

Silicone Sealants

Dow Corning® 888 Silicone Joint Sealant

FEATURES

- Easy to use
- All-temperature gunnability
- Unprimed adhesion
- Seals irregular surfaces
- High movement capability
- Low modulus
- Fully elastic
- Resilient
- Good weatherability
- Fast cure – typically tack-free surface in one hour or less
- Long-life reliability

COMPOSITION

- One-part, cold-applied silicone that cures to a durable, flexible, low-modulus silicone rubber joint seal

Low-modulus silicone sealant for new and remedial joint sealing applications in Portland cement concrete

APPLICATIONS

- Sealing transverse contraction and expansion joints, longitudinal, center line and shoulder joints in Portland cement concrete (PCC)

TYPICAL PROPERTIES

Specification Writers: Please contact your local Dow Corning Sales Application Engineer or Dow Corning Customer Service before writing specifications on this product.

| Test | Unit | Result |
|---|------------------|-------------|
| As Supplied | | |
| Color | | Gray |
| Flow, Sag or Slump | | Nil |
| Extrusion Rate | grams per minute | 90-250 |
| Specific Gravity | | 1.450-1.515 |
| Skin-Over Time, at 25°C (77°F) | minutes | 10 |
| Tack-Free Time, at 25°C (77°F) | minutes | 60 |
| Cure Time, at 25°C (77°F) | days | 7-14 |
| Full Adhesion | days | 14-21 |
| As Cured – after 7 days at 25°C (77°F) and 50 percent RH | | |
| Elongation, minimum | percent | 1200 |
| Modulus, at 150 percent elongation, maximum | psi (kPa) | 45 (310) |
| Durometer Hardness, Shore A | points | 15-25 |
| Joint Movement Capability, +100/-50 percent, 10 cycles | | No failure |
| Adhesion to Concrete, minimum elongation | percent | +500 |

DESCRIPTION

Dow Corning® 888 Silicone Joint Sealant can be used as the original sealant in new concrete construction or as a remedial or repair sealant in old construction. In new construction, it provides the extra insurance needed if all the “shrink” or contraction cracks do not occur during the initial “weakening” step. Thus, two or three concrete lengths act in unison, stressing a sealant two or three times the design dimensions or movement.

Because of its low-modulus characteristics and good extension/compression recovery (+100/-50 percent of original joint width), *Dow Corning 888 Silicone*

Joint Sealant gives outstanding performance in highway, airport and bridge joints in which high movement occurs.

Highway concrete contraction/expansion joints are generally sealed to prevent erosion of pavement sub-base and/or corrosion of metal tie bars embedded in the concrete. Such corrosion results from water and deicing chemicals entering the joints at the pavement surface.

Sealing of highway joints also prevents spalling and breakage of concrete along the slab edge, which occurs when noncompressibles (dirt,

stones and/or ice) are forced into or form in the joint.

For use in repair or remedial applications where other joint sealing materials have failed because of excessive movement or poor weatherability, *Dow Corning 888 Silicone Joint Sealant* can be used to seal irregularly shaped and/or spalled joints. Thus, the joints do not need reforming before sealing. These joints should be dry and free of all old sealing compounds.

Benefits

- Easy to use – one-component, cold-applied, ready-to-use as supplied; no mixing required; dispensed directly from bulk container into joint by hand or with an air-powered pump.
- All-temperature gunnability – consistency is relatively unchanged over normal installation temperature range.
- Unprimed adhesion – primer is not required for bonding to PCC. For optimum adhesion, the surface must be clean, dry and frost-free.
- Seals irregular surfaces – can be used to seal joints where spalls have occurred, provided adequate contact is made between sealant and substrate.
- High movement capability – the sealant will perform in a continuous joint movement of +100/-50 percent. In new construction, it will take the 25 percent movement of each of two or three slab lengths working in unison before all the “shrink” or contraction cracks occur.
- Low modulus – the sealant stretches 100 percent in the joint with very little force. This places very little strain on the bond line or joint wall, which maximizes the probability of a successful seal with continuous joint movement. Joint movement caused by temperature, traffic and faulting requires a sealant that does not strongly resist stress and/or shear.
- Fully elastic – the sealant can be stretched to 100 percent or compressed to 50 percent of the joint

bond width and held there. When released, it will recover 95 percent or greater of the original dimension. The extension and/or compression can be repeated many times and the sealant will resume its original shape without splits or cracks. Thus, when properly installed in a highway contraction joint, it does not “pump” out of the joint during compression. Nor does it split, crack or lose adhesion during extension.

- Resilient – once cured, the sealant prevents stones and other noncompressibles from entering the joint by “squeezing” them out as soon as the force pushing these noncompressibles into the sealant is removed.
- Good weatherability – its 100 percent silicone rubber is virtually unaffected by sunlight, rain, snow, ozone or temperature extremes.
- Fast cure – typically, the sealant will have a tack-free surface in one hour or less. With this fast cure and recessed joint design, the road can be opened soon after sealing in most applications.

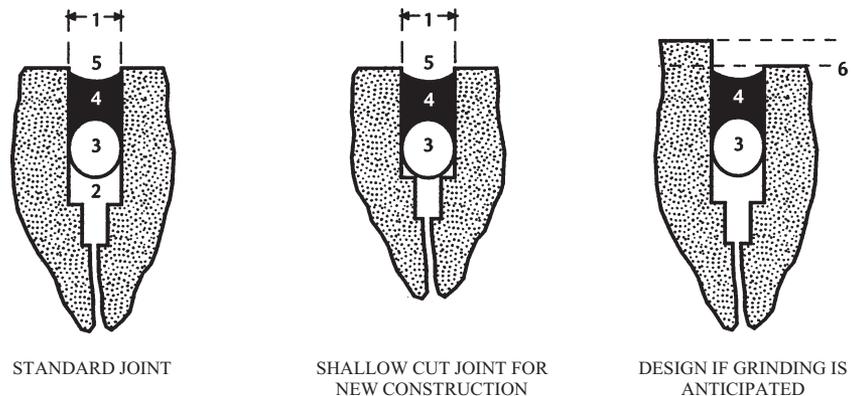
- Long-life reliability – under normal conditions, cured sealant stays rubbery from -45 to 149°C (-49 to 300°F) without tearing, cracking or becoming brittle.

Applicable Standards

Meets and/or exceeds ASTM D 5893-96 “Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements,” Type NS (Non-Sag). In addition, the Federal Aviation Administration has published the “FAA Engineering Brief 36 – Silicone Joint Sealants.” This publication approves the use of these materials in airfield situations.

Meets and exceeds both Federal Specifications TT-S-001543A Class A (one-part silicone sealants) and TT-S-00230C Class A (one-component sealants) that were written for construction sealants requiring extremely high movement capability. Also meets Canadian Specification 19GP9 Type I and approximately 41 Department of Transportation (DOT)

Figure 1: Good Joint Design



1. Joint width wide enough to accommodate movement. (For additional information on joint width, see papers by Spells and Klosowski, “Silicone Sealants for Use in Concrete Construction,” Vol. 1, No. 1, *American Concrete Institute*, SP-70, 1981; J.B. Cook, “Construction Sealants and Adhesives,” Wiley-Interscience, 1970; and J.M. Klosowski, “Sealants in Construction,” Marcel Dekker, 1989.)
2. Joint sawed deep enough to allow backer rod/sealant placement and space for pumping of old sealant compounds. NOTE: This applies to standard joints only; void space beneath backer rod in new construction is not needed.
3. Proper backer rod placement to prevent three-sided adhesion.
4. Sealant installed to proper depth and width.
5. Sealant tooled 1/4 to 1/2 inch (6 to 13 mm) below pavement surface.
6. Depth of lowest slab determines the amount of recess required if grinding is anticipated; once grinding is complete, the sealant will have proper recess below the pavement surface.

Table I: Recommended Backer Rod Installation (Shallow Cut)¹

| Measured in Inches | | | | | | |
|--------------------------------|----------|--------------|--------------|--------------|--------------|--------------|
| Joint Width | 1/4" | 3/8" | 1/2" | 3/4" | 1" | 2" |
| Recessed Below Surface | 3/8" | 3/8" | 3/8" | 3/8" | 3/8-1/2" | 3/8-1/2" |
| Sealant Thickness | 1/4" | 1/4" | 1/4" | 3/8" | 1/2" | 1/2" |
| Backer Rod Diameter | 3/8" | 1/2" | 5/8" | 7/8" | 1 1/4" | 2 1/2" |
| Total Joint Depth | 1-1 1/8" | 1 1/8-1 1/4" | 1 1/4-1 3/8" | 1 5/8-1 3/4" | 2 1/4-2 3/8" | 2 1/2-2 5/8" |
| Measured in Millimeters | | | | | | |
| Joint Width | 6 mm | 9 mm | 13 mm | 19 mm | 25 mm | 51 mm |
| Recessed Below Surface | 9 mm | 9 mm | 9 mm | 9 mm | 9-13 mm | 9-13 mm |
| Sealant Thickness | 6 mm | 6 mm | 6 mm | 9 mm | 13 mm | 13 mm |
| Backer Rod Diameter | 9 mm | 13 mm | 16 mm | 22 mm | 32 mm | 64 mm |
| Total Joint Depth | 25-29 mm | 29-32 mm | 32-35 mm | 41-44 mm | 57-60 mm | 64-67 mm |

¹On road surfaces where grinding is planned at a later date, the sealant and backer rod should be installed so that sealant is approximately 3/8 inch (9 mm) below the road surface after grinding is complete. An additional small amount should be added to allow for surface imperfections on the bottom and to provide room for old sealant to pump up from below during rehabilitation work in the summer months.

specifications that require a low-modulus sealant with high movement capability.

HOW TO USE

Please refer to the *Pocket Installation Guide* for additional information on applications, preparation and installation information.

Low-modulus *Dow Corning* 888 Silicone Joint Sealant easily withstands extreme joint movement when properly applied. The sealant will withstand 100 percent extension and 50 percent compression of the original joint width. However, the recommended joint movement design is for ±25 percent (50 percent total) and not at the sealant limits. This difference ensures a successful seal when job site joint widths are different than designed widths. Therefore, the joint design dimensions should be less than the ultimate sealant capability.

A thin bead of silicone sealant will accommodate more movement than a thick bead. *Dow Corning* 888 Silicone Joint Sealant should be no thicker than 1/2 inch (13 mm) and no thinner than 1/4 inch (6 mm). Within these limits, the sealant width-to-depth ratio should be 2:1.

In all cases, the sealant must be recessed below the pavement surface at least 3/8 inch (9 mm) with 1/2 inch (13 mm) recess being acceptable in

wider joints (see Table I). Consideration should also be given to other possible road-working operations, such as diamond-grinding of the surface. Activities of this type would require the sealant bead to be recessed even deeper.

Dow Corning 888 Silicone Joint Sealant is a nonsag sealant. This allows its use in vertical curb joints as well as horizontal joints.

Being a non-leveling sealant, *Dow Corning* 888 Silicone Joint Sealant must be “tooled” to ensure good contact and adhesion as well as to control sealant depth and provide a recessed surface. Several devices can be used for tooling. Among the simplest and easiest to obtain is the expanded closed-cell polyethylene foam backer rod, which must be larger than the joint width.

In new construction where the joint is a new cut, a shallow cut is recommended where the backer rod is placed on the “shelf” or bottom of the joint (see Figure 1). Recommended depths are shown in Table I. This design provides a firm support for sealant tooling, making the sealant easier to install, and further ensures good sealant/concrete contact. A shallow cut design also saves saw blades and time.

In repair work where previous sealing materials have been of a joint filling type rather than a joint sealing type, or where the joint is not broadened by sawing, a standard joint design is recommended in which the backer rod is slightly above the shelf. Extra space (1/4 to 1/2 inch [6 to 13 mm]) between the bottom of the backer rod and shelf should be provided to allow for possible “pumping” of old joint filling material from the bottom of the joint. It is recommended that care be given to selection of proper oversized backer, so that a firm tooling support is obtained (generally 1/4 inch [6 mm] larger than the joint works quite well).

Dow Corning 888 Silicone Joint Sealant is part of a system that must include the proper backer rod and proper installation procedures. The backer rod must be expanded closed-cell polyethylene foam. Where irregularly shaped joints exist, backer rod that is open-cell with an impervious skin is recommended to ensure a tight fit. Several other back-up materials (paper, fibrous ropes and open cell foam) are available, but have proven to be unacceptable. There are several manufacturers of closed-cell polyethylene foam and any may be used.

Please refer to the *Pocket Installation Guide* for more information on applications, preparation and installation information.

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 SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CORNING CUSTOMER SERVICE.

USABLE LIFE AND STORAGE

When stored in original, unopened containers between 0°C (32°F) and 32°C (90°F), *Dow Corning* 888 Silicone Joint Sealant has a shelf life of 12 months from date of manufacture. Keep containers tightly closed. Refer to product packaging for “Use By Date.”

PACKAGING

Dow Corning 888 Silicone Joint Sealant is supplied in 29-fl oz (857-mL) disposable cartridges, 4.5-gal (17-L) bulk pails, and 50-gal (189-L) bulk drums.

LIMITATIONS

Dow Corning 888 Silicone Joint Sealant is not recommended for conditions where continuous water/moisture exposure is expected. It should not be applied in totally

confined spaces where the sealant is not exposed to atmospheric moisture. The sealant should never be applied to wet or damp concrete or installed during inclement weather. New concrete should be allowed to cure and dry for at least 7 days of good drying weather. For each day of rain that occurs during that period, an additional day should be added to the 7-day drying time. For “Fastrack” or high early concrete mixes, please contact your Dow Corning Technical Service Representative.

The sealant bead should be recessed below the pavement surface to prevent abrasion from traffic and snow removal equipment.

The adhesion to substrates other than PCC should be checked before performing full-scale sealing. Contact your Dow Corning Technical Service Representative.

Dow Corning does not promote or warrant the use of *Dow Corning*[®] brand sealants in applications associated with spill containment areas of any kind.

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.

For further information, please see our website, www.dowcorning.com, or consult your local Dow Corning Sales Application Engineer.

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.

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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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