ENVIRONMENTAL PRODUCT DECLARATION

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

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-20240160-CBJ1-EN
Issue date	10.09.2024
Valid to	09.09.2029

MFT Accessories – Ventilated Facade substructure

Hilti AG

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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General Information

Hilti AG

Programme holder

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

Declaration number

EPD-HIL-20240160-CBJ1-EN

This declaration is based on the product category rules:

Building metals, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

10.09.2024

Valid to

09.09.2029

Dipl.-Ing. Hans Peters
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MFT Accessories – Ventilated Facade substructure

Owner of the declaration

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Declared product / declared unit

The adapter plate MFT-S2S UI AP L is the representative product for accessories used in Ventilated Façade systems. The declared unit is to kg of product. The packaging is included in the calculation.

Scope:

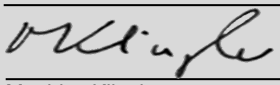
This document relates to the MFT-S2S UI AP L as a representative product for accessory products. MFT-S2S UI AP L comes with a polypropylene isolator and without. For the calculation the adaptor plate with polypropoylene was used.
Accessories for Ventilated Façade systems cover the same applications and are very similar in material constitution (mainly aluminum) and therefore, have been summarized in this EPD. The accessories portfolio includes connectors, adapter plates, cassette support profiles, mounting elements and hangers (see item list below).

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)

Product

Product description/Product definition

MFT-S2S UI AP L is designed as an aluminum substructure system. The brackets are suitable for all façade cladding. The accessory items are used for fastening ventilated façade substructures to
concrete, masonry, steel frame structure and wood.
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 1090-1:2009+A1:2011.

Accessories (Adapterplate / Agraffe / Montageelement)

Productgroup	Name	Articlenumber	Weight / item [kg]
Hanger - all sizes and types	Agraffe MFT-H 50 T	2301604	0,03
	Agraffe MFT-HAF 80 T	2301603	0,06
	Agraffe MFT-H 40 K	2301602	0,03
	Agraffe MFT-HAF 40 K	2301601	0,03
	Agraffe MFT-H 150 K	2301600	0,10
	Agraffe MFT-HAF 150 K	2301599	0,11
	Agraffe MFT-H 50 RL9	2301598	0,04
	Agraffe MFT-HAF 50 RL9	2301597	0,05
	Agraffe MFT-H 50 RL7	2301596	0,04
	Agraffe MFT-HAF 50 RL7	2301595	0,05
	Agraffe MFT-H 40 RL8,5	2301594	0,03
	Agraffe MFT-HAF 50 RL8,5	2301593	0,05
MFT-DF - all sizes and types	Montageelement MFT-DF 60 L	2305956	0,14
	Montageelement MFT-DF 100 L	2305953	0,18
	Montageelement MFT-DF 60 M	2305955	0,07
	Montageelement MFT-DF 60 S	2305954	0,05
	Montageelement MFT-DF 100 S	2305951	0,06
	Montageelement MFT-DF 100 M	2305952	0,09
MFT-UNI - all sizes and types	Montageelement MFT-UNI 060 M	2030583	0,06
	Montageelement MFT-UNI 060 L	2030582	0,12
	Montageelement MFT-UNI 050 M	2030581	0,06
	Montageelement MFT-UNI 100 M	2030587	0,08
	Montageelement MFT-UNI 100 L	2030586	0,17
	Montageelement MFT-UNI 080 M	2030585	0,07
	Montageelement MFT-UNI 080 L	2030584	0,13
	Montageelement MFT-UNI 050 L	2030580	0,11
MFT-CON - all sizes and types	Profilverbinder MFT-CON 25x145x3,0	2205724	0,03
	Montageelement MFT-CON 160x60	2030517	0,08
MFT-C, CF, CSC all sizes and types	Montageelement MFT-CF 300	2030903	0,22
	Montageelement MFT-CF 500	2030904	0,35
	Montageelement MFT-CF 1000	2030905	0,70
	Verbinder MFT-CSC 450x60x40x2,0	2160520	0,25
MFT-S2S AP, PC - all sizes and types	Adapterplatte MFT-S2S UI AP L	2158401	0,64
	Adapterplatte MFT-S2S U AP L	2158400	0,60
	Verbinder MFT-S2S TT PC	2158402	0,10
	Verbinder MFT-S2S RHS PC	2158404	0,06

Application

MFT-S2S UI AP L is developed to be fixed on base materials like concrete, masonry, steel frame structure and wood. This product is used as a substructure for ventilated façade (rainscreen) applications. The adapter is supplied with or without pre-assembled isolators. And according to the method of installation to the base material – anchors, screws or direct fastening can be used – with different hole geometries in the base plate.

The adapter is suitable to use for the brackets MFT-S2S UI L and the MFT-S2S U L, either with or without the isolator.

Technical Data

Technical documentation according to *EN 1090-3.*

Constructional data

Name	Value	Unit
Thickness Baseplate	4.6 - 6,0	mm
Height	195	mm
Width	220	mm
Thickness Isolator	5	mm

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to EN 1090-1:2009+A1:2011 Standard for execution of steel structures and aluminium structures. The structural parts made of aluminum correspond to following harmonized standards: EN 1090-1, DIN EN 1999-1-1 + DIN EN 1993-1-4 incl. national annexes, DIN 18516-1. The product has a CE-marking Hilti MFT EN 1090-1.

Base materials/Ancillary materials

The raw material used for the production of this product is aluminium alloy according to the standard EN AW-6063-T66 with 320g (92% of product weight). The alloy is a widely used extrusion alloy, suitable for various applications. The material used for the isolator is polypropylene with 2g (6% of product weight).
This product/article/at least one partial article contains substances listed in the candidate list (date 05.04.2022) exceeding 0.1 percentage by mass: **no**

This product/article/at least one partial article 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 then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012): **no**

Packaging

The packaging of this product is carton. This cardboard packaging can be recycled.

Reference service life

The MFT-FOX T systems have a minimum service life of 35 years when used as prescribed according to the BBA Certificate (British Board of Agreement). However, the actual service life can be considerably longer.

LCA: Calculation rules

Declared Unit

The declared product here is an aluminium profile from HILTI AG with the designation Adapter plate MFT-S2S UI AP L as a representative product from the Accessories Ventilated Facade substructure portfolio. It is the heaviest product in the portfolio. The declared unit refers to 1 kg of aluminium profile. The packaging, based on 1 kg of aluminium profile, is also included in the calculation at 0.018 kg. The following table shows the data for the declared unit.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	kg
Gross density	2700	kg/m^3

System boundary

Type of EPD: from the cradle to the factory gate with modules C1-C4 and module D . The following information modules are defined as system boundaries in this study:

Production stage (A1- A3):
- A1, raw material extraction,
- A2, transport to the manufacturer,
- A3, production.

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

Reuse, recovery and recycling potential (D)

In order to accurately 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, transport to the production site and the production processes of the product itself.

The primary products are sourced from the European Union. Transport is by lorry. The following flow charts illustrate the underlying production process.

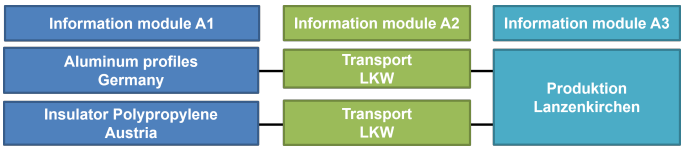


Figure Information modules A 1 to A3 of the product

Figure Information modules A 1 to A3 of the packaging

Information modules C1 to C4 record the dismantling or demolition of the building, transport for waste disposal, waste treatment and disposal of the product. Furthermore, reuse, recovery and recycling potentials are shown in information module D.

Geographic Representativeness

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

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 referred to in this study is LCA for Experts by Sphera. (V1 2023)

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

The declared product does not contain any biogenic Carbon.

Note: 1kg of of biogenic carbon is equivalent to 44/12 kg of CO2

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in accompanying packaging	0.00019	kg C

End of life (C1 - C4)

The demolition of the aluminium profile from the building is calculated in information module C1. The demolition is carried out using an electric screwdriver. The electrical energy consumption for the tool is assumed to be 0.5 MJ for the declared unit. The electricity consumption is calculated using a European electricity mix.

Name	Value	Unit
Collected separately waste type waste type	1	kg
Recycling	0.948	kg
Energy recovery	0.022	kg

The material losses during the process are shredder light fraction and are landfilled.

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

In Module D, the metallic components are credited to the primary materials through a recycling scenario, while the plastic components are thermally utilised. A recycling rate of 85% is assumed for aluminium.

Name	Value	Unit
Recycling	0,805	kg

LCA: Results

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

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 kg MFT-S2S UI AP L

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO_2 eq	9.01E+00	5.86E-02	7.47E-03	3.63E-02	0	-7.15E+00
Global Warming Potential fossil fuels (GWP-fossil)	kg CO_2 eq	9.01E+00	5.86E-02	7.47E-03	3.63E-02	0	-7.14E+00
Global Warming Potential biogenic (GWP-biogenic)	kg CO_2 eq	5.26E-04	2.92E-05	0	0	0	-1.24E-03
Global Warming Potential luluc (GWP-luluc)	kg CO_2 eq	2.32E-03	5.36E-06	4.7E-07	1.69E-05	0	-1.86E-03
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	1.16E-11	5.76E-13	8.83E-16	1.6E-13	0	-9.4E-12
Acidification potential of land and water (AP)	mol H^+ eq	4.02E-02	8.92E-05	8.83E-06	1.73E-05	0	-3.28E-02
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	5.23E-06	5.79E-08	1.81E-09	9.72E-09	0	-4.12E-06
Eutrophication potential aquatic marine (EP-marine)	kg N eq	5.95E-03	2.52E-05	3.15E-06	4.7E-06	0	-4.8E-03
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	6.48E-02	2.66E-04	3.56E-05	3.19E-05	0	-5.22E-02
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	1.8E-02	6.95E-05	8.35E-06	1.36E-05	0	-1.45E-02
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	4.47E-07	2.84E-09	9.26E-11	1.59E-09	0	-3.57E-07
Abiotic depletion potential for fossil resources (ADPF)	MJ	1.21E+02	1.29E+00	1.07E-01	6.27E-01	0	-9.49E+01
Water use (WDP)	m^3 world eq deprived	1.29E+00	4.92E-03	1.8E-05	5.43E-03	0	-1.06E+00

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 kg MFT-S2S UI AP L

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	5.1E+01	1.76E-01	6.93E-04	4.6E-02	0	-4.22E+01
Renewable primary energy resources as material utilization (PERM)	MJ	2.7E-01	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	5.13E+01	1.76E-01	6.93E-04	4.6E-02	0	-4.22E+01
Non renewable primary energy as energy carrier (PENRE)	MJ	1.2E+02	1.29E+00	1.08E-01	7.23E-01	0	-9.51E+01
Non renewable primary energy as material utilization (PENRM)	MJ	9.8E-01	0	0	-9.55E-02	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	1.21E+02	1.29E+00	1.08E-01	6.27E-01	0	-9.51E+01
Use of secondary material (SM)	kg	0	0	0	0	0	8.05E-01
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0	0
Use of net fresh water (FW)	m^3	1.22E-01	2.95E-04	8.06E-07	7.63E-05	0	-1E-01

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 kg MFT-S2S UI AP L

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	8.26E-09	7.46E-11	1.98E-13	1.32E-10	0	-6.06E-09
Non hazardous waste disposed (NHWD)	kg	2.44E+00	2.84E-04	1.07E-05	9.17E-05	0	-2.01E+00
Radioactive waste disposed (RWD)	kg	7.15E-03	2.01E-04	1.8E-07	5.84E-05	0	-5.86E-03
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	0	0	0	8.05E-01	0	0
Materials for energy recovery (MER)	kg	0	0	0	0	0	0
Exported electrical energy (EEE)	MJ	0	0	0	1.48E-01	0	0
Exported thermal energy (EET)	MJ	0	0	0	2.64E-01	0	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 kg MFT-S2S UI AP L

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Incidence of disease due to PM emissions (PM)	Disease incidence	ND	ND	ND	ND	ND	ND
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	ND	ND	ND	ND	ND	ND
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	ND	ND	ND	ND	ND	ND
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	ND	ND	ND	ND	ND	ND

Soil quality index (SQP)	SQP	ND	ND	ND	ND	ND	ND

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

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.

References

DIN EN 1090-1
Standard for execution of steel structures and aluminium structures

DIN EN 1999-1-1 + DIN EN 1993-1-4
Eurocode 9: Design of aluminum structures - Part 1-4: General design rules

DIN 18516-1
DIN 18516-1:2010-06 Cladding for external walls, ventilated at rear facades – Part 1: Requirements, princicples of testing

EN 1090-1:2009+A1:2011
Standard for execution of steel structures and aluminium structures

EN AW-6063-T66
Type of aluminium alloy

EN 15804
EN 15804:2012+A2:2019+AC:2021, Sustainability ofconstruction works — Environmental Product Declarations — Core rules for the product category of construction products.

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

Regulation (EU) No. 305/2011
Construction Product Regulation (CPR)

Regulation (EC) No 1907/2006
REACH Regulation

Regulation (EU) No 528/2012 on EU Biocidal Products

Other references

BBA Certificate (British Board of Agreement)
The British Board of Agreement is a UK body issuing certificates
for construction products and systems and providing inspection services in support of their designers and installers.

Calculation rules: PCR - Part A
Product category rules for construction products and services - Calculation rules for the eco-balance and requirements for the background report V1.3, Institut Bauen und Umwelt e.V., 01.08.2022.

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Institut Bauen und Umwelt e.V, Berlin (pub.): Product Category Rules for Construction Products from the range ofEnvironmental Product Declarations for Institut Bauen und Umwelt (IBU), PConstruction metals ,.01.08.2021

Sphera
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www.gabi-software.com/deutsch/index/
(27.06.2023)

The literature referred to in the Environmental Product Declaration must be listed in full.Standards already fully quoted in the EPD do not need to be listed here again.
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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