

Environmental Product Declaration

In accordance with ISO 14025 and EN15804 +A2

Fixade




spilka[®]
BUILDING SOLUTIONS

The Norwegian
EPD Foundation

Owner of the declaration:
Spilka Building Solutions AS

Product name:
Fixade

Declared unit:
1 m² Fixade system

Product category /PCR:
NPCR Part B for Steel and Aluminum
Construction Products (references to
EN15804+A2)

Programme operator and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-3820-2768-EN

Registration number:
NEPD-3820-2768-EN

Issue date:
23.11.2022

Valid to:
23.11.2027

General information

Product:

Fixade

Programme Operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Tel: +47 23 08 80 00
e-mail: post@epd-norge.no

Declaration Number:

NEPD-3820-2768-EN

This declaration is based on Product

Category Rules:

NPCR Part B for Steel and Aluminium Construction Products (references to EN15804+A2)

Statements:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer, life cycle assessment data and evidences.

Declared unit:

1 m² Fixade

Functional unit:

1 m² Fixade system, from cradle-to-grave, with purpose to mount façade panels for a study period of 60 years for the building

Conversion factor to mass:

1 m² Fixade system = 1,89 kg

Verification:

Independent verification of the declaration and data, according to ISO14025:2006

internal

external



Silvia Vilčeková

Independent verifier approved by EPD Norway

Owner of the declaration:

Spilka Building Solutions AS
Contact person: Lars Erik Vinje
Phone: +47 70 17 65 00
e-mail: office@spilka.com

Manufacturer:

Spilka Building Solutions AS
Langrabben 71, Emblem
Phone: +47 70 17 65 00
e-mail: office@spilka.com

Place of production:

Langrabben 71, Emblem, Norway

Management system:

Organisation no:

925851949MVA

Issue date:

23.11.2022

Valid to:

23.11.2027

Year of study:

2021/2022

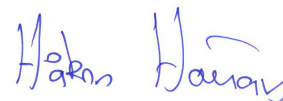
Comparability:

EPDs from other programmes than EPD-Norway may not be comparable.

The EPD has been worked out by:

Trebostad, M. & Johansen B.H., Energiråd AS

Approved



Manager of EPD Norway

Product

Product description:

Spilka Fixade is an installation system for façade panels that provides quick and precise screwless installation of various types of panels. Spilka Fixade can be used together with façade panels in thicknesses up to and including 13 mm. It provides a shorter installation time and a more precise result, in addition to a service life equal to or better than that of the façade panels. Spilka Fixade replaces traditional wooden battens by using a metal rail system with associated mounting clips. Spilka Fixade provides great design freedom and is suitable for both horizontal and vertical panel orientation, with straight or staggered design. The fixing clips can be painted to compliment the panels, providing a seamless or contrasting appearance as required.

Product specification:

The following material specification is given per m² of Fixade:

Materials	KG	%
Corrosion protected steel S355	1,72	91,8
Stainless steel EN 1.4310	0,14	7,1
Polymer (Polycarbonate / ASA mix)	0,02	0,7
Aluminum	0,01	0,4

Technical data:

Horizontal and vertical steel rails in 1.25 mm thick S355 coated with a metallic coating, Magnelis or equivalent corrosion protection, corrosion category C5.

Fastening clips in stainless spring steel, 1 mm and 1.2 mm thick EN 1.4310 in powder-coated finish.

Joint profiles in partially elastic polymer.

The system is suitable for use in risk class 6 and fire class 4 (provided the façade panels meet fire requirements) and can be adapted to all terrain categories and floor heights by adjusting the clip density. Spilka Fixade requires fixing on vertical wooden battens with a maximum centre distance of 600 mm or a plain wall that can withstand fixing. Technical approval of the system requires a wind barrier system with water tightness W1.

Market:

Norway

Reference service life, product:

60 years according to NPCR 013

Reference service life, building:

60 years according to NPCR 013

LCA: Calculation rules

Declared unit:

1 m² Fixade

Data quality:

Upstream;

Specific data was acquired by using measurable consumption and emission data from the Spilka facilities for 2021/22. A combination of statistics and EPD owners' conservative estimates from second half 2021 and first half 2022 are referred to. Only specific data was used to analyze the core process of the LCA. An update of the EPD should be made when full year statistics are ready.

Downstream:

Scenarios were developed based on PCR and statistics and PCR / database data was used.

Conversion to process flows and LCI:

Conversion to primary flows and environmental effects were carried out via OpenLCA (version 1.11.0). Datasets from the ecoinvent v3.8 cutoff database, with EN15804 add-on developed by GreenDelta, were selected according to their technological, geographical and time related representativeness for the process assessed.

Impact assessment:

Open LCA software (version 1.11.0) was used to carry out the impact assessment of this LCA, the later refers to the LCIA characterization models, factors and methods as given by EN15804:2012+A2:2019, labeled "EN15804_A1_2020_3" and "EN15804_A2_additional_2020" in Open LCA.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

System boundary:

The scope of the study is cradle to grave, described as A1-A3, A4+A5, B1-B7, C1-C4 and D. The study takes into consideration the life cycle stages from the extraction of raw materials, production and disposal, including all transport stages. Figure 1 illustrates the different stages of the product's life cycle considered in the production and delivery of Fixade to customer. Module D includes the loads of melting and casting used aluminum and steel together with the potential benefits for the avoided use of virgin metals outside the system boundary for the next product life cycle.

Cut-off criteria:

All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1%) are not included.

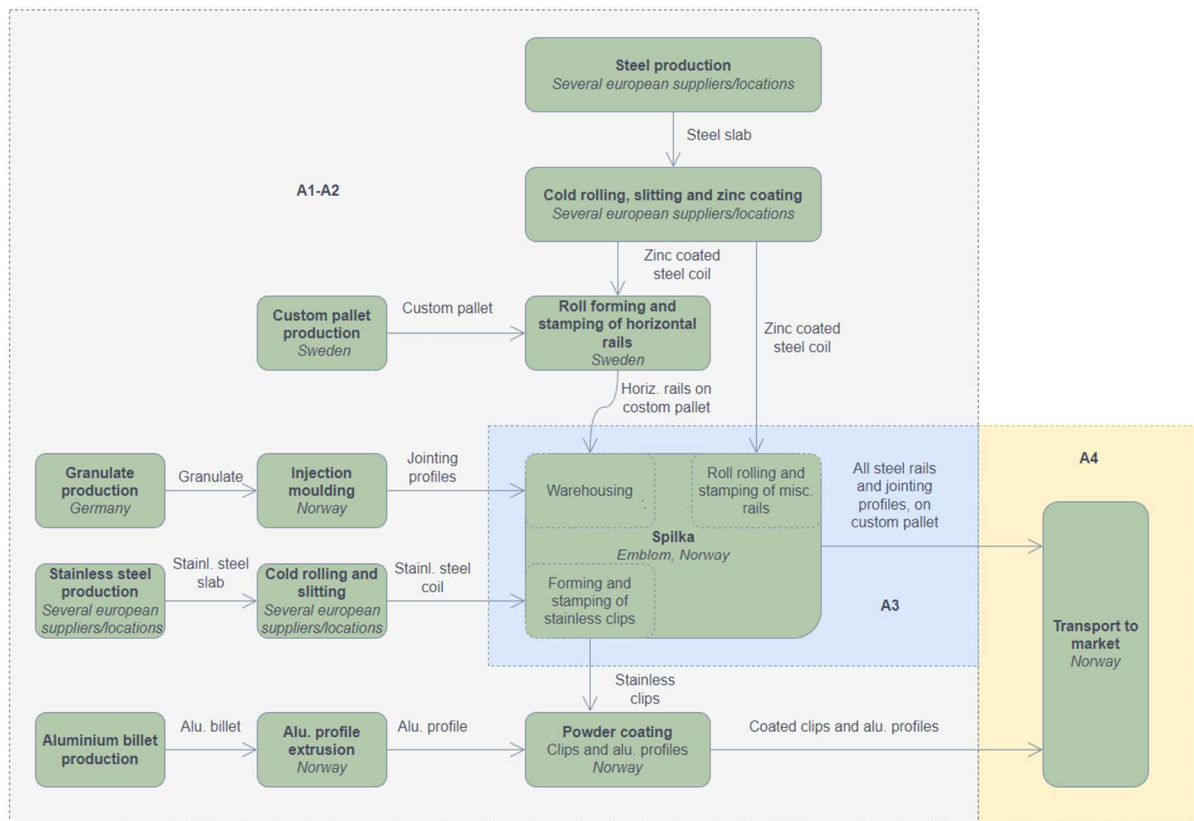


Figure 1: Life cycle stages of Alu Mast System ® from A1 to A4.

Processes happening after A4 includes installation of Fixade (A5), use (B1-B7), end-of-life (C1-C4) and the potential loads and benefits outside the system boundary. The use phase includes no significant material or energy inputs. The end of life phase includes efforts to demount the Fixade system from the building exterior using electrical hand drill (C1), transport to sorting station (C2), sorting and preparing for recycling (C3) and disposal of any components not being recycled (C4).

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Transport from production place to assembly/user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	value (l/t)
Truck	53,27 %	lorry >32 metric ton, EURO6	531,0	0,0228 l/t.km Diesel	12,133
Truck	53,27 %	lorry >32 metric ton, EURO6	93,5	0,0228 l/t.km Diesel	2,136

Transport includes transport of 531 km from the Spilka factory at Emblem to a customer in the Oslo region for rails and offjointing modules and 93,5 km from the surface coating facilities in Kongsvinger where the finalizing of clips and aluminum profiles is made.

Assembly (A5)

	Unit	Value
Ancillary materials by type (screws)	kg	0,02
Electricity consumption	kWh	0,01
Output materials from waste treatment	kg	0,12

The Fixade system is mounted outside the wind barrier to the woodwork using an electrical hand drill. The waste output from A5 includes a single-use wooden pallet for transport storage of rails.

Use (B1-B7)

The use phase includes no significant material or energy inputs in the use phase. The system lies protected behind the façade panels, protecting it from moist and water spray. Fixade is designed to last through the RSL of the building.

End of Life (C1, C3, C4)

	Unit	Value
Recycling	kg	1,80
To landfill	kg	0,09

The Fixade system is designed for re-use, but is for the sake of the current study considered as being recycled as a conservative approach is recommended for EPDs.

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance KM	Fuel/Energy consumption	value (l/t)
Truck	36,67 %	lorry 16-32 metric ton,	100,0	0,045 l/t.km Diesel	4,363

Benefits and loads beyond the system boundaries (D)

	Unit	Value
Substitution of primary metal, with net scrap metal (kg)	kg	1,62

The Fixade system is designed for re-use, but is for the sake of the current study considered as being recycled as a conservative approach being recommended for EPDs. The benefits and loads beyond the system boundaries represent the loads of transporting, collecting, sorting and re-melting used metals together with the benefits of avoided new metal. Metal refers to the product composition given on page 3.

Additional technical information

For technical information and product benefits, go to the Spilka Building Solutions website:

<https://www.spilka-sbs.com/en/fixade>

LCA: Results

The LCA results are presented below for the product defined on page 3 of the EPD document.

System boundaries (X=included, MND= module not declared, MNR=module not relevant)

Product stage			Assembly stage		Use stage							End of life stage				Benefits & loads beyond system boundary
Raw materials	Transport	Manufacturing	Transport	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	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Classification of disclaimers to the declaration of core and additional environmental impact indicators

ILCD class	Indicator	Disclaimer
ILCD type / level 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
	Acidification potential, Accumulated Exceedance (AP)	None
ILCD type / level 2	Eutrophication potential, Share of nutrients to freshwater end compartment (EP-fw)	None
	Eutrophication potential, Share of nutrients to marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
ILCD type / level 3	Potential Human exposure efficiency relative to U235 (IRP)	1
	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
Potential Soil quality index (SQP)	2	
<p>Disclaimer 1 – 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 nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.</p> <p>Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator</p>		

Core environmental impact indicators

Indicator	Unit	A1- A3	A4	A5	B1-B7
GWP-total	kg CO2 eq.	6,87E+00	1,73E-01	2,91E-01	0,00E+00
GWP-fossil	kg CO2 eq.	6,91E+00	1,73E-01	1,06E-01	0,00E+00
GWP-biogenic	kg CO2 eq.	-2,09E-02	2,92E-07	1,82E-01	0,00E+00
GWP-LULUC	kg CO2 eq.	2,88E-02	6,92E-05	1,14E-04	0,00E+00
ODP	kg CFC11 eq.	4,53E-07	4,01E-08	4,82E-09	0,00E+00
AP	mol H ⁺ eq.	6,77E-02	4,91E-04	6,22E-04	0,00E+00
EP-freshwater	kg P eq.	3,04E-03	1,14E-05	3,74E-05	0,00E+00
EP-marine	kg N eq.	8,33E-03	1,00E-04	1,15E-04	0,00E+00
EP-terrestrial	mol N eq.	2,36E-01	1,09E-03	1,21E-03	0,00E+00
POCP	kg NMVOC eq.	2,56E-02	4,06E-04	3,61E-04	0,00E+00
ADP-M&M	kg Sb eq.	1,75E-04	5,89E-07	2,70E-06	0,00E+00
ADP-fossil	MJ	6,02E+01	2,00E-01	9,35E-01	0,00E+00
WDP	m ³	4,05E+00	1,27E-02	5,43E-02	0,00E+00

Indicator	Unit	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	2,77E-04	3,10E-02	8,01E-02	4,73E-04	-2,99E+00
GWP-fossil	kg CO2 eq.	2,48E-04	3,10E-02	8,22E-02	4,72E-04	-2,97E+00
GWP-biogenic	kg CO2 eq.	6,86E-06	5,22E-08	-9,36E-04	8,99E-07	1,01E-03
GWP-LULUC	kg CO2 eq.	1,34E-06	1,24E-05	5,46E-05	1,85E-07	-2,15E-03
ODP	kg CFC11 eq.	9,75E-12	7,18E-09	5,23E-09	8,26E-11	-1,24E-07
AP	mol H ⁺ eq.	1,82E-06	8,79E-05	5,33E-04	1,96E-06	-1,31E-02
EP-freshwater	kg P eq.	1,67E-07	2,04E-06	2,93E-05	1,92E-08	-1,25E-03
EP-marine	kg N eq.	2,30E-07	1,79E-05	1,19E-04	3,79E-06	-2,73E-03
EP-terrestrial	mol N eq.	2,61E-06	1,95E-04	1,32E-03	7,55E-06	-2,95E-02
POCP	kg NMVOC eq.	6,97E-07	7,28E-05	3,57E-04	2,21E-06	-1,22E-02
ADP-M&M	kg Sb eq.	2,75E-08	1,05E-07	5,27E-06	4,56E-10	-5,46E-05
ADP-fossil	MJ	1,45E-03	3,58E-02	2,04E-01	4,26E-04	-3,40E+01
WDP	m ³	1,25E-02	2,28E-03	1,69E-02	2,62E-04	-4,94E-01

GWP-total: Global Warming Potential; **GWP-fossil:** Global Warming Potential fossil fuels; **GWP-biogenic:** Global Warming Potential biogenic; **GWP-LULUC:** Global Warming Potential land use and land use change; **ODP:** Depletion potential of the stratospheric ozone layer; **AP:** Acidification potential, Accumulated Exceedance; **EP-freshwater:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; See "additional Norwegian requirements" for indicator given as PO4 eq. **EP-marine:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-terrestrial:** Eutrophication potential, Accumulated Exceedance; **POCP:** Formation potential of tropospheric ozone; **ADP-M&M:** Abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil:** Abiotic depletion potential for fossil resources; **WDP:** Water deprivation potential, deprivation weighted water consumption

Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009

Resource use

Parameter	Unit	A1-A3	A4	A5	B1-B7
RPEE	MJ	8,80E+00	2,82E-02	2,66E-01	0,00E+00
RPEM	MJ	5,93E+00	9,25E-03	4,59E-02	0,00E+00
TPE	MJ	1,47E+01	3,75E-02	3,12E-01	0,00E+00
NRPE	MJ	7,17E+01	2,55E-01	1,05E+00	0,00E+00
NRPM	MJ	3,31E+01	2,38E+00	4,91E-01	0,00E+00
TRPE	MJ	1,05E+02	2,64E+00	1,54E+00	0,00E+00
SM	Kg	8,86E-01	2,69E-03	1,82E-02	0,00E+00
RSF	MJ	1,14E-01	8,01E-04	9,79E-04	0,00E+00
NRSF	MJ	2,71E-01	3,25E-03	2,43E-03	0,00E+00
W	m ³	9,95E-02	3,04E-04	1,30E-03	0,00E+00

Parameter	Unit	C1	C2	C3	C4	D
RPEE	MJ	3,93E-02	5,05E-03	4,20E-02	4,88E-05	-2,83E+00
RPEM	MJ	3,71E-04	1,66E-03	5,72E-02	2,16E-05	-6,57E-01
TPE	MJ	3,96E-02	6,71E-03	9,93E-02	7,03E-05	-3,49E+00
NRPE	MJ	3,84E-03	4,57E-02	2,91E-01	4,99E-04	-3,29E+01
NRPM	MJ	7,91E-04	4,27E-01	3,56E-01	5,26E-03	-6,63E+00
TRPE	MJ	4,64E-03	4,73E-01	6,47E-01	5,76E-03	-3,96E+01
SM	kg	8,43E-05	4,81E-04	1,89E+00	4,64E-06	1,43E+00
RSF	MJ	2,09E-05	1,43E-04	1,29E-03	9,92E-07	2,74E-02
NRSF	MJ	1,32E-04	5,82E-04	9,76E-04	2,29E-05	-1,01E-02
W	m ³	2,90E-04	5,43E-05	3,99E-04	6,13E-06	-1,21E-02

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water

End of life - Waste

Parameter	Unit	A1-A3	A4	A5	B1-B7
HW	KG	1,68E+01	5,88E-02	3,11E-01	0,00E+00
NHW	KG	1,38E+00	1,36E-01	1,38E-01	0,00E+00
RW	KG	7,19E-03	5,26E-05	7,16E-05	0,00E+00

Parameter	Unit	C1	C2	C3	C4	D
HW	KG	1,11E-03	1,05E-02	2,00E-01	9,74E-05	-6,92E+00
NHW	KG	2,34E-04	2,44E-02	3,11E-02	3,93E-02	-3,24E-02
RW	KG	1,49E-06	9,42E-06	5,61E-05	8,16E-08	6,56E-04

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

End of life – output flow

Parameter	Unit	A1-A3	A4	A5	B1-B7
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	8,02E-01	2,23E-03	2,23E-03	0,00E+00
MER	kg	6,08E-02	6,15E-04	2,11E-04	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Parameter	Unit	C1	C2	C3	C4	D
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	3,82E-05	4,00E-04	1,89E+00	2,73E-06	-3,84E-01
MER	kg	2,72E-06	1,10E-04	4,42E-04	1,12E-06	-3,57E-03
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

Information describing the biogenic carbon content at the factory gate

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0
Biogenic carbon content in the accompanying packaging	kg C	0,045

Additional Norwegian requirements

Greenhouse gas emission from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

National electricity grid	Unit	Value
Norwegian mix (market for electricity, ecoinvent 3.8)	kg CO2 -eq/kWh	0,01713

Additional environmental impact indicators required in NPCR Part A for construction products

In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Parameter	Unit	A1-A3	A4	A5	B1-B7
GWP-IOBC	kg	6,89E+00	1,73E-01	2,91E-01	0,00E+00

Parameter	Unit	C1	C2	C3	C4	D
GWP-IOBC	kg	2,77E-04	3,10E-02	8,01E-02	4,73E-04	-2,99E+00

GWP-IOBC Global warming potential calculated according to the principle of instantaneous oxidation.

Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers. Documentation available upon request to EPD owner.

- The product contains no substances given by the REACH Candidate list or the Norwegian priority list.
- The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.
- The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.
- The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforkiften, Annex III), see table.

Indoor environment





Not relevant for outdoor products.

Carbon footprint

Carbon footprint has not been worked out for the product.

Bibliography

ISO 14025:2006	Environmental labels and declarations - Type III environmental declarations - Principles and procedures
ISO 14044:2006	Environmental management - Life cycle assessment - Requirements and guidelines
EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
ISO 21930:2017	Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services

 epd-norway <small>Global Program Operator</small>	Program Operator	phone	+47 23 08 80 00
	The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo Norway	e-mail:	post@epd-norge.no
		Web	www.epd-norge.no
 epd-norway <small>Global Program Operator</small>	Publisher	phone	+47 23 08 80 00
	The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo Norway	e-mail:	post@epd-norge.no
		web	www.epd-norge.no
 spilka [®] <small>BUILDING SOLUTIONS</small>	Owner of the declaration	phone	+47 70 17 65 00
	Spilka Building Solutions AS Langrabben 71, 6013 Ålesund Norway	e-mail:	office@spilka.com
		Web	www.spilka-sbs.com
 energiråd	Author of the life cycle assesment	phone	+47 98 25 90 10
	Energiråd AS Trippevegen 1, 6009 Ålesund Norway	e-mail:	harald@energirad.no
		web	www.energirad.no

EPD for the best environmental decision



Global
Program
Operator