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# Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

## CEM II/A-LL 52.5 R Industricement Slite



Heidelberg Materials

**Owner of the declaration**
Heidelberg Materials Cement Sverige AB

**Product**
CEM II/A-LL 52.5 R Industricement Slite

**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

EPD-Global

**Program operator**
EPD-Global

**Declaration number**
NEPD-11494-11388

**Issue date**
23.06.2025

**Latest revision**
v1.0 Date: 31.08.2026

**Valid to**
23.06.2030

**EPD software:**
LCA.no EPD generator ID: 1746113

## General information

**Product**

CEM II/A-LL 52.5 R Industricement Slite

**Program operator**

EPD-Global
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-global.com

**Declaration number**

NEPD-11494-11388

**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 CEM II/A-LL 52.5 R Industricement Slite

**Declared unit with option**

A1-A3, A4

**Functional unit**

1 tonne CEM II/A-LL 52.5 R Industricement Slite

**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-Global'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-Global, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Global'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 EPD-Global'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 Cement Sverige AB
Contact person: Åsa Nilsson
e-mail: asa.nilsson@heidelbergmaterials.com

**Manufacturer**

Heidelberg Materials Cement Sverige AB
Marieviksgatan 25, Box 47210
SE-100 74 Stockholm, Sweden
Contact person: Åsa Nilsson
e-mail: asa.nilsson@heidelbergmaterials.com
Phone: +46 (0)708-36 15 58

**Place of production**

Slite plant
Sweden

**Management system**

ISO 9001:2015 and ISO 14001:2015

**Organisation no**

556013-5864

**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 not viewed in a building context.

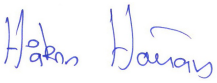
**Development and verification of EPD**

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-Global.

Developer of EPD Åsa Nilsson

Reviewer of company-specific input data and EPD Yahya Ghasemi

**Approved**



Håkon Hauan, CEO EPD-Global

## Product

### Product description

Industricementt is a Limestone-Portland cement for general purpose. The application of cement has a large variety. It is mainly used as a binder for concrete and mortar. The application in concrete is regulated in /EN 206/.
According to this standard, general suitability is established for cement conforming to /EN 197-1/

### Product specification

CEM II/A-LL

| Material | Value | Unit |
|---|---|---|
| Clinker | 80-94 | % |
| Limestone | 6-20 | % |
| Gypsum | 0-5 | % |
| Other | 0-5 | % |

### Technical data

More information at https://www.cement.heidelbergmaterials.se/sv/industricement-slite

### Market

Sweden (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 poducts 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 CEM II/A-LL 52.5 R Industricement Slite

### 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

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. For co-products, an economic allocation is carried out. Furthermore, the processing, when applicable, and transportation of the co-product are included in this 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 in accordance with EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

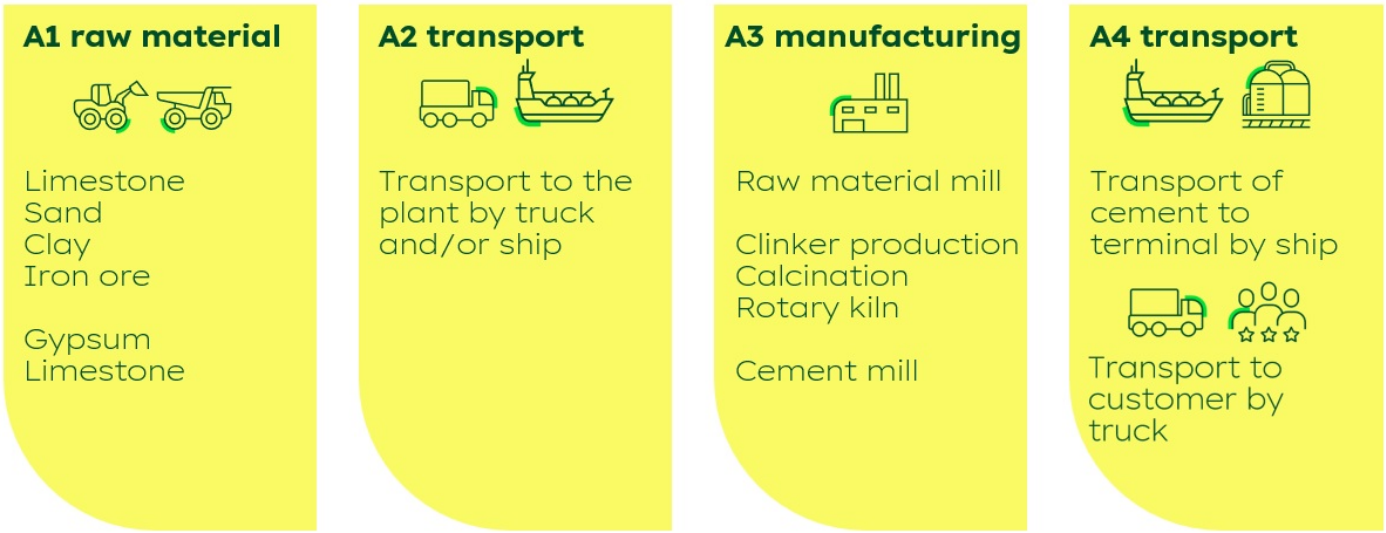
| Materials | Source | Data quality | Year |
|---|---|---|---|
| Additives | ecoinvent 3.10.1 | Database | 2023 |
| Additives | LCA.no | Database | 2024 |
| Aggregate | ecoinvent 3.10.1 | Database | 2023 |
| Aggregate | LCA.no | Database | 2024 |
| Aggregate | Modified ecoinvent 3.11 | Database | 2024 |
| Bypass dust | Supplier specific | Supplier | 2024 |
| Chemical | ecoinvent 3.10.1 | Database | 2023 |
| Emissions and waste streams | LCA.no | Database | 2024 |
| Gypsum | LCA.no | Database | 2024 |
| Limestone | ecoinvent 3.10.1 | Database | 2023 |
| Materials | LCA.no | Database | 2024 |
| Others | LCA.no | Database | 2024 |
| Primary fuel | ecoinvent 3.10.1 | Database | 2023 |
| Secondary material | LCA.no | Database | 2024 |

## 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 | MNR | MNR | MNR | MNR | MNR | MNR | MNR | MNR | MNR | MNR | MNR | MNR | MNR |

**System boundary**

From raw material extraction to market




**Additional technical information**

## LCA Scenarios and additional technical information

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

The A4-part (transport) in "LCA: Results" was calculated as a weighted mean value of the ship transport of cement from Slite to all the terminals in Sweden and an assumption of 100 km transport with truck to the customer.

A4 results from ship transport from Slite to the most used terminals in Sweden are as follows:

Luleå 8,3 kg CO2-eq per ton cement
Stockholm 2,3 kg CO2-eq per ton cement
Malmö 4,9 kg CO2-eq per ton cement

| 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\|GLO | 50.0 % | 293.00 | 0.005 | l/tkm | 1.47 |
| Transport\|Truck, over 32 tonnes, EURO 6\|km\|RER\|2023 | 55.0 % | 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.

| Environmental impact | | | | |
|---|---|---|---|---|
| Indicator | | Unit | A1-A3 | A4 |
| | GWP-total | kg $CO_2$ -eq | 6.05E+02 | 1.49E+01 |
| | GWP-fossil | kg $CO_2$ -eq | 6.04E+02 | 1.49E+01 |
| | GWP-biogenic | kg $CO_2$ -eq | 7.09E-01 | 7.63E-03 |
| | GWP-luluc | kg $CO_2$ -eq | 7.03E-02 | 5.77E-03 |
| | ODP | kg CFC11 -eq | 9.15E-07 | 1.08E-06 |
| | AP | mol H+ -eq | 1.07E+00 | 1.60E-01 |
| | EP-FreshWater | kg P -eq | 5.93E-02 | 7.35E-04 |
| | EP-Marine | kg N -eq | 3.61E-01 | 3.69E-02 |
| | EP-Terrestial | mol N -eq | 4.15E+00 | 4.12E-01 |
| | POCP | kg NMVOC -eq | 1.09E+00 | 1.31E-01 |
| | ADP-minerals&metals[1] | kg Sb-eq | 1.69E-01 | 4.86E-05 |
| | ADP-fossil[1] | MJ | 3.02E+03 | 2.13E+02 |
| | WDP[1] | $m^3$ | 2.48E+01 | 1.37E+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

The LCA results in the EPD are calculated using a specific methodological approach for accounting energy resources, see the additional requirements section for more information. In this EPD the following approach was used: Market-based approach.

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 | 6.98E-06 | 1.00E-06 |
|  | IRP[2] | kgBq U235 -eq | 9.87E+01 | 4.40E-01 |
|  | ETP-fw[1] | CTUe | 4.31E+02 | 4.85E+01 |
|  | HTP-c[1] | CTUh | 2.05E-08 | 0.00E+00 |
|  | HTP-nc[1] | CTUh | 1.39E-06 | 1.00E-07 |
|  | SQP[1] | dimensionless | 8.93E+02 | 1.64E+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 | 2.27E+02 | 2.82E+00 |
|  | PERM | MJ | 0.00E+00 | 0.00E+00 |
|  | PERT | MJ | 2.27E+02 | 2.82E+00 |
|  | PENRE | MJ | 3.02E+03 | 2.13E+02 |
|  | PENRM | MJ | 6.81E-01 | 0.00E+00 |
|  | PENRT | MJ | 3.02E+03 | 2.13E+02 |
|  | SM | kg | 2.49E+01 | 0.00E+00 |
|  | RSF | MJ | 7.74E+02 | 1.19E-02 |
|  | NRSF | MJ | 1.05E+03 | 7.53E-02 |
|  | FW | $m^3$ | 1.11E+00 | 2.46E-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 | 1.59E+01 | 2.27E-01 |
| | NHWD | kg | 2.94E+02 | 4.58E+00 |
| | RWD | kg | 2.10E-02 | 4.57E-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 | 8.04E-01 | 0.00E+00 |
| | MER | kg | 7.45E-10 | 0.00E+00 |
| | EEE | MJ | 1.91E-05 | 0.00E+00 |
| | EET | MJ | 1.82E-05 | 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 table below presents GWPtotal values for energy resources used in the manufacturing phase (A3), calculated with both the location-based and market-based approach. This information is provided for transparency, allowing EPD users to understand the impact of these methodological choices. In this EPD, the following methodology was used in the main results: Market-based approach.

| Electricity mix | Source | Amount | Unit | GWPtotal [kg CO2/Unit] | SUM [kg CO2] |
|---|---|---|---|---|---|
| **Location-based approach.** | | | | | |
| Electricity, Sweden, low voltage (kWh) | ecoinvent 3.10.1 | 1.08E+02 | kWh | 3.77E-02 | 4.09E+00 |
| **Market-based approach.** | | | | | |
| Electricity, Sweden, low voltage, residual mix | ecoinvent 3.10.1 | 5.42E+01 | kWh | 6.55E-02 | 3.55E+00 |

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

### Dangerous substances

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

### Indoor environment

Not relevant

## 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 | 6.05E+02 | 1.49E+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.

| 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 | 6.97E+02 |
| GWP-fossil, gross | kg $CO_2$ -eq | 6.96E+02 |
| GWP-biogenic, gross | kg $CO_2$ -eq | 7.11E-01 |
| GWP-luluc, gross | kg $CO_2$ -eq | 7.03E-02 |
| GWP-total, net | kg $CO_2$ -eq | 6.05E+02 |
| GWP-fossil, net | kg $CO_2$ -eq | 6.04E+02 |
| GWP-biogenic, net | kg $CO_2$ -eq | 7.09E-01 |
| GWP-luluc, net | kg $CO_2$ -eq | 7.03E-02 |
| CWRS | kg $CO_2$ -eq | 2.04E-03 |
| CWNRS | kg $CO_2$ -eq | 9.21E+01 |
| CC | kg $CO_2$ | 4.31E+02 |
| CCS | kg $CO_2$ | 0.00E+00 |

GWP-total, gross = Global Warming Potential total, gross (GWP-fossil, gross + GWP-biogenic, gross + GWP-luluc); GWP-total, net = Global Warming Potential total, net (GWP-fossil, net + GWP-biogenic, net + GWP-luluc); GWP-fossil, gross = Global Warming Potential fossil fuels, gross (includes emissions from combustion of waste fuels from non-renewable sources); GWP-fossil, net = Global Warming Potential fossil fuels, net (excludes emissions from combustion of waste fuels from non-renewable sources); GWP-biogenic, gross = Global Warming Potential biogenic, gross (includes emissions from combustion of waste fuels from renewable sources); GWP-biogenic, net = Global Warming Potential biogenic, net (excludes emissions from combustion of waste fuels from renewable sources); GWP-luluc = Global Warming Potential land use and land use change; CWRS = Emissions from combustion of waste from renewable sources; CWNRS = Emissions from combustion of waste from non-renewable sources; 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

| Transparent reporting of co-product emission intensity | | |
|---|---|---|
| **Material** | **GWPtotal kg $CO_2$ per kg material** | **GWPIOBC kg $CO_2$ per kg material** |
| Bypass dust | 1.25E-01 | 1.25E-01 |

The emission intensity of all co-products used in the product recipe are reported as kg CO2-eq per kg material for the indicators GWP-total and GWP-IOBC . The emission intensity per co-product is the same for GWPtotal gross and net indicators.

## Bibliography


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| epd-global Powered by EPD-Norway | **Program operator and publisher**<br>EPD-Global<br>Postboks 5250 Majorstuen, 0303 Oslo, Norway | Phone:<br>e-mail:<br>web: | +47 977 22 020<br>post@epd-norge.no<br>www.epd-global.com |
| Heidelberg Materials | **Owner of the declaration**<br>Heidelberg Materials Cement Sverige AB<br>Marieviksgatan 25, Box 47210, SE-100 74 Stockholm, Sweden | Phone:<br>e-mail:<br>web: | +46 (0)708-36 15 58<br>asa.nilsson@heidelbergmaterials.com |
| Heidelberg Materials | **Manufacturer**<br>Heidelberg Materials Cement Sverige AB<br>Marieviksgatan 25, Box 47210, SE-100 74 Stockholm, Sweden | Phone:<br>e-mail:<br>web: | +46 (0)708-36 15 58<br>asa.nilsson@heidelbergmaterials.com |
| LCA.no | **Author of the Life Cycle Assessment**<br>LCA.no AS<br>Dokka 6A, 1671 Kråkerøy, Norway | Phone:<br>e-mail:<br>web: | +47 916 50 916<br>post@lca.no<br>www.lca.no |
| LCA.no | **Developer of EPD generator**<br>LCA.no AS<br>Dokka 6A, 1671 Kråkerøy, Norway | Phone:<br>e-mail:<br>web: | +47 916 50 916<br>post@lca.no<br>www.lca.no |
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