# Environmental Product Declaration
*according to ISO 14025 and EN 15804*

**MRPI**
milieu relevante product informatie

This declaration is for:
**SolidScreen Xtra 105**

Provided by:
**Smits Rolluiken & Zonwering B.V.**

**SMITS**
Rolluiken en zonwering



program operator
**Stichting MRPI®**
publisher
**Stichting MRPI®**
**www.mrpi.nl**

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**ECO PLATFORM**
**EPD VERIFIED**

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## COMPANY INFORMATION

**SMITS**
Rolluiken en zonwering

Smits Rolluiken & Zonwering B.V.
De Hork 11
5431NS
Cuijk, the Netherlands
0031485744200
verkoop@smitsrolluiken.nl
www.smitsrolluiken.nl

## MRPI® REGISTRATION
1.1.00352.2022

## DATE OF ISSUE
23-09-2022

## EXPIRY DATE
23-09-2027

## SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by **Kamiel Jansen, Aveco de Bondt.**
The LCA study has been done by **Atakan Larcin / Sabine Welman, NIBE / AVZ-Group.**
The certificate is based on an LCA-dossier according to ISO14025 and EN15804+A2/Bepalingsmethode. It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2/Bepalingsmethode. 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
1043GR
Amsterdam

ir. J-P den Hollander, Managing director MRPI®

## PRODUCT
SolidScreen Xtra 105

## DECLARED UNIT/FUNCTIONAL UNIT
Assembly of 3300 mm wide x 1500 mm high, calculated back to 1m².

## DESCRIPTION OF PRODUCT
The SolidScreen Xtra is a zip-screen specially developed for stucco exterior walls. Extra space at the back of the headbox allows airflow between the SolidScreen and the wall, thereby preventing weather stains.

## VISUAL PRODUCT



## MORE INFORMATION
*SolidScreen Xtra (avz.nl)*

| *DEMONSTRATION OF VERIFICATION* | | |
| --- | --- | --- |
| CEN standard EN15804 serves as the core PCR[a] | | |
| Independent verification of the declaration and data, according to EN ISO 14025:2010: | | |
| internal: | external: X | |
| Third party verifier: | | |
| Kamiel Jansen, Aveco de Bondt | | |
| [a] PCR = Product Category Rules | | |

## DETAILED PRODUCT DESCRIPTION

The SolidScreen Xtra is particularly popular on the foreign market. This screen has been specially developed for stuccoed houses. The extra space at the back of the headbox allows airflow between the SolidScreen and the stucco, thereby preventing weather stains. Also, the screen is very suitable as a windscreen and for protection against side lighting on your terrace.

Its beautiful appearance make this screen very popular. As the cover supports of the SolidScreen Xtra are attached from the inside out, no screws are visible on the outside of the headbox. The special narrow bottom slat is not visible when the screen is rolled up. Thanks to the funnel side guide, the bottom slat runs smoothly into the headbox.

Dimensions:
The SolidScreen Xtra 105 has a maximum surface of 15m².
The SolidScreen Xtra 105 has a maximum height of 5m x 3m width or a maximum height of 3m x 5m width.

Features:
- Screwless side cover
- Available with semi-circular headbox
- Additional reinforced headbox mounting
- Headbox with nylon funnel side guide
- Integrated bottom slat invisible in open position

| COMPONENT >1% of total mass | [kg / %] |
|---|---|
| Aluminium profiles and components | 2,51 kg |
| Steel components and reinforcement staff | 1,99 kg |
| Screen fabric (41,5% PVC and 58,5% glass fibre) + zipper | 0,574 kg |
| Motor | 0,43 kg |
| Cardboard (packaging) | 0,48 kg |

**(*) > 1% of total mass**

## SCOPE AND TYPE

The purpose of this LCA is to compile environmental data of materials and products used in the built environment. So that the environmental data can be used in calculations of buildings.
The purpose of this report is to draw up a review dossier with the results of 'set 1' and 'set 2' for the product as mentioned in the NMD Determination method Environmental performance Construction works v1.0 July 2020. This document defines a standardized method for a LCA in the Netherlands, of a product used in the build environment, in addition to EN 15084+A2. The review dossier is in accordance with EN15804+A2, ISO14040 and ISO14044. The target groups of this LCA study are: Users of the ECO Platform or programs that use this database, such as MRPI freetool and BREEAM.

| 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 | x | x | ND | ND | ND | ND | x | x | x | x | x |

X = Modules Assessed

ND = Not Declared
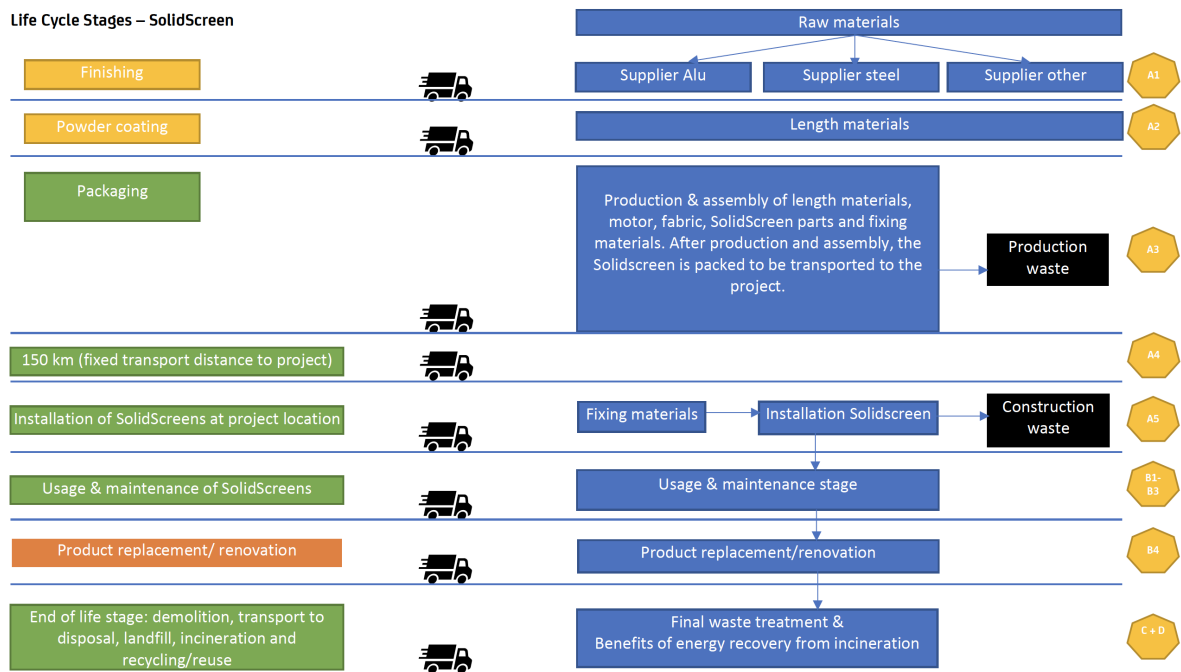


LCA process diagram according to EN 15804 (7.2.1)

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## REPRESENTATIVENESS

The product SolidScreen Xtra - 105 was developed in the year 2014. The product composition is in accordance with the production method from the manual that was published in the year 2018. has been adjusted, because the reinforcement guidelines have been changed. The SolidScreen Xtra 105 has been produced on the production site in Cuijk, the Netherlands. For the consumption of energy we have assumed the year 2020.

## ENVIRONMENTAL IMPACT per functional unit or declared unit (indicators A1)

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADPE | kg Sb eq. | 7.82 E-4 | 2.61 E-5 | 1.65 E-3 | 2.46 E-3 | 3.19 E-6 | 2.92 E-5 | 0.00 | 0.00 | 4.28 E-4 | 1.27 E-6 | 1.52 E-5 | 2.95 E-8 | -1.82 E-3 |
| ADPF | MJ | 6.02 E+2 | 1.43 E+1 | 3.81 E+1 | 6.55 E+2 | 1.90 E+0 | 2.06 E+1 | 0.00 | 0.00 | 9.97 E+1 | 7.58 E-1 | 6.97 E+0 | 5.78 E-2 | -4.92 E+2 |
| GWP | kg CO2 eq. | 5.64 E+1 | 9.39 E-1 | 2.59 E+0 | 5.99 E+1 | 1.25 E-1 | 1.98 E+0 | 0.00 | 0.00 | 8.69 E+0 | 4.99 E-2 | 2.74 E+0 | 7.54 E-3 | -4.88 E+1 |
| ODP | kg CFC11 eq. | 2.57 E-6 | 1.72 E-7 | 2.57 E-7 | 3.00 E-6 | 2.21 E-8 | 1.00 E-7 | 0.00 | 0.00 | 6.61 E-7 | 8.85 E-9 | 1.09 E-7 | 4.46 E-10 | -2.00 E-6 |
| POCP | kg ethene eq. | 2.85 E-2 | 4.68 E-4 | 1.05 E-3 | 3.00 E-2 | 7.52 E-5 | 9.60 E-4 | 0.00 | 0.00 | 5.08 E-3 | 3.01 E-5 | 2.86 E-4 | 3.20 E-6 | -2.27 E-2 |
| AP | kg SO2 eq. | 3.16 E-1 | 2.23 E-3 | 8.79 E-3 | 3.27 E-1 | 5.48 E-4 | 1.02 E-2 | 0.00 | 0.00 | 3.33 E-2 | 2.19 E-4 | 3.27 E-3 | 2.04 E-5 | -2.62 E-1 |
| EP | kg (PO4)3- eq. | 2.99 E-2 | 3.46 E-4 | 1.50 E-3 | 3.18 E-2 | 1.08 E-4 | 1.02 E-3 | 0.00 | 0.00 | 5.77 E-3 | 4.31 E-5 | 3.95 E-4 | 3.99 E-6 | -2.20 E-2 |

Toxicity indicators for Dutch market

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HTP | kg DCB eq. | 5.30 E+1 | 3.77 E-1 | 8.11 E-1 | 5.42 E+1 | 5.25 E-2 | 1.70 E+0 | 0.00 | 0.00 | 7.40 E+0 | 2.10 E-2 | 4.49 E-1 | 1.55 E-3 | -4.39 E+1 |
| FAETP | kg DCB eq. | 4.90 E-1 | 1.04 E-2 | 6.88 E-2 | 5.69 E-1 | 1.53 E-3 | 1.87 E-2 | 0.00 | 0.00 | 1.03 E-1 | 6.13 E-4 | 2.16 E-2 | 2.34 E-4 | -3.17 E-1 |
| MAETP | kg DCB eq. | 2.71 E+3 | 3.99 E+1 | 8.28 E+1 | 2.84 E+3 | 5.51 E+0 | 9.27 E+1 | 0.00 | 0.00 | 3.40 E+2 | 2.20 E+0 | 5.16 E+1 | 2.94 E-1 | -2.22 E+3 |
| TETP | kg DCB eq. | 1.78 E-1 | 1.34 E-3 | 1.17 E-2 | 1.91 E-1 | 1.86 E-4 | 5.89 E-3 | 0.00 | 0.00 | 1.52 E-2 | 7.42 E-5 | 1.46 E-3 | 6.88 E-6 | -1.98 E-3 |
| ECI | Euro | 9.53 E+0 | 9.93 E-2 | 2.68 E-1 | 9.90 E+0 | 1.50 E-2 | 3.16 E-1 | 0.00 | 0.00 | 1.34 E+0 | 6.01 E-3 | 2.01 E-1 | 6.82 E-4 | -7.96 E+0 |
| ADPF | kg Sb. eq. | 3.64 E-1 | 6.79 E-3 | 1.92 E-2 | 3.90 E-1 | 9.17 E-4 | 1.22 E-2 | 0.00 | 0.00 | 5.09 E-2 | 3.67 E-4 | 3.43 E-3 | 3.05 E-5 | -3.12 E-1 |

ADPE = Abiotic Depletion Potential for non-fossil resources
ADPF = Abiotic Depletion Potential for fossil resources
GWP = Global Warming Potential
ODP = Depletion potential of the stratospheric ozone layer
POCP = Formation potential of tropospheric ozone photochemical oxidants
AP = Acidification Potential of land and water
EP = Eutrophication Potential
HTP = Human Toxicity Potential
FAETP = Fresh water aquatic ecotoxicity potential
MAETP = Marine aquatic ecotoxicity potential
TETP = Terrestrial ecotoxicity potential
ECI = Environmental Cost Indicator
ADPF = Abiotic Depletion Potential for fossil resources expressed in [kg Sb-eq.]

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

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg $CO_2$ eq. | 5.80 E+1 | 9.48 E-1 | 2.24 E+0 | 6.12 E+1 | 1.26 E-1 | 2.22 E+0 | 0.00 | 0.00 | 8.94 E+0 | 5.03 E-2 | 2.76 E+0 | 8.48 E-3 | -4.98 E+1 |
| GWP-fossil | kg $CO_2$ eq. | 5.80 E+1 | 9.47 E-1 | 2.63 E+0 | 6.15 E+1 | 1.26 E-1 | 2.02 E+0 | 0.00 | 0.00 | 8.97 E+0 | 5.03 E-2 | 2.75 E+0 | 8.05 E-3 | -5.02 E+1 |
| GWP-biogenic | kg $CO_2$ eq. | -1.90 E-1 | 5.09 E-4 | -3.94 E-1 | -5.83 E-1 | 5.81 E-5 | 1.87 E-1 | 0.00 | 0.00 | -2.84 E-2 | 2.32 E-5 | 7.58 E-3 | 4.28 E-4 | 5.59 E-1 |
| GWP-luluc | kg $CO_2$ eq. | 2.10 E-1 | 3.37 E-4 | 6.97 E-3 | 2.17 E-1 | 4.61 E-5 | 6.67 E-3 | 0.00 | 0.00 | 5.59 E-3 | 1.84 E-5 | 5.32 E-4 | 3.09 E-6 | -1.70 E-1 |
| ODP | kg CFC11 eq. | 2.74 E-6 | 2.15 E-7 | 2.62 E-7 | 3.22 E-6 | 2.78 E-8 | 1.08 E-7 | 0.00 | 0.00 | 6.67 E-7 | 1.11 E-8 | 1.14 E-7 | 5.44 E-10 | -2.22 E-6 |
| AP | mol H+ eq. | 3.76 E-1 | 2.72 E-3 | 1.09 E-2 | 3.89 E-1 | 7.29 E-4 | 1.22 E-2 | 0.00 | 0.00 | 3.98 E-2 | 2.92 E-4 | 4.01 E-3 | 2.58 E-5 | -3.10 E-1 |
| EP-freshwater | kg PO4 eq. | 2.23 E-3 | 7.56 E-6 | 1.40 E-4 | 2.37 E-3 | 1.27 E-6 | 7.35 E-5 | 0.00 | 0.00 | 2.79 E-4 | 5.07 E-7 | 2.67 E-5 | 1.17 E-7 | -1.62 E-3 |
| EP-marine | kg N eq. | 5.63 E-2 | 5.38 E-4 | 1.96 E-3 | 5.88 E-2 | 2.57 E-4 | 1.90 E-3 | 0.00 | 0.00 | 5.70 E-3 | 1.03 E-4 | 7.74 E-4 | 8.68 E-6 | -4.70 E-2 |
| EP-terrestrial | mol N eq. | 6.39 E-1 | 6.02 E-3 | 2.29 E-2 | 6.68 E-1 | 2.83 E-3 | 2.16 E-2 | 0.00 | 0.00 | 6.64 E-2 | 1.13 E-3 | 8.90 E-3 | 7.32 E-5 | -5.25 E-1 |
| POCP | kg NMVOC eq. | 1.91 E-1 | 2.31 E-3 | 6.56 E-3 | 1.99 E-1 | 8.09 E-4 | 6.44 E-3 | 0.00 | 0.00 | 2.34 E-2 | 3.23 E-4 | 2.47 E-3 | 2.27 E-5 | -1.60 E-1 |
| ADP-minerals & metals | kg Sb eq. | 7.82 E-4 | 2.61 E-5 | 1.65 E-3 | 2.46 E-3 | 3.19 E-6 | 2.92 E-5 | 0.00 | 0.00 | 4.28 E-4 | 1.27 E-6 | 1.52 E-5 | 2.95 E-8 | -1.82 E-3 |
| ADP-fossil | MJ, net calorific value | 6.02 E+2 | 1.43 E+1 | 3.81 E+1 | 6.55 E+2 | 1.90 E+0 | 2.06 E+1 | 0.00 | 0.00 | 9.97 E+1 | 7.58 E-1 | 6.97 E+0 | 5.78 E-2 | -4.92 E+2 |
| WDP | m3 world eq. deprived | 1.17 E+1 | 4.05 E-2 | 6.98 E-1 | 1.24 E+1 | 6.79 E-3 | 3.86 E-1 | 0.00 | 0.00 | 3.68 E+0 | 2.71 E-3 | 1.56 E-1 | 1.69 E-3 | -6.81 E+0 |

GWP-total = Global 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 = 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 [2]

ADP-fossil = Abiotic Depletion for fossil resources potential [2]

WDP = Water (user) deprivation potential, deprivation-weighted water consumption [2]

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.

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

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidence | 4.26 E-6 | 6.03 E-8 | 7.81 E-8 | 4.40 E-6 | 1.13 E-8 | 1.39 E-7 | 0.00 | 0.00 | 3.12 E-7 | 4.52 E-9 | 4.55 E-8 | 3.79 E-10 | -3.64 E-6 |
| IRP | kBq U235 eq. | 1.15 E+0 | 6.26 E-2 | 1.21 E-1 | 1.33 E+0 | 7.95 E-3 | 4.30 E-2 | 0.00 | 0.00 | 1.88 E-1 | 3.18 E-3 | 2.94 E-2 | 2.06 E-4 | -6.44 E-1 |
| ETP-fw | CTUe | 1.61 E+3 | 1.15 E+1 | 6.81 E+1 | 1.69 E+3 | 1.69 E+0 | 5.47 E+1 | 0.00 | 0.00 | 2.96 E+2 | 6.76 E-1 | 4.43 E+1 | 4.72 E+1 | -1.30 E+3 |
| HTP-c | CTUh | 9.81 E-8 | 3.21 E-10 | 3.09 E-9 | 1.02 E-7 | 5.49 E-11 | 3.20 E-9 | 0.00 | 0.00 | 8.66 E-9 | 2.19 E-11 | 9.00 E-10 | 3.07 E-12 | -6.68 E-8 |
| HTP-nc | CTUh | 1.88 E-6 | 1.21 E-8 | 4.92 E-8 | 1.94 E-6 | 1.85 E-9 | 6.03 E-8 | 0.00 | 0.00 | 3.08 E-7 | 7.40 E-10 | 2.63 E-8 | 9.82 E-11 | -9.04 E-7 |
| SQP | --- | 1.50 E+2 | 1.00 E+1 | 8.06 E+1 | 2.40 E+2 | 1.64 E+0 | 7.66 E+0 | 0.00 | 0.00 | 2.20 E+1 | 6.58 E-1 | 5.80 E+0 | 8.77 E-2 | -1.08 E+2 |

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 [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 disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

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.

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

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 7.16 E+1 | 2.05 E-1 | 1.72 E+1 | 8.90 E+1 | 2.37 E-2 | 2.74 E+0 | 0.00 | 0.00 | 5.91 E+0 | 9.49 E-3 | 7.49 E-1 | 2.82 E-3 | -5.57 E+1 |
| PERM | MJ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -4.51 E+0 |
| PERT | MJ | 7.16 E+1 | 2.05 E-1 | 1.72 E+1 | 8.90 E+1 | 2.37 E-2 | 2.74 E+0 | 0.00 | 0.00 | 5.91 E+0 | 9.49 E-3 | 7.49 E-1 | 2.82 E-3 | -6.02 E+1 |
| PENRE | MJ | 6.11 E+2 | 1.52 E+1 | 3.91 E+1 | 6.66 E+2 | 2.01 E+0 | 2.10 E+1 | 0.00 | 0.00 | 7.05 E+1 | 8.05 E-1 | 7.44 E+0 | 6.15 E-2 | -5.24 E+2 |
| PENRM | MJ | 2.91 E+1 | 0.00 | 1.77 E+0 | 3.08 E+1 | 0.00 | 9.36 E-1 | 0.00 | 0.00 | 3.64 E+1 | 0.00 | 0.00 | 0.00 | -1.21 E+0 |
| PENRT | MJ | 6.41 E+2 | 1.52 E+1 | 4.09 E+1 | 6.97 E+2 | 2.01 E+0 | 2.19 E+1 | 0.00 | 0.00 | 1.07 E+2 | 8.05 E-1 | 7.44 E+0 | 6.15 E-2 | -5.25 E+2 |
| SM | kg | 1.32 E+0 | 0.00 | 0.00 | 1.32 E+0 | 0.00 | 3.96 E-2 | 0.00 | 0.00 | 1.50 E-1 | 0.00 | 0.00 | 0.00 | 0.00 |
| RSF | MJ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NRSF | MJ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| FW | m3 | 4.76 E-1 | 1.53 E-3 | 2.78 E-2 | 5.06 E-1 | 2.31 E-4 | 1.57 E-2 | 0.00 | 0.00 | 9.69 E-2 | 9.24 E-5 | 5.94 E-3 | 4.82 E-5 | -3.22 E-1 |

PERE = Use of renewable energy excluding renewable primary energy resources
PERM = Use of renewable 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
NRSF = Use of non renewable secondary fuels
FW = Use of net fresh water

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

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 4.57 E-3 | 3.75 E-5 | 6.28 E-4 | 5.23 E-3 | 4.81 E-6 | 6.25 E-4 | 0.00 | 0.00 | 2.92 E-4 | 1.92 E-6 | 1.58 E-2 | 6.41 E-8 | -6.50 E-4 |
| NHWD | kg | 1.05 E+1 | 6.96 E-1 | 2.89 E-1 | 1.15 E+1 | 1.20 E-1 | 3.81 E-1 | 0.00 | 0.00 | 7.12 E-1 | 4.81 E-2 | 2.34 E-1 | 1.46 E-1 | -8.92 E+0 |
| RWD | kg | 1.16 E-3 | 9.75 E-5 | 1.15 E-4 | 1.38 E-3 | 1.25 E-5 | 4.54 E-5 | 0.00 | 0.00 | 1.73 E-4 | 4.98 E-6 | 3.10 E-5 | 2.62 E-7 | -7.44 E-4 |
| CRU | kg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.33 E-3 | 0.00 | 0.00 | 7.83 E-3 | 0.00 | 1.11 E-1 | 0.00 | 0.00 |
| MFR | kg | 0.00 | 0.00 | 8.38 E-2 | 8.38 E-2 | 0.00 | 5.13 E-1 | 0.00 | 0.00 | 2.11 E-1 | 0.00 | 4.61 E+0 | 0.00 | 0.00 |
| MER | kg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| EEE | MJ | 0.00 | 0.00 | 1.48 E-1 | 1.48 E-1 | 0.00 | 1.69 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.14 E+1 |
| ETE | MJ | 0.00 | 0.00 | 2.55 E-1 | 2.55 E-1 | 0.00 | 2.91 E-3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.97 E+1 |

HWD = Hazardous Waste Disposed
RWD = Radioactive Waste Disposed
MFR = Materials for recycling
EEE = Exported Electrical Energy

NHWD = Non Hazardous Waste Disposed
CRU = Components for reuse
MER = Materials for energy recovery
ETE = Exported Thermal Energy

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

| | UNIT | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | C2 | C3 | C4 | D |
|---|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|
| BCCpr | kg C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| BCCpa | kg C | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

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

## CALCULATION RULES

*Allocation*

The net input covers more than 99.99%. Rethink automatically causes the mass balance is in equilibrium. The input asks for a net materialization and a percentage of production waste, which are automatically settled in such a way that the gross input in balance with the output. The allocation for energy consumption: this is divided by the number of products produced (65200 pieces) because every product at Smits has a different m², the energy consumption is therefore per product cannot be calculated in m²

*Product stage (A1-A3)*

The production stage consists of the extraction of raw materials, transportation of the raw materials, processing the raw materials into materials and the production of the product. The required energy for production, external treatments, ancillary materials, packaging material and production emissions are included.

*Construction process stage (A4-A5)*

This stage consists the transport of the product from production plant to the construction site. It also includes the loss of material during construction. The additional needed production, transport and end-of-life of the lost material during construction is included. The end-of-life of packaging material up to the end-of-waste state or disposal of final residues is also included. The installation of the product including manufacture, transportation and end-of-life of ancillary materials and any energy or water use required for installation or operation of the construction site are taken into account.

*Use stage (B1-B3)*

This stage consists of the impacts arising from components of the building and construction works during their use. The stage also covers the combination of all planned technical and associated administrative maintenance actions during the service life to maintain the product installed in a building, in a construction works or its parts in a state in which it can perform its required functional and technical performance, as well as preserve the aesthetic qualities of the product.

*End of life stage (C1-C4)*

When the end of the life stage of the building is reached, the de-construction/demolition begins. This EPD includes de-construction/demolition (C1), the necessary transport (C2) from the demolition site to the sorting location and distance to final disposal. The end of life stage includes the final disposal to landfill (C4), incineration (C3) and needed recycling processes up to the end-of-waste point (C3). Loads and benefits of recycling, re-use and exported energy are part of module D.

*Benefits and loads beyond the system boundary (D)*

This stage contains the potential loads and benefits of recycling and re-use of raw materials/products. The loads contain the needed recycling processes from end-of-waste☐point up to the point-of-equivalence of the substituted primary raw material and a load for secondary material that will be lost at the end-of-life stage. The loads and benefits of recycling and reuse are included in this module. The benefits are calculated based on the primary content and the primary equivalent. In addition, the benefits of energy recovery are granted at this stage.

## SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

The LCA includes the following phases of the SolidScreen Xtra life cycle:
 - Extraction of raw materials (A1)
 - Transportation to the production locations (A2)
 - Production of SolidScreens at production location Smits in Cuijk (A3)
 - The transportation of the SolidScreens to the construction sites (A4)
 - Construction proces of mounting SolidScreens to the facade (A5)
 - Using phase of the SolidScreens (B1)
 - Preventative and regular maintenance activities (B2-5).
 - End of life stage (C1-C4)
 - Benefits and loads beyond the system boundary (D)

When the end of the life stage of the building is reached, the de-construction/demolition begins. This EPD includes de-construction/demolition (C1), the necessary transport (C2) from the demolition site to the sorting location and distance to final disposal. The end of life stage includes the final disposal to landfill (C4), incineration (C3) and needed recycling processes up to the end-of-waste point (C3). Loads and benefits of recycling, re-use and exported energy are part of module D. The default end-of-life scenarios of the annex (november 2020) to the NMD Determination method v1.0 have been used for the various materials in the product. Benefits and loads beyond the system boundary (D) This stage contains the potential loads and benefits of recycling and re-use of raw materials/products. The loads contain the needed recycling processes from end-of-waste☐point up to the point-of-equivalence of the substituted primary raw material and a load for secondary material that will be lost at the end-of-life stage. The loads and benefits of recycling and reuse are included in this module. The benefits are calculated based on the primary content and the primary equivalent. In addition, the benefits of energy recovery are granted at this stage.

| Aluminium for buildings (i.a. profiles, sheets, pipes) | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 94.00 | % |
| Landfill | 3.00 | % |
| Incineration | 3.00 | % |
| Re-use | 0.00 | % |

| Metals, others (i.a. fasteners, fittings) | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 90.00 | % |
| Landfill | 5.00 | % |
| Incineration | 5.00 | % |
| Re-use | 0.00 | % |

| Plastics, (via residue) | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 0.00 | % |
| Landfill | 20.00 | % |
| Incineration | 80.00 | % |
| Re-use | 0.00 | % |

| Steel, construction profiles | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 94.00 | % |
| Landfill | 1.00 | % |
| Incineration | 0.00 | % |
| Re-use | 5.00 | % |

| PVC, pipes | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 70.00 | % |
| Landfill | 10.00 | % |
| Incineration | 20.00 | % |
| Re-use | 0.00 | % |

| Plastics, reinforced (i.a. profiles, sheets, pipes) | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 0.00 | % |
| Landfill | 0.00 | % |
| Incineration | 100.00 | % |
| Re-use | 0.00 | % |

| Organic material, other (i.a. insulation) | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 0.00 | % |
| Landfill | 5.00 | % |
| Incineration | 95.00 | % |
| Re-use | 0.00 | % |

| Finishes (adhered to wood, plastic, metal) | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 0.00 | % |
| Landfill | 0.00 | % |
| Incineration | 100.00 | % |
| Re-use | 0.00 | % |

| Corrugated board / Core board (PEF scenario) | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 75.00 | % |
| Landfill | 0.00 | % |
| Incineration | 25.00 | % |
| Re-use | 0.00 | % |

| Zinc/galvinised steel (i.a. profiles, sheets, zinc coating) | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 95.00 | % |
| Landfill | 5.00 | % |
| Incineration | 0.00 | % |
| Re-use | 0.00 | % |

| Polyolefines (i.a. pe,pp) (i.a. pipes, foils) | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 5.00 | % |
| Landfill | 10.00 | % |
| Incineration | 85.00 | % |
| Re-use | 0.00 | % |

| Copper, mixed (electricity cables) | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 85.00 | % |
| Landfill | 5.00 | % |
| Incineration | 10.00 | % |
| Re-use | 0.00 | % |

| Organic material, via residue | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 0.00 | % |
| Landfill | 85.00 | % |
| Incineration | 15.00 | % |
| Re-use | 0.00 | % |

| PVC, frame profiles | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 80.00 | % |
| Landfill | 10.00 | % |
| Incineration | 10.00 | % |
| Re-use | 0.00 | % |

| Steel, fasteners | Value | Unit |
|---|---|---|
| Transport distance for recycling (Module C2) | 50.00 | km |
| Transport distance for landfill (Module C2) | 100.00 | km |
| Transport distance for incineration (Module C2) | 150.00 | km |
| Recycling | 99.00 | % |
| Landfill | 1.00 | % |
| Incineration | 0.00 | % |
| Re-use | 0.00 | % |

## DECLARATION OF SVHC

None of the substances contained in the product are listed in the "Candidate List of Substances of Very High Concern for authorizaton",

## REFERENCES

ISO 14040 ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework;

EN ISO 14040:2006 ISO 14044 ISO 14044:2006-10, Environmental management - Life cycle assessment - Requirements and guidelines;

EN ISO 14040:2006 ISO 14025 ISO 14025:2011-10: Environmental labels and declarations – Type III environmental declarations – Principles and procedures

EN 15804+A1 EN 15804+A1: 2013: Sustainability of construction works – Environmental Product Declarations – Core rules for the product category of construction products

EN 15804+A2 EN 15804+A2: 2019: Sustainability of construction works – Environmental Product Declarations – Core rules for the product category of construction products

SBK-verification protocol SBK-verification protocol – inclusion data in the Dutch environmental database, Final Version 3.0, January 2019,

SBK NMD Determination method NMD Determination method Environmental performance Construction works v1.0 July 2020, foundation NMD

## REMARKS

The value of the Dutch environment cost indicator (MKI) over the entire life cycle analysis (A to D) is €3,82144 per 1m² SolidScreen Xtra 105.