Test report no.: **102993/12-II**

Customer:
Sika Services AG
Elastic Sealing & Bonding
Tüffenwies 16
8048 Zürich
SWITZERLAND

Order: Test of the one-component sealant **Sikaflex® AT-Facade** in accordance with DIN EN ISO 11600 - F - class 25LM with substrate mortar M1 according to ISO 13640

Email of: 2012-08-28 **Ref.:** Mr. Christian Völlm

Sample receipt: 2012-09-12

Test period: 2012-09-19 to 2012-12-12

The test report comprises 6 pages.

Würzburg, 2013-01-15
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International akkreditiert
SKZ - TeConA GmbH

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The original language of the report is German. In case of doubt, the German version is obligatory.

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1. Order

Company Sika Services AG, Elastic Sealing & Bonding, Tüffenwies 16, 8048 Zürich, SWITZERLAND, instructed SKZ - TeConA GmbH by email of 28 August 2012 to test the one-component sealant **Sikaflex® AT-Facade** in accordance with DIN EN ISO 11600 - type F - class 25LM with substrate mortar M1 according to ISO 13640.

2. Test material

On 12 September 2012 SKZ - TeConA GmbH received the following samples for testing.

6 film bags	one-component sealant
designation:	**Sikaflex® AT-Facade**
basis:	polyurethane
batch:	3000315031
colour:	grey

100 ml one-component primer for absorbent substrates (concrete)

designation:	**Sika® Primer 3N**
batch:	0012991708

3. Test procedure

The test of the one-component sealant **Sikaflex® AT-Facade** was performed in accordance with DIN EN ISO 11600 (issue April 2004), table 3 - Requirements for sealants (F) - class 25LM.

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

Usually we carry out tests according to standards for which we have an accreditation. The list of all standards for which we are accredited is shown on the homepage at www.skz.de.

Production and pre-treatment of test specimens

For the tests, specimens with the joint dimension 12 x 12 x 50 mm were produced according to ISO 8340. As substrate mortar M1 in accordance with ISO 13640 as well as aluminium for the determination of the elastic recovery according to DIN EN ISO 7389 were used. The contact surfaces were pre-treated with **Sika® Primer 3N.** The drying time of the primer up to the application of the sealant in the joints was 90 minutes.

The preconditioning of the test specimens was carried out according to ISO 8340, method B.

Method A: 28 days at (23 ± 2) °C and (50 ± 5) % rel. humidity

Method B: The samples shall be conditioned according to method A and subjected three times to the following storage cycle:

a) 3 days in the oven at (70 ± 2) °C
b) 1 day in distilled water at (23 ± 2) °C
c) 2 days in the oven at (70 ± 2) °C
d) 1 day in distilled water at (23 ± 2) °C

3.1 Elastic recovery

The test was carried out according to DIN EN ISO 7389 on test specimens made of aluminium which were extended by 100 % of the original width.

Requirement: Elastic recovery shall be at least 100 %.

3.2 Tensile properties (secant tensile modulus)

The test was carried out according to ISO 8339. The secant tensile modulus was determined with an extension of 100 % at test temperatures of 23 °C and -20 °C.

Requirement:

secant tensile modulus at 23 °C ≤ 0.4 N/mm²
at -20 °C ≤ 0.6 N/mm²

3.3 Adhesion and cohesion properties at maintained extension

The test was carried out according to ISO 8340 with an extension of 100 % at test temperatures of 23 °C and -20 °C.

Requirement:

After 24 h neither an adhesive nor a cohesive failure shall occur on the test specimens which are extended by 100 %.

3.4 Determination of adhesion/cohesion properties at variable temperatures

The test was carried out according to ISO 9047. The amplitude of extension/compression was ± 25 % of the initial joint width.

Requirement:

The joint sealant must not separate from the contact material nor shall the joint sealant display any signs of crack formation.

3.5 Adhesion and cohesion properties at maintained extension after immersion in water

The test was carried out according to ISO 10590 with an extension of 100 %.

Requirement:

After 24 h neither an adhesive nor a cohesive failure shall occur on the test specimens which are extended by 100 %.

3.6 Change in volume

The test was carried out according to ISO 10563.

Requirement: The change in volume must be ≤ 10 %.

3.7 Resistance to flow

The test was carried out according to ISO 7390, methods A and B (horizontal and vertical position) at temperatures of 5 °C and 50 °C.

Requirement:

According to method A and B at 5 °C und 50 °C the slump (flow) of the joint sealant must not exceed 3 mm.

4. Test results

4.1 Elastic recovery

Elastic recovery was 88 %.

4.2 Tensile properties (secant tensile modulus)

extension [%]	temperature [°C]	secant tensile modulus [N/mm²]
100	23	0.4
100	-20	0.5

4.3 Tensile properties at maintained extension

extension [%]	temperature [°C]	adhesion / cohesion properties after 24 h extension
100	23	+
100	-20	+

+ = The sealant of the test specimens, which was extended by 100 % of the initial joint width, neither showed any signs of crack formation nor separated from the contact material.

4.4 Adhesion/cohesion properties at variable temperatures

The test specimens showed neither adhesive nor cohesive failure.

4.5 Adhesion/cohesion properties at maintained extension after immersion in water

The test specimens showed neither adhesive nor cohesive failure.

4.6 Change in volume

The change in volume was -4.3 %.

4.7 Resistance to flow

method	temperature in °C	slump in mm
A vertical	5	0
A vertical	50	0
B horizontal	5	0
B horizontal	50	0

5. Designation

Sealant DIN EN ISO 11600 - F - 25LM - M_1

6. Assessment of the test results

The one-component sealant **Sikaflex® AT-Facade** in conjunction with mortar M1 as substrate and **Sika® Primer 3N** meets the requirements according to DIN EN ISO 11600 (issue April 2004), table 3 - Requirements for sealants (F) - class 25LM.