SWISSPEARL

**Environmental**
**Product**
**Declaration**

According to ISO14025+EN15804+A2

This declaration is for:
**Windstopper Light (Windstopper Extreme 4,5 mm)**

Provided by:
**Swisspearl Group AG**

MRPI® registration:
**1.1.01111.2026**

Program operator:
**Stichting MRPI®**
Publisher:
**Stichting MRPI®**
**www.mrpi.nl**

Date of first issue:
**8-1-2026**
Date of this issue:
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Expiry date:
**8-1-2031**

ECO PLATFORM EPD VERIFIED

MRPI milieu relevante product informatie

## COMPANY INFORMATION

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## MRPI® REGISTRATION

1.1.01111.2026

## DATE OF THIS ISSUE

8-1-2026

## EXPIRY DATE

8-1-2031

## SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Mantijn van Leeuwen, Nibe. The LCA study has been done by Chantal Houben, SGS INTRON. The certificate is based on an LCA-dossier according to ISO14025+EN15804+A2. It is verified according to the 'Verification protocol for MRPI LCA project report & EPD 21th of May 2025, V. 5.2'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate list of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

## PROGRAM OPERATOR

Stichting MRPI®
Kingsfordweg 151
1043 GR
Amsterdam

## PRODUCT

Windstopper Light (Windstopper Extreme 4,5 mm)

## DECLARED UNIT / FUNCTIONAL UNIT

1 Area (m2)

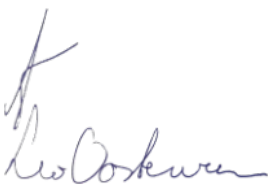
## DESCRIPTION OF PRODUCT

Swisspearl Windstopper Light is a fibre cement board mainly functioning as a windproof membrane for exterior walls. The board has a very low vapour transmission resistance, enabling moisture from inside the building to pass through.
Due to its natural rough surface, insulation can be placed directly against the inner side of the board. The Windstopper Light can function as a temporary facade for up to 12 months.

## VISUAL PRODUCT

## MORE INFORMATION

https://www.swisspearl.com/products/build/build-product-finder/windstopper-basic?redirect=no

| Ing. L. L. Oosterveen MSc. MBA<br>Managing Director MRPI | DEMONSTRATION OF VERIFICATION<br>CEN standard EN15804 serves as the core PCR [1] |
|---|---|
|  | Independent verification of the declaration and data according to ISO14025+EN15804+A2<br>Internal: External: X |
| | Third party verifier: Mantijn van Leeuwen, Nibe<br>  |
| | [1] PCR = Product Category Rules |

## DETAILED PRODUCT DESCRIPTION

Swisspearl Windstopper Light is a high-quality fibre cement board primarily functioning as a windbarrier. More information can be found online: https://www.swisspearl.com/products/build/windstopper-extreme

Manufacturing Process
The fiber cement boards are produced using the Flow-on process. The process begins by creating a homogeneous mixture of base materials and water. The slurry is deposited on a continuously running felt where water is removed by a filtration process. The solid material is subsequently accumulated onto a format roller, building up layers of fiber cement until the desired board thickness is achieved. While still moist and moldable, the accumulated fiber cement layer is unrolled from the roller. The boards are then subject to an initial pre-curing period, followed by final air curing in curing halls.
Subsequently, the boards are put into an oven for drying and cut in standard dimensions.

Dimensions & Packaging
The finished boards are quality-controlled and packaged. Swisspearl Windstopper Light is produced in 4,5 mm thickness. Packaging primarily consists of plastic film and strips, and the products are delivered on reusable pallets. The environmental calculation for the pallets accounted only for their weight during transport, as they are reused.

Service Life
The Swisspearl Windstopper Light fiber cement boards have a reference service lifetime of 50 years, as indicated by the BBSR (German Federal Institute for Research on Building, Urban Affairs and Spatial Development).

The energy process used in the calculation is listed in the table below.

| Global warming potential (GWP) of 1 kWh energy | Process | GWP (kg CO2eq) |
|---|---|---|
| Electricity Finland | Electricity, low voltage {FI}\| market for electricity, low voltage \| Cut-off, U | 0,233 |

The following table displays the primary components of the product. The values are presented as ranges that encompass the specified product, due to confidentiality.

| Product components | Mass % |
|---|---|
| Cement | 40-60 |
| Limestone filler | 20-40 |
| Cellulose | 0-10 |
| PVA | 0-5 |
| Pigments | 0-10 |
| Other fillers | 0-10 |

Material explanation
Portland Cement: Manufactured according to DIN EN 197-1 from limestone, marl and sand. The material is crushed, dried, calcinated to clinker and ground to cement.
PVA: To secure long term performance of the board
Cellulose fibres: To ensure collection of powder during filtration.
Pigments: To provide a through colored fibre cement board.

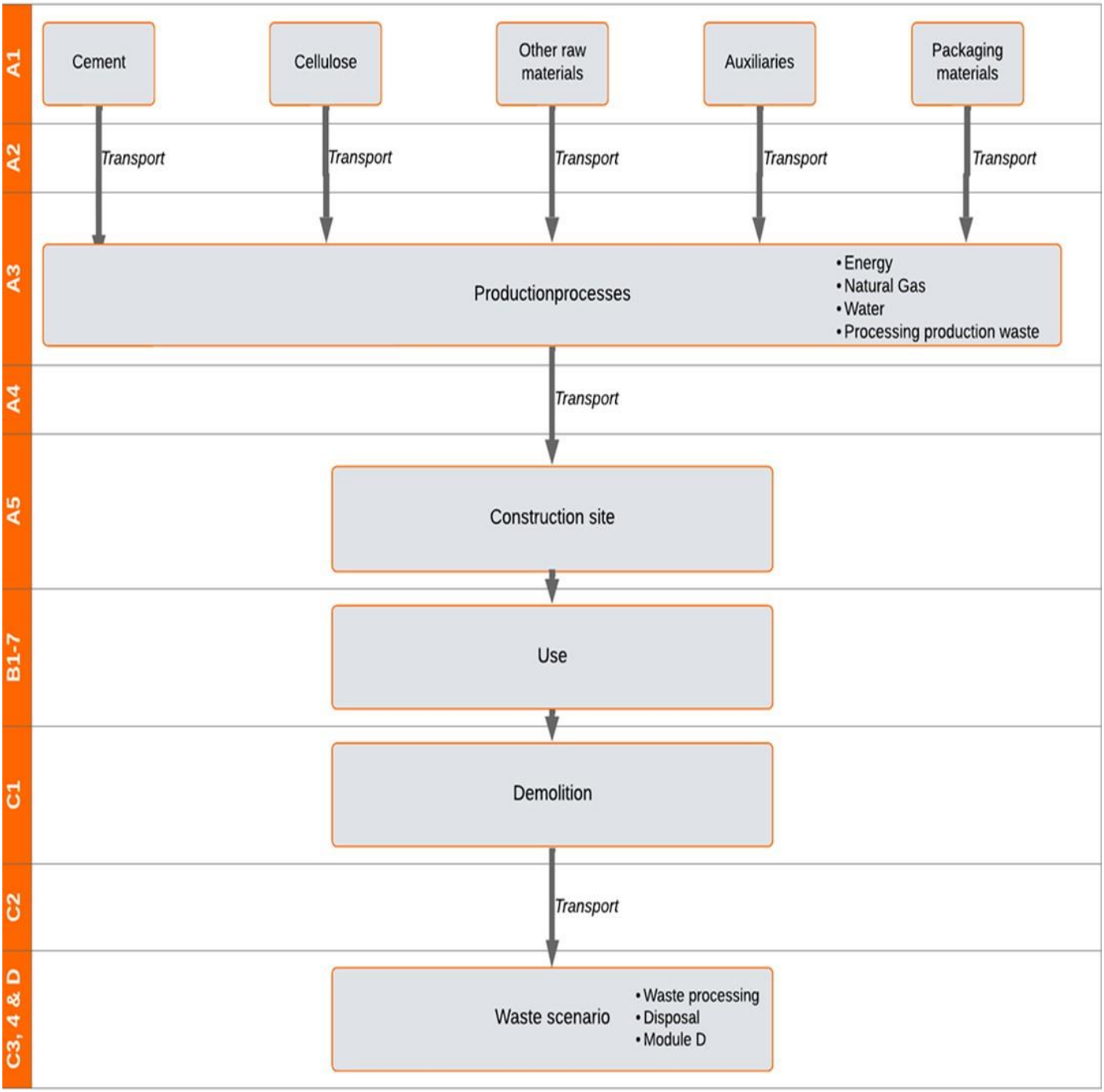
## SCOPE AND TYPE

The Windstopper Light is produced in Lohja, Finland. This EPD is market-based. The calculations were done for the Dutch market and are also applicable for the European market. The end-of-life was also calculated for Europe. The LCA software used in Simapro with the background database Ecoinvent 3.9.1 allocation, cut-off by classification – unit were used (December 15th, 2022). For some basic processes, the SimaPro file of the National Environmental Database version 3.9 were also used (August 6th, 2023). Since this declaration only applies to the Swisspearl Windstopper Light, the resulting document is considered a product-specific EPD and covers the Cradle-to-Grave lifecycle modules.

| PRODUCT STAGE | | | CONSTRUCTION PROCESS STAGE | | USE STAGE | | | | | | | END OF LIFE STAGE | | | | BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Raw material supply | Transport | Manufacturing | Transport gate to 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 | X | ND | ND | ND | ND | ND | ND | X | X | X | X | X |

X = Modules Assessed

ND = Not Declared




## REPRESENTATIVENESS

The product is only produced at one production site in Finland. This EPD is representative for 1 m2 of Windstopper Light. The Windstopper Light is considered to be the 4,5 mm version of the Windstopper Extreme. Due to different densities, two separate EPDs are created.

## ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

| | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq. | 2,23E+00 | 3,03E-01 | 6,83E-01 | 3,22E+00 | 2,09E+00 | 1,60E-01 | ND | ND | ND | ND | ND | ND | ND | 9,85E-02 | 4,81E-02 | 8,93E-01 | 1,01E-02 | -2,78E-02 |
| GWP-fossil | kg CO2 eq. | 2,98E+00 | 3,01E-01 | 6,79E-01 | 3,96E+00 | 2,08E+00 | 1,56E-01 | ND | ND | ND | ND | ND | ND | ND | 9,85E-02 | 4,79E-02 | 9,50E-03 | 1,19E-03 | -2,77E-02 |
| GWP-biogenic | kg CO2 eq. | -8,09E-01 | 9,67E-05 | 9,46E-04 | -8,08E-01 | 6,77E-04 | 2,54E-03 | ND | ND | ND | ND | ND | ND | ND | 1,37E-05 | 1,56E-05 | 8,84E-01 | 8,93E-03 | -5,33E-05 |
| GWP-luluc | kg CO2 eq. | 5,65E-02 | 1,04E-03 | 2,70E-03 | 6,02E-02 | 7,41E-03 | 1,88E-03 | ND | ND | ND | ND | ND | ND | ND | 1,11E-05 | 1,71E-04 | 2,14E-06 | 1,59E-06 | -3,30E-05 |
| ODP | kg CFC11 eq. | 1,69E-08 | 5,33E-09 | 2,76E-08 | 4,98E-08 | 3,70E-08 | 1,97E-09 | ND | ND | ND | ND | ND | ND | ND | 1,57E-09 | 8,52E-10 | 2,14E-10 | 2,07E-11 | -2,93E-10 |
| AP | mol H+ eq. | 8,69E-03 | 1,74E-03 | 1,63E-03 | 1,21E-02 | 9,95E-03 | 5,98E-04 | ND | ND | ND | ND | ND | ND | ND | 9,13E-04 | 2,29E-04 | 5,99E-05 | 7,42E-06 | -1,91E-04 |
| EP-fresh water | kg P eq. | 6,68E-05 | 2,93E-06 | 1,28E-05 | 8,25E-05 | 2,07E-05 | 3,83E-06 | ND | ND | ND | ND | ND | ND | ND | 3,56E-07 | 4,76E-07 | 1,88E-07 | 1,67E-08 | -9,35E-07 |
| EP-marine | kg N eq. | 2,77E-03 | 6,15E-04 | 3,16E-04 | 3,71E-03 | 3,78E-03 | 1,47E-04 | ND | ND | ND | ND | ND | ND | ND | 4,22E-04 | 8,71E-05 | 2,54E-05 | 3,02E-06 | -5,71E-05 |
| EP-terrestrial | mol N eq. | 2,75E-02 | 6,60E-03 | 3,63E-03 | 3,77E-02 | 4,03E-02 | 2,06E-03 | ND | ND | ND | ND | ND | ND | ND | 4,60E-03 | 9,29E-04 | 2,78E-04 | 3,21E-05 | -6,56E-04 |
| POCP | kg NMVOC eq. | 7,35E-03 | 2,18E-03 | 1,60E-03 | 1,11E-02 | 1,38E-02 | 4,70E-04 | ND | ND | ND | ND | ND | ND | ND | 1,36E-03 | 3,17E-04 | 8,26E-05 | 1,02E-05 | -1,96E-04 |
| ADP-minerals & metals | kg Sb eq. | 3,14E-05 | 9,18E-07 | 4,47E-06 | 3,67E-05 | 6,51E-06 | 1,55E-06 | ND | ND | ND | ND | ND | ND | ND | 3,44E-08 | 1,50E-07 | 3,85E-08 | 2,47E-09 | -1,35E-07 |
| ADP-fossil | MJ, net calorific value | 1,58E+01 | 4,29E+00 | 1,51E+01 | 3,52E+01 | 2,98E+01 | 1,30E+00 | ND | ND | ND | ND | ND | ND | ND | 1,29E+00 | 6,86E-01 | 1,30E-01 | 1,59E-02 | -3,43E-01 |
| WDP | m3 world eq. Deprived | 5,91E-01 | 2,30E-02 | 1,21E-01 | 7,35E-01 | 1,63E-01 | 3,14E-02 | ND | ND | ND | ND | ND | ND | ND | 2,78E-03 | 3,74E-03 | 7,13E-04 | -7,84E-04 | -3,92E-01 |

| | | |
|---|---|---|
| GWP-total | = | Global Warming Potential total |
| GWP-fossil | = | Global Warming Potential fossil fuels |
| GWP-biogenic | = | Global Warming Potential biogenictotal |
| GWP-luluc | = | Global Warming Potential land use and land use change |
| ODP | = | Depletion potential of the stratospheric ozone layer |
| AP | = | Acidification Potential, Accumulated Exceedence |
| EP-freshwater | = | Eutrophication Potential, fraction of nutrients reaching freshwater end compartment |
| EP-marine | = | Eutrophication Potential, fraction of nutrients reaching marine end compartment |
| EP-terrestrial | = | Eutrophication Potential, Accumulated Exceedence |
| POCP | = | Formation potential of tropospheric ozone photochemical oxidants |
| ADP-minerals & metals | = | Abiotic Depletion Potential for non-fossil resources [1] |
| ADP-fossil | = | Abiotic Depletion for fossil resources potential [1] |
| WDP | = | Water (user) deprivation potential, deprivation-weighted water consumption [1] |

Disclaimer [1]:

- 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 experience with the indicator.

## ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

| | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease inci-dence | 6,96E-08 | 2,89E-08 | 8,84E-09 | 1,07E-07 | 2,05E-07 | 6,64E-09 | ND | ND | ND | ND | ND | ND | ND | 2,54E-08 | 4,73E-09 | 1,45E-09 | 7,10E-10 | -3,55E-09 |
| IRP | kBq U235 eq. | 4,28E-02 | 1,65E-03 | 2,07E-01 | 2,51E-01 | 1,16E-02 | 7,85E-03 | ND | ND | ND | ND | ND | ND | ND | 2,64E-04 | 2,67E-04 | 1,48E-04 | 6,91E-06 | -7,58E-04 |
| ETP-fw | CTUe | 9,28E+00 | 3,13E+00 | 1,47E+00 | 1,39E+01 | 2,20E+01 | 6,52E-01 | ND | ND | ND | ND | ND | ND | ND | 6,16E-01 | 5,06E-01 | 4,37E-02 | 1,03E-02 | -1,28E-01 |
| HTP-c | CTUh | 8,32E-10 | 1,59E-10 | 2,34E-10 | 1,22E-09 | 1,10E-09 | 1,28E-10 | ND | ND | ND | ND | ND | ND | ND | 3,02E-11 | 2,54E-11 | 3,00E-12 | 2,00E-12 | -2,18E-11 |
| HTP-nc | CTUh | 2,60E-08 | 3,37E-09 | 6,33E-09 | 3,57E-08 | 2,39E-08 | 1,35E-09 | ND | ND | ND | ND | ND | ND | ND | 2,10E-10 | 5,51E-10 | 6,06E-11 | 5,28E-11 | -2,80E-10 |
| SQP | - | 8,80E+00 | 3,28E+00 | 3,04E+00 | 1,51E+01 | 2,35E+01 | 5,21E-01 | ND | ND | ND | ND | ND | ND | ND | 8,69E-02 | 5,41E-01 | 1,75E-02 | 1,36E-02 | -4,29E-01 |

PM = Potential incidence of disease due to PM emissions
IRP = Potential Human exposure efficiency relative to U235 [1]
ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
HTP-c = Potential Comparative Toxic Unit for humans, cancer [2]
HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
SQP = Potential soil quality index [2]

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.

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 experience with the indicator.

## OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 en A2)

| | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 5,60E-05 | 2,72E-05 | 3,68E-05 | 1,20E-04 | 1,90E-04 | 7,79E-06 | ND | ND | ND | ND | ND | ND | ND | 8,68E-06 | 4,37E-06 | 6,70E-07 | 9,28E-08 | -1,47E-06 |
| NHWD | kg | 1,82E-01 | 2,74E-01 | 4,05E-02 | 4,97E-01 | 1,97E+00 | 2,07E-02 | ND | ND | ND | ND | ND | ND | ND | 1,84E-03 | 4,53E-02 | 1,95E-02 | 8,67E-04 | -3,86E-03 |
| RWD | kg | 3,27E-05 | 9,65E-07 | 9,40E-05 | 1,28E-04 | 6,81E-06 | 4,04E-06 | ND | ND | ND | ND | ND | ND | ND | 1,41E-07 | 1,57E-07 | 1,25E-07 | 4,21E-09 | -4,84E-07 |
| CRU | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| MFR | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,90E-01 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 6,32E+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 | ND | ND | ND | ND | ND | ND | ND | 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 | 0,00E+00 | 3,78E-02 | ND | ND | ND | ND | ND | ND | ND | 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 | 6,51E-02 | ND | ND | ND | ND | ND | ND | ND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |

HWD = Hazardous Waste Disposed
NHWD = Non Hazardous Waste Disposed
RWD = Radioactive Waste Disposed
CRU = Components for reuse
MFR = Materials for recycling
MER = Materials for energy recovery
EEE = Exported Electrical Energy
ETE = Exported Thermal Energy

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## RESOURCE USE per functional unit or declared unit (A1 and A2)

| | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 4,07E+00 | 5,96E-02 | 2,24E+00 | 6,37E+00 | 4,21E-01 | 2,03E-01 | INA | INA | INA | INA | INA | INA | INA | 7,34E-03 | 9,69E-03 | 1,09E-02 | 2,97E-04 | -2,54E-02 |
| PERM | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | INA | INA | INA | INA | INA | INA | INA | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| PERT | MJ | 4,07E+00 | 5,96E-02 | 2,24E+00 | 6,37E+00 | 4,21E-01 | 2,03E-01 | INA | INA | INA | INA | INA | INA | INA | 7,34E-03 | 9,69E-03 | 1,09E-02 | 2,97E-04 | -2,54E-02 |
| PENRE | MJ | 1,59E+01 | 4,30E+00 | 1,50E+01 | 3,52E+01 | 2,98E+01 | 1,30E+00 | INA | INA | INA | INA | INA | INA | INA | 1,29E+00 | 6,87E-01 | 1,30E-01 | 1,59E-02 | -3,43E-01 |
| PENRM | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | INA | INA | INA | INA | INA | INA | INA | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| PENRT | MJ | 1,59E+01 | 4,30E+00 | 1,50E+01 | 3,52E+01 | 2,98E+01 | 1,30E+00 | INA | INA | INA | INA | INA | INA | INA | 1,29E+00 | 6,87E-01 | 1,30E-01 | 1,59E-02 | -3,43E-01 |
| SM | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | INA | INA | INA | INA | INA | INA | INA | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| RSF | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | INA | INA | INA | INA | INA | INA | INA | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| NSRF | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | INA | INA | INA | INA | INA | INA | INA | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| FW | m3 | 1,99E-02 | 1,01E-03 | 1,00E-02 | 3,10E-02 | 7,19E-03 | 1,18E-03 | INA | INA | INA | INA | INA | INA | INA | 1,01E-04 | 1,66E-04 | 3,59E-05 | -1,61E-05 | -9,17E-03 |

PERE = Use of renewable primary energy excluding renewable primary energy 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 resources excluding non-renewable 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 materials
RSF = Use of renewable secondary fuels
NSRF = Use of non-renewable secondary fuels
FW = Use of net fresh water

## BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 and A2)

| | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BBCpr | kg C | 8,90E-01 | ND | ND | 8,90E-01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BCCpa | kg C | ND | ND | 0,00E+00 | 0,00E+00 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

BCCpr = Biogenic carbon content in product
BCCpa = Biogenic carbon content in packaging

## CALCULATION RULES

Primary data at the production location was collected for the base year 2024.
The materials or processes that have been excluded from the study (cut-off rule is well below 1%), are wooden pallets and the waste processing of packaging on incoming materials.The wooden pallets are assumed to be be reused at least 5 to 10 times as is standard in Europe. Furthermore the pallets can carry multiple fibre cement boards, significantly reducing the impact per product.

The program PCR used is the Bepalingsmethode Milieuprestatie bouwwerken, december 2024, also called the Dutch Assesment method. The environmental interventions have been determined using the methods described in the Assesment Method (Bepalingsmethode Milieuprestatie bouwwerken, december 2024). The LCA calculations are performed in accordance with EN 15804:2012+A2:2019 with the EF 3.1 characterization factor method. When calculating the energy flows, the fuels and electricity sources used, extraction and transport of the fuels, efficiency of the conversion and distribution of the energy flow are taken into account. The calorific net value (LHV) has also been calculated.

The rules for allocation for multi-input, -output, recycling and reuse processes from the Assessment Method have been followed for all materials. Ecoinvent processes are calculated including the infrastructure processes (capital goods). Ecoinvent processes for landfill are calculated excluding long-term emissions.

| Conversion factor and grammage | |
|---|---|
| Conversion factor to kg | 0,156 |
| Grammage | 6,39 |

Background data and data quality

All primary and secondary date are modelled to be specific to the technology, geographical region and period under study. Proxy data are used where technology-specific data are unavailable. Where country-specific data was unaivailable, proxies where chosen in a the geographical area that includes the specific region. The technological, geographical and temporal representativeness are considered to be good. In the table below more details are given of the processes that contribute the most to GWP. Together these processes are responsible for more than 80% of the GWP.

| Process | Source type | Source | Reference year | Data category |
|---|---|---|---|---|
| Cement | Database | Ecoinvent 3.9.1 | 2022 | Primary data |
| Transport to installation site | Collected data + Database | Ecoinvent 3.9.1 | 2022 | Primary data |
| Energy use | Collected data + Database | Ecoinvent 3.9.1 | 2022 | Primary data |

## SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

This calculation of the production includes everything required to procure the raw materials needed in the production of the product. This includes extraction, treatment, processing, electricity and heat consumption. Wooden pallets were omitted from the final analysis, since it was assumed they would be reused and have a minimal impact. The transport for the wooden pallets has been added. Transport of the raw material was done mostly by truck. Some raw materials were partially transported by ship and train. The waste processing of production waste was also taken into account in the calculation.

| Transport | Process |
|---|---|
| Truck | Transport, freight, lorry, unspecified {GLO}\| market group for transport, freight, lorry, unspecified \| Cut-off, U |
| Ship | Transport, freight, sea, container ship {GLO}\| market for transport, freight, sea, container ship \| Cut-off, U |
| Train | Transport, freight train {GLO}\| market group for \| Cut-off, U |

Transport to the construction site uses a standard transport as described in the Assessment Method. The distance is to the construction site is calculated from the factory to Utrecht, which is 2080 km by truck and 86km by ship. At the construction site, there is no additional transport included in the model since the fiber cement board have a relatively low weight . The fiber cement boards are mounted on either a wood or steel construction with the aid of small electrical tools. The estimated energy for the hand tool is very low and is therefore left out of the model. The wood, steel or another construction to install the boards on is not considered, since they can vary significantly. Materials for attachment were considered, only if they are added to the product by Swisspearl during production. More information about the installation can be found in the online manual: https://www.swisspearl.com/media/41053/download/Global_Swisspearl_Windstopper_Wood_DIM_EN_2026_01_DIGI.PDF?v=3&inline=true.

Waste treatment and transportation of the packaging waste (plastic and cardboard) from the construction site to the municipal waste incinerator is included in this module.

The distance to the waste treatment facility is assumed to be 50 km. The standard process from the Assesment Method is used for truck transport. Additionally, according to the Assessment Method there is a loss of 3% of material for pre-fab products on the construction site. This means that extra material must be added to account for the loss of product. Disposal of losses as well as additional production in A5 were considered.

During the 50-year application period, no maintenance is normally required. B1 is included in the LCA, but no environmental impact has been deliberately included.

An excavator was modeled to demolish and transport the waste on the demolition site from the fiber cement boards. After being demolished on the building site, the material is transported to waste processing. All the material gets processed before being recycled or landfilled.

| End of life scenario | Percentage | Transport distance (km) | Process |
|---|---|---|---|
| Waste processing + Recycling | 0,99 | 50 | 0270-reC&Breken, per kg steenachtig (o.b.v. SBK Breken steenachtig MRPI) - NMDv3.9 + 0271-reD&Module D, grind, per kg NETTO geleverd granulaat/grind (vermeden: Gravel, round {RoW}\| gravel and sand quarry operation \| Cut-off, U) - NMDv3.9 |
| Waste processing + Landfill | 0,01 | 100 | 0270-reC&Breken, per kg steenachtig (o.b.v. SBK Breken steenachtig MRPI) - NMDv3.9 + Waste cement-fibre slab {RoW}\| market for waste cement-fibre slab \| Cut-off, U |

For countries with different end-of-life scenarios, the total GWP value for stages A1–C4 is provided based on a 100% landfill scenario. Module D is negligible in this case and only reflects the benefits from incinerating packaging materials.

| Alternative EoL scenario for 1 m2 product | GWP-total (kg CO2 eq.) |
|---|---|
| 100% Landfill (A1-C4) | 6,68 |

## DECLARATION OF SVHC

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), as of 12-12-2025.

## REFERENCES


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- ISO 14040, “Environmental management - Environmental management -- Life cycle assessment - Principles and framework”, ISO14040:2006
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- International Organization for Standardization, ISO/DIS 21930, “Sustainability in building construction – Environmental declaration of building products”, ISO/DIS 21930:2007
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