Result summary

500.40

krafton

Calculation number:	ReTHiNK-61641
Generation on:	14-12-2023
Issue date:	14-12-2023
Valid until:	14-12-2028
Status:	verified

R<THiNK

1 General information

1.1 PRODUCT

500.40

1.2 VALIDITY

Issue date: 14-12-2023
Valid until: 14-12-2028

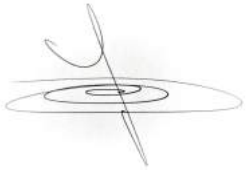
1.3 OWNER OF THE DECLARATION

Manufacturer: krafton
Address: Markweg Zuid 34, 4794 SN Heijningen
E-mail: info@krafton.nl
Website: www.krafton.nl
Production location: Production location 1
Address production location: Markweg Zuid 34, 4794 SN HEIJNINGEN

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



Anne Kees Jeeninga, Advieslab

1.5 PRODUCT CATEGORY RULES

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

1.6 FUNCTIONAL UNIT

1m - GVK brugdek

The krafton® 500.40 is a FRP bridge decking plank of excellent quality, attractively priced, ideally suited for pedestrian bridges, cycle bridges and service vehicles. These attributes make krafton® 500.40 FRP bridge decking elements a popular product that is frequently chosen by contractors, municipalities and governments.

This FRP bridge deck is laid with a male-female connection. As a result, the FRP bridge decking elements are arranged tightly against each other.
As its name suggest, the krafton® 500.40 FRP bridge decking plank is 500 mm wide. The overall bridge deck is quick to assemble since fewer planks are required for the entire span, avoiding long closures and reducing other logistical challenges.

Our FRP bridge decking planks can be mounted on support structures made of steel, wood, aluminium and FRP.

reference_unit: meter (m^1)

1.7 CONVERSION FACTORS

Description	Value	Unit
reference_unit	1	m^1
weight_per_reference_unit	11.794	kg

1 General information

Description	Value	Unit
Conversion factor to 1 kg	0.084791	m^1

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

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

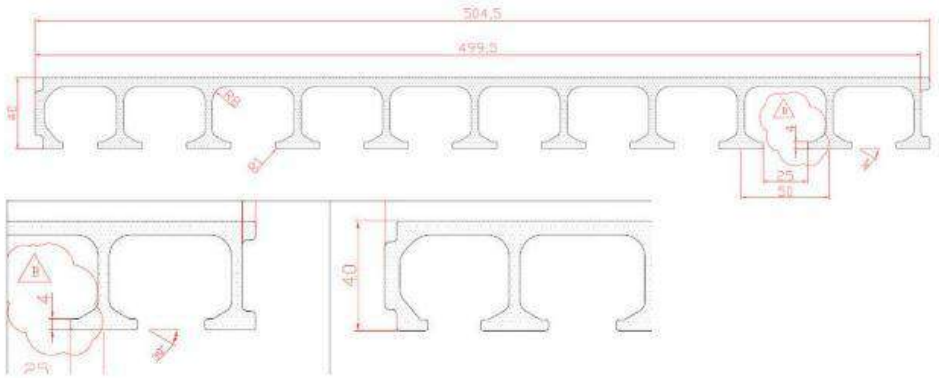
2.1 PRODUCT DESCRIPTION

Application : Bicycle and Pedestrian Bridges, Scaffolding and Ramps.

- Dimensions (BxH) : 500 x 40 mm
- System Width : 499 mm
- Weight : 20 kg/m2
- Number of ribs : 11
- Surface cross section : 5.571 mm2
- Linear Moment of Inertia : 1.238.296
- mm4 Moment of Résistance : 51.119 mm3
- E-Modulus : 33 GPa
- Color : Grey
- Density : 1.850 kg/m3
- Barcol Hardness : 50
- Barcol Waterabsortion (Weight percent) : 0,7%
- Linear expansioncoefficient : 10-16x10-6 m/m/0C
- Elasticity modulus (Eb,kar): 33.363 N/mm2
- Bending stress (ðb,kar): 431 N/mm2
- Shear stress (tkar): 44,9 N/mm2
- Allowable transverse force due to point load on 100x100 (Dkar,100): 36.542 N
- Allowable transverse force due to point load on 200x200 (Dkar,200): 90.289 N
- Anti Skid Surface : TÜV Certified Anti skid grit surface, Class R13
- Load according to Eurocode - 5 Kn Load pro square Meter

And the NEN-EN 1991-2 - 10 Kn Point load 100x100 mm maximum span 600 mm: 20 Kn Point load 100x100 mm maximum span 600 mm

NEN-EN 13706-23
Our GRP profiles have been tested according to the European standard NEN EN 13706 23. This certification assures us and you that our GRP profiles will perform safely and durably in a variety of applications.



2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

As its name suggest, the krafton® 500.40 FRP bridge decking plank is 500 mm wide. The overall bridge deck is quick to assemble since fewer planks are required for the entire span, avoiding long closures and reducing other logistical challenges.

This FRP bridge deck is laid with a male-female connection. As a result, the FRP bridge decking elements are arranged tightly against each other.

The 500.40 FRP bridge decking planks can be mounted on support structures made of steel, wood, aluminium and FRP.

2.3 DESCRIPTION PRODUCTION PROCESS

1. Insertion of the glass fibre reinforcements

The process starts with insertion of the glass fibre reinforcements. Reel winding frames are located at the front of the machine. These frames hold reels of glass fibre thread. Approximately 2.1 kilometres of glass fibre thread, e.g. 9600 TEX, are wound on each reel.

2. Travel through the impregnation bath

The glass fibre threads, and possibly glass fibre matting, pass through the impregnation bath where they are coated with polyester resin. The liquid synthetic resin is mixed with a hardener, colourant, fire retardants and other additives.

3. Travel through the infeed plates

The infeed plates guide the glass fibre threads and mats to the right position in the mould to ensure the correct glass fibre content. The glass fibre threads enhance linear tensile

2 Product

strength and the mats give the material transverse tensile strength. The amount of glass fibre material depends on the profile's design specifications and properties.

4. Travel through the heated mould

Next, the resin, fibres and mats are pulled through a heated mould. The profile is formed and cured in the hot mould. Halfway through the mould, the material is already starting to harden. Once it leaves the mould, it is fully cured and can be subjected to mechanical load. The profile requires no further processing. The mould is made from wear-resistant steel and assembled from several parts. The inside of the mould is chrome-plated. The programmable computer controls all machine operations. This is where the throughput speed, cutting length and the different temperature profiles in the mould's heating system are set. The moulds used by krafton® accommodate a maximum width of 1 metre. We have moulds for all profile types and dimensions, ranging from small bar profiles and angle profiles to wide bridge decking elements. We use our own moulds for the standard profiles. We also design custom moulds for customers. These moulds remain the property of the customer and are used to produce their unique and, in some cases patented, custom profiles on our pultrusion machine.

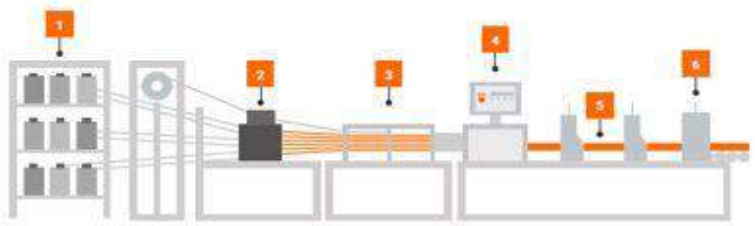
5. Pultrusion of the profile

A dual gripping and pulling system alternately clamps and pulls the profile. The clamps are shaped to exactly match the outside of the profile and are clad with soft plastic to avoid damaging it. Pultrusion is a continuous process with the added advantage of good quality control. The dimensions of the pultrusion profile's cross-section are controlled within tight tolerances. Pultrusion is suitable for all kinds of glass fibres. Different types of fibre can also be combined. As a result, a high fibre content (up to 70% by weight) can be achieved, resulting in high specific stiffness and strength.

6. Cutting the GRP profile to length

The cross-cut saw moves at the line speed and cuts the profile to the desired length. Because the saw moves synchronously with the profile, the saw cut is perfectly perpendicular. A diamond-coated saw blade is used for maximum service life. A dust extractor is fitted to the saw unit.

We produce the bridge decking planks and structural profiles in our own factory using the pultrusion process. Because pultrusion is an automatic, continuous process, each and every profile meets stringent quality standards.



Step 1
The process starts with insertion of the glass fibre reinforcements. Reel winding frames are located at the front of the machine. These frames hold reels of glass fibre thread. Mats and/or fabric often have to be used in addition to the rovings to achieve the desired transverse strength.

Step 2
The glass fibre threads, and possibly glass fibre matting, pass through the impregnation bath where they are coated with polyester resin. The liquid polyester resin is mixed with a hardener, colourant, fire retardants and other additives.

Step 3
The infeed plates guide the glass fibre threads and mats to the right position in the mould to ensure the correct glass fibre content. The glass fibre threads enhance linear tensile strength and the mats give the material transverse tensile strength. The amount of glass fibre material depends on the profile's design specifications and properties.

Step 4
Next, the resin, fibres and mats are pulled through a heated mould. The profile is formed and cured in the hot mould. Halfway through the mould, the material is already starting to harden. Once it leaves the mould, it is fully cured and can be subjected to mechanical load. The profile requires no further processing. The programmable computer controls all machine operations. This is where the throughput speed, cutting length and the different temperature profiles in the mould's heating system are set.

Step 5
A dual gripping and pulling system alternately clamps and pulls the profile. The clamps are shaped to exactly match the outside of the profile and are clad with soft plastic to avoid damaging it.

Step 6
The cross-cut saw moves at the line speed and cuts the profile to the desired length. Because the saw moves synchronously with the profile, the saw cut is perfectly perpendicular.

2.4 CONSTRUCTION DESCRIPTION

1. General
These assembly instructions are intended for fitting the krafton GRP bridge decking planks on various subconstructions and are applicable for bicycle bridges, pedestrian bridges and platforms. Special attention must be paid to the expansion of the bridge deck

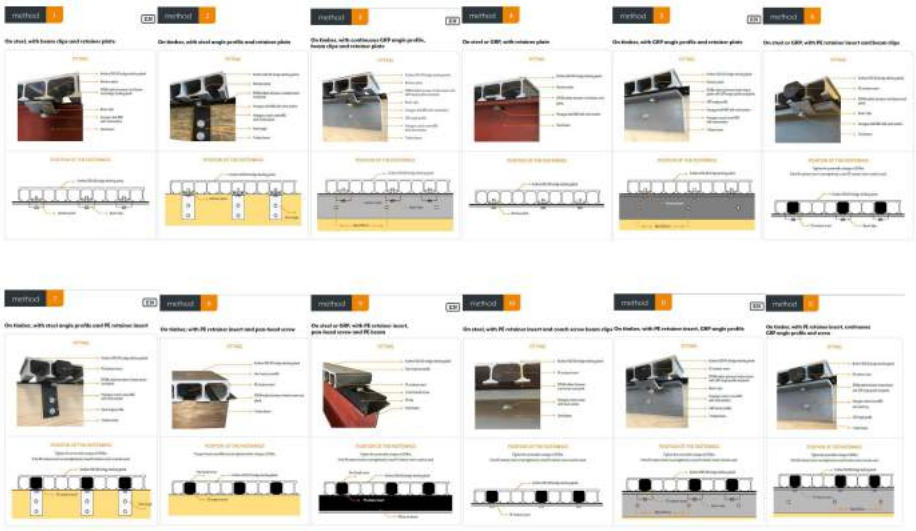
2 Product

and the application of expansion joints where necessary. The material expands as a result of heating from the sun. Please follow the instructions in these assembly instructions. Please read these assembly instructions carefully and keep them handy when installing the product. Follow the instructions for safe and correct installation of the bridge decking planks. The manufacturer accepts no liability for damage resulting from improper installation and use.

2. Required tools and fasteners
Cutting: The material is best cut with a diamond saw. For example, a handheld circular saw with a diamond blade. Grinding: A grinder can also be used. This grinder must be fitted with a diamond blade for grinding dry concrete. Drilling: If you choose to drill, a metal drill will suffice in most cases. Our scope of delivery includes all necessary fixing materials.

3. Symbols and Safety instructions
Please ensure correct use and application of personal protective equipment.
- Wear a dust mask, grinding goggles and gloves.
- We also recommend the use of dust extractors when cutting and drilling, as well as hearing protection.

4. Substructure
- The substructure should be constructed taking into account the technical properties of the bridge decking planks used.
- The substructure must be level.
- We recommend that you provide sufficient gradient to prevent puddles of water from forming. Dirt collects in these puddles, which can freeze in winter conditions. This can cause slipperiness and risk of skidding.



3 Results

3.1 ENVIRONMENTAL IMPACT INDICATORS PER 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.	1.10E-1	2.90E-3	6.08E-3	1.39E-3	1.85E-3	4.77E-6	6.94E-3	0.00E+0	0.00E+0	6.74E-4	8.10E-4	1.80E-8	-8.10E-2	4.93E-2
GWP-total	kg CO2 eqv.	2.37E+1	7.00E-1	2.67E+0	2.40E-1	6.07E-1	5.03E-4	2.22E+0	0.00E+0	0.00E+0	1.16E-1	4.96E+0	1.86E-5	-1.96E+1	1.56E+1
GWP-b	kg CO2 eqv.	-1.36E-1	5.04E-4	-9.74E-2	1.11E-4	1.14E-1	9.96E-7	4.19E-3	0.00E+0	0.00E+0	5.37E-5	1.94E-3	2.35E-8	1.06E-1	-7.21E-3
GWP-f	kg CO2 eqv.	2.38E+1	6.99E-1	2.76E+0	2.40E-1	4.93E-1	5.02E-4	2.22E+0	0.00E+0	0.00E+0	1.16E-1	4.96E+0	1.85E-5	-1.97E+1	1.56E+1
GWP-luluc	kg CO2 eqv.	4.83E-3	2.06E-4	7.38E-4	8.80E-5	9.07E-5	1.40E-7	1.80E-5	0.00E+0	0.00E+0	4.26E-5	7.72E-5	8.37E-10	-4.76E-3	1.33E-3
EP-m	kg N eqv.	1.96E-2	8.61E-4	1.29E-3	4.91E-4	3.53E-4	1.64E-6	1.29E-3	0.00E+0	0.00E+0	2.38E-4	2.87E-4	9.14E-9	-1.49E-2	9.47E-3
EP-fw	kg P eqv.	5.62E-4	5.36E-6	1.12E-4	2.42E-6	1.03E-5	5.63E-9	3.76E-5	0.00E+0	0.00E+0	1.17E-6	3.12E-6	3.15E-11	-4.69E-4	2.65E-4
EP-T	mol N eqv.	2.03E-1	9.52E-3	1.54E-2	5.41E-3	3.72E-3	1.81E-5	9.85E-3	0.00E+0	0.00E+0	2.62E-3	3.19E-3	6.75E-8	-1.65E-1	8.74E-2
ODP	kg CFC 11 eqv.	1.69E-6	1.65E-7	1.63E-7	5.30E-8	3.25E-8	2.07E-10	7.31E-9	0.00E+0	0.00E+0	2.57E-8	3.26E-8	6.90E-13	-1.71E-6	4.64E-7
POCP	kg NMVOC eqv.	9.93E-2	3.08E-3	1.32E-2	1.54E-3	1.82E-3	5.25E-6	4.70E-3	0.00E+0	0.00E+0	7.48E-4	8.25E-4	2.33E-8	-8.47E-2	4.05E-2
ADP-f	MJ	4.08E+2	1.09E+1	3.33E+1	3.62E+0	6.93E+0	1.40E-2	1.91E+1	0.00E+0	0.00E+0	1.75E+0	1.18E+0	5.07E-5	-3.32E+2	1.53E+2
ADP-mm	kg Sb-eqv.	1.52E-4	1.22E-5	1.04E-5	6.08E-6	2.83E-6	4.59E-9	2.14E-6	0.00E+0	0.00E+0	2.95E-6	1.55E-6	2.04E-11	-1.45E-4	4.60E-5
WDP	m3 world eqv.	1.05E+1	3.52E-2	3.51E-1	1.30E-2	1.64E-1	6.29E-4	2.22E-1	0.00E+0	0.00E+0	6.27E-3	2.16E-2	2.01E-6	-8.41E+0	2.87E+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

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	5.36E+2	8.67E+0	3.77E+1	3.23E+0	9.04E+0	9.11E-3	3.47E+0	0.00E+0	0.00E+0	1.56E+0	1.22E+1	6.65E-5	-4.75E+2	1.37E+2
PM	disease incidence	7.84E-7	6.26E-8	3.11E-8	2.16E-8	1.41E-8	9.26E-11	5.56E-8	0.00E+0	0.00E+0	1.05E-8	8.04E-9	3.46E-13	-5.90E-7	3.98E-7
HTP-c	CTUh	3.02E-8	2.15E-10	1.94E-8	1.05E-10	8.49E-10	2.10E-13	1.39E-9	0.00E+0	0.00E+0	5.07E-11	5.42E-9	1.31E-15	-4.10E-8	1.67E-8
HTP-nc	CTUh	3.80E-7	9.83E-9	2.19E-8	3.53E-9	6.64E-9	6.47E-12	7.12E-9	0.00E+0	0.00E+0	1.71E-9	1.96E-8	4.71E-14	-3.33E-7	1.17E-7
IR	kBq U235 eqv.	1.10E+0	4.76E-2	7.00E-2	1.52E-2	1.88E-2	5.76E-5	2.01E-3	0.00E+0	0.00E+0	7.35E-3	4.12E-3	2.07E-7	-1.00E+0	2.65E-1
SQP	Pt	2.24E+1	1.23E+1	2.37E+1	3.14E+0	9.80E-1	2.94E-2	5.98E-1	0.00E+0	0.00E+0	1.52E+0	6.76E-1	1.16E-4	-3.67E+1	2.86E+1

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
	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

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	1.52E-4	1.22E-5	1.04E-5	6.08E-6	2.83E-6	4.59E-9	2.14E-6	0.00E+0	0.00E+0	2.95E-6	1.55E-6	2.04E-11	-1.45E-4	4.60E-5
GWP	Kg CO2 Equiv.	2.27E+1	6.93E-1	2.72E+0	2.38E-1	4.76E-1	4.93E-4	2.17E+0	0.00E+0	0.00E+0	1.15E-1	4.96E+0	1.59E-5	-1.89E+1	1.52E+1
ODP	Kg CFC-11 Equiv.	1.59E-6	1.31E-7	1.57E-7	4.22E-8	3.01E-8	1.64E-10	6.05E-9	0.00E+0	0.00E+0	2.05E-8	3.17E-8	5.51E-13	-1.59E-6	4.22E-7
POCP	Kg Ethene Equiv.	3.58E-2	4.32E-4	5.93E-3	1.44E-4	6.40E-4	5.25E-7	1.20E-3	0.00E+0	0.00E+0	6.96E-5	5.42E-5	4.21E-9	-3.20E-2	1.23E-2
AP	Kg SO2 Equiv.	6.68E-2	2.25E-3	4.49E-3	1.05E-3	1.16E-3	3.60E-6	5.94E-3	0.00E+0	0.00E+0	5.07E-4	6.03E-4	1.36E-8	-4.66E-2	3.61E-2
EP	Kg PO43- Equiv.	1.29E-2	4.13E-4	9.19E-4	2.06E-4	2.25E-4	6.95E-7	6.09E-4	0.00E+0	0.00E+0	9.96E-5	1.72E-4	4.42E-9	-1.04E-2	5.15E-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

NATIONAL ANNEX NMD

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
ADPF	Kg Sb	1.61E-1	5.17E-3	1.77E-2	1.75E-3	2.83E-3	6.71E-6	9.36E-3	0.00E+0	0.00E+0	8.48E-4	6.22E-4	2.43E-8	-1.33E-1	6.68E-2
HTP	kg 1.4 DB	2.42E+1	3.28E-1	6.15E-1	1.00E-1	3.84E-1	2.23E-4	9.43E-2	0.00E+0	0.00E+0	4.85E-2	2.03E-1	1.66E-6	-2.08E+1	5.18E+0
FAETP	kg 1.4 DB	1.36E+0	8.92E-3	2.79E-2	2.93E-3	2.13E-2	5.29E-6	4.70E-3	0.00E+0	0.00E+0	1.42E-3	1.55E-2	1.35E-6	-1.14E+0	3.11E-1
MAETP	kg 1.4 DB	3.56E+3	3.49E+1	8.25E+1	1.05E+1	5.63E+1	1.89E-2	1.63E+1	0.00E+0	0.00E+0	5.10E+0	5.61E+1	1.33E-3	-2.98E+3	8.43E+2
TETP	kg 1.4 DB	1.50E-1	1.06E-3	1.15E-2	3.54E-4	2.47E-3	5.59E-7	4.44E-4	0.00E+0	0.00E+0	1.72E-4	1.25E-3	3.17E-9	-1.32E-1	3.55E-2

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

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	8.90E+0	1.38E-1	4.25E+0	4.53E-2	2.02E-1	1.13E-4	1.50E-1	0.00E+0	0.00E+0	2.20E-2	7.78E-2	9.43E-7	-1.03E+1	3.46E+0
PERM	MJ	0.00E+0	0.00E+0	9.65E-1	0.00E+0	1.45E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.80E-1
PERT	MJ	8.90E+0	1.38E-1	5.21E+0	4.53E-2	2.17E-1	1.13E-4	1.50E-1	0.00E+0	0.00E+0	2.20E-2	7.78E-2	9.43E-7	-1.03E+1	4.44E+0
PENRE	MJ	3.65E+2	1.16E+1	3.46E+1	3.85E+0	6.32E+0	1.49E-2	2.07E+1	0.00E+0	0.00E+0	1.86E+0	1.26E+0	5.39E-5	-2.94E+2	1.52E+2
PENRM	MJ	7.60E+1	0.00E+0	1.16E+0	0.00E+0	1.16E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-6.47E+1	1.36E+1
PENRT	MJ	4.41E+2	1.16E+1	3.58E+1	3.85E+0	7.48E+0	1.49E-2	2.07E+1	0.00E+0	0.00E+0	1.86E+0	1.26E+0	5.39E-5	-3.59E+2	1.65E+2
SM	Kg	1.89E-3	0.00E+0	0.00E+0	0.00E+0	2.83E-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	1.91E-3
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	2.57E-1	1.24E-3	1.89E-2	4.41E-4	4.23E-3	1.50E-5	5.39E-3	0.00E+0	0.00E+0	2.14E-4	1.49E-3	5.43E-8	-2.16E-1	7.32E-2

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	3.25E-4	2.65E-5	2.97E-5	9.18E-6	6.11E-6	2.10E-8	2.53E-6	0.00E+0	0.00E+0	4.44E-6	7.27E-6	7.52E-11	-3.18E-4	9.25E-5
NHWD	Kg	9.72E+0	9.32E-1	2.45E-1	2.30E-1	1.79E-1	9.53E-2	4.95E-2	0.00E+0	0.00E+0	1.11E-1	9.03E-2	2.47E-4	-8.84E+0	2.82E+0
RWD	Kg	2.82E-4	7.43E-5	5.89E-5	2.38E-5	7.00E-6	9.22E-8	2.93E-6	0.00E+0	0.00E+0	1.15E-5	4.43E-6	3.14E-10	-3.44E-4	1.21E-4

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	3.67E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.09E-2	0.00E+0	0.00E+0	1.46E-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	5.59E-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	3.75E+0	4.31E+0
EET	MJ	0.00E+0	0.00E+0	3.53E-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	2.37E+0	2.73E+0
EEE	MJ	0.00E+0	0.00E+0	2.05E-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	1.38E+0	1.58E+0

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 METER

BIOGENIC CARBON CONTENT

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

Biogenic carbon content	Amount	Unit
Biogenic carbon content in the product	0	kg C
Biogenic carbon content in accompanying packaging	0.03136	kg C

UPTAKE OF BIOGENIC CARBON DIOXIDE

The following amount of uptake of carbon dioxide is account in module A1 by the main parts of the product. 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.

Uptake Biogenic Carbon dioxide	Amount	Unit
Packaging	0.115	kg CO2 (biogenic)

3 Results

3.4 ENVIRONMENTAL COST INDICATOR NL PER 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	€ 4.19	271,0 %
A2 Transport	€ 0.08	5,3 %
A3 Manufacturing	€ 0.24	15,7 %
A4 Transport from the gate to the site	€ 0.03	1,9 %
A5 Construction - Installation process	€ 0.07	4,7 %
B1 Use	€ 0.00	0,0 %
B2 Maintenance	€ 0.15	9,8 %
B3 Repair	€ 0.00	0,0 %
C1 De-construction / demolition	€ 0.00	0,0 %
C2 Transport	€ 0.01	0,9 %
C3 Waste processing	€ 0.28	17,9 %
C4 Disposal	€ 0.00	0,0 %
D Benefits and loads beyond the product system boundary	€ -3.52	-227,2 %
ECI NL per functional unit	**€ 1.55**	

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