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-20240377-IBA3-EN
Issue date	14.02.2025
Valid to	13.02.2030

HENSOTHERM® Service Transit

Rudolf Hensel GmbH

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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FIRE PROTECTION SYSTEMS

1. General Information

Rudolf Hensel GmbH

Programme holder

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

Declaration number

EPD-RHG-20240377-IBA3-EN

This declaration is based on the product category rules:

Concrete admixtures, 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® Service Transit

Owner of the declaration

Rudolf Hensel GmbH
Lauenburger Landstraße 11
21039 Börnsen
Germany

Declared product / declared unit

The declared product is HENSOTHERM® Service Transit. The declared unit refers to one unit of product. Packaging is included in the calculation. The declared unit is given in [kg]. The data of the embodiments is averaged over the number of units produced.

Scope:

This document refers to HENSOTHERM® Service Transit. 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® Service Transit consists of a high-density, crack-resistant plastic pipe that contains an intumescent lining made of graphite-based HENSOTHERM® 7 KS Gewebe, which expands when heated to seal off cavities around cables and pipes that pass through it. In addition, a ceramic wool plug prevents the passage of cold smoke and gases.
HENSOTHERM® Service Transit is a non-hazardous material according to GefStoffV (German Ordinance on Hazardous Substances), and is non-toxic, low-smoke, and contains no halogens.

HENSOTHERM® Service Transit is 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® Service Transit product in the EU / EFTA (with the exception of Switzerland). The product requires a Declaration of Performance in accordance with *ETA No. 22/0542* for HENSOTHERM® Service Transit and the corresponding CE marking. The respective national regulations apply for use.

2.2 Application

HENSOTHERM® Service Transit is an easy-to-install pre-assembled fire penetration seal solution designed to reinstate the fire resistance performance of flexible wall constructions, rigid wall constructions, and floor constructions where they are penetrated by cables and PVC pipes.

European Technical Assessment according to *EAD 350454-00-1104*: HENSOTHERM® Service Transit is rated as a fire protection and sealing product – penetration seal.

HENSOTHERM® Service Transit is tested in accordance with *EN 1366-3* for a fire-resistance period of up to 180 minutes.

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

HENSOTHERM® Service Transit is classified in accordance with *EN 13501-2*.

HENSOTHERM® Service Transit is classified in accordance with *ETA 22/0702* for use in a combination rigid penetration seal with gypsum-based fire protection mortar.

HENSOTHERM® Service Transit is classified in accordance with *ETA 23/0318* for use in a HENSOMASTIK® Acrylic cable penetration seal.

The specific construction elements in which a **HENSOTHERM® ST 250 (length 250 mm)** may be used as a fire barrier are:

The supporting construction must be classified in accordance with *EN 13501-2* for the required fire-resistance period.

1. Lightweight partition walls: In accordance with *EN 520*, the wall must have a minimum thickness of 100 mm and consist of a wooden or steel stud structure lined on both faces with at least two layers of 12.5 mm thick gypsum plaster boards, type F. Between the seal and the stud frame, a minimum distance of 100 mm must be maintained and the gap between the stud and the seal must be closed with at least 100 mm of insulation material of class A1 or A2 (according to *EN 13501-1*).

2. Solid walls: The wall must have a minimum thickness of 100 mm and be made of aerated concrete or concrete with a minimum density of 650 kg/m³.

3. Solid ceilings: The ceiling must have a minimum thickness of 150 mm and be made of aerated concrete or concrete with a minimum density of 650 kg/m³.

The specific construction elements in which a **HENSOTHERM® ST 400 (length 400 mm)** may be used as a fire barrier are:

1. Solid ceilings: The ceiling must have a minimum thickness of 200 mm and be made of aerated concrete or concrete with a minimum density of 650 kg/m³.

2.3 Technical Data

HENSOTHERM® Service Transit does not contain any hazardous substances above the limit values according to *REACH Regulation, Annex XVII.*

Structural data

Name	Value	Unit
Fire behaviour acc. to EN 13501-1	Construction material class E	-
Fire resistance acc. to EN 1366-3	EI 180	-
Durability acc. to EAD 350454-00-1104 | EOTA TR 024	X, Y1, Y2, Z1 and Z2	-
Sound insulation acc. to DIN EN 10140-1 | DIN EN 10140-2 | DIN EN ISO 717-1 | Rw max	66	dB
Sound insulation acc. to DIN EN 10140-1 | DIN EN 10140-2 | DIN EN ISO 717-1 | Rw (C; Ctr)	51 (-1; -3)	dB

The proportion of HENSOTHERM® 7 KS Gewebe in HENSOTHERM® Service Transit is an emission-rated fire protection fabric. Sampling, testing and evaluation were carried out in accordance with *AgBB* (German board for the health assessment of building products) and *Leed* in their respective current versions.

Product according to CPR with ETA:
Performance values of the HENSOTHERM® Service Transit product correspond to the Declaration of Performance with regard to its essential characteristics according to *ETA No. 22/0542* for HENSOTHERM® Service Transit and the corresponding CE marking. The respective national regulations apply for use. HENSOTHERM® Service Transit is a non-hazardous material according to *GefStoffV* (German Ordinance on Hazardous Substances), and is non-toxic, low-smoke, and contains no halogens.

2.4 Delivery status

HENSOTHERM® Service Transit is an easy-to-install pre-assembled fire penetration seal which is offered as single units in a cardboard outer packaging. The Service Transit is available in different diameters from 63 to 110 mm and different lengths from 250 to 400 mm. A ceramic wool plug is also included with every Service Transit.

2.5 Base materials/Ancillary materials

Name	Value	Unit
PE pipe	60 - 70	%
HENSOTHERM® 7 KS Gewebe 125 E	15 - 25	%
Ceramic wool	5 - 15	%

HENSOTHERM® 7 KS 125 mm is used, coated on one side and self-adhesive.

2.6 Manufacture

To produce the HENSOTHERM® Service Transit product, a high-density, unbreakable polyethylene plastic pipe is manually cut to the required length and then covered on the inside with HENSOTHERM® 7 KS Gewebe 125 mm, also manually. The inner volume is sealed with a ceramic wool plug. The fire protection solution is then packed in cardboard boxes.

For the HENSOTHERM® 7 KS Gewebe product, an in-house quality control is carried out after production of each batch. This includes product-related and fire protection-related quality features.
In addition to the factory inspection of HENSOTHERM® 7 KS Gewebe, official external monitoring of HENSOTHERM® Service Transit is carried out at regular intervals.

2.7 Environment and health during manufacturing

The preliminary products are stored in such a way that they cannot, according to human judgement, enter the environment. In addition to sufficiently dimensioned extraction systems, employees are provided with protective clothing and dust masks. Suitable personal protective equipment is also provided.

HENSOTHERM® Service Transit does not contain any substances subject to declaration according to *REACH Regulation, Annex XVII*, and the *ECHA Candidate List*.

2.8 Product processing/Installation

HENSOTHERM® Service Transit can be inserted precisely into concrete, masonry, or dry walls. Alternatively, the annular gap can be filled with HENSOMASTIK® Acrylic. As individual cables – even in the case of reassignments – are simply fed through the windings of the ceramic wool plug and no additional coating of the cables is required, smaller openings for electrical cables can be sealed off quickly and cost-effectively. HENSOTHERM® Service Transit is also suitable as a quick-to-install temporary or permanent fire protection barrier for core drillings during the construction phase.

Details on installation requirements can be found in the relevant technical data sheet (see www.rudolf-hensel.de).

2.9 Packaging

HENSOTHERM® Service Transit is packed in cardboard boxes.

2.10 Condition of use

A large number of electrical cables run inside buildings, especially in modern residential and office buildings. HENSOTHERM ® Service Transit is an easy-to-install, pre-assembled fire barrier for restoring the fire resistance of lightweight partition walls, solid walls and solid ceilings that are penetrated by cables and PVC electrical installation pipes. HENSOTHERM® Service Transit can also be used as a temporary solution during the construction phase or as an empty / standby penetration seal for later installations.

2.11 Environment and health during use

The HENSOTHERM® Service Transit product and its intumescent lining of HENSOTHERM® 7 KS Gewebe have certified low emissions, are environmentally- and user-friendly, and compliant with most common regulations or protocols for building materials.

2.12 Reference service life

The provisions made in this European Technical Assessment are based on an assumed working life of the HENSOTHERM® Service Transit of 10 years, provided that the conditions for the packaging, transport, storage, installation, use, and repair are met.

The indications given on the service life cannot be interpreted as a guarantee given by the manufacturer or the Technical Assessment Body, issued by the *ETA* on the basis of *EAD 350454-00-1104*, 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

The HENSOTHERM® Service Transit product contains HENSOTHERM® 7 KS Gewebe, an intumescent fabric tape based on expandable graphite. Intumescent materials such as expandable graphite, also known as 'intumescent agents', expand when exposed to heat and increase greatly in volume, forming a protective insulating layer that delays the passage of heat and can also seal cavities.
In the event of a fire, this feature means that pipe openings in walls and ceilings are sealed by the expanding insulation layer and no smoke gases or heat can penetrate into neighbouring rooms.

Fire protection

Name	Value
Building material class acc. to EN 13501-1	E
Fire resistance acc. to EN 1366-3	EI 180

Water

HENSOTHERM® Service Transit is a pre-assembled fire penetration seal for dry indoor areas / open halls and must not be exposed to permanent wetness.

Mechanical destruction

Minor damage to HENSOTHERM® Service Transit can be ignored. In the event of major damage, the HENSOTHERM® Service Transit product must be replaced.

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

2.14 Re-use phase

HENSOTHERM® Service Transit can be reused, even multiple times, provided that the HENSOTHERM® Service Transit product and its intumescent lining of HENSOTHERM® 7 KS Gewebe are not damaged.

Due to the organic content, HENSOTHERM® Service Transit has a material-inherent energy content that can be recovered in incineration plants.

In the event that HENSOTHERM® Service Transit is to be deposited separately, landfillability is guaranteed.

2.15 Disposal

The following waste code numbers must be taken into account:

AVV No. (recommended): 080199 Waste not otherwise specified

AVV No. (recommended): 150102 Plastic packaging

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 a fire protection pipe manufactured by Rudolf Hensel GmbH called HENSOTHERM® Service Transit. The declared unit refers to one unit of fire protection pipe. The packaging, based on one fire protection pipe, is also included in the calculation at 0.056 kg.

Declared unit and mass reference

Name	Value	Unit
Declared unit	0.465	kg
Gross density	-	kg/m^3

3.2 System boundary

Type of EPD: Cradle to gate with modules C1-C4 and module D. The following information modules are defined as system boundaries in this study:

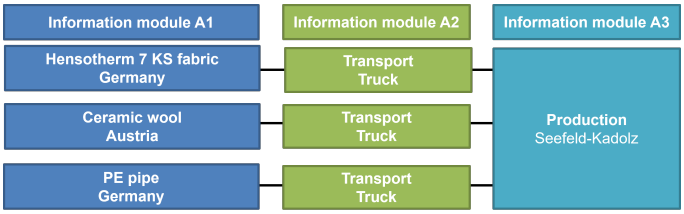
Production stage (A1- A3):
A1: Raw material extraction
A2: Transport to the manufacturer
A3: Production

End of Life (C1-C4):
C1: Dismantling/demolition
C2: Transport
C3: Waste treatment C4: Disposal

Reuse, recovery and recycling potential (D)

In order to accurately record the indicators and environmental impacts of the declared unit, a total of 8 information modules are analysed. Information modules A1 to A3 describe the provision of materials, transport to the production site, and the production processes for the product itself.

The primary products are sourced from the European Union. Transport is by truck. The following flow charts illustrate the underlying production process.



1 Information modules A1 to A3 of the product

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 Seefeld-Kadolz manufacturing plant in Austria 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 from the injection-moulded components is thermally recycled. 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. The cardboard packaging contains biogenic carbon.

Information describing the biogenic carbon content at the plant gate

Name	Value	Unit
Biogenic carbon in the product	-	kg C
Biogenic carbon content in accompanying packaging	0.004	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

End of Life (C1-C4)

Demolition of the fire protection pipe from the building is calculated in information module C1. The fire protection fabric can be removed by hand. A transport distance of 50 km to the nearest waste treatment plant is assumed.

Name	Value	Unit
Collected separately waste type	0.465	kg
Energy recovery	0.451	kg

The material lost during the process is shredder light fraction and is disposed of.

Reuse, recovery and recycling potential (D)

No reuse, recovery and recycling potentials arise in this calculation. The information module D is therefore declared and shown as zero.

5. LCA: Results

Thermal utilisation produces electrical and thermal energy.
The thermal energy of 1.22 MJ and the electrical energy of 0.525 MJ are declared in module 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: 0,465 kg HENSOTHERM® Service Transit

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO_2 eq	1.49E+00	0	2.27E-03	5.88E-02	0	0
Global Warming Potential fossil fuels (GWP-fossil)	kg CO_2 eq	1.48E+00	0	2.23E-03	5.88E-02	0	0
Global Warming Potential biogenic (GWP-biogenic)	kg CO_2 eq	0	0	0	0	0	0
Global Warming Potential luluc (GWP-luluc)	kg CO_2 eq	7.79E-03	0	3.61E-05	4.06E-05	0	0
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	1.62E-09	0	2.16E-16	6.06E-13	0	0
Acidification potential of land and water (AP)	mol H^+ eq	2.21E-02	0	1.09E-05	1.16E-04	0	0
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	1.73E-04	0	9.16E-09	3.73E-08	0	0
Eutrophication potential aquatic marine (EP-marine)	kg N eq	7.22E-03	0	5.26E-06	7.92E-05	0	0
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	5.92E-02	0	5.86E-05	9.83E-04	0	0
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	7.26E-03	0	1.05E-05	1.86E-04	0	0
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	1.19E-06	0	1.82E-10	2.27E-09	0	0
Abiotic depletion potential for fossil resources (ADPF)	MJ	1.86E+01	0	2.8E-02	2.41E+00	0	0
Water use (WDP)	m^3 world eq deprived	2.25E+00	0	3.2E-05	6.67E-02	0	0

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 0,465 kg HENSOTHERM® Service Transit

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	3.16E+01	0	2.37E-03	9.58E-02	0	0
Renewable primary energy resources as material utilization (PERM)	MJ	8.4E-01	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	3.24E+01	0	2.37E-03	9.58E-02	0	0
Non renewable primary energy as energy carrier (PENRE)	MJ	3.14E+00	0	2.8E-02	-1.74E+01	0	0
Non renewable primary energy as material utilization (PENRM)	MJ	1.54E+01	0	0	1.5E+01	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	1.86E+01	0	2.8E-02	-2.41E+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	7.08E-02	0	2.66E-06	1.41E-03	0	0

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 0,465 kg HENSOTHERM® Service Transit

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	5.18E-09	0	9.06E-13	8.51E-12	0	0
Non hazardous waste disposed (NHWD)	kg	2.23E-01	0	4.36E-06	3.33E-02	0	0
Radioactive waste disposed (RWD)	kg	4.24E-04	0	3.62E-08	-1.67E-04	0	0
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	4E-02	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	5.25E-01	0	0
Exported thermal energy (EET)	MJ	0	0	0	1.22E+00	0	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 0,465 kg HENSOTHERM® Service Transit

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

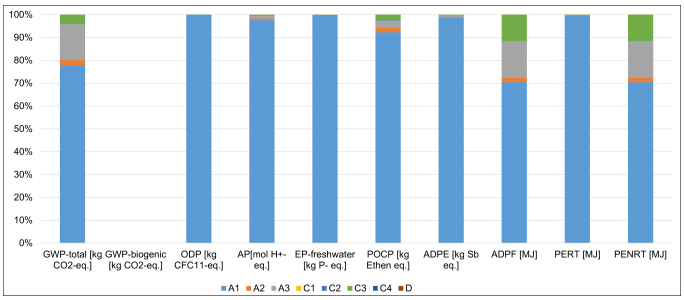
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	ND	ND	ND	ND	ND	ND
Soil quality index (SQP)	SQP	ND	ND	ND	ND	ND	ND

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.

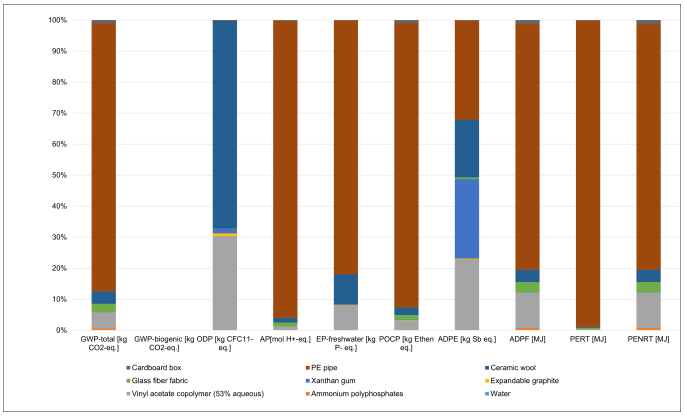
6. LCA: Interpretation

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. 78% and approx. 15% for production, based on all information modules.

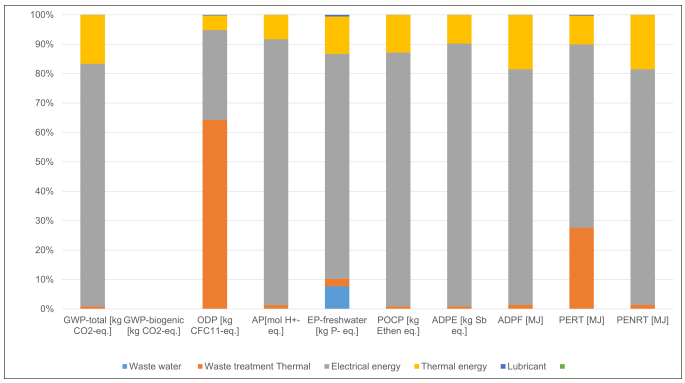


Looking at the material provision of the fire protection pipe and the packaging in detail, it becomes clear which raw materials make a decisive contribution to the respective environmental impacts and indicators.

The PE pipe accounts for approx. 84% and the vinyl acetate copolymer (53% aqueous) for approx. 5% of the total global warming potential in information module A1. Ceramic wool accounts for approx. 5%.



Information module A3 clearly shows that approx. 81% of the total global warming potential is caused by the electrical energy and approx. 17% by the thermal energy.



7. Requisite evidence

Test report from Eco-Institut Germany GmbH:

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

Name	Value	Unit
SVOC without LCI	< 5,0	µg/m³
VOC	< 5,0	µg/m³
R (dimensionless)	< 1	-

HENSOTHERM® 7 KS Gewebe: *Report no. B53008-001* dated 09 April 2018

The emission values were determined directly after application of the coating materials.

French VOC labelling regulation: Emission class **A**

French *KMR emissions regulation*. Criteria fulfilled: yes

HENSOTHERM® 7 KS Gewebe: *Report no. B53008-001* dated 30 May 2018 and *no. 53008-001II* dated 09 April 2018

Test report of the Prüfzentrum für Bauelemente KG:

Airborne sound insulation test in accordance with DIN EN 10140

Name	Value	Unit
Rw max	60	dB
Rw (C; Ctr)	51 (-1; -3)	dB
Dn,e,w (C; Ctr)	61 (-1; -3)	dB

HENSOTHERM® Service Transit: *Report no. 2021-05-0572-K2* dated 17 January 2022

8. References

DIN EN 10140
DIN EN 10140-1:2021-9, Acoustics – Laboratory measurement of sound insulation of building elements – Part 1: Application rules for specific products DIN EN 10140-2:2021-9, Acoustics – Laboratory measurement of sound insulation of building elements – Part 2: Measurement of airborne sound insulation

EN 15804
EN 15804:2019-04+A2+AC:2021, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products

DIN EN ISO 717
DIN EN ISO 717-1:2021-05, Acoustics – Evaluation of sound insulation in buildings and of building elements – Part 1

DIN EN ISO 14025
DIN EN ISO 14025:2011-10, Environmental labels and declarations – Type III environmental declarations

DIN EN ISO 14040
DIN EN ISO 14040:2021-02, Environmental management – Life cycle assessment – Principles and framework

DIN EN ISO 14044
DIN EN ISO 14044:2021-02, Environmental management – Life cycle assessment – Requirements and guidelines

EN 520
EN 520:2009-12, Gypsum plasterboards – Definitions, requirements and test methods

EN 1366
EN 1366:2022-05, Fire resistance tests for installations – Part 3: Penetration seals

EN 13501
EN 13501-1:2019, Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests
EN 13501-2:2016, Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance and/or smoke control tests, excluding ventilation services

ISO 16000
ISO 16000-3:2023, Indoor air – Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air – Active sampling method
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