WS – nonstaining
<b>WS – weathersealing of glass façades</b>	X	X	X
<b>Compatible with DOWSIL™ structural glazing (SG) and insulating glass (IG) silicones</b>	X	X	X
<b>WS – construction and concrete</b>	X		X
<b>Technical Properties</b>			
<b>Cure system</b>	1-part, neutral, RTV silicone	1-part, neutral, RTV silicone	1-part, neutral, RTV silicone
<b>Application with manual gun</b>	X	X	X
<b>Application with hydraulic, pneumatic or gear pump</b>	X	X	X
<b>Joint depth restrictions, mm</b>	≤15	≤15	≤15
<b>Service temperature range, °C</b>	-50 to +150	-50 to +150	-50 to +150
<b>Shelf life, months</b>	12	12	12
<b>Skin-over time (at +23°C and 50% relative humidity), minutes</b>	45 (tack-free time – ASTM C679)	10-15 (CTM 095A)	30 (tack-free time – ASTM C679)
<b>Shore A hardness – ASTM D2240</b>	25-30 (ASTM C661)	15	24 (ASTM C661)
<b>Tensile strength, N/mm2 – ISO 8339</b>	0.8 (ASTM C1135)	1.3	0.7 (ASTM C1135)
<b>Modulus 100%, MPa – ISO 8339</b>	0.4 (ASTM C1135)	0.32	
<b>Elongation at break, % – ISO 8339</b>	430 (ASTM C1135)	575	400 (ASTM C1135)
<b>Movement capability – ISO 9047</b>	±50% (ASTM C719)	±50%	±50% (ASTM C719)
<b>Approvals/certifications/standards met</b>	ASTM C920, Type S, Grade NS, Class 50, Use NT, M, G, A; ISO 11600-F+G-25LM, JC/T882-2001 I 25LM; GB/T14683-2003 B,G,F, 25LM; KS F4910-2010 F-25LM; EN15651-1/2:2012	ISO 11600-F+G-25LM; ISO 846	ASTM C920, Type S, Grade NS, Class 50, Use NT, M, G, A; GB23261-2009 1 SR 25 HM

<sup>(1)</sup> Depending on application.

DOWSIL™ 757 Weatherproofing Sealant	DOWSIL™ 790 Silicone Building Sealant	DOWSIL™ FIRESTOP 700 Sealant	DOWSIL™ FIRESTOP 400 Acrylic Sealant	DOWSIL™ Smoke Seal 800SL	DOWSIL™ FIRESTOP 3-6548 Silicone RTV Foam
		<b>Fire Protection</b>			
Self-cleaning glass	Concrete seal	Silicone gap and joint sealer	Interior sealing	Self-leveling	Silicone foam
X		X			
X		X	X	X	
	X				
1-part, neutral, RTV hybrid	1-part, neutral, RTV silicone	1-part, neutral, RTV silicone	1-part, neutral, RTV acrylic	1-part, neutral, self-leveling, RTV silicone	2-part, neutral, closed-cell, RTV silicone foam
X	X	X	X		X
	X	X		X	X
≤15		<14	<14	<150 <sup>(1)</sup>	
-30 to +90		-50 to +150	-50 to +150	-50 to +150	-50 to +150
12	12	12	12	12	12
75	60 (tack-free time – ASTM C679)	15	30	25	2
20 (ISO 868)	15 (ASTM C661)			19	
	0.7 (ASTM D412)	0.46		1.2	
0.25				0.36	
250				400	
25%	+100%/-50% (ASTM C719)	±50%	7.50%	±25% (UL 2079)	
ISO 11600-G-25LM; ISO 11431	ASTM C920, Type S, Grade NS, Class 100/50, Use T, NT, M, G, A, and O; UL 263 (ASTM E119)	CE; ISO 11600-F&G-25LM; EN 13501-1; EN 1366-4 2-4 hours fire resistance; SNJF cat. 1; BS 476 T22; Euroclass B according to EN 13501-1	BS 476; T22; T7	ULC S115; UL 2079	ASTM E814; UL

Specification writers: These values are not intended for use in preparing specifications. Please contact your local Dow sales office before writing specifications on these products.

# Primers, cleaners and auxiliary products

## Facilitating optimum performance of DOWSIL™ silicone materials

### Products for surface pretreatment

Dow provides a full range of cleaners, primers and combinations of both tailored for use with our façade, insulating glass and weathersealing silicones. Cleaners remove dust, grease and other contaminants from nonporous surfaces. Primers help to enhance adhesion buildup on different surfaces. All primers for nonporous substrates are equipped with a UV tracer. This ensures reliable control of primer application using a UV lamp. Cleaners, primers and sealants are fully compatible systems and typically are recommended based on substrate testing at Dow's laboratory.

### Pump cleaners

Pump cleaners primarily are required to clean parts of the sealant-dispensing equipment, including mixing heads with fresh material. This is required for any color change, but also if the pump is not in use for a longer period. A special catalyst cleaner for pumps has been developed to allow a quick color change (e.g., from black to grey). It avoids costly exchange of the hose and gaskets. Only by flushing with catalyst cleaner can a color change can be realized economically. This is a convenient way to enhance productivity and reduce cost.

## Product highlights

### Primers

#### DOWSIL™ Primer C

*For nonporous substrates*

- Specially designed for polyester-powder-coated aluminum
- For application using the two-cloth method
- Slightly affects surface appearance
- Air-dry for a minimum of 30 minutes
- Includes a UV tracer to control primer application

#### DOWSIL™ Primer P

*For porous substrates*

- Film-building epoxy-resin base
- For brush application
- Air-dry for a minimum of 30 minutes
- Thick fluid

#### DOWSIL™ 1200 OS Primer

*For nonporous substrates*

- Silane-based primer
- For application using the two-cloth method
- Includes a UV tracer to control primer application
- For anodized aluminum and other nonporous substrates

#### DOWSIL™ Primer 1203

*3-in-1 cleaner, primer and tracer*

- Solvent-based primer-cleaner
- For nonporous substrates
- Can be used to clean and prime substrates
- Air-dry for a minimum of 30 minutes



### Cleaners

#### DOWSIL™ R40 Cleaner

- For cleaning of nonporous substrates used for structural glazing, insulating glazing, windows and doors, such as metal profiles, glass, plastics, etc.

#### DOWSIL™ R41 Cleaner Plus

- For preparation of nonporous substrates used for structural glazing, insulating glass, window and door applications
- For preparation of nonporous substrates, especially plastics, in window bonding applications
- The addition of a special catalyst helps improve adhesion buildup during the bonding process

## Product highlights

### Cleaners

#### DOWSIL™ 3522 Pump Cleaner

- A general solvent for cleaning base and catalyst residues from two-component pump dispensing equipment

#### DOWSIL™ 3535 Catalyst Cleaner

- A nonreactive cleaner for two-component pump dispensing equipment
- Solvent-free
- Allows fast and easy switch of catalyst colors during production
- Noncorrosive

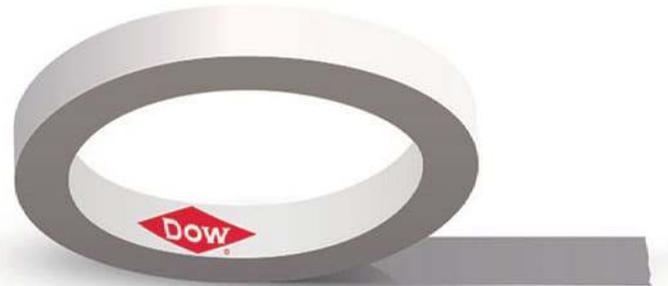


### Auxiliary product

#### DOWSIL™ High Performance Spacer Tape

For structural glazing

- An open-cell, high-density, double-sided, self-adhering tape
- For prefixing insulating glass units to the metal subframe during sealant cure
- Ensures a proper joint thickness; limits joint depth
- Safe and compatible with all DOWSIL™ SG, IG and weatherproofing silicone sealants



## Primers and cleaners: products, applications and properties

Product	Application	Substrates	Special features	Viscosity	Application method	ml of product required per m <sup>2</sup>
DOWSIL™ R40 Cleaner	Cleaning	Glass, metal	Solvent-based cleaner	Clear fluid	2-cloth	3
DOWSIL™ R41 Cleaner Plus	Cleaning	PVC, plastics, glass, metal	Solvent-based cleaner	Clear fluid	2-cloth	3
DOWSIL™ Primer 1200 OS	Priming	Nonporous	Can make primer visible with UV lamp	Clear fluid	2-cloth	3
DOWSIL™ Primer 1203	Priming	Nonporous	Can make primer visible with UV lamp	Clear fluid	2-cloth	-
DOWSIL™ Primer C	Priming	PPC (polyester-powder-coated) aluminum	Solvent-based primer	Clear fluid	2-cloth or brush	4
DOWSIL™ Primer P	Priming	Porous	Film-building, alkoxy-silane-resin-based primer	Clear, thick fluid	Brush	7

Specification writers: These values are not intended for use in preparing specifications. Please contact your local Dow sales office before writing specifications on these products.



## Crystal clear silicones For structural glass connections

The use of glass in building façades continues to increase in popularity, with a variety of systems for fixation of glass curtainwalls now developed and marketed in the industry. Dow has recently introduced breakthrough technologies tailored to improve the aesthetics, energy performance and durability of glass construction and assembly.



For point-fixed façades



For point and area lamination



For crystal clear assembly and specific structural glazing designs

Combining design and sustainability in a totally new way, DOWSIL™ TSSA – Transparent Structural Silicone Adhesive makes point-fixed glazing possible without any penetration of the insulating glass, colored glass surface or functional coating façade skin by the mechanical structure. DOWSIL™ TSSA is supplied as a 1 mm thick silicone film in sheets of 340 mm x 180 mm or in precut buttons of 50 mm, 60 mm or 80 mm.

For use in applications where high strength and simultaneous elasticity are required to accommodate movement, impact loads and vibrations of nonrigid structures, Dow provides DOWSIL™ TSSL – Transparent Structural Silicone Laminate, crystal clear silicone laminates for glass connections and area lamination. Specific applications include glass stairways, railing systems, internal partition glass walls and decorative glasses. DOWSIL™ TSSL is an optically clear, high-strength silicone film that is supplied, ready to apply, on 180 mm width rolls in a range of 1 m lengths.

DOWSIL™ 2400 Silicone Assembly Sealant is a one-part reactive hot-melt technology for glass-to-glass and glass-to-metal connections. Potential applications in which this sealant would be advantageous include onsite structural glass connections and assembly, weathersealing of glass-to-glass butt joints, bonding of glass fins, two-sided insulating glass used with a crystal clear spacer, and specific structural glazing designs. Due to its hot-melt properties, the sealant provides immediate strength once cooled.

## Crystal clear silicones: products and properties

Product	Building type	Cure system	Color	Application with manual gun	Application with hydraulic, pneumatic or gear pump	Time until bonded/sealed units are ready for load-bearing (at +23°C and 50% relative humidity) <sup>1</sup>	Service temperature range, °C	Shelf life, months	Working time/skin-over time (at +23°C and 50% relative humidity), minutes	Shore A hardness – ASTM D2240	Tensile strength, N/mm <sup>2</sup> – ISO8339	Tear strength, kN/m – ASTM D624	Dynamic design strength, N/mm <sup>2</sup>
DOWSIL™ TSSA – Transparent Structural Silicone Adhesive	Commercial	1-part, neutral, HTV	Crystal Clear Film	Manual only		2 hours of heat cure	-50 to +150	6	120	75	8.5 (ASTM D0412)	4.5 MPa (50 mm button)	1.3
DOWSIL™ TSSL – Transparent Structural Silicone Laminate	Commercial	1-part, neutral, HTV	Crystal Clear Film	Manual only		2 hours of heat cure	50 to +150	6	120	75	8.4		1.0
DOWSIL™ 2400 Silicone Assembly Sealant		1-part, neutral, moisture cure, RTV	Clear	Manual and automated	Heating machine	Immediate handling	-50 to +150	12	15 <sup>2</sup>	60	4.3 (ASTM D412)		0.14

<sup>1</sup>For 1-part sealants, time varies depending on joint depth.

<sup>2</sup>To ensure adhesion to substrate.

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# Invisible panel fixation of rainscreens and ventilated façades

## High-performance bonding for façade cladding

With a proven history of pioneering structural silicone glazing, Dow now brings its technical expertise and industry leadership to architectural panel-bonding applications.

Tailor-made for nonglass cladding, the DOWSIL™ PanelFix System is a highly durable solution for silicone panel-bonding. Suitable for elastic bonding of rainscreen and ventilated façade panels – both in the factory and onsite – the DOWSIL™ PanelFix System offers time-saving features, including easy surface preparation and extrusion of the adhesive, excellent compression resistance, and deadload support enabled by its instant green strength.

The DOWSIL™ PanelFix System, which includes DOWSIL™ 896 PanelFix Tape and DOWSIL™ 896 PanelFix Silicone Adhesive, also provides advantages for architects, building

owners and engineers by expanding building cladding possibilities through enabling the selection of lower-weight, less-expensive cladding options free from the thickness considerations typically requiring mechanical fixation. With no need for metal fasteners between the panel and the supporting structure, the bonding is not visible, which improves the aesthetic appearance of the façade.

Key benefits of DOWSIL™ 896 PanelFix are:

- Panel bonding in ventilated façades
- Instant strength – easy to apply
- Onsite and factory bonding
- High-temperature and UV resistance
- No creep under high temperature (+85°C/85% RH)



European approval (EAD)

BBA approval (UK)

**The DOWSIL™ PanelFix System is suitable for fixation of architectural panels manufactured from:**

- Aluminum
- Ceramics
- Fiber-reinforced cement
- High-pressure laminates
- Aluminum-based composite panels
- Prefabricated mineral wool boards

## Available product container sizes and colors

The following information is provided for reference purposes only. Please contact your local Dow sales office or Dow distributor for information regarding availability and lead times.

Product	Container Size(s)	Available Color(s)
<b>Structural Glazing</b>		
DOWSIL™ 983 Structural Glazing Sealant	Base: 250 kg, Catalyst: 19 kg	Black, Grey
DOWSIL™ 995 Structural Glazing Sealant	305 ml	Black, Grey
DOWSIL™ 795 Structural Glazing Sealant	300 ml, 600 ml	Black, Grey, White, Bronze, Custom Color
DOWSIL™ 121 Structural Glazing Sealant	400 ml	Black, Grey
<b>Crystal Clear Bonding</b>		
DOWSIL™ 2400 Silicone Assembly Sealant	304 ml, 22 kg	Clear
DOWSIL™ TSSA – Transparent Structural Silicone Sealant	180 mm x 350 mm sheet; 50 mm, 60 mm, 80 mm precut buttons	Crystal Clear Film
DOWSIL™ TSSL – Transparent Structural Silicone Laminate	180 mm x 1 m sheet	Crystal Clear Film
<b>Insulating Glass</b>		
DOWSIL™ 982 Silicone Insulating Glass Sealant	Base: 250 kg, Catalyst: 19 kg	Black, Grey
DOWSIL™ 3363 Insulating Glass Sealant - Base	250 kg	Mixed: Black, White, Dark Grey, Light Grey, Middle Grey
DOWSIL™ 3363 Insulating Glass Sealant - Catalyst	25 kg, 200 kg	
<b>Weatherproofing</b>		
DOWSIL™ 991 Silicone High Performance Sealant	600 ml	Black, Gray, Bronze, White, Limestone, Charcoal, Dark Grey, Sandstone, Pink
DOWSIL™ 757 Weatherproofing Sealant	290 ml	Black
DOWSIL™ 791 Silicone Weatherproofing Sealant	310 ml, 500 ml, 600 ml, 250 kg	Black, White, Anthracite, Bronze, Brown, Buff, Grey, Limestone, Metal Grey, Sand, Stone, Metal Steel Grey, Custom Color
DOWSIL™ 791T Silicone Weatherproofing Sealant	310 ml, 600 ml	Transparent
DOWSIL™ 790 Silicone Building Sealant	305 ml, 592 ml	Black, Grey, Bronze, Natural Stone, Adobe Tan, Blue Spruce, Rustic Brick, Sandstone, Charcoal, Dusty Rose, Precast White, Custom Color
<b>Sealants and Foams for Fire Protection</b>		
DOWSIL™ FIRESTOP 400 Acrylic Sealant	310 ml	White, Grey
DOWSIL™ FIRESTOP 700 Silicone Sealant	310 ml, 20 L, 250 kg	Black
DOWSIL™ FIRESTOP 3-6548 Silicone RTV Foam Kit	198 g	Dark Grey
DOWSIL™ FIRESTOP 3-6548 Silicone RTV Foam Part A	18.1 kg, 20 kg, 204.1 kg	Dark Grey
DOWSIL™ FIRESTOP 3-6548 Silicone RTV Foam Part B	18.1 kg, 20 kg, 204.1 kg	Dark Grey
DOWSIL™ Smoke Seal 800 SL Self-Leveling Silicone Sealant	10 kg, 22 kg	Black

## Project management

The Dow Project Management System adds value – and confidence – to every step of your silicone structural glazing projects, helping you minimize defects, rework and potential delays that can damage your reputation and cost you business.

- **Blueprint review** helps identify risks and ensure project safety and design requirements are met before construction begins
- **Lab testing** for adhesion, compatibility and staining reduces material performance uncertainties
- **Onsite quality checks** enhance confidence in your application
- **Available warranties** certify your workmanship



## Digital project administration and leading expertise

The Dow Façade Engineering and Architectural Design Team (FEAT) is a global, dynamic group of design and performance experts

dedicated to helping develop creative and innovative high-performance building solutions based on silicone technology. While team members can be involved in every phase of the built environment, their strength lies in their ability to provide technically challenging and complex design solutions at the conceptual or early design stages by working in close collaboration with project stakeholders.



### Simplified project management with COOL: Keeping your projects on the fast track to success

Efficient processes are paramount in enabling both you and your customers to run a project smoothly and on time. That's why we support you with our user-friendly COOL (CONstruction OnLine) planning tool during the planning phase and over the course of the project.

Among other things, COOL ([consumer.dow.com/cool](http://consumer.dow.com/cool)) provides support for design planning, joint calculation, laboratory tests, and service and warranty inquiries through

an intuitive user interface. This is a modern and efficient way to manage your projects. Service and warranty inquiries also are accelerated and simplified considerably thanks to the project data stored in COOL.

### Construction calculators

Online sealant calculators are available for structural glazing and insulating glazing applications. These calculators have been developed to give an indicative estimate of sealant and primer usage, as well as structural bite, deadload, glueline thickness and thermal movement calculations. Complete testing and/or design approval by Dow technical experts is recommended prior to product application.

### Dow High Performance Building Technical Training Academy – ASEAN/ANZ

Dow is more than just your supplier of innovative silicone materials. We want to collaborate with you on every stage of your project, from concept to completion. This starts by sharing our proven experience in silicone sealants and adhesives. Start your collaboration with Dow by attending one of our training workshops. Workshop dates, languages and registration can be found at [www.qualitybond.com](http://www.qualitybond.com).

## Dow Quality Bond™: building reputations together

The Dow Quality Bond™ program lifts silicone sealing and bonding to the highest level by implementing standards of best practice in quality control, quality assurance and production application with specialist silicone applicators.

Launched in Europe in 2007 for high-performance silicone applications, Quality Bond™ has gone from strength-to-strength and has a high level of fabricator and applicator membership around the world. The value of Quality Bond™ is recognized widely by architects and consultants who request and depend on Quality Bond™ members to uphold standards of application to ensure best performance, safety and durability of building projects.

For information on Quality Bond™ membership, visit [www.qualitybond.com](http://www.qualitybond.com) or contact your local Dow representative.



[www.qualitybond.com](http://www.qualitybond.com)





## Learn more



Dow is collaborating with industry professionals around the world to develop solutions to improve the energy efficiency of buildings for a more comfortable environment. Learn more about Dow's full range of High Performance Building solutions by visiting us online at [www.dow.com/construction](http://www.dow.com/construction).

Dow has sales offices, manufacturing sites, and science and technology laboratories around the globe. Find local contact information at [www.dow.com/contactus](http://www.dow.com/contactus).



# DOWSIL™

silicones by 

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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.

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