

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-16/0369
of 7 March 2023

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General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

"HENSOTHERM 7 KS",
"HENSOTHERM 7 KS viskos",
"HENSOTHERM 7 KS Gewebe",
"HENSOTHERM 7 KS Gewebe 1 mm E" and
"HENSOTHERM 7 KS Gewebe 2 mm E"

Product family
to which the construction product belongs

Intumescent products for fire sealing and fire stopping
purposes

Manufacturer

Rudolf Hensel GmbH
Lauenburger Landstraße 11
21039 Börnsen
DEUTSCHLAND

Manufacturing plant

01

This European Technical Assessment
contains

8 pages including 2 pages annexes 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

EAD 350005-00-1104, Edition May 2015

This version replaces

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Specific Part

Technical description of the product

Object of this European Technical Assessment (ETA) are the intumescent construction products "HENSOTHERM 7 KS", "HENSOTHERM 7 KS viskos", "HENSOTHERM 7 KS Gewebe" and "HENSOTHERM 7 KS Gewebe 1 mm E" and "HENSOTHERM 7 KS Gewebe 2 mm E".

Exposed to high temperatures in case of fire, 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 construction product "HENSOTHERM 7 KS" is a liquid intumescent coating creating a flexible layer on the substrate when applied. The application may be done by brush, by roll coating or by spraying. The product is delivered in pails.

The construction product "HENSOTHERM 7 KS viskos" is a pasty intumescent putty, creating a flexible layer or sealing. The application may be done by scraper or by cartridge. The product is delivered in pails or cartridges.

The construction product "HENSOTHERM 7 KS Gewebe" is a dense and flexible, factory made intumescent fire sealing fabric. It consists of a glass filament fabric¹ mechanically covered with the intumescent coating "HENSOTHERM 7 KS" on one side or on both sides. The product is produced of nominal thicknesses of 1 mm, 2 mm and 3 mm (tolerance for each thickness $\pm 0,2$ mm).

If coated on both sides, the side expected not to be exposed to fire is coated at least 0,1 mm thick with the intumescent coating, while the side to be exposed to fire, is coated as intended for the total nominal thickness.

The flexible intumescent fabric "HENSOTHERM 7 KS Gewebe" of a nominal thickness of 1 mm is processed into strips, mats and sheets of several nominal widths between 5 mm and 1250 mm (tolerance in width for each $\pm 0,5$ mm).

The products "HENSOTHERM 7 KS Gewebe" of nominal thickness of 2 mm is processed into strips of several nominal widths between 5 mm and 50 mm (tolerance in width $\pm 0,5$ mm).

The product "HENSOTHERM 7 KS Gewebe" of nominal thickness of 3 mm is processed into strips of nominal widths between 5 mm and 150 mm (tolerance in width for each $\pm 0,5$ mm).

The construction products "HENSOTHERM 7 KS Gewebe 1 mm E" and "HENSOTHERM 7 KS Gewebe 2 mm E" are flexible, factory made intumescent fire sealing fabrics and consist of a glass filament fabric¹ mechanically coated with the intumescent coating "HENSOTHERM 7 KS" on one side only. The products may be equipped with a self-adhesive lamination.

The product-variants "HENSOTHERM 7 KS Gewebe 1 mm E" and "HENSOTHERM 7 KS Gewebe 2 mm E" are processed into strips, mats and sheets of several nominal widths between 5 mm and 1250 mm (tolerance in width for each $\pm 0,5$ mm) with and without self-adhesive lamination.

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

¹ type, manufacturer and specific parameters deposited with DIBt

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

The construction products "HENSOTHERM®7 KS", "HENSOTHERM 7 KS viskos", "HENSOTHERM 7 KS Gewebe", "HENSOTHERM 7 KS Gewebe 1 mm E" and "HENSOTHERM 7 KS Gewebe 2 mm E" are assessed on the basis of EAD 350005-00-1104² as intumescent products for fire sealing and fire stopping purposes without defined final use (IU 1).

The construction products "HENSOTHERM 7 KS", "HENSOTHERM 7 KS viskos" "HENSOTHERM 7 KS Gewebe" - 1 mm, 2 mm or 3 mm thick, coated on one side or on both sides, with or without lamination -, "HENSOTHERM 7 KS Gewebe 1 mm E" and the variants "HENSOTHERM 7 KS Gewebe 2 mm E" are intended to be used as an essential component in construction products, construction elements, assemblies, 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 construction elements and assemblies by expanding under the impact of high temperatures and thus restricts the spread of fire.

The performance given in Section 3 is only valid, if the products "HENSOTHERM 7 KS", "HENSOTHERM 7 KS viskos", "HENSOTHERM 7 KS Gewebe" and "HENSOTHERM 7 KS Gewebe 1 mm E" and "HENSOTHERM 7 KS Gewebe 2 mm E" are used in accordance with the instructions and the conditions stated in section 3.3.

The tests and assessment methods on which this European Technical Assessment is based, lead to an assumption of working life of the intumescent construction products "HENSOTHERM 7 KS", "HENSOTHERM 7 KS viskos", "HENSOTHERM 7 KS Gewebe" in den beschriebenen Nenndicken and "HENSOTHERM 7 KS Gewebe 1 mm E" as well as "HENSOTHERM 7 KS Gewebe 2 mm E" of at least 10 years 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

Product	Performance
"HENSOTHERM 7 KS Gewebe" of a nominal thickness of 1 mm, free standing or on mineral substrates of a minimum density of 525 kg/m ³ and on metal substrates with a melting point at least of 500 °C or on substrates classified class A1 or class A2-s1	Class C-s2,d0 ³
"HENSOTHERM 7 KS Gewebe" of other nominal thicknesses or on other substrates "HENSOTHERM 7 KS Gewebe 1 mm E", "HENSOTHERM 7 KS Gewebe 2 mm E" "HENSOTHERM 7 KS" "HENSOTHERM 7 KS viskos"	Class E ³

² Official Journal of the EU N° C 378/02 of 13/11/2015

³ EN 13501-1 Fire classification of construction products and building elements, Part 1 Classification using test data from reaction to fire tests and A1:2009

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3.1.2 Resistance to fire

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

3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content of dangerous substances	No dangerous substances ⁴

The detailed chemical composition of the intumescent construction products "HENSOTHERM 7 KS", "HENSOTHERM 7 KS viskos", "HENSOTHERM 7 KS Gewebe" and "HENSOTHERM 7 KS Gewebe 1 mm E" and "HENSOTHERM 7 KS Gewebe 2 mm E" 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 the durability of the performance for the intended use. 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 climatic conditions of type X - product intended for use at conditions exposed to weathering (rain, UV, frost) - in accordance with EAD N° 3500054-00-1104, section 1.2.2.²

Result:

The intumescent construction products "Hensotherm 7 KS", "Hensotherm 7 KS viskos" and "HENSOTHERM 7 KS Gewebe" (as described in 1.1), as well as "HENSOTHERM 7 KS Gewebe 1 mm E" and "HENSOTHERM 7 KS Gewebe 2 mm E" can be used under climatic use conditions of type X (out-door use), 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 Y₁, Y₂, Z₁ and Z₂.⁵

Optionally the product was successfully tested under specific application conditions:

- 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 this 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 the determination of the AVCP system.

⁴ In accordance with the regulation (EU) N° 1272/2008 of 16/12/2008

⁵ EOTA TR 024 Characterisation, Aspects of Durability and factory production Control for reactive Materials, Components and products, version July 2009

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So that 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:

Product	Intended use	characteristics	System
"HENSOTHERM 7 KS" "HENSOTHERM 7 KS viskos" "HENSOTHERM 7 KS Gewebe" coated on one side or on both sides "HENSOTHERM 7 KS Gewebe 1 mm E" "HENSOTHERM 7 KS Gewebe 2 mm E"	Components effective in view of safety in case of fire 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 AVCP system, as provided for in the applicable EAD

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 at Deutsches Institut für Bautechnik.

Issued in Berlin on 7 March 2023 by Deutsches Institut für Bautechnik

Otto Fechner
Head of Section

beglaubigt:
Dr.-Ing. Dierke

ANNEX 1

CHARACTERISTICS RELEVANT FOR THE FIRE SEALING AND FIRE STOPPING EFFECTS OF THE CONSTRUCTION PRODUCTS "HENSOTHERM 7 KS", "HENSOTHERM 7 KS viskos", "HENSOTHERM 7KS Gewebe" AS WELL AS "HENSOTHERM 7 KS Gewebe 1 mm E" and "HENSOTHERM 7KS Gewebe 2 mm E"

Characteristic	Range of determined values and tolerances	Test Method
"HENSOTHERM 7 KS"		
Density	1200 kg/m ³ ± 60 kg/m ³	see control plan
Expansion ratio	2,5 mm (thickness dry layer): 13,0 to 20,0 5,0 mm (thickness dry layer): 13,5 to 18,0	
Expansion pressure	2,5 mm (thickness dry layer): 0,9 N/mm ² to 1,5 N/mm ² 5,0 mm (thickness dry layer): 1,1 N/mm ² to 1,3 N/mm ²	
"HENSOTHERM 7 KS viskos"		
Density	1250 kg/m ³ ± 60 kg/m ³	see control plan
Expansion ratio	2,5 mm (thickness dry layer): 13,0 to 20,0	
Expansion pressure	2,5 mm (thickness dry layer) 0,9 N/mm ² to 1,5N/mm ²	
"HENSOTHERM 7 KS Gewebe".		
Weight per unit area	thickness 1,0 mm: 1,15 kg/m ² to 1,60 kg/m ² thickness 2,0 mm: 1,95 kg/m ² to 2,85 kg/m ² thickness 3,0 mm: 3,60 kg/m ² to 4,40 kg/m ²	see control plan
Expansion ratio	thickness 1,0 mm: 13,0 to 23,5 thickness 2,0 mm: 8,0 to 22,0 thickness 3,0 mm: 8,0 to 20,0	
Expansion pressure	thickness 1,0 mm: 0,90 N/mm ² to 2,20 N/mm ² thickness 2,0 mm: 0,45 N/mm ² to 2,50 N/mm ² thickness 3,0 mm: 0,5 N/mm ² to 1,8 N/mm ²	

Characteristic	Range of determined values and tolerances	Test Method
"HENSOTHERM 7 KS Gewebe 1 mm E" (nominal thickness 1,0 mm)		
Weight per unit area	without self-adhesive lamination: 1,2 kg/m ² ± 10% with self-adhesive lamination: 1,45 kg/m ² ± 10%	see control plan
Expansion ratio	with/without lamination: 12,0 to 21,0	
Expansion pressure	0,90 N/mm ² to 1,5 N/mm ²	
"HENSOTHERM 7 KS Gewebe 2 mm E" (nominal thickness 2,0 mm)		
Weight per unit area	with self-adhesive lamination: 2,6 kg/m ² ± 10%	see control plan
Expansion ratio	12,0 to 19,0	
Expansion pressure	0,75 N/mm ² to 1,1 N/mm ²	

The chemical reaction starts at approximately 150 °C.