

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	Rudolf Hensel GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-RHG-20240230-IBA3-EN
Issue date	14.02.2025
Valid to	13.02.2030

HENSOTHERM® 920 KS / 980 KS
Rudolf Hensel GmbH

www.ibu-epd.com | <https://epd-online.com>



1. General Information**Rudolf Hensel GmbH****Programme holder**

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-RHG-20240230-IBA3-EN

This declaration is based on the product category rules:

Coatings with organic binders, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

14.02.2025

Valid to

13.02.2030



Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)



Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

HENSOTHERM® 920 KS / 980 KS**Owner of the declaration**

Rudolf Hensel GmbH
Lauenburger Landstraße 11
21039 Börnsen
Germany

Declared product / declared unit

The declared product is HENSOTHERM® 920 KS / 980 KS. The declared unit refers to one kilogramme of product. Packaging is included in the calculation. The declared unit is given in [kg].

Scope:

This document refers to HENSOTHERM® 920 KS / 980 KS. Specific data from the Börnsen manufacturing plant of Rudolf Hensel GmbH was collected for the preparation of the life cycle assessment (LCA). Data from the year 2022 is used as a basis, which corresponds to the annual average.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR

Independent verification of the declaration and data according to ISO 14025:2011

☐

internally

☒

externally



Dr.-Ing. Wolfram Trinius,
(Independent verifier)

2. Product

2.1 Product description/Product definition

HENSOTHERM® 920 KS / 980 KS are 100% solvent-free, two-component (2K) fire protection coatings for the fire protection improvement of steel profiles and steel structures in interior and exterior areas. These are in-house manufactured reactive epoxy coatings with mineral fillers, pigments, and additives. The coatings are classified as low emission and contain no halogens, alkylphenols, or benzyl alcohols.

The fire protection coatings are part of the Green Product line at Rudolf Hensel GmbH.

Products according to CPR with ETA:

Regulation (EU) No. 305/2011 (CPR) applies to the placing on the market of the HENSOTHERM® 920 KS product in the EU/EFTA (with the exception of Switzerland). The product requires a Declaration of Performance in accordance with *ETA No. 21/0475* and *aBG No. Z-19.51-2629* for HENSOTHERM® 920 KS and the corresponding CE marking. The relevant national regulations apply to the use of this product.

The following authorisations apply for placing the HENSOTHERM® 920 KS product on the market outside the EU: *British Standard BS 476, Parts 20 and 21, No. CF 5994*, VKF technical information No. 32192 in accordance with Swiss fire protection regulations, as well as Australian Standard 4100:1998 and the corresponding CE marking. At the place of use, the respective national regulations apply. In Germany, for example, the building regulations of the federal states and the technical specifications based on these regulations apply.

2.2 Application

HENSOTHERM® 920 KS is used to improve the fire performance of open profiles such as I-beams, H-beams, compression members, columns and tension profiles of various sizes in structural steel and closed profiles such as rectangular/square and round hollow section columns and compression members.

In general, the complete coating system consists of a suitable anti-corrosion primer, the fire protection coating and, if required, a suitable top coat. Primers and top coats are not part of this EPD.

European Technical Assessment according to *EAD 350402-00-1106*: HENSOTHERM® 920 KS is rated as a reactive coating for the fire protection of steel elements.

HENSOTHERM® 920 KS is classified in accordance with *EN 13501-1* as Euroclass **E**.

HENSOTHERM® 920 KS is classified in accordance with *EN 13501-2* for a fire-resistance period of up to 150 minutes.

HENSOTHERM® 920 KS is tested in accordance with *EN 13381-8* for a fire-resistance period of up to 150 minutes.

HENSOTHERM® 920 KS is approved in accordance with *BS476* for a fire-resistance period of up to 180 minutes.

HENSOTHERM® 920 KS is tested from R30 to R60 in accordance with *VKF Technical Information No. 32192*.

HENSOTHERM® 980 KS is intended for the fire protection upgrading of interior and exterior areas of railway vehicles.

HENSOTHERM® 980 KS is classified in accordance with *DIN EN 45545-2* and fulfils the requirements of class HL 3 for R1 and R7.

2.3 Technical Data

HENSOTHERM® 920 / 980 KS do not contain any hazardous substances above the limit values according to *REACH Regulation, Annex XVII*.

Structural data

Name	Value	Unit
Colour	Telegrey 1, RAL 7045	-
Density (liquid, 25 °C)	1150 - 1350	kg/m³
Storage temperature	5 - 30	°C
Shelf life (unopened, 20 °C)	15	months
Pot/processing times (30°C - 35°C)	45	minutes
Pot/processing times (40°C - 45°C)	30	minutes
Fire behaviour acc. to EN 135011	Construction material class E	-
Feuerwiderstand gem. EN 13381-8 EN 13501-2	R15 - R150	-
Durability acc. to EAD 350402-00-1106	X, Y, Z1 and Z2	-
Corrosivity category acc. to DIN EN ISO 12944 (System)	C5, very high	-

HENSOTHERM® 920 KS / 980 KS are emission-rated, 2-component fire protection coatings. Sampling, testing and evaluation were carried out in accordance with *AgBB* and *Leed* in their current versions.

Products according to CPR with ETA:

Performance values of the HENSOTHERM® 920 KS product correspond to the Declaration of Performance with regard to its essential characteristics according to *ETA No. 21/0475* and *aBG No. Z-19.51-2629* for HENSOTHERM® 920 KS and the corresponding CE marking. The respective national regulations apply for use.

Performance values of the HENSOTHERM® 920 KS product outside the EU refer to its essential characteristics according to *British Standard BS 476, Parts 20 and 21, No. CF 5994*, VKF technical information No. 32192 according to the Swiss fire protection regulations as well as Australian Standard 4100:1998 and the corresponding CE marking. The respective national regulations apply at the place of use; in Germany, for example, the building regulations of the federal states, and the technical specifications based on these regulations apply.

2.4 Delivery status

HENSOTHERM® 920 KS / 980 KS are liquid, 2-component coating materials and are sold in metal buckets of different sizes. HENSOTHERM® 920 KS / 980 KS base is available in containers from 2.5 kg to 200 kg; HENSOTHERM® 920 KS / 980 KS hardener is available in containers from 1 kg to 200 kg

2.5 Base materials/Ancillary materials

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Name	Value	Unit
Ammonium polyphosphate	15 - 30	%
Epoxy resin	15 - 30	%
Reactive polyamides	5 - 20	%
Flame retardants	5 - 15	%
Melamine	5 - 15	%
Titanium dioxide	2 - 10	%
Alumina	1 - 8	%
Acrylic acid ester	1 - 5	%
Carbon fibres	1 - 5	%
Reactive polyamides	1 - 5	%

The product contains substances on the ECHA list of substances of very high concern (SVHC) for authorisation (14.03.2024) above 0.1 mass %: yes.

Melamine (CAS: 108--78--1)

Contains: 5 -- 15% [m/m]

H351 may cause cancer.
H361f may impair fertility.

2.6 Manufacture

HENSOTHERM® 920 KS / 980 KS is manufactured in a fully-automatically controlled dispersion system. The dosing of liquid raw materials is largely automatic, powders are dosed manually. The preliminary products required for production are made available after an incoming goods inspection.

After production of the batches, an in-house quality control is carried out. This includes technical coating and fire protection quality features.

In addition to the factory inspection, official external monitoring is carried out at regular intervals.

2.7 Environment and health during manufacturing

The precursors are stored in such a way that they cannot, according to human judgement, enter the environment.

In the case of raw materials that are automatically dosed, direct contact between employees and the preliminary products is avoided. Direct contact with the raw material is minimised when dosing the powdered raw materials manually. In addition to sufficiently dimensioned extraction systems, employees are provided with protective clothing and dust masks. Suitable personal protective equipment is also provided.

The production process is optimised in such a way that the system components are mainly cleaned in situ. Any cleaning agent incurred is collected, distilled and reused.

All types of waste are separated, stored, and returned to the recycling circuit.

2.8 Product processing/Installation

Application should primarily be carried out by spraying.
Application by brush is possible for very small areas.

Details on substrate pre-treatment, application requirements, and drying behaviour can be found in the relevant technical data sheet.

(see: www.rudolf--hensel.de)

2.9 Packaging

The coatings are filled into metal cans, which are recycled by the customer through a packaging return system.

The metal containers are packed on pallets for despatch and protected with a shrink film made of low-density polyethylene (LDPE).

2.10 Condition of use

Both coatings are epoxy based intumescent two component fire protection coatings for the protection of steel components. After application of the coatings, the film is formed by chemical cross-linking of the epoxy groups contained in the formulation. The cross-linked polymer film including the non-volatile ingredients remains on the coated component. Powdery solids such as melamine are firmly bound into the polymer matrix.

2.11 Environment and health during use

HENSOTHERM® 920 KS / 980 KS are coatings with extremely low emissions and are considered to be harmless to human health.

Emission tests - carried out in independent laboratories - confirmed that the fire protection coatings fulfil the requirements of various national and international emission standards, with classification in the lowest emission class (see section 7).

The coatings contain no halogens, alkylphenols, or benzyl alcohols.

2.12 Reference service life

The provisions made in *ETA No. 21/0475* are based on an assumed working life of the applied coating for the intended use of at least 10 years for the use categories Z2, Z1, X and Y, provided that it is adequately used and maintained in accordance with the manufacturer's instructions.

The *EAD 350402-00-1106* allows the assumption of a service life of 25 years if the ETA applicant can provide sufficient additional documented evidence for the technical inspection. Rudolf Hensel GmbH has provided additional information for type Z2. The data presented confirms the use of HENSOTHERM® 920 KS for a service life of 25 years for utilisation category type Z2. Accordingly, a service life of 25 years is assumed for utilisation category type Z2.

HENSOTHERM® 920 KS has been classified according to *DIN EN ISO 12944-6 (2018)* in the system with primer and top coat for corrosivity category C5, very high protection duration. This classification certifies a corrosion protection of > 25 years.

The indications given on the service life cannot be interpreted as a guarantee given by the producer or the Technical Assessment Body, issued by the ETA on the basis of *EAD 350402-00-1106*, but are to be regarded only as a means for choosing the right product in relation to the anticipated economically reasonable service life.

2.13 Extraordinary effects

Fire

Intumescent fire protection coatings are reactive systems, which under the influence of temperature – due to a strong increase in volume (blowing agent melamine, or its salts – decomposition to NH₃, N₂, H₂O and CO₂) – form a carbon-rich insulation layer. Due to its very low thermal conductivity, the insulation layer protects the substrate against a material-destroying temperature increase. Further exposure to temperature finally produces a stable inorganic insulation layer, mainly consisting of titanium pyrophosphate. The effect of the fire protection coating is therefore not reversible.

Fire protection

Name	Value
Building material class acc. to EN 135011	E
Fire resistance EN 133818 acc. to EN 135012	R15 - R150

Water

HENSOTHERM® 920 KS / 980 KS are fire protection coatings that can be used in accordance with *EAD 350402-00-1106*

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utilisation categories X/Y/Z1/Z2 in interior and weathered exterior areas.

Short-term immersion (e.g. flooding) has no negative impacts on the coating.

Mechanical destruction

Small containers of fire protection coatings are available for repairing surface damage and surface impairments by brush.

There are no known consequences for the environment due to unforeseen mechanical destruction.

2.14 Re-use phase

Due to the organic content, HENSOTHERM® 920 KS / 980 KS have a substance inherent energy content that can be recovered in incineration plants. Taking into account the carbon content of the coating, the steel coated with the aforementioned fire protection coatings can be fed directly into the steel recycling process.

In the event that the fire protection coating is to be deposited separately, landfillability is guaranteed.

2.15 Disposal

The following waste code numbers must be taken into account:

a) coated steel

AVV No. 170405 (recommended): Construction and demolition waste - iron and steel.

b) solid product residues:

AVV No. 080118 (recommended): Waste from paint or varnish removal other than that mentioned in 080117.

c) liquid product residues:

AVV No. 080111 (recommended): Paint and varnish waste containing organic solvents or other hazardous substances.

AVV No. 150110 (recommended): Packaging that contains residues of hazardous substances or is contaminated by hazardous substances.

2.16 Further information

Further product information is available at: www.rudolf-hensel.de

3. LCA: Calculation rules

3.1 Declared Unit

The declared product is HENSOTHERM® 920 / 980 KS. The declared unit refers to one kilogramme of product. Packaging is included in the calculation. The declared unit is given in [kg].

Declared unit and mass reference

Name	Value	Unit
Gross density (mean value)	1225	kg/m ³
Declared unit	1	kg

3.2 System boundary

Type of EPD: Cradle to factory gate with options. The following information modules are defined as system boundaries in this study:

Production stage (A1-A3):

A1: raw material extraction

A2: transport to the manufacturer

A3: production

End-of-Life (C1-C4):

C1: dismantling/demolition

C2: transport

C3: waste treatment

C4: disposal

Reuse, recovery and recycling potential (D)

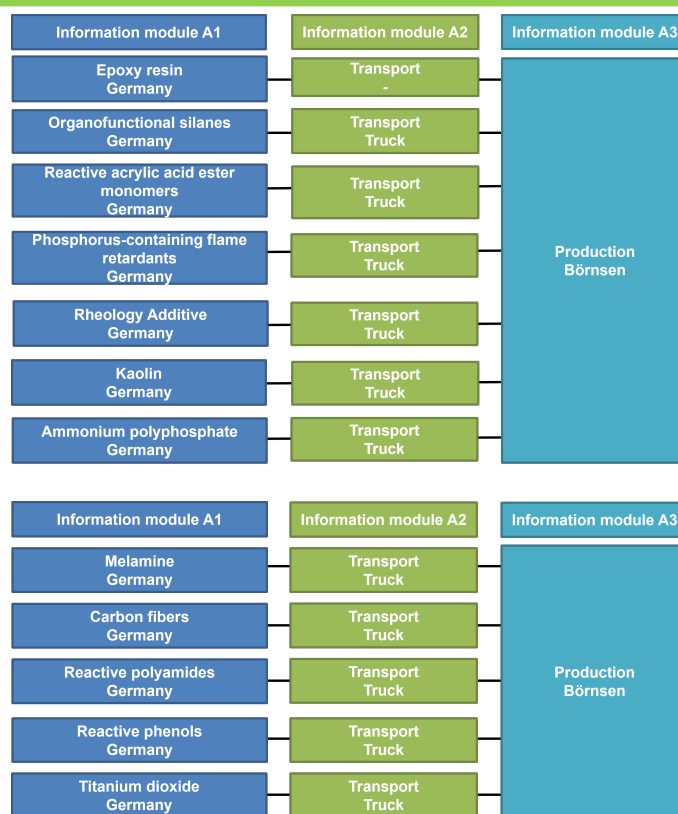


Figure 1: Information modules A1 to A3 of the product

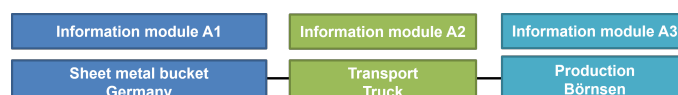


Figure 2: Information modules A1 to A3 of the packaging

Information modules C1 to C4 cover the dismantling or demolition of the building, transport for waste disposal, waste treatment, and disposal of the product. Furthermore, reuse, recovery and recycling potential are shown in information module D.

3.3 Estimates and assumptions

The electricity mixes and underlying data are calculated on a country-specific basis for the production processes. An assumption was made for the calculation of carbon fibres. No assumptions were made for other substances.

3.4 Cut-off criteria

The cut-off criterion according to *EN 15804+A2* is applied. All energy and mass inputs were taken into account.

3.5 Background data

The databases used in this study are *LCA for Experts* and *Ecoinvent 3.9.1*.

3.6 Data quality

The assessment of the data quality is classified as appropriate, as the relevant data sets used to calculate the material provision of the declared unit are up to date. Data is provided in *LCA for Experts* under Data documentation with the respective reference year. Despite the use of different databases (*Sphera*, *Ecoinvent 3.9.1*), a consistent data basis is available, as all requirements for calculating the indicators in accordance with *EN 15804+A2* are met.

3.7 Period under review

Specific data from the Börsen manufacturing plant in Germany was collected for the preparation of the life cycle assessment (LCA). The data for input and output flows is from 2022 and corresponds to the annual average.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Global

3.9 Allocation

The co-products are allocated in information modules A1-A3. The production waste is thermally utilised. The ensuing electrical and thermal energy credits are offset in modules A1-A3. No further allocations are made.

3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account. The databases used in this study are *LCA for Experts* and *Ecoinvent 3.9.1*.

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

No renewable raw materials are used in the product or the packaging. Biogenic carbon is therefore recognised as zero.

Information describing the biogenic carbon content at the plant gate

Name	Value	Unit
Biogenic carbon in the product	-	kg C
Biogenic carbon in the associated packaging	-	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO₂.

End of Life (C1-C4):

The demolition of the fire protection coating from the building is calculated in information module C1. Demolition is carried out using an electric tool. The electrical energy consumption for the tool is assumed to be 0.5 MJ for the declared unit. The electricity consumption is calculated using a European electricity mix.

Name	Value	Unit
Collected separately waste type	1	kg
Energy recovery	1	kg

Thermal utilisation produces electrical and thermal energy. The thermal energy of 2.62 MJ and the electrical energy of 1.13 MJ are declared in module C3.

5. LCA: Results

The thermal and electrical energy credits are recognised in C3.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 kg HENSOTHERM® 920 / 980 KS

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO ₂ eq	4.89E+00	7.08E-02	4.67E-03	8.91E-01	0	0
Global Warming Potential fossil fuels (GWP-fossil)	kg CO ₂ eq	4.85E+00	7.08E-02	4.6E-03	1.27E-01	0	0
Global Warming Potential biogenic (GWP-biogenic)	kg CO ₂ eq	3.34E-02	0	0	7.64E-01	0	0
Global Warming Potential luluc (GWP-luluc)	kg CO ₂ eq	2.88E-03	1.04E-05	7.45E-05	8.74E-05	0	0
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	4.42E-08	7.65E-13	4.47E-16	1.3E-12	0	0
Acidification potential of land and water (AP)	mol H ⁺ eq	3.71E-02	1.63E-04	3.9E-06	2.5E-04	0	0
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	5.19E-04	3.64E-08	1.89E-08	8.01E-08	0	0
Eutrophication potential aquatic marine (EP-marine)	kg N eq	4.77E-03	2.73E-05	1.07E-06	1.7E-04	0	0
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	1.26E-01	2.92E-04	1.38E-05	2.11E-03	0	0
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	1.02E-02	8.13E-05	3.65E-06	4E-04	0	0
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	1.95E-05	3.26E-09	3.75E-10	4.89E-09	0	0
Abiotic depletion potential for fossil resources (ADPF)	MJ	8.04E+01	1.29E+00	5.79E-02	5.18E+00	0	0
Water use (WDP)	m ³ world eq deprived	7.09E-01	3.98E-03	6.61E-05	1.43E-01	0	0

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 kg HENSOTHERM® 920 / 980 KS

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	8.31E+00	1.84E-01	4.9E-03	-2.06E-01	0	0
Renewable primary energy resources as material utilization (PERM)	MJ	0	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	8.31E+00	1.84E-01	4.9E-03	-2.06E-01	0	0
Non renewable primary energy as energy carrier (PENRE)	MJ	6.33E+01	1.29E+00	5.79E-02	-2.23E+01	0	0
Non renewable primary energy as material utilization (PENRM)	MJ	1.71E+01	0	0	1.71E+01	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	8.04E+01	1.29E+00	5.79E-02	-5.18E+00	0	0
Use of secondary material (SM)	kg	0	0	0	0	0	0
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0	0
Use of net fresh water (FW)	m ³	2.24E-02	2.59E-04	5.5E-06	3.03E-03	0	0

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 kg HENSOTHERM® 920 / 980 KS

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	1.6E-08	1.83E-10	1.87E-12	1.83E-11	0	0
Non hazardous waste disposed (NHWD)	kg	6.32E-02	3.2E-04	9.01E-06	7.17E-02	0	0
Radioactive waste disposed (RWD)	kg	7.26E-04	1.67E-04	7.48E-08	-3.59E-04	0	0
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	0	0	0	0	0	0
Materials for energy recovery (MER)	kg	0	0	0	0	0	0
Exported electrical energy (EEE)	MJ	0	0	0	0	0	0
Exported thermal energy (EET)	MJ	0	0	0	0	0	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 kg HENSOTHERM® 920 / 980 KS

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Incidence of disease due to PM emissions (PM)	Disease incidence	ND	ND	ND	ND	ND	ND
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	ND	ND	ND	ND	ND	ND
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	ND	ND	ND	ND	ND	ND

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Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	ND	ND	ND	ND	ND	ND
Soil quality index (SQP)	SQP	ND	ND	ND	ND	ND	ND

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

6. LCA: Interpretation

The dominance analysis shows that the main causes of the environmental impacts and indicators can be found in information module A1. This shows the total global warming potential for material provision at approx. 81 % and approx. 15 % for thermal utilisation, based on all information modules.

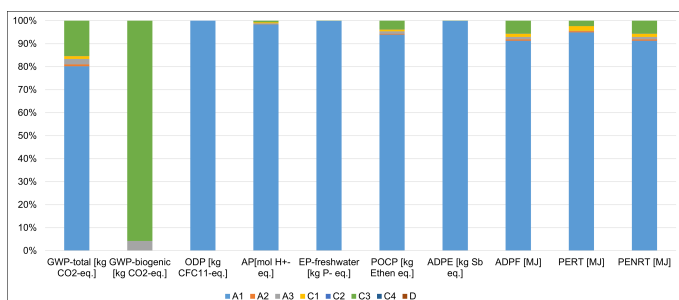


Figure 4: Dominance analysis modules A1 to D

Looking at the material provision of the fire protection coating and the packaging in detail, it becomes clear which raw materials make a decisive contribution to the respective environmental impacts and indicators.

The reactive polyamide accounts for approx. 30% and the epoxy resin for 20 % of the total global warming potential in information module A1. Approx. 17 % is accounted for by titanium dioxide.

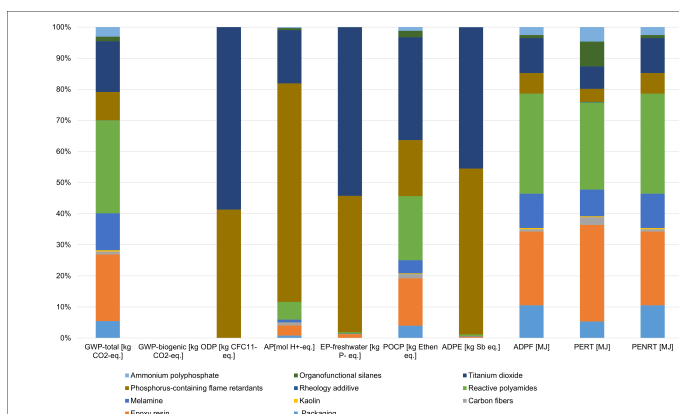


Figure 5: Dominance analysis module A1

Information module A3 clearly shows that approx. 95 % of the total global warming potential is caused by the HENSOTHERM® 920 / 980 KS product and approx. 5 % by the packaging.

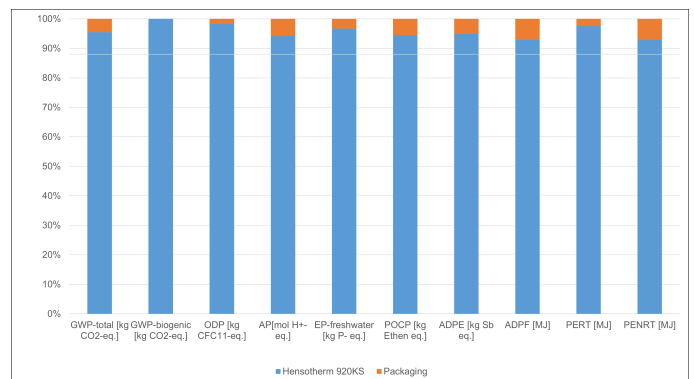


Figure 6: Dominance analysis module A3

7. Requisite evidence

HENSOTHERM® 920 KS with and without top coat fulfils the AgBB requirements.

HENSOTHERM® 920 KS with and without top coat fulfils the MVV TB 2021/1 requirements for reactive fire protection systems on steel components.

HENSOTHERM® 920 KS with top coat fulfils the requirements

of the French VOC classification regulation French VOC labelling regulation with emission class A+.

HENSOTHERM® 920 KS with top coat fulfils the criteria of the French KMR emissions regulation.

HENSOTHERM® 920 KS with top coat fulfils the criteria of the Belgian Royal Decree on the limit values for indoor emissions

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of construction products for specific uses.

HENSOTHERM® 920 KS with top coat: Report no. 55907 A001 BVOL from 15.01.2021 and Report no. 55907A001 FVOL from 15.01.2021.

AgBB result overview without top coat (28 days [µg/m³])

Name	Value	Unit
VOC	120,0	µg/m³
SVOC	< 5,0	µg/m³
R (dimensionless)	0,93	-

Test report from EcoInstitut Germany GmbH:

HENSOTHERM® 920 KS without top coat: Report no. 55816-001-AgBB-L dated 11.01.2021

AgBB result overview with top coat (28 days [µg/m³])

Name	Value	Unit
VOC	300,0	µg/m³
SVOC	< 5,0	µg/m³
R (dimensionless)	0,55	-

Test report from Eco-Institut Germany GmbH:

HENSOTHERM® 920 KS with top coat: Report no. 55907-001-AgBB-L from 15.01.2021

8. References

AS 4100:1998

Australian Standard 4100:1998, Steel structures

BS 476

British Standard 47620:1987. Fire tests on building materials and structures. Method for determination of the fire resistance of elements of construction (general principles) BS 476-21:1987. Fire tests on building materials and structures. Methods for determination of the fire resistance of load bearing elements of construction

DIN EN 15804

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