ENVIRONMENTAL PRODUCT DECLARATION

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

Owner of the Declaration	Swisspearl Group AG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-SWP-20240429-CCA1-EN
Issue date	06.12.2024
Valid to	05.12.2029

Swisspearl Roof Slate TEC+

Swisspearl Group AG

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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SWISSPEARL

General Information

Swisspearl Group AG

Programme holder

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

Declaration number

EPD-SWP-20240429-CCA1-EN

This declaration is based on the product category rules:

Fibre cement / Fibre concrete, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

06.12.2024

Valid to

05.12.2029

Dipl.-Ing. Hans Peters
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Swisspearl Roof Slate TEC+

Owner of the declaration

Swisspearl Group AG
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Switzerland

Declared product / declared unit

1m2 of Swisspearl TEC+ roof slate

Scope:

This EPD refers to the Swisspearl TEC+ roof slate produced at the production site in Vöcklabruck (Austria), and is based on the production data of the year 2022.
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

Dr. Eva Schmincke,
(Independent verifier)

SWISSPEARL

Product

Product description/Product definition

Swisspearl TEC+ is a high quality, through-coloured fibre cement board and is intended to be used as roof slates. Deemed non combustible, the TEC+ is available in various sheet sizes across a range of 6 colours. The TEC+ is suited for flat roofs from a 13 degrees roof pitch and is particularly storm-proof due to a twofold nailing of each panel.

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 492:2012+A2:2018 Fibre-cement profiled sheets and fittings - Product specification and test methods.

Application

The recommended use of Swisspearl TEC+ is as roofing (roof coverings) or cladding (internal and external wall finishes).

Technical Data

The technical specifications of the products within the scope of the EPD shall be listed, including the reference to the test methods/test standards for each specification.

For products with CE marking, the technical specifications must be specified in accordance with information in the declaration of performance. The properties relevant to the product should be specified in the table below. If no information is given for properties, an explanation must be given in the background report to the EPD as to why the property is not relevant to the product.

Constructional data

The technical specifications of the Swisspearl TEC+ can be seen in the following table:

Name	Value	Unit
Thermal conductivity	0.56	W/(mK)
Water vapour diffusion resistance factor acc. to DIN V 4108-4, EN ISO 12572	269	-
Apparent density, min	1600	kg/m^3
Compressive strength	40	MPa
Modulus of elasticity	14000	MPa
Shrinkage	2.0	mm/m
Tensile strength (lengthwise to fibre)	15.0	MPa
Tensile strength (crosswise to fibre)	21.0	MPa
Reaction to fire	A2,s1-d0	
Coefficient of thermal expansion	1.0E-05	1/K
Moisture expansion	1.0	mm/m
Moisture content	8.0	M.-%
Frost resistance	Comply with category B	
Heat resistance	Guaranteed up to -40 °C and + 80 °C	

For additional data, please visit the download center of Swisspearl's homepage on www.swisspearl.com/services/downloads

Performance data of the product in accordance with the declaration of performance (DoP) with respect to its essential characteristics according to EN 12467:2012+A2:2018 'Fibre-cement flat sheets - Product specification and test methods and the CE-marking.

Base materials/Ancillary materials

The main product components are shown in the table below. Values are given as intervals. Specific recipes and some input materials (<2 mass-%) are not shown in this table due to reasons of confidentiality.

Name	Value	Unit
Cement	60-80	%
Limestone	5-15	%
Microsilica	4-12	%
Cellulose	2-8	%
PVA	2-8	%
Pigments	0-4	%

Material explanation

• Portland Cement: Manufactured according to DIN EN 197-1from limestone, marl and sand. The material is crushed, dried, calcinated to clinker and ground to cement. • PVA: to secure long term performance of the reinforced fibres, such as cellulose. • Cellulose fibres (0.5-3mm): To ensure collection of powder during filtration. The product does not contain any substances of very high concern (SVHC) at concentrations greater than 0.1% of the product mass, in accordance with Regulation (EC) No. 1907/2006 (REACH).

Manufacturing process

The Swisspearl TEC+ boards are produced by the use of the Hatschek method: the base materials (binder, fibres, etc) are processed into a homogeneous mixture with water and transferred to the vats of the Hatschek machine. Rotating sieve cylinders in the vats collect a thin layer of solid material and transfer the layer to a rotating felt for dewatering and further onto the accumulating format roller. The format roller is gradually covered by layers of fibre cement. Once the required thickness of the boards is reached, the fibre cement layer, still moist and mouldable, is unwound and taken from the roll. Further information on the Hatschek method may be found here: www.fibrecementconsulting.com/publications/011011.hatschekfilmsumm After the pre-curing period, the fibre-cement boards are dried. After the drying process the products are ready to be sanded, trimmed edges, cut to customised size, painted, edge-sealed, hydrophobated and finished with quality controls and packing processes.

Reference service life

The Swisspearl pigmented façade boards have been introduced quite recently to the market. Consequently, there is no substantiated data on their reference service life (RSL) according to the ISO 15686. However the service life is estimated to be 50 years or higher. This is in accordance with the table published by the Bundesinstitut für Bau-, Stadt- und Raumforschung (BBSR) (code 335.511), which estimates the service life of facade and roofing products.

LCA: Calculation rules

Declared Unit

In this EPD the declared unit is defined as the production of 1m^2 of Swisspearl TEC+ with a thickness of 4mm, and an expected lifetime of 50 years or higher, and its related impacts over 'cradle to grave' lifecycle modules.

Declared unit and mass reference

Name	Value	Unit
Gross density	1698	kg/m^3
Grammage	6.8	kg/m^2
Layer thickness	0.004	m
Declared unit	1	m^2

Other declared units are allowed if the conversion is shown transparently.

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 the variability of the production process, geographical representativeness and the influence of background data and preliminary products compared to the environmental impacts caused by the actual production.

System boundary

The modules considered in this EPD follow a cradle to grave assessment: A1-A5, B1-B7, C1-C4, D.

A1 -The system boundaries include the provision and processing of raw materials. These include in particular cement, plastic fibres, pulp and packaging materials.

A2 -The transports to the manufacturer were specifically collected for all starting materials.

A3 -The production includes also all in-plant energy consumption (gas + electricity), as well as water used in the production process.

A4 -The transport, part of the construction process, is an average of the total distance of all products delivered to the point of installation. This is calculated to be 408 km by truck.

A5 -All environmental impacts associated with the disposal of packaging handled at the construction site are accounted for. It is assumed incinerated at an incineration plant. Disposal of product waste is assumed to be landfilled. Furthermore, environmental impacts associated with trucks and fuel for the construction installation are included.

B1-B7 modules are not included, as no significant environmental impact is associated with the use phase of theproduct.
C1 -Accounts for the environmental impacts associated with dismantling and demolition of the fibre cement boards. Fuel used for demolition equipment and transport on-site vehicles.

C2 -Transportation of the discarded products from the construction site to a landfilling site. The transport is estimated to be 100 km in an average truck.

C3 -The fibre cement panels are sent to landfill and therefore there are no environmental impacts associated with waste processing of materials flows intended for reuse, recycling or energy recovery.

C4 -Environmental impacts associated with the processes at the landfill. The waste code for fibre cement products according to the European Waste Catalogue is 10 13 11, which describes waste from cement-based composite materials without asbestos.

D -The fibre cement panels are sent to landfill after use. The product has therefore no impact during this stage and no associated environmental impacts. The panels are expected to be reusable over time, but this is not included in this assessment. Incineration credits for the packaging material have been considered.

Background data and data quality

Modelling of the production of 1m2 of TEC+ is done with GaBi Software System and Database for Life Cycle Engineering. The model has been developed by Sphera Solutions GmbH. Each background dataset has been reviewed on geographical, technological, and temporal scale.

Technological: All primary and secondary data are modelled to be specific to the technology mixes under study. Proxy data are used where technology-specific data are unavailable. The technological representativeness is considered to be good.

Geographical: All primary and secondary data are collected specific to the countries/regions under study. Where country/region specific data are unavailable, proxy data are used. The geographical representativeness is considered to be good.

Temporal: All primary data collected is based on the year 2021. All secondary data come from the GaBi 2020.1 databases and are representative for the years 2020-2025. Temporal representativeness is considered to be very good.

Allocation in foreground data

The production process does not deliver any co-products. Therefore, the applied model does not contain any allocation. Pre-processing waste (plastics) is sent to a waste incineration plant. The resulting electrical and thermal energy is credited in module A1. For the waste incineration plant an R1-value of above 0.6 is assumed. The resulting credits based on the incineration of the packaging of the product are declared in module D.

This EPD is based on a cradle-to-grave + module D, in which >99 weight-% has been accounted for.
The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804:2012+A2:2019, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

The following processes were considered below the cut-off and are not included in this assessment:
• Electricity used for the mounting of the boards
• Packaging of raw materials
• Environmental impacts caused by the personnel of the production plants are not included in the LCA.

Geographic Representativeness

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

lifespan: Europe

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.

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

The biogenic carbon containing material (cellulose) in Swisspearl TEC+ is required to be listed separately. The following table shows the biogenic carbon content in the product and accompanying packaging:

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	0.03	kg C
Biogenic carbon content in accompanying packaging	0.017	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2

The following technical scenario information is required for the declared modules and optional for non-declared modules. Modules for which no information is declared can be deleted; additional information can also be listed if necessary.

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment if modules are not declared (MND).

A5 is not declared including the disposal of the packaging material on the construction site, the amounts of packaging materials included in the LCA calculations must be declared as technical scenario information for Module A5.

Transport to the building site (A4)

Estimating the transport to each individual construction site is rather complex. However, most of the TEC+ boards produced in Vöcklabruck (Austria) are distributed inside the country. The furthest point from the production site is Feldkirch with a travelling distance of 408km and is therefore assessed as a good representation of the total distance of the product to the production site. Normally, products are transported by truck.

Name	Value	Unit
Transport distance	408	km
Gross density of products transported	1698	kg/m^3

Installation into the building (A5)

TEC+ slates are installed by using nails, a metal hook, or a combination of the two. It is challenging to estimate the amount of nails used per m^2 due to various dimensions the TEC+ can be produced in. At least 4 nails are needed to mount a roof slate.

Name	Value	Unit
Plastic waste	0.013	kg
Pallets	0.23	kg
Nails	4	pcs

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 to 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 of service life by *BNB* is declared.

Reference service life

As previously disclosed, the estimated lifetime of Swisspearl cement boards is 50 years or higher.

Name	Value	Unit
Life Span (according to BBSR)	50	a

End of life (C1-C4)

In the end-of-life stage of the product, the fibre-cement boards are assumed to be sent to landfill. The waste code for fibre cement products according to the European Waste Catalogue is 10 13 11.
Reuse of boards is possible if boards are in good condition, however, this is not included in the assessment due to lack of quantitative data.

Name	Value	Unit
Reuse	-	kg
Landfilling	6.8	kg

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

Name	Value	Unit

LCA: Results

The following tables show the results of life cycle assessment indicators, resource use and waste related to 1m2 of Swisspearl TEC+. The data is representative of the products of Swisspearl.

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	X	X	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m2 Swisspearl TEC +

Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	5.45E+00	8.13E-02	2.87E+00	1.79E-01	8.95E-01	2.12E-04	4.39E-02	-1.6E-01	7.41E-01	-1.32E-01
GWP-fossil	kg CO_2 eq	5.43E+00	7.89E-02	3.15E+00	1.71E-01	5.14E-01	2.1E-04	4.2E-02	4.72E-01	1.05E-01	-1.31E-01
GWP-biogenic	kg CO_2 eq	1.51E-02	2.37E-03	-2.86E-01	7.89E-03	3.81E-01	1.78E-06	1.93E-03	-6.33E-01	6.35E-01	-6.35E-04
GWP-luluc	kg CO_2 eq	2.32E-03	3.13E-06	9.95E-04	4.06E-06	3.73E-04	2.97E-07	9.96E-07	1.15E-03	3.08E-04	-8.62E-05
ODP	kg CFC11 eq	2.28E-14	3.18E-17	2.88E-14	1.97E-17	3.85E-15	5.03E-18	4.82E-18	5.06E-15	4.07E-16	-1.42E-15
AP	mol H^+ eq	1.25E-02	1.05E-03	4.01E-03	1.41E-04	1.25E-03	4.37E-07	3.46E-05	4.01E-03	7.46E-04	-1.67E-04
EP-freshwater	kg P eq	5.93E-06	1.95E-08	7.62E-05	3.64E-08	9.58E-07	5.63E-10	8.93E-09	1.23E-05	1.76E-07	-1.63E-07
EP-marine	kg N eq	3.17E-03	2.8E-04	1.58E-03	4.46E-05	2.87E-04	1.04E-07	1.09E-05	1.26E-03	1.94E-04	-4.8E-05
EP-terrestrial	mol N eq	3.46E-02	3.07E-03	1.39E-02	4.94E-04	3.14E-03	1.09E-06	1.21E-04	1.33E-02	2.13E-03	-5.15E-04
POCP	kg NMVOC eq	1.05E-02	7.86E-04	1.23E-02	1.35E-04	9.1E-04	2.82E-07	3.3E-05	3.59E-03	5.87E-04	-1.35E-04
ADPE	kg Sb eq	4.02E-07	2.87E-09	5.08E-07	5.99E-09	2.47E-05	6.18E-11	1.47E-09	1.55E-07	9.89E-09	-2.1E-08
ADPF	MJ	4.64E+01	1.06E+00	6.24E+01	2.43E+00	5.33E+00	3.73E-03	5.95E-01	7.48E+00	1.39E+00	-2.28E+00
WDP	m^3 world eq deprived	3.58E-01	2.81E-04	6.03E-02	2.84E-04	5.57E-02	3.37E-05	6.96E-05	9.53E-03	1.12E-02	-9.54E-03

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m2 Swisspearl TEC +

Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.31E+00	1.14E-02	1.02E+01	8E-03	1.32E+00	1.72E-03	1.96E-03	2E+01	7.68E+00	-4.89E-01
PERM	MJ	7.49E+00	0	1.4E-01	0	-1.4E-01	0	0	0	-7.49E+00	0
PERT	MJ	9.8E+00	1.14E-02	1.04E+01	8E-03	1.18E+00	1.72E-03	1.96E-03	2E+01	1.87E-01	-4.89E-01
PENRE	MJ	4.64E+01	1.07E+00	6.21E+01	2.43E+00	5.69E+00	3.73E-03	5.96E-01	7.49E+00	1.39E+00	-2.28E+00
PENRM	MJ	0	0	3.4E-01	0	-3.4E-01	0	0	0	0	0
PENRT	MJ	4.64E+01	1.07E+00	6.24E+01	2.43E+00	5.35E+00	3.73E-03	5.96E-01	7.49E+00	1.39E+00	-2.28E+00
SM	kg	0	0	8.12E-04	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0
FW	m^3	1.75E-02	1.34E-05	5.75E-03	1.29E-05	2.25E-03	1.68E-06	3.15E-06	5.27E-03	3.43E-04	-4.78E-04

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m2 Swisspearl TEC +

Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	6E-09	1.21E-11	1.35E-08	1.67E-11	7.32E-10	9.87E-13	4.1E-12	6.09E-09	1.48E-10	-5.07E-10
NHWD	kg	7.76E-02	1.17E-04	1.42E+00	2.43E-04	1.61E-02	2.65E-06	5.96E-05	2.41E-02	6.93E+00	-1.03E-03
RWD	kg	1.28E-03	3.7E-06	6.52E-03	2.6E-06	2.44E-04	5.56E-07	6.37E-07	5.36E-04	1.46E-05	-1.57E-04
CRU	kg	0	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0	0

EEE	MJ	0	0	0	0	9.31E-04	0	0	0	0	0
EET	MJ	0	0	0	0	2.37E-04	0	0	0	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:
1 m2 Swisspearl TEC +

Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	1.33E-07	1.75E-08	7.81E-08	7.84E-10	1.46E-08	3.68E-12	1.92E-10	2.55E-07	9.27E-09	-1.44E-09
IR	kBq U235 eq	1.74E-01	5.83E-04	4.42E-01	3.68E-04	3.24E-02	9.13E-05	9.03E-05	8.73E-02	1.54E-03	-2.58E-02
ETP-fw	CTUe	2.3E+01	7.66E-01	2.35E+01	1.76E+00	1.53E+00	1.57E-03	4.31E-01	4.82E+00	7.92E-01	-4.53E-01
HTP-c	CTUh	8.88E-10	1.43E-11	7.98E-10	3.27E-11	4.97E-10	4.45E-14	8.02E-12	2.54E-10	1.17E-10	-2.14E-11
HTP-nc	CTUh	7.07E-08	6.19E-10	6.78E-08	1.37E-09	6.06E-09	1.68E-12	3.35E-10	1.6E-08	1.29E-08	-8.48E-10
SQP	SQP	5.49E+00	8.15E-03	5.97E+01	6.21E-03	9.51E-01	1.18E-03	1.52E-03	3.04E+02	2.81E-01	-3.35E-01

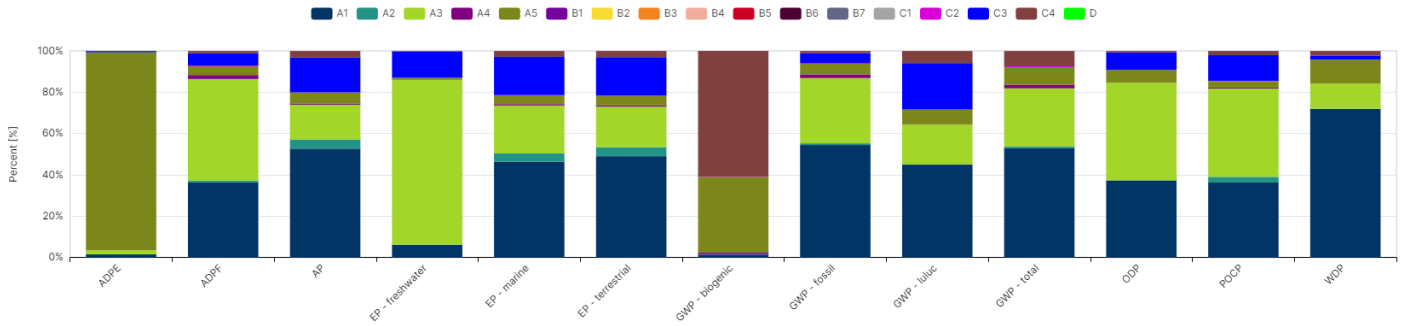
PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

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.

LCA interpretation

Based on the overall lifecycle, the product stage (A1-A3) of Swisspearl TEC+ roof slate has the largest impact on the majority of impact categories. As shown in the figure below, the raw material acquisition stage (A1) contributes the most to the Global Warming Potential (GWP) with a 54% share, primarily due to the high cement content. This followed by the manufacturing stage (A3) with an 28% share. In the construction process stage, the assembly (A5) of the product accounts for the largest share, contributing 5.17% to the total GWP. This is primarily due to the disposal of packaging and product waste.
For the end-of-life stage (C1-C4), waste processing (C3) is the biggest contributor, with a 5.68% share.
There are two impact categories where A1 is not the dominant contributor. The first is the eutrophication potential for freshwater (EP-freshwater), where A3 has the largest share at 80%, attributed to wastewater disposal during production. The second is the abiotic depletion potential for non-fossil resources (ADPE), where stage A5 has the majority share of the impacts.



References

Standards

DIN EN 197-1
DIN EN 197-1, Cement - Part 1: Composition, specifications and conformity criteria for common cements.

EN 492
EN 492:2012+A1, Fibre-cement slates and fittings — Product specification and test methods.

ISO 14025
EN ISO 14025:2006, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

ISO 15686-1, -2, -7 and -8
ISO 15686-1:2011
Part 1 General principles and framework
Part 2 Service life prediction procedures
Part 7 Performance evaluation for feedback of service life data from practice
Part 8 Reference service life and service-life estimation

EN 15804

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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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