BUILDING TRUST

PRODUCT DATA SHEET

Sikaflex®-403 Tank & Silo

Elastic polyurethane sealant for tanks and silos

PRODUCT DESCRIPTION

Sikaflex®-403 Tank & Silo is a 1-part, moisture-curing, elastic polyurethane sealant which is resistant to organic acids as found in liquid manure and silage liquids. The Product is used for sealing segmented and bolted tanks, concrete containers and floor joints and sewage systems.

USES

Sikaflex®-403 Tank & Silo is used for:
- Sealing joints that are exposed to organic acids. A typical application is the sealing of joints in segmented and bolted enameled steel or stainless steel tanks including wall-to-floor connection.

Sikaflex®-403 Tank & Silo is used for the following areas:
- Tanks for the anaerobic digestion process including biogas tanks
- Tanks for thermophilic and mesophilic digestion for biogas production
- Liquid manure tanks
- Drive-in silos for agricultural use
- Agricultural stables
- Silage clamp retaining walls
- Domestic and municipal sewage treatment plants including wastewater
- Floor joints where very high chemical resistance to organic acids is required

CHARACTERISTICS / ADVANTAGES

- Resistant to organic acids such as silage liquids
- Resistant to domestic and municipal sewage, liquid manure and silage liquid
- Resistant to wastewater such as domestic and municipal sewage and liquid manure
- Resistant to temperatures of +65 °C as found in thermophilic digestors
- Very low swelling in organic acids enabling use for floor joints traficked by front loaders
- Good mechanical resistance
- Very good resistance to specific chemicals
- Very good tear propagation resistance
- Movement capability of ± 20 % (ISO 9047)

APPROVALS / STANDARDS

- Assessment of the joint sealant DIN EN 14188-2:2005-03, Sikaflex-403 Tank & Silo, SKZ, No. 224872/22
- Foodstuff and migration behaviour EN 1186, EN 13130, CEN/TS 14234, ISEGA, No. 62008 U 24
- General building regulations, DIBt, No. Z-74.62-212
- 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

PRODUCT INFORMATION

Chemical Base	Polyurethane	
Packaging	600 ml cylindrical foil pack	20 foil packs per box
	Refer to the current price list for available packaging variations.	

Color	Available in a range of colors. Refer to the current price list for the color 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	1.20 kg/l (ISO 1183-1)

TECHNICAL INFORMATION

Testing	40 (after 28 days)	(EN ISO 868)
Secant Tensile Modulus	0.90 N/mm² at 60 % elongation (+23 °C)	(ISO 8339)
Elongation at Break	700 %	(ISO 37)
Elastic Recovery	80 %	(EN ISO 7389)
Tear Propagation Resistance	10.0 N/mm	(ISO 34-2)
Movement Capability	± 20 %	(EN ISO 9047)

Chemical Resistance

IMPORTANT
Depolymerisation due to chemical attack
The Product is not fully chemically resistant until the Product has fully cured. Moreover, chemical resistance depends on the chemicals, their concentration and their temperature. Exceeding the stated performance limits could cause depolymerisation of the sealant.
1. Analyze the content, exposure time and temperature of the chemicals.
2. Design the joints for the intended and foreseeable conditions.

Sikaflex®-403 Tank & Silo is resistant to:
- Water
- Sea water
- Liquid manure
- Silage liquid
- Dilute alkali
- Neutral water-based dispersed detergents or cleaners
- Domestic and municipal sewage

Sikaflex®-403 Tank & Silo is not resistant to:
- Concentrated organic and inorganic acids
- Organic solvents
- Chlorinated or aromatic hydrocarbons

Service Temperature

IMPORTANT
Depolymerisation due to exceeded service temperature
In any process system, service temperatures affect the aggressiveness of the chemical mixture. Exceeding the stated performance limits could cause depolymerisation of the sealant.
1. During specification, analyze the content of the chemicals to establish their behavior at temperature, and to define the continuous maximum service temperature.

Service temperature range in a dry condition.

Maximum	+80 °C
Minimum	-40 °C

Maximum service temperature in a wet condition.

	Movement joints	≤ +45 °C
	Overlap sealing	≤ +65 °C
Joint Design	Refer to all relevant local construction guidelines and regulations. The sealant must be specified and included in the design of the containment system. Reference must be made to the following document: Design guideline: Dimensioning of construction joints	

APPLICATION INFORMATION

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	
Cure Time	3.5 mm / 24 hours		(CQP049-2)
Skin Time	At +23 °C and 50 % r.h.	5 hours	

BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

AVAILABILITY/WARRANTY

Refer to the following document:

- Pre-treatment chart for construction sealants and adhesives

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

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.

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.

The following priming and pretreatment procedures must be followed to ensure optimum adhesion and joint durability for critical, high-performance applications such as joints with chemical load and permanent immersion. Consult the tank manufacturer for information on preparation and priming.

NON-POROUS SUBSTRATES

Enamelled steel

1. Pretreat the surface with Sika® Aktivator-205 applied with a clean cloth.

Aluminum, anodised aluminum, stainless steel, galvanised steel, epoxy and fusion-bonded epoxy, powder-coated metals, or glazed tiles.
1. Pretreat the surface with Sika® Aktivator-205 applied with a clean cloth.
2. Alternatively, prime the surface with Sika® Primer-210 applied with a brush.

Other metals, such as copper, brass and titanium zinc.
1. Pretreat the surface with Sika® Aktivator-205 applied with a clean cloth.
2. Wait until the flash-off time is over.
3. Prime the surface with Sika® Primer-210 applied with a brush.

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-210 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.

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
For experienced professional users only
Tests with actual substrates and conditions have to be performed ensuring adhesion and material compatibility.

IMPORTANT
Allowing insufficient curing time
Putting the Product into service too early can result in a reduction of the long-term stability of sealed sections.
1. Allow the Product to fully cure before it is exposed to mechanical or chemical stress.

IMPORTANT
Damage due to corrosion
Corrosion protection is dependent on the thickness of the sealant layer. For butt or lap joints the Product provides effective protection at an application thickness of ≥ 8 mm.

IMPORTANT
Resistance to chlorine
The Product is resistant to chlorine for tank disinfection and dosing purposes only.
1. Contact the tank supplier for guidelines and detailed conditions on dosing and disinfection.

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
Staining on natural stone substrates due to plasticiser migration
Staining from plasticiser migration may occur when used on cast, reconstituted or natural stone such as granite, marble or limestone substrates.
1. Do not use on natural stone substrates

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.

APPLICATION STEPS
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® Slick to smooth the joint surface.
9. Remove the masking tape within the skin formation time of the Product.

For lap joints such as in enameled steel containers consult the tank manufacturer for specific application advice.

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.

Color variation

Note: Color variation may occur especially with white or other light color shades. This effect is purely aesthetic and does not adversely influence the technical performance or durability of the product.

CLEANING OF TOOLS

Uncured Sikaflex®-403 Tank & Silo may be removed from tools and equipment with Sika® Remover-208 or another suitable solvent. Once cured, hardened material can only be removed mechanically. Hands and exposed skin have to be washed immediately using a suitable industrial hand cleaner and water. Do not use solvent on skin.

OTHER RESTRICTIONS

See Legal Disclaimer.

LEGAL DISCLAIMER

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates (“SIKA”), the user must always read and follow the warnings and instructions on the product’s most current product label, Product Data Sheet and Safety Data Sheet which are available at usa.sika.com or by contacting SIKA’s Technical Service Department via email at tsmh@us.sika.com. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product. SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within the product’s shelf life. User determines suitability of product for intended use and assumes all risks. User’s and/or buyer’s sole remedy shall be limited to the purchase price or replacement of this product exclusive of any labor costs. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.** Sale of SIKA products are subject to the Terms and Conditions of Sale which are available at https://usa.sika.com/en/group/SikaCorp/termsand-conditions.html or by calling +1 800-933-7452.

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