



**Environmental  
Product  
Declaration**

According to EN15804+A2 (+indicators A1)

This declaration is for:  
**RAW PP geotextile**

Provided by:  
**STARK Deutschland GmbH**



MRPI® registration:  
**1.1.01048.2026**

Program operator:  
**Stichting MRPI®**  
Publisher:  
**Stichting MRPI®**  
[www.mrpi.nl](http://www.mrpi.nl)

Date of first issue:  
**6-2-2026**  
Date of this issue:  
**6-2-2026**  
Expiry date:  
**6-2-2031**





**COMPANY INFORMATION**

STARK Deutschland GmbH  
Hafeninsel 9  
63067  
Offenbach am Main  
Germany  
+49 69 668110-0

<https://www.stark-deutschland.de/>

**MRPI® REGISTRATION**

1.1.01048.2026

**DATE OF THIS ISSUE**

6-2-2026

**EXPIRY DATE**

6-2-2031

**SCOPE OF DECLARATION**

This MRPI®-EPD certificate is verified by Tim Mol, Ecoreview. The LCA study has been done by Darryl Kofi Safo, Solmax. The certificate is based on an LCA-dossier according to EN15804+A2 (+indicators A1). 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**

RAW PP geotextile

**DECLARED UNIT / FUNCTIONAL UNIT**

1 Area (m2)

**DESCRIPTION OF PRODUCT**

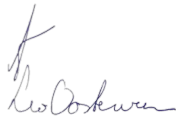

RAW PP geotextile is available in various brands and versions, all of which can be viewed on the website of STARK Deutschland GmbH. RAW PP geotextile is offered in different configurations. The products are used in a wide range of applications.

**VISUAL PRODUCT**



**MORE INFORMATION**

[raw-product.com](http://raw-product.com)

<p>Ing. L. L. Oosterveen MSc. MBA Managing Director MRPI</p>	<p><b>DEMONSTRATION OF VERIFICATION</b></p>
	<p>CEN standard EN15804 serves as the core PCR [1]</p>
	<p>Independent verification of the declaration and data according to EN15804+A2 (+indicators A1) Internal: External: X</p>
	<p>Third party verifier: Tim Mol, Ecoreview</p> 
<p>[1] PCR = Product Category Rules</p>	





## DETAILED PRODUCT DESCRIPTION

The RAW PP geotextile is a mechanically bonded polypropylene continuous-filament spunbond fabric.

The polymer melt, which is equipped with special stabilizers, is continuously melted, extruded, and spun into endless filaments using the melt-spinning process.

The deposited continuous filaments are then mechanically bonded, stretched to the required width (patented), and wound up.

**Application**  
 The declared product is used in geotechnical and civil engineering applications and fulfills the functions of separation, filtration, drainage, and protection. By using the geotextile, the mixing of different soils and/or fill materials is permanently prevented. It also prevents the uncontrolled passage of particles or contaminants while still allowing liquid to pass through, thereby ensuring optimal filtration effect. The geotextile is also used as a protective layer for certain elements, such as sealing membranes, and protects them from mechanical damage.

Component (> 1%)	(kg / %)
PP resin	96-99%
Colour Masterbatch	0.5-2%
UV Masterbatch	0.5-2%

## SCOPE AND TYPE

The geographical location is EMEA and the product is manufactured in Linz, Austria. STARK Deutschland GmbH is the EPD owner and program operator contact, while Solmax is responsible for the manufacturing processes and primary production data used in the life cycle assessment (LCA).

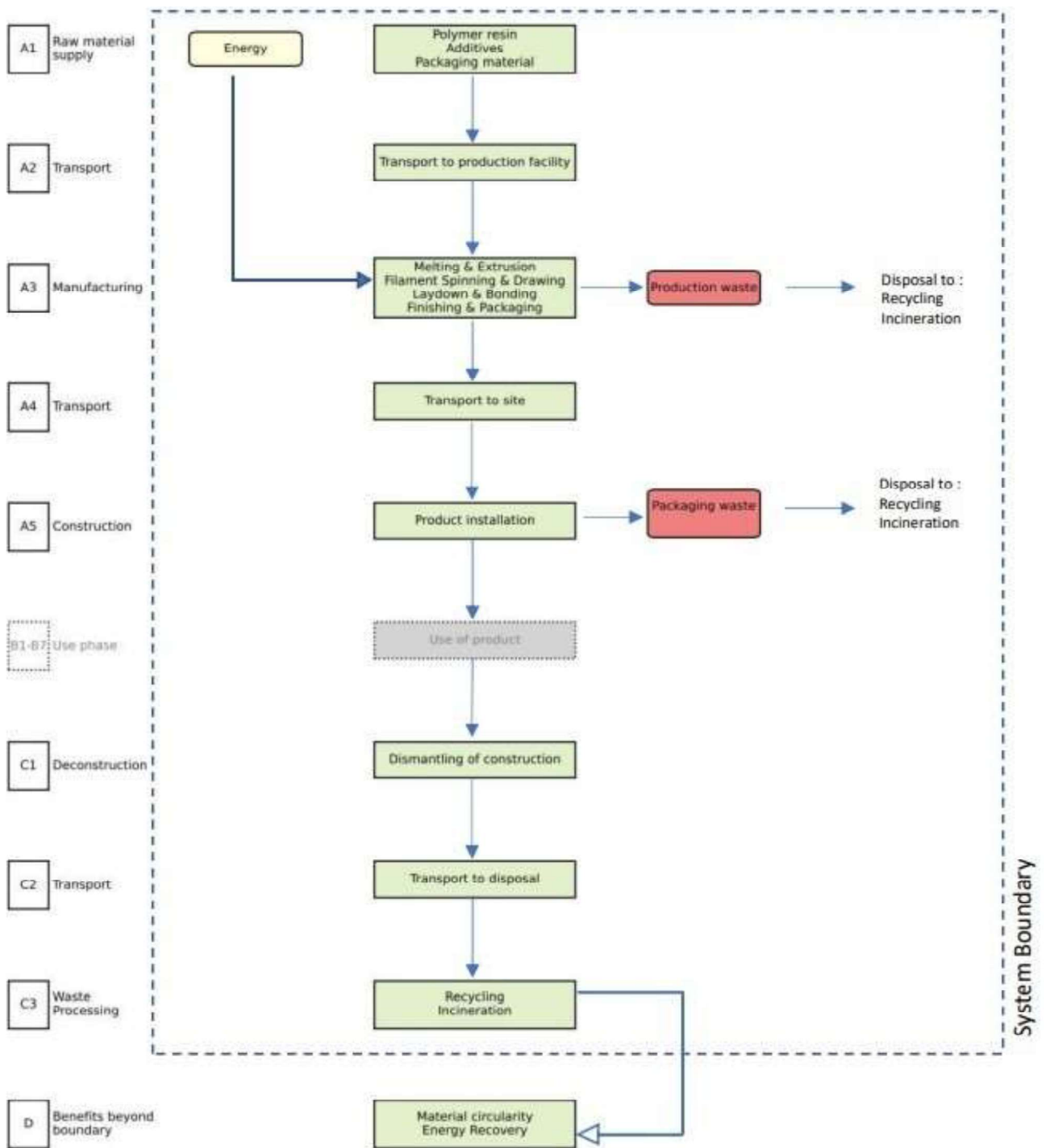
The Life Cycle Impact Assessment (LCIA) was performed using the EF 3.0 characterization factors, supported by background data from the ecoinvent 3.6 database (released in 2019), and EF 3.1 characterization factors, supported by background data from the ecoinvent 3.9.1 database (released in 2022). The environmental calculations utilize the 'Allocation, cut-off by classification' (Cut-off) system model for all background processes.

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	X	X	X	X	X	X	X	X	X	X

X = Modules Assessed

ND = Not Declared





## REPRESENTATIVENESS

In this study a specific product is considered, produced at a specific production site.



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

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	kg Sb eq.	3,55E-06	5,29E-07	3,96E-07	4,47E-06	6,45E-07	2,73E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,53E-09	7,39E-08	1,00E-07	0,00E+00	-2,01E-07
ADPF	MJ	1,44E+01	3,17E-01	1,72E+00	1,64E+01	3,86E-01	8,53E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,35E-02	4,42E-02	7,40E-02	0,00E+00	-4,32E+00
GWP	kg CO2 eq.	3,91E-01	2,07E-02	1,14E-01	5,26E-01	2,52E-02	5,13E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,16E-03	2,89E-03	3,61E-01	0,00E+00	-2,14E-01
ODP	kg CFC11 eq.	7,70E-09	3,68E-09	1,03E-08	2,16E-08	4,48E-09	1,42E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,34E-10	5,13E-10	5,10E-10	0,00E+00	-2,36E-08
POCP	kg ethene eq.	3,27E-04	1,25E-05	2,36E-05	3,63E-04	1,52E-05	2,01E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,20E-06	1,74E-06	2,88E-06	0,00E+00	-4,07E-05
AP	kg SO2 eq.	1,21E-03	9,11E-05	2,91E-04	1,59E-03	1,11E-04	9,08E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,34E-05	1,27E-05	4,12E-05	0,00E+00	-1,77E-04
EP	kg (PO4) 3 eq.	1,15E-04	1,79E-05	5,53E-05	1,88E-04	2,18E-05	1,28E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,26E-06	2,50E-06	1,47E-05	0,00E+00	-2,47E-05

**Toxicity indicators and ECI (Dutch market)**

HTP	kg DCB eq.	5,72E-02	8,72E-03	1,42E-02	8,01E-02	1,06E-02	1,01E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,30E-03	1,22E-03	1,32E-02	0,00E+00	-1,27E-02
FAETP	kg DCB eq.	2,34E-03	2,55E-04	4,01E-04	3,00E-03	3,10E-04	4,27E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,68E-05	3,55E-05	4,09E-03	0,00E+00	-1,59E-04
MAETP	kg DCB eq.	3,64E+00	9,16E-01	1,82E+00	6,37E+00	1,12E+00	8,42E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,79E-02	1,28E-01	6,00E+00	0,00E+00	-6,16E-01
TETP	kg DCB eq.	4,62E-04	3,08E-05	2,21E-04	7,14E-04	3,76E-05	4,23E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,87E-06	4,30E-06	2,11E-05	0,00E+00	-4,33E-05
ECI	euro	3,28E-02	2,50E-03	9,04E-03	4,44E-02	3,04E-03	4,15E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,32E-04	3,48E-04	2,03E-02	0,00E+00	-1,33E-02
ADPF	kg Sb eq.	6,92E-03	1,52E-04	8,27E-04	7,90E-03	1,86E-04	4,10E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,09E-05	2,13E-05	3,56E-05	0,00E+00	-2,08E-03

- 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

## 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.	3,86E-01	2,31E-02	1,00E-01	5,10E-01	2,81E-02	4,92E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,49E-03	3,22E-03	3,73E-01	0,00E+00	-2,33E-01
GWP-fossil	kg CO2 eq.	3,85E-01	2,30E-02	9,99E-02	5,08E-01	2,80E-02	4,80E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,49E-03	3,21E-03	3,62E-01	0,00E+00	-2,25E-01
GWP-biogenic	kg CO2 eq.	6,78E-04	3,58E-05	4,82E-04	1,20E-03	4,37E-05	1,18E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,73E-07	5,00E-06	1,10E-02	0,00E+00	-7,77E-03
GWP-luluc	kg CO2 eq.	2,55E-04	8,19E-05	6,39E-05	4,01E-04	9,98E-05	2,63E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,41E-07	1,14E-05	3,51E-06	0,00E+00	-2,66E-05
ODP	kg CFC11 eq.	1,98E-09	4,09E-10	2,82E-09	5,22E-09	4,98E-10	3,05E-10	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,30E-11	5,70E-11	1,28E-10	0,00E+00	-1,13E-08
AP	mol H+ eq.	1,38E-03	1,10E-04	2,50E-04	1,74E-03	1,34E-04	1,00E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,09E-05	1,54E-05	5,65E-05	0,00E+00	-1,99E-04
EP-fresh water	kg P eq.	6,77E-06	2,29E-07	6,23E-06	1,32E-05	2,78E-07	6,90E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,91E-08	3,19E-08	1,12E-07	0,00E+00	-7,74E-07
EP-marine	kg N eq.	2,45E-04	4,18E-05	4,94E-05	3,36E-04	5,09E-05	2,33E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,43E-05	5,83E-06	2,51E-05	0,00E+00	-6,52E-05
EP-terrestrial	mol N eq.	2,65E-03	4,46E-04	5,74E-04	3,67E-03	5,43E-04	2,40E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,56E-04	6,22E-05	2,72E-04	0,00E+00	-7,20E-04
POCP	kg NMVOC eq.	1,27E-03	1,52E-04	2,21E-04	1,65E-03	1,85E-04	1,01E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,69E-05	2,12E-05	7,19E-05	0,00E+00	-3,72E-04
ADP-minerals & metals	kg Sb eq.	1,69E-06	7,20E-08	1,53E-07	1,91E-06	8,77E-08	1,04E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,55E-09	1,00E-08	2,08E-08	0,00E+00	-1,17E-07
ADP-fossil	MJ, net calorific value	1,45E+01	3,29E-01	1,42E+00	1,62E+01	4,01E-01	8,44E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,53E-02	4,59E-02	7,13E-02	0,00E+00	-3,78E+00
WDP	m3 world eq. Deprived	2,94E-01	1,89E-03	1,60E-02	3,12E-01	2,30E-03	1,59E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,40E-04	2,63E-04	9,82E-04	0,00E+00	-2,71E-02

- 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 incidence	1,50E-08	2,27E-09	1,78E-09	1,91E-08	2,76E-09	1,18E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,68E-10	3,17E-10	4,57E-10	0,00E+00	-1,42E-09
IRP kBq U235 eq.	6,92E-03	1,28E-04	3,71E-03	1,08E-02	1,56E-04	5,56E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,44E-05	1,79E-05	6,25E-05	0,00E+00	-5,98E-04
ETP-fw CTUe	4,79E-01	2,43E-01	2,41E-01	9,62E-01	2,96E-01	7,85E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,93E-02	3,39E-02	8,45E-02	0,00E+00	-1,18E-01
HTP-c CTUh	7,69E-11	1,22E-11	2,69E-11	1,16E-10	1,48E-11	8,01E-12	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,69E-12	1,70E-12	1,66E-11	0,00E+00	-2,83E-11
HTP-nc CTUh	2,00E-09	2,64E-10	5,05E-10	2,77E-09	3,22E-10	2,01E-10	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,71E-12	3,69E-11	5,77E-10	0,00E+00	-3,09E-10
SQP -	6,14E-01	2,60E-01	2,74E-01	1,15E+00	3,16E-01	8,02E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,12E-03	3,62E-02	3,70E-02	0,00E+00	-1,19E+00

- 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 and A2)**

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	3,13E-06	2,10E-06	4,16E-06	9,39E-06	2,56E-06	6,82E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,96E-07	2,93E-07	5,90E-07	0,00E+00	-1,41E-05
NHWD	kg	1,32E-02	2,17E-02	6,10E-03	4,11E-02	2,65E-02	4,91E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,56E-05	3,03E-03	5,36E-03	0,00E+00	-4,87E-03
RWD	kg	5,48E-06	7,53E-08	3,39E-06	8,94E-06	9,18E-08	4,59E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,97E-09	1,05E-08	4,48E-08	0,00E+00	-4,45E-07
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	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	0,00E+00	0,00E+00	0,00E+00	5,18E-03	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	1,00E-02	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,26E-03	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	1,40E-01	0,00E+00	0,00E+00
EEE	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,44E+00
ETE	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,36E-01

- 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



**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	2,11E-01	4,65E-03	5,92E-01	8,08E-01	5,67E-03	4,44E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,10E-04	6,49E-04	2,69E-03	0,00E+00	-2,17E-01
PERM	MJ	1,03E-01	0,00E+00	0,00E+00	1,03E-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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	3,14E-01	4,65E-03	5,92E-01	9,11E-01	5,67E-03	4,44E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,10E-04	6,49E-04	2,69E-03	0,00E+00	-2,17E-01
PENRE	MJ	7,88E+00	3,30E-01	1,42E+00	9,64E+00	4,02E-01	8,44E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,53E-02	4,60E-02	7,13E-02	0,00E+00	-3,78E+00
PENRM	MJ	6,60E+00	0,00E+00	0,00E+00	6,60E+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	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,45E+01	3,30E-01	1,42E+00	1,62E+01	4,02E-01	8,44E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,53E-02	4,60E-02	7,13E-02	0,00E+00	-3,78E+00
SM	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	0,00E+00	0,00E+00	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	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	0,00E+00
NSRF	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	4,06E-03	8,47E-05	1,38E-03	5,52E-03	1,03E-04	2,88E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,79E-06	1,18E-05	4,42E-05	0,00E+00	-4,08E-04

- 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	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
BCCpa	kg C	3,04E-03	0,00E+00	0,00E+00	3,04E-03	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	0,00E+00	0,00E+00	0,00E+00

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



## CALCULATION RULES

### Cut off rules

All primary data of the production processes were considered. No materials or processes have been excluded from the study.

### Data quality

Data flows have been modeled as realistically as possible. Data quality assessment is based on the principle that the primary data used for processes occurring at the production site must be of higher quality than background data of other processes. Where this is not available, other reference data is selected from appropriate sources. The life cycle inventory (LCI) data used in this study is assessed for quality in accordance with the data quality assessment follows the criteria of EN 15804+A2, Table E.1. Technological representativeness, time-related representativeness, completeness, and methodological consistency were each rated as very good (score = 1). Geographical representativeness and precision (uncertainty) were rated as good (score = 2). Overall, the data quality is considered suitable for the intended use of this EPD and complies with the requirements of EN 15941:2024.

### Data collection period

The dataset is representative for the production processes used in 2023.

### Methodology and reproducibility

The process descriptions and quantities in this study are reproducible in accordance to the reference standards that have been used. The references of all sources, both primary and public sources and literature, have been documented. In addition, to facilitate the reproducibility of this LCA, a full set of data records has been generated.

### Allocation

In accordance with the respective methodologies, the allocation procedures in the background processes are deemed to be consistent.

### Reference Service Life (RSL)

The reference service life (RSL) is declared as 100 years. This is consistent with the intended applications (roads, railways, drainage, separation and filtration), and industry-standard assumptions for geotextiles embedded in soil and protected from UV exposure.

## SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

### Product stage (A1-A3)

The processes in A1-A3 consists of the extraction and processing of raw materials, transportation of the raw materials, the manufacturing process and product packaging. The required energy for production, external treatments, ancillary materials, packaging material and production emissions are included.

The electricity used in manufacturing (A3) follows a location-based approach using the Austrian grid mix; no contractual instruments were used. For EN 15804+A2 results, the Ecoinvent 3.9.1 dataset is used (GWP-total: 0.259 kg CO<sub>2</sub>e/kWh), and for EN 15804+A1 results, the Ecoinvent 3.6 dataset is used (GWP: 0.338 kg CO<sub>2</sub>e/kWh).

### Transport to construction site (A4)

This life cycle stage details all impacts related to the transport of product to the construction site from production facility. The distance is determined by using the city of Utrecht as ship-to address for products that are manufactured outside of Netherlands. The following scenario is assumed for module A4 of this EPD.

Description	Value	Unit
Vehicle type used for transport	Lorry, unspecified (Market group for transport, freight, truck, unspecified)	
Distance to construction site	943	km
Capacity utilization (including empty runs)	0,5	%
Bulk density of transported products	105	kg/m <sup>3</sup>
Volume capacity utilization factor	1	
Fuel type and consumption	Default ecoinvent consumption for >32t lorry	



#### Assembly (A5)

The life cycle stage details all impact related to the on-site activities in the construction stage. This also includes any waste produced and its disposal. The product is typically unrolled off suspended rolls manually, therefore impacts associated with the installation are negligible. The environmental impacts related to the disposal of packaging material are considered however.

Description	Value	Unit
Output materials as results of losses during construction	5	%
Output materials as results of waste processing of used packaging.	0,0414	kg
Distance to disposal site (Winding core)	60	km
Distance to disposal site (Plastic packaging)	92,5	km

The environmental impacts related to the disposal of packaging material are considered in this Module. The disposal of plastic packaging (plastic caps and sling) follows the "polyolefinen o.a. leidingen, folies" (ENG: polyolefins including pipes and films) waste stream. As for the winding core, the disposal follows the "pvc, leidingen" (ENG: pvc, pipes) waste stream. The table below presents the distances and waste processing percentages used to calculate the average transport distance for packaging materials.

Waste stream	Not removed (Stays underground)	Landfill	Incineration	Recycling	Re-use
Transport to disposal site	0 km	100 km	150 km	50 km	0 km
[57] polyolefinen o.a. leidingen, folies	0%	10%	85%	5%	0%
[64] pvc, leidingen	0%	10%	20%	70%	0%

#### Use Stage (B1-B7)

This life cycle stage details impacts related to the use phase over the entire life cycle.

There are no impacts associated with the entire use stage, as it was assumed that no activities for maintenance, repair, replacement, refurbishment nor other material and energy flows take place during the operational phase.

#### End of Life Stage (C1-C4)

The end of life stage accounts for the deconstruction/demolition and includes the impacts of transport to waste processing sites and the disposal of said waste. The deconstruction/demolition of waste product is done by the excavation of the subsoil. It is assumed that 0.03 m3 of soil must be moved per declared unit. The distribution ratio for waste disposal follows the "geotextiel en geogrids grondwerken" waste stream (ENG: geotextiles and geogrids for earth works). The assumed transport distance for the different types of waste processing are shown below. Similarly, the percentages per type of waste processing are displayed.

End-of-life stage	Not removed (Stays underground)	Landfill	Incineration	Recycling	Re-use
Transport to disposal site (C2)	0 km	100 km	150 km	50 km	0 km
Waste processing and disposal (C3-C4)	25%	0%	70%	5%	0%
Value (per Declared Unit)	0,05	0	0,14	0,01	0

#### Benefits and Loads beyond the system boundary (D)

This life cycle stage covers the net benefits and loads arising from the reuse of products or the recycling or recovery of energy from waste materials. This study models the benefits and burdens of waste combustion using an electrical efficiency of 18% and thermal efficiency of 31%. As for the calculation of the avoided burden from material recycling, a quality factor of 67% is used.

Description	Total energy recovery (MJ)	Avoided burden (kg)
Reference product	2,276	0,0067



## DECLARATION OF SVHC

None of the substances contained in the product are listed in the "Candidate List of Substances of Very High Concern for authorisation", or they do not exceed the threshold with the European Chemicals Agency.

## REFERENCES

- [1] 'ISO 14040: Environmental management - Life cycle assessment – Principles and Framework', International Organization for Standardization, ISO14040:2006.
- [2] 'ISO 14044: Environmental management - Life cycle assessment - Requirements and guidelines', International Organization for Standardization, ISO14044:2006.
- [3] 'ISO 14025: Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures', International Organization for Standardization, ISO14025:2006.
- [4] 'NEN-EN 15804: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products', NEN-EN 15804:2012+A2:2019.
- [5] 'Bepalingsmethode Milieuprestatie Bouwwerken ', Stichting Nationale Milieudatabase, versie 1.2, januari 2025.

## REMARKS

None

