

Environmental Product Declaration

Specific EPD

In accordance with ISO 14025:2010 and EN 15804:2012+A2:2019/AC:2021

Concrete 251106A C20/25 F3 0-32 mittel XC3



Programme

EPD Square | www.epdsquare.com

Programme operator

EPD Square, s.r.o.

EPD Registration number

SQ 00-081

Publication date

02.09.2026

Valid until

01.09.2031

General information

Product

Concrete 251106A C20/25 F3 0-32 mittel XC3

Program operator

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Registration number

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01.09.2031

Owner of the declaration

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Place of production

Franz Zimmermann GmbH & Co. KG
Schicking 4, 84539 Ampfing

Product Category Rules (PCR)

EPD Square PCR v1.0.1, 2025

Declared/Functional unit

1 m³

Mass per DU

2361.52 kg

UN CPC code

375

Geographical scope

Europe

Year of study

2025

Comparability

EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in the context of the building.

EPD author

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Verification type

Independent verification of the declaration and data, according to ISO14025:2006

Internal: ☐

External: ☒

Verified by

Silvia Vilčeková



*The owner of the declaration shall be liable for the underlying information and evidence.
EPD Square shall not be liable with respect to manufacturer, life cycle assessment data and evidence.*

System boundaries

This EPD is based on system boundary cradle to gate (A1-A3) with options, modules C1-C4, D and modules A4 and A5.

Modules declared and geographical scope

	Product stage			Constructi on process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling- potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	✓	✓	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	✓	✓	✓	✓	✓
Geographic scope	DE	DE	DE	DE	DE	ND	ND	ND	ND	ND	ND	ND	DE	DE	DE	DE	DE

Modules not declared = MND

Description of organization

Franz Zimmermann GmbH & Co. KG draws on 90 years of experience in the extraction of sand and gravel and the production of ready-mix concrete. Expertise, quality, and customer-focused service are at the heart of everything we do. We provide tailored solutions and individual support to meet each customer's specific requirements.

With five batching plants located in Ampfing, Dorfen, and Forstern, our own sand and gravel extraction operations, and an in-house truck fleet, we ensure maximum flexibility, reliability, and consistently high product quality.

Our goal is to operate more sustainably across the entire value chain and reduce CO₂ emissions. We achieve this through modern production facilities, resource-efficient processes, locally sourced raw materials, recycled materials, and the use of low-carbon cements.

Product information

Product name

Concrete 251106A C20/25 F3 0-32 mittel XC3

Product description

Concrete is a composite construction material consisting primarily of cement, water, fine aggregates (such as sand), coarse aggregates (such as gravel), and small amounts of entrapped air. In the case of ready-mix concrete, these ingredients are combined at a specialized batching plant under carefully controlled conditions. The production process follows predefined mix designs, which may also include supplementary cementitious materials and chemical admixtures to enhance specific properties such as durability, workability, or strength. Manufacturing in a controlled environment ensures a uniform composition and reliable quality, resulting in consistent performance during construction.

After production, the fresh concrete is transported to the construction site in its unhardened state, allowing it to be placed directly without additional on-site mixing. This approach reduces labor requirements, minimizes equipment and material handling on site, and contributes to a more efficient construction process. Ready-mix concrete is manufactured in accordance with the requirements of DIN EN 206.

Product application

Different concrete types are widely used across a variety of construction applications, particularly in civil engineering projects as well as residential and commercial buildings. The material is supplied in bulk and transported to construction sites using ready-mix concrete trucks.

Geographical scope

Germany

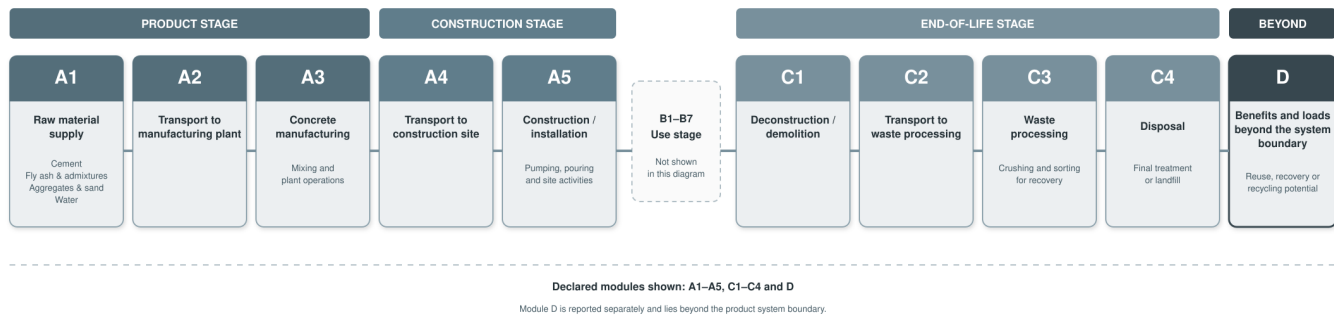
Product contents information

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Cement binder	260	0	0
Aggregates	1885	0	0
Fly Ash	40	0	0
Add mixtures	0.52	0	0
Water	176	0	0
TOTAL	2361.52	0	0

Manufacturing process

The production process starts with the dry mixing of the specified aggregates, cement as the binder, and any required supplementary constituent materials. Water is subsequently added to produce fresh concrete with a workable consistency. For ready-mixed concrete, the fresh concrete is delivered directly to the construction site in truck mixers without intermediate storage. At the construction site, it is placed into the prepared formwork, which is typically reinforced with steel reinforcement, and compacted to achieve the required density.

Concrete life-cycle modules according to EN 15804



Life cycle assessment

Cut-off criteria

Environmental impacts of the following processes are considered to be negligible: Production and use of formwork and falsework for the installation of concrete, Materials used for the curing of concrete.

Allocation, estimations, and assumptions

The allocation is made in accordance with the provisions of EN 15804. Production-process-level elementary flows (energy and fuels, ancillary materials, and waste) are allocated to the declared unit, using the total production of the production process for the reference year.

Database(s) and LCA software

The GCCA EPD Tool v5.2 was used for LCA modeling and calculation. Background data was used from ecoinvent database v3.10.

LCA scenarios and additional technical information

Module A1

This module covers the extraction and processing of all raw materials upstream of the manufacturing site. Data on the raw materials were provided directly by the manufacturer, with specific data collected to accurately reflect the actual material inputs and sourcing conditions.

Module A2

Transportation of raw materials to the plant.

Module A3

Concrete production at the plant and waste treatment.

Manufacturing energy scenario (A3)

Electricity data source and quality	Electricity residual mix	Ecoinvent 3.10.1
Electricity CO ₂ eq. / kWh	0.672	

Module A4

Transportation to the construction site

Transportation scenario (A4)

Vehicle type used for transport	Transport, freight, lorry 16-32 metric ton, EURO6
Capacity utilization	100
Capacity utilization factor	1

Module A5

Includes processes associated with concrete installation (e.g., pumping on the construction site), as well as the production, transportation, and treatment of unused concrete.

Module B1 – B7

Carbonation during the utilization phase

Module C1

Demolition/Dismantling

Module C2

Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed as

lorry (Transport freight lorry 16-32 metric ton) which is the most common.

Module C3

Recycling of concrete.

Module C4

Disposal of concrete.

End of life (C1, C3, C4)

	Value	Unit
Collected separately	0	%
Collected as mixed construction waste	0	%
Reuse	0	%
Recycling	100	%
Energy recovery	0	%
To landfill	0	%

Data quality

The data quality assessment was carried out in accordance with EN 15941 and the Product Environmental Footprint (PEF) data quality methodology. Manufacturer-specific production data were collected for the reference period January 2025 – December 2025, where available, and ecoinvent v3.10.1 (2024) background datasets. The overall data quality of the assessment was evaluated as Good to Very Good, with high geographical, technological and temporal representativeness. No significant data gaps or quality issues affecting the conclusions of the study were identified.

Additional environmental information

GWP-GHG intensity of scraps:

Ash, fly ash from hard coal: 2.05E-01 kg CO₂ eq./kg; amount: 4.00E+01 kg

Materials incorporated to the product and packaging materials available in the tool are pre-defined. For a given material, for instance, the share of primary versus secondary cannot be specified. Any given material is either 'primary' or 'secondary, product' or 'secondary, co-product' or 'secondary, waste'.

The indicator 'Use of secondary materials' is computed as 'secondary materials, product' + 'secondary, co-product' + 'secondary, waste'.

'Secondary materials, waste' coming into the system are considered as a waste stream and are accepted as such. Therefore, no impact from the former life is considered. 'Secondary materials, product' and 'secondary materials, co-products' however inherit the impact of pre-processing (processing from 'end-of-waste' state to 'fit-for-use' state), consistently with the requirements of EN15804.

The PCR requires that the biogenic carbon content of the product and packaging should be reported in an EPD. It is mandatory when the biogenic carbon content exceeds 5% wt. (product or packaging).

The removals and emissions associated with biogenic carbon content of the product and packaging are taken into consideration in the calculation of the GWP-bio indicator, as per the PCR. The uptake of CO₂ in A1-A3 (e.g. bio-based insulation materials in precast elements or bio-based packaging materials) and reemission in A5 (packaging end-of-life) or C3-C4 (product end-of-life).

The 'Water deprivation potential' (WDP) indicator is characterized according to global characterization factors and not local ones.

The results of the impact categories abiotic depletion of minerals and metals, land use, human toxicity (cancer), human toxicity, non-cancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes. The energy balancing as per PCR 2019:14 Construction Products v1.3.2 is performed according to Option B (see Annex 3 of the PCR).

LCA results

Results are presented per 1 Unit (Declared Unit) of the product. Estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

Core environmental impact indicators – EN 15804+A2

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	2.35E+01 *	3.99E+00	9.99E+00	8.68E+00	3.76E+01	1.29E+01	0.00E+00	-1.73E+01
GWP-fossil	kg CO ₂ eq.	2.35E+01 *	3.99E+00	9.97E+00	8.68E+00	3.76E+01	1.29E+01	0.00E+00	-1.73E+01
GWP-biogenic	kg CO ₂ eq.	9.27E-03 *	1.69E-04	1.47E-02	9.49E-04	8.37E-04	9.12E-03	0.00E+00	-4.31E-02
GWP-LULUC	kg CO ₂ eq.	7.63E-03	1.67E-03	3.31E-03	7.54E-04	1.49E-02	9.75E-03	0.00E+00	-1.37E-02
ODP	kg CFC-11 eq.	5.52E-07	6.41E-08	2.29E-07	1.33E-07	5.24E-07	1.46E-07	0.00E+00	-1.41E-07
AP	mol H ⁺ eq.	1.58E-01	1.02E-02	7.77E-02	7.83E-02	1.25E-01	8.21E-02	0.00E+00	-1.09E-01
EP-freshwater	kg P eq.	2.00E-03	1.05E-04	4.11E-04	8.27E-05	9.58E-04	9.94E-04	0.00E+00	-1.57E-03
EP-marine	kg N eq.	2.58E-02	2.58E-03	3.02E-02	3.63E-02	4.06E-02	2.58E-02	0.00E+00	-2.59E-02
EP-terrestrial	mol N eq.	2.88E-01	2.79E-02	3.24E-01	3.98E-01	4.41E-01	2.75E-01	0.00E+00	-3.28E-01
POCP	kg NMVOC eq.	9.31E-02	1.54E-02	9.87E-02	1.19E-01	1.74E-01	8.24E-02	0.00E+00	-8.88E-02
ADP-M&M	kg Sb eq.	5.25E-05	1.16E-05	2.42E-05	3.18E-06	1.23E-04	6.04E-05	0.00E+00	-9.17E-05
ADP-fossil	MJ	2.95E+02	6.00E+01	1.41E+02	1.14E+02	5.27E+02	1.96E+02	0.00E+00	-2.07E+02
WDP	m ³	2.43E+00	2.88E-01	9.01E-01	2.78E-01	2.37E+00	2.01E+00	0.00E+00	-3.48E+01

GWP-total: Global Warming Potential; **GWP-fossil:** Global Warming Potential fossil fuels; **GWP-biogenic:** Global Warming Potential biogenic; **GWP-LULUC:** Global Warming Potential land use and land use change; **ODP:** Depletion potential of the stratospheric ozone layer; **AP:** Acidification potential, Accumulated Exceedance; **EP-freshwater:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; See "additional requirements" for indicator given as PO₄ eq. **EP-marine:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-terrestrial:** Eutrophication potential, Accumulated Exceedance; **POCP:** Formation potential of tropospheric ozone; **ADP-M&M:** Abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil:** Abiotic depletion potential for fossil resources; **WDP:** Water deprivation potential, deprivation weighted water consumption

** The indicated values (net values) do not include the greenhouse gas emissions from the incineration of secondary fuels at clinker production. The gross GWP-tot (including the emissions from the incineration of secondary fuels at clinker production) is 2.68E1 kg CO₂ eq. The gross GWP-fos is 2.68E+01 kg CO₂ eq. The gross GWP-bio is 9.98E-03 kg CO₂ eq.*

*** The indicated values (net values) do not include the greenhouse gas emissions from the incineration of secondary fuels at clinker production. The gross GWP-GHG (including the emissions from the incineration of secondary fuels at clinker production) is 1.24E+02 kg CO₂ eq. It should be noted that the net/gross differentiation applies to GWP indicators only and is ignored for other indicators where gross is applied by default.*

Additional (optional) environmental impact indicators – EN 15804+A2

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	1.06E-06	3.92E-07	1.76E-06	2.23E-06	2.98E-06	1.36E-06	0.00E+00	-1.77E-06
IRP	kBq U235 eq.	8.91E-01	5.29E-02	7.66E-01	5.09E-02	4.33E-01	1.34E+00	0.00E+00	-1.49E+00
ETP-fw	CTUe	7.32E+01	1.44E+01	1.70E+02	1.61E+01	1.40E+02	4.04E+01	0.00E+00	-1.11E+02
HTP-c	CTUh	8.58E-08	2.05E-08	4.76E-08	3.40E-08	1.94E-07	3.62E-08	0.00E+00	-2.04E-07
HTP-nc	CTUh	2.09E-07	3.96E-08	6.92E-08	1.55E-08	3.38E-07	1.29E-07	0.00E+00	-1.40E-07
SQP	Dimensionless	1.18E+02	6.04E+01	3.74E+01	7.98E+00	3.14E+02	6.06E+01	0.00E+00	-2.21E+02

PM: Particulate matter emissions; **IRP:** Ionising radiation, human health; **ETP-fw:** Ecotoxicity (freshwater); **ETP-c:** Human toxicity, cancer effects; **HTP-nc:** Human toxicity, non-cancer effects; **SQP:** Land use related impacts / soil quality

Use of natural resources

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
RPEE	MJ	1.86E+01	7.88E-01	7.97E+00	6.97E-01	6.92E+00	1.21E+01	0E+00	-1.72E+01
RPEM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPE	MJ	1.86E+01	7.80E-01	7.97E+00	6.97E-01	6.92E+00	1.29E+01	0.00E+00	-1.72E+01
NRPE	MJ	2.95E+02	6.00E+01	1.41E+02	1.14E+02	5.27E+02	9.49E+01	0.00E+00	-2.07E+02
NRPM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TRPE	MJ	8.13E+01	2.95E+02	6.00E+01	1.14E+02	5.27E+02	1.96E+02	0.00E+00	-2.07E+02
SM	kg	4.00E+01	0.00E+00	1.2E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W	m³	1.86E+01	7.88E-01	7.97E+00	6.97E-01	6.92E+00	1.21E+01	0.00E+00	-1.72E+01

RPEE: Renewable primary energy resources used as energy carrier; **RPEM:** Renewable primary energy resources used as raw materials; **TPE:** Total use of renewable primary energy resources; **NRPE:** Non-renewable primary energy resources used as energy carrier; **NRPM:** Non-renewable primary energy resources used as materials; **TRPE:** Total use of non-renewable primary energy resources; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **W:** Use of net fresh water

End of life – Waste

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HW	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHW	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RW	kg	2.07E-04	1.29E-05	1.75E-04	1.25E-05	1.06E-04	3.52E-04	0.00E+00	-3.63E-04

HW: Hazardous waste disposed; **NHW:** Non-hazardous waste disposed; **RW:** Radioactive waste disposed

End of life – Output flows

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	kg	0.00E+00	0.00E+00	7.2E+01	0.00E+00	0.00E+00	0.00E+00	2.4E+03	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CR: Components for reuse; **MR:** Materials for recycling; **MER:** Materials for energy recovery; **EEE:** Exported electric energy; **ETE:** Exported thermal energy

Information describing biogenic carbon content at factory gate

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

Specific data (GWP-GHG) and data variation for A1-A3

Specific data and data variation	Value-%
Specific data	
Variation - product	-
Variation - site	-

Hazardous substances

- ☒ The product does not contain any REACH SVHC substances in amounts greater than 0.1 %.

Contact information

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Bibliography

ISO 14020:2000

Environmental labels and declarations – General principles

ISO 14025:2010

Environmental labels and declarations - Type III environmental declarations - Principles and procedures

ISO 14040:2006

Environmental management - Life cycle assessment - Principles and framework

ISO 14044:2006

Environmental management - Life cycle assessment - Requirements and guidelines

EN 15804:2012+A2:2019/AC:2021

Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products

EN 15941:2024

Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data

EPD Square PCR v.1.0, 2024

EPD Square, General Programme Instructions v.1, 2024

Ecoinvent database v3.10.1 (2024)

Annex

Environmental impacts – EN 15804+A1, CML/ISO 21930

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ eq.	2.35E+01 *	3.99E+00	9.99E+00	8.68E+00	3.76E+01	1.29E+01	0,00E+00	-1.73E+01
ODP	kg CFC-11 eq.	5.93E-07	6.41E-08	2.30E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
AP	kg SO ₂ eq.	1.58E-01	1.02E-02	7.77E-02	7.83E-02	1.25E-01	8.21E-02	0,00E+00	-1.09E-01
EP	kg PO ₄ eq.	2.00E-03	1.05E-04	4.11E-04	8.27E-05	9.58E-04	9.94E-04	0,00E+00	-1.57E-03
POCP	kg C ₂ H ₄ eq.	9.31E-02	1.54E-02	9.87E-02	1.19E-01	1.74E-01	8.24E-02	0,00E+00	-8.88E-02
ADP-M&M	kg Sb eq.	5.25E-05	1.16E-05	2.42E-05	3.18E-06	1.23E-04	6.04E-05	0,00E+00	-9.17E-05
ADP-fossil	MJ	2.95E+02	6.00E+01	1.41E+02	1.14E+02	5.27E+02	1.96E+02	0,00E+00	-2.07E+02

Environmental impacts – GWP-GHG

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP - GHG	kg CO ₂ eq.	2.35E+01 *	3.99E+00	9.99E+00	8.68E+00	3.76E+01	1.29E+01	0,00E+00	-1.73E+01

GWP- GHG: Global Warming Potential, greenhouse gases