

# PRODUCT DATA SHEET

## Sikaflex® TS Plus

### POLYURETHANE ELASTIC TANK AND SILO SEALANT

#### PRODUCT DESCRIPTION

Sikaflex® TS Plus is a polyurethane, 1-part, moisture curing, elastic sealant. Provides a waterproof seal with good mechanical properties, is resistant to liquid manure, chemicals and remains elastic over a wide range of temperatures. Movement capability  $\pm 15\%$ . Internal and external use.

#### USES

Sikaflex® TS Plus may only be used by experienced professionals.

- Designed for sealing steel containers built in sections such as enamelled steel or stainless steel tanks
- Sealing domestic sewage systems

#### CHARACTERISTICS / ADVANTAGES

- Resistant to domestic sewage and liquid manure
- Chemical resistant
- Good mechanical properties
- High modulus
- Movement capability of  $\pm 15\%$

#### APPROVALS / STANDARDS

- Chemical Resistance liquid manure, Sikaflex TS Plus, SKZ, Report No 69298/05-I
- Chemical Resistance silage liquids, Sikaflex TS Plus, SKZ, Report No 69298/05-II
- Migration Behaviour EN 1186, EN 13130, CEN/TS 14234, Sikaflex® TS Plus, ISEGA, Certificate No. 46763 U 18
- Sewage Installations waste water, Sikaflex TS Plus, SKZ, Report No 36142/98
- Silage Sikaflex TS Plus, DIBt, national technical approval No II 71-1.74.62-40/17

#### PRODUCT INFORMATION

Chemical Base	Polyurethane
Packaging	600 ml cylindrical foil pack: 20 foil packs per box
Colour	Black, Concrete Grey
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 $+5\text{ }^{\circ}\text{C}$ and $+25\text{ }^{\circ}\text{C}$ . Always refer to packaging.
Density	$\sim 1,25\text{ kg/l}$ (ISO 1183-1)

#### TECHNICAL INFORMATION

Shore A Hardness	$\sim 40$ (after 28 days) (ISO 868)
Secant Tensile Modulus	$\sim 0,75\text{ N/mm}^2$ at 100 % elongation ( $+23\text{ }^{\circ}\text{C}$ ) (ISO 8339)

<b>Elongation at Break</b>	~750 %	(ISO 37)
<b>Elastic Recovery</b>	~80 %	(ISO 7389)
<b>Tear Propagation Resistance</b>	~8,0 N/mm	(ISO 34)
<b>Movement Capability</b>	± 15 %	(ISO 9047)
<b>Chemical Resistance</b>	Resistant to many chemicals. Contact Sika Technical Services for additional information. Note: The designer of the process system must be aware that all applications, including mesophilic and thermophilic digestion, are dependent on pH and content analysis which must be addressed at the specification phase.	
<b>Service Temperature</b>	Dry Wet	-40 °C min. / +70 °C max. ≤ 40 °C in movement joints ≤ 55 °C* as overlap sealing in bolted steel tanks
	* Continuous maximum service temperatures are subject to the behaviour of chemical mixtures, which can be complex. The designer of the process system must be aware that all applications, including mesophilic and thermophilic digestion, are dependent on pH and content analysis which must be addressed at the specification phase.	
<b>Joint Design</b>	The joint dimensions must be designed to suit the movement capability of the sealant. The sealant must only be subjected to stress and chemical exposure after full curing to prevent reducing adhesion and performance.	

## APPLICATION INFORMATION

<b>Backing Material</b>	Use closed cell, polyethylene foam backing rod.	
<b>Sag Flow</b>	0 mm (20 mm profile, 50 °C)	(ISO 7390)
<b>Ambient Air Temperature</b>	+5 °C min. / +40 °C max.	
<b>Substrate Temperature</b>	+5 °C min. / +40 °C max. min. +3 °C above dew point temperature	
<b>Curing Rate</b>	~2 mm/24 hours (+23 °C / 50 % r.h.)	(CQP* 049-2) * Sika Corporate Quality Procedure
<b>Skin Time</b>	~5 hours (23 °C / 50 % r.h.)	(CQP 019-1)

## APPLICATION INSTRUCTIONS

### SUBSTRATE PREPARATION

The substrate must be clean, dry, sound and homogeneous, free from oils, grease, dust and loose or friable particles.

For optimum adhesion and joint durability, the following substrate priming (and/or pre-treatment) procedures must be followed:

#### Non-porous substrates

Enamelled steel, aluminium, anodised aluminium, stainless steel, galvanised steel, powder coated metals or glazed tiles. Slightly roughen surface with a fine abrasive pad. Clean and pre-treat using Sika® Aktivator-205 applied with a clean cloth.  
Before sealing, allow a waiting time of > 15 minutes (< 6 hours).

Consult the tank manufacturer's instructions for their

specific preparation and priming recommendations. Other metals, such as copper, brass and titanium-zinc, clean and pre-treat using Sika® Aktivator-205 applied with a clean cloth. After a waiting time of > 15 minutes (< 6 hours). Apply Sika® Primer-3 N applied by brush. Before sealing, allow a waiting time of > 30 minutes (< 8 hours)

PVC has to be cleaned and pre-treated using Sika® Primer-215 applied with a brush. Before sealing, allow a waiting time of > 30 minutes (< 8 hours).

#### Porous substrates

Concrete, aerated concrete and cement based renders, mortars and bricks surfaces must be primed using Sika® Primer-3 N applied by brush. Before sealing, allow a waiting time of > 30 minutes (< 8 hours).

Adhesion tests on project specific substrates must be performed and procedures agreed with all parties before full project application.

Note: Primers and activators are adhesion promoters and not an alternative to improve poor preparation /

cleaning of the joint surface. Primers also improve the long term adhesion performance of the sealed joint. Contact Sika Technical Services for additional information.

## APPLICATION METHOD / TOOLS

Strictly follow installation procedures as defined in method statements, application manuals and working instructions which must always be adjusted to the actual site conditions.

### Masking

It is recommended to use masking tape where neat or exact joint lines are required. Remove the tape within the skinning time after finishing.

### Joint Backing

After the required substrate preparation, insert a suitable backing rod to the required depth.

### Priming

If required, prime the joint surfaces as recommended in substrate preparation. Avoid excessive application of primer to avoid causing puddles at the base of the joint.

### Application

Sikaflex® TS Plus is supplied ready to use.

For lap joints (e.g. in enamelled steel containers), consult the tank manufacturer's instructions.

Prepare the end of the foil pack, insert into the sealant gun and fit the nozzle. Extrude Sikaflex® TS Plus into the joint ensuring that it comes into full contact with the sides of the joint and avoiding any air entrapment.

### Finishing

As soon as possible after application, sealant must be firmly tooled against the joint sides to ensure adequate adhesion and a smooth finish.

Use a compatible tooling agent (e.g. Sika® Tooling Agent N) to smooth the joint surface. Water can be used. Do not use tooling products containing solvents.

## CLEANING OF TOOLS

Clean all tools and application equipment immediately after use with Sika® Thinner C. Hardened material can only be removed mechanically. For cleaning skin, use Sika® Cleaning Wipes-100.

## FURTHER DOCUMENTS

- Pre-treatment Sealing and Bonding Chart

## LIMITATIONS

- Corrosion protection is dependent on the thickness of the sealant layer.
- For lap joints, i.e. on enamelled steel, Sikaflex® TS Plus provides effective corrosion protection with a layer thickness  $\geq 8$  mm (in conjunction with the appropriate adhesion promoter and/or primer).
- For butt joints, i.e. on concrete structures, Sikaflex® TS Plus provides effective corrosion protection with a layer thickness  $\geq 8$  mm.
- The performance of the sealant is dependent on the construction of the container, the area in which the sealant is applied and the correct preparation of the substrate.
- Not resistant to alcohols, concentrated organic acids,

concentrated alkalis, concentrated acids, and chlorinated and aromatic hydrocarbons.

- To be chemically resistant the sealant must be fully cured (final mechanical properties achieved).
- Chemical resistance is dependent on the chemicals, their concentration and temperature. Exceeding the service temperatures could cause a depolymerisation of the sealant.
- Resistant to chlorine for disinfection purposes only. Contact tank supplier for guidelines and detailed conditions.
- Sikaflex® TS Plus can be over-painted with most conventional facade paint coating systems. However, paints must first be tested to ensure compatibility by carrying out preliminary trials (e.g. according to ISO technical paper: Paintability and Paint Compatibility of Sealants). Optimum results are obtained when the sealant is allowed to fully cure first. Note: non-flexible paint systems may impair the elasticity of the sealant and lead to cracking of the paint coating. Depending on type of paint used, plasticiser migration may occur causing the paint to become surface 'tacky'.
- Colour variations may occur due to the exposure in service to chemicals, high temperatures and/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.
- Do not use Sikaflex® TS Plus on natural stone.
- Do not use on bituminous substrates, natural rubber, EPDM rubber or on any building materials which might leach oils, plasticisers or solvents that could degrade the sealant.
- Do not use Sikaflex® TS Plus to seal joints in and around swimming pools.
- Do not expose uncured Sikaflex® TS Plus to alcohol containing products as this may interfere with the curing reaction.

## 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.

## 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.

## ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

## 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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### Product Data Sheet

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