

## Test Report

- Translation -

Document No.: (1201/424/16) – Pan of 02/12/2016

Client: KAUBIT Aktiengesellschaft  
Industriestraße 1  
D 49413 Dinklage

Order date: 13/10/2016

Subject: Tests according to DIN EN 14891, Table 1 (tensile adhesive strength, water impermeability and crack bridging ability under normal conditions) at the waterproofing slurry „FA Dichtschlämme AS 2K“

Test basis: DIN EN 14891:2012-07 - Liquid-applied water impermeable products for use beneath ceramic tiling bonded with adhesives - Requirements, test methods, evaluation of conformity, classification and designation

Test material received: 20/10/2016

Sampling: Made by client

Test period: October until November 2016

This Test Report consists of 3 pages, including the cover sheet and 2 annexes



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## 1 Commission

KAUBIT Aktiengesellschaft commissioned the Materials Testing Institute (MPA), Braunschweig to test the "FA Dichtschlämme AS 2K" waterproofing slurry with DIN EN 14891, table 1 (tensile adhesive strength, impermeability to water and crack bridging ability under standard conditions) to be tested. The waterproofing slurry is two-component polymer modified cement product (CM).

## 2 Material used for testing and preparation of specimen

For the tests, the client delivered the following products to the MPA laboratory:

- FA Dichtschlämme AS 2K  
(Mixing ratio: powder to liquid = 2 : 1 parts by weight)
- BCU HF 80 Flex-Spezial (1-component cement mortar according to DIN EN 12004; mixing ratio: powder to water = 25 : 7.25 mass-parts)

The specimens were prepared on the MPA premises in accordance with the manufacturer's processing instructions.

Table 1: Composite specimens

Test details	Specimen specifications
Tensile adhesion strength in accordance with A.6 of DIN EN 14891	Base unit: concrete slab (400 mm x 400 mm x 40 mm) System structure: FA Dichtschlämme AS 2K (two applications, dry coat thickness: approx. 2,0 mm) in connection with the BCU HF 80 Flex-Spezial tile adhesive (tile 50 mm x 50 mm; typ V1) Number of specimens: 10 tensile adhesion tests per test parameter
Water impermeability in accordance with section A.7 of DIN EN 14891	Base unit: concrete slab (200 mm x 200 mm x 100 mm) System structure: FA Dichtschlämme AS 2K (two applications, dry coat thickness: approx. 2,0 mm) Number of specimens: 3
Crack bridging ability in accordance with section A.8 of DIN EN 14891	Base unit: mortar prisma (160 mm x 40 mm x 12 mm) System structure: FA Dichtschlämme AS 2K (two applications, dry coat thickness: approx. 2,0 mm) Number of specimens: 3

Unless specifications were made in the test standards regarding pre-test storage conditions, the specimens were stored in a (21 ± 2) °C and (60 ± 10) % r.h. climate.

### 3 Testing and test results

Results of the tests performed with the "FA Dichtschlämme AS 2K" waterproofing material are listed together with the test conditions in the tables in annexes 1 and 2.

With the tested properties, the examined "FA Dichtschlämme AS 2K" waterproofing material conforms with the requirements specified in DIN EN 14891:2013-07 for liquid-applied water impermeable dispersion products. The Material can therefore in accordance with DIN EN 14891, table 3, be classified and designated as

**CM** material (liquid-applied, water impermeable cement product).

This document is the translated version of Test Report (1201/424/16) – Pan dated 02/12/2016. The legally binding text is the aforementioned German Test Report.



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Table A1: Test results for the liquid-applied waterproofing product  
„FA Dichtschlämme AS 2K“

Testing in accordance with DIN EN 14891	Test conditions	Test results	Requirements
Initial adhesion strength (A.6.2)	Tensile adhesion test after 28-day storage under standard conditions	1.41 MPa see table A2	$\geq 0.5$ MPa
Tensile adhesion strength after water contact (A.6.4)	Tensile adhesion test after 7-day storage under standard conditions and 21 days under water	1.00 MPa see table A2	$\geq 0.5$ MPa
Tensile adhesion strength after heat ageing (A.6.5)	Tensile adhesion test after 14-day storage under standard conditions and another 14 days at 70 °C	1.64 MPa see table A2	$\geq 0.5$ MPa
Tensile adhesion strength after freeze-thaw cycling (A.6.6)	Tensile adhesion test after 7-day storage under standard conditions, 21 days under water and 25 freeze-thaw cycles	0.89 MPa see table A2	$\geq 0.5$ MPa
Tensile adhesion strength after contact with lime water (A.6.9)	Tensile adhesion test after 28-day storage under standard conditions and 7 days lime water at 40 °C	1.30 MPa see table A2	$\geq 0.5$ MPa
Water impermeability (A.7)	Test start after 14-day storage under standard conditions  Test pressure: 1.5 bar Test period: 7 d	Impermeable to water  Weight increase (g) 0.2/0.3/0.3	Impermeable to water  Weight gain $\leq 20$ g
Crack bridging ability under standard conditions (A.8.2)	Crack bridging ability after 28-day storage under standard conditions Test rate: 0.15 mm/min	Mean value: 0.78 mm	$\geq 0.75$ mm



Table A2: Individual values of the tensile adhesion tests for the "FA Dichtschlämme AS 2K" waterproofing material in connection with the "BCU HF 80 Flex-Spezial" tile adhesive

Testing in accordance with DIN EN 14891	Tensile adhesion strength [MPa]		Failure mode <sup>1)</sup>
	Individual value	Mean value	
Initial adhesion strength (A.6.2)	1.43/1.54/1.49/1.53/1.41 1.24/1.60/1.24/1.28/1.33	1.41	60 % C; 20 % B 20 % C/D
Tensile adhesion strength after water contact (A.6.4)	1.06/1.06/1.11/0.93/0.97 0.91/0.99/0.93/0.99/1.00	1.00	70 % B 30 % C
Tensile adhesion strength after heat ageing (A.6.5)	1.55/1.86/1.71/1.58/1.69 1.65/1.65/1.61/1.53/1.53	1.64	100 % C
Tensile adhesion strength after freeze-thaw cycling (A.6.6)	0.52/0.95/0.79/0.80/1.04 0.85/1.03/1.00/0.97/0.95	0.89	70 % B 30 % C
Tensile adhesion strength after contact with lime water (A.6.9)	1.31/1.37/1.46/1.29/1.49 1.48/1.29/1.12/1.16/0.99	1.30	40 % B 60 % C

<sup>1)</sup> Legend of failure modes

Failure A: cohesion failure in the concrete  
 Failure B: cohesion failure in the waterproofing material  
 Failure C: cohesion failure in the tile adhesive  
 Failure A/B: adhesion failure between concrete and waterproofing material  
 Failure B/C: adhesion failure between waterproofing material and tile adhesive  
 Failure C/D: adhesion failure between tile adhesive and tile