Kiwa GmbH, Polymer Institut, Quellenstraße 3, 65439 Flörsheim

IBIX S.r.l.
Via La Viola 2
48022 S. Maria in Fabriago
Italy

Polymer Institut

Kiwa GmbH
Quellenstraße 3
65439 Flörsheim

T: +49 (0) 6145 597 - 10
F: +49 (0) 6145 597 - 19
E: polymer-institut@kiwa.de

www.kiwa.de

Test report

project:	**P 11328-E**
order:	Testing of the floor coating system **IBIX POLYFUSION** according to EN 13813
order date:	2018-01-10
sample receipt date:	2018-02-20
test period:	2018-01-10
This test report comprises:	6 pages

Flörsheim, 2018-04-17

J. Magner
head of institute

Kiwa Polymer Institut kiwa

B. Eng. (FH) S. Schmidt
person in charge

C O N T E N T S

1 SUBJECT

Polymer Institut has been charged by company IBIX S.r.l., S. Maria in Fabriago (Italy), to carry out tests on concrete substrates, coated with

IBIX POLYFUSION

according to EN 13813 „*Screed material and floor screeds – Screed materials – Properties and requirements*“ (January 2003).

According to the manufacturer's declaration **IBIX POLYFUSION** has been specifically designed to provide a tough long lasting, fusion bonded coating on concrete and other porous surfaces. It is based on an alloy of acid modified polyolefins.

Extent of the tests

The following tests have been carried out:

overview 1: tests according to EN 13813

test	test method	issue
bond strength	EN 13892-8	2003-02
impact strength	EN ISO 6272-1	2011-11
wear resistance	EN 13892-4	2003-02

In clause 5 a summary of the results and a corresponding classification in accordance with EN 13813 is given.

2 RECEIPT OF SAMPLES

The following sample materials were delivered to Polymer Institut by parcel service.

table 1: receipt of samples

material	description	dimensions [cm]	quantity
IBIX POLYFUSION	coated concrete slab	40 x 40 x 3	3

According to customers statement the concrete slabs were coated and stored inside at 15°C. The layer thickness of the coatings is about 2.5 mm.

3 TESTS

The storage of the apparatus and specimens as well as the procedure of the tests took place at standard conditions in accordance with table 3 of EN13892-1:2003 *"Methods of test for screed materials - part 1: sampling, making and curing specimens for test"* in horizontal position.

3.1 Bond strength

The bond strength has been tested following EN 13892-8 *„Methods of test for screed materials - Part 8: Determination of bond strength"*, using the following test parameters:

- test device: tensile bond strength apparatus Easy M10, model BPS Wennigsen GmbH, max. 10 kN
- test speed: 100 N/s (0,05 N/mm² x s)
- diameter of test cylinder: (50 ± 0,5) mm
- adhesive: 2 component PUR adhesive

3.2 Impact resistance

The impact resistance has been tested following EN ISO 6272-1 *„Paints and varnishes – Rapid deformation (impact resistance) tests – Part 1: Falling-weight test, large-area indenter",* in accordance with sub-clause 7.2*,* using the following test parameters:

- test apparatus: falling weight test apparatus model 304, model Erichsen
- falling weight: 1 - 2 kg
- falling height: 10 - 102 cm
- diameter of ball: 20 mm

The upper side of the coating of the test specimens has been loaded by an impact energy of a falling bolt with the above parameters.

The test positions have been examined by a lens with x10 magnification. In accordance with EN ISO 6272-1 no cracks or detachments shall occur at 4 of 5 test positions.

3.3 Wear resistance

The wear resistance has been determined in accordance with EN 13892-4 „*Methods of test for screed materials - Part 4: Determination of wear resistance BCA"*, using coated concrete test specimens in accordance with clause 2, with the following test parameters:

- test apparatus: abrasion test apparatus BCA tester, model Form + Test
- load application: by 3 steel rolls
- speed: (180 ± 15) r/min
- cycles: 2.850
- incident load 65 kg

An apparatus with three tempered steel rolls which run with the above number of revolutions and incident load over a circular test area produces a wear on the surface of the coating. The wear resistance AR (abrasion resistance) using the BCA-tester is assessed by measuring the wear depth after loading to the nearest 10 µm using a depth measurement gauge.

4 RESULTS

table 2: tensile bond strength

no.	tensile bond strength [MPa]		area of failure (break)
	single value	mean value	
1	2.33	**2.1**	100 % of cohesion failure in concrete substrate
2	2.34		
3	1.80		
4	1.71		
5	2.14		

table 3: impact resistance

parameter		impact energy	remark
falling weight	1 kg	**4 Nm**	no cracks and no spalling
falling height	81 cm		

table 4: wear resistance

wear depth [µm]*		remark
single values	mean value	
0 / 0 / 0	**0**	no cracks, no delamination

** resolution: 10 µm*

5 SUMMARY

On behalf of the company IBIX S.r.l., S. Maria in Fabriago (Italy), tests have been carried out at Polymer Institut of the coating system

IBIX POLYFUSION

according to EN 13813 „*Screed material and floor screeds – Screed materials – Properties and requirements*“ (January 2003).

In accordance with table 1 of this standard, these tests are specified as “normative”.

The following table gives a summary of the results and the corresponding classification in accordance with EN 13813, table ZA 1.5 (screed based on synthetic resins).

table 5: results and classification

test	results	classification in accordance with EN 13813	
		class	requirement
tensile bond strength	**2.1 MPa**	**B2.0**	≥ 2.0 MPa
impact strength	**4 Nm**	**IR4.0**	determined value
wear resistance	**0 µm**	**AR0.5**	≤ 50 µm

Kiwa Polymer Institut

Flörsheim-Wicker, 2018-04-17