epd-norge
Global program operatør

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Industrisement, Kjøpsvik - CEM II/A-L 42,5 R

Heidelberg Materials

The Norwegian EPD Foundation

Owner of the declaration
Heidelberg Materials Sement Norge AS

Product
Industrisement, Kjøpsvik - CEM II/A-L 42,5 R

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
The Norwegian EPD Foundation

Declaration number
NEPD-11501-11421

Registration number
NEPD-11501-11421

Issue date
23.06.2025

Valid to
23.06.2030

EPD software:
LCA.no EPD generator ID: 1029202

General information

Product

Industrisement, Kjøpsvik - CEM II/A-L 42,5 R

Program operator

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-norge.no

Declaration number

NEPD-11501-11421

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 Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Declared unit

1 tonne Industrisement, Kjøpsvik - CEM II/A-L 42,5 R

Declared unit with option

A1-A3, A4

Functional unit

General information on verification of EPD from EPD tools

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

Verification of EPD tool

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier

Ellen Soldal, Norsus AS

(no signature required)

Owner of the declaration

Heidelberg Materials Sement Norge AS
Contact person: Ingrid Vik Jondahl
e-mail: ingridvik.jondahl@heidelbergmaterials.com

Manufacturer

Heidelberg Materials Sement Norge AS
Lilleakerveien 2A
0283 Oslo, Norway
Contact person: Ingrid Vik Jondahl
e-mail: ingridvik.jondahl@heidelbergmaterials.com
Phone:

Place of production

Pr. Site Heidelberg Materials - Kjøpsvik
Behrens vei 15
8590 Kjøpsvik, Norway

Management system

ISO 14001, ISO 9001

Organisation no

934 949 145

Issue date

23.06.2025

Valid to

23.06.2030

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.

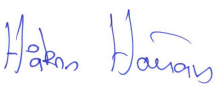
Development and verification of EPD

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.

Developer of EPD Ingrid Vik Jondahl

Reviewer of company-specific input data and EPD Petter Thyholdt

Approved



Håkon Hauan, CEO EPD-Norge

Product

Product description

Industrisement is a special cement adapted to Norwegian construction practice for winter work. The cement makes it possible to carry out casting work during the winter in Norway in a rational and economical way. With its rapid strength development, it is also suitable for use in the production of concrete elements and concrete products.

Product specification

Portland-limestone cement

Materials	Value	Unit
Clinker	80-94	%
Limestone	6-20	%
Gypsum	0-7	%
Minor constituent	0-5	%

Technical data

CEM II/A-L 42,5 R
Further information is available at https://www.sement.heidelbergmaterials.no/en

Market

Norway, Europe

Reference service life, product

Dependent on area of use.

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 Industrisement, Kjøpsvik - CEM II/A-L 42,5 R

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.

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. The standard's guidelines are also applied to co-products. If the allocation factor is 1% or less, economic allocation is deemed negligible and therefore omitted. Additionally, where relevant, the processing and transportation of co-products are included in the analysis.

Data quality

Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

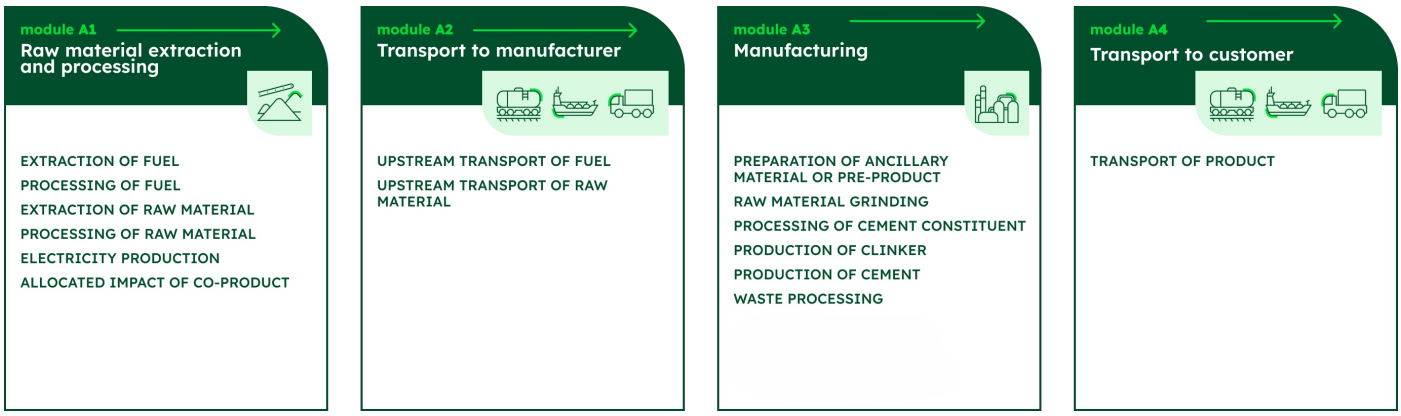
Materials	Source	Data quality	Year
Additives	ecoinvent 3.10	Database	2023
Explosives	ecoinvent 3.10	Database	2023
Gypsum	ecoinvent 3.10	Database	2023
Materials	LCA.no	Database	2024
Others	LCA.no	Database	2024
Vegetable oil	ecoinvent 3.10.1	Database	2023

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 The construction process stage includes: - Module A4: Transport



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 cement boat over a distance of 100 km.
Different distances can be deviated from this scenario by a proportional conversion, all transport distances from the plant to the different silos are published under https://www.sement.heidelbergmaterials.no/no/Bruksbetingelser#ankertransport

Transport from production place to user (A4)	Capacity utilisation, incl. return (%)	Distance (km)	Fuel/Energy Consumption	Unit	Value (l/t)
Transport|Ship, Cement boat|km|HM|2016	50,0 %	100	0,005	l/tkm	0,50

LCA, Results

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

Environmental impact				
Indicator		Unit	A1-A3	A4
	GWP-total	kg CO_2 -eq	6,13E+02	1,54E+00
	GWP-fossil	kg CO_2 -eq	6,14E+02	1,54E+00
	GWP-biogenic	kg CO_2 -eq	-5,83E-01	3,14E-04
	GWP-luluc	kg CO_2 -eq	2,66E-02	5,94E-04
	ODP	kg CFC11 -eq	2,33E-06	3,00E-07
	AP	mol H+ -eq	1,24E+00	4,64E-02
	EP-FreshWater	kg P -eq	2,08E-02	4,30E-06
	EP-Marine	kg N -eq	4,77E-01	1,04E-02
	EP-Terrestial	mol N -eq	5,22E+00	1,17E-01
	POCP	kg NMVOC -eq	1,31E+00	3,03E-02
	ADP-minerals&metals[1]	kg Sb-eq	2,60E-03	6,50E-06
	ADP-fossil[1]	MJ	3,24E+03	1,98E+01
	WDP[1]	m^3	1,94E+02	4,41E+00

GWP-total = Global Warming Potential total; 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: 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

The core GWP indicators declared do not include the emissions from the combustion of waste fuels (GWP, net). The waste status of the waste-based fuels has been proven. The GWP indicators including the emissions from the combustion of waste fuels (GWP, gross) are reported separately in this EPD under "Additional Environmental Information".

Additional environmental impact indicators				
Indicator		Unit	A1-A3	A4
	PM	Disease incidence	7,35E-06	0,00E+00
	IRP[2]	kgBq U235 -eq	2,36E+00	8,63E-02
	ETP-fw[1]	CTUe	4,28E+02	1,03E+01
	HTP-c[1]	CTUh	8,54E-08	0,00E+00
	HTP-nc[1]	CTUh	6,57E-07	0,00E+00
	SQP[1]	dimensionless	2,08E+02	2,53E+00

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	5,60E+02	9,78E-02
	PERM	MJ	0,00E+00	0,00E+00
	PERT	MJ	5,60E+02	9,78E-02
	PENRE	MJ	1,79E+03	1,98E+01
	PENRM	MJ	0,00E+00	0,00E+00
	PENRT	MJ	1,79E+03	1,98E+01
	SM	kg	5,91E-02	0,00E+00
	RSF	MJ	6,87E+02	3,76E-03
	NRSF	MJ	1,16E+03	2,57E-02
	FW	m^3	3,89E+00	5,59E-04

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	2,46E+01	6,35E-04
	NHWD	kg	1,06E+02	2,80E-02
	RWD	kg	1,33E-03	1,40E-04

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	5,49E-03	0,00E+00
	MER	kg	7,91E-05	0,00E+00
	EEE	MJ	1,93E-04	0,00E+00
	EET	MJ	2,92E-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	4,25E-02
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

Greenhouse gas emissions from the use of electricity in the manufacturing phase

Electricity consumption during the manufacturing phase is modelled considering the below specified parameters.

Electricity mix	Source	Amount	Unit
EL|Location based|kWh|NO|2023	ecoinvent 3.10.1	18,29	g CO2-eq/kWh

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products			
Indicator	Unit	A1-A3	A4
GWPIOBC	kg CO_2 -eq	6,14E+02	1,54E+00

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.

Additional GWP indicators in accordance with cPCR and more transparent reporting related to CCS		
Indicator	Unit	A1-A3
GWP-total, gross	kg CO2 -eq	7,09E+02
GWP-fossil, gross	kg CO2 -eq	7,10E+02
GWP-biogenic, gross	kg CO2 -eq	-5,83E-01
GWP-luluc, gross	kg CO2 -eq	2,66E-02
GWP-total, net	kg CO2 -eq	6,13E+02
GWP-fossil, net	kg CO2 -eq	6,14E+02
GWP-biogenic, net	kg CO2 -eq	-5,83E-01
GWP-luluc, net	kg CO2 -eq	2,66E-02
CWRS	kg CO2 -eq	0,00E+00
CWNRS	kg CO2 -eq	9,59E+01
CC	kg CO2 -eq	4,36E+02
CCS	kg CO2	0,00E+00

GWP-total, gross = Global Warming Potential total, gross (GWP-fossil, gross + GWP-biogenic, gross + GWP-luluc); GWP-fossil, gross = Global Warming Potential fossil fuels, 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 (GWP from secondary fuels' combustion considering CH4 bio emissions); CWNRS = Emissions from combustion of waste from non-renewable sources (GWP from secondary fuels' combustion CO2 fossil, CO fossi, N2O and CH4 bio fossil); GWP-fossil, net = Global Warming Potential fossil fuels, net (GWP-fossil, gross minus CWNRS); GWP-biogenic, net = Global Warming Potential, CC = Emissions from decarbonization of limestone in clinkering (process emissions, clinker), CCS = Carbon capture and storage

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