

EPD HUB, EPDHUB-0187

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# ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

## BRETT LANDSCAPING AND BUILDING PRODUCTS

### TRIEF GST2A 914



## GENERAL INFORMATION

### MANUFACTURER INFORMATION

<b>Manufacturer</b>	Brett Landscaping and Building Products
<b>Address</b>	Sileby Road, Barrow upon Soar, Loughborough, Leicestershire, LE12 8LX
<b>Contact details</b>	landscapinginfo@brett.co.uk
<b>Website</b>	www.brettlandscaping.co.uk

### EPD INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction products EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

<b>EPD program operator</b>	EPD Hub, hub@epdhub.com
<b>EPD standards</b>	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
<b>PCR</b>	EPD Hub Core PCR version 1.0, 1 Feb 2022
<b>EPD author</b>	Phillip Litchfield, BLBP
<b>EPD verification</b>	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
<b>Scope of the EPD</b>	Cradle to gate with options, A4-A5, and modules C1-C4
<b>Category of EPD</b>	Third party verified EPD

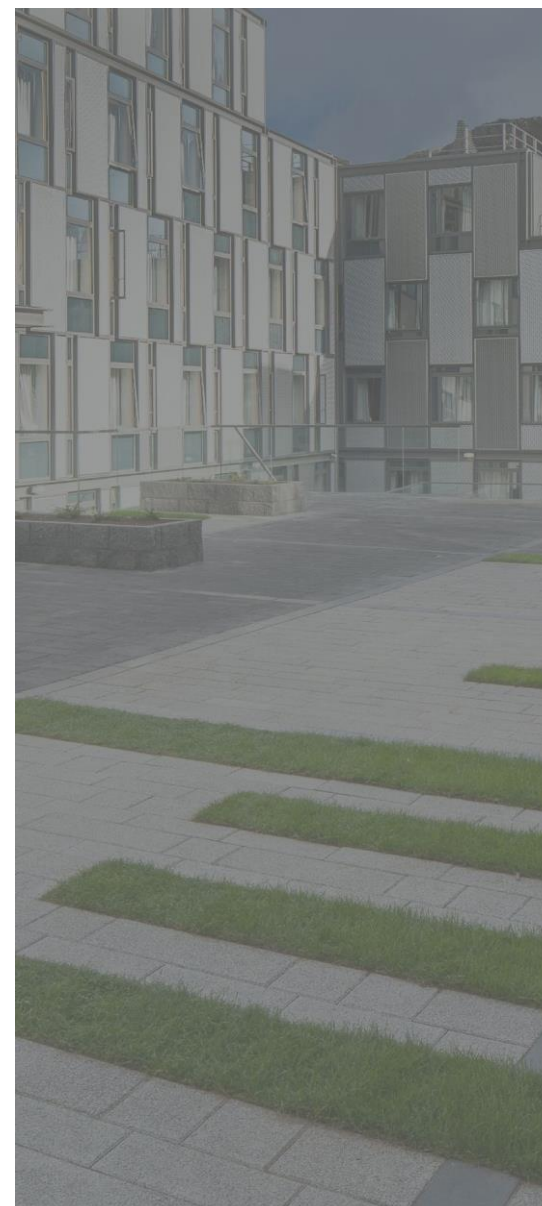
<b>EPD verifier</b>	E.A as authorized verifier acting for EPD Hub Limited
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### PRODUCT

<b>Product name</b>	Trief GST2A 914
<b>Additional labels</b>	Kassel & Trief Kerb / Regatta Trio / Alpha Machine Lay / Beta Trio / Invicta Trio / Lugano Trio / Zeta Lock Closure / Bronte Circles / Rose Top Edgings / Alpha Trio / Alpha Circle / Aura Circle / Vintage Kerb
<b>Place(s) of production</b>	Barrow upon Soar, Cliffe, Pocklington, Poole
<b>Period for data</b>	Calendar year 2021
<b>Averaging in EPD</b>	No averaging

## ENVIRONMENTAL DATA SUMMARY

<b>Declared unit</b>	1 Tonne
<b>Declared unit mass</b>	1000 kg
<b>GWP-fossil, A1 – A3 (kgCO2e)</b>	195
<b>GWP-total, A1 – A3 (kgCO2e)</b>	195
<b>Secondary material, inputs (%)</b>	0.254
<b>Secondary material, outputs (%)</b>	0
<b>Total energy use, A1 – A3 (kWh)</b>	517
<b>Total water use, A1 – A3 (m3e)</b>	2.72



## PRODUCT INFORMATION

### ABOUT THE MANUFACTURER

Brett concrete products are made with aggregates, sands, cements and pigments specially selected for their aesthetic and functional performance.

Cements used are a CEM I. Sands and aggregates are sourced from local quarries when possible.

The finished products are then supplied to customers per pack, most are shrink-wrapped in polythene comprising 30% recycled plastic.

Pallets are not included in the calculation.

The declared unit for this EPD for this product is 1 Tonne.

### PRODUCT APPLICATION

Concrete Flags, Blocks and Kerbs are produced for both the domestic and commercial markets.

Concrete paving products are used in a variety of paving applications including Sustainable Urban Drainage Systems (SUDS) and include blocks, slabs and kerbs.

Installation standard BS 7533-4:2003

Design standard BS 7533-101:2021

### TECHNICAL SPECIFICATIONS

Products are manufactured and tested in accordance with BS EN 1338: 2003, BS EN 1339: 2003 and BS EN 1340: 2003.

See Technical data sheets - More information can be found on the Brett website.

## PRODUCT STANDARDS

Products are manufactured to BS EN 1338: 2003, BS EN 1339: 2003 and BS EN 1340: 2003.

More information can be found on the Brett website.

## PHYSICAL PROPERTIES OF THE PRODUCT

The mean density of the hardened products is 2350 kg/m<sup>3</sup>

## ADDITIONAL TECHNICAL INFORMATION

Further information can be found at [www.brettlandscaping.co.uk](http://www.brettlandscaping.co.uk).

## PRODUCT RAW MATERIAL COMPOSITION

Materials	Percentage range	Material origin
Metals	-	-
Minerals	100%	EU
Fossil materials	-	-
Bio-based materials	-	-

## BIOGENIC CARBON CONTENT

The mass of the product is less than 5%, thus the declaration of biogenic carbon content is not included.

## SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

## SCOPE AND EPD TYPE

This is a Cradle to Gate with options EPD. The modules are outlined in the table below.

Construction on process stage															
Product stage			Construction on process stage			Use stage						End of life stage			
Raw material supply	Transport	Manufacturing	Transport from the gate to site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste Processing	Disposal
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X
MDT	MDT	MDT	OP	OP	OP	OP	OP	OP	OP	OP	OP	MDT	MDT	MDT	MDT

## DECLARED FUNCTIONAL UNIT

The Declared Unit of this EPD is 1 Tonne of concrete paving with useful service life of 50 years.

For the Declared Products in this EPD (listed in Product Identification on page 1), the impact results of these products lie within + or - 10% of the values for the Declared Unit of 1 m<sup>2</sup> of concrete paving - which is the Representative Product. This is based on the values of the CO<sub>2</sub>-eq per m<sup>2</sup> of the products (Cradle-to-Gate, i.e. A1- A3).

## PRODUCT LIFE-CYCLE

### MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

#### A1. Raw materials supply

The raw materials, sands, pigments, admixtures and cements are sourced from within the representative geographic area. This module takes into account extraction and processing (including energies) of raw materials before delivery to Brett sites.

#### A2. Transport

This module covers the impacts of the transport of the raw materials to the production site as outlined in the LCA.

#### A3. Manufacturing Process

Production starts by transporting the binders, aggregates and additives are delivered to silos/bays, from where they are dosed onto a conveyor. Cement is then added to the ingredients, after which the material is mixed dry. Water and additives are then added to the mixture, followed by wet mixing. The wet mass is filled into moulds and formed into its final shape. The products are then transported on an automatic line to a curing chamber. When the first stage of curing is complete the products go to the

packaging line, where they are taken for storage. Eventually, the products are moved out and transported to the customer site.

### TRANSPORT AND INSTALLATION (A4-A5)

#### A4. Transport to Market

Transportation impacts occurred from final products delivery to construction site cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

Average distance of transportation from production plant to building site is 121 km and the transportation method is assumed to be lorry. Vehicle capacity utilization volume factor is assumed to be 1 which means full load. It may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Empty returns are not considered as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product are packaged properly. Also, volume capacity utilisation factor is assumed to be 1 for the nested packaged products.

#### A5. Product Installation

In the product installation process, the following assumptions apply:

- No ancillary materials are used (i.e. zero)
- No energy or other resources are used (i.e. zero)
- Losses of 5% of the product occur on-site during the installation process.
- The lost material is re-used on site as incidental construction infill, and not transported off site.

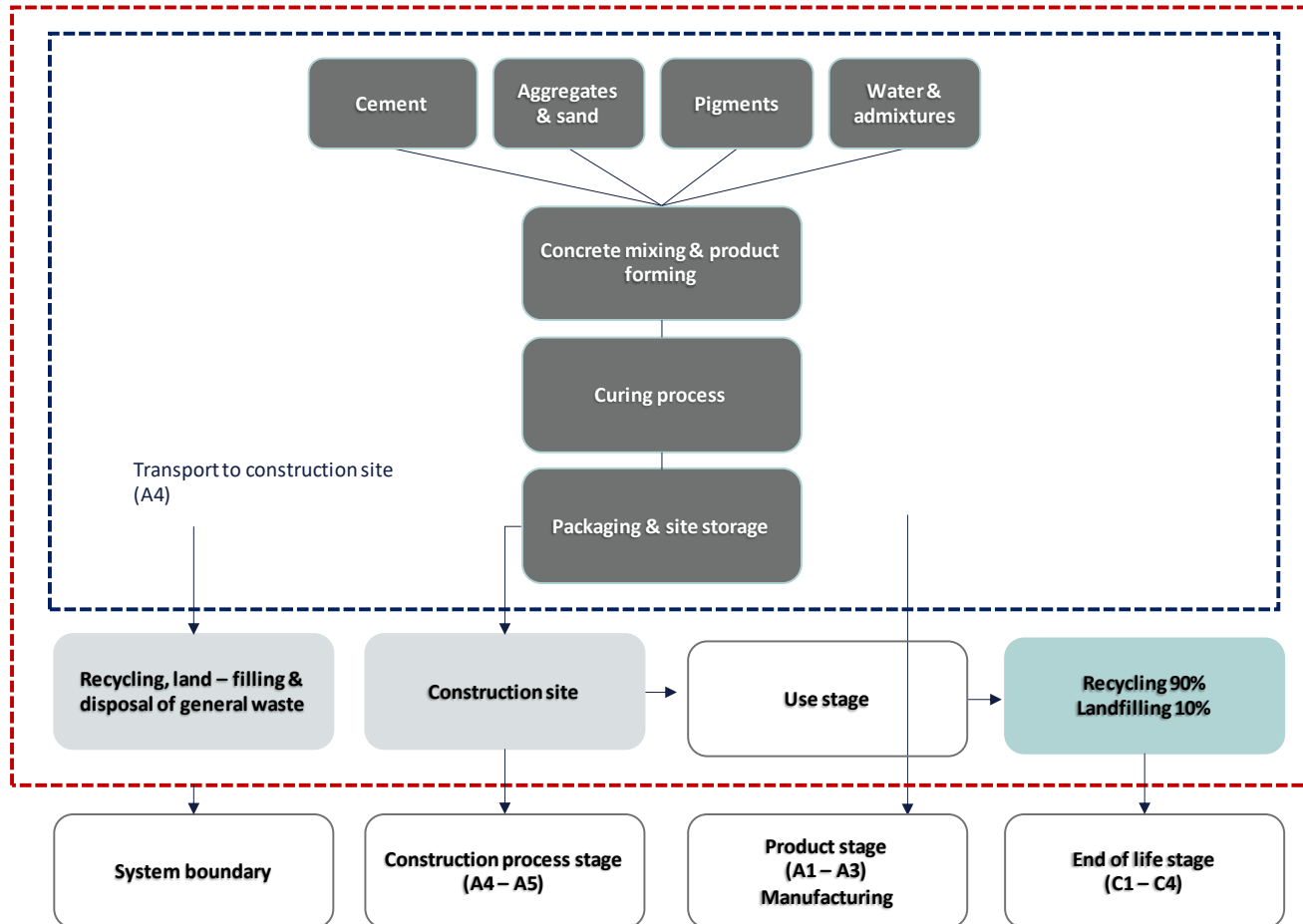
## PRODUCT END OF LIFE (C1-C4)

Name	Value	Unit
Recycling	90	%
Landfilling	10	%

It is assumed that 90% of the product at the end of life stage will be recycled with 10% going to Landfill.

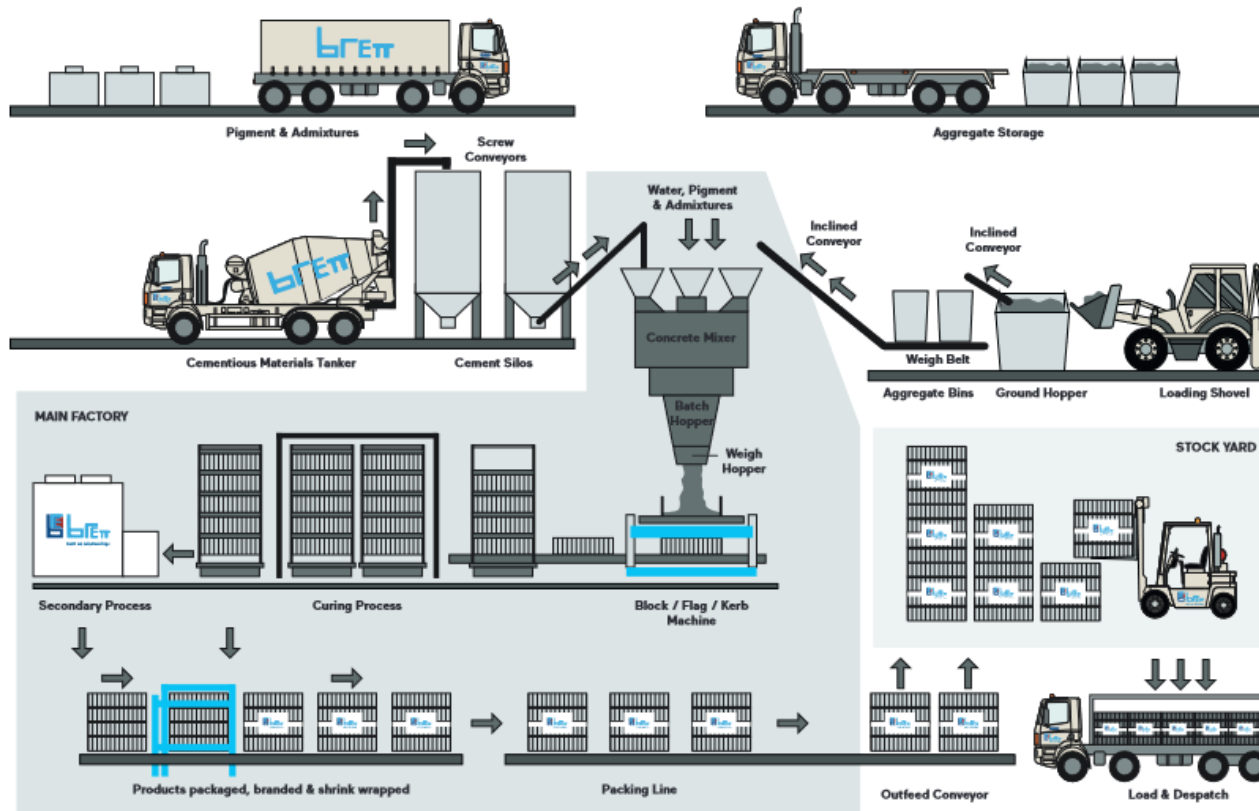
## SYSTEM BOUNDARIES

This EPD covers the Cradle to Gate with modules scope with the following modules: A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing) as well as C1 (Deconstruction), C2 (Transport at end-of-life), C3 (Waste processing) and C4 (Disposal).





# MANUFACTURING PROCESS



## LIFE-CYCLE ASSESSMENT

### DECLARED AND FUNCTIONAL UNIT

<b>Declared unit</b>	1 Tonne
<b>Mass per declared unit</b>	1000 kg
<b>Reference service life</b>	50 years

### CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

## ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

<b>Data type</b>	<b>Allocation</b>
Raw materials	Mass or Volume
Packaging materials	Mass or Volume
Ancillary materials	Mass or Volume
Manufacturing energy & waste	Mass or Volume

## AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	N/A
Variation in GWP- total for A1 – A3	%

This EPD is product and factory specific and does not contain average calculations.

## ENVIRONMENTAL IMPACT DATA

Note: additional environmental impact data may be presented in annexes.

### CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO <sub>2</sub> e	1,6E2	5,94E0	4,7E1	2,12E2	2,01E1	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,34E0	3,6E0	5,28E-1	0E0
GWP – fossil	kg CO <sub>2</sub> e	1,59E2	5,94E0	4,69E1	2,12E2	2,03E1	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,33E0	3,6E0	5,27E-1	0E0
GWP – biogenic	kg CO <sub>2</sub> e	3,32E-2	3,26E-3	9,76E-2	1,34E-1	1,08E-2	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	4,45E-3	1E-3	1,04E-3	0E0
GWP – LULUC	kg CO <sub>2</sub> e	2,43E-2	2E-3	1,16E-2	3,79E-2	7,2E-3	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,96E-3	3,04E-4	1,56E-4	0E0
Ozone depletion pot.	kg CFC-11e	3,28E-6	1,35E-6	6,73E-5	7,19E-5	4,61E-6	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,89E-6	7,78E-7	2,17E-7	0E0
Acidification potential	mol H <sup>+</sup> e	3,29E-1	2,46E-2	5,35E-1	8,88E-1	8,29E-2	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	3,4E-2	3,77E-2	5E-3	0E0
EP-freshwater <sup>3)</sup>	kg Pe	7,34E-5	5,19E-5	4,73E-4	5,98E-4	1,7E-4	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	6,97E-5	1,46E-5	6,36E-6	0E0
EP-marine	kg Ne	1E-1	7,32E-3	6,1E-2	1,69E-1	2,46E-2	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,01E-2	1,66E-2	1,72E-3	0E0
EP-terrestrial	mol Ne	1,14E0	8,09E-2	6,68E-1	1,89E0	2,72E-1	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,12E-1	1,82E-1	1,9E-2	0E0
POCP (“smog”)	kg NMVOCe	2,81E-1	2,52E-2	2,91E-1	5,98E-1	8,33E-2	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	3,42E-2	5,02E-2	5,51E-3	0E0
ADP-minerals & metals	kg Sbe	2,04E-4	1,37E-4	1,04E-4	4,45E-4	5,49E-4	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,25E-4	5,5E-6	4,81E-6	0E0
ADP-fossil resources	MJ	5,47E2	9,01E1	4,16E3	4,8E3	3,06E2	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,26E2	4,96E1	1,47E1	0E0
Water use <sup>2)</sup>	m <sup>3</sup> e depr.	8,4E0	3,25E-1	1,78E0	1,05E1	9,86E-1	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	4,05E-1	9,25E-2	6,81E-1	0E0

1) GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 2) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator. 3) Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO<sub>4</sub>e.

## USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy	MJ	3,3E1	1,16E0	1,37E1	4,79E1	4,32E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,77E0	2,68E-1	1,19E-1	0E0
Renew. PER as material	MJ	4,42E-6	0E0	0E0	4,42E-6	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of renew. PER	MJ	3,3E1	1,16E0	1,37E1	4,79E1	4,32E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,77E0	2,68E-1	1,19E-1	0E0
Non-re. PER as energy	MJ	5,36E2	9,01E1	4,16E3	4,79E3	3,06E2	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,26E2	4,96E1	1,47E1	0E0
Non-re. PER as material	MJ	1,5E1	0E0	0E0	1,5E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of non-re. PER	MJ	5,51E2	9,01E1	4,16E3	4,8E3	3,06E2	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,26E2	4,96E1	1,47E1	0E0
Secondary materials	kg	2,53E0	0E0	1,82E-1	2,71E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Renew. secondary fuels	MJ	7,69E1	0E0	0E0	7,69E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	1,16E2	0E0	0E0	1,16E2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m <sup>3</sup>	2,53E0	1,68E-2	2,83E-1	2,82E0	5,23E-2	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,15E-2	4,38E-3	1,61E-2	0E0

6) PER = Primary energy resources

## END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1,7E-1	9,76E-2	9,3E-1	1,2E0	3,11E-1	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,28E-1	0E0	1,37E-2	0E0
Non-hazardous waste	kg	3,22E0	7,72E0	1,36E1	2,45E1	2,13E1	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,76E0	0E0	1E2	0E0
Radioactive waste	kg	4,83E-4	6,12E-4	3,03E-2	3,14E-2	2,1E-3	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,61E-4	0E0	9,74E-5	0E0

## END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

Materials for recycling	kg	7,47E-3	0E0	0E0	7,47E-3	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for energy rec	kg	2,22E-3	0E0	0E0	2,22E-3	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

## ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO <sub>2</sub> e	6,18E0	5,89E0	4,53E1	5,74E1	2,01E1	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,26E0	3,57E0	5,17E-1	0E0
Ozone depletion Pot.	kg CFC	1,03E-6	1,07E-6	5,32E-5	5,53E-5	3,67E-6	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,51E-6	6,16E-7	1,72E-7	0E0
Acidification	kg SO <sub>2</sub> e	3,32E-2	1,4E-2	4,61E-1	5,08E-1	4,07E-2	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,67E-2	5,32E-3	2,08E-3	0E0
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	8,18E-3	3,01E-3	4,97E-2	6,09E-2	8,36E-3	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	3,43E-3	9,37E-4	4,03E-4	0E0
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	3,75E-3	7,75E-4	1,85E-2	2,31E-2	2,68E-3	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,1E-3	5,47E-4	1,53E-4	0E0
ADP-elements	kg Sbe	2,04E-4	1,37E-4	1,04E-4	4,45E-4	5,49E-4	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,25E-4	5,5E-6	4,81E-6	0E0
ADP-fossil	MJ	5,47E2	9,01E1	4,16E3	4,8E3	3,06E2	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,26E2	4,96E1	1,47E1	0E0

## SCENARIO DOCUMENTATION

### Transport scenario documentation

Scenario parameter	Value
Specific transport CO <sub>2</sub> e emissions, kg CO <sub>2</sub> e / tkm	20
Average transport distance, km	121.8
Capacity utilization (including empty return) %	100
Bulk density of transported products kg/m <sup>3</sup>	2350

## BIBLIOGRAPHY

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations. Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

Ecoinvent database v3.6 (2019) and One Click LCA database.

EN 15804:2012+A2:2019 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

## VERIFICATION STATEMENT

### VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online  
This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

### THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Elma Avdyli as an authorized verifier acting for EPD Hub Limited  
18.11.2022



## OPTIONAL ADDITIONAL ENVIROMENTAL INFORMATION

The kg CO<sub>2</sub>-eq per 1 Tonne of the individual products listed in column A are given in column B (Cradle-to Gate A1-A3), of the that of the Representative Product Trief GST2A 914.

A	B
Product (Barrow)	kg CO <sub>2</sub> -eq per 1 Tonne
<b>Trief GST2A 914</b>	212.00
All other Trief products	212.00
All other Kassel products	212.00
Regatta 60mm Trio	118.90

A	B
Product (Cliffe)	kg CO <sub>2</sub> -eq per 1 Tonne
Regatta 60mm Trio	75.95
Zeta Lock Closure Pack	75.95
Alpha Machine Lay 60mm	75.95
Alpha Machine Lay 80mm	75.95
Alpha 50mm Trio	75.95
Alpha 60mm Trio	75.95
Alpha 50mm Circle	75.95
Alpha 60mm Circle	75.95
Beta 60mm Trio	75.95
Invicta Onynx 60/80mm Trio	78.51
Invicta Pearl 60/80mm Trio	79.09
Invicta Moonstone 60/80mm Trio	79.03
Invicta Citrine 60/80mm Trio	78.73



Lugano 60mm Trio	79.18
Lugano 80mm Trio	79.18

A	B
Product (Pocklington)	kg CO2-eq per 1 Tonne
Bronte Circles	209.00
Rose Top Edging	209.00
Bronte Circle Stepping Stone	209.00
Bronte Patio Pack	209.00
Canterbury Patio Pack	209.00

A	B
Product (Poole)	kg CO2-eq per 1 Tonne
Aura 60mm Circle Pack	110.40
Beta 60mm Trio	110.40
Beta 60mm Circle	110.40
Regatta 60mm Trio	110.40
Regatta 60mm Circle	110.40
Vintage Kerb	110.40
Lugano 60mm Trio	123.80
Lugano 80mm Trio	123.80