

DERMAX

شركة رائد للصناعة المحدودة

Dermax Industrial Company



DERMAXFLEX® PU-1068

HIGH-PERFORMANCE POLYURETHANE CONSTRUCTION SEALANT

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JOINT SEALANTS FOR LONG-LASTING AND RELIABLE PERFORMANCE

DermaxFlex® PU-1068 is a high-performance polyurethane sealant designed for durable and flexible joint sealing. While joints make up a small portion of total construction cost, sealant failure can lead to major issues and expensive repairs.

Why DermaxFlex PU-1068?

- ü Excellent flexibility and movement capability
- ü Strong adhesion to common construction materials
- ü UV and weather resistance
- ü Easy to apply and smooth finish

A smart choice for lasting protection and reliable performance.

BUILDING AND CIVIL ENGINEERING STRUCTURES ARE FULL OF JOINTS

JOINTS IN BETWEEN construction elements can be found in different parts of a construction, e. g. between precast concrete elements in facades, around windows and doors , between floors and walls, around storage tanks, etc.

IN A WORLD FULL OF JOINTS, SELECT THE MOST DURABLE SOLUTION AND TAKE NO RISKS.

WHY DO JOINTS NEED FLEXIBLE SEALANTS?

Buildings are full of joints – between concrete panels, around windows and doors, between walls and floors.

Due to temperature changes and structural loads, building elements expand and contract. This causes joints to move.

If the sealant is not flexible enough, it will crack or detach, leading to leaks and costly repairs.

DermaxFlex® PU-1068 provides long-lasting flexibility and strong adhesion – ensuring reliable sealing even under extreme movements.



Expansion of building elements



Contraction of building elements



Shear movement

JOINT SEALING WITH DermalFlex® PU-1068 IS EASY & EFFICIENT

THE APPLICATION PROPERTIES OF DermalFlex® PU-1068 enhances job speed, cleanliness, and finish quality – making it a smart choice for professionals.

DESIGNED FOR SMOOTH APPLICATION – ADVANTAGES OF DermalFlex® PU-1068



Low Extrusion Effort

Easy to gun out, even at low temperatures, reducing installer fatigue.



Clean Cut-Off

Forms precise, neat joints without leaving messy strings or residue.



Non-Sag Formula

Remains in place on vertical and overhead joints – no sagging or dripping.



Smooth, Tack-Free Finish

Forms a clean surface that's easy to paint or leave exposed.



Low Odor & Low VOC

Comfortable to use indoors meets global safety standards for emissions.

AS A TRUSTED BRAND FOR PROFESSIONAL APPLICATORS, DERMALFLEX® PU-1068 DELIVERS WHAT REALLY MATTERS – PERFORMANCE, RELIABILITY, AND EASE OF USE.

DERMAXFLEX® PU-1068 SEALANT

DermaxFlex® PU-1068 is a one-component polyurethane sealant designed for high performance in bonding and sealing applications, offering excellent elasticity, ultra-high elongation, and superior weather resistance. It is ideal for prefabricated building structures, steel structures, and concrete joints.

Applications

- ✓ Bonding and Sealing: Prefabricated building exterior walls, panel joints, and decorative seams.
- ✓ Waterproof Sealing: Concrete expansion joints, prefabricated joints in tunnels, and utility corridors.
- ✓ Steel Structure Sealing: Sealing joints in steel structures.

Key Features & Benefits

- ✓ One-Component: Easy application with a caulking gun.
- ✓ Environmentally Friendly: Non-toxic and non-corrosive to base materials.
- ✓ Good Paintability: Can be painted after curing.
- ✓ Superior Durability: Excellent weather, aging, water, and cold resistance.
- ✓ High Elongation: More than 800%, suitable for large joint expansions.
- ✓ Excellent Adhesion: Adheres to concrete, stone, aerated concrete, and metals.
- ✓ Easy Application: Thixotropic, ensuring controlled flow and smooth application.

Technical Data

Property	Value
Modulus (100%) at 23°C	≤ 0.4 MPa
Modulus (100%) at -20°C	≤ 0.6 MPa
Elongation at Break	~700%
Elastic Recovery	>80%
Movement Capability	±25%
Shore A Hardness	~25 (28 days cure)
Density	~1.30 kg/l
Curing Mechanism	Moisture-cured
Skin Time	~60–120 minutes
Service Temperature	-40°C to +70°C
Joint Width	10mm to 35mm
Joint Depth	8mm to 15mm
Shelf Life	18 months
Packaging	600 ml sausage, 20 sausages/box

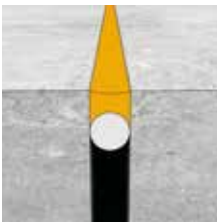
Storage and Handling

- ✓ **Storage Conditions:** Store in original packaging in a dry, cool place between +5°C and +25°C.
- ✓ **Shelf Life:** 18 months when stored under recommended conditions.

JOINT DESIGN FOR LONG-LASTING & TIGHT BUILDING ENVELOPE JOINTS

THE FACADE IS THE FACE of your building. In contemporary architecture the facade is of special interest expressed by large dimensions, unconventional shapes and high material diversity. Joint design is demanding and prone to mistakes. For integral joint specification, following some rough guidelines will result in a long-lasting and tight building envelope.

MOST COMMON MISTAKES



JOINT WIDTH

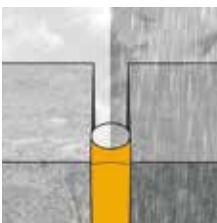
A joint's expected movement can be calculated from the dimensions and thermal expansion coefficients of the facade elements and the maximum and minimum temperature your facade will be exposed to.

The expected movement and the sealant's movement capability leads to a minimum joint width required to withstand the daily and seasonal cyclic movement. To simplify your choice, sealants are classified according to their movement class by several standards. The most common ones are listed on the previous page.



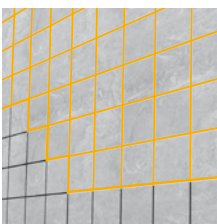
MATERIALS TO BE JOINED

Depending on the design of your facade, it may consist of facade elements of different materials like concrete, glass, metal, brick or stone, just to mention the most common ones. These elements have to be sealed to each other but also to other waterproofing products like membranes or structural glazing elements consisting of glass, spacer and adhesives. The sealant must show good adhesion to the adjacent materials and at the same time must be compatible with all materials to avoid discoloration, loss of adhesion over time or any changes of properties.



ENVIRONMENTAL EXPOSURE

Environmental conditions have an impact on the service life and the performance of the sealant. Expected UV and heat exposure as well as the chemical impact must be considered when choosing the product. Additionally, when sealing between the inside and outside of the building the vapor permeability of the sealant has to be considered to avoid accumulation of water in the walls. The general rule is to use a sealant with lower vapor permeability on the warm side of the wall, as warm air is generally more humid than cold air (or the same vapor permeability but thicker applied on the inside).



APPEARANCE

Ugly joints are like scares on a facade. Therefore, when specifying the joint sealant, the visual appearance and matched color of the joint is important. When sealing natural stone or glass a products staining and streaking must be checked as this would damage the appearance of the whole facade irreversibly. In this case stone and glass must be replaced. By using non-staining and non-streaking products where required money can be saved ultimately.



MECHANICAL EXPOSURE

Floor and some wall joints are exposed to mechanical impact. (Floor: Tyres, heels, tolly, fork lift, cleaning machines (high pressure water, brushes). Wall: People that pick and play with the sealants, especially in zones where they have to wait like bus stations). This impact damages the joint sealants. Therefore choose harder sealants, with high tear propagation resistance and plan recessed floor joints to avoid contact with the wheels.

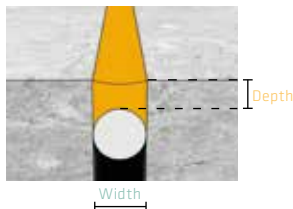
JOINT DIMENSIONING

The design of a sealing system involves more than just the selection of a sealant with suitable physical and chemical resistance. In order to obtain optimal long-term performance the following considerations are essential as well:

- Proper joint design, including correct dimensioning and back-up material selection
- Type and nature of substrates
- Application process and ambient conditions at the time of the installation

GENERAL RULES FOR JOINT DESIGN

Movement capability of the sealant and joint width must fit to the expected movement of the adjacent building elements.



Joint width: Must be designed according to the sealants movement capability

Sealant dimensions: The optimal ratio of sealant width to depth is 2:1 for facade joints and 1:0.8 for floor joints

Joint depth: A joint must have sufficient depth so that backer rod and sealant fit inside.



Spacing between joints: In the following tables an example for joint dimensions for concrete elements and a sealant with 25% movement capability are given:

Facade Joints			Interior Floor Joints			Exterior Floor Joints		
Joint spacing (m)	Minim. joint width (mm)	Sealant depth (mm)	Joint spacing (m)	Minim. joint width (mm)	Sealant depth (mm)	Joint spacing (m)	Minim. joint width (mm)	Sealant depth (mm)
2	15	8	2	10	12	2	12	10
4	20	10	3	10	12	3	12	10
6	25	12	4	10	12	4	15	12
8	30	15	5	10	12	5	18	15
10	35	18	6	10	12	6	20	17
			8	10	12	8	30	25



Cohesive failure



Correct use

The sealant must be capable of extending and contracting along with the building elements to which it is joined. If this is not possible the consequence may be adhesive and/or cohesive failure.

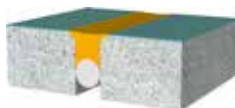
- The sealant depth defines the stress at the sealant/substrate interface. If the sealant depth is too large this will lead to severe stress on the interface at low temperatures and finally adhesion failure.

- 3-side adhesion must be avoided. Any other adhesion than to the joint flanks leads to massive reduction of the elasticity and movement capability of the sealant and consequently to failure of the sealant.

The correct use of backing material can avoid these problems. The backer rod defines the joint depth and avoids 3-side adhesion.



Recessed floor joint



Flush floor joint

FLOOR JOINT DESIGN

Depending on the location and expected loads of a floor joint special design considerations for floor joints are necessary. Generally high modulus sealants are recommended for floor joint applications.

Joints in areas with a lot of car and/or equipment traffic should be recessed to reduce mechanical loads.

Joints in pedestrian areas should be flush with the surface to prevent tripping hazard. The sealant must also have a certain hardness and indentation resistance due to high mechanical impacts from narrow heels.

Application Guide for DermaxFlex® PU-1068 Joint Sealant

TO CREATE VISUALLY APPEALING AND DURABLE JOINTS, you have to consider several points. A description for the procedure valid for porous substrates such as precast concrete is shown below. In the case of non-porous substrates the surface preparation is usually different, but the other steps are identical application procedure stays the same.

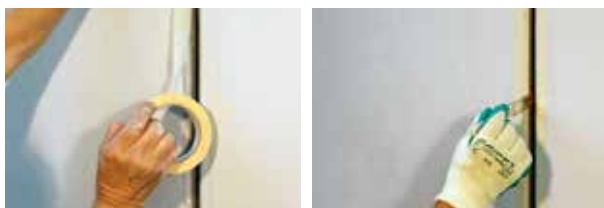
APPLICATION STEPS



- 1 Surface preparation:**
Grind the substrate with a wire brush or other equipment tool, and remove dust and friable particles.



- 2 Backer rod installation:**
Insert a fitting backer rod to the required depth. The diameter of the backing rods should be 20 – 30% larger than the joint width. If using a closed cell polyethylene backer rod pay attention when inserting the rod not to damage it for example by using a sharp tool like a screwdriver. Use a blunt tool to insert the backer rod.



- 3 Masking tape and primer application:**
If sharp and exact joint lines are required place a masking tape. Take care that the tape is well attached to the surface to avoid spread of the primer below the tape. Apply primer in the area where the sealant is supposed to be applied later.



- 4 Sealant application:**
Fill the joint with sealant avoiding air entrapment. Remove excess material.



- 5 Make it look nice:**
Remove the masking tape before skin formation. Smooth the joint sealant with smoothing liquid for a perfect finish.

Common Issues Leading to Sealant Performance Failure with DermaxFlex® PU-1068



REASONS FOR JOINT REPAIR

A careful visual inspection is usually enough to determine if the joint sealing is improper or worn out and a replacement is needed. Reasons for joint refurbishment may include but are not limited to the following:

- Failures in workmanship
- Use of unsuitable type of sealant
- Wrong joint design
- Underestimated load
- Sealant reached end of its service life
- Compatibility issues with adjacent materials (e. g. gaskets)
- Exposure to aggressive chemicals
- Insufficient surface preparation (loss of adhesion)

RENOVATION AT THE END OF SERVICE LIFE

An old sealant needs to be renovated at the end of its service life or because of maintenance or quality insufficiency reasons.

Following steps should be done:

1. Remove old sealant. Up to 0.5 mm of the old sealant can be left on the surface if the substrate and the adhesion are still in good shape.
2. Make sure that the substrate & joint flanks are still strong. In areas with adhesion loss, mechanical cleaning of the bonding area is mandatory.
3. In order to ensure long-term durability and tightness of the newly sealed joint both the substrate surfaces as well as the old sealant residues should be pre-treated using the primer recommended.
4. Use the same sealant technology as before. Replace polyurethane with polyurethane, silicone with silicone, etc. If the reason for sealant replacement is some kind of incompatibility with the substrate or any adjacent material check with your Sika representative for a compatible solution.

RENOVATION IN CASE OF WRONG JOINT DIMENSIONING

In case of wrong joint dimensioning and no sealant with a movement capability to accommodate the expected loads the joint needs to be re-sealed with a rubber profile or a tape.

Preformed elastic joint tapes are available in various dimensions to suit different joint sizes. One of the major advantages of such tapes is the fact that they can be used regardless of the reason the joint has to be refurbished or the kind of sealant previously used. The tape is bonded to the substrate on either side of the joint.

BACKING MATERIAL



CLOSED-CELL POLYETHYLENE FOAM BACKER ROD (HOLLOW OR SOLID)

Advantage:

- Does not take up water and moisture which is beneficial for the long-term performance of the sealant. We recommend closed cell backer rods for exterior applications and closed-cell solid polyethylene backer rods floor joints

Drawback:

- Limited compressibility, meaning several different sizes needed on the job site
- Avoid damaging the rod during installation due to the release of gas from the foam which may lead to bubble formation within the sealant



OPEN-CELL POLYURETHANE FOAM BACKER ROD

Advantage:

- High compressibility and easy to install
- Economic

Drawback:

- Backer rod will take up water and moisture which may lead to premature failure of the sealant. Therefore this type of backing material is recommended for indoor applications only