

Class A+



NO  
VOC-Emissions!

**HENSOTHERM® 410 KS**

The product meets the requirements of the emission tests acc. to ISO 16000 and ISO 11890-2 GC VOC. It's also classified to emission **Class A+** acc. to French DEVL 1101903D and DEVL 1104875A.



## FIRE PROTECTION COATING FOR STRUCTURAL STEEL SECTIONS

TECHNICAL DATA SHEET HENSOTHERM® 410 KS

- Sustainable and environmentally friendly
- Free from halogens, APEO, borates, plasticizers, silicones and fibres (glass-fibre free)
- Classified according to DIN EN 13501-2
- Focused mainly on: R30 – R60 open steel profiles and R30 hollow profiles
- Non-VOC, VOC-emission class A+
- DGNB Navigator Registration: ZK5AGG



Member of

**DGNB**

Deutsche Gesellschaft für Nachhaltiges Bauen  
German Sustainable Building Council







# HENSOTHERM® 410 KS

## BENEFITS



### Environmental Benefits

- Water-based intumescent coating system
- Free from halogens, APEO (alkylphenol ethoxylates), borates, plasticizers, silicones and fibres
- Non-VOC acc. to ISO 11890-2, LEED confirmed
- Environmental product declaration acc. to ISO 14025 and EN 15804: EPD-RHG-20140057-IAA1-DE

Germany: The tested product complies with the requirements of DIBt (October 2010) and AgBB (June 2012).

France: CMR-Substances: The tested product fulfills the requirements of the French regulation DEVP0908633A of 30 April 2009 and DEVP0910046A of 28 May 2009.

VOC-emission classification: The tested product is classified to **VOC-emission class A+**. This recommendation is based on the French regulations of March 23, 2011 (décret DEVL1101903D) and of April 19, 2011 (arrête DEVL1104875A).

Belgium: The tested product complies with the requirements of the „Royal Decree for establishing threshold levels for the emissions to the indoor environment from construction products for certain intended uses (draft December 2012).“

### 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/NCS or individual colour shades available
- Suitable for shop application
- Physical life according to ETAG No. 018-1 up to 25 years, can be prolonged for special projects
- R30 for open steel profiles up to Hp/A 445 m<sup>-1</sup> (Tcrit. 500 °C)
- R60 for open steel profiles up to Hp/A 440 m<sup>-1</sup> (Tcrit. 500 °C)
- R30 for hollow profiles up to Hp/A 180 m<sup>-1</sup> (Tcrit. 500 °C)
- Specific gravity: 1,33 kg/l, volume solids: 72% ± 3% (measured acc. to ISO 3233)

### Additional

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



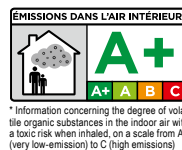
Our fire protection coating systems **HENSOTHERM®** and **HENSOMASTIK®** are developed and produced exclusively at our headquarters in Börnsen near Hamburg. Our products carry the certified origin **Made in Germany** by TÜV NORD CERT standard A75-S018 (Certificate Registration No. 44 771 130042).

## SEALS OF QUALITY



**LEED**

Building Material for Ecologically Building according to LEED credit c4.2



\* Information concerning the degree of volatile organic substances in the indoor air with a toxic risk when inhaled, on a scale from A+ (very low-emission) to C (high emissions)



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



# TECHNICAL INFORMATION

## Approval / Classification

- Approved according to DIN EN 13381-8
- ETA No. 11/0481
- Certificate of Applicability: Z-200.4-17
- CE marking according to 93/68/EWG
- DGNB Navigator registration code: ZK5AGG
- Environmental product declaration: EPD-RHG-20140057-IAA1-DE

## Application Area

- For indoor use only
- Open steel profiles: R30 – R60 for columns, beams and tension members (utilization factor in cold condition  $\leq 78\%$ )
- Hollow profiles: R30 for columns
- Up to R90 usable without top coat
- According to ETAG No. 018-2, durability class Y/Z1/Z2 [Y (semi exposed): for indoor use and in open buildings **without driving rain and condensation**]
- Structural steel according to EN 10025-1 (class S, not S185), machine-building-steel (class E) is not permitted

## Instructions for Application

- The coating system consist of primer HENSOGRUND\*, fire protection coating HENSOTHERM® 410 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  $+5\text{ }^\circ\text{C}$  and at a relative humidity below  $80\%$
- Surface temperature should be at least  $+5\text{ }^\circ\text{C}$  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  $+35\text{ }^\circ\text{C}$  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

Please contact our technical support team.

## Surface Preparation / Primer

### Bare Profiles

- Sandblasting Sa 2.5 according to EN ISO 12944-4
- Application of HENSOGRUND AQ\* (water-based): coverage rate  $130\text{--}160\text{ g/m}^2$ , wet film thickness  $110\text{--}130\text{ }\mu\text{m}$ , dry film thickness  $40\text{--}50\text{ }\mu\text{m}$ , next application after 24 hours and after fingernail test positive, cleaning of equipment after use with water
- Or application of HENSOGRUND 1966 E\* (solvent-based): coverage rate  $120\text{--}190\text{ g/m}^2$ , wet film thickness  $90\text{--}130\text{ }\mu\text{m}$ , dry film thickness  $40\text{--}60\text{ }\mu\text{m}$ , next application after 24 hours and after fingernail test positive, cleaning of equipment after use by means of thinner e.g. HENSOTHERM® V 45\*

Manual cleaning possible, PSt 2 according to EN ISO 12944-4, after manual cleaning application of HENSOGRUND AK Primer\*

### Primed Profiles

- HENSOTHERM® 410 KS is designed to be applied over suitable-prepared and primed substrate
- The compatibility between HENSOTHERM® 410 KS and unknown already applied primers need to be checked; any damage (corrosion, impact e.g.) must be repaired carefully e.g. with HENSOGRUND 1966 E\*, HENSOGRUND AK Primer\* or other compatible primers

Before the application of HENSOTHERM® 410 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 HENSOGRUND primers.

### Galvanized Profiles

- Surface has to be cleaned to remove contamination and to ensure adhesion
- Application of HENSOGRUND AQ\* (water-based) or HENSOGRUND 2K\* (solvent-based)
- Next application at the earliest after 24 hours ( $+20\text{ }^\circ\text{C}/65\%$  relative humidity) and after fingernail test positive

## Application

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

### Airless Spraying

- A material temperature of about  $+20\text{ }^\circ\text{C}$  is recommended for achieving an optimal spraying behaviour and result
- If needed thinning with max.  $3\%$  water
- Recommended operation pressure  $200\text{--}250\text{ bar}$
- Nozzle size  $0.017\text{''--}0.025\text{''}$ ; flow rate  $> 4\text{ l/min}$
- All filters can remain
- Recommended coverage rate for the 1st layer on a primed surface  $500\text{ g/m}^2$  (approx.  $250\text{ }\mu\text{m}$  dry film thickness)
- Each further layer can be applied with up to  $1,000\text{ g/m}^2$  (approx.  $500\text{ }\mu\text{m}$  dry film thickness)
- Typical coverage rate of HENSOTHERM® 410 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-bristle Chinex-bristle

## Drying Time

- The drying time depends on temperature and relative humidity
- At a temperature of approx.  $+20\text{ }^\circ\text{C}$  and a relative humidity of approx.  $65\%$  the drying time for each layer (up to  $1,000\text{ g/m}^2$ ) 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

\* Please notice Technical Data Sheet.

## TECHNICAL INFORMATION

### Top Coat HENSOTOP 84 or HENSOTOP 84 AQ

- Provides protection from moisture and other environmental influences
- Usage without top coat possible only in dry indoor conditions without condensation
- No top coat application before through-drying of HENSOTHERM® 410 KS, thus after at least 24 hours and after fingernail test positive
- HENSOTOP 84\* (solvent-based) or HENSOTOP 84 AQ\* (water-based)
- Coverage rate depending on the selected colour shade:  
HENSOTOP 84\*: 150–180 g/m<sup>2</sup>, wet film thickness approx. 125 µm, dry film thickness approx. 50 µm  
HENSOTOP 84 AQ\*: 130–180 g/m<sup>2</sup>, wet film thickness approx. 150 µm, dry film thickness approx. 60 µm
- Available in RAL or NCS colour shades and on request in individual colour shades

### Storage and Transport

- Storage and Transport free from frost! Preferably at a minimum of +5 °C to a maximum of +30 °C
- Shelf life of unopened pails: 12 months
- Opened pails must be sealed carefully after use!

### Packaging

12.5 kg and 25 kg plastic pails

### Precautions for Safety Use

Use HENSOTHERM® 410 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.

\* Please notice 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](http://www.rudolf-hensel.de)

The information given herein is not intended to be exhaustive but for your guidance only. It is based upon the results of controlled tests and experience obtained in the application of this product by Rudolf Hensel GmbH. Any person using this product for any purpose other than that specifically recommended without first obtaining written confirmation from us does so at their own risk and Rudolf Hensel GmbH can accept no liability for the performance of the product or for any loss or damage arising out of such use. Former versions of this data sheet are no longer valid. It is the users responsibility to check that this document is current prior to using the product. © Rudolf Hensel GmbH – Origin of photo material: cordelia-ewerth.de



## RUDOLF HENSEL GMBH

### Lack- und Farbenfabrik

Lauenburger Landstraße 11  
21039 Börnsen | Germany

Tel. +49 (0)40/72 10 62-10

Fax +49 (0)40/72 10 62-52

Technical Support / Sales -48

E-Mail: [info@rudolf-hensel.de](mailto:info@rudolf-hensel.de)

Internet: [www.rudolf-hensel.de](http://www.rudolf-hensel.de)

