Test report no.: **213916/20-I**

Customer:
Sika Services AG
c/o Sika Deutschland GmbH
Stuttgarter Straße 117
72574 Bad Urach
GERMANY

Order: Test of the non-structural joint sealant **Sikaflex® PRO-3 Purform** in accordance with the standard ISO 19862 Buildings and civil engineering works - Sealants - Durability to extension compression cycling under accelerated weathering

Email of: 2020-09-18 **Ref:** Mr Ralf Heinzmann

Sample receipt: 2020-09-18

Test period: 2020-09-18 to 2021-04-21

The test report comprises 6 pages.

Würzburg, 21 April 2021
Lg/km

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1. Order

The Company Sika Services AG, Stuttgarter Straße 117, 72574 Bad Urach, GERMANY, instructed SKZ - Testing GmbH by e-mail of 18 November 2020 to test the non-structural joint sealant **Sikaflex® PRO-3 Purform** in accordance with the standard ISO 19862:2015-11 Buildings and civil engineering works - Sealants - Durability to extension compression cycling under accelerated weathering, for the movement capability 25 %.

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):

6 cartridges one-component sealant

Designation:	**Sikaflex® PRO-3 Purform**
Type (chemical family):	Polyurethane
Colour:	Grey
Batch number:	3004811851
Sample receipt:	2020-09-18

1 x 250 ml Primer

Designation:	**Sika Primer 115**
Batch number:	3004715919
Sample receipt:	2020-09-18

3. Test procedure

The test of the non-structural joint sealant **Sikaflex® PRO-3 Purform** was performed in accordance with the standard ISO 19862:2015-11 Buildings and civil engineering works - Sealants - Durability to extension compression cycling under accelerated weathering, with subsequent determination of the secant tensile modulus and the tensile properties after 10 extension compression cycles.

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.

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 preconditioning of the test specimens was carried out according to DIN EN ISO 8340:2005-09, method A.

Method A: Standard conditioning atmosphere 23/50, class 1 according to DIN EN ISO 291:2008-08

3.1 Durability

3.1.1 Extension and compression cycling under accelerated weathering

As artificial light-source the default method of the standard ISO 19862:2015-11, a fluorescent ultraviolet light source UVA-340 (type 1A) according to 5.11.2 was used. The spectral power distribution of the radiation complies with the requirements according to DIN EN ISO 4892-3:2014-02.

Weathering device according to DIN EN ISO 4892-3:2014-02

Type of weathering device:	QUV
Light source:	UVA-340 (type 1A)
Filter system:	terrestrial daylight simulation
Operation:	non-alternating mode
Black standard temperature:	70 ± 3 °C
Test chamber temperature:	25 ± 3 °C
Spray cycle:	60 min water spray, 300 min dry cycle
Irradiation energy EUV (300 - 340) nm:	0.83 W/m²
Exposure period:	1627 h

The extension and compression cycling test according to the standard ISO 19862, was effected with a 25 % extension, taking the initial joint width as a basis.

The cyclic movement cycle takes seven days duration and is repeated up to 10 times for a durability rating of 1 - 10. In agreement with the customer and deviating from the standard ISO 19862 the cyclic movement cycles are used alternating with the storage cycle a and b.

Cycle a:

a) Compression to specified dimension, 3 days in the accelerated weathering device

b) Remove from the accelerated weathering device, remove the clamps and allow to relax for 1 hour

c) Extension to specified dimension, 4 days in the accelerated weathering device

d) Remove from the accelerated weathering device, record of any failures

e) Remove the clamps and allow to relax for 1 hour

Cycle b:

a) Compression to specified dimension, 4 days in the accelerated weathering device

b) Remove from the accelerated weathering device, remove the clamps and allow to relax for 1 hour

c) Extension to specified dimension, 3 days in the accelerated weathering device

d) Remove from the accelerated weathering device, record of any failures

e) Remove the clamps and allow to relax for 1 hour

3.1.2 Evaluation of test specimens

The evaluation was carried out on the extended specimens. A light is shone from the back side of the specimen. Any adhesion or cohesion failure as well as light penetration through the specimen was recorded.

If there is no adhesion/cohesion failure or light transmission failure according to the standard ISO 19862:2015-11 point 9.3, the sample has passed the cycle.

4. Test results

4.1 Durability

Sikaflex® PRO-3 Purform			
Cycle	**Test Specimen 1**	**Test Specimen 2**	**Test Specimen 3**
1	NF [1]	NF [1]	NF [1]
2	NF [1]	NF [1]	NF [1]
3	NF [1]	NF [1]	NF [1]
4	NF [1]	NF [1]	NF [1]
5	NF [1]	NF [1]	NF [1]
6	NF [1]	NF [1]	NF [1]
7	NF [1]	NF [1]	NF [1]
8	NF [1]	NF [1]	NF [1]
9	NF [1]	NF [1]	NF [1]
10	NF [1]	NF [1]	NF [1]
Durability rating:		**10**	

The non-structural joint sealant **Sikaflex® PRO-3 Purform** has reached the durability class 10.

[1] NF: no light passing through the specimen