



Element Materials Technology
Rotterdam B.V.
Zekeringstraat 33
1014 BV Amsterdam
Netherlands
Tel: +31 (0) 20-55633555
www.element.com



Member of



www.eota.eu

European Technical Assessment

ETA 25/0117
of 2026/04/02

General Part

| | |
|--|--|
| Technical Assessment Body Issuing the European Technical Assessment: | Element Materials Technology Rotterdam B.V. |
| Trade Name of the Construction Product: | HENSOTHERM® 921 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 Landstrasse 11 D-21039 Börnsen Germany |
| Manufacturing Plant(s): | Rudolf Hensel GmbH Lauenburger Landstrasse 11 D-21039 Börnsen Germany |
| This European Technical Assessment Contains: | 40 pages, including 2 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 350402-00-1106: September 2017 Fire Protective Products: Reactive Coatings For Fire Protection of Steel Elements |

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full (excepted the confidential Annex(es) referred to above). However, partial reproduction may be made, with the written consent of the issuing Technical Assessment Body. Any partial reproduction has to be identified as such.

1. Technical Description of the Product

HENSOTHERM® 921 KS is a spray applied intumescent coating formulated for the fire protection of structural steel elements.

In accordance with EAD 350402-00-1106: September 2017, HENSOTHERM® 921 KS may be considered as a reactive coating kit that includes one or more primers and/or topcoats (Option 3).

2. Specification of the Intended Use(s) in Accordance with the Applicable European Assessment Document (hereinafter EAD)

The intended use of HENSOTHERM® 921 KS is to fire protect various sizes of structural steel I/H beams and columns as well as circular and rectangular hollow columns for different fire resistance classification periods and design temperatures.

A pass performance against the slow heating curve is claimed for the product.

The provisions made in this ETA are based on an assumed working life of the applied coating for the intended use of at least 10 years for environmental categories Types Z₂, Z₁, Y and X, provided that it is subject to appropriate use and maintenance according to manufacturer's instruction.

EAD 350402-00-1106: September 2017 also allows to assume 25 years working life where the ETA applicant can offer sufficient additional documented proof for the technical examination. Rudolf Hensel GmbH have supplied additional information for Type Z₂ where the data supplied demonstrates the use of HENSOTHERM® 921 KS for a working life of 25 years in environmental condition Type Z₂. Therefore, 25 years working life is assumed for environmental category Type Z₂.

In addition to the requirements of EAD 350402-00-1106: September 2017, the product's performance was assessed for an intended use of at least 50 years in environmental category Type Z₂. The conclusions of the analysis of the results are provided in Annex C of this ETA solely for informative purposes.

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® 921 KS has been assessed as being compatible with the following primer(s):

| Primer | | | | |
|---|------------------------------------|--------------------------------|--|---------|
| Primer Reference | Primer Type | Tested Nominal Primer DFT (µm) | Permitted Primer Thickness Range (µm) ¹ | |
| | | | Minimum | Maximum |
| No primer | - | - | - | - |
| HENSOGRUND 2K EP ² | 2 component epoxy | 86 and 161 | 43.0 | 241.5 |
| HENSOGRUND 2K ³ (galvanised) | 2 component epoxy | 75 | 37.5 | 112.5 |
| Pulver ITC Fire Guard ⁴ | Single component epoxy - polyester | 93 | 46.5 | 139.5 |

DFT: Dry Film Thickness

¹ The permitted theoretical minimum and maximum DFTs cannot be less than or exceed the DFT recommended by the manufacturer. The practical information given by the manufacturer must be followed

² The generic approval is applicable to other primers from the same generic group provided the thickness is within the tolerance given. The approval does not cover galvanised steel

³ The approval is applicable to the specific primer only (trade name and type) for application on galvanised steel. No generic approach is possible

⁴ The approval is applicable to the specific primer only (trade name and type). No generic approach is possible. The approval does not cover galvanised steel.

HENSOTHERM® 921 KS has been assessed as having passed the requirements for durability according to EAD 350402-00-1106 with and without the topcoat(s):

| Topcoat Reference ¹ | Topcoat Description | Tested Nominal Topcoat DFT (µm) | Permitted Topcoat Thickness Range (µm) | | Approved Topcoat Colours | Durability Approvals Based On The Carried Out Testing | | | |
|--------------------------------|--|---------------------------------|--|----------------------|--------------------------|---|---------------------|--------|--------|
| | | | Minimum | Maximum ² | | Type Z ₂ | Type Z ₁ | Type Y | Type X |
| No Topcoat | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ |
| HENSOTOP SB | Solvent-based single component, halogen-free and fast-drying | 90 | Manufacturer recommended ³ | 135 | All | ✓ | ✓ | ✓ | |
| HENSOTOP 2K PU | 2 component polyester | 65 and 90 | Manufacturer recommended ³ | 135 | All | ✓ | ✓ | ✓ | ✓ |
| Teknodur 0050 | 2 component polyurethane | 61 | Manufacturer recommended ³ | 92 | All | ✓ | ✓ | ✓ | ✓ |
| HENSOTOP WB PU 100 | Two component water based | 73 | Manufacturer recommended ³ | 110 | All | ✓ | ✓ | ✓ | ✓ |
| HENSOTOP WB PU 300 | Two component water based polyurethane | 54 | Manufacturer recommended ³ | 81 | All | ✓ | ✓ | ✓ | ✓ |
| Zandleven Polyfinish H2O 70 | Two component water based polyurethane | 54 | Manufacturer recommended ³ | 81 | All | ✓ | ✓ | ✓ | ✓ |
| Multifire Top Z-100 PU-WB | Two component water based polyurethane | 54 | Manufacturer recommended ³ | 81 | All | ✓ | ✓ | ✓ | ✓ |
| GEL THIX VHB | 2 component acrylic-polyurethane | 56 | Manufacturer recommended ³ | 84 | All | ✓ | ✓ | ✓ | ✓ |
| HENSOTOP WB PU 200 | 2 component water based | 76 | Manufacturer recommended ³ | 114 | All | ✓ | ✓ | ✓ | ✓ |

DFT: Dry Film Thickness

¹ The approval is limited to the specific product (trade name and type), and no generic approach is possible

² The permitted theoretical maximum DFT cannot exceed the DFT for each product as recommended by the manufacturer. The practical information given by the manufacturer must be followed

³ Tests on the product were performed using specimens with and without topcoat to demonstrate that the addition of the topcoat has no influence on the insulation efficiency. The product is found to be equally suitable with and without topcoat for environmental conditions Types Z₂, Z₁, Y and X, where applicable. Therefore, topcoat thickness can be reduced to the minimum recommended by the manufacturer.

The product was subjected to the identification testing in accordance with the methods of identification defined in Table 4 of EAD 350402-00-1106. Tests for 'fingerprinting' as described in Annex E (Thermoanalytical analyses (TG) and Infrared spectroscopy analyses (IR)) have been performed and are reported in the Element test report Nos. ERO035029-1 Rev.1 (FTIR) and C5459-1 (TG).

The reactive coating HENSOTHERM® 921 KS has a performance determined for a reaction to fire classification in accordance with EN 13501-1: 2018 of Class E.

This classification is valid for the fire protection of steel elements, applied with or without the specified primer and with or without the specified topcoats to a steel substrate of minimum thickness 2mm.

The above classification is also valid for the following product parameters:

| | |
|----------------------|--|
| Permitted topcoats | “HENSOTOP SB”- a 1-pack acrylic coating OR “HENSOTOP 2K PU” – a 2-pack polyurethane coating OR None applied |
| Permitted primer | “HENSOGRUND 2K EP” – a 2-pack epoxy coating OR None applied |
| Topcoat colour | Any colour allowed |
| Coating thickness | ≤ thickness as tested allowed |
| Product composition | No variation allowed |
| Product construction | No variation allowed other than as detailed above |

3. Performance of the Product and References to the Methods Used for its Assessment

| 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 13501-1:2018 | Reaction to fire | Class E |
| EN 13501-2:2023 | Fire resistance ¹ | (R15 – R120) – IncSlow I/H beams and columns, as well as circular hollow columns & rectangular hollow columns (see Annex A ²) |
| BASIC WORKS REQUIREMENT 3: HYGIENE, HEALTH AND THE ENVIRONMENT | | |
| Indoor air quality to EN 16516:2017/A1:2020 | Content, emission and or release of dangerous substances | Use categories: IA1 and IA2 (see Annex B) |
| BASIC WORKS REQUIREMENT 4: SAFETY AND ACCESSIBILITY IN USE | | |
| EAD 350402-00-1106: September 2017 Clause 2.2.4 and Clause 2.2.5 | Adhesion and Durability | <ul style="list-style-type: none"> • Primer and topcoat compatibility • Type X durability • Type Y durability • Type Z₁ durability • Type Z₂ durability |
| EAD 350402-00-1106: September 2017 Table 4 | Identification | Thermoanalytical analyses (TG) and Infrared spectroscopy analyses (FTIR) |

¹The product was exposed to the smouldering fire (slow heating regime) defined in Annex A of EN 13381-8: 2013 and satisfied the requirements.

²Tables of results for additional times (e.g. 75 minutes, 105 minutes, and 150 minutes) also form part of this ETA.

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) | Fire protection of steel elements | Any | 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.

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.

Issued in Amsterdam, Netherlands on 2026/04/02

By

A handwritten signature in blue ink, consisting of a stylized 'P' followed by 'C' and a long horizontal stroke.

Pascal Coget

TAB Manager

Annex A - Product Performance: Fire Resistance

- 1 This Annex relates to the use of HENSOTHERM® 921 KS for the fire protection of I/H beams and columns as well as circular and rectangular hollow columns. The precise scope is given in the Tables of Results which show the total dry film thickness of HENSOTHERM® 921 KS (excluding primer and topcoat) required to provide resistance to fire classifications in accordance with EN 13501-2:2023 for sections at various design temperatures and section factors.
- 2 The product is assessed on the basis of:
 - i) Testing in accordance with the principles of EN 13381-8: 2013.
 - ii) A design assessment adopting the graphical analysis defined in Annex E of EN 13381-8: 2013.
- 3 The data presented in the tables in this Annex refers to I/H beams (three and four sided fire exposure), I/H columns as well as rectangular and circular hollow columns (four sided/surface 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 topcoats listed in this document. The primer and topcoat permitted dry film thicknesses are provided in the body of this ETA. The data is also applicable to galvanised steel sections with relevant surface preparation and compatible primer(s).
- 5 The data for the 'I' and 'H' shaped beams and columns applies also to other shaped steel sections that have re-entrant details such as channels, angles and tees.
- 6 The product has been exposed to the slowing heating regime (IncSlow) defined in Annex A of EN 13381-8:2013 and satisfied the requirements to provide classification according to EN 13501-2:2023.
- 7 Following the EN 13381-8:2013 clause 15, for section factors below the extended minimum given in Tables of Results, the same coating thickness as that applied to the extended minimum section factor shall be applied.