epddanmark

ECO PLATFORM EPD VERIFIED

Owner: Swisspearl
No.: MD-24137-EN
Issued: 21-05-2025
Valid to: 21-05-2030

3rd PARTY **VERIFIED**

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | **ISO 14025 & EN 15804**

Owner of declaration
Swisspearl Danmark A/S
Gasværksvej 24, 1.
9000 Aalborg
DK18336774

Programme
EPD Danmark
www.epddanmark.dk

☐ Industry EPD
☒ Product EPD

Declared product(s)
Plank

Number of declared datasets/product variations: 1

Production site
TPI Fiber Cement Plant 99 Moo 7 T.Bankaeng A.Chalermprakiat Saraburi, Thailand

Use of Guarantees of Origin
☒ No certificates used
☐ Electricity covered by GoO
☐ Biogas covered by GoO

Declared/ functional unit
1 m^2 of fiber cement Plank

Year of production site data (A3)
1st of January 2022 to 31st of December 2022

EPD version
EPD version [1]

Issued: 21-05-2025
Valid to: 21-05-2030

Basis of calculation
This EPD is developed and verified in accordance with the European standard EN 15804+A2.

Comparability
EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity
This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use
The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

EPD type
☐Cradle-to-gate with modules C1-C4 and D
☐Cradle-to-gate with options, modules C1-C4 and D
☒Cradle-to-grave and module D
☐Cradle-to-gate
☐Cradle-to-gate with options

CEN standard EN 15804 serves as the core PCR

Independent verification of the declaration and data, according to EN ISO 14025

☐ internal ☒ external

Third party verifier:

Linda Høibye

Martha Katrine Sørensen
EPD Danmark

System boundary (X = included in LCA; MND = module not declared)

Product			Construction process		Use							End of life				Beyond system boundary
Raw material supply	Transport	Manufacturing	Transport	Construction installation process	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

Product information

Product description

The main product components are shown in the table below.

Material	Weight-% of declared product
Cement CEM I	30%
Silica sand	43%
Cellulose	7%
Aluminium Hydroxide	3%
Water	15%
Paint	2%
SUM	100%

The construction of the production plant, the production of machinery, screws for installation of the product, and lubricants for the machines are excluded due to lack of data and because their impacts are not relevant because they are under the cut-off rule.

Product packaging:

The composition of the product packaging is shown in the table below.

Material	Weight of packaging material (kg)	Weight-% of packaging
Wooden pallet	0.539	61%
PE foam for anti scratch	0.001	0.11%
Cover film	0.054	7%
Coner paper	0.004	0.45%
Plastic strap PE	0.005	1%
Trim for bracing (wood)	0.027	3%
Wooden pallet	0.247	28%
Sum/average	**0.88**	100%

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of the fiber cement Plank on the production site located in Thailand. Product specific data are based on average values collected in the period 2022. Background data are based on GaBi Sphera Professional 2024 and Ecoinvent v3.10 and are less than 10 years old. Generally, most of the used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

Geographical representativeness: The production of the Plank takes place in Thailand and the use and end of life takes place in Denmark. Most of the processes used for Thailand are global processes. Most of the processes used for Denmark are either Danish or European processes. Most of the processes in this study therefore have a geographical representativeness which is evaluated to be "good" because they cover a larger area in which the area under study is included.

Foreground system: The product is produced using residual electricity from grid in Thailand. Background system: Upstream and downstream processes are modelled using electricity grid mix.

Database(s) and LCA software used: Generic data and background data are based on the GaBi Sphera professional database version 2023 and the Ecoinvent 3.10 database.

Hazardous substances

The Swisspearl Plank contains less than 0.1% (w/w) of substances listed on the "Candidate List of Substances of Very High Concern for authorisation"

(http://echa.europa.eu/candidate-list-table)

Product(s) use

The Swisspearl Plank can be used on building facades.

Essential characteristics

Because of the properties of fibre cement, the Swisspearl Plank does not rot, crack, or require repainting. Main components are cement, silica sand, cellulose fibers, water and selected additives and can be mounted both horizontally and vertically. Ideal for replacement of wood on the facade due to the limited maintenance required.

Swisspearl facade boards are covered by the harmonised technical specification EN 12467.

Further technical information can be obtained by contacting the manufacturer or on the manufacturers website: Swisspearl Fibre Cement - Plank Original facade board - Swisspearl.

Declaration of performance is according to EU regulation 305/2011 is available for all declared product variations of the plank.

Reference Service Life (RSL)

The reference service life is 50 years or higher according to the table published by the BBSR[1].

Picture of product(s)

[1] BNB_Nutzungsdauern_von_Bauteilen_2017-02-24.xls (nachhaltigesbauen.de) Code 335.551

LCA background

Declared unit

The LCI and LCIA results in this EPD relates to 1 m^2 of fiber cement Plank.

Name	Value	Unit
Declared unit	1	m^2
Density	11.96	Kg/m^2
Conversion factor to 1 kg.	0.08	-

Functional unit

Not defined.

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804.

Energy modelling principles

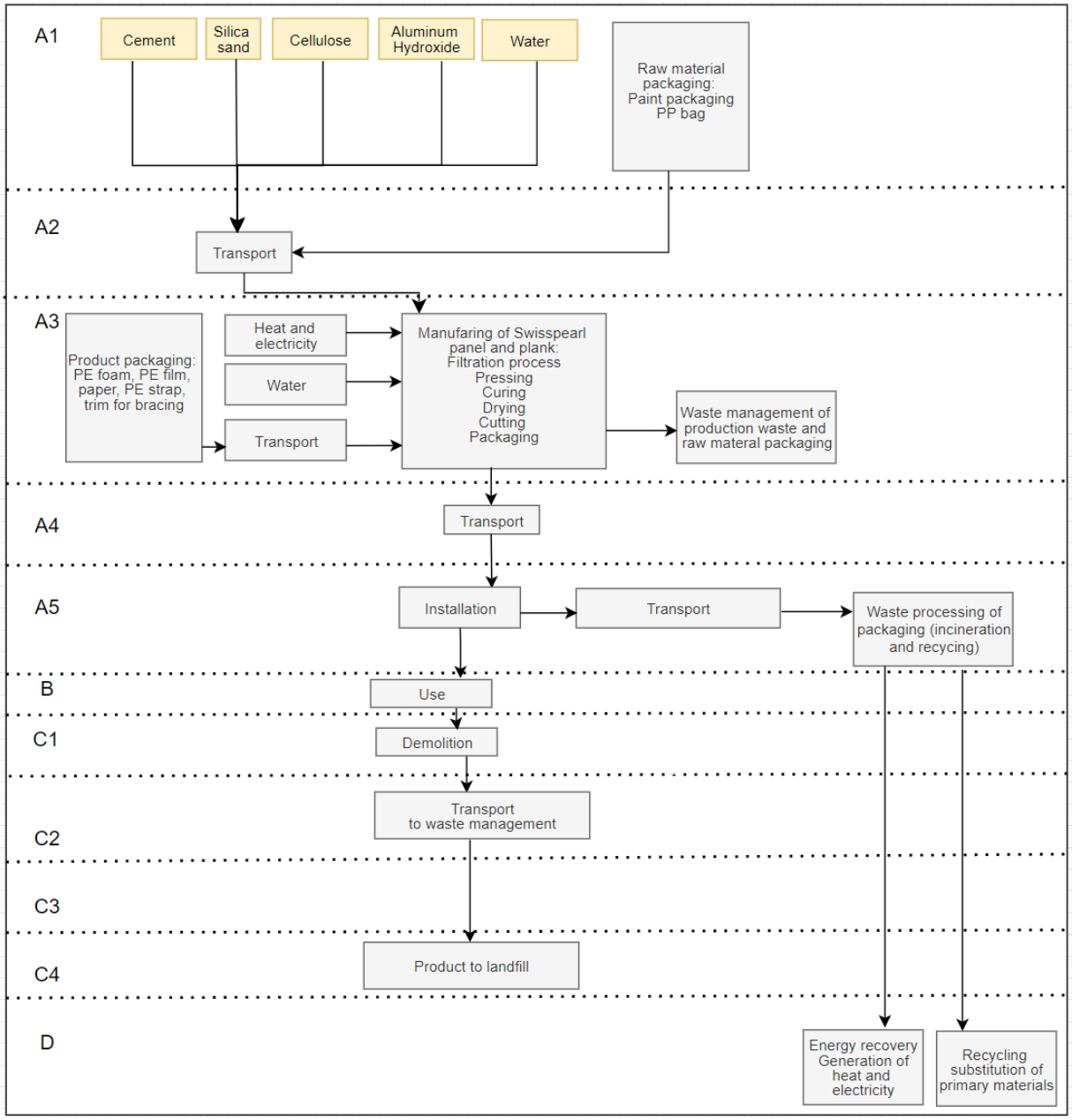
Foreground system:

The product is produced using heat from, oil and electricity from the Thailand residual grid for the production of the fiber cement Plank.

Background system:

Upstream and downstream processes are modelled using electricity grid mix.

Flowdiagram



System boundary

The LCA is cradle to grave and includes all modules, from A1 to D. However, B1-B7 are not relevant, since the products do not require any maintenance, replacement, or refurbishment in their reference service life. 99.994 weight-% of the product has been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 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.

According to the rules in EN 15804:2012+A2:2019, 6.3.5, in case of insufficient input data or data gaps for the unit process, the cut-off criteria shall be 1% of renewable and non-renewable primary energy usage and 1% of the total mass input of that unit process.

Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials

A2 – Transport to the production site

A3 – Manufacturing processes

Swisspearl Plank is 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 collects a thin layer of solid material and transfer the layer to a rotating felt for dewatering and further on to the accumulating format roller. The format roller is gradually covered by layers of fiber cement. Once the required thickness of the boards is reached, the fiber cement layer, still moist and mouldable, is unwound and taken from the roll[2].

After the pre-curing period, the fibre-cement boards are dried. The plank is dried by use of an Autoclave machine. Autoclaves create a high-pressure, high-temperature environment that accelerates the chemical reactions between the cement and the fibres. This process turns the wet mixture into a hard, durable material.

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.

Waste during production and raw material packaging is waste handled in A3. The waste is sent to recycling. Credit is not given in A3.

Construction process stage (A4-A5) includes:

Module A4 includes transportation from the production site in Thailand to Denmark. This contains a distance of 18,263 km with a container ship and 250 km with a truck. Module A5 also accounts for the environmental impacts connected to installation of the product.

The installation process takes place in Denmark. The installation requires 1050 W of electrical energy for an electric screwdriver for the Swisspearl Plank. The screwdriver is estimated by Swisspearl to be used for 5 minutes/m². Thereby, a total of 87.5 watt-hours is used. The electricity consumption for installation is accounted for, but the machinery itself is not accounted for the because it is under the cut-off, and it is therefore modelled as an empty <us-o> process in GaBi Sphera. The electricity is modelled as Danish grid mix because the product is installed and used in Denmark.

Module A5 also accounts for the environmental impacts associated with the disposal of packaging handled at the construction site meaning the waste management of the final product packaging materials.

2 http://www.fibrecementconsulting.com/publications/011011.hatschekfilmsummary.pdf

Recycling rates of packaging materials are based on Eurostat data from 2020 for Denmark.

It is assumed that packaging material which is not recycled is incinerated with energy recovery.

The distance to the incineration plants is assumed to be 60 km. The distance to the recycling station is based on a study of waste management by Bassi et al. from 2017. It has not been possible to find a source on what the average distance to the recycling station is in Denmark. 100 km has therefore been assumed based on input from professionals in COWI working with resources and recycling.

Use stage (B1-B7) includes:

As there is no maintenance, repair, refurbishment or any operational water or energy consumption related to the use of the plank during their reference service life, all modules in the use stage (B1-B7) are considered to have no environmental impact.

End of Life (C1-C4) includes:

Module C1 accounts for the environmental impacts associated with dismantling and demolition of the facade boards. Demolition requires 1050 W of electrical energy for an electric screwdriver for the Swisspearl Plank. Thereby, a total of 87.5 watt-hours is used. The electricity consumption for installation is accounted for, but the machinery itself is not accounted for the because it is under the cut-off, and it is therefore modelled as an empty <us-o> process in GaBi Sphera. The electricity is modelled as Danish grid mix because the product is installed and used in Denmark.

The average distance to waste handling facilities is the same for C2 as for A5 which is 60 km. The truck type for all product types is the GLO: Truck, Euro 6 A-C, 28 - 32t gross weight. The utilisation rate is 61%, which is the default value including empty runs in GaBi.

The Plank is sent to landfill and therefore there are no environmental impacts associated with waste processing of materials flows intended for reuse, recycling or energy recovery.

In C4, the disposal module, the product is waste handled. 100% of the product goes to landfill. The landfill process includes percolate. It is assumed that the biogenic carbon of the cellulose contained in the fiber cement plank is released as CO_2.

Re-use, recovery and recycling potential (D) includes:

Module D – The Plank is sent to landfill after use. The product has therefore no impact during this stage and no associated environmental impacts. The credits in module D therefore stem from incineration of the packaging disposed in A5.

The incineration process and recycling processes take place in A5 and the energy credit and material credit take place in module D.

Regarding crediting for recycling of paper and board in the packaging, the ecoinvent process for kraft paper used for credit has been edited, so only the virgin wooden inputs are credited, not all other inputs in the process e.g. energy.

LCA results

Results for Plank

Core environmental impact indicators for Plank

ENVIRONMENTAL IMPACTS PER M²												
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	[kg CO_2 eq.]	3.80E+00	2.51E-01	2.10E+00	2.77E+00	1.68E+00	0.00E+00	1.63E-01	6.51E-02	0.00E+00	1.45E+00	-1.11E-01
GWP-fossil	[kg CO_2 eq.]	5.09E+00	2.52E-01	3.48E+00	2.77E+00	3.27E-01	0.00E+00	1.62E-01	6.56E-02	0.00E+00	1.79E-01	-1.11E-01
GWP-biogenic	[kg CO_2 eq.]	-1.29E+00	-1.99E-03	-1.38E+00	-5.16E-03	1.35E+00	0.00E+00	1.17E-03	-1.64E-03	0.00E+00	1.27E+00	-6.41E-04
GWP-luluc	[kg CO_2 eq.]	1.20E-03	1.40E-03	6.30E-04	4.90E-03	1.67E-04	0.00E+00	5.94E-05	1.07E-03	0.00E+00	5.22E-04	-1.21E-04
ODP	[kg CFC 11 eq.]	2.13E-08	2.50E-14	6.60E-08	2.32E-13	5.21E-12	0.00E+00	5.03E-12	9.41E-15	0.00E+00	6.72E-16	-1.01E-04
AP	[mol H^+ eq.]	1.97E-02	3.23E-03	1.40E-02	4.65E-02	5.65E-04	0.00E+00	3.21E-04	1.00E-04	0.00E+00	1.30E-03	-2.66E-04
EP-freshwater	[kg P eq.]	6.52E-04	3.99E-07	5.32E-04	1.88E-06	1.55E-06	0.00E+00	1.49E-06	2.73E-07	0.00E+00	3.12E-07	-1.01E-04
EP-marine	[kg N eq.]	4.51E-03	1.36E-03	2.37E-03	1.96E-02	1.75E-04	0.00E+00	1.04E-04	3.84E-05	0.00E+00	3.35E-04	-1.52E-04
EP-terrestrial	[mol N eq.]	4.95E-02	1.50E-02	2.44E-02	2.15E-01	2.01E-03	0.00E+00	9.74E-04	4.51E-04	0.00E+00	3.68E-03	-6.18E-04
POCP	[kg NMVOC eq.]	1.45E-02	3.73E-03	8.51E-03	5.38E-02	4.37E-04	0.00E+00	2.39E-04	9.96E-05	0.00E+00	1.01E-03	-2.63E-04
ADPm[1]	[kg Sb eq.]	6.22E-05	1.09E-08	1.45E-06	7.91E-08	8.91E-08	0.00E+00	8.68E-08	5.57E-09	0.00E+00	1.63E-08	-1.01E-04
ADPf[1]	[MJ]	4.34E+01	2.99E+00	5.45E+01	3.29E+01	2.51E+00	0.00E+00	2.06E+00	8.42E-01	0.00E+00	2.38E+00	-2.11E+00
WDP[1]	[m^3 world eq. deprived]	9.70E-01	1.59E-03	6.27E-01	8.92E-03	1.83E-01	0.00E+00	2.43E-02	9.90E-04	0.00E+00	1.90E-02	-8.16E-03
Caption	GWP-total = Globale Warming Potential - total; 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 = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = Water Depletion Potential											
	The numbers are declared in scientific notation, e.g., 1.95E+02. This number can also be written as: $1.95*10^2$ or 195, while 1.12E-11 is the same as $1.12*10^{-11}$ or 0.0000000000112.											
Disclaimer	[1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											

Additional environmental impact indicators for Plank

ADDITIONAL ENVIRONMENTAL IMPACTS PER M²												
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	2.23E-07	8.37E-08	4.37E-08	1.23E-06	4.49E-09	0.00E+00	2.74E-09	1.06E-09	0.00E+00	1.61E-08	-1.01E-04
IRP[2]	[kBq U235 eq.]	9.91E-02	6.01E-04	1.82E-02	5.62E-03	2.79E-02	0.00E+00	2.48E-02	2.22E-04	0.00E+00	2.78E-03	-3.85E-03
ETP-fw[1]	[CTUe]	2.19E+01	2.26E+00	1.61E+01	2.43E+01	8.15E-01	0.00E+00	5.84E-01	6.25E-01	0.00E+00	1.36E+00	-8.96E-01
HTP-c[1]	[CTUh]	6.19E-09	4.27E-11	2.46E-09	4.46E-10	1.56E-10	0.00E+00	1.39E-10	1.26E-11	0.00E+00	2.02E-10	-1.01E-04
HTP-nc[1]	[CTUh]	4.13E-08	1.57E-09	1.57E-08	1.49E-08	1.81E-09	0.00E+00	8.70E-10	5.66E-10	0.00E+00	2.13E-08	-1.01E-04
SQP[1]	-	1.30E+01	5.45E-01	2.73E+01	1.96E+00	4.69E+00	0.00E+00	4.54E+00	4.14E-01	0.00E+00	4.96E-01	-1.55E+00
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)											
	The numbers are declared in scientific notation, e.g., 1.95E+02. This number can also be written as: $1.95*10^{2}$ or 195, while 1.12E-11 is the same as $1.12*10^{-11}$ or 0.0000000000112.											
Disclaimers	[1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											
	[2] 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.											

Parameters describing resource use for plank

RESOURCE USE PER M²												
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	2.88E+00	1.04E-01	2.73E+00	4.71E-01	7.82E+00	0.00E+00	7.70E+00	7.25E-02	0.00E+00	0.00E+00	-1.24E+00
PERM	[MJ]	1.42E+01	0.00E+00	1.47E+01	0.00E+00	-1.47E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	1.71E+01	1.04E-01	1.74E+01	4.71E-01	-6.88E+00	0.00E+00	7.70E+00	7.25E-02	0.00E+00	0.00E+00	-1.24E+00
PENRE	[MJ]	4.34E+01	2.99E+00	5.45E+01	3.29E+01	2.51E+00	0.00E+00	2.06E+00	8.42E-01	0.00E+00	0.00E+00	-2.11E+00
PENRM	[MJ]	3.05E+00	0.00E+00	2.91E+00	0.00E+00	-2.91E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.64E+01	2.99E+00	5.74E+01	3.29E+01	-4.05E-01	0.00E+00	2.06E+00	8.42E-01	0.00E+00	0.00E+00	-2.11E+00
SM	[kg]	7.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.01E-04
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m^3]	1.87E-02	1.17E-04	1.52E-02	5.42E-04	6.53E-03	0.00E+00	2.81E-03	8.08E-05	0.00E+00	6.00E-04	-6.77E-04
Caption	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 = Net use of fresh water											
	The numbers are declared in scientific notation, e.g., 1.95E+02. This number can also be written as: $1.95*10^2$ or 195, while 1.12E-11 is the same as $1.12*10^{-11}$ or 0.0000000000112.											

End-of-life (waste categories and output flows) for Plank

WASTE CATEGORIES AND OUTPUT FLOWS PER M²												
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	4.17E-01	1.03E-10	7.46E-02	1.05E-09	1.89E-08	0.00E+00	1.87E-08	3.22E-11	0.00E+00	3.63E-08	-1.01E-04
NHWD	[kg]	8.20E-01	3.67E-04	4.18E-03	3.41E-03	4.92E-02	0.00E+00	1.08E-02	1.37E-04	0.00E+00	1.20E+01	-3.43E-03
RWD	[kg]	2.40E-04	4.25E-06	7.96E-05	4.04E-05	2.33E-04	0.00E+00	2.14E-04	1.53E-06	0.00E+00	2.70E-05	-1.33E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	5.20E-01	0.00E+00	4.27E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.75E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Caption	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											
	The numbers are declared in scientific notation, e.g., 1.95E+02. This number can also be written as: $1.95*10^2$ or 195, while 1.12E-11 is the same as $1.12*10^{-11}$ or 0.0000000000112.											

Biogenic carbon content at factory gate for Plank

BIOGENIC CARBON CONTENT PER m² Plank		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	[kg C]	0.35
Biogenic carbon content in accompanying packaging	[kg C]	0.37
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

Additional information

LCA interpretation

The results in this EPD relates to 1 m^2 fiber cement Plank with a reference service life of 50 years/product. The Plank has a climate change impact of GWP-total of 12.17 kg CO_2 eq./m^2. This result is for the entire life cycle of the product including module D.

The production of cement in A1 and the shipping of the product from Thailand to Denmark A4 are the main contributors to most impact categories. It is the cement production that is the largest contributor to climate change with 28% for the Plank, but the shipping accounts for 20% which is also a large fraction of the overall impact on climate change.

The biogenic carbon emissions mainly stem from incineration of the wood packaging in A5 and release of biogenic carbon in the landfill.

Allocation

The factory in Thailand has an overall production of 281,414 tonnes of Fiber cement plank and panel products. The factory produces 3,758 tonnes of Swisspearl Plank and 247 tonnes of Swisspearl Panels.

The raw materials and packaging input for the production of the Swisspearl Panel and Plank are based on exact and specific data for the production for the Swisspearl Panel and Plank production for 2022. Specific data is also provided for the output of the production in terms of Panel and Plank produced per tonnes and per square meter. Furthermore, the production of waste and waste handling at the factory is also given specifically with exact numbers for the Swisspearl Panel and Plank production.

This means that no mass allocation has been needed between the Swisspearl Panel and Plank and the production of other products due to specific and clear data for the production of Swisspearl products in particular going into and out of the production factory.

The electricity, heat and water consumption are based on a one-year cycle for the entire factory. The inputs have been divided by the production output for one year to allocate the energy consumption per ton of the product. Revenue is not driven by the Swisspearl Panel or Plank and the factory's other fibre cement panels and planks, since they are similar in price and the products are similar. Therefore, mass allocation is used consistently throughout the LCA for the allocation of electricity, heat and water consumption.

Technical information on scenarios

Transport to the building site (A4) per declared unit.

Scenario information	Value	Unit
Road transport	28 - 32t gross weight / 22t payload capacity/utilization factor	
Fuel type	Diesel	-
Vehicle type	Truck	-
Transport distance	227	km
Capacity utilisation (including empty runs)	61	%
Gross density of products transported	1495	kg/m^3

Sea transport	Container ship, 5,000 to 200,000 dwt payload capacity, deep sea Sphera <u-so>	
Fuel type	Heavy fuel oil	-
Vehicle type	EURO 6	-
Weighted transport distance	18,263	km
Capacity utilization (including empty runs)	70	%
Gross density of products transported	1495	kg/m^3

Installation of the product in the building (A5)

Scenario information	Value	Unit
Electricity for screwdriver	87.5	Wh

Reference service life

RSL information	Plank	Unit
Reference service Life	50	Years
Declared product properties	The Plank complies with the DS/EN 12467:2012+A2:2018 Plane plader af fibrecement – Produktspecifikation og prøvningsmetoder. See also section 3.1.2 for technical properties of the product.	-
Design application parameters	DS/EN 12467:2012+A2:2018 described in section 3.1.2 technical specifications and section 1.6 for the product use.	-
Assumed quality of work	DS/EN 12467:2012+A2:2018 and described section 3.1.2 tehnical specifications of the product.	-
Outdoor environment	50	years
Indoor environment	not to be used indoor	
Usage conditions	No conditions for usage of the declared unit of fiber cement plank.	-
Maintenance	No maintenance is needed.	-

RSL information	Panel and Plank	Unit
Reference service Life	50	Years
Declared product properties	The Panel and Plank comply with the DS/EN 12467:2012+A2:2018 Plane plader af fibrecement – Produktspecifikation og prøvningsmetoder. See also section 3.1.2 for technical properties of the product.	As appropriate
Design application parameters	DS/EN 12467:2012+A2:2018 described in section 3.1.2 technical specifications and section 1.6 for the product use.	As appropriate
Assumed quality of work	DS/EN 12467:2012+A2:2018	As appropriate

	and described section 3.1.2 tehnical specifications of the product.	
Outdoor environment	50	years
Indoor environment	not to be used indoor	
Usage conditions	No conditions for usage of the declared unit of fiber cement panel and plank.	As appropriate
Maintenance	No maintenance is needed.	As appropriate

Use (B1-B7)

As there is no maintenance, repair, refurbishment or any operational water or energy consumption related to the use of the fiber cement plank during their reference service life, all modules in the use stage (B1-B7) are considered to have no environmental impact.

Scenario information	Value	Unit
B1 – Use		
B2 - Maintenance		
Maintenance process	Description or reference	-
Maintenance cycle	0	/year
Ancillary materials for maintenance (specify which)	0	kg/cycle
Waste materials resulting from maintenance (specify which)	0	kg
Net freshwater consumption during maintenance	0	m^3
Energy input during maintenance	0	kWh
B3 – Repair		
Repair process	Description or reference	-
Inspection process	Description or reference	-
Repair cycle	0	/year
Ancillary materials (specify which)	0	kg/cycle
Waste materials (specify which)	0	kg
Net freshwater consumption during repair	0	m^3
Energy input during repair	0	kg/cycle
B4 – Replacement		
Replacement cycle	0	/year
Energy input during replacement	0	kWh
Exchange of worn parts during products life cycle	0	kg
B5 - Refurbishment		
Refurbishment process		
Refurbishment cycle	0	/year
Energy input during refurbishment	0	kWh
Material input for refurbishment (specify which)	0	kg/cycle
Waste materials resulting from refurbishment	0	kg
Further assumptions for scenario development	0	As appropriate
B6 + B7 – Use of energy and water		
Ancillary materials specified by material	0	kg
Net freshwater consumption	0	m^3
Type of energy carrier	0	kWh
Power output of equipment	0	kW
Characteristic performance	0	As appropriate
Further assumptions for scenario development	0	As appropriate

End of life (C1-C4)

Scenario information	Value	Unit
Collected separately	11.96	kg
Collected with mixed waste	0	kg
For reuse	0	kg
For recycling	0	kg
For energy recovery	0	kg
For final disposal	11.96	kg
Assumptions for scenario development	Cellulose released as CO2 instead of CH4 at the final disposal due to assumption that sufficient oxygen is available.	

Re-use, recovery and recycling potential (D)

Scenario information/Materiel	Value	Unit
Displaced material	0.004	kg
Energy recovery from waste incineration	1.06	MJ

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.

References

Publisher	epddanmark www.epddanmark.dk Template version 2023.2
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3rd party verifier	*Linda Høibye* Life Cycle Assessment Consulting

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