

Result summary

Climate ceiling Phaseo (Packs)

Inteco

Calculation number:	ReTHiNK-87347
Generation on:	13-12-2024
Issue date:	13-12-2024
Valid until:	13-12-2029
Status:	verified

R<THiNK



1 General information

1.1 PRODUCT

Climate ceiling Phaseo (Packs)

1.2 VALIDITY

Issue date: 13-12-2024

Valid until: 13-12-2029

1.3 OWNER OF THE DECLARATION



Manufacturer: Inteco

Address: Van Salmstraat 71, 5281 RP Boxtel

E-mail: info@inteco.nl

Website: <https://www.inteco.nl/>

Production location: Inteco B.V.

Address production location: Van Salmstraat 71, 5281RP Boxtel

1.4 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

Gert-Jan Vroege, Eco Intelligence

1.5 PRODUCT CATEGORY RULES

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

1.6 FUNCTIONAL UNIT

Climate ceiling with PCM Packs

EN: Metal climate ceiling with aluminium laminate package containing an inorganic salt mixed with water (PCM) for cooling and heating. The Phaseo Packs also include an acoustic package in the panel that acts as thermal insulation. Energy storage in the phase transition region is 172kJ/kg.

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NL:

m2 (klimaatplafond)

Metalen klimaatplafond met aluminium laminaat verpakking voorzien van anorganisch milieuvriendelijk zout gemengd met water (PCM) voor koeling en verwarming. De Phaseo Packs hebben bovendien een akoestisch pakket in het paneel dat als thermische isolatie fungeert. Energieopslag in het faseovergangsgebied is 172 kJ/kg.

Reference unit: square meter (m2)

1.7 CONVERSION FACTORS

Description	Value	Unit
Reference unit	1	m2

1 General information

Description	Value	Unit
Weight per reference unit	14.124	kg
Conversion factor to 1 kg	0.070801	m2

1.8 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	X	X	X	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	

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, 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).

2 Product

2.1 PRODUCT DESCRIPTION

General Product Description

The Phaseo climate ceiling features aluminium laminate packages filled with a PCM mixture. The Phaseo Packs are placed in the metal ceiling panel which are secured with special compression springs.

Performance requirements include a defined capacity, adherence to fire safety standards, and effective sound absorption.

This product card is representative of the materialization of a 1m² Phaseo climate ceiling with PCM elements and a weight of 14.12 kg/m². Including suspension structures and connection structures. Excluding integrated controls and measurements, and architectural provisions.

For the installation of the Phaseo climate ceiling, approximately 60-70% of the entire ceiling requires PCM-Packs for the total square meter surface of the ceiling.

Production Sites

This EPD is representative of a 1m² Phaseo climate ceiling. Two suppliers are employed for the static finishing of steel, with each contributing 50% to this LCA. At Inteco B.V. in Bostel, components from various suppliers are assembled, and the climate ceilings are then transported to the installation addresses.

Composition

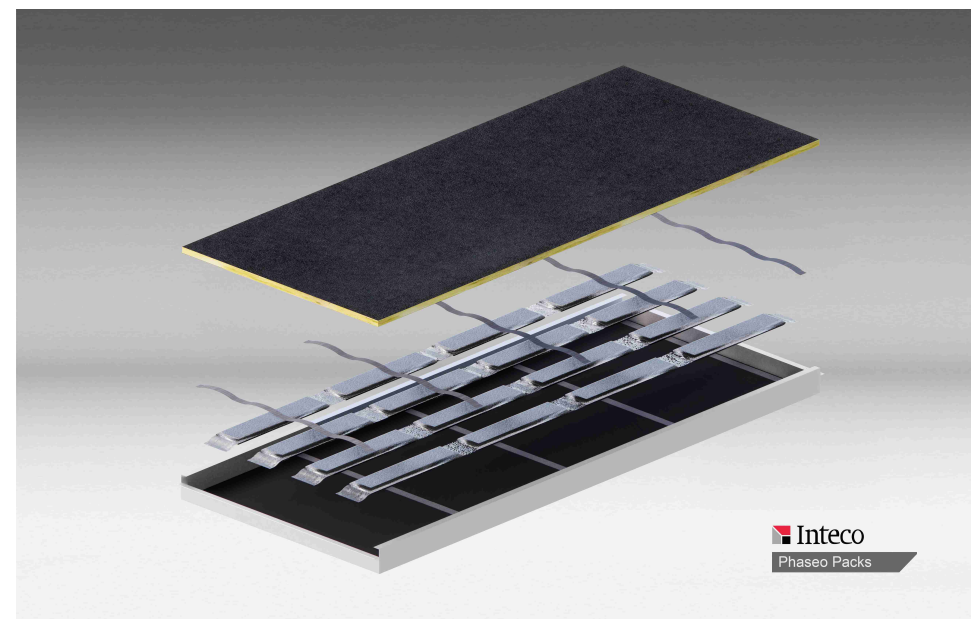
The EPD is based on a Bill of Material consisting of 10 components. The Phaseo climate ceiling comprises the following components:

- 48% Ceiling panel (Steel)
- 13% C-shaped suspension channel (Steel)
- 1% Coating (Powder coating)
- 1% Mounting materials (Steel)
- 35% PCM mixture (chlorides)
- 1% PCM packaging (aluminium laminate package)
- 0% Acoustic non-woven fleece sheet

Dimensions

This LCA calculation is representative of the materialization of a 1m² Phaseo climate ceiling with a weight of 14.12 kg/m². The Phaseo climate ceiling sizes vary from 300mm to 800mm in width, and lengths range from 600mm to 1800mm. The weight of 1 square meter depends on the specific design. For various options in climate ceilings and available color

choices, please contact info@inteco.nl.



2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

The Phaseo climate ceiling with PCM elements from Inteco B.V. is designed to create a controlled indoor climate. It is commonly utilized in both commercial and residential settings to achieve optimal heating, cooling, and ventilation. The system aims to enhance comfort by ensuring uniform temperature distribution and effective air quality control. For detailed features and specific applications, referring to the product's design and specifications provided by Inteco B.V. is recommended.

Phase Change Material

The chloride solution is intended to be a phase change material (PCM), capable of storing and releasing thermal energy efficiently. The ratio of salts ensures that the eutectic composition is optimal for maintaining energy storage properties, such as high latent heat and a phase change temperature within room temperature range. This makes it suitable for energy-saving applications like thermal regulation in buildings.

2 Product

2.3 DESCRIPTION PRODUCTION PROCESS

1. Mixing the PCM and filling the aluminium laminate package.
2. Transporting the HDPE-elements to the factory of Inteco B.V. in Boxtel.
3. Powder coating the steel ceiling panel.
4. Transporting the coated ceiling panel to the factory of Inteco B.V. in Boxtel.
5. Assembly of the Phaseo elements at the factory.
6. Add Acoustic non-woven fleece sheet and secure with tape.

7. Packing the ceiling panels into boxes and transporting them to the construction site.

2.4 CONSTRUCTION DESCRIPTION

The construction phase includes assembling different climate ceiling units at the site where the climate ceiling will be installed during the operational phase. The climate ceiling units are delivered throughout the Netherlands. Tools for the construction phase consist solely of small (electric) hand tools and the use of any necessary ladders.

3 Results

3.1 ENVIRONMENTAL IMPACT INDICATORS PER SQUARE METER

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbr.	Unit	A1	A2	A3	A1- A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
AP	mol H+ eqv.	1.04E-1	7.27E-3	8.68E-3	1.20E-1	1.67E-3	4.74E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.99E-4	2.40E-3	2.41E-5	-4.56E-2	7.90E-2
GWP-total	kg CO2 eqv.	3.05E+1	1.39E+0	2.06E+0	3.39E+1	2.88E-1	1.76E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.21E-1	2.14E-1	2.52E-3	-1.56E+1	1.92E+1
GWP-b	kg CO2 eqv.	-1.45E-1	7.24E-4	-1.29E-1	-2.73E-1	1.33E-4	1.47E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.56E-5	-1.14E-2	-2.43E-5	1.58E-1	2.05E-2
GWP-f	kg CO2 eqv.	3.06E+1	1.39E+0	2.18E+0	3.42E+1	2.88E-1	2.86E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.20E-1	2.25E-1	2.55E-3	-1.57E+1	1.91E+1
GWP-luluc	kg CO2 eqv.	1.15E-2	4.93E-4	3.77E-3	1.58E-2	1.06E-4	3.83E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.41E-5	2.56E-4	1.10E-6	4.22E-3	2.04E-2
EP-m	kg N eqv.	1.82E-2	2.49E-3	1.63E-3	2.23E-2	5.88E-4	1.67E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.46E-4	5.38E-4	8.00E-6	-8.82E-3	1.49E-2
EP-fw	kg P eq	1.24E-3	1.16E-5	1.35E-4	1.39E-3	2.90E-6	1.58E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.22E-6	6.56E-5	4.48E-8	-3.74E-4	1.08E-3
EP-T	mol N eqv.	2.15E-1	2.75E-2	2.19E-2	2.64E-1	6.49E-3	1.82E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.71E-3	6.31E-3	8.80E-5	-8.42E-2	1.96E-1
ODP	kg CFC 11 eqv.	1.56E-6	3.15E-7	1.74E-7	2.05E-6	6.36E-8	1.67E-9	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.66E-8	3.05E-8	1.03E-9	-2.26E-7	1.95E-6
POCP	kg NMVOC eqv.	6.31E-2	7.85E-3	5.09E-3	7.60E-2	1.85E-3	5.45E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.75E-4	1.69E-3	2.57E-5	-3.35E-2	4.69E-2
ADP-f	MJ	2.99E+2	2.11E+1	2.90E+1	3.49E+2	4.34E+0	8.30E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.82E+0	3.05E+0	7.10E-2	-1.04E+2	2.54E+2
ADP-mm	kg Sb- eqv.	1.33E-4	3.73E-5	-3.86E-4	-2.15E-4	7.30E-6	1.92E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.05E-6	3.85E-6	4.00E-9	-8.08E-3	-8.28E-3
WDP		6.18E+0	6.21E-2	4.92E-1	6.74E+0	1.55E-2	1.77E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.50E-3	3.54E-2	3.13E-3	-2.37E+0	4.43E+0

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)

3 Results

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
	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	B1	B2	B3	C1	C2	C3	C4	D	Total
ETP-fw	CTUe	4.33E+2	1.73E+1	2.57E+1	4.76E+2	3.87E+0	4.35E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.62E+0	7.21E+0	5.67E-2	-3.27E+2	1.62E+2
PM	disease incidence	6.90E-7	1.06E-7	6.78E-8	8.64E-7	2.59E-8	6.50E-10	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.08E-8	3.15E-8	4.57E-10	-2.95E-7	6.38E-7
HTP-c	CTUh	5.75E-8	5.02E-10	3.82E-9	6.18E-8	1.26E-10	1.58E-11	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.25E-11	2.23E-10	1.13E-12	-3.17E-8	3.05E-8
HTP-nc	CTUh	3.21E-7	1.88E-8	1.38E-7	4.77E-7	4.24E-9	2.13E-10	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.77E-9	9.69E-9	4.50E-11	7.50E-7	1.24E-6
IR	kBq U235 eqv.	7.58E-1	9.12E-2	8.76E-2	9.37E-1	1.82E-2	3.60E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.61E-3	1.38E-2	2.94E-4	-1.17E-1	8.60E-1
SQP	Pt	9.08E+1	1.53E+1	1.27E+1	1.19E+2	3.77E+0	3.72E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.58E+0	5.69E+0	1.51E-1	-2.39E+1	1.06E+2

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

3 Results

ILCD classification	Indicator	Disclaimer
ILCD type / level 2	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	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
ILCD type / level 3	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.

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A1

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
ADPE	Kg Sb	1.33E-4	3.73E-5	-3.86E-4	-2.15E-4	7.30E-6	1.92E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.05E-6	3.85E-6	4.00E-9	-8.08E-3	-8.28E-3

ADPE=Depletion of abiotic resources-elements | **GWP**=Global warming | **ODP**=Ozone layer depletion | **POCP**=Photochemical oxidants creation |
AP=Acidification of soil and water | **EP**=Eutrophication

3 Results

Abbr.	Unit	A1	A2	A3	A1- A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
GWP	Kg CO2 Equiv.	2.98E+1	1.38E+0	2.15E+0	3.33E+1	2.86E-1	2.91E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.19E-1	2.21E-1	2.50E-3	-1.52E+1	1.88E+1
ODP	Kg CFC-11 Equiv.	1.79E-6	2.52E-7	1.77E-7	2.22E-6	5.07E-8	1.52E-9	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.12E-8	2.62E-8	8.22E-10	-3.62E-7	1.96E-6
POCP	Kg Ethene Equiv.	1.37E-2	7.29E-4	8.38E-4	1.53E-2	1.72E-4	7.18E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.21E-5	1.74E-4	2.63E-6	-8.01E-3	7.70E-3
AP	Kg SO2 Equiv.	7.74E-2	5.49E-3	6.51E-3	8.94E-2	1.26E-3	3.53E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.25E-4	1.91E-3	1.83E-5	-3.35E-2	5.96E-2
EP	Kg PO43- Equiv.	1.16E-2	1.07E-3	1.20E-3	1.38E-2	2.47E-4	7.20E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.03E-4	4.10E-4	3.47E-6	-4.13E-3	1.05E-2

ADPE=Depletion of abiotic resources-elements | **GWP**=Global warming | **ODP**=Ozone layer depletion | **POCP**=Photochemical oxidants creation | **AP**=Acidification of soil and water | **EP**=Eutrophication

NATIONAL ANNEX NMD

Abbr.	Unit	A1	A2	A3	A1- A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
ADPF	Kg Sb	1.87E-1	1.00E-2	1.54E-2	2.12E-1	2.10E-3	4.08E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.78E-4	1.45E-3	3.38E-5	-8.44E-2	1.32E-1
HTP	kg 1.4 DB	6.62E+0	5.59E-1	7.11E-1	7.89E+0	1.20E-1	7.41E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.03E-2	2.12E-1	1.09E-3	-2.52E+0	5.77E+0
FAETP	kg 1.4 DB	2.04E-1	1.56E-2	3.20E-2	2.52E-1	3.51E-3	2.17E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.47E-3	3.00E-3	6.49E-5	-3.54E-2	2.25E-1
MAETP		4.02E+2	5.87E+1	4.91E+1	5.10E+2	1.26E+1	1.03E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.28E+0	1.78E+1	9.28E-2	-8.87E+1	4.58E+2

ADPF=Depletion of abiotic resources-fossil fuels | **HTP**=Human toxicity | **FAETP**=Ecotoxicity. fresh water | **MAETP**=Ecotoxicity. marine water (MAETP) | **TETP**=Ecotoxicity. terrestrial

3 Results

Abbr.	Unit	A1	A2	A3	A1- A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
	kg 1.4 DB															
TETP	kg 1.4 DB	3.35E-2	1.97E-3	3.52E-2	7.07E-2	4.25E-4	1.28E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.78E-4	6.90E-4	3.16E-6	1.83E-1	2.55E-1

ADPF=Depletion of abiotic resources-fossil fuels | **HTP**=Human toxicity | **FAETP**=Ecotoxicity, fresh water | **MAETP**=Ecotoxicity, marine water (MAETP) |

TETP=Ecotoxicity, terrestrial

3.2 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	B1	B2	B3	C1	C2	C3	C4	D	Total
PERE	MJ	2.23E+1	2.90E-1	1.61E+0	2.42E+1	5.44E-2	4.03E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.27E-2	4.46E-1	1.94E-3	-2.31E+0	2.25E+1
PERM	MJ	0.00E+0	0.00E+0	1.40E+0	1.40E+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	1.40E+0
PERT	MJ	2.23E+1	2.90E-1	3.02E+0	2.56E+1	5.44E-2	4.03E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.27E-2	4.46E-1	1.94E-3	-2.31E+0	2.39E+1
PENRE	MJ	3.47E+2	2.24E+1	4.58E+1	4.15E+2	4.61E+0	8.81E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.93E+0	3.25E+0	7.56E-2	-1.48E+1	4.10E+2
PENRM	MJ	0.00E+0	0.00E+0	4.53E-1	4.53E-1	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	-1.42E-2	4.39E-1
PENRT	MJ	3.47E+2	2.24E+1	4.62E+1	4.15E+2	4.61E+0	8.81E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.93E+0	3.25E+0	7.56E-2	-1.48E+1	4.10E+2
SM	Kg	8.00E-1	0.00E+0	9.86E-2	8.98E-1	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	8.98E-1
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	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	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	M3	2.46E-1	2.29E-3	2.97E-2	2.78E-1	5.29E-4	6.39E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.21E-4	9.65E-4	7.71E-5	-1.76E-2	2.62E-1

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

3 Results

OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

Abbr.	Unit	A1	A2	A3	A1- A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
HWD	Kg	1.41E-3	5.48E-5	1.12E-4	1.58E-3	1.10E-5	2.14E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.60E-6	3.70E-6	5.24E-8	-1.09E-3	5.12E-4
NHWD	Kg	2.74E+0	1.08E+0	4.98E-1	4.31E+0	2.75E-1	3.75E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.15E-1	8.89E-2	4.56E-1	-1.13E-1	5.14E+0
RWD	Kg	7.54E-4	1.42E-4	1.02E-4	9.99E-4	2.85E-5	4.71E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.19E-5	1.76E-5	4.64E-7	-4.53E-5	1.01E-3

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	B1	B2	B3	C1	C2	C3	C4	D	Total
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	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	Kg	0.00E+0	0.00E+0	1.04E+0	1.04E+0	0.00E+0	6.80E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.66E+0	0.00E+0	0.00E+0	9.76E+0
MER	Kg	0.00E+0	0.00E+0	2.63E-5	2.63E-5	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	2.63E-5
EE	MJ	0.00E+0	0.00E+0	2.51E-3	2.51E-3	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	-5.46E-1	-5.43E-1
EET	MJ	0.00E+0	0.00E+0	1.59E-3	1.59E-3	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	-3.45E-1	-3.44E-1
EEE	MJ	0.00E+0	0.00E+0	9.22E-4	9.22E-4	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	-2.00E-1	-2.00E-1

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

3 Results

3.3 INFORMATION ON BIOGENIC CARBON CONTENT PER SQUARE METER

BIOGENIC CARBON CONTENT

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

Biogenic carbon content	Amount	Unit
Biogenic carbon content in the product	0	kg C
Biogenic carbon content in accompanying packaging	0.04009	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
Packaging	0.147	kg CO2 (biogenic)

3 Results

3.4 ENVIRONMENTAL COST INDICATOR NL PER SQUARE METER

Using the environmental cost indicator (ECI) method, which is presented in the NMD Determination Method (2020), the results are aggregated to the single-point score. The ECI is a relevant valuation method, especially in the Dutch construction sector. In the Netherlands, it is a prerequisite for public tenders. The aim of the indicator is to show the shadow price for environmental impacts of a product or project. The application of single-point scores is an additional assessment tool for eco-balance results. However, it must be pointed out that weightings are always based on a value maintenance and not on a scientific basis (EN 14040). The ECI results are shown in the following table.

Module EN15804	ECI NL	Share in total (%)
A1 Raw Materials Supply	€ 2.61	137,5 %
A2 Transport	€ 0.16	8,5 %
A3 Manufacturing	€ 0.22	11,6 %
A4 Transport from the gate to the site	€ 0.03	1,8 %
A5 Construction - Installation process	€ 0.00	0,1 %
B1 Use	€ 0.00	0,0 %
B2 Maintenance	€ 0.00	0,0 %
B3 Repair	€ 0.00	0,0 %
C1 De-construction / demolition	€ 0.00	0,0 %
C2 Transport	€ 0.01	0,8 %
C3 Waste processing	€ 0.04	2,3 %
C4 Disposal	€ 0.00	0,0 %
D Benefits and loads beyond the product system boundary	€ -1.19	-62,7 %
ECI NL per functional unit	€ 1.89	

4 Contact information

Publisher	Operator	Owner of declaration
		
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