SENTINEL HOLDING
INSTITUT

SHI PRODUCT PASSPORT

Find products. Certify buildings.

SHI Product Passport No.:

2765-10-1017

Chemische Befestigungen - Hochleistungsmörtel

Product group: Shell construction / Basement - Plaster / Mortar

fischer

fischerwerke GmbH & Co. KG
Klaus-Fischer-Straße 1
72178 Waldachtal

Product qualities:

- SHI Product Assessment 2024
- QNG Qualitätssiegel Nachhaltiges Gebäude
- DGNB NEW CONSTRUCTION 2023
- DGNB NEW CONSTRUCTION 2018
- BNB-BN NEUBAU V2015
- EU TAXONOMY
- BREEAM DE NEUBAU 2018
- LEED v4.1 (outside US)

CERTIFIED SUSTAINABLE PRODUCT
SHI PRODUCT PASSPORT
SENTINEL HOLDING INSTITUT
www.sentinel-holding.eu

Köttner

Helmut Köttner
Scientific Director
Freiburg, 03 August 2026

Product:
Chemische Befestigungen - Hochleistungsmörtel

SHI Product Passport no.:
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The SHI Database is the first and only database for construction products whose comprehensive processes and data accuracy are regularly verified by the independent auditing company SGS-TÜV Saar

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SHI Product Assessment 2024

Since 2008, Sentinel Holding Institut GmbH (SHI) has been establishing a unique standard for products that support healthy indoor air. Experts carry out independent product assessments based on clear and transparent criteria. In addition, the independent testing company SGS regularly audits the processes and data accuracy.

Criteria	Product category	Assessment
SHI Product Assessment		Indoor Air Quality Certified
Valid untill: 07 April 2027		

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Chemische Befestigungen - Hochleistungsmörtel

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QNG - Qualitätssiegel Nachhaltiges Gebäude

The Qualitätssiegel Nachhaltiges Gebäude (Quality Seal for Sustainable Buildings), developed by the German Federal Ministry for Housing, Urban Development and Building (BMWSB), defines requirements for the ecological, socio-cultural, and economic quality of buildings. The Sentinel Holding Institut evaluates construction products in accordance with QNG requirements for certification and awards the QNG ready label. Compliance with the QNG standard is a prerequisite for eligibility for the KfW funding programme. For certain product groups, the QNG currently has no specific requirements defined. Although classified as not assessment-relevant, these products remain suitable for QNG-certified projects.

Criteria	Pos. / product group	Considered substances	QNG assessment
3.1.3 Schadstoffvermeidung in Baumaterialien			QNG ready - Not relevant for assessment

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DGNB New Construction 2023

The DGNB System (German Sustainable Building Council) assesses the sustainability of various types of buildings. It can be applied to both large-scale private and commercial projects as well as smaller residential buildings. The 2023 version sets high standards for ecological, economic, socio-cultural, and functional aspects throughout the entire life cycle of a building.

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact, 03.05.2024 (3rd edition)	not applicable		Not relevant for assessment

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact, 29.05.2025 (4th edition)	not applicable		Not relevant for assessment

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Product:
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DGNB New Construction 2018

The DGNB System (German Sustainable Building Council) assesses the sustainability of various types of buildings. It can be applied to both large-scale private and commercial projects as well as smaller residential buildings.

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact	not applicable	not applicable	Not relevant for assessment

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Chemische Befestigungen - Hochleistungsmörtel

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BNB-BN Neubau V2015

The Bewertungssystem Nachhaltiges Bauen (Assessment System for Sustainable Building) is a tool for evaluating public office and administrative buildings, educational facilities, laboratory buildings, and outdoor areas in Germany. The BNB was developed by the former Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and is now overseen by the Federal Ministry for Housing, Urban Development and Building (BMWSB).

Criteria	Pos. / product type	Considered substance group	Quality level
1.1.6 Risiken für die lokale Umwelt			Not relevant for assessment

Product:
Chemische Befestigungen - Hochleistungsmörtel

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EU taxonomy

The EU Taxonomy classifies economic activities and products according to their environmental impact. At the product level, the EU regulation defines clear requirements for harmful substances, formaldehyde and volatile organic compounds (VOCs). The Sentinel Holding Institut GmbH labels qualified products that meet this standard.

Criteria	Product type	Considered substances	Assessment
DNSH - Pollution prevention and control		Substances according to Annex C	compliant
Verification: EPD EPD-DBC-FIW-20220088-IBE2-DE, Konformitätserklärung 07.07.2025			

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BREEAM DE Neubau 2018

BREEAM (Building Research Establishment Environmental Assessment Methodology) is a UK-based building assessment system that evaluates the sustainability of new constructions, refurbishments, and conversions. Developed by the Building Research Establishment (BRE), the system aims to assess and improve the environmental, economic, and social performance of buildings.

Criteria	Product category	Considered substances	Quality level
Hea 02 Indoor Air Quality			Not relevant for assessment

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Product:
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LEED v4.1

LEED (Leadership in Energy and Environmental Design) is an internationally recognised building certification system developed by the U.S. Green Building Council. It is one of the most widely used sustainability standards for buildings worldwide and is particularly applied in internationally oriented projects. LEED assesses buildings holistically across categories such as energy efficiency, resource conservation, material selection, indoor environmental quality and site sustainability. Depending on the number of points achieved, projects are awarded one of the certification levels: LEED Certified, Silver, Gold or Platinum.

Criteria	Product category	Considered substances	Assessment
EQ Credit: Low-Emitting Materials			Not relevant for assessment

Product:
Chemische Befestigungen - Hochleistungsmörtel

SHI Product Passport no.:
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Product labels

In the construction industry, high-quality materials are crucial for a building's indoor air quality and sustainability. Product labels and certificates offer guidance to meet these requirements. However, the evaluation criteria of these labels vary, and it is important to carefully assess them to ensure products align with the specific needs of a construction project.

Products bearing the Sentinel Holding Institute QNG-ready seal are suitable for projects aiming to achieve the "Qualitätssiegel Nachhaltiges Gebäude" (Quality Seal for Sustainable Buildings). QNG-ready products meet the requirements of QNG Appendix Document 3.1.3, "Avoidance of Harmful Substances in Building Materials." The KfW loan program Climate-Friendly New Construction with QNG may allow for additional funding.

This product is SHI Indoor Air Quality certified and recommended by Sentinel Holding Institut. Indoor-air-focused construction, renovation, and operation of buildings is made possible by transparent and verifiable criteria thanks to the Sentinel Holding concept.

The Kiwa Ecobility Experts (Kiwa-EE) are an internationally oriented Type III Environmental Product Declaration (EPD) program operator, validating, verifying, and publishing Environmental Product Declarations (EPDs) in accordance with the requirements of ISO 14025 as well as additional standards like EN 15804 and other industry-specific rules.

Product:
Chemische Befestigungen - Hochleistungsmörtel

SHI Product Passport no.:
2765-10-1017

fischer

Legal notices

(*) These criteria apply to the construction project as a whole. While individual products can positively contribute to the overall building score through proper planning, the evaluation is always conducted at the building level. The information was provided entirely by the manufacturer.

Find our criteria here: https://www.sentinel-holding.eu/de/Themenwelten/Pr%C3%BCfkriterien%20f%C3%BCr%20Produkte

The SHI Database is the first and only database for construction products whose comprehensive processes and data accuracy are regularly verified by the independent auditing company SGS-TÜV Saar

SGS TÜV SAAR

Publisher

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Environmental Product Declaration (EPD)
According to ISO 14025 and EN 15804+A2

fischer injection mortars based on vinyl ester resin

FIS V Plus, FIS VW Plus, FIS VS Plus, FIS VL, T-Bond Pro.1, FIS AB, FIS C 700 HP Pro.1, FIS HT II, FIS HB, FIS SB, FIS RC II, FIS RC II Low Speed



Registration number:	EPD-Kiwa-EE-000431-EN
Issue date:	23.05.2025
Valid until:	23.05.2030
Declaration owner:	fischerwerke GmbH & Co. KG
Publisher:	Kiwa-Ecobility Experts
Program operator:	Kiwa-Ecobility Experts
Status:	verified

1 General information

1.1 PRODUCT

fischer injection mortars based on vinyl ester resin (FIS V Plus, FIS VW Plus, FIS VS Plus, FIS VL, T-Bond Pro.1, FIS AB, FIS C 700 HP Pro.1, FIS HT II, FIS HB, FIS SB, FIS RC II, FIS RC II Low Speed). This is an average EPD that applies to several different products with chemically similar formulations.

1.2 REGISTRATION NUMBER

EPD-Kiwa-EE-000430-EN

1.3 VALIDITY

Issue date: 23.05.2025

Valid until: 23.05.2030

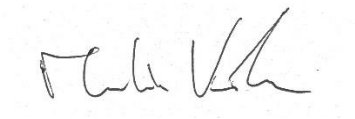
1.4 PROGRAM OPERATOR

Kiwa-Ecobility Experts
Wattstraße 11-13
13355 Berlin
Germany



Raoul Mancke

(Head of program operations, Kiwa-Ecobility Experts)



Martin Köhrer

(Verification body, Kiwa-Ecobility Experts)

1.5 OWNER OF THE DECLARATION

Declaration owner: fischerwerke GmbH & Co.KG

Address: Klaus-Fischer-Strasse 1, 72178 Waldachtal, GERMANY

E-mail: info@fischer.de

Website: fischer-international.com

Production location: fischerwerke GmbH &.Co. KG

Address production location: Otto-Hahn-Strasse 15, 79211 Denzlingen, GERMANY

1.6 VERIFICATION OF THE DECLARATION

The independent verification is in accordance with the ISO 14025:2011. The LCA is in compliance with ISO 14040:2006 and ISO 14044:2006. The EN 15804:2012+A2:2019 serves as the core PCR.

☐ Internal ☒ External



Dr. -Ing. Morteza Nikravan
(Third party verifier)

1.7 STATEMENTS

The owner of this EPD shall be liable for the underlying information and evidence. The program operator Kiwa-Ecobility Experts shall not be liable with respect to manufacturer data, life cycle assessment data and evidence.

1.8 PRODUCT CATEGORY RULES

Kiwa-EE GPI R.2.0

Kiwa-EE GPI R.2.0 Annex B1

Insititut Bauen und Umwelt e. V. – PCR Part A Version 1.4: Calculation rules for the life cycle assessment and requirements for the project report according to EN 15804+A2:2022-11. [IBU, 2024]

Insititut Bauen und Umwelt e. V. – PCR Part B: Requirements for the EPD for reactive resin products [IBU, 2021b]

1.9 COMPARABILITY

In principle, a comparison or assessment of the environmental impacts of different products is only possible if they have been prepared in accordance with EN 15804. For the evaluation of the comparability, the following aspects have to be considered in particular: PCR used, functional or declared unit, geographical reference, the definition of the system boundary, declared modules, data selection (primary or secondary data, background database, data quality), scenarios used for use and disposal phases, and the life cycle inventory (data collection, calculation methods, allocations, validity period). PCRs and general program instructions of different EPDs programs may differ. Comparability needs to be evaluated. For further guidance, see EN 15804+A2 (5.3 Comparability of EPD for construction products) and ISO 14025 (6.7.2 Requirements for comparability).

1.10 CALCULATION BASIS

LCA method R<THiNK: Ecobility Experts | EN15804+A2

LCA software: Sphera database

Characterization method: EN 15804 +A2 Method with characterization factors based on the EF Reference Package 3.1 (EN 15804 XLS file)

LCA database profiles: Managed LCA Content MLC database

Version database: Version 2024.2

1.11 LCA BACKGROUND REPORT

This EPD is generated based on the following report: Life cycle assessment for the creation of two environmental product declarations (EPDs) for injection mortar filled in 2-component plastic cartridges. Report creator: SKZ - KFE gGmbH.

2 Product

2.1 PRODUCT DESCRIPTION

The declared products are 2-component injection mortars in plastic cartridges which consist of a component A and a hardener component B. Component A consists of a vinyl ester resin mixture. Dibenzoyl peroxide is generally used as hardener in component B. In addition, the product may contain fillers, ancillary materials and additives.

The injection mortar with product designation FIS V Plus, FIS VW Plus, FIS VS Plus, FIS VL, T-Bond Pro.1, FIS AB, FIS C 700 HP Pro.1, FIS HT II, FIS HB, FIS SB, FIS RC II, FIS RC II Low Speed are products in 150 ml, 300 ml, 360 ml, 390 ml, 410 ml, 585 ml, 825 ml and 1500 ml cartridge sizes. EU regulation no. 305/2011/ (CPR) applies for placing the product on the market in the EU/EFTA (with the exception of Switzerland). The product requires a declaration of performance taking into account the ETA, CE and respective national standards which can be accessed on the single product websites.

Product specification

All products share the same raw material feedstock but differ from each other in their composition. The following are average specifications that apply to all products.

The composition of the product is described in the following table:

Materials Component A	**Weight [m-%]**
Vinyl ester resin mixture	30 – 40
Inorganic fillers	55 - 70
Others	< 5
Materials Component B	**Weight [m-%]**
Dibenzoyl peroxide	5 – 25
Pasting agent (e. g. water or organic liquid)	20 – 30
Inorganic fillers	40 – 70
Others	< 5

2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

Vinyl ester based mortars are for example recommended for anchorings with the highest load-bearing capacity in cracked and non-cracked concrete and for applications of seismic performance categories C1 and C2. They are also suitable for applications in masonry, high-rise racks and heavy indoor or outdoor steel constructions. The injection mortar is processed with approved system components and also with reinforcing steel bars. It can also be used for diamond-drilled and water-filled drill holes.

2.3 REFERENCE SERVICE LIFE (RSL)

No modules from the use phase have been declared. No reference service life is stated for this reason.

USED RSL (YR) IN THIS CALCULATION

The use phase was not considered, which is why no information on the RSL is required.

2.4 TECHNICAL DATA

This is an average EPD that applies to two different products with the same chemical formulations filled in 2 cartridge sizes. This is an average EPD that applies to several different products with chemically similar formulations:

FIS V Plus, FIS VW Plus, FIS VS Plus, FIS VL, T-Bond Pro.1, FIS AB, FIS C 700 HP Pro.1, FIS HT II, FIS HB, FIS SB, FIS RC II, FIS RC II Low Speed are products in 150 ml, 300 ml, 360 ml, 390 ml, 410 ml, 585 ml, 825 ml and 1500 ml cartridge sizes.

Description	**Unit**	**Value**
Density	Kg/m³	1,75
Tensile shear strength DIN EN 14293	N/mm²	-
Tensile bond strength DIN EN 14293	N/mm²	-

Shear strength and adhesive tensile strength in accordance with DIN EN 14293 are not relevant for this product.

2.5 SUBSTANCES OF VERY HIGH CONCERN

The product contains no substances on the Candidate List of substances of very high concern for authorization (Substances of Very High Concern – SVHC) at a concentration of above 0.1 % mass.

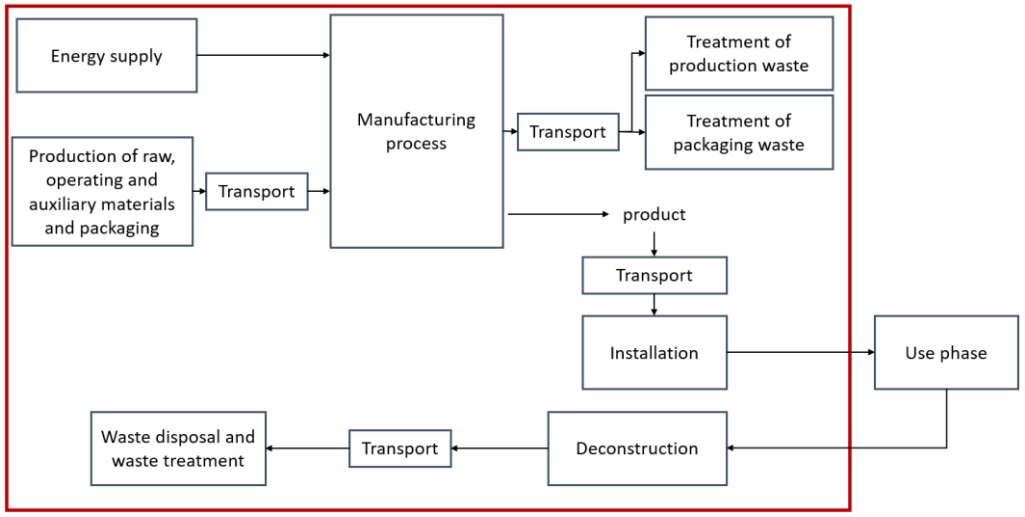
2.6 DESCRIPTION PRODUCTION PROCESS

The products to be declared are 2-component reaction resin systems, which consist of a hardener and a mortar mass. The two components are produced in separate processes: the respective raw materials, operating and auxiliary materials are weighed gravimetrically into a mixer, homogenized by mixing and then made available for the filling process. After a successful quality control, both components are automatically filled into a previously injection-moulded and labelled cartridge.

fischerwerke GmbH & Co. KG has a high level of vertical integration. Not only all plastic parts such as cartridges, pistons and static mixers, but also the labels for the cartridges and outer packaging are produced in-house.

Product Flow Diagram

The LCA considers the product stage (A1-A3), the construction stage (A4-A5), the disposal stage (C1-C4) and benefits and loads outside the system boundary (Module D). Modules A1 (provision of raw materials), A2 (transportation) and A3 (production) are aggregated in the assessment as modules A1-A3.



Modules A1 - A3 comprise the following activities:

- Provision of energy
- Provision of raw, operating and auxiliary materials and packaging
- Transportation to the plant
- Production of injection mortar
- Treatment of production waste
- Treatment of packaging waste from raw materials

Module A4 includes:

- Transportation to the construction site

Module A5 includes:

- Installation process/ disposal of product packaging

Module C1 includes:

- Dismantling

Module C2 includes:

- Transportation to the waste disposal site

Module C3 – C4 includes:

- End-of-life scenarios
  - Scenario 0: Landfill of the product
  - Scenario 1: thermal treatment of the product

Module D includes:

- Benefits and loads outside the system boundary

2.7 CONSTRUCTION DESCRIPTION

The products are installed manually. Once the mortar material has been fully used, the cartridge (in module A5) is disposed to waste.

3 Calculation rules

3.1 DECLARED UNIT

The declared unit is 1 kg injection mortar mass. The assessed production volume is based on information provided by the manufacturer. Overall, it is assumed that the data is representative and consistent. The product to be declared is an injection mortar filled in 2-component plastic cartridges, each consisting of a component A (mortar), a hardener component B (hardener), a plastic cartridge and a static mixer. Usually, 2 static mixers are supplied with each product cartridge.

3.2 CONVERSION FACTORS

Description	Value	Unit
Reference unit	1	kg
Weight per reference unit	1	kg

3.3 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

The system boundary was chosen “from the cradle to the factory gate with options”. Accordingly, the consideration includes the production stage (A1-A3), transportation to the place of use (A4), installation (A5) and the disposal stages (C1-C4) as well as benefits and loads outside the system boundary (D). The life cycle is modular in accordance with EN 15804.

The life cycle stages included are as shown below:

(X = module declared, ND = module not declared)

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

The modules of the EN15804+A2 contain the following:

Module A1 = Raw material supply	Module B5 = Refurbishment
Module A2 = Transport	Module B6 = Operational energy use
Module A3 = Manufacturing	Module B7 = Operational water use
Module A4 = Transport	Module C1 = De-construction / Demolition
Module A5 = Construction, treatment of packaging waste	Module C2 = Transport
Module B1 = Use	Module C3 = Waste Processing
Module B2 = Maintenance	Module C4 = Disposal
Module B3 = Repair	Module D = Benefits and loads beyond the product system boundaries
Module B4 = Replacement	

3.4 REPRESENTATIVENESS

This EPD is representative for injection mortarts which consists of a vinyl ester resin mixture, a product of fischerwerke GmbH & Co. KG.

Information on modules A1-A3 comes directly from the manufacturer. The geographical representativeness of modules A1-A3 can be classified as very good.

The manufacturer distributes its products throughout Europe. European data sets were used for modules A4-A5 and EoL modules C1-C4 and D. The geographical representativeness of these modules can be classified as good.

3.5 CUT-OFF CRITERIA

Due to their very low relevance, the following processes were not considered:

- In the case of multiple-use packaging, the manufacturing and waste treatment processes were not considered. The resulting emissions would have been allocated to all products that were packaged with it during their lifetime, which leads to a low relevance of this aspect.

Based on the detailed data collection of the manufacturer's data, it can be assumed that no significant mass or energy flows have been neglected. The total cut-off percentage is < 1.0% of the mass fraction in relation to the declared unit.

3.6 ALLOCATION

No co-products are produced during the manufacture of plastic insulation materials (modules A1-A3). Therefore, no co-product allocation was necessary for foreground processes.

Energy, auxiliary and operating materials and waste during the production of injection mortar (modules A1-A3) were recorded at plant level. Electricity consumption is recorded on a plant or machine-specific basis but must be allocated to the products. Allocation is based on the produced mass.

In addition, various operating and auxiliary materials are used, i.e. lubricants and cleaning agents, for which there is no product-specific recording of consumption. These are also allocated by mass.

3.7 DATA COLLECTION & REFERENCE TIME PERIOD

Primary data including all raw materials, packaging materials, energy consumption and ancillary materials was comprehensively collected for the reference year from 2024.01.01 to 2024.12.31.

3.8 ESTIMATES AND ASSUMPTIONS

3.8.1. TRANSPORT TO CONSTRUCTION SITE (A4)

No manufacturer-specific data is available for transportation to the construction site (Module A4). Transportation to construction sites takes place over a distance of 434 km, based on statistical back-ground data for the average truck transport of plastic products [Ecoinvent, 2019].

3.8.2. ASSEMBLY (A5)

The products are installed manually. For this reason, in Module A5 only the transportation and waste treatment of packaging waste and cartridge to the waste treatment are considered. Transport by truck with a total weight of 32 t over a transport distance of 77 km are assumed. This corresponds to the Ecoinvent background data for transportation of non-hazardous waste [Ecoinvent, 2019]. The benefits resulting from the incineration of packaging waste were considered in Module D in accordance with PCR Part A Version 1.4 (Institute Bauen und Umwelt e. V. IBU). It is assumed that 100 % of the product packaging waste and the cartridge are thermally treated. The thermal and electrical energy generated and exported are declared outside the system boundary in Module D as a benefit of subsequent use.

3.8.3. DE-CONSTRUCTION, DEMOLITION (C1)

The information in the previously published EPD EPD-FIS-20130268-IBG1-EN was used for the life cycle assessment of dismantling. An energy consumption of 0,0033 kWh/d. U. during disassembly was considered.

3.8.4. TRANSPORT END-OF-LIFE (C2)

The dismantled products are transported to a waste incineration plant for thermal recycling or to were disposed on a landfill. The transportation distance corresponds with the Ecoinvent background data for transportation of non-hazardous waste and is 77 km [Ecoinvent, 2019].

3.9 DATA QUALITY

Background data was taken exclusively from the Sphera database Version 2024.2 with the database MLC (Managed LCA Content).

Quality requirement	Specific requirement	Data quality level	Notes
Time-related coverage	Age of data and minimum time period for data collection.	The collected data is from the year 2024. The temporal representativeness is less than 3 years	Very good
Geographical coverage	Upstream: Unit process for raw material should be collected for respective geographic region	Supplier data was collected and considered geographically in the model.	Very good
	Core: Unit process for production should represent the real site.	Specific data from the corresponding production site where the injection mortar and the cartridges are manufactured was used.	Very good
	Downstream: End-of-life disposal should represent the region of disposal.	Two EoL scenarios (thermal treatment and landfill) were compared. European data sets were used.	good
Technical representa-tiveness	Qualitative assessment of the degree to which the data set reflects the true population of interest (technology)	The specific data on the manufacture of the considered injection mortar and cartridges were provided by the company fischerwerke. They were determined on the actual systems and processes used for production.	Very good

3.10 POWER MIX

According to the manufacturer, in 2024 green electricity from hydropower with guarantee of origin, own PV systems, energy from CHP as well as purchased electricity are used to produce the injection mortars and cartridges. Purchased electricity were considered with the use of residual mix of 2023. The composition of the residual mix for Germany was based on data from the Association of Issuing Bodies (AIB). The GWP value of the electricity mix amounts about 0.193 kg CO_2 per kWh. A location-based approach is used for the electricity data.

The average German electricity mix from the “Managed LCA Content” (MLC) database is used for processes that affect the following modules (A5, C1, C3, C4, D).

4 Scenarios and additional technical information

4.1 END OF LIFE (C3, C4)

Two end of life scenarios are considered during this study:

- Scenario 0: Landfill (module C3 and C4) - It is assumed that 100 % of the product is disposed at the landfill.
- Scenario 1: thermal treatment (module C3/1 and C4/1) - It is assumed that 100 % of the products are disposed thermally. For this reason, incineration of the end-of-life product is considered.

4.2 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY (D)

Scenario 0: In module D the benefits outside the system boundary are considered, through the incineration of packaging waste and cartridges in module A5.

Scenario 1: In module D/1 the benefits outside the system boundary are considered, through the incineration of packaging waste and cartridges in module A5 and the incineration of the product at in module C3/1.

5 Results

For the impact assessment, the characterization factors of the LCIA method EN 15804 +A2 Method v1.0 are used. Long-term emissions (>100 years) are not considered in the impact assessment. The results of the impact assessment are only relative statements that do not make any statements about endpoints of the impact categories, exceedance of threshold values, safety margins or risks. The following tables show the results of the indicators of the impact assessment, of the use of resources as well as of waste and other output flows.

5.1 ENVIRONMENTAL IMPACT INDICATORS PER [enter reference unit (e.g. kilogram)]

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbreviation	Unit	A1-A3	A4	A5	C1	C2	C3	C3/1	C4	C4/1	D	D/1
AP	mol H^+ eqv.	3.64E-03	4.94E-05	1.23E-04	1.91E-06	1.14E-05	1.33E-05	2.40E-04	1.02E-04	0.00E+00	-2.92E-04	-3.76E-04
GWP-total	kg CO_2 eqv.	2.22E+00	4.22E-02	7.20E-01	9.95E-04	6.92E-03	2.69E-03	1.01E+00	1.45E-02	0.00E+00	-3.01E-01	-3.56E-01
GWP-b	kg CO_2 eqv.	-9.03E-02	2.35E-04	9.03E-02	8.87E-06	3.86E-05	0.00E+00	1.41E-04	0.00E+00	0.00E+00	-1.18E-03	-1.55E-03
GWP-f	kg CO_2 eqv.	2.31E+00	4.11E-02	6.29E-01	9.86E-04	6.75E-03	2.65E-03	1.01E+00	1.44E-02	0.00E+00	-3.00E-01	-3.54E-01
GWP-luluc	kg CO_2 eqv.	2.67E-03	7.91E-04	3.20E-05	1.50E-07	1.30E-04	3.59E-05	1.69E-04	8.62E-05	0.00E+00	-2.57E-05	-3.24E-05
EP-m	kg N eqv.	1.11E-03	1.78E-05	2.49E-05	4.76E-07	4.51E-06	6.11E-06	8.49E-05	2.63E-05	0.00E+00	-9.20E-05	-1.14E-04
EP-fw	kg P eqv.	8.22E-06	1.12E-07	2.19E-08	4.09E-09	1.84E-08	1.03E-08	2.93E-07	3.27E-08	0.00E+00	-4.35E-07	-6.00E-07
EP-T	mol N eqv.	1.25E-02	2.12E-04	5.76E-04	4.98E-06	5.32E-05	6.76E-05	1.11E-03	2.89E-04	0.00E+00	-9.90E-04	-1.23E-03
ODP	kg CFC 11 eqv.	6.56E-12	1.30E-14	7.77E-14	2.24E-14	2.13E-15	4.79E-15	7.31E-13	3.88E-14	0.00E+00	-2.32E-12	-3.22E+02
POCP	kg NMVOC eqv	4.07E-03	4.96E-05	6.69E-05	1.26E-06	1.10E-05	1.69E-05	2.32E-04	8.04E-05	0.00E+00	-2.63E-04	-3.23E-04
ADP-f	MJ	5.40E+01	5.40E-01	1.38E-01	2.07E-02	8.87E-02	4.97E-02	1.12E+00	1.90E-01	0.00E+00	-5.28E+00	-6.34E+00
ADP-mm	kg Sb-eqv.	2.04E-06	7.00E-09	8.93E-10	1.85E-10	1.15E-09	2.78E-09	1.01E-08	9.31E-10	0.00E+00	-2.35E-08	-3.12E-08
WDP	m^3 world eqv.	8.69E-02	2.95E-04	6.70E-02	2.73E-04	4.84E-05	5.08E-04	1.62E-01	1.65E-03	0.00E+00	-2.85E-02	-3.94E-02

AP=Acidification (AP) | **GWP-total**=Global warming potential (GWP-total) | **GWP-b**=Global warming potential - Biogenic (GWP-b) | **GWP-f**=Global warming potential - Fossil (GWP-f) | **GWP-luluc**=Global warming potential - Land use and land use change (GWP-luluc) | **EP-m**=Eutrophication marine (EP-m) | **EP-fw**=Eutrophication, freshwater (EP-fw) | **EP-T**=Eutrophication, terrestrial (EP-T) | **ODP**=Ozone depletion (ODP) | **POCP**=Photochemical ozone formation - human health (POCP) | **ADP-f**=Resource use, fossils (ADP-f) | **ADP-mm**=Resource use, minerals and metals (ADP-mm) | **WDP**=Water use (WDP)

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbreviation	Unit	A1-A3	A4	A5	C1	C2	C3	C3/1	C4	C4/1	D	D/1
ETP-fw	CTUe	2,17E+01	4,19E-01	6,04E-02	6,00E-03	6,88E-02	3,46E-02	3,68E-01	1,09E-01	0,00E+00	-6,65E-01	-9,09E-01
PM	Disease incidence	3.28E-08	4.73E-10	7.69E-10	1.59E-11	9.57E-11	2.61E-10	4.78E-09	1.28E-09	0.00E+00	-2.39E-09	-3.08E-09
HTP-c	CTUh	6,21E-10	8,36E-12	5,19E-12	3,37E-13	1,37E-12	7,57E-13	2,03E-11	2,58E-12	0,00E+00	-5,79E-11	-7,31E-11
HTP-nc	CTUh	2,58E-08	3,52E-10	8,31E-11	5,16E-12	5,78E-11	2,77E-11	4,68E-10	9,96E-11	0,00E+00	-1,43E-09	-1,70E-09
IR	kBq U-235 eqv.	5,12E-02	9,07E-05	3,57E-04	5,45E-04	1,49E-05	9,93E-05	1,13E-02	2,30E-04	0,00E+00	-5,65E-02	-7,84E-02
SQP	Pt	5,39E+00	3,59E-01	5,11E-02	8,72E-03	5,90E-02	1,55E-02	3,80E-01	5,22E-02	0,00E+00	-9,09E-01	-1,26E+00

ETP-fw=Ecotoxicity, freshwater (ETP-fw) | **PM**=Particulate Matter (PM) | **HTP-c**=Human toxicity, cancer (HTP-c) | **HTP-nc**=Human toxicity, non-cancer (HTP-nc) | **IR**=Ionising radiation, human health (IR) | **SQP**=Land use (SQP)

CLASSIFICATION OF DISCLAIMERS TO THE DECLARATION OF CORE AND ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

ILCD classification	Indicator	Disclaimer
ILCD type / level 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD type / level 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD type / level 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2

Disclaimer 1 – 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 nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

5.2 INDICATORS DESCRIBING RESOURCE USE AND ENVIRONMENTAL INFORMATION BASED ON LIFE CYCLE INVENTORY (LCI)

PARAMETERS DESCRIBING RESOURCE USE

Abbreviation	Unit	A1-A3	A4	A5	C1	C2	C3	C3/1	C4	C4/1	D	D/1
PERE	MJ	6,32E+00	5,98E-02	8,99E-01	1,50E-02	9,82E-03	5,30E-03	4,38E-01	3,31E-02	0,00E+00	-1,55E+00	-2,15E+00
PERM	MJ	8,59E-01	0,00E+00	-8,59E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	7,18E+00	5,98E-02	3,94E-02	1,50E-02	9,82E-03	5,30E-03	4,38E-01	3,31E-02	0,00E+00	-1,55E+00	-2,15E+00
PENRE	MJ	5,40E+01	5,40E-01	8,68E+00	2,07E-02	8,87E-02	4,97E-02	1,31E+01	1,90E-01	0,00E+00	-5,28E+00	-6,34E+00
PENRM	MJ	2,06E+01	0,00E+00	-8,54E+00	0,00E+00	0,00E+00	-1,20E+01	-1,20E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	7,46E+01	5,40E-01	1,38E-01	2,07E-02	8,87E-02	-1,20E+01	1,12E+00	1,90E-01	0,00E+00	-5,28E+00	-6,34E+00
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,09E-02	5,58E-05	1,57E-03	1,14E-05	9,17E-06	1,48E-05	3,92E-03	5,02E-05	0,00E+00	-1,19E-03	-1,65E-03

PERE=renewable primary energy ex. raw materials | **PERM**=renewable primary energy used as raw materials | **PERT**=renewable primary energy total | **PENRE**=non-renewable primary energy ex. raw materials | **PENRM**=non-renewable primary energy used as raw materials | **PENRT**=non-renewable primary energy total | **SM**=use of secondary material | **RSF**=use of renewable secondary fuels | **NRSF**=use of non-renewable secondary fuels | **FW**=use of net fresh water

OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

Abbreviation	Unit	A1-A3	A4	A5	C1	C2	C3	C3/1	C4	C4/1	D	D/1
HWD	kg	2,95E-08	2,63E-11	8,75E-11	2,99E-11	4,32E-12	7,19E-12	9,12E-10	4,72E-11	0,00E+00	-3,15E-09	-4,36E-09
NHWD	kg	4,65E-02	9,13E-05	4,50E-03	1,71E-05	1,50E-05	1,37E-05	8,41E-02	9,61E-01	0,00E+00	-2,58E-03	-3,33E-03
RWD	kg	4,16E-04	8,59E-07	3,36E-06	3,31E-06	1,41E-07	6,25E-07	7,37E-05	1,99E-06	0,00E+00	-3,43E-04	-4,76E-04

HWD=hazardous waste disposed | **NHWD**=non-hazardous waste disposed | **RWD**=radioactive waste disposed

ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

Abbreviation	Unit	A1-A3	A4	A5	C1	C2	C3	C3/1	C4	C4/1	D	D/1
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	4,67E-02	0,00E+00	1,23E+00	0,00E+00	0,00E+00	0,00E+00	1,71E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	1,08E-01	0,00E+00	2,84E+00	0,00E+00	0,00E+00	0,00E+00	3,05E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

CRU=Components for re-use | **MFR**=Materials for recycling | **MER**=Materials for energy recovery | **EET**=Exported Energy Thermic | **EEE**=Exported Energy Electric

5.3 INFORMATION ON BIOGENIC CARBON CONTENT PER KILOGRAM

BIOGENIC CARBON CONTENT

The following information describes the biogenic carbon content in (the main parts of) the product at the factory gate per kilogram:

Biogenic carbon content	Amount	Unit
Biogenic carbon content in the product	-	kg C
Biogenic carbon content in accompanying packaging	0,025	kg C

UPTAKE OF BIOGENIC CARBON DIOXIDE

The following amount carbon dioxide uptake is taken into account. Related uptake and release of carbon dioxide in downstream processes are not taken into account in this number although they do appear in the presented results. One kilogram of biogenic carbon content is equivalent to 44/12 kg of biogenic carbon dioxide uptake.

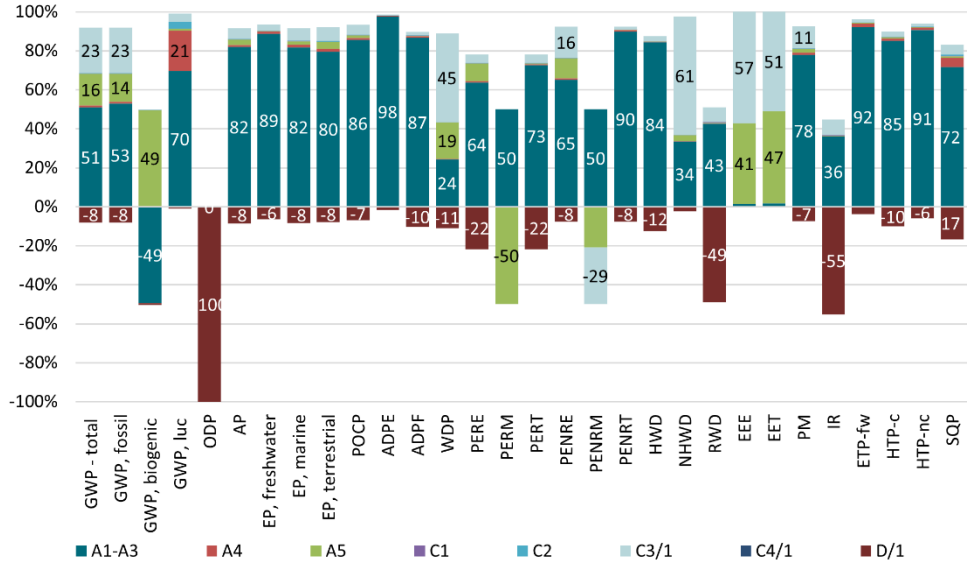
Uptake biogenic carbon dioxide	Amount	Unit
Product	-	kg CO_2 (biogenic)
Packaging	0,090	kg CO_2 (biogenic)

6 Interpretation of results

6.1 Contribution analysis

Many of the indicators on environmental impact and resource use are dominated by the production phase A1-A3. In addition, waste treatment (Module C3/1) has a significant share in the indicators. Furthermore, recovery potentials result in benefits outside the system boundaries (Module D/).

The following graph shows the relative shares of the modules in the indicator results the declared product (based on 1 kg injection mortar with cartridge). The values are scaled in such a way that all bars are the same height. Impact categories with a value of zero show no bar. Values below 10 % are not shown in the graph The graph shows an incineration at the End of Life.



7 References

ISO 14040

ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework; EN ISO 14040:2006

ISO 14044

ISO 14044:2006-10, Environmental management - Life cycle assessment - Requirements and guidelines; EN ISO 14044:2006

ISO 14025

ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804+A2

EN 15804+A2: 2019: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

Kiwa-EE GPI R.2.0

Kiwa-Ecobility Experts, General Programme Instructions “Product Level”, SOP EE 1203_R.2.0 (27.02.2025)

Kiwa-EE GPI R.2.0 Annex B1

Kiwa-Ecobility Experts, General Programme Instructions “Product Level” – Annex B1 Environmental Information Programme according to EN 15804 / ISO 21930, SOP EE 1203_R.2.0 (27.02.2025)

Background database

LCA for Experts, Version 2024.2 Leinfelden-Echterdingen: Sphera Solutions Inc.

Ecoinvent, 2019

Ecoinvent Centre, "Background data for transport," 2019.

EPD-FIW-20230531-CBA1-DE

IBU-EPD; FIS V Zero - fischerwerke GmbH & Co. KG; 18th April 2024

EPD-FIW-20230530-CBA1-DE

IBU-EPD; FIS EM Plus - fischerwerke GmbH & Co. KG; 18th April 2024

IBU 2021a

Institut Bauen und Umwelt e.V.: General EPD Program Guide of the Institut Bauen und Umwelt e.V. (IBU). Version 2.0, 2021

IBU 2021b

PCR Part B: Requirements for the EPD for reactive resin products

IBU 2024

Institut Bauen und Umwelt e.V.: Product category rules for building products Part A: Calculation rules for the life cycle assessment and re-quirements for the project report according to EN 15804+A2:2022-11, Version 1.4, 2024

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Kiwa-Ecobility Experts is an established member of the ECO PLATFORM

Technisches Datenblatt

Injektionsmörtel FIS HB 360 S/ FIS HB 150 C

Erstellt: 28.04.2009 **Überarbeitet:** 17.03.2022 **Druckdatum:** 17.03.2022
Version: 3.0 **Seite:** 1 von 1

Produktbeschreibung: Organischer Hochleistungsreaktionsharzmörtel
Farbe: grau

Technische Daten:

Eigenschaft	Prüfverfahren	Ergebnis
Allgemeine Beständigkeit		
UV-Einwirkung (Sonnenlicht)		beständig
Temperaturbeständigkeit		100 °C
Einfluss von Wasser		beständig
Wasseraufnahme		nach 14 d: 0,35 %
Reinigungsmittel		1 % Tensidlösung ohne Einfluss
Langzeitverhalten (Frost-Tau-Wechsel)	EOTA/ETAG Teil 5	für Außenanwendung geeignet Dauerhaftigkeit durch Gutachten/Zulassung bestätigt
Materialkennwerte		
Schrumpf		< 0,8 %
Shore- Härte A	ISO 868	nach 45 min: 91
Wärmeleitfähigkeit	DIN 52612	0,78 W/mK
Spezifischer Durchgangswiderstand	IEC 60093	8,39 ± 9,26 x 10^{15} Ωcm
pH-Wert		nach 24 h: 7 - 8 (22 °C)
Dichte		1,7 – 1,8 g/cm^3
Verarbeitungseigenschaften		
Viskosität bei 20 °C	Brookfield (Sp.7) 10 U/min	250 – 300 Pas
Verarbeitungszeit bei 10-20 °C		6 min
Aushärtezeit 20 °C		35 min
Lagerfähigkeit		24 Monate