

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A1

Owner of the Declaration	Hilti Aktiengesellschaft
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-HIL-20180151-IAA2-EN
Issue date	06.12.2018
Valid to	05.06.2024

**Cast In
Hilti AG**

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1. General Information

Hilti AG

Programme holder

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

Declaration number

EPD-HIL-20180151-IAA2-EN

This declaration is based on the product category rules:

Pre-formed fire protection systems for cable and duct insulation ,
01.08.2021
(PCR checked and approved by the SVR)

Issue date

06.12.2018

Valid to

05.06.2024

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

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

Cast In

Owner of the declaration

Hilti Aktiengesellschaft
Feldkircher Strasse 100
9494 Schaan
Liechtenstein

Declared product / declared unit

The declared product is HILTI Firestop Cast-In Device (CP 680). The declared unit refers to 1 piece Firestop Cast-In (CP 680). The packaging is also included in the calculation. The specification of the declared unit is in [kg]. This product is declared as the reference of a product family because it has the highest product weight of all.

Scope:

This document refers to the HILTI Firestop Cast-In Device (CP 680). For the compilation of the life cycle assessment, specific data were collected from the factory Rawang in Malaysia of the company HILTI. Data from the year 2017 are used, which correspond to the annual average. The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A1. 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	
<input type="checkbox"/>	internally
<input checked="" type="checkbox"/>	externally

Angela Schindler,
(Independent verifier)

2. Product

2.1 Product description/Product definition

The Hilti Firestop Cast-In Device CP 680 is a pre-formed firestop device offered in various sizes for combustible and non-combustible penetrations in floor applications.

This Product Specific EPD covers the different Cast-In Device sizes in the CP 680 family. This is possible due to the similar composition between the Cast-In Devices CP 680-M, -P and -PX. The CP 680 6" P, which is the biggest size of the Cast-In Device with the highest amount of raw materials and highest weight, was used as basis for the calculation in this EPD.

Short description of the Hilti Firestop Cast-In Device CP 680:

- One-step firestop solution for a variety of combustible and non-combustible pipe materials and diameters - no additional sealing required
- Integrated water and smoke seal
- Modular connection allows close placement of multiple penetrations
- Threaded connection allows attachment of modular accessories to cover further requirements (i.e. 1" above, W-rating)
- Ready-to-use out of the package

Product for which no legal provisions for harmonisation of the EU exist. For the use and application of the product the respective national provisions at the place of use apply, in Germany for example the building codes of the countries and the corresponding national specifications.

The Hilti Firestop Cast-In Device is a global product (not specific for EU-market): therefore the product was qualified according to different standards (depending on performance requirements/ product application and characteristics).

2.2 Application

- Concrete slabs built with traditional formwork or metal decking
- New building construction
- Sealing non-combustible (metal) penetrations
- Sealing insulated and non-insulated pipes
- Sealing combustible penetrations
- Concrete floor assemblies rated up to 4 hours

2.3 Technical Data

Products for use at temperatures between -5 and +50 °C, only indoor use.

Constructional data

Name	Value	Unit
Application temperature	-5 - 50	°C
Storage temperature	-5 - 50	°C
Temperature resistance	-20 - 100	°C
Reaction to fire	E	-
Halogenated flame retardants	no	-
Airborne sound insulation acc. /ISO 140-3/ and /DIN 52210/	see report available	dB
Durability and serviceability acc. /EOTA TR 024/ and /ETAG 026-2/ (inlay)	Y2	-
Mold growth acc. /ASTM G21/ and /ISO 846/	no	-

Product for which no legal provisions for harmonisation of the EU exist: Performance data of the product with respect to its characteristics in accordance to the relevant technical provision (no CE-marking).

As these are global products (not specific for EU-market): they

were qualified according to different standards (depending on performance requirements/ product application and characteristics). Some parts / properties qualified according to EU standards.

2.4 Delivery status

This Product Specific EPD covers the different Cast-In Device sizes in the CP 680 family. This is possible due to the similar composition between the Cast-In Devices CP 680-M, -P and -PX. The CP 680 6" P, which is the biggest size of the Cast-In Device with the highest amount of raw materials and highest weight, was used as basis for the calculation in this EPD.

Overview of the CP 680 variants in the CP 680 product family:

- Hilti Firestop Cast-In Device - 2":
 CP 680 2" - M - for non-combustible penetrants
 CP 680 2" - P - for combustible penetrants
 CP 680 2" - PX - for combustible penetrants

- Hilti Firestop Cast-In Device - 3":
 CP 680 3" - M - for non-combustible penetrants
 CP 680 3" - P - for combustible penetrants
 CP 680 3" - PX - for combustible penetrants

- Hilti Firestop Cast-In Device - 4":
 CP 680 4" - M - for non-combustible penetrants
 CP 680 4" - P - for combustible penetrants

- Hilti Firestop Cast-In Device - 6":
 CP 680 6" - M - for non-combustible penetrants
 CP 680 6" - P - for combustible penetrants

The "-M" models are identical to the corresponding "-P" models except for the intumescent seal (inlay size) --> "-P" models have more inlay material. The body color and markings are different to enable easy differentiation of products ("-M": black, "-P": red)

2.5 Base materials/Ancillary materials

Materialdistribution

Name	Value	Unit
Steel Cover sheet	173,0	g
PP Housing, Extension	575,8	g
EPDM Sealing ring	31,2	g
Inlays	533,4	g
Paper Packaging	199,6	g
Total	1513,0	g

The products are mainly made from PP plastic (Polypropylene housing and lid), a rubber membrane (EPDM (ethylene propylene diene monomer) sealing ring) which closes the gap between plastic part and pipe to be installed, and a metal part integrated in the housing to hold the intumescent inlay. The inlay is based on foaming graphite, which is activated in the event of a fire.

This product/article/at least one partial article contains substances listed in the candidate list (date: 13.11.2018) exceeding 0.1 percentage by mass: **no**.

No halogenated flame retardants are used (as per 2.3 - Technical Data). The product contains following substances to support the intumescent flame retardant properties:

- Ammonium Polyphosphate
- Melamine

2.6 Manufacture

The plastic parts of the housing are produced by injection molding of PP granulates. The intumescent inlays are fixed to the plastic housing with support of the metal cover sheet. The EPDM sealing ring is fixed between plastic parts to the plastic housing (compression of the EPDM ring).

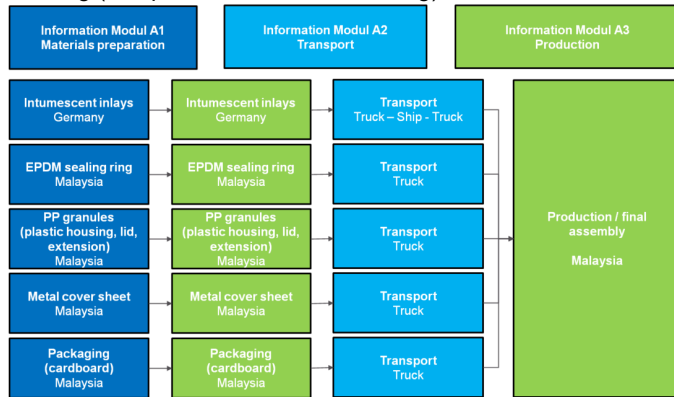


Illustration: Flow diagram of the production process

2.7 Environment and health during manufacturing

The manufacturing plant falls under Hilti's /Code of Conduct (CoC) for Suppliers/.

This is a public document and part of the contract with the manufacturing plant for the Hilti Firestop Cast-In Device. The CoC for Suppliers sets following expectations regarding environmental performance to be fulfilled:

- Strive to minimize waste and air, soil and water emission
- Contribute to recycling and reuse of materials and products
- Continuously improve energy efficiency in production processes and in the handling and transportation of goods
- Meet the requirements stated in the /Hilti Chemical Checklist/.

Suppliers may not handle chemicals in a way that harms the environment.

The injection molding process is the most energy consummating step during the production and assembly at this manufacturing plant for this product line. The final kitting steps are not automatized, resulting in reduced energy consumption.

Furthermore, Hilti's Code of Conduct request suppliers to ensure healthy and safe working conditions, to effectively prevent and control hazards and to ensure product safety.

Environmental and health impacts during manufacturing are evaluated during recurring audits.

2.8 Product processing/Installation

The product is delivered with an Instruction for Use explaining the basic steps for installation:

- 1) Fix the Cast-In Device to a substrate/support plate for the form work
- 2) Pour the concrete to the floor and "cast-in" the Hilti Firestop Cast-In Device
- 3) Remove the lid to install the penetrant

Due to the 'pre-formed' nature of the product (integrated intumescent inlay and EPDM rubber sealing ring), the

installation can be done without the use of wet-applied products/accessories (e.g. sealants to close the gaps around the device).

The Hilti Firestop Cast-In Device shall always be installed in accordance with Hilti literature and with the relevant approval (/UL - Underwriters Laboratories Inc. - Listings/, /FM - Factory Mutual Research - Approvals/, ...); always respecting defined substrate type, penetrant types/sizes, additional accessories, etc.

2.9 Packaging

The Hilti Firestop Cast-In Devices are supplied in cardboard boxes, which are designed according to the product size. The cardboard packaging can be recycled and is not a part of the product.

The packaged cast-in devices are shipped to distribution locations on reusable pallets.

2.10 Condition of use

The Hilti Firestop Cast-In Devices can be used to seal firestop openings in floors. In the event of penetrant changes: the Hilti Firestop Cast-In Device may remain in the opening. The device can be kept closed (in case of no penetrants / before the penetrant is installed) with help of the lid, which is integrated in the product design and delivered as part of the product. The device allows penetrants to be changed retrospectively. Hilti literature and official approvals must always be considered.

2.11 Environment and health during use

No environmental and health risks to the health of users of buildings are expected. Due to the repenetration function described in 2.10: the use of the Hilti Firestop Cast-In devices results not only in a lower total cost of ownership throughout the lifetime of a building, it also results in less waste, as no waste is created by redoing the firestopping everytime a penetrant change and repenetration is required.

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

Hilti Firestop Cast-In Device should not be exposed to water.

Mechanical destruction

In the event of a mechanical destruction of the Hilti Firestop Cast-In Device, the firestop penetration must be resealed or repaired.

2.14 Re-use phase

In the event of penetrant changes: the Hilti Firestop Cast-In Device may remain in the opening. The device can be kept closed (in case of no penetrants / before the penetrant is installed) with help of the lid, which is integrated in the product design and delivered as part of the product. The device allows penetrants to be changed retrospectively. Hilti literature and official approvals must always be considered.

2.15 Disposal

Hilti Firestop Cast-In Devices are not made from hazardous materials and can be disposed of in the same way as household waste – / (European) waste code: 20 03 01 01/.

2.16 Further information

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

3. LCA: Calculation rules

3.1 Declared Unit

The declared unit is a piece of HILTI Firestop Cast-In Device (CP 680) with 1.3134 kg. The packaging is additionally included in the calculation at 0.1996 kg. According to the PCR, the declared unit must be stated in m³. However, since this is a product that is used in numbers, this specification does not make sense for technical reasons, according to the manufacturer. The following table shows the data of the declared unit.

Declared unit

Name	Value	Unit
Declared unit	1	pce
Weight	1,513	kg

3.2 System boundary

Type of EPD is cradle to gate. The following information modules are defined as system boundaries in this study:

A1- A3 product stage:

- Raw material supply,
- Transport to the manufacturer,
- Production.

In order to grasp exactly the indicators and environmental impacts of the declared unit, a total of three information modules are considered. The information modules A1 to A3 describe the material supply, the transport to the production site, as well as the production process of the product itself.

3.3 Estimates and assumptions

The electricity mixes and other background data are calculated country-specifically for the production processes. For certain datasets, assumptions were made as part of this calculation .

3.4 Cut-off criteria

All information modules considered were included in the calculation in such detail that all requirements of /EN 15804/ are met.

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 documents the background data of the /GaBi 8.7 databases/ (SP 36), to which this study also refers. /Thinkstep/

3.6 Data quality

For the compilation of the life cycle assessment, specific data were collected from the factory Rawang, in Malaysia, of the HILTI AG from the year 2017. The background data from the /GaBi 8.7 database/ used is from the year 2018 and thus of high relevance. The material provision data for the product are taken from a disassembly and dismantling analysis carried out on behalf of Hilti AG /Dismantling study HILTI CP 680/. Since the masses of the individual materials have been determined with an accuracy of 0.1 g, the results of the LCA can be assumed to be of adequate quality.

3.7 Period under review

Data from the year 2017 are used, which correspond to the annual average.

3.8 Geographic Representativeness

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

3.9 Allocation

Allocation of co-products takes place in the information modules A1-A3, as the production waste of the steel components close-loop are fed to the processes of material provision as secondary material.

The production waste of the injection-molded components is thermally recovered. The electrical and thermal energy credits resulting therefrom are completely charged in module A3.

3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

4. LCA: Scenarios and additional technical information

Since the information modules A1 to A3 are considered in this study, no information is provided on LCA scenarios and other

technical information.

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 Piece Firestop Cast In CP 680

Parameter	Unit	A1-A3
Global warming potential (GWP)	kg CO ₂ eq	4.30652
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	2.69E-08
Acidification potential of land and water (AP)	kg SO ₂ eq	1.26E-02
Eutrophication potential (EP)	kg PO ₄ ³ eq	5.11E-03
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg Ethen eq	1.15E-03
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	4.35E-06
Abiotic depletion potential for fossil resources (ADPF)	MJ	86.5473

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A1: 1 Piece Firestop Cast In CP 680

Parameter	Unit	A1-A3
Renewable primary energy as energy carrier (PERE)	MJ	6.57972
Renewable primary energy resources as material utilization (PERM)	MJ	3.35328
Total use of renewable primary energy resources (PERT)	MJ	9.933
Non renewable primary energy as energy carrier (PENRE)	MJ	57.8403053056546
Non renewable primary energy as material utilization (PENRM)	MJ	32.3096946943454
Total use of non renewable primary energy resources (PENRT)	MJ	90.15
Use of secondary material (SM)	kg	2.26E-01
Use of renewable secondary fuels (RSF)	MJ	0
Use of non renewable secondary fuels (NRSF)	MJ	0
Use of net fresh water (FW)	m ³	1.51E-02

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A1: 1 Piece Firestop Cast In CP 680

Parameter	Unit	A1-A3
Hazardous waste disposed (HWD)	kg	6.02E-07
Non hazardous waste disposed (NHWD)	kg	4.46E-02
Radioactive waste disposed (RWD)	kg	1.35E-03
Components for re-use (CRU)	kg	0
Materials for recycling (MFR)	kg	0
Materials for energy recovery (MER)	kg	0
Exported electrical energy (EEE)	MJ	0
Exported thermal energy (EET)	MJ	0

All indicators are collected in accordance with /EN 15804/. The impact assessment of environmental categories is carried out according to /CML 2001 Apr. 2015/. The SM is the use of secondary material in steel and paper production.

6. LCA: Interpretation

The dominance analysis shows that the main causes of environmental impacts and indicators can be found in information modules A1 and A3. This shows the global warming potential for material supply at approx. 52% and production at 45%, based on all information modules.

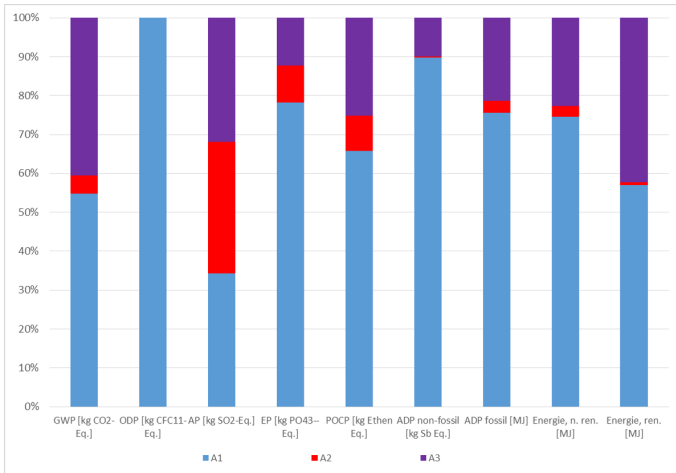
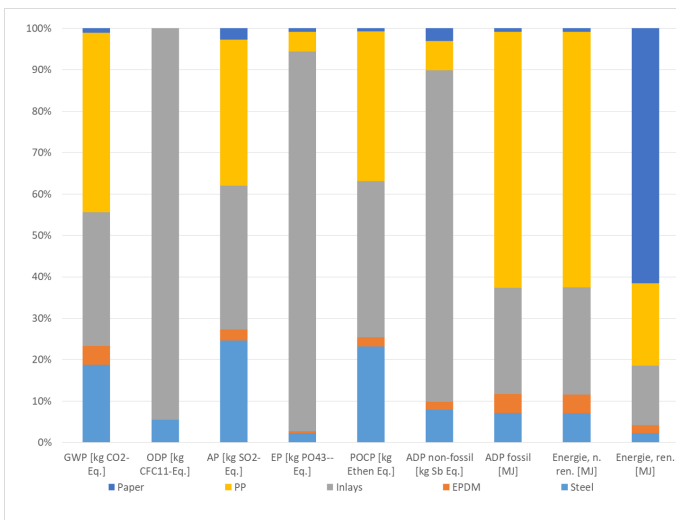


Illustration: Dominance analysis A1 - A3

If you take a closer look at the material supply for the HILTI Firestop Cast-In Device (CP 680), it becomes clear that two raw materials make a decisive contribution to the respective environmental impacts and indicators. The material supply of the polypropylene (housing and extension) generates about 43% of the greenhouse gas emissions. For steel (cover) it is about 18% greenhouse gas emissions.



7. Requisite evidence

Due to the similar composition between the Hilti Firestop Cast-In Devices -M, -P and -PX and because the assessments were done based on the product with highest amount of raw materials (CP 680 6"), this data and its supporting documents apply for the products listed in chapter "2.4 - Delivery Status". In case a result applies only for one of the sizes/variant of the product: the product/material covered by the attribute and mentioned in the correspondent test report is listed below.

7.1 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.

AgBB

The tested product complies with the requirements of DIBt

Illustration: Dominance analysis A1

Since the mass of the components was determined by means of a dismantling and dismantling study with an accuracy of 0.1 g, the results of the life cycle assessment can be assumed to be of adequate quality /Dismantling study HILTI CP 680/.

The greenhouse gas emissions from the production of the product are 63% from the injection molding process of the housing and the extension from polypropylene to Rawang. 31% of the greenhouse gas emissions come from the production of the Inlays.

The relevant datasets used to calculate the material supply of the HILTI Firestop Cast-In Device (CP 680) are highly topical (DE: PP- Granulat, source: TS, year: 2017; GLO: steel, coil cold-rolled , Source: /Worldsteel, Year: 2014/).

Since these datasets strongly influence the results, as shown by the dominance analysis, this also applies to the total calculation.

(October 2010) in combination with the NIK values from AgBB (May 2010) for use in the indoor environment. In accordance with the /Eurofins Report, No G04983A/

Test conditions:

- Tested sample: CP 680 2" "-P". The loading of the test chamber was 1 test specimen per chamber.
- Test method as defined by AgBB version May 2010
- Deviations from the Test Method: No calibrations standards have been available for the measured individual substances with NIK value but with identification categories 2 or 3. Consequently these substances were not quantified with their relative response factor, but instead as toluene equivalent. No other deviations.

Eurofins Indoor Air Comfort label

The tested product CP680 complies with the requirements of

/Eurofins Indoor Air Comfort Label/, version 09/2010.
In accordance with the /Eurofins Report, No G04983B/

Test conditions:

- Tested sample: CP 680 2" "-P". The loading of the test chamber was 1 test specimen per chamber.
- Test method as defined by Eurofins Indoor Air Comfort Label, part 3 isolation material
- Test limitation: This test covered only substances that can be adsorbed on Tenax TA and that can be thermally desorbed. If other emissions occurred, then these could not be monitored (or with limited reliability only).

CDPH

Furthermore the products CP680 "-M" and "-P" up to 4" were measured according to /CDPH testing standards/.

The test results of the tested product indicate that the product qualifies for /LEED v4/ specifications on VOC emissions by complying with:
VOC emissions specifications in LEED EQ credit "Low-emitting products":

- The requirements of /CDPH-IAQ (California Department of Public Health, Feb 2010)/; and a TVOC below 0.5 mg/m³ in both office and class room.

In accordance with /Eurofins test report no. 392-2017-00364404_H_EN/ and /Eurofins test report no. 392-2017-00364403_H_EN/.

Test Conditions:

- Tested samples: CP 680 4" ("-M" and "-P")
- Preparation of Test Specimen: The product lid was removed before the sample was placed in an upright position in the test chamber (as the lid does not stay attached to the product/in the building after installation)

A sealing cap was removed before the sample was placed in an upright position in the test chamber

7.2 Acoustic tests

Sound level transmission in the evaluated area acc. /ISO 140-3/ and /DIN 52210/ amounts between 100 and 3150 Hz for Hilti CP 680 with sewage piping DN 100:

Dn,w = 54 dB

In accordance with /Test certificate from IAB Oberursel P-24-A42230en/3093/

Sound level transmission in the evaluated area acc. /ISO 140-3/ and /DIN 52210/ amounts between 100 and 3150 Hz for Hilti CP 680 without sewage pipe:

Dn,w = 37 dB

In accordance with /Test certificate from IAB Oberursel P-24-A42239en/3093/

Acoustic performance test results shall always be evaluated by specialists and the complete test set-up shall be considered, as the results of a test for a product in a defined set-up will not necessarily correspond to the real application configuration (performance always to be assessed case-by-case).

8. References

/EN 13501-1/

/EN 13501-1:2007+A1/, Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

/ASTM G 21/

/ASTM G 21:2015-00/, Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

/ISO 846/

/ISO 846:1997-06/, Plastics — Evaluation of the action of microorganisms

/ISO 140-3/

/ISO 140-3:1995 + AM 1:2004/, Acoustics - Measurement of sound insulation in buildings and of building elements - Part 3: Laboratory measurements of airborne sound insulation of building elements; (German version EN 20140-3:1995 + A1:2004)

/DIN 52210/

/DIN 52210-6:2013-07/, Tests in building acoustics; airborne and impact sound insulation

/Waste code: 20 03 01/

Waste code 20 03 01: Mixed municipal waste 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)

/AgBB/

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

/Eurofins Indoor Air Comfort Label/

Eurofins "Indoor Air Comfort" (IAC) product certification is a tool to show compliance of a product with different low VOC emissions criteria

Eurofins Report, No G04983A

VOC - Attestation of compliance with the requirements of DIBt (October 2010) in combination with the NIK values from AgBB (May 2010) for use in the indoor environment (28.12.2010)

Eurofins Report, No G04983B

VOC test report confirming compliance with the requirements of Eurofins Indoor Air Comfort Label, version 09/2010 (28.12.2010)

CDPH testing standards

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

Eurofins test report no. 392-2017-00364404_H_EN

VOC test report for verification of compliance with CDPH/EHLB/Standard Method V1.2. (January 2017)
Tested product: CP 680-P 4"
Report from December 2017

Eurofins test report no. 392-2017-00364403_H_EN

VOC test report for verification of compliance with CDPH/EHLB/Standard Method V1.2. (January 2017)
Tested product: CP 680-M 4"
Report from December 2017

Test certificate from IAB (Ingenieurgesellschaft für Akustik und Bauphysik mbH Co. Kg) Oberursel P-24-A42230en/3093

Sound level transmission in the evaluated area acc. to /ISO



140-3/ and /DIN 52210/ amounts between 100 and 3150 Hz for Hilti CP 680 with sewage piping DN 100 (February 2004)

Test certificate from IAB Oberursel P-24-A42239en/3093

Sound level transmission in the evaluated area acc. to /ISO 140-3/ and /DIN 52210/ amounts between 100 and 3150 Hz for Hilti CP 680 without sewage pipe (February 2004)

/EOTA (European Organisation for Technical Assessment) TR 024/

Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products

/ETAG (European Technical Approval Guidelines) 026-2/

/ETAG 026-2:2008-10/, Guideline for European Technical Approval of Fire Stopping and Fire Sealing Products, Part 2 Penetration Seals Clause 1.2: Durability

MPA (Materialprüfungsanstalt Universität) Stuttgart, Report 9017813000-Stä

Test report for durability and serviceability assessment in accordance with /TR024/ and /ETAG 026-2/ assessed for inlay (November 2009)

MPA Stuttgart, Classification report 901 7813 004

Test report for classification of burning behavior of the intumescent inlay in accordance with /EN 13501-1/ (September 2009)

SGS Institute Fresenius test report 703583

Mold growth test report for classification in accordance with /ISO 846/ and /ASTM G 21/ for PP material and EPDM rubber material (November 2006)

SGS Institute Fresenius test report 4509175917

Mold growth test report for classification in accordance with /ISO 846/ and /ASTM G 21/ for intumescent inlay (June 2011)

Thinkstep

<http://www.gabi-software.com/deutsch/index/> (20.10.2018)

Worldsteel Association

<https://www.worldsteel.org/> (20.10.2018)

GaBi 8.7 Software Ganzheitliche Bilanzierung

<http://www.gabi-software.com/deutsch/index/> (20.10.2018)

CML 2001 Apr. 2015

<https://www.universiteitleiden.nl/> (20.10.2018)

Product Category Rules, Part B

Pre-formed fire protection systems for cable and duct insulation , 03.2015

/ISO 14044/

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

Dismantling study HILTI CP 680

Dismantling study HILTI CP 680 06.2011

Code of Conduct (CoC) for Suppliers

Hilti contractual requirements towards suppliers in the areas of human rights, labor standards, workplace safety and environmental protection as well as regarding anti-corruption.

Online available under:

https://www.hilti.group/content/dam/documents/Media-Release/supplier_documents/en/CoCfS_EN.pdf (status: 30.10.2018)

Hilti Chemical Checklist

Mandatory checklist to be filled out by supplier for declaration of hazardous substances in all supplied products

UL - Underwriters Laboratories Inc. - Listings

UL Listing means that UL has tested representative samples of a product and determined that the product meets specific, defined requirements. These requirements are often based on UL's published and nationally recognized Standards for Safety

FM - Factory Mutual Research - Approvals

Third-Party Certification which can be applied to an entire product or system, or to a single performance characteristic.

/LEED v4/

"Leadership in Energy and Environmental Design" green building rating system - version 4



Publisher

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