



European Technical Approval ETA-13/0158

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung
Trade name

"PYROWRAP FSB-WA"; "PYROWRAP FSB-WV", "PYROWRAP FSB-WB" und "PYROWRAP FSB-WS"

"PYROWRAP FSB-WA", "PYROWRAP FSB-WV", "PYROWRAP FSB-WB" and "PYROWRAP FSB-WS"

Zulassungsinhaber
Holder of approval

OBO BETTERMANN GmbH & Co. KG
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DEUTSCHLAND

Zulassungsgegenstand
und Verwendungszweck
*Generic type and use
of construction product*

Biegsame, im Brandfall aufschäumende Brandschutzgewebe und im Brandfall aufschäumende Brandschutzmassen

Flexible intumescent fabrics and intumescent putties

Geltungsdauer:
Validity: vom
from
bis
to

23 April 2013

23 April 2018

Herstellwerk
Manufacturing plant

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Diese Zulassung umfasst
This Approval contains

11 Seiten einschließlich 1 Anhang
11 pages including 1 annex

I LEGAL BASES AND GENERAL CONDITIONS

- 1 This European technical approval is issued by Deutsches Institut für Bautechnik in accordance with:
 - Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products¹, modified by Council Directive 93/68/EEC² and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council³;
 - Gesetz über das In-Verkehr-Bringen von und den freien Warenverkehr mit Bauprodukten zur Umsetzung der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Bauprodukte und anderer Rechtsakte der Europäischen Gemeinschaften (Bauproduktengesetz - BauPG) vom 28. April 1998⁴, as amended by Article 2 of the law of 8 November 2011⁵;
 - Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC⁶.
- 2 Deutsches Institut für Bautechnik is authorized to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.
- 3 This European technical approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European technical approval.
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- 6 The European technical approval is issued by the approval body in its official language. This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

¹ Official Journal of the European Communities L 40, 11 February 1989, p. 12
² Official Journal of the European Communities L 220, 30 August 1993, p. 1
³ Official Journal of the European Union L 284, 31 October 2003, p. 25
⁴ *Bundesgesetzblatt Teil I* 1998, p. 812
⁵ *Bundesgesetzblatt Teil I* 2011, p. 2178
⁶ Official Journal of the European Communities L 17, 20 January 1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of the products and intended use

1.1 Definition of the construction products

This European technical approval (ETA) applies to the construction products "PYROWRAP FSB-WB", "PYROWRAP FSB-WS", "PYROWRAP FSB-WA" and "PYROWRAP FSB-WV".

"PYROWRAP FSB-WB" and "PYROWRAP FSB-WS" are factory made flexible intumescent fabrics.

"PYROWRAP FSB-WA" is produced as an intumescent coating in the colour grades anthracite, black and red. "PYROWRAP FSB-WV" is an intumescent putty.

The fire sealing effect of the products bases on the creation of foam at high temperatures in case of fire, that closes gaps, joints and other openings of construction elements and restricts the passage of heat, flame and/or smoke this way.

The intumescent coating "PYROWRAP FSB-WA" and the intumescent putty "PYROWRAP FSB-WV" harden when applied and form intumescent layers which react in case of fire.

The construction products "PYROWRAP FSB-WB" and "PYROWRAP FSB-WS" are tight and tearproof intumescent fabrics consisting of a glass filament fabric⁷ which is mechanically covered with the intumescent coating "PYROWRAP FSB-WA" on one side.

The flexible intumescent fabric "PYROWRAP FSB-WB" is mechanically covered with "PYROWRAP FSB-WA" on one side and on the other side it is mechanically covered with a coating of Polyurethan⁸ optionally pigmented in the colour grades grey, red, black or white.

The flexible intumescent fabric "PYROWRAP FSB-WS" is the glass filament fabric mechanically covered with "PYROWRAP FSB-WA" on one side and equipped with an acrylic self-adhesive foil on the other side.

The flexible intumescent fabrics "PYROWRAP FSB-WB" and "PYROWRAP FSB-WS" are produced as endless rolls, cut and delivered in the preferable length of 10 m or 20 m.

The products "PYROWRAP FSB-WB" and "PYROWRAP FSB-WS" may be delivered as intumescent strips or mats of any dimension on request.

The intumescent coating "PYROWRAP FSB-WA" and the intumescent putty "PYROWRAP FSB-WA-SC" are delivered in pails or containers of different capacity or in cartridges.

The characteristics and performances of the flexible intumescent products "PYROWRAP FSB-WB", "PYROWRAP FSB-WS", "PYROWRAP FSB-WA" and "PYROWRAP FSB-WV" relevant for fire sealing purposes were determined as follows⁹:

⁷ Type, manufacturer and characteristics deposited at DIBt.

⁸ Required quantity and composition deposited at DIBt

⁹ Test methods in accordance with the CUAP 11.04/06, edition December 2011; see EOTA Technical Report 024 (TR 024), edition July 2009

"PYROWRAP FSB-WB"

- thickness: 0,6 mm to 2,2 mm
- mass per unit area:
 - thickness 0,6 mm 0,700 kg/m² to 0,850 kg/m²
 - thickness 2,2mm 2,400 kg/m² to 2,650 kg/m²
- loss of mass on heating: 53,0 % ± 5 %
(tested at 550 °C for 30 minutes)
- expansion ratio: 15,5 to 22,0
(tested at 550 °C for 30 minutes with a top-load; thickness of the samples ca. 2 mm)¹⁰
- expansion pressure: 1,00 N/mm² to 1,65 N/mm²
(tested at 300 °C, method 4)¹⁰

Additionally the tensile strength was determined according to DIN EN ISO 10319¹¹:

thickness of the intumescent fabric		ca. 1,6 mm	ca. 0,6 mm
ultimate elongation in %	longitudinal	3,6	4,2
	transverse	4,4	4,5
ultimate tensile strength in kN/m	longitudinal	56,0	60,7
	transverse	34,5	41,4

"PYROWRAP FSB-WS"

- thickness: 0,6 mm to 2,2 mm
- mass per unit area:
 - thickness 0,6 mm 0,750 kg/m² to 0,900 kg/m²
 - thickness 2,2mm 2,450 kg/m² to 2,700 kg/m²
- loss of mass on heating: 53,0 % ± 5 %
(tested at 550 °C for 30 minutes)
- expansion ratio: 15,5 to 22,0
(tested at 550 °C for 30 minutes with a top-load; thickness of the samples ca. 1,6 mm)¹⁰
- expansion pressure: 1,00 N/mm² to 1,65 N/mm²
(tested at 300 °C, method 4)¹⁰

"PYROWRAP FSB-WA" and "PYROWRAP FSB-WV"

- density of "PYROWRAP FSB-WA" (coating): 1200 kg/m³ ± 10 %
- density of "PYROWRAP FSB-WA-SC" (putty): 1300 kg/m³ ± 10 %
- content of non-volatiles: 70 % ± 5 %
(tested at 105°C for 3 h)
- loss of mass on heating: 59,0 % ± 5 %
(tested at 550 °C for 30 minutes)

¹⁰ Details of testing are deposited at DIBt.

¹¹ DIN EN ISO 10319:2008 Geosynthetics; Wide-width tensile test

- expansion ratio: 15,0 to 26,5
(tested at 550 °C for 30 minutes with a top-load)¹⁰
- expansion pressure: 1,00 N/mm² to 1,90 N/mm²
(tested at 300°C, method 4)¹⁰

1.2 Intended use

The construction products "PYROWRAP FSB-WB", "PYROWRAP FSB-WS", "PYROWRAP FSB-WA" and "PYROWRAP FSB-WV" are intended to be used as components essential for the fire sealing and fire stopping effect of construction products, elements and assemblies, which shall meet requirements concerning the safety in case of fire. The construction products prevent the heat transmission and the propagation of fire by creating foam.

The intumescent fire sealing products according to this ETA in end use conditions may be subjected to conditions for the use category type X (out-door use). This includes the use in accordance with the use categories type Z₂, Z₁, Y₂ and Y₁.¹²

If the construction products "PYROWRAP FSB-WB", "PYROWRAP FSB-WS", "PYROWRAP FSB-WV" or "PYROWRAP FSB-WA" are intended to be exposed to specific conditions, further tests are necessary.

The provisions made in this European technical approval are based on an assumed working life in end use application of the construction products "PYROWRAP FSB-WB", "PYROWRAP FSB-WS", "PYROWRAP FSB-WA" and "PYROWRAP FSB-WV" of 10 years, provided that the conditions laid down in sections 4.2, 5.1 and 5.2 for packaging, transport, storage, installation, use, maintenance and repair are met.

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

2 Characteristics of the product and methods of verification

2.1 Mechanical resistance and stability

Not relevant

2.2 Safety in case of fire

2.2.1 Reaction to fire

The construction products "PYROWRAP FSB-WB" and "PYROWRAP FSB-WA" comply concerning reaction to fire with the requirements of class B-s1,d0 according to EN 13501-1¹³.

The construction products "PYROWRAP FSB-WS" and "PYROWRAP FSB-WV" comply concerning reaction to fire with the requirements of class E according to EN 13501-1¹³.

NOTE:

A European reference fire scenario for façades is not available. In some Member States the classification of the intumescent fire sealing products "PYROWRAP FSB-WB", "PYROWRAP FSB-WS", "PYROWRAP FSB-WA" and "PYROWRAP FSB-WV" according to EN 13501-1:2007+A1:2009 might possibly not be sufficient for the use in façades. An additional assessment of the products according to national provisions (e. g. on the basis of a large scale

¹² See EOTA Technical Report 024 (TR 024), edition July 2009, clause 4.1, use categories, Note 5.

¹³ EN 13501-1:2009 Fire Classification of construction products and building elements, Part 1: Classification using test data from reaction to fire tests.

test) might be necessary to comply with Member State regulations, until the existing European classification system has been completed.

2.2.2 Resistance to fire

The fire resistance of a fire resistant assembly containing the flexible intumescent fire sealing fabric "PYROWRAP FSB-WB" and/or the intumescent coating "PYROWRAP FSB-WA" as an effective fire sealing component was tested according to the relevant test method for classification according to EN 13501-2¹⁴.

These tests basically qualify the flexible intumescent fire sealing fabrics "PYROWRAP FSB-WB" and "PYROWRAP FSB-WS" as well as the intumescent coating "PYROWRAP FSB-WA" and the intumescent putty "PYROWRAP FSB-WV" for final applications in fire resistant assemblies.

The performance "resistance to fire" is not being considered in more detail in this ETA.

2.3 Hygiene, health and the environment

2.3.1 Air and water permeability

Not relevant

2.3.2 Release of dangerous substances

According to the manufacturer's declaration and the chemical compositions deposited¹⁵, the intumescent products "PYROWRAP FSB-WB", "PYROWRAP FSB-WS", "PYROWRAP FSB-WA" and "PYROWRAP FSB-WV" do not contain dangerous substances as registered in the Council Directive 76/769/EEC (amended by EC Decision 455/2009/EC of 6 May 2009)¹⁶ or listed in the database of the European Commission; published in the Regulation (EC) N° 1272/2008 of 16 December 2008¹⁷.

NOTE:

In addition to the specific clauses relating to dangerous substances contained in this European technical approval, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Directive, these requirements need also to be complied with, when and where they apply.

2.4 Safety in use (mechanical resistance and stability)

Not relevant

2.5 Protection against noise

Not relevant

2.6 Energy, economy and heat retention

Not relevant

¹⁴ EN13501-2 Fire classification of construction products and building elements, Part 2: Classification using data from fire resistance tests, excluding ventilation services.

¹⁵ The detailed chemical composition was presented to DIBt for assessment and is deposited at DIBt.

¹⁶ Official Journal of the European Communities L 137 of 3 June 2009, p 3

¹⁷ Official Journal of the European Communities L 353 of 31 December 2008, p 1

2.7 Aspects of durability and serviceability

The construction products "PYROWRAP FSB-WB", "PYROWRAP FSB-WS", "PYROWRAP FSB-WA" and "PYROWRAP FSB-WV" were tested for the use category type X⁹.

No essential changes of the intumescent properties "expansion ratio" and "expansion pressure" could be assessed.

Conclusion:

The construction products "PYROWRAP FSB-WB", "PYROWRAP FSB-WS", "PYROWRAP FSB-WA" and "PYROWRAP FSB-WV" in final use conditions can be exposed to in-door conditions with and without high humidity and to permanent or occasional condensation as well as to external weathering without expecting essential changes of the intumescent properties expansion ratio and expansion pressure.

Voluntarily the following additional verifications concerning the durability and serviceability of the products were provided¹⁸:

- exposure to a permanent temperature of 80 °C for 40 days,
- subsequent over-painting with paints on the basis of:
 - acrylic dispersion
 - alkyd resin
 - polyurethane acrylic
 - epoxy resin,
- exposure to permanent wetness,
- exposure to solvents:
 - butyl acetate
 - butanol
 - solvent naphtha
 - fuel,
- contact with plastics (PVC, PE).

After these exposures no essential changes of the intumescent properties expansion ratio and expansion pressure could be assessed.

3 Evaluation and attestation of conformity and CE marking

3.1 System of attestation of conformity

According to the Decision 1999/454/EG of the European Commission¹⁹, system 1 of the attestation of conformity applies.

In addition, according to the Decision 2001/596/EC of the European Commission²⁰ system 3 of the attestation of conformity applies with regard to reaction to fire.

These systems of attestation of conformity are defined as follows:

System 1: Certification of the conformity of the product by a notified certification body on the basis of:

- (a) Tasks for the manufacturer:
 - (1) factory production control (FPC);

¹⁸ EOTA Technical Report 024 (TR 024), version July 2009, clause 4.3
¹⁹ Official Journal of the European Communities L 178/42 of 14 July 1999
²⁰ Official Journal of the European Communities L 209/33 of 2 August 2001

- (2) further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan;
- (b) Tasks for the notified body:
 - (3) initial type-testing of the product;
 - (4) initial inspection of factory and of factory production control;
 - (5) continuous surveillance, assessment and approval of factory production control.

System 3: Declaration of conformity of the product by the manufacturer on the basis of:

- (a) Tasks for the manufacturer:
 - (1) factory production control (FPC);
- (b) Tasks for the notified body:
 - (2) initial type-testing of the product.

3.2 Responsibilities

3.2.1 Tasks for the manufacturer

3.2.1.1 Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall insure that the product is in conformity with this European technical approval.

The manufacturer may only use raw materials and components stated in the technical documentation of this European technical approval.

The factory production control (FPC) shall be in accordance with the control plan which is part of the technical documentation of this European technical approval. The control plan is laid down in the context of the FPC system operated by the manufacturer and deposited with Deutsches Institut für Bautechnik.²¹

The results of FPC shall be recorded and evaluated in accordance with the provisions of the control plan.

3.2.1.2 Other tasks for the manufacturer

The manufacturer shall, on the basis of a contract, involve a body which is notified for the tasks referred to in section 3.1 in the field of fire sealing and fire stopping products in order to undertake the actions laid down in section 3.2.2. For this purpose, the control plan referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the notified body involved.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of this European technical approval ETA-13/0158 issued on 23 April 2013.

3.2.2 Tasks for the notified bodies

The notified body shall perform the:

- initial type-testing of the product (systems 1 and 3),
- initial inspection of factory and of factory production control (systems 1),

²¹

The "control plan" is a confidential part of the European technical approval and only handed over to the notified body/bodies involved in the procedure of attestation of conformity. See section 3.2.2.

- continuous surveillance, assessment and approval of factory production control (system 1)
- in accordance with the provisions laid down in the control plan of 25/02/2013.

The notified body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in a written report.

The notified certification body involved by the manufacturer shall issue an EC certificate of conformity of the product stating the conformity with the provisions of this European technical approval.

In cases where the provisions of the European technical approval and its control plan are no longer fulfilled the certification body shall withdraw the certificate of conformity and inform Deutsches Institut für Bautechnik without delay.

3.3 CE marking

The CE marking shall be affixed on the product itself or the label attached to it or on packaging or the accompanying commercial document, e.g. the EC declaration of conformity.

The letters "CE" shall be followed by the identification number of the notified certification body, where relevant, and be accompanied by the following additional information:

- the name and address of the producer (legal entity responsible for the manufacture),
- the last two digits of the year in which the CE marking was affixed,
- the number of the EC certificate of conformity for the product,
- the number of the European technical approval,
- the generic type of product,
- the use categories.

Example: see annex 1

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

The European technical approval is issued for the flexible intumescent fabrics "PYROWRAP FSB-WB" and "PYROWRAP FSB-WS" and for the intumescent coating "PYROWRAP FSB-WA" as well as for the intumescent putty "PYROWRAP FSB-WV" on the basis of agreed data and information, which identify the product assessed and judged and which are deposited at Deutsches Institut für Bautechnik.

Changes concerning the products or the production process, which could result in the fact, that deposited data and information are invalid or incomplete, should be notified to Deutsches Institut für Bautechnik before implementing the changes.

The Deutsches Institut für Bautechnik will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or modifications to the approval shall be necessary.

4.2 Installation

Additionally installed cover sheets for mechanical protection must not restrict the creation of foam of the intumescent fire sealing products "PYROWRAP FSB-WB", "PYROWRAP FSB-WS" and their cuts or of the applied coating "PYROWRAP FSB-WA" or the applied putty "PYROWRAP FSB-WV".

The intumescent fabrics "PYROWRAP FSB-WB" and "PYROWRAP FSB-WS" may be cut on site using appropriate tools.

The manufacturer's installation instruction shall be considered.

5 Indications for final use

5.1 Packaging, transport and storage

The flexible intumescent fabrics "PYROWRAP FSB-WB" and "PYROWRAP FSB-WS" should be protected against mechanical damage and from direct weathering during transport.

The flexible intumescent fabrics "PYROWRAP FSB-WB" and "PYROWRAP FSB-WS" may be stored under normal in-door conditions at temperatures between +2 °C and +50 °C and at a relative humidity up to 85 %.

Cartridges, pails and containers partially used of the coating "PYROWRAP FSB-WA" or of the putty "PYROWRAP FSB-WV" should be used up within 28 days.

Idle pails, cartridges and containers may be stored for 18 month.

5.2 Use, maintenance, repair

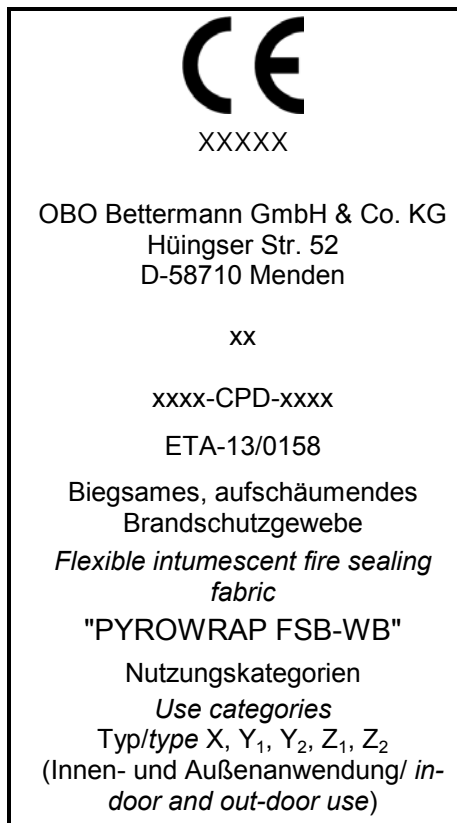
Damaged sections of "PYROWRAP FSB-WB", "PYROWRAP FSB-WS", "PYROWRAP FSB-WA" or "PYROWRAP FSB-WV" shall be only replaced by new, unspoiled sections of the same product with identical thickness. The substitution shall be carried out carefully. The required quantity of material and the total thickness of material shall be maintained.

Prof. Gunter Hoppe
Head of Department

beglaubigt:
Dr.-Ing. Dierke

ANNEX 1

Example of CE marking for the construction product "PYROWRAP FSB-WB"



Symbol "CE"

Identification number of notified certification body for AoC system 1

Name and address of the producer (legal entity responsible for the manufacturer)

Two last digit of year of affixing CE marking for AoC system 1

Number of EC certificate of conformity

ETA number

Generic type of product and trade name: "PYROWRAP FSB-WB" or an other product according to this ETA, clause 1.1

Use categories according to ETA-13/0158