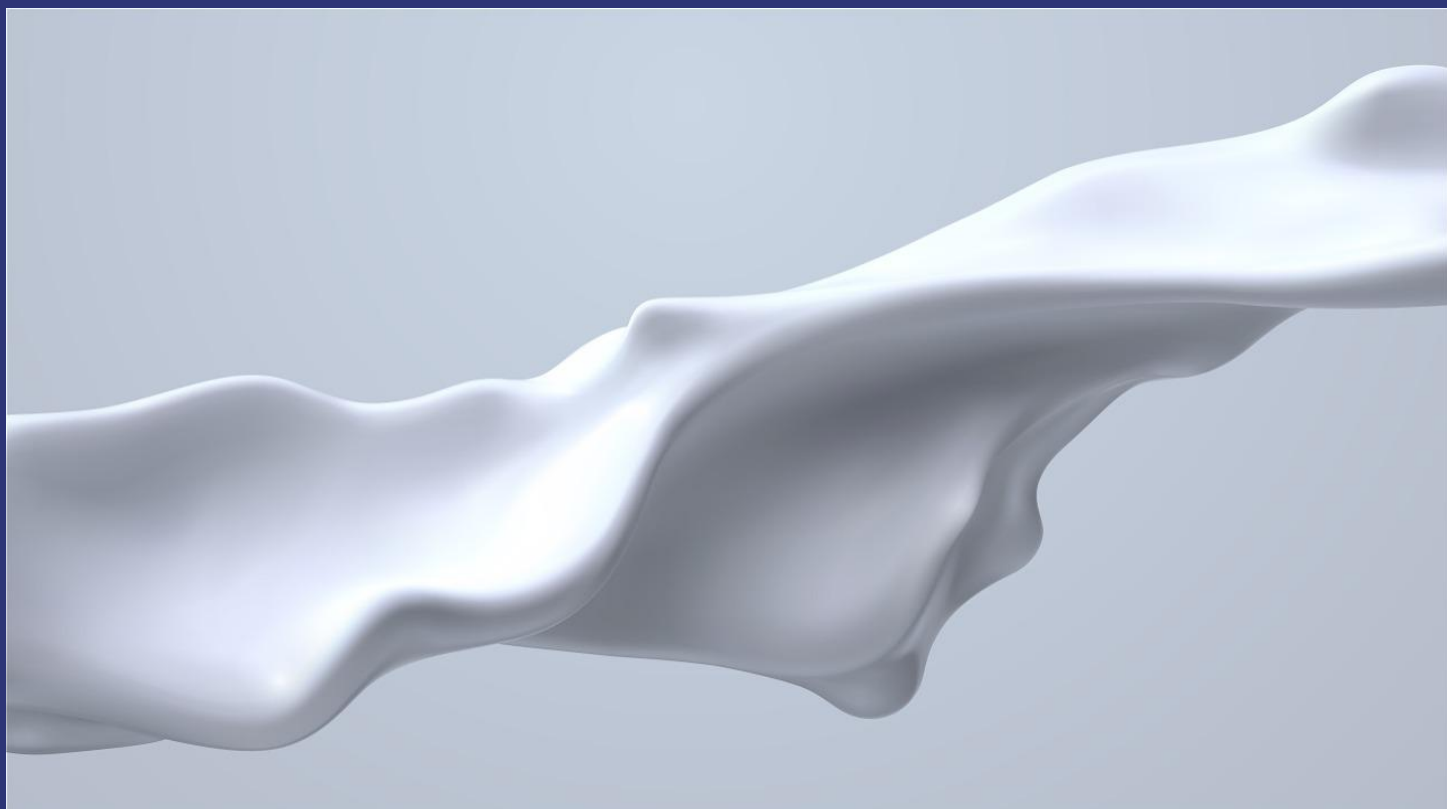


**Environmental
Product
Declaration**

According to EN15804+A2 (+indicators A1)

This declaration is for:
Titanium Dioxide slurry white

Provided by:
Harold Scholz & Co. GmbH



MRPI® registration:
1.1.00992.2025

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

Date of first issue:
18-9-2025
Date of this issue:
18-9-2025
Expiry date:
18-9-2030

COMPANY INFORMATION

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MRPI® REGISTRATION

1.1.00992.2025

DATE OF THIS ISSUE

18-9-2025

EXPIRY DATE

18-9-2030

SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Mr. Anne Kees Jeeninga, Advieslab v.o.f. . The LCA study has been done by Mr. Mando Kort, Mr. Hans Jurie Potgieter, Ecochain Technologies B.V. . 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

Titanium Dioxide slurry white

DECLARED UNIT / FUNCTIONAL UNIT

1000 Mass (kg)

DESCRIPTION OF PRODUCT

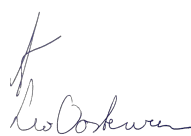
Inorganic, white, liquid pigment for coloring various building materials

VISUAL PRODUCT



MORE INFORMATION

<https://www.harold-scholz.de/produkte?Lieferform=Slurry&lieferform=Slurry&pigment=Titandioxid>

Ing. L. L. Oosterveen MSc. MBA Managing Director MRPI	DEMONSTRATION OF VERIFICATION
	CEN standard EN15804 serves as the core PCR [1]
	Independent verification of the declaration and data according to EN15804+A2 (+indicators A1) Internal: External: X
	Third party verifier: Mr. Anne Kees Jeeninga, Advieslab v.o.f. 
	[1] PCR = Product Category Rules

DETAILED PRODUCT DESCRIPTION

The liquid Titanium dioxide slurry white have the predominant purpose to colour different materials with mainly cementitious, calcitic or alternative binders for the construction industry but also other binders for colour dispersions and coating applications. This EPD covers all products belonging to the considered product group as it represents the worst case scenario of all covered products. This product meets the requirements of the european standard DIN EN 12878.

Materials	Percentage
Pigment	≤ 60%
Water	≥ 37%
Additives	≤ 3%

The product is shipped in IBC containers (bulk). The IBC is modelled based on return/reuse.

Packaging	Weight
IBC container	57,7 kg

SCOPE AND TYPE

Produced in Germany, sold in Europe. Based on datasets from ecoinvent version 3.6, incorporated into Ecochain Helix version 4.3.1. The datasets demonstrate Good to Fair time representativeness for the 2025 reference year, keeping all data age gaps under 10 years. Geographically representativeness for core utilities like water and gas, alongside primary raw materials, provide a Very Good to Good fit for the European market, while minor components utilize Fair global averages. Technical representativeness for the primary pigment materials perfectly align with identical or similar processing technologies (Very Good to Good), while specialized additives rely on Fair generic categories. No data utilized in this study falls into the Poor or Very Poor quality levels, and no specific external EPDs were used for modeling.

This is a specific EPD.

Statement of EPD comparability

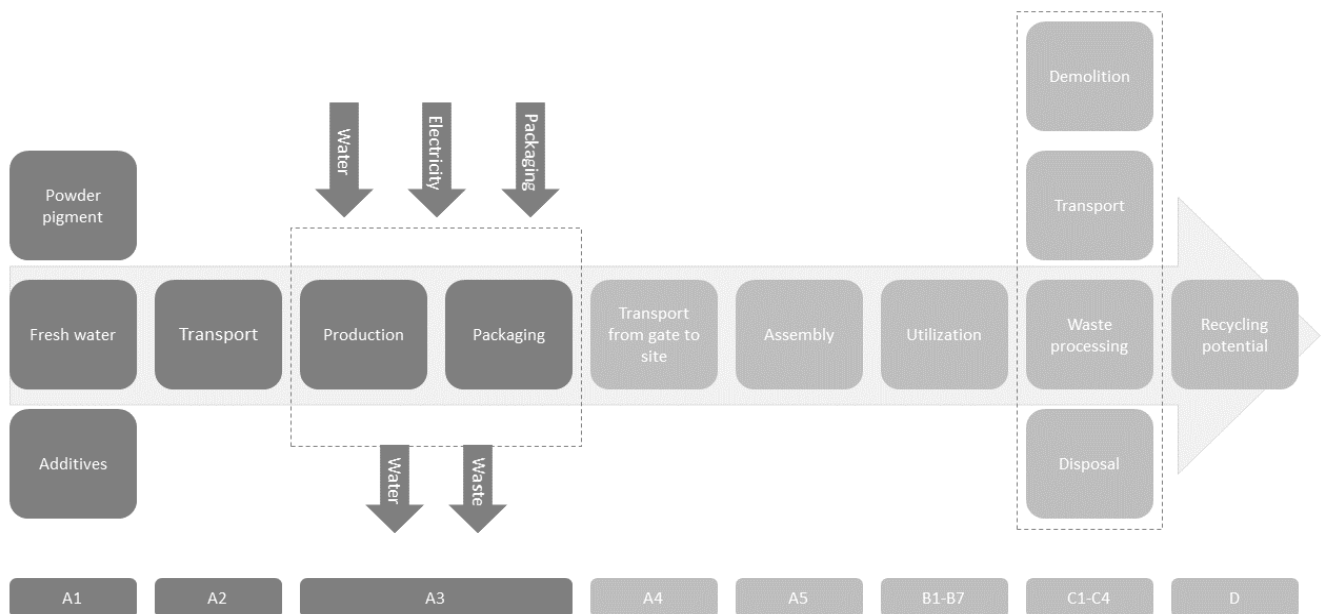
The Set 1 core environmental indicators are calculated using the EF 3.0 characterization factors in alignment with the Ecoinvent v3.6 background database.

The Set 2 additional indicators are calculated using the EF 3.1 characterization factors in alignment with the Ecoinvent v3.9.1 background database where the electricity modelling is based on residual mix.

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	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

X = Modules Assessed

ND = Not Declared



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.	7,52E-02	7,60E-04	9,83E-04	7,70E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADPF	MJ	3,53E+01	2,14E-01	1,24E-01	3,56E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP	kg CO2 eq.	4,57E+03	2,91E+01	2,31E+01	4,62E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ODP	kg CFC11 eq.	5,24E-04	5,40E-06	1,49E-06	5,31E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP	kg ethene eq.	4,50E+00	1,75E-02	1,06E-02	4,52E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AP	kg SO2 eq.	6,47E+01	1,25E-01	1,16E-01	6,50E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP	kg (PO4) 3 eq.	3,17E+00	2,50E-02	1,29E-02	3,20E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Toxicity indicators and ECI (Dutch market)

HTP	kg DCB eq.	1,07E+04	1,25E+01	1,53E+01	1,07E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FAETP	kg DCB eq.	7,25E+02	3,65E-01	3,10E-01	7,26E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAETP	kg DCB eq.	6,30E+05	1,30E+03	1,05E+03	6,32E+05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETP	kg DCB eq.	7,58E+00	4,42E-02	1,05E+00	8,67E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ECI	euro	1,58E+03	3,52E+00	3,33E+00	1,59E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADPF	kg Sb eq.	1,56E+02	1,58E+00	2,04E+00	1,60E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- 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 CO ₂ eq.	4,71E+03	2,94E+01	3,41E+01	4,77E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-fossil kg CO ₂ eq.	4,68E+03	2,94E+01	2,83E+01	4,74E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-biogenic kg CO ₂ eq.	2,52E+01	1,78E-02	4,50E+00	2,97E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-luluc kg CO ₂ eq.	3,23E+00	1,04E-02	1,24E+00	4,48E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ODP kg CFC11 eq.	5,48E-04	6,77E-06	9,77E-07	5,56E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AP mol H ⁺ eq.	7,31E+01	1,67E-01	2,34E-01	7,35E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-fresh water kg P eq.	2,71E-01	2,42E-04	1,46E-03	2,72E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-marine kg N eq.	5,07E+00	5,99E-02	3,29E-02	5,16E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-terrestrial mol N eq.	5,10E+01	6,60E-01	4,21E-01	5,21E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP kg NMVOC eq.	1,91E+01	1,89E-01	1,19E-01	1,94E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP- minerals & metals kg Sb eq.	7,52E-02	7,60E-04	1,56E-03	7,75E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-fossil MJ, net calorific value	6,87E+04	4,51E+02	3,23E+02	6,95E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WDP m ³ world eq. Deprived	4,94E+03	1,38E+00	1,14E+02	5,05E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

GWP-total	=	Global Warming Potential total
GWP-fossil	=	Global Warming Potential fossil fuels
GWP-biogenic	=	Global Warming Potential biogenic total
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	3,00E-04	2,65E-06	2,08E-06	3,04E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
IRP	kBq U235 eq.	1,95E+02	1,97E+00	7,81E-01	1,98E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETP-fw	CTUe	1,56E+05	3,66E+02	1,59E+03	1,58E+05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-c	CTUh	1,20E-05	1,30E-08	4,38E-08	1,21E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-nc	CTUh	1,29E-04	4,36E-07	1,90E-06	1,31E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SQP	-	2,86E+04	3,86E+02	1,15E+03	3,02E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- 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	5,94E-02	1,15E-03	3,86E-03	6,44E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NHWD	kg	2,70E+03	2,79E+01	9,98E+00	2,74E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RWD	kg	1,94E-01	3,07E-03	5,39E-04	1,98E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MFR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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	6,03E+03	6,47E+00	1,29E+03	7,33E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERT	MJ	6,03E+03	6,47E+00	1,29E+03	7,33E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRE	MJ	7,35E+04	4,79E+02	3,44E+02	7,43E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRT	MJ	7,35E+04	4,79E+02	3,44E+02	7,43E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NSRF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FW	m3	1,25E+02	5,10E-02	2,65E+00	1,27E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BCCpa	kg C	0,00E+00	0,00E+00	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

This entails a cradle-to-gate analysis (A1-A3). Technical product information was requested from the manufacturers and the components were modeled based on the technical product information provided by the manufacturers.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

All materials and their transportation distances have been taken into account. For the energy consumption used during production, a mass allocation was done for a full production year. A market-based approach is used to model electricity for foreground manufacturing processes under the direct control of the manufacturer. The power mix is split between onsite solar PV generation (yielding a GWP of 0.003 kg CO₂e/kWh) and green electricity procured from the grid via a contractual instrument (yielding a GWP of 0.0159 kg CO₂e/kWh).

DECLARATION OF SVHC

None of the substances in the product are on the 'Candidate List of Substances of Very High Concern for Authorisation' (SVHC) or do not exceed the European Chemicals Agency threshold.

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] 'NEN-EN 15804: Duurzaamheid van bouwwerken - Milieuverklaringen van producten – Basisregels voor de productgroep bouwproducten', NEN-EN 15804:2012+A2:2019.
- [4] 'ISO 14025: Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures', International Organization for Standardization, ISO14025:2006.
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- [9] Van Harmelen, A.K., Korenromp, R.H.J., Ligthart, T.N., Van Leeuwen, S.M.H., Van Gijlswijk, R.N. (2004) "Toxiciteit heeft z'n prijs. Schaduwprijzen voor (eco-)toxiciteit en uitputting van abiotische grondstoffen binnen DuboCalc", TNO.