

Dow Corning® 999-A Silicone Building & Glazing Sealant

1. PRODUCT NAME

Dow Corning® 999-A Silicone Building & Glazing Sealant

2. MANUFACTURER

Dow Corning Corporation
Midland, MI 48686-0994
Phone: (517) 496-6000
FAX: (517) 496-4586

3. PRODUCT DESCRIPTION

Dow Corning 999-A Silicone Building & Glazing Sealant is an easily applied, one-part sealant that cures in the presence of atmospheric moisture to produce a durable and flexible glazing and curtainwall seal.

Basic Uses: Dow Corning 999-A Silicone Building & Glazing Sealant is intended for building construction applications and is particularly effective for glazing butt and lap shear joints and sealing curtainwall projections and other glass, plastic and metal assemblies. It is also appropriate for general construction applications.

It may be factory applied as a primary seal to glass, plastic and metal assemblies.

Primer is usually required on plastic and metal substrates.

Limitations: Dow Corning 999-A Silicone Building & Glazing Sealant is not recommended for use in applications involving:

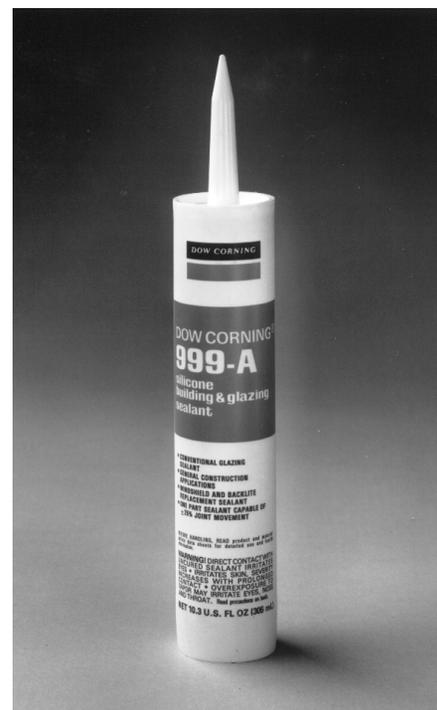
- Structural silicone glazing
- Joints where physical abuse or abrasion is likely to be encountered
- Prolonged water immersion
- Porous surfaces, such as masonry
- Building materials that might bleed oils, plasticizers or solvents – materials such as impregnated wood, oil-based caulks, green or partially vulcanized rubber gaskets or tapes

- Totally confined spaces, because the sealant requires atmospheric moisture for cure
- Surfaces sensitive to corrosion by acetic acid vapors (a byproduct of sealant cure)
- Surfaces that will be painted (paint will not stretch with the extensions of the sealant and may crack and peel); complete all painting prior to using sealant

- Bonding to secondary seal of insulating glass units sealed with two-part silicone sealants

- Auto trim
- Appliance trim (i.e., adhesive trim)

Black Dow Corning 999-A Silicone Building & Glazing Sealant is recommended for glass-to-glass butt joints because butt joints sealed with clear sealant may contain small amounts of air that are trapped during



TYPICAL PROPERTIES

These values are not intended for use in preparing specifications.

As Supplied

ASTM C 679	Tack-Free Time at 25°C (77°F), 50% RH, minutes	10-20
	Tooling Time, minutes	5-10
ASTM C 639	Flow, sag or slump	Nil
	Color	Clear, white, bronze, light bronze, black, aluminum and custom colors

As Cured – 7 days at 25°C (77°F) and 50% RH

ASTM D 2240	Durometer Hardness, Shore A, points	25
ASTM D 412	Ultimate Tensile Strength, psi (MPa)	325 (2.1)
ASTM D 624	Tear Strength, ppi (kN/m)	25 (4.4)
ASTM C 794	Peel Strength, pli (kN/m)	20 (3.5)
ASTM C 603	Extrusion Rate, g/min	350

Specification Writers: Please obtain a copy of the Dow Corning Sales Specification for this product and use it as a basis for your specifications. It may be obtained from any Dow Corning Sales Office, or from Dow Corning Customer Service in Midland, MI. Call 1-800-322-8723.

Table I: Estimating Requirements

Linear Feet Per Gallon of <i>Dow Corning</i> 999-A Silicone Building & Glazing Sealant for Various Joint Sizes								
Width, Inches								
Depth, Inches		1/8	1/4	3/8	1/2	5/8	3/4	1
	1/8	1232	616	411	307	246	205	154
	3/16	–	411	275	205	164	137	103
	1/4	–	307	205	154	123	103	77
	3/8	–	–	137	103	82	68	51
	1/2	–	–	103	77	62	51	39

the packaging and/or application of the sealant. Appearance standards should be established and agreed upon prior to sealant application.

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

Composition and Materials:

Dow Corning 999-A Silicone Building & Glazing Sealant is a silicone material that is chemically stable and shows little change in physical properties with weathering.

Dow Corning 999-A Silicone Building & Glazing Sealant is supplied as a one-part, ready-to-use material, which has a toothpaste-like consistency. It can be used over a wide temperature range of -37 to 60°C (-35 to 140°F), allowing the sealants to be applied easily in any kind of weather.

Primers: When applying *Dow Corning* 999-A Silicone Building & Glazing Sealant to nonreflective glass surfaces, priming is not required. Refer to the *Surface Preparation Guide*, No. 61-182, for more specific recommendations. In cases where doubt exists, a sample should be tested before full-scale use.

Packaging: *Dow Corning* 999-A Silicone Building & Glazing Sealant is packaged in 10.3-fl oz (305-mL) disposable cartridges, which fit ordinary caulking guns, and 4.5-gal (17-L) bulk pails. It can be dispensed by many air-operated guns and most types of bulk dispensing equipment.

Colors: *Dow Corning* 999-A Silicone Building & Glazing Sealant is available in six standard colors: clear, white, bronze, light bronze, black and aluminum. In addition, custom colors can be matched to customer-supplied samples.

4. TECHNICAL DATA

Dow Corning 999-A Silicone Building & Glazing Sealant is resistant to sunlight, rain, sleet, snow, ultraviolet radiation, ozone and temperature extremes. Its unique weatherability enables it to retain its design properties even after years of exposure. Joint performance does not change significantly with aging or exposure to weather. Seals remain watertight and weatherproof.

Cured sealant will not harden in cold to -60°C (-76°F) or soften with heat to 177°C (350°F) with intermittent temperatures up to 200°C (392°F). It will not become brittle, tear or crack; silicone sealant stays flexible.

Dow Corning 999-A Silicone Building & Glazing Sealant is compatible with most laminated glass, acrylic and polycarbonate glazing sheets, and all one-part *Dow Corning*® brand silicone construction sealants. However, adhesion and compatibility must be evaluated in each instance prior to sealant use and one sealant should be applied only after the other has fully cured.

Applicable Standards:

Dow Corning 999-A Silicone Building & Glazing Sealant meets the qualifications of:

- Federal Specification TT-S-001543, Class A
- Federal Specification TT-S-00230, Class A
- FDA Regulation No. 21 CFR 177.2600 (subject to end use compliance with any applicable total extractives limitations) – some custom colors may not meet this regulation; contact *Dow Corning* for information regarding custom colors
- Canadian Specification CAN2-19.13-M82
- ASTM C 920 specification
- Chemically acceptable for application to surfaces and equipment that may contact edible products in establishments operating under the USDA federal meat and poultry inspection program

5. INSTALLATION

Joint Design: A thin bead of sealant will accommodate more movement than a thick bead.

Dow Corning 999-A Silicone Building & Glazing Sealant should be no thicker than 1/2 inch (13 mm) and no thinner than 1/4 inch (6 mm). Ideally, the ratio of joint width to sealant depth should be about 2:1 (see Figure 3).

Polyurethane or polyethylene foam rod is the recommended backup material for deep joints; polyethylene tape is recommended for joints too shallow to allow foam rod. These materials permit application of a thin bead and act as bond breakers that allow the silicone sealant to stretch freely with the joint movement.

Glazing rabbets and joints should be designed to allow installation and retention of the bond-breaking backup material during the installation and curing of *Dow Corning* 999-A Silicone Building & Glazing Sealant.

Lap shear joints should have a bead width that is equal to, or greater than, the total anticipated movement.

Joint Dimensions: Small curtainwall panels and lites should allow a

Figure 1: Cap Bead Glazing

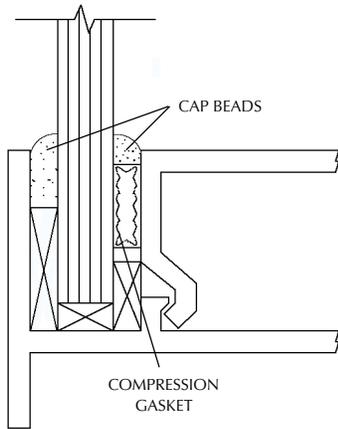


Figure 3: Recommended Joint Design

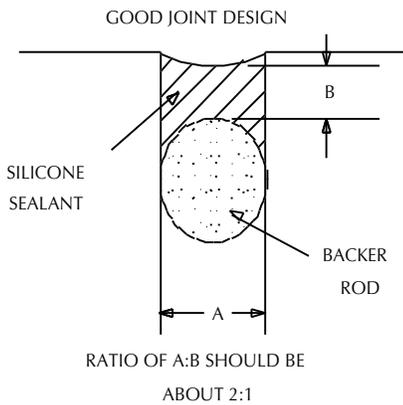


Figure 5: Sealing Moving Fillet Joints

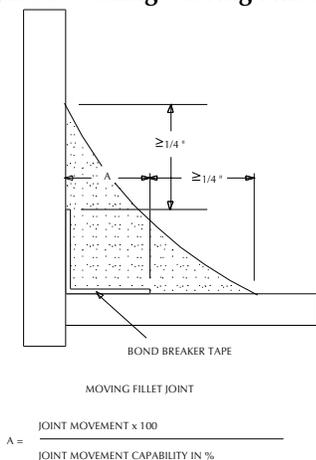


Figure 2: Butt Joint Glazing

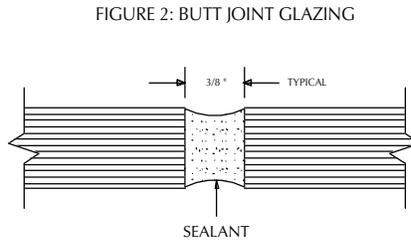
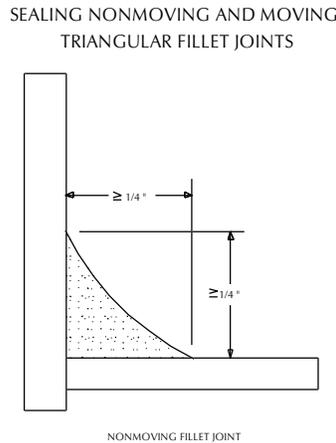


Figure 4: Sealing Nonmoving Fillet Joints



minimum width of 1/4 inch (6 mm) for the sealant bead. Larger panels and lites, or those in which a great deal of movement is expected, should allow a minimum width of four times the expected movement. Glazing of plastic lites and panels fabricated from plastic require larger than usual joint dimensions due to the plastic's higher coefficient of thermal expansion. For these applications, *Dow Corning® 795 Silicone Building Sealant* or *Dow Corning® 791 Silicone Perimeter Sealant* is recommended.

Preparatory Work: Bonding surfaces on both new and remedial jobs must be sound, dry, and free of all foreign matter and contaminants such as grease, oil, dust, water, soap residue, frost, surface dirt and old sealants or glazing compounds and protective coatings.

Dow Corning 999-A Silicone Building & Glazing Sealant will adhere to cured silicone sealant with a preparatory solvent wipe to remove accumulated dirt.

Wipe the surfaces using a clean, oil-free rag saturated with solvent such as xylol, toluol or methyl ethyl ketone.¹

Clean metal, glass and plastic surfaces by mechanical or solvent procedures. Do not clean surfaces with soap, detergent or any water-based cleaner. Wipe solvents on with a clean, oil- and lint-free, absorbent cloth. Remove solvent before it dries, using a clean, dry cloth.

Do not flood surfaces with more solvent than necessary. Make sure that apparently clean surfaces are not covered with a thin film of construction dust.

Priming: When using *Dow Corning 999-A Silicone Building & Glazing Sealant* on nonreflective glass surfaces, priming is not usually required. Placing a bead of the silicone sealant on the substrate material to test adhesion prior to general job use is always recommended.

¹Always follow solvent manufacturer's recommended safe handling information and applicable federal, state and local regulations.

Masking: Areas adjacent to joints should be masked to ensure neat sealant lines. Do not allow masking tape to touch clean surfaces to which the silicone sealant will 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 and before a skin forms (5-10 minutes).

Method of Application: Dow Corning acetoxymethyl sealants can be applied directly from the caulking cartridge with either an air-operated or hand-operated cartridge gun. Do not break the cartridge seal until just before use.

Install backup material or joint filler, setting blocks, spacer shims and tapes as specified. Apply the sealant in a continuous operation using a positive pressure adequate to properly fill and seal the joint.

Tooling: Tooling is recommended and, if possible, should be completed in one continuous stroke. Tool or strike the sealant with light pressure to spread the material against the backup material and the joint surfaces. A tool with a concave profile is recommended to keep the sealant within the joint.

When glazing, tool the sealant applied at the sill so that precipitation and cleaning solutions will not pool.

Tool the joint within 10 minutes of application. Remove masking tape before a surface skin begins to form.

Once a surface skin begins to form, it will be torn off when the tape is removed, leaving a rough surface.

After applying the sealant and a skin has formed, do not disturb the joint for 48 hours.

Clean-Up: Excess sealant should be cleaned off tools and nonporous surfaces while it is in the uncured state, by using a solvent such as xylol, toluol or methyl ethyl ketone.¹

Should sealant accidentally contact adjacent porous surfaces, the excess sealant should be allowed to progress through the initial cure or set-up. It should then be removed by abrasion or other mechanical means.

Short-Term Storage: After use, simply remove the excess material from the tip. To reopen the cartridge, remove the cured plug from the opening.

Safe Handling Information:
PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED. 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 FROM YOUR DOW CORNING REPRESENTATIVE, OR DISTRIBUTOR, OR BY WRITING TO DOW CORNING CUSTOMER SERVICE, OR BY CALLING 1-800-322-8723.

6. AVAILABILITY AND COST

Availability: Dow Corning 999-A Silicone Building & Glazing Sealant is marketed throughout the United States, Canada, Europe, Latin America, Australia and Japan through distributors and building supply outlets.

7. WARRANTY

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 999-A Silicone Building & 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 Corning warrants that this sealant will perform as a watertight weatherseal for a period of 10 years from the date of purchase. In addition to maintaining the integrity of the seal, the sealant will not change color when used with backup materials and substrates that have been approved for compatibility by Dow Corning, either after specific testing or noted in a current Dow Corning publication. However, light-colored silicone will yellow when in contact with neoprene, EPDM or santoprene.

¹Always follow solvent manufacturer's recommended safe handling information and applicable federal, state and local regulations.

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

- Natural causes such as lightning, earthquake, hurricane, tornado, fire, etc., or
- Application to unapproved back-up or substrate materials such as masonry, or
- 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, 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, or
- Prolonged submersion in water (i.e., marine applications).

Remedies: In the event of a claim under this warranty, Dow Corning Corporation must be notified in writing within 30 days of the failure. Dow Corning's sole liability shall be to

provide 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 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 999-A Silicone Building & Glazing Sealant* is NOT intended for use as a structural adhesive.

Certain *Dow Corning*[®] silicone construction sealants may be used for structural applications, but Dow Corning Corporation disclaims any general adhesion warranty, whether express or implied. For these construction sealants, Dow Corning will issue project-specific Structural Adhesion Warranties after Dow Corning

has reviewed the pertinent building specifications and has completed adhesion and compatibility testing of the various materials to be used with the sealants. For details on how to obtain a Structural Adhesion Warranty, please contact your Dow Corning field representative.

8. MAINTENANCE

No maintenance should be needed. Cured sealant can be cleaned with soap and water. If sealant becomes damaged, replace damaged portion.

9. TECHNICAL SERVICES

Complete technical information and literature are available from authorized Dow Corning distributors. Laboratory facilities, technical service and a list of distributors are available from Dow Corning. For assistance, call 1-800-322-8723.

10. FILING SYSTEMS

- Sweet's Catalogs Section 07900/DOW
- Architectural specifications and complete technical literature are available upon request. Contact Dow Corning for specific bulletins.

DOW CORNING NORTH AMERICA FIELD SALES OFFICES:

ATLANTA

1225 Northmeadow Parkway, Suite
104
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(847) 541-3430

DETROIT

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Plymouth, MI 48170
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GREENSBORO

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Greensboro, NC 27407
(336) 547-7272

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Col. Polanco
Delegacion Miguel Hidalgo
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525 327 1300

DOW CORNING U.S. CONSTRUCTION TESTING LABORATORIES:

ATLANTA

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1225 Northmeadow Parkway, Suite
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Roswell, GA 30076
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MIDLAND

Dow Corning Corporation Test Lab
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Auburn, MI 48611
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(510) 490-9302

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The information and data contained herein are based on information we believe reliable. You should thoroughly test any application and independently conclude satisfactory performance before commercialization. Suggestions of uses should not be taken as inducements to infringe any particular patent.

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DOW CORNING

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