

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A1




Owner of the Declaration	Hilti Corporation
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-HIL-20210173-IAA1-EN
Issue date	27/09/2021
Valid to	26/09/2026

CFS-BL firestop blocks and CFS-PL firestop plugs
Hilti Corporation

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



1. General Information

<p>Hilti Corporation</p>	<p>CFS-BL firestop blocks and CFS-PL firestop plugs</p>
<p>Programme holder IBU – Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany</p>	<p>Owner of the declaration Hilti Aktiengesellschaft Feldkircher Strasse 100 9494 Schaan LIECHTENSTEIN</p>
<p>Declaration number EPD-HIL-20210173-IAA1-EN</p>	<p>Declared product / declared unit The declared products are Hilti CFS-BL firestop blocks and Hilti CFS-PL firestop plugs. The declared unit refers to 1 kg of the product. The packaging is not included. The declared unit is given in [kg].</p>
<p>This declaration is based on the product category rules: Pre-formed fire protection systems for cable and duct insulation , 01.2019 (PCR checked and approved by the SVR)</p>	<p>Scope: This document refers to Hilti CFS-BL firestop blocks and Hilti CFS-PL firestop plugs. Specific data from Hilti's manufacturing plant in Kaufering, Germany is used for this environmental life cycle assessment. This data represents average values for the year and is based on data from 2020. This is a manufacturer's declaration. The declaration refers to a specific product from a manufacturer's plant (1a).</p>
<p>Issue date 27/09/2021</p>	<p>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 <i>EN 15804+A1</i>. In the following, the standard will be simplified as <i>EN 15804</i>.</p>
<p>Valid to 26/09/2026</p>	<p>Verification</p>
<p> Dipl. Ing. Hans Peters (chairman of Institut Bauen und Umwelt e.V.)</p> <p> Dr. Alexander Röder (Managing Director Institut Bauen und Umwelt e.V.)</p>	<p>The standard <i>EN 15804</i> serves as the core PCR Independent verification of the declaration and data according to <i>ISO 14025:2010</i></p> <p><input type="checkbox"/> internally <input checked="" type="checkbox"/> externally</p> <p> Prof. Dr. Birgit Grahl (Independent verifier)</p>

2. Product

2.1 Product description/Product definition

Preformed firestop systems in various designs made from identical intumescent polyurethane material

Advantages:

- easy to install, with no electric tools needed and extremely easy to service and reroute cables
- cables no longer have to be provided with a firestop coating
- installation of cables with zero separation to the edge of the penetration is possible
- very good seismic features

Products according to the CPR based on ETA

For the placing of the product on the market in the European Union/European Free Trade Association/EU/EFTA (with the exception of Switzerland) the Regulation (EU) No.305/211 (CPR) applies. The product needs a declaration of performance taking into consideration

- *ETA-13/0099 of 01.10.2018 Hilti Firestop Block CFS-BL*
- *ETA-13/0125 of 16.04.2018 Hilti Firestop Plug CFS-PL*

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

2.2 Application

Temporary and permanent firestop penetrations
CFS-BL firestop blocks:

Temporary or permanent penetration sealing around cables, cable bundles and cable trays in wall and floor openings

- Cables and cable bundles
- Conduits and conduit bundles
- Co-axial cables
- Suitable for rooms with dust and fibre-free requirements and areas that often change services, such as server rooms, laboratories and hospital

CFS-PL firestop plugs:

Temporary or permanent penetration sealing around cables, cable bundles and cable trays in wall and floor openings

- Cables and cable bundles
- Conduits and conduit bundles
- Possible with a PVC sleeve for a cast-in concrete process
- Suitable for rooms with dust and fiber-free requirements and areas that often change services, such as server rooms, laboratories and hospitals

2.3 Technical Data

Products are suitable for use in temperatures ranging from -5 to +70°C, and can be exposed to UV rays, but not to rain

Constructional data

Name	Value	Unit
Application temperature (Hilti-in house test)	+5 - +40	°C
Storage temperature (Hilti-in house test)	-5 - +40	°C
Temperature resistance (Hilti-in house test)	-15 - +60	°C
Reaction to fire (EN 13501-1:2007+A1:2009)	E	-
Halogenated flame retardants (Hilti-in house test)	no	-
Airborne sound insulation (EN ISO 10140-2 and EN ISO 717-1)	R _w (C; C _{tr}) = 52 (-2; -7)	dB
Thermal conductivity (EN 12667:2001)	λ = 0.089	W/(mK)
Electrical resistivity (DIN IEC 60093 (VDE 0303 Part 30):1993-12)	2.17E+9 (± 0.5)	Ω cm
Electrical surface resistance (DIN IEC 60093 (VDE 0303 Part 30):1993-12)	49.6E+9 (± 10)	Ω
Durability and serviceability (TR 024 and ETAG 026-2)	Kategorie Y1 *	-
Mold growth (ASTM G 21 and ISO 846)	no	-

Product according to the CPR, based on an ETA:

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *ETA-13/0099 of 01.10.2018 Hilti Firestop Block CFS-BL and ETA-13/0125 of 16.04.2018 Hilti Firestop Plug CFS-PL*

2.4 Delivery status

CFS-BL: firestop block: Dimensions: 200 x 130 x 50 mm

CFS-PL 107 firestop plug: Diameter: 107 mm

CFS-PL 132 firestop plug: Diameter: 132 mm

CFS-PL 158 firestop plug: Diameter: 158 mm

CFS-PL 202 firestop plug: Diameter: 202 mm

2.5 Base materials/Ancillary materials

The products are mainly made from inert polyurethane foam (60–70% CAS 9009-54-5) with foaming graphite (10–20% CAS 12777-87-6). Foaming graphite is needed for intumescence in the event of a fire. <10% Ammonium polyphosphate (CAS 68333-79-9) is used as a flame retardant. In addition, pigments (<3%), carbamate-based fungicides for ensuring long-term fire protection and protection against fungi (<0.1%) and other additives are used.

1) This product contains substances listed in the candidate list (date: 08.07.2021) exceeding 0.1 percentage by mass: No

2) 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

3) Biocide products were added to this construction product: Yes

Zinc pyrithione (film preservative)

2-Octyl-2H-isothiazol-3-on (film preservative)

Zinc oxide (film preservative)

The aim of adding fungicides in the Hilti products is to prevent mould and mildew growth and preserve the material with its quality.

2.6 Manufacture

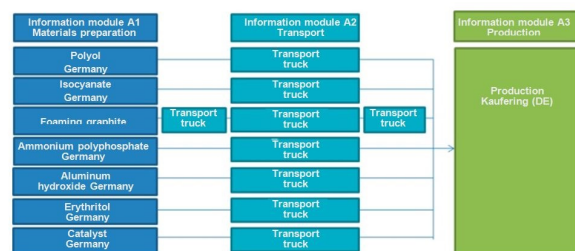


Diagram: Flow diagram of the production process

The products are made of expanded polyurethane foam.

The raw components are initially mixed mechanically into the several premixes. A fiberglass cloth is placed in the mold, where necessary, for the firestop bricks. These cloths are not used in the production of the firestop plugs. The premixes are then dispensed into the molds using a PU mixing unit. There is only one set of dimensions for firestop blocks. In contrast, firestop



plugs are available in multiple sizes. There is a separate mold for each different size. The tempered molds are closed, the polyurethane foam hardens and can be removed after a defined period of time. This process does not generate large amounts of residual material as the molds are closed. Any residual waste generated in the production process is broken up and added back into the process in small quantities. To complete the crosslinking process, the blocks are stored at room temperature. A label is subsequently attached to each individual block and the blocks are then packed into cardboard boxes.

2.7 Environment and health during manufacturing

Due to the automatic dispensing of all raw materials and the encapsulated machines, no further measures need to be taken to protect employees beyond those set out in the national regulations.

HILTI AG, Feldkircherstr. 100, FL-9494 Schaan holds /ISO 14001/ Environmental Management Systems certification. Environmental aspects are evaluated throughout the entire value-added chain, starting with fundamental research through to product development, the manufacturing processes and sales. The production plant for Hilti firestop blocks and firestop plugs, Hilti GmbH Industriegesellschaft für Befestigungstechnik, Hiltistr. 6, 86916 Kaufering, Germany is also certified in accordance with /ISO 50001/ Energy Management Systems. The continual improvement process is applied to implement projects with the goal of improving the energy efficiency of the infrastructure and also of the process sequences.

Within environmental management, waste separation is an important component of the waste management concept employed at the location. The daily implementation of this component and the recycling of materials is carried out in close collaboration with a waste management company. As part of the holistic health management system in place in the plant, the workplaces have an ergonomic design and are also constantly being further developed.

2.8 Product processing/Installation

With respect to cable penetration sealing, the European Technical Assessments /ETA-13/0099/ (for firestop blocks) and /ETA-13/0125/ (for firestop plugs) provided by the Austrian Institute of Construction Engineering are decisive.

It is of vital importance that the stability of the surrounding components is not affected by the installation of the cable penetration sealing – even in the event of a fire.

Suitable measures must be taken to secure cable penetration sealings in ceilings against heavy loads (e.g. by means of a safety fence or by covering it with steel grating), particularly people standing on them. The opening must be cleaned before the installation of the firestop blocks or firestop plugs. The firestop blocks or firestop plugs are to be installed in the opening in accordance with the approval. The firestop blocks and firestop plugs are to be cut to the required size in the area in which they are to be installed.

Spaces between the cables, spandrels and open seams must be filled with CFS-FIL firestop filler to a depth of at least 20 mm on both sides.

2.9 Packaging

CFS-BL firestop blocks do not have separate sales packaging and can be supplied individually. During transport, 20 units are packaged in an export case. CFS-PL 107 firestop plugs do not have separate sales packaging and can be supplied individually. During transport, 8 units are packaged in an export case. CFS-PL 132 firestop plugs are packed in 4s in a cardboard box.

CFS-PL 158 and CFS-PL 202 firestop plugs are packed in 2s in a cardboard box.

The cardboard packaging can be recycled. Firestop blocks and plugs are supplied in export cases and on reusable Euro-pallets

2.10 Condition of use

The firestop blocks and plugs can be reused for filling other firestop openings at any time within their service life.

In the event of a change in use, firestop blocks and plugs may remain in firestop penetrations and have cables routed through at a later point in time. Cables may also be removed retrospectively at any time.

2.11 Environment and health during use

During use, there must be no environmental risks or risks to the health of users of the building in accordance with the /Committee for health-related evaluation of building products/ Ausschuss zur gesundheitlichen Bewertung von Bauprodukten (AgBB) specifications/.

2.12 Reference service life

As this EPD only takes information modules A1–A3 into account, there is no need to specify the reference service life.

2.13 Extraordinary effects

Fire

Building materials classification E in accordance with /EN 13501-1/

Fire protection

Name	Value
Building material class	E
Burning droplets	Not applicable in class E
Smoke gas development	Not applicable in class E

Water

Firestop blocks and plugs should not be exposed to water.

In the event of unanticipated exposure to water, e.g. through flooding or a broken water pipe, the firestop blocks and plugs must be replaced, as the mechanical structure will have changed, the blocks and plugs will have become brittle and fire protection can no longer be guaranteed.



Mechanical destruction

In the event of a mechanical destruction of the firestop blocks or plugs, the firestop penetrations must be resealed or repaired. Loose residual foam waste does not represent an environmental hazard.

2.14 Re-use phase

The firestop blocks and plugs can be reused for filling other firestop openings at any time.

In the event of a change in use, firestop blocks and plugs may remain in firestop penetrations and have cables routed through at a later point in time. Cables may also be removed retrospectively at any time.

2.15 Disposal

Firestop blocks and plugs are not made from hazardous materials and can be disposed of in the same way as household waste – European waste code: 20 03 01 (Mixed municipal waste)

2.16 Further information

Further information is available on the Hilti website: www.hilti.com

3. LCA: Calculation rules

3.1 Declared Unit

The declared product is a Hilti CFS-BL firestop block or a Hilti CFS-PL firestop plug. The declared unit refers to 1 kg of the product. The packaging is not included in the calculation. The following table shows the data relevant for the declared unit.

Declared unit

Name	Value	Unit
Conversion factor to 1 kg	1	-
Declared unit	1	kg

3.2 System boundary

The type of the EPD is cradle to plant gate. The following information modules are defined as system limits in this study:

A1–A3 Product development:

- A1 – Production of raw materials
- A2 – Transport to the manufacturer
- A3 – Manufacture

This is a manufacturer's declaration. The declaration refers to a specific product from a manufacturer's plant (1a). In order to accurately record the indicators and environmental impact of the declared unit, three information modules are observed. Information modules A1–A3 describe the production of materials, transport to the production facilities and the product production process itself.

3.3 Estimates and assumptions

The electricity mix and other background data is calculated for the production process on a country-specific basis.

In order to work out the material provision for polyol, a polyether polyol data set is used. This is also the case for the isocyanate, ammoniumpolyphosphate, diammonium phosphate and erythritol compositions, with the methylene diphenyl diisocyanate, and pentaerythritol data sets being used respectively. For expanded graphite, a graphite background data set is used as an estimate, since it is used as a monomer for production.

As the truck transport routes are mainly within Germany, a German mix was used as the basis for the preparation of the fuel. A Chinese mix was used for the fuel only for the transport of the expandable graphite in China.

Furthermore, all of the information modules considered are included in the calculation in such detail that all of the requirements set out in *EN 15804* are observed.

3.4 Cut-off criteria

As the mass of catalyst in the water is much less than 1%, the catalyst is not included in the calculation. Only water is recorded in the material preparation phase. In this instance, the authors act on the assumption that this is a justifiable error.

The material consumption of the Euro pallets used for transport is less than 5% by weight due to their re-use and therefore falls below the cut-off criterion of the total calculation.

3.5 Background data

The following link provides access to the background data base for the *GaBi 10* databases (including *Ecoinvent 3.7*) to which this study refers */Sphera/*.

3.6 Data quality

The assessment of the data quality is classified as reasonable. The decisive data sets in particular, which were used to calculate the preparation of materials for the declared unit, are very much up-to-date (DE: polyether polyol source: *Sphera, 2020*, DE: methylene diphenyl diisocyanate source: *Sphera, 2020*). Sphera data are given in *GaBi* on data documentation with the respective reference year.

3.7 Period under review

The life cycle inventory analysis data provided by the manufacturer is from 2020 and corresponds to the annual average.

3.8 Allocation

In the information modules A1-A3 there is an allocation of co-products (production waste). The disposal of production waste from the product results in electrical energy credits of -0,000556 mega joule MJ. These are fully offset in module A3.

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 following link documents the background data of the *GaBi 10 databases (SP 40)*, to which this study also refers */Sphera/*.



4. LCA: Scenarios and additional technical information

As the information modules A1–A3 are observed in this study, no information is provided on the LCA scenarios and no further technical information is made available.

5. LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE 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	MND	MND	MND	MND	MND

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A1: 1 kg CFS-BL / CFS-PL

Parameter	Unit	A1-A3
Global warming potential	[kg CO ₂ -Eq.]	2.93
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.63E-8
Acidification potential of land and water	[kg SO ₂ -Eq.]	5.78E-3
Eutrophication potential	[kg (PO ₄) ³⁻ -Eq.]	1.40E-3
Formation potential of tropospheric ozone photochemical oxidants	[kg ethene-Eq.]	6.05E-4
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	1.93E-5
Abiotic depletion potential for fossil resources	[MJ]	64.63

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A1: 1 kg CFS-BL / CFS-PL

Parameter	Unit	A1-A3
Renewable primary energy as energy carrier	[MJ]	6.10
Renewable primary energy resources as material utilization	[MJ]	0.00
Total use of renewable primary energy resources	[MJ]	6.10
Non-renewable primary energy as energy carrier	[MJ]	40.87
Non-renewable primary energy as material utilization	[MJ]	26.16
Total use of non-renewable primary energy resources	[MJ]	67.03
Use of secondary material	[kg]	0.00
Use of renewable secondary fuels	[MJ]	0.00E+0
Use of non-renewable secondary fuels	[MJ]	0.00E+0
Use of net fresh water	[m ³]	1.50E-2

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A1: 1 kg CFS-BL / CFS-PL

Parameter	Unit	A1-A3
Hazardous waste disposed	[kg]	2.86E-8
Non-hazardous waste disposed	[kg]	2.78E-1
Radioactive waste disposed	[kg]	7.65E-4
Components for re-use	[kg]	0.00
Materials for recycling	[kg]	0.00
Materials for energy recovery	[kg]	0.00
Exported electrical energy	[MJ]	0.00
Exported thermal energy	[MJ]	0.00

All indicators are collected in accordance with /EN 15804/. The impact assessment of environmental categories is carried out according to /CML 2001 Apr. 2015/.

6. LCA: Interpretation

The dominance analysis shows that the main causes of the environmental impacts and indicators can be found in the information module A1. This shows the global warming potential for materials preparation as approx. 97%, based on all information modules.

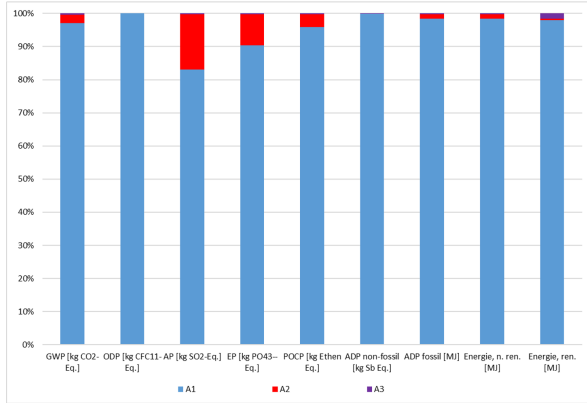


Diagram: Total dominance analysis

Looking at the material preparation for the product in detail clearly shows that two resources make a significant contribution to the respective environmental impacts and indicators.

Approx. 60% of the global warming potential is caused by the materials preparation for polyol. Approx. 32% of greenhouse gas emissions are caused by the materials preparation for isocyanate.

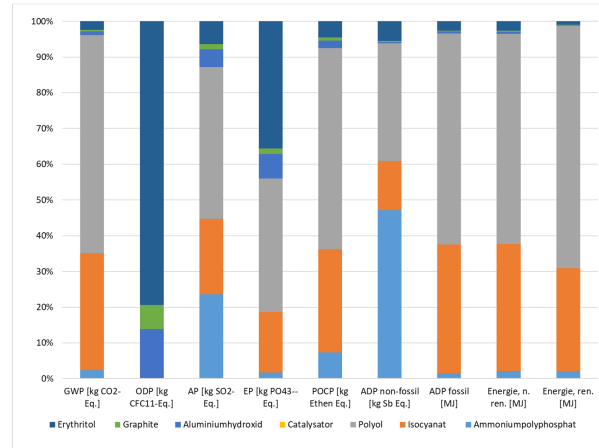


Diagram: Materials preparation dominance analysis

The masses of polyol and isocyanate are taken from the composition details. According to the manufacturer it can be assumed that this data is accurate.

The decisive data sets, which were used to calculate the preparation of materials for the declared unit, are very much up-to-date (DE: polyether polyol source: *Sphera*, 2020, DE: methylene diphenyl diisocyanate source: *Sphera*, 2020).

As these data sets have a huge influence over the results, as shown by the dominance analysis, this also applies to the overall calculation.

7. Requisite evidence

Due to the identical composition, this data and its supporting documents apply for both the CFS-BL and CFS-PL product groups

7.1 volatile organic compounds (VOC)

For products that are to be used indoors.

Testing procedure in accordance with */AgBB specifications/*, stating the name of the test point, the date and the outcome as a range of values. The following must be declared at the minimum

AgBB results overview (3 days)

[A] Sum VOC (C6-C16) incl. SVOC with LCI ≤ 10 mg/m³

[B] Sum carcinogenic substances (EU cat. 1A and 1B) ≤ 0.01 mg/m³

AgBB results overview (28 days)

[A] Sum VOC (C6-C16) incl. SVOC with LCI ≤ 1 mg/m³

[B] Sum SVOC without LCI (C16-C22) ≤ 0.1 mg/m³

[C] R-Wert (dimensionless) ≤ 1.0

[D] Sum VOC without LCI ≤ 0.1 mg/m³

[E] Sum carcinogenic substances (EU cat. 1A and 1B) ≤ 0.001 mg/m³

In accordance with the */eco-INITIUT Report, No 56292-001-AgBB-L/*

Emission class A+ in accordance with the French */Décret n° 2011-321/*

In accordance with the */eco-INITIUT Report, No 56292-001-FVO-L/*

7.2 Acoustic tests

Airborne sound insulation test in accordance with */EN ISO 10140-2/* and */EN ISO 717-1/*

52 dB in accordance with the Test Report of the *ift-Rosenheim*, number 18-000570-PR01 of 27 July 2018.

7.3 Thermal conductivity

Thermal conductivity in accordance with */EN 12667/* Lambda of 0.089 W/m² in accordance with */IBMB Braunschweig Prüfbericht Nummer 4068/874/12 – WOB/* of 04.04.2012

7.4 Electrical conductivity

Electrical conductivity in accordance with */DIN IEC 60093 (VDE 0303 Teil 30):1993-12/* Contact resistance 6.0 x 10⁹ Ω · cm Specific surface resistance 138 x 10⁹ Ω · cm In accordance with the */VDE Testing and Certification Institute, Offenbach. Test report 1768500-9021-0001/158729-2d/* dated 31 October 2011

7.5 Durability and serviceability

Durability and serviceability in accordance with */TR 024/* and */ETAG 026-2/*



Durability type Y1 in accordance with */BMB Braunschweig, Prüfbericht Nummer 3798/983/12 – 4a/2012/* of 11.09.2012 and */BMB Braunschweig Prüfbericht Nummer 3798/983/12 – 2a/2012/* of 11.09.2012.

Use in temperatures below 0°C, with UV-light exposure but no exposure to rain.

7.6 Building materials classification

Fire performance classification in accordance with */EN 13501-1/*

Classe E in accordance with */BMB Braunschweig, Prüfbericht Nummer 3798/983/12 – 4b/2012/* of 02.04.2013 and */Prüfbericht Nummer 3798/983/12 – 2a/2012/* of 11.09.2012.

7.7. Mold buildup

Mold buildup in accordance with */ASTM G 21/* and */ISO 846/*:

Classification in accordance with */ISO 846/*: method A 0 / 0, method B 0 / 0. No mold growth.

Classification in accordance with */ASTM G 21: 0 / 0/*.

No mold growth.

Both classifications in accordance with */Thor Kundendienstbericht 36614/* dated Nov. 2011.

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

Name	Value	Unit
TVOC (C6 - C16)	0.02	mg/m ³
Sum SVOC (C16 - C22)	<0.005	mg/m ³
R (dimensionless)	0.04	-
VOC without NIK	<0.005	mg/m ³
Carcinogenic Substances	<0.001	mg/m ³

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

Name	Value	Unit
TVOC (C6 - C16)	0.043	mg/m ³
Carcinogenic Substances	<0.001	mg/m ³

8. References

/AgBB specifications/

The German committee for the health-related evaluation of building products: the procedure for the health-related evaluation of emissions of volatile organic compounds (VOC and SVOC) from construction products

/ASTM G 21/

Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

/CML 2001 April. 2015/

Indicators for environmental impacts
<http://cml.leiden.edu/software/data-cmlia.html#downloads>
(01.06.2021)

/Décret n° 2011-321/

Décret n° 2011-321 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

/DIN IEC 60093 (VDE 0303 Part 30):1993-12/

Methods of test for insulating materials for electrical purposes; volume resistivity and surface resistivity of solid electrical insulating materials

/EAD 350454-00-1104/

Fire stopping and fire sealing products - penetration seal

/eco-INSTITUT Report no. 56292-001-AgBB-L/

Test report
AgBB 2018
Hilti CFS-BL Firestop Block
Hilti Entwicklungsgesellschaft mbH
June, 2021

/eco-INSTITUT Report no. 56292-001-FVO-L/

Test report
Product emissions test
Hilti CFS-BL Firestop Block
Hilti Entwicklungsgesellschaft mbH
June, 2021

/ecoinvent/

<http://www.ecoinvent.org>
(01.06.2021)

/EN 12667/

Thermal performance of building materials and products. Determination of thermal resistance by means of guarded hot plate and heat flow meter methods.

/EN 13501-1/

Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire test

/EN 15804/

/EN 15804:2012-04+A1 2013/, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

/EN ISO 10140-2/

Laboratory measurement of sound insulation of building elements -Part 2: Measurement of airborne sound insulation

/EN ISO 717-1/

Rating of sound insulation in buildings and of building elements - Part 1_Airborne sound insulation

/ETA-13/0125/

Hilti Firestop Plug CFS-PL, Hilti Firestop Filler CFS-FIL, Hilti Firestop Putty Bandage CFS-P BA (for Firestop Plugs) issued by the OIB.

ETA-13/0099

Hilti Firestop Block CFS-BL Hilti Firestop Filler CFS-FIL Hilti Firestop Putty Bandage CFS-P BA (for Firestop Blocks) issued by the OIB.

/ETAG 026-2/

Guideline for European Technical Approval of Fire Stopping and Fire Sealing Products, Part 2 Penetration



Seals

Clause 1.2: Durability

/IBMB Braunschweig, test report number 3798/983/12 – 4a/2012/

Tests in accordance with ETAG 026 Part 1 and Part 2, September 2012

/IBMB Braunschweig, test report number 3798/983/12 – 4b/2012/

Tests in accordance with ETAG 026 Part 1 and Part 2, April 2013

/IBMB Braunschweig test report number 3798/983/12 – 2a/2012/

Tests in accordance with ETAG 026 Part 1 and Part 2, September 2012

/IBMB Braunschweig test report number 4068/874/12 – WOB/of 04.04.2012/

Evaluation of thermal conductivity in 2 samples

/IBU 2016/

IBU (2016): General Programme Instructions for the Preparation of EPDs at the Institut Bauen und Umwelt e.V., Version 1.1 Institut Bauen und Umwelt e.V., Berlin.
www.ibu-epd.de

/ISO 14001/

Environment management systems - Requirements with guidance for use.

/ISO 14025/

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

/ISO 14044/

/DIN EN ISO 14044:2006-10/ Environmental management -- Life cycle assessment -- Requirements and guidelines

/ISO 50001/

Energy Management Systems- Requirements with guidance for use.

/ISO 846/

Plastics — Evaluation of the action of microorganisms

/PCR Part A/

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Waste code 20 03 01: Mixed municipal waste in accordance with the European Waste Catalogue (EWC)

**Publisher**

Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Tel +49 (0)30 3087748- 0
Fax +49 (0)30 3087748- 29
Mail info@ibu-epd.com
Web www.ibu-epd.com

**Programme holder**

Institut Bauen und Umwelt e.V.
Panoramastr 1
10178 Berlin
Germany

Tel +49 (0)30 - 3087748- 0
Fax +49 (0)30 - 3087748 - 29
Mail info@ibu-epd.com
Web www.ibu-epd.com

**Author of the Life Cycle Assessment**

FIT-Umwelttechnik GmbH
Westerstr. 13
38442 Wolfsburg
Germany

Tel 05362 72 69 474
Fax 05362 72 69 478
Mail bertram@fit-umwelttechnik.de
Web www.fit-umwelttechnik.com

Logo

Owner of the Declaration

Hilti Aktiengesellschaft
Feldkircher Strasse 100
9494 Schaan
Liechtenstein

Tel +423 234 2111
Fax +423 234 2965
Mail HAGHSE@hilti.com
Web www.hilti.com