Environmental Product and Health Declaration

In compliance with standard NF EN 15804+A2
and its national supplement NF EN 15804/CN

Swisspearl Patina Rough NXT / Swisspearl Group AG

Registration number:

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WARNING

The information contained in this declaration is provided under the responsibility of Swisspearl Group AG (producer of the EPD) in accordance with NF EN 15804+A2 and the national supplement NF EN 15804/CN.

Any use, total or partial, of the information provided in this document must at least be accompanied by the complete reference of the original EPD as well as its producer who can provide a complete copy.

The CEN standard EN 15804+A2 and the national supplement NF EN 15804/CN serve as rules for defining product categories (RCP).

READING GUIDE

The display of inventory data complies with the requirements of the NF EN 15804+A2 standard. In the following tables 2.53E-06 should be read as: 2.53x10-6 (scientific writing). When the inventory calculation result is zero, then the value zero is displayed.

The units used are specified in front of each flow, they are:
kilogram “kg”, cubic
meter “m3”,
kilowatthour ‘kWh’,
megajoule “MJ”,
square meter “m2”.

Abbreviations:
LCA: Life Cycle Assessment
RSL: Reference Lifetime
EPD: Environmental Product Declaration
FU: Functional Unit
DU: Declared Unit
N/A : Non Applicable
VOCs: Volatile Organic Compounds
SVHC: Substances of Very High Concern
EQ: Equivalent

PRECAUTIONS FOR USING THE EPD TO COMPARE PRODUCTS

The EPDs may not be comparable if they do not comply with NF EN 15804+A2. The NF EN 15804+A2 standard defines in § 5.3 Comparability of EPDs for construction products, the conditions under which construction products can be compared, on the basis of the information provided by the EPD:

“Therefore, a comparison of the environmental performance of construction products using EPD information should be based on the use of the products and their impacts on the building, and should take into account the entire life cycle (all information modules).”

Note 1: Outside the context of the environmental assessment of a building, EPDs are not tools for comparing construction products and services.

Note 2: For the assessment of the contribution of buildings to sustainable development, a comparison of environmental aspects and impacts must be undertaken in conjunction with the socio-economic aspects and impacts related to the building.

Note 3: For the interpretation of a comparison, reference values are required.

GENERAL INFORMATION

1. **Manufacturer**
   Swisspearl Group AG
   Eternitstrasse 48867 Niederurnen
   Switzerland

2. **The site(s), manufacturer or group of manufacturers or their representatives for whom the LCA is representative**
   The products are manufactured at the production site in Nyergesújfalu (Hungary)

3. **Type of EPD:**
   From cradle to grave + Module D

4. **Type of EPD: collective (in this case, specify the rules of use) or individual**
   Individual EPD

5. **Identification of the product by name or by an explicit designation or by the trade number(s)**
   Swisspearl Patina Rough NXT 8 mm

6. **Validity framework:**
   The EPD is produced for a single product, manufactured on a single production site. No sensitivity analysis was conducted.

7. **Independent external verification carried out according to the ISO 14025 environmental declaration programme by:**
   Independent external verification carried out according to the ISO 14025 environmental declaration programme: Grégory Herfray from RECto

8. **Trade reference(s)/identification of the product by its name**
   Swisspearl Patina Rough 8 mm/Patina NXT

9. **Place of production (France (specify region(s)), Europe (specify country), Outside Europe (specify country) (Optional)**
   All Swisspearl Patina Rough 8 mm/Patina NXT products are manufactured in the factory located in Nyergesújfalu (Hungary)

The NF EN 15804+A2 standard serves as a SPC
Independent verification of the declaration and data, in accordance with EN ISO 14025:2010 Internal **External**
Third-Party Verification: Grégory Herfray, RECto
ISO 14025 Program Registration Number: 20231135637
Date of verification: 07-01-2025
Validity end date: 31-12-2030
Verification programme : FDES-INIES (Décembre 2023) http://www.inies.fr/ Association HQE4, avenue du Recteur Poincaré 75016 PARIS FRANCE

DESCRIPTION OF THE FUNCTIONAL UNIT AND TYPE OF PRODUCT

1. Description of the functional unit (or declared unit)

To cover 1m2 of wall (interior or exterior), with a thickness of 8mm, installed according to Swisspearl's installation guidelines, for a reference lifespan of 50 years (installation accessories not included).

2. Main performance of the functional unit (or declared unit)

Patina Rough is a rustic fibre cement board with a tough, textured surface. The through coloured board and a sand-blasted surface gives the Patina Rough a stone-effect finish to a building design.

3. Product and packaging description

The products are wrapped in plastic film and delivered on wooden pallets.

4. Description of the product's use (areas of application)

Swisspearl Patina products are intended for use as interior and exterior façade panels.

5. Other technical characteristics not included in the functional unit (or declared unit)

Thermal conductivity: 0.4 W/mK
Reaction to fire: A2-s1, d0

6. Description of the main components and/or materials of the product

The main characteristics of Patina Rough are as follows:

- Cement (CEM II A/LL)
- Silica sand
- Cellulose fibers
- Aluminum trihydrate (ATH)
- Wollastonite
- Pigments

The total quantity of materials needed to fulfill the function of 1m2 of Patina Rough is 14.1 kg

The weight of the accompanying packaging for 1m2 Patina Rough is 0.078 kg

7. Specify whether the product contains substances from the REACH Candidate List (if greater than 1% by mass)

No substances of very high concern (SVHC) in concentrations greater than 0.1% of the mass of the product are present in the product, which is in line with Regulation (EC) No 1907/2006 (REACH)

8. Proof of suitability for use

Swisspearl fibre cement panels have obtained the CE mark, a declaration of performance (DoP) and technical data sheets indicating the technical specifications of the product. These documents can be downloaded from the Swisspearl download centre.

9. Distribution channel: BtoB / BtoC

BtoB and BtoC

10. Description of the reference service life (if applicable and in accordance with 7.3.3.2 of NF EN 15804)

Swisspearl fibre cement panels should have a reference life (RSL) of 50 years or more, according to the list of default reference life of NF EN 15804+A2/CN2022-10. SBR.

REFERENCE SERVICE LIFE (RSL) DESCRIPTION

Reference life	50 years
Declared product properties	See the data sheets on the Swisspearl homepage DOP : 021DoP20130701_eng_B6_6,0 mm
Theoretical application parameters	See the data sheets on the Swisspearl homepage DOP : 021DoP20130701_eng_B6_6,0 mm
Presumed quality of the product	See the data sheets on the Swisspearl homepage DOP : 021DoP20130701_eng_B6_6,0 mm
Indoor environment	The product has low indoor emissions according to the Finnish M1 certificate test carried out by Eurofins.
Outdoor environment	The product is designed to withstand outdoor conditions and does not lose its color (test report T380/036 according to EN17025:2018)
Terms of Use	The product is intended to be used in accordance with the re-commendation of Swisspearl Group AG
Maintenance Scenario	No maintenance is required for the Patina panels

BIOGENIC CARBON CONTENT INFORMATION

Biogenic carbon content (leaving the factory)	Value (by functional unit)
Biogenic carbon content of the product	0.62 kg C
Biogenic carbon content of the associated packaging	1,35 E-04 kg C

PHASES, SCENARIOS AND ADDITIONAL INFORMATION

Includes a lifecycle diagram, specifying the most important processes:

DESCRIPTION OF SYSTEM BOUNDARIES (X = included in LCA)														
PRODUCTION PHASE	**CONSTRUCTION PHASE**		**USE PHASE**							**END-OF-LIFE PHASE**				**BENEFITS AND EXPENSES BEYOND THE BOUN- DARIES OF THE SYSTEM**
Product	Transport	Construction and installation process	Usage	Maintenance	Repair	Replacement	Accreditation	Energy use during the Usage phase	Water use during the Usage phase	Demolition /deconstruction	Transport	Waste treatment	Elimination	Possibility of reuse, recovery, recycling
A1 - 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

PRODUCTION PHASE, A1-A3

A1 SUPPLY OF RAW MATERIALS

This phase includes everything needed to procure the raw materials required to produce the products. It includes the extraction, processing, transformation and consumption of electricity and heat. Wooden pallets were not considered in the final analysis, as it was assumed that they would be reused and their impact would be minimal.

A2 TRANSPORT TO THE PRODUCTION SITE

Transport from the various manufacturing and raw material extraction sites to the factory in Hungary.

A3 PRODUCTION

Fiber cement panels are produced using the Hatschek method. The homogeneous mixture of basic raw materials and water is transferred to the machine tanks. In the tanks, rotating sieving cylinders collect a thin layer of solid material and transfer it to a rotating felt for draining and then to the accumulator roller. The format roll is gradually covered with layers of fibre cement until the required panel thickness is reached. The fibre cement layer, which is still wet and can be moulded, is unrolled and removed from the roller. The Patina Rough is dried by an autoclave that runs on natural gas. After the drying process, the products are ready to undergo further processing, such as sanding, cutting, painting, edge sealing, hydrophobisation, after which they are weighed, quality controlled, and packaged.

GWP of 1kWh in Hungary used in the production of panels: 0.51 kg CO_2 eq. CO_2.

CONSTRUCTION PROCESS PHASE, A4-A5

A4 TRANSPORTATION TO THE CONSTRUCTION SITE

The distance to the construction site is calculated from the factory to Paris. In the case of products manufactured in Hungary, this distance is 1440 km. Swisspearl claims that the products are not damaged during transport, as the fibre cement panels do not extend beyond the edges of the pallets on which they are transported.

Fuel type and consumption of the vehicle or vehicle type	Transport, freight transport, truck, unspecified {GLO}| Transportation Market Group, Freight Transportation, Truck, Unspecified | Cut, U
Distance	1440 km
Capacity utilization (including empty returns)	100 % 100% of empty returns
Bulk density of the product(s) being transported	Transport, freight transport, truck, unspecified {GLO}| Transportation Market Group, Freight Transportation, Truck, Unspecified | Cut, U

A5 BUILD-INSTALL PROCESS

The fibre cement panels have a relatively low weight, which is why the model does not provide for any additional transport to the construction site. Fiber cement panels are mounted on a wood or steel construction using small power tools. The estimated energy to power the hand tool is very low and is therefore not taken into account in the model. However, 6.4 g of screws were included per m2 in the calculation. Waste treatment and transport of packaging waste from the construction site to the municipal incinerator are included in this module. The distance to the waste treatment facility is assumed to be 50 km. Swisspearl claims that it does not lose significant quantities of product on the construction site.

Fuel type and consumption of the vehicle or type of vehicle used for transportation, e.g. long-distance truck, boat, etc.	Not applicable
Water use	Not applicable
Use of other resources	0.0064 kg of screws per m2
Quantitative description of the type of energy (regional mix) and consumption during the installation process	Negligible
Waste on the construction site prior to the treatment of waste generated by the installation of the product (broken down by type)	0 kg of product 0.0003 kg of cardboard/paper packaging 0.078 kg of energy for plastic packaging
Outgoing materials (broken down by type) produced by waste treatment on the construction site, e.g. collected for recycling, energy recovery, disposal (broken down by type)	0.0003 kg of recovered energy for cardboard/paper packaging 0.078 kg of recovered energy for plastic packaging

USE PHASE, B1-B7

These fiber cement panels have a reference life of 50 years. During the 50-year application period, no maintenance is normally required. This phase is included in the LCA, but no environmental impacts have been considered.

END-OF-LIFE PHASE, C1-C4

C1 DECONSTRUCTION

An excavator was modeled to calculate the impact of the demolition and waste transportation processes at the demolition site of the fiber cement panels.

C2 TRANSPORT (TO DISPOSAL OR TREATMENT)

According to the default scenario of the evaluation method, the standard transport distance between the demolition site and the shredding/sorting plant is 50 km. An additional 50 km for transport is calculated for landfilled materials, as they must be transported from the shredding/sorting plant to the landfill. This transport is calculated on the entire weight of the product. The process used for truck transport is as follows: Transport, freight transport, truck, unspecified {GLO}| market | Cut.

C3 TREATMENT (FOR RECOVERY)

In this module, waste shredding in a treatment plant was modelled. The standard procedure is to recycle cement-based products into pellets and use them for road construction. This means that 99% of the product is recycled.

C4 DISPOSAL OF NON-RECOVERED WASTE

Some of the waste released is disposed of in a landfill. This means that only 1% of the product goes to landfill.

Collection process	
Individually collected waste	0 kg
Waste collected with construction waste	12.57 kg
Recovery systems	
Amount of fiber cement to be reused	0 kg
Amount of fiber cement to be recycled	12.44 kg
Amount of fibre cement for energy recovery	0 kg
Amount of fibre cement to be removed	0.13 kg

BENEFITS BEYOND THE SYSTEM BOUNDARY, D

The 99% of the product that is recycled is transformed into concrete pellets that replace gravel under paved roads. In addition, the avoided generation of electricity and heat during the incineration of plastic packaging waste and cardboard/paper packaging waste is included in this module.

Outgoing recovered materials Limits of the material system	Recycling processes beyond System Limitations	Content /Materials/ Energy Savings	Bound quantities
Fiber cement panel	Recycle	Gravel, round {RoW}| gravel and sand quarry operation | Cut-off, U	12.44 kg
Cardboard/paper packaging	Incineration and energy recovery	Electricity, high voltage {FR}| heat and pow- er co-generation, wood chips, 6667 kW, state-of-the-art 2014 | Cut-off, U 0,18MJ+Heat, district or industrial, other than natural gas {FR}| heat and power co-generation, wood chips, 6667 kW, state-of-the-art 2014 | Cut-off, U 0,31 MJ	0.003 kg
Plastic packaging	Incineration and energy recovery	0,18 MJ Electricity, high voltage {FR}| electricity production, natural gas, combined cycle power plant | Cut-off, U+Heat, district or industrial, natural gas {Europe without Switzerland}| heat production, natural gas, at industrial furnace >100kW | Cut-off, U 0,31.	0.078 kg

INFORMATION FOR LIFE CYCLE ASSESSMENT CALCULATION

PCR used	NF EN 15804+A2 and national supplement NF EN 15804+A2/CN
System boundaries	From cradle to grave
Allocations	No allocation to co-products was performed
Representativeness **Geographic** **Time**	**Country of production:** Hungary **Year of production:** 2023 **Database**: Ecoinvent 3.6
Variability of results	EPD for a single site and a single product

LIFE CYCLE ASSESSMENT RESULT

The following tables summarize the results of the LCA.

Due to rounding, totals may not add up to the sum of rounding.

MND:Module not declared

For energy indicators used as raw materials: a negative value corresponds to the change in the use of raw materials as fuels (in the case of incineration, for example). Application of Annex I of the NF EN15804/CN standard.

ENVIRONMENTAL IMPACTS

ENVIRONMENTAL IMPACTS	Production phase	Construction phase		Use phase							End-of-life phase				D Benefits and expenses beyond the system's borders
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Rehabilitation	B6 Energy use	B7 Water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste treatment	C4 Elimination	
Climate change - total kg CO2 eq/FU or DU	1,22 E+01	2,52 E+00	2,39 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,62 E-01	9,12 E-02	2,12 E+00	1,73 E-01	-2,12 E-01
Climate change – fossil kg CO2 eq/FU or DU	1,41 E+01	2,52 E+00	2,39 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,62 E-01	9,11 E-02	1,14 E-02	4,90 E-03	-2,11 E-01
Climate change - biogenic kg CO2 eq/FU or DU	-1,98 E+00	1.16 E-03	2.58 E-04	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	4.49 E-05	4.21 E-05	2,11 E+00	1.68 E-01	-2.65 E-04
Climate change –luluc kg CO2 eq/FU or DU	1,45 E-02	9,24 E-04	5,34 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,27 E-05	3,34 E-05	2,04 E-06	1,37 E-06	-5,76 E-05
Ozone depletion kg CFC-11 eq /FU or DU	1,59 E-06	5,56 E-07	5,98 E-10	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	3,49 E-08	2,01 E-08	3,02 E-09	2,02 E-09	-3,10 E-08
Acidification mole H+ eq/ FU or DU	6,63 E-02	1,46 E-02	4,41 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,69 E-03	5,29 E-04	1,12 E-04	4,65 E-05	-4,94 E-04
Aquatic eutrophication, freshwater kg P eq/FU or DU	8,50 E-04	2,54 E-05	3,73 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	5,88 E-07	9,19 E-07	9,70 E-08	5,49 E-08	-1,97 E-06
Aquatic eutrophication, marine kg N eq / FU or DU	1,33 E-02	5,15 E-03	1,82 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	7,46 E-04	1,86 E-04	4,71 E-05	1,60 E-05	-1,44 E-04
Terrestrial eutrophication mole N eq/FU or DU	1,52 E-01	5,68 E-02	1,94 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	8,18 E-03	2,05 E-03	5,17 E-04	1,76 E-04	-1,64 E-03
Formation potential of tropospheric ozone photochemical oxidants kg NMCOV eq/FU or DU	4,36 E-02	1,62 E-02	4,97 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,25 E-03	5,86 E-04	1,42 E-04	5,12 E-05	-4,79 E-04
Depletion of abiotic resources (minerals & metals) kg Sb eq/FU or DU	4,73 E-04	6,39 E-05	3,59 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,48 E-07	2,31 E-06	5,22 E-08	4,48 E-08	-2,48 E-06
Depletion of abiotic resources (fossil fuels) MJ/FU or DU	2,06 E+02	3,80 E+01	5,62 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,22 E+00	1,37 E+00	3,36 E-01	1,37 E-01	-3,19 E+00
Water deprivation potential m3 of deprivation equivalent in the world / FU or DU	3,34 E+00	1,36 E-01	4,75 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,98 E-03	4,92 E-03	7,07 E-04	6,14 E-03	-7,03 E-01
Fine particle emissions Disease incidence / FU or DU	4,42 E-07	2,26 E-07	2,97 E-10	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	4,47 E-08	8,18 E-09	2,78 E-09	9,03 E-10	-6,47 E-09
Ionizing radiation (human health) kBq U235 eq/FU or DU	1,30 E+00	1,59 E-01	1,92 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	9,53 E-03	5,76 E-03	2,59 E-03	5,62 E-04	-3,04 E-03
Ecotoxicity (freshwater) CTUe/FU or DU	2,45 E+02	3,39 E+01	1,06 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,34 E+00	1,23 E+00	1,44 E-01	8,89 E-02	-1,14 E+00
Human toxicity, carcinogenic effects CTUh/FU or DU	6,75 E-09	1,10 E-09	1,70 E-11	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	4,68 E-11	3,98 E-11	4,50 E-12	2,10 E-12	-4,68 E-11
Human toxicity, non-carcinogenic effects CTUh/FU or DU	2,16 E-07	3,71 E-08	4,05 E-10	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,15 E-09	1,34 E-09	1,07 E-10	6,32 E-11	-1,18 E-09
Land cover impacts / Soil quality Dimensionless / FU or DU	1,05 E+02	3,30 E+01	2,81 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,84 E-01	1,19 E+00	2,76 E-02	2,87 E-01	-8,49 E-01

RESOURCE UTILISATION

RESOURCE UTILIZATION	Production phase	Construction phase		Use phase							End-of-life phase				D Benefits and expenses beyond the system's borders
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Rehabilitation	B6 Energy use	B7 Water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste treatment	C4 Elimination	
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials MJ/FU or DU	1,80 E+01	4,76 E-01	2,92 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,20 E-02	1,72 E-02	1,53 E-02	1,11 E-03	-5,32 E-02
Use of renewable primary energy resources as raw materials MJ/FU or DU	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) MJ/FU or DU	1,80 E+01	4,76 E-01	2,92 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,20 E-02	1,72 E-02	1,53 E-02	1,11 E-03	-5,32 E-02
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials MJ/FU or DU	2,17 E+02	4,04 E+01	6,02 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,36 E+00	1,46 E+00	3,46 E-01	1,46 E-01	-3,51 E+00
Use of non-renewable primary energy resources as raw materials MJ/FU or DU	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materialss) MJ/FU or DU	2,17 E+02	4,04 E+01	6,02 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,36 E+00	1,46 E+00	3,46 E-01	1,46 E-01	-3,51 E+00
Use of secondary material kg/FU or DU	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Use of renewable secondary fuels MJ/FU or DU	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Use of non-renewable secondary fuels MJ/FU or DU	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Net Freshwater Use m3/FU or DU	1,19 E-01	4,63 E-03	1,30 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,14 E-04	1,67 E-04	6,43 E-05	1,46 E-04	-1,66 E-02

WASTE CATEGORY

WASTE CATEGORY	Production phase	Construction phase		Use phase							End-of-life phase				D Benefits and expenses beyond the system's borders
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Rehabilitation	B6 Energy use	B7 Water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste treatment	C4 Elimination	
Hazardous waste disposed kg/FU or DU	4,15 E-04	9,63 E-05	3,76 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	6,05 E-06	3,48 E-06	4,28 E-07	2,05 E-07	-4,63 E-06
Non-hazardous waste disposed kg/FU or DU	6,52 E+00	2,41 E+00	3,86 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,63 E-03	8,72 E-02	3,82 E-02	9,30 E-01	-7,90 E-03
Radioactive waste disposed kg/FU or DU	1,17 E-03	2,50 E-04	2,31 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,54 E-05	9,03 E-06	3,54 E-06	9,00 E-07	-3,50 E-06

OUTGOING FLOWS

OUTGOING FLOWS	Production phase	Construction phase		Use phase							End-of-life phase				D Benefits and expenses beyond the system's borders
	A1 / A2 / A3	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Rehabilitation	B6 Energy use	B7 Water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste treatment	C4 Elimination	
Components for reuse kg/FU or DU	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Materials for recycling kg/FU or DU	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	1.16 E+01	0.00 E+00	0.00 E+00
Materials for energy recovery kg/FU or DU	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Exported electrical energy MJ/FU or DU	0.00 E+00	0.00 E+00	5.99 E-01	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Exported thermal energy MJ/FU or DU	0.00 E+00	0.00 E+00	1.03 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00

ENVIRONMENTAL IMPACTS

ENVIRONMENTAL IMPACTS	Production phase	Construction phase	Use phase	End-of-life phase	Total Life Cycle	Benefits and expenses beyond the system's borders
Climate change - total kg CO2 eq/FU or DU	1,22 E+01	2,76 E+00	0,00 E+00	2,55 E+00	1,75 E+01	-2,12 E-01
Climate change – fossil kg CO2 eq/FU or DU	1,41 E+01	2,76 E+00	0,00 E+00	2,69 E-01	1,72 E+01	-2,11 E-01
Climate change - biogenic kg CO2 eq/FU or DU	-1,96 E+00	1,42 E-03	0,00 E+00	2,28 E+00	3,20 E-01	-2,65 E-04
Climate change – luluc kg CO2 eq/FU or DU	1,45 E-02	9,77 E-04	0,00 E+00	4,95 E-05	1,56 E-02	-5,76 E-05
Ozone depletion kg CFC-11 eq /FU or DU	1,59 E-06	5,98 E-10	0,00 E+00	6,00 E-08	1,65 E-06	-3,10 E-08
Acidification mole H+ eq / FU or DU	6,63 E-02	4,41 E-05	0,00 E+00	2,38 E-03	6,87 E-02	-4,94 E-04
Aquatic eutrophication, freshwater kg P eq/FU or DU	8,50 E-04	3,73 E-07	0,00 E+00	1,66 E-06	8,52 E-04	-1,97 E-06
Aquatic eutrophication, marine kg N eq/ FU or DU	1,33 E-02	1,82 E-05	0,00 E+00	9,95 E-04	1,43 E-02	-1,44 E-04
Terrestrial eutrophication mole N eq/FU or DU	1,52 E-01	1,94 E-04	0,00 E+00	1,09 E-02	1,63 E-01	-1,64 E-03
Formation potential of tropospheric ozone photochemical oxidants kg NMCOV eq/FU or DU	4,36 E-02	4,97 E-05	0,00 E+00	3,03 E-03	4,66 E-02	-4,79 E-04
Depletion of abiotic resources (minerals & metals) kg Sb eq/FU or DU	4,73 E-04	6,42 E-05	0,00 E+00	2,65 E-06	5,40 E-04	-2,48 E-06
Depletion of abiotic resources (fossil fuels) MJ/FU or DU	2,06 E+02	3,81 E+01	0,00 E+00	4,07 E+00	2,48 E+02	-3,19 E+00
Water deprivation potential m3 deprivation equivalent in the world / FU or DU	3,34 E+00	1,41 E-01	0,00 E+00	1,47 E-02	3,49 E+00	-7,03 E-01
Fine particle emissions Disease incidence / FU or DU	4,42 E-07	2,97 E-10	0,00 E+00	5,66 E-08	4,99 E-07	-6,47 E-09
Ionizing radiation (human health) kBq of U235 eq/FU or DU	1,30 E+00	1,59 E-01	0,00 E+00	1,84 E-02	1,48 E+00	-3,04 E-03
Ecotoxicity (freshwater) CTUe/FU or DU	2,45 E+02	1,06 E-01	0,00 E+00	2,80 E+00	2,48 E+02	-1,14 E+00
Human toxicity, carcinogenic effects CTUh/FU or DU	6,75 E-09	1,70 E-11	0,00 E+00	9,32 E-11	6,86 E-09	-4,68 E-11
Human toxicity, non-carcinogenic effects CTUh/FU or DU	2,16 E-07	3,75 E-08	0,00 E+00	2,66 E-09	2,56 E-07	-1,18 E-09
Land cover impacts / Soil quality Dimensionless / FU or DU	1,05 E+02	3,30 E+01	0,00 E+00	1,79 E+00	1,40 E+02	-8,49 E-01

RESOURCE UTILISATION

RESOURCE UTILISATION	Production phase	Construction phase	Use phase	End-of-life phase	Total Life Cycle	Benefits and expenses beyond the system's borders
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials - MJ/FU or DU	1,80 E+01	4,79 E-01	0,00 E+00	4,57 E-02	1,85 E+01	-5,32 E-02
Use of renewable primary energy resources as raw materials - MJ/FU or DU	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ/FU or DU	1,80 E+01	4,79 E-01	0,00 E+00	4,57 E-02	1,85 E+01	-5,32 E-02
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials - MJ/FU or DU	2,17 E+02	4,04 E+01	0,00 E+00	4,31 E+00	2,62 E+02	-3,51 E+00
Use of non-renewable primary energy resources as raw materials - MJ/FU or DU	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - MJ/FU or DU	2,17 E+02	4,04 E+01	0,00 E+00	4,31 E+00	2,62 E+02	-3,51 E+00
Use of secondary material - kg/FU or DU	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Use of renewable secondary fuels - MJ/FU or DU	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Use of non-renewable secondary fuels - MJ/FU or DU	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Net freshwater use - m3/FU or DU	1,19 E-01	4,76 E-03	0,00 E+00	4,93 E-04	1,25 E-01	-1,66 E-02

WASTE CATEGORY

WASTE CATEGORY	Production phase	Construction phase	Use phase	End-of-life phase	Total Life Cycle	Benefits and expenses beyond the system's borders
Hazardous waste disposed of kg/FU or DU	4,15 E-04	3,76 E-07	0,00 E+00	1,02 E-05	4,25 E-04	-4,63 E-06
Non-hazardous waste disposed of kg/FU or DU	6,52 E+00	3,86 E-03	0,00 E+00	1,06 E+00	7,59 E+00	-7,90 E-03
Radioactive waste disposed of kg/FU or DU	1,17 E-03	2,31 E-07	0,00 E+00	2,89 E-05	1,20 E-03	-3,50 E-06

OUTGOING FLOWS

WASTE CATEGORY	Production phase	Construction phase	Use phase	End-of-life phase	Total Life Cycle	Benefits and expenses beyond the system's borders
Components for reuse kg/FU or DU	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Materials for recycling kg/FU or DU	0.00 E+00	0.00 E+00	0.00 E+00	1.16 E+01	1.16 E+01	0.00 E+00
Materials for energy recovery kg/FU or DU	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Exported electrical energy MJ/FU or DU	0.00 E+00	5.99 E-01	0.00 E+00	0.00 E+00	5.99 E-01	0.00 E+00
Exported thermal energy MJ/FU or DU	0.00 E+00	1.03 E+00	0.00 E+00	0.00 E+00	1.03 E+00	0.00 E+00

ADDITIONAL INFORMATION ON THE RELEASE OF HAZARDOUS SUBSTANCES INTO I DOOR AIR, SOIL AND WATER DURING THE PERIOD OF USE

INDOOR AIR: VOCS AND FORMALDEHYDE (IF APPLICABLE)

Indoor emissions are measured for the Patina Rough and documented in Eurofins' M1 emission report published on 18/12/2020. M1 certification is a Finnish emission classification system that classifies building materials based on the amount of emissions they emit into the air. The M1 rating corresponds to the best quality, i.e. the lowest emission level.

RESISTANCE TO FUNGAL GROWTH DEVELOPMENT (IF ANY)

No test reports are available regarding the behavior of the product against fungal growth. However, fiber cement panels are generally resistant to fungal growth due to the composition of cement, sand, and cellulose fibers, which create an environment that is hostile to mold.

RADIOACTIVE EMISSIONS (IF APPLICABLE)

The materials used in the production of fiber cement panels are not radioactive.

SOIL AND WATER (IF APPLICABLE)

The fiber cement sheets will not be in contact with the ground or water.

CONTRIBUTION OF THE PRODUCT TO THE QUALITY OF LIFE INSIDE BUILDINGS

HYGROTHERMAL COMFORT

Swisspearl fiber cement panels allow for the diffusion of vapor, which helps regulate humidity levels in the building envelope and reduce condensation on cold windows, preventing mold growth.

ACOUSTIC COMFORT

Swisspearl fibre cement panels do not offer specific sound absorption qualities, but can help to reduce the transmission of sound bet- ween rooms. This is highly dependent on the thickness of the panels and other materials in the building envelope.

VISUAL COMFORT

Swisspearl Patina fiber cement panels are available in different finishes and colors.

OLFACTORY COMFORT

Not applicable.

ADDITIONAL INFORMATION (OPTIONAL)

Not applicable