

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-15/0345
of 28 October 2015

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

"PALUSOL® 100", "PALUSOL® 104", "PALUSOL® 210"

Product family
to which the construction product belongs

Intumescent products for fire sealing and fire stopping
purposes

Manufacturer

BASF SE, G-PM/PF
67056 Ludwigshafen
DEUTSCHLAND

Manufacturing plant

BASF1

This European Technical Assessment
contains

6 pages including 1 annex which form 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 "Intumescent products for fire sealing
and fire stopping purposes"

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Specific part

1 Technical description of the product

The subjects of this European Technical Assessment (ETA) are the mineral intumescent construction products "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210".

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

The technical characteristics relevant for the fire sealing and fire stopping effect of the construction products "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210" are given in Annex 1.

The construction products "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210" are produced in the form of boards and essentially consists of the hydrous silicate binders, an imbedded reinforcement and a finish against humidity and carbon dioxide.

This gastight protective finish consists of an epoxy resin of $80 \text{ g/m}^2 \pm 20 \text{ g/m}^2$. The average permeability to carbon dioxide of the finish shall be less than $300 \text{ cm}^3/(\text{m}^2 \times \text{bar} \times \text{day})$.

The products can be delivered optionally as cuts e.g. in form of strips, panels or stampings of different shape.

Additionally the products and cuts may be equipped at the factory with a self-adhesive film or tape¹ or with a lamination¹.

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

The intumescent construction products "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210" are assessed on the basis of EAD 350005-00-1104 as intumescent products for fire sealing and fire stopping purposes without specifically defined final use (IU 1).

The intumescent construction products "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210" are intended to be used as an essential component in, between or on construction products, assemblies, construction elements, kits and special constructions which need to meet requirements concerning the safety in case of fire.

In case of fire the product delays 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 and smoke.

The resistance to fire performance shall be determined separately for every specific final use if required.

The performances given in Section 3 are only valid if the intumescent construction products "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210" are used in accordance with the instructions and the conditions of use stated in section 3.3.

The test and assessment methods on which this European Technical Assessment is based, lead to the assumption of a working life of at least 25 years² for "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210", if the products are used indoors in compliance with the conditions of type Z₂ (in accordance with EOTA TR 024) e.g. in living, office and storage spaces.

The working life indicated shall not be interpreted as a guarantee given by the producer, but as a means of choosing the right product in relation to the expected economically reasonable working life of the works.

¹ Art, Hersteller, Kennwerte beim DIBt hinterlegt

² results of long-term aging for 25 years (historical data) available

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

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire

Essential characteristic	Performance
Reaction to fire	Class A2-s1,d0 in accordance with EN 13501-1 ³

The standard designs of the intumescent products "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210" in the origin variant (coated with epoxy resin but without additional equipment) meet the reaction to fire requirements of class A2-s1,d0 in accordance with EN 13501-1.

The reaction to fire performance of the intumescent construction products "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210" with self-adhesive films or tapes or with laminations was not assessed in this ETA.

3.1.2 Resistance to fire

The resistance to fire performance shall be determined separately for every final use and shall be classified, if required.

3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content and release of dangerous substances	No dangerous substances

The detailed chemical composition of the intumescent construction products "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210" 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 shall be complied with to ensure durability for the specific intended use.

The testing and assessment of the product performance shall be carried out under the climatic conditions of type Z₂ in accordance with EOTA Technical Report 024⁴, clause 4.2.

The mineral intumescent products "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210" and their cuts can be used under the use conditions of type Z₂ (frost-free at temperatures up to 35 °C ± 5 °C and at a relative humidity below 85%) without having to fear essential changes in the relevant fire sealing and fire stopping properties and the resulting performance.

If additional protective measures are used for the intumescent construction products "PALUSOL[®] 100", "PALUSOL[®] 104" and "PALUSOL[®] 210" (also in their customised form) e.g. imbedding, watertight and gastight sealing of the cutting line, complete and watertight and gastight wrapping etc. the products may also be used in areas with occasional splash water or occasional but drying condensation.

³ 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
⁴ EOTA TR 024 Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and products; amended version July 2009

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

In accordance with EAD No. 35 0005-01-1104 "Intumescent products for fire sealing and fire stopping purposes", the applicable European legal act is: EC Decision 1999/454/EC of 22 June 1999, amended by EC Decision 2001/596/EC of 8 January 2001

The system to be applied is: system 1

See Regulation (EU) N° 305/2011 Annex V in conjunction with Article 65 (2).

See the following table:

Product	Intended use	characteristic	System
"PALUSOL [®] 100", "PALUSOL [®] 104" and "PALUSOL [®] 210"	Components effective in view of safety in case of fire (BWR 2) used in construction elements, kits and assemblies	reaction to fire, properties relevant for the fire sealing and fire stopping effect	1

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

The technical details necessary for the implementation of the system for Assessment and Verification of Consistency of Performance are laid down in the confidential part of the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 28 October 2015 by Deutsches Institut für Bautechnik

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beglaubigt:
Dr.-Ing. Dierke

ANNEX 1

CHARACTERISTICS RELEVANT FOR THE FIRE SEALING AND FIRE STOPPING EFFECTS

Characteristic	Test method	Range and tolerance
"PALUSOL® 100" with one glass fibre scrim ¹ reinforcement layer		
Thickness of the board	TR 024 ⁴ , cl. 3.1.1	1,9 mm ± 0,4 mm
Expansion ratio	TR 024 ⁴ , cl. 3.1.11 Method 1 at 550°C for 10 minutes with a top-load	5,0 to 9,5
Expansion pressure	TR 024 ⁴ , cl. 3.1.12 Method 4 at 300°C	0,95 N/mm ² to 1,60 N/mm ²
"PALUSOL® 104" double thickness with one glass fibre scrim ¹ reinforcement layer		
Thickness of the board	TR 024 ⁴ , cl. 3.1.1	3,6 mm ± 0,6 mm
Expansion ratio	TR 024 ⁴ , cl. 3.1.11 Method 1 at 550°C for 10 minutes with a top-load	4,5 to 9,5
Expansion pressure	TR 024 ⁴ , cl. 3.1.12 Method 4 at 300°C	0,95 N/mm ² to 1,60 N/mm ²
"PALUSOL® 210" with one wire mesh ¹ reinforcement layer		
Thickness of the board	TR 024 ⁴ , cl. 3.1.1	1,9 mm ± 0,4 mm
Expansion ratio	TR 024 ⁴ , cl. 3.1.11 Method 1 at 550°C for 10 minutes with atop-load	4,5 to 9,5
Expansion pressure	TR 024 ⁴ , cl. 3.1.12 Method 4 at 300°C	0,95 N/mm ² to 1,60 N/mm ²