HENSOTHERM® 410 KS

FIRE PROTECTION SYSTEM FOR STEEL
TECHNICAL DATA SHEET

- Fire resistance class R 30–R 60
- DIN EN 13501-2 approved
- ETA 20/1229, aBG Z-19.51-2279
- Application: Girders, supports and compression members
- Minimum service life of 25 years in dry indoor areas

CE ETA 20/1229 EOTA

THIRD-PARTY VERIFIED EPD ISO 14025 and EN 15804 Institut Bauen und Umwelt e.V.

LEED

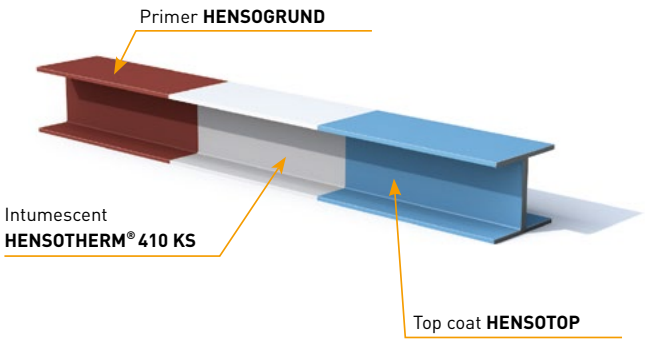
gBB

green product HENSEL

Made in Germany

TECHNICAL INFORMATION

HENSOTHERM® 410 KS is a waterborne, single component (1C) fire protection coating for upgrading steel sections and steel structures in indoor areas, open buildings, and outdoor areas shielded against driving rain and condensation. HENSOTHERM® 410 KS presents a convincing combination of ultra thin coating thicknesses, short drying times, and high cost effectiveness. Based on the primer HENSOGRUND, the insulation layer former HENSOTHERM® 410 KS, and the top coat HENSOTOP, this fire protection system is maintenance free and has a verified service life of at least 25 years – and this even without the (albeit recommended) top coat.



With a fire resistance time of R 30–R 60, the fire protection system HENSOTHERM® 410 KS is suitable for the following applications on steel structures:

coating of standard R 30/60 sections

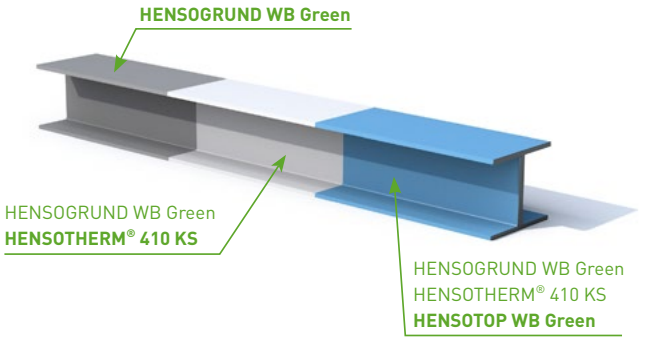
✓**I/H sections:** girders/ compression members/ columns

✓**Hollow sections** (circular/square): compression members/ columns

Suitable system components like e.g. primers and top coats can be taken from the following page 3. In general, the 1C fire-protection system is applied directly on site. This poses no problems especially when applied as an upgrading and/or renovation measure in existing buildings, e.g. public offices, schools, and hospitals.

25 YEARS SERVICE LIFE
HENSOTHERM® 410 KS

Rudolf Hensel GmbH is the first manufacturer of fire-protection systems to be awarded the **official certificate** under the European assessment procedures for the **extended 25-year service life in dry indoor environments (Z_2)**. HENSOTHERM® 410 KS is the first fire-protection coating for steel, with and without top coat, to be confirmed with a minimum 25-year service life as set down in the latest ETA and general type approval (aBG).



Structure for sustainable building

Complete Green Product system – All components for forming the HENSOTHERM® 410 KS fire-protection system are waterborne for sustainable building:

- **NEW:** HENSOGRUND WB Green, primer with VOC < 1 g/m²
- **HENSOTHERM® 410 KS,** intumescent paint with VOC < 1 g/m²
- **NEW:** HENSOTOP WB Green, top coat with VOC 3.5 g/m²

Product properties of HENSOTHERM® 410 KS

- Waterborne, environmentally friendly
- AgBB tested, non-VOC, VOC emission class A+. LEED v4
- System components registered in the DGNB Navigator
- Environmental Product Declarations (EPD) for system components
- Product composition entered on the Cologne List

TECHNICAL INFORMATION

Approval/classification

- DIN EN 13381-8 tested
- ETA 20/2279 | aBG no. Z-19.51-1229
- CE marking in accordance with 93/68/EEC

Field of application

- According to ETAG 018-2/EAD use categories Y/Z1/Z2
  [Y: for interior use and use in open structures (covered exterior spaces with no driving rain or condensation)]
- **Applications in Germany complying with the aBG:**
  steel grades S235, S275, S355.
  Please consult us for other steel grades. **Applications in other EU member states:** According to EN 10025-1 for construction steels (designation S, but not S185).

Notes on cladding, jacketing, connections

The steel components treated with this reactive fire protection coating may not be cladded or jacketed: this may prevent the intumescent from foaming.
The sites connecting to other components must afford adequate protection against the effects of fire on the treated component, or the connected components must suppress the heat transferred to the treated component.
Applying in all other cases is DIN 4102-4: " Fire behaviour of building materials and building components – Part 4: Synopsis and application of classified building materials, components and special components".

Coating instructions

NOTE: For every application of reactive fire protection coating, the applicator must inform the principal in writing that the fire protection effects are safeguarded only when the reactive fire protection coating is maintained in a proper condition at all times, and he must specify the coating materials that may be used to repair and renew the reactive fire protection coating.
The coated components must be accessible to inspection and maintenance work.

- The coating system may be processed by trained professionals only!
- When each coating substance is being applied, the material, substrate, and air temperature may not fall below +5 °C nor the relative air humidity exceed 80%.
- During the application, the surface temperature of the coated parts must be at least 5 °C above the dew point of the ambient temperature.
- The treated surface temperature may not exceed +35 °C.
- **Warranty claims must be supported by daily coating logs. Blank forms available from Rudolf GmbH.**
- **All supporting standards such as DIN 4102, aBG, DIN EN ISO 12944-4, etc., must be considered in the planning and application stages. Accessibility must be safeguarded for possible inspections.**

Workshop coating

The temperature of the steel surface and the ambient temperature must remain between +10 °C and max +35 °C during the coating procedure. Please request our technical data sheet for the workshop coating.

Surface preparation / primer

NOTE: Adequate corrosion protection must be provided.
This varies with the surface roughness.

Uncoated sections

- Blasting according to preparation level Sa 2.5, DIN EN ISO 12944-4; afterwards priming with HENSOGRUND WB Green*, HENSOGRUND 1966 E or HENSOGRUND 1K AK.
- There may have to be manual derusting according to preparation level PSt 2/St 2, DIN EN ISO 12944-4; afterwards priming with HENSOGRUND 1K AK*.

Primed sections

- Third party primer tested for its suitability as a substrate for HENSOTHERM® 410 KS; see data sheet "Testing old coatings on steel structures".
- If unsuitable, the third party primer must be removed. Then proceed as for uncoated sections.
- If suitable, it must be examined for damage and, if necessary, touched up with the primer used.

After extended weathering, primed sections must be examined for damage, and their dry film thickness measured and, if necessary, touched up prior to the application of HENSOTHERM® 410 KS!
Further details can be taken from the technical data sheets for our HENSOGRUND priming products.

Galvanised sections

- The galvanising plant must fulfil additional requirements if the zinc coating is subsequently treated or is to take an additional coating (see 6.3): DIN EN ISO 1461: 2009-10, Annex A.
- The galvanised components must have degassed completely prior to coating with HENSOGRUND WB Green* (blistering!)
- Clean/remove completely all coatings and residue compromising adhesion. Afterwards prime with HENSOGRUND WB Green*.

Application

Before application, mix thoroughly with a slow agitator! Clean equipment with water immediately after use!

Airless spraying

- The optimal spraying results are obtained when HENSOTHERM® 421 KS is at room temperature.
- If necessary, dilute with max 3% water.
- Suitable equipment is all airless pumps generating a material pressure of 200–250 bar, fitted with a spray nozzle of 0.017 "– 0.025 ", and delivering > 4 l/min.
- We recommend removing all filters.
- Up to 1000 g/m² (approx 500 µm dry film thickness) can be applied in the one operation.
- If more than one spraying operation is needed to obtain the required dry film thickness, the first should not apply more than 500 g/m² (approx 250 µm dry film thickness). The next intumescent or top coat may not be applied until the material is fingernail proof and exhibits a residual moisture < 5%.
  TIP: Quantifying the residual moisture, e.g. with the moisture meter EXTECH MO 100 or GMH 3850.
- The actual quantity applied in the one operation varies with the section type.

TECHNICAL INFORMATION

Rolling and brushing

- Apply with a lambskin roller or long-bristled Chinex brush

NOTE: Adequate ventilation must be provided during the application! If necessary, a blower must be used.

Drying time

- At a material, room, and substrate temperature of +20 °C and under a relative air humidity of 65%, each coating (max 1000 g/m²) requires at least 24 hours to dry.
- Each coating must have dried thoroughly before taking the next or touching up (fingernail proof).
- Lower temperatures, higher air humidities, and/or inadequate air circulation extend the drying time!

Top coats

HENSOTOP top coats offer a range of colours and protection against moisture and should be applied when the surfaces are exposed to environmental and cleaning effects. They may not be applied until the last HENSOTHERM® coating has dried thoroughly, i.e. no earlier than 24 hours and after a successful fingernail test! The top coat is not needed in dry indoor areas free of condensation. Dark top coats* should not be used on steel surfaces exposed regularly to temperatures in excess of +45 °C. HENSOTOP top coats are available in RAL and DB colours or matching custom colour samples.

HENSOTHERM® 410 KS is compatible with the following top coats*: HENSOTOP WB Green, HENSOTOP SB, and HENSOTOP 2K PU.

Transport and storage

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.

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 bucket

Work safety

Use HENSOTHERM® 410 KS in accordance with all applicable local and national regulations.
Giscode: M-DF01

Labelling and environmental protection

Legal regulations change frequently. The labelling and environmental protection details must therefore be taken from the current safety data sheet.

Identification plates

The structure coated with HENSOTHERM® 410 KS must be provided with identification plates, available from Rudolf Hensel GmbH.

* Please consult the respective technical data sheet.

Our technical advisers will be pleased to assist you with your enquiries.
Further details can be downloaded from: **www.rudolf-hensel.de/410KS**

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