

**Environmental
Product
Declaration**

According to EN15804+A2

This declaration is for:
CEM I 52,5 N (B-EPD) - Grouped

Provided by:
Heidelberg Materials Benelux S.A./N.V



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DETAILED PRODUCT DESCRIPTION

Cement is a hydraulic binder, mainly used for concrete, mortar and cement screed. Cement with specific properties is produced by intergrinding or blending cement clinker, gypsum and other purchased materials like limestone. The origin of the cement clinker used for the cement production is the plant Lixhe & Antoing in Belgium. Cement in scope is unpackaged, bulk cement.

Gross density declared represents the bulk density of the material (mass of a material / total volume it occupies) which includes the solid material plus pores, gaps, or voids).

Component (> 1%)	(%)
Cement Mix	100%
Other	0%

SCOPE AND TYPE

This EPD was developed based in accordance with the PCRs of EN15804+A2, EN16908 and B-EPD PCR Version 18.10.2022

SimaPro software was used to perform the LCA. The background databases used are:

- Ecoinvent 3.9.1 (released on December 15th, 2022) for the calculation of results according to EN15804+A2, with characterization according to EF 3.1, cut-off by classification.

The type of this EPD is cradle to factory gate (A1-A3) with options (A4). All major steps from the extraction of natural resources to end-of-life are included in the environmental performance of the manufacturing phase, except those that are not relevant to the environmental performance of the product. Additionally, transport to the installation/production site is included.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport gate to site	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

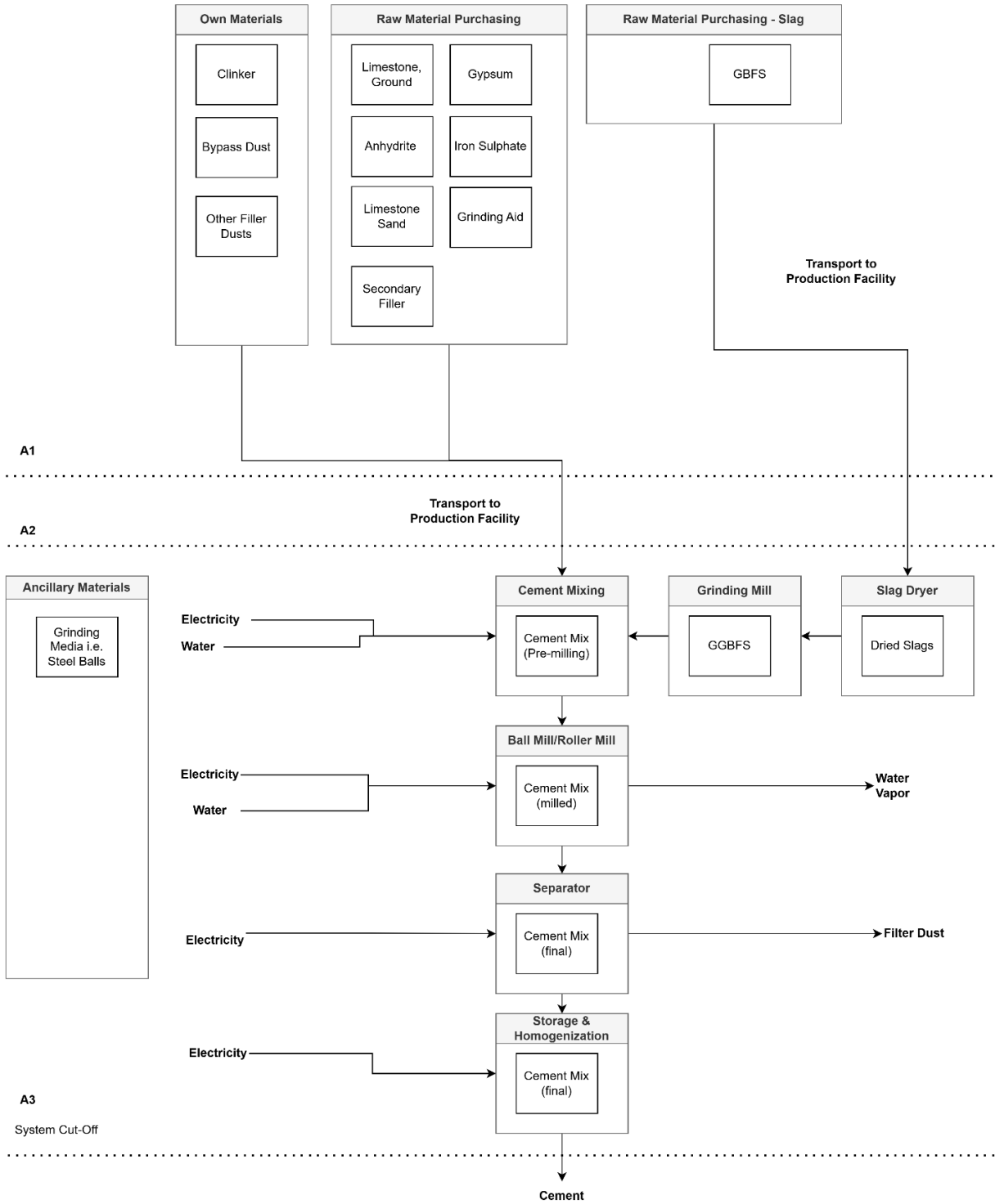
X = Modules Assessed

ND = Not Declared

Cement Production Process Diagram

Organisation: Heidelberg Materials - Lixhe, Gent 1 & 2, Ijmuiden, Rotterdam

System Cut-Off



REPRESENTATIVENESS

EPD is representative for products distributed / sold from the location defined and sold on the Belgian market.



ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total kg CO2 eq.	ND	ND	ND	6,58E-01	2,16E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-fossil kg CO2 eq.	ND	ND	ND	6,57E-01	2,15E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-biogenic kg CO2 eq.	ND	ND	ND	1,04E-03	1,91E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GWP-luluc kg CO2 eq.	ND	ND	ND	7,24E-05	1,04E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ODP kg CFC11 eq.	ND	ND	ND	2,85E-09	4,69E-10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AP mol H+ eq.	ND	ND	ND	2,37E-03	7,04E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-fresh water kg P eq.	ND	ND	ND	6,47E-06	1,72E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-marine kg N eq.	ND	ND	ND	4,91E-04	2,40E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EP-terrestrial mol N eq.	ND	ND	ND	6,42E-03	2,56E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POCP kg NMVOC eq.	ND	ND	ND	1,49E-03	1,06E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-minerals & metals kg Sb eq.	ND	ND	ND	2,17E-07	6,78E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ADP-fossil MJ, net calorific value	ND	ND	ND	3,17E+00	3,06E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WDP m3 world eq. Deprived	ND	ND	ND	2,03E-02	1,44E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- GWP-total = Global Warming Potential total
- GWP-fossil = Global Warming Potential fossil fuels
- GWP-biogenic = Global Warming Potential biogenictotal
- GWP-luluc = Global Warming Potential land use and land use change
- ODP = Depletion potential of the stratospheric ozone layer
- AP = Acidification Potential, Accumulated Exceedence
- 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 Exceedence
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- ADP-minerals & metals = Abiotic Depletion Potential for non-fossil resources [1]
- ADP-fossil = Abiotic Depletion for fossil resources potential [1]
- WDP = Water (user) deprivation potential, deprivation-weighted water consumption [1]

Disclaimer [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 experience with the indicator.



ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

Unit		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	ND	ND	ND	1,26E-08	1,76E-09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
IRP	kBq U235 eq.	ND	ND	ND	1,59E-02	1,54E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETP-fw	CTUe	ND	ND	ND	6,57E-01	1,51E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-c	CTUh	ND	ND	ND	9,45E-11	9,70E-12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HTP-nc	CTUh	ND	ND	ND	7,23E-09	2,16E-10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SQP	-	ND	ND	ND	4,82E-01	1,98E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- PM = Potential incidence of disease due to PM emissions
- IRP = Potential Human exposure efficiency relative to U235 [1]
- ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
- HTP-c = Potential Comparative Toxic Unit for humans, cancer [2]
- HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
- SQP = Potential soil quality index [2]

Disclaimer [1]:

- This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste.

Disclaimer [2]:

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

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 en A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	ND	ND	ND	3,91E-04	1,95E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NHWD	kg	ND	ND	ND	1,95E-03	1,64E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RWD	kg	ND	ND	ND	9,59E-03	9,94E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CRU	kg	ND	ND	ND	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MFR	kg	ND	ND	ND	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MER	kg	ND	ND	ND	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EEE	MJ	ND	ND	ND	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETE	MJ	ND	ND	ND	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- HWD = Hazardous Waste Disposed
 NHWD = Non Hazardous Waste Disposed
 RWD = Radioactive Waste Disposed
 CRU = Components for reuse
 MFR = Materials for recycling
 MER = Materials for energy recovery
 EEE = Exported Electrical Energy
 ETE = Exported Thermal Energy

RESOURCE USE per functional unit or declared unit (A1 and A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	ND	ND	ND	1,08E-01	4,74E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERM	MJ	ND	ND	ND	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PERT	MJ	ND	ND	ND	1,08E-01	4,74E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRE	MJ	ND	ND	ND	3,17E+00	3,06E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRM	MJ	ND	ND	ND	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PENRT	MJ	ND	ND	ND	3,17E+00	3,06E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SM	kg	ND	ND	ND	2,73E-02	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RSF	MJ	ND	ND	ND	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NSRF	MJ	ND	ND	ND	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FW	m3	ND	ND	ND	7,64E-01	4,82E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- PERE = Use of renewable primary energy excluding renewable primary energy 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 resources excluding non-renewable 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
- NSRF = Use of non-renewable secondary fuels
- FW = Use of net fresh water

BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 and A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
BBCpr	kg C	ND	ND	ND	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BCCpa	kg C	ND	ND	ND	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- BCCpr = Biogenic carbon content in product
- BCCpa = Biogenic carbon content in packaging

CALCULATION RULES

This EPD is an averaged EPD generated based on the worst-case averaging methodology described in the B-EPD PCR.

Using this method, the worst impact value (out of the grouped products) for every impact category/module is declared.

Data quality

Data quality of the LCA-model has been assessed based on EN15804+A2 and is performed in accordance with ISO14040:2006. Quality assessment was based on the system defined in EN15804+A2 - Table E.1.

The overall verdict of the data quality assessment is.

Geographical = Good. In the worst case, data was "average data from larger area in which the area under study is included" (good). In all other cases, data has been classified as very good.

Technological = Good. Datasets selected represent the processes and products under study. However, as it is hard to determine if technology used was truly identical, the conservative choice has been made to classify no data as very good. All datasets however meet the criteria of good, being: "Data from processes and products under study (with similar technology)."

Time = Very Good. Less than 3 years of difference between the reference year (see Table 1 1) and validity of ecoinvent database.

Data collection period

The dataset is representative for the production processes used in 2023.

Methodology and reproducibility

The process descriptions and quantities in this study are reproducible in accordance to the reference standards that have been used. The references of all sources, both primary and public sources and literature, have been documented. In addition, to facilitate the reproducibility of this LCA, a full set of data records has been generated."

Cut Off

In this study, all inputs and outputs - such as emissions, energy and material inputs - are included in the calculation. The contribution to each impact category by the capital goods is calculated to be no more than 5%.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

"A1. Raw materials supply

All materials needed for production are taken into account.

A2. Transport of raw materials to manufacturer

The transportation of the suppliers to production facilities is included.

A3. Manufacturing

All relevant production processes in phase A3, including internal transport and potential production losses, have been included in this study.

Electricity mix used is a: residual mix (EcoPlatform - Table 2 - Case 3A)

For the electricity mix a medium voltage market for dataset has been selected based on the country of origin (production facility). These are:

"Electricity, medium voltage {BE}| electricity, medium voltage, residual mix | Cut-off,

U" - 0,203 kg CO2 eq./kWh

A4. Transport to Installation

Transport from production site to installation/construction site according to B-EPD PCR, which is:

- 100 km * 75% mass * 100% Lorry 16-32 ton (EURO 5)

- 100 km * 25% mass * 100% Lorry >32 ton (EURO 5)

- 100 km * 25% mass * 90% Lorry 16-32 ton (EURO 5)

- 100 km * 25% mass * 10% Lorry 7.5-26 ton (EURO 5)

Biogenic carbon content	Unit (expressed per functional unit or per declared unit) in kg C
Biogenic carbon content in product	0
Biogenic carbon content in accompanying packaging	0
Note: 1 kg biogenic carbon (C) is equivalent to 44/12 kg CO ₂	

DECLARATION OF SVHC

Substances of Very High Concern (SVHC) that are listed on the 'Candidate List of Substances of Very High Concern for authorization' are declared when contents exceed the limits for registration with ECHA.

REFERENCES

ISO 14025: Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures', International Organization for Standardization, ISO14025:2006

ISO 14040: Environmental management - Life cycle assessment – Principles and Framework', International Organization for Standardization, ISO14040:2006

ISO 14044: Environmental management - Life cycle assessment - Requirements and guidelines', International Organization for Standardization, ISO14044:2006

EN 15804: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products', I.S. EN 15804:2012+A1:2013 and EN 15804:2019+A2

EN 16908: Cement and building lime - Environmental product declarations - Product category rules complementary to EN 15804. NEN

B-EPD. (2022). B-EPD – Construction Product Category Rules Version 18.10.2022. B-EPD. NEN. (2022)

EPLCA. (2025, 10 22). Environmental Footprint reference packages. Retrieved from <https://eplca.jrc.ec.europa.eu/LCDN/developerEF.html>

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