

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 21 March 2019

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

HENSOTHERM® 7 KS, HENSOTHERM® 7 KS viskos  
and HENSOTHERM® 7 KS Gewebe

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<sup>1</sup>

This European Technical Assessment  
contains

6 pages including 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

EAD 350005-00-1104

This version replaces

ETA-16/0369 issued on 14 January 2019

<sup>1</sup> 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 "HENSOTHERM<sup>®</sup> 7 KS", "HENSOTHERM<sup>®</sup> 7 KS viskos" and "HENSOTHERM<sup>®</sup> 7 KS Gewebe".

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<sup>®</sup> 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<sup>®</sup> 7 KS viskos" is a soft 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<sup>®</sup> 7 KS Gewebe" is a dense and flexible, factory made intumescent fire sealing fabric. It consists of a glass filament fabric<sup>2</sup> mechanically covered with the intumescent coating "HENSOTHERM<sup>®</sup> 7 KS" 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).

The intended unexposed side of the fabric is covered of at least 0,1 mm 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<sup>®</sup> 7 KS Gewebe" of 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 product "HENSOTHERM<sup>®</sup> 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) and the product "HENSOTHERM<sup>®</sup> 7 KS Gewebe" of nominal thickness of 3 mm is produced in nominal widths between 5 mm and 150 mm (tolerance in width for each  $\pm 0,5$  mm).

The technical characteristics relevant for fire sealing and fire stopping effects of the construction products "HENSOTHERM<sup>®</sup> 7 KS", "HENSOTHERM<sup>®</sup> 7 KS viskos" and "HENSOTHERM<sup>®</sup> 7 KS Gewebe" are given in Annex 1.

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

The construction products "HENSOTHERM<sup>®</sup> 7 KS", "HENSOTHERM<sup>®</sup> 7 KS viskos" and "HENSOTHERM<sup>®</sup> 7 KS Gewebe" are assessed on the basis of EAD 350005-00-1104<sup>3</sup> as intumescent products for fire sealing and fire stopping purposes without defined final use (IU 1).

The construction products "HENSOTHERM<sup>®</sup> 7 KS", "HENSOTHERM<sup>®</sup> 7 KS viskos" and "HENSOTHERM<sup>®</sup> 7 KS Gewebe" 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.

<sup>2</sup> type, manufacturer and specific parameters deposited with DIBt

<sup>3</sup> Official Journal of the EU N° C 378/02 of 13/11/2015

The performance given in Section 3 is only valid, if the products "HENSOTHERM®7 KS", "HENSOTHERM®7 KS viskos" and "HENSOTHERM®7 KS Gewebe" 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" and "HENSOTHERM®7 KS Gewebe" 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 <sup>3</sup> 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 <sup>4</sup>
"HENSOTHERM®7 KS Gewebe" of other nominal thicknesses or on other substrates "HENSOTHERM®7 KS", "HENSOTHERM®7 KS viskos"	Class E <sup>4</sup>

##### 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 <sup>5</sup>

The detailed chemical composition of the intumescent construction products "HENSOTHERM®7 KS", "HENSOTHERM®7 KS viskos" and "HENSOTHERM®7 KS Gewebe" 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 EOTA Technical Report 024<sup>6</sup> (EOTA TR 024), section 4.2.3.

<sup>4</sup> 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

<sup>5</sup> In accordance with the regulation (EU) N° 1272/2008 of 16/12/2008

<sup>6</sup> EOTA TR 024 Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and products; amended version July 2009

**Result:**

The intumescent construction products "Hensotherm<sup>®</sup> 7 KS", "Hensotherm<sup>®</sup> 7 KS viskos" and "HENSOTHERM<sup>®</sup> 7 KS Gewebe" can be used under climatic 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<sub>1</sub>, Y<sub>2</sub>, Z<sub>1</sub> and Z<sub>2</sub>.

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 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 the determination of the AVCP system.

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:

Product	Intended use	characteristics	System
HENSOTHERM <sup>®</sup> 7 KS HENSOTHERM <sup>®</sup> 7 KS viskos HENSOTHERM <sup>®</sup> 7 KS Gewebe	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	<b>1</b>

**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 21 March 2019 by Deutsches Institut für Bautechnik

Prof. Gunter Hoppe  
 Head of Department

*beglaubigt:*  
 Dr.-Ing. Dierke

ANNEX 1

**CHARACTERISTICS OF THE CONSTRUCTION PRODUCTS "HENSOTHERM® 7 KS", "HENSOTHERM® 7 KS viskos" AND "HENSOTHERM® 7KS Gewebe" RELEVANT FOR THE FIRE SEALING AND FIRE STOPPING EFFECTS**

Characteristic	Test method <sup>6</sup>	Range of determined values and tolerances
<b>"HENSOTHERM® 7 KS"</b>		
Density	EOTA TR 024, cl. 3.1.4	1200 kg/m <sup>3</sup> ± 60 kg/m <sup>3</sup>
Expansion ratio	EOTA TR 024, cl. 3.1.11, Method 1 at 550 °C for 30 minutes with a top load	2,5 mm (thickness dry layer): 16,0 bis 20,0 5,0 mm (thickness dry layer): 13,5 bis 18,0
Expansion pressure	EOTA TR 024, cl. 3.1.12; Method 4 at 300 °C	2,5 mm (thickness dry layer): 1,25 N/mm <sup>2</sup> to 1,85 N/mm <sup>2</sup> 5,0 mm (thickness dry layer): 1,1 N/mm <sup>2</sup> to 1,30 N/mm <sup>2</sup>
<b>"HENSOTHERM® 7 KS viskos"</b>		
Density	EOTA TR 024, cl. 3.1.4	1250 kg/m <sup>3</sup> ± 60 kg/m <sup>3</sup>
Expansion ratio	EOTA TR 024, cl. 3.1.11, Method 1 at 550 °C for 30 minutes with a top load	2,5 mm (thickness dry layer): 15,0 to 20,5
Expansion pressure	EOTA TR 024, cl. 3.1.12; Method 4 at 300 °C	2,5 mm (thickness dry layer) 1,20 N/mm <sup>2</sup> to 1,80 N/mm <sup>2</sup>
<b>"HENSOTHERM® 7 KS Gewebe".</b>		
Weight per unit area	EOTA TR 024, cl. 3.1.5	thickness: 1,0 mm: 1,15 kg/m <sup>2</sup> to 1,60 kg/m <sup>2</sup> thickness: 2,0 mm: 1,95 kg/m <sup>2</sup> to 2,85 kg/m <sup>2</sup> thickness: 3,0 mm: 3,60 kg/m <sup>2</sup> to 4,40 kg/m <sup>2</sup>
Expansion ratio	EOTA TR 024, cl. 3.1.11; Method 1 at 550 °C for 30 minutes with a top load	thickness: 1,0 mm: 16,5 to 23,5 thickness: 2,0 mm: 8,0 to 22,0 thickness: 3,0 mm: 8,0 to 20,0
Expansion pressure	EOTA TR 024 <sup>6</sup> , cl. 3.1.12; Method 4 at 300 °C	thickness: 1,0 mm 0,90 N/mm <sup>2</sup> to 2,20 N/mm <sup>2</sup> thickness: 2,0 mm 0,45 N/mm <sup>2</sup> to 2,50 N/mm <sup>2</sup> thickness: 3,0 mm 0,5 N/mm <sup>2</sup> to 1,8 N/mm <sup>2</sup>

The chemical reaction starts at approximately 150 °C.