Product Information
High Performance Building

DOW CORNING

Dow Corning® 991 Silicone High Performance Sealant

FEATURES & BENEFITS

- Non-staining on natural stone and reduces residue rundown on metal and glass panels
- Medium modulus, high movement capability - can accommodate ± 50% movement in a properly designed joint
- Good unprimed adhesion to a wide variety of building materials such as natural stone, glass, metal, ceramic tile, fluorocarbon paint finishes and anodized aluminum
- Outstanding UV and weathering resistance
- Good working time
- 10-year Limited Weatherseal and Non-Staining Warranties are available
- One-part easy to use formulation
- Formulated to prevent staining of porous substrates and reduce streaking on glass and metal panels to improve building aesthetic performance
- Excellent weathering and durability resulting in longer lifecycle and superior long-term weatherproofing
- Excellent unprimed adhesion to most building substrates

COMPOSITION

- One-part, neutral cure silicone

Medium-modulus elastomeric sealant designed for weatherproofing sensitive natural stone, glass and metal panels

APPLICATIONS

Dow Corning® 991 Silicone High Performance Sealant is specially formulated to prevent staining of porous substrates such as natural stone and minimize streaking on metal panels and glass. It forms a durable, flexible, watertight bond with most building materials and can be used for new and remedial construction applications**.**

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*	Property	Unit	Result
As Supplied			
	Colors		Black, gray, bronze, white, limestone, charcoal, dark gray, sandstone and pink
ASTM C 679	Tack-free time, 50% R.H. +25°C	minutes	30
	Curing 25°C	days	7–14
ASTM C 639	Flow (sag or slump)	mm	< 2
	VOC content[1]	g/l	< 85
As Cured – After 7 days at +25°C			
ASTM D 412	Ultimate tensile strength	MPa	1.6
ASTM D 412	Ultimate elongation	%	900
As Cured – After 21 days at +25°C			
ASTM C 1135	Ultimate tensile strength	MPa	0.7
	Ultimate elongation	%	400
ASTM C661	Durometer hardness, Shore A	points	24
ASTM C 719	Joint movement capability, glass, aluminum	%	± 50
ASTM C 1248	Staining/migration, natural stone		None

*ASTM: American Society for Testing and Materials
[1]Based on South Coast Air Quality Management District of California maximum VOC is listed both inclusive and exclusive of water and exempt compounds. For a VOC data sheet for a specific sealant color, please send your request to product.inquiry@dowcorning.com.

DESCRIPTION

Dow Corning 991 Silicone High Performance Sealant is a medium modulus one part, elastomeric sealant specifically designed for weatherproofing sensitive natural stone, glass and metal panels where aesthetic considerations are important.

It cures to a flexible elastomer on exposure to atmospheric moisture, producing a durable, weather-resistant seal with the ability to form strong bonds with most building materials. Because of its medium modulus and good adhesion, it provides excellent weatherproofing performance in dynamically moving building joints.

Colors

Dow Corning 991 Silicone High Performance Sealant is available in nine colors: black, grey, bronze, limestone, white, charcoal, dark grey, sandstone and pink.

WEATHERSEAL JOINT DESIGN

A thin bead of silicone will accommodate more movement than a thick bead (see Figure 1).
Dow Corning 991 Silicone High Performance Sealant should be no thicker than 12 mm and no thinner than 6 mm for joints where excessive movement is expected. Ideally, the ratio of joint width to sealant depth should be about 2:1.

Figure 1:

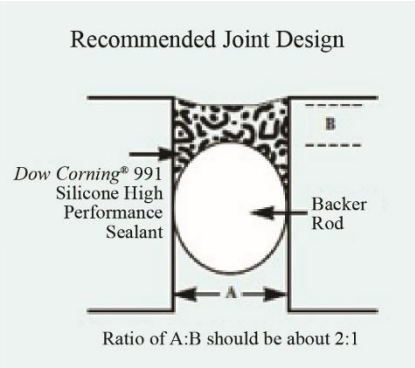
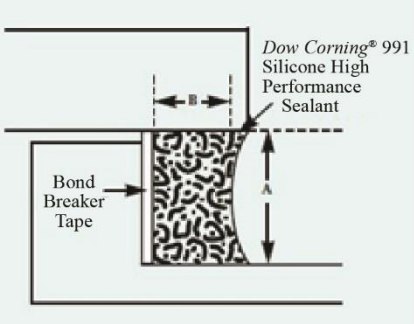


Figure 2:



Open-cell polyurethane foam, closed-cell polyethylene or non-gassing polyolefin are the recommended backing materials for most joints; use polyethylene tape for joints too shallow to allow backer rod (see Figure 2). These materials permit application for a thin bead and act as bond breakers, which allow the silicone sealant to move freely with the joint.

The width of building expansion joints vary because of seasonal and daily changes in temperature. If *Dow Corning* 991 Silicone High Performance Sealant cannot be installed when the design width is half way between the dimensional extremes, the designed joint should be at least twice the total anticipated joint movement. Good architectural practice calls for joint design of four times the anticipated movement due to construction tolerances and material variations.

Joints should be designed to allow installation and retention of bond breaking, backing material during the application and curing of *Dow Corning* 991 Silicone High Performance Sealant.

Joint Dimensions

For small curtain wall panels allow a minimum width of 6 mm for the sealant bead. With larger panels, or those in which a great deal of movement is expected, the joint size should be based on the calculated joint movement.

HOW TO USE

Clean all joints and glazing pockets, removing all foreign matter and contaminants such as grease, oil, dust, water, frost, surface dirt, old sealants or glazing compounds and protective coatings.

Non porous substrates (i.e. metal and glass) should be cleaned with solvent using the two cloth cleaning method. In all cases solvent should be wiped on and off with clean white lint-free cloths. Detergent or soap and water treatments are not acceptable.

Porous substrates should be cleaned by grinding, saw cutting, blast cleaning (sand or water) or mechanical abrading, or a combination of these methods as required to provide a sound, clean, dry surface for sealant application. Dust, loose particles, etc., should be blown out of joints with oil-free compressed air or vacuum cleaned.

Priming

When using *Dow Corning* 991 Silicone High Performance Sealant, priming is not usually required. However, sealant adhesion should always be tested to determine the need for a primer. Where required, primer should be applied in a thin film to the joint surface using a clean lint-free cloth and allowed to dry before sealant application.

Masking

Areas adjacent to joints may be masked to ensure neat sealant lines. Do not allow masking tape to touch clean surfaces to which the silicone sealant is to adhere. Tooling should be completed in one continuous stroke immediately after sealant application and before a skin forms. Masking tape should be removed immediately after tooling.

Backing Materials

Open cell polyurethane foam, closed-cell polyethylene or non-gassing polyolefin are the recommended backing materials. Polyethylene tape is recommended for joints too shallow to prevent three-sided adhesion.

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Method of Application
Install backing material or joint filler, setting blocks, spacer shims and tapes as specified. Apply *Dow Corning* 991 Silicone High Performance Sealant in a continuous operation using a positive pressure adequate to properly fill and seal the joint. Tool the *Dow Corning* 991 Silicone High Performance Sealant with light pressure to spread the sealant against backing material and the joint surfaces before a skin forms. A tool with a convex profile is recommended to keep the sealant within the joint. Do not use soap or water as a tooling aid. Remove masking tape as soon as the bead is tooled. *Dow Corning* 991 Silicone High Performance Sealant can be applied at outdoor temperatures as low as -25°C provided that surfaces are clean, dry and frost free. However, sealant will require considerable time to cure or may not cure in colder (below 4°C) temperatures.

It is imperative that uncured silicone sealants are not allowed to contact surfaces which cannot be abraded, such as polished granite or other natural stone. Because excess silicone sealant cannot be completely removed with organic or chlorinated solvents, these surfaces must be masked or extreme care taken to prevent any silicone from contacting them during sealant application. Once an uncured sealant contacts the surface, it will leave a film that may change the aesthetic surface characteristic of that substrate.

In cases where uncured sealant is inadvertently applied to non-porous adjacent surfaces, the sealant should be cleaned up, while still uncured, using a commercial solvent such as xylene, toluene or methyl ethyl ketone. Observe proper precautions when using flammable solvents.

Maintenance
No maintenance is needed. If sealant becomes damaged, replace the damaged portion. *Dow Corning* 991 Silicone High Performance Sealant will adhere to cured *Dow Corning* 991 Silicone High Performance Sealant with only a preparatory solvent wipe to remove accumulated dirt.

APPLICABLE STANDARDS
Dow Corning 991 Silicone High Performance Sealant meets or exceeds the test requirements of:

- ASTM Specification C-920. Type S, Grade NS, Class 50, Use T, NT, G, A and M
- GB23261-2009 1 SR 25 HM

SINGAPORE GREEN BUILDING PRODUCT SGBC VERY GOOD

SGBP 2014-395

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 CORNING WEBSITE AT DOWCORNING.COM, OR FROM YOUR DOW CORNING SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CORNING CUSTOMER SERVICE.

USABLE LIFE AND STORAGE
When stored at or below +30°C in the original unopened containers, *Dow Corning* 991 Silicone High Performance Sealant has a shelf life of 12 months from date of manufacture as indicated by the "use by date" included on the product packaging.

PACKAGING INFORMATION
Dow Corning 991 Silicone High Performance Sealant is supplied in 500/600 ml Turbo foil sausages.

LIMITATIONS
This product is not intended for use:

- In structural glazing applications or where the sealant is intended to be used as an adhesive
- In horizontal joint abrasion and where physical abuse are likely to be encountered
- In spaces totally confined from atmospheric moisture during cure
- On-frost-laden or damp surfaces
- For prolonged submersion in water
- On surfaces that might bleed oils, plasticizers or solvents such as impregnated wood, oil-based caulks, green or partially vulcanized rubber gaskets or tapes, bitumen-impregnated boards, felts, or sheets
- In below-grade applications
- On substrates made of poly-carbonate

Dow Corning 991 Silicone High Performance Sealant will not improve pre-existing staining or residue rundown conditions. Surface appearance of any sealant will depend upon environmental conditions.

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.

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For further information, please see our website, 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 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 Corning'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.

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

DOW CORNING DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

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