

Product Information

Silicone Sealants

DOW CORNING

Dow Corning® 790 Silicone Building Sealant

FEATURES

- Excellent performance even in building joints that experience extreme movement
- Low VOC content
- Easy application over a wide temperature range
- Extension/compression capability of +100/-50 percent

COMPOSITION

- Ultra-low-modulus, one-part, silicone sealant

Ultra-low-modulus sealant for new and remedial construction joint sealing applications

APPLICATIONS

Dow Corning® 790 Silicone Building Sealant offers outstanding unprimed adhesion to masonry and is particularly effective for sealing expansion and control joints, precast concrete panel joints, Exterior Insulation and Finish Systems (EIFS) joints, curtainwall joints, mullion joints, stone pavers and many other construction joints. The sealant forms a durable, flexible, watertight bond with most building materials in any combination: stone, masonry, ceramics, granite, wood, steel, aluminum and plastics.

TYPICAL PROPERTIES

Specification Writers: Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Method	Test	Unit	Result
As Supplied			
	Colors		11 colors, custom colors also available
ASTM C 679	Tack-Free Time, 50% RH	hours	1
	Curing Time, 50% RH, at 25°C (77°F)	days	7-14
	Full Adhesion	days	14-21
	Flow, Sag or Slump, in 3-inch (76-mm)-wide joint		None
	Working Time	minutes	10-20
	VOC Content (11 colors)	g/L	39
	VOC Content (custom colors)	g/L	43
As Cured – After 7 days at 25°C (77°F) and 50% RH			
ASTM C 661	Durometer Hardness, Shore A	points	15
ASTM D 412	Ultimate Tensile Strength, maximum elongation	psi (kg/mm²)	100 (0.070)
ASTM D 412	Elongation, maximum	percent	1600
ASTM C 794	Peel Strength	lb/in (kg/cm)	25 (4.46)
ASTM C 1135	Tensile Adhesion, at 25% extension	psi (kg/mm²)	15 (0.010)
	at 50% extension	psi (kg/mm²)	20 (1.015)
ASTM C 1135	Weathering, after 22,400 hours in QUV Weatherometer ASTM G 53		
	at 25% extension	psi (kg/mm²)	30 (0.021)
	at 50% extension	psi (kg/mm²)	40 (0.028)
ASTM C 719	Joint Movement Capabilities		
	Extension	percent	+100
	Compression	percent	-50
ASTM C 1248	Staining, after 14 days of 50% compression, at 70°C (158°F) on concrete, granite, limestone and brick		None
UL 263, ASTM E 119	Fire Endurance	hours	2

DESCRIPTION

Dow Corning 790 Silicone Building Sealant is a one-part silicone formulation that cures in the presence of atmospheric moisture to produce a durable, fire-resistant, flexible and ultra-low-modulus silicone rubber building joint seal.

Because of its ultra-low modulus, high elongation, compression/extension recovery, and its ability to form strong, durable bonds with most building materials, this sealant provides excellent performance, even in building joints that experience extreme movement. It is recommended as a remedial sealant for joints in which other materials have badly weathered or failed due to excessive movement. The high joint movement ability of *Dow Corning 790 Silicone Building Sealant* allows the repair of failed joints, generally with no joint widening – saving time and labor costs.

Dow Corning 790 Silicone Building Sealant does not contain PCBs or asbestos. (See Typical Properties).

Dow Corning 790 Silicone Building Sealant is an ultra-low-modulus material; therefore, joint movement places only a low stress on the sealant/substrate bond line. The material also shows good recovery from extension and compression. It is this unique blend of properties that enables this sealant to perform well, even in joints that experience movement extremes.

Dow Corning 790 Silicone Building Sealant is available in 11 colors: black, precast white, gray, natural stone, bronze, adobe tan, blue spruce, rustic brick, sandstone, charcoal and dusty rose. Custom colors are available upon request.

Approvals/Specifications

Dow Corning 790 Silicone Building Sealant is USDA-authorized in six colors for sealing non-food contact areas in USDA-regulated facilities.

Dow Corning 790 Silicone Building Sealant has been tested by UL and meets the two-hour fire resistance ratings with or without the use of mineral wool as a backer (in a joint configuration sealing system without a protective cover plate). *Dow Corning 790 Silicone Building Sealant* also holds up when exposed to a high-pressure water force without a protective cover plate.

Dow Corning 790 Silicone Building Sealant exceeds the durability requirements of:

- ASTM Specification C 920, Type S, Grade NS, Class 25, Use T, NT, M, G, A and O
- Federal Specification TT-S-001543A for silicone building sealants
- Federal Specification TT-S-00230C for one-component building sealants
- Fire Tests of Building Construction and Materials, UL 263 (ASTM E 119)
- Canadian Specification CAN2-19.13-M82

Data from an independent test lab and SWRI validation is available from Dow Corning and the SWRI.

HOW TO USE

Refer to the *Dow Corning Americas Technical Manual*, Form No. 62-1112, for detailed information on joint design, preparatory work, priming, masking and application techniques.

Fire Rating

In a properly designed joint, *Dow Corning 790 Silicone Building Sealant* can be applied without a cover

plate and with or without a mineral wool backer material, yet still be fire resistant (see Table I and Figure 1). See UL Fire Resistance Directory Design U 900 D.

Preparatory Work

Clean all concrete, masonry and stone joints of all contaminants and impurities. Porous substrates should be cleaned where necessary by grinding, saw cutting, blast cleaning (sand or water), mechanical abrading or a combination of these methods as required to provide a sound, clean, dry surface for sealant application.¹ Dust, loose particles, etc., should be blown out of joints with oil-free compressed air or be vacuum cleaned.

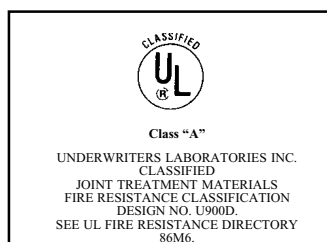
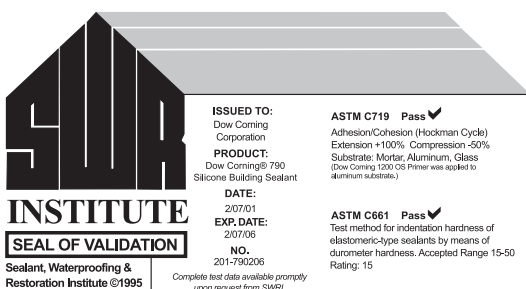
Metal and glass surfaces adjacent to masonry should be cleaned by wiping with an oil-free absorbent cloth saturated with solvent such as xylene or toluene. *Do not use alcohols as they inhibit the cure.*²

Priming

Primer should be applied before installing the backer rod. Applying a bead of silicone sealant to the substrate material to test adhesion prior to general use is always recommended.

Primer is not required with concrete, glass, limestone, granite and most porous surfaces. Most aluminum substrates (painted, mill, anodized, etc.) and other nonporous surfaces require use of a primer. See Table I and consult Dow Corning for priming recommendations on other materials.

In all cases, a sample should be tested and/or test joints should be installed on the project.



¹Dow Corning's recommendations for removal of existing sealants, substrate cleaning, joint preparation and installation of *Dow Corning®* brand silicone building sealants are not intended and may not be appropriate for remedial work involving existing sealants and/or joints containing PCBs or other potentially hazardous substances. If you know or suspect that the existing sealants and/or joints contain PCBs or other hazardous substances, contact a knowledgeable authority on appropriate removal, handling and disposal procedures.

²Follow the solvent manufacturer's safe handling recommendations and local, state and federal regulations regarding solvent usage.

Table I: UL Fire Resistance Rating for Joints Using *Dow Corning 790 Silicone Building Sealant* (Per UL 263, ASTM E 119)

Maximum Joint Width, inches	Exterior Joint Sealant Thickness, inches (mm)	Forming Material	Forming Material Thickness (Item 2), inches (mm)	Rating, hours
1	1½ (38) ¹	Backer Rod	—	1.5
3	½ (13)	Mineral Wool	3 (76)	2

¹This is not a typical joint design. Cure time for such a design will be considerably lengthened, but the sealant will still seal. This is not a recommended design for dynamic joint applications.

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 should be removed immediately after tooling.

Application

Dow Corning 790 Silicone Building Sealant should be applied in a continuous operation. A positive pressure adequate to properly fill and seal the joint width should be employed. Tool or strike *Dow Corning 790 Silicone Building Sealant* with light pressure to spread the material against the back-up material and the joint surfaces. *Do not use soaps, oil or alcohols as tooling aids as they inhibit the cure.*

Use a tool with a concave profile to keep *Dow Corning 790 Silicone Building Sealant* within the joint. The sealant can be applied at outdoor temperatures as low as -29°C (-20°F), provided that surfaces are clean, dry and frost-free. As a general rule, condensation or frost should not be a problem above 4.4°C (40°F).

Do not allow uncured silicone sealants to contact nonabradable surfaces such as polished granites, metal or glass. Uncured sealant will leave a film that may change the aesthetic surface characteristics of these substrates. Inadvertently applied sealant should be cleaned from nonporous surfaces before curing using solvent.

HANDLING PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT.

BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE ON THE DOW CORNING WEBSITE AT WWW.DOWCORNING.COM, OR FROM YOUR DOW CORNING REPRESENTATIVE, OR DISTRIBUTOR, OR BY CALLING YOUR GLOBAL DOW CORNING CONNECTION.

USABLE LIFE AND STORAGE

When stored at or below 32°C (90°F), *Dow Corning 790 Silicone Building Sealant* has a shelf life of 12 months from date of manufacture. Refer to product packaging for “Use By” date.

PACKAGING

Dow Corning 790 Silicone Building Sealant is packaged in 10.3-fl oz (305-mL) disposable cartridges that fit ordinary caulking guns, 20-fl oz (590-mL) E-Z Pak foil sausages that fit caulking guns, and also in 2.0- and 4.5-gal (7.5- and 17-L) bulk pails. It

can be dispensed by many air-operated guns and most types of bulk dispensing equipment.

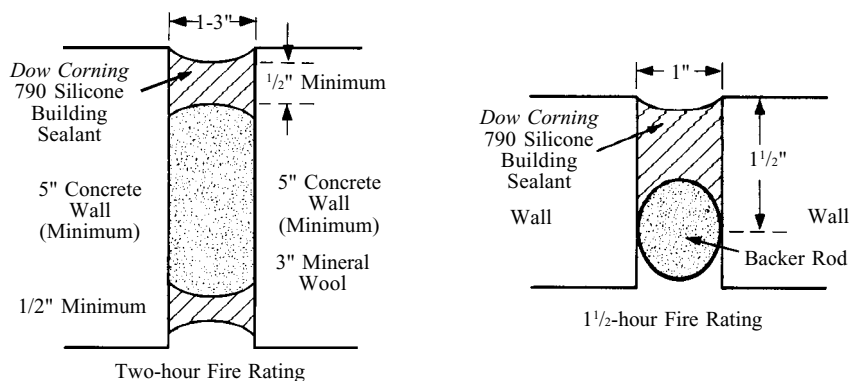
LIMITATIONS

Dow Corning 790 Silicone Building Sealant should not be applied:

- Below grade.
- On brass.
- To surfaces that are continuously immersed in water.
- For use as an interior penetration firestop sealing system.
- To building materials that bleed oils, plasticizers or solvents – materials such as impregnated wood, oil-based caulks, green or partially vulcanized rubber gaskets or tapes or bituminous below-grade waterproofing and asphalt-impregnated fiberboard.
- In totally confined spaces because the sealant requires atmospheric moisture for cure.
- To surfaces that will be painted. The paint film will not stretch with the extension of the sealant and may crack and peel.
- To surfaces in direct contact with food. This sealant has not been tested to determine its status under Federal Food and Drug Administration regulations. (For food contact use, *Dow Corning*® 999-A Silicone Building & Glazing Sealant is recommended.)
- To wet or frost-laden surfaces.

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Figure 1: Exterior Joint Sealing Configurations and Fire Ratings (Per UL 263, ASTM E 119)



See UL Fire Resistance Directory Design U 900 D.

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.

For further information, please see our website, www.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 Dow Corning's 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.

Limited Weatherseal Warranty

Dow Corning Corporation produces and sells a full line of silicone construction sealants and adhesives. These products offer a variety of physical characteristics and adhesion properties. *Dow Corning* 790 Silicone Building Sealant is part of that line and, when used in vertical applications with compatible substrates and when applied within the stated shelf life and according to manufacturer's recommendations for application and joint design, Dow Corning warrants that it will perform as a watertight

weatherseal for a period of 20 years from the date of purchase.³ Warranty for horizontal applications varies by project.⁴

In addition to maintaining the integrity of the weatherseal, the sealant will not change color when used with back-up materials and substrates that have been approved for compatibility by Dow Corning either after specific testing or noted in a current Dow Corning publication.

Limitations

This warranty specifically excludes failure of the sealant due to:

- Natural causes that exceed design specifications
- Movement of the structure resulting in stresses on the sealant that exceed Dow Corning's published specifications for elongation and/or compression for the sealant, whether due to structural settlement, design error or construction error
- Use in a structural application
- 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, you must notify Dow Corning Corporation in writing within 30 days of the occurrence of the claimed defect and provide Dow Corning with the opportunity to inspect. Dow Corning's sole responsibility shall be to furnish

sufficient silicone replacement material to restore the integrity of the weatherseal. Any labor or other costs associated with the repairs are the responsibility of the owner. **DOW CORNING SHALL NOT BE LIABLE FOR AND EXPRESSLY DISCLAIMS ANY LIABILITY FOR DAMAGE TO THE CONTENTS OF THE STRUCTURE OR FOR CONSEQUENTIAL OR INCIDENTAL DAMAGE, WHETHER IN CONTRACT OR IN TORT, INCLUDING NEGLIGENCE. THIS WARRANTY IS IN LIEU OF ALL OTHER WRITTEN OR ORAL, EXPRESS OR IMPLIED WARRANTIES AND DOW CORNING SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.**

Silicone Structural Adhesives

Dow Corning 790 Silicone Building Sealant is not intended for use as a structural adhesive and Dow Corning Corporation disclaims any express or implied warranty of fitness for use in structural applications. *Dow Corning*® 795 Silicone Building Sealant, *Dow Corning*® 995 Silicone Structural Adhesive and *Dow Corning*® 983 Silicone Glazing and Curtainwall Adhesive/Sealant may be used for structural applications after compatibility and adhesion testing and print/specification review by Dow Corning. For details on how to obtain the structural warranty, please contact a Dow Corning Sales Specialist.

³In some specific product applications, Dow Corning may offer a specific warranty in lieu of the 20-year Weatherseal Limited Warranty. Please consult your local Dow Corning Sales Specialist for details on how to obtain a specific warranty.

⁴Horizontal applications requiring a warranty must be reviewed by a Dow Corning Sales Specialist.