



FIRE PROTECTION COATING FOR STRUCTURAL STEEL SECTIONS/STEEL STRUCTURES

TECHNICAL DATA SHEET HENSOTHERM® 490 KS

- Environmentally friendly
- Non-VOC, free from halogens, APEO, borates and plasticizers
- Classified according to UL 263
- Fire resistance rates up to 5.5 hours
- Environmental Product Declaration, UL: 4787852008.101.1
- Environmental Product Declaration, IBU: EPD-RHG-20160139-IAA1-EN



Mastic and intumescent coating
fire resistance classification see
UL Fire Resistance directory R27201

LEED v4





HENSOTHERM® 490 KS

BENEFITS



Environmental Benefits

- Water-based intumescent coating system
- Free from halogens, APEO (alkylphenol ethoxylates), borates and plasticizers
- Non-VOC acc. to ISO 11890-2, VOC-emission class A+, LEED v4
- EPD, UL Number: 4787852008.101.1 | EPD, IBU Number: EPD-RHG-20160139-IAA1-EN

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

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

- Smooth surface and low coating thicknesses, easy to apply
- Also suitable for galvanized steel profiles
- Topcoat in RAL or individual colour shades available
- Maintenance-free
- Suitable also for shop application
- Fire resistance rates up to 5.5 hours according to UL 263
- Approved for: open steel profiles, hollow sections, unrestrained and restrained beams

Additional

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

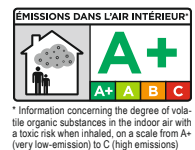


Our **HENSOTHERM®** and **HENSOMASTIK®** fire protection coating systems are developed and manufactured exclusively at our company base in Börnsen near Hamburg.

QUALITY MARKS



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



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LEED v4

TECHNICAL INFORMATION

Approval / Classification

- Approved according to UL 263/Design Nos D987, N638, Y627, Y628
- UL online Certification Directory, File: CDWZ.R27201
- EPD, UL Number: 4787852008.101.1
- EPD, IBU Number: EPD-RHG-20160139-IAA1-EN

Application Area

- Designed for indoor use and semi-exposed conditions
- Suitable for shop application and temporary exterior weathering / storage
- Approved for exterior use with top coat acc. to UL 263
- Structural steel/steel profiles as columns/I-/H-sections
- Up to 5.5 hours on open steel profiles and 3.5 hours on hollow sections
- Approved with a two component epoxy primer, solvent-based alkyd primer, water-based acrylic primer and a two component polyurethane primer. In case of epoxy zinc rich primer or other primer chemistry, please contact our service team for technical support
- Indoor use without top coat, approved for Interior General Purpose and Interior Conditioned Space according to UL 263
- Top coatings for finish and aesthetic purposes available

Instructions for Application

- The coating system consist of primer HENSOGROUND 2K EP*, fire protection coating HENSOTHERM® 490 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/50 °F and at a relative humidity below 80 %
- Surface temperature should be at least +5°C/41°F 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/95°F during application and drying time
- **The ambient conditions during application must be documented in a report according to EN ISO 12944-7 and -8 for warranty reasons.**

Shop Application

Please contact our service team for technical support

Surface Preparation / Primer

Bare Profiles

- Sandblasting Sa 2.5 according to EN ISO 12944-4
- Application of HENSOGROUND 2K EP* (solvent based 2-pack epoxy primer):
 - Conditions for application: relative humidity <80 %, temperature +10 °C/50 °F
 - Surface temperature must be at least + 5 °C/41 °F above dew point
 - Surfaces must be free from oil, dust, grease and moisture
 - Surface preparation should be carried out according to good painting practises – DIN EN ISO 12944-4
 - Application by brush, roller or airless spraying
 - Tip size: airless: 0.019"–0.023"

- Mixing ratio: 8 weight units base HENSOGROUND 2K EP*:
- 1 weight unit hardener HENSOGROUND 2K EP*
- Density of the mixture: 1.51 g/ml = 12.6 lb/gal
- Pot life 6 hours (+20 °C/68 °F)
- Base and hardener should be mixed thoroughly with an electrical stirrer
- Coverage rate: 140–195 g/m² = 3.5–5 mils wet = 2–3 mils dry
- Thinner: HENSOTHERM® V22* Thinner, max. 5 %
- Cleaning of equipment by e.g. HENSOTHERM® V22*

Drying Times

Drying time depends on temperature and relative humidity. At a temperature of approx. +20 °C/68 °F and a relative humidity of approx. 65 % drying times are as follows:

- Dust-dry after approx. 60 minutes
- Ready for overcoating after approx. 24 hours

Notice: The coverage rates does not consider the correction factor for rough surfaces according to ISO 19840.

Primed Profiles

- HENSOTHERM® 490 KS is designed to be applied over suitable-prepared and primed substrate
- The compatibility between HENSOTHERM® 490 KS and unknown already applied primers need to be checked; any damage (corrosion, impact e.g.) must be repaired carefully with HENSOGROUND 2K EP* or other compatible two component epoxy primers. Please contact our service team for technical support.

Before the application of HENSOTHERM® 490 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!

Galvanized Profiles

- Surface has to be cleaned to remove contamination and to ensure adhesion
- Efficient washing with solvents and cleaning by high pressure are recommended according to the degree of pollution. Alternatively, a mechanical pre-treatment (preferred method: sweeping) of the galvanized steel surface is also possible.
- Application of HENSOGROUND 2K* (solvent-based)
- Coverage rate min. 150 g/m², wet 4 mils, dry 2 mils
- Next application after 24 hours (+20 °C/68 °F and 65 % relative humidity)

Application

Before application stir up thoroughly with slow speed!

Properties

- Colour: white with a flat matt finish
- Density: 1.35 kg/l ± 0.05 = 11.3 lb/gal ± 0.5
- Solids by Weight: 70 ± 2 %
- Hardness: ≥ 90 shore A (7 days @ DFT = 1 mm/40 mils)
- pH: 7.5–8.5

Conditions for Application

- Relative humidity < 80 %, temperature +10 °C/50 °F
- Surface temperature must be at least +5 °C/41 °F above dew point

* Please consult the respective technical data sheet!

TECHNICAL INFORMATION

Airless Spraying

- Material temperature of about +20 °C/68 °F is recommended for achieving an optimal spraying behaviour and result
- Spraying application without thinning recommended; if needed thinning with max. 5 % water
- Recommended operation pressure 200 – 250 bar = 2.900 – 3.650 psi
- Nozzle size 0.017" – 0.025"; flow rate > 4l/min = > 1.06 gal/min
- All filters should be removed
- Coverage*: 1 mm DFT = 1,429 mm WFT = 1,929 kg/m², 28 mils DFT = 40 mils WFT = 1,141 ft²/gal @ 1 mil DFT
- Recommended spray coverage is 2.5 mm WFT/100 mils performing under 2 coat application. 1 coat of approx. 1.25 mm WFT / 50 mils instantly sprayed another 1.25 mm WFT/50 mils on top
- Particular attention should be paid to the internal and external angles of flanges and webs where excessive build-up of paint can occur and air flow may be restricted
- Occasionally cracking may occur on edges of flanges and external or internal angles of structural steel, depending on geometry, over-application and ambient conditions. This does not detrimentally affect the fire performance properties of the product.
- After reaching fingernail hardness each further layer can be applied of 1 – 1.25 mm/40 – 50 mils wet film thickness
- To ensure the correct thickness is being applied, frequent measurements should be taken using a wet film thickness gauge
- Typical coverage rate of HENSOTHERM® 490 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 Chinox-bristle

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.

For HENSOTHERM 490 KS the following top coats* have been approved by UL:

HENSOTOP WB: DFT 50 – 100 microns = 2 – 4 mils

HENSOTOP SB: DFT 50 – 125 microns = 2 – 5 mils

HENSOTOP 2K PU: DFT 50 – 125 microns = 2 – 5 mils

For exterior storage: HENSOTOP 2K PU: DFT 100 microns = 4 mils

Note: Weather durability request an intact/not damaged top coat!

Drying Time

- The drying time depends on temperature and relative humidity
- At a temperature of approx. +20 °C/68 °F and a relative humidity of approx. 65 % the drying time for each layer at least 24 hours till next application, fingernail hardness required
- Lower temperatures, higher relative humidity and insufficient air movement can prolong drying time
- Immediate cleaning of equipment after use with water!
- If HENSOTHERM® 490 KS is left exposed, protection against rain or high humidity is necessary. Top coats appropriate for the environmental conditions are available.

Storage and Transport

- Storage and Transport free from frost!
Preferably at a minimum of +5 °C to a maximum of +30 °C/88 °F
- Shelf life of unopened pails: 12 months
- Opened pails must be sealed carefully after use!

Packaging

25 kg plastic pails, other sizes on request

Precautions for Safety Use

Use HENSOTHERM® 490 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 consult the respective technical data sheet!

**The coverage values shown are theoretical values, which have been calculated based on the solid content and specific gravity of the material. Actual coverage depends on surface, substrate, application technique and method. No allowance is made for waste.

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.com

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