

Result summary

Calduran - Calcium silicate high-rise elements (2022)

Calduran

Calculation number:	EPD-NIBE-20221220-33084
Generation on:	23-03-2023
Issue date:	23-03-2023
Valid until:	23-03-2028
Status:	verified

R<THiNK

CALDURAN[®]
KALKZANDSTEEN
A CRH COMPANY



1 General information

1.1 PRODUCT

Calduran - Calcium silicate high-rise elements (2022)

1.2 VALIDITY

Issue date 23-03-2023

Valid until: 23-03-2028

1.3 OWNER OF THE DECLARATION



Manufacturer: Calduran

Address: Einsteinstraat 5, 3846 BH Harderwijk

E-mail: info@calduran.nl

Website: www.calduran.nl

Production location: Elementen HA en HO

Address production location: n.a., n.a. Combinatie van Harderwijk en Hoogersmilde

1.4 VERIFICATION OF THE DECLARATION

CEN standard EN 15804 serves as the core PCR. In compliance with ISO 14040:2006 and 14044:2006.

Independent verification of the declaration according to EN ISO 14025:2011-10.

Internal External



Dirk-Jan Simons, LBP Sight

1.5 THIS DECLARATION IS BASED ON THE PRODUCT CATEGORY RULES

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

1.6 FUNCTIONAL / DECLARED UNIT

1 m2 of Calduran calcium silicate masonry high-rise elements

Declared unit: square meter (m2)

1 m2 Calduran calcium silicate masonry high-rise elements, with a reference thickness of 175 mm, including mortar and with a lifespan of 75 years in accordance with the SBR lifespan guide 2011. The product is produced under certificate (KOMO® certificaat and CE prestatieverklaring) and complies with all Dutch laws and regulations (eg Bouwbesluit).

1.7 CONVERSION FACTORS

Description	Value	Unit
Declared unit	1	m2
Weight per declared unit	376.250	kg
Conversion factor to 1 kg	0.002658	m2

1.8 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with options, modules C1-C4 and module D LCA. 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

1 General information

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. 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 EPDs programs 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

Calcium silicate masonry elements and blocks are available in different qualities and are made according to different recipes. These recipes are quite similar in composition (same raw materials, but a small difference in quantities). Therefore, they are aggregated horizontally for this LCA, except for the recipe of the high-rise elements.

Technical information

Calcium silicate masonry elements and blocks are used as load-bearing and non-load-bearing walls and inner cavity leaves (E100 to E300).

The sand-lime brick elements are available in the following dimensions;

- Thickness x538x997mm
- Thickness x648x997mm
- Density: 2150 kg/m³ (high-rise elements)
- Available in compressive strength CS12 and CS20
- Supplied under CE mark
- Supplied with NL-BSB product certificate

Conversion factor

This LCA is for one square meter of a 175 mm thick element, more commonly used functional units are one cubic meter, one tonne or one square meter with a scalable thickness. The weight of one square meter is 376.25 kg/m². The conversion factors (CF) for both are described below:

- CF for 1 m³: $1 * (1 / 0.175) = 5.714$.
- CF for 1 tonne: $1 * (1000 / 376.25) = 2.658$.
- CF for 1 m² of a scalable square meter: $1 * (\text{mm} / 175)$. For example (214 mm in stead of 175 mm): $1 * (214 / 175) = 1.223$.

For the NMD it is necessary to have a minimal and maximum thickness, if a product is scalable. The standard thicknesses for elements (high-rise) are **175** (used for this LCA), 214, 250 and **300** mm.

2.2 DESCRIPTION PRODUCTION PROCESS

Calcium silicate masonry high-rise elements are produced from sand, quicklime, water and in some cases crushed gravel and calcium silicate granulate. Sand and gravel is extracted by Calduran itself at the production locations in Harderwijk (HA) and Hoogersmilde (HO).

The raw materials are mixed with water in the correct proportion and sent to a reactor where the lime is slaked. From this reactor, the mixture goes to the press where it is pressed into the desired shape (brick, block or element) and placed on a transport truck. After the forming process, the products are placed in the autoclave. The autoclave is brought under high pressure (and temperature) by means of steam (200°C). This initiates a chemical reaction that hardens the sand-lime brick. After curing, the products are packed and stored for transport to the customer.

The production waste (saw parts and rejected products) is ground on site by an external party and reused in the production process of calcium silicate units. This pre-consumed material is part of the various recipes and in particular replaces the sand. This creates no waste and is therefore set to 0%. The amount of (pre-consumed) granulate is evenly distributed over all raw materials.

2.3 CONSTRUCTION DESCRIPTION

Elements should be glued with glue mortar for sand-lime brick; placing the elements is done using a small crane. The amount of time that is required to use the crane is depended on the height of the building and distance the blocks are to be transported; a rough estimation is done in this LCA. The energy needed can vary significantly between projects. No indication could be given regarding these numbers by the client as they are not measured.

The amount of mortar should be added separately when the specific value of the project is known and are left outside the scope of this LCA. Hence, users of the LCA can determine for their respective project what the value must be and find their sources accordingly. Therefore, apart from the packaging material waste, construction waste and the crane, the phase A5 is not declared in this LCA but should be added when the LCA is used in a specific product.

3 Results

3.1 ENVIRONMENTAL IMPACT INDICATORS PER SQUARE METER

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
AP	mol H+ eqv.	3.81E-2	3.94E-2	1.71E-2	4.42E-2	8.15E-3	0.00E+0	0.00E+0	0.00E+0	1.43E-2	1.49E-2	3.80E-3	1.88E-4	-1.17E-2	1.68E-1
GWP-total	kg CO2 eqv.	2.48E+1	2.05E+0	8.18E+0	7.62E+0	2.96E+0	-1.12E+1	0.00E+0	0.00E+0	1.37E+0	2.57E+0	6.10E-1	1.99E-2	-1.63E+0	3.73E+1
GWP-b	kg CO2 eqv.	2.71E-2	7.07E-4	2.95E-2	3.52E-3	2.39E-1	0.00E+0	0.00E+0	0.00E+0	3.80E-4	1.18E-3	3.51E-3	3.93E-5	-7.42E-3	2.98E-1
GWP-f	kg CO2 eqv.	2.47E+1	2.05E+0	8.15E+0	7.62E+0	2.72E+0	-1.12E+1	0.00E+0	0.00E+0	1.37E+0	2.56E+0	6.06E-1	1.98E-2	-1.62E+0	3.70E+1
GWP-luluc	kg CO2 eqv.	2.25E-3	1.71E-3	1.02E-3	2.79E-3	5.20E-4	0.00E+0	0.00E+0	0.00E+0	1.08E-4	9.40E-4	1.15E-4	5.52E-6	-1.73E-3	7.72E-3
EP-m	kg N eqv.	1.15E-2	1.09E-2	5.51E-3	1.56E-2	2.35E-3	0.00E+0	0.00E+0	0.00E+0	6.31E-3	5.24E-3	1.51E-3	6.47E-5	-3.33E-3	5.56E-2
EP-fw	kg P eqv.	8.69E-4	1.57E-5	1.56E-4	7.68E-5	5.24E-5	0.00E+0	0.00E+0	0.00E+0	4.98E-6	2.59E-5	1.89E-5	2.22E-7	-5.95E-5	1.16E-3
EP-T	mol N eqv.	1.37E-1	1.20E-1	6.22E-2	1.72E-1	2.68E-2	0.00E+0	0.00E+0	0.00E+0	6.93E-2	5.78E-2	1.68E-2	7.13E-4	-3.87E-2	6.24E-1
ODP	kg CFC 11 eqv.	1.14E-6	4.14E-7	9.57E-7	1.68E-6	2.02E-7	0.00E+0	0.00E+0	0.00E+0	2.95E-7	5.66E-7	7.86E-8	8.16E-9	-1.62E-7	5.17E-6
POCP	kg NMVOC eqv.	3.78E-2	3.16E-2	1.75E-2	4.90E-2	7.26E-3	0.00E+0	0.00E+0	0.00E+0	1.90E-2	1.65E-2	4.57E-3	2.07E-4	-1.07E-2	1.73E-1
ADP-f	MJ	1.12E+2	2.76E+1	1.21E+2	1.15E+2	1.93E+1	0.00E+0	0.00E+0	0.00E+0	1.88E+1	3.87E+1	8.14E+0	5.54E-1	-2.03E+1	4.41E+2
ADP-mm	kg Sb- eqv.	5.29E-5	2.72E-5	1.33E-5	1.93E-4	1.43E-5	0.00E+0	0.00E+0	0.00E+0	2.10E-6	6.50E-5	1.71E-6	1.81E-7	-8.02E-5	2.89E-4
WDP	m3 world eqv.	1.32E+0	7.90E-2	9.40E-1	4.11E-1	3.50E-1	0.00E+0	0.00E+0	0.00E+0	2.52E-2	1.38E-1	3.69E-2	2.48E-2	-2.31E+1	-1.98E+1

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

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN15084+A2

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
ETP-fw	CTUe	4.20E+2	2.16E+1	4.47E+1	1.02E+2	2.97E+1	0.00E+0	0.00E+0	0.00E+0	1.13E+1	3.45E+1	6.60E+0	3.59E-1	-3.24E+1	6.39E+2
PM	disease incidence	2.68E-7	9.84E-8	2.21E-7	6.85E-7	6.75E-8	0.00E+0	0.00E+0	0.00E+0	3.79E-7	2.31E-7	8.39E-8	3.66E-9	-2.00E-7	1.84E-6
HTP-c	CTUh	1.18E-9	1.04E-9	1.25E-9	3.32E-9	4.83E-10	0.00E+0	0.00E+0	0.00E+0	3.96E-10	1.12E-9	1.56E-10	8.30E-12	-1.20E-9	7.76E-9
HTP-nc	CTUh	9.60E-8	1.93E-8	2.88E-8	1.12E-7	1.99E-8	0.00E+0	0.00E+0	0.00E+0	9.74E-9	3.77E-8	4.42E-9	2.55E-10	-3.38E-8	2.94E-7
IR	kBq U235 eqv.	4.44E-1	1.18E-1	1.44E-1	4.81E-1	6.45E-2	0.00E+0	0.00E+0	0.00E+0	8.06E-2	1.62E-1	2.58E-2	2.27E-3	-8.11E-2	1.44E+0
SQP	Pt	4.33E+2	1.44E+1	9.35E+0	9.96E+1	2.32E+1	0.00E+0	0.00E+0	0.00E+0	2.40E+0	3.35E+1	1.36E+0	1.16E+0	-2.59E+1	5.92E+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
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD type / level 2	AAcidification 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
ILCD type / level 3	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

3 Results

ILCD classification	Indicator	Disclaimer
	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

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
ADPE	Kg Sb	5.29E-5	2.72E-5	1.33E-5	1.93E-4	1.41E-5	0.00E+0	0.00E+0	0.00E+0	2.10E-6	6.50E-5	1.71E-6	1.81E-7	-8.02E-5	2.89E-4
GWP	Kg CO2 Equiv.	2.46E+1	2.03E+0	8.05E+0	7.55E+0	2.70E+0	-1.12E+1	0.00E+0	0.00E+0	1.35E+0	2.54E+0	5.99E-1	1.94E-2	-1.58E+0	3.67E+1
ODP	Kg CFC-11 Equiv.	9.35E-7	3.30E-7	8.46E-7	1.34E-6	1.69E-7	0.00E+0	0.00E+0	0.00E+0	2.34E-7	4.51E-7	6.56E-8	6.48E-9	-1.38E-7	4.24E-6
POCP	Kg Ethene Equiv.	4.58E-3	1.92E-3	1.78E-3	4.56E-3	6.72E-4	0.00E+0	0.00E+0	0.00E+0	1.38E-3	1.53E-3	3.42E-4	2.07E-5	-1.16E-3	1.56E-2
AP	Kg SO2 Equiv.	2.86E-2	3.10E-2	1.30E-2	3.32E-2	6.26E-3	0.00E+0	0.00E+0	0.00E+0	1.02E-2	1.12E-2	2.77E-3	1.42E-4	-8.94E-3	1.27E-1
EP	Kg PO43- Equiv.	7.49E-3	3.99E-3	2.54E-3	6.52E-3	1.10E-3	0.00E+0	0.00E+0	0.00E+0	2.32E-3	2.20E-3	6.17E-4	2.74E-5	-1.46E-3	2.53E-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

3 Results

NATIONAL ANNEX NMD

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
ADPF	Kg Sb	5.96E-2	1.33E-2	6.58E-2	5.55E-2	9.91E-3	0.00E+0	0.00E+0	0.00E+0	8.92E-3	1.87E-2	4.24E-3	2.65E-4	-1.07E-2	2.25E-1
HTP	kg 1.4 DB	1.08E+0	9.16E-1	8.16E-1	3.18E+0	3.47E-1	0.00E+0	0.00E+0	0.00E+0	5.01E-1	1.07E+0	1.42E-1	8.79E-3	-7.29E-1	7.33E+0
FAETP	kg 1.4 DB	3.55E-2	1.94E-2	1.41E-2	9.28E-2	1.67E-2	0.00E+0	0.00E+0	0.00E+0	6.97E-3	3.13E-2	2.45E-3	2.09E-4	-1.13E-2	2.08E-1
MAETP	kg 1.4 DB	1.13E+2	7.84E+1	5.70E+1	3.34E+2	8.11E+1	0.00E+0	0.00E+0	0.00E+0	2.42E+1	1.12E+2	9.25E+0	7.46E-1	-4.69E+1	7.63E+2
TETP	kg 1.4 DB	5.10E-3	3.05E-3	1.42E-2	1.12E-2	2.97E-3	0.00E+0	0.00E+0	0.00E+0	8.24E-4	3.78E-3	1.75E-3	2.21E-5	-3.79E-3	3.92E-2

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

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
PERE	MJ	6.71E+0	3.35E-1	3.94E+0	1.44E+0	1.36E+0	0.00E+0	0.00E+0	0.00E+0	1.02E-1	4.84E-1	4.63E-1	4.48E-3	-1.39E+0	1.34E+1
PERM	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.91E-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	1.91E-4
PERT	MJ	6.71E+0	3.35E-1	3.94E+0	1.44E+0	1.36E+0	0.00E+0	0.00E+0	0.00E+0	1.02E-1	4.84E-1	4.63E-1	4.48E-3	-1.39E+0	1.34E+1
PENRE	MJ	1.21E+2	2.94E+1	1.33E+2	1.22E+2	2.01E+1	0.00E+0	0.00E+0	0.00E+0	2.00E+1	4.11E+1	8.68E+0	5.88E-1	-2.15E+1	4.74E+2
PENRM	MJ	0.00E+0	0.00E+0	3.20E-1	0.00E+0	4.54E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-1.10E-2	7.63E-1
PENRT	MJ	1.21E+2	2.94E+1	1.33E+2	1.22E+2	2.06E+1	0.00E+0	0.00E+0	0.00E+0	2.00E+1	4.11E+1	8.68E+0	5.88E-1	-2.16E+1	4.75E+2
SM	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
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

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

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
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
FW	M3	3.24E-1	2.89E-3	3.76E-2	1.40E-2	1.95E-2	0.00E+0	0.00E+0	0.00E+0	9.69E-4	4.71E-3	2.72E-3	5.92E-4	-5.41E-1	-1.34E-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

OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
HWD	Kg	8.00E-5	5.05E-5	1.50E-4	2.91E-4	2.85E-5	0.00E+0	0.00E+0	0.00E+0	5.12E-5	9.80E-5	1.42E-5	8.28E-7	-4.08E-5	7.24E-4
NHWD	Kg	2.37E-1	6.83E-1	1.42E-1	7.29E+0	3.20E+0	0.00E+0	0.00E+0	0.00E+0	2.23E-2	2.45E+0	1.13E+0	3.76E+0	-2.18E-1	1.87E+1
RWD	Kg	5.94E-4	1.86E-4	1.84E-4	7.54E-4	8.56E-5	0.00E+0	0.00E+0	0.00E+0	1.31E-4	2.54E-4	3.65E-5	3.64E-6	-8.80E-5	2.14E-3

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

ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

Abbreviation	Unit	A1	A2	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
MFR	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.12E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.72E+2	0.00E+0	0.00E+0	3.84E+2
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	0.00E+0	0.00E+0	0.00E+0
EE	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	1.37E-1	1.37E-1
EET	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	8.67E-2	8.67E-2
EEE	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	5.04E-2	5.04E-2

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	kg C

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	€ 1.54	45,5 %
A2 Transport	€ 0.36	10,6 %
A3 Manufacturing	€ 0.57	16,9 %
A4 Transport from the gate to the site	€ 0.91	26,9 %
A5 Construction - Installation process	€ 0.21	6,3 %
B1 Use	€ -0.56	-16,5 %
B2 Maintenance	€ 0.00	0,0 %
B3 Repair	€ 0.00	0,0 %
C1 De-construction / demolition	€ 0.18	5,4 %
C2 Transport	€ 0.31	9,1 %
C3 Waste processing	€ 0.06	1,8 %
C4 Disposal	€ 0.00	0,1 %
D Benefits and loads beyond the product system boundary	€ -0.20	-6,0 %
ECI NL per functional unit	€ 3.39	

4 Contact information

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