FIRE PROTECTION COATING FOR CONCRETE

TECHNICAL DATA SHEET HENSOTHERM® 820 KS

- Tested in compliance with the European standard EN 13381-3:2015, analogous to prEN 13381-3:2012
- External and in-house monitoring / building material approval no. Z-19.11-2196
- Easy to process, low film thicknesses, no loads on surrounding structure, maintenance free
- BETON-CARBONSPERRE prevents contaminant and water penetration
- European Patent No. 2686391

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

classification eco 1 eco-bau

ÉMISSIONS DANS L'AIR INTÉRIEUR A+ A+ A B C

LEED

green product HENSEL

Made in Germany

TECHNICAL INFORMATION

Approval/classification

- Warringtonfire CT/345425 Issue 3 + CT/339816 Issue 2, Warringtonfire EWCL Certificate No. ME 5119
- Efectis Nederland B.V. | Report: 2012-Efectis-R0556 [Rev1] 2)
- LEED confirmation
- Very well suited for Minergie-(A-/P-)Eco / Correspond to priority 1 of Eco-BKP
- Building material approval no. Z-19.11-2196
- VKF approval no. 27213 + 27215
- European Patent No. 2686391
- European patent protection / signatories: AL, **AT, BE,** BG, **CH,** CY, CZ, **DE, DK,** EE, **ES,** FI, **FR, GB,** GR, HR, HU, IE, IS, **IT, LI,** LT, LU, LV, MC, MK, MT, **NL,** NO, **PL, PT,** RO, RS, SE, SI, SK, SM, TR

Application areas

HENSOTHERM® 820 KS is a single component thin-film water-based fire protection coating for applications in dry indoor rooms.

1) The fire resistance duration can be extended up to **240 minutes** on **flat concrete ceilings / concrete walls** (Warringtonfire summary letter reference: CT/345425 Issue 3).
1) The fire resistance duration can be extended up to **150 minutes** on **concrete beams / concrete columns** (Warringtonfire summary letter reference: CT/339816 Issue 2).
2) The fire resistance duration of **hollow concrete slabs** can be improved up to **120 minutes** (2012-Efectis-R0556 [Rev1]).

Also possible on request are ribbed ceiling upgrades with an assessment report.

We recommend that you consult with the responsible planning authority or architect before installing the fire protection system. On request, a project based expertise can be drawn up that serves as a basis for the approval of individual cases.

The ambient conditions during the application must be documented in a report!

Suspensions / Installations

The installation of suspensions, threaded rods, bolts etc. is possible up to a diameter of ≤ 20 mm. Other supporting points may not exceed a diameter of ≤ 25 mm. If the number of 1 piece per m² will not be exceeded, compensation measures are not necessary and a possible heat input in case of fire is negligible.

Product features

- HENSOTHERM® 820 KS is a pseudoplastic, non-hygroscopic, intumescent, fire-resistant coating.
- HENSOTHERM® 820 KS greatly delays the build-up of heat in concrete. At temperatures over 330 °C, concrete and steel reinforcements expand at different rates.
- HENSOTHERM® 820 KS prevents concrete from bursting off. The product complies with the requirements under DIBt (October 2010) and AgBB (June 2012).
- Water-based system
- Free of APEO (alkyl phenol ethoxylate), halogens, and borates
- No fibre or other particulate emissions
- VOC emissions class A+
- No loads on the surrounding structure, space saving, no headroom loss
- Only small coating thicknesses needed: 0.42 – 1.7 mm (Exova), 1.5 – 3.5 mm (Efectis)
- Easy to process, maintenance free
- Under the optimal conditions, a wet film thickness up to 1,500 µm thick can be applied in the one operation
- Optimal surface optics
- Colour: white, approx RAL 9010

Surface preparation / primer

Surface requirements

- The concrete surfaces must be rough, have good grip, and be free of dusts, oils, and greases
- Free of efflorescences and cement clouds
- The concrete must be dry (test as defined in ASTM D 4263) and/or residual moisture of max 4 % according to CM
- Primer: BETON-CARBONSPERRE*

Preparations on damaged concrete surfaces

The compatibility of the following products has been verified for the repair of various imperfections:

- Defects: Disbocret 505 Feinspachtel or Disbocret 506 Planspachtel (with 15 – 20 % sand filler)
- Cracks: Disbocret 505 Feinspachtel or Disbocret 506 Planspachtel

Application

HENSOTHERM® 820 KS shall only be applied by trained staff!
Before the application make sure that:

- The primer **BETON-CARBONSPERRE*** must be completely dried! (Positive fingernail test!)
- The tear strength of the surface must be ≥ 1,5 N/mm².
- **HENSOTHERM® 820 KS** must be stirred thouroughly with a slow agitator!

HENSOTHERM® 820 KS shall be processed preferably at a room temperature of ≥ + 10 °C and a relative air humidity of < 80 %. The surface temperature shall be at least + 5 °C higher than the determined dew point and in all cases above 0 °C.

It is mandatory to provide sufficient ventilation and extraction during the application! If necessary use an air circulation fan.

Airless spraying

- Recommended nozzle sizes: 0.017" – 0.025" depending on the required coating thickness
- Recommended working pressure: 200 – 250 bar
- Discharge > 4.5 l/min
- Detach intake hose from airless sprayer
- Filters can be left in the airless pump and spraying gun.
- Apply a wet film thickness not thicker than 700 µm in the first operation.
- Wet film thickness per subsequent operation: max. 1,500 µm
- Applied quantity according to expertise in the ratio 1.00 mm dry film thickness ≙ 1.4 mm wet film thickness ≙ 2 kg/m2
- Dilute, if necessary, with max. 5 % water

Brushing and rolling

- Apply with a long-bristled brush; Chinex brushes are recommended
- Rollers of synthetic material or lambskin

* Please consult the respective technical data sheet!

TECHNICAL INFORMATION

Drying times

The drying time depends on temperature and air humidity.
It is mandatory to provide sufficient ventilation and extraction during the drying! Material, room, and building temperatures of +20 °C and a relative air humidity of about 65 % result in the following drying times for about 2,000 g/m2 or a 1.0 mm dry film thickness:

Dried through/ready for recoating, depending on the required coating thickness, at the earliest after 24 hours and after a positive fingernail test.

Low temperatures, a higher air humidity, inadequate air circulation, and varying coating thicknesses can increase the above drying times.

Measurement of the dry film thickness

The dry film thickness (DFT) can be calculated as a function of the ratio of total coated area in m² to the total material consumption in kg. The total material quantity is taken to be the net quantity of material applied. Pot and spatter losses must be deducted from this value.

$$\textbf{DFT}\ [\mu m] = \frac{\textbf{total material consumption}\ [kg]}{\textbf{coated area}\ [m^2]} \textbf{ : 2 x 1,000}$$

Alternatively, the dry film thickness (DFT) can be measured electronically. In this case, before commencing the application, use assembly adhesive or double sided adhesive tape to affix primed[1] or galvanised steel plates of 10 cm x 6 cm and approx 1–2 mm thickness to the dry concrete surface. The film thickness on these plates can be measured after the application and complete drying (nail hardness).
While HENSOTHERM® 820 KS is being applied, the wet film thickness (WFT) must be measured regularly by means of a suitable gauge.

[1] The dry film thickness of the primer must be deducted from the measured overall dry film thickness.

Top coats

HENSOTOP top coats offer the possibility of colored design, protection against moisture and should be applied when surfaces, during the usage, are exposed to environmental influences. Do not aplly the top coat before the HENSOTHERM® 820 KS fire protection coating is fully dried! At the earliest after 24 hours and after a positive fingernail test.

For HENSOTHERM® 820 KS the following top coat* is compatible:
HENSOTOP WB

Storage and transport

- Storage and transport at min +5 °C and max +30 °C. Protect against frost!
- Unopened packaging has a 12-month shelf life.
- Opened packaging must be sealed carefully!

Packaging

25 kg plastic bucket, other packaging sizes on request

Precautions for Safety Use

Use HENSOTHERM® 820 KS in accordance with all applicable local and national regulations. Giscode: M-DF01

Labelling and environmental protection

As regulations are often revised please request the current safety data sheet before using the product.

Applications of HENSOTHERM ® 820 KS

Concrete hollow core slabs

Flat concrete ceilings, concrete walls and concrete beams

Flat concrete ceilings and concrete columns

Ribbed ceilings on request

* 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 /820KS**

QUALITY MARKS

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

Rudolf Hensel GmbH Z-19.11-2196

ÉMISSIONS DANS L'AIR INTÉRIEUR A+ (A+ A B C)

LEED

Classification eco 1 eco-bau

green product HENSEL

Made in Germany HENSEL

HENSOTHERM® 820 KS
Fire protection coating for concrete

Environment
- Water-based system, free of halogens, APEO (alkyl phenol ethoxylate), borates, fibres, and plasticisers
- LEED confirmation, Warringtonfire EWCL Certificate No. ME 5119
- Very well suited for Minergie-(A-/P-)Eco / Correspond to priority 1 of Eco-BKP

Germany: The analysed product fulfils the requirements in the 10/2010 DIBt reports on "Zulassungsgrundsätzen zur gesundheitlichen Bewertung von Bauprodukten in Innenräumen" ("Approval principles for the health assessment of building products in interior rooms") in conjunction with the LCI values issued in June 2012 by the AgBB (Committee for Health-related Evaluation of Building Products).

France: CMR substances: The tested product fulfils the requirements of the French directives DEVP0908633A of 30 April 2009 and DEVP0910046A of 28 May 2009.

VOC classification: The product fulfils **VOC emissions class A+.** The recommended classification is based on the French regulation for labelling building products, wall panelling, floorings, paints, and lacquers with respect to their emissions of volatile contaminants, including those of 25 March 2011 (décret DEVL1101903D) and of 13 April 2011 (arrêté DEVL1104875A).

Belgium: The analysed product fulfils the requirements set down in the "Royal Decree establishing threshold levels for the emissions to the indoor environment from construction products for certain intended uses" (draft December 2012).

Technology
- Coating for upgrading hollow concrete slabs, flat concrete ceilings, concrete beams, concrete supports, concrete walls, and ribbed ceilings for an enhanced fire resistance duration of up to 240 minutes

  The bare concrete patches take the insulation-layer-forming fire protection coating system HENSOTHERM® 820 KS. The consumption is calculated as a function of the required fire resistance class and concrete coverage.
- Easy to process, visually appealing surface, maintenance free
- No loads on the surrounding structure, space saving = no headroom loss
- Very low film thicknesses for considerable cost and building time savings:
  0.42 – 1.7 mm (Warringtonfire), 1.5 – 3.5 mm (Efectis).
  see "Application areas"
- Optional RAL, NCS, or custom colours or samples provided by the top coat HENSOTOP WB
- Optimised light efficiency: the brighter the chosen colour, the better ambient light is reflected from the coated surfaces, reducing lamp use and power consumption
- BETON-CARBONSPERRE prevents contaminant and water penetration

General
- External and in-house monitoring
- Low material consumption for high cost effectiveness: approx 840 g/m² to 3,382 g/m² depending on building requirements
- No flaking when drilled afterwards for suspended loads and installations

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

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