Test report no.: **96556/11-II**

Customer:
Tremco illbruck GmbH & Co. KG
Von-der-Wettern-Straße 27
51149 Köln
GERMANY

Order:
Test of one-component hybrid sealant
illbruck SP525 in accordance with
DIN EN ISO 11600 - F - class 25 LM with substrate mortar M1 according to ISO 13640

Email of: 2011-06-07 **Ref.:** Mr. Michael Hansen

Sample receipt: 2011-06-09

Test period: 2011-06-14 to 2011-08-05

The test report comprises 5 pages.

Würzburg, 2011-08-16
Sc/ste/

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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 Tremco illbruck GmbH & Co. KG, Von-der-Wettern-Straße 27, 51149 Köln, GERMANY instructed SKZ - TeConA GmbH by email of 7 June 2011 to test the one-component hybrid sealant **illbruck SP525** in accordance with DIN EN ISO 11600 - type F - class 25 LM with substrate mortar M1 according to ISO 13640.

2. Test material

On 9 June 2011 SKZ - TeConA GmbH received the following samples for testing:

8 film bags	one-component hybrid sealant
designation:	**illbruck SP525**
basis:	hybrid basis
batch:	04/11-1781
colour:	pebble grey

500 ml one-component primer for absorbent substrates

designation:	**Tremco Primer AT140**
batch:	11/10-4858

3. Test procedure

The test of the one-component hybrid sealent **illbruck SP525** was performed in accordance with DIN EN ISO 11600 (issue April 2004), table 3 - Requirements for sealants (F) - class 25 LM.

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 dimensions 12 x 12 x 50 mm were produced according to ISO 8340. As substrate mortar M1 in accordance with ISO 13640 was used. The contact surfaces were pre-treated with primer **Tremco Primer AT140.** The drying time of the primer up to the application of the sealant in the joints was 90 minutes.

Elastic recovery was tested by means of test specimens made of anodic aluminium according to ISO 13640, which were pre-treated with Tremco AT200 cleaning agent.

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 ISO 7389 with an extension of 100 %.

Requirement: Elastic recovery shall be at least 70 %.

3.2 Tensile properties (secant tensile modulus)

The test was carried out according to ISO 8339. The secant tensile modulus was determined on test specimens which were extended by 100 % of the original width at 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 Tensile properties at maintained extension

The test was carried out according to ISO 8340 with an extension of 100 % at 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 Recovery

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

Recovery was 74 %.

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 tension

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 3.5 %.

4.7 Recovery

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 - 25 LM - M_1P.

6. Assessment of test results

The one-component hybrid sealant **illbruck SP525** in conjunction with mortar M1 as substrate and **Tremco Primer AT140** meets the requirements according to DIN EN ISO 11600 (issue April 2004), table 3 - Requirements for sealants (F) - class 25 LM.