ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-HIL-20220307-IBA1-EN
Issue date	27.01.2023
Valid to	26.01.2028

Hilti HIT-FP 700-R

Hilti AG

Institut Bauen und Umwelt e.V.

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

ECO PLATFORM EPD VERIFIED

safe set

Clean-Tec

1. General Information

Name of the manufacturer

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

Declaration number
EPD-HIL-20220307-IBA1-EN

This declaration is based on the product category rules:
Reaction resin products, 01.2019
(PCR checked and approved by the SVR)

Issue date
27.01.2023

Valid to
26.01.2028

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

Dr. Alexander Röder
(Managing Director Institut Bauen und Umwelt e.V.))

Name of the product

Owner of the declaration
Hilti AG
Feldkircher Str. 100
FL-9494
Schaan
Liechtenstein

Declared product / declared unit
The declared product is a HILTI injectable mortar HIT-FP 700-R. The declared unit is one kilogram of injectable mortar product in the mixing ratio of the two components necessary for processing. The packaging is also included in the calculation. The declared unit is stated in [kg].

Scope:
This document refers to the injectable mortar HIT-FP 700-R with its packaging. For the compilation of the life cycle assessment, specific data were collected from the factory in Kaufering, Germany, of the HILTI AG. Since the production of this product has only just started in 2022, no annual average consumption can be used. The input and output flows used in this calculation were therefore measured directly by the manufacturer for this production process for a comparable product.

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

Matthias Klingler
(Independent verifier)

2. Product

2.1 Product description/Product definition

The declared product of HIT-FP 700-R is a two component system.
The cementitious component (component A) comprises a reactive compound based on cement and water as well as inhibitors, viscosity modifying agents and a biocide. The activator component (component B) comprises of an alkaline activator, water, organic acids, viscosity modifying agents and mineral fillers. Mixing the two components A and B in the static mixer initiates the curing (hardening) reaction of the cementitious component. During the curing phase, a mechanical interlock is formed between the inorganic binder and the mineral fillers.
The system formed during the curing process results in an inorganic microstructure with a hydrate phase assemblage creating the desired design properties (high fire resistance, required bond strength, creep stability) and particular long-term stability.
The pre-mixed components and the two-component injection technology exclude dust formation and ensure a proper water-cement ratio during the application of the mortar.
Composite foils are used for the two component foil pack of HIT-FP 700-R. This kind of packaging serves the following purposes: waste volume reduction, easy storage and transport, and less packaging material.
HIT-FP 700-R is the high performance injectable mortar with approvals for rebar connections.

For the placing of the product on the market in the European Union European Free Trade Association EU/EFTA (with the exception of Switzerland) *Regulation (EU) No. 305/2011 (CPR)* applies. The product needs a declaration of performance taking into consideration the following European Technical Approval

ETA-21/0624

and the CE marking. For the application and use the respective national provisions apply.

2.2 Application

Hilti HIT-FP 700-R serves for safely securing post-installed rebar connections in cracked and uncracked concrete C12/15 to C50/60.
Hilti HIT-FP 700-R is a component of the Hilti SAFEset concept. Hilti SAFEset is an approved system which makes anchor installation an easier, safer and faster process. It significantly improves the robustness of fastening and dramatically reduces the possibility of error during installation. As part of SAFEset HIT-FP 700-R can be installed with approved Hilti Hollow Drill bits and vacuum cleaners that drill and clean the hole in one step for a virtually dust-free installation. The use of Hilti HDE 500-22 dispenser with the Volume Calculator app leads to no under or over-fill, reducing underfilling-related risks and minimizing mortar wastage.

2.3 Technical Data

Constructional data

Name	Value	Unit
Density acc. to EN ISO 1183-3 (standard climate; after 7 days)	2270	kg/m^3
Compressive strength on the basis of DIN EN 196-1 (storage acc. to DIN EN 196-1; after 7 days)	47	N/mm^2
Tensile shear strength acc. to DIN EN 14293	not assessed	N/mm^2
Tensile bond strength acc. to DIN EN 14293	not assessed	N/mm^2

Hilti HIT-FP 700 R displays the following characteristics:
Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to
ETA-21/0624

Shelf life of 12 months:
Substrate temperature during installation 5° to 40°C (internal method).

Working time:

≥ 5 … 10	50 min
> 10 … 15	40 min
> 15 … 20	35 min
> 20 … 30	20 min
> 30 … 40	15 min
40	12 min

Curing time:

≥ 5 … 10	50 days
> 10 … 15	28 days
> 15 … 20	18 days
> 20 … 30	10 days
> 30 … 40	7 days
40	4 days

2.4 Delivery status

The product Hilti HIT-FP 700 R is available in foil packages with a total of 490 ml injectable mortar in the corresponding mixing ratio.

2.5 Base materials/Ancillary materials

Hilti HIT-FP 700-R is supplied in the form of a dual component film-wrapped pack comprising a cement-based component and a limestone-based component at a volume ratio of 3:1. The mixing ratio of cementitious and activator components is automatically set during the injection process. Product curing commences directly after the components are mixed.

The product reviewed in this EPD contains the following component volumes:

Cement-based component:
Cement: 70 to 80% by weight
Water: 15 to 25% by weight
Other: < 3% by weight

Limestone-based component:
Calcium carbonate: 70 to 80% by weight
Water: 10 to 20% by weight
Organic acids: < 5% by weight
Other: < 5% by weight

This product article contains substances listed in the *candidate list* (date: 30.06.2022) exceeding 0.1 percentage by mass: no.
This product contains other Carcinogenic, Mutagenic, Reprotoxic (CMR) substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass: no.
Biocide products were added to this construction product or it has been treated with biocide products (this does not concern a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012): yes (during production, below 0,01% by weight).

2.6 Manufacture

All raw materials are sourced from Europe. The transport is exclusively by truck. Chemical mortars are usually two-component systems consisting of a binder and a hardener.

The production of chemical mortars consists of a mixing process and a filling process of the respective single components (binder and hardener/activator) and their subsequent union to a two-component system (container). Here as well process control technology is used to weigh and mix solid and liquid compounds according to specification. In the next step both well-mixed components run through an automized filling line in which each of the processed masses is filled into a tubular foil bag. Finally the single components are united in one container. The two-pack foil bags are packed into cardboard boxes and then finally shipped. The manufacturing plant of HIT-FP 700-R, Hilti GmbH Industriegesellschaft für Befestigungstechnik, Hiltistr. 6, 86916 Kaufering, Germany, is certified according to *ISO 9001*. The guideline defines international standards for quality and process management.

2.7 Environment and health during manufacturing

The manufacturing plant of HIT-FP 700-R, Hilti GmbH Industriegesellschaft für Befestigungstechnik, Hiltistr. 6, 86916 Kaufering, Germany, is certified according to *ISO 14001* which defines international standards for sustainable environmental management. The production site is also certified in accordance with *ISO 50001* Energy Management Systems.

2.8 Product processing/Installation

The product is delivered with Instructions for Use explaining the basic steps for installation:
1) For safe handling the precautionary measures described in the Safety Data Sheet (SDS) (e.g. hand and eye protection) must be adhered to
2) Insert the cartridge into the black cassette
3) Screw on the mixing nozzle
4) Put the cassette into the dispenser system
5) Discard the first trigger pulls
6) Fill 2/3 of the borehole with mortar
7) Set the fixing element
After mixing the components and squeezing the mortar into the borehole the fixing element has to be set within the working time mentioned in the Instructions for Use. After the curing time, described as well in the Instructions for Use, the mortar is ready to take up loads.

2.9 Packaging

Hilti HIT-FP 700-R is supplied in the form of a 2-foil-pack system and thus leads to very little waste remaining after use on the construction site.
The uncured product must be disposed of as special waste in accordance with official regulations.
The outer packaging consisting of plastic foil and cardboard boxes designed according to the product size can be recycled. Packaging contaminated by the product must be disposed in a safe manner in accordance with local/national regulations.

2.10 Condition of use

During the installation, the temperature of the base material must be between 5° C and 40° C. The temperature of the product should be between 5° C and 25 °C during storage and 5° C and 40° C during usage. Hilti literature and official approvals must always be considered. The two components of HIT-FP 700-R are only for use in combination with the defined volume ratio and under the conditions mentioned above to build up a dense inorganic microstructure.

2.11 Environment and health during use

Refer to the Safety Data Sheet (SDS) for detailed information on handling, storage as well as first aid, firefighting and accidental release measures and disposal considerations. Following the given instructions helps to minimize the risk to health and the environment.

2.12 Reference service life

Hilti HIT-FP 700-R is exposed to a wide variety of environmental factors during the use phase. The anticipated Reference Service Life depends on the specific installation situation and the product exposure scenario. The main factors influencing the period of use involve weathering as well as mechanical loads and chemical exposure.

Description of the influences on the ageing of the product when applied in accordance with the rules of technology.

2.13 Extraordinary effects

Fire
Even without any special fire safety features the Injection Systems comply with at least the requirements of the *EN 13501-1* standard for fire classes A1. During the curing process of Hilti HIT-FP 700-R a dense inorganic mictrostructure, similar to concrete, is established. This leads to a high fire resistance and extraordinary creep resistance in case of fire. As an inorganic material, Hilti HIT-FP 700-R mortar does not contribute towards spreading fire.

Fire protection

Name	Value
Building material class	A1
Burning droplets	No performance assessed
Smoke gas development	No performance assessed

Water
The cured product behaves similarly to regular Portland cement-based materials. HIT-FP 700-R is certified for use as an anchoring adhesive in concrete for water treatment applications according to National Sanitation Foundation (US) *NSF*.

Mechanical destruction
It is recommended to use dust protection during the demolition of the cured chemical anchor.

2.14 Re-use phase

The product cannot be reused. After usage the product can be removed by demolition.

2.15 Disposal

Uncured Hilti HIT-FP 700-R can be disposed of according to the *European waste code* 08 04 09* or 20 01 27*. The built-in cured anchor can be disposed as construction waste for which the European waste code 17 01 01 applies.

2.16 Further information

Further information is available on request under anchor.hse@hilti.com and on the Hilti website: www.hilti.group

3. LCA: Calculation rules

3.1 Declared Unit

The declared product here is an injection mortar from HILTI AG with the designation HIT-FP 700-R. The declared unit refers to 1 kg injectable mortar product in the mixing ratio of the two components required for processing. The packaging, based on 1 kg injectable mortar product, is also included in the calculation at 0.100 kg. The following table shows the data of the declared unit..

Declared unit

Name	Value	Unit

Declared unit	1	kg

3.2 System boundary

Type of EPD: cradle to 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 manufacturer,
- A3, manufacture.

End of life (C1- C4):
- C1, dismantling/demolition,
- C2, transportation,
- C3, waste treatment,
- C4, elimination.

Reuse, recovery and recycling potential (D)
In order to precisely record the indicators and environmental impacts of the declared unit, a total of 8 information modules are considered. The information modules A1 to A3 describe the provision of materials, the transport to the production site and the production processes of the product itself.

The primary products are sourced from the European Union. The transport takes place exclusively by truck. The following flow charts illustrate the underlying production process.

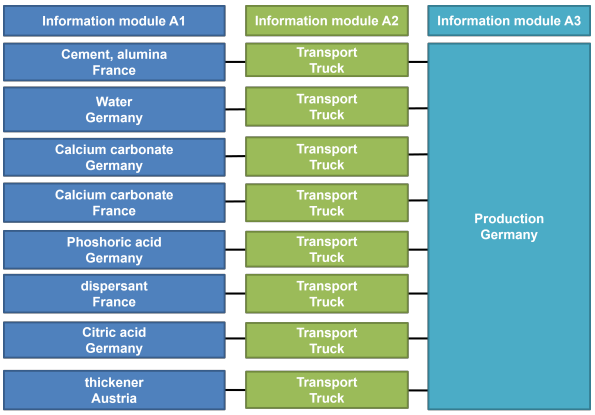

Illustration 1: Information module A1 to A3 of product (part 1)

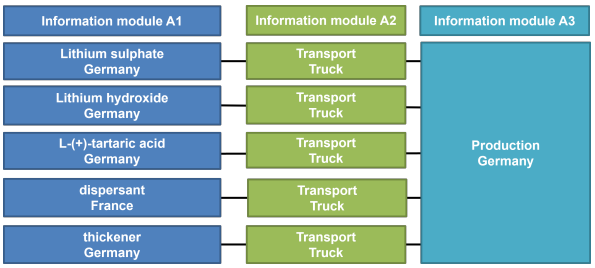

Illustration 2: Information module A1 to A3 of product (part 2)

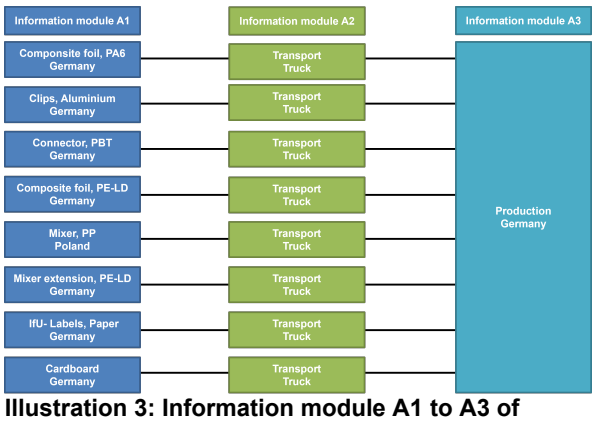

Illustration 3: Information module A1 to A3 of packaging

3.3 Estimates and assumptions

The electricity mixes and other background data are calculated on a country-specific basis for the production processes.
Assumptions were made for certain data sets
An assumption was made for the calculation of material supply for a dispersant, thickener and L-(+)-tartaric acid. This assumption is based on manufacturer data. No assumptions or restrictions were made for other formulation contents or processes.

3.4 Cut-off criteria

All energy and mass inputs were taken into account.The cut-off criterion according to EN 15804 is not applied.

3.5 Background data

The database of the background data of the GaBi 10 and ecoinvent 3.8 databases, to which this study also refers, is documented under the following link. (Sphera).

3.6 Data quality

For the compilation of the life cycle assessment, specific data were collected from the factory Kaufering, in Germany, of the HILTI AG from the year 2022. The background data from the /GaBi 10 database/ used is from the year 2022 and thus of high relevance.
The mass of the different components of the reactive resin mixture come from the information in the recipe.
The data quality is classified as appropriate.

3.7 Period under review

As production of this product only started in 2022, no annual average consumption can be used. The input and output flows used in this calculation were therefore measured directly by the manufacturer for this production process for a comparable product.

3.8 Allocation

Allocation of co-products takes place in the information
modules A1-A3.
The production waste of the injection-moulded components is thermally recovered. The electrical and thermal energy credits resulting therefrom are completely charged in modules A1-A3.
No further allocations are made.

3.9 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 database with the background data of the GaBi 10 and ecoinvent 3.8 databases, to which this study also refers, is documented under the following link. (Sphera). The largest share of the background data comes from ecoinvent 3.8, which is therefore to be regarded as the dominant database.

4. LCA: Scenarios and additional technical information

Characteristic product properties
Information on biogenic Carbon

No renewable raw materials are used in the product. Therefore, the biogenic carbon is shown as zero. The following raw materials contain biogenic carbon in the packaging.

Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Packaging Cardboard Box	0,013	kg C
Packaging IfU-Lables, Paper	0,006	kg C

Information on packaging

Name	Value	Unit
Componsite foil, PA6	0,0088	kg
Clips, Aluminium	0,0022	kg
Connector, PBT	0,0169	kg
Composite foil, PE-LD	0,0076	kg
Mixer, PP	0,0162	kg
Mixer extension, PE-LD	0,0040	kg
IfU- Labels, Paper	0,0142	kg
Cardboard box	0,0301	kg

End of life (C1-C4)

The product is demolished using an electric chisel. The electrical energy consumption for the tool is assumed to be 0.05 MJ for the declared unit. The electricity consumption is calculated with a European electricity mix. The construction waste is transported by truck 50 km to the waste treatment plant. The construction waste is shredded in the waste treatment plant and then dumped.

Name	Value	Unit
Collected as mixed construction waste	1	kg
Crushing in the shredder	1	kg
Landfilling	1	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

In this calculation there are no reuse, recovery and recycling potentials. Therefore, the information module D is declared and shown as zero.

Name	Value	Unit
Reuse, recovery and recycling potentials	0	kg

5. LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = 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	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 kg HILTI HIT-FP 700 R

Core Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Global warming potential - total	[kg CO_2-Eq.]	1.05E+0	5.12E-3	3.76E-3	2.60E-3	1.45E-2	0.00E+0
Global warming potential - fossil fuels	[kg CO_2-Eq.]	1.05E+0	5.12E-3	3.74E-3	2.59E-3	1.45E-2	0.00E+0
Global warming potential - biogenic	[kg CO_2-Eq.]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
GWP from land use and land use change	[kg CO_2-Eq.]	7.09E-4	1.08E-6	2.07E-5	1.20E-5	2.67E-5	0.00E+0
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.91E-8	7.50E-14	2.22E-16	3.85E-15	3.40E-14	0.00E+0
Acidification potential, accumulated exceedance	[mol H^+-Eq.]	3.00E-3	1.12E-5	1.17E-5	1.34E-5	1.03E-4	0.00E+0
Eutrophication, fraction of nutrients reaching freshwater end compartment	[kg P-Eq.]	6.95E-5	1.49E-8	1.11E-8	7.43E-9	2.45E-8	0.00E+0
Eutrophication, fraction of nutrients reaching marine end compartment	[kg N-Eq.]	9.58E-4	2.52E-6	5.37E-6	6.11E-6	2.62E-5	0.00E+0
Eutrophication, accumulated exceedance	[mol N-Eq.]	8.55E-3	2.65E-5	6.01E-5	6.74E-5	2.88E-4	0.00E+0
Formation potential of tropospheric ozone photochemical oxidants	[kg NMVOC-Eq.]	2.24E-3	6.82E-6	1.05E-5	1.66E-5	7.97E-5	0.00E+0
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	5.43E-6	1.40E-9	3.10E-10	2.87E-9	1.48E-9	0.00E+0
Abiotic depletion potential for fossil resources	[MJ]	1.10E+1	9.29E-2	4.96E-2	5.06E-2	1.90E-1	0.00E+0
Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	[m^3 world-Eq deprived]	1.44E-1	1.17E-3	3.33E-5	4.99E-4	1.59E-3	0.00E+0

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 kg HILTI HIT-FP 700 R

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier	[MJ]	1.68E+0	5.16E-2	2.82E-3	4.06E-3	2.85E-2	0.00E+0
Renewable primary energy resources as material utilization	[MJ]	6.65E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Total use of renewable primary energy resources	[MJ]	2.34E+0	5.16E-2	2.82E-3	4.06E-3	2.85E-2	0.00E+0
Non-renewable primary energy as energy carrier	[MJ]	8.80E+0	9.30E-2	4.97E-2	5.07E-2	1.90E-1	0.00E+0
Non-renewable primary energy as material utilization	[MJ]	2.24E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Total use of non-renewable primary energy resources	[MJ]	1.10E+1	9.30E-2	4.97E-2	5.07E-2	1.90E-1	0.00E+0
Use of secondary material	[kg]	4.87E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of renewable secondary fuels	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of non-renewable secondary fuels	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of net fresh water	[m^3]	4.87E-3	4.92E-5	3.19E-6	1.42E-5	4.82E-5	0.00E+0

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 kg HILTI HIT-FP 700 R

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	[kg]	1.42E-8	8.04E-12	2.38E-13	6.34E-13	9.75E-12	0.00E+0
Non-hazardous waste disposed	[kg]	3.03E-2	7.00E-5	7.13E-6	1.34E-5	9.71E-1	0.00E+0
Radioactive waste disposed	[kg]	1.84E-4	1.49E-5	6.13E-8	6.68E-7	2.11E-6	0.00E+0
Components for re-use	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for recycling	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for energy recovery	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Exported electrical energy	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Exported thermal energy	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 kg HILTI HIT-FP 700 R

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Potential incidence of disease due to PM emissions	[Disease Incidence]	ND	ND	ND	ND	ND	ND
Potential Human exposure efficiency relative to U235	[kBq U235-Eq.]	ND	ND	ND	ND	ND	ND
Potential comparative toxic unit for ecosystems	[CTUe]	ND	ND	ND	ND	ND	ND
Potential comparative toxic unit for humans - cancerogenic	[CTUh]	ND	ND	ND	ND	ND	ND
Potential comparative toxic unit for humans - not cancerogenic	[CTUh]	ND	ND	ND	ND	ND	ND
Potential soil quality index	[-]	ND	ND	ND	ND	ND	ND

The secondary material (SM) used leads from paper production.

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 for the environmental impacts and indicators can be found in information module A1. This shows the total global warming potential for material provision at around 88 %, based on all information modules. With the total non-renewable primary energy it is about 87 %.

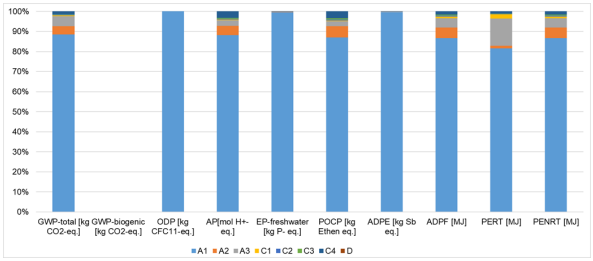

Illustration: Dominance analysis A1- A3

If you look at the material provision of the injectable mortar mixture and the packaging in detail, it becomes clear which raw materials make a decisive contribution to the respective environmental effects and indicators.

The injectable mortar mixture itself accounts for 74 % of the total global warming potential in information module A1. Approx. 7 % is made up of the PA6 of the composite foil and approx. 6 % is made up of the Polybutylene terephthalate (PBT) of the connector.

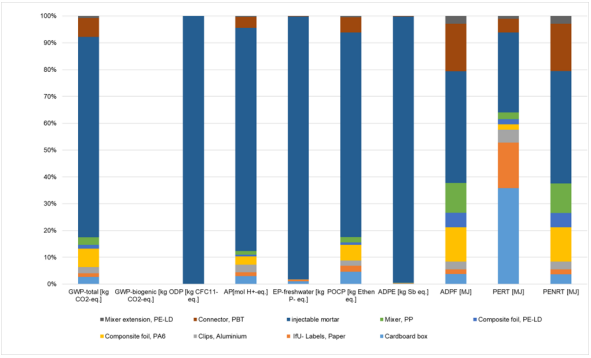

Illustration: Dominance analysis A1

Within the injectable mortar mixture itself, about 75 % of the total global warming potential and about 42 % of the total non-renewable primary energy are created by the material provision of cement. Lithium hydroxide has a share of about 6 % of the total greenhouse gas emissions and about 9 % of the total non-renewable primary energy.

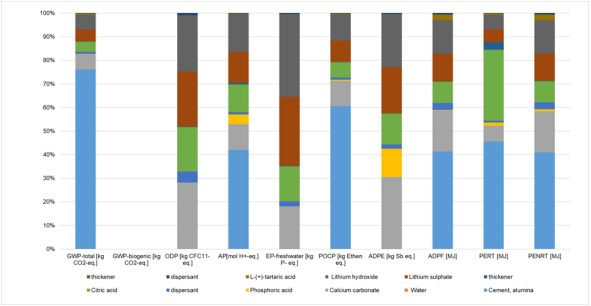

Illustration: Dominance analysis A1, injectable mortar mixture

7. Requisite evidence

Hilti HIT-FP 700-R complies with the requirements of

- *DIBt (2010)* in combination with the NIK values from *AgBB (2021)* for applications in interior areas
- emission class A+ outlined in the *French VOC Directives* in accordance with the *Eurofins attestation*,
- *CDPH/EHLB Standard Method V 1.2 (2017)*

in accordance with *Eurofins test report, No. 392-2021-00413601_A_EN* and *Eurofins tes report, No. 392-2021-00413601_H_EN* respectively.

AgBB overview of results (28 days [µg/m³])

Name	Value	Unit
TVOC (C6 - C16) <	<1000	µg/m³
Sum SVOC (C16 - C22) <	<100	µg/m³
R (dimensionless) <	<1	-
VOC without NIK <	<100	µg/m³
Carcinogenic Substances <	<1	µg/m³

AgBB overview of results (3 days [µg/m³])

Name	Value	Unit
VOC without NIK	<10000	µg/m³
Carcinogenic Substances	<10	µg/m³

8. References

DIN EN 196-1
DIN EN 196-1: 2016-11, Prüfverfahren für Zement - Teil 1: Bestimmung der Festigkeit

DIN EN 14293
DIN EN 14293: 2006-10, Klebstoffe - Klebstoffe für das Kleben von Parkett auf einen Untergrund - Prüfverfahren und Mindestanforderungen

EN ISO 1183-3
EN ISO 1183-3: 2000-05, Kunststoffe - Bestimmung der Dichte von nicht verschäumten Kunststoffen - Teil 3: Gas-Pyknometer-Verfahren

EN 13501-1
EN 13501-1: 2019-05,
Klassifizierung von Bauprodukten und Bauarten zu ihrem Brandverhalten - Teil 1: Klassifizierung mit den Ergebnissen aus den Prüfungen zum Brandverhalten von Bauprodukten

EN 15804
EN 15804+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

ISO 14001
ISO 14001: 2015-09, Umweltmanagementsysteme - Anforderungen mit Anleitung zur Anwendung

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

ISO 9001
ISO 9001: 2015-11, Qualitätsmanagementsysteme - Anforderungen

ISO 50001
ISO 50001: 2018-08, Energiemanagementsysteme - Anforderungen mit Anleitung zur Anwendung

AgBB (2021)
Vorgehensweise bei der gesundheitlichen Bewertung der Emissionen von flüchtigen organischen Verbindungen (VVOC, VOC und SVOC) aus Bauprodukten (2021)

CDPH/EHLB/Standard Method V1.2
California CDPH Standard Method is a US standard for evaluating and restricting VOC emissions to indoor air. Developed in California as "Section 01350" Specification, several systems in the US refer to CDPH Standard Method

Candidate List of substances of very high concern for Authorisation
European Cheminals Agency (ECHA), in accordance with Article 50(10) of the REACH regulation

DIBt (2010)
Grundsätze zur gesundheitlichen Bewertung von Bauprodukten in Innenräumen (Oktober 2010)

ETA-21/0624
European Technical Approval Hilti HIT-FP 700-R

Eurofins test report, No. 392-2021-00413601_A_EN
VOC test report for verification of compliance with DIBt(2010)/AgBB(2021)

Eurofins test report, No. 392-2021-00413601_A_EN
VOC test report for verification of compliance with the French directive from 2010

Eurofins test report, No. 392-2021-00413601_H_EN
VOC test report for verification of compliance with CDPH/EHLB/Standard Method V1.2 from 2017

European Waste code
in accordance with the European Waste Catalogue (EWC) (EWC 2014/955/EU) Commission Decision amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council

French VOC Directives
Décret no 2011321 du 23 mars 2011 relatif à l'étiquetage des produits de construction ou de revêtement de mur ou de sol et des peintures et vernis sur leurs émissions de polluants volatils Arrêté du 19 avril 2011 relatif à l'étiquetage des produits de construction ou de revêtement de mur ou de sol et des peintures et vernis sur leurs émissions de polluants volatils

NSF
NSF/ANSI/CAN 61 Drinking Water System Components Health Effects

ecoinvent 3.8
Backgroun data: ecoinvent 3.8
Zürich: ecoinvent
http://www.ecoinvent.org
(08.09.2022)

IBU 2021
General Instructions for the EPD programme of Institut Bauen und Umwelt e.V. Version 2.0,
Berlin: Institut Bauen und Umwelt e.V.,2021
www.ibu-epd.de

Calculation rules*: PCR - Part A*
Institut Bauen und Umwelt e.V. (IBU), 2022. Product Category Rules for Building-Related Products and Services. Part A: Calculation rules for the life cycle assessment and requirements on the project report. Version 1.3 (08.2022)

Product category rules for construction products – Part B
Reaction resin products, 01.2019

Regulation (EU) No. 305/2011 (CPR)
Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC Text with EEA relevance

Sphera
GaBi 10 Software: Ganzheitliche Bilanzierung, Leinfelden-Echterdingen; Sphera Solution GmbH, https://gabi.sphera.com/databases/gabi-data-search/ (08.09.2022)

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