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Prospective Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

evoBuild Low carbon Injeksjonssement 25, Brevik

Heidelberg Materials

EPD-Global

Owner of the declaration
Heidelberg Materials Sement Norge AS

Product
evoBuild Low carbon Injeksjonssement 25, Brevik

Declared unit
1 tonne

This declaration is based on Product Category Rules
EN 15804:2012+A2:2019 serves as core PCR
EN 16908:2017 Cement and building lime

Program operator
EPD-Global

Declaration number
NEPD-14216-146327
Issue date
24.11.2025
Valid to
24.11.2026
EPD software:
LCA.no EPD generator ID: 1095991

General information

Product

evoBuild Low carbon Injeksjonssement 25, Brevik

Program operator

EPD-Global
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Declaration number

NEPD-14216-14327

This declaration is based on Product Category Rules

EN 15804:2012+A2:2019 serves as core PCR
EN 16908:2017 Cement and building lime

Statement of liability

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

Declared unit

1 tonne evoBuild Low carbon Injeksjonssement 25, Brevik

Declared unit with option

A1-A3, A4

Functional unit

-

Verification

Independent verification of the declaration and data, according to ISO14025:2010

Third party verifier

Martin Erlandsson, CarbonZero AB

Owner of the declaration

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Manufacturer

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Place of production

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Management system

ISO 14001, ISO 9001

Organisation no

934 949 145

Issue date

24.11.2025

Valid to

24.11.2026

Year of study

2024

Comparability

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

The EPD has been worked out by:

Ingrid Vik Jondahl

Petter Thyholdt

Approved

Håkon Hauan
CEO of EPD-Global

Product

Product description

Cement is a hydraulic binder and is used in the production of e.g. concrete and mortar. It comprises a blend of finely ground, non-metallic inorganic substances. Upon mixing with water, a cement suspension (cement paste) is formed, which hardens and sets both in air and under water through hydration reactions, resulting in a permanently solid structure.

The cement is prepared by fine grinding of Industrisement which satisfies the requirements in NS-EN 197-1: 2011 for CEM I 52,5R.
Injeksjonssement 25 also satisfies The Norwegian Public Roads Administration's requirements in Process Code 1-R761 regarding PSD d95 <25 µm.

Product specification

The declared product is evoBuild Low carbon Injeksjonssement 25. Under the global evoBuild brand, Heidelberg Materials delivers products designed with a strong emphasis on sustainable resource use and significantly reduced CO2 emissions.

evoBuild Low carbon Injeksjonssement 25 is produced at Heidelberg Materials' Brevik cement plant, home to the world's first full-scale carbon capture installation in the cement industry. This innovative technology removes CO2 directly from the flue gas during production - without altering the product's technical performance.

No packaging material is included.
The transport scenario presented in A4 refers to a transport with truck over a distance of 100 km.

Materials	Value	Unit
Clinker	95-100	%
Minor constituents	0-5	%
Gypsum	0-7	%

Technical data

Further information is available at https://www.sement.heidelbergmaterials.no/en

Market

Norway, Europe

Reference service life, product

No reference service life is declared as cement is an intermediate building product. A reference service life could be declared for downstream products such as ready-mix concrete, precast concrete, screed, plasters, masonry mortars or other building products in which cement is used.

Reference service life, building or construction works

For cement the reference service life of the building is not relevant.

LCA Calculation rules

Declared unit

1 tonne evoBuild Low carbon Injeksjonssement 25, Brevik

Cut-off criteria

All major raw materials and all the essential energy are included. The production processes for raw materials and energy flows with very small amounts (less than 1%) may not be included. These cut-off criteria do not apply for hazardous materials and substances. It is assumed that there will be no leakage of CO2 from storage over 100 years, but losses in transport chain that is accounted for.

Allocation

Allocation is carried out in accordance with the provisions of EN 15804. Incoming energy, water consumption, and in-house waste generation are distributed equally among all products using mass allocation as first choice. For co-products with very low market value, like slag and fly ash, is economical allocation used. Additionally, where relevant, the processing and transportation of co-products are included in the analysis Gross and net values are included in the result, where GWP from waste fuels are deducted in the net values. In this LCA study, the CO2 stored is allocated to clinker produced.

Data quality

This is a prospective P-EPD where the manufacturing data is based on a traditional cement production complemented with the CCS operation. Spesific data for the manufacturing are provided by the manufacturer. The considered data from CCS are calculated based on design, considering capture rates valid in the first year of operations. Background data are derived from EPDs according to EN 15804 and the ecoinvent database using EF 3.1 CFs. The data quality of the raw materials in A1 is presented in the table below.

Note: LCA.no in source is used for data where only resource indicators are included in the dataset (secondary materials and co-products of low value)

Materials	Source	Data quality	Year
Additives	ecoinvent 3.10	Database	2023
Emissions and waste streams	LCA.no	Database	2024
Explosives	ecoinvent 3.10	Database	2023
Gypsum	ecoinvent 3.10	Database	2023
Limestone	LCA.no	Database	2024
Materials	LCA.no	Database	2024
Others	LCA.no	Database	2024
Raw materials, Mineral	Supplier	Project EPD	2021

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

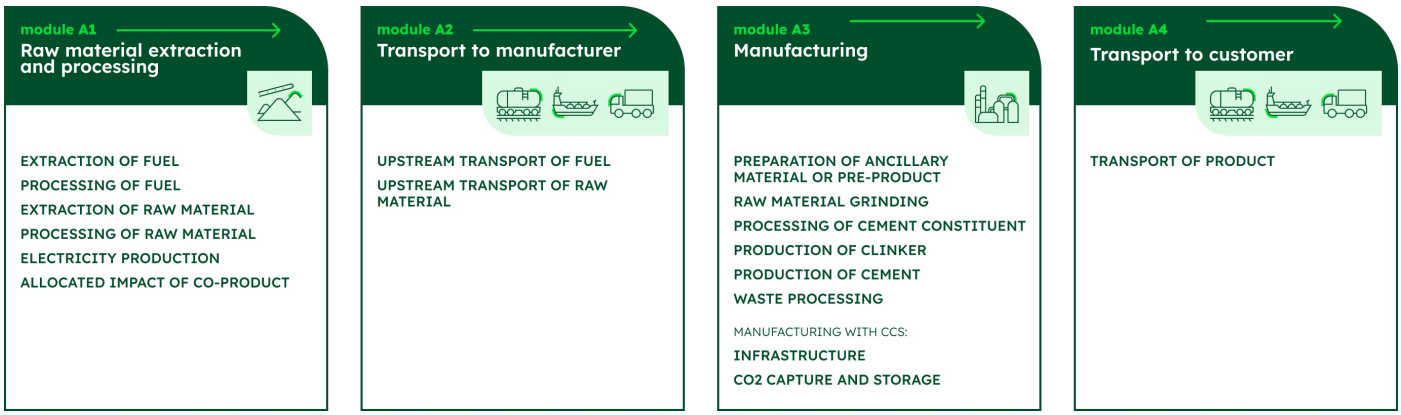
System boundary

Type of the EPD: cradle to gate (A1 – A3) with option A4.
The applied system boundaries cover the production of cement including carbon capture and storage up to the finished product at the factory gate.

The product stage includes:
- Module A1: Extraction and processing of raw materials
- Module A2: Transport of raw materials to the factory gate
- Module A3: Clinker and cement production including carbon capture and storage

The construction process stage includes:
- Module A4: Transport

The impact of the carbon capture and storage (CCS) process is detailed in the table titled "Additional environmental impacts CCS", located in the "Additional Environmental Information" section.



Additional technical information

No further technical information is relevant.

LCA Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

The transport scenario presented in A4 refers to a transport with truck over a distance of 100 km.
Different distances can be deviated from this scenario by a proportional conversion.

Transport from production place to user (A4)	Capacity utilisation, incl. return (%)	Distance (km)	Fuel/Energy Consumption	Unit	Value (l/t)
Transport|Truck, over 32 tonnes, EURO 6|km|HM|2023	53.3 %	100.00	0.023	l/tkm	2.30

LCA Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document. GWP values are net-values.

Environmental impact				
Indicator		Unit	A1-A3	A4
	GWP-total	kg CO_2 -eq	2.78E+02	1.04E+01
	GWP-fossil	kg CO_2 -eq	2.77E+02	1.04E+01
	GWP-biogenic	kg CO_2 -eq	1.65E-01	5.19E-03
	GWP-luluc	kg CO_2 -eq	3.68E-02	3.68E-03
	ODP	kg CFC11 -eq	1.95E-06	2.00E-07
	AP	mol H+ -eq	1.19E+00	2.45E-02
	EP-FreshWater	kg P -eq	1.39E-02	7.29E-04
	EP-Marine	kg N -eq	3.31E-01	6.42E-03
	EP-Terrestial	mol N -eq	3.83E+00	6.94E-02
	POCP	kg NMVOC -eq	9.91E-01	4.25E-02
	ADP-minerals&metals[1]	kg Sb-eq	1.92E-03	2.96E-05
	ADP-fossil[1]	MJ	1.84E+03	1.55E+02
	WDP[1]	m^3	3.14E+02	7.81E-01

GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil; 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: EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

Remarks to environmental impacts

All legal classified waste used as fuel in the cement kiln are treated as having no economical value and is therefore interpreted as not fulfilling EoW. This is equal to the default setting used in the LCA results and referred to as net LCA results. The GWP indicators including the emissions from waste fuels (GWP, gross) are reported separately in this EPD under "Additional environmental information".

Since this is a prospective EPD, the results are inherently subject to uncertainty. While the LCI data for cement production without CCS are based on primary data from 2024, no operational data from the carbon capture facility or associated storage activities were available at the time of the study. The data used are derived from the design phase and performance requirements to the capture plant. These requirements include a minimum capture rate for a specific operational time which will be representative for the first year of operation.

Additionally, there is some uncertainty regarding the quantities and data related to the CCS infrastructure. However, as infrastructure contributes only a minor share to the overall results, its influence on the final outcomes is considered limited. Doubling the input used in the infrastructure calculation results in a reduction less than 1 kg of CO2 considered as stored per tonne clinker.

Additional environmental impact indicators				
Indicator		Unit	A1-A3	A4
	PM	Disease incidence	9.48E-06	1.00E-06
	IRP[2]	kgBq U235 -eq	3.27E+00	1.89E-01
	ETP-fw[1]	CTUe	1.39E+03	3.68E+01
	HTP-c[1]	CTUh	1.66E-07	1.00E-07
	HTP-nc[1]	CTUh	7.29E-07	1.00E-07
	SQP[1]	dimensionless	1.94E+02	1.56E+02

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.
2. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Resource use				
Indicator		Unit	A1-A3	A4
	PERE	MJ	8.79E+02	2.47E+00
	PERM	MJ	0.00E+00	0.00E+00
	PERT	MJ	8.79E+02	2.47E+00
	PENRE	MJ	1.08E+03	1.55E+02
	PENRM	MJ	0.00E+00	0.00E+00
	PENRT	MJ	1.08E+03	1.55E+02
	SM	kg	2.21E-01	0.00E+00
	RSF	MJ	1.03E+03	8.47E-04
	NRSF	MJ	1.81E+03	0.00E+00
	FW	m^3	6.25E+00	2.26E-02

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = 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; FW = Net use of fresh water

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

End of life - Waste				
Indicator		Unit	A1-A3	A4
	HWD	kg	1.32E+01	2.26E-01
	NHWD	kg	7.61E+01	4.53E+00
	RWD	kg	1.31E-03	4.67E-05

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

End of life - Output flow				
Indicator		Unit	A1-A3	A4
	CRU	kg	0.00E+00	0.00E+00
	MFR	kg	1.85E-02	0.00E+00
	MER	kg	9.49E-05	0.00E+00
	EEE	MJ	4.33E-04	0.00E+00
	EET	MJ	6.55E-03	0.00E+00

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

Biogenic Carbon Content		
Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in accompanying packaging	kg C	0.00E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

Additional requirements

Transparent reporting of energy

The EPD presents environmental impact categories in the main results tables using a specific methodological approach for accounting energy resources. To ensure transparency and support informed interpretation, the table below explains the implications of the chosen methodology. It illustrates the GWP-total for energy resources used in the manufacturing stage, comparing the location-based and market-based approaches. In this EPD the following approach was used in main result tables: Location-based approach.

Energy source	Data source	Amount	Unit	GWP-total [kg CO_2-eq/unit]	SUM [kg CO_2-eq]
Location based approach					
Electricity, Norway, medium voltage (kWh) - ecoinvent 3.10.1	ecoinvent 3.10.1	218.87	kWh	0.02	4.38
Market based approach					
Electricity, Norway, medium voltage, residual mix (kWh)	ecoinvent 3.10.1	218.87	kWh	0.62	135.70

Dangerous substances

The product does not contain substances in a concentration above 0.1 mass percent, which are specified in the Candidate List of Substances of Very High Concern (SVHC) for Authorization.

Indoor environment

As a component of downstream materials, cement does not release any harmful substances to indoor environment.

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products (net)			
Indicator	**Unit**	A1-A3	A4
GWPIOBC	kg CO_2 -eq	2.77E+02	1.04E+01

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation. The results do not include emissions from the combustion of waste fuels (GWP, net).

Additional GWP indicators in accordance with cPCR and more transparent reporting related to CCS		
Indicator	**Unit**	**A1-A3**
GWP-total, gross	kg CO_2 -eq	4.26E+02
GWP-fossil, gross	kg CO_2 -eq	4.26E+02
GWP-biogenic, gross	kg CO_2 -eq	1.65E-01
GWP-luluc, gross	kg CO_2 -eq	3.68E-02
GWP-total, net	kg CO_2 -eq	2.78E+02
GWP-fossil, net	kg CO_2 -eq	2.77E+02
GWP-biogenic, net	kg CO_2 -eq	1.65E-01
GWP-luluc, net	kg CO_2 -eq	3.68E-02
CWRS	kg CO_2 -eq	0.00E+00
CWNRS	kg CO_2 -eq	1.49E+02
CC	kg CO_2	4.54E+02
CCS	kg CO_2	-2.85E+02

GWP-total, gross = Global Warming Potential total, gross (GWP-fossil, gross + GWP-biogenic, gross + GWP-luluc); GWP-fossil, gross = Global Warming Potential fossil, gross; GWP-biogenic, gross = Global Warming Potential biogenic, gross; GWP-luluc = Global Warming Potential land use and land use change; GWP-total, net = Global Warming Potential total, net (GWP-total, gross minus CWRS and CWNRS); CWRS = Emissions from combustion of waste from renewable sources; CWNRS = Emissions from combustion of waste from non-renewable sources; GWP-fossil, net = Global Warming Potential fossil, net (GWP-fossil, gross minus CWNRS); GWP-biogenic, net = Global Warming Potential biogenic, net , (GWP-biogenic, gross minus CWNRS); CC = Emissions from decarbonization of limestone in clinkering (process emissions, clinker), CCS - Amount of carbon reductions from carbon capture and storage considered in the main results of the EPD (incl. deduction for impacts from processes, transport and infrastructure)

Additional environmental impacts CCS					
Indicator	**Unit**	**I. A1-A3 Cement excl. direct emissions and CCS**	**II. A3 Direct emissions**	**III. Carbon capture and storage (CCS)**	**IV. evoBuild**
GWP-total, net	kg CO_2 -eq	4.02E+01	5.22E+02	-2.85E+02	2.78E+02
GWP-total, gross	kg CO_2 -eq	4.02E+01	6.71E+02	-2.85E+02	4.26E+02

The EPD applies to evoBuild Carbon Captured Brevik. The table above provides a transparent breakdown by production modules. The cement is offered in three variants:
* Grey cement: GWP A1-A3 is represented by the sum of columns I and II in the table.
* evoBuild: GWP A1-A3 is represented by the sum of columns I, II, and III in the table.
* evoZero: GWP A1-A3 is represented by column I in the table.

The sale of these cements is subject to independent third-party assurance, which audits the deposit, withdrawal and allocation of emission reductions generated at the Brevik cement plant in Norway. For more information, please visit: www.evozero.com/assurance.
Verified permanent storage of CO2 is recorded as carbon reduction in the Heidelberg Materials carbon bank. When CCS-reduced cements are sold, carbon reductions are deducted from the carbon bank. Further information on the verification of carbon capture, carbon bank, and distribution of reduction on products can be found on our website.

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