Environmental Product Declaration (EPD)
According to ISO 14025 and EN 15804

Hz Acoustic plaster 03

Registration number:	EPD-Kiwa-EE-175063-EN
Issue date:	04-12-2024
Valid until:	04-12-2029
Declaration owner:	Strikolith B.V.
Publisher:	Kiwa-Ecobility Experts
Programme operator:	Kiwa-Ecobility Experts
Status:	verified

1 General information

1.1 PRODUCT

Hz Acoustic plaster 03

1.2 REGISTRATION NUMBER

EPD-Kiwa-EE-175063-EN

1.3 VALIDITY

Issue date: 04-12-2024

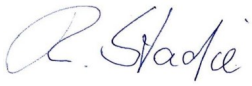
Valid until: 04-12-2029

1.4 PROGRAMME OPERATOR

Kiwa-Ecobility Experts
Wattstraße 11-13
13355 Berlin
DE

Raoul Mancke

(Head of programme operations, Kiwa-Ecobility Experts)



Dr. Ronny Stadie

(Verification body, Kiwa-Ecobility Experts)

1.5 OWNER OF THE DECLARATION

Manufacturer: Strikolith B.V.

Address: Lissenveld 9, 4941 VK Raamsdonksveer, Netherlands

E-mail: infocenter@strikolith.com

Website: https://www.strikolith.com/

Production location: Strikolith B.V.

Address production location: Lissenveld 9-13, 4941VK Raamsdonksveer, Netherlands

1.6 VERIFICATION OF THE DECLARATION

The independent verification is in accordance with the ISO 14025:2011. The LCA is in compliance with ISO 14040:2006 and ISO 14044:2006. The EN 15804:2012+A2:2019 serves as the core PCR.

☐ Internal ☒ External

Kripanshi Gupta, Kiwa GmbH

1.7 STATEMENTS

The owner of this EPD shall be liable for the underlying information and evidence. The programme operator Kiwa-Ecobility Experts shall not be liable with respect to manufacturer data, life cycle assessment data and evidence.

1.8 PRODUCT CATEGORY RULES

Kiwa-Ecobility Experts (Kiwa-EE) – General Product Category Rules (2022-02-14)

Core PCR used: EN 15804:2012+A2:2019/AC:2021 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

1.9 COMPARABILITY

In principle, a comparison or assessment of the environmental impacts of different products is only possible if they have been prepared in accordance with EN 15804+A2. For the evaluation of the comparability, the following aspects have to be considered in particular: PCR used, functional or declared unit, geographical reference, the definition of the system boundary, declared modules, data selection (primary or secondary data,

1 General information

background database, data quality), scenarios used for use and disposal phases, and the life cycle inventory (data collection, calculation methods, allocations, validity period). PCRs and general program instructions of different EPD program operators may differ. Comparability needs to be evaluated. For further guidance, see EN 15804+A2 (5.3 Comparability of EPD for construction products) and ISO 14025 (6.7.2 Requirements for comparability).

1.10 CALCULATION BASIS

LCA method R<THINK: Ecobility Experts | EN15804+A2

LCA software*: Simapro 9.1

Characterization method: EN 15804 +A2 Method v1.0

LCA database profiles: EcoInvent version 3.6

Version database: v3.17 (2024-05-22)

** Simapro is used for calculating the characterized results of the Environmental profiles within R<THINK.*

1.11 LCA BACKGROUND REPORT

This EPD is generated on the basis of the LCA background report 'Hz Acoustic plaster 03' with the calculation identifier ReTHiNK-75063.

2 Product

2.1 PRODUCT DESCRIPTION

The Hz acoustic plaster is a ready-to-use cellulose fibre product with excellent noise-reducing properties.

It is a joint-free and seamless plaster with a smooth texture.

The Hz acoustic plaster is applied on panels of foam, gypsum, glass wool or glass granulates.

The acoustic plaster can be tinted in most colours.

2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

The Hz Acoustic plaster 03 is a ready to use cellulose fiber plaster with excellent noise-reducing properties to apply on the ceiling.

2.3 REFERENCE SERVICE LIFE

RSL PRODUCT

The Hz Acoustic plaster is expected to last the service life of a building. RSL is dependent on the in-use conditions.

RSL is on average 50 years according to *Levensduur van bouwproducten, methoden voor referentiewaarden (Lifespan of construction products. Method for reference values.), SBR, d.d. december 2011.*

The RSL is not considered in this EPD, since the use stage is not declared.

USED RSL (YR) IN THIS LCA CALCULATION:

50

2.4 TECHNICAL DATA

Package size: 15 kg bucket.

Weight of the product: 15 kg

Consumption: 4-5 kg/m2

pH: 9-10

Working time: 4-5 h

Drying time: 1-2 days at 20 °C and max 60 % relative humidity (RH).

Colour: white and can be tinted

2.5 SUBSTANCES OF VERY HIGH CONCERN

The product does not contain any substances listed in the "Candidate List of Substances" of Very High Concern (SVHC) for authorisation" exceeding 0.1 % of the weight of the product.

2.6 DESCRIPTION PRODUCTION PROCESS

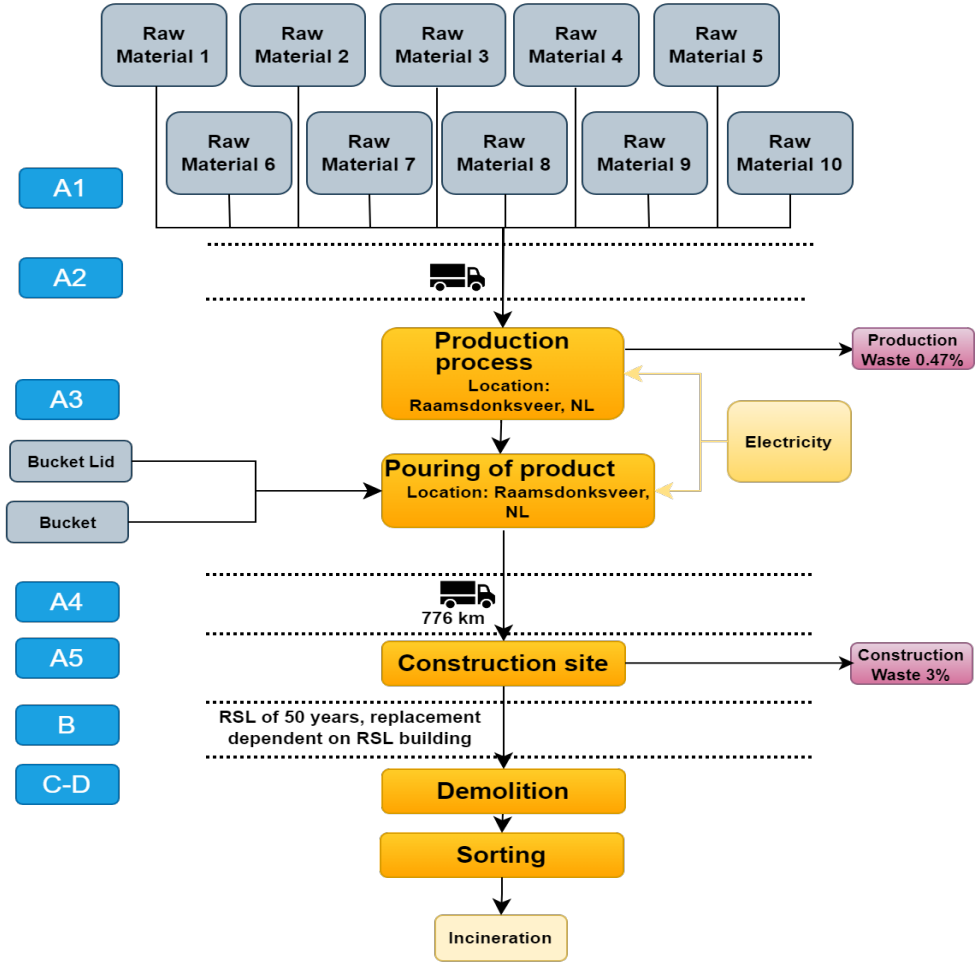
Raw materials are delivered by truck at Strikolith in the Netherlands.

Depending on the raw material, it can be delivered in a bulk truck (material blown into a silo; can be fillers in powder form: dolomite or dispersions - liquid form), in Intermediate Bulk Container (IBC) / barrels (liquids) or in pallets.

2 Product

Raw materials stored in silo's (delivered by bulk trucks) are dosed automatically in a weighing unit and from there to the mixing vessel. Other raw materials (liquids or powders) are dosed manually.

The raw materials are dosed according to the recipe information and mixed during a predefined time. After that, the product is evacuated from the mixer vessel into buckets.



2.7 CONSTRUCTION DESCRIPTION

The plaster is applied with a 230-volt spray engine. The spraying is done two times, with a time consumption of 30 seconds per m2. The required equipment is a 230-V spray engine and a 2 x 230-volt compressor. The required energy consumption is less than 0.1 kw pr m2.

3 Calculation rules

3.1 DECLARED UNIT

kg (construction material)

One kilogram of construction material.

Reference unit: kilogram (kg)

3.2 CONVERSION FACTORS

Description	Value	Unit
Reference unit	1	kg
Conversion factor to 1 kg	1.000000	kg

3.3 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with options EPD. The life cycle stages included are as shown below:

(X = module included, ND = module not declared)

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

The modules of the EN15804 contain the following:

Module A1 = Raw material supply	Module B5 = Refurbishment
Module A2 = Transport	Module B6 = Operational energy use
Module A3 = Manufacturing	Module B7 = Operational water use
Module A4 = Transport	Module C1 = De-construction / Demolition
Module A5 = Construction - Installation process	Module C2 = Transport
Module B1 = Use	Module C3 = Waste Processing
Module B2 = Maintenance	Module C4 = Disposal
Module B3 = Repair	Module D = Benefits and loads beyond the product system boundaries
Module B4 = Replacement	

3.4 REPRESENTATIVENESS

This LCA calculation is representative for the Hz Acoustic plaster 03, a product of Strikolith B.V. The results of this LCA are representative for European Union.

3.5 CUT-OFF CRITERIA

Product stage (A1-A3)

All input flows (e.g. raw materials, transportation, energy use, packaging, etc.) and output flows (e.g. production waste) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5 % of energy use and mass.

3 Calculation rules

Construction process stage (A4-A5)

All input flows (e.g. transportation to the construction site, additional raw material use for construction, installation energy (use)of energy use for assembly , etc.) and output flows (e.g. construction waste, packaging waste, etc.) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5 % of energy use and mass.

Use stage (B1-B7)

Modules in this stage are not declared.

End of life stage (C1-C4)

All input flows (e.g. energy use for demolition or disassembly, transport to waste processing, etc.) and output flows (e.g. end-of-life waste processing of the product, etc.) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5 % of energy use and mass.

The prescribed waste scenarios from the NMD have been used for the various raw materials in the product.

Benefits and loads beyond the system boundary (Module D)

All benefits and loads beyond the system boundary resulting from reusable products, recyclable materials and/or useful energy carriers leaving the product system are considered in this LCA.

3.6 ALLOCATION

As different products are done in the plant, the energy was allocated to the Hz Acoustic plaster 03 according to the total energy consumption during the reference year, the total mass of products manufactured and the total mass of the Hz Acoustic plaster 03 manufactured in the reference year. In all other instances, allocation was avoided.

3.7 DATA COLLECTION & REFERENCE PERIOD

Average product raw materials, composition, production waste and energy use are based on the reference year from 1st January 2023 to 31st December 2023.

3.8 ESTIMATES AND ASSUMPTIONS

This LCA study is conducted following all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs.

The study was performed following the so-called from-cradle-to-gate approach with options, modules C1-C4, and module D and additional modules A4 and A5.

All estimations and assumptions are given below:

The waste scenarios for the production waste and end-of-life were determined based on NMD ID 2 which relates to finishes (adhered to wood, plastic, metal). According to this standard, the waste treatment process comprises 100 % incineration.

The NMD (National Environmental Database) standard scenarios are used due to the lack of scenarios in Denmark. In terms of geographical location, we assume that the NMD standard scenarios would also be representative of Denmark.

3.9 DATA QUALITY

All process-specific data was collected from 01.01.2023 until 31.12.2023 and is therefore up-to-date. The data is based on the annual average. To ensure comparability of the results, only consistent background data of the Ecoinvent 3.6 (2019) database was used in the LCA. The database is regularly reviewed and thus complies with the requirements of EN 15804 (background data not older than 10 years). All datasets contained in the Ecoinvent database are documented and can be viewed in the online Ecoinvent documentation. The used EcoInvent datasets are included in the R<THiNK EPD app which was used to model the LCA calculation.

The included scenarios are currently in use and are representative of one of the most likely scenario alternatives. According to the criteria of the "UN Environmental Global Guidance on LCA database development" mentioned in EN 15804+A2, the data quality for all three representativeness categories (geographical, technical and time) can be described as good.

3.10 POWER MIX

The electricity purchased by Strikolith is 100 % Hydro, a market approach was used.
The Global warming potential (GWP-total) value for the specific electricity mix used - *NIBE Electricity, low voltage {NL}| market for | Alloc Rec, U, 100 % hydro, run-of-river-* for A1-A3 is 0.044288 in kg CO2 eq.

4 Scenarios and additional technical information

4.1 TRANSPORT TO CONSTRUCTION SITE (A4)

For the transport from production place to assembly/user, the following scenario is assumed for module A4 of this EPD.

	Value and unit
Vehicle type used for transport	Lorry (Truck), unspecified (default) | market group for (GLO)
Fuel type and consumption of vehicle	not available
Distance	1035 km
Capacity utilisation (including empty returns)	50 % (loaded up and return empty)
Bulk density of transported products	inapplicable
Volume capacity utilisation factor	1

4.2 ASSEMBLY (A5)

The following information describes the scenarios for flows entering the system and flows leaving the system at module A5.

FLOWS ENTERING THE SYSTEM

For flows entering the system at A5 the following scenario is assumed for module A5.

	Value	Unit
Energy consumption for installation/assembly		
Electricity (DK) - low voltage (max 1kV)	0.02	kWh

FLOWS LEAVING THE SYSTEM

The following output flows leaving the system at module A5 are assumed.

Description	Value	Unit
Output materials as result of loss during construction	3	%
Output materials as result of waste processing of materials used for installation/assembly at the building site	0.000	kg
Output materials as result of waste processing of used packaging	0.049	kg

4.3 DE-CONSTRUCTION, DEMOLITION (C1)

No inputs are needed for the product at the de-construction / demolition phase

4 Scenarios and additional technical information

4.4 TRANSPORT END-OF-LIFE (C2)

The following distances and transport conveyance are assumed for transportation during end of life for the different types of waste processing.

Waste Scenario	Transport conveyance	Not removed (stays in work) [km]	Landfill [km]	Incineration [km]	Recycling [km]	Re-use [km]
waste not applicable or evaporated (empty scenario) (NMD ID 26)	Lorry (Truck), unspecified (default) | market group for (GLO)	0	0	0	0	0
finishes (adhered to wood, plastic, metal) (NMD ID 2)	Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	0
finishes (adhered to wood, plastic, metal) | NMD ID 2 Cellulose fibre	Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	0

The transport conveyance(s) used in the scenario(s) for transport during end of life has the following characteristics.

	Value and unit
Vehicle type used for transport	Lorry (Truck), unspecified (default) | market group for (GLO)
Fuel type and consumption of vehicle	not available
Capacity utilisation (including empty returns)	50 % (loaded up and return empty)
Bulk density of transported products	inapplicable
Volume capacity utilisation factor	1

4.5 END OF LIFE (C3, C4)

The scenario(s) assumed for end of life of the product are given in the following tables. First the assumed percentages per type of waste processing are displayed, followed by the assumed amounts.

Waste Scenario	Region	Not removed (stays in work) [%]	Landfill [%]	Incineration [%]	Recycling [%]	Re-use [%]
waste not applicable or evaporated (empty scenario) (NMD ID 26)	NL	0	0	0	0	0
finishes (adhered to wood, plastic, metal) (NMD ID 2)	NL	0	0	100	0	0
finishes (adhered to wood, plastic, metal) | NMD ID 2 Cellulose fibre	NL	0	0	100	0	0

4 Scenarios and additional technical information

Waste Scenario	Not removed (stays in work) [kg]	Landfill [kg]	Incineration [kg]	Recycling [kg]	Re-use [kg]
finishes (adhered to wood, plastic, metal) (NMD ID 2)	0.000	0.000	0.277	0.000	0.000
finishes (adhered to wood, plastic, metal) | NMD ID 2 Cellulose fibre	0.000	0.000	0.046	0.000	0.000
Total	**0.000**	**0.000**	**0.323**	**0.000**	**0.000**

4.6 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY (D)

The presented Benefits and loads beyond the system boundary in this EPD are based on the following calculated Net output flows in kilograms and Energy recovery displayed in MJ Lower Heating Value.

Waste Scenario	Net output flow [kg]	Energy recovery [MJ]
waste not applicable or evaporated (empty scenario) (NMD ID 26)	0.000	0.000
finishes (adhered to wood, plastic, metal) (NMD ID 2)	0.000	0.102
finishes (adhered to wood, plastic, metal) | NMD ID 2 Cellulose fibre	0.000	0.570
Total	**0.000**	**0.673**

5 Results

For the impact assessment, the characterization factors of the LCIA method EN 15804 +A2 Method v1.0 are used. Long-term emissions (>100 years) are not considered in the impact assessment. The results of the impact assessment are only relative statements that do not make any statements about end-points of the impact categories, exceedance of threshold values, safety margins or risks. The following tables show the results of the indicators of the impact assessment, of the use of resources as well as of waste and other output flows.

5.1 ENVIRONMENTAL IMPACT INDICATORS PER KILOGRAM

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
AP	mol H+ eqv.	2.13E-3	1.19E-4	2.06E-4	2.45E-3	8.50E-4	1.87E-4	0.00E+0	3.80E-5	7.29E-5	0.00E+0	1.34E-4
GWP-total	kg CO2 eqv.	2.96E-1	2.05E-2	4.50E-2	3.62E-1	1.47E-1	1.62E-1	0.00E+0	6.55E-3	7.40E-1	0.00E+0	-5.12E-3
GWP-b	kg CO2 eqv.	-6.97E-2	9.47E-6	-2.30E-3	-7.20E-2	6.77E-5	4.75E-4	0.00E+0	3.02E-6	7.75E-2	0.00E+0	4.06E-4
GWP-f	kg CO2 eqv.	3.66E-1	2.05E-2	4.72E-2	4.33E-1	1.47E-1	1.62E-1	0.00E+0	6.55E-3	6.63E-1	0.00E+0	-5.52E-3
GWP-luluc	kg CO2 eqv.	2.06E-4	7.51E-6	4.37E-5	2.57E-4	5.37E-5	2.81E-5	0.00E+0	2.40E-6	1.30E-6	0.00E+0	-6.70E-6
EP-m	kg N eqv.	2.97E-4	4.19E-5	3.20E-5	3.71E-4	3.00E-4	4.24E-5	0.00E+0	1.34E-5	3.28E-5	0.00E+0	4.62E-6
EP-fw	kg P eq	1.24E-5	2.07E-7	2.15E-6	1.48E-5	1.48E-6	1.40E-6	0.00E+0	6.60E-8	8.17E-8	0.00E+0	9.83E-7
EP-T	mol N eqv.	3.15E-3	4.62E-4	3.74E-4	3.99E-3	3.30E-3	4.79E-4	0.00E+0	1.47E-4	3.66E-4	0.00E+0	-6.88E-5
ODP	kg CFC 11 eqv.	3.88E-8	4.53E-9	3.24E-9	4.66E-8	3.24E-8	6.42E-9	0.00E+0	1.44E-9	6.67E-10	0.00E+0	-9.26E-9
POCP	kg NMVOC eqv.	9.66E-4	1.32E-4	1.32E-4	1.23E-3	9.43E-4	1.32E-4	0.00E+0	4.21E-5	9.14E-5	0.00E+0	1.21E-4
ADP-f	MJ	4.24E+0	3.09E-1	1.13E+0	5.67E+0	2.21E+0	4.32E-1	0.00E+0	9.87E-2	6.09E-2	0.00E+0	1.37E+0
ADP-mm	kg Sb-eqv.	4.17E-6	5.20E-7	5.66E-7	5.26E-6	3.71E-6	5.07E-7	0.00E+0	1.66E-7	5.40E-8	0.00E+0	6.40E-7
WDP		1.47E-1	1.11E-3	3.51E-2	1.83E-1	7.91E-3	1.27E-2	0.00E+0	3.53E-4	-2.60E-3	0.00E+0	5.63E-2

AP=Acidification (AP) | **GWP-total**=Global warming potential (GWP-total) | **GWP-b**=Global warming potential - Biogenic (GWP-b) | **GWP-f**=Global warming potential - Fossil (GWP-f) | **GWP-luluc**=Global warming potential - Land use and land use change (GWP-luluc) | **EP-m**=Eutrophication marine (EP-m) | **EP-fw**=Eutrophication, freshwater (EP-fw) | **EP-T**=Eutrophication, terrestrial (EP-T) | **ODP**=Ozone depletion (ODP) | **POCP**=Photochemical ozone formation - human health (POCP) | **ADP-f**=Resource use, fossils (ADP-f) | **ADP-mm**=Resource use, minerals and metals (ADP-mm) | **WDP**=Water use (WDP)

5 Results

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
	m3 world eqv.											

AP=Acidification (AP) | **GWP-total**=Global warming potential (GWP-total) | **GWP-b**=Global warming potential - Biogenic (GWP-b) | **GWP-f**=Global warming potential - Fossil (GWP-f) | **GWP-luluc**=Global warming potential - Land use and land use change (GWP-luluc) | **EP-m**=Eutrophication marine (EP-m) | **EP-fw**=Eutrophication, freshwater (EP-fw) | **EP-T**=Eutrophication, terrestrial (EP-T) | **ODP**=Ozone depletion (ODP) | **POCP**=Photochemical ozone formation - human health (POCP) | **ADP-f**=Resource use, fossils (ADP-f) | **ADP-mm**=Resource use, minerals and metals (ADP-mm) | **WDP**=Water use (WDP)

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
ETP-fw	CTUe	8.97E+0	2.76E-1	4.92E-1	9.74E+0	1.97E+0	1.98E+0	0.00E+0	8.80E-2	1.89E-1	0.00E+0	-4.19E-1
PM	disease incidence	1.59E-8	1.84E-9	1.32E-9	1.91E-8	1.32E-8	1.64E-9	0.00E+0	5.89E-10	5.85E-10	0.00E+0	1.05E-9
HTP-c	CTUh	6.77E-10	8.94E-12	2.58E-11	7.12E-10	6.39E-11	7.46E-11	0.00E+0	2.86E-12	8.64E-10	0.00E+0	6.51E-12
HTP-nc	CTUh	1.67E-8	3.02E-10	4.88E-10	1.75E-8	2.16E-9	1.24E-9	0.00E+0	9.63E-11	2.64E-9	0.00E+0	8.14E-11
IR	kBq U235 eqv.	1.55E-2	1.30E-3	3.42E-3	2.02E-2	9.26E-3	1.75E-3	0.00E+0	4.14E-4	1.30E-4	0.00E+0	1.28E-3
SQP	Pt	2.49E+0	2.68E-1	3.96E-1	3.15E+0	1.92E+0	3.46E-1	0.00E+0	8.56E-2	2.46E-2	0.00E+0	-2.98E+0

ETP-fw=Ecotoxicity, freshwater (ETP-fw) | **PM**=Particulate Matter (PM) | **HTP-c**=Human toxicity, cancer (HTP-c) | **HTP-nc**=Human toxicity, non-cancer (HTP-nc) | **IR**=Ionising radiation, human health (IR) | **SQP**=Land use (SQP)

CLASSIFICATION OF DISCLAIMERS TO THE DECLARATION OF CORE AND ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

ILCD classification	Indicator	Disclaimer
ILCD type / level 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD type / level 2	Acidification potential, Accumulated Exceedance (AP)	None
		None

5 Results

ILCD classification	Indicator	Disclaimer
ILCD type / level 3	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	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 experienced with the indicator.

5.2 INDICATORS DESCRIBING RESOURCE USE AND ENVIRONMENTAL INFORMATION BASED ON LIFE CYCLE INVENTORY (LCI)

PARAMETERS DESCRIBING RESOURCE USE

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	5.41E-1	3.87E-3	2.36E-1	7.81E-1	2.77E-2	1.08E-1	0.00E+0	1.24E-3	1.79E-3	0.00E+0	-5.95E-1
PERM	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

PERE=renewable primary energy ex. raw materials | **PERM**=renewable primary energy used as raw materials | **PERT**=renewable primary energy total | **PENRE**=non-renewable primary energy ex. raw materials | **PENRM**=non-renewable primary energy used as raw materials | **PENRT**=non-renewable primary energy total | **SM**=use of secondary material | **RSF**=use of renewable secondary fuels | **NRSF**=use of non-renewable secondary fuels | **FW**=use of net fresh water

5 Results

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
PERT	MJ	5.41E-1	3.87E-3	2.36E-1	7.81E-1	2.77E-2	1.08E-1	0.00E+0	1.24E-3	1.79E-3	0.00E+0	-5.95E-1
PENRE	MJ	4.42E+0	3.28E-1	-8.98E-1	3.85E+0	2.35E+0	3.94E-1	0.00E+0	1.05E-1	6.60E-2	0.00E+0	-2.30E-1
PENRM	MJ	1.02E-1	0.00E+0	2.10E+0	2.20E+0	0.00E+0	6.60E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.65E+0
PENRT	MJ	4.52E+0	3.28E-1	1.20E+0	6.05E+0	2.35E+0	4.60E-1	0.00E+0	1.05E-1	6.60E-2	0.00E+0	1.42E+0
SM	Kg	0.00E+0	0.00E+0	4.01E-2	4.01E-2	0.00E+0	1.20E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	M3	4.23E-3	3.77E-5	8.92E-4	5.16E-3	2.69E-4	6.18E-4	0.00E+0	1.20E-5	7.35E-5	0.00E+0	8.57E-4

PERE=renewable primary energy ex. raw materials | **PERM**=renewable primary energy used as raw materials | **PERT**=renewable primary energy total | **PENRE**=non-renewable primary energy ex. raw materials | **PENRM**=non-renewable primary energy used as raw materials | **PENRT**=non-renewable primary energy total | **SM**=use of secondary material | **RSF**=use of renewable secondary fuels | **NRSF**=use of non-renewable secondary fuels | **FW**=use of net fresh water

OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	Kg	3.71E-6	7.84E-7	7.51E-7	5.25E-6	5.60E-6	6.50E-7	0.00E+0	2.50E-7	9.23E-7	0.00E+0	-1.48E-6
NHWD	Kg	1.22E-1	1.96E-2	4.93E-3	1.46E-1	1.40E-1	1.78E-2	0.00E+0	6.26E-3	1.14E-2	0.00E+0	7.83E-4
RWD	Kg	1.60E-5	2.03E-6	3.04E-6	2.11E-5	1.45E-5	1.79E-6	0.00E+0	6.48E-7	1.71E-7	0.00E+0	8.00E-7

HWD=hazardous waste disposed | **NHWD**=non hazardous waste disposed | **RWD**=radioactive waste disposed

ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
CRU	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

CRU=Components for re-use | **MFR**=Materials for recycling | **MER**=Materials for energy recovery | **EET**=Exported Energy Thermic | **EEE**=Exported Energy Electric

5 Results

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
MFR	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.54E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MER	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	MJ	0.00E+0	0.00E+0	-9.80E-4	-9.80E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-7.84E-1
EEE	MJ	0.00E+0	0.00E+0	-5.69E-4	-5.69E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-4.55E-1

CRU=Components for re-use | **MFR**=Materials for recycling | **MER**=Materials for energy recovery | **EET**=Exported Energy Thermic | **EEE**=Exported Energy Electric

5 Results

5.3 INFORMATION ON BIOGENIC CARBON CONTENT PER KILOGRAM

BIOGENIC CARBON CONTENT

The following Information describes the biogenic carbon content in (the main parts of) the product at the factory gate per kilogram:

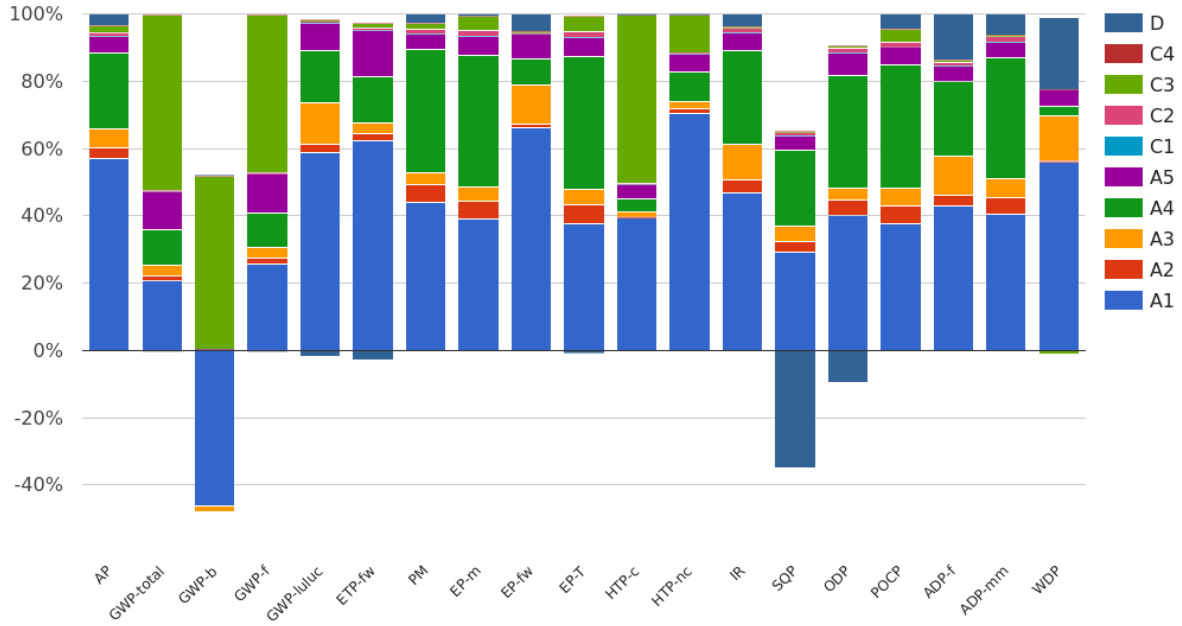
Biogenic carbon content	Amount	Unit
Biogenic carbon content in the product	0.0184	kg C
Biogenic carbon content in accompanying packaging	0	kg C

UPTAKE OF BIOGENIC CARBON DIOXIDE

The following amount of carbon dioxide uptake is taken into account. Related uptake and release of carbon dioxide in downstream processes are not taken into account in this number although they do appear in the presented results. One kilogram of biogenic Carbon content is equivalent to 44/12 kg of biogenic carbon dioxide uptake.

Uptake Biogenic Carbon dioxide	Amount	Unit
product	0.06745	kg CO2 (biogenic)

6 Interpretation of results



Module A1, which relates to raw material supply, is dominant in almost all categories except in GWP and HTP-c, where module C3, which reflects the waste processing, is dominant. This is due to the emissions caused by the standard EoL scenario for the product, 100 % incineration. Module A1 is dominant in GWP-biogenic because some raw materials uptake biogenic carbon in the early steps of their production.

Module A4 corresponds to the transport to the construction site and has an important contribution in all the environmental categories except in HTP-c and WDP. Module D, which corresponds to the benefits and loads beyond the product system boundaries, has a negative contribution to SQP and ODP.

7 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 14044:2006

ISO 14025
ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

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

General PCR Ecobility Experts
Kiwa-Ecobility Experts (Kiwa-EE) – General Product Category Rules (2022-02-14)

NMD Determination method
NMD Determination method Environmental performance Construction works v1.1 March 2022, foundation NMD

Ecoinvent Database
Ecoinvent (2019) The Life Cycle Inventory Data Version 3.6.

8 Contact information

Publisher	Operator	Owner of declaration

Kiwa-Ecobility Experts
Wattstraße 11-13
13355 Berlin, DE

E-mail:
DE.Ecobility.Experts@kiwa.com
Website:
https://www.kiwa.com/de/en/themes/ecobility-experts/ecobility-experts-epd-program/

Kiwa-Ecobility Experts
Wattstraße 11-13
13355 Berlin, DE

E-mail:
DE.Ecobility.Experts@kiwa.com
Website:
https://www.kiwa.com/de/en/themes/ecobility-experts/ecobility-experts-epd-program/

Strikolith B.V.
Lissenveld 9
4941 VK Raamsdonksveer, Netherlands, NL

E-mail:
infocenter@strikolith.com
Website:
https://www.strikolith.com/

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