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-20220070-IAA1-EN
Issue date	05/11/2021
Valid to	04/10/2027

Fire Finish 120+ CFP-SP WB

Hilti Aktiengesellschaft

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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1. General Information

Hilti Aktiengesellschaft

Programme holder

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

Declaration number

EPD-HIL-20220070-IAA1-EN

This declaration is based on the product category rules:

Coatings with organic binders, 01/08/2021
(PCR checked and approved by the SVR)

Issue date

05/11/2021

Valid to

04/10/2027

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

Dr. Martina Bender
(Managing Director Institut Bauen und Umwelt e.V.)

Fire Finish 120+ CFP-SP WB

Owner of the declaration

Hilti Aktiengesellschaft
Feldkircher Strasse 100
9494 Schaan
Liechtenstein

Declared product / declared unit

The declared product is Fire Finish 120+ CFP-SP WB. The declared unit involves 1 kilogram of the product. The packaging is included in the calculation

Scope:

This document refers to Fire Finish 120+ CFP-SP WB. Specific data from the manufacturing plant was used for generating this LCA, which is based on data from 2020 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 bezeichnet*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally

Dr.-Ing. Wolfram Trinius,
(Independent verifier)

2. Product

2.1 Product description/Product definition

Fire Finish 120+ CFP
SP-WB is a water based, intumescent fire protection coating. It is a dispersion
coating with organic binders, water, mineral fillers, pigments, and additives.
The coating is classified as low emission, and does not contain borates, plasticizers,
halogens, formaldehydes or alkylphenol ethoxylates (APEO).
Please select one of the following options and delete the header of the selected [alternative]:

[Alternative 1a: Product according to the CPR based on a hEN]:

For the placing on the market of the product 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 EN xyz:date, title and the CE-marking.

For the application and use the respective national provisions apply.

[Alternative 1b: Products according to the CPR based on an 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. 305/2011 (CPR) applies. The product needs a declaration of performance taking into consideration ETA no. xyz:date, title and the CE-marking.

For the application and use the respective national provisions apply.

[Alternative 2a: Product not harmonised in accordance with the CPR but in accordance with other provisions for harmonisation of the EU]:

For the placing on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the following legal provisions apply:

- *Directive no. xyz: date, title*
- *Regulation no. xyz: date, title*
- and the harmonised standards based on these provisions:
- *EN xyz: date, title*

The CE-marking takes into account the proof of conformity with the respective harmonized standards based on the legal provisions above.

For the application and use the respective national provisions apply.

[Alternative 2b: Product harmonized as well in accordance with the CPR as with other provisions for harmonisation of the EU]:

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. 305/2011/ (CPR) and the following other provisions for harmonisation apply:

- *Directive (EU) xyz: date, title*
- *Regulation (EU) no. xyz: date, title*

The product needs a declaration of performance in accordance with the CPR taking into consideration /EN xyz: date/, title or /ETA no. xyz/:date, title respectively and the CE-marking.

The CE-marking for the product takes into account the Declaration of Performance in accordance with the CPR and the proof of conformity with the following harmonised standards or based on the other provisions for harmonisation:

- *EN xyz: date, title*
- *Source, date, title*

For the application and use the respective national provisions apply.

[Alternative 3: 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 federal states and the corresponding national specifications.

2.2 Application

Fire Finish 120+
CFP-SP WB helps protecting structural steel against the effects of fire. It is
tested in accordance with ASTM E119/UL263/ULC-S101 standards for a fire
resistance of up to 240 minutes.

Fire Finish 120+
CFP-SP WB is approved for interior general purpose, as well as for exterior
application with an approved topcoat.

In general, the
complete coating system consists of a suitable anti corrosion primer, the fire
protection coating and, if required, an approved topcoat. Primers and topcoats
are not components of this EPD.

2.3 Technical Data

Fire Finish 120+ CFP-SP WB contains no hazardous substances exceeding the limit values of the *REACH Directive (EC/1907/2006),*
Annex XVII and the *ECHA list of substances* of particularly high concern.

Construction data

Name	Value	Unit
Density	1.3 - 1.4	kg/m^3
Solids content	67 - 73	%
pH value	7.6 - 8.6	$-\log_{10}(a_{H+})$
Fire resistance rating ASTM E119/UL263/ULC-S101	Up to 240	min
Durability ASTM E119/UL263/ULC-S101	Interior General Purpose without topcoat Exterior with topcoat	-
Total VOC ISO 11890-2	1.72 *	Detection limit

*VOC
Limit value for "Fire-Proofing Coatings" (SCAQMD 1113, 02/2016)

Fire Finish 120+ CFP-SP WB is an emission-rated coating material. Sampling, testing and evaluation were effected in accordance with the latest versions of *AgBB, LEED v4, LEED v4.1, ISO 16000-3, ISO 16000-6, ISO 16000-9* and *ISO 16000-11*.
USA:
Fire Finish 120+ CFP-SP WB meets the requirements for VOC product emissions according to the California Department of Public Health (CDPH) Standard Method v1.2-2017 (California Specification 01350(01/2017)) and VOC content according to ASTM D 2369 -10 and South Coast Air Quality Management District (SCAQMD) Rule 1113. These criteria meet the requirements for low-emitting Paints and Coatings in credit EQc2 of the LEEDv4 rating System and the LEED v4.1 Rating System.

Fire Finish 120+ CFP-SP WB is approved and monitored by UL LLC. The product is registered under File No. R26677 and tested in accordance with ASTM E119/UL263/ULC-S101. Fire performance was verified for the following designs:

- I and H columns: BXUV.Y633
- Hollow columns: BXUV.Y634
- Beams: BXUV.N640
- Floor assemblies: BXUV.D990, BXUV.E901

In accordance with ASTM E119/UL263/ULC-S101, the following compatibility of generic primer types was established:

- Alkyds
- Acrylates
- Two component epoxies
- Two component PUs

2.4 Delivery status

Fire Finish 120+ CFP-SP WB is a liquid coating material and is offered in plastic containers of 5 gal size.

2.5 Base materials/Ancillary materials

Name	Value	Unit
Polymer dispersion	15 - 25	% [m/m]
Pigment TiO2	5 - 15	% [m/m]
Ammonium polyphosphate	20 - 30	% [m/m]
Melamine	5 - 15	% [m/m]
Pentaerythritol	5 - 15	% [m/m]
Mineral fibres	< 3	% [m/m]
Dispersing agents	< 1	% [m/m]
Thixotropic agents	< 1	% [m/m]
In-can preservatives	< 0,25%	% [m/m]
Water	15 - 25	% [m/m]

The in-can preservatives contained in the product originate from the group of isothiazolinones and the group of bacteriostatic and disinfecting diols.

2.6 Manufacture

The manufacture of Fire Finish 120+ CFP-SP WB is effected in a fully automatically controlled dispersion unit. The dosage of the liquid raw materials is effected largely automatically; powders are dosed manually. The preliminary products required for manufacture are made available after an inspection of the incoming materials.

After the batches have been produced, an internal quality control is carried out. This comprises technical quality characteristics relating to paint and fire protection requirements.

Besides the internal factory control, official external monitoring takes place at regular intervals.

2.7 Environment and health during manufacturing

The preliminary products are stored in such a way that, as far as humanly possible, they cannot enter the environment.

With raw materials that are dosed automatically, direct contact between the workers and the preliminary products is avoided. When raw materials in powder form are dosed manually, direct contact with the raw material is reduced to a minimum. As well as adequately dimensioned extraction units, the workers have

protective clothing and dust masks at their disposal. Suitable body protection
equipment is also provided.

The production process is optimised in such a way that the parts of the unit
can be cleaned in situ. Any cleaning water is redirected into the production
process as production water. If this is not possible on account of a product
change, the cleaning water is collected and thermally recycled.

All types of waste are sorted, stored and returned to the recycling process.

Fire Finish 120+ CFP-SP WB contains no hazardous substances exceeding the limit values
of the *REACH Directive (EC/1907/2006), Annex XVII* and the *ECHA list
of substances* subject to declaration.

2.8 Product processing/Installation

For best results,
airless spraying is the preferred method of application. For touch up and
repair purposes, Fire Finish 120+ CFP-SP WB can also be applied via brush or
roller.

Details concerning
surface preparation, application and drying behaviour can be found in the
Application Guideline available at www.hilti.com
(US) or www.hilti.ca (Canada).

2.9 Packaging

The coating is filled in plastic containers
made of polypropylene (PP), which are recycled by the customers returning the
packaging. The plastic containers are packed on pallets for shipping and are
protected with a shrink foil made of low-density polyethylene (LDPE).

2.10 Condition of use

This is an intumescent fire protection
coating on an aqueous polymer dispersion basis for the protection of steel
components. After the coating has been applied, the film is formed by physical
drying – through evaporation of the receptively contained water.

The dried polymer film, including the non-aqueous substances, remains on the
coated component.

2.11 Environment and health during use

Fire Finish 120+ CFP-SP WB is a coating with
extremely low emissions and is not considered to pose a health risk. Emission
tests – performed in independent laboratories – have confirmed that the fire
protection coating meets the requirements of various national and international
emissions standards, with classification in the lowest emission class (see
Section 7).

The coating does not contain any borates, plasticisers, halogens, formaldehydes
or alkyl phenol ethoxylates (APEO) and is therefore free of chlorinated
paraffins, Tris(2-chlorethyl)phosphate (TCEP) and Tris(2-chlorisopropyl)phosphate (TCPP).

2.12 Reference service life

According to UL 263, the service life of Fire Finish 120+ CFP-SP WB is unlimited when used for the intended purpose. A precondition for a long service life is that the requirements of correct
handling and regular inspection of the coated surfaces are satisfied.

The information concerning service life cannot be interpreted as a guarantee
given by the manufacturer, but serves as an aid towards the selection of the
right product, taking account of the expected and economically reasonable
service life of the building. When the products are used according to the
standard codes of practice, adverse influences through ageing are not known.

2.13 Extraordinary effects

Fire

Intumescent fire protection coatings are
reactive systems which, under the influence of temperature and through a sharp
increase in volume (propellant melamine – decomposition into NH3, N2, H2O and
CO2), form a high-carbon insulation layer. On account of its very low thermal
conductivity, the insulation layer protects the substrate from a material-destroying increase in temperature. Through the further influence of
temperature, a stable, inorganic insulation layer is finally formed, consisting
mainly of titanium pyrophosphate. The mode of functioning of the fire
protection coating is thus irreversible.

Fire protection

Name	Value
Building material class acc. to EN 13501-1	E
Flame Spread in accordance with ASTM-E84	FSI = 0 / DSI = 0

FSI = Flame Spread Index
DSI = Smoke Development Index

Water

Fire Finish 120+
CFP-SP WB is approved for interior general purpose, as well as for exterior
application with an approved topcoat.

Without topcoat,
exposure of the coating to water results in a softening and a slight ammoniacal
reaction (pH 7.6 - 8.6) of the coating film.

No substances
hazardous to water are washed out.

Mechanical destruction
To repair surface
damage and surface impairments, follow the instructions in the Application
Guideline available at www.hilti.com (US) or
www.hilti.ca (Canada).

No effects on the environment caused by
unforeseen mechanical destruction are known.

2.14 Re-use phase

On account of its share of organic
products, Fire Finish 120+ CFP-SP WB has a substance-inherent energy content, which can
be recovered in incineration plants.

Taking account of the carbon content of the coating, the steel coated with Fire Finish 120+ CFP-SP WB can be returned to the steel recycling process.

If the fire protection coating is to be deposited separately, it meets the
required standards for disposal. On account of the thermoplastic properties of
the fire protection coating, the latter can be softened with a hairdryer and
then mechanically removed with a scraper.

2.15 Disposal

The following waste code numbers must be
taken into account:

a) Coated steel

AVV no. (recommended): 170405
Construction and demolition waste – Iron and steel

b) Solid product residue:

AVV no. (recommended): 080118 Waste from paint and varnish removal with
the exception of that covered by 080117

c) Liquid product residue:

AVV no. (recommended): 080120 Aqueous
suspensions containing paint and varnish with the exception of that covered by
080119

Packaging that cannot be cleaned is to
be disposed of like the substance. Uncontaminated packaging can be recycled.

AVV no. (recommended): 1501025
Packaging made of plastic

2.16 Further information

Further product
information is available at www.hilti.com
(US) or www.hilti.ca (Canada).

3. LCA: Calculation rules

3.1 Declared Unit

The declared unit is a fire retardant by
Hilti Aktiengesellschaft with the designation Fire Finish 120+ CFP-SP WB, with packaging. The
calculated weight is one kilogram of the fire retardant. The packaging is also
included in the calculation. The following table depicts the data on the
declared unit.

Declared unit

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

For IBU core EPDs (where clause 3.6 is part of the EPD): for average EPDs, an estimate of the robustness of the LCA values must be made, e.g. concerning variability of the production process, geographical representativeness and the influence of background data and preliminary products compared to the environmental impacts caused by actual production.

3.2 System boundary

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

A1 - A3 Product stage:

- A1, Raw material supply
-

A2, Transport to manufacturer

•
A3, Production

A
total of three information modules are reviewed in order to obtain an accurate
record of the indicators and environmental impact of the declared unit.
Information modules A1 to A3 outline the provision of raw materials,
transportation to the production facility and the actual product production
process. The preliminary products are procured mainly in Germany. Transport is
exclusively by truck. The following process diagram depicts the production
process on which this is based.

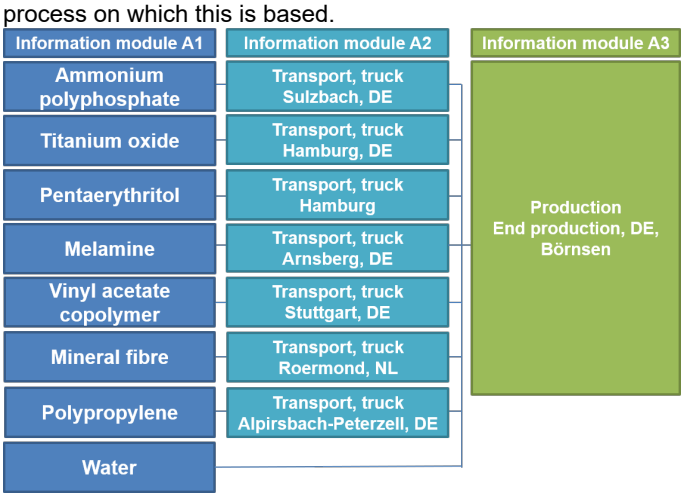

Fig: Flow chart of the production process

3.3 Estimates and assumptions

Provision of the titanium oxide material is
calculated using the GLO data set: market for ilmenite, 54% titanium dioxide *ecoinvent 3.6*. As titanium oxide is
regarded as a preliminary product of titanium dioxide, this data set is
selected on account of its lower environmental loads compared to a conventional
data set for titanium dioxide in order to appropriately depict the lower
environmental loads of the preliminary product.

This is also applicable for the formula
contents vinyl acetate copolymer (50% aqueous), which is shown by the dataset
vinyl acetate and water. A glass fibre is assumed for calculating the mineral
fibres.

Since the transportation routes are
mainly within Germany, a German mixture was used as a basis for the provision
of fuel.

3.4 Cut-off criteria

All of the information modules under review
were included in detail in the calculation so as to comply with the
requirements of *EN 15804*.

The following formula contents come
under the cut-off criterion because they are far below 5% weight of the product
mass: Dispersing agents (<1%), thixotropic agents (<1%) and in-can
preservative (<0.25%) are not included in the calculation.

Material consumption for the
Euro-pallets used for transport is less than 5% by mass on account of the fact
that they are reused and therefore fall short of the cut-off criterion in the
overall calculation.

3.5 Background data

The basis for the background data from the *GaBi 10* databases (SP 40), to which this study also refers, is documented in the
following link:

3.6 Data quality

Specific data for 2020 from the manufacturing plant in Börnsen, Germany was used for generating this Life
Cycle Assessment. The masses of individual product components come from the
information on the formula. According to the manufacturer, it can be assumed
that the accuracy of this information is high.

3.7 Period under review

This LCA is based on data from 2020 which corresponds with 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: Germany

3.9 Allocation

Co-products are allocated in the
information modules A1-A3. The production waste incurred by injection-moulded
parts and production completion in Börnsen is thermally recovered. The ensuing
electric and thermal energy credits 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. Unter dem folgenden Link ist die Datenbasis der Hintergrunddaten der *GaBi 10*-Datenbanken (SP 40) dokumentiert, auf die
sich auch diese Studie bezieht.

4. LCA: Scenarios and additional technical information

No additional scenarios were declared for the underlying EPD.

In case a **reference service life** according to applicable ISO standards is declared then the assumptions and in-use conditions underlying the determined RSL shall be declared. In addition, it shall be stated that the RSL applies for the reference conditions only.

The same holds for a service life declared by the manufacturer. Corresponding information related to in-use conditions needs not be provided if a service life taken from the list on service life by BNB is declared.

5. LCA: Results

In Table 1 "Description of the system boundary", all declared modules shall be indicated with an "X"; all modules that are not declared shall be indicated with "MND" (As default the modules B3, B4, B5 are marked as MNR – module not relevant). In the following tables, columns can be deleted for modules that are not declared. Indicator values should be declared with three valid digits (eventually using exponential form (e.g. 1,23E-5 = 0,0000123). A uniform format should be used for all values of one indicator.
If several modules are not declared and therefore have been deleted from the table, the abbreviations for the indicators can be replaced by the complete names, while the readability and clear arrangement should be maintained; the legends can then be deleted.
If due to relevant data gaps, an indicator cannot be declared in a robust way, then the abbreviation “IND” (indicator not declared) should be used for this indicator.

- 0 - calculated value is 0
- 0 - value falls under the cut-off
- 0 - assumption which exclude any flows (e.g. exported electricity A1-A3)
- IND – in cases where the inventory does not support the methodological approach or the calculation of the specific indicator IND shall be used.

If no reference service life is declared (see chapter 2.13 "Reference Service Life"), the LCA results of the modules B1-B2 and B6-B7 shall refer to a period of one year. This shall then be indicated as an explanatory text below the tables. In addition, the formula for the quantification of such B-modules over the total life cycle shall be provided.

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: HENSOTHERM® 490 KS [1kg]

Parameter	Unit	A1-A3
Global warming potential (GWP)	kg CO_2 eq	1.35021
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	6.78E-08
Acidification potential of land and water (AP)	kg SO_2 eq	3.49E-03
Eutrophication potential (EP)	kg PO_4^3 eq	2.6E-03
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg Ethen eq	3.72E-04
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	1.69E-05
Abiotic depletion potential for fossil resources (ADPF)	MJ	25.76764

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A1: HENSOTHERM® 490 KS [1kg]

Parameter	Unit	A1-A3
Renewable primary energy as energy carrier (PERE)	MJ	1.753965
Renewable primary energy resources as material utilization (PERM)	MJ	0
Total use of renewable primary energy resources (PERT)	MJ	1.753965
Non renewable primary energy as energy carrier (PENRE)	MJ	15.8864
Non renewable primary energy as material utilization (PENRM)	MJ	11.12
Total use of non renewable primary energy resources (PENRT)	MJ	27.0064
Use of secondary material (SM)	kg	0
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	0.010492753

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A1: HENSOTHERM® 490 KS [1kg]

Parameter	Unit	A1-A3
Hazardous waste disposed (HWD)	kg	2.86E-08
Non hazardous waste disposed (NHWD)	kg	1.58E-02
Radioactive waste disposed (RWD)	kg	2.54E-04

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+A1*. The estimated impact of environmental impacts is in accordance with *CML 2001 Apr. 2015*.

6. LCA: Interpretation

The dominance analysis indicates that the main causes of environmental impacts and indicators can be found in information module A1. This depicts the global warming potential as accounting for approx. 88% for the provision of materials, in terms of all information modules.

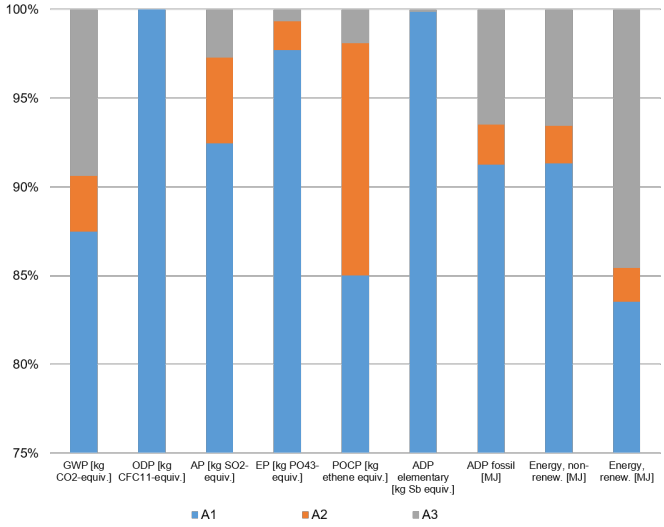

Fig.: Dominance analysis information modules A1 to A3

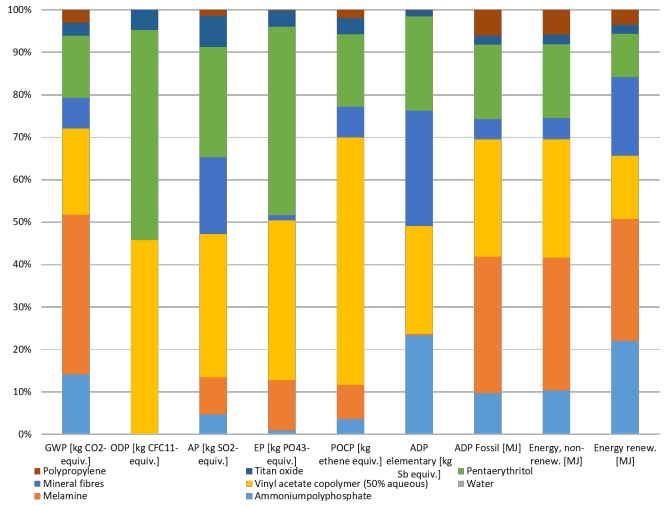

Fig.: Dominance analysis information module A1

If we look at the material provision for the fire retardant Fire Finish 120+ CFP-SP WB in detail, it becomes clear that four raw materials make a decisive contribution to the environmental impacts and indicators in question.

The material provision of the melamine accounts for approx. 38% of the global warming potential. The vinyl acetate copolymer accounts for approx. 20%, pentaerythritol for approx. 15% and ammonium polyphosphate approx. 14% of greenhouse gas emissions.

The masses of individual product components come from the information on the formula. According to the manufacturer, it can be assumed that the accuracy of this information is high.

The relevant data sets that were used to calculate the material provision of the product are absolutely up to date (DE: melamine, *GaBi 10*, year: 2019; GLO: vinyl acetate, *ecoinvent 3.6*, year: 2019; GLO: Pentaerythritol, *ecoinvent 3.6*, year: 2019; EU-28: ammonium polyphosphate, *GaBi 10*, year: 2019).

As these data sets have a strong influence on the results – as indicated by the dominance analysis – the same

also applies for the overall calculation.

7. Requisite evidence

As a general rule, all statements must be documented with measured data (presented by the corresponding test certificates). The methods of evidence and the test conditions have to be described together with the results.

If substances are not detected, the limit of detection must be included in the declaration.

Interpreting statements such as "… free of …" or "… are entirely harmless …" are not allowed.

If evidence required by the specific PCR part B is not provided, this has to be justified under the respective title for the required evidence.

If relevant for the scope of application of the declared product, or if derivable from its material composition, it is recommended to provide additional adequate evidence.

7.1 VOC emissions
For products used in indoor applications.
Test procedure to AgBB diagram indicating the measuring agency, date and results as a range of values. At least the following must be declared:

VOC emissions

Name	Value	Unit
LEED v4.1 overview of results		
CMR-VOC (14 days)	not verifiable	µg/m³
TVOC (12 days)	56	µg/m³
R (dimensionless) (14 days)	0,19	
SVOC (14 days)	not verifiable	µg/m³
Formaldehyde (12 days)	<2	µg/m³
Acetaldehyde (14 days)	2	µg/m³
Carbon disulphide CS2 (14 days)	<1	µg/m³

Test report

eco Institut - Test Report No. C54754-001 II of 17 December 2019

The *LEEDv4.1* test was carried out
with 50% of the maximum approved application volume for closed steel profiles
in accordance with *UL 263*.

Fire Finish 120+ CFP-SP WB meets

(a) the requirements for VOC product emissions according to the California
Department of Public Health (*CDPH*) Standard Method v1.1-2017 (California
Specification 01350 (01/2017) and

(b) the requirement for VOC content according to *ASTM D 2369-10* and
South Coast Air Quality Management District (*SCAQMD*) Rule 1113.

These criteria meet the requirements on low-emission paints and coatings in the
"credit EQc2" system of the *LEED v4* and *LEED v4.1* assessment
systems.

7.2 Leaching
Only for outdoor applications:
measurement of leaching performance (eluate analysis), where relevant for the area of application. Future measurement procedure to CEN TC 351 WG 1 and TC 139 WG 10 (no evaluation currently possible). 7.3 Fire gas toxicity
The corresponding test standard and test institute must be indicated.

8. References

IBU 2021

Principles and processes

IBU (2021): General
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The current version of PCR Part A and PCR Part B of the PCR document on which they are based must be referenced.

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