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 1-part, moisture curing, elastic polyurethane sealant with good mechanical properties and durability for sealing floor and wall joints and adhesive applications.

USES

The Product 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 as 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 Jouint Sealant ASTM C920, PRI, No.1725A0002.

PRODUCT INFORMATION

Chemical Base	Sika® Purform® Polyurethane Technology
Packaging	600 ml foil pack, 20 foil packs per box
Shelf Life	12 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 packaging. Refer to the current Safety Data Sheet for information on safe handling and storage.
Colour	Concrete Grey
Density	1.60 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)
Movement Capability	± 25 % ± 35 %		(EN ISO 9047) (ASTM C719)
Elastic Recovery	> 70 %		(EN ISO 7389)
Tear Propagation Resistance	7.0 N/mm		(ISO 34-2)
Service Temperature	Maximum Minimum	+70 °C -40 °C	

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

Joint Design

MOVEMENT JOINTS
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 must be maintained (for exceptions, see table below).
For larger joints, contact Sika ® Technical Services for additional information.
Example for typical joint widths 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, Sika® Design guidlines: Dimensioning of construction joints.
CONNECTION JOINTS, SAW CUTS AND CRACK CONTROL 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

Sag Flow

0 mm (20 mm profile, +50 °C) (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

Beware of condensation. Substrate temperature during application must be at least +3 °C above dew point.

Backing Material

Use closed cell, polyethylene foam backing rod

Curing Rate

~3,5 mm/24 hours (+23 °C / 50 % r.h.)

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 Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

FURTHER DOCUMENTS

- Pretreatment Chart Constructive Sealants and Adhesives
- Facade Joint Sealing
- Design guideline: Dimensioning of construction joints

ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION

Primers are adhesion promoters and not an alternative to improve poor preparation or cleaning of the joint surface.
Note: Primers also improve the long term adhesion performance of the sealed joint.
Substrate testing
Note: Adhesion tests on project specific substrates must be performed and procedures agreed with all parties before full project application. For more detailed advice and instructions contact Sika Technical Services.
The substrate must be sound, clean, dry and free of all contaminants such as dirt, oil, grease, cement laitance, old sealants and poorly bonded coatings which could affect adhesion of the sealant.
The substrate must be of sufficient strength to cope with the stresses induced by the sealant during movement.
1. Use techniques such as wire brushing, grinding, grit blasting or other suitable mechanical tools to remove all weak substrate material.
2. Repair all damaged joint edges with suitable Sika repair products.
3. Completely remove all dust, loose and friable material from all surfaces before application of any activators, primers or sealant.
4. Where joints in the substrate are saw cut flush away all slurry material and allow joint surfaces to dry.

For optimum adhesion, joint durability and critical, high performance applications such as joints on multi-storey buildings, highly stressed joints or extreme weather exposure use the following priming and pre-treatment procedures:
NON-POROUS SUBSTRATES
Aluminium, anodised aluminium, stainless steel, galvanised steel, powder coated metals, or glazed tiles.
1. Lightly roughen the surface with a fine abrasive pad.
2. Clean and pre-treat using 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 and pre-treat using Sika® Aktivator-205 with a clean cloth.
3. Wait until the flash off time has been achieved.
4. Apply Sika® Primer-3 N by brush.

PVC substrates.
1. Clean and pre-treat using Sika® Primer-215 applied with a brush.

POROUS SUBSTRATES
Concrete that is 2–3 days old, or matt wet (surface dry) .
1. Prime surface using Sika® Primer-115 applied by brush.

Concrete, aerated concrete and cement based renders, mortars and bricks.
1. Prime surface using Sika® Primer-3 N or Sika® Primer-115 applied by brush.

Reconstituted, cast or natural stone.
1. Preliminary trials must be carried out to check if the stone experiences plasticiser migration. For a suitable primer to prevent plasticiser migration, contact Sika ® Technical Services for further information.

ASPHALT (ACCORDING TO EN 13108-1 AND EN 13108-6)
Fresh cut or existing cut asphalt must have a clean bonding surface with minimum 50 % exposed aggregate.
1. Prime surface using Sika® Primer-3 N or Sika® Primer-115 applied by brush.

For more details of the primer or pre-treatment products refer to the individual Product Data Sheet. Contact Sika Technical Services for additional information.

MIXING

1-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
Use on bituminous, natural rubber, or EPDM rubber substrates
Bitumen, natural rubber or EPDM rubber can leach oils, plasticisers, or solvents that can degrade the sealant causing the Product to become tacky.
1. Do not use the Product on any 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
Swimming pools
Do not use to seal joints in and around swimming pools.
IMPORTANT
Alcohol affecting the curing mechanism
Exposure to alcohol during curing may interfere with the curing reaction and cause the Product to be 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 primer to avoid causing puddles at the base of the joint.
4. Prepare the end of the foil pack or cartridge, insert into the sealant gun and fit the nozzle.
   Note: The Product is supplied ready to use.
5. Extrude the Product into the joint ensuring that it

comes into full contact with the sides of the joint and avoiding any air entrapment.
6. IMPORTANT Do not use tooling products containing solvents. As soon as possible after application, tool the sealant 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.
7. Remove the tape within the skinning time of the Product after finishing.

OVER-PAINTING THE SEALANT

IMPORTANT

Tacky paint over the sealant

Some paint systems may exhibit plasticiser migration that will cause the painted surface to be tacky.

1. Consult the paint manufacturer for specific advice on over-painting sealants.
2. Trial the paint system with the Product prior to undertaking the project.

IMPORTANT

Cracking paint over the sealant

Rigid paint systems reduce the elasticity of the Product and may crack when used on joints subject to movement.

1. Do not use rigid paint systems to over-paint joints subject to movement.

The Product can be over-painted with most conventional paint coating systems. Prior to application test the paint system for compatibility.

1. Allow the Product to fully cure before over-painting.
2. Carry out preliminary trials to test the paint for compatibility 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. Once cured, hardened material can only be removed mechanically. For cleaning skin use Sika® Cleaning Wipes-100.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

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.

SIKA LIMITED
Watchmead
Welwyn Garden City
Hertfordshire, AL7 1BQ
Tel: 01707 394444
Web: www.sika.co.uk
Twitter: @SikaLimited