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European Technical Assessment

ETA-12/0152 of 6 June 2017

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General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Kerafix® Flexpan 200 Kerafix® Flexpan 200 W Kerafix® Flexpan 200 L Kerafix® Flexpan 200 SP
Product family to which the construction product belongs	Intumescent products for fire sealing and fire stopping purposes
Manufacturer	Rolf Kuhn GmbH Jägersgrund 10 57339 Erndtebrück DEUTSCHLAND
Manufacturing plant	01[1]
This European Technical Assessment contains	7 pages and 1 annex, which forms an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	European Assessment Document (EAD) 350005-00-1104
This version replaces	ETA-12/0152 issued on 16 May 2012

[1] Address known at DIBt

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Specific Part

1 Technical description of the product

Object of this European Technical Assessment (ETA) are the intumescent construction products "Kerafix® Flexpan 200", "Kerafix® Flexpan 200 W", "Kerafix® Flexpan 200 L" and "Kerafix® Flexpan 200 SP".

In case of fire, exposed to high temperatures, the intumescent products expand and generate foam. This foam seals joints and gaps, closes voids and openings. Thus, the foam restricts the passage and the spread of heat, smoke, flames or any combination of these.

The intumescent construction products "Kerafix® Flexpan 200", "Kerafix® Flexpan 200 W", "Kerafix® Flexpan 200 L" and "Kerafix® Flexpan 200 SP" are produced in form of flexible mats and boards and are processed or cut into strips at a factory. The fitted intumescent strips may be laminated on one side or may be completely wrapped with a PVC-foil.

This ETA also applies to the following modifications:

- laminated with PVC-foil of different colours on one side; named "Kerafix® Flexpan 200 DF", "Kerafix® Flexpan 200 W-DF", "Kerafix® Flexpan 200 L-DF" and "Kerafix® Flexpan 200 SP-DF",
- laminated with PE-sellotape on one side, named "Kerafix® Flexpan 200 ZPE", "Kerafix® Flexpan 200 W-ZPE", "Kerafix® Flexpan 200 L-ZPE" and "Kerafix® Flexpan 200 SP-ZPE",
- laminated with textile tape on one side, named "Kerafix® Flexpan 200 GW", "Kerafix® Flexpan 200 W-GW", "Kerafix® Flexpan 200 L-GW" and "Kerafix® Flexpan 200 SP-GW"
- laminated with aluminumfoil on one side, called "Kerafix® Flexpan 200 AF", "Kerafix® Flexpan 200 W-AF", "Kerafix® Flexpan 200 L-AF" and "Kerafix® Flexpan 200 SP-AF";
- laminated with a glass fibre interface, called "Kerafix® Flexpan 200 GV", "Kerafix® Flexpan 200 W-GV", "Kerafix® Flexpan 200 L-GV" and "Kerafix® Flexpan 200 SP-GV";
- equipped with a glass fibre reinforcement web, called "Kerafix® Flexpan 200 GG", "Kerafix® Flexpan 200 W-GG", "Kerafix® Flexpan 200 L-GG" and "Kerafix® Flexpan 200 SP-GG
- completely wrapped with PVC-foil, named "Kerafix® Flexpan 200 E", "Kerafix® Flexpan 200 W-E", "Kerafix® Flexpan 200 L-E" and "Kerafix® Flexpan 200 SP-E"

The products and every modification may be additionally finished with a self adhesive tape[2] on one side.

The flexible intumescent products consist essentially of intumescent substances and a binder.

The technical characteristics relevant for fire sealing and fire stopping effects of the construction products are given in Annex 1.

The flexible intumescent strips are produced in a nominal thickness between 0,5 mm and 4,2 mm (tolerance in thickness ±10 % for each nominal thickness) and in any width between 5 mm and 340 mm.

The construction products are delivered in rolls.

The construction products may be cut to size or may be processed to blanked-out pieces as needed.

[2] Type, manufacturer and characteristics deposited with DIBt.

2 Specification of the intended use in accordance with the applicable European Assessment Document (EAD)

The construction products "Kerafix® Flexpan 200", "Kerafix® Flexpan 200 W", "Kerafix® Flexpan 200 L" and "Kerafix® Flexpan 200 SP" are assessed on the basis of EAD 350005-00-1104[3] as intumescent products for fire sealing and fire stopping purposes without defined final intended use (IU 1).

The construction products "Kerafix® Flexpan 200", "Kerafix® Flexpan 200 W", "Kerafix® Flexpan 200 L" and "Kerafix® Flexpan 200 SP" and its modifications are intended to be used as an essential component in construction products, construction elements, kits and special assemblies which need to meet requirements concerning the safety in case of fire.

In case of fire, the products delay the heat transfer through fire resistant construction products and construction elements by expanding under the impact of high temperatures and thus restricting the spread of fire.

The performance given in section 3 is only valid, if the construction products "Kerafix® Flexpan 200", "Kerafix® Flexpan 200 W", "Kerafix® Flexpan 200 L" and "Kerafix® Flexpan 200 SP" consider the instructions and the conditions stated in section 3.3.

The test and assessment methods on which this ETA is based, lead to the assumption of working life of the intumescent construction products "Kerafix® Flexpan 200", "Kerafix® Flexpan 200 W", "Kerafix® Flexpan 200 L" and "Kerafix® Flexpan 200 SP" of at least 10 years[4] in final use.

The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for this assessment

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire

Essential characteristic	Performance
Reaction to fire	Class E in accordance with EN 13501-1

The intumescent construction products "Kerafix® Flexpan 200", "Kerafix® Flexpan 200 W", "Kerafix® Flexpan 200 L" and "Kerafix® Flexpan 200 SP" and the modifications described in clause 1 meet the reaction to fire requirements of class E in accordance with EN 13501-1[5] in the range of thickness between 0,5 mm and 4,2 mm.

3.1.2 Resistance to fire

The performance "resistance to fire" shall be determined separately for every final use and shall be classified, if required for the construction element concerned.

3 Official Journal of the EU N° C 378/02 of 13/11/2015
4 Results of long-term aging (historical data) of "Kerafix® Flexpan 200" available (10 years exposure to natural weathering)
5 EN 13501-1 Fire classification of construction products and building elements; Part 1 and A1:2009: Classification using test data from reaction to fire tests;

3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content and release of dangerous substances	No dangerous substances[6]

The detailed chemical composition[7] of the intumescent construction products "Kerafix® Flexpan 200", "Kerafix® Flexpan 200 W", "Kerafix® Flexpan 200 L" and "Kerafix® Flexpan 200 SP" was assessed by DIBt and is deposited with DIBt.

3.3 General aspects

Durability testing shall be an integral part of assessing the basic works and performance requirements. The following specific provisions for use shall be complied with to ensure the durability of the performance.

The testing and the assessment of the product performance were carried out for environmental conditions of type X - product intended for use at conditions exposed to weathering (rain, UV, frost); out-door application - in accordance with EOTA Technical Report 024, section 4.2.3.[8]

Result:

The intumescent construction products "Kerafix® Flexpan 200", "Kerafix® Flexpan 200 W", "Kerafix® Flexpan 200 L" and "Kerafix® Flexpan 200 SP" can be used under use conditions of type X without having to fear essential changes in the relevant fire sealing and fire stopping properties and the resulting performance. This assessment includes the unlimited in-door use under use conditions of type Y_1, Y_2, Z_1 and Z_2.

Additionally the product was tested under specific application conditions according to EOTA TR 024, section 4.3

- Exposure to a constant temperature of 80 °C for 40 days,
- Exposure to solvents (tested with Butylacetat, Butanol, solvent naphtha and fuel)
- Subsequent over-painting (tested with coatings on the basis of acryl dispersion, alkyd resin, polyurethanacryl and epoxide resin,
- Exposure to water immersion for 4 weeks,
- Exposure to intimate contact to plastics (PVC, PE).

The characteristics "expansion ratio" and "expansion pressure" did not change essentially due to the exposure.

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with the European Assessment Document EAD No 350005-00-1104 the Decision of the commission N° 1999/454/EC of 22 June 1999 (OJ of the EU L 178 of 14 July 1999, p 42), amended by EC Decision 2001/596/EC of 8 January 2001 (OJ of the EU L 209 of 2 August 2001, p 33) is the legal basis for AVCP.

So system 1 applies for the assessment and verification of constancy of performance (AVCP). See Annex V in conjunction with Article 65 (2) of the Regulation (EU) N° 305/2011 and the following table:

6 In accordance with the Regulation (EC) No 1272/2008 of the European Parliament and the Council of 16 December 2008 (published in the OJ of the EU N° L353 of 31/12/2008)

7 Detailed written declaration for "Kerafix® Flexpan 200", "Kerafix® Flexpan 200 L" and "Kerafix® Flexpan 200 W" of 12/05/2011 and for "Kerafix® Flexpan 200 SP" of 07/08/2011,

8 EOTA TR 024 Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and products; amended version July 2009

Product	Intended use	Characteristic	System
"Kerafix® Flexpan 200" "Kerafix® Flexpan 200 W" "Kerafix® Flexpan 200 L" "Kerafix® Flexpan 200 SP"	Components effective in view of safety in case of fire (BWR 2) used in construction products, construction elements, kits and special assemblies	reaction to fire, properties relevant for the fire sealing and fire stopping effect	1

5 Technical details necessary for the implementation of the procedure for assessment and verification of constancy of performance (AVCP) system 1, as provided for in the applicable European Assessment Document

The technical details necessary for the implementation of the system for assessment and verification of constancy of performance are laid down in the control plan (confidential part of this ETA) deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 6 June 2017 by Deutsches Institut für Bautechnik

Prof. Gunter Hoppe
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beglaubigt:
Dr.-Ing. Dierke

ANNEX 1

CHARACTERISTICS OF THE CONSTRUCTION PRODUCT RELEVANT FOR THE FIRE SEALING AND FIRE STOPPING EFFECTS OF "KERAFIX® FLEXPAN 200", "KERAFIX® FLEXPAN 200 W", "KERAFIX® FLEXPAN 200 L" AND "KERAFIX® FLEXPAN 200 SP"

Characteristic	Test method[9]	Range of determined values and tolerances
Nominal thickness	EOTA TR 024[8], cl. 3.1.2.1	0,5 mm to 4,2 mm (tolerance for each nominal thickness ±10 %)
"Kerafix® Flexpan 200"		
Expansion ratio	EOTA TR 024[8], cl. 3.1.11; method 2 at 450 °C for 30 minutes without a top-load	thickness 0,5 mm: 17,5 to 32,0 thickness 3,5 mm: 7,0 to 10,0
Expansion pressure	EOTA TR 024[8], cl. 3.1.12; method 4 at 30 °C	thickness 0,5 mm: 0,65 N/mm² to 1,20 N/mm² thickness 3,5 mm: 0,30 N/mm² to 0,50 N/mm²
"Kerafix® Flexpan 200 W"		
Expansion ratio	TR 024[8], cl. 3.1.11; method 2 at 450 °C for 30 minutes without a top-load	thickness 0,5 mm: 18,5 to 40,0 thickness 3,5 mm: 5,5 to 7,5
Expansion pressure	TR 024[8], cl. 3.1.12; method 4 at 300 °C	thickness 0,5 mm: 0,50 N/mm² to 1,50 N/mm² thickness 3,5 mm: 0,35 N/mm² to 0,70 N/mm²
"Kerafix® Flexpan 200 L"		
Expansion ratio	TR 024[8], cl. 3.1.11; method 2 at 450 °C for 30 minutes without a top-load	thickness 0,7 mm: 13,0 to 28,5 thickness 4,0 mm: 8,5 to 11,0
Expansion pressure	TR 024[8], cl. 3.1.12; method 4 at 300 °C	thickness 0,7 mm: 0,30 N/mm² to 0,90 N/mm² thickness 4,0 mm: 0,30 N/mm² to 0,40 N/mm²
"Kerafix® Flexpan 200 SP"		
Expansion ratio	TR 024[8], cl. 3.1.11; method 2 at 450 °C for 30 minutes without a top-load	thickness 0,9 mm: 14,5 to 24,5 thickness 3,0 mm: 6,0 to 9,0
Expansion pressure	TR 024[8] cl. 3.1.12; method 4	thickness 0,9 mm: 0,60 N/mm² to 0,95 N/mm² thickness 3,0 mm: 0,25 N/mm² to 0,40 N/mm² *(not significant at 300 °C)*

The chemical reaction of the intumescent products "Kerafix® Flexpan 200", "Kerafix® Flexpan 200 W" and "Kerafix® Flexpan 200 L" starts at ca. 170 °C; for "Kerafix® Flexpan 200 SP" the chemical reaction starts at ca. 220 °C.

[9] Details of test method are deposited with DIBt.