

## 1. Product Profile

**StenSeal® SI 111** is a single-component, cold-applied, non-sagging, low modulus silicone joint sealant. It is specially formulated for use in outdoor concrete pavements and provides excellent resistance to all elements, heavy traffic conditions, jet blast, and non-continuous chemical contact.

**StenSeal® SI 111** is highly durable and remains resistant to fuels, hydraulic fluids, and oils, as well as dynamic movements. It is also highly resistant to UV radiation and extreme temperatures.

**StenSeal® SI 111** is fully compliant to ASTM D 5893, Type NS, ASTM C 920, Type S, Grade NS, Movement Class 100 and EN 14188-2, System S, Class A, Type NS.

**StenSeal® SI 111** is available in 5 gal (18.9 l) cans, 50 gal (189 l) drums, 29 fl oz cartridges or 600ml (20.3 fl oz) sausages.

## 2. Uses

**StenSeal® SI 111** can be used for joints and cracks with irregular cross sections or variable widths. It is particularly well-suited for use in the joints of airports, roads, bridges, refineries, and chemical facilities, as well as for expansion and contraction joints in asphalt or cement concrete pavements. **StenSeal® SI 111** adheres to properly prepared joints without a primer.

**StenSeal® SI 111** is ideal for use in sloped or vertical joints, and for joints and cracks with non-uniform shapes. For use in horizontal concrete joints with a constant width and straight edges, the self-leveling type **StenSeal® SI 110** may be more suitable.

## 3. Joint Design

The pavement should be designed and joints sized so that the maximum extension and compression do not exceed +100% and -50%, respectively. Joint spacing, the coefficient of thermal expansion of the pavement, expected temperature range, and the anticipated temperature at the time of sealing must all be considered.

## Non-Sagging Silicone Joint Sealant

### Highlights

- Silicone based, single component
- Ultra-elastic with low-modulus.
- Long lasting.
- Primer-free application.
- Adheres to asphalt and concrete.
- Resistant to jet fuels, oils, and chemicals.
- Resistant to UV radiation, no discoloration.
- Resistant to jet blast and high temperature.
- Ready to use and easy to apply.
- Ideal for irregular and variable width joints.
- Designed for airports, highways and large outdoor pavements.
- Movement capability: +100/-50%.

For localizing the cracks caused by contractions that will occur at new concrete pavements, distance, width, depth, and sealing time of the contraction joints are all crucial. Please refer to our technical document on joint design for additional information on joint design and crack mitigation.

The minimum width of a joint should be at least twice the expected movement of the pavement. The width of the joints should be between 1/4 to 1 1/2 inch. For joints widths outside of these bounds, please contact **Stenkim®**. The depth of the joint should be half of the width and between 1/4 to 1/2 inches. If the calculated depth is outside of these bounds, it should be adjusted to the nearest limit.

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"
Sealant Thickness	1/4"	1/4"	1/4"	5/16"	3/8"	7/16"	1/2"	1/2"	1/2"	1/2"	1/2"
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	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1-1/4"	1-1/2"	1-1/2"	1-3/4"	2"
Minimum Backer Rod Depth	1/2"	1/2"	5/8"	11/16"	3/4"	13/16"	7/8"	1"	1"	1"	1"
Usage (ft/29 oz cartridge)	69	46	34	22	15	11	8	7	6	6	5
Usage (ft/5 gal can)	1540	1027	770	493	342	251	193	171	154	140	128
Usage (ft/50gal drum)	15400	10267	7700	4928	3422	2514	1925	1711	1540	1400	1283

## 4. Application

### 4.1. Surface Preparation

The joint surfaces must be clean and dry, and any oil, grease, bitumen, or sealant remains must be completely removed. Any loose materials on the joint walls must also be removed, and any broken joint walls must be repaired. The surfaces can be sandblasted for better adhesion. **StenSeal® SI 111** does not adhere to wet surfaces as well as dry surfaces, so the joints must be dry and the sealant must not contact water until the end of the tack-free time.

### 4.2. Primer

**StenSeal® SI 111** should be applied to cement concrete and asphalt concrete joints without a primer. For other types of surfaces, a primer may be necessary. Please contact **Stenkim®** for guidance.

### 4.3. Backer Material

To attain the sealant depth and recess, a rod, which preferably does not adhere to the sealant, must be placed in the joint. Since the joint will not be filled to the top end, the backer rod must be placed to calculated sealant depth plus recess depth.

Closed-cell polyethylene foam rods are suitable for this purpose. The diameter of the rod must be 10-25% larger than the joint width, and the rod must be placed tightly in the joint. In wide joints, semi-rigid materials, such as polystyrene foam, can be used instead of a rod. In such cases, it is helpful to place a polyethylene tape over the backing material to prevent adhesion to the sealant.

### 4.4. Application

The sealant can be installed from 40°F to 105°F, but the temperature must be above the dew point. The sealant must be protected from rain, liquids and dust until skin over time. The skin-over time for **StenSeal® SI 111** is 60-90 minutes, and the time to reach ultimate properties is 2 weeks. Higher temperatures and humidity speed up skin over and full cure.

The sealant can be applied directly from 50-gallon drums or 5-gallon cans using a pump, or it can be transferred to a hand pump. Sausages should be cut on one end and placed in a caulking gun. Cartridges are ready to use. While the sealant is being applied, the tip of the gun or cartridge must be moved forward by sliding over the backer rod in the joint. The application pump or the caulking gun must have a nozzle appropriate to the joint width.

During the application of the sealant, care must be taken to minimize interruption. The flow speed of the sealant and movement speed of the tip must be varied as little as possible to ensure a smooth, continuous application. There must be no air gaps under the sealant or between joint walls and the sealant. Care must be taken to minimize such gaps during application. The sealant must be tooled immediately to get rid of any air pockets and to ensure proper adhesion. Once the sealant has been applied, it can be tooled to create a smooth, even surface with required profile. The middle of the sealant must recess approximately 1/4 to 1/2 inches from the top.

Adequate ventilation is required for indoor applications. **StenSeal® SI 111** should not be used in unventilated spaces.

## 5. Application Tools

Drum pumps, application guns or sausage guns, and spatulas are necessary for proper application. Professional quality tools must be used.

## 6. Cleaning

Application and other sealant-smudged devices must be cleaned before the sealant cures. For this purpose, the tools should be wiped with a cloth or oakum, and then cleaned with **StenSolver CL** or aromatic solvents such as toluene and xylene. Proper protective equipment and ventilation should be used when handling these solvents.

Cured **StenSeal® SI 111** can only be removed by mechanical means.

## 7. Safety

Applicators and supervisors must read Material Safety Data Sheet (MSDS) carefully and observe the considerations written therein. Emptied packages must be handled in compliance with relevant regulations and laws.

## 8. Storage

**StenSeal® SI 111** must be kept in dry indoor storage with a recommended temperature range of 50-90°F. If stored unopened in these conditions, the shelf life is at least 12 months. The sealant must be protected from freezing and direct sunlight. Avoid storing the sealant in high humidity conditions or at temperatures above 100°F (38°C) for prolonged periods of time. If the sealant has been stored inappropriately, or the storage period has been exceeded, the product should be checked before use.

## 9. Company Liability

The information contained in this document is based on site experience of and laboratory tests done by **Stenkim®** and meant to give general information. It is the purchaser's responsibility to ensure applicability of products to their use. All **Stenkim®** products are available in specified quality and conditions. The company accepts no liability whatsoever unless the transportation, storage, application conditions, and customer use, as set out in this document, are followed in their entirety and overseen by **Stenkim®**.

**Stenkim®** reserves the right to update all information contained in this document without notice.

## 10. Technical Data

Property	Test Method	Requirements	Result
Cure Evaluation	ASTM D5893	Pass at 21 days	Pass at 14 days
Rheological Properties	ASTM D2202	Slump <7.6 mm	Slump <2 mm
Extrusion Rate	ASTM C1183	> 20 ml/min.	> 40 ml/min.
Tack Free Time	ASTM C679	5 hr. max.	<120 minutes
Effects of Heat Aging	ASTM C792	<10% Loss	<6% Loss
Bond -20°F, 100% extension	ASTM D5893		
Non-Immersed		Pass 5 Cycles	Pass 5 Cycles
Water Immersed		Pass 5 Cycles	Pass 5 Cycles
Oven-Aged Pass		Pass 5 Cycles	Pass 5 Cycles
Hardness @ -20°F	ASTM C661	< 25 Shore A	< 12 Shore A
Hardness @ 73°F	ASTM C661	> 30 Shore 00	> 30 Shore 00
Flow	ASTM D5329	No flow	No flow
Rubber Properties in Tension	ASTM D412		
Ultimate Elongation		>600%	>600%
Stress at 150% Elongation		<45 psi	<45 psi
Effects of Accelerated Weathering	ASTM C793	Pass 5000 hours	Pass at 5000 hours
Resilience	ASTM D5893	> 75%	> 90%
Base Polymer		Single Component Silicone	Single Component Silicone
Solids Content %			98
Color			White/Gray/Black/Red/Blue
Specific Gravity			1.23±0.05
Sustained Extension Capability			100%
Sustained Contraction Capability			50%
Adhesion and Cohesion Properties	EN 14188-2	No Failure	Pass
Hydrolysis Resistance	EN 14187-5	< 50% hardness change	Pass
Cure Speed @73°F			1/8 inches/day
Test reports are available for ASTM D-5893, ASTM C 920, EN 14188-2 conformance upon request.			

Stenkim® reserves the right to make changes in the values in this table at any time.