BUILDING TRUST

PRODUCT DATA SHEET

Sikaflex®-415 Universal

Polyurethane sealant for floor and wall joints and general purpose adhesive

PRODUCT DESCRIPTION

Sikaflex®-415 Universal is a one-part, moisture curing, elastic polyurethane sealant with good mechanical properties and durability for sealing floor and wall joints and adhesive applications.

USES

Sikaflex®-415 Universal is used for:
- Construction joints between concrete slabs
- Connection joints for floor and wall insertions such as gutters or penetrations
- Joints for crack control (saw-cuts) in concrete pavement found in warehouses or parking areas
- Movement joints between precast concrete elements
- General construction bonding applications

CHARACTERISTICS / ADVANTAGES

- Good movement capability: ±25 % (ISO 9047), ±35 % (ASTM C719)
- Durable in water and salt water (EN 15651-4)
- Good resistance to weathering (ISO 19862)
- Monomeric diisocyanate content < 0.1 %: no user safety training needed (REACH restriction 2023, Annex XVII entry 74)

APPROVALS / STANDARDS

- CE marking and declaration of performance based on EN 15651-1:2012 Sealants for non-structural use in joints in buildings and pedestrian walkways — Part 1: Sealants for facade elements
- CE marking and declaration of performance based on EN 15651-4:2012 Sealants for non-structural use in joints in buildings and pedestrian walkways — Part 4: Sealants for pedestrian walkways
- Testing of the one-component Sealant DIN EN ISO 11600, SKZ, No.220952/21-III
- Standard Specification for Elastometric Joint Sealant ASTM C920, PRI, No.1725A0002

PRODUCT INFORMATION

Chemical Base	Sika® Purform® Polyurethane Technology
Packaging	300 ml cartridge — 12 cartridges per box 600 ml cylindrical foil pack — 20 foil packs per box Refer to the current price list for available packaging variations.
Colour	Available in a range of colours. Refer to the current price list for the colour range.
Shelf Life	15 months from date of production
Storage Conditions	The Product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5 °C and +25 °C. Always refer to the packaging. Refer to the current Safety Data Sheet for information on safe handling and storage.

Density	1.6 kg/L	(ISO 1183-1)

TECHNICAL INFORMATION

Shore A Hardness	28 days	35	(EN ISO 868)
Secant Tensile Modulus	100 % elongation (+23 °C)	0.50 N/mm²	(ISO 8339)
Elongation at Break	700 %		(ISO 37)
Elastic Recovery	> 70 %		(EN ISO 7389)
Tear Propagation Resistance	7.0 N/mm		(ISO 34-2)
Movement Capability	± 25 % ± 35 %		(EN ISO 9047) (ASTM C719)

Chemical Resistance

Sikaflex®-415 Universal is resistant to:
- Water
- Sea water (EN 15651-4)
- Dilute alkalis
- Cement slurry
- Water dispersed detergent

Sikaflex®-415 Universal is not resistant to:
- Alcohols
- Organic solvents
- Concentrated alkalis and acids
- Hydrocarbons and fuel

Service Temperature		
	Maximum	+70 °C
	Minimum	-40 °C

Joint Design

The joint dimensions must be designed to suit the movement capability of the sealant. The joint width must be a minimum of 10 mm and a maximum of 40 mm.
All joints must be correctly designed and dimensioned in accordance with the relevant standards and codes of practice before their construction. The basis for calculation of the necessary joint widths are:
- The type of structure
- Dimensions
- Technical values of adjacent building materials
- Joint sealing material
- The specific exposure of the building and the joints

A width to depth ratio of 1:0.8 for floor joints and 1:0.5 for facade joints must be maintained (for exceptions, see table below). For larger joints, contact Sika ® Technical Services for additional information.
Example for joints between concrete elements for exterior applications, considering 25 % movement capability according to EN 15651-4:

Joint distance	Minimum joint width	Minimum joint depth
2 m	10 mm	10 mm
4 m	15 mm	12 mm
6 m	20 mm	17 mm

For details of joint design and calculations refer to the following document: Design guideline: Dimensioning of construction joints.
Joints not designed to accommodate movement such as connection joints between building elements and saw-cut joints for crack control can be less than 10 mm.

APPLICATION INFORMATION

Consumption

Joint width	Joint depth	Joint length per 600 ml foil pack
10 mm	10 mm	6 m
15 mm	12 mm	3.3 m
20 mm	16 mm	1.9 m
25 mm	20 mm	1.2 m
30 mm	24 mm	0.8 m

Backing Material	Use closed cell, polyethylene foam backing rod.		
Sag Flow	20 mm profile tested at +50 °C	0 mm	(EN ISO 7390)
Product Temperature	Maximum	+40 °C	
	Minimum	+5 °C	
Ambient Air Temperature	Maximum	+40 °C	
	Minimum	+5 °C	
Substrate Temperature	Maximum	+40 °C	
	Minimum	+5 °C	
Curing Time	3.5 mm / 24 hours		(CQP049-2)
Skin Time	50 minutes (+23 °C / 50 % r.h.)		
Tooling Time	40 minutes (+23 °C / 50 % r.h.)		

VALUE BASE

All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

FURTHER DOCUMENTS

- Pre-treatment chart for construction sealants and adhesives
- Facade Joint Sealing
- Design guideline: Dimensioning of construction joints

ECOLOGY, HEALTH AND SAFETY

Local safety regulations must be observed and it advisable to wear PPI when working with this product with particular attention paid to cutting and handling. Transportation Class: The product is not classified as hazardous good for transport. Disposal: The material is recyclable. Disposal must be according to local regulations. Please contact your local Sika sales organisation for more information.

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION

Poor adhesion due to inadequate surface preparation
Note: Primers are adhesion promoters. Primers cannot replace proper surface preparation and surface cleaning.

1. Do not use primers for improving poorly prepared or poorly cleaned joint surfaces.

IMPORTANT
Poor adhesion due to incorrect priming procedure
Incorrectly defined or uncontrolled priming procedures may lead to a variation in Product performance.

1. Test adhesion on project-specific substrates and agree on procedures with all parties before full project application. For more information contact Sika Technical Services.

The substrate must be sound, clean, dry and free of contaminants such as dirt, oil, grease, cement laitance, sealant residues and poorly bonded coatings which could affect adhesion of the primer and sealant.
The substrate must be of sufficient strength to withstand the stress induced by the sealant during movement.

1. Use techniques such as wire brushing, grinding, grit blasting or other suitable mechanical methods to remove all weak substrate material.
2. Repair all damaged joint edges with suitable Sika repair products.
3. Remove dust, loose and friable material from all sur-

faces before applying the sealant.
If tested or supported by experience, the Product can be used without primers or activators on many substrates.
Use the following priming or pre-treatment procedures to ensure optimum adhesion and joint durability, or if the Product is used for high-performance applications such as joints on multi-storey buildings, highly stressed joints, or joints exposed to extreme weather.
NON-POROUS SUBSTRATES
Aluminium, anodised aluminium, stainless steel, galvanised steel or glazed tiles
1. Lightly roughen the surface with a fine abrasive pad.
2. Clean the surface.
3. Pretreat the surface with Sika® Aktivator-205 applied with a clean cloth.

Other metals, such as copper, brass and titanium-zinc
1. Lightly roughen the surface with a fine abrasive pad.
2. Clean the surface.
3. Pretreat the surface with Sika® Aktivator-205 applied with a clean cloth.
4. Wait until the flash-off time is over.
5. Prime the surface with Sika® Primer-3 N applied with a brush.

Powder-coated metals
1. Carry out preliminary trials to verify adhesion. For more information contact Sika Technical Services.

PVC substrates
1. Prime the surface with Sika® Primer-215 applied with a brush.

POROUS SUBSTRATES
Concrete, aerated concrete and cement based renders, mortars and bricks
1. Prime the surface with Sika® Primer-3 N or Sika® Primer-115 applied with a brush.

Concrete that is 2–3 days old, or matt wet (surface dry)
1. Prime the surface with Sika® Primer-115 applied with a brush.

Reconstituted, cast stone or natural stone
Carry out preliminary trials to check if the stone is susceptible to plasticiser migration. For information about a suitable primer to prevent plasticiser migration, contact Sika Technical Services.
ASPHALT (ACCORDING TO EN 13108-1 AND EN 13108-6)
Fresh cut or existing cut asphalt must have a clean bonding surface with more than 50 % exposed aggregate.
1. Prime the surface with Sika® Primer-3 N or Sika® Primer-115 applied with a brush.

For more details of the primer or pretreatment products, refer to the corresponding Product Data Sheet. Contact Sika Technical Services for additional information.

MIXING

One-part ready to use

APPLICATION

IMPORTANT
Strictly follow installation procedures
Strictly follow installation procedures as defined in Method Statements, application manuals and working instructions which must always be adjusted to the actual site conditions.
IMPORTANT
Degradation of sealant due to substrates leaching oil, plasticisers, or solvents
Bitumen, natural rubber or EPDM rubber can leach oils, plasticisers, or solvents that can degrade the sealant and cause the Product to become tacky.
1. Do not use the Product on building materials which leach oils, plasticisers, or solvents.

IMPORTANT
Absorbency of natural stone substrates
Staining from plasticiser migration may occur when used on natural stone such as granite, marble or limestone substrates.
1. Carry out preliminary trials before full project application.
2. Contact Sika Technical Services for further advice.

IMPORTANT
Degradation of sealant due to chemical attack
1. Do not use the Product to seal joints in and around swimming pools containing water treatment agents such as chlorine.

IMPORTANT
Insufficient curing due to exposure to alcohol
Exposure to alcohol during curing may interfere with the curing reaction and cause the Product to remain soft or become tacky.
1. Do not expose the Product to alcohol-containing products during the curing period.

1. Apply masking tape where neat or exact joint lines are required.
2. After the required substrate preparation, insert a backing rod to the required depth.
3. Prime the joint surfaces as recommended in substrate preparation. Note Avoid excessive application of the primer.
4. Open the seal on the top of the cartridge or open the end of the foil pack.
5. Fit the nozzle and cut it to the desired bead size.
6. Insert the Product into the application gun.
7. Apply the Product into the joint. Note Avoid air entrapment. Make sure that the Product comes into full contact with the adhesion area of the joint.
8. IMPORTANT Do not use tooling products containing solvents. As soon as possible after application, tool the Product firmly against the joint sides to ensure

adequate adhesion and a smooth finish. Use a compatible tooling agent such as Sika® Tooling Agent N to smooth the joint surface.

9. Remove the masking tape within the skin formation time of the Product.

OVERPAINTING THE SEALANT

IMPORTANT

Tacky paint due to plasticiser migration

Paints and sealants or adhesives may contain plasticizers and other substances that migrate and can cause the painted surface to become tacky.

IMPORTANT

Cracking paint due to joint movement

Rigid paint applied on top of a sealant or flexible adhesive may crack when used on joints subject to movement.

The Product can be overpainted with most conventional paint coating systems.

1. Allow the Product to fully cure before overpainting.
2. Before overpainting, carry out preliminary trials to test compatibility of the paint or coating system with the Product in accordance with ISO/TR 20436:2017 – Buildings and civil engineering works — Sealants — Paintability and paint compatibility of sealants.

Colour variations

Note: Colour variations may occur due to the exposure in service to chemicals, high temperatures or UV-radiation (especially with white colour shade). This effect is aesthetic and does not adversely influence the technical performance or durability of the product.

CLEANING OF TOOLS

Clean all tools and application equipment immediately after use with Sika® Remover-208 or Sika® Cleaning Wipes-100. Once cured, hardened material can only be removed mechanically.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for the exact product data and uses.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product’s suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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