



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Concrete

C8/10; C12/15; C16/20; C20/25; C25/30; C30/37; C35/45; C40/50; C45/55

from

Gelmesta UAB

Programme operator	The Building Information Foundation RTS sr
EPD number	RTS_327_24
Publishing date	1.10.2024
EPD valid until	1.10.2029



GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	Gelmesta UAB
Address	Statybininkų g. 1b, Vievis, Lithuania
Contact details	betonas@gelmesta.lt , Tel. +37061883332
Website	www.gelmesta.lt

PRODUCT IDENTIFICATION

Product name	Concrete
Product number / reference	C8/10; C12/15; C16/20; C20/25; C25/30; C30/37; C35/45; C40/50; C45/55
Place(s) of production	Lithuania
CPC code	37560

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must comply with EN15804, be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison.

EPD INFORMATION

EPD program operator	The Building Information Foundation RTS sr
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the RTS PCR (English version, 26.8.2020) is used.
EPD author	Silvija Serapinaitė, Vesta Consulting UAB
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
Verification date	20.09.2024
EPD verifier	Mari Kirss, Rangi Maja OÜ
EPD number	RTS_327_24
Publishing date	1.10.2024
EPD valid until	1.10.2029

Jukka Seppänen
RTS EPD Committee Secretary

Laura Apilo
Managing Director



PRODUCT INFORMATION

PRODUCT DESCRIPTION

Concrete is a widely used construction material that forms the basis of many structures, such as buildings, bridges, roads, and various infrastructure components. It consists of three main components: cement, sand, and aggregate, mixed with water to create a solid and durable material.

Concrete properties:

- **Strength:** Well-mixed and properly cured concrete can be very strong and long-lasting.
- **Durability:** Concrete is resistant to fire and chemicals and can also be water-resistant if properly prepared.
- **Moldability:** Before setting, concrete is quite fluid and can be shaped as needed, allowing for the creation of various forms and structures.

Concrete is a highly versatile material, and its use and development continue to evolve to meet various construction and engineering needs.

PRODUCT APPLICATION

Concrete has a wide range of applications, encompassing construction, engineering, and architectural fields.

Construction:

- **Building Structures:** Used for both residential and commercial buildings, including foundations, walls, floors, and other structural elements.

- **Bridges:** Constructed from concrete due to its strength and durability, such as large bridges, viaducts, and road crossings.
- **Tunnels and Underground Structures:** Used for tunnels, metro lines, and other underground constructions.

Infrastructure:

- **Roads and Pavements:** Concrete is often used for roads, highways, and pavements due to its longevity and wear resistance.
- **Drainage Systems:** Used for sewer pipes and other water management systems.
- **Retaining Walls and Supports:** Employed in building retaining walls, garden walls, protective structures, and more.

Engineering:

- **Crane Paths and Industrial Structures:** Concrete is used to create stable and durable areas for material handling and engineering facilities.
- **Water Reservoirs and Dams:** Used in constructing water storage tanks, dams, and other water management structures.

Architecture and Design:

- **Decorative Concrete:** Utilized to create aesthetically pleasing surfaces, floors, walls, and other architectural features.
- **Sculptures and Artworks:** Concrete is also used in creating various sculptures and art pieces due to its moldability and durability.

Recreation and Public Spaces:

- Parks and Leisure Areas: Used for creating walkways, plazas, benches, and other elements in public spaces.
- Sports Facilities: Concrete is used for sports surfaces such as basketball courts and tennis courts.

TECHNICAL SPECIFICATIONS

Type of concrete is C8/10 - C45/55.

PRODUCT STANDARDS

Concrete has CE marking and represents that products comply with the EU's New Approach Directives. Concrete products are manufactured in compliance with these European standards which specifies all requirements for factory made concrete products:

- a) EN 206
- b) LST 1974

Company is certified with certification ISO 9001:2015 (Quality Standard), ISO 14001:2015 (Environmental Standard), ISO 45001:2018 (Occupational health and safety management systems), EN 206:2013+A2:2021 (Concrete – Specification, performance, production and conformity.)

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at www.gelmesta.lt.

PRODUCT RAW MATERIAL COMPOSITION

Concrete consist of:

- Cement - acts as a binder that reacts with water to form chemical compounds that firmly hold the other components together.
- Sand - typically used as a fine aggregate, which improves the texture and stability of the concrete.
- Aggregate - larger than sand, provides structural strength and hardness to the concrete.
- Water - necessary to activate the cement and create a chemical reaction called hydration, which hardens and strengthens the concrete.

PRODUCT RAW MATERIAL COMPOSITION

Materials	Weight, kg									Post-consumer material, weight-%	Biogenic material, weight-%	Biogenic material, kg C/DU
	C8/10	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55			
Sand	1035,5	1022,5	1014,6	974,0	1006,5	965,2	906,6	848,3	885,5	0	0	0
Pebbles	985,8	983,1	980,0	937,7	435,2	508,4	-	-	-	0	0	0
Cement	169,3	186,8	197,3	276,4	313,5	365,3	398,2	468,7	444,2	0	0	0
Crushed gravel	-	-	-	-	435,2	338,5	-	-	-	0	0	0
Granite rubble	-	-	-	-	-	-	911,0	911,1	892,4	0	0	0
Water	139,4	137,6	138,1	152,0	159,6	172,7	174,2	171,9	177,9	0	0	0
Total	2330	2330	2330	2340	2350	2350	2390	2400	2400	0	0	0

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %									Material origin
	C8/10	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	
Metals	-	-	-	-	-	-	-	-	-	-
Minerals	86,75	86,08	85,60	81,70	79,87	77,11	76,05	73,31	74,08	LT
Fossil materials	7,27	8,02	8,47	11,81	13,34	15,54	16,66	19,53	18,51	EU
Bio-based	-	-	-	-	-	-	-	-	-	-
Other (water)	5,98	5,91	5,93	6,49	6,79	7,35	7,29	7,16	7,41	LT

SUBSTANCES, REACH - VERY HIGH CONCERN

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

LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2023
EPD type	Specific product EPD

DECLARED AND FUNCTIONAL UNIT

Declared unit	1 m ³
Mass per declared unit	2330-2400 kg

SYSTEM BOUNDARY

The type of scope for this study is cradle to gate, modules C1–C4 and module D and covers impacts of raw materials’ production, their transportation to the production plant, manufacturing process, and end-of-life stage.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	MND	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x	x	x
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

BIOGENIC CARBON CONTENT

Product’s biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
--	---

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.

In this study, as per EN 15804, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g. mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

The allocations in the Ecoinvent 3.8 datasets used in this study follow the Ecoinvent system model ‘Allocation, cut-off, EN15804’.

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

A1: This module considers the extraction and processing of raw materials.

A2: The raw materials are transported to the manufacturing plant. In this case the model includes road transportation of each raw material.

A3: This module includes the manufacture of products. It has considered all the energy consumption and waste generated in the production plant.

MANUFACTURING PROCESS

Preparation of Components

Cement: Cement is used as the main component. It should be stored in a dry place to avoid moisture exposure.

Aggregates: Aggregates such as sand and fine gravel should be clean and free of organic materials to ensure good quality concrete. Aggregates must meet specific size and gradation standards.

Water: The water used must be clean and free of chemical impurities to maintain the quality of the concrete.

Mix Proportions

Recipe: The exact proportions of components are determined based on the desired compressive strength and other specifications.

Mix Preparation

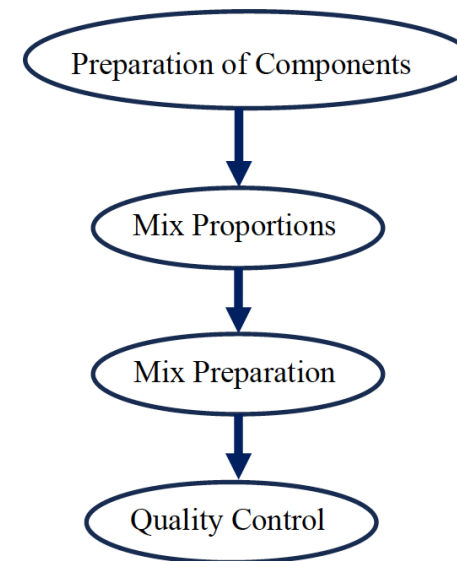
Proportioning: Accurate proportions of cement, aggregates, and water are crucial for producing C 8/10 - C 45/45 concrete.

Mixing: Cement, sand, gravel, and water are combined in a mixer. This process ensures uniform distribution of materials and the desired consistency. The duration and methods of mixing may vary depending on the type of mixer and the desired concrete quality.

Quality Control

Consistency Check: The consistency of the concrete is checked using slump tests to ensure it meets the required standards.

Strength Tests: Samples are taken from each batch to perform compression tests. These tests are conducted after 28 days to determine the development of concrete strength.



TRANSPORT AND INSTALLATION (A4-A5)

This EPD does not cover the transport and installation stage. The GWP (global warming potential) of A4 stage is less than 20% of the GWP of modules A1–A3 and less than 1000 km, so it is not mandatory to declare.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

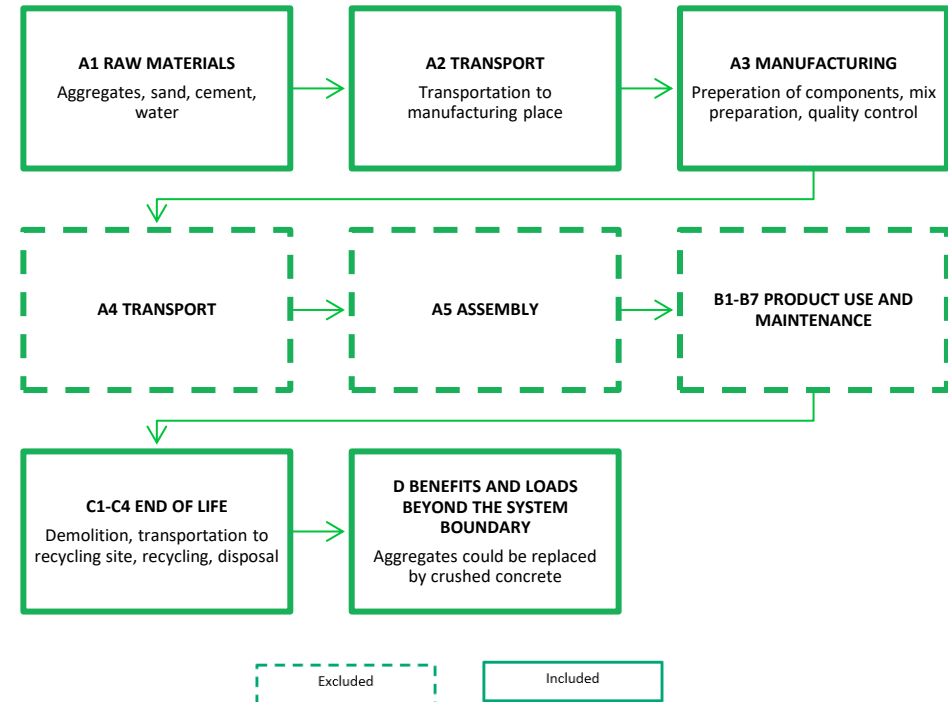
PRODUCT END OF LIFE (C1-C4, D)

Energy consumption for demolition is 10 kWh/1000 kg = 0,01 kWh/kg. According to European commission Waste Framework Directive by 2020, the preparing for re-use, recycling and other material recovery of non-hazardous construction and demolition waste shall be increased to a minimum of 70% by weight. It is assumed that 70% of the concrete waste is recycled. The remaining 30% of concrete is assumed to be sent to the landfill. Transportation distance to the closest recycling facility or landfill is estimated as 50 km and the transportation method is lorry which is the most common. Study evaluates end of life scenarios for EU location.

Benefits and loads beyond the system boundary (D):

Benefits of recyclable waste generated in the phase C3 are taken into account in the phase D. Crushed concrete is made into rubble that can be used as a raw material in concrete production for road gravel.

THE PROCESS DIAGRAM



ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

CONCRETE C8/10

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	1,67E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,71E+00	1,09E+01	6,55E+00	3,68E+00	-1,31E+01
GWP – fossil	kg CO ₂ e	1,67E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,71E+00	1,09E+01	6,55E+00	3,68E+00	-1,31E+01
GWP – biogenic	kg CO ₂ e	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO ₂ e	3,86E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,68E-04	4,03E-03	6,52E-04	3,48E-03	-1,80E-02
Ozone depletion pot.	kg CFC ₁₁ e	7,84E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-06	2,52E-06	1,40E-06	1,49E-06	-1,07E-06
Acidification potential	mol H ⁺ e	4,57E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,01E-02	4,63E-02	6,81E-02	3,46E-02	-8,49E-02
EP-freshwater ²⁾	kg Pe	2,05E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,55E-05	8,95E-05	2,17E-05	3,86E-05	-7,44E-04
EP-marine	kg Ne	1,23E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,55E-02	1,38E-02	3,01E-02	1,20E-02	-1,84E-02
EP-terrestrial	mol Ne	1,42E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,89E-01	1,52E-01	3,30E-01	1,32E-01	-2,39E-01
POCP (“smog”) ³⁾	kg NMVOCe	3,75E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,07E-01	4,86E-02	9,09E-02	3,83E-02	-6,15E-02
ADP-minerals & metals ⁴⁾	kg Sbe	6,31E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,91E-06	2,56E-05	3,33E-06	8,46E-06	-1,28E-04
ADP-fossil resources	MJ	8,51E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,64E+02	8,82E+01	1,01E+02	-1,90E+02
Water use ⁵⁾	m ³ e depr.	1,55E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,79E-01	7,35E-01	2,37E-01	3,20E-01	-2,50E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO₄e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) 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 experience with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	5,39E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,93E-01	1,85E+00	5,04E-01	8,76E-01	-1,70E+01
Renew. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	5,39E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,93E-01	1,85E+00	5,04E-01	8,76E-01	-1,70E+01
Non-re. PER as energy	MJ	8,51E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,64E+02	8,82E+01	1,01E+02	-1,90E+02
Non-re. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	8,51E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,64E+02	8,82E+01	1,01E+02	-1,90E+02
Secondary materials	kg	2,85E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,06E-02	4,56E-02	3,45E-02	2,12E-02	1,63E+03
Renew. secondary fuels	MJ	2,41E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,33E-04	4,60E-04	1,13E-04	5,54E-04	-1,49E-03
Non-ren. secondary fuels	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	3,38E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,30E-03	2,13E-02	5,35E-03	1,10E-01	-6,03E-01

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	3,30E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,39E-01	2,18E-01	1,18E-01	0,00E+00	-1,11E+00
Non-hazardous waste	kg	8,85E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,76E-01	3,58E+00	8,29E-01	6,99E+02	-3,27E+01
Radioactive waste	kg	4,57E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,30E-04	1,10E-03	6,21E-04	0,00E+00	-9,45E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,63E+03	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	7,14E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,70E-03	2,81E-03	1,58E-03	-5,65E-03
ADP-minerals & metals	kg Sbe	1,45E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,07E-08	1,40E-09	3,58E-09	-5,42E-08
ADP-fossil	MJ	3,65E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	3,78E-02	4,33E-02	-8,13E-02
Water use	m ³ e depr.	6,66E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,20E-04	3,15E-04	1,02E-04	1,37E-04	-1,08E-02
Secondary materials	kg	1,22E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,74E-05	1,96E-05	1,48E-05	9,10E-06	7,00E-01
Biog. C in product ⁹⁾	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9) Biog. C in product = Biogenic carbon content in product

CONCRETE C12/15

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	1,84E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,71E+00	1,09E+01	6,55E+00	3,68E+00	-1,31E+01
GWP – fossil	kg CO ₂ e	1,84E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,71E+00	1,09E+01	6,55E+00	3,68E+00	-1,31E+01
GWP – biogenic	kg CO ₂ e	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO ₂ e	4,16E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,68E-04	4,03E-03	6,52E-04	3,48E-03	-1,80E-02
Ozone depletion pot.	kg CFC-11e	8,47E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-06	2,52E-06	1,40E-06	1,49E-06	-1,07E-06
Acidification potential	mol H ⁺ e	4,99E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,01E-02	4,63E-02	6,81E-02	3,46E-02	-8,49E-02
EP-freshwater ²⁾	kg Pe	2,24E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,55E-05	8,95E-05	2,17E-05	3,86E-05	-7,44E-04
EP-marine	kg Ne	1,34E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,55E-02	1,38E-02	3,01E-02	1,20E-02	-1,84E-02
EP-terrestrial	mol Ne	1,56E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,89E-01	1,52E-01	3,30E-01	1,32E-01	-2,39E-01
POCP (“smog”) ³⁾	kg NMVOCe	4,08E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,07E-01	4,86E-02	9,09E-02	3,83E-02	-6,15E-02
ADP-minerals & metals ⁴⁾	kg Sbe	6,94E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,91E-06	2,56E-05	3,33E-06	8,46E-06	-1,28E-04
ADP-fossil resources	MJ	9,23E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,64E+02	8,82E+01	1,01E+02	-1,90E+02
Water use ⁵⁾	m ³ e depr.	1,71E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,79E-01	7,35E-01	2,37E-01	3,20E-01	-2,50E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) 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 experience with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	5,82E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,93E-01	1,85E+00	5,04E-01	8,76E-01	-1,70E+01
Renew. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	5,82E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,93E-01	1,85E+00	5,04E-01	8,76E-01	-1,70E+01
Non-re. PER as energy	MJ	9,24E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,64E+02	8,82E+01	1,01E+02	-1,90E+02
Non-re. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	9,24E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,64E+02	8,82E+01	1,01E+02	-1,90E+02
Secondary materials	kg	3,02E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,06E-02	4,56E-02	3,45E-02	2,12E-02	1,63E+03
Renew. secondary fuels	MJ	2,59E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,33E-04	4,60E-04	1,13E-04	5,54E-04	-1,49E-03
Non-ren. secondary fuels	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	3,44E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,30E-03	2,13E-02	5,35E-03	1,10E-01	-6,03E-01

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	3,59E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,39E-01	2,18E-01	1,18E-01	0,00E+00	-1,11E+00
Non-hazardous waste	kg	9,70E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,76E-01	3,58E+00	8,29E-01	6,99E+02	-3,27E+01
Radioactive waste	kg	4,96E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,30E-04	1,10E-03	6,21E-04	0,00E+00	-9,45E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,63E+03	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	7,89E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,70E-03	2,81E-03	1,58E-03	-5,65E-03
ADP-minerals & metals	kg Sbe	1,57E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,07E-08	1,40E-09	3,58E-09	-5,42E-08
ADP-fossil	MJ	3,96E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	3,78E-02	4,33E-02	-8,13E-02
Water use	m ³ e depr.	7,33E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,20E-04	3,15E-04	1,02E-04	1,37E-04	-1,08E-02
Secondary materials	kg	1,30E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,74E-05	1,96E-05	1,48E-05	9,10E-06	7,00E-01
Biog. C in product ⁹⁾	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9) Biog. C in product = Biogenic carbon content in product

CONCRETE C16/20

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	1,93E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,71E+00	1,09E+01	6,55E+00	3,68E+00	-1,31E+01
GWP – fossil	kg CO ₂ e	1,93E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,71E+00	1,09E+01	6,55E+00	3,68E+00	-1,31E+01
GWP – biogenic	kg CO ₂ e	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO ₂ e	4,31E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,68E-04	4,03E-03	6,52E-04	3,48E-03	-1,80E-02
Ozone depletion pot.	kg CFC ₁₁ e	8,77E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-06	2,52E-06	1,40E-06	1,49E-06	-1,07E-06
Acidification potential	mol H ⁺ e	5,20E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,01E-02	4,63E-02	6,81E-02	3,46E-02	-8,49E-02
EP-freshwater ²⁾	kg Pe	2,34E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,55E-05	8,95E-05	2,17E-05	3,86E-05	-7,44E-04
EP-marine	kg Ne	1,40E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,55E-02	1,38E-02	3,01E-02	1,20E-02	-1,84E-02
EP-terrestrial	mol Ne	1,62E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,89E-01	1,52E-01	3,30E-01	1,32E-01	-2,39E-01
POCP (“smog”) ³⁾	kg NMVOCe	4,24E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,07E-01	4,86E-02	9,09E-02	3,83E-02	-6,15E-02
ADP-minerals & metals ⁴⁾	kg Sbe	7,25E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,91E-06	2,56E-05	3,33E-06	8,46E-06	-1,28E-04
ADP-fossil resources	MJ	9,59E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,64E+02	8,82E+01	1,01E+02	-1,90E+02
Water use ⁵⁾	m ³ e depr.	1,78E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,79E-01	7,35E-01	2,37E-01	3,20E-01	-2,50E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) 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 experience with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	6,03E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,93E-01	1,85E+00	5,04E-01	8,76E-01	-1,70E+01
Renew. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	6,03E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,93E-01	1,85E+00	5,04E-01	8,76E-01	-1,70E+01
Non-re. PER as energy	MJ	9,59E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,64E+02	8,82E+01	1,01E+02	-1,90E+02
Non-re. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	9,59E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,64E+02	8,82E+01	1,01E+02	-1,90E+02
Secondary materials	kg	3,09E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,06E-02	4,56E-02	3,45E-02	2,12E-02	1,63E+03
Renew. secondary fuels	MJ	2,67E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,33E-04	4,60E-04	1,13E-04	5,54E-04	-1,49E-03
Non-ren. secondary fuels	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	3,44E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,30E-03	2,13E-02	5,35E-03	1,10E-01	-6,03E-01

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	3,73E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,39E-01	2,18E-01	1,18E-01	0,00E+00	-1,11E+00
Non-hazardous waste	kg	1,01E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,76E-01	3,58E+00	8,29E-01	6,99E+02	-3,27E+01
Radioactive waste	kg	5,15E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,30E-04	1,10E-03	6,21E-04	0,00E+00	-9,45E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,63E+03	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	8,27E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,70E-03	2,81E-03	1,58E-03	-5,65E-03
ADP-minerals & metals	kg Sbe	1,63E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,07E-08	1,40E-09	3,58E-09	-5,42E-08
ADP-fossil	MJ	4,11E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	3,78E-02	4,33E-02	-8,13E-02
Water use	m ³ e depr.	7,66E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,20E-04	3,15E-04	1,02E-04	1,37E-04	-1,08E-02
Secondary materials	kg	1,33E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,74E-05	1,96E-05	1,48E-05	9,10E-06	7,00E-01
Biog. C in product ⁹⁾	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9) Biog. C in product = Biogenic carbon content in product

CONCRETE C20/25

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	2,61E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,75E+00	1,10E+01	6,58E+00	3,70E+00	-1,32E+01
GWP – fossil	kg CO ₂ e	2,61E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,74E+00	1,10E+01	6,58E+00	3,70E+00	-1,32E+01
GWP – biogenic	kg CO ₂ e	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO ₂ e	5,45E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,71E-04	4,05E-03	6,55E-04	3,49E-03	-1,81E-02
Ozone depletion pot.	kg CFC ₁₁ e	1,11E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,66E-06	2,53E-06	1,41E-06	1,50E-06	-1,07E-06
Acidification potential	mol H ⁺ e	6,81E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,05E-02	4,65E-02	6,84E-02	3,48E-02	-8,53E-02
EP-freshwater ²⁾	kg Pe	3,09E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,57E-05	8,99E-05	2,18E-05	3,87E-05	-7,48E-04
EP-marine	kg Ne	1,82E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,56E-02	1,38E-02	3,03E-02	1,20E-02	-1,85E-02
EP-terrestrial	mol Ne	2,12E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,91E-01	1,52E-01	3,32E-01	1,32E-01	-2,40E-01
POCP (“smog”) ³⁾	kg NMVOCe	5,51E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,07E-01	4,88E-02	9,13E-02	3,85E-02	-6,17E-02
ADP-minerals & metals ⁴⁾	kg Sbe	9,69E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,93E-06	2,57E-05	3,34E-06	8,49E-06	-1,28E-04
ADP-fossil resources	MJ	1,23E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,65E+02	8,85E+01	1,01E+02	-1,90E+02
Water use ⁵⁾	m ³ e depr.	2,38E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,80E-01	7,38E-01	2,38E-01	3,22E-01	-2,52E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) 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 experience with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	7,68E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,95E-01	1,86E+00	5,06E-01	8,80E-01	-1,71E+01
Renew. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	7,68E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,95E-01	1,86E+00	5,06E-01	8,80E-01	-1,71E+01
Non-re. PER as energy	MJ	1,23E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,65E+02	8,85E+01	1,01E+02	-1,90E+02
Non-re. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	1,23E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,04E+02	1,65E+02	8,85E+01	1,01E+02	-1,90E+02
Secondary materials	kg	3,67E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,08E-02	4,58E-02	3,47E-02	2,13E-02	1,64E+03
Renew. secondary fuels	MJ	3,29E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,33E-04	4,62E-04	1,13E-04	5,56E-04	-1,50E-03
Non-ren. secondary fuels	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	3,48E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,33E-03	2,14E-02	5,38E-03	1,11E-01	-6,06E-01

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	4,82E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,39E-01	2,19E-01	1,18E-01	0,00E+00	-1,11E+00
Non-hazardous waste	kg	1,34E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,80E-01	3,59E+00	8,33E-01	7,02E+02	-3,28E+01
Radioactive waste	kg	6,62E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,33E-04	1,10E-03	6,23E-04	0,00E+00	-9,49E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,64E+03	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	1,12E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,70E-03	2,81E-03	1,58E-03	-5,65E-03
ADP-minerals & metals	kg Sbe	2,09E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,07E-08	1,40E-09	3,58E-09	-5,42E-08
ADP-fossil	MJ	5,26E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	3,78E-02	4,33E-02	-8,13E-02
Water use	m ³ e depr.	1,02E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,20E-04	3,15E-04	1,02E-04	1,37E-04	-1,08E-02
Secondary materials	kg	1,57E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,74E-05	1,96E-05	1,48E-05	9,10E-06	7,00E-01
Biog. C in product ⁹⁾	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9) Biog. C in product = Biogenic carbon content in product

CONCRETE C25/30

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	2,95E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,78E+00	1,10E+01	6,61E+00	3,72E+00	-1,32E+01
GWP – fossil	kg CO ₂ e	2,95E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,78E+00	1,10E+01	6,61E+00	3,71E+00	-1,32E+01
GWP – biogenic	kg CO ₂ e	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO ₂ e	6,29E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,74E-04	4,07E-03	6,58E-04	3,51E-03	-1,82E-02
Ozone depletion pot.	kg CFC ₋₁₁ e	1,23E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,66E-06	2,54E-06	1,41E-06	1,50E-06	-1,08E-06
Acidification potential	mol H ⁺ e	7,67E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,08E-02	4,67E-02	6,87E-02	3,49E-02	-8,56E-02
EP-freshwater ²⁾	kg Pe	3,59E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,58E-05	9,03E-05	2,19E-05	3,89E-05	-7,51E-04
EP-marine	kg Ne	2,03E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,58E-02	1,39E-02	3,04E-02	1,21E-02	-1,85E-02
EP-terrestrial	mol Ne	2,37E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,92E-01	1,53E-01	3,33E-01	1,33E-01	-2,41E-01
POCP (“smog”) ³⁾	kg NMVOCe	6,14E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,08E-01	4,90E-02	9,17E-02	3,87E-02	-6,20E-02
ADP-minerals & metals ⁴⁾	kg Sbe	1,10E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,94E-06	2,59E-05	3,36E-06	8,53E-06	-1,29E-04
ADP-fossil resources	MJ	1,39E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,05E+02	1,66E+02	8,89E+01	1,02E+02	-1,91E+02
Water use ⁵⁾	m ³ e depr.	3,30E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,81E-01	7,41E-01	2,39E-01	3,23E-01	-2,53E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) 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 experience with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	8,79E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,98E-01	1,87E+00	5,08E-01	8,84E-01	-1,72E+01
Renew. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	8,79E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,98E-01	1,87E+00	5,08E-01	8,84E-01	-1,72E+01
Non-re. PER as energy	MJ	1,39E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,05E+02	1,66E+02	8,89E+01	1,02E+02	-1,91E+02
Non-re. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	1,39E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,05E+02	1,66E+02	8,89E+01	1,02E+02	-1,91E+02
Secondary materials	kg	4,28E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,10E-02	4,60E-02	3,48E-02	2,14E-02	1,65E+03
Renew. secondary fuels	MJ	3,86E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,34E-04	4,64E-04	1,14E-04	5,59E-04	-1,50E-03
Non-ren. secondary fuels	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	3,05E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,35E-03	2,15E-02	5,40E-03	1,11E-01	-6,08E-01

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	5,49E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,40E-01	2,20E-01	1,19E-01	0,00E+00	-1,12E+00
Non-hazardous waste	kg	1,56E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,84E-01	3,61E+00	8,36E-01	7,05E+02	-3,29E+01
Radioactive waste	kg	7,48E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,37E-04	1,11E-03	6,26E-04	0,00E+00	-9,53E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,65E+03	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	1,25E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,70E-03	2,81E-03	1,58E-03	-5,65E-03
ADP-minerals & metals	kg Sbe	2,38E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,07E-08	1,40E-09	3,58E-09	-5,42E-08
ADP-fossil	MJ	5,91E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	3,78E-02	4,33E-02	-8,13E-02
Water use	m ³ e depr.	1,41E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,20E-04	3,15E-04	1,02E-04	1,37E-04	-1,08E-02
Secondary materials	kg	1,82E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,74E-05	1,96E-05	1,48E-05	9,10E-06	7,00E-01
Biog. C in product ⁹⁾	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9) Biog. C in product = Biogenic carbon content in product

CONCRETE C30/37

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	3,40E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,78E+00	1,10E+01	6,61E+00	3,72E+00	-1,32E+01
GWP – fossil	kg CO ₂ e	3,40E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,78E+00	1,10E+01	6,61E+00	3,71E+00	-1,32E+01
GWP – biogenic	kg CO ₂ e	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO ₂ e	6,97E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,74E-04	4,07E-03	6,58E-04	3,51E-03	-1,82E-02
Ozone depletion pot.	kg CFC-11e	1,38E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,66E-06	2,54E-06	1,41E-06	1,50E-06	-1,08E-06
Acidification potential	mol H ⁺ e	8,71E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,08E-02	4,67E-02	6,87E-02	3,49E-02	-8,56E-02
EP-freshwater ²⁾	kg Pe	4,06E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,58E-05	9,03E-05	2,19E-05	3,89E-05	-7,51E-04
EP-marine	kg Ne	2,31E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,58E-02	1,39E-02	3,04E-02	1,21E-02	-1,85E-02
EP-terrestrial	mol Ne	2,70E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,92E-01	1,53E-01	3,33E-01	1,33E-01	-2,41E-01
POCP (“smog”) ³⁾	kg NMVOce	6,97E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,08E-01	4,90E-02	9,17E-02	3,87E-02	-6,20E-02
ADP-minerals & metals ⁴⁾	kg Sbe	1,26E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,94E-06	2,59E-05	3,36E-06	8,53E-06	-1,29E-04
ADP-fossil resources	MJ	1,56E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,05E+02	1,66E+02	8,89E+01	1,02E+02	-1,91E+02
Water use ⁵⁾	m ³ e depr.	3,56E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,81E-01	7,41E-01	2,39E-01	3,23E-01	-2,53E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) 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 experience with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	9,81E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,98E-01	1,87E+00	5,08E-01	8,84E-01	-1,72E+01
Renew. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	9,81E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,98E-01	1,87E+00	5,08E-01	8,84E-01	-1,72E+01
Non-re. PER as energy	MJ	1,56E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,05E+02	1,66E+02	8,89E+01	1,02E+02	-1,91E+02
Non-re. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	1,56E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,05E+02	1,66E+02	8,89E+01	1,02E+02	-1,91E+02
Secondary materials	kg	4,59E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,10E-02	4,60E-02	3,48E-02	2,14E-02	1,65E+03
Renew. secondary fuels	MJ	4,21E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,34E-04	4,64E-04	1,14E-04	5,59E-04	-1,50E-03
Non-ren. secondary fuels	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	3,18E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,35E-03	2,15E-02	5,40E-03	1,11E-01	-6,08E-01

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	6,18E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,40E-01	2,20E-01	1,19E-01	0,00E+00	-1,12E+00
Non-hazardous waste	kg	1,76E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,84E-01	3,61E+00	8,36E-01	7,05E+02	-3,29E+01
Radioactive waste	kg	8,42E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,37E-04	1,11E-03	6,26E-04	0,00E+00	-9,53E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,65E+03	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	1,44E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,70E-03	2,81E-03	1,58E-03	-5,65E-03
ADP-minerals & metals	kg Sbe	2,66E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,07E-08	1,40E-09	3,58E-09	-5,42E-08
ADP-fossil	MJ	6,64E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	3,78E-02	4,33E-02	-8,13E-02
Water use	m ³ e depr.	1,51E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,20E-04	3,15E-04	1,02E-04	1,37E-04	-1,08E-02
Secondary materials	kg	1,95E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,74E-05	1,96E-05	1,48E-05	9,10E-06	7,00E-01
Biog. C in product ⁹⁾	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9) Biog. C in product = Biogenic carbon content in product

CONCRETE C35/45

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	4,08E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,91E+00	1,12E+01	6,72E+00	3,78E+00	-1,35E+01
GWP – fossil	kg CO ₂ e	4,08E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,91E+00	1,12E+01	6,72E+00	3,78E+00	-1,34E+01
GWP – biogenic	kg CO ₂ e	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO ₂ e	1,53E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,88E-04	4,14E-03	6,69E-04	3,57E-03	-1,85E-02
Ozone depletion pot.	kg CFC ₁₁ e	1,50E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,69E-06	2,58E-06	1,44E-06	1,53E-06	-1,10E-06
Acidification potential	mol H ⁺ e	1,29E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,22E-02	4,75E-02	6,98E-02	3,55E-02	-8,71E-02
EP-freshwater ²⁾	kg Pe	1,09E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,62E-05	9,18E-05	2,23E-05	3,96E-05	-7,64E-04
EP-marine	kg Ne	4,13E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,64E-02	1,41E-02	3,09E-02	1,23E-02	-1,89E-02
EP-terrestrial	mol Ne	4,62E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,99E-01	1,56E-01	3,39E-01	1,35E-01	-2,45E-01
POCP (“smog”) ³⁾	kg NMVOCe	1,24E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,10E-01	4,98E-02	9,32E-02	3,93E-02	-6,30E-02
ADP-minerals & metals ⁴⁾	kg Sbe	1,40E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,01E-06	2,63E-05	3,41E-06	8,68E-06	-1,31E-04
ADP-fossil resources	MJ	2,19E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,06E+02	1,68E+02	9,04E+01	1,04E+02	-1,94E+02
Water use ⁵⁾	m ³ e depr.	3,78E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,86E-01	7,54E-01	2,43E-01	3,28E-01	-2,57E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) 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 experience with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	1,28E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,08E-01	1,90E+00	5,17E-01	8,99E-01	-1,75E+01
Renew. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	1,28E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,08E-01	1,90E+00	5,17E-01	8,99E-01	-1,75E+01
Non-re. PER as energy	MJ	2,19E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,06E+02	1,68E+02	9,04E+01	1,04E+02	-1,94E+02
Non-re. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	2,19E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,06E+02	1,68E+02	9,04E+01	1,04E+02	-1,94E+02
Secondary materials	kg	4,07E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,17E-02	4,68E-02	3,54E-02	2,18E-02	1,67E+03
Renew. secondary fuels	MJ	3,98E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,36E-04	4,72E-04	1,16E-04	5,68E-04	-1,53E-03
Non-ren. secondary fuels	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	3,77E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,46E-03	2,18E-02	5,49E-03	1,13E-01	-6,19E-01

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	6,21E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,42E-01	2,23E-01	1,21E-01	0,00E+00	-1,14E+00
Non-hazardous waste	kg	2,29E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,00E+00	3,67E+00	8,50E-01	7,17E+02	-3,35E+01
Radioactive waste	kg	9,49E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,49E-04	1,13E-03	6,37E-04	0,00E+00	-9,70E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,67E+03	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	1,71E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,70E-03	2,81E-03	1,58E-03	-5,65E-03
ADP-minerals & metals	kg Sbe	2,61E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,07E-08	1,40E-09	3,58E-09	-5,42E-08
ADP-fossil	MJ	6,67E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	3,78E-02	4,33E-02	-8,13E-02
Water use	m ³ e depr.	1,58E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,20E-04	3,15E-04	1,02E-04	1,37E-04	-1,08E-02
Secondary materials	kg	1,70E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,74E-05	1,96E-05	1,48E-05	9,10E-06	7,00E-01
Biog. C in product ⁹⁾	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9) Biog. C in product = Biogenic carbon content in product

CONCRETE C40/50

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	4,69E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,94E+00	1,13E+01	6,75E+00	3,80E+00	-1,35E+01
GWP – fossil	kg CO ₂ e	4,69E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,94E+00	1,13E+01	6,75E+00	3,79E+00	-1,35E+01
GWP – biogenic	kg CO ₂ e	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO ₂ e	1,63E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,91E-04	4,15E-03	6,72E-04	3,58E-03	-1,86E-02
Ozone depletion pot.	kg CFC ₁₁ e	1,71E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,70E-06	2,59E-06	1,44E-06	1,53E-06	-1,10E-06
Acidification potential	mol H ⁺ e	1,44E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,25E-02	4,77E-02	7,01E-02	3,57E-02	-8,74E-02
EP-freshwater ²⁾	kg Pe	1,16E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,63E-05	9,22E-05	2,24E-05	3,97E-05	-7,67E-04
EP-marine	kg Ne	4,52E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,65E-02	1,42E-02	3,10E-02	1,23E-02	-1,89E-02
EP-terrestrial	mol Ne	5,07E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,01E-01	1,56E-01	3,40E-01	1,36E-01	-2,46E-01
POCP (“smog”) ³⁾	kg NMVOCe	1,35E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,10E-01	5,00E-02	9,36E-02	3,95E-02	-6,33E-02
ADP-minerals & metals ⁴⁾	kg Sbe	1,62E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,03E-06	2,64E-05	3,43E-06	8,71E-06	-1,31E-04
ADP-fossil resources	MJ	2,44E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,07E+02	1,69E+02	9,08E+01	1,04E+02	-1,95E+02
Water use ⁵⁾	m ³ e depr.	4,31E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,87E-01	7,57E-01	2,44E-01	3,30E-01	-2,58E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO₄e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) 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 experience with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	1,43E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,11E-01	1,91E+00	5,19E-01	9,03E-01	-1,75E+01
Renew. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	1,43E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,11E-01	1,91E+00	5,19E-01	9,03E-01	-1,75E+01
Non-re. PER as energy	MJ	2,44E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,07E+02	1,69E+02	9,08E+01	1,04E+02	-1,95E+02
Non-re. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	2,44E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,07E+02	1,69E+02	9,08E+01	1,04E+02	-1,95E+02
Secondary materials	kg	4,60E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,18E-02	4,70E-02	3,55E-02	2,18E-02	1,68E+03
Renew. secondary fuels	MJ	4,55E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,37E-04	4,74E-04	1,16E-04	5,71E-04	-1,54E-03
Non-ren. secondary fuels	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	3,83E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,49E-03	2,19E-02	5,51E-03	1,14E-01	-6,21E-01

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	7,19E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,43E-01	2,24E-01	1,22E-01	0,00E+00	-1,14E+00
Non-hazardous waste	kg	2,59E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,01E+00	3,68E+00	8,54E-01	7,20E+02	-3,37E+01
Radioactive waste	kg	1,08E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,52E-04	1,13E-03	6,39E-04	0,00E+00	-9,74E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,68E+03	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	1,96E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,70E-03	2,81E-03	1,58E-03	-5,65E-03
ADP-minerals & metals	kg Sbe	3,01E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,07E-08	1,40E-09	3,58E-09	-5,42E-08
ADP-fossil	MJ	7,67E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	3,78E-02	4,33E-02	-8,13E-02
Water use	m ³ e depr.	1,80E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,20E-04	3,15E-04	1,02E-04	1,37E-04	-1,08E-02
Secondary materials	kg	1,92E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,74E-05	1,96E-05	1,48E-05	9,10E-06	7,00E-01
Biog. C in product ⁹⁾	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9) Biog. C in product = Biogenic carbon content in product

CONCRETE C45/55

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	4,53E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,94E+00	1,13E+01	6,75E+00	3,80E+00	-1,35E+01
GWP – fossil	kg CO ₂ e	4,53E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,94E+00	1,13E+01	6,75E+00	3,79E+00	-1,35E+01
GWP – biogenic	kg CO ₂ e	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO ₂ e	1,60E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,91E-04	4,15E-03	6,72E-04	3,58E-03	-1,86E-02
Ozone depletion pot.	kg CFC ₋₁₁ e	1,66E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,70E-06	2,59E-06	1,44E-06	1,53E-06	-1,10E-06
Acidification potential	mol H ⁺ e	1,40E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,25E-02	4,77E-02	7,01E-02	3,57E-02	-8,74E-02
EP-freshwater ²⁾	kg Pe	1,13E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,63E-05	9,22E-05	2,24E-05	3,97E-05	-7,67E-04
EP-marine	kg Ne	4,41E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,65E-02	1,42E-02	3,10E-02	1,23E-02	-1,89E-02
EP-terrestrial	mol Ne	4,94E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,01E-01	1,56E-01	3,40E-01	1,36E-01	-2,46E-01
POCP (“smog”) ³⁾	kg NMVOCe	1,32E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,10E-01	5,00E-02	9,36E-02	3,95E-02	-6,33E-02
ADP-minerals & metals ⁴⁾	kg Sbe	1,56E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,03E-06	2,64E-05	3,43E-06	8,71E-06	-1,31E-04
ADP-fossil resources	MJ	2,37E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,07E+02	1,69E+02	9,08E+01	1,04E+02	-1,95E+02
Water use ⁵⁾	m ³ e depr.	4,17E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,87E-01	7,57E-01	2,44E-01	3,30E-01	-2,58E+01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) 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 experience with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	1,39E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,11E-01	1,91E+00	5,19E-01	9,03E-01	-1,75E+01
Renew. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	1,39E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,11E-01	1,91E+00	5,19E-01	9,03E-01	-1,75E+01
Non-re. PER as energy	MJ	2,37E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,07E+02	1,69E+02	9,08E+01	1,04E+02	-1,95E+02
Non-re. PER as material	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	2,37E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,07E+02	1,69E+02	9,08E+01	1,04E+02	-1,95E+02
Secondary materials	kg	4,48E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,18E-02	4,70E-02	3,55E-02	2,18E-02	1,68E+03
Renew. secondary fuels	MJ	4,41E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,37E-04	4,74E-04	1,16E-04	5,71E-04	-1,54E-03
Non-ren. secondary fuels	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	3,86E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,49E-03	2,19E-02	5,51E-03	1,14E-01	-6,21E-01

8) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	6,95E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,43E-01	2,24E-01	1,22E-01	0,00E+00	-1,14E+00
Non-hazardous waste	kg	2,51E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,01E+00	3,68E+00	8,54E-01	7,20E+02	-3,37E+01
Radioactive waste	kg	1,05E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,52E-04	1,13E-03	6,39E-04	0,00E+00	-9,74E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,68E+03	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	1,89E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,31E-03	4,70E-03	2,81E-03	1,58E-03	-5,65E-03
ADP-minerals & metals	kg Sbe	2,91E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,07E-08	1,40E-09	3,58E-09	-5,42E-08
ADP-fossil	MJ	7,42E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,45E-02	7,05E-02	3,78E-02	4,33E-02	-8,13E-02
Water use	m ³ e depr.	1,74E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,20E-04	3,15E-04	1,02E-04	1,37E-04	-1,08E-02
Secondary materials	kg	1,87E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,74E-05	1,96E-05	1,48E-05	9,10E-06	7,00E-01
Biog. C in product ⁹⁾	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biog. C in packaging	kg C	0,00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

9) Biog. C in product = Biogenic carbon content in product

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value	Source
Residual mix (Lithuania)	0.527 kg CO ₂ e/kWh	Average Lithuanian residual mix of last three last years (2021, 2022 and 2023) has been modelled according to the Association of Issuing Bodies data (https://www.aib-net.org/facts/european-residual-mix). Data sources: ecoinvent 3.8
Solar PV on the roof	0.0789 kg CO ₂ e/kWh	Electricity production, photovoltaic, 570kWp open ground installation, multi-Si. Data sources: ecoinvent 3.8

End of life scenario documentation

Scenario parameter	Value								
	C8/10	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55
Collection process – kg collected separately	2330	2330	2330	2340	2350	2350	2390	2400	2400
Collection process – kg collected with mixed waste	-	-	-	-	-	-	-	-	-
Recovery process – kg for re-use	-	-	-	-	-	-	-	-	-
Recovery process – kg for recycling	1631	1631	1631	1638	1645	1645	1673	1680	1680
Recovery process – kg for energy recovery	-	-	-	-	-	-	-	-	-
Disposal (total) – kg for final deposition	699	699	699	702	705	705	717	720	720
Scenario assumptions e.g. transportation	End-of-life product is transported 50 km with average lorry								



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.

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

Ecoinvent database v3.8 (2021) and One Click LCA database.

Concrete LCA background report 22.08.2024



ABOUT THE MANUFACTURER

The company was founded in 1995. Main activities: production and installation of Reinforced concrete products, production of polystyrene, production of concrete. The mission is to provide the highest quality concrete, standard and non-standard Reinforced products of concrete products that meet the expectations and needs of customers. The company aims to be a leader in the sector of concrete products, while adhering to high standards of ethics, safety and environmental responsibility. The vision of UAB "Gelmesta" is to become a leading concrete and Reinforced concrete product manufacturing company in Lithuania. The company aims to build long-term relationships with clients, partners, and the communities in which it operates.

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Gelmesta UAB
EPD author	Silvija Serapinaitė, Vesta Consulting UAB
EPD verifier	Mari Kirss, Rangi Maja OÜ
EPD program operator	The Building Information Foundation RTS sr
Background data	This EPD is based on Ecoinvent 3.8 (Allocation, cut-off, EN15804) and One Click LCA databases
LCA software	The LCA and EPD have been created using One Click LCA tool. The EN 15804 reference package used is based on EF 3.0.

