

1. Product Description

StenSeal® 2PU 311 is a two-component, polyurethane-based, cold-applied joint sealing material. It is chemically curing, non-sagging, and elastomeric, with high flexibility and adhesive strength. It is resistant to dynamic movement and is suitable for heavy traffic conditions.

It is resistant to organic and inorganic acids and alkalis, oils, fuels, antifreeze, and many chemicals. It is completely resistant to ultraviolet radiation.

2. Uses

StenSeal® 2PU 311 is designed for vertical and overhead joints. It has a wide variety of use indoors and outdoors where both bearing strength and elasticity are required. Various color choices are available to meet visual preferences.

It is used on highways subject to all types of traffic, bridge connections, stadiums, industrial facility floors, depots, warehouses, harbor areas, dam platforms, markets, stores, pedestrian areas, and pavements. It is also used on runways, parking areas, terminals, ramps, cargo areas, and similar indoor and outdoor areas. It is also used to provide sealing and adhesion at the sides and under manhole covers on city roads. In brief, it is suitable for all kinds of indoor and outdoor vertical and overhead joints.

3. Joint Design

Joint width must not be less than eight times the expected movement or 8 mm. Up to 15 mm width, joint sealant depth must be equal to the width. Between 15 and 25 mm joint widths, sealant depth must be equal to 80% of the width (min. 14 mm).

For wider joints, sealant depth must be set to 20 mm. For adjusting depth, a backer rod must be used inside the joint. Backer material must be placed at the calculated total joint and recess depth.

The calculated dimensions for some joint widths are given in the table. For new concrete slabs, the design and filling of control joints (formed during casting or cut after casting) are also important for controlling shrinkage cracks that may occur during and after curing. It is recommended to review our technical documentation regarding joint design.

Joint Width - mm	8	10	12	14	16	18	20	24	28	32	36
Sealant Thickness - mm	8	10	12	14	14	14	16	19	20	20	20
Sealant Recess - mm	4	5	6	7	7	7	8	10	10	10	10
Backer Rod Diameter - mm	10	13	15	18	20	23	25	30	35	40	45
Minimum Backer Rod Depth - mm	12	15	18	21	21	22	24	29	30	30	30
Consumption - metres / 10 kg set	99	63	44	32	28	24	20	14	11	10	9

Cold-Applied, Polyurethane-Based, Non-Sagging Type, Joint Sealing and Waterproofing Material for Heavy-Duty and Traffic Purposes

Highlights

- Two-component, polyurethane-based
- Cold-applied
- Chemically cured
- Non-sagging type and suitable for vertical and overhead applications
- Can be used indoors and outdoors
- Resistant to dynamic movement
- Resistant to oils, fuels, and many chemicals
- Resistant to UV radiation
- Curing time can be adjusted faster or slower depending on user needs
- Catalog colors are available



4. Application

4.1. Surface Preparation

Joint surfaces must be clean and dry. Oil, grease, bitumen, and old sealant residues must be completely removed. Loose materials on the joint walls must be removed; broken joint walls must be repaired.

StenSeal® 2PU 311 is affected by water before curing, like all other polyurethane-based materials. Therefore, the joints must be dry and the sealant must not contact water until chemical curing occurs.

4.2. Primer

StenSeal® 2PU 311 can be used in new concrete joints without primer. However, primer application helps minimize the negative effects of possible contamination, concrete moisture, and loose material in all cases. Therefore, **StenAst® S** is recommended for plastic, glass, and similar surfaces, and for all surfaces subject to continuous water contact.

4.3. Backer Material

A backer rod that preferably does not adhere to the sealant must be placed in the joint to achieve the sealant depth determined by the joint width. Closed-cell polyethylene foam rods (**StenBacker**) 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.

Rods must not be damaged during placement. In wide joints, semi-rigid materials, such as polystyrene foam, can be used instead of a backer rod. In such cases, a polyethylene tape must be placed over the backing material to prevent adhesion to the sealant.

4.4. Mixing

StenSeal® 2PU 311 consists of two components called A and B, packaged in the required amounts for the optimal mixture. First, component A is homogenized in its container for 1-2 minutes. Then all of component B is poured onto component A and mixed with a low-speed mixer (100-500 rpm) and an appropriate paddle or blade for 3 minutes.

Longer mixing times are required to obtain a homogeneous mixture in manual mixing. During mixing, move the mixer through all parts of the container while avoiding air entrainment.

4.5. Application

The amount of sealant that can be used within the pot life must be determined according to the application area and the capacity of the application equipment. Mixed material must be used within the pot life. Under no circumstances should any solvent be used to thin the paste that has exceeded its pot life.

Material that has exceeded its pot life must not be used. The prepared mixture is loaded into a piston-type sealant gun. Fit a nozzle narrow enough to enter the joint to the applicator.

During application, advance the nozzle tip by sliding it over the backing material in the joint. This ensures that no gap remains beneath the sealant and that a sufficient amount of sealant is applied. After application, the sealant surface must be smoothed with a spatula.

Application can also be carried out directly with a spatula when necessary. It is recommended to tape both sides of the joint before application, especially where decorative appearance is important. In this way, material that gets onto the area outside the joint during application is removed by pulling off the tape after application.

Sealing cracks: Repairing cracks and ensuring watertightness is especially important on concrete pavements at airports and highways. **StenSeal® 2PU 311** can also be used for these purposes. In general, routing a groove at least



10 mm deep and 6 mm wide is recommended.

Repair by routing alone is sufficient at places where the cracks are infrequent. In areas with severe cracking, coating is recommended for narrow cracks and combined sealing for wide cracks.

4.6. Accelerated Curing

In cases where curing is desired to be completed sooner, accelerator **StenQuick PU**, which is to be obtained from the manufacturer, can be used. In such cases, contact the manufacturer for curing times. In very hot weather conditions, it may be desirable to slow the curing time to provide comfortable application time; for such situations, the reaction retarder **StenSlow PU** is recommended.

4.7. Restrictions

It is not recommended for joints narrower than 5 mm. Not suitable for dirty, oily, bituminous, or wet joints. Cleaning such joints before application is important for ensuring good adhesion.

Despite its high load-bearing resistance, studded tires, ice chains, and spiked heels may cause damage. During application, ambient temperature must not exceed 35 °C or fall below 5 °C. If application under conditions outside this range is necessary, contact **Stenkim®**.

4.8. Application Tools

Use of professional-quality equipment is recommended.

5. Cleaning

Equipment and any other tools contaminated with sealant must be cleaned before the sealant cures. For that purpose, tools first wiped with a cloth or rag must be cleaned with **StenSolver CL** or aromatic solvents such as toluene and xylene.

6. Safety

Applicators and supervisors must read the Material Safety Data Sheet (SDS) carefully and follow the instructions provided. Emptied packages must be handled in compliance with relevant regulations and laws. The application must be carried out by skilled workers under supervision of experts and the applicators must use all kinds of protective equipment required for the worksite and the task such as goggles, mask and gloves.

7. Storage

The material must be kept in dry indoor storage. Recommended storage temperature is 10-25 °C. Under these conditions, the material will retain its properties in unopened containers for 12 months from the production date.

Low temperatures may cause crystallization of the product; in this case, the product can be used after heating and homogenizing at +20 °C. The product must be stirred thoroughly before use after prolonged storage.

8. Disclaimer

This document is provided for general information and reflects **Stenkim®**'s laboratory data and field experience at the time of publication. **Stenkim®** reserves the right to revise this information at any time without notice.

Stenkim® warrants that its products conform to the stated specifications on delivery. The buyer is responsible for determining the product's suitability for the intended application and for all conditions of transport, storage, handling, and use. **Stenkim®** accepts no liability for results obtained under conditions outside its control. **Stenkim®**'s



liability under this warranty is limited to replacement of non-conforming product and excludes any consequential or indirect damages.

9. Technical Data

Property	Method	Result
Base Polymer		Two-Component Polyurethane
Solid Content		100
Color		Catalog
Density		1.58 ± 0.05 g/cm ³
Movement Class	In extension	12.5%
Movement Class	In contraction	12.5%
Elongation at Break		> 70%
Hardness (Shore)	EN ISO 48-4	A35-45
Resilience	EN 14188-2	>98%
Pot Life @20 °C		2 hours
Tack-free Time @20 °C	EN 14188-2	6 hours
Ready for Light Foot Traffic @20 °C		24 hours
Time to open to heavy traffic @20 °C		2 days
Cure Time for Chemical Resistance @20 °C		5 days
Shelf Life		1 year
Packaging		10 kg can sets
Related Standards		ASTM C 920, EN 14188-2, EN ISO 11600, BS 5212

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

