warrington certification

Warrington Certification Ltd
Holmesfield Road
Warrington
WA1 2DS
United Kingdom

T : +44 (0) 1925 646 669
W: www.warringtoncertification.com
E: etass@exova.com

Designated according to Article 29 of Regulation (EU) No 305/2011

EOTA Member of www.eota.eu

European Technical Assessment

ETA 11/0456 of 04/02/16

General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: Warrington Certification Limited	
Trade name of the construction product	**HENSOTHERM® 310 KS**
Product family to which the construction product belongs	35. Fire Protective Products Reactive Coating for the Fire Protection of Steel Elements
Manufacturer	**Rudolf Hensel GmbH Lauenburger Landstr 11, D-21039 Bornsen, Germany**
Manufacturing plant(s)	**Rudolf Hensel GmbH Lauenburger Landstr 11, D-21039 Bornsen, Germany**
This European Technical Assessment contains	33 pages including 1 Annex which form an integral part of this assessment.
	Annex B and Annex C Contain confidential information and are not included in the European Technical Assessment when that assessment is publicly available.
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	ETAG 018-1 edition April 2013 and ETAG 018-2 edition November 2011 used as European Assessment Document (EAD)
This version replaces:	The previous ETA with the same number issued on 1st April 2012

General Comments

1. This European Technical Assessment is issued by Warrington Certification Limited on the basis ETAG 018 Fire Protective Products Part 1: General and Part 2: Reactive Coatings For Fire Protection of Steel Elements, Used as European Assessment Document.

2. This European Technical Assessment 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.

1 SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical Description of the Product

(Detailed information and data are given in Annexes)

HENSOTHERM® 310 KS is a spray or brush/roller applied intumescent paint formulated for the fire protection of structural steel elements installed in the following environmental conditions:

Internal conditions (with and without topcoat) – ETAG 018 Part 2 Type Z_2

Internal conditions with high humidity (with and without topcoat) – ETAG 018 Part 2 Type Z_1

Internal and semi-exposed conditions (with and without topcoat) – ETAG 018 Part 2 Type Y

Internal, semi-exposed and exposed conditions (with topcoat) – ETAG 018 Part 2 Type X

2 Specification Of The Intended Use In Accordance With The Relevant EAD

The intended use of HENSOTHERM® 310 KS is to fire protect various sizes of structural steel 'I' and 'H' shaped beam and column sections for up to a fire resistance classification of R120, and circular and rectangular/square hollow column sections up to a fire resistance classification of R60, for design temperatures in the range of 350°C to 750°C.

The provisions made in this ETA are based on an assumed working life of the applied coating for the intended use of 10 years, provided that it is subject to appropriate use and maintenance according to manufacturer's instruction. The indications given on the intended working life cannot be interpreted as a guarantee given by the producer, but are to be used as a means for selecting the appropriate product in relation to the expected economically reasonable working life of the works.

3 Performance Of The Product And References To The Methods Used For Its Assessment

The assessment of the HENSOTHERM® 310 KS for the intended use considering the basic requirements for construction works 2 and 3 was performed following the ETAG 018 for Fire Protective Products, Part 1 General (April 2013) and Part 2: Reactive coatings for fire protection of steel elements (November 2011), used as EAD.

ETAG Clause No.	Characteristic	Assessment of characteristic
5.1	**Mechanical resistance and stability**	Not relevant
5.2	**Safety in case of fire**	
5.2.1	Resistance to fire	EN 13501-2
5.2.2	Reaction to fire	EN 13501-1
5.3	**Hygiene, Health and the Environment**	
5.3.2	- Release of dangerous substances	No dangerous substances
5.4	**Safety in use**	Not relevant
5.5	**Protection against noise**	Not relevant
5.6	**Energy, Economy and Heat Retention**	Not relevant
5.7	**Related aspects of serviceability**	
5.7.2.2	- Primer and top coat compatibility - Type X Durability - Type Y Durability - Type Z_2 Durability - Type Z_1 Durability	
5.7.3 and Annex E	- Identification	

3.1 Reaction to fire

The fire protection coating in conjunction with HENSOGRUND® 1966E and HENSOGRUND® 2K primers and HENSOTOP® 84 and HENSOTOP® 84 Aussen topcoats has a performance determined for a reaction to fire classification in accordance with EN 13501-1 of Class E.

3.2 Resistance to fire

The resistance to fire performance according to EN 13501-2 determined in accordance with test principles defined in EN 13381-8: 2013 from R15 to R120 for 'I' and 'H' shaped beam and column sections, and of R15 to R60 for circular and rectangular/square hollow column sections including Annex A (slow heating curve 'IncSlow').

In accordance with ETAG 018-2 (foreword), HENSOTHERM® 310 KS may be considered as a reactive coating kit that includes one or more primers and/or topcoats (Option 3).

3.3 Dangerous substances

According to the manufacturer's declaration, the product specification has been compared with Annex XVII of REACH and the ECHA Candidate List of Substances of Very High Concern to verify that that it does not contain such substances.

In addition to the specific clauses relating to dangerous substances contained in this European technical assessment, 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 Regulation, these requirements need also to be complied with, when and where they apply.

3.4 Durability and serviceability

HENSOTHERM® 310 KS has been assessed as being compatible, in accordance with the test procedures defined in ETAG 018-2 Clause 5.7.2.1 with the following primers and top coats:

Primers	
Name	**Type**
HENSOGRUND® 1966 E	Alkyd resin, solvent based
HENSOGRUND® 2K	Two component epoxy resin, solvent based

Top Coats	
Name	**Type**
Teknocryl 100	Acrylic resin, solvent based
HENSOTOP® SB	Acrylic resin, solvent based
HENSOTOP® 2K PU	2-component polyurethane resin, solvent based
HENSOTOP® 84	Acrylic resin, solvent based
HENSOTOP® 84 AUSSEN	Acrylic resin, solvent based

The HENSOGRUND® 1966 E and HENSOGRUND® 2K systems have been tested in accordance with the test procedures defined in ETAG 018 Part 2 Clause 5.7.2.1 on steel substrates and passed the performance requirements for compatibility. The HENSOGRUND® 2K system has also been tested on galvanised steel substrates and passes the performance requirements for compatibility.

The HENSOTHERM® 310 KS has been assessed as having passed the requirements for use in internal and semi-exposed conditions defined in ETAG 018 Part 2 for Type Y environmental conditions and can be used with and without the following top coats:

Top Coats	
Name	**Type**
HENSOTOP® 84	Acrylic resin, solvent based
HENSOTOP® SB	Acrylic resin, solvent based

On the basis of passing the Type Y requirements HENSOTHERM® 310 KS has been assessed as having also passed the requirements for internal and semi-exposed use defined in ETAG 018 Part 2 for Type Z1 and Type Z2 environmental conditions and can be used with and without the above top coat.

The HENSOTHERM® 310 KS has been assessed as having passed the requirements for use in internal, semi-exposed and exposed conditions defined in ETAG 018 Part 2 for Type X environmental conditions and can be used with the following top coats:

Top Coat	
Name	**Type**
Teknocryl 100	Acrylic resin, solvent based
HENSOTOP® SB	Acrylic resin, solvent based
HENSOTOP® 2K PU	2-component polyurethane resin, solvent based
HENSOTOP® 84 AUSSEN	Acrylic resin, solvent based

On the basis of passing the Type X requirements HENSOTHERM® 310 KS has been assessed as having also passed the requirements for internal and semi-exposed use defined in ETAG 018 Part 2 for Type Z1, Type Z2 and Type Y environmental conditions and can be used with the above top coat.

4 Assessment And Verification Of Constancy Of Performance (Hereinafter AVCP) System Applied, With References To Its Legal base

According to the decision 1999/454/EC of the European Commission the system of assessment and verification of constancy of performance (see Annex V to the Regulation (EU) No 305/2011) given in the following table apply:

Products	Intended uses	Level or Class	System
Fire protective products (including coatings)	For fire compartmentation and / or fire protection or fire performance	Any	System 1

4.1 Attestation of Conformity system

According to the decision 1999/454/EC of the European Commission the system 1 of attestation of conformity applies.

This system of attestation of conformity is 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;

(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

(1) initial type-testing of the product;

(2) initial inspection of factory and of factory production control;

(3) continued surveillance, assessment and approval of factory production control.

5 Technical Details Necessary For The Implementation Of The AVCP System, As Provided For In The Applicable EAD.

The manufacturer shall exercise internal control of production in accordance with the provisions laid down in the "Control Plan".

The approved 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 approved 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 assessment.

In cases where the provisions of the European technical assessment and its "Control Plan" are no longer fulfilled the certification body shall withdraw the Certificate of Constancy and inform the relevant authorities eg NANDO, EOTA

As an example the following table is derived from ETAG 018-2 specify properties that should be controlled and minimum frequencies of control.

The exact test method and threshold have been laid down in the factory production control plan, operated by the manufacturer and deposited at Warrington Certification Limited (as annex B of this ETA).

Property	Property Paragraph (ETAG)	Threshold	Minimum frequency of tests
Char depth	Annex G or similar	Manufacturer's declaration, minimum value	Every batch
Insulating efficiency	Annex A or alternative(1)	Manufacturer's declaration (2)	Every 10th batch or at least once per month
Sag resistance		Manufacturer's declaration	Every batch
Viscosity	EN ISO 3219		Every batch
Raw materials(3)		Check specification	Every delivery
Pigment dispersion	EN 21524		Every batch
Non- volatile content	ISO 3251		Every batch

According Table 8.1 of ETAG 018-2

(1) agreed with Approvals bodies and manufacturer.
(2) if result of char depth is not sufficient an insulating efficiency test should be carried out.
(3) check test results according to specification.

Signatories

Responsible Officer D. Podolski* - Certification Engineer


Approved J. Yuan* - Group Chief Engineer

* For and on behalf of Warrington Certification Limited.

Annex A - Product Performance: Fire Resistance

1 This Annex relates to the use of HENSOTHERM® 310 KS for the fire protection of 'I' and 'H' shaped beam and column sections, and circular and rectangular/square hollow column sections. The precise scope is given in Tables of Results which show the total dry film thickness of HENSOTHERM® 310 KS (excluding primer and top coat) required to provide classifications of R15 to R120 for 'I' and 'H' shaped beam and column sections, and of R15 to R60 for circular and rectangular/square hollow column sections for various design temperatures and section factors. A summary of the salient features of the testing and assessment are shown in this Annex.

2. The product is approved on the basis of:

   i) Approval testing in accordance with the principles of EN 13381-8:2013.

   ii) A design appraisal against this ETA adopting the graphical and regression analysis defined in Annex E of EN 13381-8:2013.

3. The data presented in the tables in this Annex refers to both beams (three-sided fire exposure) and columns (four sided exposure).

4. The data shown is applicable to steel sections blast cleaned to ISO 8501-1 SA$2^1/_2$ or equivalent and primed with the compatible primers and top coats listed in this ETA. The data is also applicable to galvanized steel sections with the compatible primers. The primer and top coat nominal thickness should be similar to that used for the tested sections.

5. The data for the 'I' and 'H' shaped columns applies also to other shaped steel sections that have re-entrant details such as channels, angles and tees.

6. HENSOTHERM® 310 KS has been exposed to the slowing heating regime (IncSlow) defined in Annex A of EN 13381-8: 2013 and has satisfied the requirements to provide classifiacation according to EN 13501-2.