

**Test report no.:** 221642/22-I

**Customer:** Sika Deutschland GmbH  
Stuttgarter Straße 117  
72574 Bad Urach  
GERMANY

**Order:** Testing of the joint sealant **Sikaflex®-403 Tank&Silo** following the approval principles for 2-component-sealants used in waste water systems, DIBt, edition March 2003\*

**Letter of:** 2022-01-24

**Ref:** Mr. Ralf Heinzmann

**Sample receipt:** 2022-01-20

**Test period:** 2022-01-24 to 2022-03-24

The test report comprises 8 pages.

Würzburg, 8 December 2022  
Fs/km

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The original language of the test report is German. In case of doubt the German version is obligatory.  
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The results refer to the products tested. The scope of accreditation is available on the Internet at [www.skz.de](http://www.skz.de).

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## 1. Order

The Company Sika Deutschland GmbH, Stuttgarter Straße 117, 72574 Bad Urach, GERMANY, instructed SKZ - Testing GmbH by letter of 24 January 2022 to test the performance of a joint sealant **Sikaflex®-403 Tank&Silo** following the approval principles for 2-component-sealants used in waste water systems, DIBt, edition March 2003\*.

## 2. Test material

The SKZ - Testing GmbH received the following samples for testing (description is based on inspection of the samples at SKZ - Testing GmbH and on the manufacturer`s data):

5 cartridges sealant

<b>Designation:</b>	<b>Sikaflex®-403 Tank&amp;Silo</b>
<b>Type (chemical family):</b>	Polyurethane
<b>Colour:</b>	Concrete-grey
<b>Batch number:</b>	3005424469
<b>Sample receipt:</b>	2021-11-24

250 ml one-component primer for absorbent surfaces (concrete)

<b>Designation:</b>	<b>Sika® Primer 115</b>
<b>Batch number:</b>	3005641873
<b>Sample receipt:</b>	2021-12-01

### 3. Test procedure

The test of the performance of the joint sealant **Sikaflex®-403 Tank&Silo** was performed following the approval principles for 2-component-sealants used in waste water systems, DIBt, edition March 2003\*.

Unless indicated otherwise, preconditioning and test procedure was performed at standard conditioning atmosphere 23/50, class 1 according to DIN EN ISO 291:2008-08.

Usually, we carry out tests according to standards for which we have an accreditation. The list of all standards for which we are accredited can be viewed as an annex to the accreditation certificate on the homepage at <https://www.skz.de/en/testing/products>. In case of non-accredited procedures, they are marked with \*. If it is only a matter of deviating test conditions of an accredited standard, this is marked with #.

#### Production and pre-treatment of test specimens

For the test specimens with the joint dimensions 12 x 12 x 50 mm were produced according to ISO 8340:2005-06.

For the determination of all tensile properties and adhesion/cohesion properties substrate according to the following table was used and prepared:

Substrate according to ISO 13640:1999-12	Primer	Drying time of the primer up to the application of the sealant in the joints
Mortar M1	Sika® Primer 115	90 min

The test specimens Mortar (M1) were blown off with compressed air.

After curing of the sealant, the specimens were stored in that way that free access of air was possible on all sides. The specimens were initially stored for 14 days, starting from the day of manufacture, at standard climate 23/50, Class 1 according to DIN EN ISO 291:2008-08. Depending on the test, further types of storage were subsequently carried out.

### 3.1 Performance requirements

#### 3.1.1 Resistance to flow

The test was carried out following the approval principles for 2-component-sealants used in waste water systems, DIBt, edition March 2003\*, section 5.1.

Requirement:

The measured slump (flow) of the joint sealant must not exceed 2 mm.

#### 3.1.2 Adhesion/cohesion properties

The test was carried out following the approval principles for 2-component-sealants used in waste water systems, DIBt, edition March 2003, section 5.2. After 14 days of storage in a standard climate, the following types of conditioning were performed:

Method A: water conditioning  
28 days Ca(OH)<sub>2</sub> saturated water at 23°C ±1

Method B: alternating conditioning  
3 days in the oven at (70 ± 2°C)  
1 day in distilled water at (23 ± 2 °C)  
2 days in the oven at (70 ± 2°C)  
1 day in distilled water at (23 ± 2 °C)

This 7-day cycle must be performed four times

Method C: cold conditioning  
7 days at (-20 C ± 2°C)

Requirement:

For method A and B:

After 24 h neither an adhesive nor a cohesive failure shall occur on the test specimens which are extended by 50 %.

For method C:

After 24 h neither an adhesive nor a cohesive failure shall occur on the test specimens which are extended by 20 %.

### 3.1.3 Resistance to pressured water

The test was carried out following the approval principles for 2-component-sealants used in waste water systems, DIBt, edition March 2003\*, section 5.3. and was carried out on test specimens with concrete as the adhesive partner.

Requirement:

The arching must not be greater than 5 mm (initial value) 24 hours after the pressure is applied. After a further 7 days (168 hours) at 2 bars, the arching may increase by a maximum of 1 mm (compared to the initial value). During the test period, there must be no water penetration at the joint.

### 3.1.4 Loss of weight after heat storage

The test was carried out following the approval principles for 2-component-sealants used in waste water systems, DIBt, edition March 2003\* section 5.4. After 7 days of storage at normal climate, the samples were stored in air at  $70 \pm 2^\circ\text{C}$  for 168 hours. After heat storage, the samples were brought back to room temperature and weighed.

Requirement:

The loss in volume must be  $\leq 10\%$ .

### 3.1.5 Chemical resistance

The test was carried out following the approval principles for 2-component-sealants used in waste water systems, DIBt, edition March 2003\* section 5.5. After 14 days of storage at standard climate, the samples were immersed in the following solutions for a period of 7 days at  $23 \pm 2^\circ\text{C}$ :

- Diluted sulfuric acid with a pH value of  $\geq 2.0$
- Diluted caustic soda solution with a pH value of  $\leq 12.0$
- 5% Standard sanitary cleaner in water solution (containing peroxide)

Afterwards, the samples were taken, wiped dry and the change in mass and volume was determined.

Requirement:

The loss of mass and volume after chemical exposure must not exceed 5%.

#### 4. Test results - Sikaflex®-403 Tank&Silo

	<b>Property</b>	<b>Unit</b>	<b>Requirement</b>	<b>Result</b>
4.1.1	Resistance to flow	mm	≤ 2	0
<b>4.1.2</b>	<b>Adhesion/cohesion properties</b>			
	<i>Method A</i>	---	N.F.	N.F.
	<i>Method B</i>		N.F.	N.F.
	<i>Method C</i>		N.F.	N.F.
<b>4.1.3</b>	<b>Resistance to pressured water</b>			
	<i>after 24 hours</i>	mm	≤ 5	1.2
	<i>After additional 168 hours (compared to 24-hour value)</i>	mm	≤ 1	0.65
		---	No leakage	N.F. (2bar)
4.1.4	Loss of volume after heat storage	%	≤ 10	-0.5
<b>4.1.5</b>	<b>Chemical resistance</b>			
	<b>Loss in volume</b>			
	Diluted sulfuric acid pH value ≥ 2.0	%	≤ 5	0.2
	Diluted caustic soda pH value ≤ 12.0			0
	5% Standard sanitary cleaner in water solution (containing peroxide)			0
	<b>Loss in weight</b>			
	Diluted sulfuric acid pH value ≥ 2.0	%	≤ 5	0.1
	Diluted caustic soda pH value ≤ 12.0			0
	5 % Standard sanitary cleaner in water solution (containing peroxide)			0

## 5. Assessment of the test results

The joint sealant **Sikaflex®-403 Tank&Silo** in conjunction with substrate mortar M1 (with Primer **Sika® Primer 115**) meets the requirements following the approval principles for 2-component-sealants used in waste water systems, DIBt, edition March 2003\* in all tested points.

This report can be used as a basis for material evaluation.  
However, it does not replace any official decision or project-specific verification procedure.