



**Environmental
Product
Declaration**

According to ISO14025 and EN15804+A2
(+indicators A1)



This declaration is for:
Soil-ID water glass injection

Provided by:
Soil-ID B.V.



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

MRPI® registration
1.1.00660.2024
date of first issue
10-09-2024
date of this issue
10-09-2024
expiry date
10-09-2029





COMPANY INFORMATION



Marconiweg 4
4131 PD Vianen
Netherlands
076-5498370
Patrick Wolfs
<https://www.soilid.nl/>

PRODUCT

Soil-ID water glass injection

DECLARED UNIT/FUNCTIONAL UNIT

1m2

DESCRIPTION OF PRODUCT

The product consists of an emulsion of water glass, hardener and water which is injected into the soil using lances. This emulsion forms a water-repellent layer after hardening.

MRPI® REGISTRATION

1.1.00660.2024

DATE OF ISSUE

10-09-2024

EXPIRY DATE

10-09-2029

VISUAL PRODUCT



SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Gert-Jan Vroege, Eco Intelligence. The LCA study has been done by Mariëlle van Elderen, SGS Search. The certificate is based on an LCA-dossier according to EN15804+A2 (+indicators A1). It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPD's 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.

MORE INFORMATION

<https://www.soilid.nl/>

PROGRAM OPERATOR

Stichting MRPI®
Kingsfordweg 151
1043 GR
Amsterdam

Ing. L. L. Oosterveen MSc. MBA
Managing Director MRPI

DEMONSTRATION OF VERIFICATION

CEN standard EN15804 serves as the core PCR(a)

Independent verification of the declaration and data according to

ISO14025 and EN15804+A2 (+indicators A1)

internal:

external: x

Third party verifier: Gert-Jan Vroege, Eco Intelligence

[a] PCR = Product Category Rules



DETAILED PRODUCT DESCRIPTION

The water glass injection is used for stabilization and groundwater sealing of soil. This is applicable for making a construction pit. When making a construction pit, sheet piles are initially placed. Then the soil is injected with water glass at the desired depth. After curing, the soil can be excavated.

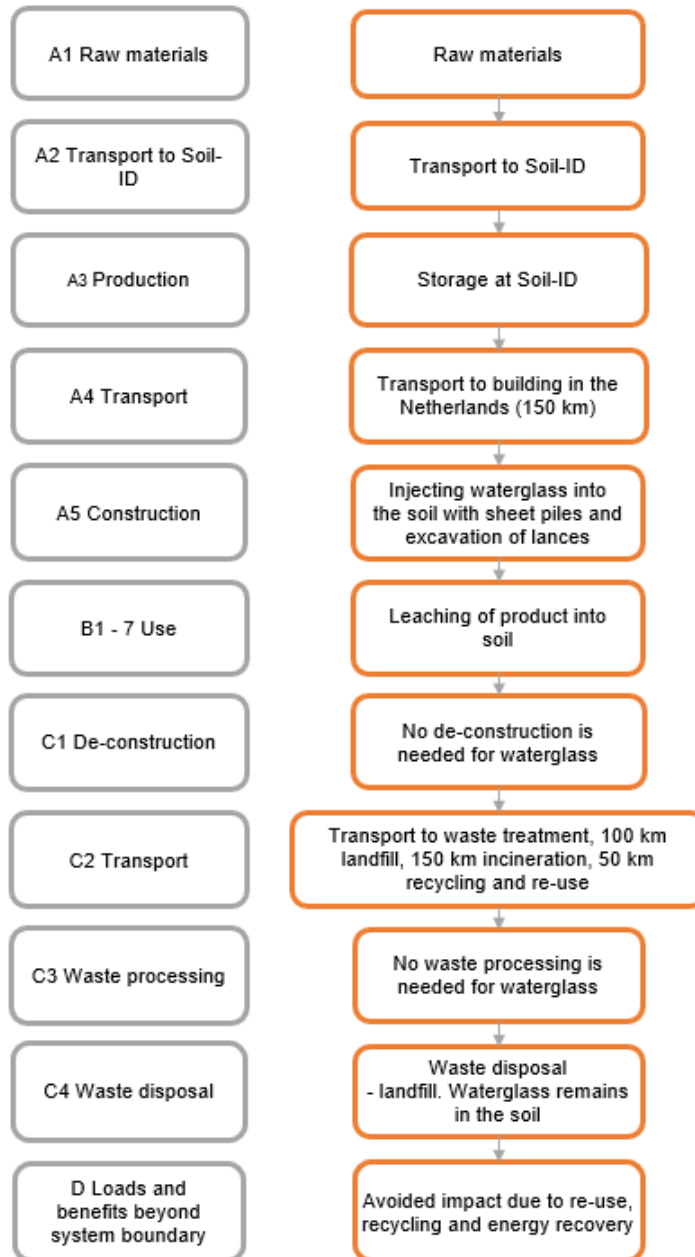
Additional functions: the technique can also be applied to create a waterproof layer around foundations. The function of water glass injection is to protect a building pit from rising groundwater by creating a watertight layer if no natural water-retaining clay layer is present. The water glass remains in the soil and slowly dissolves into a silica gel with salt.

The sheet pile, which is used to place the lances in the soil, lasts for several years. Therefore environmental emissions within the life of the sheet pile are estimated to be negligible relative to the functional unit and are not included in the LCA.

SCOPE AND TYPE

The water glass injection is made in the Netherlands and used in the global market. The type of EPD is Cradle-to-Grave in which all modules are included. SimaPro 9.3.1 was used to perform the LCA calculations. The data used in the module is sourced from Ecoinvent 3.6 and the NMD basisprocessendatabase 3.6. The results are calculated with the exclusion of long-term emissions.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USER 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= Modules Assessed ND= Not Declared																	



REPRESENTATIVENESS

This EPD is representative for water glass injection, produced by Soil-ID in The Netherlands for use in the Dutch market.

ENVIRONMENT IMPACT per functional unit or declared unit (core 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.	2,40 E-03	6,81 E-05	0,00 E+00	2,47 E-03	6,90 E-05	1,55 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	7,71 E-09	-3,12 E-07
ADPF	MJ	1,18 E+03	4,07 E+01	0,00 E+00	1,22 E+03	4,14 E+01	8,36 E+02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,35 E-02	-2,39 E+01
GWP	kg CO2 eq.	7,74 E+01	2,67 E+00	0,00 E+00	8,01 E+01	2,70 E+00	5,96 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	8,27 E-04	-1,24 E+00
ODP	Kg CFC11 eq.	2,11 E-05	4,73 E-07	0,00 E+00	2,16 E-05	4,79 E-07	6,75 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,75 E-10	-1,48 E-07
POCP	Kg ethene eq.	2,92 E-02	1,61 E-03	0,00 E+00	3,08 E-02	1,63 E-03	3,61 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	8,81 E-07	-8,46 E-05
AP	kg SO2 eq.	3,59 E-01	1,17 E-02	0,00 E+00	3,71 E-01	1,19 E-02	2,87 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	6,05 E-06	-6,78 E-04
EP	kg (PO4) 3- eq.	4,73 E-02	2,30 E-03	0,00 E+00	4,96 E-02	2,33 E-03	6,42 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,17 E-06	-1,02 E-04

Toxicity indicators for Dutch market

HTP	kg DCB-Eq	4,87 E+01	1,12 E+00	0,00 E+00	4,98 E+01	1,14 E+00	1,47 E+01	2,8 5E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	3,74 E-04	-3,86 E-02
FAETP	kg DCB-Eq	7,07 E-01	3,28 E-02	0,00 E+00	7,40 E-01	3,32 E-02	2,78 E-01	3,82 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	8,87 E-06	-1,02 E-03
MAETP	kg DCB-Eq	3,25 E+03	1,18 E+02	0,00 E+00	3,37 E+03	1,19 E+02	9,51 E+02	3,93 E+02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	3,17 E-02	-3,30 E+00
TETP	kg DCB-Eq	1,85 E-01	3,97 E-03	0,00 E+00	1,89 E-01	4,02 E-03	1,50 E-01	5,71 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	9,39 E-07	-2,54 E-03
ECI	euro	1,06 E+01	3,20 E-01	0,00 E+00	1,09 E+01	3,30 E-01	6,28 E+00	8,00 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	-7,00 E-02
ADPF	kg Sb eq.	5,68 E-01	1,96 E-02	0,00 E+00	5,88 E-01	1,99 E-02	4,02 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,13 E-05	-1,15 E-02

- 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.]

ENVIRONMENT 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.	7,87 E+01	2,69 E+00	0,00 E+00	8,14 E+01	2,73 E+00	6,06 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	8,44 E-04	-1,26 E+00
GWP-fossil	kg CO2 eq.	7,85 E+01	2,69 E+00	0,00 E+00	8,12 E+01	2,72 E+00	6,03 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	8,42 E-04	-1,26 E+00
GWP-biogenic	kg CO2 eq.	-4,87 E-02	1,24 E-03	0,00 E+00	-4,75 E-02	1,26 E-03	2,92 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,67 E-06	-8,39 E-04
GWP-luluc)	kg CO2 eq.	2,10 E-01	9,85 E-04	0,00 E+00	2,11 E-01	9,98 E-04	1,02 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,35 E-07	-7,24 E-05
ODP	kg CFC11 eq.	2,15 E-05	5,93 E-07	0,00 E+00	2,21 E-05	6,01 E-07	8,18 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	3,47 E-10	-1,68 E-07
AP	mol H+ eq.	4,33 E-01	1,56 E-02	0,00 E+00	4,49 E-01	1,58 E-02	3,96 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	8,00 E-06	-8,81 E-04
EP-freshwater	kg PO4 eq.	3,44 E-03	2,71 E-05	0,00 E+00	3,47 E-03	2,75 E-05	1,59 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	9,44 E-09	2,86 E-07
EP-marine	kg N eq.	8,96 E-02	5,49 E-03	0,00 E+00	9,51 E-02	5,57 E-03	1,61 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,75 E-06	-2,86 E-04
EP-terrestrial	mol N eq.	8,01 E-01	6,06 E-02	0,00 E+00	8,62 E-01	6,14 E-02	1,78 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	3,03 E-05	-3,11 E-03
POCP	kg NMVOC eq.	2,24 E-01	1,73 E-02	0,00 E+00	2,41 E-01	1,75 E-02	4,86 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	8,81 E-06	-8,90 E-04
ADP-minerals & metals	kg Sb eq.	2,40 E-03	6,81 E-05	0,00 E+00	2,47 E-03	6,90 E-05	1,55 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	7,71 E-09	-3,12 E-07
ADP-fossil	MJ, net calorific value	1,08 E+03	4,06 E+01	0,00 E+00	1,12 E+03	4,11 E+01	7,81 E+02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,36 E-02	-2,14 E+01
WDP	m3 world eq. Deprived	-1,76 E+02	1,45 E-01	0,00 E+00	-1,76 E+02	1,47 E-01	3,22 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,06 E-03	-8,57 E-02

- 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.

ENVIRONMENT 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	4,02 E-05	2,41 E-07	0,00 E+00	4,04 E-05	2,45 E-07	9,06 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,55 E-10	-2,46 E-10
IRP	kBq U235 eq.	3,72 E+00	1,70 E-01	0,00 E+00	3,89 E+00	1,72 E-01	2,59 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	9,66 E-05	-7,82 E-03
ETP-fw	CTUe	1,89 E+03	3,62 E+01	0,00 E+00	1,93 E+03	3,66 E+01	6,12 E+02	1,15 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,53 E-02	3,42 E-01
HTP-c	CTUh	6,74 E-08	1,17 E-09	0,00 E+00	6,86 E-08	1,19 E-09	1,54 E-08	1,59 E-08	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	3,53 E-13	-7,60 E-11
HTP-nc	CTUh	1,66 E-06	3,95 E-08	0,00 E+00	1,70 E-06	4,01 E-08	4,25 E-07	1,12 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,09 E-11	-1,04 E-08
SQP	----	2,96 E+02	3,52 E+01	0,00 E+00	3,31 E+02	3,56 E+01	1,27 E+02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	4,94 E-02	-2,39 E-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 [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 / A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	1,54 E-03	1,03 E-04	0,00 E+00	1,64 E-03	1,04 E-04	1,47 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	3,52 E-08	-2,18 E-05
NHWD	kg	1,31 E+01	2,57 E+00	0,00 E+00	1,57 E+01	2,61 E+00	2,51 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,60 E-01	-4,07 E-03
RWD	kg	3,48 E-03	2,66 E-04	0,00 E+00	3,75 E-03	2,70 E-04	3,76 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,55 E-07	-1,07 E-05
CRU	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
MFR	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
MER	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	7,36 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
EEE	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	5,63 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
ETE	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	9,69 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+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

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

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1,11 E+02	5,08 E-01	0,00 E+00	1,12 E+02	5,14 E-01	3,90 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,90 E-04	-5,60 E-02
PERM	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
PERT	MJ	1,11 E+02	5,08 E-01	0,00 E+00	1,12 E+02	5,14 E-01	3,90 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,90 E-04	-5,60 E-02
PENRE	MJ	1,12 E+03	4,31 E+01	0,00 E+00	1,16 E+03	4,36 E+01	8,32 E+02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,50 E-02	-2,38 E+01
PENRM	MJ	3,91 E+01	0,00 E+00	0,00 E+00	3,91 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
PENRT	MJ	1,16 E+03	4,31 E+01	0,00 E+00	1,20 E+03	4,36 E+01	8,32 E+02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,50 E-02	-2,38 E+01
SM	kg	3,41 E-02	0,00 E+00	0,00 E+00	3,41 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
RSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
NRSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
FW	m3	-3,44 E+00	4,94 E-03	0,00 E+00	-3,44 E+00	5,00 E-03	2,31 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,52 E-05	-1,08 E-03

- 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

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

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

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



CALCULATION RULES

Cut-off rules: The following processes are considered below cutoff:

- Maintenance and the use of auxiliary materials and equipment, with exception of such processes that are included in the Ecoinvent background processes.
- Capital goods and infrastructure processes, with exception of such processes that are included in the Ecoinvent background processes. Only the processes considered below cut-off are excluded from the study. No additional processes are excluded.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

A1 - Extraction of raw materials and processing of intermediate products: This module considers the extraction and processing of all raw materials and energy which occur upstream to the Soil-ID manufacturing process, as well as waste processing up to the end-of waste state. This includes manufacturing of intermediate products such as the water glass and hardener.

A2 - Transport to production location: This includes the transport distance of the raw materials and intermediate products to the manufacturing facility via road.

A3 - Production: This module is not applicable since nothing happens in the production stage of the water glass injection.

A4 Transport: The results for A4 are given for a transport scenario within the Netherlands (150 km).

A5 – Construction: This includes machines used for injection of waterglass in the soil. In addition to the injection of the waterglass, the lances used to distribute the waterglass leaves the system in this phase. The waste processing up to the end-of waste state is included in this phase for the lances.

B - Use: After injecting the water glass into the soil, leaching occurs. The leaching of waterglass is modelled in module.

C1-C4 – De-construction, transport to waste processing & waste processing and disposal: No de-construction or transport for waste processing is needed because the waterglass remains in the soil. The waterglass remaining in the soil is treated as landfill in the LCA.

D - Net benefits and loads beyond the system boundary: Benefits from recycling and energy recovery from incineration of the lances and loads from the loss of secondary material are declared in this module.

DECLARATION OF SVHC

The water glass injection does not contain any substances of very high concern (SVHC).

REFERENCES

ISO, 2006. "Environmental management. Life cycle assessment - Principles and framework". ISO 14040:2006 and Requirements and Guidelines". ISO 14044:2006;.

ISO/TR 14025, "Environmental labels and declarations – Type III environmental declarations", ISO/TR 14025:2000;.

"EN 15804+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products".

"Bepalingsmethode Milieuprestatie Bouwwerken versie 1.1, maart 2022".

REMARKS

None.