Technical Data Sheet

DOWSIL™ NS Parking Structure Sealant

Non-sag, low-modulus silicone sealant for parking structure applications

Features & Benefits

- Good weatherability
- Resilient
- Long-life reliability
- Ideal for maintenance crews
- Easy to use
- All-temperature gunnability
- Unprimed adhesion
- Seals irregular surfaces
- High movement capability
- Low modulus
- Performance compliance

Composition

- One-part, non-sag, neutral-cure, RTV silicone sealant

Applications

- Horizontal or vertical surfaces in parking structures, parking lots, sidewalks, loading/material transfer docks and pedestrian bridges and plazas
- New construction or as a remedial or repair sealant in existing construction

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Test	Property	Unit	Result
	As Supplied		
	Type		Low-modulus silicone
	Cure		One-part RTV
	Flow, Sag, Slump		Nil
	Tack-free Time	minutes	20 – 60
	Full Adhesion	days	14 – 21
	VOC Content[1]	g/L	37

1. Based on South Coast Air Quality Management District of California. Maximum VOC is listed both inclusive and exclusive of water and exempt compounds.

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Typical Properties (Cont.)

Test	Property	Unit	Result
	As Cured — After 7 Days at 25°C (77°F) And 50 Percent RH15		
ASTM[2] C 661	Durometer, Shore A		15
ASTM D 412	Tensile	psi	100
ASTM D 412	Elongation	percent	1600
ASTM D 412	Modulus, at 150% Elongation	psi	40
ASTM C 794	Adhesion to Concrete, Minimum Peel Strength	ppi	20
	As Cured — After 21 Days at 25°C (77°F) and 50 Percent RH		
ASTM C 1135	Modulus		
	at 25% Elongation	psi	15
	at 50% Elongation	psi	20
ASTM C 1135	Ultimate Elongation, Adhesion to Concrete	percent	> 400
ASTM C 719	Movement Capability	percent	+ 100/-50

2. ASTM: American Society for Testing and Materials.

Description

DOWSIL™ NS Parking Structure Sealant is a one-part, cold-applied, non-sagging silicone material that cures to a low-modulus silicone rubber upon exposure to atmospheric moisture. The cured silicone rubber remains flexible over the entire temperature range expected in construction applications.

Because of its low-modulus characteristics and good extension/compression recovery (+100/-50 percent of original joint width), DOWSIL™ NS Parking Structure Sealant provides outstanding performance where joint movement occurs, such as in parking structures, parking lots, sidewalks, loading/material transfer docks and pedestrian bridges and plazas.

DOWSIL™ NS Parking Structure Sealant features primerless adhesion to mortar, cement block, paving stone, portland cement concrete, granite and brick. Nonporous substrates such as aluminum, steel or plastics may require use of a primer for optimal adhesion.

DOWSIL™ NS Parking Structure Sealant offers the following features:

- Good weatherability — the sealant's 100 percent silicone rubber is virtually unaffected by sunlight, rain, snow, ozone or temperature extremes
- Resilient — once cured, the sealant rejects stones and other debris, permitting unrestricted joint movement with temperature changes
- 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
- Ideal for maintenance crews — the one-part formulation will easily bond to damaged silicone sealant provided the damaged area is clean, dry and frost-free
- Easy to use — one component, cold applied, ready-to-use as supplied; no mixing required; dispensed directly from cartridges or pails into the joint by hand or with an air-powered gun
- All-temperature gunnability — consistency is relatively unchanged over normal installation temperature range

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Description (Cont.)

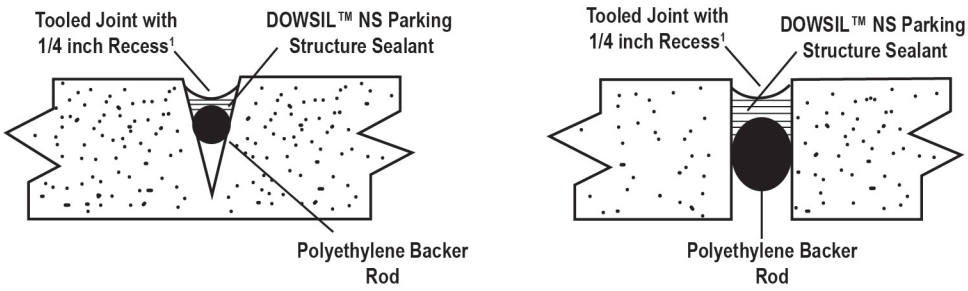
- Unprimed adhesion — primer is not required for bonding to most concrete and masonry surfaces — for optimum adhesion, the surface must be clean, dry and frost-free at the time of sealant application
- Seals irregular surfaces — can be used to seal joints where spalls have occurred, provided sufficient contact between sealant and substrate is made and the substrate is sound
- High movement capability — the sealant will perform in a continuous joint movement of +100/-50 percent of original joint width
- Low modulus —the sealant stretches 100 percent in the joint with very little force. This places minimal strain on the bond line or joint wall, maximizing the probability of a successful seal with continuous joint movement. Joint movements caused by temperature, traffic or shear require a sealant that does not strongly resist stress and/or shear
- Performance compliance — meets or exceeds ASTM C 920, Type S, Grade NS, Class 100/50, Use T, A, M and O

Installation

Joint Design

Low-modulus DOWSIL™ NS Parking Structure 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 and not at the sealant limits. This difference ensures a successful seal job when job site joint widths are different than the design widths.

A thin bead of silicone sealant will accommodate more movement than a thick bead. DOWSIL™ NS Parking Structure Sealant should be no thicker than 1/2 inch and no thinner than 1/4 inch at the crown of the backer rod. See Table I and Figure 1. For joints 1 inch or less in width, the sealant width to depth ratio should be 2:1. For joints greater than 1 inch in width, a 1/2-inch thickness at the crown of the backer rod should be maintained.



[1]In vertical applications, it is appropriate to have sealant flush to the surface.

Figure 1: Good Joint Designs

1. Joint width wide enough to accommodate movement.
2. Joint deep enough to allow for recess, sealant placement and backer rod.
3. Proper backer rod placement.
4. Sealant installed to proper depth and width.
5. Sealant recessed 1/4 inch to 3/8 inch below pavement surface.

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Table I: Estimating Requirements[1]

Thickness, inches	Linear Feet per Gallon of DOWSIL™ NS Parking Structure Sealant for Various Joint Sizes Width, inches					
	1/4	**3/8**	**1/2**	**5/8**	**3/4**	**1**
1/4	246	149	103			
3/8				66	46	33
1/2						26

1. Installation yields (linear feet/gallon) are based on calculations for an exact sealant bead shape- factor. Actual yield will vary depending on deviation from calculated bead shape, tooling techniques, backer material placement, waste, and applicator experience.

Installation (Cont.)

Joint Design (Cont.)

In all cases where sealant is placed in horizontal joints that will come in contact with vehicular or pedestrian traffic, the sealant should be recessed in the joint a minimum of 1/4 to 3/8 inch with a 1/2 to 5/8 inch recess recommended in wider joints (see Table II). Joint designers should consider the potential of heel penetration in pedestrian traffic areas, and in those areas, consider using a stiffer or higher density backer material.

Table II: Recommendations for Sealant Placement in Joint

Joint Width, inches	Recess[1], inches
1/4 to 1	1/4–3/8
1–2	1/2–5/8

[1]Applies to horizontal joints where pedestrian or vehicular traffic is anticipated.

Preparation

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. Dust, loose particles, etc., should be blown out of joints with dry, 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.

When using DOWSIL™ NS Parking Structure Sealant with other Dow parking structure sealants, please note that these materials are all compatible with one another in either the cured or uncured state, may come in contact with one another, and will bond to one another provided no debris or other contaminants interfere with the bond.

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Installation (Cont.)

Backer Rod

DOWSIL™ NS Parking Structure 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 acceptable to ensure a tight fit against the irregular joint wall faces. Several other back-up materials (paper, fibrous ropes and open-cell foams) are available, but have proven to be unacceptable. There are several manufacturers of closed-cell polyethylene foam and any may be used.

Application

DOWSIL™ NS Parking Structure Sealant is not a self-leveling sealant. It 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.

Maintenance

Damaged sealant can easily be repaired by cleaning the surrounding area with an appropriate solvent (do not use alcohol), cutting the damaged area out with a knife, and resealing with DOWSIL™ NS Parking Structure Sealant. Do not overfill the joint.

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

Usable Life and Storage

When stored in the original, unopened container at or below 32°C (90°F) DOWSIL™ NS Parking Structure Sealant has a shelf life of 12 months from date of manufacture. Refer to product packaging for “Use By Date.” Keep containers tightly closed.

Packaging Information

DOWSIL™ NS Parking Structure Sealant is supplied in a bulk 4.5 gallon pail.

Limitations

DOWSIL™ NS Parking Structure Sealant should not be applied:

- In projects requiring material approval with state departments of transportation for highway pavements, or Federal Aviation Administration approval for use in airfield pavement joints (runways, taxiways, aprons)
- To surfaces that have prolonged or continuous immersion in water
- In below-grade applications
- In totally confined spaces where the sealant is not exposed to atmospheric moisture
- In joints greater than 2 inches in width (such applications should be reviewed with a sales application engineer for alternative product recommendations)
- To building materials that bleed oils, plasticizers or solvents, materials such as asphalt-impregnated fiberboard, oil-based caulks, or green or partially vulcanized rubber gaskets
- To surfaces that will be painted — most paint films will not stretch with extension of the sealant, and may crack or peel

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Limitations (Cont.)

- To surfaces that either were or will be treated with a silane waterproofing material within 14 days
- To surfaces coated with a bitumen-based waterproofing membrane
- In horizontal joints over open-cell backer rod

Do not apply deck coatings over uncured sealants as cure retardation or inhibition may occur.

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

Shipping Limitations

None.

Availability

DOWSIL™ NS Parking Structure Sealant is available from authorized distributors.

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com, or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products — from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

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