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DSB Pourable Pavement Seals

DSB 800™ and DSB 900™ SL Silicone

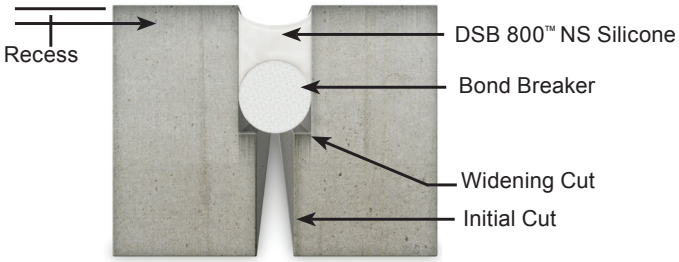
Pavements

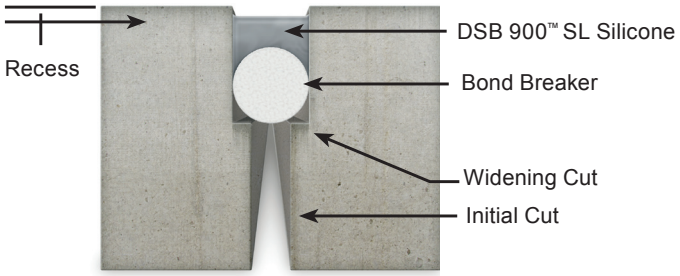
Meeting the Challenge

DSB 800™ and 900™ SL Silicones are formulated for highway, airport and parking structure joints where movement occurs. DSB 800™ and 900™ SL conforms to specifications for low modulus silicone for many highway departments and federal agencies.

Meets ASTM D5893 and FAA P-605

Typical Joint Designs*





*Drawings not to scale.

Bridge the World with Leading Infrastructure Solutions

DSB 800™ and DSB 900™ SL Silicone

DSB 800™ and 900™ SL meet ASTM D5893 and FAA P-605. They are supplied as a ready-to-use, one-component moisture-curing system that provides a lasting and flexible seal. They offer outstanding weathering resistance, remain flexible down to temperatures as low as -50°F (-46°C), are jet-blast resistant and will maintain field serviceability when exposed to intermittent fuel and oil spills. It bonds strongly without the use of a primer. DSB 800™ and 900™ SL are easily applied to joints using bulk dispensing systems.

Packaging

DSB Silicones weigh approximately 11 pounds per gallon. DSB 800™ and 900™ SL are conveniently packaged in three different options:

- 29-ounce tubes
- 5-gallon pails
- 50-gallon drums

DSB 800™ Silicone

DSB 800™ Silicone is a uniquely formulated low modulus non-sag product produced for sealing joints in Portland Cement Concrete pavements in all climates.

Properties of DSB 800™ Silicone

ASTM D5893 Physical Requirements	ASTM D5893 NS Requirements	DSB 800™ Requirements
Cure Evaluation	Pass at 21 days	Pass at 14 day max.
Rheological Properties (ASTM D2202)	0.30 in (7.6mm) max. slump	0.30 in (7.6mm) max. slump
Extrusion Rate (ASTM C1183)	Type S, 50 ml/min. minimum	Type S, 50 ml/min. minimum
Tack Free Time (ASTM C679)	5 hr. max.	25-90 minutes
Effects of Heat Aging (ASTM C792)	10% max. loss	10% max. loss
Bond, -29°C (-20°F), 100% extension		
Non-Immersed	Pass 5 Cycles	Pass 5 Cycles
Water Immersed	Pass 5 Cycles	Pass 5 Cycles
Oven-Aged	Pass 5 Cycles	Pass 5 Cycles
Hardness (ASTM C661)		
-29°C (-20°C), Type A2	25 max.	20 max.
23°C (73°F), Type 00	30 min.	30 min.
Flow	No flow	No flow
Rubber Properties in Tension		
Ultimate Elongation	600% min.	800% min.
Stress at 150% Elongation	310 K pa (45 psi) max.	310 K pa (45 psi) max.
Effects of Accelerated Weathering	Pass at 500 hours	Pass at 5000 hours
Resilience	75% min.	75% min.

Additional Properties: DSB 800™ Silicone

Specific Gravity (ASTM D792-A)(1)	1.15-1.515
Adhesion to Concrete (MIL 8802)(2)	20 pli (3.5 kg/cm) min.
Bond and Movement Capability +/-50% (ASTM C719)(2)	Pass 10 cycles
Bond to Mortar (AASHTO T132)(2)	50 psi (34.4 N/cm2) min.
Tensile Adhesion, %(ASTM D5329)(3)	400% min.
Flame Resistance (SS-S-200)	Pass

DSB 900™ SL Silicone

DSB 900™ SL is a low modulus silicone which offers the performance and durability characteristics of conventional silicone with the ease of installation of self-leveling materials in both concrete and concrete to asphalt joints in all climates.

Properties of DSB 900™ SL Silicone

ASTM D5893 Physical Requirements	ASTM D5893 NS Requirements	DSB 900™ Requirements
Cure Evaluation	Pass at 21 days	Pass at 21 day max.
Rheological Properties (ASTM C63)	Type 1, smooth level surface	Type 1, smooth level surface
Extrusion Rate (ASTM C1183)	Type S, 50 ml/min. minimum	Type S, 200 ml/min. minimum
Tack Free Time (ASTM C679)	5 hr. max.	3 hr. max.
Effects of Heat Aging (ASTM C792)	10% max. loss	10% max. loss
Bond, -29°C (-20°F), 100% extension	Pass 5 Cycles	Pass 5 Cycles
Non-Immersed	Pass 5 Cycles	Pass 5 Cycles
Water Immersed	Pass 5 Cycles	Pass 5 Cycles
Oven-Aged	Pass 5 Cycles	Pass 5 Cycles
Hardness (ASTM C661)		
-29°C (-20°C), Type A2	25 max.	10 max.
23°C (73°F), Type 00	30 min.	40-80 min.
Flow	No flow	No flow
Rubber Properties in Tension		
Ultimate Elongation	600% min.	800% min.
Stress at 150% Elongation	310 K pa (45 psi) max.	207 K pa (30 psi) max.
Effects of Accelerated Weathering	Pass at 500 hours	Pass at 5000 hours
Resilience	75% min.	75% min.

Additional Properties: DSB 900™ SL Silicone

Specific Gravity (ASTM D792-A)(1)	1.10-1.40
Adhesion to Concrete (MIL 8802)(2)	20 pli (3.5 kg/cm) min.
Bond and Movement Capability +/-50% (ASTM C719)(2)	Pass 10 cycles
Bond to Mortar (AASHTO T132)(2)	50 psi (34.4 N/cm2) min.
Tensile Adhesion, %(ASTM D5329)(3)	600% min.
Flame Resistance (SS-S-200)	Pass

800™ and 900™ SL Silicone Notes

1. Specimens shall be obtained from 1/8 inch (3mm) thickness sheets of material which has been cured for 7 days at 77+/- 3°F (25+/- 2°C) and 50 +/- 5% relative humidity.
2. Specimens shall be cured for 28 days at 77 +/- 3°F (25 +/- 2°C) and 50 +/- 5% humidity prior to testing.
3. Specimens shall be 1/2" x 1/2" x 2" (1.2cm x 1.2cm x 5/0cm), cured 21 days at 77 +/- 3°F (25 +/- 2°C) and 50% +/- 5% relative humidity.

DSB Pourable Pavement Seals

DSB 800™ and 900™ SL Silicone Installation Guide

Application

Product yield will vary depending on thickness of sealant, waste, application techniques, etc. For optimum performance, the width of the sealant bead should be approximately two times the depth. Sealant bead should be a minimum 1/4 inch (.6 cm) thick but no greater than 1/2 inch (1.2 cm) thick. For good adhesion, the joint interface must be sound, clean and dry.

Joint Design & Preparation for Sealing

After appropriate curing of the concrete (a minimum of 7 days is recommended) joint reservoirs for the sealant can be cut into the concrete using appropriate concrete sawing procedures and equipment. In “fast track” or high-early strength concrete mixes, it may be possible to saw and seal the joints sooner than the recommended 7-day minimum for standard concrete mixes. Contact D.S. Brown or your representative for further details.

After sawing, immediately flush the joints with water to remove a majority of the saw slurry. After the joints have dried, just prior to applying sealant, the remaining residue must be removed by sandblasting. Both joint faces must be adequately sandblasted to remove remaining traces of sawing residue. For effective sandblasting, the nozzle should be positioned within 2 inches (5 cm) of the surface being cleaned.

After sandblasting, the joint should be thoroughly cleaned using clean compressed air with a minimum pressure of 90 psi. Moisture and oil traps are required on the compressor unit. The object of the above cleaning operations is to provide vertical, intact and clean bonding surfaces which are free from all contaminants and are dry. Joints should be carefully inspected to assure that an appropriate level of cleanliness has been achieved. This can be accomplished by rubbing your finger along each joint face. If any evidence of dust and contaminants occurs, additional sandblasting should be performed until all dust and contaminants are removed. Alternate cleaning methods that accomplish the same level of cleaning as sandblasting may be considered. Contact D.S. Brown for approval of alternate cleaning methods. Non-water absorptive backer rod of the size specified in Table 1 shall be placed in the joint to the depth listed in Table 1. Do not puncture backer rod during installation because damage can create bubbling in sealant.

Reservoir depths for various joint widths are shown in Table 1. Joint width should be selected to limit movement due to expansion and contraction to no more than 25% of the joint width.

Sealant Application

DSB 900™ SL Silicone sealant is applied to pavement joints using air-powered bulk dispensing systems or standard caulking guns. The applicator unit must be free of all residue left from other brands or types of materials to eliminate contamination and assure proper sealant performance. During application, the sealant is dispensed directly from its container through the applicator hose, wand and nozzle and into the prepared joint. The joint should be filled from the bottom up. DSB 900™ SL Silicones are self-leveling and do not require tooling.

DSB 800™ Silicone NS sealants are not self-leveling, and must be tooled to the proper geometry. Tooling must be accomplished before the sealant forms a surface skin of cured material. (Tool preferably within 5 minutes

Table 1.

*Joint Width	1/4”	3/8”	1/2”	5/8”	3/4”	7/8”	1”	1-1/8”	1-1/4”	1-3/8”	1-1/2”
Minimum Sealant Recess	1/4”	1/4”	5/16”	5/16”	3/8”	3/8”	3/8”	1/2”	1/2”	1/2”	1/2”
Backer Rod Diameter[1]	3/8”	1/2”	5/8”	3/4”	7/8”	1”	1-1/4”	1-1/2”	1-1/2”	1-3/4”	2”
Sealant Bead Thickness[2,3]	1/4”	1/4”	1/4”	5/16”	3/8”	7/16”	1/2”	1/2”	1/2”	1/2”	1/2”
Minimum Joint Saw/Reservoir Depth	1-1/8”	1-1/4”	1-1/2”	1-3/4”	1-7/8”	2”	2-3/8”	2-1/2”	2-7/8”	3-1/8”	3-3/8”
Minimum Backer Rod Depth	1/2”	1/2”	5/8”	11/16”	3/4”	13/16”	7/8”	1”	1”	1”	1”
Estimated Usage Non-Sag	245	149	112	70	51	35	26	23	18	16	15
Estimated Usage Self-leveling (ft/gal)	273	172	130	82	58	41	31	27	22	20	19

Notes

1. Backer rod diameter should not be varied from specified dimensions. If larger sizes are used, increased saw depth is needed.
2. Sealant bead thickness can vary ± 25% of design value.
3. Never install DSB Silicone to a depth greater than the joint width (1 to 1).

* Please contact The D.S. Brown Company for additional joint size design recommendations.

after application.) Tooling may be accomplished using a variety of tools including sections of backer rod or other appropriately shaped objects. Tooling should be performed so that the sealant is forced against the joint sidewalls and backer rod and so that the sealant forms a recessed concave surface. Minimum recess depths are listed in Table 1. If insufficient recess is achieved, the sealant surface may be exposed to vehicle tire contact and abrasion that can cause loss of adhesion.

Application Temperatures & Weather Conditions

During application, pavement and ambient temperature should be a minimum of 40°F (4°C) and the joints must be completely clean and dry for adhesion to fully develop. Sealing should not occur at temperatures below the dew point due to an increased chance of having moist or damp joints.

Sealant Curing

After application, DSB Silicone sealant will begin to cure and form a surface skin, generally within 30 minutes. Traffic should be kept off the sealed areas until the sealant is “tack free” as indicated by touching. DSB Silicone will cure approximately 14 days after application to form a strongly bonded, long-lasting seal.

Note: Air voids may develop with self-leveling sealant if the moisture content of the pavement and ambient temperature are high. This phenomenon generally occurs when the sealant has been applied to joints in green concrete during hot and humid conditions. Warm ambient temperatures accelerate pavement hydration and the release of moisture vapors. These moisture vapors will migrate through partially cured sealant creating air pockets. When the sealant has obtained a full cure, no bubbles will develop. A test section should be performed to determine if conditions are adequate so air voids do not develop. Using a non-sag silicone sealant will greatly reduce the risk of air pocket formation. Contact D.S. Brown for further information.

Resealing Joint Design & Preparation for Sealing

Old sealant should be removed by any appropriate method. After removal of old sealant, the joint is to be saw cut to an appropriate width to provide clean vertical bonding surfaces which are free from contamination by old sealant. As a general rule, the joint should be sawed to a width that is between 1/8 inch and 1⁄4 inch (3-6mm) wider than the original joint. The recess, sealant bead thickness, backer rod size and sawed joint depth shall meet requirements shown in Table 1 for the joint width used. The sandblasting, cleaning and sealing operations above shall then be followed.

Cleanup

Uncured sealant can be removed from equipment and tools with solvents such as naphtha or mineral spirits. All hoses and lines in the application equipment should be flushed immediately after use. Extra DSB Silicone in drums should be covered with the plastic liner to prevent exposure to air and the drums should be closed before storing until the next use.

Storage Life

Store DSB Silicone sealant out of direct sunlight, in a cool, dry location. Sealant should not exceed 90°F (32°C), or be exposed to excessive humidity. Storage life is approximately nine months from date of shipment.

Safety Precautions

Prior to use, please read the DSB Silicone Sealant Material Safety Data Sheet for establishing appropriate practices during use and application.

Warranty

The D.S. Brown Company warrants that DSB sealants meet applicable ASTM, AASHTO, federal or state specifications at time of shipment. Techniques used for the preparation of the cracks and joints prior to sealing are beyond our control as are the use and application of the sealants; therefore, The D.S. Brown Company shall not be responsible for improperly applied or misused sealants. Remedies against The D.S. Brown Company, as agreed to by The D.S. Brown Company, are limited to replacing nonconforming product or refund (full or partial) of purchase price from The D.S. Brown Company. All claims for breach of this warranty must be made within three (3) months of the date of use or twelve (12) months from the date of delivery by The D.S. Brown Company, whichever is earlier. There shall be no other warranties expressed or implied. For optimum performance, follow The D.S. Brown Company recommendations for sealant installation.

Silicone Installation, Fort Bliss, Texas