

The HENSEL logo is displayed in a bold, black, sans-serif font with a yellow outline, set against a yellow rectangular background.

FIRE PROTECTION SYSTEMS

## FIRE PROTECTION COATING FOR STRUCTURAL STEEL SECTIONS

TECHNICAL DATA SHEET HENSOTHERM® 471 KS

- Water-based, intumescent coating system
- Free from halogens, APEO, borates, plasticizers and silicones
- Approved according to BS 476, Certifire No. CF 5344
- Fire resistance rates from R 15 up to R 180 for open and hollow profiles



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**DGNB**  
Deutsche Gesellschaft für Nachhaltiges Bauen  
German Sustainable Building Council

certifire



# TECHNICAL INFORMATION

## Approval/Classification

- Approved according to BS 476
- Certifire Certificate No. CF 5344

## Application Area

- For indoor use only
- Structural steel profiles as columns/beams/girders/I-/H-sections
- R 15 – R 180 open steel profiles
- R 15 – R 180 hollow sections
- Up to R 180 usable without top coat in dry indoor conditions<sup>1)</sup> according to BS 476
- Coated steel components shall not be receive coverings or miscellaneous jackets which prevent the intumescent fire protection coating from foaming/expanding! Only those components may be connected force-fit, which comply with the same fire resistance rate.

## Instructions for Application

- The coating system consist of primer HENSOGGRUND\*, fire protection coating HENSOTHERM® 471 KS and top coat HENSOTOP\*
- The coating system should only be applied by trained staff!
- System should be preferably applied and dried at a temperature above +10 °C and at a relative humidity below 80 %
- Surface temperature should be at least +5 °C above dew point, during application see Corrosion Protection Standard EN ISO 12944 -7
- In line with good painting practice, application should not take place in conditions which are deteriorating, e.g. where the temperature is falling or where there is a risk of condensation forming on the steel
- Steel surface should not be warmer than +35 °C during application and drying time
- **The ambient conditions during application must be documented in a report according to EN ISO 12944-7 and -8**

## Shop Application

The temperature of the steel surface and the ambient temperature has to be between min. +10 °C and max. +35 °C. For further questions, please contact our technical support team.

## Surface Preparation/Primer

### Bare Profiles

- Sandblasting Sa 2.5 according to EN ISO 12944-4, then application of primer HENSOGGRUND AQ\*, HENSOGGRUND 1966 E+\* or HENSOGGRUND 2K EP\* also recommended for cast steel
- Manual cleaning possible, PSt 2 according to EN ISO 12944-4, after manual cleaning application of HENSOGGRUND 1K AK\*

### Primed Profiles

- HENSOTHERM® 471 KS is designed to be applied over suitable prepared and primed substrate
- The compatibility between HENSOTHERM® 471 KS and unknown already applied primers need to be checked; any damage (corrosion, impact e.g.) must be repaired carefully with the particular type of primer used or other compatible primers
- Before the application of HENSOTHERM® 471 KS already primed surfaces must be checked for damages and dry film thickness if they have been exposed to the weather for longer. If necessary, repair work is needed! For further information see Technical Data Sheets for HENSOGGRUND primers.

## Galvanized Profiles

- Surface has to be cleaned to remove contamination and to ensure adhesion, then priming with HENSOGGRUND 2K\*
- The galvanized components must be completely degassed before the application of HENSOGGRUND 2K (blistering) and the galvanized surface must be prepared in accordance with EN ISO 12944-4.

## Application

Before application stir up thoroughly with slow speed!  
Immediate cleaning of equipment after use with water!

## Airless Spraying

- A material temperature of about +20 °C is recommended for achieving an optimal spraying behaviour and result
- If needed thinning with max. 3 % water
- Recommended operation pressure 200 – 250 bar
- Nozzle size 0.017" – 0.025"; flow rate > 4 l/min
- All filters should be removed
- Recommended coverage rate for the 1st layer on a primed surface 500 g/m<sup>2</sup> (approx. 250 µm dry film thickness)
- Each further layer can be applied with up to 1,000 g/m<sup>2</sup> (approx. 500 µm dry film thickness)
- Typical coverage rate of HENSOTHERM® 471 KS applied in one layer depends on the type of steel profile and the position within construction

## Brushing and Rolling

- Rolling by lambskin or foam roller, brushing with long-bristled Chinex-bristle

## Drying Time

- The drying time depends on temperature and relative humidity
- At a temperature of approx. +20 °C and a relative humidity of approx. 65% the drying time for each layer (up to 1,000 g/m<sup>2</sup>) is at least 24 hours till next application
- Each layer must be dried through (fingernail test positive) before the next application
- Lower temperatures, higher relative humidity and insufficient air movement can prolong drying time

## Top Coats

HENSOTOP top coats offer the possibility of colored design, protection against moisture and should be applied when the surfaces, during the usage, are exposed to environmental influences, regular cleaning and similar external influences. Do not apply the top coat before the HENSOTHERM® fire protection coating is fully dried! At the earliest after 24 hours and after a positive fingernail test. Usage without top coat is possible, but only in dry indoor conditions without condensation. If steel surfaces are regularly exposed to intense heat/high temperatures, do not use dark colours as a top coating. HENSOTOP top coats are available in RAL colour shades and on request in individual colour shades.

For HENSOTHERM® 471 KS the following top coats\* are compatible: HENSOTOP WB, HENSOTOP SB, HENSOTOP 2K PU

## Storage and Transport

Transport and store at temperatures between +5 °C and +30 °C. The containers must be protected from frost and direct sunlight! Opened containers must be carefully resealed.

# TECHNICAL INFORMATION

## Shelf life

The minimum shelf life of unopened containers at a storage temperature of +20 °C is 12 months from the date of manufacture. Outside this storage temperature, the minimum shelf life may be reduced.

## Packaging

25 kg plastic pails, other sizes on request

## Precautions for Safety Use

Use HENSOTHERM® 471 KS in accordance with all applicable local and national regulations.  
Giscode: M-DF01

## Environment, Health and Safety

As regulations are often revised please request for the actual Material Safety Data Sheet before using the product.

<sup>1)</sup> If surfaces are exposed to cleaning the use of the top coat HENSOTOP is mandatory!

\* Please consult the respective technical data sheet!

In case of any questions please contact our technical support team!

For full product documentation and other information to download please visit our website [www.rudolf-hensel.de/471KS](http://www.rudolf-hensel.de/471KS)

### Environmental Benefits

- Water-based intumescent coating system
- Free from halogens, APEO (alkylphenol ethoxylates), borates, plasticizers and silicones
- Non-VOC acc. to ISO 11890-2, LEED v4 confirmed

### Technical Performance

- Optimal surface appearance by application with airless spraying achievable; long fire resistance rates with low layer thicknesses; maintenance-free
- Approved also for the use on galvanized profiles
- Top coat in RAL or individual colour shades available
- Suitable for shop application (fast drying)
- Physical life according to ETAG No. 018-1 up to 25 years, can be prolonged for special projects
- Open profiles up to  $H_p/A 470\text{ m}^{-1}$  and hollow profiles up to  $H_p/A 400\text{ m}^{-1}$  (Tcrit. 500 °C)
- Specific gravity: 1.34 kg/l, volume solids: 72% ± 3% (measured acc. to ISO 3233), VOC: <1 g/l, theoretical coverage: 1.39 l/m<sup>2</sup> | 1 mm DFT, colour: white

### Additional

- High efficiency due to low material consumption/low coverage rates and fast drying times
- Monitored by independent third party institutes

# QUALITY MARKS



European Organisation  
for Technical Assessment



Member of  
**DGNB**

Deutsche Gesellschaft für Nachhaltiges Bauen  
German Sustainable Building Council



APPROVED PRODUCT  
CF 5344



SGBP 2018-2044

**LEED v4**

The information provided herein reflects the current state of our technical testing and experience with the use of this product. However, the buyer/user is hereby not relieved of their duty, at their own responsibility, to properly examine our materials for their suitability for the intended use based on the respective site conditions. Legal claims for damages arising from the use of this product for purposes other than, or in a manner that differs from, the description contained herein without our prior written approval are precluded and may not be asserted against us. In light of the circumstance that we have no influence over site conditions and various factors that could influence the performance and use of our product, a guarantee of results or liability, regardless of legal grounds, cannot be derived from this information or from verbal consultation provided by one of our employees unless we may be accused of intent or gross negligence. Our General Terms and Conditions apply for all other purposes ([www.rudolf-hensel.de/agb](http://www.rudolf-hensel.de/agb)). The most recent version of our technical data sheet is valid and may be requested from the Rudolf Hensel GmbH or downloaded at [www.rudolf-hensel.de](http://www.rudolf-hensel.de) © Rudolf Hensel GmbH



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