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European Technical Assessment

ETA - 20/1230
of 16/12/2020

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General Part

Technical Assessment Body Issuing the European Technical Assessment:	**Element Materials Technology Rotterdam B.V.**
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 Börnsen, Germany**
Manufacturing Plant(s):	**Rudolf Hensel GmbH Lauenburger Landstr 11, D-21039 Börnsen, Germany**
This European Technical Assessment Contains:	31 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:	EAD 350402-00-1106 Fire Protective Products: Reactive Coatings For Fire Protection of Steel Elements.
This Version Replaces: *or* **This Version is a Corrigendum To:**	ETA 11/0456 issued on 2019/09/30

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1. Technical Description of the Product

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 – European Assessment Document EAD 350402-00-1106 Type Z_2

Internal conditions with high humidity – European Assessment Document EAD 350402-00-1106 Type Z_1

Internal and semi-exposed conditions (with and without topcoat) – European Assessment Document EAD 350402-00-1106 Type Y

Internal, semi-exposed and exposed conditions (with topcoat) – European Assessment Document EAD 350402-00-1106 Type X

In accordance with EAD 350402-00-1106, HENSOTHERM® 310 KS may be considered as a reactive coating kit that includes one or more primers and/or topcoats (Option 3).

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.

2. Specification of the Intended Use(s) in Accordance with the Applicable European Assessment Document (hereinafter 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 resistance to fire performance according to EN 13501-2 determined in accordance with test principles defined in EN 13381-8: 2013 including Annex A (slow heating curve). The test data was analysed according to EN 13381-8: 2013. Annex A summarises the results of the analysis.

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.

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.

HENSOTHERM® 310 KS has been assessed as being compatible, in accordance with the test procedures defined in EAD 350402-00-1106 with the following primers:

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

The HENSOGRUND® 1966 E and HENSOGRUND® 2K systems together with HENSOTHERM® 310 KS have been tested in accordance with the test procedures defined in EAD 350402-00-1106 on galvanised steel substrates and passed the performance requirements for compatibility.

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 EAD 350402-00-1106 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 EAD 350402-00-1106 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 EAD 350402-00-1106 for Type Z_1, Type Z_2 and Type Y environmental conditions and can be used with the above top coat.

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.

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Product: Reactive coating		Intended use: Fire protection of structural steel elements
Assessment method	Essential characteristic	Product performance
BASIC WORKS REQUIREMENT 2: SAFETY IN CASE OF FIRE		
EN 13501-1	Reaction to fire	Class E
EN 13501-2	Fire resistance	(R15 to R120) - IncSlow (I/H Beams and Columns) and (R15 to R60) - IncSlow (Hollow Columns) (see Annex A)
BASIC WORKS REQUIREMENT 3: HYGIENE, HEALTH AND THE ENVIRONMENT		
Manufacturer's declaration and EN 16516	Content, emission and or release of dangerous substances	Product specification doesn't contain dangerous substances given in Annex XVII of REACH and the ECHA Candidate List of Substances of Very High Concern Use categories: IA1 and S/W2 Results for reactive coating to EN 16516 after 28 days: No Performance Assessed
BASIC WORKS REQUIREMENT 4: SAFETY AND ACCESSIBILITY IN USE		
EAD 350402-00-1106 Clause 2.2.4 and Clause 2.2.5	Adhesion and Durability	• Primer and top coat compatibility • Type X Durability • Type Y Durability • Type Z_2 Durability • Type Z_1 Durability
EAD 350402-00-1106 Clause 2.3.5	Identification	Thermoanalytical analyses (TG) and Infrared spectroscopy analyses (IR)

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4. Assessment and Verification of Constancy of Performance (hereinafter AVCP) System Applied, with reference to its Legal Base

According to the decision 1999/454/EC of the European Commission Decision of date 22 June 1999 on the procedure for attesting the conformity of construction products pursuant to Article 20(2) of Council Directive 89/106/EEC as regards fire stopping, fire sealing and fire protective products, 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

5. Technical Details Necessary for the Implementation of the AVCP System, as Provided for in the Applicable EAD

The manufacturer shall exercise permanent internal control, record and evaluate the results of factory production in accordance with the provisions laid down in the "Control Plan" related to this European Technical Assessment. 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. The production control system shall ensure that the product is in conformity with this European Technical Assessment.

The manufacturer may only use verified by Technical Assessment Body initial/raw/constituent materials stated in the technical documentations related to this European Technical Assessment.

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.

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 e.g. NANDO, EOTA.

The Table 5 in EAD 350402-00-1106 presents an example of the properties that shall 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 Element Materials Technology Rotterdam B.V.

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By

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Deputy TAB Manager

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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 Sa2.5 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.

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